

Blackwell's Five-Minute Veterinary Consult
Clinical Companion



Canine & Feline Behavior



Debra F. Horwitz & Jacqueline C. Neilson

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Debra F. Horwitz, DVM

Diplomate the American College of Veterinary Behaviorists

Jacqueline C. Neilson, DVM

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Blackwell Publishing Ltd
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Blackwell Publishing Asia
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Dedication

To my husband, Eugene, who has always been my biggest supporter and to my children, Jeff, Laura, and Ben, and all my pets and clients' pets who have taught me so much.

Debbie

To everyone who celebrates the joys and embraces the commitments of sharing their life with a pet; to my personal pets—past, present, and future—for teaching me daily lessons and filling my life with beauty, love, and wonder; to my parents, Pat and John, for always believing in me; and to my husband, Mike, for his love, his tolerance, his patience, and his support of my passion: animals and their people.

Jacqui

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Preface



Blackwell's Five-Minute Veterinary Consult Clinical Companion: Canine and Feline Behavior is designed as a quick reference guide for the general veterinary practitioner and students of veterinary medicine. There are several other excellent works on ethology and clinical behavioral medicine that focus on theory, diagnosis, and treatment approaches. These books provide a wealth of information and are vital to the understanding of these complex conditions. However, these books do not necessarily lend themselves to the practical application of veterinary behavior in the workplace. When faced with an owner concern, the veterinarian needs a quick, easily accessed reference guide to lead them down the right path.

Behavioral problems kill more pets in the United States than any single infectious disease process. Pets get abandoned, relinquished, abused, and neglected secondary to behavioral problems. When seeking solutions, clients often consult a wide variety of sources ranging from the Internet to qualified professionals. The information they may receive is as varied as the sources; it may be good information or ineffective, outdated, and dangerous information. As a reliable and educated source, it is imperative that veterinarians help guide their clients in the right direction; lives can be saved and relationships improved. This book will augment that process, by making the information readily available in a practical and simple format.

This book is designed to address the typical problem behaviors that owners face with their pets every day. It does not go into depth regarding the theory/background of certain conditions. It does not cover rare, complex conditions, and it may not address every possible treatment modality for those patients who are atypical responders. To accomplish all those tasks would have defeated the purpose of this book. If the clinician encounters difficult cases or they desire additional information, they may elect to refer the case to a board-certified veterinary behaviorist or expand their knowledge by pursuing the references listed in the suggested readings.

As authors, our hope is that this book will encourage veterinary clinicians to embrace veterinary behavior in their practices. This book should make it a feasible goal. Clients, patients, and therefore the veterinarian and their staff will all end up better for their efforts.

Debra Horwitz
Jacqueline Neilson

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Dr. Leslie Larson Cooper

Dr. Katherine Albro Hought

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Dr. Tracy Kroll

Dr. Gary Landsberg

Dr. Ellen M. Lindell

Dr. Karen L. Overall

Dr. Marsha Reich

Dr. Lynne Seibert

Dr. Barbara S. Simpson

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Introduction



Recently pets have become more numerous than people in the United States; 360 million pets owned by 300 million people. There is no question that they are an integral part of family life. Yet often the behaviors of the family pets cause their human family great distress. Increasingly veterinarians have been called upon to help in these situations. This handbook has been designed to help the general veterinary practitioner assist their clients in resolving their pets' problem behaviors.

This book is designed to fit into the busy veterinary practice day by being a quick reference text for the veterinarian and their staff. Excellent detailed reference books exist that provide detailed information on animal behavior and resolution of behavior problems. This text was designed to be a handbook that enabled the information to be readily available in the workplace.

In keeping with the *Five-Minute Veterinary Consult* format, this book is organized in an alphabetical fashion allowing the clinician to quickly access a topic. Each chapter provides an overview, signalment and history, historical information, pertinent questions to ask to ascertain diagnosis, and detailed therapeutic plans. Therapeutic plans include safety recommendations, management advice, behavioral modification techniques, and accompanying handouts. Sections on medication and client education as well as prognosis help the practitioner give complete advice. Finally, appendices contain more detailed information on pharmacological interventions, assessing prognosis in aggressive dogs, learning principles and behavior modification, a general history form, and handouts. For ease of use, a CD is included to allow easy printing of handouts to give to clients.

It is our hope that this information will allow more veterinarians to add behavior to their practice repertoire and help owners keep their pets in their homes.

Debra Horwitz
Jacqueline Neilson

Acral Lick Dermatitis: canine



DEFINITION/OVERVIEW

Acral lick dermatitis features raised, ulcerative, firm plaques usually located on the limbs, primarily the carpus and metacarpus. This condition may also be found on the cranial radius, metatarsus, and tibia.



■ **Fig. 1-1** Dog with acral lick granuloma on forepaw.



ETIOLOGY/PATHOPHYSIOLOGY

- Behavioral (This chapter will focus primarily on the behavioral aspects of the disease. Please consult other sources such as *The Five-Minute Veterinary Consult Clinical Companion Small Animal Dermatology* for the dermatological aspects.)
- Trauma
- Neoplasia
- Infection
- Foreign body
- Arthritis



SIGNALMENT/HISTORY

- Primarily recognized in dogs
- Common in large breeds such as Labrador retrievers, weimaraners, golden retrievers, English and Irish setters, Dalmatians, Dobermans, and Great Danes
- Age of onset varies
- No clear sex predilection noted

Historical Findings

- May be associated with persistent attention-seeking behaviors
- May be associated with concurrent fears and anxieties such as separation anxiety, noise phobias, and anxiety-related aggression
- Limited outlets for normal canid activities and breed predilections
- Response to social stress or environmental stress
- Dog licks repetitively at lesion site

Contributing/Risk Factors

None specifically known but the following are suspected:

- Large working breed dogs
- Inconsistent owner responses to social interactions and behaviors
- Nonspecific anxieties
- Separation anxiety
- Noise phobias
- Fear-based conditions
- Inadequate environmental stimuli, activities, and social interactions
- Concurrent dermatological disease

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the dog.

- Obtain information about the environment, daily interactions, and daily routine.
 - Pet response to owner departure and return to screen for separation anxiety
- Obtain information about the pet's daily exercise, including type, frequency, and duration.
 - Is time set aside daily for walks, play, and social interactions?
- Obtain a detailed description of the problem behavior.
- What has been the time course and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
- What are the number of daily incidents and time spent engaging in the behavior?
 - If the problem interferes with function, it may be a compulsive disorder.
- Learn the owner's ability to interrupt the behavior and the rate and time course of return of the behavior.
- What are the eliciting stimuli, location, and/or circumstances in which the behavior occurs?
 - Do certain events appear to trigger licking?
 - Is the behavior an attention-seeking behavior and does it occur within sight of the owner or does the pet sneak away to lick?
- What is the owner's response to the behavior?
- What treatments have been tried and what was the response to those interventions?
 - Have verbal or physical reprimands been used, and if so, how did the pet respond?
 - Have medications been used, and if so, at what dosages and for how long? This may enable the clinician to determine if medications tried may have been useful, but not properly administered.
- Learn about any medical evaluations for the condition and response to any treatment interventions.



CLINICAL FEATURES

Dogs

- Most common in large breeds
- Excessive chewing and licking of affected area
- Occurs both when owner is present and may also occur at a high rate in owner absence
- Raised, ulcerative area, thickened, and without hair is characteristic
- Occasional history of trauma to the area

Cats

- Rarely seen in cats
- May have some overlap with persistent overgrooming disorders in cats that are associated with skin trauma (See Chapter 53, Psychogenic Alopecia/Overgrooming: feline.)



DIFFERENTIAL DIAGNOSIS

Dogs

- Allergic dermatitis: usually multiple lesions and concurrent pruritus
- Endocrinopathies, demodicosis, and dermatophyte infestation: laboratory testing to eliminate
- Arthritis
- Neoplasia
- Foreign body reaction
- Trauma
- Infection
- Compulsive disorder
- Separation anxiety
- Generalized anxiety



DIAGNOSTICS

- Clinical physical examination and neurological examination
- CBC/chemistry/urinalysis
- Thyroid profile
- ACTH stimulation or LDDST if hyperadrenocorticism suspected
- Imaging if arthritis or neoplasia suspected
- Skin scrapings, dermatophyte culture, bacterial culture, and sensitivity if indicated
- Food elimination diet for food allergy
- Allergy testing
- Biopsy
- Audiotaping or videotaping to verify or rule out separation anxiety as contributory

Pathological Findings

- Histopathology: ulcerative, hyperplastic epidermis



THERAPEUTICS

Management

- Prevention of licking using restraint devices is only recommended to allow healing and is not a long-term solution.
 - Does not address any underlying behavioral pathology

Behavioral Modification Techniques

- Perform environmental manipulation to reduce identified stressors.

- Maintain controlled and predictable interactions with humans.
- Restructure the pet-owner relationship: Create rules for interaction so the owner knows when and how to interact with their pet. (See the Structuring Your Relationship with Your Pet handout in Appendix D.)
 - In the beginning, all attention is initiated by the owner.
 - The pet can receive attention when it is calm and quiet.
 - The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
 - The owner calls the pet over, begins the attention session, and also ends it before the pet does.
 - Initially the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later if the animal requests the item by calmly sitting and waiting, it will be given.
- Teach the pet to be calm, settled, and relaxed on cue in a specific location. (See the Tranquility Training Exercises handout in Appendix D.)
 - For dogs, this may be “go to your bed and stay” or “head down” command.
 - For cats, this can be a specific location as well, such as a basket or bed.
- Create a reliable, predictable environment.
 - Provide regular feeding, play, walks, and grooming and interactive time.
 - To the best of their ability, the owner should strive to include these interactions in their daily routine and as close to the same time as possible.
- Identify and remove the triggers.
 - If specific triggers have been identified, then desensitization and counterconditioning to those triggers may be useful.
- Provide exercise and appropriate stimulation with toys.
 - Sufficient daily aerobic activity
- Ignore the problem behavior when it occurs or distract the animal with a noise and request an appropriate response such as “sit” or “come” and then immediately reward.
- Avoid all punishment or attention for the problem behavior.
- If separation anxiety is identified, specific therapies for separation anxiety should occur concurrently.

Accompanying Handouts

Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Antibiotics if infection present and based on culture and sensitivity

- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - Indicated for situations where there is unavoidable prolonged exposure to trigger stimulus
 - To be given on a daily schedule regardless of exposure to trigger stimuli
 - May take up to 4 weeks to achieve efficacy
 - To be continued for several months until the client has successfully completed the treatment regime and the pet has new well-established, desirable behaviors
 - TCAs: Side effects: sedation, anticholinergic, possible cardiac conduction disturbances if predisposed
 - Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine
 - Canine: 1–3 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Doxepin
 - Canine: 3–5 mg/kg PO q12h
 - SSRIs: side effects: inappetence, irritability, gastrointestinal signs
 - Fluoxetine:
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h
 - Paroxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h

Other Treatments

- Topical medications have been tried with limited efficacy.
- Use a diagnostic diet if food allergy is suspected.
- Use pheromone product (e.g., DAP—Dog Appeasing Pheromone®) Feliway® if anxiety is suspected as a component.

Contraindications/Precautions

- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.

- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Surgical Considerations

- Not first choice, often will exacerbate licking postsurgery



COMMENTS

- May be long-term problem and reoccurrence likely after resolution

Client Education

- Clients must realize recurrence is common.
- Problem may be managed, but not cured.
- Long-term changes in interaction and behavior modification may be necessary and may be lifelong.

Patient Monitoring

- Blood work is desirable prior to medication.

- Patients on long-term medication should have routine blood work every 6–12 months.

Prevention/Avoidance

- Proper pet-owner interactions are required.
- Enriched environment and appropriate activity may be preventative in some dogs.

Possible Complications

- All drug use is extra label; side effects are possible.
- If separation anxiety is a component of the problem but left untreated then treatment is less likely to be successful.

Expected Course and Prognosis

- Usually long-term therapy
- May wax and wane over time
- Monitoring licking and chewing level may allow intervention early in reoccurrences

See Also

Chapter 29, Compulsive Disorder: canine and feline overview

Chapter 45, Licking/Excessive

Chapter 53, Psychogenic Alopecia/Overgrooming: feline

Chapter 56, Separation Anxiety: canine and feline

Abbreviations

ACTH—adrenocorticotrophic Hormone

CBC—complete blood count

CNS—central nervous system

DAP—Dog Appeasing Pheromone®

FDA—Food and Drug Administration

h—hour

LDDST—low-dose dexamethasone suppression test

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

PO—by mouth

q—every

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

Suggested Reading

Kuhl, Karen, Jean S. Greek, and Karen Helton Rhodes. 2002. Acral Lick Dermatitis In: *The Five-Minute Veterinary Consult Clinical Companion Small Animal Dermatology* edited by Karen Rhodes, Baltimore: Lippincott, Williams & Wilkins, pp. 167–172.

- Luescher, Andrew U. 2002. Compulsive behaviour In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK: BSAVA, pp. 229–236.
- Virga, Vint. 2003. Behavioral Dermatology In: *Veterinary Clinics NA Small Animal* Vol. 33, edited by Katherine Houpt and Vint Virga, Philadelphia: Saunders, pp. 231–251.



DEFINITION/OVERVIEW

By definition, aggression includes a threat or harmful action directed to another. There are numerous functional types identified. In general they fall into one of two classes: offensive aggression or defensive aggression. Offensive aggression is an unprovoked attempt to gain some resource at the expense of another, and includes social status/dominance, intermale aggression, interfemale aggression, and predatory aggression. Defensive aggression is aggression by a victim toward another that is perceived as an instigator or threat, and includes fear-induced, conflict-aggression, territorial defense, protective, medical (pain/irritable), and maternal aggression.



ETIOLOGY/PATHOPHYSIOLOGY

- Aggression is a normal form of communication in dogs.
 - Aggression is not necessarily a pathological condition.
- Aggression may be an abnormal response given the context of the situation.
 - Pathology is not yet elucidated for many abnormal aggressive behaviors.
 - Areas of the brain involved in aggression include the hypothalamus, the limbic system, and the frontal cortex.
 - Altered serotonergic tone may contribute to aggressive behavior.
- Aggression may be influenced by genetics, experience, or, most likely, a combination of both.
- Aggression may be a manifestation of an organic condition.



SIGNALMENT/HISTORY

- Any age, gender, or breed can exhibit aggression.
- Age: Frequently aggressive behaviors are first noted in early adolescence (5–9 months of age), at sexual maturity, or at social maturity (12–24 months of age); however, it is common for owners to seek assistance later in the course of the problem.
- Breeds: Certain breeds of dogs may be predisposed to certain types of aggression since abnormal behaviors may be extremes of behaviors that were selectively bred. For example, guard dog breeds may be predisposed to territorial aggression and sight hounds may be predisposed to predatory aggression.

- Gender: Male dogs are overrepresented in certain types of aggression.
- It is critical to remember that no breed is immune from aggression and that breed-specific characterizations are not necessarily accurate. The size and strength of the dog may be more important than the actual breed.

Historical Findings

- Two different groups of aggressive dogs emerge—those that exhibit normal aggressive behavior and those that exhibit abnormal aggressive behavior.
- Dogs that exhibit normal aggression do so in circumstances that warrant aggression and are able to inhibit the aggression and modify their response based upon the relative threat.
- Dogs that exhibit abnormal aggressive behavior perceive threats where they do not exist and have trouble modifying their response to the threat as it changes.
- The abnormal dogs pose the greatest challenge and risk.

Contributing/Risk Factors

This list is not exhaustive; see specific chapters for risk factors associated with that type of aggression.

- Lack of proper socialization
- Negative/traumatic experience
- Chained in yard
- Unneutered
- Male
- Encouragement or training for aggression
- Dog resides in house with one or more children
- Aggressive lineage
- Any condition that causes pain/discomfort/irritability
- Any condition that affects neurological function

Pertinent Historical Questions

With every aggression case, it is important to assess the risk of keeping the dog in the home. Therefore, questions regarding opportunities for aggression (routine, lifestyle) and about the aggression itself are always critical. These will help the clinician to assess predictability of aggression, the potential of the pet to inflict damage on another, the complexity of the situation, and the abilities of the owner to manage the pet. While the clinician may delve into more details regarding aggression to make a diagnosis, the following questions apply to all aggression cases, as they will impact the very basic decision if the pet is safe to keep in the home.

- What is the household structure, including people and other pets?
 - For most dogs that exhibit aggression, the fewer people involved in daily interactions with the pet, the better. The presence of elderly or young people in the home usually adds risk to the situation. If the dog exhibits aggression to another pet in the home, this will need to be managed to prevent injury.

- What is the pet's 24-hour routine, including feeding, exercise, play, training, etc.?
 - This can help the clinician to identify specific areas of risk and gives the clinician an idea of household discipline or lack thereof.
- What is the household daily routine?
 - The daily routine will impact both safety concerns and provide insight into the feasibility of treatment recommendations.
- How is the pet confined/controlled in its home environment and when it leaves the home?
 - An aggressive animal will have to be managed to ensure safety. This historical information will allow the clinician to identify areas that need to be modified to address safety concerns.
- What is the owner's lifestyle (for example, highly social household, quiet household, etc.)?
 - In general, the more stable and predictable an environment, the better the prognosis for the aggressive dog.
- What are the owner's expectations of the pet and the lifestyle with the pet?
 - Most aggressive dogs will need to be under physical control of an adult owner at all times. For example, if the owner has expectations of their dog with interdog aggression hiking off leash in public parks, this is not a reasonable goal and the dog may inflict injury if the owner ignores the recommendations.
- What are the aggressive incidents: target, predictability, intensity, behavior of dog preaggression, during aggression, and postaggression?
 - This will help the clinician to determine if the aggression is normal or abnormal in nature and therefore assess risk of keeping the pet.
- What is the pet's wound history?
 - Normal dogs usually show significant bite inhibition (no bite or bite with no broken skin) unless unduly provoked.
 - Attacks with multiple, severe wounding bites indicate a very severe case.
- What is the owner's response to the aggression and the dog's reaction?
 - Allows clinician to identify responses that may have worsened condition such as direct interactive punishment.
- What is the size of the pet?
 - All sizes of dogs can inflict significant injury, however, bigger dogs can do more damage and be more difficult for owners to physically manage.



DIFFERENTIAL DIAGNOSIS

- Other conditions that may present with the clinical sign of aggression must be identified before a purely behavioral diagnosis can be made. These may include
 - developmental abnormalities (hydrocephaly, lissencephaly, hepatic shunts)
 - metabolic disorders (hypoglycemia, hepatic encephalopathy, diabetes)
 - neuroendocrinopathies (hypothyroidism)
 - neurologic conditions (intracranial neoplasm, seizures)

- toxins
 - inflammatory diseases (rabies)
 - pain
- If a behavioral diagnosis is reached, it is important to identify the underlying motivation for the aggression so that the treatment plan can be targeted. The following is a list of the different classifications of canine aggression. These categories are based primarily on the phenotypic description of the aggression and do not address the possible biochemical or molecular abnormalities that may or may not be present in these dogs. Hopefully with further research and the development of diagnostic protocols, we will be able to achieve a more specific diagnosis at the genotypic level.
- Conflict aggression
 - Social status aggression
 - Irritable aggression
 - Fear aggression
 - Interdog aggression
 - Protective aggression
 - Predatory aggression
 - Territorial aggression
 - Food-related aggression
 - Possessive aggression
 - Redirected aggression
 - Play aggression
 - Idiopathic aggression
 - Maternal aggression



DIAGNOSTICS

- Perform a complete physical and neurological examination.
- Take CBC, chemistry panel, thyroid evaluation, urinalysis; abnormalities may suggest metabolic or endocrine causes.
- Measure viral/tick titers if indicated by preliminary findings or likely exposure.
- More advanced laboratory tests (e.g., TSH stimulation test or ACTH-stimulation test) should be performed when initial diagnostics or examination indicate suspicion.
- Imaging may be used to identify areas of pain or cerebral neoplasia.
- A postmortem fluorescent antibody test should be performed on any aggressive dog for which rabies is a differential diagnosis.



THERAPEUTICS

- Therapy will be dependent upon the type of aggression diagnosed. However, in all cases of aggression, safety is a primary concern and risk assessment must be performed. The first tenet of management is to prevent human injury.

- Risk assessment may help the owner objectively evaluate the situation; all parties must understand that aggressive dogs are never cured, although sometimes the behavior can be managed successfully.
- Euthanasia is an appropriate measure in cases where safety of people or other pets is at significant continued risk.
- Recommend techniques to reduce human risk from the aggressive dog until the owner obtains treatment including the avoidance of triggers.
- Management success is often achieved with a combination of multiple modalities: environmental control, behavioral modification, pharmacotherapy.

Behavioral Modification Techniques

- Improve physical control of the dog using barriers (fences, baby gates), muzzles, leashes, and headcollars (e.g., Gentle Leader®).
- Avoid the use of punishment, which tends to escalate aggression.
- For most cases of aggression, it is appropriate to institute a clear rule-structure in the home. This can be done by implementing a command/reward relationship where the dog has to defer to the owner by performing a command prior to being given things such as attention, food, etc. (See Structuring Your Relationship with Your Pet handout in Appendix D for additional details.)



■ **Fig. 2-1** Dog wearing a soft nylon basket muzzle (Pro Guard Softie Muzzle™). There is a tough mesh screen at the front for airflow; the dog can open its mouth and pant but the bite is inhibited.

- In most cases of aggression, a desensitization and counterconditioning program is instituted with regard to the particular triggers for aggression.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Safety Recommendations for Aggressive Animals
Structuring Your Relationship with Your Pet
Teaching Your Pet to be Confined
Tranquility Training Exercises

Drugs

There are no drugs approved by the FDA for the treatment of canine aggression. Inform the client of the experimental nature of these treatments and the risk involved; document discussion in the medical record. Medications that alter neurotransmitter levels may be helpful in the treatment of aggression, especially if the observations and history suggest that there may be underlying anxiety. See specific chapters on aggression for recommendations.

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®) may be helpful in cases of aggression that exhibit underlying anxiety.
- High protein diets (30% or higher) should be avoided.
- Low protein diets (18%) may help reduce territorial and dominance aggression.

Contraindications/Precautions

- If the risk assessment determines that the dog is dangerous, euthanasia should be considered.

Surgical Considerations

- Neuter any intact aggressive animals; may reduce aggression and these animals are not suitable for breeding.



COMMENTS

Client Education

- Client education is paramount in understanding the limitations of treatment and the duty of owners to protect others.
- Aggression is never “cured”; at best, the treatment will reduce the likelihood that a dog will respond with aggression in certain situations.

Patient Monitoring

- Frequent follow-up with owners is recommended so that an objective assessment of risk can be made and questions answered.
- Weekly or bimonthly updates are suggested over the course of several months.

Prevention/Avoidance

- Pet selection: Select breed and bloodlines with stable, nonaggressive temperaments.
- Provide adequate and positive socialization experiences for the young puppy.
- Avoid traumatic experiences that may result in a defensive dog.
- Avoid inadvertently or purposely reinforcing aggressive behaviors.
- Avoid promoting aggressive behaviors (providing vantage points to patrol street, etc.).

Possible Complications

- Despite the best efforts, aggression may persist and injury result.
- Home composition may change (new baby, etc.) making safety recommendations difficult or impractical to implement.

Expected Course and Prognosis

- The behavior of the pet is unlikely to change rapidly. Instead, a gradual reduction of aggression should be evident over several months if the diagnosis and treatment plan are appropriate and fulfilled.
- Owner compliance may be less than ideal considering the time and changes required.
- The dog will not be “cured” of the aggressive behavior.
- A reasonable expectation is that the likelihood of aggression will be minimized for situations that currently elicit aggression.
- The owners will have to maintain a level of management to prevent risk of injury despite apparent treatment success.

See Also

Chapter 3, Aggression/Canine: fear/defensive
Chapter 4, Aggression/Canine: food
Chapter 5, Aggression/Canine: human directed/familiar people
Chapter 6, Aggression/Canine: human directed/unfamiliar people
Chapter 7, Aggression/Canine: idiopathic
Chapter 8, Aggression/Canine: interdog/familiar dogs
Chapter 9, Aggression/Canine: interdog/unfamiliar dogs
Chapter 10, Aggression/Canine: possessive
Chapter 11, Aggression/Canine: redirected
Chapter 12, Aggression/Canine: territorial

Chapter 13, Aggression/Canine: veterinary office

Chapter 23, Aggression: medical differentials

Abbreviations

ACTH—adrenocorticotrophic hormone

CBC—complete blood count

DAP—Dog Appeasing Pheromone®

FDA—Food and Drug Administration

TSH—thyroid-stimulating hormone

Suggested Reading

Gershman, Kenneth A., Jeffery J. Sacks, and John C. Wright. 1994. Which Dogs Bite? A Case-Control Study of Risk Factors In: *Pediatrics* 93(6), pp. 913–917.

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition Philadelphia: Saunders, pp. 385–426.

Miczek, Klaus A. and Berend Olivier. 1998. Neurochemical Bases of Aggression In: *Psychopharmacology of Animal Behavior Disorders*, edited by Nicholas H. Dodman and Louis Shuster, Malden: Blackwell Science, pp. 17–40.

Overall, Karen L. 1997. *Clinical Behavioral Medicine for Small Animals*, St. Louis: Mosby, pp. 88–129.

Reisner, Ilana. 2002. An Overview of Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 181–194.



Aggression/Canine: fear/defensive



DEFINITION/OVERVIEW

Canine fear/defensive aggression occurs when the dog perceives a situation as threatening. Not all fearful behavior that dogs exhibit is maladaptive or abnormal. Some may be within the range of normal behavior, but excessive fearfulness (phobic) behavior is also possible. Behavioral signs often include fearful body postures and signs of sympathetic stimulation (e.g., tachypnea, tachycardia).



ETIOLOGY/PATHOPHYSIOLOGY

- No clear etiologies have been established. Early traumatic experiences or lack of appropriate interactions may contribute to the expression of fearful responses.
- Genetic factors may be possible but remain underexplored and rarely documented. Strains of nervous Pointers have been identified, and the condition appears heritable.
- Animals may freeze, flee, or fight when presented with stimuli that they perceive as fear inducing.
- Catecholamine release may occur with subsequent increases in heart rate, respiration, and pupillary dilatation and decreased pain sensitivity.



SIGNALMENT/HISTORY

- There is no gender predilection and is not affected by neutering.
- Some breeds such as German shepherds may appear to be predisposed.
- This behavior can occur at any age. Anecdotal, it is thought that signs often develop as puppies leave the peak period for socialization at around 12 weeks of age and again at 6–9 months.

Historical Findings

- Aggression (growling, lip-lifting, barking, snapping, lunging, biting) is accompanied by fearful or submissive body postures/facial expression (head down, crouching, backing away, ears back, tail tucked, looking away, lip licking). Body posture may change over time as the animal learns that aggressive responses are effective. Submissive body postures may yield to more assertive ones over time without a change in underlying motivation. As the dog learns how to stop unwanted

encounters with aggression, the intensity may increase (lunging escalates to nipping and biting).

- History may include the dog having been hurt or startled in a similar situation (veterinary visits, groomer).
- This aggression may be directed toward both familiar and unfamiliar people as well as other dogs.
- It may be exacerbated when the dog is cornered or cannot escape and be worse on-leash than off-leash or when the dog is reached for by either familiar or unfamiliar persons.
- Movement, rapid approach, or reaching for the dog may elicit aggressive responses.
- The dog may not show aggression when first greeting people but may growl and snap as they withdraw their hand or turn to leave.
- Aggressive responses may occur along a continuum from mild growling or snarling to lunging and injurious bites. Responses may be unrelated to the suspected level of provocation.
- Aggression may occur as a component of territorial, possessive, and owner-directed aggression.
- It may have very specific triggers (men wearing hats, children on bicycles) or have generalized over time with no clear differentiation between stimuli noted.
- Aggressive responses are often followed by withdrawal and distance-increasing responses.
- Some dogs may also show anxiety in other contexts including owner departure, storms, and car rides.

Contributing/Risk Factors

- This behavior may be a normal canine behavior depending on the circumstances. The expression may be strongly influenced by previous experience (e.g., inadequate early socialization, painful conditions, rough handling, inappropriate punishment).
- Lack of exposure to specific types of stimuli during development may be a factor.
- Inadequate early socialization and habituation to locations, objects, people, or other animals may be factors.
- Some fears can be spontaneous in development without any known triggers.
- Owner responses such as attention, petting, or soothing vocalizations or punishment during episodes may influence the ongoing expression of the behavior.
- Traumatic experiences either in development or later in life may be factors.
- Some research has indicated that concurrent medical conditions that increase pain and irritability including but not limited to skin conditions, musculoskeletal problems, chronic gastrointestinal problems, and metabolic and endocrine dysfunction may increase the risk of aggressive responses.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?

- This allows the clinician to identify areas that need additional management to protect people and also evaluate the amount of time available for rehabilitating the dog.
- What is the daily routine, including feeding, training, exercise, and play?
- When were the onset, duration, and progression of the problem behavior?
 - Long histories of aggressive behavior have a poorer prognosis.
 - If the aggression is very frequent (e.g., daily), it is probably quite established and will be challenging to change.
 - If the aggression has gotten more severe (e.g., snarl to injury bite) then these dogs are more dangerous.
- Descriptions of aggressive encounters are essential.
 - First episode of any aggressive responses however mild.
 - Most recent episode with any aggressive response.
 - Progress back in time through several episodes and trigger situations.
 - Each should include persons present, their actions and responses, the position and actions of the dog, and body postures and facial expressions of the dog. The dog's behavior needs to be reviewed before, during, and after incident.
 - Descriptions should include objective descriptions of what the dog "did," not what the owner thinks the dog "meant."
- Triggering stimuli should be explored in detail including any defining characteristics, locations, people, distance, sound, and size.
- Aggression may not be seen all the time in every situation.
 - Attempts should be made to establish triggers and frequencies.
 - The severity of episodes should be assessed. (See Prognosis for Aggressive Animals in Appendix C.)
- Attention should be paid to body posture and facial expressions before, during, and after the episodes.
 - Body posture is generally low, tail is tucked, and ears are tight to the head. Eyes are wide and the pupils are dilated. Piloerection over the shoulders and hip may be noted.
 - If willing to fight, the animal may have ears forward, snarling (teeth bared), growling, and may lunge, snap, or bite.
 - Body postures may vary over time and with differing contexts and situations.
- Specific, reproducible triggers can be identified for the behavior.
- Exposure to the triggers results in the aggressive response.
- Learn about previous treatments used, including both those that helped and those that made the condition worse and the pet's response to each treatment including physical reprimands or leash corrections.



DIFFERENTIAL DIAGNOSIS

- Dominance or conflict-related aggression
- Pathological disease conditions associated with aggression
- Other anxiety conditions



DIAGNOSTICS

- Physical and neurological examination should be performed.
- Further diagnostic testing is based on physical examination findings and minimally would include CBC, chemistry profile, endocrine testing, and urinalysis.



THERAPEUTICS

Safety Precautions

- Preventing human injuries must be the first concern.
- The dog must be confined away from potential victims in a secure location or under the direct physical control of a responsible adult whenever an aggression-provoking situation could arise (e.g., in any public locations, on walks, when visitors arrive at the house).
- All known aggressive situations must be identified and avoided.
- Treatment is aimed at controlling the problem, not at achieving a “cure.”
- Owners must be aware that the only way to prevent future injuries is euthanasia.
 - Re-homing dogs may not be practical or safe.
- All family members need to comply with treatment recommendations.
- Treatment is generally lifelong.

Management Techniques

- Teach the dog how to tolerate secure confinement either in a crate, behind a baby gate, or in a secure room.
- Use a headcollar (e.g., Gentle Leader®) for increased control.
- Do not physically punish or reprimand the dog.
- Avoid all situations known to trigger the unwanted behavior.
- Basket muzzles are recommended.

Behavioral Modification Techniques

- All interactions based on a command/response relationship, nonconfrontational methods to teach the dog to view household members as leaders and in control.
- Restructuring the pet-owner relationship: create rules for interaction so the owner knows when and how to interact with their pet. (See the Structuring Your Relationship with Your Pet handout in Appendix D.)
 - In the beginning, all attention is initiated by the owner.
 - The pet can receive attention when it is calm and quiet.
 - The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
 - The owner calls the pet over, begins the attention session, and also ends it before the pet does.

- Initially, the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later if the animal requests the item by calmly sitting and waiting it will be given.
- Use reward-based training to teach the dog to obey commands in daily situations.
- Use CCDS to address specific fear and aggression-provoking stimuli.
 - A stimulus gradient must be established from the stimuli least likely to cause the fearful response to those most likely to cause a response. Be sure to use defining characteristics such as distance, location, size, etc.
 - A gradient for reinforcement must also be established; what rewards will the dog work for best?
 - Favored rewards are then reserved for training sessions only.
- Counterconditioning: the dog should first be taught to sit and relax on a verbal command in neutral locations using food rewards.
- Gradual exposure of the dog to a greatly reduced stimulus is next attempted so no fearful reaction is elicited. The nonfearful behavior is then rewarded.
- Level of stimulation is manipulated and/or increased gradually, staying below the threshold that would result in fear and/or aggression.
- Progress is slow, and careful monitoring of responses is essential.
 - Proceeding rapidly can intensify rather than diminish the fearful response.
- Relapses are common, and owners must always be vigilant and in control of the dog's behavior.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Safety Recommendations for Aggressive Animals
Structuring Your Relationship with Your Pet
Teaching Your Pet How to be Confined
Tranquility Training Exercises
Using Classical Counterconditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- There are no medications licensed for the treatment of canine aggression. Few published studies exist. Owners must be aware that the use of a medication is off-label.
- Because of liability concerns, note in patient record that owners were informed of potential risks and side effects. A signed informed consent form is advisable.
- NEVER use medications without behavior modification.
- Before prescribing medication, be sure that owners understand the risks involved in owning an aggressive dog, and will follow safety procedures and not rely on medication to keep others safe.

- Medication may not be appropriate in some family situations, such as those with small children, family members with disabilities, or immunocompromised individuals.
- Medication may only decrease the intensity and/or frequency of aggressive responses but not make them go away entirely.
- Prior to medication routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For dogs on long-term medication, yearly or semiyearly recheck is recommended.

Selective Serotonin Reuptake Inhibitors (SSRIs)

- Fluoxetine: 0.5–1 mg/kg PO q24h
- Paroxetine: 0.5–1 mg/kg PO q24h
 - Side effects: inappetence, irritability, gastrointestinal signs

Tricyclic Antidepressants (TCAs)

- Amitriptyline: 1–2 mg/kg q24h or divided q12h
- Clomipramine: 2–4 mg/kg PO q24h or divided q12h (label-restricted for aggression)
 - Side effects: sedation, anticholinergic, possible cardiac conduction disturbances if predisposed

Contraindications/Precautions

- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only used with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be used with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.

- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®). Synthetic analogue of the pheromone produced by lactating bitches. May calm some dogs and decrease anxiety.

Diet

- Low protein/high tryptophan diets may help reduce aggression but are unlikely to make a significant difference without behavior modification.

Surgical Considerations

- Neuter intact animals to prevent any genetic transmission.



COMMENTS

Client Education

- Treatment is aimed at controlling the problem, not at achieving a “cure.”
- Successful treatment, as measured by a decrease in aggressive incidents, depends upon the owner's understanding basic canine social and communicative behavior, the risks involved in living with an aggressive dog, how to follow safety and management recommendations, and correct identification of the fear-eliciting stimuli.
- Even with a decrease in number or intensity of aggressive episodes, individual dogs still may not be safe in situations known to elicit aggressive responses.
- Owners must be aware that the only way to prevent all future injuries is euthanasia.
- Safety by preventing human injuries must be the first concern. This may include confinement and use of headcollars, leashes, and muzzles.
- Teach the dog to be comfortable wearing a headcollar and basket muzzle. If headcollars cannot be used, control may be achieved using a body harness and leash.
- Avoid situations that may evoke an aggressive reaction, including situations that have resulted in the dog's being fearful even if not aggressive.

Patient Monitoring

- Good patient follow-up is needed; clients often need assistance and direction during treatment. Telephone follow-up and return visits may be needed for 6 months or more. Compliance is improved with ongoing communication.
- The ability of the owner to provide safety for themselves and others should be reevaluated at each follow-up contact.
- Dogs on medication should be monitored regularly for any problems.

Prevention/Avoidance

- Treatment recommendations are lifelong. Owners may see recurrence of aggression with treatment lapses and continued exposure to the fear-producing stimuli.
- Good early socialization and habituation may help avoid fear-based behaviors later in life.
- Owner responses when the dog first experiences a fearful situation are important.

Possible Complications

- Human injuries
- Possible euthanasia or relinquishment of patient

Expected Course and Prognosis

- Usually not cured. Prognosis for improvement is better if aggression is of low intensity, occurs in few predictable situations, and has been present a short time.
- Overall prognosis greatly depends on owner compliance and ability to work with and control the dog.

Pregnancy

- Extremely fearful dogs should not be bred.

See Also

Chapter 2, Aggression/Canine: classification and overview
Chapter 5, Aggression/Canine: human directed/familiar people
Chapter 6, Aggression/Canine: human directed/unfamiliar people
Chapter 10, Aggression/Canine: possessive
Chapter 12, Aggression/Canine: territorial
Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 33, Fear of People: canine and feline
Chapter 34, Fear of Places and Things: canine and feline
Chapter 39, Generalized Anxiety

Abbreviations

CCDS—counterconditioning and desensitization
CNS—central nervous system

DAP—Dog Appeasing Pheromone[®]

h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

PO—by mouth

PRN—as needed

q—every

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

Suggested Reading

Guy, N.C., U.A. Luescher, S.E. Dohoo, et. al. 2001. Risk factors for dog bites to owners in a general veterinary caseload In: *Applied Animal Behaviour Science*, 74, pp. 29–42.

Neilson, Jacqueline. 2002. Fear of Places and Things In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 173–180.

Aggression/Canine: food



DEFINITION/OVERVIEW

A threat or harmful action directed toward another over food or a food-related item such as a food bowl or used napkin. Since food is necessary for survival, protecting a food resource with aggression may be a normal/adaptive behavior, especially if there are limited resources.



ETIOLOGY/PATHOPHYSIOLOGY

- This behavior is usually within the range of normal behavior.
- Excessive aggression due to learning is also possible.
- Underlying medical conditions or treatments that cause polyphagia may increase level of food aggression in some dogs.



SIGNALMENT/HISTORY

- No breed or gender predilections exist for food aggression. Development of the problem can occur at any age; however, it is most likely to be first noted in 6- to 18-month-old dogs. Occasionally young puppies (8–16 weeks) exhibit the behavior. Food aggression may be directed at other animals, at humans, or both.

Historical Findings

- Dog shows aggressive behavior (growling, lip-lifting, barking, snapping, lunging, biting) toward people or other animals in the presence of valued food items.
- Relative value of food item may influence presence or intensity of aggression. For example, the dog may not aggress over its standard dog food diet but may become very aggressive around human food items or valued dog treats such as rawhides.

Contributing/Risk Factors

- Highly palatable food items
- Constant presence of food to guard, such as free-choice feeding, long-lasting treats, etc.
- Inadequate food resources
- Polyphagia

- Teasing the dog with food
- Children
- Randomly removing food from the dog's possession
- Lack of clear social hierarchy; battles over the food resource can be part of the larger issue of an unstable hierarchy

Pertinent Historical Questions

- How long has the problem been present?
 - This will help to develop a more accurate prognosis; dogs with a long history of successful food aggression may be more difficult to modify.
- What are the demographics of the household?
 - The presence of young children that can't follow the specific treatment guidelines make safety and management more problematic.
- What is the feeding regime?
 - This is particularly important since it allows the clinician to identify situations that may be aggravating food aggression (e.g., constant presence of food in bowl, feeding in heavy traffic zone of household).
- What are the type and frequency of treats given to the dog?
 - This allows the clinician to identify specific treats that may be highly palatable/long lasting, thus promoting food aggression.
- What is the intensity of the aggression?
 - This is helpful in prognosis; appropriately inhibited warning signs of aggression (e.g., a growl) as opposed to uninhibited sudden outbursts of aggression (e.g., sudden lunge and bite) make the situation more manageable.
- Who are the targets for the aggression (other dogs, only certain family members)?
 - This allows the clinician to design an appropriate treatment plan.
- What are the food items that provoke the aggression (empty food bowl, only rawhide treats, only human food, etc.)?
 - This will allow the clinician to impart the correct management and target treatment to the particular problem area.
- Is aggression present in other circumstances?
 - If the clinician determines that there is other aggression then this may influence diagnosis, treatment, and prognosis.



DIFFERENTIAL DIAGNOSIS

- Social status/conflict aggression
 - Aggression in these dogs is often not limited to the food resource. Food-related aggression is often a concomitant diagnosis.
- Fear aggression
 - The dog may be fearful of human approach in all situations, not those just involving food items.
 - An underlying fear of losing a valuable resource is probably a component of most food aggression.

- The fear may be exacerbated by repeated attempts to handle and remove food from the dog.
- Dental disease (pain associated with eating) can cause food aggression.
- Polyphagia can increase food aggression. Causes of polyphagia include:
 - Physiological: pregnancy, lactation, growth, response to a cold environment, increased exercise
 - Pathological: diabetes mellitus, hyperadrenocorticism, exocrine pancreatic insufficiency, gastrointestinal parasites, insulinoma, lymphangiectasia, growth hormone-secreting pituitary tumor, megaesophagus, neoplasms of the brain, gastrointestinal neoplasms
 - Iatrogenic: corticosteroids, progestins, benzodiazepines, anticonvulsants, insulin overdose, palatable food, poor diet



DIAGNOSTICS

- Recommended diagnostic tests depend upon signalment and historical findings. Dogs that are exhibiting inhibited aggression (e.g., growl, snarl) in situations of reasonable provocation probably do not warrant advanced diagnostic testing. However, an older dog that starts to suddenly show uninhibited, extreme aggression over its regular dog food requires a more thorough workup.
- Perform a physical examination including thorough oral examination and neurological examination.
- Lab work: CBC, chemistry panel, thyroid panel, urinalysis, and fecal examination
- MRI: to rule out primary neurological cause, if suspected



THERAPEUTICS

Treatment is aimed at controlling the problem, not at achieving a “cure.” Successful treatment, as measured by a decrease in aggressive incidents, depends upon the owner’s understanding basic canine social behavior, the risks involved in living with an aggressive dog, and how to follow safety and management recommendations.

Safety

- If there is a situation where there is a breach in management and the dog is guarding a food item, unless the item is particularly dangerous for the dog, avoid a confrontation. Do not attempt to retrieve the item while it is in the dog’s possession or the dog is nearby.

Management

- Management steps to avoid further aggression are extremely important from both a safety perspective and to prevent further learning that aggression can be highly effective.

- In many cases management may be a sufficient means of dealing with the problem behavior; no further behavioral modification may be necessary.
 - Institute meal feedings (rather than free choice) and remove all long-lasting food treats such as rawhides, bones, and pig's ears from the environment.
 - Feed dog confined away from people/other animals in a secure location such as a crate or a room with a door that can be latched or locked. The dog is kept there until food is consumed and then allowed out.
 - If the dog is aggressive over an empty food bowl, don't try to remove it in the dog's presence. Instead, wait until the dog is secured in another location before handling the bowl.
 - If dog is aggressive over dropped human food, manage the dog so that the dog is not present during food preparation or meals. Dogs may be placed in another location (e.g., yard) or crated.
 - These management steps may be continued indefinitely and may be adequate for control of problem.

Behavioral Modification Techniques

- Increase household discipline and structure for the dog.
 - Dogs should be asked to perform a command prior to receiving anything from the owner including food items, attention, access to certain areas (outdoors), etc. If the dog obeys immediately, then the reward can be given. If the dog does not respond immediately to the command, then no reward is given and the dog is NOT forced into doing the command. If the dog anticipates the command and performs it before the request, an additional command should be given before giving the reward.
- Perform desensitization and counterconditioning to human around food bowl.
 - This involves a higher level of risk and is not necessary for every situation. For dogs that are well controlled with the new feeding regime outlined in the management section, owners may elect not to pursue this level of training. Any owners that are hesitant about doing these exercises should not perform them.
 - This is to be implemented only after the new safety management and new household discipline has been in place for 2–4 weeks.
 - The owners should have two or more food bowls and should perform these exercises in an uncluttered large space (at least 15 by 15 feet).
 - The dog's meal should be divided into six portions.
 - The first portion should be placed in bowl #1 and the dog asked to sit/stay. If the dog complies, then the owner places the bowl on the ground. The owner should then move several feet away from the dog while it is eating its food. Once it has completed that portion, the owner can then call the dog to them, ask the dog to sit/stay and, if compliant, they can place bowl #2 with the second portion onto the ground and move several feet away. This can continue until all the meal has been consumed in these smaller portions. During these exercises if the dog is noncompliant or aggressive, the owner should immediately leave the area. The owner must be aware of subtle signs

- of aggression including stiffening, cessation of eating, and snarling without growling or head movement.
- The trial is successful if the dog is compliant with commands, comfortable when consuming the food, and shows no aggression.
 - With success, the owner will decrease the distance that they move away from the bowl/dog after placement.
 - When the owner can be standing next to the dog/food bowl when the dog is eating without aggression/agitation from the dog, the owner can then start to add the delivery of special food treats when the dog is eating. As the dog is eating a food allotment, the owner should call the dog's name, ask the dog to sit/watch owner, and if the dog is compliant, reward with a very tasty treat (cheese, meat). Then the dog can finish its meal portion. These exercises can be conducted intermittently when the dog is eating. Again, the owner must be aware of subtle affect changes that indicate aggression as mentioned above.
 - Compliance with this routine does not necessarily mean that the dog will not show food-guarding aggression at a later date or to different individuals than those practicing this technique.
- Teach the “drop-it” command. If the dog reliably releases items on command, then this command can be used instead of engaging in an altercation over dropped food items.
- Start with a low value toy that the dog is likely to engage in a tug game. Encourage the dog to take the toy in his mouth and play a subdued game of tug with the owner. It is essential that the owner maintain contact/control of their end of the toy in the initial stages of training. The dog should be given the “drop it” command as the owner concurrently stops all active pulling on the toy but retains a hold on it. A small tasty food treat should be immediately delivered when the dog responds to the command. Repeat until the dog gets the association between the command/response/reward. When this is mastered at this level, the owner should increase the intensity of the tugging prior to the “drop it” command being given. With continued success, the owner should proceed to giving the dog full possession of the toy prior to asking the dog to “drop it.” Then the owner can progress to practicing with more valuable items. When the command has been mastered with high value items, then it can be used if the dog obtains an inappropriate food item. The dog is told to “drop it,” then called away from the item before trying to retrieve the item.
- If there is an aggressive incident, the owners should avoid direct confrontation as this may escalate aggression. Instead they should leave the area, leaving the dog in a social time out for 10–15 minutes.

Accompanying Handouts

Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Structuring Your Relationship with Your Pet

Teaching “Drop It” and Retrieving Stolen Items

Teaching “Leave It”

Teaching Your Pet How to be Confined

Tranquility Training Exercises

Drugs

- There are no drugs licensed for the treatment of food aggression.
- Drug treatment is unlikely to be effective if the only problem is food-guarding aggression.
 - Situations where drugs may help include dogs with significant underlying anxiety. These dogs usually present with aggression/anxiety in other social situations. (See Chapter 3, Aggression/Canine: fear/defensive or the Pharmacology appendix [Appendix A] for therapies for anxiety-related aggression.) If anxiety is a component of the aggression, medication may decrease the intensity or frequency of the aggression but is unlikely to be curative.

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®) is a synthetic analogue of a calming pheromone produced by lactating bitches. It is available in a spray and plug-in diffuser.
- Complementary therapies such as acupuncture, anxiety wraps, herbal preparations, Tellington™ touch have all been advocated but scientifically unsubstantiated as treatments for canine anxiety/aggression.

Surgical Considerations

- Neuter intact animals to prevent any genetic transmission.

Contraindications/Precautions

- Food aggression rarely resolves, but these dogs can often be managed successfully.
- Interactive corrections are contraindicated as the dog may escalate in aggression, inflicting serious injury.
- Households with food-aggressive dogs must keep all human food consumption at tables. Casual consumption of food in locations where the dog has access should be avoided. Children should not be allowed to walk around holding food items.
- If there are young children in the home that disregard safety precautions and adults cannot maintain a safe environment then re-homing or euthanasia will need to be considered.



COMMENTS

Client Education

- Client education is paramount in successfully managing these cases. Refer to above cautionary notes, and management and treatment advice.

- One of the most damaging things that a client can do is continually aggravate the dog around the food bowl; allowing the dog to eat in a peaceful location may resolve the problem.

Patient Monitoring

- Initial follow-up should be weekly to assess the owner's compliance and the dog's response to therapy.
- Due to prolonged duration of treatment, follow-up may evolve into monthly updates over the course of several months.

Prevention/Avoidance

- Avoid teasing the dog with food or abruptly removing food as a puppy.
- To prevent development, teach the puppy that approach of humans toward food is associated with delivery of a better item by adding tasty morsels to their food bowl as they eat; however, even puppies exposed to this technique can develop food-guarding aggression.
- Highly palatable diets should be avoided.
- Implement nonconfrontational leadership and discipline.
- Provide meal feedings instead of *ad libitum* feeding.
- If any tension or aggression is noted over long-lasting food items, remove them from the environment or only provide to the dog when it isn't going to be disturbed.

Possible Complications

- During the food bowl exercises, dog may become more anxious. If the dog appears to be highly agitated/anxious, discontinue the process.

Expected Course and Prognosis

- Over the course of several months, the dog should become more relaxed with the presence of people around its food.
- Highly palatable food items may continue to evoke aggressive response despite training and may need to be avoided at all times.

See Also

Chapter 2, Aggression/Canine: classification and overview
 Chapter 3, Aggression/Canine: fear/defensive
 Chapter 5, Aggression/Canine: human directed/familiar people
 Chapter 8, Aggression/Canine: interdog/familiar dogs
 Chapter 10, Aggression/Canine: possessive
 Chapter 23, Aggression: medical differentials
 Chapter 26, Begging: canine and feline

Abbreviations

CBC—complete blood count

DAP—Dog Appeasing Pheromone[®]

MRI—magnetic resonance imagining

Suggested Reading

Donaldson, Jean. 2002. *Mine! A Practical Guide to Resource Guarding in Dogs*. San Francisco: SPCA.

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition Philadelphia: Saunders, pp. 400–401.

Mertens, Petra A. 2002. Canine Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 202–215.

Overall, Karen L. 1997. *Clinical Behavioral Medicine for Small Animals*, St. Louis: Mosby, pp. 88–129.

Aggression/Canine: human directed/ familiar people

chapter 5



DEFINITION/OVERVIEW

- Aggression, which can be growling, lip-lifting, barking, snapping, lunging, or biting, usually directed toward household members or familiar people
- Usually occurs in situations involving access to preferred resources, interactions such as petting, moving, handling, and reprimanding or attempting to take objects from the pet
- Alternate terminology: dominance aggression, status-related aggression, conflict, or competitive aggression



ETIOLOGY/PATHOPHYSIOLOGY

- Traditionally thought of as normal canine social behavior directed toward people. Unclear if canine hierarchical rules apply to dog-to-human interactions.
- Some cases may be impulsive and unpredictable, with injurious and dangerous consequences.
- Often associated with underlying anxiety, conflict, and poor communication, or the lack of clear rules and structure between owner and pet during social interactions.
- Some dogs may have impaired social communication skills and misread social signals from humans leading to problematic responses.
- Exacerbated by reprimands and physical punishment.



SIGNALMENT/HISTORY

- This behavior may be exhibited by any breed; it is often seen in spaniels, terriers, Lhasa Apso, and Rottweilers.
- It is traditionally thought to be manifest at social maturity (12–36 months of age). In younger dogs, it may be defensive aggression with a learned component. Detailed histories of early episodes are essential to accurate diagnosis.
- This behavior is more commonly seen in male dogs (castrated and intact).
- Owner-directed aggression is not always motivated by the desire to control but often is anxiety or fear-based.

Historical Findings

- Mild behavioral signs of aggression such as staring, growling, baring teeth, or snapping may have been present for some time but not considered significant by owners.
- Details of early aggressive episodes help establish the diagnosis and prognosis.
- Triggers include approaching the dog while in resting areas, food, toys, handling (including petting and reaching toward) and favored possessions, including people.
- Aggression generally occurs to familiar people with whom the dog lives or has an established relationship with the dog. Other types of aggression may occur and be directed toward unfamiliar people.
- Aggressive responses may occur along a continuum from mild growling or snarling to lunging and injurious bites. Responses may be unrelated to a suspected level of provocation.
- May occur concurrently with territorial aggression, aggression toward other dogs and toward unfamiliar people, food-guarding aggression, and possessive aggression.
- Some dogs appear confident while others appear anxious at every encounter; body postures and emotional affect can change over time as the animal learns how to manipulate the outcome.
- Owner responses may determine progression of the aggression. Punishment or inappropriately applied interventions (alpha rolls, scruff shakes, physical reprimands) may increase rather than decrease aggressive responses.
- Not all family members may be the recipient of aggressive responses depending on individual ability to control the dog and frequency of interactions.
- Common contexts include standing over or staring at the dog, prolonged petting, manipulation of the body, reprimands, removing items from the dog, preventing access to locations or items, disturbing while resting, proximity to food or valued toys, dog's uncertainty about the outcome of the encounter.

Contributing/Risk Factors

- This behavior may actually be part of a normal canine social behavioral repertoire in some individuals, but its expression is influenced by environment, learning, and genetics.
- The manifestation of aggression may be influenced by underlying medical conditions, early experiences (aggression is an effective means to control situations), inconsistent or lack of clear rules and routine within the household and within human-pet interactions with family members.
- Contributory medical conditions must be ruled out, since illness and/or pain may influence a tendency for aggressive behaviors.
- Aggression may occur over competition for a resource that the individual cares about enough to fight over yet what the animal learns about the outcome of the encounter and how the outcome relates to future encounters is unknown.

- Inconsistent or inappropriate punishment and inconsistent owner interactions may contribute to the development of conflicted and/or aggressive behavior.
- Unclear expectations in social interactions.
- Unclear outcomes in social interactions.
- Allowing the dog to determine the outcome in day-to-day interactions with humans in the home.
- Allowing the dog to hold a greater resource-holding potential (i.e., allowing the dog to continually have the resource without challenge) in certain situations.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management to protect people and also evaluate the amount of time available for rehabilitating the dog.
- Daily routine, including feeding, training, exercise, and play.
- Some animals may show anxiety in various contexts.
 - Is there evidence of distress at owner departure?
 - Is there anxiety in novel situations, places, or objects?
 - Does the pet have noise phobias including noise caused by storms?
- Duration and progression of the problem behavior.
 - Long histories of aggressive behavior have a poorer prognosis.
 - If the aggression is very frequent (e.g., daily), it is probably well established and will be challenging to change.
 - If the aggression has gotten more severe (e.g., snarl to injury bite), then these dogs are more dangerous.
- Aggression may not be seen all the time in every situation.
 - Attempts should be made to establish triggers and frequencies.
 - The severity of episodes should be assessed.
- Attention should be paid to body posture and facial expressions before, during, and after the episodes.
 - Stiff body posture, staring, head up, ears up and forward, or tail up may accompany aggressive behavior.
 - A combination of these postures with more submissive postures and/or fearful postures (e.g., tail is up but ears are tucked, eyes averted), may accompany aggressive behavior, which may represent an element of conflict, anxiety, or fear in the dog's motivation.
- Descriptions of aggressive encounters are essential.
 - Learn about the first episode of any aggressive responses however mild.
 - Learn about the most recent episode with any aggressive response.
 - Progress back in time through several episodes and trigger situations.
 - Each should include persons present, their actions and responses, position and actions of the dog, and body postures and facial expressions of the dog and any injuries. The dog's behavior needs to be reviewed before, during, and after incident.

- Descriptions should include objective descriptions of what the dog “did,” not what the owner thinks the dog “meant.”
- Learn about the previous treatments used including both those that helped and those that made the condition worse and the pet’s response to each one.
- Aggression may not be seen all the time in every situation.
 - Attempts should be made to establish triggers and frequencies.
 - The severity of episodes should be assessed.



DIFFERENTIAL DIAGNOSIS

- Pathological disease conditions associated with aggression (e.g., painful musculoskeletal conditions, endocrinopathies)
- Fear-based aggression
- Anxiety conditions



DIAGNOSTICS

- Physical and neurological examinations should be done on all patients.
- Further diagnostic testing is determined by physical examination findings and minimally would include CBC, chemistry profile, endocrine testing, and urinalysis.
- No specific diagnostic tools are available at this time.
- In individuals with extremely explosive and injurious aggression, medical pathologies may be present and diagnostic work up including EEG may be warranted. (See Chapter 7, Aggression/Canine: idiopathic.)



THERAPEUTICS

Safety

- Preventing human injuries must be the first concern.
- Owners must be aware that the only way to prevent future injuries is euthanasia.
 - Certain family dynamics (young children, elderly residents, or immunocompromised individuals) may make keeping the pet dangerous and impractical.
 - Re-homing dogs may not be practical or safe.
- A complete list of aggression-provoking situations should be compiled.
- All known situations that evoke aggression must be avoided.
- All family members need to comply with treatment recommendations.
- Treatment is generally lifelong.

Management Techniques

- Do not allow the dog on furniture or to sleep in the bed.
- Avoid valuable treats or toys (e.g., rawhides). All treats should only be those that can be quickly consumed such as a dog biscuit.
- Pick up toys and have owner control playtime and activity.
- Do not physically punish or reprimand the dog.
- Do not attempt to take items the dog may have/want, instead offer an alternative activity or trade at a distance for a food reward. (See Chapter 10, Aggression/Canine: possessive and Chapter 58, Stealing Household Objects: canine and feline for more detail.)

Behavioral Modification Techniques

- Treatment is aimed at controlling the problem, not at achieving a “cure.”
- All interactions are based on a command/response relationship, nonconfrontational methods to teach the dog to view household members as leaders and in control. Use reward-based training to teach the dog to obey commands in daily situations.
- Restructuring the pet-owner relationship: create rules for interaction so the owner knows when and how to interact with their pet.
 - In the beginning, all attention is initiated by the owner.
 - The pet can receive attention when it is calm and quiet.
 - The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
 - The owner calls the pet over, begins the attention session, and also ends it before the pet does.
 - Initially, the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later if the animal requests the item by calmly sitting and waiting, it will be given.
- Limit physical contact with the dog, including petting. Control affection by having the dog follow a command prior to attention.
- Teach the dog to obey commands to end situations where aggression has occurred in the past.
 - Use “off” commands to remove the pet from furniture.
 - Use “drop it” commands to obtain objects.
- The CCDS technique is used to decrease responsiveness to situations that have resulted in aggression in the past. A muzzle may be needed for safety. The CCDS technique should not begin until the owner has assumed a greater level of control over the dog through affection control and reward-based training. Individual situations that need CCDS will vary with each case.
- Teach the dog to comfortably and safely wear a headcollar (Gentle Leader[®]) and/or basket muzzle. Have the dog wear the headcollar with a lightweight 8- to

10-foot leash attached whenever in contact with people. Use a long leash to move the dog from situations that may elicit aggression; do not reach for the dog directly.

- For dogs that will not allow handling to place a headcollar on their head, use a body harness. The dog should wear the harness and drag a leash when people are home and awake. The leash can be used to move the dog without contact.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Safety Recommendations for Aggressive Animals
Structuring Your Relationship with Your Pet
Teaching Drop and Retrieving Stolen Items
Teaching Leave It
Teaching Your Pet How to be Confined
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- There are no medications licensed for the treatment of canine aggression. Few published studies exist. The only double-blind placebo-controlled study of medication for dominance aggression showed a strong placebo effect and no difference between placebo and medication in reducing aggressive behaviors.
- Owners must be aware that the use of a medication is off-label. Because of liability concerns, a note in the patient record is advisable stating that owners were informed of potential risks and potential side effects. Signed informed consent forms are prudent. Before prescribing medication be sure that owners understand the risks involved in owning an aggressive dog and that they will follow safety procedures and not rely on medication to keep others safe.
- Never use medications without behavior modification.
- Medication may not be appropriate in some family situations such as those with small children, family members with disabilities, or immunocompromised individuals.
- Medication may only decrease the intensity and/or frequency of aggressive responses but not make them go away entirely.
 - Prior to medication, routine blood work including CBC, chemistry screening, T4, and TSH should be performed. For dogs on long-term medication, yearly or semiyearly recheck is recommended.
 - Serotonergic medications:
 - These are indicated for situations where there is unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.

- These medications are to be given on a daily schedule regardless of exposure to trigger stimuli.
- It may take up to 4 weeks to achieve efficacy.
- Medications are to be continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response
 - Clomipramine: 1–2 mg/kg q12h,
Side effects: sedation, anticholinergic effects, and cardiac conduction disturbances if predisposed; label restrictions on use in aggression
 - Fluoxetine: 0.5–1.0 mg/kg q24h,
Side effects: inappetence and irritability, gastrointestinal signs, and increased agitation

Other Treatments

- DAP[®] if anxiety is a suspected component

Contraindications/Precautions

- Most medications used to treat canine behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz and selegiline.
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.

- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.
- Any psychotropic medication may increase rather than decrease aggression. Corticosteroids are contraindicated if the dog is aggressive over food; polyphagia can lead to increased incidents and intensity of aggression.

Diet

- Low protein/high tryptophan diets may help reduce aggression but are unlikely to make a significant difference without behavior modification.

Surgical Considerations

- Neuter intact males.
 - May or may not decrease intensity or frequency of episodes, but prevents possible genetic transmission
- Females that start to show aggression toward familiar people at less than 6 months of age may be less aggressive when mature if not spayed.



COMMENTS

- Not all dogs that show aggression toward familiar people in the common “dominance” contexts have the same underlying motivation.
- Some dogs may learn to control by inadvertent reinforcement of their resource-holding potential and lack of clear rules for interaction with human family members.
- A dog showing aggression over a resource may be defensively aggressive (protecting something highly valued from loss), anxious, and fearful rather than attempting to control the situation.
- Failure to consider alternate diagnosis or overlapping or concurrent problems may impair treatment and prognosis.
- Successful treatment, as measured by a decrease in aggressive incidents, depends upon the owner's understanding of basic canine social behavior, the risks involved in living with an aggressive dog, and how to implement safety and management recommendations.
- Preventing human injuries must be the first concern.

Client Education

- Clients must be willing and able to implement safety programs.
- Clients must understand the risks of undertaking treatment and keeping a known aggressive dog within the home.
- Treatment is aimed at controlling the problem, not at achieving a “cure.”
- Owners must be aware that the only way to prevent future injuries is euthanasia.

Patient Monitoring

- Clients often need ongoing assistance with behavior cases, especially aggression. At least one follow-up call within the first 1–3 weeks after the consultation is advisable. Provisions for further follow-up either by phone or in person should be made at that time.
- Animals on medication should have routine blood work done at regular intervals.

Prevention/Avoidance

- Treatment recommendations are lifelong. Owners may see recurrence of aggression with treatment lapses. Continued avoidance of aggression triggers may be necessary.
- Good early socialization, clear expectations for pet behavior from all family members, consistent interactions and rules, no inappropriate punishment especially after the fact, may help prevent aggression in some cases.

Possible Complications

- Human injuries; euthanasia of patient

Expected Course and Prognosis

- Canine aggression is rarely cured. Prognosis for improvement is better if aggression is at a low intensity, in relatively few predictable situations, and if the pet shows a high degree of bite inhibition and a great deal of warning.
- Prognosis is highly dependent on owner compliance.
- Dogs with unpredictable aggressive responses or aggression in unpredictable situations have poorer prognosis and the risk of euthanasia increases.

See Also

Chapter 4, Aggression/Canine: food
Chapter 7, Aggression/Canine: idiopathic
Chapter 10, Aggressive/Canine: possessive
Chapter 12, Aggressive/Canine: territorial
Chapter 58, Stealing Household Objects: canine and feline

Abbreviations

CBC—complete blood count
CCDS—counterconditioning and systematic desensitization
CNS—central nervous system
EEG—electroencephalogram
FDA—Food and Drug Administration
h—hour
IM—intramuscular
m—month
MAO—monoamine oxidase

mg/kg—milligrams per kilogram

q—every

SC—subcutaneously

SSRI—selective serotonin reuptake inhibitors

T4—Thyroxine

TCA—Tricyclic antidepressants

TSH—thyroid-stimulating hormone

Suggested Reading

- Borchelt, Peter, and Victoria Voith. 1996. Dominance aggression in dogs In: *Readings in companion animal behavior*, edited by Victoria Voith, Peter Borchelt. Trenton, NJ: Trenton Veterinary Learning Systems.
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- White, Marilyn M., Jacqueline C. Neilson, Benjamin L. Hart, and Kelly D. Cliff. 1999. Effects of clomipramine hydrochloride on dominance-related aggression in dogs In: *JAVMA* 215, 1288–1291.

Aggression/Canine: human directed/ unfamiliar people

chapter 6



DEFINITION/OVERVIEW

- A threat or harmful action by a dog directed toward people that are not well known to the dog.
- The aggression often occurs during initial encounter or interaction with the unfamiliar person.
- Certain classes of people (men with facial hair, children) are often targeted.
- The underlying motivation for the aggression is often territorial protection or fear/anxiety.



ETIOLOGY/PATHOPHYSIOLOGY

- The aggression may be a normal behavioral response to perceived threats.
- The aggression may be “abnormal” and represent an underlying anomaly in the dog’s neurological function.
- Lack of commercially available diagnostic tests to evaluate the different aspects of neurological health such as neurotransmitter levels and status of receptor sites make it difficult to ascertain specific etiology and whether the aggression represents abnormal pathology in the dog.
- It may be associated with territorial protection, anxiety, discomfort, and/or maternal protection. Dominance issues are less likely to be an underlying cause due to the lack of a relationship between the two parties.



SIGNALMENT/HISTORY

- Any age, gender, or breed can exhibit, however there are some tendencies for expression dependent on the underlying motivation.
- Age: The first signs of aggression to unfamiliar people often emerge just before or during puberty for both territorial and fear-based aggression. It is important to note that most owners don’t seek assistance until the behavior has been present for several months so many cases present for diagnosis and treatment when the dog is 1.5 to 2 years of age. If the aggression is linked to cognitive decline or primary medical diseases (e.g., arthritis), these conditions are more common in the geriatric population.

- **Gender:** Fearful behavior is not sex-linked, and therefore gender and neuter status does not have a significant impact on the expression of the behavior. However, if the aggression is territorial in behavior, intact male dogs have a higher tendency for this behavior. Maternal-based aggression is closely linked to the reproductive cycle of the intact bitch. Cognitive decline is more prevalent in the neutered population than in intact dogs.
- **Breed:** Dogs that have been historically bred for territorial guarding and protection such as the German Shepherd, Rottweiler, Doberman, Mastiff, and others are more inclined to exhibit territorial defense against unfamiliar intruders. While fearful behavior can have a genetic basis, it is not so much breed specific as it is breeding related.

Historical Findings

- Often aggression is first observed between 6 and 18 months of age but may be seen in very young puppies.
- Dogs exhibit aggression (growling, snarling, aggressive barking, lunging, snapping, biting) toward unfamiliar people.
 - If territorial in nature, this may only occur on/near the dog's property.
 - With fear aggression, the aggressive display may be preceded by avoidance or escape behaviors.
 - In some fear-aggressive dogs, all signs of apprehension/fear may have been abandoned as the dog has learned that a full offensive attack is most effective at backing away the frightening stimulus.
 - Fearfully aggressive dogs may target only people with certain characteristics (children, men with facial hair, persons wearing hats, etc.) or may target all unfamiliar people.
 - May begin as a young puppy with certain classes of people to whom the dog is rarely exposed.
- Territorially aggressive dogs often have a vantage point from where they aggress to passersby throughout the day. (See Chapter 12, Aggression/Canine: territorial.)
- Several factors may contribute to the display of aggression: location, proximity of unfamiliar person to dog, characteristics or actions of unfamiliar person, speed of approach, and ability to escape.
- It is important to recognize that dogs may have concomitant diagnosis of fear-related aggression and territorial aggression to unfamiliar people.

Contributing/Risk Factors

- A lack of appropriate socialization of the dog to different classes of people may cause the dog to be fearful.
- Unpleasant or traumatic experience with unfamiliar people may cause the dog to be fearful.
- Owner comforting or soothing of the pet during anxious/aggressive episodes may inadvertently reinforce the dog's inappropriate behavior and perpetuate the behavior.

- Some adequately socialized dogs that have never been treated poorly by unfamiliar people are fearful. These fears seem to develop spontaneously without any identifiable triggers and may represent an “abnormal” population of dogs.
- Encouragement or reinforcement for aggressive threats/displays at territorial intruders may cause or aggravate aggressive behavior.
- Tethering the dog may cause or aggravate aggressive behavior.
- Dogs that are in a high state of arousal are often more impulsive and reactive, which may or may not include an aggressive display. The heightened state of arousal may be due to a variety of underlying emotional states including excitement, restlessness, agitation, and anxiety.
- Bitches with pups may be aggressive to both familiar and unfamiliar people as a manifestation of maternal protection.
- Concurrent medical conditions that cause pain or irritability may cause or aggravate aggressive behavior.
- Cognitive decline in a geriatric patient may cause disorientation and change in social interactions that could present as aggression to unfamiliar people.

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - This allows the clinician to assess risk, identify areas that need additional management, and also evaluate the amount of time available for rehabilitating the pet. Busy, active households with frequent visitors may have difficulty managing and treating aggression to unfamiliar people.
- What is the dog's level and reliability of obedience commands?
 - Mastery of basic obedience commands is necessary.
- What is the daily household routine with specific interest to the dog's access areas when owners are both home and absent, feeding schedule, play, exercise, and training?
 - This allows the clinician to identify areas that need additional management to protect people and also evaluate the amount of time available for rehabilitating the dog.
- What type of containment is the dog under both on and off the property (e.g., fenced, type of leash used to walk, type of collar used to walk)?
 - This information may highlight situations that are aggravating the problem (e.g., the dog is allowed to lunge to the end of a extendable leash chasing after joggers) and areas that need to be addressed in the management of the pet.
- What is the frequency of exposure to unfamiliar people?
 - At least initially when treating these dogs, you will need to have very controlled exposures to unfamiliar people. Is this possible in the environment?
- What is the predictability of aggression to unfamiliar people?
 - Unpredictable dogs are much more difficult for clients to manage and assess progress.
- Are certain classes such as children or ethnic groups of people targeted?
 - This fact indicates a fear-based component to the aggression.

- Does the aggression only occur when the pet is on its territory?
 - This implies territorial aggression.
- When was the onset and what has been the frequency and progression of the aggression?
 - Long histories of aggressive behavior have a poorer prognosis.
 - In cases of acute, severe onset, questioning should include possible exposure to infectious agents or toxins.
 - If the aggression is very frequent (e.g., daily), it is probably well established and will be challenging to change.
 - If the aggression has gotten more severe (e.g., snarl to injury bite), then these dogs are more dangerous to treat.
- Descriptions of aggressive encounters are essential.
 - Prompt owners for an actual description of what occurred, not their interpretation of events.
 - Get a description of first incident with injuries inflicted.
 - Get a detailed description of most recent incident with injuries inflicted.
 - Progress back in time through several incidents.
 - Each incident description should include location, all people present, and their actions and responses as the event occurred. All aspects of the dog's behavior should be reviewed including body postures, facial expressions, intensity of attack, physical positioning, and responses and actions related to human interventions. The dog's behavior needs to be reviewed before, during, and after the incident.
 - Previous successful and unsuccessful interventions/treatments should be discussed including physical reprimands or leash corrections.



DIFFERENTIAL DIAGNOSIS

- Fear-related aggression
- Territorial/protective aggression
- Maternal aggression
- Pain-related aggression
- Cognitive Dysfunction Syndrome
- Any medical condition that may present with the clinical sign of aggression, such as toxins, metabolic disease, or viral infections, must be identified before a behavioral diagnosis can be made.



DIAGNOSTICS

- Complete physical and neurological examinations are indicated; further diagnostic testing as indicated by the results of these examinations should be conducted.
- A CBC, chemistry panel, and thyroid testing are recommended although often the results are unremarkable.

- If the case has an unusual presentation such as acute onset of aggression in a middle-aged dog with no identifiable inciting cause, advanced diagnostics such as a CSF tap or MRI are indicated.

Pathological Findings

- No specific pathology associated with this condition



THERAPEUTICS

It is important for owners to realize that treatment is aimed at controlling the problem, not achieving a “cure.” Some of the management and treatment steps such as no off-leash freedom in public settings will likely be lifelong. With any aggression problem, safety issues are a priority, and if the owners cannot protect others, the dog should be re-homed if this is practical/safe or be euthanized.

Safety

- A complete list of aggression provoking situations should be compiled.
- The dog must be confined away from potential victims or under the direct physical control of a responsible adult whenever an aggression-provoking situation could arise.
- Consider ancillary safety precautions as a second line of defense in case primary management fails:
 - Basket muzzles
 - A second tier of doors/gates at exit points from house/yard
- Redirected aggression is possible whenever a dog is aggressively aroused.

Management

- Try to avoid all aggressive displays toward unfamiliar people. This may involve all or some of the following:
 - Preconfinement in a secure location such as a crate or locked room when guests expected
 - Avoiding exposure to unfamiliar people on walks/outings
 - Blocking or removing access to vantage points in the home/yard
- If an aggressive event occurs despite attempts to avoid, remove the dog from the situation as expediently as possible without using punishment. When far enough away from the trigger stimulus, engage the dog in obedience commands.
- Any punishment including leash corrections, verbal, or physical reprimands should not be used. While they might suppress outward expressions of aggression, underlying emotional affect such as fear and anxiety may remain and intensify.
- Introduce a headcollar (e.g., Gentle Leader®) for additional control.



■ **Fig. 6-1** Dogs are under better control walking with a headcollar. Photograph courtesy of Premier Pet Products.

Behavioral Modification Techniques

- All interactions with the dog should be based on a command/reward relationship to increase consistent and reliable interactions with the owners. Prior to any attention, food, access to areas, etc., the dog should be given an obedience command. If the dog responds immediately to the command, it can be given the reward of attention, treat, dinner, access to yard, etc. If the dog does not obey the command, the dog should not be rewarded and the owner should temporarily cease interaction with the dog. Nonresponse should not result in repeated requests or forcing the dog to comply with the command. This training establishes owner leadership and teaches the dog to look to the owners for cues.

- Teach the dog to settle and relax on a verbal command. (See the Tranquility Training Exercises handout in Appendix D.)
- Systematic desensitization and counterconditioning to unfamiliar people:
 - Identify a highly valuable reward for the dog—small tasty food treats, a special toy, etc.—and reserve these treats for training.
 - Set up a gradient for exposure to the unfamiliar people. Most often distance from the person is the gradient selected, however other factors may be considered such as size of person, gender of person, animation of person, location, activity (bicycles), etc.
 - Expose the dog to the person at an intensity level where there is no evidence of anxiety or aggression.
 - The dog should be given a command and rewarded for compliance while maintaining a relaxed, nonaggressive attitude.
 - If the dog is unable to comply, the stimulus intensity is too great and must be reduced. At no time should the dog be reprimanded or punished but instead the dog should be removed until calm and a lower intensity stimulus attempted.
 - Try to end each session with a successful approach, one where the dog can comply with the command and be relaxed.
 - Repeat multiple times with different people at a similar intensity prior to increasing intensity of trigger (e.g., decreasing distance between dog and unfamiliar person).
 - Gradually increase intensity of trigger, staying below the threshold that evokes aggression until the dog can be nonaggressive when the unfamiliar person passes within a few feet.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Safety Recommendations for Aggressive Animals
Structuring Your Relationship with Your Pet
Teaching a New Response to the Doorbell
Teaching Your Pet How to be Confined
Tranquility Training Exercises
Using Classical Counterconditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- There are no medications licensed for the treatment of canine aggression. Owners must be aware that the use of a medication is off-label, and this should be documented in the record.
- Treatment success is highly unlikely with drug therapy alone; combination with behavioral modification is recommended for highest likelihood of treatment success.

- If medication is used, owners should not consider the drug curative or remove any steps that they have implemented to maintain public safety.
- If anxiety is a component of the aggression, medication may decrease the intensity or frequency of the aggression but is unlikely to be curative.
- In fearful animals, disinhibition of aggressive responses is possible. If fear or anxiety is causing the aggression, then decreasing those may decrease aggression. If fear or anxiety is restraining the aggression, diminishing them may actually increase aggressive responses.
- It may take up to a month before the TCAs and SSRIs show positive effects.
- If medication is beneficial, anticipate a minimum treatment course of 3–6 months.
- Prior to medicating, a physical examination, CBC, chemistry panel, and thyroid screen are recommended. These procedures should be repeated on an annual or semiannual basis in pets receiving long-term therapy.
- In healthy animals, side effects from SSRIs and TCAs are usually mild and resolve within a week of treatment initiation, if they occur at all; a reduced appetite and sedation are the most common side effects noted by owners.

Selective Serotonin Reuptake Inhibitors (SSRIs)

- Fluoxetine: 0.5–1 mg/kg PO q24h
- Paroxetine: 0.5–1 mg/kg PO q24h
- Sertraline: 1–3 mg/kg q24h

Tricyclic Antidepressants (TCAs)

- Amitriptyline: 1.0–2.0 mg/kg q12h
- Clomipramine: 2–4 mg/kg PO q24h or divided q12h (label-restricted for aggression)

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone[®]) is a synthetic analogue of a calming pheromone produced by lactating bitches; it may reduce anxiety.
- Complementary therapies such as acupuncture, anxiety wraps, herbal preparations, and Tellington[™] Touch have all been advocated but scientifically unsubstantiated as treatments for canine anxiety/aggression.
- High protein (30+%) diets should be avoided.
- Low protein (18%)/high tryptophan diets may help reduce aggression but are unlikely to make a significant difference without behavior modification.

Contraindications/Precautions

- Avoid use of TCAs such as amitriptyline in patients with cardiac abnormalities as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible; monitor response closely.

- Serotonergic or dopaminergic medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (tick collars) and selegiline.
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Surgical Considerations

- Neuter intact animals to prevent any genetic transmission and perhaps reduce territorial aggression.



COMMENTS

Client Education

- Owners should be aware that treatment is designed to minimize the likelihood of aggression if there is a break in appropriate management. Completion of treatment does not imply that the dog is “cured” and completely reliable/safe around unfamiliar people.

Patient Monitoring

- Initial follow-up should be weekly to assess owner compliance and dog's response to therapy.
- Due to prolonged duration of treatment, follow-up may evolve into monthly updates over the course of several months.
- If on long-term drug therapy, annual or semiannual physical examination and CBC, chemistry panel, and thyroid panel should be performed.

Prevention/Avoidance

- Adequate socialization during the sensitive socialization period (5–16 weeks) and into adulthood to a variety of people is encouraged.
- Avoid owner reinforcement of aggressive behaviors.
- Safety precautions will need to be maintained despite apparent treatment success.

Possible Complications

- Watch for unexpected adverse events associated with drug therapy; since these drugs are not licensed for use in aggressive dogs, an untoward reaction could occur.

- If not properly managed, the dog may have opportunities to display aggression and inflict injury.
- If the household has children or is a particularly busy environment, there may be lapses in management that lead to aggressive events.

Expected Course and Prognosis

- With treatment, the dog should show a trend of continued improvement in behavior when exposed to unfamiliar people; this improvement may span several months.
- Occasional relapses are anticipated during the course of treatment.
- Prognosis depends upon multiple factors including the severity of aggression, predictability of aggression, size of dog, and owner compliance.

See Also

Chapter 2, Aggression/Canine: classification and overview
Chapter 3, Aggression/Canine: fear/defensive
Chapter 12, Aggression/Canine: territorial
Chapter 23, Aggression: medical differentials
Chapter 33, Fear of People: canine and feline

Abbreviations

CBC—Complete Blood Count
CSF—cerebrospinal fluid
DAP—Dog Appeasing Pheromone[®]
h—hour
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
PO—by mouth
q—every
SSRI—selective serotonin reuptake inhibitor
TCA—tricyclic antidepressant

Suggested Reading

- Bradshaw, John W.S., and Helen M.R. Nott. 1995. Social and communication behaviour of companion dogs In: *The Domestic Dog, its evolution, behaviour and interactions with people* edited by James Serpell, Cambridge: Cambridge University Press, pp. 116–130.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition Philadelphia: Saunders, pp. 401–410.
- Mertens, Petra A. 2002. Canine Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine* edited by Debra Horwitz, Daniel Mills, and Sarah Heath. Gloucester: BSAVA, pp. 202–215.
- Overall, Karen L. 1997. *Clinical Behavioral Medicine for Small Animals*, St. Louis: Mosby, pp. 101–110.

Aggression/Canine: idiopathic



DEFINITION/OVERVIEW

This aggression refers to aggressive behavior for which no known cause is found despite both medical and behavioral workup. Stimuli that provoke the aggression are often difficult to reliably identify. Idiopathic aggressive behavior is often used to refer to highly impulsive, reactive, and unpredictable aggression in dogs. It may also be termed episodic dyscontrol¹, rage syndrome, or mental lapse syndrome.²



ETIOLOGY/PATHOPHYSIOLOGY

- The cause is unclear at this time.
- Perhaps there is a genetic predisposition to impulsive, uninhibited aggressive responses.
- Some animals appear exceedingly autonomically aroused with dilated pupils, and elevated heart and respiratory rates.
- Some cases may show abnormal EEG patterns, but findings are not reliable.



SIGNALMENT/HISTORY

- May occur in all breeds.
 - First identified in springer spaniels
- No particular age noted but often presented in dogs between 1–3 years of age
- No particular gender distribution, perhaps more common in males

Historical Findings

- On careful questioning, the aggressive episodes appear to be unprovoked; repeatable triggers cannot be identified.
- The pet response is violent, uncontrolled, and often results in multiple injurious bites.
- Aggressive episodes seem to have no particular triggers and can be particularly intense.

¹Dodman, N.H., Miczek, KA, Knowles, K, et al. Phenobarbital-responsive episodic dyscontrol (rage) in dogs. JAVMA 1992, 201: 1580–1583.

²Beaver, B.V. Mental Lapse aggression syndrome, JAAHA, 1980, 16:6: 937–939.

- Bite wounds inflicted are usually serious and multiple bites may occur in an episode.

Contributing/Risk Factors

- Some breeds such as certain types of spaniels may be at risk for this type of aggression.
- Underlying medical conditions that cause pain or irritability must be ruled out and/or treated as these may cause or aggravate aggressive behavior. Examples of possible contributory medical problems include arthritis, dermatitis, hypothyroidism, and pseudocyesis.
- Cognitive decline in a geriatric patient may cause disorientation and change in social interactions that could present as aggression to unfamiliar people.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This information allows the clinician to identify areas that need additional management to protect people and also evaluate the amount of time available for rehabilitating the dog.
- What is the daily routine, including feeding, training, exercise, and play?
- What is the duration and progression of the problem behavior?
 - Long histories of aggressive behavior have a poorer prognosis.
 - If the aggression is very frequent (e.g., daily), it is probably quite established and will be challenging to change.
 - If the aggression has gotten more severe (e.g., snarl to injury bite), then these dogs are more dangerous.
- Descriptions of aggressive encounters are essential.
 - First episode of any aggressive responses however mild.
 - Most recent episode with any aggressive response.
 - Progress back in time through several episodes and trigger situations.
 - Each should include persons present, their actions and responses, position and actions of the dog, and body postures and facial expressions of the dog. The dog's behavior needs to be reviewed before, during, and after incident.
- Learn what previous treatments were used, including both those that helped and those that made the condition worse and the pet's response to each one including physical reprimands or leash corrections.



DIFFERENTIAL DIAGNOSIS

- Dominance aggression/conflict aggression, fear-based aggression
- Neurological disease
- Seizure disorder



DIAGNOSTICS

- Physical and neurological examination should occur on all patients.
- Further diagnostic testing based on physical examination findings and minimally would include CBC, chemistry profile, endocrine testing, and urinalysis.
- Perform an EEG if seizure disorder is suspected.

Pathological Findings

- Presence of abnormal EEG may indicate seizure disorder.



THERAPEUTICS

Safety

- Preventing human injuries must be the first concern.
- Treatment is aimed at controlling the problem, not at achieving a “cure.”
- Owners must be aware that the only way to prevent future injuries is euthanasia.
 - Certain family dynamics (young children, elderly residents, or immunocompromised individuals) may make keeping the pet dangerous and impractical.
 - Re-homing dogs is not practical or safe.
- A complete list of aggression-provoking situations should be compiled.
- All known situations that evoke aggression must be avoided.
- All family members need to comply with treatment recommendations.
- Treatment is generally lifelong.
- Do not physically punish or reprimand the dog.
- The dog must not be left alone with children or elderly persons.
- Dogs with unpredictable, extreme aggressive responses may be too dangerous to treat.

Management

- Teach the dog how to tolerate secure confinement either in a crate, behind a baby gate, or in a secure room.
- Use a headcollar (e.g., Gentle Leader®) for increased control.
- Do not physically punish or reprimand the dog.
- Avoid all situations known to trigger the unwanted behavior.
- Basket muzzles are recommended.

Behavioral Modification Techniques

- There are no effective treatments for idiopathic aggression.
- If triggers can be identified, they must be avoided.
- Do not allow the dog on furniture or to sleep in the bed.

- Avoid valuable treats or toys (e.g., rawhides).
- Pick up toys and have owner control playtime and activity.
- All interactions based on a command/response relationship, nonconfrontational methods to teach the dog to view household members as leaders and in control.
- Use reward-based training to teach the dog to obey commands in daily situations.
- Limit physical contact with the dog, including petting. Control affection by having the dog follow a command prior to attention.
 - All interactions are structured and at the owner initiation and termination. No attention is given for repetitive solicitation by the dog.
 - Attention may be given when the dog is calm and quiet. The dog is called over, asked to sit, and is petted a few times. It is essential that humans start and end the interaction.
- Teach the dog to obey commands to end situations where aggression has occurred in the past.
 - Use “off” commands to remove the pet from furniture.
 - Use “drop it” commands to obtain objects.
- Teach the pet to be calm, settled and relaxed on cue in a specific location. (See the Tranquility Training Exercises handout in Appendix D.)
 - For dogs, this may be “go to your bed and stay” or “head down” command.
- The CCDS technique is used to decrease responsiveness to situations that have resulted in aggression in the past. Muzzle may be needed for safety. This CCDS technique should not begin until the owner has assumed a greater level of control over the dog through affection control and reward-based training.
- Teach the dog to comfortably and safely wear a headcollar and/or basket muzzle. Have the dog wear the headcollar with a lightweight 8- to 10-foot leash attached whenever in contact with people. Use a long leash to move the dog from situations that may elicit aggression; do not reach for dog directly. If headcollars cannot be used, a body harness with a leash attached is an alternative.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Safety Recommendations for Aggressive Animals
Structuring Your Relationship with Your Pet
Teaching Drop and Retrieving Stolen Items
Teaching Your Pet How to be Confined
Tranquility Training Exercises
Using Classical Counterconditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- If seizure disorder is suspected, treatment with phenobarbital may be attempted.
- There are no medications licensed for the treatment of canine aggression. Few published studies exist. The only double-blind placebo-controlled study of

medication for dominance aggression showed a strong placebo effect and no difference between placebo and medication in reducing aggressive behaviors³.

- Owners must be aware that the use of a medication is off-label. Because of liability concerns, a note in the patient record is advisable stating that owners were informed of potential risks and potential side effects. Signed informed consent forms are prudent. Before prescribing medication, be sure that owners understand the risks involved in owning an aggressive dog and will follow safety procedures and not rely on medication to keep others safe.
- Never use medications without behavior modification.
- Medication may not be appropriate in some family situations such as those with small children, family members with disabilities, or immunocompromised individuals.
- Medication may only decrease the intensity and/or frequency of aggressive responses but not make them go away entirely.
- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For dogs on long-term medication, yearly or semiyearly recheck is recommended.

Selective Serotonin Reuptake Inhibitors (SSRIs)

- Fluoxetine: 0.5–1 mg/kg q24h, paroxetine: 0.5–1 mg/kg q24h
- Side effects: inappetence and irritability, gastrointestinal signs, and increased agitation

Contraindications/Precautions

- Any psychotropic medication may increase rather than decrease aggression. Corticosteroids are contraindicated if the dog is aggressive over food; polyphagia can lead to increased incidents and intensity of aggression.
- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- SSRIs should not be combined with MAO inhibitors including amitraz and selegiline.
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.

³White, M.M., Neilson, J.C., Hart, B.L. and Cliff, K.D. Effects of clomipramine hydrochloride on dominance-related aggression in dogs. *JAVMA* 1999; 215: 1288–1291.

- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®) diffusers may help calm some dogs but not necessarily diminish aggressive responses.

Surgical Considerations

- Neutering intact male dogs is recommended to avoid genetic transmission.
- Spaying intact female dogs that show aggression prior to 6 months of age may increase rather than decrease aggressive responses.



COMMENTS

- Preventing human injuries must be the first concern.
- Treatment is aimed at controlling the problem, not at achieving a “cure.”
- Owners must be aware that the only way to prevent future injuries is euthanasia.

Client Education

- Clients must be willing and able to implement safety programs.
- Clients must understand the risks of undertaking treatment and keeping a known aggressive dog within the home.
- Clients must take necessary steps to prevent injury to others including muzzles, confinement, and if prudent, euthanasia.
- Success will be measured in a decrease in aggressive episodes or a decrease in their intensity, but treatment is unlikely to result in a cessation of aggression.
- Treatment recommendations are lifelong. Owners may see recurrence of aggression with treatment lapses. Continued avoidance of aggression triggers may be necessary.

Patient Monitoring

- Follow-up within 7–10 days after the consultation is ideal to discuss the implementation of treatment and safety recommendations.
- The ability of the owner to provide safety for themselves and others should be reevaluated at each follow-up contact.
- Dogs on medication should be monitored regularly for any problems.

Prevention/Avoidance

- Good early socialization, clear expectations for pet behavior from all family members, consistent interactions and rules, no inappropriate punishment especially after the fact, may help prevent aggression in some cases.
- If genetic components are contributory and aggression is severe, aggression is likely to continue despite good management.

Possible Complications

- Risk of human injury
- Pet euthanasia

Expected Course and Prognosis

- Dogs showing severe aggression tend to worsen and remain dangerous. Often they are euthanized due to ongoing risk to family members.

Pregnancy

- Intact animals may show increased aggression when pregnant, nursing, or experiencing pseudocyesis.

See Also

Chapter 3, Aggression/Canine: fear/defensive
Chapter 5, Aggression/Canine: human directed/familiar people

Abbreviations

CBC—complete blood count
CCDS—counterconditioning and systematic desensitization
CNS—central nervous system
DAP—Dog Appeasing Pheromone®
EEG—electroencephalogram
FDA—Food and Drug Administration
h—hour
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
q—every
SSRI—selective serotonin reuptake inhibitors
TCA—tricyclic antidepressants

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat* 2nd edition, Philadelphia: Elsevier.

- Mertens, Petra. 2002. Canine Aggression In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 195–215.
- Mills, D.S., and B.S. Simpson. 2002. Psychotropic agents In: *BSAVA Manual of canine and feline behavioural medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA. pp. 237–248.
- Overall, Karen. 1997. *Clinical behavioral medicine for small animals*, St. Louis: Mosby.

Aggression/Canine: interdog/familiar dogs

chapter 8



DEFINITION/OVERVIEW

- Aggressive threats or overt fighting between two familiar dogs in the same household.
- The situation may involve two normal dogs that are trying to establish a dominance hierarchy. In this case, a period of posturing and skirmishes may occur between the dogs that reduces in frequency when the hierarchy is established.
- Alternately, one or both of the dogs may be behaving abnormally as a result of poor communication skills, underlying medical problems, or fear/anxiety. The aggressor may be inappropriate in the level of aggression displayed and/or show a lack of response to deferential signals given by the other dog.



ETIOLOGY/PATHOPHYSIOLOGY

- May be an expression of normal social behavior between two dogs
- May be due to a lack of appropriate communication skills, anxiety, or anything that causes the dog to be more irritable such as dermatitis, arthritis, hypothyroidism, etc. (See Chapter 23, Aggression: medical differentials.)



SIGNALMENT/HISTORY

- Any age, breed, or gender can exhibit.
- Age: This behavior is most likely to occur when one or both dogs reach social maturity; it may occur when one dog becomes elderly.
- Breed: Dogs that are bred for aggressive purposes such as dog fighting may harbor a genetic predisposition for interdog aggression.
- Dogs that share multiple characteristics such as breed, age, and gender may be predisposed to aggressive encounters when they reach social maturity.

Historical Findings

- Usually aggression is only between two specific dogs, even if more dogs are present in the household.

- Dogs usually have lived in harmony prior to altercations.
- Dogs may aggress on sight of each other or may get along for prolonged periods between altercations.
- Most frequent triggers for aggression between two household dogs include excitement, food/toy, owner proximity, confined space, defense of a location, and dominant postures.
- Fights may only occur in the presence of certain individuals.
- History may include owners that don't understand canine social systems and create situations where they force the dogs into situations that undermine the established social structure.
- In situations where the aggressor dog is behaving abnormally, the aggression persists despite clear signs of submission by the victim.

Contributing/Risk Factors

- Household instability
 - Maturation of one or both dogs (often between 1–3 years of age)
 - New pet or human introduced into the household
 - A pet becoming ill, aged, or dying
 - A pet returning from an absence from home (boarding, surgery, training, vacation)
- Similarity between the dogs in gender, age, and size
- Inadequate socialization with other dogs during sensitive developmental periods
- Anxiety-related conditions in one or both dogs
- Underlying medical conditions that contribute to irritability/aggression
- Limited basic resources; a deprived environment
- Owner interference with normal dog behavior/posturing/signaling

Pertinent Historical Questions

- What is the household composition, including all people and pets?
 - This information helps the clinician assess the safety of keeping the fighting pets in the home.
- When was the onset of aggression?
 - May identify certain social or environmental changes that influenced aggression.
- How often do the fights occur?
 - This information allows assessment of progress and gives one a sense of the severity of the problem.
- How are the dogs managed in the home?
 - Are there any privileges given to one pet? Preferential feeding, attention, or access to certain areas may be important in identifying contributing factors for the aggression.

- Do the owners have “favorite” pets, and if, so, how does this play out? This may undermine a stable hierarchy if owners are pushing pets into situations that aren’t in accord with the hierarchy.
- When the dogs aren’t engaged in altercations, how do they interact?
 - Details regarding interactions around resources (food owner attention, etc.) can be helpful since it can offer a picture of the dominant-subordinate relationship between the dogs. It is important to remember that these interactions are often context-specific depending upon resource in question and relative value of that resource to the dog. The dog that acquires preferential access to valued items or space is often the dominant dog. This is especially true if the other dog willingly defers in those situations.
- How does a fight develop?
 - Ask owners to recount how the dogs behave before a fight, paying special attention to body posturing, vocalizations, etc. This information allows one to identify if the altercation is gradually escalating into a fight with both dogs giving and receiving signals or if one dog is skipping preliminary warning signs or aggressing despite the other dog offering signs of deferment. If the fight gradually escalates (body stiffening, stare, growling, snarling, snapping, biting) with pauses for the other dog to respond to the threat, then this is normal behavior. And, if one dog defers, the incident resolves, then these are two normal dogs probably engaged in a status-related incident. However, if one or both of the dogs lash out without any preliminary warnings or opportunities for the other dog to respond or a dog aggresses even when the other dog shows clear signs of deferment, an abnormal dog is involved in the altercation. Treating that underlying abnormality (anxiety, medical issue, etc.) is necessary to achieve overall treatment success.
 - Identify triggers for fights: food, presence of a certain person, times of high arousal, etc. Identifying specific triggers will allow appropriate management (see below) and may help with the diagnosis.
- How do fights resolve?
 - If the owners have to separate dogs then this provides an opportunity to advise owners about intervening in dogs fights. (See the Treatment section below.)
- Are injuries sustained?
 - Most dogfights sound quite brutal but often both dogs walk away with no injuries or only minor injuries. Lack of serious injuries suggests some level of inhibition; normal dogs will retain this inhibition even in an altercation and only escalate aggression if warranted. Abnormal dogs may inflict serious injury even when the other dog is trying to retreat/submit.
- If the dogs are left together when the owner departs, has the owner ever returned home to find evidence of a fight?
 - If the answer is no then this implies that the owner’s presence or actions may influence the fighting. It carries a better prognosis than situations where the dogs fight during owner absence.



DIFFERENTIAL DIAGNOSIS

- Primary medical causes of aggression (See Chapter 23, Aggression: medical differentials.)
- Social status aggression (also called sibling rivalry, dominance status aggression, intraspecific social aggression)
- Anxiety-related aggression
- Redirected aggression



DIAGNOSTICS

- Since underlying medical disease can contribute to a sudden onset of aggression between dogs that have previously gotten along, doing a thorough medical screening is suggested to identify any problems.
 - Physical examination, neurological examination
 - CBC, chemistry panel, thyroid evaluation
 - Further tests as indicated by initial findings



THERAPEUTICS

The overall goal of therapy is to try to help establish or maintain a well-functioning canine social hierarchy in the household. If there are two normal dogs involved in altercations, this may involve some fairly simple changes in owner behaviors and perhaps management of very valuable resources that trigger fights. If one or both of the dogs is abnormal in their social behavior, the intervention will be much more complex, involving management of the abnormal dog(s) to address their underlying problem.

Safety

- Safety of pets and people must be considered.
- Redirected/inadvertent aggression to owners is a common occurrence when trying to separate fighting dogs, so physical intervention by owners should be avoided. Provide owners with ideas for remotely separating dogfights, such as canned fog horns, water, blankets tossed over dogs, etc.
- Separation of pets is necessary if pets are sustaining physical or emotional injury/distress.

Management

- Separate dogs when unsupervised.
- Do not allow dogs to “fight it out.”
- Remove all known triggers for aggression.

- Since food is often a trigger for aggression between dogs, it should be carefully managed so that it isn't a source of conflict. At meal feedings, use separate feeding areas, and only use small readily consumed treats.
- In severe cases, the owner may elect to place basket muzzles on one or both of the dogs when dogs are together and/or the dogs may initially need to be physically separated by glass doors/baby gates or tethers.
- In less severe cases, a headcollar (e.g., Gentle Leader®) with drag leashes may be placed on dogs for added owner control when dogs are together.

Behavioral Modification Techniques

- All human/dog interactions should only occur if the dog responds to a command from the owner. (See the handout Structuring Your Relationship with Your Pet in Appendix D for specific steps.)
- Condition the dogs to be calm, relaxed, and obedient on a verbal cue from the owner. (See the Tranquility Training Exercises handout in Appendix D for specific steps.)
- Identify the dog of higher status or the dog most likely to assume that position; if one dog is behaving abnormally and the other normally, the normal dog should be supported as the dominant dog.
- All household members are instructed to support the dominant/normal dog as such by giving that dog preferential access to resources including but not limited to affection, food, resting spots, access to areas. The subordinate dog should be ignored or instructed to back away if it tries to intervene on the dominant dog's preferential treatment.
- If tension (stiffening, locked stare, growl, snarl) is noted between the dogs, owners can attempt to diffuse the situation by giving a verbal interruption/command. Often times this command is directed toward the subordinate or abnormal dog. If the dog is wearing a headcollar with a drag leash, a pull on the leash attached to the headcollar or a time-out may be helpful to diffuse the situation.
- If a fight breaks out between the dogs, safely separate them using a remote technique as outlined above and then put the dogs in separate time out locations until their arousal levels have decreased.
- Identify triggers that increase arousal levels in one or both dogs and design a desensitization and counterconditioning program for that trigger(s). For example, if both dogs get highly aroused by the doorbell, make a tape of the doorbell sound and introduce it at low levels and teach the dogs to sit/stay. With success, gradually increase the volume until they are no longer aroused every time the doorbell rings at full volume and instead will hold a quiet sit/stay.
- If an abnormal dog is part of the dyad, that dog may need special treatment designed to make it less reactive to certain stimuli.
- Be aware that status may be context dependent

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details

Maximizing Treatment Success

Safety Recommendations for Aggressive Animals

Structuring Your Relationship with Your Pet

Teaching Your Pet How to be Confined

Tranquility Training Exercises

Using Classical Counterconditional to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- If both dogs are normal then drug therapy is not indicated.
- If the dog(s) is abnormal then pharmacological intervention may be indicated.
 - Drugs to help reduce anxiety or impulsive aggression follow:
 - Fluoxetine: 0.5–1.0 mg/kg PO q24h
 - Amitriptyline: 1–2 mg/kg PO q12h
 - Paroxetine: 0.5–1.0 mg/kg PO q24h
 - Sertraline: 1–3 mg/kg PO q24h
 - In healthy animals, side effects from SSRIs and TCAs are usually mild and resolve within a week of treatment initiation, if they occur at all; a reduced appetite and sedation are the most common side effects noted by owners.
 - If a dog is suffering from cognitive dysfunction then consider selegiline 0.5–1 mg/kg PO q24h in the morning.

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®) diffusers may help reduce household anxiety/tension.

Contraindications/Precautions

- No drugs are labeled for the treatment of aggression in dogs.
- Avoid use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible; monitor response closely.
- Serotonergic or dopaminergic medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (tick collars) and selegiline.
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.

- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances in people and pets leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Drug therapy is not without risk. Consult individual drug monographs and Appendix A, Pharmacology, for more information on medications and their contraindications.
- Drug therapy should not be considered a panacea, and owners should not remove safety measures based upon their initiation.

Surgical Considerations

- Castration or ovariectomy is generally recommended on dogs with aggression.
- To help define a hierarchy, it has been suggested to keep the dominant animal intact; this is debatable because intact male dogs may have heightened aggression.



COMMENTS

Client Education

- Educating clients about the function of canine social hierarchies is important for owner compliance. Owners must understand that all dogs aren't equal in status in a healthy group living environment and to try to impose human values on a canine system is flawed logic.
- Instructing owners on safety issues is critical to avoid inadvertent injuries when separating aggressive dogs.

Patient Monitoring

- Good patient follow-up is essential with initial telephone contact 7–10 days after the appointment.
- Since the problem may take weeks to months to resolve, regular weekly contact is advised.

Prevention/Avoidance

- Adopt dogs of different genders and ages.
- When introducing a new dog to a household, give dogs already in the home preferential treatment to resources.
- Avoid leaving highly valuable items in the environment.
- Avoid interfering with normal dog posturing/communication.

Possible Complications

- Serious injury or death due to continued fighting
- Injury to people when trying to separate aggressive dogs

Expected Course and Prognosis

- If one or both dogs have abnormal social behavior, then prognosis is guarded.
- If both dogs are normal and the owner's behavior is the primary cause of aggression then prognosis is fairly good if the owner is compliant.
- Two female dogs fighting often have a bad prognosis; aggression is often very severe and resistant to intervention.
- Prognosis is better if dogs don't aggress on sight of each other.
- Despite overall improvement, occasional altercations may still occur especially if there are lapses in management.

See Also

Chapter 2, Aggression/Canine: classification and overview

Chapter 4, Aggression/Canine: food

Chapter 11, Aggression/Canine: redirected

Chapter 12, Aggression/Canine: territorial

Chapter 23, Aggression: medical differentials

Chapter 24, Anxiety Disorders: general overview canine and feline

Chapter 39, Generalized Anxiety

Abbreviations

BID—twice daily

CBC—complete blood count

CNS—central nervous system

DAP—Dog Appeasing Pheromone[®]

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

SID—once daily

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 385–426.

Mertens, Petra A. 2002. Canine Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 202–215.

Aggression/Canine: interdog/unfamiliar dogs

chapter 9



DEFINITION/OVERVIEW

This is aggressive behavior directed between dogs that are unknown to each other. It may consist of growling, snarling, snapping, lunging, and biting. Encounters can be mild or result in significant damage to one or both participants. A variety of different motivations exist, including fear, territoriality, and social status. The behavior is usually within the range of normal behavior, but excessive aggression due to learning or genetics (dogs bred for fighting) is also possible.



ETIOLOGY/PATHOPHYSIOLOGY

- This behavior may be part of normal canid social repertoire.
- Excessive fighting may be learned behavior.
- Underlying fear or anxiety may contribute.



SIGNALMENT/HISTORY

- Breed predilection exists in “fighting breeds” (e.g., pit bull terriers) and terriers.
- Signs usually develop at puberty (between 6 and 9 months of age) or social maturity (between 18 and 36 months of age).
- This behavior is more common in intact male dogs.

Historical Findings

Aggression (growling, lip-lifting, barking, snapping, lunging, biting) toward other dogs. This may be accompanied by fearful or submissive body postures/facial expressions (crouching, backing away, ears back, tail tucked, looking away, lip licking) or by confident/dominant body postures (standing straight up, approaching the other dog, direct contact with the other dog, tail up, ears forward).

- History may include the dog having been victim of aggression from other dogs.
- Fights may vary in intensity from growling and snarling to serious wounds.
- Fights may have elements of territoriality, competition, and fear.
- Owner behavior may greatly influence predilection toward aggressive responses.

Contributing/Risk Factors

- This may be normal canine behavior, strongly influenced by previous experience (e.g., inadequate early socialization to other dogs, aggressive encounters with other dogs).
- Aggression is likely to be worse toward dogs of the same gender¹.
- Breed predilections may be due to selective breeding for interdog aggression.
- Male dogs more often fight, especially intact male dogs.
- Aggression may be due to a lack of early socialization and exposure to other dogs.
- Some aggressive dogs lack the ability to appropriately respond to social cues from other dogs.
- Underlying medical conditions, especially those causing pain, may increase level of aggression.

Pertinent Historical Questions

- Objective descriptions of the dog's behavior are essential.
 - Does this dog ever show appropriate communicative and social responses?
 - Can it be with other dogs without showing aggression?
 - Is there evidence of anxiety when other dogs are nearby (panting, pupils dilated, increased vigilance)?
- Who were the victims of the attacks and what were the circumstances in which the aggression occurred, which will help to avoid further encounters?
 - Smaller dogs, bigger dogs
 - In parks, on walks, on or off leash
- What was the body posture and facial expressions of the both dogs involved in the aggressive encounter?
 - Does either dog show signs of play, exuberance, and uncontrolled greeting behavior prior to aggressive responses?
- What is the early history of the dog?
 - Interaction at breeders
 - Interaction with dogs at time of adoption
 - Interaction with dogs in early months (frequency and quality)
- How did the problem develop, including duration, frequency, intensity?
- How did the owner attempt to treat the problem?
 - Corrections include physical reprimands or petting and soothing vocal intonation.
 - What is the owner response while the dog is on a leash?
 - Does the behavior vary with different family members?
- Gradient of responses to other dogs
 - When and how does the dog respond when it first encounters another dog?
 - At what distance does the dog first notice another dog and what is the response at that time?

¹Sherman, C.K., Reisner, I.R., Taliaferro, L.A. and Houpt, K.A. Characteristics, Treatment and Outcome of 99 Cases of Aggression Between Dogs. *Applied Animal Behavior Science* 1996; 47: 91–108.

- Does the response vary as the dog approaches (get worse, better, etc.)?
 - What happens once the other dog is past the owner?
- Is the dog able to greet briefly?
- Can the dog walk by other dogs nicely?
- Is the behavior different on and off the leash?
- Is the behavior different on and off the dog's home property?
- Does the behavior occur toward dogs behind fences or when this dog is in the car?



DIFFERENTIAL DIAGNOSIS

- Pain induced, learned aggression, territorial, competitive aggression
- More than one type of aggression may be present
- Play behavior or excited nonaggressive arousal



DIAGNOSTICS

- Physical and neurological examinations should be performed.
- Further diagnostic testing is based on physical examination findings and minimally would include CBC, chemistry profile, endocrine testing, and urinalysis.



THERAPEUTICS

Safety Recommendations

- In aggressive dogs, treatment is aimed at controlling the problem, not at achieving a “cure.”
- Encounters with other dogs must be prevented. This might mean curtailing walks until progress is made.
- The dog must be confined away from potential victims or under the direct physical control of a responsible adult whenever an aggression-provoking situation could arise (e.g., in any public locations, on walks). Teach the dog(s) to be comfortable wearing a headcollar (e.g., Gentle Leader®) and basket muzzle.
- Improve owner control through obedience to commands.

Management Techniques

- Walks must be avoided if possible or take place at locations and time of day when other dogs will not be encountered.
 - If the dog must be walked, only those adults with control over the dog should walk the dog.
- Headcollars and possibly basket muzzles should be used if walks are undertaken.

- When on walks, the owner must be vigilant and avoid encounters with other dogs or quickly leave the situation if other dogs are encountered.

Behavioral Modification Techniques

- Treatment should focus on three areas:
 - A learned method for leaving potential aggressive situations
 - Changing the meaning of the approach of other dogs through classical counterconditioning
 - Systematic CCDS to other dogs
- Establish a reinforcer gradient. What rewards (food, play) will the dog work for best?
 - Favored rewards are then reserved for training sessions only.
- Dog(s) should first be taught to sit or assume “down and relax” on a verbal command using food rewards (counterconditioning).
- Establish a stimulus gradient (i.e., at what distance does the dog exhibit what response?).
 - Specific information allows treatment to be tailored to each dog's needs.
- Teach the owner an “escape” strategy if they encounter another dog outside of training sessions. If the owner encounters another dog, they are to quickly change the mood, turn the dog around (180 degrees), or cross the street and leave. This response must first be practiced at home using a food reward and verbal phrase to quickly turn the dog around and go the other way. This can be called a “let's go” or “turn around” command. The dog should be able to do it reliably and quickly to the verbal command without distractions before resuming walks.
 - The goal is to move quickly, calmly, and efficiently out of the situation without causing or increasing aggressive arousal.
- Teach the dog a focusing command such as “watch me” to allow the owner to control the dog in the presence of other dogs.
- Use classical counterconditioning to begin to associate the sight of other dogs with highly valued food rewards. When other dogs are seen at a distance where the dog only orients and watches without aggression, the owner quickly gives the “watch me” command and begins to feed the dog the highly valued rewards. As the dog gets closer and focus begins to decrease, use the “turn around” command and leave the situation.
- Desensitization exercises: Expose the dog to a greatly reduced stimulus (the other dog at a distance) so no fearful or aggressive reaction is elicited.
 - Reward this nonfearful and/or nonaggressive behavior with the favored reward.
 - Gradually, increase the level of stimulation, staying below the threshold that would result in fear and/or aggression. This might mean decreasing distance between dogs as long as no aggressive behaviors are seen.
- Avoid leash corrections, leash tightening, pulling, or reprimands as they will likely increase rather than decrease the aggressive and anxious behavior.
- Use a basket muzzle if needed for additional safety.
- NEVER allow dogs to “fight it out.”

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Safety Recommendations for Aggressive Animals
Structuring Your Relationship with Your Pet
Tranquility Training Exercises
Using Classical Counterconditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- There are no medications licensed for the treatment of canine aggression. Few published studies exist.
- Owners must be aware that the use of a medication is off-label. Because of liability concerns, a note in the patient record is advisable stating that owners were informed of potential risks and potential side effects. Signed informed consent forms are advisable.
- NEVER use medications without behavior modification.
- Medication may only decrease the intensity and/or frequency of aggressive responses but not make them go away entirely.
- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For dogs on long-term medication, yearly or semiyearly recheck is recommended.
- Medications are most likely to be helpful in situations where there is a strong fear/anxiety component.

Selective Serotonin Reuptake Inhibitors (SSRIs)

- Fluoxetine: 0.5–1 mg/kg PO q24h, paroxetine: 0.5–1 mg/kg PO q24h
- Side effects: inappetence, irritability, gastrointestinal signs, and increased agitation

Tricyclic Antidepressants (TCAs)

- Amitriptyline: 1–2 mg/kg q12h
- Clomipramine: 2–4 mg/kg PO q24h or divided q12h (label-restricted for aggression)
- Side effects: sedation, anticholinergic, possible cardiac conduction disturbances if predisposed

Other Treatments

- Headcollars for additional control are usually essential.
- Basket muzzles may be necessary in some cases.
- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®) as an impregnated collar may help calm some dogs and diminishes their response to other dogs.

Contraindications/Precautions

- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz and selegiline.
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, and in patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Surgical Considerations

- Neutering intact males may decrease fighting behavior.



COMMENTS

Client Education

- Preventing human and canine injuries must be the first concern.
- Owners must be instructed in methods of avoiding and, if needed, safely breaking up dog fights.
 - Reaching for the dog may result in owner injury and redirected aggression.

- Making loud noises and grabbing hind legs are possible methods of breaking up fights.
- Pulling on leashes and collars may actually increase aggressive arousal.
- Avoid situations that may evoke an aggressive reaction. If there is a fear component, avoid situations that have resulted in the dog being fearful even if not aggressive.
- The dog must be confined away from potential victims or under the direct physical control of a responsible adult whenever an aggression-provoking situation could arise (e.g., in any public locations, on walks). Teach the dog(s) to be comfortable wearing a headcollar and basket muzzle.
- Do not allow ongoing aggressive displays at windows and fences toward other dogs passing by the home or car.
- Owners need to have realistic expectations. Dogs that have previously shown aggressive responses to other dogs are probably not suitable to be included in dog parks or allowed to roam off leash.
- Some dogs may only improve enough for walks to occur without aggressive displays but never enough to greet other dogs.

Patient Monitoring

- Good patient follow-up is needed; clients often need assistance and direction during treatment.
- Telephone follow-up and return visits may be needed for 6 months or more.
 - Owners may need supervised teaching visits with other dogs to learn to properly implement treatment recommendations.
- Compliance is improved with ongoing communication.

Prevention/Avoidance

- Frequent and regular interactions with other dogs during the first year of life are important.
- The interactions should be monitored to avoid inadvertent adverse responses due to overly exuberant play or even aggressive responses from other dogs.
- Monitoring of the owner's dog during encounters is also essential and seeking help at any early signs of fear or aggression toward other dogs.

Possible Complications

- Fighting with other dogs and injury to the dog and owner are possible.

Expected Course and Prognosis

- Prognosis depends on owner compliance with a treatment plan.
- Some dogs can learn to be near dogs on walks without aggressive displays but not learn to greet or play with other dogs.
- Some dogs may learn to greet other dogs, but many will only learn to behave properly while on a leash and within proximity of other dogs but not too close.

- Other individuals may learn to accept some dogs and play and interact with them on a friendly basis but at other times may exhibit aggressive responses.
- Loose roaming dogs can present a problem for both the owner and the dog, and injuries are possible.
- Dogs with poor social communication skills may always show problem behaviors around other dogs.

Pregnancy

- Nursing bitches or those experiencing pseudocyesis may show aggression toward other dogs.

Abbreviations

CBC—complete blood count
CCDS—counterconditioning and systematic desensitization
CNS—central nervous system
DAP—Dog Appeasing Pheromone®
FDA—Food and Drug Administration
h—hour
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
PO—by mouth
q—every
SSRI—selective serotonin reuptake inhibitor
TCA—tricyclic antidepressant

Suggested Reading

- Bradshaw, J.W.S., and H.M.R. Nott. 1995. Social and communication behaviour of companion dogs In: *The Domestic Dog*, edited by James Serpell Cambridge, Cambridge University Press, pp. 116–130.
- Mertens, Petra. 2002. Canine Aggression In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 195–215.
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- Shepherd, Kendal. 2002. Development of behaviour, social behaviour and communication in dogs In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 18–19.

Aggression/Canine: possessive



DEFINITION/OVERVIEW

Possessive aggression refers to dogs that aggressively guard things (food bowl, rawhides, real bones, stolen or found items) or objects (e.g., toys, stolen objects). Some degree of guarding is usually within the range of normal behavior but excessive aggression due to learning is also possible. The behavior may be directed toward humans or other pets and may have begun as play or an attention-seeking behavior. Over time defensive aggressive responses may occur due to owner responses, usually physical or verbal reprimands. Possessive aggression is often a component of other types of aggression including dominance/conflict aggression and territorial aggression.



ETIOLOGY/PATHOPHYSIOLOGY

- No specific etiology is known. Food stealing may be secondary to medical problems or medications that increase hunger.
- Some intact female dogs that guard toys may be experiencing pseudocyesis.
- This behavior may be related to resource-holding potential of one individual over another.



SIGNALMENT/HISTORY

- May occur in any breed or sex and at any age
- May be underreported in smaller dogs because danger and injury may not be as dramatic

Historical Findings

- This behavior may have begun in a limited way when the dog was quite young.
- Initially owner responses may have been punitive and the aggressive behavior escalated.
- It may only occur with selected items and perhaps only in selected locations.
- Elements of attention-seeking and play behavior may be present in some individuals.
- Aggression may be directed to either familiar or unfamiliar people.

- Aggressive responses may vary in intensity and perhaps in frequency and not occur every time in the same circumstances.
- Aggressive responses may be followed by withdrawal and distance-increasing responses.
- As the dog learns how to stop unwanted encounters with aggression, the intensity may increase (lunging escalates to nipping and biting).
- Aggression (growling, lip-lifting, barking, snapping, lunging, biting) may be accompanied by fearful or submissive body postures/facial expression (head down, crouching, backing away, ears back, tail tucked, looking away, lip licking). Body posture may change over time as the animal learns that aggressive responses are effective. Submissive body postures may yield to more assertive ones over time without a change in underlying motivation.

Contributing/Risk Factors

- This behavior may be part of the normal canine behavior repertoire.
- The behavior may be strongly influenced by previous experiences of successfully defending food, objects, or territory through aggression.
- Underlying medical conditions, especially those causing polyphagia, may increase the level of food aggression.
- Inappropriate reactions and punishment may exacerbate the problem.
- Harsh punishment for having items even after they have been relinquished may be a factor.
 - Punishment after the fact may increase the pet's fear and anxiety.
 - Unpredictable owner reaction may increase the pet's fear and anxiety.
- Lack of appropriate outlets for interaction and play with the owners may be a factor.
- Lack of bite inhibition may increase the danger in some dogs.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management to protect people and also evaluate the amount of time available for rehabilitating the dog.
- What is the daily routine, including feeding, training, exercise, and play?
 - Lack of appropriate outlets may lead to stealing and possessive behaviors.
- What have been the onset, duration, and progression of the problem behavior?
 - Long histories of aggressive behavior have a poorer prognosis.
 - If the aggression is very frequent (e.g., daily), it is probably quite established and will be challenging to change.
 - If the aggression has gotten more severe (e.g., snarl to injury bite), then these dogs are more dangerous.
- Ask the owner for a list of triggering circumstances and the frequency of occurrence.
 - This will help the clinician outline safety precautions.

- Descriptions of aggressive encounters are essential.
 - First episode of any aggressive responses however mild.
 - Most recent episode with any aggressive response.
 - Progress back in time through several episodes and trigger situations.
 - Each should include persons present, their actions and responses, position and actions of the dog, and body postures and facial expressions of the dog. The dog's behavior needs to be reviewed before, during, and after incident.
 - Descriptions should include objective descriptions of what the dog "did," not what the owner thinks the dog "meant."
 - Any injuries to people, and their frequency and severity should be discussed.
- Learn what previous treatments were used, including both those that helped and those that made the condition worse and the pet's response to each treatment including physical reprimands or leash corrections.



DIFFERENTIAL DIAGNOSIS

- Dominance aggression or conflict-related aggression
- Attention-seeking behavior
- Food-guarding aggression
- Pathological disease conditions associated with aggression
- Other anxiety conditions



DIAGNOSTICS

- Physical and neurological examinations should be performed.
- Further diagnostic testing is based on physical examination findings and minimally would include CBC, chemistry profile, endocrine testing, and urinalysis.

Pathological Findings

- Certain medical conditions and medication may increase food-seeking behaviors.



THERAPEUTICS

Safety Recommendations

- All known aggressive situations must be identified and avoided.
- Treatment is aimed at controlling the problem, not at achieving a "cure."
- Owners must be aware that the only way to prevent future injuries is euthanasia.
 - Re-homing dogs may not be practical or safe.
- All family members need to comply with treatment recommendations.
- Owners should be counseled not to reach for items that the dog has in its mouth or is guarding regardless of their value.

- All known trigger situations should be identified and then avoided.
 - This might mean keeping food and garbage in secure cupboards where they cannot be accessed by the dog, keeping doors closed to prevent access, or using baby gates to keep the dog out of certain rooms, motion sensors to discourage entry into certain areas, picking up and controlling access to toys, and avoiding highly valued items such as rawhide bones, pigs ears, and table food.
- When small children are in the home, separation of the dog and children may be advisable to avoid injury.
- Keep the pet on a leash using a headcollar (e.g., Gentle Leader[®]) for additional control and to prevent access to items or areas of the home.

Management Techniques

- Confinement may be prudent during certain situations such as meal preparation if food stealing is a component of the problem.
- If triggers can be identified, avoidance or confinement may prevent the animal from obtaining the objects.
- It may be advisable to make certain areas inaccessible to the dog with baby gates or closed doors if items cannot be stored out of reach.
- Make sure that daily activity, exercise, and social needs are met with walks, play, and training.

Behavioral Modification Techniques

- Strategies for retrieving items include redirecting the dog to other activities, trading for a higher value item, teaching “leave it” or “drop it” commands.
- Create a hierarchy of reinforcements to use for training including extremely desirable food items, play, and attention.
- Create a hierarchy of items that the dog attempts to possess including toys, stolen items, and perhaps people.
 - These situations must be avoided and items kept out of the dog’s reach or control.
- Increase owner control through structured interactions that are based on a command/response relationship. All methods must be nonconfrontational and use access to things the dog wants (food, petting, play, outdoor access, etc.) as rewards for compliance with simple commands such as “sit” or “down.” (See the Structuring Your Relationship with Your Pet handout in Appendix D.)
- **Redirecting to other activities:** For some dogs, a diversion with something else they really want to do will result in them leaving an object. This diversion may be taking a walk, riding in the car, ringing the doorbell, etc. If the dog is offered an alternate activity, it must be given even if it is short.
- **Trading for stolen items:** Some items of value or those that are dangerous to the pet may need to be retrieved quickly before they are damaged or the pet is injured. Only the adult that has the most control over the dog should do this; **children should never attempt this exercise.**

TABLE 10-1. Trading for stolen items

- Get a reward that is highly valued by the dog (usually table food).
- Show the food to the dog from 5–6 feet away.
- Give the command “come.”
- When the dog leaves the item, back up and call the dog again and add “sit.”
- Repeat two to three times without giving the dog the food reward until he is at least 15–20 feet from the object and preferably in another room.
- Give the dog the food reward, and if possible, gently take the collar and put into another room with a closed door or outside.
- Only at that time should you go and retrieve the item.
- The exchange NEVER takes place right in front of the dog and the item.

- When the dog has the stolen item, the owner goes and gets a highly valued food reward that the dog reliably wants.
 - Then the food is shown to the dog from 5–6 feet away, and the dog is called to “come.”
 - When the dog leaves the item, the owner backs up and calls the dog again and adds “sit.”
 - This is repeated two to three times without giving the dog the food reward until he is at least 15–20 feet from the object and preferably in another room.
 - The dog is then given the food, gently taken by the collar if he will reliably allow that without aggression, and put into another room with a closed door or outside. Only at that time does the owner retrieve the item. The exchange NEVER takes place right in front of the dog and the item.
- **Teaching “leave it” using a headcollar and leash:** With the dog wearing a headcollar and an adult holding the leash, the dog is walked toward an item he may wish to pick up such as a ball or chew toy. As the dog reaches for the item, calmly say, “leave it” and turn the dog’s head using the headcollar and quickly offer a food reward and “good dog” as the head comes toward you. Repeat several times with low value items.
- As the dog learns the meaning of the phrase, he will begin to turn his head prior to the pull of the leash. Immediately reward that behavior.
 - Progress to more valued items and gradually phase out food rewards while retaining verbal praise.
- **Teaching “drop it”:** The goal is to teach the dog to give up items with a verbal command.
- Initially this task is taught using an item of low value that the dog has never guarded and a high value reward.
 - When the dog is holding the item, he is offered a small piece of food along with the words “drop it” as the dog opens his mouth to take the food. Repeat several times so that the dog begins to anticipate the actions.
 - Next, hold the food away from the dog and say “drop it” only giving the food once the item has been dropped. Repeat until the response is reliable

TABLE 10-2. Teaching “drop it”

- The goal is to teach the dog to give up items with a verbal command.
- Start with an item of low value that the dog has never guarded.
- Have ready high value rewards for the dog (usually table food).
- When the dog is holding the item, offer a small piece of food along with the words “drop it” as the dog opens his mouth to take the food.
- Repeat several times so that the dog begins to anticipate the actions.
- Next, hold the food away from the dog and say “drop it” only giving the food once the item has been dropped.
- Repeat until the response is reliable and then begin to phase out the food by skipping the food reward on some repetitions.
- Gradually use items of higher value to the dog.
- With each new item you may need to use food rewards more frequently as the dog learns the task.

and then begin to phase out the food by skipping the food reward on some repetitions.

- Gradually use items of higher value to the dog. As you increase the value of the item, you may need to reinstate continuous food rewards until the drop command becomes reliable.
- Some items may always remain very valuable to the pet and be difficult to take back. All confrontations should be avoided, and the owner should wait until the dog has left the object and is outdoors before attempting to retrieve it.
- Punishment must be avoided since it is likely to escalate aggression and perhaps result in owner injury.
- Chase must also be avoided since some dogs may interpret this as a play activity even when the owner is agitated.
- Most aggression is controlled, not cured.

Accompanying Handouts

Acute Management of Problem Behavior
 Maximizing Treatment Success
 Safety Recommendations for Aggressive Animals
 Structuring Your Relationship with Your Pet
 Teaching “Leave it”
 Teaching Your Pet How to be Confined
 Teaching “Drop It” and Retrieving Stolen Items
 Tranquility Training Exercises

Drugs

- Psychotropic medications are not indicated unless the behavior is associated with other aggressive syndromes such as dominance/conflict aggression or anxiety conditions. See corresponding chapters for suggested medications.

Contraindications/Precautions

- Medications that increase appetite may also increase possessive behavior.

Other Treatments

- In many cases, the use of a headcollar will greatly facilitate control.

Diet

- Where food stealing and guarding are the primary problems, low calorie additions may diminish the behavior. (See Chapter 4, Aggression/Canine: food for additional suggestions.)

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Treatment is aimed at controlling the problem, not necessarily achieving a cure. The goal is a decrease in the number of aggressive incidents.
- Potential for ongoing aggression and injury is possible over the life of the pet.
- Clients must be aware of how to avoid and defuse situations.
- Safety of people especially children must be a top priority.
- Treatment may be lifelong.

Patient Monitoring

- Good patient follow-up is essential with initial telephone contact 7–10 days after the appointment.

Prevention/Avoidance

- Teaching pets to tolerate handling of toys and other items as puppies
- Trading early on for items and then returning them to the pet so that taking items does not produce anxiety
- Avoiding chasing, yelling, and physical reprimands for taking items especially after the fact

Possible Complications

- Human injuries; euthanasia or relinquishment of patient

Expected Course and Prognosis

- There is no cure. Prognosis for improvement is better if aggression is at a low intensity and in a few predictable situations. Prognosis is highly dependent on owner compliance.
- If the number of situations and items are limited, many dogs can be controlled.

Pregnancy

- Some nursing bitches may become aggressive when puppies are handled or approached.
- Some female dogs may show possessive behavior during pseudocyesis.

See Also

Chapter 3, Aggression/Canine: food

Chapter 5, Aggression/Canine: human directed/familiar people

Chapter 12, Aggression/Canine: territorial

Appendix C, Additional Resources for Veterinarians, Prognosis for Aggressive Animals

Abbreviations

CBC—complete blood count

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat* 2nd edition, Philadelphia: Elsevier.

Mertens, Petra. 2002. Canine Aggression In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 195–215.

Aggression/Canine: redirected



DEFINITION/OVERVIEW

Redirected aggression occurs when a dog in an aggressive emotional state toward one target redirects that aggression to another target, often an innocent bystander.



ETIOLOGY/PATHOPHYSIOLOGY

- Any type of aggression can become redirected aggression if the dog aggresses toward a target other than that which has incited the aggressive response.



SIGNALMENT/HISTORY

- Any age, gender, or breed can exhibit redirected aggression.
- Dogs with redirected aggression have a primary underlying aggression such as interdog aggression or territorial aggression that initiates the aggressive state.

Historical Findings

- The dog is already in an emotional, reactive, aggressive state triggered by any number of reasons: territorial protection, fear-related aggression, interdog aggression, etc.
- The dog then redirects the aggression from the original provocation to another target, often an innocent bystander.
- The redirected event often occurs when the dog can't get to its primary target for the aggression, it is being physically restrained, or its personal space is invaded when it is in this aggressively aroused state.

Contributing/Risk Factors

- Reactive, aroused, aggressive dogs
- Presence of any type of primary aggression

- Intervention of an aggressively aroused dog
- Proximity to an aggressively aroused dog

Pertinent Historical Questions

- The context of the aggressive incident is critical in identifying redirected aggression. Have owners describe aggressive incidents with particular attention to:
 - All people in the vicinity and their actions
 - All animals in the vicinity and their actions
 - Any environmental noises or activities that were occurring in the vicinity
 - If the dog was actively aggressing toward a target prior to redirecting the aggression to another target
- Information about the people/animals that are the target of the redirected events including their age, behavior, and injuries sustained.
 - This will help to assess risk of keeping the dog in the environment



DIFFERENTIAL DIAGNOSIS

- Redirected aggression requires that there is some primary cause of aggression that develops into the redirected event. Therefore, the clinician must arrive at a diagnosis for the primary cause of aggression to reduce redirected events. Causes of primary aggressive event include:
 - Conflict aggression
 - Fear-related aggression
 - Territorial aggression
 - Interdog aggression
 - Primary medical conditions associated with aggression



DIAGNOSTICS

- Since redirected aggression is a manifestation of another form of aggression redirected onto an inappropriate target, diagnostics to discover what is eliciting the primary aggression are warranted.
 - Minimally a physical examination, neurological examination, CBC, chemistry panel, and thyroid panel are suggested.
- The primary reason for the aggression must be diagnosed and treated in order to prevent future redirected aggressive events.

Pathological Findings

- Will vary based upon primary reason for aggression



THERAPEUTICS

Safety

- People and pets are at risk of injury from dogs that display redirected aggression. Therefore, avoidance of triggers for primary aggression is paramount.
- If triggers cannot be avoided, try to avoid direct interaction with an aggressively aroused dog; especially avoid active restraint, punishment, and small spaces.
- Basket muzzles, barriers, etc., may all be used to decrease opportunities for redirected events.

Management

- By avoiding primary triggers of aggression, redirected aggression is essentially resolved.
- To curtail the redirected component of the aggression, keep people and other animals away from aggressively aroused dogs.
 - The critical distance where the dog may redirect will vary between dogs and situations but the further away the less likely one is to become a secondary target for the aggression.
 - In a dog-fight situation, take the time to obtain a remote device that can help break up the fighting dogs, such as water from a hose/bucket, a loud noise, or a thick blanket. If there is no remote device and the client feels compelled to physically separate the dogs, it is better to separate by pulling apart from the rear quarters (flank/tail) than by grabbing their collars or near the face/mouth.
 - If there is a reliable trigger for aggression, such as the doorbell ringing or the presence of unfamiliar dogs, steps should be taken to remove those triggers. For example, the doorbell could be disconnected; fencing that creates a full visual barrier so that dogs inside can't see dogs outside, etc.

Behavioral Modification Techniques

- Identify and treat the primary cause for the aggression. (See specific chapters listed in the See Also section.)
- Train the dog to go to a spot or do a command on verbal cue.
- At the initial stages of aggressive arousal, the dog should be given the command to do the alternative, desirable behavior. The dog should be rewarded for displaying the desired behavior.
- Having the dog wear a headcollar (e.g., Gentle Leader[®]) with a drag leash when the owner is present may allow the owner to remotely manage the dog if it gets into an aggressively aroused state and shape the desired behavioral response.

Accompanying Handouts

Acute Management of Problem Behavior
Safety Recommendations for Aggressive Animals
Structuring Your Relationship with Your Pet
Teaching a New Response to the Doorbell
Teaching Your Pet How to be Confined
Tranquility Training Exercises
Using Classical Counterconditioning to Change Emotional State

Drugs

- Drugs are not indicated for the redirected component of the aggression but may be indicated for the primary aggression. (See appropriate chapters listed in the See Also section.)

Contraindications/Precautions

- Animals in aggressively aroused states are more reactive and dangerous so extreme caution should be taken if they need to be handled, and it is best done by remote means.
- If a dog has a history of redirecting aggression onto innocent bystanders, then it is extremely important that children or smaller pets are not placed in vulnerable situations.

Surgical Considerations

- If dog is intact, neutering is recommended as it will remove these genes from the breeding population and may reduce some of the tendency for the primary cause of aggression.



COMMENTS

Client Education

- It is very important that clients understand that interacting with an aggressively aroused dog can easily result in significant injury even if they are not the primary target for the aggression.
- Although management can reduce redirected aggressive events, to achieve true success, the primary cause of aggression must be diagnosed and treated.

Patient Monitoring

- Since the focus of this treatment is changing owner response and environmental prevention, follow-up is needed to ensure that the owners have made these changes. Phone or email follow-up may suffice and should be fairly frequent (weekly) for the first month after consultation to reinforce necessary changes

and then every 2–4 weeks until the clinician is confident that the owners have established new management protocols.

- If concurrent treatment for primary aggression is being conducted, then appropriate follow-up for that will be necessary.

Prevention/Avoidance

- Don't interact with aggressively aroused animals.

Possible Complications

- When involved in an emotional situation such as a dogfight, clients often forget treatment recommendations. It is critical to stress the importance of staying away from aggressively aroused dogs.

Expected Course and Prognosis

- Management may reduce the number of redirected aggressive incidents but until the primary cause of aggression is successfully addressed, the potential for redirected events will persist.

See Also

Chapter 2, Aggression/Canine: classification and overview
 Chapter 3, Aggression/Canine: fear/defensive
 Chapter 4, Aggression/Canine: food
 Chapter 5, Aggression/Canine: human directed/familiar people
 Chapter 6, Aggression/Canine: human directed/unfamiliar people
 Chapter 7, Aggression/Canine: idiopathic
 Chapter 8, Aggression/Canine: interdog/familiar dogs
 Chapter 9, Aggression/Canine: interdog/unfamiliar dogs
 Chapter 10, Aggression/Canine: possessive
 Chapter 12, Aggression/Canine: territorial
 Chapter 13, Aggression/Canine: veterinary office

Abbreviations

- CBC—complete blood count

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 385–426.

Mertens, Petra A. 2002. Canine Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 202–215.

Overall, Karen L. 1997. *Clinical Behavioral Medicine for Small Animals*, St. Louis: Mosby, pp. 88–129.



Aggression/Canine: territorial



DEFINITION/OVERVIEW

Aggressive responses including defense, which are usually directed toward people or animals that are not part of the immediate family that enter an area the dog perceives as its territory, usually the home property.¹ Territory may be a fixed location (e.g., home, yard, car, bed, or resting area), and aggression may not be evident in other locations. In other cases, the territory is mobile and is an area around the dog, and aggressive responses may occur at any time and in any location. Territorial aggression may be exacerbated if the dog is restrained. Usually within the range of normal behavior but excessive aggression due to learning is also possible.



ETIOLOGY/PATHOPHYSIOLOGY

- May be part of normal canine behavior repertoire
- Strongly influenced by breed, sex, early socialization, handling, and other variables
- Strongly influenced by previous experiences of successfully defending territory through aggression
- Inadvertent reinforcement may occur as the target appears to retreat when passing by windows and fences of the dog's home territory while the dog is engaged in aggressive displays



SIGNALMENT/HISTORY

- Age: Onset of problematic responses may be seen at social maturity (12–36 months).
- Breed: Any breed can exhibit, but those bred for territorial defense may be predisposed (e.g., German Shepherd, Doberman, Mastiff).
- Gender: Territorial aggression often involves intact males.

Historical Findings

- Aggression is generally directed toward people or animals that are not part of the immediate family.

¹Landsberg, G, Hunthausen, W., Ackerman, L. *Handbook of Behavior Problems of the Dog and Cat*. Philadelphia: WB Saunders Co, 2003, pp. 408–410.

- Aggression may occur to all people or animals that pass by or through the dog's perceived territory or may be limited to certain stimuli.
- Aggressive responses may vary in intensity and perhaps in frequency and not occur every time in the same circumstances.
- Territorial displays can vary from mild barking to intense displays that may include growling, snarling, lunging, piloerection, and biting.
 - Injury is possible if the dog gains access to the targets.
- Locations where the behavior takes place can include windows, doors, fences, cars, and even personal space around the dog.
- Some dogs may quickly claim space as territory and defend it (picnic table, stroller).
- Opportunity and environmental access to the stimulus influence whether the behavior will occur.
- This may be a protective behavior and may include fear as a motivation.²
- Dogs that are tied or restrained on a leash may show extreme territorial behaviors and aggressive responses.
- Dogs displaying territorial aggressive responses may be highly aggressively aroused and frustrated leading to redirected behavior toward objects, other animals, or people who may be nearby or attempt to interrupt the behavior.

Contributing/Risk Factors

- Dogs allowed access to fences, windows, and doors without owner supervision might learn inappropriate responses. The goal of the territorial display is to get the “intruder” to leave. Once the intruder leaves, the dog has successfully accomplished the task, which acts as a potent reinforcement and strengthens the response over time.
- Good vantage point(s) for a dog to defend against intruders and plentiful “intruder” stimuli include the dog being tethered in the front yard of a house on a street with frequent pedestrian and motor traffic.
- Tethering dogs or leaving them outdoors in the yard without supervision may cause territorial displays.
- Improper or limited socialization and exposure to various stimuli such as different people, vehicles, and other animals may cause the dog to show territorial displays.
- Inappropriate rewards for aggressive responses may reinforce territorial behavior.
- Punishment that increases fear and anxiety and increases rather than decreases the aggressive response becomes associated with the approach of the target, thereby increasing the desire for it to leave the area so punishment will cease. This may cause territorial behavior.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?

² Mertens, P.A. Canine aggression. *BSAVA Manual of Canine and Feline Behavioural Medicine*. Horwitz, D., Mills, D., Heath, S., eds. Gloucester: BSAVA, 2002, p. 212.

- This information will help identify areas that need management and who might be able to participate in a treatment plan.
- Learn about the daily routine, including feeding, training, exercise and play, and supervision of the pet.
 - Pet reaction to owner departure: Are there any signs of separation distress?
- What were the onset, duration, and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
 - Territorial aggression associated with escaping confinement and injury of others may be too dangerous to treat.
- Descriptions of aggressive encounters are essential.
 - First episode of any aggressive responses however mild.
 - Most recent episode with any aggressive response.
 - Progress back in time through several episodes and trigger situations.
 - Each should include persons present, their actions and responses, position and actions of the dog, and body postures and facial expressions of the dog before, during, and after the encounter.
 - Owners should be encouraged to relate what happened, not what they think certain actions “meant.”
 - What were the owner responses to the territorial behavior?
 - Under what circumstances does the aggression occur?
 - To whom is the aggression directed?
 - Have injuries occurred that required medical attention? If yes, how many times in the past year?
- Triggering stimuli should be explored in detail including any defining characteristics, locations, people, distance, sound, and size.
- Learn what previous treatments were used, including both those that helped and those that made the condition worse and the pet's response to each treatment.
 - Any punishment techniques, reprimands, and restraint devices should also be detailed.



DIFFERENTIAL DIAGNOSIS

- Learned aggression
- Fear or defensive aggression (may occur concurrently)
- Aggression toward unfamiliar people



DIAGNOSTICS

- Complete physical and neurological examinations should be performed. Further diagnostic testing as indicated by the results of these examinations should be conducted.

Pathological Findings

- None commonly found unless underlying medical problems are present



THERAPEUTICS

Safety

- Preventing human or animal injuries must be the first concern.
- The dog must be confined away from potential victims, wear a muzzle, or be under the direct physical control of a responsible adult whenever an aggression-provoking situation could arise (e.g., in any public locations, on walks, when visitors arrive at the house). In some cases, walks must be curtailed to ensure safety.
- The dog should not be allowed to engage in aggressive displays at windows, doors, and fences.
 - This may mean that the dog is only outdoors under adult supervision and while wearing a leash and headcollar (e.g., Gentle Leader®).
 - When the owners are not home, the dog should not be allowed to patrol indoor or outdoor territories.
- Treatment is aimed at controlling the problem, not at achieving a “cure.”
- If biting has occurred, owners must be aware that the only way to prevent future injuries is euthanasia.
 - Re-homing dogs may not be practical or safe.
- A complete list of aggression provoking situations should be compiled.
 - All known situations that evoke aggression must be avoided and the dog safely restrained or confined.
- All family members need to comply with treatment recommendations.
 - The dog must be supervised by responsible adults, not left in the care of children.
- Treatment is generally lifelong.

Management

- Teaching a dog how to be safely and comfortably confined is essential. (See hand-out in Appendix D, Teaching Your Pet How to be Confined.)
 - Confinement might be a dog crate or behind a baby gate or in a locked room.
 - Whenever people come to the home, the dog must be securely confined.
- Use environmental barriers and restraint to prevent human injury; initially, when visitors come, isolate the dog to prevent it from exhibiting the behavior. Locked gates, doors, or crates are recommended and leashes if the dog will be present.
- Devices such as a headcollar, leashes, and muzzles aid in control and safety.

Behavioral Modification Techniques

- Increase control of the dog by household members and structured interactions.
 - Dogs should be asked to perform a command prior to receiving anything from the owner including food items, attention, access to certain areas

(outdoors), etc. The command is only given one time. If the dog obeys immediately, then the reward can be given. If the dog does not respond immediately to the command, then no reward is given and the dog is NOT forced into doing the command. If the dog anticipates the command and performs it before the request, an additional command should be given before giving the reward.

- Teach the dog to be quiet on command. Diminished barking may help decrease arousal level and increase control and compliance with owner commands. (See Chapter 63, Vocalization: canine and feline.)
- Teach the dog to “settle and stay” on a mat or rug near the entry area when no distractions are present. This will help the dog learn appropriate responses when it is easy. Over time, mild distractions can be added. Leashes and headcollars should be utilized. (See the Tranquility Training Exercises handout in Appendix D.)
- Use CCDS to address specific aggression-provoking stimuli.
 - A stimulus gradient must be established, from the stimuli least likely to cause the territorial response to those most likely to cause a response. Be sure to use defining characteristics such as distance, location, size, etc.
 - The response shown by the dog at each level should be noted and recorded (growling, barking, lunging, piloerection, etc.).
- A gradient for reinforcement must also be established. What rewards will the dog work for best?
 - Favored rewards are then reserved for training sessions only.
- Counterconditioning: The dog should first be taught to sit and relax on a verbal command in neutral locations using food rewards.
 - The goal is a response that is physiologically and behaviorally different from what the dog presently does in the presence of the stimuli.
 - Alternately, the dog can be taught to “settle and relax” on a rug or mat that can be moved to other locations and used in training.
- Gradual exposure of the dog to a greatly reduced stimulus is next attempted so no territorial reaction is elicited. The calm, nonreactive behavior is rewarded.
 - If the dog is not obedient/calm, then the dog is not rewarded but moved away until calm behavior can be obtained and then the dog is rewarded.
 - In future sessions, the stimulus needs to be decreased and/or the gradient needs to be reassessed.
- The level of stimulation is manipulated and/or increased gradually, staying below the threshold that would result in territorial and aggressive responses.
 - Gradually introduce strangers (owner can dress in unfamiliar garb to represent a stranger).
 - Increase the difficulty as the dog learns control; move the exercises to the door; add entering the door, ringing the doorbell, and other variables.
- Progress is slow, and careful monitoring of responses is essential.
 - Proceeding rapidly can intensify rather than diminish the response.
- In some cases, isolated elements may need to be worked on separately.
 - Responses to doorbells and knocking may be so intense that the dog may first need to be conditioned to respond differently to these stimuli.

- Classical counterconditioning of the dog to the sound of the doorbell using highly valued food rewards associated with the doorbell ringing can be useful.

Accompanying Handouts

Acute Management of Problem Behavior
 Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Safety Recommendations for Aggressive Animals
 Structuring Your Relationship with Your Pet
 Teaching a New Response to the Doorbell
 Teaching Your Pet How to be Confined
 Tranquility Training Exercises
 Using Classical Counterconditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- No medications are approved for use in dogs for this condition; owner consent forms are advisable.
- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.
- TCAs
 - Amitriptyline HCl
 - Canine: 1–2 mg/kg PO q12h
 - Clomipramine HCl
 - Canine: 1–3 mg/kg PO q12h
- SSRIs
 - Fluoxetine
 - Canine: 0.5–1.0 mg/kg q24h

Contraindications/Precautions

- Do not use TCAs (Doxepin, Clomipramine, Amitriptyline) with MAO inhibitors (selegiline [Anipryl®]).
- Do not use SSRIs with MAO inhibitors (selegiline [Anipryl®]).
- All of these drugs may lower the seizure threshold. Avoid in epileptics.
- Cardiac disturbances are possible with TCAs.
- Amitriptyline is contraindicated in patients with cardiac conduction disturbances, glaucoma, fecal or urinary incontinence, or liver disease.
- Avoid combining SSRIs and TCAs; the combination can result in potentially fatal serotonin syndrome.

Other Treatments

- L-Tryptophan at 10 mg/kg PO q12h may be helpful.
- A reduced protein diet may be helpful.³
- Some dogs that are anxious in their home may benefit from canine pheromone product (e.g., DAP—Dog Appeasing Pheromone[®]) or collars.

Surgical Considerations

- Neutering intact males may decrease arousal level but is unlikely to correct the problem without concurrent behavior modification.



COMMENTS

Client Education

- Safety, preventing human injuries, must be the first concern. This may include confinement and use of headcollars, leashes, and muzzles.
- Treatment is aimed at controlling the problem, not at achieving a “cure.” Successful treatment, as measured by a decrease in aggressive incidents, depends upon the owner’s understanding of basic canine social behavior, the risks involved in living with an aggressive dog, how to follow safety and management recommendations.
- Owners must be aware that the only way to prevent all future injuries is euthanasia.
- Teach the dog to be comfortable wearing a headcollar and basket muzzle. If headcollars cannot be used, control may be achieved using a body harness and leash.
- Avoid situations that may evoke an aggressive reaction, including situations that have resulted in the dog’s being territorial even if not aggressive.

Patient Monitoring

- Good patient follow-up is needed; clients often need assistance and direction during treatment. Frequently, follow-up can monitor progress and/or errors in the treatment program. Telephone follow-up and return visits may be needed for 6 months or more. Compliance is improved with ongoing communication.
- Dogs on medication should be monitored regularly for any problems with yearly or twice yearly blood work performed.

Prevention/Avoidance

- Good early socialization and habituation may help avoid territorial behaviors later in life.
- Do not allow dogs to be outdoors unsupervised or tied, which can increase aggressive territorial responses.
- Owner responses when the dog first displays territorial responses are important.

³Dodman, N., Reisner, I., Shuster, L., et al. Effect of dietary protein content on behavior in dogs. *JAVMA* 208:376–379, 1996.

- Dogs should be taught to stop barking on command and settle when visitors are present either outside windows, doors, or fences or in the home.
- Encouraging “protective” behavior is dangerous since canine discrimination is poor.

Possible Complications

- Risk of human injury, legal action, and pet relinquishment or euthanasia

Expected Course And Prognosis

- In some cases, early intervention when the level of aggression is low and owner compliance and control is high can lead to good improvement.
- In many cases, the need to control and vigilance is lifelong.

Pregnancy

- Nursing bitches may become aggressive to protect puppies.
- Dogs experiencing pseudocyesis may also show aggressive responses over objects.

See Also

Chapter 3, Aggression/Canine: fear/defensive
 Chapter 6, Aggression/Canine: human directed/unfamiliar people
 Chapter 63, Vocalization: canine and feline
 Appendix C, Additional Resources for Veterinarians, Prognosis for Aggressive Animals

Abbreviations

CBC—complete blood count
 CCDS—counterconditioning and systematic desensitization
 h—hour
 MAO—monoamine oxidase
 mg/kg—milligrams per kilogram
 PO—by mouth
 q—every
 SSRI—selective serotonin reuptake inhibitors
 TCA—tricyclic antidepressant

Suggested Reading

Mertens, Petra A. 2002. Canine aggression In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 195–215.

Reisner, Ilana. 2002. An overview of aggression In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 181–194.



Aggression/Canine: veterinary office



DEFINITION/OVERVIEW

The dog exhibits threats or harmful actions when in a veterinary care facility.



ETIOLOGY/PATHOPHYSIOLOGY

Most of these dogs are experiencing fear-related aggression or pain-related aggression.



SIGNALMENT/HISTORY

- Any age, breed, or gender can exhibit.

Historical Findings

- May gradually develop as the puppy returns for repeated puppy visits unless precautions are taken
- Often peaks after first major veterinary procedure, typically the neuter surgery performed at about 6 months of age
 - Adolescent neuter surgery coincides with a period in development where some dogs go through an anxious developmental stage.
 - This may be associated with a traumatic surgical experience from the dog's perspective.
 - Often the surgery is the first significant separation from the owner.
 - The surgical preparation may involve some procedures that are frightening/uncomfortable.
 - Postsurgical pain may be present.
- These dogs may have other phobias/fears such as noise phobias, fear of unfamiliar people, riding in the car, etc.
- The dog exhibits body postures when in the veterinary facility that may include:
 - Ears pinned/pulled back
 - Pupils dilated and eyes darting
 - Tail tucked
 - Cowering body posture
 - Trembling body

- Piloerection over the shoulders and rump
- Growl, snarl, snap, bite
- The fearful/anxious dog may make attempts to hide/exit, but these are overcome by barriers/physical restraint.
- Some dogs appear very offensive in their aggression. These dogs may be offensively aggressive or have evolved into offensive postures from previous success using aggressive behaviors as part of their defensive mechanism. The appearance of an offensively aggressive dog includes:
 - Ears up/forward
 - Gaze involves a direct stare at target
 - Tail erect/stiff or slow wag
 - Standing stiff legged with weight on fore legs
 - Barking, growling, snarling, lunging, snapping, biting
- Dog may appear aggressive upon entering veterinary facility or may only exhibit aggression in response to certain actions such as placement of rectal thermometer, examination of ears, physical restraint, etc.

Contributing/Risk Factors

- Anxious temperament
- Lack of socialization
- Hectic, rushed veterinary visits may result in activities/situations that frighten dog
- Inappropriately applied restraint causing increased fear, pain, or anxiety
- Previous painful or frightening event that occurred at a veterinary facility
 - Routine events such as being placed on an elevated table, having a rectal temperature taken, having nails trimmed, or receiving an injection may elicit fear/pain in sensitive dogs.
 - More significant events such as deep ear cleanings, abdominal surgery, fracture stabilization, etc., may elicit pain and/or fear in normal dogs.
 - The dog associates the location, facility, smells, and/or sounds with the fearful/painful events and therefore become sensitized to future visits to veterinary care facilities.

Pertinent Historical Questions

- When did the aggression develop?
 - This may give some insight into the underlying emotional state of the dog. For example, if the dog was fine with nail trims until a nail was cut too short, causing pain/bleeding during one trim and subsequent nail trims involved aggressive posturing from the dog then one would suspect that anticipated pain was associated with the aggression.
- How does the dog behave in other settings?
 - If the dog is fine in all other settings except the veterinary clinic, then it is likely that anxiety/fear/pain plays a role in the veterinary facility aggression.

- If the dog is aggressive at home to the owners, then aggression in the veterinary facility may be a component of another type of aggression. (See Chapter 5, Aggression/Canine: human directed/familiar people.)
- If the dog is aggressive with all unfamiliar people, then aggression in the veterinary facility may be a component of another type of aggression such as fear-related aggression. (See Chapter 6, Aggression/Canine: human directed/unfamiliar people.)
- Does a particular event in the veterinary facility trigger the fear/aggression or does entry into the veterinary facility/grounds trigger problems?
 - This allows the clinician to identify the starting point for the desensitization protocol.
- What does the dog look like before, during, and after an aggressive incident?
 - This may help the clinician to establish underlying motivation for the aggression.
 - If the dog shows defensive postures and avoidance behavior, then the dog is probably fearful.
 - If the dog is very offensive, then it has either learned that aggression is effective or it may be a confident-aggressive dog.
- How does the aggressive incident resolve?
 - If the dog ceases attack if the person retreats, then this is a safer situation for treatment and interaction.
 - If the dog continues aggressive advances despite retreat of trigger, then the situation is more dangerous and may be more difficult to treat.
- How do the owners respond to the aggressive/fearful behavior?
 - Owner comforting may be inadvertently reinforcing undesirable behavior and needs to be ceased.
 - Owner punishing dog for aggression may aggravate aggression/fear.
- Does the dog behave differently when the owners are not present and, if so, how?
 - If dog is more aggressive in the owner's presence, then this may imply owner reinforcement contributes to behavior.
 - Some dogs are protective of owner so by removing owner presence, protective behavior diminishes.
 - In the presence of the owner, fear-related aggression may appear more offensive. This is probably due to the fact that the presence of the owner imparts a level of confidence to the dog. If aggression diminishes but dog shows fearful behavior in absence of owner then underlying fear may be confirmed as the reason for the aggression.



DIFFERENTIAL DIAGNOSIS

- Protective aggression
- Territorial aggression (especially if dog has a long wait in exam room or if associated with approach to kennel)
- Fear-related aggression to unfamiliar people

- Pain-related aggression
- Redirected aggression



DIAGNOSTICS

- Minimally a physical examination, neurological examination, and CBC, chemistry panel, and thyroid panel are suggested.
- Further diagnostics as indicated from initial examination findings such as radiographs, etc.
- In sudden onset cases, pain-related aggression and underlying medical problems may contribute significantly.

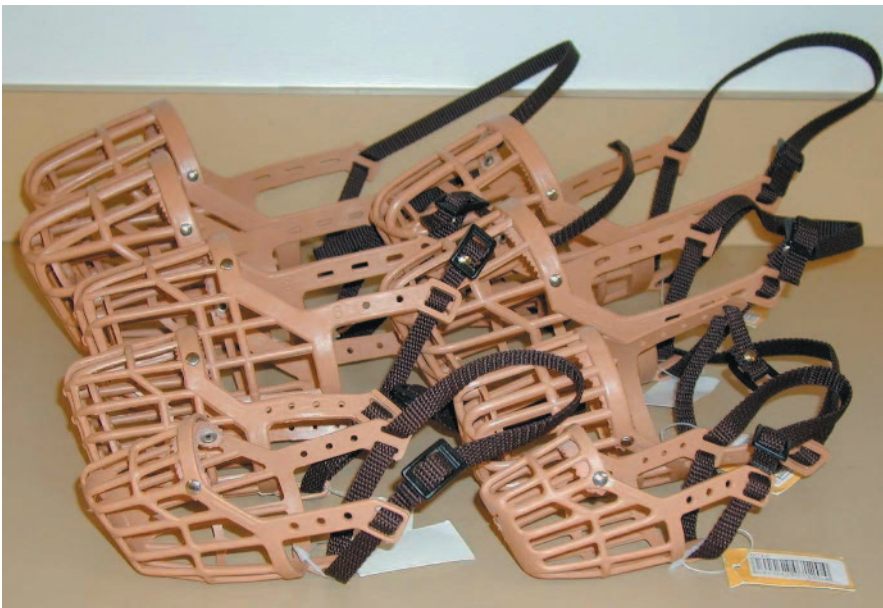


THERAPEUTICS

Since most dogs exhibiting aggression in the veterinary clinic are doing so due to fear or anticipation of pain, the treatment outlined below is designed for these dogs. If another motivation is strongly suspected, then consult the corresponding chapter for that treatment protocol.

Safety

- Dogs that are aggressive secondary to fear or pain can inflict serious injury, especially if they are unable to retreat due to restraint or small space.
- During any training protocol, the primary concern has to be for the safety of others; do not put humans or other animals at risk.



■ **Fig. 13-1** Examples of basket muzzles.

- All of these dogs should be trained to accept/wear a muzzle via desensitization and counterconditioning; this will allow the owner/staff to apply the muzzle as an added level of protection against an unexpected relapse.
- Chemical restraint should be implemented as needed.

Management

- Postpone any nonurgent veterinary care until after completion of the treatment protocol.
- If veterinary visits are required during the retraining, anxiolytic medication or sedation is suggested.
- Minimize waiting time for anxious animals.

Behavioral Modification Techniques

- Avoid veterinary procedures and visits unless associated with treatment program. Exposure to full strength stimulus during a systematic desensitization and counterconditioning protocol can significantly compromise progress.
- Foundation work: Weeks 1 and 2
 - Identify small tasty treats and reserve for use in training.
 - Fit dogs with a headcollar (e.g., Gentle Leader[®]) and have dog wear for all training exercises.
 - All interactions with the dog should be based on a command/reward relationship. Prior to any attention, food, access to areas, etc., the dog should be given an obedience command. If the dog responds immediately to the command, it can be given the reward of attention, treat, dinner, access to yard, etc. If the dog does not obey the command, the dog should not be rewarded and the owner should temporarily cease interaction with the dog. Nonresponse should not result in repeated requests or forcing the dog to comply with the command. This training establishes owner leadership and teaches the dog to look to the owner for cues. (See the Structuring Your Relationship with Your Pet handout in Appendix D for additional details.)
 - Implement tranquility training exercises from the handout. These daily training sessions reward the dog for being calm, relaxed, and obedient in response to owner commands and in the presence of increasing owner created distractions.
 - Institute adequate daily exercise based upon the age, breed, and health of dog.
- Perform CCDS to veterinary facilities: Weeks 2+
 - Identify and list actual triggers for fear/aggression. Some dogs may become anxious/aggressive when they arrive in the parking lot. Others may be comfortable until physical restraint is attempted. Just before the dog shows signs of anxiety or aggression is the starting point for training exercises.
 - Expose the dog to the veterinary visit at a level where the dog is relaxed. Ask the dog to perform obedience commands and reward with treats and praise for relaxed, obedient behavior.

- If the dog is anxious, aggressive, or disobedient, do not give reward and instead remove dog from situation until s/he is able to respond to the command in a relaxed manner and at that time the dog can be rewarded.
- With success, gradually increase the intensity of the visit until the dog is relaxed and obedient during all aspects of the veterinary visit.
 - Increasing intensity can involve moving from the parking lot to entering the building, entering the examination room, and finally engaging in human handling in veterinary facility.
 - Dogs with a history of aggression should wear the muzzle for the more intensive handling exercises; the muzzle is just used as a protective measure against sudden relapse.
- Ideally these exercises would be performed for 5–10 minutes on a daily basis at the veterinary facility.

Accompanying Handouts

Desensitization and Counterconditioning: the details

Maximizing Treatment Success

Structuring your Relationship with Your Pet

Tranquility Training Exercises

Using Classical Counterconditioning to Change Underlying Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Benzodiazepines
 - Oral 1–2 hours previsit; use with caution as these drugs may disinhibit aggression and create a more offensively aggressive dog.
 - Side effects of benzodiazepines most commonly include increased appetite and moderate sedation that may be accompanied by ataxia.
 - Examples:
 - Diazepam: 0.5–2.0 mg/kg PRN; 1–2 hours prior to veterinary visit
 - Alprazolam: 0.02–0.1 mg/kg PRN; 1–2 hours prior to veterinary visit
 - Lorazepam: 0.02–0.1 mg/kg PRN; 1–2 hours prior to veterinary visit
- Sedatives
 - Phenothiazines may reduce coordination and create a sedated dog; however, they do not have significant anxiolytic properties and the animal may just be temporarily incapacitated. They also make the dog more unpredictable.
 - Examples follow:
 - Acepromazine: 0.5–1.1 mg/kg PRN; 1–2 hours prior to veterinary visit
 - Chlorpromazine: 0.5–3.3 mg/kg PRN; 1–2 hours prior to veterinary visit
- Serotonin-enhancing medications
 - Although not applicable for immediate efficacy in an anxious patient, they may be helpful over the course of several months for animals participating in a desensitization/counterconditioning protocol. Use with caution as there may be disinhibition of aggression.

- In healthy animals, side effects from SSRIs and TCAs are usually mild and resolve within a week of treatment initiation, if they occur at all; a reduced appetite and sedation are the most common side effects noted by owners.
- Examples follow:
 - Clomipramine: 1–3 mg/kg PO q12h
 - Amitriptyline: 1–2 mg/kg PO q12h
 - Fluoxetine: 0.5–1 mg/kg PO q24h
- Anesthesia
 - Full anesthesia may be required for some highly aggressive patients. Use extreme care with dosing if the animal is emotionally aroused as it may be highly sensitive to anesthesia

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone[®]) diffuser routinely used in waiting and examination rooms may calm some dogs. DAP[®] collars may be worn by the dog.

Contraindications/Precautions

- Safety of people/other animals should not be put at risk when engaging in training.
- Animals may redirect aggressive display to the closest target making owners possible targets for aggression.
- Do not allow owners to restrain their own animals for any procedures.
- Avoid punishment as these dogs are usually fearful.
- Avoid comforting as it may inadvertently reinforce undesirable behavior.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- See individual drug monographs and pharmacology appendix for additional contraindications/precautions regarding drug therapy.



COMMENTS

Client Education

- Owners should be advised against comforting misbehaving dogs as this may inadvertently reinforce the undesirable behavior.

Patient Monitoring

- Since the training protocol occurs in the veterinary facility, supervision and monitoring occurs throughout the program.

Prevention/Avoidance

- Every attempt should be made to reduce discomfort during veterinary procedures; the dog should be anesthetized for painful procedures.
- Reducing waiting time may help mildly anxious animals.
- Ask the owner to prepare for puppy visits.
 - Advise owners to fast the puppy for 4–6 hours prior to visit.
 - Have small, readily consumable tasty food treats at the clinic for staff to give to the puppy.
 - Shy pups should be handled with patience: Avoid direct eye contact; kneel or sit on the floor; turn body at an angle to the puppy; offer hand palm up; avoid reaching over head.
 - When a mildly aversive procedure has to be performed (rectal temperature, injection), distract the puppy with a food treat such as baby food smeared on the tabletop.
 - Avoid discipline and harsh responses to the puppy's noncompliance. These are likely to increase rather than decrease aggressive responses on subsequent veterinary visits.

Possible Complications

- The dog may relapse especially if a painful procedure or frightening experience occurs.

Expected Course And Prognosis

- Highly compliant owners may see improvement in the dog's behavior, but complete transformation of attitude is unlikely.
- With significant provocation, relapse is likely.

See Also

Chapter 2, Aggression/Canine: classification and overview

Chapter 3, Aggression/Canine: fear/defensive

Chapter 11, Aggression/Canine: redirected

Abbreviations

BID—twice daily

CBC—complete blood count

CCDS—counterconditioning and systematic desensitization

CNS—central nervous system

DAP—Dog Appeasing Pheromone®

mg/kg—milligrams per kilogram

PRN—as needed

SID—once daily

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

Suggested Reading

- Mertens, Petra A. 2002. Canine Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 202–215.
- Neilson, Jacqueline C. 2002. Fear of Places and Things In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 173–180.

Aggression/Feline: classification and overview

chapter 14



DEFINITION/OVERVIEW

Aggression is a threat or harmful action directed toward another individual to which the target responds adversely. It may include vocalizations, body postures, facial expressions, and inhibited and injurious attacks. Aggression may be a normal response in some situations.

- Numerous functional types
 - Offensive: unprovoked attempt to gain some resource at the expense of another often includes social status aggression, intermale aggression.
 - Defensive: by a victim toward another that is perceived as an instigator or threat; includes fear-induced, territorial defense, irritable (pain-associated or frustration-related), and maternal aggression.



ETIOLOGY/PATHOPHYSIOLOGY

- Aggression is not necessarily a pathologic condition.
- Some pathologic states are associated with an increase in aggression because of their effects on the CNS.
- Underlying medical conditions can affect the aggression threshold due to pain or decreases in sensory function.

Contributing/Risk Factors

- Part of the normal feline behavior; greatly influenced by the early social history and exposure to humans and other animals, sex, social context, handling, personality, and many other variables



SIGNALMENT/HISTORY

- Breed: No breed differences recognized.
- Age: Some types appear at onset of social maturity (2–4 years).
- Gender: Males may be more prone to intercat aggression.

Historical Findings

- Vary depending on the situation and type of aggression exhibited
 - Refer to chapters 15–22 for information on different types of aggression.
- Aggression and elimination problems in cats may be related.
 - Most common trigger for urine spraying in cats is agonistic interactions between cats.

Contributing/Risk Factors

- Poor socialization and exposure to people and other animals
- History of abuse or neglect
- Poor early nutrition may result in animals with increased reactivity and emotionality
- Increased numbers of cats in an environment of limited space and resources

Pertinent Historical Questions

- Vary with the situation and type of aggression. See specific problems for more details on each condition in chapters 15–22.



CLINICAL FEATURES

Aggression due to Lack of Socialization

- No human contact before 7 weeks of age: cat misses sensitive period important for development of normal approach responses to people; if not handled until 14 weeks of age, it is fearful and aggressive to people; if handled for only 5 minutes/day until 7 weeks, it interacts with people, approaches inanimate objects, and plays with toys.
- Lack of social interaction with other cats: may result in lack of normal inquisitive response to other cats; negative response may be augmented by suboptimal nutritional conditions for the pregnant queen.
- Often these cats are never normal cuddly pets; may eventually attach to one person or a small group of people; if forced into a situation involving restraint, confinement, or intimate contact, they may become extremely aggressive.
- If raised with other cats, some cats may do a bit better with people.

Play-related Aggression

- Social play peaks early then is replaced by predatory activities by weeks 10–12 and social fighting by week 14. Some cats may direct social play toward humans with injurious consequences.
- Early weaned and hand-raised cats may never learn to temper play responses; if not taught as a kitten to modulate responses, it may not learn to sheathe claws or inhibit bites.
- See Chapter 18, Aggression/Feline: play related.

Fear-induced or Defensive Aggression

- A fearful cat may hiss, spit, arch the back, and piloerect if flight is not possible; combinations of offensive and defensive postures and overt and covert aggressive behaviors are usually involved.
 - If given the opportunity, fearful cats will usually attempt to flee.
 - If cornered, cat will stop, draw its head in, crouch, growl, roll on its back when approached (not submissive but overtly defensive), and paw at the approacher; if pursuit is continued, cat will strike, then hold the approacher with its forepaws while kicking with the back feet and biting.
- If threatened, cat will defend itself; any cat can become fearfully aggressive.
- See Chapter 15, Aggression/Feline: fear/defensive.

Pain-induced Aggression

- Pain may cause aggression; with extended painful treatment, cat may exhibit fearful aggression.

Inter-cat Aggression

- Male: Male aggression is associated with mating or hierarchical status within the social group; mating may also involve social hierarchy issues.
- Maturity: In peaceful multicat households, problems may occur, regardless of sex composition, when a cat reaches social maturity (2–4 years of age).
- See Chapter 16, Aggression/Feline: intercat.

Maternal Aggression

- Maternal aggression may occur in the periparturient period.
- Queens may guard nesting areas and kittens by threatening with long approach distances, rather than attack; usually directed toward unfamiliar individuals; may inappropriately be directed toward known individuals; as kittens mature, aggression resolves.

Territorial Aggression

- Territorial aggression may be exhibited toward other cats, dogs, or people.
- Cats may delineate territory by marking: chin rubbing, spraying, or nonspraying marking.
- Threats and/or fights may occur if a perceived offender enters the area.
- It may include stalking and chasing the challenger and attacking.
- This aggression may be difficult to treat and can occur concurrently with urine marking behaviors within a household.
- See Chapter 21, Aggression/Feline: territorial.

Redirected Aggression

- Redirected aggression may be difficult to recognize and may be reported as incidental to another form of aggression.

- It occurs when a cat in an aggressive emotional state toward one target redirects that aggression to another target, often an innocent bystander, either a person or another animal.
- Cat may remain reactive for some time after being in an aggressive interaction.
- This behavior is often precipitated by another inappropriate behavior or event.
 - Outdoor cats, returning from veterinary visits, new family additions are common triggers.
- Identifying triggers is essential for treatment and may require treating another underlying problem.
- See Chapter 19, Aggression/Feline: redirected.

Status-related Aggression

- Unclear if status-related episodes occur between humans and cats.
- Status-related aggression may occur when the cat is frustrated at not obtaining expected outcome.
- If unprovoked, it most frequently occurs when the cat is being petted.
 - Appears as a need to control all interactions with humans and when attention starts and ceases; cat may bite and leave or may take hand in teeth but not bite.
- This aggression may be accompanied by territorial aggression.
- See Chapter 17, Aggression/Feline: petting induced and Chapter 20, Aggression/Feline: status related.

Idiopathic Aggression

- Rare; poorly understood and poorly defined; unprovoked, unpredictable, aggression



DIFFERENTIAL DIAGNOSIS

- Conditions that cause similar behavioral changes:
 - Hepatic encephalopathy
 - Feline ischemic encephalopathy
 - Lead poisoning
 - Hyperthyroidism
 - Epilepsy
 - FELV/FIV
 - Rabies
 - Behavioral aggression is usually directed toward specific social foci; aggression from organic disease is unexpected, inappropriate, and more continuous, and/or without a social context.



DIAGNOSTICS

- CBC, chemical profile, thyroid function tests, FELV/FIV tests
- Other diagnostic testing as indicated by history and physical examination

Pathological Findings

- Usually within normal limits unless a concurrent disease state is present



THERAPEUTICS

Safety

- Safety for people and other animals should be a primary concern when aggression is the behavioral problem presented.
- All situations known to provoke an aggressive response should be identified and avoided. At times this may mean confining the cat.
- Teach client to observe signs (tail flicking, ears flat, pupils dilated, head hunched, claws possibly unsheathed, stillness or tenseness, low growl) and interrupt the behavior by letting the cat fall from his or her lap, abandoning it, and refusing to interact until appropriate behavior is displayed.

Behavioral Modification Techniques

- All direct physical corrections and punishment must be stopped as they may intensify aggression.
- For cat-to-cat aggression, separate cats; keep the active aggressor in a less favored area to passively reinforce more desirable behavior.
- Desensitization, counterconditioning, flooding, and habituation are commonly used to treat aggressive behavior.
- More specific treatment plans are detailed under the individual disorders.

Drugs

Medication can be a helpful adjunct to behavioral modification, if the animal's fearful or anxious behavior is so intense that it interferes with learning or other normal behavioral activities.

- Note: All medication dosages are for oral dosing (PO)
- No medications are approved for use in cats for this condition; owner consent forms are advisable.
- Prior to medication, routine blood work including CBC, chemistry screening, thyroid profile should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.
- Serotonin-enhancing medications: These are indicated for patients that suffer from fear and anxiety. Examples of medications include amitriptyline,

imipramine, clomipramine, fluoxetine, sertraline, paroxetine. See individual chapters on feline aggression for doses and specific recommendations.

- Drug treatment duration of serotonin-enhancing medications.
 - If effective, continue for at least 3 months after establishing relaxed behavior in response to stimulus.
 - Some treatments will be long-term, possibly years; treatment duration will depend on number and intensity of signs and duration of condition.
 - Advisable to wean off medication over a 2–4 week period instead of abrupt discontinuation, reinstitute drug therapy if relapse of symptoms during weaning process.

Contraindications/Precautions

- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban[®]) and selegiline (Anipryl[®]).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs; if combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.

- Consult individual drug monographs and Appendix A for complete lists of contraindications/precautions.

Other Treatments

- Feliway diffusers

Surgical Considerations

- Neuter intact males, spay intact females



COMMENTS

Client Education

- Aggression is a common behavioral complaint either directed toward humans or other cats.
- Feline aggression is often associated with elimination disorders due to disruption in the social relationships within the home or lack of appropriate allocation of resources.

Patient Monitoring

- Weekly to biweekly contact recommended in the initial phases.
- Clients frequently need feedback and assistance with behavior modification plans and medication management.

Prevention/Avoidance

- Good socialization and habituation when young help avoid fearful and defensively aggressive responses later in life.
- Close matching of cat personalities when adding cats may help.
- Good attention to the allocation of resources within the household may also prevent aggressive episodes.

Possible Complications

- Aggressive behaviors can be injurious; cat bites and scratches often become infected and require medical treatment both in humans and animals.
- Ongoing aggression may result in animals being re-homed or relinquished.

Expected Course and Prognosis

- Aggressive behaviors are rarely cured, but rather controlled. Good environmental management and behavior modification can decrease the number and perhaps intensity of aggressive encounters but may not eliminate them.
- Risk of human injury may remain.

Pregnancy

- Cats showing maternal aggression may show it with subsequent litters of kittens.

See Also

Chapter 15, Aggression/Feline: fear/defensive
Chapter 16, Aggression/Feline: intercat
Chapter 17, Aggression/Feline: petting induced
Chapter 18, Aggression/Feline: play related
Chapter 19, Aggression/Feline: redirected
Chapter 20, Aggression/Feline: status related
Chapter 22, Aggression/Feline: veterinary office

Abbreviations

CBC—complete blood count
CNS—central nervous system
MAO—monoamine oxidase
SSRI—selective serotonin reuptake inhibitors
TCA—tricyclic antidepressants

Suggested Reading

- Bateson, P., and P. Martin. 1988. Behavioural development in the cat In: *The Domestic Cat: The Biology of its behaviour*, Turner D., Bateson P., eds., Cambridge University Press, pp. 9–22.
- Borchelt, P.L., and V.L. Voith. 1982. Diagnosis and Treatment of Aggression Problems in Cats In: *Veterinary Clinics of North America: Small Animal Practice*, Nov., 12:4, pp. 665–671.
- Crowell-Davis, S.L., K. Barry, and M.A. Wolfe. 1977. Social behavior and aggressive problems of cats In: *Veterinary Clinics of North America: Small Animal Practice*, May, 27:3, pp. 549–568.
- Frank D. 2002. Management problems in cats In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, D. Horwitz, D. Mills, and S. Heath, eds., BSAVA, UK, pp. 80–89.
- Heath, S. 2002. Feline Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, Horwitz D., Mills D., and Heath S., Eds., BSAVA, UK, p. 225.

Aggression/Feline: fear/defensive



DEFINITION/OVERVIEW

Fear is characterized by intensive arousal and active avoidance or withdrawal and may lead to defensive aggression. Cats tend to use physical contact as a last resort response in a fearful situation. Fearful behavior can be a result of environmental and genetic influences. There are genetically friendly cats and genetically shy cats, influenced by paternal genes. Organ systems affected by fear include nervous, renal/urologic, skin/exocrine, and any organ system that can be affected by stress.



ETIOLOGY/PATHOPHYSIOLOGY

- Fear is not necessarily a pathologic condition.
- Underlying medical conditions can affect the aggression threshold due to pain or changes in sensory function.
- The animal may have dysregulation of the neurological fear pathways. This dysregulation may occur at many levels, including neurotransmitter activity. Neurotransmitters considered important in the fear response include serotonin, norepinephrine, and GABA, among others.



SIGNALMENT/HISTORY

- No age, gender, or breed predilection

Historical Findings

- Cat may attempt to withdraw or hide prior to an aggressive display.
- When escape is restricted, aggressive behavior tends to escalate; usually starting with vocal and postural threats and escalating to physical attack if stimulus continues to approach.
- Fearfully aggressive cats stare (pupils often dilated), hiss, then swat and, if unable to run away, attack with claws and teeth.
- Body postures may vary from a very defensive appearance to a mixture of defensive and offensive threats. A very defensive display looks like a “Halloween cat” with an arched back, piloerection, ears flattened back against head, whiskers pulled back against side of face, tail down with flicking of distal portion.

- Evacuation of bladder, bowels, and expression of anal glands may be associated with extreme fear aggression.

Contributing/Risk Factors

- Inadequate socialization to cats, people, places or other species
- Introduction of novel individuals or species to cat
 - New family member, new pet
- Internal or external stressors may lower aggression threshold
- Trying to capture/pursue a cat that is exhibiting active avoidance/escape behavior
- Environment that does not provide adequate resources or outlets for escape
- Born to feral cats; lived feral existence
- Genetic predisposition
 - Timid behavior in cats has genetic paternal link
- Adaptive learning response to abandonment, inappropriate housing in shelters, and abuse

Pertinent Historical Questions

- What were the onset, duration, and progression of the problem behavior?
- What is the household composition, including family members and other pets?
 - This will help to identify household members at risk.
- What is the daily routine, including feeding, exercise, play, outdoor access, and supervision of the pet?
 - Unsupervised outdoor access may compromise the training program as it may be impossible to control exposure to trigger stimuli.
 - Cats that are receiving inadequate social interaction may become more reclusive and fearful.
- Describe the cat and the victim just prior to, during, and after an episode. Have owner describe the most recent incident first, as recollection is usually more reliable. If possible, have owner videotape an episode for review.
 - Postures/behavior that are consistent with avoidance and/or defensive appearance (see above under Historical Findings) will help to confirm underlying fear.
 - Intensity of aggressive attacks is important. Cats who aggress with inhibited bites and sheathed claws are safer candidates for therapy than those who aggress with injurious bites and unsheathed claws.
 - Victim's behavior may be reinforcing or perpetuating fearful-aggressive behavior, especially if it involves rapid movements, intense vocalizations, or confrontational action.
 - Cat may exhibit stress-alleviating behaviors such as grooming after aggressive encounter.
- Who is the target?
 - Important to identify for desensitization/counterconditioning protocol

- May impact decision to keep cat in household; increased risk for young, elderly, or immunocompromised individuals
- When does it occur (proximity of target, frequency of aggression, time of day, location)?
 - This information may help with diagnosis. A cat that aggresses when in a small space but not in an open space would fit a diagnosis of fear aggression.
 - This information is also helpful in designing a treatment program because the goal will be to avoid trigger stimulus and then introduce in a gradual fashion.
- What are the previous treatments attempted?
- Identify both those that helped and those that made the condition worse and the cat's response to each treatment.



DIFFERENTIAL DIAGNOSIS

- Painful condition
 - Dental disease
 - Urinary tract disease
 - Arthritis, etc.
- Endocrine imbalance
 - Hyperthyroidism, etc.
- CNS disease
 - Brain tumor
 - Cerebral infarct
 - Cognitive dysfunction, etc.
- Infectious diseases
 - Rabies
 - FIV, etc.
- Play aggression
- Territorial aggression
- Redirected aggression
- Status-related aggression
- Normal defensive behavior



DIAGNOSTICS

- Physical and neurological examination
- CBC, chemistry profile, urinalysis, FELV/FIV test and thyroid evaluation
- Additional diagnostics as indicated by the initial workup

Pathological Findings

- Not identified in most cases



THERAPEUTICS

Safety

- Never handle an aggressively aroused cat.
 - Specifically instruct owners NOT to comfort or try to placate a cat exhibiting defensive behaviors as serious injury may result.
 - If the cat must be removed from the situation, cover the cat with a large blanket or towel or attempt to herd the cat to a room where it can be isolated.
- Cats usually give preliminary warning postures prior to an actual bite/attack; all warnings should be heeded and all interaction with the cat discontinued.
 - Warnings may include active retreat, piloerection, tail rapidly flicking, ears pinned back, pupils dilated, hiss, growl, swat.
- Interaction with the cat should only be resumed again when the cat is no longer aggressively aroused.
 - The aggressively aroused cat should be segregated in a secure location with necessary resources and minimal stimulation until it is calm again. There may be a prolonged recovery period; it can take hours or days for cats to return to a calm state. Periodic visits to the containment may allow owner to assess the animal's reactivity and ability to rejoin the household.
- Consider nail covers (Soft Paws) and/or regular nail trimming to reduce injury potential of claws.

Management

- Avoid eliciting aggression by restricting exposure to provocative stimuli.
 - This may involve segregation of the cat.
- Advise owners against any confrontational responses to aggression.
- Discourage any unintentional reinforcement (screaming, running).
 - If the cat is likely to avoid trigger stimulus when alerted to presence of stimulus, consider placing something (e.g., bell) on trigger stimulus that creates a noise so the cat can avoid it.

Behavioral Modification Techniques

- Create an environment rich in resources to diffuse anxiety and aggression associated with accessing these resources: multiple water sources, vertical perches, safe retreat spots, multiple litter box sites, etc.
- Provide cat with daily exercise and enrichment, if cat enjoys it.
- Offer CCDS.
 - Identify trigger stimuli and threshold for fearful behavior.
 - Identify rewarding activity/food for the cat (counterconditioning component).
 - Identify a gradient exposure plan (e.g., gradually decreasing distance between cat and stimulus).
 - Perform daily training exercises two to three per day.

- Start with short training periods (5 minutes) and with success, training period duration can be gradually increased.
- Expose cat to stimulus at a level that does not elicit fear or defensive aggressive behavior.
- Pair exposure and calm reaction with reward.
- With success, gradually increase intensity of stimulus until the cat is no longer fearful of stimulus.
- If fearful or defensive aggressive behavior is inadvertently triggered, reduce intensity of trigger stimuli or, if necessary, remove trigger stimuli and allow cat to calm down. When calm, the cat can be rewarded.
- For safety the cat may need to be restrained using a harness and leash or even a pet carrier.

Accompanying Handouts

Acute Management of Problem Behavior
 Creating Harmony in Multiple Cat Homes
 Desensitization and Counterconditioning
 Introducing Cats
 Maximizing Treatment Success
 Safety Recommendations for Aggressive Animals

Drugs

Reduction in anxiety may reduce the subsequent aggression and improve the animal's welfare.

- Note: All medication dosages are for oral dosing (PO)
- Benzodiazepines
 - Diazepam or oxazepam (0.2–0.4 mg/kg PO q12–24h) may make the cat more outgoing and friendlier.
 - Side effects may include an increased appetite (helpful for behavior modification using food treats) and moderate sedation that may be accompanied by ataxia.
 - It may result in disinhibition of aggression, making the problem worse.
- TCAs
 - Amitriptyline: nonspecific antianxiety medication 0.5 mg/kg PO q12–24h
 - Nortriptyline: if the cat is sedated when treated with amitriptyline 0.5 mg/kg PO q12–24h
 - Clomipramine: 0.3–0.5 mg/kg PO q24h
- SSRIs
 - Fluoxetine, paroxetine: for profound, explosive aggression when cat is frightened; specific anxieties involving outburst (fluoxetine), social anxieties (paroxetine)
 - Fluoxetine: 0.5–1.0 mg/kg PO q24h
 - Paroxetine: 0.5–1.0 mg/kg PO q24h

Other Treatments

- Pheromones: Environmental treatment with Feliway® either as a spray or diffuser may be helpful, as an adjuvant to other treatment.
- Complementary therapies such as acupuncture and homeopathy may have benefits yet to be systematically studied.

Contraindications/Precautions

- None of the above medications are licensed for use in cats for fear/defensive aggression.
- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately.
- Avoid use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible; monitor response closely.
- Serotonergic or dopaminergic medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) (tick collars) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances in people and pets leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs; if combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.

- Consult individual drug monographs and pharmacology appendix for complete lists of contraindications/precautions.
- If target of aggression is young, elderly, debilitated, or immunocompromised then risks of treatment may be too great.

Surgical Considerations

- Although ethically questionable, declawing does remove one potential weapon especially when aggression is directed toward people.



COMMENTS

Client Education

- Kitten socialization should be discussed with clients and tips given to help socialize their kittens.
- Cat owners should be instructed to avoid handling aggressively aroused cats.
- It may take hours to days for emotionally aroused cats to return to a calm state during which time the cat should be avoided.

Patient Monitoring

- Maintain weekly telephone follow-up to monitor progress.
- Annual physical and laboratory evaluation for cats maintained on long-term medication is advisable. Weaning is recommended if the clients wish to learn if the cat still needs the medication or can be maintained on a lower dose.

Prevention/Avoidance

- Provide adequate socialization. Feline sensitive socialization period to humans is 2–7 weeks of age.
- Recognition of early postural and attitudinal changes may avert full attack.
- Don't handle fearful or aggressive cats unless properly protected.

Possible Complications

- Fear aggression may persist despite treatment efforts, especially if it is difficult to avoid exposure to full strength stimulus.
- Owners may inadvertently reward fearful/aggressive behavior, worsening the condition.
- Targets of aggression may sustain physical injuries.

Expected Course and Prognosis

- Treatment duration will depend on severity of fear aggression, but, in general, weeks to months should be anticipated.

- An overall improvement trend should be seen, but anticipate periodic small set backs during the course of treatment.
- The prognosis is better if the owner has the ability to control target stimulus. If the target stimulus is another animal or small child, the process may be more difficult.

See Also

Chapter 14, Aggression/Feline: classification and overview
Chapter 16, Aggression/Feline: intercat
Chapter 17, Aggression/Feline: petting induced
Chapter 22, Aggression/Feline: veterinary office
Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 33, Fear of People: canine and feline
Chapter 34, Fear of Places and Things: canine and feline
Chapter 41, House Soiling: feline
Chapter 62, Urine Marking: feline

Abbreviations

CCDS—counterconditioning and systematic desensitization
CNS—central nervous system
FIV—Feline Immunodeficiency Virus Infection
GABA—gamma amino butyric acid
h—hour
MAO—monoamine oxidase mg/kg—milligrams per kilogram
PO—by mouth
q—every
SSRI—selective serotonin reuptake inhibitor
TCA—tricyclic antidepressant

Suggested Reading

Heath, Sarah. 2002. Feline Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine* edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 216–228.

Overall, Karen L. 1998. Managing an aggressive cat. *Veterinary Medicine* 93, 1051–1052.

Turner, Dennis C., and Patrick Bateson, Editors. 2000. *The Domestic Cat, the biology of its behaviour*. 2nd Edition, Cambridge: Cambridge University Press.

Aggression/Feline: intercat



DEFINITION/OVERVIEW

Intercat cat aggression refers to interactions between cats that have elements of aggression including growling, hissing, spitting, attacking, chasing, and biting. The aggression noted is often based on conflicts within social groups. This may also occur between cats who are unknown to one another. Intercat aggression may have fear, defensive, and territorial components.



ETIOLOGY/PATHOPHYSIOLOGY

- This behavior may be part of the normal behavioral repertoire of cats.
- Some expressions may be abnormal and/or the result of medical conditions.
- Intact male cats are more likely to fight with other cats outdoors over territory and mates.
- Aggression can become more common with crowding and decreased individual space.
- Cats who previously lived in harmony may become destabilized by the addition of another cat or disruption in the household such as moving, illness, or hospitalization of either cat.
- Aggression can occur as a territorial response, a redirected aggressive attack, or due to fear or anxiety.



SIGNALMENT/HISTORY

- Gender: Intact male cats that go outside are more likely to fight with other cats in the neighborhood over territory and mates.
 - Competition for mates generally involves aggression between males only.
 - Both male and female cats within the household may fight.
- Age: This behavior is most apparent at 2–4 years of age or when the animals become socially mature.

Historical Findings

- Aggressive responses may vary in intensity and perhaps in frequency and not occur every time in the same circumstances.



■ **Fig. 16-1** Cat wearing body harness and leash.

- The cats are separated except for introductions and always supervised when they are together.
- It also may be helpful to switch litter boxes between the cats to aid in familiarization between the cats.
- Creating a common scent profile between cats may help and is achieved by rubbing the cats with towels and switch from one cat to the other to mix their scents.
- If the cats will not eat when they see one another, then it may be possible to get the cats to eat food treats while on opposite sides of a closed door. If the cats will eat at that time, then nonvisual introductions are used for a few days and then feeding across the room is tried once more.
- An additional method of introduction is to use a crate. One cat is placed in the crate while the other cat is loose in the room.
 - The goal is to allow the cats to become comfortable with the presence (both sight and odor) of one another. Usually it is best to have the aggressor in the cage and the victim to be loose.
 - This allows the victim to adjust the distance to their comfort level and move around in the presence of the aggressor.
- If the cats are uncomfortable if one is loose, both cats can be in carriers for the introduction. Food is also used in this technique to help calm the cats and reward the desired behavior.

- Aggressive responses are often followed by withdrawal and distance-increasing responses by either cat.
- One cat (the aggressor) may stalk the other cat, and the victim may hide.
 - This may begin as a redirected attack from one cat to another and be maintained by victim behavior of hissing, growling, and fleeing.
 - Attack and fighting may occur.
- Aggression may be sequelae to removal of one cat from the home for veterinary visits or hospitalization or with the addition of another cat.
- Aggression may also occur when resources are contested within the home environment.
- Aggressive behavior may occur to other cats that come onto the home cat's territory and be expressed as aggressive responses at windows and doors.
- If occurring to cats that are outdoors, the aggression is usually about territory or mates.
- Aggression between cats can be both overt and covert.
- Overt aggression includes staring, hissing, and posturing (including changes in piloerection, tail postures, ear position, pupil shape and dilation, back and rump posture, and facial signs).
- Covert aggression includes staring and passive displacement of the victim from any environment that the victim occupies or blocking access of the victim to certain areas.
- Marking with urine or with scent glands by either the aggressor or victim may also be part of aggressive social interactions.
 - May be a component or cause of house-soiling behavior problems

Contributing/Risk Factors

- Crowded social environment without adequate allocation of important resources such as food bowls, litter boxes, and resting places.
- Inadequate socialization to other cats during ontogeny.
- Cats with differing personalities living in the same space.

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - Increases in the number of cats without concurrent reallocation of resources may precipitate aggression problems.
 - Daily routine may help identify areas that need change or time family members have available to administer a treatment plan.
- What is the daily routine, including feeding, grooming, and play?
 - Placement of food bowls, litter boxes, climbing towers etc., are important in multiple cat households to the understanding of the social dynamics between cats.
 - Questions should include how each cat utilizes the space within the home.

- What were the onset, duration, and progression of the problem behavior?
 - A redirected aggressive episode may have been the impetus, but other behaviors are now maintaining the aggression.
 - Long-standing aggression between household cats may be more difficult to resolve.
 - If occurring to cats outside of the home, how and when does the cat have access to the outdoors?
- Descriptions of aggressive encounters are essential.
 - Describe the first episode of any aggressive responses, however mild.
 - Describe the most recent episode with any aggressive response.
 - Progress back in time through several episodes and trigger situations.
 - Each should include persons present, their actions and responses, position and actions of the cat, and body postures and facial expressions of the cat before, during, and after the encounter and where the encounters occur.
 - Descriptions should include objective descriptions of what the cat “did” not what the owner thinks the cat “meant.”
- Triggering stimuli should be explored in detail.
 - This is especially important if redirected aggressive attacks occur.
 - Ability to encounter outdoor cats should be discussed.
- Attempt should be made to assess the intensity of the aggressive response, hissing, swatting, growling, chasing, wrestling, biting, and scratching.
- Also noted should be changes in the social environment (including the death of another cat), changes in the physical environment, or changes in the health of one of the participants.
- Learn what previous treatments were used, both those that helped and those that made the condition worse and the pet’s response to each treatment.



DIFFERENTIAL DIAGNOSIS

- Territorial aggression
- Redirected aggression
- Social status aggression
- All may be involved in intercat aggression within the home.



DIAGNOSTICS

- A complete physical and neurological examination should be performed: Further diagnostic testing as indicated by the results of these examinations should be conducted.

Pathological Findings

- Usually no abnormalities found unless other underlying medical conditions co-exist



THERAPEUTICS

Safety

- Preventing injury to cats within the home and to humans must be a top priority.
- If cats within the household are fighting, they should be separated and placed in individual locations with food, water, and litter boxes.
- In cases where one or both cats are highly aggressively aroused, placing the cat in a dark, quiet room may help calm the cat and may be needed for several hours to days after intense fighting.
 - Owners should avoid directly picking up an aggressively aroused cat.
 - Cover the cat with a thick blanket or herd into the confinement area to avoid human injury.
- Cats should only be brought together when calm and under controlled circumstances.

Management

- In some circumstances, it may be prudent to set up separate areas for the cats to avoid ongoing fighting.

Behavioral Modification Techniques

- The main focus is on CCDS exercises to reacclimate the cats to one another.
 - The goal is to allow the cats to be together without any aggressive behaviors (growling, hissing, chasing, staring, etc.).
 - Introductions are best done slowly, using food to facilitate calm, nonanxious behavior (counterconditioning).
 - The cats need to be far apart, so that they are relaxed (desensitization).
 - Each cat is then offered a delectable food treat that they will eat.
- For safety and control, it is often advisable that each cat wear a harness and leash during introductions.
- If the cats will not eat, then they are too anxious and probably too close together and should be moved further apart. If the cats still will not eat, then they should be separated until the next feeding. If the cats do eat at that time, they are allowed to remain together while they eat and then separated. The next feeding is at the same distance. If things go well at that session, the next time the dishes can be moved closer together, but only by 6–8 inches.
- If the cats are comfortable, sometimes they can be left together leashed on opposite sides of the room, under supervision so that they can groom, and then separated again. Owners must remain in the room to supervise the cats.
- Two feedings where no aggressive or anxious behaviors are expressed are done at the same distance before the bowls are moved closer together. Clients should be cautioned that this is a slow process and not to rush. Allowing the cats to interact in an aggressive manner sets the program back and makes resolution more difficult.

- A similar technique can be done using double baby gates on doorways, screen doors, or glass doors to allow the cats to visualize each other without getting too close to one another.
- If the aggression is mild, the cats can be allowed out together under supervision.
 - Fitting the aggressor with an approved cat collar with a large bell may help the victim stay out of harm's way, and the cats avoid aggressive encounters.
 - It is also essential that resources such as food bowls, litter boxes, and resting areas are situated so that the victim can access them without coming into contact with the aggressor.
- Some cats can be reacquainted using play therapy involving both cats.
- If aggression is directed to other cats outside, then it is recommended that the cat be kept indoors and windows blocked to avoid visual access.
- Intact male cats should be neutered.

Accompanying Handouts

Acute Management of Problem Behavior

Creating Harmony in Multiple Cat Homes

Desensitization and Counterconditioning: the details

Introducing Cats

Maximizing Treatment Success

Drugs

- Note: All medication dosages are for oral dosing (PO)
- No medications are approved for use in cats for this condition; owner consent forms are advisable.
- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.
- Serotonergic medications may be useful when a continuous, chronic, long-acting anxiolytic is needed.
 - Serotonergic medications are indicated for situations where there is unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - This medication is to be given on a daily schedule regardless of exposure to trigger stimuli.
 - It may take up to 4 weeks to achieve efficacy.
 - Common side effects include constipation, urinary retention, anorexia, gastrointestinal signs, tremors, irritability, and lethargy.
 - These medications are to be continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response.
 - Amitriptyline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine: 0.5–1 mg/kg q24h
 - Fluoxetine: 0.5–1.0 mg/kg q24h

- Paroxetine: 0.25–0.5 mg/kg q24h
- Buspirone may be prescribed for the victim only; it may make the victim more outgoing and the situation may resolve with some overt aggression by the victim cat: 0.5 mg/kg PO q12h
- Benzodiazepines
 - Diazepam: 1–2 mg/cat every 12 hours has been shown to be useful in aggression. Cats on benzodiazepines could disinhibit and the aggression may increase rather than diminish. Generally, this is not a drug of first choice due to potential toxic reactions.

Contraindications/Precautions

- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic; may be potentiated by other lipophilic drugs; if combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Alternative Drugs

- Feliway[®] may help as an adjuvant if routinely applied to areas frequented by both cats, but there are no data to support this use.
- Feliway[®] in a diffuser form can be plugged into various rooms in the home for its calming effect.
- The Cat Bib[®] worn by the aggressor may inhibit aggressive behavior toward other cats.

Surgical Considerations

- Neutering intact male cats will diminish roaming and fighting with cats both indoors and out.



COMMENTS

Client Education

- Clients must be willing to be patient. Premature introduction of fighting cats tends to prolong and exacerbate the problem.
- If given enough time, problems tend to resolve, but may take many months.

Patient Monitoring

- Weekly telephone follow-up is best initially to help clients stay with behavior modification and assess whether medication is needed.
- Ongoing follow-up helps monitor progress and any problems with medication that may surface over time.
- Often cats need to be separated for quite some time until things improve; clients need ongoing encouragement to stay with a treatment program.

Prevention/Avoidance

- Slow reintroductions when one cat must leave the home for a time and keep scent profile stable.
- Keep numbers of cats within a household to a reasonable level.
- Provide adequate allocation of resources such as litter boxes, food bowls, and resting places.

Possible Complications

- Continued aggression results in one cat having to leave the home or live a compromised lifestyle.
- Clients should be counseled against adding more cats to a household where intercat aggression has already been a problem.

Expected Course and Prognosis

- Prognosis is excellent if the clients are willing to keep cats separated.
- The seriousness of the behaviors of both the victims and aggressors determines prognosis and duration of required treatment with medication.

- The earlier the intervention, the better the prognosis and the shorter the course of medical treatment. If serious fear or injury has been involved, prognosis is poorer.

Pregnancy

- A nursing queen may attack other cats in the home to defend her kittens.

See Also

Chapter 19, Aggression/Feline: redirected
 Chapter 20, Aggression/Feline: status related
 Chapter 21, Aggression/Feline: territorial

Abbreviations

CBS—complete blood count
 CCDS—counterconditioning and systematic desensitization
 CNS—central nervous system
 h—hour
 MAO—monoamine oxidase
 mg/kg—milligrams per kilogram
 PO—by mouth
 q—every
 SSRI—selective serotonin reuptake inhibitor
 TCA—tricyclic antidepressant

Suggested Reading

- Heath, Sarah. 2002. Feline Aggression In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 216–228.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*, Philadelphia: Elsevier, pp. 427–453.
- Mills, Daniel, and Barbara S. Simpson. 2002. Psychotropic Agents In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 237–248.



Aggression/Feline: petting induced



DEFINITION/OVERVIEW

These cats will appear to solicit and/or accept human petting for a period of time and then will suddenly bite the person that is petting them. This is typically interpreted as a “leave me alone” bite. The cat uses aggression to communicate to the owner that it no longer desires to be stroked.



ETIOLOGY/PATHOPHYSIOLOGY

- This aggression is not necessarily pathological; it may be a normal defensive or offensive behavior that is reinforced by learning.
- Common neurological pathways exist for touch and pain.
 - Overstimulation via repetitive petting could cause arousal, pain, and/or static electricity.
 - The cat may respond to these signs with aggression in order to stop the progression.
 - Some cats may have pathological hypersensitivity.
- Underlying pain or discomfort may trigger defensive aggression.



SIGNALMENT/HISTORY

- No age or gender predilection is currently identified.

Historical Findings

- Cat may appear to solicit petting or interaction with owner.
 - In some instances, this may be a human misinterpretation; just because a cat elects to sit on a lap does not necessarily imply that it wants to be stroked.
- Cat may appear to enjoy stroking for a period of time.
- Although sometimes missed by owners, cat usually will exhibit some postural changes prior to aggressive attack that may include fidgeting, tail twitch, tenseness, pupillary dilatation, leaning away, ears flattened against the head, retraction of lips. Vocalization, usually hissing or growling, may also occur prior to attack.
- Cat suddenly scratches or bites hand/arm/body of the person that is petting them.
 - Aggressive display is often somewhat inhibited although they can be injurious.

- The aggression may also include vocalization.
- Certain family members may be targets for the aggression.
- Cat aggression usually ceases with discontinuation of petting.
- Cat often leaves area after aggressive display.
- Aggression may be directed to either familiar or unfamiliar people.
- Aggressive responses may vary in intensity and perhaps in frequency and not occur every time in the same circumstances.
- As the cat learns how to stop unwanted encounters with aggression, the frequency/intensity may increase.
- Cat may try to control other resources/situations and is characterized as “demanding” by owners.

Contributing/Risk Factors

- Too much tactile stimulation from owner
 - Individual cats will tolerate different thresholds for physical interaction.
- Using aggression successfully in other contexts
- Anxiety
- Lack of early (between 2–7 weeks of age) human handling
- Dermatological disease resulting in hypersensitivity
- Chronic, painful medical conditions such as arthritis

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - Presence of small children in household may make treatment challenging/risky due to inability to follow protocol.
 - Immunocompromised, young, and elderly family members may be at greater risk of complications secondary to cat aggression.
- What is the daily routine, including feeding, outdoor access, exercise, and play?
 - This information allows the clinician to determine if the cat is living in an adequately enriched environment.
- What were the onset, duration, and progression of the problem behavior?
- Descriptions of aggressive encounters are essential. Each incident reported should include persons present, their actions and responses, position and actions of the cat and body postures and facial expressions of the cat prior to, during, and after aggressive encounter.
 - First episode of any aggressive responses, however mild
 - Most recent episode of aggression
 - Progress back in time through several episodes
- What previous treatments were attempted, both those that helped and those that made the condition worse?
- Are there episodes of skin rippling, twitching?
 - If present, need to consider a diagnosis of hypersensitivity or what is known as “feline hyperesthesia syndrome”



DIFFERENTIAL DIAGNOSIS

- Status-related aggression
- Pain-related aggression
- Play-related aggression
- Redirected aggression
- Dermatological disease
- Any condition that increases irritability/aggression
 - Hyperthyroidism
 - Dental disease
 - Viral diseases (rabies, FIV)
 - FLUTD, etc.



DIAGNOSTICS

- Physical and neurological examinations
- CBC, chemistry panel, thyroid, and urinalysis
- Further diagnostics as indicated by initial findings

Pathological Findings

- If the cat has an underlying pain-related condition, dermatological condition, or medical condition then they may have pathology associated with these diseases.



THERAPEUTICS

If there is a primary underlying medical or neurological disease contributing to the behavior, that will need to be addressed first.

Safety

- Cat bites can result in significant injury to the victim; aggressive episodes need to be avoided at all costs.
- Keep the physical contact below that which triggers aggression; if this can't reliably be predicted, no physical contact should occur.
- If there are household members that can't abide by the safety rules, the cat should be confined in a secure location.

Management

- Stop petting when the cat shows any preliminary warning signs of aggression. If everyone in the household can reliably identify the warning signs and this reliably prevents escalation of aggression, this management technique may be adequate for control of the problem behavior.

Behavioral Modification Techniques

- Identify petting threshold that triggers the aggressive behavior.
- Restrict petting to a level below that which triggers warning signs (fidgeting, tail twitch, tenseness, leaning away, ears flattened against the head) or overt aggression.
- Gradually desensitize and condition cat to accept more stroking.
 - Identify a reward for the cat (play with a favored toy, tasty treat).
 - When cat is in the mood for petting, deliver a few strokes, keeping it below the level that triggers aggression.
 - Deliver reward for tolerance of petting.
 - With success, gradually increase duration/intensity of petting prior to delivering reward.
 - If cat shows preliminary signs of aggression or aggression, immediately cease interaction, don't give reward and leave area. At the next session, reduce amount of stroking so that it doesn't trigger undesirable response.
 - Identify and engage in other types of interaction and physical contact the cat enjoys such as scratching the head and neck, sitting quietly on the lap without contact and play as described below.
- Identify any other situations in the relationship where the cat is demanding/controlling resources and have owner stop responding to these demands.
 - For example, if cat initiates feeding by meowing at owner, have owner switch to a planned meal schedule instead of food on demand.
- Owner should initiate daily play sessions with cat using remote type toys (fishing pole-type toys, laser lights, etc.). Play sessions should be terminated before cat gets highly agitated or aggressively aroused.
- Teaching the cat commands via positive reinforcement training can establish other ways for owner to interact with the cat that don't require tactile handling and can enhance owner leadership.
- Interactive corrections (hitting, swatting, throwing cat) are not advised and may worsen condition.
- Any reaction from owner that causes increased arousal (e.g., yelling) may worsen condition so owners are advised to remain calm and nonreactive if attacked.

Accompanying Handouts

Desensitization and Counterconditioning: the details
 Safety Recommendations for Aggressive Animals

Other Treatments

- The pheromone product, Feliway[®], in a diffuser or spray form, may provide general anxiolytic benefits when applied to the environment.
- Consider routine nail trims or application of soft nail caps to cat claws to reduce injuries inflicted by scratching.

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Because the behavior may be within the normal behavioral repertoire of cats, drug therapy is usually not advised unless the problem occurs in association with other conditions.
- If the cat seems to be anxious, treatment with serotonin-enhancing medications may be helpful.
 - Fluoxetine: 0.5–1.0 mg/kg PO q24h
 - Paroxetine: 0.5–1.0 mg/kg PO q24h
 - Clomipramine: 0.3–0.5 mg/kg PO q24h
 - Amitriptyline: 0.5–1.0 mg/kg PO q24h
 - In healthy animals, side effects from SSRIs and TCAs are usually mild and resolve within a week of treatment initiation, if they occur at all; a reduced appetite and sedation are the most common side effects noted by owners.
- In cases of neuropathic pain or anxiety, selected anticonvulsant medications may be useful.
 - Gabapentin: 12.5 mg per cat PO BID

Contraindications/Precautions

- None of the above listed medications are approved by the FDA for use in cats; therefore, they should be used with caution and careful monitoring.
- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately.
- Avoid use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible; monitor response closely.
- Serotonergic or dopaminergic medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban[®]) (tick collars) and selegiline (Anipryl[®]).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- See individual drug monographs and pharmacology appendix for further information.

- Owners must be cautioned to avoid absentmindedly petting the cat and triggering aggression.
- These cats may never tolerate extensive handling so owners must have realistic expectations.
- Households with young, elderly, or immunocompromised individuals may find risk of continued aggression too great to pursue treatment.
- Do not have owner physically punish cat for aggression as it may worsen immediate situation and long-term prognosis.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.
- Although ethically questionable, declawing does remove one potential weapon if scratching is part of the aggressive behavior.



COMMENTS

Client Education

- Owners must be educated to identify preliminary signals of aggression (see above) and terminate petting if these are observed.
- Owners must realize each cat is an individual and learn to tailor their expectations to the pet's personality and tolerance level for physical interactions.

Patient Monitoring

- Good patient follow-up is essential with initial contact 7–10 days after the appointment.

Prevention/Avoidance

- Kittens should receive daily gentle human handling during the sensitive socialization period (from 2 to 7 weeks of age).
- Interactive physical punishment should be avoided with cats.
- Owners should respect preliminary signs of agitation and discontinue stroking if observed.

Possible Complications

- Human injuries
- Relinquishment or euthanasia of patient

Expected Course and Prognosis

- There is no cure. Prognosis for improvement is better if aggression is at a low intensity. Prognosis is highly dependent on owner compliance and cat temperament. With good owner compliance, significant aggression should be able to be eliminated immediately, and over the course of 1–2 months, owners should be able to successfully stroke the cat for short to moderate periods of time.

See Also

Chapter 14, Aggression/Feline: classification and overview

Chapter 15, Aggression/Feline: fear/defensive

Chapter 20, Aggression/Feline: status related

Abbreviations

BID—twice daily

CBC—complete blood count

FDA—Food and Drug Administration

FIV—Feline Immunodeficiency Virus Infection

FLUTD—feline lower urinary tract disease

mg/kg—milligrams per kilogram

PO—by mouth

SID—once daily

SSRI—selective serotonin reuptake inhibitor

TCA—tricyclic antidepressant

Suggested Reading

Frank, Diane, and Joel Dehasse. 2003. Differential Diagnosis and Management of Human Directed Aggression in Cats In: *The Veterinary Clinics Small Animal Practice*, edited by Katherine A. Houpt and Vint Virga; 33 (2) Philadelphia: WB Saunders, pp. 269–286.

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition Philadelphia: Saunders, pp. 436–437.

Aggression/Feline: play related



DEFINITION/OVERVIEW

Play-related aggression involves unsolicited attacks by a kitten directed toward people or other cats within the home. It can occur with inhibited bites that may indent the skin, and light scratches with claws. If the person's skin is soft or fragile, the wounds may break the skin. This aggression may include uninhibited and injurious attacks toward people or other cats. This is often called predatory behavior in Europe and the United Kingdom.



ETIOLOGY/PATHOPHYSIOLOGY

- Play behavior timeline in kittens:
 - Social play becomes evident in kittens at about 4 weeks of age.
 - Object play and locomotory play occurs around 7–8 weeks of age and includes playing with small objects and jumping on larger objects.
 - Predatory play usually appears around 5 weeks of age.
- Occurs with arched back posture and may include hiding, chasing, stalking, and pouncing behaviors
- Orphan-reared with no littermates or other cats to play with to learn how to inhibit play
- Understimulation and/or lack of appropriate play and exploratory opportunities, may be contributory to the expression of problem play behavior



SIGNALMENT/HISTORY

- Age: The behavior usually occurs in young singleton cats less than 2 years of age.
- Gender: No gender predilection is noted.

Historical Findings

- This behavior is exhibited by a younger cat, under 2 years of age, often the only cat.
 - Generally starts as a kitten but may continue into adulthood
 - The aggression is directed toward people in the home or other cats and occasionally the dog(s) within the home.

- Owner encouragement may include using hands, feet, or other body parts to solicit play with the kitten/cat.
- If a person runs away, puts feet up, or tries to brush the kitten away, the intensity of the play may increase.
 - No vocalizations during the episodes
- Kitten may direct the behavior exclusively toward one family member.
- Cat may hide and run out, attack, and quickly run away.
 - Bites are usually inhibited and do not break the skin.
- Uninhibited aggressive play directed toward people may occur with uninhibited bites that break the skin and may cause serious damage to some individuals.
- Some cats will show signs of emotional arousal during episodes including dilated pupils, twitching tail, and increased respiratory rate.
- Behavior can occur at predictable times and locations; ambushes are common.
 - May hide behind doors or objects and dart out at people
 - May occur as owners go up and down stairs, move under bedcovers, step out of the shower, and make the bed and other predictable activities that allow the cat to anticipate movement
 - May occur at night while owners are attempting to sleep
- Aggression may occur as unsolicited attacks by the kitten directed toward another cat, often one over 10 years of age. The other cat either runs and hides or responds by hissing, threatening, or seriously attacking kitten.
- Behavior may be seen as normal play directed toward objects in the household with bursts of solitary play that include intense running across household furnishings, shredding objects, or propelling self along its back underneath furniture. They may also knock over objects and remove them from horizontal surfaces. Aggression may occur when humans attempt to interrupt or stop the behavior. (See Chapter 31, Destructive Play and Exploration: feline.)

Contributing/Risk Factors

- Being the only young cat in the household or being singleton cats under 2 years of age may be a factor.
- Another factor may be if there was a long delay as a kitten before sufficient and appropriate exposure to people occurred.
- Lack of experience as an orphan-reared kitten to play with other kittens and/or cats may contribute to uninhibited aggressive play.
- A risk factor may be an adolescent or juvenile male human in the household who encourages inappropriate play interactions.
- Little or no opportunity or outlets for appropriate play, exercise, and social interaction may contribute to play aggression.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This information may help identify areas that need additional management.

- What is the daily routine, including feeding, training, exercise and play, and supervision of the pet?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
 - Learn the pet's reaction to owner departure. Are there any signs of separation distress?
 - Have schedule changes resulted in less time available for the pet?
 - Are family members gone long hours resulting in little pet-human contact?
- What were the onset, duration, and progression of the problem behavior?
- Descriptions of aggressive encounters are essential.
 - Are the bites inhibited or injurious?
 - Do the encounters occur with unsheathed claws?
 - Is there any vocalization?
 - Are specific family members targeted?
 - Does the cat hide and attack people?
- Can triggering stimuli be identified?
 - What is the location, time of day? Who are the specific people attacked?
- Learn what previous treatments were used, both those that helped and those that made the condition worse, and the pet's response to each treatment.
 - Any punishment techniques and reprimands should also be detailed.



DIFFERENTIAL DIAGNOSIS

- Fearful and defensive behaviors
 - Usually can be differentiated based on history and subtle changes in body posture
- Social status aggression
 - Usually not elicited by movement but rather by attempts to interact with the cat or attempt to get it to do something it does not wish to do, such as being picked up or moved
- Attention seeking: possible component if social, play, and exploratory needs are not met any other way
- Redirected aggression: occurs when the cat is aggressive and aroused due to another stimulus that it cannot reach
 - Usually not as predictable and routine as play-related aggression
- CNS diseases, e.g., infectious, toxic, or neoplastic
- May be presented as “psychomotor epilepsy” by owners or referring professional



DIAGNOSTICS

- Physical examination to rule out pain-related aggression
- Laboratory work as indicated by history and physical examination suggesting underlying neurologic disorder

Pathological Findings

- None usually found unless other signs point to neurologic problem or pain-related aggression



THERAPEUTICS

Safety

- Human safety and prevention of injury should be a primary concern.
- Young children should always be supervised during playtime with the cat.
- If the attacks are totally uninhibited, injuries have been severe, or small children, elderly persons, or immunocompromised individuals are the recipient of the play-related aggression then separation or re-homing the cat may be the prudent option.

Management

- All trigger situations should be identified and avoided either by environmental manipulation or redirection to another object (ball or toy).
- Adequate environmental enrichment and stimulation should be provided.

Behavioral Modification Techniques

- Providing appropriate toys and outlets for chasing, exploration, and attention is the cornerstone to treatment.
- All attention should be initiated by the owner and provided to the cat when it is calm and quiet. Attention-seeking behaviors such as vocalization, pawing, or patting should be ignored. (See the Structuring Your Relationship with Your Pet handout in Appendix D.)
- Toys should flutter, bounce, and move to entice the cat to play but be tailored to each individual cat's preferences.
 - Avoid toys that are small enough to be ingested. This includes string or yarn, which can cause severe gastrointestinal problems if ingested.
- The goal is to provoke running, chasing, and attack of appropriate items to diminish desire to direct these behaviors toward people.
 - Toys should be rotated every few days to provide new and novel experiences especially if the owner is gone for long periods of time every day.
 - Feeder toys that stimulate foraging behavior can be very useful.
 - Boxes, bags, and climbing centers are helpful.
- Owners should schedule and initiate daily play time, preferably at least two 10- to 15-minute sessions daily.
- If the cat seems to tire of a particular toy during the session, introduce a new one, which will usually stimulate additional play at a high level.
- Do not encourage escalation of play with evasive actions or mild aversive techniques.

- Inappropriate play can be interrupted using the mildest stimulus that will stop the behavior. Such a stimulus will not work unless it is paired with the initiation of the act of attacking and used every time the cat attacks and, in addition, the cat may become afraid of the person. Possible startling stimuli are water, foghorns, compressed air, and citronella spray.
- Cats may learn to avoid people when they have the punishment devices and still attack at other times especially if appropriate outlets are not offered.
- If occurrences are predictable in time and location, owners can be preemptive. Prior to attacking, the cat is distracted by tossing a toy that redirects the cat to engage in play with an appropriate object.
- Predictable locations can be made inaccessible by blocking the area, removing objects to hide behind, and even by having the cat wear an approved cat collar with a large bell attached that will signal their location.
- Physical reprimands are inappropriate and may cause fear and defensive aggression and owner avoidance. Do not hit, kick, or snap kitten on nose with fingers. Such actions frequently elicit an immediate serious aggressive response from kitten and/or induce residual fear and fear-induced aggression toward that person thereafter.
- Frequent trimming of tips of claws helps reduce damage.
- Another effective treatment may be to acquire an additional cat or kitten of the same size and temperament. The cats may play with each other, and attacks directed toward people should diminish. Older cats may not accept another cat, so this option may not work for every household.

Accompanying Handouts

Acute Management of Problem Behavior
 Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Teaching Your Pet How to be Confined

Drugs

- Play-related behaviors are part of the normal behavior repertoire of the cat, and medication is unnecessary and inappropriate.

Contraindications/Precautions

- If serious injury has occurred and family members are at risk, re-homing may be a prudent option.

Surgical Considerations

- Although some may advocate declawing the cat, this is not usually necessary if appropriate play, activities, enrichment, and social interaction are provided for the cat.

- Furthermore, declawing will only change the injuries sustained but not the desire to engage in the behavior. Behavior modification, meeting social, play, and exploratory needs should come first.
- In households where people are at risk of injury and serious infection due to injuries incurred while interacting with the cat, then declawing, tendenectomy, or nail caps may be prudent.



COMMENTS

Client Education

- Clients should be counselled that although annoying and potentially dangerous, play-related aggression is usually a normal and treatable behavior. Meeting the social, exploratory, and play needs of the cat must be done on a daily basis for good resolution. For some cats, this may need to be a lifelong endeavor.

Patient Monitoring

- Telephone follow-up within 7–10 days to assess response to treatment and to make modifications is desirable.
- Further follow-up can be dictated by initial treatment response.

Prevention/Avoidance

- Between 3 and 7 weeks of age, kittens should experience positive interactions with people and be taught appropriate play behaviors.
- Clients with children in the household should specifically be advised to prohibit roughhouse play with kittens.
- Adequate toys and opportunity to play and explore should be provided as soon as the kitten enters the household. Toys should be rotated to keep them interesting and desirable to the cat.
- Provide education in the form of verbal advice, pamphlets, videos, books, or lists thereof at routine office visits or special kitten appointments that detail appropriate play, enrichment, and social interactions.

Possible Complications

- Clients applying punitive techniques that result in fear, anxiety, and defensive aggression in the kitten or cat.

Expected Course and Prognosis

- Appropriately followed treatment protocols should result in quick reduction or resolution of problem. If not resolving, follow-up appointment is needed.
- Uninhibited aggressive play directed toward people may have a guarded prognosis.

See Also

Chapter 31, Destructive Play and Exploration: feline
Chapter 44, Jumping on Counters: feline
Chapter 49, Nocturnal Behavior: canine and feline
Chapter 55, Scratching Behavior: feline

Abbreviations

CNS—central nervous system

Suggested Reading

Frank, Diane. 2002. Management Problems in Cats In: *BSAVA Manual of canine and feline behavioural medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 80–89.



Aggression/Feline: redirected



DEFINITION/OVERVIEW

Redirected aggression refers to an aggressive act by a cat that is directed at a target other than the one that initiated the aggressive emotional state.



ETIOLOGY/PATHOPHYSIOLOGY

- Any type of primary aggressive response can result in redirected aggression.
- Stimuli that can elicit a state of aggressive arousal include, but are not limited to, other cats, odors, noises, unfamiliar people, unfamiliar places, or pain.



SIGNALMENT/HISTORY

- No particular signalment; any age, gender, breed can exhibit.
- Redirected aggression is incidental to another form of aggression or emotional arousal.

Historical Findings

- The cat has had an episode of aggressive arousal toward some target. The primary motivation for aggression can include many types of aggression: territorial, intercat, fear, defensive, pain-related, etc.
- A third party (human or another animal) in proximity to the aggressively aroused cat or trying to intervene becomes the target of the aggression; the target of the aggression is not the stimulus that triggered the initial emotional arousal.
- Typical scenarios:
 - The owner tries to placate a cat when it is aggressively aroused at some target (e.g., veterinarian, another cat), and the cat redirects its aggressive emotional arousal toward the owner.
 - Cat A sees unfamiliar Cat X outside a window and starts to display territorial aggression to Cat X; Cat B who historically has a friendly relationship with Cat A wanders over to window to look out; Cat A attacks Cat B.
- A cat can also become aggressively aroused by an indoor (vacuum cleaner) or outdoor noise or even novel odors.

- Aggressive incidents may vary significantly in intensity; however, owners often report that attacks are acute, serious, and unprovoked.
 - The cat often vocalizes with a low growl, then yowls, lunging and attacking with uninhibited bites.
- Cats can stay emotionally aroused for long periods (days); thus, the redirected aggressive event may not be tightly coupled to the initial agitation, and the owner may not have witnessed the primary cause of aggression.

Contributing/Risk Factors

- Any cat that exhibits a primary form of aggressive arousal is at risk to exhibit redirected aggression.
 - See other chapters for contributing/risk factors for primary forms of aggression (territorial, fear/defensive, veterinary office, intercat, etc.).

Pertinent Historical Questions

- What is the household composition, including both humans and other pets?
 - This information will help to identify individuals at risk and possible triggers.
- Descriptions of aggressive incidents are important.
 - Give special attention to events/interactions up to a week preceding aggressive incident.
 - Body postures and vocalizations of cat before, during, and after aggressive incident should be described.
 - Intensity of aggression (mild, moderate, severe) and how long the cat stays aggressively aroused should be noted.
 - Determine the target of aggression.
 - Determine the location of aggressive events (e.g., always by window/door).
 - Learn the victim's response to aggression.
 - Find out the frequency of aggression.
- Since redirected aggressive events are often a result of a primary aggressive display toward another animal, it is often helpful to identify the presence of other animals (e.g., stray/outdoor cats in neighborhood) and cat's general response to other animals.



DIFFERENTIAL DIAGNOSIS

- Status-related aggression
- Play aggression
- Territorial aggression
- Pain-related aggression
- FIV
- Fear-related aggression
- Intercat Aggression
- Rabies

- Primary medical diseases that result in pain
 - Feline ischemic encephalopathy
 - Abscess
 - Intervertebral disc disease
- Neoplasia of the brain or other neurological disorder



DIAGNOSTICS

- Since redirected aggression is a manifestation of another form of aggression redirected onto an inappropriate target, diagnostics to discover what is eliciting the primary aggression are warranted.
 - Minimally, a physical examination, neurological examination, and CBC, chemistry panel, FELV/FIV testing and thyroid panel are suggested.
- The primary reason for the aggression must be diagnosed and treated in order to prevent future redirected aggressive events.



THERAPEUTICS

Safety

- Counsel owners on feline body postures associated with emotional arousal in cats—dilated pupils in lighted situations; piloerection; tip of tail flicking rapidly; ears back; hissing; growling; or swatting and advise them to leave the cat alone if it is displaying these signs.
- If cat must be moved/handled when aroused, proper equipment should be used to minimize risk to handler (leather gloves, thick blankets, etc.); try to herd cat to quiet area instead of lifting cat.

Management

- Remove/control exposure to triggers for primary aggressive response
- Keep people and animals away from an aggressively aroused cat.

Behavioral Modification Techniques

- Treat/manage primary form of aggression. (See specific chapters for treatment recommendations.)
- Environmental enrichment with games/toys/interesting habitats may keep cat occupied and reduce interest in other potentially arousing stimuli.
- If primary aggression cannot be modified or avoided then treatment involves avoiding interaction with/proximity to the aggressively aroused cat.
 - Keep cat in a quiet/segregated environment with necessary resources (food/water/litter box) until cat is no longer aggressively aroused. This may take several days to weeks.
- If triggers can be identified, counter conditioning and desensitization is recommended.

Accompanying Handouts

Acute Management of Problem Behavior
 Counterconditioning and Desensitization: the details
 Creating Harmony in Multiple Cat Homes
 Safety Recommendations for Aggressive Animals
 Teaching Your Pet How to be Confined

Drugs

- Note: All medication dosages are for oral dosing (PO)
- There is no specific drug indicated for redirected aggressive events, but see drug options for treating primary causes of aggression.
- Cats with a high level of reactivity/arousal/anxiety may benefit from serotonin-enhancing medications.
 - To be given on a daily schedule regardless of exposure to trigger stimuli
 - May take up to 4 weeks to achieve efficacy
 - To be continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response
 - Fluoxetine: 0.5–1.0 mg/kg PO q24h
 - Paroxetine: 0.5–1.0 mg/kg PO q24h
 - Clomipramine: 0.3–0.5 mg/kg PO q24h
 - Amitriptyline: 0.5–1.0 mg/kg PO q24h

Other Treatments

- Soft rubber nail caps may help reduce injuries but will not affect motivation.
- In some cases, synthetic pheromone diffusers (e.g., Feliway®) may help to reduce primary anxiety/aggression.
- While alternative medications such as herbal preparations have been suggested, these substances have not yet been scientifically studied for these conditions in this species.

Contraindications/Precautions

- If there are members of the household who cannot identify/avoid aggressively aroused cats (e.g., young children, other animals), then it may be risky to keep the cat in the household.
- Immunocompromised individuals may be at great risk.
- If the stimuli for the primary cause of aggressive arousal cannot be identified, avoided, or managed, the problem may persist and escalate.
- Attempts to placate or comfort aggressively aroused cats are not recommended since aroused cats are apt to redirect their aggression to the closest target.
- Until primary aggression is addressed, redirected events may persist.
- There are no medications licensed by the FDA to treat redirected aggression in cats; the clinician should advise the clients of any use of extra-label medication and document this communication.

- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately.
- Avoid use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible; monitor response closely.
- Serotonergic or dopaminergic medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban[®]) (tick collars) and selegiline (Anipryl[®]).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.

Surgical Considerations

- Intact aggressive animals should be neutered.
- Although ethically questionable, declawing does remove one potential weapon especially when aggression is directed toward people.



COMMENTS

Client Education

- The hallmark of client education is teaching clients to avoid interacting with aroused cats until the cats are calm again.
- Cat owners should not encourage their cat to interact/socialize/view unfamiliar cats since intercat aggression is a common trigger for redirected events.

Patient Monitoring

- The level of monitoring depends upon the primary cause of the cat's arousal and intensity/frequency of redirected events.
- Client contact within a week following initial consult can be helpful to reiterate treatment.

Prevention/Avoidance

- Early identification of provocative stimuli and either removal of the stimuli from the environment or desensitization and counterconditioning cat to the provocative stimuli may help to prevent redirected events.

- Teach owners to avoid interacting with aroused cats.
- Kitten socialization may help to prevent primary aggression and subsequent redirected events.

Possible Complications

- Poor owner compliance and/or continued primary provocation will likely result in continued redirected events.
- If another household pet is the target of the redirected event, a previously good relationship may become a poor relationship between the two animals involved.

Expected Course and Prognosis

- Once the cat is no longer emotionally aroused by the precipitating event, a redirected aggression is unlikely to occur. Therefore, if the precipitating factor for the aggressive arousal is controlled/removed, then the prognosis is good.
- Prognosis is poor if:
 - The owner is unable to identify or control arousing stimuli.
 - The cat has a low threshold for arousal.
 - The aggression is very intense.
 - Family members can't recognize/avoid the aggressively aroused cat.
 - If a new problematic dynamic is established secondary to a redirected event, then this may take months to resolve.

See Also

Chapter 15, Aggression/Feline: fear/defensive
 Chapter 16, Aggression/Feline: intercat
 Chapter 18, Aggression/Feline: play related
 Chapter 21, Aggression/Feline: territorial
 Chapter 22, Aggression/Feline: veterinary office

Abbreviations

CBC—complete blood count
 CNS—central nervous system
 FDA—Food and Drug Administration
 h—hour
 MAO—monoamine oxidase
 mg/kg—milligrams per kilogram
 PO—by mouth
 q—every
 SSRI—selective serotonin reuptake inhibitor
 TCA—tricyclic antidepressant

Suggested Reading

- Heath, Sarah. 2002. Feline Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, p. 225.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition Philadelphia: Saunders, pp. 440–443.
- Turner, Dennis C., and Patrick Bateson, Editors. 2000. *The Domestic Cat, the biology of its behaviour*. 2nd Edition. Cambridge: Cambridge University Press.

Aggression/Feline: status related



DEFINITION/OVERVIEW

Feline status-related aggression is not a clearly defined nor widely accepted entity in behavioral medicine. This aggression is typically directed toward familiar people or perhaps to other cats within the home. It is usually associated with attempts to make the cat do things it does not wish to do or by the cat to control a situation such as petting or moving the cat. It may also be related to frustration aggression that occurs when the cat is denied something it wants such as access to the outdoors or food. It may be accompanied by territorial aggression.



ETIOLOGY/PATHOPHYSIOLOGY

- It is speculated that it may be associated with hand rearing, especially in situations that appear frustration related.
- It may be related to allowing the kitten to control the environment and all interactions.



SIGNALMENT/HISTORY

- No clear age or gender predilection is noted in the literature.
- No clearly defined symptomology is noted in the literature.
- Some cats are demanding and assertive and solicit attention while others may be withdrawn and aloof.

Historical Findings

- Often a history of assertive and/or demanding interactions with familiar people exists.
- Aggression may occur when the cat is petted, lifted, removed from perching or resting areas, or when denied something.
 - Aggressive responses may be inhibited but can be impulsive, explosive, and injurious.
- Aggression may not occur with all family members. The cat may allow certain family members more control.

- Status-related aggression often occurs concurrently with other forms of aggression such as territorial aggression, petting-induced aggression, fear or defensive aggression, and play-related aggression.

Contributing/Risk Factors

- The relationship between feline status-related aggression and allowing pushy or controlling behaviors in kittens and not setting limits for kittens is unclear.
- Hand-reared kittens with poor social skills may be at a greater risk, but no real studies exist.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
- What is the daily routine, including feeding, training, exercise and play, and supervision of the pet?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
 - What is the pet's reaction to owner departure? Are there any signs of separation distress?
- What were the onset, duration, and progression of the problem behavior?
 - Interactions as a kitten may be important.
- Descriptions of aggressive encounters are essential.
 - Descriptions should include body postures and what the pet "did," not what the owner thinks the pet "meant."
 - Are specific family members targeted?
 - Does the cat become agitated and warn of impending aggressive responses?
 - Is there any vocalization such as growling or hissing?
 - Are the bites inhibited or injurious?
 - Have serious injuries to people occurred?
 - Are the attacks uninhibited and impulsive and difficult to end?
 - If other cats are in the home, are they the recipients of aggression as well?
- Can triggering stimuli be identified?
 - What is the location, time of day, specific people, or actions?
 - Can a stimulus gradient be established?
- Learn what previous treatments were used, both those that helped and those that made the condition worse, and the pet's response to each treatment.
 - Any punishment techniques and reprimands should also be detailed.



DIFFERENTIAL DIAGNOSIS

- Brain disorders or metabolic disease (thyroid or adrenal conditions)
 - Aggression from metabolic disease is usually unexpected, inappropriate, and more continuous, and/or without a social context.
- Hepatic encephalopathy, feline ischemic encephalopathy, lead poisoning

- Hyperthyroidism, epilepsy, rabies
- Fear/defensive aggression
- Petting-induced aggression
- Territorial aggression
- Play-related aggression
- Predatory behavior



DIAGNOSTICS

- Perform CBC, chemistry screening, FELV/FIV testing and urinalysis if medical conditions are suspected or onset of aggression is acute. In older animals, thyroid profiles may be prudent. Imaging studies of the brain may be indicated in some cases.

Pathological Findings

- In most cases, diagnostics are within normal limits unless concurrent illness is present.



THERAPEUTICS

Safety

- Human safety and prevention of injury should be a primary concern.
- Young children should always be supervised during playtime with the cat.
- If the attacks are totally uninhibited, injuries have been severe, or small children, elderly persons, or immunocompromised individuals are the recipient of the aggression, then separation or re-homing the cat may be the prudent option.

Management Techniques

- All aggression-evoking situations must be identified and avoided including approaching, petting, or lifting the cat.
 - Having the cat wear a harness and leash may facilitate moving the cat off counters and furniture from a distance without physical contact.
 - Teach client to observe signs (tail flicking, ears flat, pupils dilated, head hunched, claws possibly unsheathed, stillness or tenseness, low growl).

Behavioral Modification Techniques

- Future interactions must be structured so that the cat learns to defer to the owners for all things.
 - The cat is first taught to “come” or “sit” using either food or clicker training.
 - Teach the pet to move off furniture with commands and perhaps a prompt with a harness and leash.

- Provide no more casual interactions; when the cat solicits attention, it must be ignored unless the cat first accepts small amounts of handling or interaction or responds to a command.
 - This can be something simple, such as one or two strokes on the head and then released.
- Gradual CCDS to the handling triggers that elicited the aggression in the past should be attempted.
 - Begin by creating a gradient of responses to various stimuli such as petting, handling, lifting, or moving.
 - Then, using the lowest level of the stimuli, begin to interact with the cat. This interaction might be approaching the cat, touching the sides as if to lift the cat, and then offering a food reward for calm response. The goal is to keep the level low enough so that no adverse response occurs.
 - Gradually increase the intensity of the stimulus as long as the cat does not respond with aggression.
 - If aggression is noted, the stimulus is too strong and at the next session should be diminished.
- Some cats may be difficult to desensitize and require environmental manipulation and avoidance of triggers to diminish aggressive responses.
- All physical reprimands must cease since they are likely to increase rather than decrease aggression.
- Inappropriate behaviors can be interrupted with remote devices such as noisemakers or water squirts as long as the cat does not become more agitated/aggressive. Other options include remote interruptions using the harness and leash or by terminating interactions.
- The house should be adequately enriched with cat perches, toys, scratching pads.
- Opportunities for appropriate energy expenditure should be encouraged in daily games with toys.
 - If catnip products seem to agitate/aggressively arouse the cat, remove them from the environment.
- In some situations, the aggression is impulsive, explosive, and injurious and depending on household composition, it may not be safe to keep these cats in their homes.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Teaching Your Pet How to be Confined
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- No medications are approved for use in cats for this condition; owner consent forms are advisable.

- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications.
 - These medications are indicated for situations where there is unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - These medications are to be given on a daily schedule regardless of exposure to trigger stimuli.
 - It may take up to 4 weeks to achieve efficacy.
 - Common side effects include constipation, urinary retention, anorexia, gastrointestinal signs, tremors, irritability, and lethargy.
 - To be continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response.
 - Amitriptyline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine: 0.5–1 mg/kg q24h
 - Fluoxetine: 0.5–1.0 mg/kg q24h
 - Paroxetine: 0.25–0.5 mg/kg q24h

Contraindications/Precautions

- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.

- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs and Appendix A for complete lists of contraindications/precautions.

Alternative Drugs

- Feliway[®] diffusers may calm some cats.

Surgical Considerations

- None specific to this condition although intact individuals may be calmer once neutered



COMMENTS

Client Education

- Clients should be informed that most aggression is controlled rather than cured.
- An appropriate goal would be a decrease in aggressive episodes and better ability to predict aggressive episodes.
- Aggression that is impulsive, unpredictable, and explosive may be too dangerous depending on injuries in the past and household composition.
- Children should never be left alone with aggressive animals; separation may be prudent.
- Social maturity may influence onset and progression of the problem.

Patient Monitoring

- Telephone follow-up is recommended one or two weeks after consultation to assess treatment compliance and pet response.
- If symptoms worsen, consider possible concurrent medical components.

Prevention/Avoidance

- Early handling of kittens increases friendliness.
- Setting limits and control of behavior in young animals might be preventative.
- Teaching obedience to simple tasks, earning all things, and handling exercises may be useful.

Possible Complications

- Ongoing aggressive encounters and human injury may result in the pet leaving the home.

Expected Course and Prognosis

- Some cats will respond to control and treatment by a decrease in frequency of episodes.
- Cats with a more explosive, impulsive type of response may not respond well to therapy.

See Also

Chapter 15, Aggression/Feline: fear/defensive
 Chapter 17, Aggression/Feline: petting induced
 Chapter 18, Aggression/Feline: play related

Abbreviations

CBC—complete blood count
 CCDS— counterconditioning and systematic desensitization
 h—hour
 mg/kg—milligrams per kilogram
 MAO—monoamine oxidase
 q—every
 SSRI—selective serotonin reuptake inhibitor
 TCA—tricyclic antidepressant

Suggested Reading

- Frank, Diane. 2002. Management Problems in Cats In: *BSAVA Manual of canine and feline behavioural medicine*, edited by Debra F Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 80–89.
- Heath, Sarah. 2002. Feline Aggression In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 216–228.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat* 2nd edition, Philadelphia: Elsevier, pp. 427–453.
- Mills, Daniel, and Barbara S. Simpson. 2002. Psychotropic Agents In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 237–248.



Aggression/Feline: territorial



DEFINITION/OVERVIEW

Classically, territorial aggression is thought of as the aggressive defense of the borders of a prescribed region or territory toward intruders. Territorial aggression can also include aggressive behavior demonstrated toward individuals already within the territory with intent to expel them from the area. Feline territorial aggression may be exhibited toward any other living beings, including other cats, dogs, or people; however, other cats are the most common targets.



ETIOLOGY/PATHOPHYSIOLOGY

- A territory may be delineated by patrol, chin rubbing, spraying, or nonspraying marking; threats and/or fights may occur if a perceived offender enters the area.
- Territorial aggression may encompass issues of status/hierarchical conflicts, fearful/defensive behavior, or sexual behavior.
- Territorial aggression toward intruders is adaptive if it protects vital resources such as mating privileges, food, shelter, resting spots.



SIGNALMENT/HISTORY

- Any age, gender, breed can exhibit territorial aggression.
 - Aggression is more likely in sexually mature cats (>7 months) and socially mature cats (>1 yr).
 - Male cats tend to defend larger territories.
 - Female cats may defend a smaller range but be more violent.
 - Aggression is more likely in intact cats, especially during breeding season.

Historical Findings

- Cat shows offensive aggressive posturing toward those who breach its territorial boundaries or those it desires to expel from its territory. The following body postures and movements will escalate until conflict is resolved (intruder retreats or fight ensues):
 - Cat approaches intruder.
 - Head and neck are set stiffly and slightly downward and forward.
 - The ears are forward or rotated outward.

- The cat makes direct eye contact with the target, and pupils are normal or moderately dilated.
 - The cat has forward-directed whiskers.
 - The tail is down but not tucked; there is a slow deliberate tail wag.
 - The cat's rear limbs are stiff with an elevation of its rump.
 - The cat exhibits piloerection.
 - The cat exhibits growling/hissing/yowling.
 - The cat exhibits batting with forepaws.
 - The cat exhibits biting.
- Intensity of aggression usually decreases with increasing distance from cat's territorial core area.

Contributing/Risk Factors

- High-cat density
- Limited resources
- Breeding season
- Removal and reintroduction of a resident cat (e.g., for veterinary visit, grooming care)
- Sexual/social maturation of a resident cat
- Introduction of a new cat into household/neighborhood
- Move to a new home
- Removal or addition of other household members
- Irritability secondary to other primary medical problem (arthritis, pruritus, inflammatory bowel disease, cystitis, etc.)

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - Introduction of additional cats without concurrent reallocation of resources may precipitate territorial aggression.
 - Recent loss of a socially controlling cat may precipitate territorial aggressive conflicts as the social structure becomes reordered.
- Obtain a description of the house and resources available for cats and their usage.
 - Can help to identify deficiencies in resource management: not enough resources, clustering of resources, etc.
 - Can help to identify core territorial area(s) and identify possible segregation locations
- Is there outdoor access for the cat(s)?
- What is the neighborhood composition?
 - Proximity and density of free-roaming cats
- What is the daily routine, including feeding, grooming, and play?
 - Placement of food bowls, litter boxes, climbing towers etc., is important in multiple cat households to understand the social dynamics between cats.
 - How these resources are accessed and utilized by the cats within the home is important to understand.

- What were the onset, duration, and progression of the problem behavior?
 - Removal and reintroduction of a resident cat may provoke territorial defense.
 - Long-standing aggression between individuals may be more difficult to resolve.
- Descriptions of aggressive encounters are essential to confirm diagnosis and plan a treatment program.
 - First episode of any aggressive responses however mild
 - Most recent episode with any aggressive response
 - Progress back in time through several episodes and trigger situations
 - Identify target(s) for aggression
 - Each incident report should include
 - Those present, their actions, and responses
 - Descriptions of the cat(s) involved, their body postures, facial expressions, and vocalizations before, during, and after the encounter
 - Location of the aggressive incident
 - Descriptions should include objective descriptions of what the cat “did,” not what the owner thinks the cat “meant.”
 - Location of altercation should be explored in detail.
 - The location may identify a certain core area that cat is defending.
 - Exposure to outdoor cats should be discussed.
 - Attempt should be made to assess the intensity of the aggressive response.
- Also note any changes in the social environment (including the death of another cat), changes in the physical environment, or changes in the health of one of the participants.
- Learn what previous treatments were used, both those that helped and those that made the condition worse.



DIFFERENTIAL DIAGNOSIS

- Status-related aggression
- Fearful/defensive aggression
- Sexual aggression
- Maternal aggression
- Redirected aggression



DIAGNOSTICS

- Physical examination, including neurological evaluation
- Minimal data base: CBC, chemistry profile, thyroid profile, FELV/FIV tests and urinalysis
- Other laboratory testing as indicated by initial findings



THERAPEUTICS

While territorial defense may be normal in a cat, treatment should be implemented if the target or initiator of the aggression is in physical danger or emotional distress. The intensity and severity of the aggression will dictate the level of intervention; in some cases, management alone may control the problem but other cases will require a more involved treatment.

Safety

- Safety precautions to avoid further physical and/or emotional injury should take top priority.
 - Prevent further displays of aggressive behavior by limiting exposure to targets via segregation, containment, etc.
 - Owners should be instructed not to try to handle an aggressively aroused cat because cats readily redirect aggression; if they need to move the cat, they should use blankets or cushions to try herd the cat to another area.

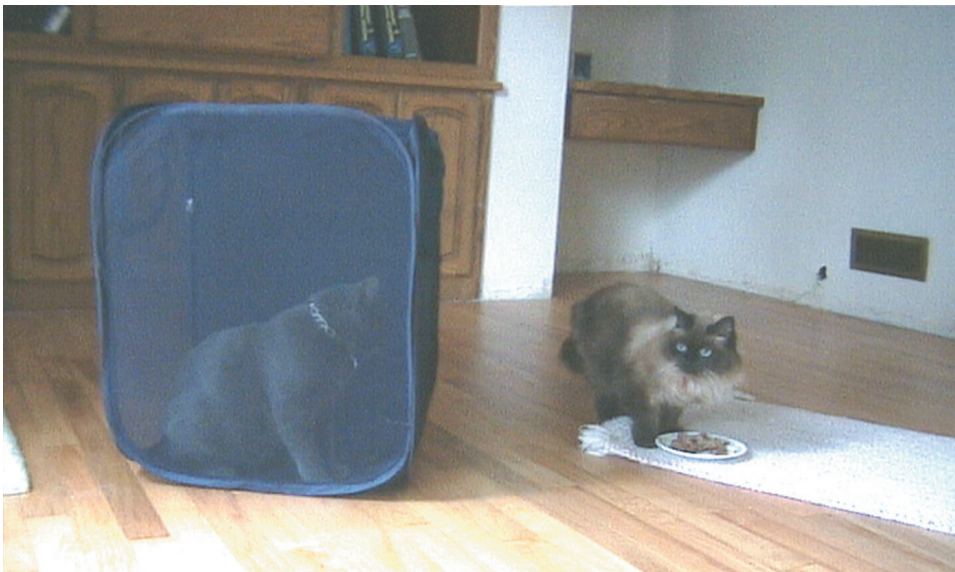
Management

- Remove attractants that may entice other cats to enter the territory.
 - Remove any food sources.
 - Remove bird feeders.
 - Remove catnip plants.
- Make outdoor territory aversive to other cats (only practical if patient is indoor only).
 - Ultrasonic repellants (Scraminal®)
 - Motion detector sprinkler (Scarecrow®)
 - Motion detector air burst (Stay Away™)
 - Aversive material (prickly, sticky, etc.) on patios/porches/perches
- Block visual access from windows where indoor cats may visualize outdoor cats.
- If aggressor and target reside in the same home, segregation of the aggressor may be necessary.

Behavioral Modification Techniques

The main focus is twofold: to reduce territorial protection by creating a rich environment/scent affiliation and to teach the cat to tolerate the “intruder” via CCDS. Depending upon the severity of the case, treatment success may be achieved with just environmental enrichment and avoidance strategies. These techniques are most applicable if the target of the territorial aggression resides in the same residence as the perpetrator. In some cases, the victim is so frightened that the most important part of treatment is to increase victim confidence so they don’t act like a victim and essentially encourage pursuit by the aggressor.

- Environmental enrichment
 - Provide abundant resources throughout the territory
 - Litter boxes
 - Feeding sites
 - Watering sites
 - Scratching posts/pads
 - Single cat-sized resting perches
 - Place vital resources near favored lounging sites (core area) for each animal.
 - Utilize vertical space to create three-dimensional space in home.
 - Exercise aggressor cat daily; a sleeping cat is not defending its territory.
- Avoidance: Place a belled cat-safe collar on aggressor cat; this may alert others to its location and allow for avoidance strategies.
- Affiliation: Use a common cloth to pet each animal daily, concentrating on the cheek area; this will promote transfer of scent and natural pheromones. It is speculated that a common group odor contributes to harmony. A cloth should be left with each cat so they become familiar with the scent of the other cat(s).
- CCDS
 - For severe cases, the aggressor cat may need to be totally segregated from its targets.
 - Acclimate the aggressor to a large container such as a wire crate or a mesh dog crate.
 - With aggressor cat inside the container and the victim free, bring into common area.



■ **Fig. 21-1** Cats engaged in a controlled introduction session; the territorial aggressor cat is contained in the hamper; the victim cat is free and is consuming a favored food treat.

- Start with short sessions (a few minutes), and with success (no aggressive displays), gradually increase the duration.
- Try to involve each party in a positive event during exposure to each other, such as eating, playing, grooming, to facilitate calm, nonanxious behavior (counterconditioning).
- Don't force aggressor/victim into close proximity; however, with successful sessions, they should be more comfortable with each other's presence at closer proximity.
- If aggressor exhibits aggressive behavior inside container, owner may interrupt using a remote punishment (e.g., water squirt) and/or covering the container with a blanket to interrupt visual contact with the victim.
- When there is no aggression evident and both parties appear relaxed in each other's presence, containment of aggressor may be stopped.
- The owner should closely supervise aggressor when let free with victim and first signs of aggressive posturing by territorial cat should be interrupted using distraction or remote punishment (e.g., water squirt) or covering the cat with a blanket and removing from the situation (social isolation). For additional safety, the aggressor may need to wear a cat harness and leash for control during these introductions.
- With success, the owner can gradually relax supervision.

Accompanying Handouts

Acute Management of Problem Behavior

Counterconditioning and Desensitization: the details

Creating Harmony in Multiple Cat Homes

Introducing Cats

Litter Box Tips

Safety Recommendations for Aggressive Animals

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Aggressor: consider if behavioral modification is unsuccessful or impossible to implement or other concurrent behavioral diagnosis is present where drug therapy is indicated.
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - Medication is to be given on a daily schedule regardless of exposure to trigger stimuli.
 - It may take up to 4 weeks to achieve efficacy.
 - Medication is to be continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response.
 - In healthy animals, side effects from SSRIs and TCAs are usually mild and resolve within a week of treatment initiation, if they occur at all; a

reduced appetite and sedation are the most common side effects noted by owners.

- Fluoxetine: 0.5–1.0 mg/kg PO q24h
 - Paroxetine: 0.5–1.0 mg/kg PO q24h
 - Clomipramine: 0.3–0.5 mg/kg PO q24h
 - Amitriptyline: 0.5–1.0 mg/kg PO q24h
- Victim: consider if victim in emotional distress or evasive actions appear to trigger aggression
- Serotonergic medications
 - Fluoxetine: 0.5–1.0 mg/kg PO q24h
 - Paroxetine: 0.5–1.0 mg/kg PO q24h
 - Buspirone: 0.5–1.0 mg/kg PO q12h
 - Clomipramine: 0.3–0.5 mg/kg PO q24h
 - Amitriptyline: 0.5–1.0 mg/kg PO q24h

Other Treatments

- Synthetic environmental pheromone, Feliway[®], may help reduce anxiety and calm both the aggressor and the victim.
- Soft rubber nail caps (e.g., Soft Paws) may help reduce injuries but will not affect motivation.
- Daily periods of segregation may be helpful to maintain peace.
- Magnetic cat door access to a room with only victim wearing key collar will allow private retreat for victim cat within a house.
- Teaching aggressor cat to come on voice command may be used to interrupt aggressive events.
- Outdoor cats should be fully vaccinated against transmissible diseases.
- Making an indoor-only cat indoor/outdoor may reduce territorial tension due to increased space and enrichment; this action comes with inherent risks of outdoor living, including exposure to additional cats, disease, and injuries from automobiles and other animals.
- While alternative medications such as herbal preparations have been suggested for aggressive behaviors in cats, these substances have not yet been systematically studied for these conditions in this species.

Contraindications/Precautions

- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.

- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs; if combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs and Appendix A for lists of contraindications and precautions.
- Redirected aggression is possible.
- Relapse is likely with introduction of a novel individual.
- Remote punishment (water squirt, compressed air squirt) may lead to increased aggression in some cats.
- Direct, interactive punishment should not be used.
- Allowing animals to “fight it out” is not only dangerous but may worsen the problem.
- Additional cats should not be added to the home when territorial aggression between cats has been a problem in the past.

Surgical Considerations

- Neuter



COMMENTS

Client Education

- Clients should be advised to avoid interacting with aggressively aroused cats.
- Outdoor cats with tendencies to get into territorial disputes with other cats should be vaccinated against transmissible diseases.

- Conflicts are more likely when cat density/population increases.
- New animals should be introduced gradually with initial segregation and subsequent supervised introductions.
- In some cases, the addition of any other cats to the existing household may be ill advised especially if territorial aggression has been present in the past.
- Don't leave food outside because it is likely to attract other animals.
- Dawn and dusk tend to be times for heightened activity of cats. Altercations may increase during these periods; consider keeping outdoor cats inside during those times.

Patient Monitoring

- Frequent follow-up is necessary especially during the first few months of treatment, in order to motivate the client and monitor the effectiveness of any adjunct drug treatment.
- For animals receiving chronic drug therapy, annual or semiannual physical examination and lab work (CBC, chemistry, and urinalysis) should be performed to monitor efficacy and dosage adjusted accordingly.

Prevention/Avoidance

- Providing adequate socialization during sensitive period
- Managing cat density/population
- Providing adequate resources spread throughout environment
- Using three-dimensional space
- Providing early intervention and segregation

Possible Complications

- Redirected aggressive events
- Increased forms of marking including urine marking, scratching
- Need for one or more cats to leave the environment to prevent further fighting

Expected Course and Prognosis

- Aggression may be difficult to treat, particularly if aggression is occurring between free-roaming cats.
- Anticipate lengthy treatment process (months) for severe cases.
- Aggressive behavior may relapse with drug withdrawal.
- Coexistence without overt aggression is the treatment goal, but it is unlikely that affiliative relationships will be established.
- If injuries have resulted from aggressive encounters, the prognosis is usually poorer.

See Also

Chapter 15, Aggression/Feline: fear/defensive
Chapter 16, Aggression/Feline: intercat

Chapter 19, Aggression/Feline: redirected
 Chapter 20, Aggression/Feline: status related
 Chapter 24, Anxiety Disorders: general overview canine and feline
 Chapter 55, Scratching behavior: feline
 Chapter 62, Urine Marking: feline

Abbreviations

CBC—complete blood count
 CCDS—counterconditioning and systematic desensitization
 h—hour
 mg/kg—milligrams per kilogram
 PO—by mouth
 q—every
 TCA—tricyclic antidepressant
 SSRI—selective serotonin reuptake inhibitor

Suggested Reading

- Heath, Sarah. 2002. Feline Aggression In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 216–228.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 440–443.
- Liberg, Olof, et al. 2000. Density, spatial organization and reproductive tactics in the domestic cat and other felids In: *The Domestic Cat, the biology of its behaviour*. 2nd Edition, Dennis C. Turner and Patrick Bateson, Editors, Cambridge: Cambridge University Press, pp. 120–147.



Aggression/Feline: veterinary office



DEFINITION/OVERVIEW

The cat exhibits threats or harmful actions when in a veterinary care facility.



ETIOLOGY/PATHOPHYSIOLOGY

Most of these cats are experiencing fear-related aggression or pain-related aggression.

- A previous painful or frightening event may have occurred at a veterinary facility.
 - Routine events such as being removed from the carrier, placed on an elevated table, having a rectal temperature taken, having nails trimmed, or receiving an injection may elicit fear/pain in sensitive cats.
 - Heavy-handed restraint (scruff holds/positioned in lateral recumbency) may elicit aggressive behavior in a cat.
 - More significant painful medical events such as abdominal surgery, fracture stabilization, etc., may elicit pain and or/fear in normal cats.
 - The cat associates the location, facility, smells, and/or sounds with the fearful/painful events and therefore becomes sensitized to future visits to veterinary care facilities.
- Since cats rarely go other places, the fear may be compounded by both the car ride and unfamiliar locations.



SIGNALMENT/HISTORY

- Any age, breed, or gender can exhibit.
- Aggression may begin at early kitten visits for vaccination and may peak after declaw or neuter surgeries.
 - This may be associated with a traumatic surgical experience from the cat's perspective.
 - The surgery may be the first separation from the owner and experience in an unfamiliar environment.
 - The surgical preparation may involve some procedures that are frightening/uncomfortable.
 - Postsurgical pain may be present.

Historical Findings

- The cat hisses, swats, growls, and bites during veterinary visits.
- These cats may also be fearful in the home environment and not comfortable with visitors or new people.
- A fearful cat may hiss, spit, arch the back, and piloerect if flight is not possible. Many cats will show combinations of offensive and defensive postures. Both overt and covert aggressive behaviors are usually involved. (See Chapter 14, Aggression/Feline: classification and overview for more details.)
- A very defensive display looks like a “Halloween cat” with an arched back, piloerection, ears flattened back against head, whiskers pulled back against side of face, tail down with flicking of distal portion.
- The fearful/anxious cat may make attempts to hide/exit, but these are overcome by barriers/physical restraint.
- Some cats appear very offensive in their aggression. These cats may be offensively aggressive or have evolved from previous success using aggressive behaviors as part of their defensive mechanism.

Contributing/Risk Factors

- Anxious temperament
- Lack of socialization
- Hectic, rushed veterinary visits may result in activities/situations that frighten cat
- Overbearing restraint
- Painful veterinary procedures

Pertinent Historical Questions

- When did the aggression develop?
 - This may give some insight into the underlying emotional state of the cat.
- How does the cat behave in other settings?
 - If the cat is fine in all other settings except the veterinary clinic, then it is likely that anxiety/fear/pain plays a role in the veterinary facility aggression.
 - If the cat is aggressive at home to owners, then aggression in the veterinary facility may be a component of another type of aggression such as social status aggression.
 - If the cat is aggressive with all unfamiliar people, then aggression in the veterinary facility may be a component of another type of aggression such as fear-related aggression or territorial aggression.
- Does a particular event in the veterinary facility trigger the fear/aggression or does entry into the veterinary facility/grounds trigger problems?
 - This allows the clinician to identify the starting point for the desensitization protocol.

- What does the cat look like before, during, and after an aggressive incident?
 - This may help the clinician to establish underlying motivation for the aggression.
 - If the cat shows defensive postures and avoidance behavior, then the cat is probably fearful.
- How does the aggressive incident resolve?
 - If the cat ceases attack if person retreats, then this is a safer situation to treat.
 - If the cat continues aggressive advances despite retreat of trigger, then the situation is more dangerous.
- How do the owners respond to the aggressive/fearful behavior?
 - Owner comforting may be inadvertently reinforcing undesirable behavior and needs to be ceased.
 - Owner punishing cat for aggression may aggravate aggression/fear.
- Does the cat behave differently when the owners are not present and, if so, how?
 - If the cat is more aggressive in the owner's presence, then this may imply owner reinforcement contributes to behavior.



DIFFERENTIAL DIAGNOSIS

- Fear-related aggression to unfamiliar people
- Pain-related aggression



DIAGNOSTICS

- Minimally, a physical examination, neurological examination, and CBC, chemistry panel, and thyroid panel are suggested.
- Perform further diagnostics as indicated from initial examination findings such as radiographs, etc.

Pathological Findings

- No specific pathology associated with this condition



THERAPEUTICS

- Since most cats exhibiting aggression in the veterinary clinic are doing so due to fear or anticipation of pain, the treatment outlined below is designed for these cats. If another motivation is strongly suspected, then consult the corresponding chapter for that treatment protocol.
- If a specific procedure triggers the aggressive behavior, such as trying to get the cat out of the carrier by shaking the carrier, then a simple alteration in procedure may help reduce problematic behavior. For example, removing the top of the carrier and gently lifting the cat out of the carrier may prevent escalation into defensive aggression.

- Often allowing the cat to remain partially hidden (head under towel) can appease the fearful cat.

Behavioral Modification Techniques

- Avoid veterinary procedures and visits unless associated with treatment program. Exposure to full strength stimulus during a systematic CCDS protocol can significantly compromise progress.
- During any training protocol, primary concern has to be for the safety of others. Do not put humans or other animals at risk.
- Foundation work: Weeks 1 and 2
 - Identify small tasty treats and reserve for use in training.
 - Acclimate the cat to a cat carrier at home.
 - Implement the Tranquility Training Exercises found in the handout in Appendix D or on the CD. These daily training sessions reward the cat for being calm, relaxed, and obedient in response to owner commands and in the presence of increasing owner-created distractions.
- Systematic CCDS to Veterinary Facilities: Weeks 2 +
 - Identify and list actual triggers for fear/aggression. Some cats may become anxious/aggressive when they are put into the carrier. Others may be comfortable until physical restraint is attempted. Just before the cat shows signs of anxiety or aggression is the starting point for training exercises.
 - Expose the cat to the veterinary visit at a level where the cat is relaxed. Reward with treats and praise for relaxed, calm behavior.
 - If the cat is anxious or aggressive, do not give reward and instead remove cat from situation until s/he is able to respond to the command in a relaxed manner and at that time the cat can be rewarded.
 - With success, gradually increase the intensity of the visit until the cat is relaxed and obedient during all aspects of the veterinary visit.
 - Increasing intensity can involve entering examination room, removing from the crate, and finally engaging in human handling in veterinary facility.
 - Ideally these exercises would be performed for 10–20 minutes on a daily basis at the veterinary facility.

Accompanying Handouts

Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Benzodiazepines
 - Diazepam or oxazepam (0.2–0.4 mg/kg PO q12–24h) may make the cat more outgoing and friendlier, and increase appetite (helpful for

behavior modification using food treats). Potential hepatotoxic reactions are possible.

■ Sedatives

- Phenothiazines may reduce coordination and create a sedated cat; however, they do not have significant anxiolytic properties and the animal may just be temporarily incapacitated.
 - Acepromazine: 0.5–1.1 mg/kg PRN; 1–2 hours prior to veterinary visit

■ Serotonin-enhancing medications

- Although not applicable for immediate efficacy in an anxious patient, they may be helpful over the course of several months for animals participating in a CCDS protocol. Use with caution as there may be disinhibition of aggression.
- Antianxiety medications that increase CNS levels of serotonin TCAs and SSRIs
 - Amitriptyline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine: 0.5–1 mg/kg q24h
 - Fluoxetine: 0.5–1.0 mg/kg q24h
 - Paroxetine: 0.25–0.5 mg/kg q24h

■ Anesthesia

- Full anesthesia may be required for some highly aggressive patients. Use extreme care with dosing if the animal is emotionally aroused as it may be highly sensitive to medication with catecholamine activation.

Contraindications/Precautions

- None of the above medications are licensed for use in cats.
- Use of the listed medications is extralabel; therefore, physical examinations, laboratory work, and release forms are advisable prior to usage.
- Some drugs contraindicated in hepatic and renal compromise.
- Cardiac conduction anomalies may be possible with TCAs, patients with cardiac abnormalities should be treated with extreme caution and monitoring.
- Diazepam-induced hepatotoxicity has occurred in some cats, and this drug should be used with caution.
- Rare cardiac rhythm or conduction disturbances have been reported for all TCAs.
- Paradoxical excitement is a rare side effect of TCAs and SSRIs.
- No SSRI or TCA should ever be used concomitantly with an MAO inhibitor (e.g., selegiline [Anipryl[®]], tick collars).
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Caution advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.

- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic; they may be potentiated by other lipophilic drugs. If combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.
- Safety of people/other animals should not be put at risk when engaging in training.
- Animals will sometimes redirect aggressive display to the closest target making handlers possible targets for aggression.
- Avoid punishment as these cats are usually fearful.
- Avoid comforting.

Alternative Drugs

- Feliway[®] diffusers may be useful in the veterinary office.
- Treating carrier/kennels with Feliway[®] spray may reduce anxiety.
- In some cases, some cats may benefit from herbal remedies, but no clear studies exist.

Diet

- Use highly palatable, small food items for rewards.



COMMENTS

Client Education

- Owners should be advised against comforting misbehaving cats as this may inadvertently reinforce the undesirable behavior.

Patient Monitoring

- Since the training protocol occurs in the veterinary facility, supervision and monitoring are easy.

Prevention/Avoidance

- Every attempt should be made to reduce discomfort during veterinary procedures. The cat should be anesthetized for painful procedures.
- Attempt minimal restraint for procedures, where applicable.
- Good pain control for surgical procedures is essential to make the veterinary stay less traumatic for the pet.

- During kitten visits
 - Advise owners to fast the kitten for 4–6 hours prior to visit.
 - Have small, readily consumable tasty food treats at clinic for staff to give to kitten.
 - When a mildly aversive procedure has to be performed (rectal temperature, injection), distract kitten with food treat such as baby food smeared on the tabletop.

Possible Complications

- The cat may relapse especially if a painful procedure is attempted or frightening experience occurs.

Expected Course and Prognosis

- Highly compliant owners may see improvement in cat's behavior, but complete transformation of attitude is unlikely.
- With significant provocation, relapse is likely.

See Also

Chapter 15, Feline/Aggression: fear/defensive

Chapter 19, Feline/Aggression: redirected

Abbreviations

CBC—complete blood count

CCDS—counterconditioning and systematic desensitization

CNS—central nervous system

h—hour

mg/kg—milligrams per kilogram

MAO—monoamine oxidase

PO—by mouth

PRN—as needed

q—every

SSRI—selective serotonin reuptake inhibitor

TCA—tricyclic antidepressant

Suggested Reading

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Aggression: medical differentials



DEFINITION/OVERVIEW

Owners often seek veterinary assistance when an animal exhibits aggressive behavior. Classically, the veterinary profession tends to separate the causes of behavioral changes such as aggression into “behavioral” or “metabolic/organic” diseases. This may be inappropriate since some aggression that is characterized as “behavioral” in nature may in fact be due to primary organic brain disease that has yet to be characterized, such as abnormalities in serotonin receptors. For purposes of this chapter, medical causes associated with aggression will encompass those diseases for which we can currently identify an established pathology associated with the disease. Metabolic or organic diseases that may present with aggressive behavior include a vast assortment disease categories, including degenerative diseases, endocrine/metabolic diseases, nutritional imbalances, immune mediated disease, neoplastic disease, infectious disease, toxin exposure, and traumatic injury. Please note that this chapter is not exhaustive of all possible medical illnesses that could present with aggression as a complaint.



MEDICAL CONSIDERATIONS FOR AGGRESSIVE BEHAVIOR

Infectious Diseases

- These may include viral, fungal, bacterial, protozoal, and rickettsial agents. Infectious diseases usually have an acute onset and may present initially with only behavioral changes, but within hours to days there is usually CNS abnormalities.
- Viral
 - Dogs: Rabies, pseudorabies, and infectious CDVE
 - Rabies: The behavioral manifestations of rabies infection vary widely and can include disorientation, dementia, aggression, pruritus, coprophagia, pica, excessive sexual behavior, and excessive playfulness. Usually it is a rapidly progressive disease that results in death within 8 days after first clinical signs.
 - CDVE: The distemper virus can attack many different body tissues including the nervous system. Due to the variability of infection sites,

clinical signs can be quite variable. Clinical signs are usually acute in onset and progressive in nature. Young, unvaccinated dogs are most susceptible to this disease. There can be a postvaccination encephalomyelitis seen 1–2 weeks after vaccination with a modified-live vaccine. Compulsive circling and dementia can be noted with frontal lobe lesions. If the cerebral cortex is involved, seizures are common. Chomping the jaws while staring off into space is a classical sign of distemper encephalitis. Ataxia, paresis, and head tremors are seen with cerebellar involvement. A sensory neuritis may be responsible for self-mutilation that occurs in some dogs. There is an old-dog form of distemper encephalitis that presents in the older patient as progressive behavioral problems such as circling, dementia, blindness, and pacing.

- Cats: Rabies, pseudorabies, and FIV
 - Rabies is an example of a viral infectious agent that can present as acute onset of aggressive behavior in cats and dogs.
 - FIV can cause aggressive behavior as well other nonspecific clinical signs such as dementia and inappropriate elimination.
 - Feline Infectious Peritonitis: The dry form can cause a pyogranulomatous meningoencephalomyelitis and hydrocephalus. The cat may present as demented. It may also have signs of vestibular disease, cerebellar deficits, seizures, and pelvic limb abnormalities. This disease is usually progressive over several weeks or months.

■ Bacterial

- Bacterial abscesses in the brain tissue are infrequent in small animals, but could present as aggressive behavior.
- Usually the dysfunction is slow in onset and progressive.
- Clinical signs may start with unilateral visual deficits and then progress to aggression, head tilt, circling, head pressing, mania, depression, convulsions, and coma.

■ Protozoal infections

- *Toxoplasma gondii*
 - Is a common protozoal disease in cats (40% of cats test seropositive) but can cause infection in most mammals, including dogs.
 - Clinical disease is not as common as infection, and presentation of clinical disease depends on where the organism migrates/localizes.
 - While aggression is not a common sign, it is within the realm of possibilities since the site of inflammation could be any where in the CNS. That also means that other neurological changes can occur such as depression, blindness, tremors, seizures, hyperexcitability, paralysis, etc. Serological testing is recommended to confirm infection if suspected.
- *Neospora caninum*
 - Can cause CNS and musculoskeletal disease that is similar to toxoplasmosis infection.

- Parasitic infections
 - Aberrant migration of common parasitic infections can present as acute and progressive aggression.
 - Cats that present with an acute onset of vicious aggressive behavior may have cuterebra infarcts.
 - Other parasites that sometimes migrate into CNS tissue include dirofilaria, toxascaris, ancylostoma, taenia, and angiostrongylus.

Space-Occupying Lesions

- Granulomatous meningoencephalitis
 - This idiopathic, inflammatory proliferation of mononuclear cells in the white matter of the nervous system can occur rarely in cats but is more commonly seen in dogs such as poodles and Airedale terriers.
 - Behavioral signs depend on the site of these space-occupying lesions, but circling, dementia, compulsive pacing, aggression, and seizures have all been noted with this disease.
- Neoplasia
 - Neoplasia, both primary CNS lesions and metastatic lesions, may present as aggressive behavior.
 - Although most neoplastic lesions that affect the brain will eventually cause some obvious neurological abnormalities, such as seizures or head tilt, it may take up to a year for these to be evident.
 - Any breed is susceptible to neoplasia, but the brachycephalic breeds do have a higher incidence of brain tumors.
 - The temporal lobe, limbic system, amygdala, and hypothalamus are all implicated in the modulation of aggression, and, therefore, lesions that affect these areas could have an impact on aggressive behavior.

Nutritional

- Thiamine deficiency
 - May occur in cats/dogs fed predominantly raw tuna, salmon, carp or other fresh and saltwater fish due to the presence of thiaminase in these diets.
 - Sudden and progressive onset of disease occurs: anorexia; diarrhea; muscle tremors; obtunded or excited and aggressive; seizures and other cerebral and vestibular signs.
- Tryptophan deficiency
 - Tryptophan is the amino acid precursor for serotonin.
 - Escalated aggressive behavior can be a result of this dietary deficiency.
- High dietary protein
 - High levels (32%) of dietary protein have been incriminated in aggressive behavior in dogs, specifically fear-based territorial aggression.

Toxins

- Lead poisoning
 - Inquisitive young animals are considered to be at higher risk for accidental lead ingestion, but any animal with exposure could develop lead poisoning.
 - Ingestion of lead can cause behavioral changes such as hysteria (including crying, barking, and running and biting at things), dementia, aggression, hyperexcitability, and compulsive pacing.
 - Gastrointestinal signs often precede behavioral signs.
- Zinc phosphide
 - Rodenticide can cause behavioral signs in dogs associated with CNS stimulation.
 - Aimless running, vocalization, snapping, snarling, and seizures are possible presenting signs.
- OP/CHC
 - These commonly used insecticides can be involved in a toxicity that involves behavioral, motor, and muscle abnormalities.
 - Usually there is a history of contact with the insecticide and the animal is salivating, has miotic pupils, and has seizures.
 - CHC causes a true cerebral encephalopathy.
 - Aggression is possible as part of the presenting profile.
- Methylphenidate or other street drugs
 - May present with aggressive behavior

Storage Diseases

- Fucosidosis
 - Reported in English springer spaniels
 - Heritable condition with an alpha-L-fucosidase enzyme deficiency
 - Affected animals will experience abnormal accumulation of fucose in cells throughout the body.
 - Neurological signs predominate and may include confusion, inability to recognize owners, and seizures. Fearful behavior can become defensive aggression. The disease is progressive and death will occur.

Encephalopathies

- Hepatic Encephalopathy
 - As a result of shunts, enzyme deficiencies, or severe liver disease, animals may show signs of hepatic encephalopathy.
 - Owners often report periodic behavior changes including listlessness, depression, pacing, circling, head pressing, hysteria, and viciousness.
 - The behavioral signs are most evident after a protein-rich meal.
- Feline Ischemic Encephalopathy
 - Seen in any signalment, this peracute condition can present with a variety of signs.

- Unilateral cerebral disease is often noted and signs may include paresis/ataxia, tonic-clonic seizures, blindness, circling toward side of lesion, dilated pupils, and severe aggression.
- Symptoms are nonprogressive but do not resolve.
- Systemic Lupus
 - This autoimmune disease in dogs may progress into CNS lupus.
 - Although rarely reported, these dogs may exhibit periodic disorientation and aggression.

Congenital

- Lissencephaly
 - A rare disease described in Lhasa Apsos, beagles, Irish setters, and cats where the gyri and sulci of the cerebral cortex fail to form properly, resulting in a smooth surface.
 - Behavioral complaints are often apparent by 3 months of age and can include difficulty in training, irritability, aggression, dementia, and depression.
 - By a year of age, most pets suffering from this condition exhibit seizure activity.
 - Imaging studies can confirm this nontreatable disease.
- Hydrocephalus
 - Hydrocephalus is usually a congenital problem but can be acquired secondary to functional CSF obstructions or infectious diseases.
 - Behaviorally, these pets may present with nonspecific clinical signs such as “difficult to train,” “stubborn,” demented, aggressive, irritable, or with seizure activity.
 - May present solely as aggression and irritable behavior in very young dogs.
 - It is estimated that hydrocephalus accounts for 0.8% of aggressive behaviors.
 - Signalment can lead a clinician to suspect hydrocephalus, and imaging studies can confirm this diagnosis.

Trauma

- Cranial injury
 - Damage to the cerebrum or limbic system from cranial injury may present as aggression.
 - A history of cranial injury should make this a differential.
- Pain
 - May result in irritable, defensive, or redirected aggression.
 - Animals in pain have an activated sympathetic nervous system.
 - Catecholamine release reduces the aggression threshold, therefore making animals in pain more likely to aggress.

Hormonal

- Hyperthyroidism
 - Although primary hyperthyroidism in dogs is rare, it can present as aggression.

- Iatrogenic hyperthyroidism should be considered with irritable/aggressive dogs on supplementation.
- Hyperthyroidism in cats is the most common feline endocrine disease and about a quarter of the cats with hyperthyroidism present with increased aggression.
- Aggression usually resolves with successful treatment.
- Hypothyroidism
 - Hypothyroidism has been implicated as a cause of many nonspecific behavioral signs such as aggression and anxiety.
 - Hypothyroidism has been reported to be the underlying problem in 1.7% of dogs with aggressive behavior.
 - These dogs do not necessarily show the other classical signs of hypothyroidism such as thin hair coat, lethargy, and weight gain.
 - The dog acts relatively normally however will increasingly be aggressive or grumpy in routine situations.
 - The aggression is inconsistent.
 - Dogs affected by hypothyroid aggression have been described as dominant aggressive or fear aggressive.
 - Caution is urged in quickly labeling a pet as hypothyroid instead of delving further into both other possible medical or behavioral causes of the presenting problem.
- Sex hormones
 - From a clinical standpoint, there are sex-linked behaviors that are testosterone driven such as intermale aggression.
 - Neutering significantly reduces this aggression in a high percentage (60–80%) of dogs and cats.
 - Neutering also prevents genetic transmission of this trait.
 - Pseudocyesis may result in aggressive behavior in the bitch. Hormonal changes may cause behavioral changes typically associated with pregnancy although the bitch is not pregnant. Nesting, nervousness, mothering of objects, and maternal aggression may be observed. These signs tend to occur about 6–8 weeks after the heat cycle and will gradually decline as the hormones return to an anestrus level. Ovariohysterectomy in anestrus will prevent relapse.
- Corticosteroids
 - An adverse drug effect should be considered in cats or dogs that are receiving exogenous steroids and present with aggressive behavior.

Other

- Psychomotor epilepsy
 - This behavior can present as aggressive outbursts.
 - These random, vicious attacks can be difficult to confirm diagnostically.
 - The syndrome is characterized as having no other behavioral/medical diagnosis, and the pet responds well to antiepileptic drugs.

TABLE 23-1. Neurological conditions to consider for behavioral changes by age distribution

Pets <1 year of age	Pets >5 years of age	No age association
<ul style="list-style-type: none"> • hydrocephalus • lissencephaly • lysosomal storage diseases • trauma • lead poisoning • hypoglycemia • hepatic disorders – portocaval shunt • metabolic diseases secondary to congenital diseases 	<ul style="list-style-type: none"> • cerebral neoplasia • hypoglycemia secondary to insulinoma • acquired hepatic disorders • trauma – infarcts 	<ul style="list-style-type: none"> • meningoencephalitis • thiamine deficiency

■ Degenerative Sensory Changes

- Although degenerative sensory changes often occur gradually and the animals learn to adjust to these changes, they potentially could cause aggressive behavior.
- Namely visual and auditory deterioration may affect the animal's ability to monitor activity and therefore be startled more easily; some startled animals react with aggression.

■ Dermatologic disorders

- Chronic pruritus can increase irritability in both dogs and cats.
- Aggression may result when handled or groomed, or during treatment of excoriated or infected skin and ears.
- Research has noted an association between a history of a pruritic or malodorous skin disorder that received veterinary treatment and biting behavior directed toward family members.

Abbreviations

CDVE—canine distemper viral encephalitis
 ClHC—Chlorinated Hydrocarbon Intoxication
 CNS—central nervous system
 FIV—Feline Immunodeficiency Virus Infection
 OP—organophosphate

Suggested Reading

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Anxiety Disorders: general overview canine and feline

chapter 24



DEFINITION/OVERVIEW

- Fear is an aversive emotional state consisting of psychological and psychophysiological responses to a real external threat or danger. Fears are recognized across species and are considered adaptive since avoiding or defending oneself against offensive or dangerous stimuli results in an increased chance of survival.
- Anxiety is a more diffuse generalized feeling of apprehension or anticipation of dangers from unknown or imagined origins that results in physiologic reactions associated with fear. Anxiety may occur in the aftermath of a fear-producing event or as a result of unrelated environmental changes that are unpredictable.
- A phobia is a sudden, persistent, and excessive fear of a specific stimulus.
- Clinical relevance of definitions: Popular diagnostic terminology uses the terms fear and anxiety interchangeably and does not necessarily strictly adhere to the scientific definitions given above.
- The true incidence/prevalence for many anxiety-related conditions is unknown although many behavioral conditions are suspected to have anxiety as an underlying problem.
 - Separation anxiety is thought to affect approximately 14% of dogs in the United States.



ETIOLOGY/PATHOPHYSIOLOGY

There are multiple areas of the neurological system involved in a fear response, including sensory neurons, thalamus, hypothalamus, cortex, and hippocampus. However, the amygdala, a large nucleus that sits below the temporal lobe and is part of the limbic system, appears to be a principal organ in the fear response. Information about the stimulus, its properties, and its past like experiences all converge in the amygdala where a response is mounted to three locations: the central gray matter for the musculoskeletal response; the lateral hypothalamus for the autonomic response and the stria terminalis for the hormonal response.

The autonomic response essentially decreases parasympathetic activity and increases sympathetic activity. These neuroendocrine changes result in the classical “fight or flight” short-term survival response. This includes increase in heart rate, cardiac output, respiratory rate, and blood flow to vital organs.

The hormonal response includes release of cortisol, which has a significant impact on the body including glucose metabolism and many other metabolic processes.

In the acute sense, these changes are all productive as they allow the animal to escape from a threatening stimulus. However, if the animal can't escape from the threatening stimulus, it sets up a chronic stress response that can be detrimental to the animal's health and longevity.

Whether or not a particular animal responds with a fear reaction depends upon a variety of factors including genetic and experiential factors. In most cases of fearful or anxious behaviors in dogs and cats, the animal is actually showing a normal, adaptive response given the circumstances. For example, a cat that was born to a feral mother and lived the first months of its life without human contact, is acting normally if it shows fear/aggression during attempts by humans to handle it.

A fear response is considered abnormal when the response is extreme and is not validated by some experiential or genetic cause. In these cases, the animal may have dysregulation of the fear pathways. This dysregulation may occur at many levels, including neurotransmitter activity. Neurotransmitters considered important in the fear response include serotonin, norepinephrine, and GABA, among others. Currently, a majority of the pharmacological treatment options are aimed at altering these neurotransmitter levels.



SIGNALMENT/HISTORY

- No breed or gender predilection is identified.
- Age:
 - Anxieties/fears often develop in adolescence or at the onset of social maturity; however, onset may be associated with a traumatic event at any age.
 - Old-age onset idiopathic separation anxiety may be a variant of cognitive dysfunction; reported in elderly dogs.

Historical Findings

- The extent to which the animal is experiencing the fear or phobia may affect the presentation.
- The animal will present with signs of sympathetic autonomic nervous system activity either in response to some stimulus or as a generalized emotional state.
 - Preliminary signs of conflict: yawning, lip licking, scratching
 - Mild fears: tensing, trembling, tail tucked, withdrawal, and hiding; reduced activity and passive escape behaviors
 - Panic: active escape behavior; increased, out-of-context, and potentially injurious motor activity
 - If the fear is intense, may lose bladder and bowel control and may express its anal sacs

Systems affected may include:

- Behavioral: hypervigilance, avoidance behaviors, possible aggression if handling or restraint attempted
- Cardiovascular: tachycardia

- Endocrine/Metabolic: alterations in the HPA axis; release of glucocorticoids; glucose release into the bloodstream
- Gastrointestinal: inappetence; aberrant appetite; gastrointestinal distress (salivation, vomiting, diarrhea, tenesmus, hematochezia)
- Hemic/Lymphatic/Immune: chronic stress effects on immune function; stress leukogram
- Nervous: increased motor activity; repetitive activity; trembling; self-injury
- Musculoskeletal: weight loss over time as response to chronic stress effects on appetite; decreased food intake due to hiding behavior; poor condition attributable to increased motor activity and self-injury (weight loss, injured pads, damage to teeth and gums, and abrasions and lacerations)
- Ophthalmic: dilated pupils in response to autonomic nervous system stimulation
- Respiratory: tachypnea and the attendant metabolic changes
- Skin/Exocrine: lesions, usually secondary to self-injury (lick granulomas); excessive shedding

Cats:

- Hiding and avoidance are commonly seen in anxious or fearful cats.
- In cats, body postures associated with fearful behavior include ears flattened to the back or to the side of the head, crouched body posture when resting or moving, lowered head, tail tucked alongside the body or held low.
- Pupils are often dilated, and the cat may be panting, shaking, drooling, or shedding hair.
- Vocalizations are usually minimal, unless the cat is showing defensive behavior in response to a perceived threat, although some cats may meow excessively when anxious.
- The cat may pace, vocalize, and solicit attention from the owner.
- Urine spraying and possibly some types of destructive scratching may be seen in anxious cats.
- Aggression is usually a response to cornering.
- Details of the cat's early life, if known, may indicate a history of poor socialization and environmental exposure or point out possible genetic influences, such as unfriendly parents or feral ancestry.

Dogs:

- The dog may have history of a bad experience with trigger stimulus or situation.
- The dog may have history of lack of exposure early in puppyhood to stimuli during the sensitive socialization period.
 - Dogs that are absolutely deprived of variable social and environmental exposure until 14 weeks of age may become pathologically fearful; this can be avoided with only little exposure.
- Vocalization is quite common, ranging from whining to barking. Growling may be demonstrated by a fearfully aggressive dog.
- Destruction is quite common.
- Aggression may occur and may appear quite offensive in nature.

Contributing/Risk Factors

- Genetic predisposition may be difficult to substantiate in individual cases, but in laboratory settings, it has been substantiated that fearful behavior can be heritable in both dogs and cats. In cats, a paternal effect of boldness/shyness to people has been established.
- The animal may have lacked adequate socialization during sensitive periods.
- The animal may have had horrific experiences.
- Any illness or painful physical condition increases anxiety and contributes to the development of fears, phobias, and anxieties.
- Degenerative (e.g., associated with aged concomitant neurologic changes), anatomic, infectious (primarily CNS viral conditions), and toxic (lead toxicosis) conditions may lead to behavioral problems through primary or secondary aberrant neurochemical activity.

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - Poor social relationships with conspecifics may be contributory to anxious behaviors.
- What is the daily routine, including feeding, training, exercise, and play?
 - Unstable routines can contribute to anxiety.
- What were the onset, duration, and progression of the problem behavior?
- Descriptions of anxious/fearful situations are essential.
 - Learn about the first episode of anxiety/fear.
 - Learn about the most recent episode of anxiety/fear.
 - Progress back in time through several episodes and trigger situations.
 - Obtain a clear description of the animal's body language and behavior during an event.
 - Obtain information regarding the people present, their actions, and response.
 - Descriptions should include objective descriptions of what the animal "did," not what the owner thinks the animal "meant."
 - Triggering stimuli should be explored in detail, including any defining characteristics, locations, people, distance, sound, and size.
 - Any aggressive responses should be noted and explored.
- Learn what previous treatments were used, both those that helped and those that made the condition worse.



DIFFERENTIAL DIAGNOSIS

- In cases in which animals show social withdrawal and resistance to handling not associated with a particular situation or stimulus, and in which the behavior occurred suddenly, there may be an underlying medical reason. A thorough medical

history, physical examination, and diagnostic tests will help delineate physical causes from a problem behavior.

- Rule out conditions that cause similar behavioral changes, such as seizures, brain disease, metabolic disease (e.g., thyroid or adrenal).
- Onset of geriatric anxiety may be secondary to cognitive decline.
- The animal may exhibit attention-seeking behavior.



DIAGNOSTICS

- Physical examination and neurological examination should be conducted.
 - Usually unremarkable unless the animal has injured itself trying to escape or while seeking shelter during its fright
 - May find evidence of self-inflicted trauma (lick granulomas, overgrooming)
- Perform further diagnostic testing as determined by examination findings.
 - CBC, chemistry profile, and urinalysis
 - Stress leukogram may be present
 - Limited evidence suggests an association between fear-based behaviors and hypothyroidism. Thyroid testing (minimally including T₄, TSH, FT₄) is indicated to rule out suspect cases.
 - Perform adrenal tests depending on clinical signs and serum chemistry results.
 - Perform biopsy of dermatologic lesions to determine if primary or secondary.
 - Perform CSF analysis to rule out inflammatory CNS disease.
 - Perform endoscopy to evaluate primary bowel disease.
 - Perform an ECG to rule out cardiac disease that may produce physical signs mimicking anxiety.
 - Imaging of the brain or other body organs may be indicated if history, physical, and laboratory tests strongly suggest an organic cause for the animal's behavior.



THERAPEUTICS

Safety

- In many cases, the pet has to be protected from itself, as it may create self-injury or get lost. Secure containment, supervision, and avoidance of triggers may help to keep the pet safe. Proper I.D., such as microchips, may be prudent.
- In cases of anxiety-/fear-related aggression, the potential targets must be kept away from the animal or they must modify their actions in order to not evoke the aggressive response.

Management

- Avoid exposure to the anxiety-/fear-evoking stimulus unless in a controlled fashion during training exercises.

- If the animal experiences anxiety/fear despite client attempts to avoid such a situation, the owner should avoid punishment and/or comforting of the pet; both of these actions may inadvertently worsen the behavioral problem. Instead try to remove the fear-evoking stimulus and/or give the pet clear direction to do an alternative activity (e.g., obedience commands) and/or give the pet an opportunity to escape (e.g., hiding spot). If the pet is highly distressed, redirection may not be successful.

Behavioral Modification Techniques

Provide CCDS to the anxiety-provoking stimulus.

- Systematic desensitization is a program of slowly increasing exposure to the object or situation that makes the animal anxious.
- Counterconditioning consists of creating an internal and external response that is counter to fear, e.g., pleasure.
- CCDS is most effective if the fear or anxiety is treated early. The overall goal is to decrease the reaction to a specific stimulus.

Treatment Steps

- Practice exercises that reward relaxed, obedient behavior from the pet when the stimulus is absent. (See the Tranquility Training Exercises handout for additional details.)
- Identify trigger stimulus for fearful/anxious behavior.
- Establish a gradient exposure to anxiety-/fear-provoking stimulus: volume, distance, size, etc.
- Engage in daily training sessions lasting approximately 10 minutes.
 - Expose the pet to the stimulus at a level below that which evokes the anxious/fearful reaction.
 - When exposed to this low-level stimulus, the animal should be rewarded for calm, relaxed, obedient behavior. Rewards may include play, praise, tasty food treats, etc.
 - With success, gradually increase the intensity of the stimulus until it is at full strength without evoking a fearful response; instead it should evoke a pleasurable response.

Accompanying Handouts

Acute Management of Problem Behavior

Desensitization and Counterconditioning: the details

Maximizing Treatment Success

Structuring Your Relationship with Your Pet

Teaching Your Pet How to be Confined

Tranquility Training Exercises

Using Classical Counterconditioning to Change Emotional State

Drugs

Medication can be a helpful adjunct to behavioral modification if the animal's fearful or anxious behavior is so intense that it interferes with learning or other normal behavioral activities.

- Note: All medication dosages are for oral dosing (PO)
- Serotonin-enhancing medications: These are indicated for patients that suffer from fear and anxiety. Examples of medications include amitriptyline, imipramine, clomipramine, fluoxetine, sertraline, paroxetine. See individual chapters for doses and specific recommendations.
 - Drug treatment duration of serotonin-enhancing medications
 - If effective, continue for at least 3 months after establishing relaxed behavior in response to stimulus.
 - Some treatments will be long-term, possibly years; treatment duration will depend on number and intensity of signs and duration of condition.
 - It is advisable to wean off medication over a 2–4 week period instead of abrupt discontinuation; reinstitute drug therapy if there is a relapse of symptoms during the weaning process.
- Episodic anxiety/fear events may respond well to benzodiazepines; they work best if administered before any signs of anxiety or fear. They must be given minimally 30–60 minutes before the anticipated provocative stimulus. Examples of medications in this class include diazepam, clorazepate, and alprazolam. See individual chapters for doses and specific recommendations.
 - A small percentage of animals will have a paradoxical reaction (increased agitation/anxiety) to benzodiazepines.
 - If benzodiazepines are used on a routine basis, the animal must be weaned off gradually or the patient will suffer withdrawal symptoms.
 - Tolerance may develop with prolonged use.
- Benzodiazepines may be given concomitantly with serotonin-enhancing medications.
- Selegiline (Anipryl®) is indicated for anxiety secondary to cognitive decline but cannot be used in conjunction with an SSRI or TCA.
- Phenothiazines (e.g., acepromazine) are primarily sedatives, not anxiolytics, therefore while they may render the animal unable to physically respond, they are not treating the primary problem and should not be a first choice for treatment of anxieties or fears.

Other Treatments

- Anxiolytic environmental synthetic pheromones such as Feliway® and a canine pheromone product (e.g., DAP—dog appeasing pheromone®)
- Anxiety wraps (canine)
- Touch therapy
- Acupuncture

- While alternative medications such as herbal preparations have been suggested for fearful behaviors in animals, these substances have not yet been scientifically studied for these conditions in this species.

Contraindications/Precautions

- Most medications are extra-label use; advise clients of this.
- Use of buspirone, TCAs, and SSRIs is not recommended in animals with seizures.
- Because of reported cases of fatal idiopathic hepatic necrosis linked to short-term use of diazepam (Valium®) in cats, its use is not currently recommended.
- Benzodiazepines should not be used in animals with fear-related aggression as they may disinhibit the animal and increase aggressive behavior.
- Avoid TCAs in animals with cardiac conduction anomalies.
- Animals with compromised hepatic or renal function may not be able to metabolize or clear medications normally, and so caution should be taken when treating those patients.
- Basic laboratory tests are also strongly suggested before placing an animal on a psychotropic medication, to make sure that liver and kidney functions are sufficient to metabolize/excrete the medication, and to check for any physical condition that may be a contraindication to specific drugs.
- Overdose of TCAs may cause profound cardiac conduction disturbances.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs.
- If combination treatment is warranted, use lower doses of medications.
- Medication that impairs the glucuronidation of active metabolites into inactive compounds may cause increases of the active metabolites.
- MAO inhibitors should not be used concurrently with SSRIs or other MAO inhibitors.

Surgical Considerations

- Surgical intervention is not a standard treatment for anxiety-based conditions.
- Since these animals may have a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Treatment should be sought early in the course of the condition.
- Clients should avoid punishment and/or comforting the anxious/fearful/phobic pet as these actions may inadvertently worsen the behavioral problem.
- Chronic anxiety can lead to other expressions of stress, such as stereotypic or compulsive disorders, urine-marking behavior, or inappropriate elimination.
- Anxious and fearful animals may show defensive aggression if interactions are forced on them by humans or other animals.

Patient Monitoring

- Frequent follow-up is necessary especially during the first few months of treatment in order to motivate the client and monitor the effectiveness of any adjunct drug treatment.
- For animals receiving chronic drug therapy, annual or semiannual physical examination, and lab work (CBC, chemistry, and urinalysis) should be performed to monitor and dosage adjusted accordingly.

Prevention/Avoidance

- Frequent, early, positive exposure to novel people, places, and things during the first months of life may be protective against later developing fear- or anxiety-based reactions.
- Calm interactions and positive associations with fear-producing stimuli may keep fear-based reactions to a minimum.

Possible Complications

- Relapse possible if the animal experiences another frightening event associated with the stimulus
- Fear aggression

Expected Course And Prognosis

- Improvement is probable, and total resolution is less likely.
- Long-standing problems may be resistant to intervention.
- Situations where the anxiety-provoking stimulus cannot be controlled (e.g., thunderstorms) may only achieve moderate improvement.
- Medication may help improve response to behavior modification but is unlikely to totally ameliorate signs.

See Also

Chapter 1, Acral Lick Dermatitis: canine
Chapter 3, Aggression/Canine: fear/defensive
Chapter 15, Aggression/Feline: fear/defensive
Chapter 28, Cognitive Dysfunction: canine and feline
Chapter 29, Compulsive Disorder: canine and feline overview
Chapter 33, Fear of People: canine and feline
Chapter 34, Fear of Places and Things: canine and feline
Chapter 35, Fear of the Outdoors: canine
Chapter 36, Fireworks Phobia
Chapter 39, Generalized Anxiety
Chapter 41, House Soiling: feline
Chapter 46, Marking: canine
Chapter 53, Psychogenic Alopecia/Overgrooming: feline

Chapter 56, Separation Anxiety: canine and feline

Chapter 62, Urine Marking: feline

Abbreviations

CBC—complete blood count

CCDS—counterconditioning and systematic desensitization

CNS—central nervous system

CSF—cerebrospinal fluid

DAP—Dog Appeasing Pheromone®

GABA—gamma-amino butyric acid

HPA—hypothalamic-pituitary-adrenal

MAO—monoamine oxidase

SSRI—Selective serotonin reuptake inhibitor

TCA—tricyclic antidepressant

Suggested Reading

Casey, Rachel. 2002. Fear and Stress In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 144–153.

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 227–268.

Voith, Victoria L., Peter L. Borchelt. 1996. Fears and phobias in companion animals In: *Readings in companion animal behavior*, edited by Victoria L. Voith and Peter L. Borchelt, Trenton: Veterinary Learning Systems, pp. 140–152.

Attention-Seeking Behavior: canine and feline

chapter 25



DEFINITION/OVERVIEW

In nonverbal species, attention-getting behaviors may serve to obtain or transmit information about the environment or the social situation. Attention-seeking behaviors may also arise when the pet is faced with either an inconsistent environment or inconsistent interactions. Animals may use behaviors such as vocalizing, pawing, clawing, pacing, digging, following, leaning, increased visual scanning and vigilance, and other behaviors that attempt to get information about the environment and/or outcome.



ETIOLOGY/PATHOPHYSIOLOGY

- Anxiety and/or inconsistent interactions with humans in the household may be contributory.
- Animals may engage in attention seeking because it is not clear what the appropriate behavior should be.
- A deprived social environment can be a causative factor but attention-seeking behaviors can also occur in very enriched environments.



SIGNALMENT/HISTORY

- No particular age, sex, or breed predilection has been noted.
- Attention-seeking behaviors may be associated with other anxiety conditions and in dogs and cats with cognitive decline.

Historical Findings

- The pet may repeatedly seek out the owner.
- Dogs may nudge, follow people, bark, lunge, steal objects, chase, solicit or steal food and whine, paw at people, and perhaps even use aggressive behaviors such as nipping or biting. They may also resort to aggressive play behaviors.
- Cats may vocalize, paw at the owner, exhibit running, destruction, jumping onto inappropriate areas, food soliciting behaviors, weaving in and out of legs, and even stealing.

- Owner response however brief including eye contact, touching or speaking to the pet, does not calm the pet or result in a cessation of the behaviors.
- Any attention seems to increase rather than decrease future occurrences of the behavior.
- Common phrases include “I can never get any work done,” “My pet follows me everywhere even into the bathroom,” “He seems to never get enough love and attention,” “If I am not interacting with him, he will take something and destroy it.”
- The pet often will not choose to go and rest quietly on his or her own.
- Attention-seeking behaviors often occur concurrently with other behavioral disorders such as compulsive disorders, certain aggressive disorders, separation anxiety, generalized anxiety and noise phobias, house soiling, and changes in household routine.
- Environment often offers limited outlets for normal canid or felid activities and breed predilections.

Contributing/Risk Factors

- None are known for certain, but uncertain interactions, unrealistic expectations, individual pet temperament, inappropriate punishment, and lack of appropriate activities may be contributory.
- Behavior may occur suddenly with changes in household routine, or location or composition (loss of companions, human or animal).
- Inadvertent owner reinforcement of behavior in question.

Pertinent Historical Questions

- What is the household composition, including other pets and young children?
- What is the environment and daily routine?
 - When is the pet fed, where does the pet sleep, what areas of the home does the pet have access to, toileting routine, litter box maintenance, access to the outdoors?
 - Try to obtain specific information about play, interactions, petting, grooming on a daily basis.
 - How often is the pet alone without people and for how long?
- What are the attention-seeking behaviors?
 - Include those the owner lists and others observed in the exam room.
 - The pet may resort to intense and persistent behaviors including biting, nipping, and aggressive play to get an owner response.
- What are the eliciting stimuli, location, and/or circumstances in which the behavior occurs?
 - Is there a particular pattern, i.e., while on the phone, watching television, resting, interacting with others in the home?
 - What were the onset, progression, and duration of the problem?
 - Is it seen on a daily basis and with all family members?
 - Does it occur with strangers or any member outside of the family?

- What is the owner's response to the behavior?
 - Obtain all responses including attempts to ignore the pet, punishment, or isolation.
 - How long was each treatment attempt applied?
- What is the pet's response to owner intervention?
 - Was any decrease in behavior noted?
- What is the daily exercise, including type, frequency, and duration?



DIFFERENTIAL DIAGNOSIS

Dogs

- Medical conditions causing anxiety, pain or confusion, including Cushing's disease, hypothyroidism, arthritis, cognitive decline, neurological disease, visual, or auditory impairment may be occurring.
- Other behavior conditions may occur concurrently including separation anxiety, compulsive disorders, noise phobias, mourning loss of companions, and global anxiety conditions.

Cats

- Medical conditions causing anxiety, pain, confusion including hyperthyroidism, arthritis, cognitive decline, neurological disease, visual or auditory impairment, hypertension may be occurring.
- Estrus behavior in intact female cats may be mistaken for attention-seeking behavior; intact male cats may vocalize to go outdoors.
- Other behavioral conditions may occur concurrently including separation anxiety, compulsive disorders, and mourning loss of companions.



DIAGNOSTICS

- Physical examination and any laboratory tests necessitated by physical or behavioral findings.
- Videotaping to identify if behavior occurs in absence of audience.

Pathological Findings

- Only those associated with any specific medical conditions, otherwise usually within normal limits.



THERAPEUTICS

- The components of treating attention-seeking behavior will be discussed in this section. If the problem is occurring concurrently with other conditions, please consult the relevant chapters for more details on the treatment of associated conditions.

Behavioral Modification Techniques

- The simplest method for eliminating unwanted behaviors is through the use of the behavioral technique of extinction. Behaviors are maintained by their consequences, and the principle of extinction is to remove the positive reinforcement for the behavior so that it becomes less likely to occur in that situation in the future.
 - All forms of positive reinforcement must be identified and eliminated, including reinforcement given by persons outside the home or family members who will not participate in treatment.
 - It is important for the owners to recognize that things as simple as eye contact, telling the pet “no,” and/or pushing the pet away may be interpreted by the pet as positive reinforcement since it gained some acknowledgment for the behavior.
 - At no time should physical or verbal punishment be used.
 - Owners must be warned not to pay any attention except as outlined later in the treatment plan
 - Using extinction to eliminate a behavior often results in frustration and an escalation in the behavior before it declines, which may result in the owner giving up the treatment plan.
- Combine positive reinforcement for desirable behaviors with ignoring undesirable behaviors. (See the handout Structuring Your Relationship with Your Pet in Appendix D.)
 - For example, the owner should ignore the pet when it paws or vocalizes for attention, but go over and pet it while it is lying quietly.
- Teach the pet to be calm, settled, and relaxed on cue in a specific location. (See the handout Tranquility Training Exercises in Appendix D.)
 - For dogs, this may be “go to your bed and stay” command.
 - For cats, this can be a specific location as well, such as a basket or bed.
- Signaled noninteractive time: For most owners, ignoring a pet is difficult to do, therefore giving clear rules and setting reasonable expectations in the beginning can help owners continue with the treatment plan.
 - If the pet continuously solicits attention when the owner sits down to relax, initially the owner might be told to take a towel or blanket and place it on their lap.
 - All attempts by the pet to solicit attention for the next 10–15 minutes are ignored.
- The owner has a finite amount of time during which they must ignore the attention seeking.
- The towel on the lap will serve as a signal to the pet that no attention is forthcoming and will help the pet learn when attention is available and when it is not.
 - Gradually the owner is required to ignore the attention-seeking behaviors of the pet for longer periods of time.
 - At some point in time, the towel can be discontinued once the animal has learned to rest quietly and the owner is comfortable with the procedure.

- **Restructuring the pet-owner relationship:** The first step in restructuring the relationship is to create rules for interaction so the owner knows when and how to interact with their pet.
 - In the beginning, all attention is initiated by the owner.
 - The pet can receive attention when it is calm and quiet.
 - The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
 - The owner calls the pet over, begins the attention session, and also ends it before the pet does.
 - Initially the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later if the animal requests the item by calmly sitting and waiting, it will be given.
- **Creating a reliable, predictable environment:** The owner should also strive to have a reliable and predictable environment for their pet.
 - Regular feeding, play, walks, and grooming and interactive time.
 - To the best of their ability, the owner should strive to include these interactions in their daily routine and as close to the same time as possible.
 - If the pet knows that a daily walk or playtime is forthcoming, often they will wait for it and are satiated once it is complete.
 - When the owner knows they have allotted time to the social and physical needs of their pet, they may find it easier to ignore attention-seeking behaviors at other times.

Accompanying Handouts

Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Tranquility Training Exercises

Drugs

Unless attention seeking is occurring in conjunction with other behavioral disorders for which medication is needed, attention seeking alone does not need medication. See appropriate chapters on other disorders for drug therapy recommendations.

Contraindications/Precautions

Punishment is contraindicated. It often increases anxiety and attention-seeking responses.

Alternative Drugs

For some very anxious dogs and cats, pheromone treatment using a diffuser may help calm them and attention-seeking behaviors may decline. Dogs may benefit from the pheromone collar.

Diet

Animals may exhibit attention-seeking behavior when they are hungry. Providing high quality diets in appropriate amounts at regular intervals is desirable. When multiple pets are in a home, each pet should have undisturbed access to food and water.

Surgical Considerations

Intact female cats should be spayed if the behaviors are due to estrus; intact male cats should be castrated.



COMMENTS

Client Education

- Pet owners have a difficult time understanding how giving attention to their pet can result in problem behaviors and most respond to solicitations for attention without thinking.
- Owners should be educated as to how behaviors become perpetuated and how reinforcing anxious responses makes them more likely in the future. Short-term attempts to ignore the behavior backfire because rather than diminishing the behavior, the delay between the actions of the pet and response will generally strengthen the response.
- Verbal intervention is not effective since pets are nonverbal and respond to what we do rather than what we say.
- Emphasis should focus on ignoring the attention-seeking behaviors, not the pet.
- A complete treatment plan must include ways to eliminate the behavior, and also outline clear and consistent rules for interactions.

Patient Monitoring

- Owners can often have a difficult time ignoring their pets and changing the way they relate to them. Weekly telephone follow-up will help answer questions about the treatment plan, assess the frequency of attention-seeking behaviors (i.e., their increase or decrease), allow for changes in the treatment plan, and encourage the owner to continue.
- Once the behaviors begin to change, the follow-up interval can be lengthened.

Prevention/Avoidance

- Setting clear expectations and rules for interaction when the pet is first introduced into the home may be preventative.
- Excessive punishment may contribute to anxiety, uncertainty, and attention-seeking behaviors and should be avoided.

- Have all family members and people who interact with the pet on a regular basis use the same criteria for interaction, rewards, and reprimands.

Possible Complications

- Most attention-seeking behaviors respond well to treatment, however, if the owner returns to their previous behavior patterns, the attention-seeking behaviors will return.
- If attention seeking is part of other behavioral disorders, concurrent therapy for those disorders is necessary.

Expected Course and Prognosis

- Most attention-seeking behavior responds to extinction and restructuring the interactions in several weeks to a few months.
- If no change is seen, a return visit and reevaluation is needed.

See Also

Chapter 29, Compulsive Disorder: canine and feline overview
 Chapter 31, Destructive Play and Exploration: feline
 Chapter 50, Noise Phobia: canine and feline
 Chapter 56, Separation Anxiety: canine and feline
 Chapter 58, Stealing Household Objects: canine and feline

Suggested Reading

Mills, Daniel. 2002. Learning, training and behaviour modification techniques In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 37–48.



Begging: canine and feline



DEFINITION/OVERVIEW

Begging animals refers to those animals that engage in solicitous acts. The focus of this chapter is begging to acquire food. The begging may only be targeted at a certain type of food, e.g. human food; canned food; or may encompass begging for all food, including their own meals. Begging behavior can involve very active behaviors such as pawing, jumping up, or vocalizing, or may be more passive in nature such as staring. The behavior is often maintained due to an intermittent reward schedule. Extinction should curtail the begging behavior, however, clients may appreciate additional treatment strategies to make treatment more acceptable and practical for them to implement. Begging is not only annoying to clients, but contributes to pet obesity.



ETIOLOGY/PATHOPHYSIOLOGY

- Begging is a normal learned behavior that is usually operantly conditioned.
 - A primary need/motivation exists to acquire food for survival.
 - Animals may spontaneously show solicitation behaviors associated with food as the odors/sight of food triggers a physiological response that prepares the body for food consumption.
 - The animal will retain those behavioral patterns that are successful in acquiring food.
 - The food may be intentionally (handed) or inadvertently (fall off the table) delivered to the animal.
 - Highly palatable food items may trigger begging for food in excess of calories needed for survival.
- Polyphagia secondary to a unique physiological state, disease state, or iatrogenic induction may trigger begging.



SIGNALMENT/HISTORY

- Any age, breed, gender, or species can engage in begging behavior.

Historical Findings

- Some animals restrict begging behavior to human food; they often beg during food preparation and/or during owner food consumption.
 - Owner concerns are often limited to the times when the owner is trying to consume their meal; the pet engages in behavioral patterns that are disruptive to the family dinner.
- Some animals anticipate their own meal times and start to beg for their meal as the time draws near or they feel hunger.
 - This tends to be most disruptive to clients when they are trying to sleep and the animal starts soliciting breakfast.
- In all situations, the animal has usually been rewarded for the begging behavior; this may have been inadvertent (food falling from table to floor) or purposeful (owner feels guilty, wants to interrupt begging behavior, etc., so they feed the animal).
- The reward schedule is often variable and intermittent; this happens to be the reward schedule that is most likely to maintain a behavior after it is established.
- When the owners try to ignore the more subtle begging behaviors, the animal will often escalate to more dramatic behavioral patterns, which are often successful.

Contributing/Risk Factors

- Any people that reward begging behavior by giving the pet food contribute to the problem behavior; the following people are prone to inadvertently or intentionally doing this:
 - Young—food falling from highchair/plates
 - Visitors
 - Elderly
 - Persons who live alone with their pets and “share” meals
- Polyphagia secondary to physiological conditions, pathological conditions, or iatrogenically induced
- Eating in situations (e.g., couch) where the pet is in close proximity to the human food
- Preparing or eating aromatic foods
 - Cats: poultry/fish
 - Dogs: meat
- Inconsistency in pet meal times (e.g., workday versus weekend) may contribute to begging behavior.
- Offering the pet leftovers or plates to lick postmeal may lead to the pet anticipating the palatable snack and trigger begging behavior during the meal.

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - This may help to identify household members that may sabotage the program.

- What is the exercise, play, and social interaction schedule for the pet?
 - Lack of appropriate mental and physical stimulation may make the pet prone to a wide variety of annoying/unruly behaviors, including begging.
 - An intense exercise schedule or recent increase in exercise may trigger the need for additional calories.
- How does the family consume meals and where is the pet in relation to the family?
 - This allows the clinician to identify family eating habits that may intensify begging behavior and make management suggestions to change these problem areas.
- When/how is the pet fed?
 - Single daily meals may cause periods of hunger; dividing daily food ration into two to three meals per day may keep the pet satiated.
 - Pets fed in bowls, often eat their food ration very rapidly; making the eating process a bit more challenging may be indicated for these pets.
- What is the pet fed?
 - This allows the clinician to make sure that the nutritional and caloric needs of the pet are being met.
 - If table scraps are part of the pet's diet, recommend discontinuing this practice.
- Does the pet readily consume its pet food?
 - Some pets will hold out for tastier food.
- When does the pet beg?
 - If the pet only begs in certain situations, the clinician may be able to identify management changes that could resolve problem.
- How does the pet beg?
 - Does it bark, whine, paw, jump, stare, etc?
- What is the response for begging?
 - Any situations where the pet receives food or attention will likely promote the begging.
- Does anyone ever respond to the begging by delivering food either intentionally or unintentionally?
 - All food provided to the pet in association with begging will maintain and strengthen the begging behavior.
- Is the pet on any medications that may increase appetite?
 - This may elucidate iatrogenic causes for begging.
- Is the pet pregnant or lactating?
 - This may elucidate physiological needs for increased calories.
- Does the begging increase during periods of cold environmental temperatures?
 - This may elucidate physiological needs for increased calories.
- What treatments have been tried to decrease or stop begging behavior?
 - This will allow the clinician to identify possible useful strategies that may not have been properly applied and improve their efficacy



DIFFERENTIAL DIAGNOSIS

- Attention-seeking behaviors
- Polyphagia
 - Physiological
 - Pregnancy
 - Lactation
 - Growth
 - Cold environmental temperatures
 - Increased exercise
 - Pathological
 - Diabetes mellitus
 - Hyperthyroidism
 - Hyperadrenocorticism
 - Exocrine pancreatic insufficiency
 - Gastrointestinal parasites
 - Insulinoma
 - Lymphangiectasia
 - Lymphocytic plasmacytic enteritis
 - Neoplasm of the brain
 - Etc.
 - Iatrogenic
 - Corticosteroids
 - Progestins
 - Benzodiazepines
 - Anticonvulsants
 - Poor quality diet



DIAGNOSTICS

- Most begging is a learned behavior; however, if there is reason to suspect polyphagia as an underlying motivation, then this needs to be pursued further.
- A complete physical and neurological examination should be performed; further diagnostic testing as indicated by the results of these examinations or historical questioning should be conducted.



THERAPEUTICS

Safety

- While most begging does not result in any injury to the target, in cases where someone is getting injured (e.g., large dog pawing at person), steps need to be taken to segregate the pet to prevent additional injury.

- If the dog is aggressive when food is dropped on the floor and the owner tries to remove it, then this must be avoided and addressed as a separate issue.
- If there are multiple pets within the home that beg at the table or during food preparation and fights occur over food, then pets must be segregated from human food preparation and consumption.

Management

- In some cases, management can result in resolution of the problem behavior.
 - Segregate the pet in a location away from the food during periods when begging is likely.
 - Change human eating habits; all eating should be at the table.
 - If pet is begging for its own meals, consider decreasing palatability of its own meals (e.g., canned to dry food; removing any table scraps that are added to food).

Behavioral Modification Techniques

- The fundamental principle of behavioral modification is to extinguish the begging behavior by removing all rewards.
 - The pet should not receive any food or attention for begging.
 - The begging behavior is likely to escalate before it discontinues.
 - The animal may try different behavioral patterns for begging; however, if they are not rewarded, they too will be discontinued.
 - If the pet is begging in anticipation of its meal, when mealtime arrives, if the pet is still begging, the meal needs to be postponed until the begging has ceased.
 - This can be a difficult treatment plan for owners to maintain: frustration, guilt, and escalated pet effort and inadvertent reward (food falling off table when pet is begging) all contribute to failure.
- Additional steps that may help the client to succeed include:
 - Anticipate situations that may elicit begging and distract the pet with a different activity.
 - Providing the pet with a long-lasting food treat may prevent begging; food puzzle toys filled with pet's regular diet or treats can be a successful distraction for many pets
 - Teach the pet to go to a location on command, such as a bed or a crate; instruct the dog to the spot when begging is likely.
 - Instruct the pet to engage in obedience commands (down/stay) instead of begging.
 - Deliver a remote punishment for begging behavior.
 - Remote punishments such as squirts of water or making an aversive sound may be applied successfully in some cases. Interactive punishments (yelling, hitting, etc.) are not recommended since they are often ineffective (pet perception is that it gained attention) or they may create anxiety/aggression problems in the pet. Timing is



■ **Fig. 26-1** Dog is given the Busy Buddy Twist n' Treat™ filled with carrot pieces to prevent begging from the table when humans are eating their meal.

important when remote punishment is used; it needs to be tightly correlated (1–2 seconds) with the behavior that is being punished; often when owners try to use tools such as shake cans or water pistols, the items are not readily available and the timing of the punishment is off, rendering it ineffective. The intensity of the punishment needs to be sufficient enough to inhibit the behavior but not so extreme as to cause fear/anxiety/distress. Finally, punishment should be delivered consistently (every time the pet begs), a difficult task for many owners.

- For changes in feeding schedules associated with weekends (owner wants to sleep in later than during work week, but pet begs for breakfast), have pet owner invest in a programmable feeding device that is set to feed pet on its typical workday schedule.
- Exercise the pet prior to periods where begging is anticipated; a tired pet is less likely to beg.
- Mastery of basic obedience commands can be helpful in redirecting the animal to perform an alternative behavior; if obedience is poor, training classes may be indicated.
- Feed the pet before humans eat; a satiated pet may be less likely to beg.
- Feed frequent small meals as opposed to one meal in a 24-hour period; this reflects natural eating patterns of the dog and the cat more closely.

- Increasing owner control through a command-response relationship can help calm pets and make treatment plans more effective.

Accompanying Handouts

Begging: How to stop begging at the table
Structuring Your Relationship with Your Pet
Teaching “Leave It”
Teaching Your Pet How to be Confined
Tranquility Training Exercises

Drugs

- No drugs are indicated for begging behavior.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.



COMMENTS

Client Education

- It is important for owners to always consider the implications of their actions as they relate to pet learning and future behavior patterns. Any reward for begging, even if it is just to temporarily placate the animal in a specific situation, may establish a new, undesirable behavior.
- Allowing or encouraging the pet to beg in one situation but not another is confusing to the pet.
- If a pet begs throughout a meal and then is given table scraps once the meal is completed, the pet may view this success as a direct result of the persistent begging throughout the meal. In addition, giving the pet table scraps post meal may increase anticipation during meals and therefore associated begging.
- When an owner tries to extinguish an established begging pattern, the begging is likely to get more intense before it finally stops.

Patient Monitoring

- Clients may need some support as they progress through the difficult stage of increased begging when they first start the program.

Prevention/Avoidance

- The best way to avoid the development of begging from the table is to ensure that the pet gets no human food.
- Provide the pet with a distracting, fun activity during human meal times.
- Segregate the pet when people are eating.

- Try to keep pet feeding schedules consistent.
- Try to provide the pet with multiple small meals per day instead of one big meal per day.
- The pet that begs for its meals should be ignored and the owner should wait until the begging ceases for a period of time before providing the meal.

Possible Complications

- Most begging behaviors respond well to treatment; however, if the owner returns to their previous behavior patterns, the begging is likely to return.

Expected Course And Prognosis

- If everyone is consistent with their response and the pet receives no reward for begging, the begging should eventually extinguish.
- There may be several weeks of increased begging efforts before a reduction of begging is noted.

See Also

Chapter 25, Attention-Seeking Behavior: canine and feline



Chewing: canine and feline



DEFINITION/OVERVIEW

Destructive chewing is a nonspecific clinical sign that can be associated with a variety of underlying conditions, some of which are considered normal behaviors and others that are pathological conditions. Chewing can be targeted at a wide variety of items and often involves repeated gnawing on the item leaving dental indentations or complete destruction. The item may or may not be consumed.



ETIOLOGY/PATHOPHYSIOLOGY

- Anxiety related
 - Separation
 - Noise phobia
 - Generalized anxiety disorder
- Attention seeking
- Barrier frustration
- Compulsive behavior
- Dental disease
- Escape attempts/roaming
- Hunger
- Inadequate exercise/stimulation
- Normal play/exploratory behavior
- Predatory behavior
- Territorial behavior



SIGNALMENT/HISTORY

- Any age, gender, or breed can engage in the behavior.
- Puppies, kittens, and adolescent pets are predisposed to play/exploratory chewing.
- High energy, working dog breeds (Australian shepherds, Border collies, Labradors, etc.) may be at greater risk.

Historical Findings

Historical findings will vary based upon underlying motivation.

- Anxiety related: Chewing may be one sign of a constellation of anxiety-related signs. (See Chapter 24, Anxiety Disorders: general overview canine and feline.)
 - Separation: chews on items or at exit points when separated from family members (See Chapter 56, Separation Anxiety: canine and feline.)
 - Noise phobia: chews on items or at exit points when problematic noise occurs (See Chapter 50, Noise Phobia: canine and feline.)
 - Generalized Anxiety Disorder: chews as part of a coping mechanism for generalized anxiety (See Chapter 39, Generalized Anxiety.)
- Attention seeking: Chewing occurs in front of an audience with intention of getting noticed. (See Chapter 25, Attention-Seeking Behavior: canine and feline.)
- Barrier frustration: Chewing occurs at barricades set up to confine pet; pet may show other signs consistent with distress, such as vocalization, elevated heart rate, pacing, hypersalivation.
- Compulsive behavior: Repetitive oral buccal movement occurs with underlying anxiety or conflict. (See Chapter 29, Compulsive Disorder: canine and feline overview.)
- Dental: Discomfort with tooth eruption may trigger chewing behavior; dental disease may contribute to unusual oral activity.
- Escape attempts/roaming: Chewing occurs at exit points in attempt to escape confinement to engage in exploration/seeking companionship; intact male dogs are more likely to roam to find mates. (See Chapter 54, Roaming: canine and feline.)
- Hunger: Reduction in calories, change in feeding time, or medical condition/treatment that increases appetite may initiate; usually directed at item with some nutritive value.
- Inadequate exercise/stimulation: Common in adolescent pets, the pet chews on random items for lack of appropriate alternative activity.
- Normal play/exploratory behavior: This behavior is common in young or adolescent animals; random objects selected; may show preference for novel items; may show preference for certain textures and materials; owners may offer or tolerate chewing of discarded household items (old shoes, old socks); may be difficult for pet to discriminate between acceptable chew items and unacceptable chew items; may develop into an attention-seeking behavior.
- Predatory behavior: In attempts to access a prey species, pet may chew at barriers; presence of prey species and hunting behaviors at chewed site. (See Chapter 52, Predatory Behavior: canine and feline.)
- Territorial behavior: This behavior is usually directed at windows or doors where intruders may be visualized; pet chews at barrier when in aroused state. (See Chapter 12, Aggression/Canine: territorial.)
- Regardless of the motivation for chewing, if chewed material is ingested, animal may present with signs of abdominal discomfort or vomiting/diarrhea.

Contributing/Risk Factors

- Normal play/exploratory chewing:
 - Young or adolescent pet
 - Lack of adequate exercise/play/enrichment
 - Intermittently providing/encouraging pet to chew on inappropriate items
 - Lack of appropriate chew toys
 - Provision of unattractive chew toys
 - House inadequately puppy/kitten proofed; easy access to inappropriate items
 - Pet secures owner attention when chewing on inappropriate items; owner may chase pet to try to retrieve item
- Consult other chapters for contributing/risk factors for other causes of chewing behavior.

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - This information may give insight into the time available for pet.
 - Other pet may hoard all appropriate chew items.
- Describe daily routine including exercise schedule, feeding regime, supervision, containment when left alone.
 - Inadequate exercise/play may result in pet discovering own entertainment.
 - Inadequate feeding frequency or calories may aggravate misdirected oral behavior.
 - Lack of supervision or containment may contribute to opportunistic chewing of attractive items.
- What items are chewed?
 - If random items are chewed, then play/exploration as a factor is more likely; some preferences may develop.
- When and where did the chewing occur?
 - A pet chewing for play/exploration will do so in the presence and absence of owner.
 - May learn to avoid chewing items directly in owner's presence if punished
 - May preferentially steal items to chew in front of owner to get owner's attention especially if owner is distracted
 - Pet chewing for play/exploration does not necessarily target exit points.
- What are the triggers for chewing?
 - Chewing for play/exploration may occur when animal is active/aroused/playful.
 - If chewing is associated with noise/departure/prey species/presence of territorial intruder/anxiety, etc., then consider alternative diagnosis and see appropriate chapters.

- Does animal ingest chewed items?
- Describe toys and pet appropriate chew items available, how pet responds to them, and how they are utilized.
 - Pets can have individual preferences for chew items.
 - A wide variety of dog chew toys/consumables exist.
- What is the owner's response to chewing and the pet's response?
 - Interactive punishment may actually be rewarding to the pet because it is attention.
 - Chewing is inherently rewarding so is likely to persist even without owner intervention.
- Is there foreign material either in fecal material or vomit?
 - Indicates consumption of chewed items
- What were the previous treatments used, both those that helped and those that made the condition worse?
 - Are there any aggressive responses when the owners attempt to retrieve chewed items from the pet?



DIFFERENTIAL DIAGNOSIS

- Anxiety related
 - Separation anxiety
 - Noise phobia
 - Generalized anxiety disorder
- Attention seeking
- Barrier frustration
- Compulsive behavior
- Dental disease
- Escape attempts/roaming
- Hunger
- Inadequate exercise/stimulation
- Normal play/exploratory behavior
- Predatory behavior
- Territorial behavior



DIAGNOSTICS

- Perform a complete physical examination including thorough oral examination.
- If historical and/or physical examination findings suggest a cause other than normal play/exploration, then pursue appropriate tests.
- Perform imaging studies, endoscopy, or surgery if a gastrointestinal foreign body suspected.

Pathological Findings

- Oral trauma (gum lacerations, broken teeth, electric burns) may be present.
- Pulmonary edema secondary to electrocution from cord chewing may be present.
- Esophageal irritation/ulceration from vomiting may be present.



THERAPEUTICS

- Treatment for chewing secondary to play/exploration will be considered here; for other causes, see respective chapters.

Management

- Chewing secondary to exploration/play is often successfully resolved with management alone.
 - Deny the pet the opportunity to chew inappropriate items.
 - Supervise closely.
 - Remove items from pet's reach.
 - Contain pet in safe area when unsupervised.
 - Provide attractive and appropriate chew toys.

Behavioral Modification Techniques

- Make inappropriate items unattractive to chew.
 - Treat with bitter or hot agent: cayenne pepper/bitter apple/other commercially available no-chew sprays.
 - Cover electrical cords with commercially sold safety covers.
 - Use remote punishment (e.g., squirt of water or air) to interrupt attempts to chew inappropriate items.
 - Booby-trap inappropriate items with motion detector alarms.
 - If pet is wearing headcollar (e.g., Gentle Leader®) and drag leash, remote interruption for chewing inappropriate items can occur with gentle tug.
- Encourage other forms of play and exploration.
 - Daily walks/runs
 - Indoor play with appropriate toys
- Encourage and praise pet for chewing appropriate items.
 - Provide indoor grass gardens for cats.
 - Provide commercially sold chew toys/treats (rawhide, nylon, cornstarch, durable rubber, etc.).
 - Use food puzzle toys (Twist n' Treat®, Buster Cube®, etc.).
 - Spread enticing food item (e.g., cream cheese, peanut butter) on appropriate chew items to encourage pet to select that item.
 - Rotating toys may increase their novelty and pet's subsequent interest.

Accompanying Handouts

Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Teaching “Drop It” and Retrieving Stolen Items
 Teaching “Leave It”
 Tranquility Training Exercises

Drugs

- Drugs are not indicated for chewing secondary to play/exploration.
- See respective chapters for other causes of chewing.

Contraindications/Precautions

- Any interactive reprimand for chewing may be reinforcing to the pet.

Surgical Considerations

- If a gastrointestinal foreign body is suspected, surgery may be necessary as a treatment.



COMMENTS

Client Education

- Puppies/kittens are not born knowing what is an appropriate chew item; they must be taught.
 - Teaching them involves close supervision, encouragement to chew appropriate items, and diversion back to appropriate items, if inappropriate items are selected.

Patient Monitoring

- Usually clients are quite frustrated by the pets chewing behaviors. Weekly follow-up allows the clinician to assess compliance and make adjustments to the treatment plan.

Prevention/Avoidance

- Good supervision of young animals will help teach them not to chew inappropriate items.
- Confinement in a safe area when young inquisitive animals cannot be supervised can help prevent destructive chewing.
- Provision of appropriate toys and chew items that are made attractive to the pet is helpful.

Possible Complications

- Ingestion of foreign objects that result in intestinal obstruction and surgical intervention may occur.
- Electrocutation may occur if electrical cords are chewed.
- Owner frustration with the behavior results in pet isolation and perhaps relinquishment.

Expected Course and Prognosis

- The chewing phase in some dogs can last a long time, and owners may become frustrated. However, with good supervision and provision of appropriate chew items, most problems resolve.

See Also

Chapter 12, Aggression/Canine: territorial
Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 29, Compulsive Disorder: canine and feline overview
Chapter 39, Generalized Anxiety
Chapter 50, Noise Phobia: canine and feline
Chapter 51, Pica: canine and feline
Chapter 52, Predatory Behavior: canine and feline
Chapter 54, Roaming: canine and feline
Chapter 56, Separation Anxiety: canine and feline
Chapter 58, Stealing Household Objects: canine and feline

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*. Philadelphia: Elsevier, pp. 331–336.

Cognitive Dysfunction: canine and feline



DEFINITION/OVERVIEW

Cognitive dysfunction is a syndrome associated with brain aging. The brain changes lead to alterations in awareness, decreased responsiveness to stimuli, and deficits in learning and memory. Subtle signs are seen in early stages, referred to as cognitive decline.



ETIOLOGY/PATHOPHYSIOLOGY

- Multiple neurological changes have been identified; it is unclear which specific changes are associated with the clinical signs of cognitive decline.
- Decline in neurons, increase in ventricular volume, and neurotoxic deposits including lipofuscin, ubiquitin, and beta-amyloid occur in affected animals.
- There are possible correlations between the amount of beta-amyloid in the cerebral cortex and decline in cognitive ability.
- Toxic free radicals (reactive oxygen species) increase with age as a result of chronic illness and stressors, age-related decline in mitochondrial efficiency, and decreased clearance mechanisms.
- Increased toxic free radicals appear to be correlated to cognitive decline.
- Compromised cerebral vascular blood flow may be contributory.
- Neurotransmission is compromised as toxins accumulate, blood flow is reduced, and neurons degenerate.
- Not all animals will be affected; many dogs and cats will age successfully and show no changes in cognitive function throughout their lifetime.



SIGNALMENT/HISTORY

- No specific breeds or gender predilection
- Age: occurs in older animals

Historical Findings

Typically, historical findings have been placed in five categories using the acronym DISHA:

- Disorientation may occur, including getting lost in familiar environments, confusion, or inability to navigate through familiar routes (e.g., goes to the wrong side of door).
- Interactions with humans or other animals may be altered (possible decline in play, increased/decreased interest in affection, or an increase in irritability).
- Sleep/wake cycle alterations (temporal disorientation), including night waking or vocalization and perhaps an increase in sleep during the day.
- House training and other previously learned behaviors might deteriorate. House soiling, lack of response to previously learned commands, or becoming less adept at performing learned tasks (e.g., agility, flyball, working ability) may occur.
- Activity may be altered/inactivity, less interest in exploration, self-care, or even eating. As the condition progresses, the pet may become restless with pacing, aimless wandering, or compulsive activity disorders such as excessive licking.
- Neuropsychological testing in dogs can identify a decline in cognitive function as early as 7 to 8 years of age.
- Deficits may not be noticed by pet owners until several years later except in dogs trained to perform more specialized tasks (e.g., hearing ear, seeing eye, drug detection, agility).
- The owner may note a general disinhibition and reduction in learned behaviors; for example, a dog that was trained not to go on the sofa may start to access the sofa; a dog that was trained not to jump on guests may jump up, etc.
- Cats have shown alterations in social interactions, disorientation, decreased responsiveness to stimuli, alterations in activity levels (ranging from decreased activity to increased restlessness), anxiety, house soiling and altered sleep/wake cycles.
- Clinical signs in cats may develop at a slightly older age; neuropsychological testing has not been done in cats.
- Random, purposeless vocalization is one of the more common presenting complaints.

Contributing/Risk Factors

- Advancing age
 - In different studies, approximately 50% of dogs and cats >11 years of age may display at least one sign of cognitive decline.
 - From collected data, 28% of dogs age 11 to 12 and 68% of dogs between the ages of 15 and 16 may show at least one sign.
 - The disease is progressive—over 50% of dogs with at least one clinical sign show additional signs after 12 months.

- In a preliminary study of cats with signs of cognitive dysfunction, 43% of 152 cats had one or more signs consistent with CDS. After excluding medical cases, 28% of cats aged 11 to 14 displayed signs consistent with cognitive dysfunction and 49% of cats aged 15 to 21.
- Spaying/Neutering
 - Estrogen may provide protective effects against brain aging.
- Lack of mental engagement/activity

Pertinent Historical Questions

- Owner expectation that elderly dogs or cats will slow down may alter their perception of changes in their pet.
- Specific questions are needed to target changes in the following five areas: disorientation, interactions, sleep/wake cycle, house soiling and learned tasks, and activity. The questions listed below are not exhaustive, as there can be a variety of presentations.
- Disorientation:
 - Does your pet have trouble entering or exiting the home or finding the litter box?
 - Does your pet apparently get “stuck” in corners or under furniture?
 - Does your pet stare off into space or at walls?
 - Does your pet wander aimlessly around the home?
 - Does your pet get lost on your property or in the neighborhood?
 - Does your pet vocalize without apparent reason?
 - Is your pet no longer obeying previously reliable obedience commands?
- Interactions
 - Does your pet still continue to greet you when you return?
 - Does your pet interact with visitors as he/she did in the past?
 - Does your pet want more or less social interaction than before?
 - These behaviors might be evidenced by increased attention seeking or active withdrawal from family members.
- Sleep/Wake Cycle
 - Does your pet wake you during the night or sleep more during the daytime?
 - Is your pet difficult to rouse from sleep?
 - Does your pet have difficulty settling down to rest?
- House Soiling/Elimination
 - Is your pet continuing to eliminate in the proper location?
 - For a dog:
 - Does he/she continue to signal to go outside?
 - Does the dog ever eliminate indoors?
 - Does the dog eliminate indoors in the owner’s presence often shortly after an opportunity to eliminate outside?
 - For a cat:
 - Does he/she continue to use the litter box on a regular and consistent basis?

- Activity
 - Is your dog or cat physically active and willing to engage with people?
 - Does your dog or cat continue to groom him or herself, show interest in eating, and household activities?



DIFFERENTIAL DIAGNOSIS

Dogs

Any medical condition or disease process that affects the pet's mental attitude or behavior must be ruled out.

- Primary behavior problems may also be present especially those associated with anxiety conditions such as separation anxiety, noise phobias, or fear or anxiety of new people or situations.
- Musculoskeletal problems may result in increased aggressive responses or inability to access its elimination area.
- Impaired sight or hearing might lead to a decreased responsiveness or increased reactivity to stimuli.
- Diseases of the urinary tract can cause or contribute to inappropriate urination.
- Organ failure, tumors, and immune diseases can also affect behavior.
- Endocrinopathies such as hypothyroidism can lead to behavior changes ranging from lethargy to aggression, hyperadrenocorticism may cause altered sleep/wake cycles, lethargy, house soiling, panting, and polyphagia.
- Central nervous system diseases or impairment of circulation, whether directly (tumors) or indirectly (e.g., anemia), can affect behavior.

Cats

- Primary behavioral conditions may be present and lead to similar signs. These include intercat aggression between household cats, fears or anxieties caused by environmental or social changes, and learned responses.
- Hyperthyroidism in cats can lead to increased irritability, increased activity, and alterations in appetite and litter box use.
- Central nervous system diseases or impairment of circulation, whether directly (tumors) or indirectly (e.g., anemia), can affect behavior.
- Diseases of the urinary tract can cause or contribute to inappropriate urination.
- Musculoskeletal problems may result in increased aggressive responses or inability to access its elimination area.
- Impaired sight or hearing might lead to a decreased responsiveness or increased reactivity to stimuli.



DIAGNOSTICS

- All senior pets benefit from routine laboratory testing to detect metabolic and endocrine dysfunction.

- Minimum database should include CBC, chemical screening tests, thyroid profile, and urine cortisol creatinine screening for Cushing's disease.
- Perform other diagnostic tests and imaging as indicated by physical examination and baseline laboratory testing.
- Use of a behavioral screening questionnaire designed for older pets may be useful.

Pathological Findings

- Accumulation of beta amyloid has been noted in postmortem examinations of affected dogs and cats.
- Other than postmortem brain changes noted above, it is not uncommon for pets with Cognitive Dysfunction to have variable pathological changes in other organ systems and these may be contributory to cognitive changes.



THERAPEUTICS

Safety

- Generally pets with cognitive decline do not present a safety risk; however, some may become more irritable and begin to show aggressive responses. If this is the case, then triggers must be identified and avoided.
- Some animals may be at risk to themselves when confused if they get lost and wander away from home.

Behavioral Modification Techniques

- Enriched environments such as walks, play time, and human interaction can help keep animals active and alert.
- Reinforcing calm, quiet behaviors and ignoring anxiety-based pacing and panting may be helpful.
- Walking the dog or going outside to reinforce appropriate elimination habits can be helpful.
- Placing litter boxes nearby where elderly cats rest to facilitate use can help.

Drugs

- Note: All medication dosages are for oral dosing (PO)

Dogs

Selegiline (Anipryl®)

- This drug is licensed for use in dogs in North America.
- This drug is an MAO B inhibitor.
- The mode of action may be due to improved dopamine transmission, decrease in free radicals, and a neuroprotective effect.
- Dog dose: 0.5–1 mg/kg PO daily in the morning and maintained if effective.

- Reevaluate clinical signs for improvement after 1 to 2 months.
- Side effects might include occasional gastrointestinal upset and restlessness, and repetitive behavior at higher doses.

Cats

- No therapeutic agents are licensed for treatment of CDS.
- Selegiline (Anipryl®) has been used off-label (0.5–1 mg/kg/day PO).

Contraindications/Precautions

- Selegiline (Anipryl®) should not be used concurrently with MAO inhibitors such as amitraz (Mitaban®), narcotics, or alpha-adrenergic agents such as phenylpropanolamine or ephedrine or SSRIs (e.g., fluoxetine) or TCAs (e.g., clomipramine or amitriptyline).
- A 2-week washout is needed following most TCAs and 5 weeks following fluoxetine before starting selegiline (Anipryl®).

Alternative Drugs

Nicergoline

- Not licensed for use in dogs in North America, but is licensed in other countries
- Alpha-1 and alpha-2 adrenergic antagonists
- Used in elderly dogs with decreased activity, sleep disorders, decreased exercise tolerance, house soiling (including incontinence), reduced appetite, and decreased awareness
- May increase cerebral blood flow, enhance neuronal transmission, have a neuroprotective effect on neural cells, increase dopamine and noradrenaline turnover, and inhibit platelet aggregation
- Dog dose: 0.25–0.5 mg/kg/PO daily each morning for 30 days and maintained if effective

Propentofylline

- Not licensed for use in dogs in North America, but is licensed in other countries
- Purported to inhibit platelet aggregation and thrombus formation, make the red cells more pliable, and increase blood flow
- For use in the treatment of dullness and lethargy in old dogs
- May increase oxygen supply to the CNS without increasing glucose demand
- Dog dose: 3 mg/kg PO q12h

Diet

- A diet should be selected based on the pet's health assessment. Some individuals may require a special therapeutic diet, which should take precedence.
- Hill's Prescription Diet b/d™ has been shown to improve memory, learning ability, and clinical signs of cognitive dysfunction syndrome. Diet is supplemented with antioxidants such as vitamins E and C, selenium, beta carotene, and flavonoids and carotenoids in the form of fruits and vegetables, omega-3 fatty acids EPA

and DHA to promote cell membranes, and carnitine and lipoic acid, which are purported to improve mitochondrial health.

Surgical Considerations

- Only those that are deemed necessary by the other health needs of the pet



COMMENTS

Client Education

- Clients should be counseled that the disease is progressive in most cases. Treatment is designed to slow the progression, not reverse changes already present.

Patient Monitoring

- If the animal is started on medication, follow up at two weeks and one month to assess efficacy and adjust dose.
- Once pet is stable, examinations should be repeated minimally at 6-month intervals unless other health problems are reported.

Prevention/Avoidance

- Limited research has suggested that diets high in antioxidants may help prevent and/or slow the progress of degenerative brain diseases due to old age and oxidative changes.
- Daily activity and enrichment of the environment have been shown to help decrease cognitive decline.
- Limited research has suggested that intact males may be less prone to degenerative cognitive changes.

Expected Course and Prognosis

- Cognitive decline/dysfunction is a progressive degenerative process. Treatment is aimed at slowing the progression of symptoms, not to be a cure.
- Most identified animals are aged and will have multiple health problems.
- The goal is to optimize quality of life and interactions for both the owner and the pet.

Abbreviations

CBC—complete blood count
 CDS—Cognitive Dysfunction Syndrome
 DHA—docosahexanoic acid
 EPA—eicosapentaenoic acid
 h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

PO—by mouth

q—every

SSRI—selective serotonin reuptake inhibitor

TCA—tricyclic antidepressant

Suggested Reading

- Bain, M.J., B.L. Hart, K.D. Cliff, and W.W. Ruehl. 2001. Predicting behavioral changes associated with age-related cognitive impairment in dogs In: *J Am Vet Med Assoc*, 218, 11, 1792–1795.
- Landsberg, G., and J.A. Araujo. 2005. Behavior Problems in Geriatric Pets In: *Veterinary Clinics of North America* Ed. Fortney, W.D., Saunders, Philadelphia, Vol. 35:3, pp. 675–698.
- Moffat, K. 2002. An investigation of the incidence of clinical signs of cognitive dysfunction syndrome in cats In: *Proceedings of the American Veterinary Society of Animal Behavior*, Boston, 15.
- Nielson, J.C., B.L. Hart, K.D. Cliff, and W.W. Ruehl. 2001. Prevalence of behavioral changes associated with age-related cognitive impairment in dogs In: *J Am Vet Med Assoc*, 218, 11, 1787–1791.

Compulsive Disorder: canine and feline overview

chapter 29



DEFINITION/OVERVIEW

Compulsive behaviors are a sequence of movements usually derived from normal maintenance behaviors (grooming, eating, walking) that are performed out of context in a repetitive, exaggerated, ritualistic, and sustained manner. To be considered compulsive, the behavioral pattern under consideration must be sufficiently pronounced to exceed that necessary to meet its apparent goal or such that it interferes with the pet's normal functioning. Most common compulsive behaviors include spinning; tail chasing; self-mutilation; hallucinating ("fly biting"); circling; fence running; pica; pacing; vocalizing and shadow/light chasing.



ETIOLOGY/PATHOPHYSIOLOGY

- Compulsive disorders are a diagnosis of exclusion; must rule out other pathophysiologic causes of the aberrant behavior before the diagnosis is made.
- Compulsive behaviors may be a behavioral response to confinement or other undefined environmental conditions (e.g., stress, anxiety, frustration). Over time, the behavior may become fixed and independent of the environment.
- Compulsive behaviors can be categorized into five different groups; these groups may or may not be discrete. It is likely that compulsive disorders are not homogeneous conditions.
 - Locomotion: including spinning, tail chasing, pacing, freezing, jumping in place, skin rippling
 - Oral: including self-licking, self-chewing, air or nose licking, flank sucking, wool-sucking, fly-snapping, polyphagia, polydipsia, psychogenic alopecia, pica, chewing/licking objects
 - Vocalization: repetitive barking, whining, meowing, howling
 - Hallucinatory: shadow/light chasing, startling, avoidance, fly-snapping, air licking
 - Aggressive: self-directed aggression such as growling, biting at tail; aggressive behavior directed at inanimate objects
- The pathophysiology of compulsive disorders is not well understood, but neurochemicals such as beta-endorphins, serotonin, and dopamine are implicated.

- Compulsive behaviors may be self-reinforcing, possibly caused by the release of endogenous opioids in the CNS; may allow some animals to cope with conditions that do not meet their species-specific needs.
- Species, breed, and family line dispositions for certain compulsive behaviors suggest genetic predispositions for compulsive behaviors.
- By giving a pet attention (either positive or negative) during an episode of compulsive behavior, the owner may be inadvertently reinforcing the undesirable behavior.



SIGNALMENT/HISTORY

- Any age, gender, breed can present with a compulsive disorder.
- Age: Average age of onset of compulsive behavior correlates with social maturity (canine 12–36 months; feline 24–48 months); the median age of onset for dogs and cats is 12 months of age, therefore approximately half of the population will first show signs of their compulsive disorder by 1 year of age.
- Gender: Some sources suggest that male dogs are overrepresented in the population diagnosed with compulsive behaviors.
- Breed: Type of compulsive disorder (e.g., spinning versus self-mutilation) may be affected by breed.
 - Bull terriers: spinning, tail chasing, freezing
 - German shepherds: spinning and tail chasing
 - Great Danes and German short-haired pointers: self-mutilation, stereotypic motor behavior (fence running), or hallucinations
 - Dalmatians, Rottweilers and German shepherd dogs: hallucinations
 - Doberman pinschers: flank sucking
 - Border collies: staring at shadows
 - Australian cattle dogs: tail chasing
 - Miniature Schnauzer: checking hind end
 - Large breed dogs: acral lick granuloma
 - Siamese and other Asian breeds and crosses: repetitive vocalization and fabric chewing

Historical Findings

- Consult specific chapters for additional details regarding specific compulsive behaviors.
- The pet engages in a repetitious, relatively unvaried sequence of movements that has no obvious purpose or function, usually derived from contextually normal maintenance behaviors (e.g., grooming, eating, walking).
- The compulsive behavior interferes with normal daily activities and functioning.
- The behavior may be first exhibited in an acute conflict situation and then it generalizes to other situations, especially if the animal is exposed to prolonged or repeated conflict.

- Compulsive behaviors generally worsen over time; the compulsive behavior occurs in more contexts and with less provocation.
- Owners of cats can often identify a specific stressful event (physical trauma or social upheaval) that coincided with onset of compulsive behavior; this correlation is less likely to occur in dogs.
- Cat owners often report concurrent elimination and intercat aggression problems.
- Relatives of an affected pet are more likely to also exhibit compulsive behaviors.
- Owner has often attempted a variety of interventions, many of which may have aggravated problem, prior to seeking consultation.

Contributing/Risk Factors

- Predisposed breed or familial line
- Environment with stress, conflict, or frustration
- Inciting physical cause—a physical irritation or lesion may initiate a behavioral pattern that later develops into a compulsive behavior; example, flea allergy dermatitis incites tail chasing; tail chasing behavior is maintained/expanded despite resolution of flea problem and infection
- Owner reinforces behavior by giving it attention

Pertinent Historical Questions

- Obtain the general history and management of the pet.
 - What is the source of the pet/lineage, if known?
 - May help identify a genetic predisposition
 - Mixed breed dogs do present with compulsive behaviors
 - What is the incidence of affected relatives?
 - Heritable factor of compulsive disorders support likelihood of compulsive behavioral patterns in relatives
 - What is the household composition and interactions, including people and other pets?
 - May help identify sources of conflict for the pet
 - What is the pet's typical daily routine?
 - This can help the clinician to identify specific areas of conflict, stress or frustration; specifically look for adequate social, physical and mental stimulation.
- What is the general temperament of the pet?
 - By interviewing the owner about the pet's responses to a variety of social and environmental situations, the clinician may be able to establish the pet as being highly reactive/anxious, or confident/calm. This may help to identify other behavioral problems or contributing behavioral problems that need to be addressed.
- Obtain specific information about the compulsive behavior.
 - Approximate or specific date of onset
 - Correlation of onset with any social upheaval or physical trauma

- Have owners describe the condition and its progression including historical and current
 - Behaviors observed during a bout including any postural changes, vocalizations, etc.
 - This will help to determine if the behavior in question meets the criteria of a compulsive disorder
 - Triggers for behavior including time of day, presence of others, situations, events, locations, etc.
 - This may help determine inciting triggers
 - Frequency of bouts
 - Compulsive behaviors tend to appreciate an escalation over time
 - Duration of bouts; including range of durations
 - Ease of distraction
 - Will help to rule out seizure-related condition
 - Owner response
 - This may help to identify inappropriate interventions.
 - Is there evidence that the behavior occurs when the pet is alone? Videotapes may be useful to answer this question.
- Have owners recount the two most recent bouts of the behavior in question with specific details.
 - Time of day
 - Location
 - Others present (pets and people)
 - Pet's behavior before, during, and after bout
 - Owner's behavior before, during, and after bout
 - Pet's response to any owner interventions



DIFFERENTIAL DIAGNOSIS

- Normal behavioral response in an acute conflict situation
 - The historical information will reveal that the behavior in question is confined to a specific situation and does not interfere with daily function/life of the animal.
- Attention-seeking behavior
 - History will reveal that the behavior only occurs in the presence of people and that people have historically given the pet attention for the behavior; while a compulsive disorder could also meet those criteria, a compulsive disorder will not respond to treatment for attention-seeking behavior (ignore behavior).
- Seizures
 - Seizures cannot be interrupted and there is usually a postictal phase.
- Central brain lesions
 - Other neurological deficits present on examination; diagnostic tests can be performed to rule out/in central lesions if suspected

- Sensory neuropathies
- Infectious diseases
 - Historical information, examination, and lab work should help to differentiate diseases such as tick-borne pathogens (e.g., Lyme disease, Ehrlichia) from compulsive disorders.
- Metabolic diseases
 - Historical information, examination, and lab work should help to differentiate compulsive diseases from metabolic diseases.
- Toxin exposure
 - Historical information, examination, and lab work should help to differentiate compulsive diseases from metabolic diseases.
- Dermatological disease
 - Any condition that includes self-mutilation or grooming needs a comprehensive dermatological workup.
- Trauma
- Degenerative disease



DIAGNOSTICS

- A video recording should be solicited of the behavior in question.
- A complete physical and neurological examination should be performed.
- A complete blood count, chemistry panel, thyroid evaluation, and urinalysis should be conducted.

Perform further diagnostic testing as indicated by presenting complaint and the results of the initial baseline examination/testing. (See specific chapters for additional details.)

Pathological Findings

- No specific finding associated with compulsive disorders



THERAPEUTICS

General therapy is geared toward teaching the patient to relax in a variety of environmental settings and to substitute a calm, competitive behavior for the stereotypic one.

Safety

- Safety of the pet and people must be considered a priority.
- Owners should be instructed to avoid direct physical intervention of a pet engaged in a compulsive disorder, especially if it involves components of aggressive behavior because redirected aggression may result.

- In cases of aggressive compulsive behaviors, segregation or wearing of a basket muzzle or a drag leash that allows the owner to remotely remove the pet may help promote safety.
- Animals that are self-traumatizing need aggressive treatment intervention to prevent further injury. For the most severe cases, this may include inpatient 24-hour care/monitoring and/or chemical sedation to prevent further injury.

Management

- Identify and remove sources of conflict/stress/frustration, if possible.
 - Unaided, this is unlikely to resolve the condition unless it is at the earliest stages.

Behavioral Modification Techniques

- Positive reinforcement-based obedience training may be necessary for dogs that aren't already competent at basic commands.
- If triggers for compulsive behavior cannot be avoided or removed, then desensitize pet to triggers.
- Discourage the client from reassuring the patient that it does not have to spin, chew, etc.; this inadvertently rewards the repetitive behavior. Instruct the owner to reward the pet only when it is not engaged in behavior and when it is relaxed.
- Reduce overall stress in the environment by
 - making interactions predictable (structuring your relationship)
 - providing a daily predictable routine
 - providing adequate daily physical and mental stimulation for the pet
 - avoiding punishment for compulsive behavior
- Response substitution
 - When the pet shows intention of performing the compulsive behavior, give the pet an alternative incompatible task to perform. Reward desirable behavior.
- Treat any concurrent behavioral conditions.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Medication can help facilitate the treatment program and in many cases may be necessary to appreciate improvement.
- No drugs are approved for use in dogs or cats for compulsive behaviors, and appropriate pretreatment chemistry screenings are indicated.

- Serotonergic medications are the current mainstay of pharmacological intervention. These include SSRIs and TCAs. See specific chapters for recommended drugs and doses.
- While opioid and dopamine antagonists may reduce compulsive behaviors, the side effects and/or dosing regimes make them impractical for clinical use.
- Drug effect is not immediate and may take 3–5 weeks to be noted.
- Medication is used for several (3–6) months after a positive effect is noted and then a gradual weaning off medication is attempted. If the behavior recurs during the weaning off procedure, the previous dose is reinstated.
- Examples of commonly used drugs include:
 - Clomipramine
 - Canine: 1–3 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Fluoxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.5–2.0 mg/kg q24h

Contraindications/Precautions

- TCAs and SSRIs should not be combined with MAO inhibitors (including amitraz [Mitaban®] and selegiline [Anipryl®]). Use caution if combining SSRIs and TCAs, as this can result in potentially fatal serotonin syndrome.
- TCA and SSRIs should not be used in animals with a history of seizures.
- Electrocardiography should be performed on any animal predisposed to a conduction disturbance.
- Altered drug clearance and potentiation may occur with hepatic or renal function impairment.
- Consult individual drug monographs and pharmacology appendix for additional drug information.
- Restraint devices do not treat the underlying problem and may aggravate stress/frustration actually worsening the condition.
- Punishment is contraindicated in compulsive disorders.

Alternative Drugs

- In anxiety conditions, pheromone products (e.g., DAP—dog appeasing pheromone® or Feliway®) diffuser may be a useful adjunctive approach.
- Various homeopathic remedies may be useful but no studies exist to support dosages or treatment length.

Surgical Considerations

- There are no standard surgical procedures recommended to treat these compulsive disorders.
- Since these animals may harbor a genetic predisposition for compulsive behavior, these animals should be neutered.



COMMENTS

Client Education

- Clients should be informed that in many cases, compulsive disorders may require lifelong treatment.
- Accurate record keeping may help assess treatment success.

Patient Monitoring

- Have client keep daily and/or weekly logs of the occurrence of the compulsive behavior including duration of bouts and frequency of bouts. This will allow for accurate assessment of behavioral change.
- Initially, weekly or biweekly follow-up is desirable to manage the treatment program and response to medication.
- Regular (semiannual to annual) monitoring is necessary for pets on long-term drug therapy; examination and laboratory evaluations (CBC, chemistry panel, urinalysis) should be conducted.

Prevention/Avoidance

- Appropriate daily mental and physical stimulation in the form of exercise, play, and social interaction should be provided for all pets.
- No attention should be given for compulsive disorders, even if it is considered entertaining the first few times it is observed.
- Preventative veterinary care, such as treatment with antiparasitics, may help reduce possible inciting causes of some compulsive disorders.
- Predictable interactions and environments may help prevent onset of the behavior.
- If the client sees signs of compulsive behavior developing in an animal derived from a line where other animals are affected, early intervention is advised.

Possible Complications

- Poor owner compliance with treatment suggestions
- Relapse of condition

Expected Course and Prognosis

- It may take several weeks to see improvement.
- If no improvement is seen after 4 weeks, the diagnosis, treatment plan, and owner compliance should be reevaluated.
- Relapse may occur if stress/conflict/frustration is reintroduced into the environment.
- Clinical improvement is negatively correlated with duration of compulsive behavior; treatment should be sought early in the course of problems to maximize treatment success.
- Control, not cure, is a realistic expectation for compulsive disorder.

See Also

Chapter 1, Acral Lick Dermatitis: canine
Chapter 37, Flank Sucking
Chapter 38, Fly Snapping
Chapter 53, Psychogenic Alopecia/Overgrooming: feline
Chapter 59, Tail Chasing and Spinning: canine and feline
Chapter 64, Wool Sucking and Fabric Eating: feline

Abbreviations

CBC—complete blood count
DAP—Dog Appeasing Pheromone[®]
h—hour
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
PO—by mouth
q—every
SSRI—selective serotonin reuptake inhibitor
TCA—tricyclic antidepressant

Suggested Reading

- Luescher, Andrew U. 2002. Compulsive behaviour In: *BSAVA Manual of Canine and Feline Behavioural Medicine* edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 229–236.
- Overall, Karen L., and Art E. Dunham. 2002. Clinical features and outcome in dogs and cats with obsessive-compulsive disorder In: *JAVMA* 221, 10, pp. 1445–1452.



Coprophagia



DEFINITION/OVERVIEW

Coprophagia is the ingestion of feces. This behavior is most often seen in dogs and primarily with the ingestion of their own feces or other animals' feces. Different motivations exist for coprophagia. Engaging in coprophagia is normal for most dogs, although it is considered offensive by humans.



ETIOLOGY/PATHOPHYSIOLOGY

- Maternal behavior
 - For the first few weeks of life, it is necessary and normal for the bitch to engage in anogenital stimulation to trigger elimination in the pups; the bitch then consumes the fecal/urinary excrement as the pups eliminate, providing a way to keep the nest clean until the pups are ambulatory.
- Exploratory behavior
 - Young animals use various senses to gather information about their environment; tasting feces may be part of this normal exploratory behavior.
 - Puppies in a deprived environment (kenned for long periods/barren environment) may use coprophagia as an exploratory outlet.
 - Exposure to deoxycholic acid is associated with neurological development. Feces have high levels of deoxycholic acid. It has been postulated that coprophagia in young animals may positively influence their neurological development.
- Dietary preference
 - Although difficult for humans to appreciate, the dog may find ingestion of the fecal material inherently rewarding due to its smell, flavor, texture, etc.; this may particularly true of cat fecal material, which dogs often seek out preferentially for consumption.
- Hunger
 - Dogs with polyphagia (iatrogenic or primary) may seek out fecal material as a way to satiate their excessive appetite.
 - Dogs with malabsorption conditions (exocrine pancreatic insufficiency, intestinal disease) may need additional nutrients.
 - Dogs provided an inadequate diet may seek out fecal material to supplement their caloric intake.

- Attention seeking
 - Dogs may discover that coprophagia results in immediate owner attention; and subsequently use the behavior to gain owner attention.
- Anxiety related behavior
 - Coprophagia may be part of a coping mechanism for anxious dogs.
- Compulsive Disorder
 - Although rare, some dogs exhibit coprophagia as an oral manifestation of a compulsive disorder; see Chapter 29 Compulsive Disorders: canine and feline overview for additional information regarding this etiology/pathophysiology.



SIGNALMENT/HISTORY

- Age: most often seen in younger animals, but can occur at any age
- No sex or breed predilection noted

Historical Findings

- Behavior may occur whether owners are present or absent.
- The dog may only eat their own feces or those of other dogs within the home.
- For some dogs, the problem is intermittent, but in most cases by the time the complaint is presented, the behavior tends to occur whenever the dog has access to feces.
- The problem is rare in cats.

Contributing/Risk Factors

- Confinement of dogs in barren yards with no environmental stimulation or enrichment may predispose them to coprophagia.
- Underlying disease may be present predisposing to anemia, maldigestion, or malabsorption of either the feces-eating dog or the feces of another household member targeted by the coprophagic dog.
- Diet that is not balanced or complete may be a factor.
- Easily accessible feces, such as a cat litter box, may be a factor.
- Underlying anxiety may be a factor.

Pertinent Historical Questions

- The clinician must distinguish medical and behavioral causes.
 - Medical health including appetite, weight, digestion, color, and consistency of feces should be assessed.
 - Concurrent medication might affect appetite or stool composition of this dog or other animals within the household.
 - Stool consistency, volume, appearance, frequency of defecation, and any straining associated with defecation should be assessed.
 - Licking feces may indicate nausea; differentiate by observation.

- A thorough evaluation of the animal's diet, environment, appetite, and handling is essential.
 - Diet, including any recent dietary changes or restrictions for the pet presented or other pets within the home
 - Feeding routine for all pets, number of food bowls, how feeding is handled
 - Any recent household changes prior to onset or since it began
 - Daily interactions, handling, play time, and attention
 - Daily exercise regime
- What was the age of onset?
- What is the context in which the behavior occurs? Is the owner present, owner absent, on walks, in the yard?
- Which feces are ingested—the pet's own feces or the feces of other animals?
- What is the owner's response and attempts at changing the behavior, including any physical corrections?
- What is the house training technique and response of the pet to house training?
- What is the management of fecal material in the environment?
 - Cat litter box cleaning regime
 - Collection of feces deposited in yard



DIFFERENTIAL DIAGNOSIS AND DIAGNOSTICS

- Maternal behavior
- Exploratory behavior
- Dietary preference
- Hunger
 - Iatrogenic polyphagia
 - Thyroxine over-supplementation
 - Corticosteroids
 - Etc.
 - Inadequate caloric provision
 - Primary medical disease
 - Cushing's disease
 - Hypothyroidism
 - Intestinal disease
 - Etc.
- Attention-seeking
- Anxiety related
- Compulsive Disorder



DIAGNOSTICS

Diagnostics are aimed at ruling out underlying primary medical disease and identifying diseases that may occur secondary to coprophagia.

- Complete physical examination
- Fecal examination for parasites

- Based upon the dog's signalment, historical profile physical exam, the following tests may be considered: CBC, chemistry panel, thyroid profile, trypsin-like immunoreactivity, serum cobalamin, serum folate, fecal fat, fecal trypsin; ACTH stimulation test, bile acids
 - Serum cobalamin and folate levels are measured to evaluate for small intestinal bacterial overgrowth and severe small intestinal mucosal disease.



THERAPEUTICS

Management

- Decrease access to feces by prompt disposal; walk dogs on a leash to facilitate removal from vicinity of feces.
- Allow no unsupervised outdoor access unless the pet has defecated and the area is free of fecal matter.
- Move litter boxes to an area inaccessible to the dog or provide covered litter box if this will not result in nonlitter box use by the cat.

Behavioral Modification Techniques

- Use a muzzle or headcollar (e.g., Gentle Leader[®]) on walks. Give the dog a food reward when it defecates, thereby counterconditioning it to expect food rather than search for feces.
- Teach a “leave it” command to call the dog away from feces when outside under supervision; a headcollar with a leash attached will facilitate compliance with this technique. Reward pet when it complies.
- Teach “leave it” using a headcollar and leash. With the dog wearing a headcollar and an adult holding the leash, the dog is walked toward an item he may wish to pick up such as a ball or chew toy. As the dog reaches for the item, calmly say, “leave it” and turn the dog's head using the headcollar and quickly offer a food reward and “good dog” as the head comes toward you. Repeat several times with low value items.
 - As the dog learns the meaning of the phrase, he will begin to turn his head prior to the pull of the leash. Immediately reward that behavior.
 - Progress to more valued items and gradually phase out food rewards while retaining verbal praise.
- Provide additional outlets for activity and eating including feeder toys and food-finding games.
- Other recommendations, although unsupported by any published data, include feeding a less digestible diet, using a meat tenderizer or pancreatic enzymes, and sprinkling noxious tasting/smelling substances on feces.
 - Some dogs are less likely to eat soft stools so the addition of fiber or vegetable oil to the food may make the dog's own stools unappealing.

- Use enzymes (meat tenderizer—papain or commercial products for canines, e.g., FOR-BID, Alpar Laboratories, Inc., La Grange, IL) may alter the quality of the feces to make it less palatable.
- Bitter and hot substances such as quinine and cayenne pepper applied to feces have yielded variable results.
- Remote-operated spray collars: When the dog investigates feces, the owner activates the collar to release a spray of gas that the dog may find aversive. If used every time feces-seeking behavior is exhibited, the behavior may diminish although fear or anxiety is possible. Shock devices are contraindicated and may increase anxiety and perhaps create fear of elimination or going outdoors.
- Location-activated spray collars: For dogs that eat feces from cat litter boxes, a disc with a variable perimeter spray zone is placed near the litter box. The dog wears a citronella spray collar that is activated when the dog violates that perimeter. The cat can still access the box without punishment, but the dog receives a punishment (spray of citronella) when it comes near the litter box.
- Taste-aversion learning is another potentially effective method. Treating feces with an emetic agent such as apomorphine that has a short duration of action; after a few experiences of coprophagy followed by nausea and malaise, the dog may learn to avoid feces. This method is usually ineffective since most emetic agents used do not cause enough of a reaction to create a taste aversion.

Accompanying Handouts

Teaching “Drop It” and Retrieving Stolen Items
Teaching “Leave It”

Drugs

- If the problem appears to be a compulsive disorder, it may respond to medication. Please see appropriate chapters for additional information.
- Dogs with coprophagia should take a monthly heartworm preventative that also provides treatment for gastrointestinal parasites.

Contraindications/Precautions

- Dogs that eat feces of other dogs may become infested with parasites.

Alternative Drugs

- Addition of pancreatic enzymes or predigestive ingredients to the diet may help in some cases.

Diet

- Complete and balanced diets are useful.
- Some animals may benefit from increased fiber, making the stool less attractive.
- Addition of enzymes (e.g., papain—meat tenderizer) to the diet may alter fecal material to make it less attractive.



COMMENTS

Client Education

- Clients should be counseled that in long-standing cases, coprophagia may persist despite treatment.
- Reassure the owner that in many cases coprophagia, while distasteful to the owner, is usually not harmful to the dog unless they ingest parasites with the feces.

Patient Monitoring

- Animals showing signs of pancreatic deficiency or other medical abnormalities should be monitored as needed to assess the effectiveness of medical therapies.
- Perform regular fecal examination for gastrointestinal parasitic infections.

Prevention/Avoidance

- Good supervision while house training may help to prevent puppies ingesting feces during normal exploration and the continuation of the behavior.
- Keeping the yard free of fecal matter may be preventative.
- Place cat litter boxes in areas that the dog cannot access.

Possible Complications

- Untreated medical problems progress to outright disease, which compromise health.

Expected Course and Prognosis

- Prognosis is guarded in long-standing cases especially if the owner wishes the dog to be outdoors unsupervised during elimination.
- If the owner is willing to supervise the dog and/or walk on a leash, prognosis improves.

Pregnancy

Coprophagia is a normal part of pregnancy and nursing in dogs and cats.

See Also

- Chapter 29 Compulsive Disorder: canine and feline overview
- Chapter 51 Pica: canine and feline
- Chapter 56 Separation Anxiety: canine and feline

Abbreviations

ACTH—adrenocorticotrophic hormone
CBC—complete blood count

FeLV—feline leukemia virus

FIV—Feline Immunodeficiency Virus Infection

h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

PO—by mouth

q—every

TLI—trypsin-like immunoreactivity

Suggested Reading

Bowen, Jon. 2002. Miscellaneous behaviour problems In: *BSAVA Manual of canine and feline behavioural medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 123–124.

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat* 2nd edition, Philadelphia: Elsevier, pp. 176–178.

Destructive Play and Exploration: feline



DEFINITION/OVERVIEW

Young kittens and cats can be very exuberant and playful. Often this play and exploration results in damage or unwanted consequences. Most frequently cited complaints include climbing curtains and furniture, destroying objects when climbing on shelves and counters, and unruly play behaviors.



ETIOLOGY/PATHOPHYSIOLOGY

- The problems owners complain about are most likely part of the normal cat play repertoire but disturbing to owners.



SIGNALMENT/HISTORY

- Age: usually complaints relate to kittens and young cats under 2 years of age
- Gender: can occur in males or females

Historical Findings

- The owner complains of the cat climbing and perching in unwanted areas.
- Items may be destroyed during climbing and play attempts.
- The cat actively engages in destruction by pushing items onto the floor.
- The cat climbs curtains and furniture to gain access to high locations.
- The cat participates in exuberant and at times injurious play.
- Behavior seems to occur when the owner is otherwise occupied.

Contributing/Risk Factors

- Barren environment without sufficient stimulation or activities
- Living in a home with other cats that do not wish to play
- Living in a home with another active playful cat

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.

- Very busy households may have unrealistic expectations for self entertainment of the pet.
- What is the daily routine, including feeding, training, exercise and play, and social interaction?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
 - Changes in household routine may precipitate episodes.
- What was the duration and progression of the problem behavior?
- What were the daily incidents, and the time spent engaging in the behavior?
 - Is there evidence that these activities take place when the owner is gone? If not, this may indicate an attention-seeking component to the behavior.
- Does the owner have the ability to interrupt the behavior? What is the rate and time course of return of the behavior?
 - Can the owner distract the cat, and if so, how quickly does the problem behavior resume?
- What are the eliciting stimuli, location, and/or circumstances in which the behavior occurs?
- What is the owner's response to the behavior?
- What treatments have been tried and what was the response to those treatments?



DIFFERENTIAL DIAGNOSIS

- Attention-seeking behavior
- Hyperthyroidism
- Normal Feline Behavior



DIAGNOSTICS

- A complete physical and neurological examination should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.

Pathological Findings

- None usually found for this condition.



THERAPEUTICS

Management

- If the cat is destructive when left home alone, a safe confinement location may be more suitable. This could be a bedroom with food, water, litter box, and various climbing towers and toys for the pet.

Behavioral Modification Techniques

- The main focus is to provide proper outlets for play and exploration while making other locations unavailable or unattractive.
- All attention should be initiated by the owner and provided to the cat when it is calm and quiet. Attention-seeking behaviors such as vocalization, pawing, patting should be ignored.
- Toys should flutter, bounce, and move to entice the cat to play but be tailored to each individual cat's preferences.
- Avoid toys that are small enough to be ingested. This includes string or yarn that can cause severe gastrointestinal problems if ingested.
- The goal is to provoke running, chasing, and attack of appropriate items to diminish desire to direct these behaviors toward other objects in the home.
 - Toys should be rotated every few days to provide new and novel experiences, especially if the owner is gone for long periods of time every day.
 - Feeder toys that stimulate foraging behavior can be very useful.
 - Boxes, bags, and climbing centers are helpful.
- Owners should schedule and initiate daily play time, preferably at least two 10- to 15-minute sessions daily.
- If the cat seems to tire of a particular toy during the session, introduce a new one that will usually stimulate additional play at a high level.
- Physical reprimands are inappropriate and may cause fear and defensive aggression and owner avoidance. Do not hit, kick, or snap cat or kitten on nose with fingers. Such actions frequently elicit an immediate serious aggressive response from the pet and/or induce residual fear and fear-induced aggression toward that person thereafter.
- Frequent trimming of tips of claws helps reduce damage.
- Appropriately placed climbing towers and scratching posts will help decrease climbing on other objects.
 - It may be prudent at times to put away valuable objects until the cat is more controlled.
- Placing food treats on appropriate high locations or placing food bowls in these locations will encourage climbing there, and hopefully, the cat will avoid other areas.
- Another effective treatment may be to acquire an additional cat or kitten of the same size and temperament. The cats may play with each other, and other wild behavior should diminish. Alternately, two cats may mean twice the destruction. Older cats may not accept another cat, so this option may not work for every household.
- Making the other areas where the cat climbs aversive can be accomplished using upside down carpet runners, double-sided tape, and noise deterrents.

Accompanying Handouts

Structuring Your Relationship with Your Pet

Drugs

- Usually this problem responds to improving the environment and providing proper outlets. Therefore, no medications are indicated.

Other Treatments

- Allowing cats outdoors provides other entertainment and enrichment.
- However, outdoor access presents risks of injury from other animals, automobiles, and diseases.
- A safe contained outdoor enclosure may be stimulating enough for some cats. This could be a screened-in porch with access to the house for warmth and safety.

Contraindications/Precautions

- Allowing cats outside may risk injury, disease, or death.

Surgical Considerations

There is no surgical procedure recommended to treat this behavioral condition.



COMMENTS

Client Education

- Helping clients understand the active nature of cats and the need for environmental enrichment is necessary.
- Most cats will settle as they get older especially if provided with proper play, attention, and social interaction.

Patient Monitoring

- Owners are usually quite frustrated by these behaviors, so follow-up at 1- and 2-week intervals to assess progress is necessary.
- This allows adjustment of the treatment plan and encouragement for the owner to stick with recommendations.

Prevention/Avoidance

- Educating owners about proper play and enrichment needed to keep kittens and cats happy and healthy may help prevent frustration.
- Providing appropriate toys early on is useful.

Possible Complications

- Unchanging behavior results in pet relinquishment.

Expected Course and Prognosis

- Most cases do well within a few months with proper planning and using toys and environmental enrichment activities.
- Most cats will improve with maturity, even without intervention.

See Also

Chapter 18, Aggression/Feline: play related
Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 44, Jumping on Counters: feline
Chapter 58, Stealing Household Objects: canine and feline



Digging: canine



DEFINITION/OVERVIEW

There are many different motivations for digging ranging from entertainment to anxiety. While most digging is thought to involve the displacement of dirt in the yard, indoor digging at the carpet/flooring can be a presenting complaint. The behavior may be normal or abnormal depending upon the motivation.



ETIOLOGY/PATHOPHYSIOLOGY

- Digging is a normal, innate behavior of dogs.
- Digging can be associated with pathological anxiety or compulsive behaviors.



SIGNALMENT/HISTORY

- Any breed, age, or gender of dog may engage in digging behavior.
- Age: Young, underexercised dogs may be more likely to exhibit digging.
- Breed: Certain breeds have a greater disposition for digging behavior.
 - Northern breeds: Many northern breeds dig holes for resting and thermoregulation.
 - Terriers: Many terrier breeds were originally bred for hunting small burrowing prey.
 - Hounds: Some of the hounds such as dachshunds and basset hounds were bred for hunting burrowing animals.
- Gender: Intact male dogs may dig with intent to escape and roam.

Historical Findings

- Often a young, high-energy breed with lack of appropriate outlets for exercise/enrichment will dig.
- The dog has unsupervised time in a location with attractive digging areas.
 - Soil loosened by gardening may entice the dog to dig.
 - Buried items (bones, rawhides, toys) may encourage a dog to dig.
- If anxiety-related digging exists, some trigger (separation, noise) elicits distress response and associated digging.
 - If the dog is inside the home, this digging may be targeted at carpet/flooring.

- If the dog is outside, digging may be directed at perimeter of enclosure with intent to escape.

Contributing/Risk Factors

- Lack of appropriate enrichment and exercise
- Terrier, dachshund, or other breeds that were bred to burrow underground in pursuit of prey
- Temperature extremes with no provision for shelter
- Suffering from an anxiety-related condition
- Intact male—digging to roam and find a mate
- Young, active breed
- Provision of items such as bones that pets may bury with the intent of later retrieval

Pertinent Historical Questions

- When does digging occur?
 - If digging occurs secondary to an environmental trigger (owner departure, noise, storm, etc.), then consider anxiety-related digging in response to the trigger.
 - If digging occurs in absence and presence of owners, then separation anxiety is unlikely as the sole cause for digging.
 - If digging to escape confinement by an intact male dog occurs periodically, consider presence of estrus female dog as the cause.
 - If digging occurs in months of extreme temperatures, consider thermoregulation as cause for digging.
 - If digging occurs periodically when there are lapses in the dog's routine exercise regime, consider lack of appropriate energy outlets as a cause.
- Are there any particular triggers for digging behavior?
 - If a trigger (e.g., noise, separation from attachment figure, lack of daily walk, presence of a bone) can be associated with onset of digging behavior then that trigger should be more closely examined and considered as a potential cause.
- Where does digging occur?
 - Holes positioned at the perimeter of an enclosure suggest escape attempts and therefore roaming or anxiety-related digging should be higher in consideration.
 - Randomly placed holes may indicate play/exploration, predatory behavior, burying of items for later retrieval.
 - Holes placed in cool/warm locations may indicate that motivation for digging is thermoregulation.
- Is there other concurrent behavior/attitude when digging?
 - Dogs that are in a state of anxiety often show other signs of distress such as panting, wide eyes, pacing, vocalization, etc. If the dog appears distressed when digging, search for anxiety-related triggers.

- What is the daily exercise routine?
 - If a daily exercise and enrichment routine is inadequate for the dog, this may be a contributing factor to the digging.
- Is their prey present where digging occurs?
 - If a prey species is identified and the pattern of digging is following the prey, then that is a likely motivation.
- If the dog successfully digs out of containment, what happens?
 - If some level of reinforcement is identified for the escape-directed digging, such as interaction with other dogs, attention from people, etc., this might be part or all of the motivation to dig out.



DIFFERENTIAL DIAGNOSIS

- Deprived environment
- Roaming
- Barrier frustration
- Separation anxiety
- Thermoregulation
- Burying items
- Predatory behavior
- Normal exploratory behavior that is inherently rewarding



DIAGNOSTICS

- Physical examination
- Observation or videotaping of dog when it engages in digging behavior may help to identify emotional state of dog and triggers for digging.
- If you suspect holes are being dug for thermoregulation and environmental temperatures don't appear to warrant this or other clinical signs suggest additional problems, consider testing for diseases that interfere with proper thermoregulation such as hypothyroidism.



THERAPEUTICS

Safety

If the pet injures itself or escapes as a result of digging, then the pet should be secured in an area where digging is not possible.

Management

- Not allowing the dog unsupervised access to digging areas may resolve or reduce problem digging.

Behavioral Modification Techniques

- Treatment will depend upon underlying motivation.
- Punishment is rarely successful in managing digging problems since punishment must be consistent, immediate, and effective. These are difficult criteria to implement.
- Deprived environment
 - Adequate daily physical exercise: “Adequate” will depend upon breed and individual dog. Daily off-property walks/runs provide both physical and mental stimulation.
 - Adequate daily mental stimulation: Social interaction, puzzle type food toys, obedience work, playing games, agility, or other sports are helpful.
 - Monitor when dog is in locations where digging has occurred. If digging starts, immediately interrupt (voice command, remote device such as a water squirt, headcollar [e.g., Gentle Leader®] with remote lead attached) and redirect inappropriate digging to a more acceptable behavior (obedience, play with toys, etc.).
 - Consider providing an acceptable digging area in yard for dog to engage in this species typical behavior. Dig up dirt, bury attractive items and encourage dog to explore the area, praising them when they do. Concurrently, make unacceptable sites unattractive or unavailable.
- Roaming
 - If intact male, castration may reduce the desire to roam.
 - Reinforce fencing with an underground component to prevent easy escape.
 - Provide adequate daily physical and mental stimulation.
 - Remove any rewards that dog may acquire once it has escaped (entry to neighbor's home, treats, play with neighborhood kids).
 - Adult supervision is needed when the dog is in the yard to stop escape attempts and reward other activities.
- Barrier frustration
 - Use systematic CCDS to teach dog to tolerate a barrier.
 - Remove barriers, and provide large secure enclosure.
- Predatory
 - Remove prey from environment.
 - Don't allow dog in area where prey is located.
- Noise phobia or other anxiety
 - See Chapter 50, Noise Phobia: canine and feline.
- Separation anxiety
 - See Chapter 56, Separation Anxiety: canine and feline.
- Burying items
 - Don't give dog items it is likely to bury.
 - Consider providing an acceptable digging area in yard for dog to engage in this species typical behavior. Dig up dirt, bury attractive items, and encourage dog to explore the area, praising them when they do. Concurrently, make unacceptable sites unattractive or unavailable.

- Thermoregulation
 - Provide alternative area that provides warmth/cooling from temperature extremes. Be advised that human product may not surpass nature.

Accompanying Handouts

Acute Management of Problem Behavior
Counterconditioning and Desensitization: the details
Maximizing Treatment Success
Teaching Your Pet How to be Confined

Drugs

- Drugs are not indicated in most cases unless behavior is anxiety related.
- If an anxiety-related condition exists, drugs may be indicated. See appropriate chapters.

Other Treatments

- Synthetic pheromones as a collar or diffuser may be helpful for anxiety-related digging.
- Restrict access to long-lasting food treats that may trigger burying for later retrieval.



COMMENTS

Client Education

- Proper education about breed predispositions and exercise requirements prior to acquiring a dog is recommended.
- Random, intermittent punishment for behaviors is usually ineffective at inhibiting the behavior and is frustrating for both the owners and the pet.
- Counsel the owner that a decrease in digging behavior may occur, but relapses may be common depending on the trigger(s).

Patient Monitoring

- If digging is a symptom of an anxiety-related condition, the patient will require follow-up regularly.
- If the digging is part of a normal canine behavior such as play/exploration or burying items for later retrieval, minimal follow-up is required.

Prevention/Avoidance

- Play/exploration digging: Providing adequate daily exercise and social engagement is often successful at controlling this problem.

- Avid gardeners should avoid leaving piles of loose dirt in the yard.
- Avoid giving long-lasting food treats if dog is predisposed to burying items.
- Provide adequate shelter for the dog.
- Monitor outdoor activity to interrupt and redirect digging behavior before it becomes an established behavior.

Expected Course and Prognosis

- The outcome depends on motivation for the digging.
- If dog is digging for play/exploration and owner provides other physical and mental stimulation for dog, then prognosis is good.
- Play/exploration digging is likely to decline with maturity.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline
 Chapter 50, Noise Phobia: canine and feline
 Chapter 54, Roaming: canine and feline
 Chapter 56, Separation Anxiety: canine and feline
 Chapter 60, Thunderstorm Phobia

Abbreviations

CCDS—counterconditioning and systematic desensitization

Suggested Reading

- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 336–339.
- Lindell, Ellen. 2002. Control problems in dogs In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, p. 77.
- Overall, Karen L. 1997. *Clinical Behavioral Medicine for Small Animals*, St. Louis: Mosby, pp. 263–264.



Fear of People: canine and feline



DEFINITION/OVERVIEW

Fear responses are seen across species and encompass emotional, psychological, and physiologic responses. While in many cases a fear response is adaptive, certain fears can interfere with quality of life for both the owner and pet. Fear responses include freezing, fleeing, fighting, or fidgeting.



ETIOLOGY/PATHOPHYSIOLOGY

- Multiple body systems may be affected when an animal is fearful.
 - Cardiovascular: tachycardia
 - Endocrine/Metabolic: alterations in the HPA axis
 - Gastrointestinal: inappetence; aberrant appetite; gastrointestinal distress (salivation, vomiting, diarrhea, tenesmus, hematochezia)
 - Hemic/Lymphatic/Immune: stress leukogram
 - Musculoskeletal: poor condition attributable to increased motor activity and self-injury (weight loss, injured pads, damage to teeth and gums, and abrasions and lacerations)
 - Nervous: increased motor activity; repetitive activity; trembling; self-injury
 - Respiratory: tachypnea and the attendant metabolic changes
 - Skin/Exocrine: lesions, usually secondary to self-injury (lick granulomas, overgrooming) (See appropriate chapter for more detail.)
 - Ophthalmic: dilated pupils in response to autonomic nervous system stimulation
 - Behavioral: hypervigilance, avoidance behaviors, possible aggression if handling or restraint attempted



SIGNALMENT/HISTORY

- Any age, sex, or breed can show a fear of people.

Historical Findings

- Chronic fear can lead to secondary behavior problems, such as overgrooming, lick granulomas, house soiling, intercat or interdog aggression, or predispose the animal to health problems owing to a compromised immune system.
- This fear may develop at a young age (6–12 months of age) or at the onset of social maturity (12–36 months of age) perhaps suggesting developmental, environmental, or genetic components.
- Signs of fear or anxiety can vary between individuals and may vary to different classes of people.
- In mild cases of anxiety or fear, the animal may become tense and more reactive to other environmental stimuli. At the other extreme, animals in a panic can become very aggressive or destructive in their attempts to get away from the thing they fear.
- Fearful responses may have arisen from a single extremely fear-inducing experience such as unexpected pain, punishment, an unfamiliar experience or a fearful/painful experience without opportunity to escape.
- If the fear is intense, the pet may lose bladder and bowel control and may express its anal sacs.
- Hiding and avoidance are commonly seen in anxious or fearful cats.
- Body postures associated with fearful behavior include ears flattened to the back or to the side of the head, crouched body posture when resting or moving, lowered head, and tail tucked alongside the body or held low.
- Pupils are often dilated, and the animal may be panting, shaking, drooling, or shedding hair.
- If given the opportunity, fearful cats or dogs will usually attempt to flee. If cornered, cat will stop, draw its head in, crouch, growl, roll on its back when approached (not submissive but overtly defensive), and paw at the approacher; if pursuit is continued, cat will strike, then hold the approacher with its forepaws while kicking with the back feet and biting. Vocalizations are usually minimal, unless the cat is showing defensive behavior in response to a perceived threat.
- Fearful dogs may become aggressive if they cannot escape.

Contributing/Risk Factors

- Underlying medical problems can contribute to fear and anxiety and may occur concurrently with a behavior disorder.
- Fearful behavior in dogs and cats can be related to the following factors:
 - Genetic influences on temperament
 - Early experience and socialization
 - Later learning through negative experiences
- Dogs may experience a fearful developmental period similar to what is reported in wolves at 4–6 months of age when they experience a heightened sensitivity to fearful stimuli.

- Cats and dogs who did not have the exposure to humans during the developmentally important first few weeks of life may be more likely to be uncomfortable and fearful around them.
 - Cat-to-human sensitive socialization period: 2–7 weeks of age
 - Dog-to-human sensitive socialization period: 3–12 weeks of age
- Feline: paternal disposition toward humans; if father is shy, kittens likely to be shy
- Negative experience with people

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.
- What is the daily routine, including feeding, training, exercise and play, and social interaction?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
 - Pet reaction to owner departure: Are there any signs of separation distress?
- What were the onset, duration, and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
- Obtain a clear description of the pet's body language and behavior, which should be consistent with fear.
- Dogs: A dog may exhibit fearful or submissive body postures/facial expression (head down, crouching, backing away, ears back, tail tucked, looking away, lip licking). Body posture may change over time especially if aggressive responses are used. As the animal learns that aggressive responses are effective, submissive body postures may yield to more assertive ones over time without a change in underlying motivation. (See Chapter 6, Aggression/Canine: human directed/unfamiliar people for additional details.)
- Cat: A fearful cat may hiss, spit, arch the back, and piloerect if flight is not possible; combinations of offensive and defensive postures and overt and covert aggressive behaviors are usually involved. (See Chapter 14, Aggression/Feline: classification and overview.)
- Careful questioning should seek information on any events or situations that consistently trigger anxiety or fear.
 - Of particular interest is to determine if there are certain classes of people that trigger fearful response, e.g., men with facial hair, children, certain ethnic groups, etc.
 - Information about specific triggers associated with fearful behavior is helpful in setting up a behavioral modification program.
- Several episodes should be described in detail to help ascertain triggers, and owner and pet responses.



DIFFERENTIAL DIAGNOSIS

Dogs

- Rule out conditions that cause similar behavioral changes—seizures, brain disease, metabolic disease (e.g., thyroid or adrenal).
- If the onset of the fearful behavior is sudden and not associated with identifiable triggers, a medical problem may be contributory.
 - This includes degenerative disorders, anatomic, infectious (primarily CNS viral conditions), and toxic (lead toxicosis) conditions.

Cats

- Rule out metabolic diseases, neurologic disorders, and brain disease that can cause similar signs.
- If the onset of the fearful behavior is sudden and not associated with identifiable triggers, a medical problem may be contributory.
 - This includes degenerative disorders, anatomic, infectious (primarily CNS viral conditions), and toxic (lead toxicosis) conditions.



DIAGNOSTICS

- Laboratory testing may be indicated by information obtained in the history and physical examination. Imaging of the brain or other body organs may be indicated if history, physical, and laboratory tests strongly suggest an organic cause for the pet's behavior.
- Limited evidence suggests an association between fear based behaviors and low thyroid levels. Thyroid testing may be appropriate.

Pathological Findings

- CBC, serum chemistries, and urinalysis should be normal but performed before initiating drug treatment.



THERAPEUTICS

Management

- Avoid exposure or close proximity to the fear-producing stimuli, if possible. Provide ways for the pet itself to manage the situation.
 - For cats, this may mean a location to hide or creating a “safe place” for the cat to go to if the situation cannot be avoided.
 - For dogs, this may mean removal from fear-producing stimuli by placing the dog in another location such as a room or crate or avoiding placing the dog in the situation.

- Confinement in itself may be anxiety producing. If this is the case, the pet must be taught how to relax and be confined without anxiety or fear. (See Appendix D for the Teaching Your Pet How to be Confined and Tranquility Training Exercises handouts.)

Behavioral Modification Techniques

- Identify the specific stimulus that provokes the fearful behavior: adults, children, unfamiliar people, large groups, people in the home, people outdoors, people reaching for the pet, etc.
 - Attempt to establish a reaction gradient to the various stimuli.
- All punishment and reprimands must be stopped and avoided; these will usually tend to increase, rather than decrease fear reactions and/or abort recognizable signs of fear that can be useful to help owners recognize the need to remove the pet from the situation.
- Calming attempts such as petting, soothing vocal intonation, and holding or picking up the pet should be avoided as the pet may misinterpret these as rewards for the behavior that they are performing at the time.
- If the fear is accompanied by aggression, see appropriate chapters on aggression in dogs and cats for more details.
- A primary goal should be to teach the pet to relax and be calm to a verbal command. (See the Tranquility Training Exercises handout.)
 - The pet should be taught to relax in a variety of environmental settings beginning with those that are unlikely to evoke a fearful response. Use of a key phrase and a specific location like a mat or bed can help.
 - This must be associated with physical and behavioral signs of relaxation such as relaxed body postures and facial expressions, calm respiration, and lack of sympathetic stimulation such as dilated pupils.
- CCDS to specific fear-provoking stimuli is the primary treatment regime.
 - A stimulus gradient must be established, from the stimuli least likely to cause the fearful response to those most likely to cause a response. Be sure to use defining characteristics such as distance, location, size, etc.
- A gradient for reinforcement must also be established. What rewards will the pet work for best? Favored rewards are then reserved for training sessions only.
- Counterconditioning: The dog should first be taught to sit and relax on a verbal command in neutral locations using food rewards as mentioned above. (See the handouts listed in the Accompanying Handouts sections for specific recommendations.) A cat can learn to relax in a bed or carrier.
- Gradual exposure of the pet to a greatly reduced stimulus is next attempted so no fearful reaction is elicited. The nonfearful behavior is then rewarded.
- Level of stimulation is manipulated and/or increased gradually, staying below the threshold that would result in the fearful response.
- Progress is slow, and careful monitoring of responses is essential.
- Proceeding rapidly can intensify rather than diminish the fearful response.

- Relapses are common, and owners must always be vigilant and in control of the pet's behavior or the situation and promptly remove pets at the first sign of anxiety and/or fearful behavior.

Accompanying Handouts

Acute Management Of Problem Behavior
 Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Teaching Your Pet How to be Confined
 Tranquility Training Exercises
 Using Classical Counterconditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Medication can be a helpful adjunct to behavioral modification, if the animal's fearful or anxious behavior is so intense that it interferes with learning or other normal behavioral activities.
- Drug classes most often suggested for fearful behavior focus primarily on increasing the available amount of the neurotransmitters serotonin and GABA in the CNS; however, levels of other neurotransmitters are also affected.
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - These drugs are indicated for situations where there is unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - These drugs are to be given on a daily schedule regardless of exposure to trigger stimuli.
 - It may take up to 4 weeks to achieve efficacy.
 - The drugs are to be continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response.
 - These drugs can be used in combination with a benzodiazepine to achieve sufficient anxiolytic effects.
 - Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Fluoxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h

- Paroxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h
- Azapirone
 - Buspirone
 - Canine: 0.5–1 mg/kg PO q12h
 - Feline: 0.5–1 mg/kg PO q12h
- Benzodiazepines: episodic, acute, short-acting, anxiolytic medications; enhance GABA
 - Give approximately 1 hour prior to anticipated problematic event.
 - Anticipate 3–6 hours of anxiolytic benefits.
 - Undesirable side effects may include sedation and disinhibition of aggression.
 - Regular use may result in dependence and tolerance.
 - Paradoxical reaction (increased agitation, anxiety) can occur in a small percentage of animals.
 - Diazepam is associated with acute liver failure in a small percentage of cats.
 - Diazepam
 - Canine: 0.5–2.0 mg/kg q6h
 - Feline: 0.2–0.5 mg/kg q8–12h
 - Alprazolam
 - Canine: 0.02–0.1 mg/kg q6–8h
 - Feline: 0.02–0.05 mg/kg q8–24h
 - Clorazepate
 - Canine: 0.55–2.2 mg/kg q8–24h
 - Feline: 0.02–0.4 mg/kg q12–24h

Contraindications/Precautions

- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use; therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately. A minimum database should include a complete blood count, chemistry panel, and thyroid evaluation.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.

- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, and patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs. If combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Alternative Drugs

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®): synthetic analogue of the pheromone produced by lactating bitches; may calm some dogs and decrease anxiety; available as a diffuser, spray, or collar
- Feliway®: synthetic analogue of the pheromone of the feline cheek gland; may calm some cats

Diet

- None specific unless food allergies are contributing to other problems
- Dogs: avoid high-protein diets



COMMENTS

Client Education

- Discuss behavioral expectations. Animals with shy personalities or poor socialization histories may show a minimal response to treatment after many months.

- A realistic “end point” would depend on the animal's background (socialization history, genetic and individual differences in personality), the home situation, and other compounding factors such as the frequency of natural exposure to fear-producing stimuli.
- Extremely fearful animals may never have normal interactions and reactions to people, and this may affect the human-animal bond.

Patient Monitoring

- Frequent follow-up either in person or by telephone is necessary especially during the first few months of treatment, in order to motivate the client and monitor the effectiveness of any adjunct drug treatment.
- Good record keeping allows accurate assessment of improvement since change may be very slow.
- Animals receiving chronic drug therapy should have regular monitoring, including CBC, chemistry, and urinalysis: annually for young patients and semiannually for old patients; adjust dosages accordingly.

Prevention/Avoidance

- Frequent early exposure to new and novel people, places, and things during the first 2–7 weeks of life for cats and 3–12 weeks for dogs may be helpful in avoiding later fear-based reactions. Continued exposure throughout the first year of life may also be helpful.
- Calm interactions and positive associations with fear-producing stimuli may keep fear-based reactions to a minimum.

Possible Complications

- Fear-based reactions when left untreated may interfere with the quality of life for the pet.
- Ongoing exposure to the fearful stimulus may result in the acquisition of aggressive responses resulting in risks to people who may come in contact with the pet.

Expected Course and Prognosis

- The earlier fear-based reactions are treated, the better the prognosis.
- Some animals may improve and show near normal behavior while others may always show fear-based behavior.

See Also

Chapter 2, Aggression/Canine: classification and overview

Chapter 3, Aggression/Canine: fear/defensive

Chapter 5, Aggression/Canine: human directed/familiar people

Chapter 6, Aggression/Canine: human directed/unfamiliar people

Chapter 14, Aggression/Feline: classification and overview

Chapter 15, Aggression/Feline: fear/defensive

Abbreviations

CBC—complete blood count
CCDS—counterconditioning and systematic desensitization
CNS—central nervous system
DAP—Dog Appeasing Pheromone®
FDA—Food and Drug Administration
GABA—gamma-amino butyric acid
GI—gastrointestinal
h—hour
HPA—hypothalamic–pituitary–adrenal
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
PO—by mouth
q—every
SSRI—selective serotonin reuptake inhibitor
TCA—Tricyclic Antidepressant

Suggested Reading

- Heath, Sarah. 2002. Feline Aggression In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 223–227.
- Neilson, Jacqui C. 2002. Fear of Places and Things In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 173–180.

**DEFINITION/OVERVIEW**

Fear responses are seen across species and encompass emotional, psychological, and physiologic responses. While in many cases a fear response is adaptive, certain fears can interfere with quality of life for both the owner and pet. Fear of places refers to animals that are frightened of specific locations such as the veterinary hospital, grooming facility, or show ring. Fear of things generally refers to fears of inanimate objects such as flags, garbage cans, and skateboards. Context and intensity of the fear response helps to determine whether response is normal or abnormal. Fear responses include freezing, fleeing, fighting, or fidgeting.

**ETIOLOGY/PATHOPHYSIOLOGY**

- Multiple body systems may be affected when an animal is fearful.
 - Behavioral: hypervigilance, avoidance behaviors, possible aggression
 - Cardiovascular: tachycardia
 - Endocrine/Metabolic: alterations in the HPA axis results in increased circulating cortisol
 - Gastrointestinal: inappetence; aberrant appetite; gastrointestinal distress (salivation, emesis, diarrhea, tenesmus, hematochezia)
 - Hemic/Lymphatic/Immune: stress leukogram
 - Musculoskeletal: poor condition attributable to increased motor activity and self-injury (weight loss, injured pads, damage to teeth and gums, and abrasions and lacerations)
 - Nervous: increased motor activity; repetitive activity; trembling; self-injury
 - Ophthalmic: Dilated pupils in response to autonomic nervous system stimulation
 - Respiratory: tachypnea and the attendant metabolic changes
 - Skin/Exocrine: lesions, usually secondary to self-injury (lick granulomas, overgrooming) (See appropriate chapters for more detail.)
- Fearful behavior in dogs and cats can be related to the following:
 - Genetic influences on temperament
 - Lack of exposure to a variety of locations/objects during the sensitive socialization period may be a cause. Dogs that are absolutely deprived of variable social and environmental exposure until 14 weeks of age may

become pathologically fearful. This can be avoided with even minimal exposure.

- Lack of continued positive exposures to locations/objects throughout life may cause fear.
- Later learning through negative experiences in relation to the location or object may cause fear.
- Mild stressors are important for animals to experience during the developmental stages to properly develop HPA axis.
 - Chronic, severe stress to the mother prenatally or offspring postnatally may contribute to an abnormal fear response.
 - Lack of exposure to any stressors to the mother prenatally or offspring postnatally may contribute to an abnormal fear response.



SIGNALMENT/HISTORY

- No age, breed, or gender is overrepresented.
- Age: Animals often first exhibit signs of fear during adolescent period (6–12 months of age).

Historical Findings

- Owner reports signs of fear in their pet associated with specific locations or objects.
- Owners often don't seek help unless the fear interferes with their daily life or the care for their pet, or if the fear is expressed as aggressive behavior.
- Sometimes a specific trigger event can be identified, such as a traumatic veterinary visit initiating fear of the veterinary hospital.

Contributing/Risk Factors

- Inherited predisposition
- Lack of exposure to a variety of stimuli/locations
- Negative/traumatic experiences associated with a location/object
- Owner reinforcement of fearful behavior by coddling or comforting pet as pet exhibits fearful response
- Owner aggravating fearful response by punishing pet

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.
- What is the daily routine, including feeding, training, exercise and play, and social interaction?

- Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
- Pet reaction to owner departure: Are there any signs of separation distress?
- What object(s) or location(s) trigger the fearful behavior?
 - Identification of triggers is important for designing a treatment program; the more discrete the trigger(s), the better.
- What behaviors does the pet exhibit when exposed to those trigger stimuli?
 - It is important to gather information about what the pet is doing, not interpretations, to establish a diagnosis.
 - Fearful animals can engage in a variety of behavioral responses but the most common are flight (move away from trigger stimulus); fight (aggress toward trigger stimulus); freeze (become immobile); or fiddle (engages in another activity such as repetitive grooming).
 - If aggression is part of the behavioral response, then safety issues will need to be considered and addressed.
- How have people responded to the pet during an incident?
 - This allows the clinician to identify and counsel owners against inappropriate responses to the fearful pet.
- Does the pet respond differently when it is with different people?
 - This indicates that actions or presence of certain people alter the pet's reaction; identifying these discrepancies may help with diagnosis and development of a treatment plan.
- How quickly does the animal return to normal behavior when exposure to trigger stimuli is terminated?
 - This will help to grade severity of condition and prognosis; a quick recovery is positive.
- When did the animal first exhibit these fearful behaviors?
 - Long-standing problems may be more challenging to treat.
- Has the animal's response to the trigger stimuli changed over time (e.g., from avoidance to aggression)?
 - Often fearful animals initially respond with some avoidance/flight behaviors but then evolve into a "fight" or aggressive response.
- Is the animal suffering?
 - Mild fearful responses with quick recovery may not require intervention; animals may habituate to the trigger stimuli with repeated exposure.
 - Severe fears that appear to interfere with daily functioning of the pet require intervention and treatment.
- Is it possible to temporarily avoid exposure to trigger stimuli?
 - A CCDS treatment program requires that the animal avoid full-strength exposure to the trigger stimuli; if this cannot be accomplished, then adjunct therapy with drugs/pheromones may need to be seriously considered.
- Does the animal have any other fears/anxieties such as fear of noises or separation anxiety?
 - Pets with multiple fearful conditions may have underlying temperament or environmental problems; all aspects of their anxiety/fear will need to be addressed for treatment success.

- What interventions have already been attempted to treat this condition and how did the pet respond?
 - This allows the clinician to assess efficacy of previous treatments and which to utilize or avoid.
- What are the owner's needs and expectations for this pet?
 - Depending upon the severity of the condition and the environment, full recovery may not be possible; creating realistic expectations is important for the client.



DIFFERENTIAL DIAGNOSIS

- If the animal is exhibiting postures that are consistent with fearful behavior in association with specific trigger stimuli, the diagnosis is usually straightforward. However other diagnoses to consider, depending upon the presentation, may include the following, listed below for dogs and cats.

Dogs

- Attention-seeking behavior
- Breed-typical herding behavior
- Cognitive Dysfunction Syndrome
- Generalized anxiety disorder
- Noise phobia
- Separation anxiety

Cats

- Attention-seeking behavior
- Cognitive Dysfunction Syndrome
- Generalized anxiety disorder
- Noise phobia
- Psychogenic alopecia/overgrooming
- Territorial aggression
- Wool sucking



DIAGNOSTICS

- Physical examination and neurological examination should be conducted.
 - The examination is usually unremarkable unless the animal has injured itself trying to escape or while seeking shelter during a fearful event.
 - Chronic stress may present as an unhealthy animal (weight loss, poor hair coat).
 - The examination may find evidence of self-inflicted trauma (lick granulomas, overgrooming).

- Perform further diagnostic testing as determined by physical examination findings.
 - CBC, chemistry profile, and urinalysis
 - Stress leukogram may be present.
 - Thyroid or adrenal tests: depending on clinical signs and serum chemistry results
 - Biopsy of dermatologic lesions: determine if primary or secondary
 - Endoscopy: evaluate primary bowel disease
 - ECG: rule out cardiac disease that may produce physical signs mimicking anxiety
 - Brain or other body organ imaging: may be indicated if history, physical, and laboratory tests strongly suggest an organic cause for the animal's signs



THERAPEUTICS

- Mild cases may naturally habituate to certain stimuli with repeated exposure.
- Moderate to severe cases will need a more structured program, which is described below.

Safety

- Before embarking on a treatment program, it must first be determined if everyone can be kept safe during the treatment. This is essential for animals exhibiting aggression as part of their fear-based behavioral response because that aggression can be readily redirected to others including the humans handling the animal, the human associated with the object/place, or other pets in the vicinity
- The safety of the pet must also be considered. An animal that darts away from an object or a location may be lost or injured during the escape.

Management

- Do not expose pet to trigger stimuli unless it is part of a structured training episode.
- Avoid comforting or punishing animal for fearful response, instead try to remove the pet from the situation.

Behavioral Modification Techniques

- If the pet has not yet mastered basic obedience commands, such as sit/watch me/stay, then obedience training using positive reinforcement (reward-based training) should be implemented before proceeding.
- Enhance household structure and pet responsiveness by implementing a command-/reward-based interaction scheme with all family members.

- The pet is asked to do a command before any human interaction including the delivery of food, attention, access to outdoors, etc.
 - Compliance results in delivery of item.
 - Noncompliance results in no reward given.
- Identify trigger stimuli.
 - Avoid those trigger stimuli unless part of a structured training session.
- Practice exercises that reward relaxed, obedient behavior from the pet when the stimulus is absent.
- Determine a reward gradient for this animal.
 - Rewards must be of high value and can be food, play, or attention.
 - Rewards must be reserved for training sessions only to enhance their desirability and meaning to the pet.
- Practice systematic CCDS to trigger stimuli.
 - Establish a gradient to expose pet to anxiety-/fear-provoking stimulus; a common gradient to use for fear of objects/places is the proximity to the object/location, but size, speed of approach, and location may also be variables that need to be considered based on the history.
 - Engage in daily training sessions lasting approximately 10–20 minutes.
 - Expose the pet to the stimulus at a level below that which evokes the anxious/fearful reaction.
 - When exposed to this low level stimulus, the animal should be given commands and rewarded for calm, tranquil, relaxed, obedient behavior. Rewards may include play, praise, tasty food treats, etc.
 - With multiple (5–10) successful exposures at a certain level, the gradient can be intensified slightly; if using a distance gradient, the animal can be moved closer to the trigger stimuli.
 - If the animal exhibits signs of undesirable behavior, reduce intensity of the exposure to the stimuli until the pet can respond in a calm, tranquil, relaxed, obedient manner, then terminate the session. At no time should reprimands, either verbal or physical, be utilized. At the next session, start at this less intense level and progress more gradually.
 - Continue this process until the animal can be exposed to the full intensity of the stimulus without showing signs of fear.
- Flooding is another technique that exposes the animal to continuous application of the full strength stimulus until the animal habituates to it and no longer exhibits the fearful response.
 - While this may work in some situations, if it is not successful the animal may be more severely afflicted and it may make the animal more fearful rather than less fearful.

Accompanying Handouts

Acute Management of Problem Behavior

Counterconditioning and Desensitization: the details

Maximizing Treatment Success

Structuring Your Relationship with Your Pet
Tranquility Training Exercises
Using Classical Counterconditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Medication can be a helpful adjunct to behavioral modification, if the animal's fearful or anxious behavior is so intense that it interferes with learning or other normal behavioral activities.
- Medication is unlikely to fully resolve the behavior without concurrent behavioral modification.
- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid evaluation should be performed. For dogs on long-term medication, annual or semiannual recheck of blood work is recommended.
- Anxiolytic medications:
 - Antidepressant medications are serotonin-enhancing medications, which include the SSRIs and the TCAs; these medications may reduce anxiety and/or the mood changes that accompany chronic anxiety. They would be used on a daily basis over the course of several months while implementing behavioral modification. Examples of commonly used serotonin-enhancing medications include:
 - Fluoxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h
 - Paroxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h
 - Sertraline
 - Canine: 1–3 mg/kg q24h
 - Feline: 0.5 mg/kg q24h
 - Clomipramine
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Azapirones act as serotonin agonists; these medications may reduce anxiety and/or the mood changes that accompany chronic anxiety. They would be used on a daily basis over the course of several months while implementing behavioral modification.
 - Buspirone
 - Canine: 1–2 mg/kg q8–24h
 - Feline: 0.5–1.0 mg/kg q8–24h

- Benzodiazepines are quick acting and short-lived anxiolytic medications that work by enhancing the neurotransmitter GABA; they may be appropriate for specific situations where you may not be able to avoid trigger stimuli. They are not ideal for prolonged, routine use as tolerance and dependency develop. Examples of this class of drug include:
 - Diazepam
 - Canine: 0.5–2.0 mg/kg q6h
 - Feline: 0.2–0.5 mg/kg q8–12h
 - Alprazolam
 - Canine: 0.02–0.1 mg/kg q6–8h
 - Feline: 0.02–0.05 mg/kg q8–24h
 - Clorazepate
 - Canine: 0.55–2.2 mg/kg q8–24h
 - Feline: 0.02–0.4 mg/kg q12–24h

Contraindications/Precautions

- Clients should be advised that most medications are extra-label use.
- Use caution when prescribing benzodiazepines.
 - Diazepam may cause fatal hepatic necrosis in cats.
 - Benzodiazepines may disinhibit fear-based aggression making a bite more likely.
- Use of buspirone, TCAs, and SSRIs are not recommended in animals with seizures.
- Do not combine SSRIs or TCAs with MAO inhibitors (e.g., amitraz [Mitaban[®]], selegiline [Anipryl[®]]).
- Use caution if combining SSRIs and TCAs; the combination can result in potentially fatal serotonin syndrome.
- Animals with compromised hepatic or renal function may not be able to metabolize or clear medications normally, and so caution should be taken when treating those patients.

Other Treatments

- Pheromones are chemical signals that are given off by one individual to affect the behavior of another member of the same species. There are commercially available pheromones for both canine and feline patients that may help reduce anxiety.
 - Canine Pheromone Product: DAP—Dog Appeasing Pheromone[®]; synthetic analogue of the pheromone produced by the lactating bitch available as a spray, diffuser, or collar
 - Feline Product: Feliway[®]; synthetic analogue of the feline facial pheromone available as a spray or diffuser
- Touch therapy
- Anxiety wraps
- Acupuncture

- While alternative medications such as herbal preparations have been suggested for fearful behaviors in animals, these substances have not yet been systematically studied for these conditions in these species.

Surgical Considerations

- Surgical intervention is not a standard treatment for anxiety-based conditions.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Management is key to success. If the pet continues to have the traumatic negative response to the trigger stimuli, success is unlikely.
- Patience and persistence are necessary for success.
- Treatment should be sought early in the course of the condition.
- Clients should avoid punishment and/or comforting the anxious/fearful/phobic pet as these actions may inadvertently worsen the behavioral problem.
- Chronic anxiety can lead to other expressions of stress, such as stereotypic or compulsive disorders, urine-marking behavior, or inappropriate elimination.
- Fearfully aggressive animals may show redirected aggression.

Patient Monitoring

- Weekly contact with the client is recommended to address concerns and provide encouragement.
- For animals receiving chronic drug therapy, annual or semiannual physical examination and lab work (CBC, chemistry, and urinalysis) should be performed to monitor, and dosage should be adjusted accordingly.

Prevention/Avoidance

- Frequent, early positive exposure to novel places and things during the first months of life may be protective against later developing fear- or anxiety-based reactions.
- Calm interactions and positive associations with fear-producing stimuli may keep fear-based reactions to a minimum.

Possible Complications

- Relapse possible if animal experiences another frightening event associated with the stimulus
- Unacceptable drug side effects
- Fear aggression or redirected aggression

Expected Course and Prognosis

- Improvement is probable, but total resolution is less likely.
- Long-standing problems may be resistant to intervention.
- In situations where the anxiety-provoking stimulus cannot be avoided may only achieve moderate improvement.
- Medication may help improve response to behavior modification but is unlikely to totally ameliorate signs.
- Relapse may occur if animal experiences a negative event associated with the trigger stimulus.

See Also

Chapter 11, Aggression/Canine: redirected

Chapter 19, Aggression/Feline: redirected

Chapter 24, Anxiety Disorders: general overview canine and feline

Abbreviations

CBC—complete blood count

CCDS—counterconditioning and systematic desensitization

DAP—Dog Appeasing Pheromone[®]

GABA—gamma-amino butyric acid

h—hour

HPA—hypothalamic–pituitary–adrenal

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

q—every

SSRI—selective serotonin reuptake inhibitor

TCA—tricyclic antidepressant

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 227–268.

Neilson, Jacqueline C. 2002. Fear of places and things In: *BSAVA Manual of Canine and Feline Behavioural Medicine* edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 173–180.



Fear of the Outdoors: canine



DEFINITION/OVERVIEW

Fear is an emotional response that generally allows animals to avoid dangerous or harmful situations and activities. Since fearful responses are part of normal behavior and at times can be an adaptive response; when, where, and the intensity of the response determines whether response is abnormal or inappropriate. The intensity of the response in relation to the perceived or actual proximity of the stimulus may help determine if the individual reaction is normal or abnormal. Fearful responses may vary across situations and within a certain situation. Most fearful reactions develop slowly over time, but they can occur as a result of one extremely intense experience. Because most fearful responses are learned, gradual and controlled exposure may help animals learn new associations. If the behavior is extreme and with a sudden onset, it may be a phobia. Fear of the outdoors is most often associated with noises (e.g., thunderstorms or firecrackers) and weather, although it can occur with locations, people, or other animals.



ETIOLOGY/PATHOPHYSIOLOGY

- The fear responses involve several areas of the brain including the locus ceruleus, amygdala, the lateral nucleus, and the hippocampus. (See Chapter 24, Anxiety Disorders: general overview canine and feline for additional details.)
- In a fear response, activation of the autonomic nervous system occurs, resulting in an increase in heart rate, blood pressure, respiratory rate, and overall metabolism. These serve to prepare the animal to deal with the fearful stimuli.
- Whether or not an animal responds to a given stimuli with a fear response may be due to genetic influences, early experiences, socialization, and previous learned responses.



SIGNALMENT/HISTORY

- No age, sex, or breed predilection is noted.

Historical Findings

- May present as unwillingness to go outside, can be localized to certain situations, locations, doorways, or time of day

- May present as a house soiling problem
- Shows signs consistent with fear when encouraged to go outdoors or when outdoors; some or all of these signs may be present:
 - Escape/hiding behavior
 - Aggression usually associated with trying to force dog outside
 - Lip licking
 - Yawning
 - Trembling
 - Panting
 - Crouching
 - Freezing

Contributing/Risk Factors

- Limited experience as a young animal
- Traumatic events associated with the outdoors
 - May continue even if inciting event is no longer present
- Loud noises, other animals, or people in the vicinity, inclement weather, and construction machinery are often found to be triggers for many dogs.
- The fear may be associated with noise phobias or separation anxiety.
- Fearful responses may have arisen from a single extremely fear-inducing experience such as unexpected pain, punishment, or an unfamiliar experience or a fearful/painful experience, without the opportunity to escape, that occurred outdoors.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - Does the behavior occur with all family members or just certain ones?
- What is the daily routine, including feeding, training, exercise, and play?
 - What is the pet's reaction to owner departure? Are there any signs of separation distress? Pet unwillingness to go outdoors prior to departure may be associated with separation distress and not a fear of outdoors.
- What were the onset, duration, and progression of the problem behavior?
 - Behaviors of long duration are more difficult to change.
- Obtain a clear description of the pet's body language and behavior, which should be consistent with fear.
 - Fearful or submissive body postures/facial expression (head down, crouching, backing away, ears back, tail tucked, looking away, lip licking).
 - Mild fears may show trembling, tail tucked, withdrawal, hiding or reduced activity, and passive escape behaviors.
 - In intense fear or panic, the pet may show active escape behavior with an increased, out-of-context, and potentially injurious motor activity.
 - Aggressive responses may be possible if the owner persists in forcing the animal outside.

- Can the owner associate a specific event or situation that occurred near the onset of the behavior that might be the trigger?
- Has the behavior response generalized to events that proceed going outside, such as getting the leash, approaching the pet, etc?
- Careful questioning should seek information on any events or situations that consistently trigger anxiety or fear.
 - Information about specific triggers associated with the fearful behavior is helpful in setting up a behavioral modification program.
- An attempt should be made to “grade” the response over a number of circumstances including but not limited to time of day, light versus darkness, person taking the dog outside, walks versus the back yard, places away from home such as the park, people present when the behavior occurs, other animals present, etc.
- Several episodes should be described in detail to help ascertain triggers, and owner and pet responses.
 - Is the behavior limited to attempting to get the dog outdoors, but once outside the dog appears to be normal?
 - If the dog shows fearful responses to being outside, how long after returning indoors does the dog return to a normal demeanor?
- Is house soiling a sequel to the fear of the outdoors?
 - If not, when does the pet eliminate and does the pet ask to go outside if it needs to eliminate?



DIFFERENTIAL DIAGNOSIS

- Fear of collar/leash application: Some dogs may show a fear of the preparation procedures for going outside, such as harness application, leash application, etc., but be fine when actually outside.
- Anxiety about destination: Some dogs may show fear until the destination of their outdoor event is clear. Some dogs are fearful of car rides and may show fear until it is clear that they are not going to be taken in the car.
- Some dogs may show an unwillingness to cross the threshold but be fine when outside. This is not a fear of the outdoors.
- Storm phobia: Some dogs have a fear of the outdoors only when the weather is stormy.
- Musculoskeletal disease: Walks are painful/difficult.
- In other cases, the problem is with the access route, stairs, or passing other animals on the way outside and not actually a problem being outdoors.
- Any metabolic, neurological, infectious, or degenerative condition that alters mentation may cause nonspecific fears and anxieties.
- Rule out conditions that cause similar behavioral changes such as seizures, brain disease, metabolic disease (e.g., thyroid or adrenal).
- Any illness or painful physical condition increases anxiety and contributes to the development of fears, phobias, and anxieties.
- Determine if separation anxiety or noise phobias are contributory. If so, these conditions must also be treated.

- Determine if cognitive decline/dysfunction is contributory in senior pets. (See Chapter 28, Cognitive Dysfunction: canine and feline.)



DIAGNOSTICS

- Laboratory testing may be indicated by information obtained in the history and physical examination. Imaging of the brain or other body organs may be indicated if history, physical, and laboratory tests strongly suggest an organic cause for the pet's behavior.
- Take radiographs of the skeletal system if pain is suspected.
- Limited evidence suggests an association between fear-based behaviors and low thyroid levels. Testing may be appropriate in some cases.

Pathological Findings

- CBC, serum chemistries, and urinalysis should be normal, but perform these tests before initiating drug treatment.



THERAPEUTICS

Behavioral Modification Techniques

- Identify the specific stimulus that provokes the fearful behavior; noises outside, people outside (children, adults), animals nearby, construction noise, airplanes, inclement weather, etc.
 - If the pet has begun to associate other signals such as the leash or a key phrase with going outdoors, these must be included in the treatment process.
- If all outdoor exposure is fearful for the pet, then drug therapy is usually indicated since it is difficult to avoid all outdoor activity, especially if trying to maintain house training.
 - Providing an acceptable indoor elimination alternative is an option for dogs that are too frightened to go outside to eliminate.
- All punishment and reprimands must be stopped and avoided; these will usually tend to increase, rather than decrease fear reactions.
- A primary goal should be to teach the pet to relax and be calm to a verbal command. (See the Tranquility Training Exercises handout.)
 - The pet should be taught to relax in a variety of environmental settings beginning with those that are unlikely to evoke a fearful response. Use of a key phrase and a specific location like a mat or bed can help.
 - This must be associated with physical and behavioral signs of relaxation such as relaxed body postures and facial expressions, calm respiration, and lack of sympathetic stimulation such as dilated pupils.
- If alternate routes or time of day make it easier to get the pet outside, those should be utilized.
 - The pet should only be taken outdoors to meet bodily elimination needs. Try to find the least fearful situation in which to accomplish this.

- Taking the pet out another doorway or utilizing a different leash may be useful.
- In some cases, driving the dog to a different location may help.
- If a walk is an anxiety-producing event, these walks must be stopped.
- CCDS to specific fear-provoking stimuli is the primary treatment regime.
 - A stimulus gradient must be established, from the stimuli least likely to cause the fearful response to those most likely to cause a response. Be sure to use defining characteristics such as distance from home, location, time of day, etc.
 - A gradient for reinforcement must also be established, such as what rewards will the pet work for best? Favored rewards are then reserved for training sessions only.
 - Once the dog has established calm, relaxed behavior in response to a verbal cue from the owner, the dog can be exposed in short sessions to the fear-evoking outdoors in a modified way so that the fear response is absent. For example, for an animal with fear that increases with distance from home, start by taking out to front yard for 1 minute and utilizing the verbal cue for relaxation and reward if dog is calm, relaxed, and obedient (counterconditioning). If the dog has been trained to relax on a mat, it may be helpful to bring that mat outside and have the dog sit on the mat. With success, both gradually increase the time spent outside and the distance from the house until the dog is comfortable when on a routine outing.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Medication can be a helpful adjunct to behavioral modification, if the animal's fearful or anxious behavior is so intense that it interferes with learning or other normal behavioral activities.
- Drug classes that increase the available amount of the neurotransmitters serotonin and GABA in the CNS appear to be most useful.
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - Indicated for situations where there is unavoidable, prolonged exposure to trigger stimulus
 - To be given on a daily schedule regardless of exposure to trigger stimuli
 - May take up to 4 weeks to achieve efficacy

- To be continued for several months until the client has successfully completed the treatment regime and the pet has new well-established, desirable behaviors
 - TCAs: Side effects: sedation, anticholinergic, possible cardiac conduction disturbances if predisposed
 - Amitriptyline: 1–2 mg/kg q12h
 - Clomipramine: 1–2 mg/kg q12h
- SSRIs: Side effects: inappetence, irritability, gastrointestinal signs
 - Fluoxetine: 0.5–1.0 mg/kg q24h
 - Paroxetine: 0.5–1.0 mg/kg q24h
- Benzodiazepines: episodic, acute, short-acting, anxiolytic medications; enhance GABA
 - These drugs are to be given approximately 30–60 minutes prior to anticipated event.
 - Anticipate 3–6 hours of anxiolytic benefits.
 - Undesirable side effects may include sedation and disinhibition of aggression.
 - Regular use may result in dependence and tolerance.
 - Paradoxical reaction (increased agitation, anxiety) can occur in a small percentage of animals.
 - Examples of benzodiazepines and doses:
 - Diazepam: 0.5–2.0 mg/kg q6h
 - Alprazolam: 0.02–0.1 mg/kg q6–8h
 - Clorazepate: 0.55–2.2 mg/kg q8–24h

Contraindications/Precautions

- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately. A minimum database should include a complete blood count, chemistry panel, and thyroid evaluation.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.

- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs; if combination treatment is warranted, use lower dosages.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Alternative Drugs

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone[®]): synthetic analogue of the pheromone produced by lactating bitches; may calm some dogs and decrease anxiety. Available as a diffuser, spray, and collar; diffuser may have little benefit as it cannot be used outdoors.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.



COMMENTS

Client Education

- Unwillingness to go outdoors can be very frustrating for pet owners especially if it results in house soiling.
- Care must be taken to set up realistic expectations for improvement and a realistic time frame for behavioral changes to occur; these will vary based upon duration of problem, severity of signs, and specific triggers.
- A realistic “end point” would depend on the animal’s background (socialization history, genetic, and individual differences in personality), the home situation, and other confounding factors such as the frequency of natural exposure to fear-producing stimuli.

Patient Monitoring

- Frequent follow-up either in person or by telephone is necessary especially during the first few months of treatment, in order to motivate the client and monitor the effectiveness of any adjunct drug treatment.

- Good record keeping allows accurate assessment of improvement since change may be very slow.
- With chronic drug treatment, a CBC, chemistry, and urinalysis, may be prudent annually for young patients, and semiannually for old patients; adjust dosages accordingly.

Prevention/Avoidance

- Frequent early exposure to new and novel places, and things during the first 4–16 weeks for dogs may be helpful in avoiding later fear-based reactions. Continued exposure throughout the first year of life may also be helpful.
- Calm interactions and positive associations with fear-producing stimuli may keep fear-based reactions to a minimum.
- Monitoring situations prior to placing the dog into them may help if the dog has a known tendency for fearful and anxiety-based responses to situations or events.

Possible Complications

- Fear-based reactions when left untreated may interfere with the quality of life for the pet.
- If the pet will not go outdoors, house soiling is possible.
- Even with resolution of the fear of the outdoors, the house soiling may persist and require further behavioral intervention.

Expected Course and Prognosis

- The earlier the onset of treatment, the better the prognosis.
- Some animals may improve and show near normal behavior while others may always show fear-based responses in all or some situations.
- Relapses are likely to occur especially when unexpected encounters with inciting stimuli occur.
- Spontaneous return of symptoms may occur and necessitate reevaluation of the pet and perhaps different treatment modalities.
- If the problem is also associated with other conditions such as separation anxiety or noise or storm phobias, treatment of those concurrent conditions improves the prognosis. Conversely, if those conditions are not treated, the fear of outdoors may not resolve.

Pregnancy

Bitches who have newly whelped may be unwilling to leave the puppies, but this generally resolves over time.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 28, Cognitive Dysfunction: canine and feline

Chapter 36, Fireworks Phobia
Chapter 40, House Soiling: canine
Chapter 50, Noise Phobia: canine and feline
Chapter 60, Thunderstorm Phobia

Abbreviations

CBC—complete blood count
CCDS—counterconditioning and systematic desensitization
DAP—Dog Appeasing Pheromone[®]
GABA—gamma-amino butyric acid
h—hour
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
q—every
SSRI—selective serotonin reuptake inhibitor
TCA—tricyclic antidepressant

Suggested Reading

- Casey, Rachel. 2002. Fear and Stress In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 144–153.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat* 2nd edition, Philadelphia: Elsevier, pp. 227–268.
- Neilson, Jacqui C. 2002. Fear of Places and Things In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 173–180.

Fireworks Phobia



DEFINITION/OVERVIEW

Fear is a normal emotion that protects against danger. Mild to moderate fear of loud, unexpected noises and flashing lights (e.g., fireworks) may be a normal, adaptive response in animals. In a normal animal, a quick recovery and habituation to the fireworks would be expected if nothing untoward occurred in association with the fireworks.

A phobia is defined as a persistent and excessive fear of some stimulus that is out of proportion to the threat it may present. Fireworks phobia is a specific type of noise phobia. A fearful reaction to fireworks most likely originally stems from the loud and unusual noises that they make; however, other aspects of the fireworks experience (flashing lights, smoke) may become associated with the noise and trigger the anxious response independent of the sound cue. Animals that respond negatively to fireworks span the spectrum from a mild anxiety to a profoundly anxious state perhaps even becoming manic or catatonic. While technically “phobic” describes the most severely affected animals, various levels of problematic responses to fireworks will be considered in this chapter.



ETIOLOGY/PATHOPHYSIOLOGY

- When frightened, the sympathetic branch of the autonomic nervous system is activated initiating a cascade of physiological events associated with epinephrine release from the adrenal medulla; classically known as the “fight or flight” survival response.
- Systems affected may include:
 - Behavioral: hypervigilance, avoidance behaviors, possible aggression if handling or restraint attempted
 - Cardiovascular: tachycardia
 - Endocrine/Metabolic: alterations in the HPA axis; release of glucocorticoids; glucose release into the bloodstream
 - Gastrointestinal: inappetence; aberrant appetite; gastrointestinal distress (salivation, vomiting, diarrhea, tenesmus, hematochezia)
 - Nervous: increased motor activity; repetitive activity; trembling; self-injury
 - Musculoskeletal: weight loss over time as response to chronic stress effects on appetite, decreased food intake due to hiding behavior; poor condition

- attributable to increased motor activity and self-injury (weight loss, injured pads, damage to teeth and gums, and abrasions and lacerations)
- Ophthalmic: dilated pupils in response to autonomic nervous system stimulation
 - Respiratory: tachypnea and the attendant metabolic changes
 - Skin/Exocrine: lesions, usually secondary to self-injury (lick granulomas); excessive shedding
- Pathology is unknown in animals that develop an excessive fear or phobic reaction to fireworks.
- Suspected areas of abnormalities include:
 - Neurotransmitter (e.g., serotonin, norepinephrine, GABA) abnormalities
 - Overactive locus ceruleus in the brain stem
 - Malfunctioning amygdala
 - Hippocampal atrophy
 - Genetics may influence auditory sensitivity.
 - Inadequate exposure to noises during early development may play a role in development of fireworks phobia.
 - A learned aversion due to a particularly traumatic or aversive fireworks experience may cause the phobia.
 - A learned behavior due to owner response may play a role in the phobia:
 - If the owner attempts to comfort a slightly anxious animal, this may be misinterpreted as praise by the animal and actually encourage anxious behavioral patterns.
 - If the owner punishes an anxious animal, this may increase the fear.
 - Hypothyroidism has been proposed to be associated with the development of fearful/phobic responses; however, significant data is lacking.



SIGNALMENT/HISTORY

- Any age, gender, or breed can exhibit fireworks phobia.
- Breed: Sensitive canine breeds may include shepherds, collies, and other herding dogs.
 - Certain lines of dogs may be considered “noise sensitive” or “noise stable.”
 - Age: Adolescent and elderly animals may be more susceptible.

Historical Findings

- Fireworks trigger a cascade of nonspecific signs of anxiety including, but not limited to, the following:
- Salivation
 - Defecation
 - Urination
 - Destruction

- Vocalization
- Trembling
- Escape attempts
- Increased or decreased locomotor activity (e.g., pacing or frozen)
- Hiding
- Increased vigilance/scanning
- Vomiting
- Animal may become fearful of events that proceed or overlap the fireworks.
 - For example, nightfall may trigger an anxious response since it is often paired with the onset of fireworks.

Dogs

- High variability of signs can occur between individuals.
 - Owners are usually most concerned about the more active response, such as destruction, vocalization, escape behavior, pacing, elimination, etc.
 - Passive behaviors such as a catatonic state, withdrawal, hiding, hypersalivation may be overlooked by owners, however are consistent with an anxious state and may impact the animal's welfare.

Cats

- Hiding and escape behaviors are more typical for cats.
 - May not be noted by owners unless severe
- This phobia may trigger secondary problems such as:
 - urine marking
 - toileting problems
 - redirected aggression

Contributing/Risk Factors

- Presence of other phobias such as separation anxiety or thunderstorm phobia
- The effects of sensory deprivation during developmental stages unknown but may contribute to development of problems
- Noise sensitive breeds or lineages
- Exposure to fireworks
- Cognitive changes that may also cause anxiety in certain animals

Pertinent Historical Questions

- Inquire and confirm that fireworks trigger the fearful response.
 - If the dog acts fearful at other times, it may have a comorbid anxiety diagnosis or be suffering from another condition.
 - The clinician should pursue, identify, and treat all anxiety-related conditions.
- Determine the onset and duration of fearful response to fireworks.
 - Recent studies suggest that duration of the fireworks phobia does not influence treatment success, although anecdotal reports suggest otherwise.

- Gather detailed descriptions of the pet's behavior during the most recent fireworks episode.
 - Confirm that the clinical signs are truly phobic.
 - Recognize that the affected animals may show active or passive behavior, but the response is sudden and profound.
 - Identification of individual responses will help to target management.
- Gather descriptions of pet's typical response to fireworks and ask if there have been any changes in response over time.
 - Phobic animals generally develop an unvarying pattern of response.
- Ask owners how they respond to the fearful pet during an episode.
 - This will help to identify inappropriate responses.
- Establish time lapse to recovery for the pet.
 - This will allow the clinician to assess progress; a quicker recovery time suggests improvement.
- Identify the owner's ability to control the pet's exposure to fireworks.
 - Treatment will require avoidance of fireworks for a period of time or the ability to provide an environment to mute the noises and hopefully the response.



DIFFERENTIAL DIAGNOSIS

- Diagnosis includes any condition with nonspecific signs of anxiety.
- The decisive diagnostic factor is that fireworks trigger the phobic response/undesirable behavior.
- If inappropriate urination or defecation is part of the clinical presentation, then differentials for those must be considered that include:
 - Gastrointestinal disease
 - Parasitism
 - Upper or lower urinary tract disease
 - Incomplete house training
 - Litter box aversion
 - Endocrinopathy resulting in polyuria/polydypsia

Dogs

- Separation anxiety
- Other noise phobias
- Claustrophobia (barrier frustration)
- Fear of people, places, animals
- Play/exploration
 - May result in destructive behavior that owners mistakenly attribute to an anxiety-related condition, especially if they did not witness the event
- Territorial aggression
 - May result in destructive behavior at barriers and vocalization that owners mistakenly attribute to an anxiety-related condition, especially if they did not witness the event
- Acute or chronic painful conditions

- Auditory sensory changes
- Cognitive dysfunction syndrome

Cats

- Separation anxiety
- Other noise phobias
- Fear of people, places, animals
- Chronic or acute painful conditions
- Metabolic diseases
- Cognitive dysfunction syndrome
- Urine marking
- Social issues between household cats



DIAGNOSTICS

- Historical information is usually adequate to make a presumptive diagnosis of fireworks phobia.
- Physical and neurological examinations should be conducted.
- CBC, chemistry panel, and thyroid testing is indicated to rule out metabolic causes for nonspecific signs or if drug therapy is to be considered.



THERAPEUTICS

Safety

- The pet may injure itself or others if engaged in a phobic state; prevent by management.
- Avoid restraining very fearful animals as they may show defensive aggression.

Management

- In some cases, avoidance of fireworks is feasible and curative.
 - For situations with very predictable and defined fireworks events, remove the pet from that location during the event.
 - Provide pet with a sound-insulated area to retreat to during fireworks.
 - Create background noise (rap music) to mask loud bangs.
- Never leave an anxious pet alone during anticipated fireworks events.
- Never leave a pet outside during anticipated fireworks events.
- Avoid crates unless already comfortable in them; intense destructive escape attempts are possible and may be injurious to the pet.

Behavioral Modification Techniques

- Prior to beginning a treatment program, establishing a reward gradient for the pet is useful.
 - This is usually food rewards, but can be play or attention.

- The reward must be highly valued and reserved for training sessions only.
- Use of the reward at other times may diminish its value for training in stressful situations.
- Teaching the dog to settle and relax on a verbal command is useful. (See the Tranquility Training Exercises handout.)
 - Creating a designated location for relaxation using a mat or bed is useful.
 - This allows a “mobile” calming spot for the dog, which can be taken to other places or used at other times.
- Systematic Desensitization:
 - Avoid exposure to fireworks unless it is part of the controlled training program.
 - Have owners purchase a commercially recorded soundtrack of fireworks.
 - Establish intensity/volume of fireworks that is necessary to evoke fear response.
 - Play recorded fireworks at a level below that which triggers the fear response for 3–5 minutes; the pet should show no signs of anxiety, fear, or agitation.
 - If the pet reacts with anxiety, fear, or agitation, lower the volume until the pet is comfortable.
 - It is preferable for the pet owner to expose the pet to the sound CD for multiple, short (3–5 minute) training periods spaced throughout the day instead of one long (30-minute) training period.
 - With success, gradually increase the volume until the pet is nonreactive at full volume.
- Counterconditioning
 - Pair the recorded fireworks with a pleasurable activity for the pet such as eating or playing.
 - Play the CD, and when sounds first occur, engage the animal in a pleasurable activity (provide with food, engage in play).
 - As the pet is eating or playing, continue to have the CD running.
 - If the pet shows signs of anxiety, fear, or agitation, then the volume is too high. Return to a lower volume and proceed more gradually.

Accompanying Handouts

Counterconditioning and Desensitization: the details

Managing Noise and Storm Phobias

Tranquility Training Exercises

Using Classical Conditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Pharmacological intervention targeted at the neurotransmitters involved in anxiety and fear responses may be helpful. Involved neurotransmitters include:
 - Serotonin
 - Norepinephrine

- Dopamine
- GABA
- Benzodiazepines: episodic, acute, short-acting, anxiolytic medications; enhance GABA
 - Give approximately 1 hour prior to anticipated fireworks event.
 - Anticipate 3–6 hours of anxiolytic benefits.
 - Undesirable side effects may include sedation, ataxia, and disinhibition of aggression.
 - Regular use may result in dependence and tolerance.
 - Paradoxical reaction (increased agitation, anxiety) can occur in a small percentage of animals.
 - Diazepam is associated with acute liver failure in a small percentage of cats.
 - Examples of benzodiazepines and doses:
 - Diazepam
 - Canine: 0.5–2.0 mg/kg q6h
 - Feline: 0.2–0.5 mg/kg q8–12h
 - Alprazolam
 - Canine: 0.02–0.1 mg/kg q6–8h
 - Feline: 0.02–0.05 mg/kg q8–24h
 - Clorazepate
 - Canine: 0.55–2.2 mg/kg q8–24h
 - Feline: 0.2–0.5 mg/kg q12–24h
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - Indicated for situations where there is unavoidable prolonged exposure to fireworks or comorbid diagnosis of other anxiety-related conditions.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - To be given on a daily schedule regardless of fireworks exposure.
 - Not suitable on an “as needed basis”: may take 2–4 weeks to achieve efficacy.
 - To be continued throughout fireworks season and/or completion of treatment regime.
 - In healthy animals, side effects from SSRIs and TCAs are usually mild and resolve within a week of treatment initiation, if they occur at all; a reduced appetite and sedation are the most common side effects noted by owners.
 - Can be used in combination with a benzodiazepine to achieve sufficient anxiolytic effects during a fireworks event.
 - Examples:
 - Fluoxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.5–2.0 mg/kg q24h
 - Paroxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h

- Sertraline
 - Canine: 1–3 mg/kg q24h
 - Feline: 0.5 mg/kg q24h
- Clomipramine
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
- Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
- Selegiline (Anipryl®)
 - Canine: 0.5–1.0 mg/kg q24h in the morning
 - Feline: 0.5–1.0 mg/kg q24h in the morning
- Buspirone
 - Canine: 1–2 mg/kg q8–24h
 - Feline: 0.5–1.0 mg/kg q8–24h
- Dopaminergic agents
 - Dopamine blockers include the phenothiazines such as acepromazine; although widely used in the veterinary profession, this class of drugs is not recommended as a standard course of treatment for noise phobias as their primary effect is to render the animal physically unable to respond but do not address the problematic anxiety.

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®) is shown to be efficacious in reducing signs of fireworks phobias in dogs.
 - Plug diffuser into the environment 2 weeks prior to anticipated fireworks; have diffuser running throughout fireworks period.
 - Spray may be useful in the safe location.
 - DAP collars may help for dogs that must be transported during that time.
- Feliway® pheromone diffuser may have general anxiolytic properties for cats.
- Acupuncture
- Anxiety wrap
- Various homeopathic and naturopathic remedies have been promoted as treatments but rigorous scientific data on efficacy are lacking.

Contraindications/Precautions

- Do not punish an animal for fearful behavior as this is likely to aggravate the condition.
- Do not comfort an animal for fearful behavior as this may inadvertently reinforce the undesirable outward behaviors.
- No drugs are currently labeled by the FDA to treat noise phobias.
- Avoid use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities as these drugs may potentiate preexisting cardiac conduction problems.

- Paradoxical reactions and unacceptable side effects to the medications are possible; monitor response closely.
- Serotonergic or dopaminergic medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) (tick collars) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances in people and pets leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs; if combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Surgical Considerations

- Surgical intervention is not a standard treatment for fear-based conditions.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Clients should be made aware that CCDS to a sound recording of fireworks may not translate into full resolution of real fireworks noises.
- Clients should be discouraged from bringing pets along with them to fireworks displays.

- Clients with new pets should attempt to stay at home during fireworks events to assess the pets' response.
- Affected pets should be supervised during fireworks periods.
- Escape behavior associated with fireworks phobias results in missing pets; pets should be safely contained during anticipated fireworks periods.
 - Dogs that are not comfortable in crates or kennels may severely injure themselves during fireworks if they attempt to escape and therefore confinement without pretraining may not be suitable for these pets.

Patient Monitoring

- Regular follow-up contact should be made throughout the treatment period.
- If on prolonged drug therapy, annual or semiannual physical examination and blood work should be performed.

Prevention/Avoidance

- Puppies should be exposed to a variety of stimuli, including noises, at safe levels for habituation.
- Avoid placing animals in situations that may result in a traumatic experience. As a general rule, pets should not be taken to fireworks displays.
- Supervision, noise reduction, and distraction should be attempted during fireworks events.

Possible Complications

- Despite a successful treatment program, the pet may relapse if it experiences a traumatic/aversive fireworks event.
- Since fireworks displays tend to occur sporadically, training exposure may need to be periodically revisited to prevent resensitization between natural exposures.

Expected Course and Prognosis

- A CCDS program may take several weeks or months to complete.
- Severely phobic animals are likely to relapse.
- Supervision during fireworks periods is recommended for pets that experienced fireworks phobias.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 50, Noise Phobia: canine and feline

Abbreviations

CD—compact disc
CCDS—counterconditioning and systematic desensitization
CNS—central nervous system

DAP—Dog Appeasing Pheromone®
FDA—Food and Drug Administration
GABA—gamma-amino butyric acid
h—hour
HPA—hypothalamic–pituitary–adrenal
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
q—every
SSRI—selective serotonin reuptake inhibitors
TCA—tricyclic antidepressants

Suggested Reading

- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition Philadelphia: Saunders, pp. 227–268.
- Overall, Karen L. 2002. Noise Phobias in Dogs In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath. Gloucester: BSAVA, pp. 164–172.



Flank Sucking



DEFINITION/OVERVIEW

Flank sucking is primarily a disorder noted in the Doberman pinscher. These dogs will curl up on their side and grab a portion of the flank in their mouth and suck or nurse the area. Often no skin lesions are noted, but raw or irritated patches are possible. In some cases, it is thought to be a calming ritual for the pet. If the flank sucking is sufficiently pronounced so that it interferes with the pet's normal functioning or social relationships, it may be considered a compulsive disorder.



ETIOLOGY/PATHOPHYSIOLOGY

- Since the problem is seen most commonly in one breed, a heritable component is suspected.
- Pathophysiology of compulsive disorders is not well understood. Studies on the effects of drugs on the performance of compulsive disorders have implicated various neurotransmitters. The use of drugs inhibiting serotonin reuptake has been successful in the treatment of compulsive disorders in dogs implying that serotonin is somehow involved in canine compulsive disorders. (See Chapter 29, Compulsive Disorder: canine and feline overview for more information.)
- Environmental factors related to stress, frustration, or conflict might incite flank-sucking behavior. Perhaps the animal is motivated to perform another behavior but is prevented from doing so. Or the animal has two competing motivations in a situation such as approach and withdrawal. Unpredictable environments may be contributory or the problem can occur with other anxiety disorders such as separation anxiety.
- A physical stimulus such as a skin lesion at the site of licking and chewing; this is usually not a factor in flank sucking.
- Conditioning by owner attention and/or reinforcement of the behavior may be a factor.



SIGNALMENT/HISTORY

- Breed: Flank sucking is usually seen in Doberman pinschers.
- Age/Gender: No age or gender predilection has been noted.

Historical Findings

- The dog will curl their head around to their side and grab a portion of the flank in their mouth and suck or nurse the area.
- The flank sucking may be in response to a specific trigger or may be a more generalized activity.
- Damage to the epidermis is usually absent.
- Targeted area often shows no epidermal lesions.
- Skin and hair coat may be affected due to repeated sucking behavior.
- Flank sucking may occur when the owner is present and when the owner is absent.

Contributing/Risk Factors

- Doberman pinscher
- Environmental stress, conflict, or frustration
- Impoverished environment
- Concurrent anxiety disorders such as separation anxiety
- Inadvertent owner reinforcement of flank sucking behavior

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
- What is the daily routine, including feeding, training, exercise, and play?
- Determine the source of the pet, age at acquisition, and whether any known relative exhibits the condition.
- Does the pet show extreme reactions to noises, storms or fireworks, or owner departure?
- What is the duration and progression of the problem behavior?
 - What was the age of onset and were there any changes at that time?
 - What is the frequency and duration of the bouts?
 - Have the contexts for the behavior changed over time?
- Obtain an accurate description of the behavioral sequence.
 - Can the owner identify specific situations or triggers or time of day for the behavior?
 - What happens just prior and just after the flank sucking episodes and who is present?
 - How much time is spent engaging in the flank sucking behavior?
 - What is the owner response when the dog begins to flank suck?
 - Can the owner interrupt and/or redirect the dog to another activity while the dog is engaged in the behavior?
 - Does it appear the behavior occurs when the pet is alone? If so, pertinent questions regarding separation anxiety are warranted. (See Chapter 56, Separation Anxiety: canine and feline.)
- What has been done to try and change the behavior in the past?
 - Has the dog shown any response to previous interventions?
 - Have any medications be utilized?



DIFFERENTIAL DIAGNOSIS

- Dermatological conditions, including fungal, bacterial, and parasitic infections
- Psychomotor epilepsy
- Central brain lesions
- Sensory neuropathies
- Attention-seeking behavior
- Compulsive disorder



DIAGNOSTICS

- Minimum database should include a physical examination, neurological examination, complete blood count, chemistry profile, thyroid profile, and urinalysis.
- Dermatological tests should be performed as needed to rule out primary or secondary dermatological disease.



THERAPEUTICS

- In cases where the behavior does not interfere with function or cause the pet or owner problems, no intervention may be warranted.

Behavioral Modification Techniques

- Behavior therapy is based on the assumption that the behavior is a compulsive disorder and is potentially related to conflict, frustration, and stress in the pet's environment.
- Identify and remove triggers if known, although they are often difficult to identify in oral compulsive disorders.
- Reduce stress by creating a predictable environment for the pet.
 - Allow adequate opportunity for social interactions, play, and exploration.
- Stop all punishment for the behavior.
- Stop all comforting of the behavior.
- Change the pet-owner interaction to be more predictable and based on a command-response relationship. Use reward-based training to teach the dog to obey commands in daily situations. (See the Structuring Your Relationship with Your Pet handout in Appendix D.)
- Provide sufficient daily exercise and interesting toys that are rotated on a regular basis. Food stuffed toys may be preferred by some dogs, but the important thing is to meet each individual dog's needs.

- Use CCDS to triggering situations if these can be identified.
- Teach the dog to settle and relax on a verbal command. (See the Tranquility Training Exercises handout.) Once established, this cue can be given to redirect the dog when it engages in flank sucking.
- Teach a competing response when the dog engages in the flank sucking such as sit, get a toy, or perform a trick.
 - In some cases, headcollars (e.g., Gentle Leader®), which allow control of the muzzle and face, may be useful to interrupt the behavior and redirect the dog to other activities.
- If separation anxiety is a component of the behavior, institute standard treatment protocols. (See Chapter 56, Separation Anxiety: canine and feline.)

Accompanying Handouts

Acute Management of Problem Behavior
 Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- In cases where a compulsive component is suspected, medication may be indicated as it can help facilitate the treatment program.
- Medication is used for at least 4 weeks after an effect is noted, and then a gradual weaning off medication is attempted. If the behavior reoccurs during the weaning off procedure, the previous dose is reinstated.
- Serotonergic medications are most often used because of their continuous, chronic, long-acting anxiolytic effects.
- Medication is to be given on a daily schedule regardless of exposure to trigger stimuli.
 - May take up to 4 weeks to achieve efficacy
 - To be continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response
 - Clomipramine: 2–4 mg/kg q12–24h
 - Beginning dosage at the low level for 2 weeks; if no effect is noted, increase the dose for another 2 weeks.
 - Side effects: sedation, anticholinergic effects, and cardiac conduction disturbances if predisposed. There are label restrictions on use in aggression.
 - Fluoxetine: 0.5–2.0 mg/kg q24h
 - Side effects: inappetence and irritability, gastrointestinal signs, and increased agitation

Contraindications/Precautions

- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use; therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately. A minimum database should include a complete blood count, chemistry panel, and thyroid evaluation.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban[®]) and selegiline (Anipryl[®]).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Other Treatments

- In anxiety conditions, a canine pheromone product (e.g., DAP—dog appeasing pheromone[®]) diffuser or collar may be a useful adjunctive approach.
- Various homeopathic remedies may be useful, but no studies exist to support dosages or treatment length.

Surgical Considerations

- There are no standard surgical procedures recommended to treat this compulsive disorder.

- Since these animals may harbor a genetic predisposition for compulsive behavior, these animals should be neutered.



COMMENTS

- Often the only reason owners seek help is when the pet engages in the behavior excessively or causes skin lesions.
- Unless the problem interferes with the animal's ability to function and interact with family members, no help may be sought.
- In some cases, the behavior may serve to calm the dog and decrease stress.

Client Education

- Clients should be informed that in some cases compulsive disorders may require lifelong treatment.
- Accurate record keeping may help assess treatment success.

Patient Monitoring

- Have client keep daily and/or weekly logs of the occurrence of the flank sucking behavior including duration and frequencies. This will allow for accurate understanding of behavioral change.
- Initially weekly or biweekly follow-up is desirable to manage the treatment program and response to medication.
- Pets on long term medication should have semi-yearly or yearly blood work performed.

Prevention/Avoidance

- In some cases, flank sucking may be a calming/coping strategy and if not performed excessively may not need intervention.
- However, it may be an indication of lack of appropriate social, environmental, and play activities, which should be addressed.
- Predictable interactions and environments may help prevent increasing frequency of the behavior.

Possible Complications

- If left unregulated, the flank sucking may become a compulsive disorder or result in skin irritation or lesions.

Expected Course and Prognosis

- In a study at Ontario Veterinary College, two-thirds of owners were satisfied with the outcome of treatment for a compulsive disorder when they followed recommendations.

- Outcome was negatively affected by duration of the problem; therefore, early intervention is important.
- If no improvement is seen after 4 weeks, the diagnosis, treatment plan, and owner compliance should be reevaluated.

See Also

Chapter 29, Compulsive Disorder: canine and feline overview

Chapter 56, Separation Anxiety: canine and feline

Abbreviations

CCDS—counterconditioning and systematic desensitization

CNS—central nervous system

DAP—Dog Appeasing Pheromone®

FDA—Food and Drug Administration

h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

q—every

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

Suggested Reading

Hewson, C.J., U.A. Luescher, J.M. Parent, et al. 1998. Efficacy of clomipromine in the treatment of canine compulsive disorders In: *J Am Vet Med Assoc*; 213: pp. 1760–1766.

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*, Philadelphia: Elsevier, pp. 195–226.

Luescher U.A., D.B. McKeown, and J. Halip. 1991. Stereotypic or obsessive-compulsive disorders in dogs and cats In: *Vet Clin North Am Small Anim Pract*, 21: pp. 401–414.

Luescher, Andrew U. 2002. Compulsive behaviour In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 229–236.

Fly Snapping



DEFINITION/OVERVIEW

Fly snapping in dogs is a descriptive term of the activity where the dog appears to be snapping at imaginary flies. It is also called “fly biting.” Multiple underlying etiologies have been considered for this behavioral pattern including attention-seeking behavior, compulsive behavior, metabolic disease, toxicity, ocular floaters, and partial seizures. The focus of this chapter will be on chronic fly-snapping cases.



ETIOLOGY/PATHOPHYSIOLOGY

- Attention-seeking behavior: This behavior is performed with the intent of gaining attention.
- Compulsive behavior: The etiology and pathophysiology of compulsive behaviors are not fully understood but may involve abnormalities in neurotransmitters and/or their receptors. Frustration or conflict may contribute to their development.
- Metabolic disease or toxicity: Diseases (e.g., hepatic encephalopathy) or exposure to toxins that affect neurological function may cause aberrant activity such as fly snapping; other clinical signs are often apparent.
- Ocular “floaters”: Debris in the vitreous fluid of the eye may create ocular “floaters” that the dog tries to “catch.” Ocular floaters are usually considered benign and typically do not evoke clinical signs.
- Partial seizure: If seizure related, it may be associated lesion or abnormal activity in the temporal or occipital lobes of cerebral cortex; lesions in these brain areas of people can involve hallucinations.



SIGNALMENT/HISTORY

- No gender predisposition for any of the etiologies; however, some breed and age predispositions do exist for the various primary differentials.
- Attention-seeking behavior may occur in any age, gender, or breed.
- Compulsive disorder
 - Breed predisposition: guarding breeds; breeds with intense focus and drive such as Rottweilers, German shepherds, Dalmatians
 - Mean age at onset: social maturity: 12–36 months

- Ocular floaters
 - May increase in quantity as the individual ages
- Partial seizure
 - Breed predisposition: schnauzers, King Charles spaniels
 - Age at onset: 6–24 months

Historical Findings

Typical episode:

- Dog is often resting quietly and then will focus into space around them and then suddenly snap out several times in the air, often directed skyward.
- Usually the dog isn't highly emotionally aroused during the fly-snapping incidents, but occasionally growling or barking may be part of the sequence.
- Dog may lick at forelegs after or between fly-snapping episodes.
- Dog is conscious and aware during episodes.
- Many dogs can be distracted out of an episode.
- Some dogs appear anxious during a fly-snapping episode.

Historical background for particular etiologies:

- Attention-seeking behavior
 - Pet is not necessarily in an attention-deprived environment.
 - Initial experiences may have been true attempts to catch a flying insect; the activity gained the attention of people and the dog learned to use that action to gain attention.
 - Hallmark characteristic is that attention-seeking behavior only occurs in the presence of an audience.
- Compulsive behavior
 - May have history of environmental deprivation
 - Irresolvable conflict may contribute
 - Repetitive, exaggerated and/or sustained snapping at air which interferes with normal daily activities and functioning
 - Occurs in the presence and absence of an audience
- Complex partial seizure
 - May lack prodrome or aura
 - Length and recovery period may vary
- Hepatic encephalopathy
 - Incidents occur after consumption of a meal
 - May have other behavioral abnormalities such as head pressing, circling
 - Slow learner

Contributing/Risk Factors

- Will vary depending upon underlying cause
 - Complex partial seizures: genetic predisposition

- Compulsive disorder: stress, conflict, genetic predisposition
- Attention seeking: owner response to behavior

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.
 - Identify any individuals that may trigger or reinforce behavior.
- Determine the pet's reaction to the owner's departure. Are there any signs of separation distress?
- What was the age at onset of the fly-snapping behavior?
 - Epilepsy is often first noted at 6–24 months.
 - Compulsive disorders often develop at 12–36 months of age.
- Describe a typical episode, including any triggers, duration of episode, owner response, and other behaviors expressed.
 - Characteristic fly-snapping behavior is readily identifiable; gather video footage if there is any uncertainty.
 - Identify if aggression or anxiety accompanies fly-biting episodes; this may impact management and treatment decisions.
 - Identification of a trigger may help to identify cause and direct treatment program.
 - If fly-snapping only occurs postprandially, then heightened suspicion of hepatic encephalopathy
 - Ease of distracting dog out of a fly-snapping event is important information.
 - Difficulty interrupting event suggests that dogs have less control, strengthening partial seizure or metabolic cause.
 - Determine the location where fly snapping occurs.
 - If fly snapping occurs in only one location, an environmental trigger may be present.
 - Learn the time of day when fly snapping occurs.
 - May give insight into certain associated activities such as feeding, owner departure, etc.
 - Determine the frequency/duration of episodes: important for monitoring treatment success and for determining level of intervention; mild, infrequent and short episodes may not require intervention.
 - The owner's response is important to identify as it may be a contributing factor for maintenance of the problem.
- What is the historical presentation of fly snapping and historical owner response to fly-snapping behavior?
 - Evolution of behavior may give insight into primary motivation.
 - Owners often have a history of initially giving excessive attention to dog for fly-snapping behavior; this pattern may strengthen the suspicion of attention-seeking behavior.

- Do people or a certain person need to be present for a fly-snapping episode to occur?
 - If behavior occurs in the presence and absence of people, then it is not solely an attention-seeking behavior.
 - If behavior only occurs when there is an audience present or specific individual present, then the audience is somehow involved in triggering the behavior; this strengthens the possibility of attention-seeking behavior as a diagnosis.
- What is the daily routine and exercise schedule including confinement, training, feeding, contact time with people, etc.?
 - While individual exercise needs will vary, the clinician should verify that the animal is getting adequate environmental and physical stimulation.



DIFFERENTIAL DIAGNOSIS

Dogs

- Attention-seeking behavior
- Compulsive disorder
- Dental disease
- Ocular floaters
- Partial seizures
- Hepatic encephalopathy
- Toxins
- Viral infections
 - Distemper
 - Rabies



DIAGNOSTICS

- Complete physical and neurological examinations
 - Although dental disease is unlikely to cause classical fly-snapping behavior, oral disease may cause the pet to display other unusual oral patterns that owners may mislabel as fly biting.
 - If other neurological abnormalities are present, further neurological investigation is warranted.
- Ophthalmic exam
 - Identification of debris in the vitreous fluid may be a cause of the behavior; however, many dogs with vitreous bodies do not develop fly snapping.
- CBC, chemistry panel, thyroid evaluation, and urinalysis
- Bile acids if hepatic encephalopathy is suspected
- EEG to test for seizure activity: challenging to perform and interpret; abnormal spikes in the EEG would confirm seizure activity
- MRI or CT scan to rule out structural brain disease



THERAPEUTICS

Safety

Fly-snapping behavior is not usually associated with significant safety concerns, but it is possible for an animal to inadvertently snap at someone or intentionally aggress if someone is trying to interrupt the fly-snapping behavior.

Management

- Do not punish fly-snapping behavior.
- Do not comfort fly-snapping behavior.
- Avoid known triggers for fly-snapping.
- Provide adequate physical and mental exercise for the dog.
 - Dog play groups
 - Puzzle food toys
 - Walks/jogs
 - Games

Behavioral Modification Techniques

Attention seeking:

- If attention-seeking behavior is suspected, have owners ignore or leave area when dog engages in fly-snapping behavior. (See Chapter 25, Attention-Seeking Behavior: canine and feline.)
- The behavior will intensify before it extinguishes.

Compulsive behavior:

- See Chapter 29, Compulsive Disorder: canine and feline overview.
 - Address co-morbid diagnosis.
- Implement predictable interactions via a structured command/reward sequence for all interactions. (See the Structuring Your relationship with Your Pet handout.)
- Provide a daily routine that includes adequate physical and mental stimulation.
- If a trigger(s) for fly-snapping behavior is identified, implement a CCDS program for trigger(s). (See the Desensitization and Counterconditioning: the details handout.)
 - Establish a reward gradient, usually a highly desirable food treat, to use in training.
 - Start with low-level exposure to the trigger, and reward the dog for no fly snapping.
 - Gradually increase the intensity of the trigger over time, rewarding the dog for absence of fly snapping until full strength stimulus can be tolerated without fly snapping.
 - If dog does fly snap, don't reward then return to a lower level of stimulus, proceeding more gradually.

- Teach dog a command/activity that is incompatible with fly snapping, for example:
 - Lie down with head on ground
 - Tug-of-war
 - Fetch
- When dog starts a fly-snapping sequence, give command to do alternate, incompatible activity then reward the behavior.
- Application of a headcollar (e.g., Gentle Leader[®]) with a drag leash may be helpful at interrupting fly-snapping behavior without giving attention; a gentle pull on leash can interrupt the fly snapping and then the dog is given an alternative command to perform and rewarded for performing the command without engaging in fly-snapping behavior.

Accompanying Handouts

- Acute Management of Problem Behavior
- Desensitization and Counterconditioning: the details
- Maximizing Treatment Success
- Structuring Your Relationship
- Tranquility Training

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Attention-seeking behaviors should not receive drug intervention.
- Compulsive disorders may benefit from serotonin-enhancing medications. If the medication is successful at reducing or resolving the fly snapping, it should be continued for several months and then attempt to wean off gradually. Examples include:
 - Fluoxetine: Canine dose: 1–2 mg/kg q24h
 - Clomipramine: Canine dose: 2–3 mg/kg q12h
 - Sertraline: Canine dose: 1–3 mg/kg q12h
- If partial seizures are suspected and severity warrants treatment, a trial of antiepileptic medication such as phenobarbital may help to elucidate the cause; reduction or resolution of episodes while on antiepileptic medication may suggest seizure activity.
 - Sedative side effect of antiepileptic medications may complicate evaluation.

Other Treatments

- If stress is considered to be a contributing factor, then consider pheromone therapy. Pheromones are chemical signals that are given off by one individual to affect the behavior of another member of the same species. A canine pheromone product (e.g., DAP—Dog Appeasing Pheromone[®]) is the commercially available synthetic analogue of the pheromone produced by the lactating bitch. It is purported to reduce anxiety/stress in the young pups.
- Other stress reduction techniques may be tried, although most lack rigorous data to support their efficacy for fly-snapping behavior.

- Touch therapy
- Acupuncture
- Homeopathic remedies
- Naturopathic remedies

Contraindications/Precautions

- All drug therapies are currently considered off-label use for fly snapping; owners should be advised of this situation.
- Avoid the use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible; monitor response closely.
- Serotonergic or dopaminergic medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) (tick collars) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances in people and pets leading to death; all medications should be stored and managed carefully.
- Caution advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Side effects of the serotonin-enhancing medications are generally mild and self-limiting (mild gastrointestinal effects, mild sedation), but therapy should be discontinued if more severe or unexpected effects occur.
- Inadvertent bites to humans could occur if they interfered with the dog during an episode; children should be supervised around dogs with unusual behavior patterns.

Surgical Considerations

- Applicable if a primary surgical condition is discovered such as a hepatic shunt or structural brain lesion



COMMENTS

Client Education

- Attention-seeking behaviors will generally escalate before they extinguish; owners should be prepared for this treatment course.

- What owners may consider a punitive action on the dog (e.g., yelling at the dog) may be interpreted by the dog as positive (e.g., owner giving verbal attention) and therefore actually reinforce the behavior in question.
- Compulsive disorders are rarely “cured,” but they can be controlled for prolonged periods; times of emotional or physical stress are likely to cause a relapse.
 - While medication is useful, it is rarely effective alone and clients should be aware of the need for behavioral and environmental modifications to aid in the success of treatment plans.

Patient Monitoring

- Have owners log episodes of fly snapping to determine treatment response.
- Routine follow-up is encouraged to provide owner support, answer questions, and assess treatment success.
 - Initial follow-up may be weekly.
 - Prolonged follow-up may be monthly.
 - For dogs receiving drug therapy, physical examination and blood work should be performed every 6–12 months.

Prevention/Avoidance

- Do not pay excessive attention to dogs that chase after flies. A natural behavior pattern by the dog may then be exploited for attention-seeking capabilities.
- Provide dogs with adequate mental and physical exercise.
- Provide dogs with a stable routine and predictable interactions.

Possible Complications

- Poor owner compliance with behavioral modification
 - Attention-seeking behavior treatment: owners may continue to give some intermittent response to behavior therefore maintaining behavior
 - Daily physical and mental exercise: owners too busy

Expected Course and Prognosis

- Depends upon underlying diagnosis
 - Attention-seeking behavior: good prognosis with treatment compliance
 - Compulsive behavior: moderate to good prognosis for reduction/control of behavior; poor prognosis for full resolution

See Also

Chapter 25, Attention-Seeking Behavior: canine and feline

Chapter 29, Compulsive Disorder: canine and feline overview

Abbreviations

CCDS—counterconditioning and systematic desensitization

CNS—central nervous system

CT—computed tomography
 DAP—Dog Appeasing Pheromone®
 EEG—electroencephalogram
 h—hour
 MAO—monoamine oxidase
 mg/kg—milligrams per kilogram
 MRI—magnetic resonance imaging
 q—every
 SSRI—selective serotonin reuptake inhibitors
 TCA—tricyclic antidepressants

Suggested Reading

- Bowen, John. 2002. Miscellaneous Behavior Problems In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 119–120.
- Luescher, Andrew. 2002. Compulsive Behavior In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 229–236.
- Overall, Karen L. 1997. *Clinical Behavioral Medicine for Small Animals*, St. Louis: Mosby, pp. 209–250.



Generalized Anxiety



DEFINITION/OVERVIEW

Anxiety is the anticipation of future dangers from unknown or imagined origins that results in physiologic reactions associated with fear (vigilance and scanning, autonomic hyperactivity, increased motor activity, tension). Anxiety may occur in the aftermath of a fear-producing event or as a result of unrelated environmental changes that are unpredictable. Anxiety can occur to specific situations or be generalized or global. Anxiety is not always maladaptive; however, when it becomes extreme and continuous, it can have profound effects on quality of life for the owner and the pet. In pets with generalized anxiety, no clear triggers seem evident, but the pet is unable to relax and live a normal life. They become easily agitated at the slightest changes and often show extreme reactions to minor incidents. Generalized anxiety may coexist with other anxiety conditions such as separation anxiety, compulsive disorders, and noise phobias.



ETIOLOGY/PATHOPHYSIOLOGY

- Multiple body systems may be affected when an animal is anxious.
 - Cardiovascular: tachycardia
 - Endocrine/Metabolic: alterations in the HPA axis
 - Gastrointestinal: inappetence; aberrant appetite; gastrointestinal distress (salivation, vomiting, diarrhea, tenesmus, hematochezia)
 - Hemic/Lymphatic/Immune: stress leukogram
 - Musculoskeletal: poor condition attributable to increased motor activity and self-injury (weight loss, injured pads, damage to teeth and gums, and abrasions and lacerations)
 - Nervous: increased motor activity; repetitive activity; trembling; self-injury
 - Respiratory: tachypnea and the attendant metabolic changes
 - Skin/Exocrine: lesions, usually secondary to self-injury (lick granulomas, overgrooming) (See Chapter 1, Acral Lick Dermatitis: canine and Chapter 53, Psychogenic Alopecia/Overgrooming: feline for more details.)
 - Ophthalmic: dilated pupils in response to autonomic nervous system stimulation
- Behavioral: hypervigilance, avoidance behaviors, possible aggression if handling or restraint attempted. Fearful/anxious reaction may also include pacing, trembling, repetitive activity.



SIGNALMENT/HISTORY

- No particular breed or sex predilection has been noted.
- Age of onset is variable with some animals showing signs at social maturity (12–36 months).
- Cognitive changes associated with aging may contribute to anxiety in senior pets.

Historical Findings

- In generalized anxiety, the owner may complain that the pet appears anxious and vigilant nearly all the time.
- Anxiety-based behaviors (pacing, panting, hypervigilance) may not be associated with any particular trigger.
- If associated with a trigger, the animal often has a difficult time returning to baseline. Once agitated, the animal may remain so for long periods of time.
- Weight loss due to excessive motor activity or lack of appetite might be noted.
- Hiding and avoidance are commonly seen in anxious or fearful cats.
- Urine marking and possibly some types of destructive scratching may be seen in anxious cats.
- Details of the cat's or dog's early life, if known, may indicate a history of poor socialization and environmental exposure or point out possible genetic influences, such as unfriendly parents or feral ancestry.

Contributing/Risk Factors

Anxious behavior in dogs and cats can be related to the following factors:

- Genetic influences on temperament
- Early experience and socialization
- Later learning through negative experiences
- Unpredictable social environment or unpredictable interactions with people or other animals in the home
- Canine history of lack of exposure early in puppyhood to stimuli during the sensitive socialization period

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - Poor social relationships with conspecifics may be contributory to anxious behaviors.
 - Overcrowding or too many animals may contribute to anxiety.
 - Lack of space may contribute to the inability for animals to separate themselves and avoid agonistic encounters.
- What is the daily routine, including feeding, training, exercise, and play?
 - Unstable routines can contribute to anxiety.
 - Is there any evidence of separation distress? Dogs with separation anxiety may be anxious both when the owners are gone and when they are home.

- What were the onset, duration, and progression of the problem behavior?
 - Often the problem began in limited circumstances and now has generalized to multiple circumstances.
- Descriptions of anxious situations are essential.
 - Learn the first episode of anxiety.
 - Learn the most recent episode of anxiety.
 - Progress back in time through several episodes and trigger situations.
 - Obtain a clear description of the animal's body language and behavior during an event.
 - Obtain information regarding the people present, and their actions and response.
 - Descriptions should include objective descriptions of what the animal "did," not what the owner thinks the animal "meant."
 - After the episode was the animal able to return to a normal behavioral state? If so, how long did that take?
- Triggering stimuli should be explored in detail including any defining characteristics, locations, people, distance, sound, and size.
- Any aggressive responses should be noted and explored.
 - Aggression is often sequelae to anxiety if untreated or stimuli are uncontrolled.
- What previous treatments were used, both those that helped and those that made the condition worse?
 - Have verbal or physical reprimands been utilized and if so, what was their effect?
 - Have any medications been utilized in the past and if so, at what dose and for how long?



DIFFERENTIAL DIAGNOSIS

Multiple problems may coexist and medical problems may be contributory.

Dogs

- Any medical condition that might cause pain or confusion
- Separation anxiety
- Cognitive dysfunction
- Storm and noise phobias
- Attention-seeking behavior
- Compulsive disorder

Cats

- Any medical condition that might cause pain or confusion
- Urine marking related to social conditions
- Separation distress

- Hyperthyroidism
- Cognitive dysfunction
- Noise phobias



DIAGNOSTICS

- A complete physical and neurological examination should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.
- Ongoing painful or chronic conditions may contribute to anxiety and should be vigorously investigated.
- Chronic skin conditions may be contributory and must be ruled out and/or treated.

Pathological Findings

- Weight loss, poor condition, poor hair coat, dilated pupils may be associated with chronic anxiety.
- Specific findings may vary depending on results of physical and laboratory examination.



THERAPEUTICS

Safety

- Pets that are experiencing generalized anxiety may be a danger to themselves in escape attempts, so secure surroundings and enclosures are necessary.
- In some cases, aggression may be possible if the animal is unable to escape. When that has been noted in the history, these animals must be closely watched and separated from at-risk persons including children and elderly. (See appropriate chapters on fear and defensive aggression in dogs and cats for additional information.)

Management

- Integral in helping these animals is creating a secure and calm environment. This may mean a darkened room with white noise or isolation from certain stimuli.
- All situations known to make the pet anxious must be identified and avoided.
- Separation from other household animals for resting and feeding may be appropriate. This room should be secure, and for cats, it should have ready access to a litter box and hiding places.

Behavioral Modification Techniques

- Treatment focus encompasses three major areas: avoiding triggers; creating a secure, predictable, and stable social and physical environment; and providing CCDS.
- Identify and remove the triggers.
 - Environmental manipulation to reduce identified stressors that may include blocking windows, separation of animals within the home to prevent social conflicts, and increase in resources such as food and water bowls, resting areas, and litter boxes.
- Restructuring the pet-owner relationship: Create rules for interaction so the owner knows when and how to interact with their pet. (See the Structuring Your Relationship with Your Pet handout.)
 - In the beginning, all attention is initiated by the owner.
 - The pet can receive attention when it is calm and quiet.
 - The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
 - The owner calls the pet over, begins the attention session, and also ends it before the pet does.
 - Initially, the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later if the animal requests the item by calmly sitting and waiting, it will be given.
- Teach the pet to be calm, settled, and relaxed on cue in a specific location. (See the Tranquility Training Exercises handout.)
 - For dogs, this may be “go to your bed and stay” or “head down” command.
 - For cats, this can be a specific location as well such as a basket or bed.
- Creating a reliable, predictable environment
 - Offer regular feeding, play, walks, grooming and interactive time.
 - To the best of their ability, the owner should strive to include these interactions in their daily routine and as close to the same time as possible.
- CCDS
 - Teach the dog or cat to perform another task incompatible with the anxious response, such as settle and relax in a specific location.
 - Counterconditioning.
 - Give the command when the pet begins to engage in anxiety-based behavior, such as pacing.
 - Reward new, nonanxious behavior.
 - If specific triggers have been identified, then desensitization to those triggers may be useful.
 - Practice exercises that reward relaxed, obedient behavior from the pet when the stimulus is absent.
 - Identify trigger stimulus for fearful/anxious behavior.
 - Establish a gradient exposure to anxiety-/fear-provoking stimulus: volume, distance, size, etc.
 - Establish a reward gradient.

- Expose the pet to the stimulus at a level below that which evokes the anxious/fearful reaction.
 - When exposed to this low-level stimulus, the animal should be rewarded for calm, relaxed, obedient behavior. Rewards may include play, praise, tasty food treats, etc.
 - With success, gradually increase the intensity of the stimulus until it is at full strength without evoking an anxious response.
- Headcollars (e.g., Gentle Leader®) for control in dogs/hiding places for cats
 - The headcollar and an attached leash can be used to place the dog in a settle position and help get an alternate behavior.
 - Allowing the cat to escape to a safe hiding place may be an appropriate coping mechanism.
- Punishment
 - Usually ineffective
 - May worsen the anxiety
 - Interactive punishment (e.g., hitting) may result in fear or aggression
- Avoid unstructured attention such as petting, talking to the pet, etc., while they are anxious. The pet may interpret these actions as rewards for the behavior they are engaging in at the time.

Accompanying Handouts

Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Safety Recommendations for Aggressive Animals
 Structuring Your Relationship with Your Pet
 Tranquility Training Exercises
 Using Classical Counterconditioning to Change Emotional State

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Medication can be a helpful adjunct to behavioral modification if the animal's fearful or anxious behavior is so intense that it interferes with learning or other normal behavioral activities. Since these animals with generalized anxiety suffer from a chronic state of anxiety with no discernable triggers, medications that provide a continuous reduction in anxiety such as the serotonin-enhancing medications are indicated.
 - Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - This medication is indicated for situations where there is unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.

- This medication is to be given on a daily schedule regardless of exposure to trigger stimuli.
- It may take up to 4 weeks to achieve efficacy.
- This medication is to be continued for several months until the client has successfully completed the treatment regime and the pet has a new, well-established, desirable behavioral response.
- It can be used in combination with a benzodiazepine to achieve sufficient anxiolytic effects.
- Examples:
 - Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Fluoxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h
 - Paroxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h
 - Sertraline
 - Canine: 1–3 mg/kg q24h
 - Feline: 0.5 mg/kg q24h

Other Treatments

- Pheromone preparations (such as a canine pheromone product like DAP—dog appeasing pheromone[®] and Feliway[®]) may be useful in some animals.
- Various homeopathic and herbal remedies are available, but these substances have not yet been scientifically studied for these conditions in these species.

Contraindications/Precautions

- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use; therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately. A minimum database should include a complete blood count, chemistry panel, and thyroid evaluation.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.

- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Treatment should be sought early in the course of the condition. Chronic anxiety interferes with the quality of life for the pet.
- Clients should avoid punishment and/or comforting the anxious pet as these actions may inadvertently worsen the behavioral problem.
- Chronic anxiety can lead to other expressions of stress, such as stereotypic or compulsive disorders, urine-marking behavior, or inappropriate elimination.
- Pets suffering from chronic stress may suffer from secondary serious medical complications such as immune suppression and feline lower urinary tract disease.
- Anxious and fearful animals may show defensive aggression if interactions are forced on them by humans or other animals.
- Response to treatment may be variable and slow. Owners and the clinician should be encouraged to set realistic expectations for improvement and markers for judging treatment progress.

Patient Monitoring

- Frequent follow-up is necessary especially during the first few months of treatment to motivate the client and monitor the effectiveness of any adjunct drug treatment.
- For animals receiving chronic drug therapy, annual or semiannual physical examination and lab work (CBC, chemistry, and urinalysis) should be performed to monitor and adjust dosage accordingly.

Prevention/Avoidance

- Frequent, early, positive exposure to novel people, places, and things during the first months of life may be protective against later developing fear- or anxiety-based reactions.
- Calm interactions and positive associations with fear-producing stimuli may keep fear-based reactions to a minimum.
- Monitoring stimuli and reactions when exposing puppies to new situations is essential. Some circumstances may be too overwhelming for young animals and should be avoided or the stimulus muted.

Possible Complications

- Relapse is possible if animal experiences another frightening event.
- Fear aggression and possible injury to others may occur.
- Relinquishment of the pet due to inability to fit into the family is a possibility.

Expected Course and Prognosis

- Anxiety conditions can have profound effect on animals and hence their caregivers.
- Improvement is probable, but total resolution is less likely.
- Long-standing problems may be resistant to intervention.
- In situations where the anxiety-provoking stimulus cannot be controlled (e.g., thunderstorms), the pet may only achieve moderate improvement.
- Medication may help improve response to behavior modification but is unlikely to totally ameliorate signs.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline

Chapter 29, Compulsive Disorder: canine and feline overview

Chapter 33, Fear of People: canine and feline

Chapter 34, Fear of Places and Things: canine and feline

Chapter 36, Fireworks Phobia

Chapter 56, Separation Anxiety: canine and feline

Chapter 60, Thunderstorm Phobia

Abbreviations

CBC—complete blood count
 CCDS—counterconditioning and systematic desensitization
 CNS—central nervous system
 DAP—Dog Appeasing Pheromone®
 FDA—Food and Drug Administration
 h—hour
 HPA—hypothalamic-pituitary-adrenal
 MAO—monoamine oxidase
 mg/kg—milligrams per kilogram
 q—every
 SSRI—selective serotonin reuptake inhibitors
 TCA—tricyclic antidepressants

Suggested Reading

- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*, Philadelphia: Elsevier, pp. 195–226.
- Luescher, Andrew U. 2002. Compulsive behaviour In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 229–236.



House Soiling: canine



DEFINITION/OVERVIEW

House soiling is urination and/or defecation, for the means of eliminating or marking territory in a location that the owner finds inappropriate, usually within the home. Inappropriate elimination is the most common individual behavioral reason for relinquishment of a pet to a shelter and is the most common behavioral problem noted in shelter dogs after they are adopted into a new home. This chapter will deal with elimination in the home that is not marking. (See Chapter 46, Marking: canine, for a complete discussion of marking behavior problems.)



ETIOLOGY/PATHOPHYSIOLOGY

The causes of canine house soiling can be primarily due to a behavioral problem or secondary to/concurrent with a medical disorder.

■ Behavioral

- Lack of or incomplete house training
- Marking behavior
- Submissive urination
- Excitement urination
- Separation anxiety
- Cognitive dysfunction
- Fear-induced, noise phobia
- Psychogenic polydipsia

■ Medical causes

- Degenerative: hip dysplasia/osteoarthritis/degenerative joint disease, renal failure
- Anatomic: ectopic ureters
- Metabolic: estrogen-responsive incontinence, diabetes mellitus or diabetes insipidus, hepatic insufficiency, hyperadrenocorticism, hypercalcemia, hypoadrenocorticism, hypokalemia
- Neoplastic: renal or bladder neoplasia, other neoplastic diseases causing weakness
- Infectious/Inflammatory: urinary tract infection, crystalluria/urolithiasis
- Neurologic: seizures, neurogenic incontinence



SIGNALMENT/HISTORY

- Any age, breed, or gender can present with house soiling.
- Age: Help is often sought at adolescence (6–12 months of age) when owners assume that the pets should have mastered house training or in an elderly pet that seems to have lost their house training skills.

Historical Findings

- Pet has a history of urinating and/or defecating in inappropriate areas (according to the owners), usually inside a home.
- There may be a consistent pattern of elimination indoors, both when the owner is home and away likely indicating a lack of proper house training.
- House soiling may be intermittent, perhaps indicating other causes or factors.
- It is important to rule out incontinence versus conscious elimination.
- Pet may have signs of another behavioral disorder, such as separation anxiety.
- The house soiling may be associated with lack of time spent on the owner's part to properly teach house training.
- House soiling may be associated with threatening human postures in dogs with submissive urination.
- House soiling may be associated with times of high arousal if excitement urination exists.

Contributing/Risk Factors

- In intact males, suspect marking as a major problem.
- Owners may be poorly informed or motivated to properly house train their dog.
- The dog may have inadequate opportunities for outdoor elimination.
- There may be concurrent behavioral disorders (such as separation anxiety or other anxiety states).

Pertinent Historical Questions

- What is the daily household routine, including outdoor access, feeding and watering routine, and interactive time with family members?
 - Feeding schedules may effect defecation. Lack of access may result in soiling.
- Does the pet show any signs of distress at owner departure that may indicate separation anxiety? Does the pet show anxiety or phobic reaction to noises?
- Are there other pets in the home and do they soil indoors?
 - If so, how do you know that this dog is the culprit?
 - If multiple pets are house soiling, all problems need to be addressed; the continual presence of urine/feces in the home may stimulate others to soil indoors.
- Does the dog reliably eliminate outdoors at any time?

- Do they supervise the dog when outside and do they witness outdoor elimination?
 - Owners often incorrectly assume that a dog has evacuated its bladder/bowels if it has been outside.
- How and where is the dog taken outdoors to eliminate?
 - Inadequate substrates or locations may inhibit outdoor elimination.
- If the dog is walked for elimination, will it always urinate and defecate while on a walk?
 - Preferences for certain territories, such as home versus nonhome, may help establish a treatment plan.
 - Exercise often stimulates the need for elimination and can be a successful tool in treatment.
- Is the dog rewarded when he returns to the house after outdoor elimination?
 - Timing of rewards is important. Rewards given upon return inside are rewarding the re-entry into the home, not the elimination.
- Does the problem occur when the owners are gone, when they are home, or at both times?
 - Animals that only eliminate in the absence of the owners may be suffering from separation anxiety. This needs to be investigated further.
- Does the dog ask to go outside? If yes, how does the dog signal to go outdoors? If no, how do they know the dog needs to eliminate?
 - Lack of a reliable signal may contribute to a lack of communication between the dog and the owner.
- When, where, what (urine or feces), and how often does the dog eliminate inappropriately?
 - Maps or diagrams of the locations can be useful to identify possible location preferences and substrate preferences.
 - Time of the elimination is useful information, i.e., right after walks, immediately after the owner leaves, etc., since it can identify possible triggers.
- If the dog eliminates outdoors, what are the characteristics of the elimination location?
 - This may help identify elimination preferences of the dog.
- Does the dog wake the owner at night to eliminate or can the dog go all night without soiling?
 - This may indicate physical inability to hold elimination for extended periods.
- How do you clean soiled areas? Improper cleaning may lead to the dog returning to soiled sites.
- Have you ever caught the dog eliminating in the wrong location? If yes, what have you done?
 - Has any type of punishment been administered (putting the dog's nose in the elimination, spanking, confinement)?
 - Punishment is often improperly administered and may aggravate the problem instead of resolving it.

- If the dog is defecating in the house, what is the consistency and frequency of the stool?
 - Abnormal fecal characteristics may indicate a primary medical disorder.
- Does the dog have a history of urinary tract or gastrointestinal problems? Have they been checked recently for these? Underlying medical diseases may cause indoor elimination due to urgency or discomfort.
- Does the elimination occur when you are greeting the dog, petting the dog, or when the dog greets guests?
 - This indicates that the elimination is conditioned by social interaction: submissive urination or excitement urination.



DIFFERENTIAL DIAGNOSIS

- Medical diseases that could cause increase in urination or defecation should be considered and appropriate diagnostics performed
- Iatrogenic drugs that cause polyuria/polydypsia or gastrointestinal distress could be a cause of house soiling.
- Incontinence, either fecal or urinary, may result in house soiling.
- Other behavioral conditions may coexist with poor house training, including separation anxiety, noise phobias, submissive urination and excitement urination, and urine-marking behavior. (See appropriate chapters for more information.)
- Lack of house training



DIAGNOSTICS

- Urinalysis, fecal examination, CBC, and chemistry screenings should be included in a minimum database along with a physical examination. Depending on findings, certain imaging studies may be indicated.

Pathological Findings

- Elevated BUN and creatinine may be associated with kidney failure, polydypsia/polyuria, and house soiling.
- Bacteria in the urine may be associated with infection of the urinary bladder and increased urinary frequency.
- Endocrine dysfunction such as hypothyroidism or Cushing's disease may be associated with house soiling.



THERAPEUTICS

- Any underlying medical problems must be identified and treated.
- House soiling can be separated into lack of house training, lack of access, substrate preference, location preference, submissive urination, excitement urination,

age-related house soiling, anxiety-based house soiling, learned soiling, and learned nonelimination.

Behavioral Modification Techniques

Correctly identifying the type of elimination and causation will help with behavior modification.

■ Lack of house training

- Confinement and supervision are essential to retrain an adult dog to eliminate in the preferred location.
 - Close supervision by the owner may include visual tracking or tethering either in the room with the owner (must be supervised) or to the owner.
 - When the dog cannot be supervised, it can be kept in a small area. Dogs will usually avoid soiling in a small area where they can't remove themselves from the elimination. Crates are acceptable if the dog is already used to a crate and can be crated without anxiety or frantic attempts to escape. If the dog has never been crated, crates are not recommended without a crate-training program. (See the Teaching Your Pet How to be Confined handout in Appendix D.)
- The goal is not only to prevent wandering off and soiling but also to allow the owner to become familiar with signals that indicate that the dog has a full bladder or bowel.
 - Signs include panting, pawing, or staring at the owner, standing up, or even sniffing the floor.
 - Absent any signs, the dog may be taken out every 1–3 hours and asked to eliminate in the proper location.
- When these signs are witnessed, the dog should be taken to the preferred elimination location and asked to eliminate. If the dog complies, it is given a food reward, which is for eliminating at that time and in that location and must be given immediately, not when the dog returns to the house.
- If the dog does not comply within 5 minutes, it should be brought inside and confined or leashed again for 10–20 minutes and taken outside again.
- Exercise and odors can trigger elimination; twice daily walks are indicated.
- Once the dog will reliably eliminate when taken outdoors, the interval between access can be increased and then the dog can slowly gain freedom from supervision/confinement.
- Do not punish the dog for indoor elimination “after the fact”; if the animal is caught in the act, it can be startled (clap of hands) and then escorted to the appropriate elimination spot.

Lack of access

- If medical problems or old age are contributory, it is unlikely that the dog can learn to wait long periods of time for access to the elimination location.

- For dogs that defecate indoors, changes in feeding routine may help regulate defecation. Switching from free choice feeding to set feeding times can help regulate defecation to 30–60 minutes after eating. The owner should be present at that time to take the dog outdoors, ideally paired with a walk or other mild-moderate exercise to stimulate defecation.
- Dogs who eliminate because they do not have access to their elimination location for longer than they can hold their urine and/or stool must either have increased access or be trained to an alternate indoor substrate.
- Paper training or indoor litter systems may be appropriate for dogs when the owners cannot arrange outdoor access for long periods of time.

Substrate preference

- This may occur if the dog had learned to eliminate on one substrate that is no longer available such as grass, gravel, concrete, etc.
- The first step is to accommodate the preference if possible by placing the material in the desired elimination location.
- Once the dog will readily eliminate in the new location, the material can be slowly phased out, if necessary.

Location preference

- A location preference may form for another place if the dog has had aversive or noxious experiences at their usual elimination location.
- These can be noises, neighbor people or dogs, or loud machinery or construction nearby.
- Removal, avoidance, or monitoring the stressful stimuli may help restore elimination in the desired location.
- When the problem is a severe anxiety or phobia, other treatments will often be needed. See chapters specifically dealing with anxieties and phobias.
- In other cases, the dog has been denied access to the preferred location and once access is restored, house soiling indoors may cease.

Submissive urination

- Urination tends to only occur when the dog is greeted, petted, or perhaps scolded.
- The response is a remnant of the behavior in puppyhood in response to the bitch and is an appeasement behavior.
- Avoidance of the stimuli (bending over the dog, avoiding eye contact on greeting, avoiding reprimands especially after the fact) usually resolves the problem
- Punishment of any kind must be avoided since it will increase rather than decrease submissive urination.
- Problem often resolves with maturity

Excitement urination

- Not allowing the dog to greet people, and keeping greetings soft and calm is useful.
- Teaching a competing behavior such as sit, lie down, or fetch a toy is often useful.

- Punishment is contraindicated and will worsen the problem.
- Problem often resolves with maturity

Age-related soiling

- Age-related soiling is usually due to age-related disease states including cognitive decline (see appropriate chapter) or other medical problems that must be managed to help decrease house soiling.
- Analgesic medication for arthritic animals may help in some cases.
- Selegiline (Anipryl®) may help improve cognitive function.
- Environmental accommodations (ramps, etc.) to ease access to elimination spots may be helpful.

Learned house soiling and learned nonelimination

- Some dogs have learned to soil indoor for various reasons including lack of access, poor supervision, and inadequate house training. Using training techniques described above, most dogs will learn to eliminate in the proper location.
- Learned nonelimination often occurs when a dog has learned that elimination results in the end of the walk. Walking the dog for 5 more minutes after elimination or requesting the dog eliminate before the walk begins will usually correct the problem.

Accompanying Handouts

Teaching Your Pet How to be Confined

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Phenylpropanolamine may help in dogs with submissive urination and excitement urination if poor sphincter control is part of the problem (1.1 mg/kg every 8–12 hours).
- Diethylstilbestrol may help in sphincter control in some young spayed dogs.
- If the dog is urine marking or inappropriately eliminating because of anxiety, medications may be helpful, but only in conjunction with behavior modification. SSRI or TCA antianxiety medications may be helpful. See appropriate chapters on marking, anxiety, and phobias.
- Drugs are rarely effective if anxiety is not part of the problem.
- Drugs will have negligible effect in animals that are not house trained or in submissive urination.

Contraindications/Precautions

- Phenylpropanolamine can cause tachycardia, excitement, restlessness, and appetite suppression.
- Diethylstilbestrol has been associated with bleeding, lethargy, and diarrhea.

Alternative Drugs

- For dogs that are anxious at owner departure, canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®) diffusers may help.

Diet

- Feeding high quality diets at set feeding times can help control defecation utilizing the gastrocolic reflex to stimulate defecation 30–60 minutes postprandially.

Surgical Considerations

- Castration is suggested for intact male dogs that are urine marking. See appropriate chapter for more details.



COMMENTS

Client Education

- Most house soiling problems respond well but depend on owner compliance and willingness to monitor the dog for several weeks or months to assure compliance and behavioral change.
- Submissive urination and excitement urination may take longer to resolve, and relapses are common when trigger situations occur.

Patient Monitoring

- Good client follow-up is essential to help clients stick with a program.
- Patients should be monitored with owner follow-up visits or telephone calls at preset intervals of 1–2 weeks.
- The owner should keep a journal of incidents, inciting factors, and treatments instituted to give an objective view of improvement.

Prevention/Avoidance

- Investing the time and energy in properly house training a young puppy is easier than correcting an established problem behavior; appropriate supervision when indoors, supervised outdoor elimination, and rewards for outdoor elimination should be started at a young age (6–8 weeks).
- Most puppies form a substrate preference for elimination at about 8 weeks of age; strive to make this a readily available outdoor surface such as grass.
- Neuter male and female dogs to help prevent marking.
- Treat any underlying behavioral condition.
- Treat any underlying medical condition.

Possible Complications

- Medical problems that are left untreated or cannot be resolved may hinder resolution.
- Concurrent anxiety conditions that stimulate indoor elimination, if left untreated, will cause elimination indoors to continue.
- Cognitive decline may make retraining the dog difficult.

Expected Course and Prognosis

- Prognosis for any behavioral problem is highly dependent on the owner's ability to fully follow instructions.
- Animals with behavioral problems are not usually considered "cured," but, instead, are "managed."
- Prognosis for decreasing submissive and excitement urination is good if the owner follows instructions.
- Prognosis for managing incomplete house training is good when compliance to the treatment plan is achieved.
- Some animals with a history of a medical cause of inappropriate elimination can still eliminate inappropriately after the medical cause has been properly treated if they have learned to eliminate in an alternate location.

See Also

Chapter 46, Marking: canine

Abbreviations

BUN—blood urea nitrogen
CBC—complete blood count
DAP—Dog Appeasing Pheromone®
SSRI—selective serotonin reuptake inhibitors
TCA—tricyclic antidepressants

Suggested Reading

Albro Houpt, Katherine. 2002. House soiling by dogs In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 90–96.

House Soiling: feline



DEFINITION/OVERVIEW

Feline house soiling/toileting refers to the evacuation of the bladder or bowels with the intention of eliminating its contents in a location other than the litter box. Feline house soiling/toileting does not include marking behavior, which is a normal behavior observed in feral and domestic cats that involves deposition of urine or, less frequently, feces as a communication tool.



ETIOLOGY/PATHOPHYSIOLOGY

- Two primary reasons exist for house soiling: aversions or preferences. Aversions or preferences can develop due to species typical behavioral patterns, underlying medical issues, or experience.
 - Aversions are associated with the litter box itself or with occurrences when accessing or using the box. They include but are not limited to
 - Litter box cleanliness
 - Litter box style/size
 - Painful defecation/urination in the litter box
 - Litter type
 - Litter box location: unpleasant or inconvenient
 - Preferences refer to characteristics of a chosen alternative house-soiling site that are preferred by the cat for elimination. They include but are not limited to
 - Location within the home
 - Texture/absorbency of chosen surface
 - Cleanliness of chosen site



SIGNALMENT/HISTORY

- Any gender, breed, or age can develop house-soiling problems.
- Long-haired cats may be predisposed to fecal house soiling.

Historical Findings

- Owner finds urine and/or feces on horizontal surfaces in places other than the designated litter box.
- Urine and fecal deposits represent full evacuation of the bladder/bowels.
 - Animals with underlying medical pathology may have atypical volumes.
- Cats engage in typical pre- and postelimination behaviors such as pawing/scratching at ground.
- Preferential targeting of a specific substrate (e.g., carpet) as an alternative toilet site often occurs.
- Preferential targeting of a certain location (e.g., spare room) as an alternative toilet site often occurs.
- Cats with a litter box aversion but no secondary preferences may eliminate just outside the litter box.
- Owner may be able to identify initiating factor(s). These factors often involve aversions: houseguests, box is inaccessible, lapse in box maintenance/cleaning, litter change, addition of new human/animal to home.
- Resolution or removal of initiating factors may not necessarily resolve house-soiling problem due to newly discovered and learned preferences.

Contributing/Risk Factors

- Statistically significant risk factors associated with feline house soiling:
 - Use of a scented litter
 - Reduced digging in litter material
 - Disease of the urinary tract
- Other alleged contributing factors:
 - Disruption of normal routine, which causes changes in box management
 - Addition of household members either temporary or permanent, human or animal
 - May create box access challenges causing an aversion to develop
 - May increase soiling in box causing an aversion to develop
 - Improper box maintenance/cleaning
 - Inadequate number of boxes
 - Litter box in a location that is noisy/difficult to access
 - Multiple cat households with resultant social conflicts or space utilization challenges

Pertinent Historical Questions

- What is the household composition, including humans and pets?
 - People and other pets may purposefully or inadvertently block access to litter box.
- What is the social compatibility of household members, both animals and people?
 - Fear of people/other pets may prevent easy box access.
 - Intercat aggression may influence box access. Intercat aggression can be subtle and often unnoticed by owners. Careful questioning may be necessary to establish the social interaction pattern between cats.

- Are other behavioral problems present?
 - Noise phobias/fear of unfamiliar people, etc., may contribute to box access issues.
- Identify all known participants in house soiling.
 - This may require confinement trials or separation of cats.
 - If inappropriate defecation is involved, each suspect cat can be fed a teaspoon of differently colored, nontoxic crayon shavings by mixing the crayon shavings into some canned food. The crayon shavings should pass undigested into the feces, allowing for identification of the culprit(s).
- Identify any social or environmental changes that coincided with onset of the problem.
 - This may be helpful in determining contributing factors.
 - This may be helpful in preventing relapses.
- When did the problem start?
 - Long-standing problems may be more difficult to resolve.
- What is the evolution of problem elimination?
 - Patterns may emerge regarding substrate preferences, owner interventions, frequency of deposits, etc., that allow clinician to identify triggers.
- Current frequency/pattern of problem elimination may reveal an underlying cause, for example:
 - House soiling that coincides with heavily soiled boxes may indicate a litter box aversion due to cleanliness.
 - House soiling that only occurs when children are active may indicate box aversion due to location.
- Are feces and urine involved?
 - Presence of both urine and feces supports diagnosis of house soiling over marking behavior.
 - The consistency and volume of fecal matter may indicate a medical problem.
- Where are inappropriate deposits found, both location and substrate targeted?
 - If urine is found on vertical surfaces (6–8 inches or more off the ground), then the cat is urine marking, not house soiling.
 - Fecal material deposited in very prominent locations (e.g., top of table) may be marking, but this is uncommon.
 - Cats that mark tend not to display a substrate preference for deposition; cats that house soil tend to display a substrate preference, often soft, absorbent materials such as carpet.
 - Deposits found in quiet, discrete locations may indicate preference for quiet locations.
- What is the owner's response to finding soiled spots/cat in act of soiling?
 - Punishment is unlikely to resolve problem and may aggravate problem; advise against punishment.
- How are soiled spots cleaned?
 - Avoid products containing ammonia.
 - Enzymatic cleaning products are recommended.
 - Professional cleaning or removal and replacement of soiled areas may be necessary.

- Ask the following litter box-related questions:
 - Number of boxes
 - Location of boxes
 - Style of box: size, uncovered versus covered may be especially significant when compared to the size of the cat
 - Litter type and depth
 - Cleaning regime, both scooping out solid waste and complete wash/change
- What previous treatment attempts and results have been used?



DIFFERENTIAL DIAGNOSIS

- House soiling/toileting
- Marking
- Separation anxiety
- Iatrogenic causes of polydipsia/polyuria
- Primary medical diseases, including but not limited to
 - Arthritis
 - Inflammatory bowel disease
 - FLUTD
 - Diabetes
 - Renal failure
 - Incontinence
 - Cognitive dysfunction syndrome
 - Endocrine Abnormalities



DIAGNOSTICS

- Physical examination
- CBC, chemistry panel, urinalysis, and fecal testing
- Imaging studies of the urinary tract
- Further diagnostic tests as indicated by physical examination findings



THERAPEUTICS

Behavioral Modification Techniques

Two primary objectives must be met: 1) make inappropriate sites unavailable or unattractive and 2) provide cat with its ideal or “ultimate” litter box(es).

- Make inappropriate sites unavailable or unattractive for house soiling; this can be done in a variety of ways including:
 - Restrict access to inappropriate sites: long-term confinement is not recommended since this may cause anxiety. Cats may use the litter box when confined, but this does not usually translate to continued long-term use once released especially if other factors are not addressed.

- Place litter box over inappropriate site.
 - Make sites unattractive by placing aversive material such as aluminum foil, double sided tape, plastic runner with upward protrusions at the site.
 - Place a deterrent such as ultrasonic device at inappropriate site.
 - When reliable box usage has been reestablished, gradual access to previously soiled sites may be allowed.
- Offer a litter box cafeteria to determine the cat's elimination preferences.
- Offer several boxes with different configurations (box style, litter type, litter depth, etc.) at various sites to determine preferences; boxes with preferential usage are retained.
 - Consider using plastic boxes marketed for other uses as litter boxes; this will provide a greater range of sizes and shapes to select from.
 - Historical findings may help to direct cafeteria options.
 - Most cats prefer large, uncovered boxes with unscented, clumping (fine sand-like consistency) litter; deeper litter (3 cm) is preferred over shallow litter (1 cm), especially for defecation. Litter boxes should be easily accessible but not in heavy traffic flow areas.
 - Young kittens or geriatric cats may need boxes near their core area (where they spend the majority of their time).



■ **Fig. 41-1** A litter box cafeteria offering a variety of different litter options and box configurations.



■ **Fig. 41-2** This cat lost a leg to osteosarcoma; the extra large litter box has a low-sided entry cut out for easy access.

- Cats with mobility problems may require special box configurations such as low box sides that allow easy access.
- In multiple cat homes, litter boxes should be distributed throughout the environment to allow all cats access. An understanding of the social dynamics between cats is usually essential to assure all cats have access to an appropriate toileting area.
- Additional considerations
 - The owner may need to remove soiled substrates from the environment to prevent return to those sites.
 - Cats appear to prefer clean boxes; clients should be instructed to perform:
 - Scoop daily or twice daily to remove solid debris.
 - Regularly (every 1–4 weeks depending on size and number of boxes) change/wash the litter box; old litter dumped; box washed with liquid soap and water; box filled with new litter; frequency of this full box clean/change will depend upon box usage, litter type, and cat.
 - Old plastic boxes may need to be replaced due to chronic discoloration perhaps associated with residual odor.
 - Consider trimming perirectal and interdigital hair of long-haired cats.
 - If trigger event can be established, make alterations to avoid that trigger in the future.
 - Some cats prefer one box for urine and one for stool.

Accompanying Handouts

Creating Harmony in Multiple Cat Homes
Introducing Cats
Litter Box Tips

Drugs

- In general, drugs are not indicated for the treatment of house soiling.
 - If extreme fear or anxiety is preventing the cat from using the box and a box cannot be placed in a “safe” area for the cat, then antianxiety medications may be considered; in some cases, it may be appropriate to treat the aggressor. (Consult chapters on feline anxiety and aggression for additional information.)

Other Treatments

- If anxiety, fear, or strained intercat relations is preventing the cat from using the box, synthetic pheromone therapy in the form of a Feliway[®] diffuser may be of benefit.

Contraindications/Precautions

- Do not punish the cat if elimination is found outside the box.



COMMENTS

Client Education

- House soiling is not done out of spite or revenge.
- Any contributing underlying medical problems must be identified and treated.
- Punishment is unlikely to resolve the problem and may worsen the problem.
- In multicat households, there may be different individual preferences for elimination; multiple box types may need to be maintained.
- If social factors are contributing, the inability or unwillingness to address them will hinder problem resolution.

Patient Monitoring

- It may take clients several weeks to complete litter box cafeteria.
- Client should be instructed to keep a log of house soiling.
- Weekly or bimonthly contact is advised until the problem is resolved.

Prevention/Avoidance

- Adequate litter box cleaning/maintenance should be stressed to all owners.
- When additional cats are added to homes, the number of litter boxes should be increased; a standard rule is that the number of litter boxes should equal the number of cats plus an additional box.

- Litter box placement should be made with the cat's ease of accessibility in mind.
- Most cats prefer unscented, fine-particulate sand-like material as litter.

Possible Complications

- The owner can't find a litter box setup that the cat prefers over inappropriate sites. The owner may need to offer nontraditional litters (carpet, dirt) to entice the cat back to box usage.
- Relapses may occur especially if there is a lapse in management of box or a recurrent medical problem.

Expected Course and Prognosis

- It can take some time for owners to complete a litter box cafeteria, especially if they are offering options in a sequential pattern.
- Once a litter box preference has been established and used, most owners can gradually remove aversive materials and maintain success.
- Prognosis appears to be correlated with the length of time the cat has been house soiling—the longer the cat has been house soiling, the lower the return to consistent, long-term litter box use.
- Resolution may vary depending on owner tolerance for occasional soiling.
- If anxiety-producing situations seem to be related to house soiling, the problem may return if the triggers return or are not controlled.

See Also

Chapter 16, Aggression/Feline: intercat
Chapter 62, Urine Marking: feline

Abbreviations

CBC—complete blood count
cm—centimeter
FLUTD—feline lower urinary tract disease

Suggested Reading

- Horwitz, Debra F. 1997. Behavioral and environmental factors associated with elimination behavior problems in cats: a retrospective study In: *Applied Animal Behavioral Science* 52, pp. 129–137.
- Horwitz, Debra. 2002. House soiling by cats In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath. Gloucester: BSAVA, pp. 97–108.
- Overall, Karen L. 1997. *Clinical Behavioral Medicine for Small Animals*, St. Louis: Mosby, pp. 160–194.

Hyperactivity: canine and feline



DEFINITION/OVERVIEW

Hyperactivity is a very common complaint that describes overreactivity, excitability, and/or overactivity. It is usually *not* due to a physiological disorder but instead a normal expression of breed-specific behaviors or inadvertently conditioned behaviors. However, some cases of hyperactivity and hyperexcitability are secondary to a true physiological disturbance. They are referred to as hyperkinetic animals. Hyperkinetic animals do not habituate normally to environmental stimuli and have a heightened reactivity. Not only do these animals show excessive levels of activity and reactivity, they can't seem to settle or rest, even in a nonstimulatory environment. Their state of hyperactivity is treatable with stimulants. It is hypothesized that they share characteristics with people who suffer from attention-deficit disorder. However, within veterinary medicine, this appears to be an uncommon disorder and as of yet has not been identified in cats. This chapter will discuss hyperkinesis, but more emphasis will be placed on hyperactivity, hyperexcitability and overreactivity.



ETIOLOGY/PATHOPHYSIOLOGY

- The pathophysiology of hyperkinesis is not fully understood; it has been postulated that hyperkinetic animals may have abnormalities in their dopaminergic, noradrenergic, or serotonergic systems.
- Normal animals can exhibit signs of overactive behavior if not provided adequate physical and mental stimulation; this is not hyperkinesis.
- Normal animals can exhibit signs of hyperactivity if people inadvertently reinforce those behavioral patterns but not have hyperkinesis.



SIGNALMENT/HISTORY

- Age
 - This behavior is often reported in young or adolescent animals; most of these animals are probably normal animals with inadequate exercise or stimulation.
 - True hyperkinetic animals (to date only dogs) often present as adults (3 years +) with persistent overactive behavior that did not decrease as expected with maturity.

- Breed
 - Any breed can exhibit hyperactive behaviors.
 - Canine working breeds or dogs from working lines may require higher levels of exercise and at times seem more prevalent in owner complaints.
- Gender
 - No predisposition identified
 - Anecdotally, people often report a calming effect postneutering; this may be coincidental or a reduction in certain sex-linked behaviors that owners may erroneously equate with hyperactivity such as roaming and mounting behaviors.

Historical Findings

- Signs of hyperkinesia
 - Tachycardia
 - Tachypnea (panting)
 - Salivation
 - Antidiuresis
 - Lack of trainability
 - Failure to habituate to external stimulation
 - Underweight
- Signs of hyperactivity/hyperreactivity in dogs and cats
 - Animal appears agitated and unable to settle.
 - Animal engages in excessive locomotion or vocalization.
 - Dog owners' complaints often include excessive barking and jumping up on people/things, stealing, and aggressive play.
 - Cat owners' complaints may include running around at night and vocalization.
 - Animal is aroused despite lack of significant stimuli.
 - Response to stimuli may be excessive.
 - Animal does not habituate to environmental stimuli such as automatic ice-maker, furnace activation, etc.; instead animal persistently displays high reactivity and arousal.
 - Heightened arousal level persists despite removal of stimulus (prolonged recovery time).
 - Dogs do poorly in basic obedience class due to apparent "lack of focus."
 - Owners often inadvertently reward undesirable behaviors by giving the pet attention, albeit often in the form of reprimands, for the undesirable behavior.

Contributing/Risk Factors

- Lack of adequate physical exercise and mental engagement is probably the greatest cause of signs consistent with overactivity.

- Inadvertent reinforcement, often in the form of reprimands, may increase the expression of some overactive behaviors.
 - Animal is often ignored when quiet/calm since owners don't want to disrupt the peace.
 - Animal is constantly chastised for “normal” play/exploratory behaviors; the attention is interpreted by the dog as a positive response (person looking at me, yelling at me) and actually increases the likelihood that they will be displayed again.
 - The animal experiences some inherent reward when engaging in the behaviors (e.g., release of energy) that maintains the behaviors.
- Overactive animals often get banished from house or human activities creating a vicious cycle of social/physical deprivation leading to heightened overactivity and reactivity when reintroduced.

Pertinent Historical Questions

- What is the household composition, including humans and other animals?
 - This allows the clinician to identify possible factors that will interfere with execution of the treatment plan.
 - While other animals may provide an outlet for physical and mental energy, often this is overestimated by the client.
- Learn the typical 24-hour household routine/schedule including specifics about animal management: where the animal sleeps; daily access to humans/animals in home; daily time animal spends alone; how animal is contained, where it is contained; play/exercise schedule for animal; feeding regime for the animal.
 - Deficiencies in adequate social contact and physical exercise may be elucidated.
 - Opportunities for enrichment/improvement may be identified.
- When did problem behaviors first start and what was the progression?
 - If problem behaviors started as an adult and coincided with a shift in animal management, the behavior is unlikely to be hyperkinesis or hyperactivity but perhaps is anxiety related.
- Have owners relate specific behaviors/behavioral patterns of concern.
 - It is important to gather specific information such as descriptions of body postures/movements, trigger(s) for behavior, duration of behavior, human response to behavior; animal response to human response.
 - A comment such as “he jumps on everyone” is not particularly helpful; instead identify what triggers jumping behavior, preferential targets for jumping (certain family members, children, etc.), position of ears/tail/hair/mouth when jumping, human response to jumping, dog response to human response, how long jumping persists.
 - A comment such as “my dog can't focus” is not particularly helpful; first define what “focus” means, for example, holding a sit/stay command with eye contact; the owners describe specifics of situations

where that is difficult for the dog to comply; observe how owner gives commands, provides rewards, etc., and if it is reasonable to expect compliance from the dog in those situations.

- Ask how the animal acts when there is minimal environmental stimulation (e.g., quiet evening in the home).
 - Overactive behavior despite adequate exercise and a quiet environment may indicate a hyperkinetic animal.
- Ask how the animal acts after a long hike or other physical activity.
 - If the owner responds that the animal is improved, consider the possibility that that animal is normal but not receiving adequate exercise.
- Inquire about other behavioral problems including anxiety-related problems such as separation anxiety or noise phobias.
 - Owners may be misinterpreting anxious behavior as hyperactivity.



DIFFERENTIAL DIAGNOSIS

Dogs

- Normal animal deprived of adequate outlets for physical and mental exercise
- Normal animal inadvertently rewarded for certain behavioral patterns
- Hyperthyroidism
- Food allergies
- Cognitive dysfunction syndrome
- Fear-/anxiety-related conditions
 - Separation anxiety
 - Noise phobias
- Territorial protection/aggression

Cats

- Normal animal deprived of adequate outlets for physical and mental exercise
- Normal animal inadvertently rewarded for certain behavioral patterns
- Hyperthyroidism
- Cognitive dysfunction syndrome



DIAGNOSTICS

- Physical and neurological examination should be performed.
- CBC, blood chemistry, and thyroid evaluation should be performed.
- Additional tests should be performed as indicated by examination or laboratory results.
- In hospital test: Place dog in a novel, quiet location such as an exam room. Record the active behaviors such as jumping, barking, pacing over the course of 1 hour. Heart and respiratory rates should also be monitored periodically (every 15–30 minutes). If the animal sustains a high level of activity and abnormally

elevated heart/respiratory rates during the course of the trial, hyperkinesis may be suspected. If suspected, treatment with a stimulant (0.2 mg/kg by mouth of D-amphetamine) can be given and the animal placed in a holding area. Seventy-five minutes later the animal is returned to the original test location and observed again for behavior and physiological parameters (heart and respiratory rate). If the medication has a paradoxical reaction and actually calms the dog/reduces the heart rate, then a presumptive diagnosis of hyperkinesis is achieved.

- Alternatively, this test can be performed in the home environment. The owner first compiles a baseline for dog's activity level by recording activity levels and disruptive behaviors over the course of several days. Then the owner implements treatment with low dose methylphenidate (0.5 mg/kg q8–12h). Behaviors are recorded; if no improvement in behavior is shown but no negative side effects after three days, the dose can be increased by 0.25 mg/kg increments every 3 days until a maximum dose of 2 mg/kg q8–12h is reached or positive response is achieved or the animal shows a deterioration (increased agitation, motor activity, respiratory/heart rate) in behavior. Improvement with medication indicates a diagnosis of hyperkinesis.



THERAPEUTICS

Safety

- While, in general, these animals do not intend to inflict harm, inadvertent injuries may occur with boisterous behaviors such as jumping.
- These animals may have a comorbid diagnosis of aggression; if so, employ safety measures to address these risks.
- Since these animals tend to have short concentration spans and are highly reactive, they may engage in behaviors that put them at risk of injury such as darting out into traffic. These animals need to be maintained in a safe manner (leashed/headcollar, e.g., Gentle Leader[®], locked gates outdoors, etc.)

Management

- Teaching the dog how to be safely confined may be useful when situations known to excite the dog may be encountered. This will allow removal of the dog from the situation and perhaps over time, a diminished response.

Behavioral Modification Techniques

- For animals with hyperkinesis, behavioral modification without drug intervention is unlikely to provide significant improvement.
- Adequate daily exercise and mental stimulation for the animals need to become a family priority.
 - Level of exercise will depend upon the age, species, breed, and physical condition of the animal.

- Exercise should involve aspects of mental engagement.
- Appropriate play such as fetch using two objects may be useful when walks are not possible.
- Creating an environment for the pet to “forage” using feeder toys and multiple feeding sites may be particularly useful for cats.
- Inclement weather does not negate the need for physical and mental activity.
- Private obedience training for dogs using positive reinforcement training to establish calm, relaxed behaviors on cue.
- Owners should ignore or remotely interrupt and redirect undesirable behaviors.
 - For dogs, a headcollar with a drag leash can be very helpful in interrupting undesirable behaviors (e.g., jumping up repeatedly) and redirecting the pet into more appropriate behaviors (e.g., sit).
 - For cats that engage in rambunctious behavior during the night, simply closing them out of the bedrooms may allow the cats to engage in normal exploration and play without disturbing the owners, allowing them to ignore the behavior.
- The animal is rewarded for offering calm, relaxed behaviors.
- Owners should implement the actions outlined in the Structuring Your Relationship with Your Pet handout. All interactions are based on a command/response relationship, to teach the dog to view household members as predictable, consistent, and reliable leaders. Only calm, relaxed, and obedient behavior is rewarded.
- Owners should implement the Tranquility Training Exercises handout initially with very few external distractions present. These daily training sessions reward calm, relaxed, obedient behavior. With success the sessions should be repeated in more distracting circumstances.

Accompanying Handouts

Acute Management of Problem Behavior
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Hyperkinetic animals
 - Methylphenidate canine dose: 2–4 mg/kg q8–12h
 - D-amphetamine canine dose: 0.5–1.0 mg/kg q24h
- No medication is indicated in dogs and cats that are just overactive and under stimulated.

Other Treatments

To be considered for overactive dogs:

- Headcollars and leashes for indoor control
- Touch therapy

- Private obedience lessons
- Feeding meals in puzzle toys instead of a bowl
- Offering multiple feeding stations so the pet “searches” for food

Contraindications/Precautions

- In animals without hyperkinesis treatment with stimulant drugs (D-amphetamine, methamphetamine) will result in undesirable clinical signs: tachypnea; tachycardia, increased motor activity, etc.
- Stimulant drugs are controlled substances; close monitoring is necessary to avoid human abuse.



COMMENTS

Client Education

- People frequently underestimate feline requirements for social contact and physical exercise; when combined with an indoor only environment, normal play and exploratory behaviors may become disruptive; owners should initiate multiple short (5-minute) play sessions every day.
- People frequently acquire dogs based upon physical characteristics and not behavioral profiles; although all dogs require daily exercise and mental activity, certain breeds have higher needs. People should investigate breed behavioral profiles prior to adoption.

Patient Monitoring

- Regular monitoring for dogs receiving stimulant drugs is necessary.
- Dogs with normal overactivity do not require intensive monitoring; however, the owners may require support as they try to extinguish old patterns and replace them with new behavioral patterns.

Prevention/Avoidance

- Judicious selection of a pet based upon behavioral profiles
- Adequate exercise/mental stimulation
- Early enrollment in obedience classes (8 weeks) to establish good patterns

Possible Complications

- Noncompliance by owners; especially reduced pet exercise during periods of inclement weather

Expected Course And Prognosis

- Most overactive adolescent animals will improve with maturity; with proper behavioral modification significant improvements may be readily noted.

- Dogs with hyperkinesia may need prolonged drug therapy and behavioral intervention; gradual withdrawal from drug therapy can be attempted after a sustained period (several months) of treatment success.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 31, Destructive Play and Exploration: feline
Chapter 43, Jumping on People: canine
Chapter 44, Jumping on Counters: feline
Chapter 48, Mouthing/Play Biting and Aggressive Play
Chapter 49, Nocturnal Behavior: canine and feline

Abbreviations

CBC—complete blood count
h—hour
mg/kg—milligrams per kilogram
q—every

Suggested Reading

- Lindell, Ellen. 2002. Control Problems in dogs In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, p. 71.
- Luescher, Andrew U. 1993. Hyperkinesia in dogs: Six case reports In: *Canadian Veterinary Journal*, 34, pp. 368–370.
- Voith, Victoria L. 1980. Clinical Animal Behavior: Hyperactivity and hyperkinesia In: *Modern Veterinary Practice*, 61, pp. 787–789.

Jumping on People: canine



DEFINITION/OVERVIEW

Jumping up is a normal play and greeting behavior in dogs but is unwanted and undesirable and a common complaint of dog owners. Jumping is described as standing on rear legs with front legs on a person or object or leaping in the air with or without landing against the person. At times the behavior can be dangerous especially if directed toward small children, frail, or injured or infirm persons. Jumping on people may also be part of excessive greeting behavior associated with separation anxiety.



SIGNALMENT/HISTORY

- Jumping on people can occur in any breed and at any age, and there is no sex predilection.
- Breed: the behavior is a more common complaint with owners of large breed dogs.
- Age: Young, exuberant dogs may be more likely to exhibit jumping behavior.

Historical Findings

- Jumping up on people occurs most commonly in association with arrival of people and during play.
- It is more problematic with larger dogs.
- It may only occur toward owners, but often generalizes to other visitors to the home.
- This behavior can be a component of wild and aggressive owner-directed play.
- It may occur both at home and away, and on and off leash.
- Owner has often tried multiple techniques to discourage the behavior, which have been unsuccessful; these tend to be interactive punishments such as pushing the dog down, telling the dog off, etc.

Contributing/Risk Factors

- This behavior is part of normal play and greeting behavior and will occur toward humans unless controlled and trained interactions are taught to the pet.
- Lack of training and owner control is usually contributory.
- Unclear rules and expectations for interactions are factors.
 - Sometimes jumping up is allowed, and other times it is not.

- This behavior may have been encouraged in some contexts and generalized to others.
 - Excitement or encouragement of the behavior by others, or inadvertent rewarding of the behavior perpetuates it.
- Separation anxiety may result in excessive jumping on owners when returning or leaving home.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the dog.
- What is the daily routine, including feeding, training, exercise, and play?
 - This may elucidate deficiencies in physical and mental stimulation for the dog.
- Has training been ongoing and what techniques have been used?
 - Mastery of basic obedience commands is necessary for successful intervention.
- Are attempts to change the behavior mostly punishment based and what has been the response to reprimands in the past?
 - Any social contact including hitting, shoving, eye contact, or verbal engagement may be perceived as positive to the dog.
- Learn previous treatments used, both those that helped and those that made the condition worse and the pet's response to each treatment including physical reprimands or leash corrections.



DIFFERENTIAL DIAGNOSIS

- Normal social greeting behavior that has been reinforced
- Attention-seeking behavior
- Separation anxiety
- Hyperactivity
- Normal play behavior



DIAGNOSTICS

- Jumping up is considered a normal behavior; extensive diagnostics are usually not warranted.
- A complete physical and neurological examination should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.



THERAPEUTICS

Safety

- If jumping targets children, or injured and infirm individuals, the dog should be under the control of an adult when around these persons or securely confined.

Management

- The use of control devices such as leashes, headcollars (e.g., Gentle Leader[®]) and no-pull harnesses make treatment and control easier.
- Removing the dog from situations where jumping is known to occur prevents ongoing opportunities for jumping and further learning.

Behavioral Modification Techniques

- Three main treatment modalities alone or in combination work best to control jumping behavior: withdrawal; control devices (leashes and headcollars); and teaching an alternative behavior such as “sit” or retrieve.
 - Withdrawal: Remove any inadvertent reinforcement for the behavior by ignoring the dog and withholding all interactions until the dog is calm.
 - The person should stand calmly, turn away from the dog, with arms crossed and no eye contact until jumping ceases; in cases where the dog persistently jumps, the person may need to walk out of the area, closing a door.
 - Once jumping has stopped, the person can return attention to the dog and calmly interact with the dog but should cease if jumping begins again.
 - People should avoid rewarding the jumping with interactive responses such as pushing the dog off or yelling.
 - Increasing control and control devices
 - Headcollars greatly facilitate owner control and the ability to restrict jumping by providing control of the head. Pulling up and guiding the dog into a sit will stop the dog from jumping up.
 - Visitors can be greeted outside or inside with the dog on a leash and headcollar, or the dog’s access to the situation can be restricted by placing it in another room until the visitor is seated.
 - Teach “sit” and “stay” as an alternative method to greet people.
 - When the dog is calm and relaxed, practice sitting for a food reward in different areas of the house wearing a leash and headcollar.
 - Begin with short sessions of 3–5 minutes with 8–12 repetitions per session.
 - Use highly palatable food rewards cut into small pieces.
 - Add the word “stay” when the duration of sitting is a few seconds; take a step away, return to the dog, and give the food reward.
 - Build up the time away from the dog to 1–2 minutes.

- Repeat exercises near the door and with the addition of leaving and returning.
 - Next, ask the dog to sit for a food reward when returning from work or other absences of a few hours' duration.
 - Familiar visitors can enter, ask the dog to sit, and give a food reward.
 - Alternatively, the owner can reward the dog for remaining seated as people enter also using the headcollar and leash for control.
 - Eventually, the food rewards can be reduced to intermittent use.
- Some dogs remain too excitable to sit when visitors or even the owners enter the home. These dogs may do better if a ball is tossed as a visitor enters.
 - This is more beneficial if a dog has been taught to sit before an item is tossed again.
- In all situations, the owner should avoid increasing the dog's excitement by walking calmly to the door and speaking in a quiet voice.
- Stepping on the dog's toes or squeezing the paws and activities like these are cruel and can lead to aggression and often do not cause the behavior to diminish.
- Placing all interactions on a command-response relationship will help teach the dog how to follow owner cues and may lead to improvement in excitement situations.
- Teaching the dog to settle and relax in a set location may be useful.

Accompanying Handouts

Desensitization and Counterconditioning: the details
Jumping Up: Teaching Controlled Greetings
Structuring Your Relationship with Your Pet
Teaching a New Response to the Doorbell
Teaching Your Pet How to be Confined
Tranquility Training Exercises

Drugs

- No drugs are needed nor recommended unless the problem is associated with separation anxiety.

Other Treatments

- Various control devices such as leashes and headcollars are useful.

Contraindications/Precautions

- Harsh physical reprimands must be avoided since these are likely to increase anxiety and possibly cause aggression without substantially reducing jumping.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.

Client Education

- Consistent training and interactions are necessary to teach and solidify the wanted responses.
- Jumping must be avoided, discouraged, or controlled in all the identified situations.
- If the problem has been present for some time, it may take several weeks or months of consistently working with the dog to have reliable responses in all situations.

Patient Monitoring

- Telephone follow-up 2–4 weeks after the initial consultation can help determine success and address ongoing problems.

Prevention/Avoidance

- Early training for correct greeting behavior
- Avoid encouraging jumping in any situations
- Consistent interactions and requests from all family members

Expected Course and Prognosis

- Most jumping behavior can be controlled and changed with a consistent and regularly applied training program and show improvement within 2 weeks.
- Treatment failure is usually due to intermittent rewards when some individuals allow jumping behavior to continue.

See Also

Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 56, Separation Anxiety: canine and feline

Suggested Reading

Lindell, Ellen. 2002. Control Problems in dogs In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 69–79.



Jumping on Counters: feline



DEFINITION/OVERVIEW

Cats routinely seek out elevated perches, including kitchen countertops, for a variety of reasons. Although not often targets of predators inside the confines of a home, cats may retain some of their innate adaptive survival behaviors, one of which is being elevated off the ground. Owners often have hygienic or esthetic concerns regarding their cats' presence on kitchen countertops or eating surfaces. Remedying this common complaint to the satisfaction of all parties involved may strengthen the human-animal bond.



ETIOLOGY/PATHOPHYSIOLOGY

Normal cats access elevated perches for a variety of reasons including:

- Exploration
- Play
- Safety/escape
- Food
- Attention
- To access objects stored on the countertop
- To use as a resting spot



SIGNALMENT/HISTORY

- Any age, breed, or gender
 - Young, energetic kittens/adolescent cats may engage in the behavior more frequently.

Historical Findings

- Owner observes cat on the countertops.
- Owner discovers evidence of counter activity in their absence.
 - Cats are often trained to avoid countertops when owners are directly present due a history of punishment, but it does not inhibit their use of countertops when owners are absent.

Contributing/Risk Factors

- Young, energetic, inquisitive cat
- Lack of adequate outlets for play/exploration
- Lack of alternative acceptable perches
- Human food or food odors left on countertops
- Preparation/storage of cat meals/treats on countertop
- Objects of interest to cats left on countertops (strings, bags, plants, etc.)
- Access to countertops provide good view to the outdoors via window(s)
- Responding to the cat interactively when it is discovered upon countertops

Pertinent Historical Questions

- What is the household composition, including humans and pets?
 - Cat may use countertops as a way to escape contact with young children/dogs.
 - The more household members, the greater likelihood for inconsistent response to cat on countertops.
- How do human household members feel about cats on countertops?
 - Inconsistent responses will likely sabotage treatment plan.
- What is the relationship with other household members and pets?
 - If fear, anxiety, or aggression exists between any household members (pets or people), it may influence the cat to seek an elevated perch.
- What is the daily routine, including feeding schedule, human contact, play periods, and indoor/outdoor access?
 - Clinician may discover that the cat is not getting adequate mental stimulation or physical exercise, perhaps contributing to its own play/exploration or that the cat is jumping on the countertop to gain owner attention.
- What is the cat's access to countertops?
 - If there are periods of unsupervised countertop access with no immediate negative consequences for getting on the countertop, the cat is likely to persist with getting on countertops in the absence of people since there is likely some level of self-gratification in the activity.
 - Treatment success may depend upon restricting the cat's access to countertops when unsupervised.
- When does the cat jump on the countertops?
 - If the behavior only occurs in the absence of people, then the cat has learned via operant conditioning (usually punishment) to avoid countertops in the direct presence of people.
 - If the behavior occurs only in the presence of people, then there may be an attention-seeking component.
- What does the cat do when on the countertops?
 - The cat may engage in a variety of activities such as searching for food, resting, looking out the window, chewing on plants. The activity of the cat when on the counter may elucidate motivation for getting up onto the countertop.

- What is the human response to the cat discovered on countertops?
 - For punishment to be effective, it has to be delivered immediately when the cat accesses the countertop. It has to be delivered every time the cat accesses the countertop, and it has to be of an intensity that dissuades the cat from being on the countertop but does not excessively frighten or harm the cat. Most people are unable to meet those criteria, so punishment is ineffective.
 - The cat may learn to avoid or get down from the countertops when owners are directly present based upon previous punishment, but they often will still access countertops in owners' absence.
 - Engaging in any positive activities when the cat is on counter such as petting, feeding, etc., will encourage the cat to return to the countertop.
- Where are the cat food and treats stored and prepared?
 - Storing/preparing or feeding cat on countertop will encourage cat to access countertops.



DIFFERENTIAL DIAGNOSIS

- Normal feline behavior
- Attention-seeking behavior
- Escape behavior due to fear/anxiety
- Territorial observation (via windows)



DIAGNOSTICS

- To identify whether the cat is getting on countertops in owners' absence, a light dusting of flour can be applied to the countertop; cat prints in the flour upon owner return will verify the cat's presence on countertop.



THERAPEUTICS

A discussion regarding a cat's normal propensity for seeking elevated perches may help owners to understand and accept their cat's countertop perching.

Safety

- Owners should thoroughly clean any countertops with soap and water before engaging in food preparation or consumption.

Management

- Simply restricting cat access from areas with countertops will resolve problem.

Behavioral Modification Techniques

- Remove any attractants from countertop.
 - Don't leave butter/food on countertop.
 - Don't store or prepare cat's meals on countertop.
 - Remove plants.
 - Close blinds/block view from kitchen window.
- Provide the cat with acceptable perches.
 - Cats prefer upholstered surfaces to slick surfaces.
 - Encourage the cat to use acceptable perches by enhancing that area with toys, catnip, etc.
- Deter cat from, or punish cat for, accessing the countertop.
 - Since people tend to be inconsistent with punishment, it is best if the deterrent/punishment is activated by the cat accessing the counter.
 - The countertop can be covered with unappealing surfaces such as double stick tape, upside down vinyl carpet runner, cookie sheets with water in them.
 - Commercially available cat repellant sprays can be applied to the counter.
 - Electrically charged mats can be placed on countertops (Scat-Mat®).
 - Motion-activated sprays or alarms can be placed on countertops.

Accompanying Handouts

Acute Management of Problem Behavior
Creating Harmony in Multiple Cat Homes

Drugs

- None indicated

Contraindications/Precautions

- Zoonotic disease risk exists if owners don't practice good food preparation hygiene.



COMMENTS

Client Education

- Cat owners should be educated that it is normal cat behavior for cats to seek out and prefer elevated perches.
- Basic hygiene before food preparation and consumption should minimize any problems.

Patient Monitoring

- If owners elect to use some form of punishment to inhibit counter access, it is wise to verify that they are instituting it properly and humanely.

Prevention/Avoidance

- Keep attractive items off counters.
- Provide and encourage use of cat-appropriate perches.

Possible Complications

- Redirected aggression as a consequence of punishment

Expected Course and Prognosis

- While the cat often learns to avoid counters in the direct presence of people, cats often still access the countertops in the absence of people.
- Countertops provide valuable three-dimensional space, especially in population-dense households; this may interfere with success.

See Also

Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 31, Destructive Play and Exploration: feline
Appendix B, Learning and Behavior Modification

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 326–329.

Licking/Excessive



DEFINITION/OVERVIEW

Licking is a normal grooming behavior in dogs and cats and is often used as an appeasement behavior in dogs. Excessive licking may be self-directed, often resulting in skin lesions or hair loss or can be directed toward people and other animals. Excessive licking can be an attention-seeking behavior, a compulsive disorder, or related to pruritus. Persistent licking associated with acral lick dermatitis is covered in Chapter 1.



ETIOLOGY/PATHOPHYSIOLOGY

- Excessive licking may be due to primary dermatological disease
- Pain or irritation secondary to arthritis or other disease may trigger excessive licking
- Anxiety (See Chapter 24, Anxiety Disorders: general overview canine and feline for possible etiologies.)
- Compulsive disorders (See Chapter 29, Compulsive Disorder: canine and feline overview for possible etiologies.)



SIGNALMENT/HISTORY

- No particular breed, age or sex predilection noted
- Can occur in dogs and cats

Historical Findings

- Licking may consume large amounts of the animal's time budget.
- It may be directed to objects in the environment, self licking, and air licking.
- The behavior may also occur as excessive licking toward other animals or the humans in the home.

Contributing/Risk Factors

- Uncertain and inconsistent relationship with owners
- Inadequate access to appropriate physical, mental, or social outlets

- Previous skin lesions resulting in learned behavior, which has generalized
- Reinforcement (intentional or inadvertent) given for licking behavior
- Separation anxiety or other anxiety-related/phobic conditions
 - Anxiety may cause displacement behavior such as licking in both dogs and cats.
- Acral lick dermatitis

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that can be a source of conflict for the pet and also evaluate the amount of time available for rehabilitating the pet.
- What is the daily routine, including feeding, training, exercise and play, and social interaction?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
 - Learn what the pet's behavior is at owner departure. Are there any signs of separation distress?
- What was the duration and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
- What are the daily incidents and time spent engaging in the behavior?
 - How long are the licking bouts and how many are there per day?
 - Intensities that interfere with normal daily functioning classify the behavior as a compulsive disorder.
- Is the owner able to interrupt the behavior? What is the rate and time course of return of the behavior?
- What are the eliciting stimuli, location, and/or circumstances in which the behavior occurs?
 - Identification of specific triggers allows for targeted treatment plans.
- What is the owner's response to the behavior?
 - Attention in any form (including punishment) may be reinforcing to the pet.
- Learn the previous medical workup for skin problems and treatments tried, and the responses to those treatments.
 - If the licking is self-directed, the pet needs a comprehensive dermatological evaluation prior to diagnosing a behavioral condition.
 - If the pet has responded favorably to medical interventions, some component of primary medical disease is suspected and needs to be addressed.
- Learn what treatments have been tried for the behavior and the responses to those treatments.
 - Have any verbal or physical reprimands been used?
 - These actions may be inadvertently rewarding or increase anxiety; both may aggravate the licking.
 - Have any psychotropic medications been used in the past?
 - Response or lack thereof may help direct future treatment.



DIFFERENTIAL DIAGNOSIS

Dogs

- Normal grooming behavior
- Attention-seeking behavior
- Oral disease
- Acral lick granuloma
- Compulsive disorder
- Displacement behavior
- Anxiety-related conditions
- Primary dermatological disease, such as allergic dermatitis, parasitism
- Endocrinopathies

Cats

- Normal grooming behavior
- Psychogenic alopecia
- Primary dermatological disease, such as allergic dermatitis or parasitism
- Attention seeking
- Displacement behavior
- Compulsive behavior
- Endocrinopathies (e.g., hyperthyroidism)



DIAGNOSTICS

- A complete physical and neurological examination should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted especially if allergies or endocrinopathies are suspected.
- Verify if there is an audience effect—does the licking occur without an audience; if it only occurs in the presence of an audience, then that audience may be creating conflict/stress for the pet or the behavior may be attention seeking in nature.
- Perform audio or videotaping during the owner's absence to verify or rule out separation anxiety as contributory.

Pathological Findings

- None particular unless associated with skin lesions and biopsy results



THERAPEUTICS

Behavioral Modification Techniques

- Identify and remove the triggers.
 - Manipulate the environment to reduce identified stressors, which may include blocking windows, separating animals within the home to prevent

social conflicts, and increasing resources such as food and water bowls, resting areas, and litter boxes.

- Restructure the pet-owner relationship: Create rules for interaction so the owner knows when and how to interact with their pet.
 - In the beginning, all attention is initiated by the owner.
 - The pet can receive attention when it is calm and quiet.
 - The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
 - The owner calls the pet over, begins the attention session, and also ends it before the pet does.
 - Initially, the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later, if the animal requests the item by calmly sitting and waiting, it will be given.
- All forms of positive reinforcement for licking must be identified and eliminated.
 - It is important for the owners to recognize that things as simple as eye contact, telling the pet “no,” and/or pushing the pet away may be interpreted by the pet as positive reinforcement since it gained some acknowledgment for the behavior.
 - Owners must be warned not to pay any attention except as outlined above.
 - Using extinction to eliminate a behavior often results in frustration and an escalation in the behavior before it declines, which may result in the owner giving up the treatment plan.
- Combine positive reinforcement for desirable behaviors with ignoring undesirable behaviors.
 - For example, the owner should ignore the pet when it licks but go over and pet it while it is lying quietly.
- Physical or verbal punishment should be avoided in pets with suspected underlying anxiety.
- Teach the pet to be calm, settled, and relaxed on cue in a specific location. (See the Tranquility Training Exercises handout.)
 - For dogs, this may be “go to your bed and stay” or “head down” command.
 - For cats, this can be a specific location as well, such as a basket or bed.
- Create a reliable, predictable environment.
 - Provide regular feeding, play, walks, and grooming and interactive time.
 - To the best of their ability, the owner should strive to include these interactions in their daily routine and as close to the same time as possible.
 - If the pet knows that a daily walk or playtime is forthcoming, often they will wait for it and are satiated once it is complete.
 - When the owner knows they have allotted time to the social and physical needs of their pet, they may find it easier to ignore attention-seeking behaviors at other times.
- Provide counterconditioning.
 - Teach the dog or cat to perform another task incompatible with the licking response (settle and relax in a specific location).

- Give a verbal command.
- Give the command when the pet begins to engage in licking behavior.
- Reward the new, nonlicking behavior.
- If specific triggers have been identified, then desensitization to those triggers may be useful.
- Use head halters for control.
 - The head halter and an attached leash can be used to stop licking and then reward the dog to an alternate behavior.
- Educate the owner regarding punishment.
 - Punishment is often ineffective.
 - It may worsen the licking if it is anxiety related.
 - Interactive punishment (e.g., hitting) may result in fear or aggression.
 - Withdrawal of attention for licking is a form of punishment and may be highly effective in cases of attention-seeking behavior; other remote punishments (e.g., squirt of water) may work in cases of attention-seeking behavior, but it must be delivered in a timely fashion, at the proper intensity, and consistently for it to be effective. These are difficult criteria to meet.
 - Using punishment does not alleviate the owner from providing an enriched environment.
- Avoid all attention for the problem behavior.
- Daily training exercises for both dogs and cats may be useful for control and structure.
- If separation anxiety is identified, specific therapies for separation anxiety should occur concurrently.

Accompanying Handouts

Desensitization and Counterconditioning: the details
 Structuring Your Relationship with Your Pet
 Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Antibiotics if infection is present and based on culture and sensitivity
- Various antihistamines if allergies are a suspected component in dogs
 - Hydroxyzine HCl: 1–2 mg/kg PO q8h
 - Chlorpheniramine: 4–8 mg/dog q12h PO; maximum of .5 mg/kg q12h)
- No medications are approved for use in cats and dogs for this condition; owner consent forms are advisable.
- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.
- Give TCAs if anxiety-related condition or compulsive disorder is suspected.
 - Amitriptyline HCl has antihistaminic benefits
 - Canine: 1–2 mg/kg PO q12h
 - Feline: 0.5 mg/kg PO q12–24h

- Clomipramine HCl
 - Canine: 1–3 mg/kg PO q12h
 - Feline: 0.5–1.0 mg/kg PO q24h
- Give SSRIs if anxiety or compulsive disorder is suspected.
 - Fluoxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h

Other Treatments

- Prescribe a diagnostic diet if food allergy is suspected.
- Prescribe a pheromone product (e.g., DAP—dog appeasing pheromone[®]) or Feliway[®] diffuser if anxiety is suspected as a component.

Contraindications/Precautions

- Do not use TCAs (Doxepin, Clomipramine, Amitriptyline) with MAO inhibitors (selegiline [Anipryl[®]]).
- Do not use SSRIs with MAO inhibitors (selegiline) or TCAs.
- All these drugs may lower the seizure threshold; avoid in epileptics.
- Cardiac disturbances are possible with TCAs.
- See appendices for further contraindications and other medications.
- If the problem is not a compulsive disorder or anxiety based, medication is likely to be ineffective.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Informing owners of how their behaviors may perpetuate the problem behavior is necessary. Petting, pushing away, and holding the mouth closed may all be interpreted by the pet as positive and therefore increase rather than decrease licking responses. If the owner plans to use extinction to stop the behavior, they must be committed to waiting until it stops before attending to the pet or the behavior is likely to worsen.
- Verbal intervention is usually not effective since pets are nonverbal and respond to what we do rather than what we say.
- Emphasis should focus on ignoring the attention-seeking component of the licking behaviors, not the pet.

- A complete treatment plan must include ways to eliminate the behavior and also outline clear and consistent rules for interactions.
- Compulsive disorders may respond to treatment, but relapses are common especially in stressful, uncontrolled situations.

Patient Monitoring

- Weekly telephone follow-up will help answer questions about the treatment plan, assess the frequency of licking behaviors (i.e., their increase or decrease), allow for changes in the treatment plan, and encourage the owner to continue.
- Once the behaviors begin to change, the follow-up interval can be lengthened.
- Animals on long-term medication should have blood work evaluated every 6–12 months.

Prevention/Avoidance

- Licking is often either attention seeking or a compulsive disorder, which usually have underlying anxiety components. Clear and consistent rules and interactions help animals feel calm.
- An enriched environment and appropriate activity may be preventative in some dogs and cats.

Possible Complications

- Skin lesions secondary to self-directed licking

Expected Course and Prognosis

- If attention seeking is the primary component and both the pet and the owner learn new rules for interactions, the prognosis can be quite good.
- If the behavior is a compulsive disorder, long-term therapy may be necessary.
 - Symptoms may wax and wane over time.
- Monitoring the licking level may allow intervention early in reoccurrences.
- If underlying medical components are contributory, reoccurrences are possible if the medical conditions are not treated or if they return.

See Also

Chapter 1, Acral Lick Dermatitis: canine
 Chapter 25, Attention-Seeking Behavior: canine and feline
 Chapter 29, Compulsive Disorder: canine and feline overview
 Chapter 53, Psychogenic Alopecia/Overgrooming: feline

Abbreviations

CBC—complete blood count
 DAP—Dog Appeasing Pheromone®
 h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

PO—by mouth

q—every

SSRI—selective serotonin reuptake inhibitor

TCA—tricyclic antidepressant

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*, Philadelphia: Elsevier, pp. 195–226.

Luescher, Andrew U. 2002. Compulsive behaviour In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 229–236.

Marking: canine



DEFINITION/OVERVIEW

Marking is the act of creating a signal that serves to call attention to an object, individual or area. Marking can take a variety of forms such as the visual marks created by a dog pawing at the ground. Probably the most prevalent form of canine marking involves the deposition of chemical cues that the olfactory system processes. Urine is commonly used for marking by dogs. And urine is one of the more offensive forms of marking from the human perspective, especially if the targets happen to be on household items. This chapter will focus on canine urine marking, since it tends to be the form of marking about which owners seek advice.



ETIOLOGY/PATHOPHYSIOLOGY

- This marking is considered to be a normal method of communication.
- Information regarding sexual status may be contained in the urine deposit, therefore facilitating reproductive success.
- It may serve to identify or reinforce territory, especially if there are breeches.
- The marking may serve to facilitate social interactions, especially if there is instability.
- Androgenization of females in utero next to male fetuses may affect female urine posture (leg lift instead of squat).



SIGNALMENT/HISTORY

- Age: Canine marking usually develops after sexual maturity, usually around 1 year of age.
- Gender: This behavior is more prevalent in males than females, and more prevalent in intact animals than neutered.
- Breed: Any breed may exhibit urine marking.

Historical Findings

- Small quantities of urine are deposited on vertical surfaces, novel items, or prominent objects.
- Classical posture associated with marking is elevation of one hind limb.

- Marking can occur both indoors and outdoors; however, owner complaints tend to focus on indoor marking.
- This is unrelated to outdoor elimination opportunity.
- It may occur in relation to specific arousing or frustrating event such as after seeing another dog pass by the house, owner departure from the home, new person in the home, etc.

Contributing/Risk Factors

- Sexually mature intact male dog
- Estrous female
- Novel odors
- Changes to the immediate environment, such as a new home, alterations in schedule
- Changes in social status

Pertinent Historical Questions

- What is the household composition, both humans and animals?
 - This may alert clinician to possible contributing factors (infants, other animals, etc.).
- What are the social relationships between household members including other dogs?
 - Aggression may be an underlying stressor that contributes to marking.
- What is a typical 24-hour routine for the dog with a focus on exercise, indoor management, exposure to other animals, and elimination opportunities?
 - Lack of appropriate outdoor elimination opportunity may alert the clinician to a possible house-soiling issue.
 - Lack of adequate physical, mental, and social activity may result in stress that leads to marking behavior.
 - Visits by other animals either inside or outside the home may stimulate marking behavior.
 - Determining the dog's access to various areas of the home will help to identify when marking occurs.
 - Does the dog show any distress at owner departure?
 - Does the dog show distress due to storms or other noises?
- Is the dog neutered?
 - Verify neuter status.
- When did the problematic marking start?
 - Long-standing problems in neutered animals may be more challenging to treat.
- What is the current frequency and pattern to marking?
 - Identification of a temporal pattern may alert clinician to possible triggers (e.g., only marks when houseguests stay at home).
 - Frequency is important to establish in order to assess progress.

- Have there been any significant social or environmental changes that may have coincided with the onset of marking?
 - Identification of specific triggers may help in the development of a targeted treatment plan.
- Is there any exposure to intact female dogs?
 - Estrus in female dogs may trigger marking behavior in male dogs.
- Are there any particular triggers for marking?
 - Identification of specific ongoing triggers may help in the development of a targeted treatment plan.
 - If marking only occurs when owners leave the home, then consider possible separation anxiety.
- Where does marking occur?
 - Urine marking is usually discovered on vertical surfaces or on objects.
 - This may provide some insight as to motivation (urine found only in baby's nursery; urine found where cats rest, etc.).
 - This may help to identify areas that need to be monitored/restricted during the treatment phase.
- What is the quantity of urine deposited?
 - Small quantities suggest urine marking, large quantities of urine suggest evacuation of the bladder that is more consistent with house soiling or separation anxiety or another anxiety-related elimination.
- Does the owner ever witness the marking?
 - Dogs will often mark regardless of owner presence/absence.
 - Some dogs have been conditioned to avoid marking in direct presence of people.
 - In multidog homes, this helps to verify participation of specific dog(s).
 - If the event is never witnessed, then the owner must have other means to verify culprit in a multidog home (segregation, video recording, height of urine deposited, etc.).
- What is the owner's response to marking?
 - Punitive actions to the dog that are removed in time from the actual marking event are not beneficial and may hinder treatment success by increasing stress.
 - Punishment in any form is usually unsuccessful at controlling the problem since it is difficult to implement properly.
- What is the cleaning regime for soiled spots?
 - Inadequately cleaned soiled spots may attract animal back to site.
 - Ammonia-based products should be avoided for cleaning.
 - Enzymatic cleaners are recommended.
 - Professional cleaning companies should be consulted for challenging cases.
- Are feces deposited in the home?
 - Concomitant presence of feces may suggest house-soiling problem as the sole or comorbid diagnosis.

- Describe posture of the dog when it fully evacuates the bladder.
 - Some dogs will squat to fully evacuate the bladder and reserve leg-lift urination for the purpose of marking; in these cases, it is clear that the dog is marking when urine is found on vertical surfaces.
- Does the dog suffer from any other behavioral issues such as separation anxiety or noise phobias?
 - Since inappropriate urination is a nonspecific clinical sign of multiple behavioral disorders, it behooves the clinician to inquire about other problems the dog may be exhibiting.



DIFFERENTIAL DIAGNOSIS

- Testosterone producing tumors
- Undescended testicle(s)
- Cognitive dysfunction syndrome
- Break or lack of house training
- Submissive urination
- Excitement urination
- Separation anxiety
- Noise phobias
- Urinary tract disease
- Any medical condition that causes polydipsia and polyuria



DIAGNOSTICS

- Physical examination
- Complete blood count, chemistry panel, thyroid evaluation
- Urinalysis
- Testosterone levels if uncertain of neuter status or suspicious of testosterone-producing tumor
- Additional diagnostics as indicated by initial screening tests



THERAPEUTICS

- The first course of therapy should be to neuter any intact dogs; this has a high likelihood of success.

Management

- Prevent additional indoor marking
 - Restrict access to targets via crating/baby gate, etc.
 - If confinement makes the dog anxious, the dog must first be taught how to be confined.

- Strict supervision may prevent marking, especially if dog avoids marking directly in the owner's presence.
- Prevent exposure to stimuli that elicit marking.
- Avoid situations that make the dog anxious.
- Use a bellyband (also called a cummerbund). These commercially available bands of cloth with Velcro closures wrap around the abdomen, encompassing the penis. They have an absorbent sanitary napkin to capture any urine. In some dogs, it may inhibit marking. Minimally it will prevent urine from hitting items.
- Clean soiled areas thoroughly.

Behavioral Modification Techniques

- Management alone may resolve the problem. If management is unsuccessful, impossible to employ, or difficult to maintain, then behavioral modification is indicated.
- Enhance household structure by implementing a command-/reward-based interaction scheme with all family members. (See the Structuring Your Relationship with Your Pet handout.)
 - The pet is asked to do a command before any human interaction including the delivery of food, attention, access to outdoors, etc.
 - Compliance results in delivery of item.
 - Noncompliance results in no reward given.
- If there is instability/aggression between household members (people or pets), then treat this problem (see respective chapters).
- Perform CCDS to address trigger stimuli.
 - Avoid those trigger stimuli unless part of a structured training session.
 - Practice exercises that reward relaxed, obedient behavior from the pet when the stimulus is absent. (See the Tranquility Training Exercises handout.) Some dogs may benefit from wearing a head collar to help decrease emotional arousal levels.
 - Establish a gradient of exposure for the pet to marking-provoking stimulus.
 - Engage in daily training sessions lasting approximately 10 minutes.
 - Expose the dog to the stimulus at a level below that which evokes an undesirable reaction.
 - When exposed to this low-level stimulus, the dog should be given commands and rewarded for calm, tranquil, relaxed, obedient behavior. Rewards may include play, praise, tasty food treats, etc.
 - With multiple (five to ten) successful exposures at a certain level, the gradient can be intensified slightly; if using a distance gradient, the animal can be moved closer to the trigger stimuli.
 - If the animal exhibits signs of undesirable behavior or attempts to mark, reduce the intensity of the exposure to the stimuli until the dog can respond in a calm, tranquil, relaxed, obedient manner. At the next session, start at this less intense level and progress more gradually.

- Continue this process until the dog can be exposed to the full intensity of the stimulus without reacting or marking.
- Use remote punishment for marking. This works best for dogs that target certain items such as grocery bags, shoes, suitcases.
 - Consistency is important when using any form of punishment; therefore, the dog must be prevented from marking unless owner is able and ready to deliver the remote punishment.
 - A method of remote punishment should be determined, such as something aversive enough to stop the marking behavior but not so aversive that it creates fear or otherwise compromises the welfare of the dog. Ideas include:
 - Water squirt
 - Alarm
 - Activation of a citronella spray
 - Tossing a soda pop can with pennies taped inside toward the dog (not to hit the dog)
 - Set up the dog for high probability for marking; place target item within the dog's access.
 - The owner should be in a position where they can observe the dog, but not be observed by the dog.
 - As the dog starts to lift its leg, the owner should remotely activate the punishment.
 - The punishment should interrupt the marking; if it does not, then it is not of adequate intensity.
 - The owner must set up different scenarios until the dog no longer even attempts to mark.

Accompanying Handouts

Desensitization and Counterconditioning: the details
Acute Management of Problem Behavior
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Teaching Your Pet How to be Confined
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- If chronic anxiety or stress is suspected as a contributing motivation for the marking, serotonergic (TCAs, SSRIs) antianxiety drug therapy may be helpful; these drugs would be given on a daily basis for a prolonged period. (2–3 months or longer)
 - Fluoxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Paroxetine
 - Canine: 0.5–1.0 mg/kg q24h

- Clomipramine
 - Canine: 1–2 mg/kg q12h
- If there are specific triggers for marking that occur predictably and infrequently, immediate acting, short-term anxiolytics such as benzodiazepines may be given to reduce anxiety/stress during those periods.
 - Diazepam
 - Canine: 0.5–2.0 mg/kg PRN; 1 hour prior to event
 - Alprazolam
 - Canine: 0.02–0.1 mg/kg PRN; 1 hour prior to event
- Historically, progestin therapy was used as a treatment for male urine marking; negative side effects have rendered this treatment obsolete.

Other Treatments

- Pheromones are chemical signals that are given off by one individual to affect the behavior of another member of the same species. There are commercially available synthetic pheromones reported to reduce anxiety. The canine pheromone product is DAP (Dog Appeasing Pheromone[®]), a synthetic analogue of the pheromone produced by the lactating bitch. It is available as a diffuser, collar, and spray, any or all of which may be useful in treating marking problems.

Contraindications/Precautions

- Clients should be advised that most medications are extra-label use.
- Use of TCAs and the SSRIs are not recommended in animals with seizures.
- Do not combine SSRIs or TCAs with MAO inhibitors (e.g., amitraz [Mitaban[®]], selegiline [Anipryl[®]]).
- Use caution if combining SSRIs and TCAs; this combination can result in potentially fatal serotonin syndrome.
- Animals with compromised hepatic or renal function may not be able to metabolize or clear medications normally, and so caution should be taken when treating those patients.
- If intensity of punishment is too severe, the dog may develop other behavioral problems or even escalate the marking behavior.
- If the dog associates the punishment with the presence of a person, it may only inhibit the marking in the direct presence of that person.
- Avoid medications that cause increased water consumption as a side effect (amitriptyline, prednisone, etc.).
- See Appendix A for other cautions.

Surgical Considerations

- Neuter intact animals
 - Castration will resolve or significantly reduce marking in 70–80% of male dogs.
 - Ovariohysterectomy in female dogs will remove estrus-associated marking.



COMMENTS

Client Education

- Early neutering may prevent marking problems.
- Punishment delivered “after the fact” is not an effective training technique.
- Treatment should be sought early in the course of the condition.

Patient Monitoring

- Advise owners to keep a log of urine marks to help assess treatment progress.
- Routine contact with owners (every 1–2 weeks) will provide opportunity to assess treatment success, answer questions, and adjust therapy, as necessary.
- For animals receiving chronic drug therapy, annual or semiannual physical examination and lab work (CBC, chemistry, and urinalysis) should be performed to monitor and adjust dosage accordingly.

Prevention/Avoidance

- Early-age neuter may help diminish this behavior.
- If the presence of visiting dogs in the home triggers marking, it may be best to meet other dogs in neutral territory (e.g., park).
- Keep likely targets for marking out of the environment.

Possible Complications

- Relapse is possible if triggers are reintroduced to the environment.

Expected Course and Prognosis

- Most dogs will improve if environment can be managed and provocations for marking reduced.
- Neutering intact dogs is often highly successful at inhibiting marking behavior.
- Some dogs will persist with marking despite the owner's efforts; these dogs require long-term management.

See Also

Chapter 5, Aggression/Canine: human directed/familiar people
Chapter 8, Aggression/Canine: interdog/familiar dogs
Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 40, House Soiling: canine
Chapter 50, Noise Phobia: canine and feline
Chapter 56, Separation Anxiety: canine and feline

Abbreviations

CBC—complete blood count
CCDS—counterconditioning and systematic desensitization

DAP—Dog Appeasing Pheromone®

h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

PRN—as needed

q—every

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

Suggested Reading

Connolly, Patricia B. 2002. Reproductive behaviour problems In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 128–143.

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 359–360.



Mourning Behavior: canine and feline



DEFINITION/OVERVIEW

Mourning refers to the state of sorrow over the death or departure of another. Owners occasionally report signs consistent with mourning or, more frequently, express concern about the prospect of mourning by their surviving pets. Inherent in the definition of mourning is confirming the emotional state of the dog or cat, an impossible undertaking to accomplish. This is not to assert that canines and felines don't feel grief, just that we cannot verify their particular emotional state. This chapter will explore considerations for pets that experience the loss of companion pets or humans in the home with the intent of improving client understanding and creating a successful transition.



ETIOLOGY/PATHOPHYSIOLOGY

- A true emotional grieving process akin to a human emotional process may occur in cats and dogs; it is impossible to verify or dispute.
- The animal may be reacting/responding to the changes in human behavior associated with the human grieving process.
- Loss of a companion pet/human may create instability or changes in the social structure; this instability may present as behavioral changes in the surviving animal(s).
- Animals may develop attention-seeking behaviors or anxiety-associated behaviors based on the owner's response.



SIGNALMENT/HISTORY

- Any age, breed, or gender may exhibit behavioral changes associated with the loss of a companion.
- Flexibility in feline social groupings may make them more resistant to the impact of loss of others.
 - It is important to note that cats do form preferential affiliate relationships with other cats and their owners; this may predispose them to grief or distress when those individuals die.

Historical Findings

A variety of clinical signs in the surviving pet that coincide with the loss of another pet/human may be reported by the owners, including but not limited to:

- Social withdrawal
- Increased sleeping
- Agitation
- Searching behavior
- Loss of appetite
- Increased irritability or aggression with other humans or animals
- House soiling
- Fear/anxiety
- Vocalization
- Destruction

Contributing/Risk Factors

- Close relationship
- Subordinate relationship
- Significant human grieving
- Changes in routine
- Predisposition for separation anxiety
- Other coexisting anxiety conditions such as noise phobias

Pertinent Historical Questions

- What is the household composition, including humans and other pets?
- Describe the typical daily routine both before and after the loss.
 - Changes in routine may affect the surviving pet.
- Describe the social relationship with the deceased, prior to the loss.
 - Sleeping patterns
 - Pets that slept in physical contact may be particularly susceptible to loss.
 - Play patterns
 - If pets routinely played together, the surviving pet may have a significant loss of mental and physical stimulation.
 - Feeding routine/patterns
 - Social facilitation may have contributed to food consumption, especially between canines.
 - Elimination patterns
 - If one pet routinely covered over the elimination of the other pet, elimination routine may be disrupted.
 - If one pet routinely initiated requests for outdoor access, the remaining pet may begin to house soil due to lack of readily recognizable signs to the owner of the need to eliminate.
 - If possible, identify dominate/subordinate roles.

- Perhaps more significant in canine relationships, a very subordinate dog may have difficulty initiating actions without the leadership of the dominant dog.
 - Dogs that took their social cues from other dogs may now become extremely anxious and/or aggressive without the ability to model their behavior after other canine members.
- Have owners list specific behavioral changes that coincided with the loss of the pet/human. Include any triggers, frequency, intensity, and owner's response.
 - General statements such as "my dog is depressed" are not particularly helpful.
 - Get specific examples of what the animal is doing, and try to have the owners quantify the behavior and describe how they respond.
- Identify how the human household members are coping with the loss.
 - Human grief may impact animal behavior.
 - Humans may be soliciting comfort from the surviving pet, such as close physical contact, creating situations that trigger anxiety/aggression in the surviving pet.
- Learn about the last full medical workup on the surviving pet(s).
 - Dealing with medical and emotional needs of an ailing pet may have resulted in lack of attention to the medical/emotional needs of the surviving pet(s).



DIFFERENTIAL DIAGNOSIS

Dogs

- Attention-seeking behavior
- Fear/anxiety
 - Separation anxiety
- Instability in social structure
 - Lack of leadership
- Infectious, metabolic, or degenerative disease
- Cognitive dysfunction

Cats

- Attention-seeking behavior
- Fear or anxiety
- Infectious or degenerative disease
- Cognitive dysfunction



DIAGNOSTICS

- Verify medical significance of claims.
 - A reduced appetite may represent adequate caloric consumption; previous social facilitation/competition may have encouraged overeating.

- The correlation between onset of behavioral changes/clinical signs and loss of a companion may be coincidental. Many of the clinical signs that owners attribute to “mourning” are nonspecific signs that are noted with a variety of disease processes.
 - Physical and neurological examinations should be conducted.
 - Perform a complete blood count, chemistry profile, and thyroid evaluation.
 - Perform other diagnostic tests as indicated by initial findings.



THERAPEUTICS

In most cases, clinical signs resolve with the passage of time. This may be due to a multitude of reasons including a distancing from the event, reduction of the active human grieving process, the establishment of new routines, and stabilization in household social structures.

Safety

- If aggression is present, safety precautions to avoid further aggression should take top priority.
- If the surviving pet is placing itself in danger (e.g., trying to escape from an enclosure), then steps must be taken to prevent further self-injury.

Management

- If triggers for aggression can be identified, then they should be avoided. Examples include:
 - Fighting cats should be segregated in different areas of the home.
 - If hugging the dog elicits aggression, humans should stop hugging the dog.
- If destruction or house soiling is occurring, then temporary measures should be taken to prevent further damage to the home such as containment in a pet-proof area or day care boarding.

Behavioral Modification Techniques

- In many cases, the apparent grieving process may, in fact, be merely a loss of leadership. A human may need to assume the role that the deceased played, such as initiating activities and providing direction/cues.
 - Provide a daily, structured routine that provides adequate social interaction and exercise.
 - Provide gentle, consistent leadership via the structuring your relationship program. (See handout.) Essentially every interaction is preceded by a command. If the command is completed successfully, the interaction can occur. While all animals can benefit from predictability and structure, dogs that were subordinate to the deceased may benefit significantly.

- Comforting physical touch and quiet time spent with the surviving pet may have a beneficial effect on everyone going through the grieving process; however, extreme coddling and spoiling of surviving animals should be avoided.
- If behaviors are suspected to be attention seeking, remove any response to those behaviors. (See Chapter 25, Attention-Seeking Behavior: canine and feline.)
- For dogs that start to house soil, a return to basic puppy house-training techniques may be necessary. In essence, this involves frequent accompanied outings with praise for outdoor elimination and supervision or confinement when inside the home to prevent indoor elimination. (See house soiling chapters.) If marking is suspected, refer to specific chapters to address this behavior.
- For pets that exhibit inappetence/anorexia, first confirm that it is clinically significant. If significant:
 - Wait (unless medically contraindicated).
 - Attempt to feed highly palatable, soft foods.
 - For dogs, social facilitation (feeding within sight of other dogs) may encourage consumption; take care to use barriers to prevent food-related aggression.
 - Supplementation with tastier items may encourage consumption but also may create a new, permanent expectation.
- Treat any comorbid diagnosis such as separation anxiety.
- While a “replacement pet” may be considered as the easy solution by some, it won’t necessarily be successful for a variety of reasons:
 - The new pet doesn’t assume the same social role as the deceased pet.
 - There are challenges with integrating the new pet, increasing household stress.
 - The new pet may add more instability to the tenuous social structure.

Accompanying Handouts

Structuring Your Relationship with Your Pet
Tranquility Training

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Drugs are usually not indicated for treatment of mourning behavior; the passage of time and provision of structure is adequate.
 - For persistent extreme cases that have a clinical presentation that is consistent with depression or anxiety, serotonin-enhancing medications may help. These medications would be used on a daily basis over the course of a few months while implementing behavioral modification. Examples of commonly used serotonin-enhancing medications include:
 - Fluoxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h

- Paroxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h
- Clomipramine
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
- Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
- Buspirone
 - Canine: 1–2 mg/kg q8–24h
 - Feline: 0.5–1.0 mg/kg q8–24h

Other Treatments

- Pheromones are chemical signals that are given off by one individual to affect the behavior of another member of the same species. There are commercially available synthetic pheromones for both canine and feline patients that may help reduce anxiety. They have not been systematically studied for treating mourning.
 - Canine Pheromone Product (e.g., DAP—Dog Appeasing Pheromone®); synthetic analogue of the pheromone produced by the lactating bitch, available as a diffuser, spray, and collar
 - Feline Product: Feliway®, synthetic analogue of the feline facial pheromone, available as a diffuser and spray
- Touch therapy
- While alternative medications such as herbal preparations have been suggested for anxiety-related behaviors in animals, these substances have not yet been systematically studied for these conditions in these species.
- Many communities offer pet loss support groups. Providing owners with information about these resources can help everyone in the recovery process.

Contraindications/Precautions

Clients should be advised that most medications are extra-label use; specific drug monographs should be consulted for specific contraindications/precautions.

- Baseline bloodwork (CBC, chemistry panel) is suggested prior to prescribing any off-label medication. Animals with compromised hepatic or renal function may not be able to metabolize or clear medications normally, and so caution should be taken when treating those patients.
- An absence of apparent grieving by the surviving pets may be very disturbing to the owners.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.



COMMENTS

Client Education

- It is important to recognize that different species will respond differently to death and that individuals within a species will also show different responses to the same experience.

Patient Monitoring

- Keeping in contact with clients in the month following a death in the family can provide them with invaluable support.

Prevention/Avoidance

- Clients often ask if allowing the surviving pets to witness the death or observe the body of the deceased is helpful for the surviving pet in dealing with the loss. There is currently no data to support that this helps with the pet's grieving process. However, it may help individual animals and it may be important to family members to offer them the option.
 - Potential benefits
 - There may be some level of recognition by the surviving animal that the other animal is deceased and this could result in reduced searching behavior for deceased pet upon return home.
 - The presence of the surviving pet during the euthanasia may provide a unique support system for the family.
 - Potential pitfalls
 - Often clients are disappointed that the surviving pet doesn't exhibit signs consistent with grief.
 - The surviving pets should have handlers devoted to them during the procedure so that the owners can focus on the pet being euthanized.
 - If there is struggling or vocalization associated with the euthanasia process, the surviving pet may become agitated/aggressive and complicate the process.

Possible Complications

- Prolonged mourning period with physical consequences may occur.
- Owner's persistent grief impacts the recovery of all involved.
- Pet's that are predisposed to suffer from separation anxiety may find the loss of a companion the trigger for full expression of the condition.

Expected Course and Prognosis

- An adjustment period is to be expected following the loss of any household member; there may subtle changes such as modifications in sleeping locations or more dramatic changes such as anorexia.

- Most animals will adjust within days to months to the new situation.
- Loss of a dominant animal may create a greater disturbance, and it may take several weeks for the new social order to be established.

See Also

Chapter 8, Aggression/Canine: interdog/familiar dogs
Chapter 16, Aggression/Feline: intercat
Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 39, Generalized Anxiety
Chapter 40, House Soiling: canine
Chapter 41, House Soiling: feline
Chapter 46, Marking: canine
Chapter 62, Urine Marking: feline

Abbreviations

CBC—complete blood count
DAP—Dog Appeasing Pheromone[®]
h—hour
mg/kg—milligrams per kilogram
q—every

Acknowledgment

Chapter reviewed by Enid Traisman, MSW,CT, CFS; Dove Lewis Pet Loss Support Director, Portland, Oregon.

**DEFINITION/OVERVIEW**

Mouthing refers to oral contact with inhibited jaw pressure as to not inflict an injury on another. Play biting refers to the use of the mouth when engaged in playful contact with another, once again without intent of inflicting injury. Aggressive play encompasses a wide range of exuberant, excessive play maneuvers including mouthing, body slamming, jumping, etc. Mouthing and play biting are considered normal forms of interaction/communication for the dog, however can become problematic when directed toward people and/or when the dog is very boisterous/persistent or has not learned appropriate bite inhibition. Dogs that are mouthing/play biting/aggressive playing are not engaged in aggressive posturing; in fact they often exhibit body postures that are consistent with play behavior. Often human response inadvertently rewards the behavior, as attention in any form may be considered gratifying to the dog. An episode of mouthing/play biting/play aggression can, in some animals, escalate to a more serious affective form of aggression. This is most likely to occur if the owner challenges or interactively punishes the dog during these episodes.

**ETIOLOGY/PATHOPHYSIOLOGY**

- Using the mouth/body to interact with another being is normal for dogs.
- Dogs learn how to modulate the pressure in their jaw by the response they receive from others; other dogs will yelp and discontinue interaction if a bite during play is too forceful.
- By about 18 weeks of age with appropriate experience, most dogs have learned to moderate their jaw strength appropriately.
- Dogs learn how to modulate their level of exuberance during play by the reaction from others; other dogs may aggress or discontinue interaction if the play gets too boisterous.
- Direct interactive human punishment may be interpreted as a threat by some dogs and result in avoidance or aggression by the dog.
- Dogs that are raised in isolation or removed from the litter at an early age may not have the chance to learn proper modulation of their jaw strength/play behavior via practice on littermates.
 - Soft mouthing during play is well tolerated.
 - Hard pressure from the mouth results in yelp/termination of play bout.



SIGNALMENT/HISTORY

- While any age breed or gender can exhibit mouthing or play biting/play aggression, the most likely presentation includes
 - Age: puppy or adolescent
 - Breed: active breeds; retrievers or other breeds that are bred for using their mouths may show an inclination for mouthing behavior

Historical Findings

- Often started as a young puppy, during times of play or arousal, the puppy used mouth/body to interact.
- Often owner response to mouthing/play aggression was to give dog some level of attention whether it was positive or negative attention, thus reinforcing the mouthing/play biting/play aggression.
- Owner may engage in physical play with the dog that encourages inappropriate play/biting.
- Increased arousal levels during greetings/play may trigger excessive mouthing/play.
- The dog may be unruly/boisterous in a variety of situations.
- If owners applied direct/interactive punishment for mouthing, such as scruff shake; holding the muzzle closed; yelling, or hitting, the dog's arousal level may have escalated and resulted in offensive aggression.
- At the time of consult, often the dog uses the oral contact/rough play to initiate an interaction with people.

Contributing/Risk Factors

- Puppy/adolescent dog
- Oral behaviors may escalate during transition from deciduous to permanent dentition: 14–30 weeks
- Lack of appropriate outlets for exercise
- Lack of appropriate outlets for oral play/activity
- Attention—negative or positive—for mouthing behavior/rough play
- Active encouragement of uninhibited biting/body slamming that may occur during aggressive/rambunctious play such as wrestling with the dog
- Lack of obedience training
- Lack of structured interactions and clear rules for obtaining attention, play, or other social and environmental needs

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - This will help to identify household members at risk for inadvertent injury, such as young children or the elderly.
 - This may help to identify household members that may sabotage the program.

- Presence of other dogs may provide outlets for appropriate play/oral interaction.
- When did mouthing/play biting/aggressive play start?
 - Typical onset is as a young puppy.
 - Reinforcement for behavior may trigger an upsurge.
- Are there specific human targets for the mouthing/play biting/play aggression?
 - If the dog only targets specific people, this may help the clinician ascertain behavioral interactions by those people that encourage the behavior.
- Is there a certain time of day where mouthing/play biting/play aggression is more likely?
 - If the clinician determines that there is a predictable time/situation where the behavior occurs, it will allow the treatment plan to be designed to prevent those triggers or engage the dog in another behavior prior to the start of the undesirable behavior.
- What is the intensity of the oral contact?
 - While play biting and mouthing can cause some lesions on the target, in general the pressure is modulated so that minimal injury is sustained.
- What other body postures/vocalizations does the dog exhibit during the oral contact/rough play?
 - All postures or actions need to be interpreted in the context of what the rest of the dog looks like/is doing to evaluate it accurately. Dogs engaged in play aggression/play biting or mouthing generally show the following signs:
 - Overall body carriage is generally relaxed.
 - The pupils may be slightly dilated from arousal, but the dog is not giving a direct, intense stare.
 - The tail is relaxed (not stiff) in a neutral position and may be wagging.
 - The ears are at a neutral position.
 - There may be no vocalization or some play growling.
 - The mouth is open but the lips are not retracted. The teeth may make contact with the skin, but the jaw pressure is modulated as to avoid crushing injury and in most cases, even breaking skin (an exception to this may be skin of the young or elderly or punctures incurred by sharp deciduous teeth).
 - The encounter may begin with the above body postures, but if the owner uses punitive methods to interact with the dog, the dog may shift into a defensive responses with a change in affect and body posture.
 - If the dog shows a constellation of signs that are consistent with aggression (such as stiffening, direct stare, snarling, growling, biting) then the condition is not accurately described as play biting or mouthing. Other forms of aggression should be considered. (See aggression-related chapters.)
 - These may occur only after the owner has initiated punitive and/or painful punishment.
 - See chapters on aggression for postures associated with various forms of aggression.

- What is the owner's response to mouthing/rough play?
 - This may be the most important historical question as many owners are inadvertently rewarding the undesirable behavior by giving the dog attention.
 - Any interaction with the dog when it is mouthing/engaging in rough play may be considered rewarding to the dog.
 - Direct, interactive punishment may actually escalate a neutral interactive behavior into aggression, creating a more serious situation.
- What is the exercise and play schedule for the dog?
 - If not provided with adequate play and exercise for the age/breed of dog, the dog will find other outlets; those may include inappropriate play with people/mouthing for attention.
- Are toys/chew items available to the dog?
 - Dogs should be provided with toys/chews that encourage safe and appropriate oral activity.
- Learn how owners play with their dog.
 - Physical games that encourage rough body interaction and oral contact with the owner (e.g., wrestling) may confuse the dog by encouraging the undesirable behavior some of the time.
- What have owners already tried to stop the behavior?
 - This will allow the clinician to identify any inappropriate responses and avoid giving suggestions that have previously failed.
 - Oftentimes owners have inadequately implemented a reasonable form of treatment; lapses in proper implementation can be identified.
- How and what is the pet fed?
 - Identification of delivery manner and type of food may elucidate areas for improvement.
- Is there any evidence of dental disease/problems?
 - Ask the owners if they have noted any unusual odors, discharge, loss of appetite, excessive drooling.



DIFFERENTIAL DIAGNOSIS

- Normal social behavior to inappropriate targets (eg. humans)
- Another form of aggression
- Attention-seeking behavior
- Oral abnormalities/disease
- Hyperkinesis



DIAGNOSTICS

- A complete physical and neurological examination should be performed with specific attention given to the oral cavity; further diagnostic testing as indicated by the results of these examinations should be conducted.



THERAPEUTICS

Safety

- The elderly, young, and immunocompromised may be at risk of injury; segregation may be necessary.
- While most mouthing, play biting, and aggressive play does not result in significant injury to the target, in cases where someone is getting injured, a basket muzzle, segregation, or a headcollar (e.g., Gentle Leader[®]) and lead may be necessary.

Management

- Segregate from likely targets.
- Discontinue any activities that encourage uninhibited biting/mouthing human body parts or rough play.
 - Wild exuberant play by any family members should be stopped.
- If the dog tends to grab at clothing, avoid wearing loose/flowing clothing that may encourage the behavior.



■ **Fig. 48-1** Dogs can continue to play with head collars but owners have better control. Photograph courtesy of Premier Pet Products.

Behavioral Modification Techniques

- It is important to recognize that young puppies need to learn bite inhibition or a “soft mouth” and that some soft mouthing can be allowed. (See Prevention/Avoidance below.)
- Painful or persistent oral contact/play aggression has three basic treatment principles: provision of appropriate outlets for oral behavior and play; negative consequences for inappropriate oral behavior/play; and redirection of inappropriate oral behavior/play.
 - Dogs must be given daily mental and physical exercise.
 - Walks provide physical exercise.
 - Social interactions with other dogs, when safe and possible, provide mental and physical exercise.
 - Owners should use feeding as an opportunity for oral activity: meals can be delivered inside puzzle food toys.
 - When the dog makes oral contact with the human body with anything more than minimal force, all interactions should cease immediately; the person should draw away the body part, turn away and, if necessary, exit the area. The negative consequence for the inappropriate oral behavior is removal of human attention/interaction. When the dog has ceased interaction with the human for several moments, the human can return their attention to the dog, ideally getting the dog to perform a command prior to interaction.
 - If the dog is too large, boisterous, or persistent to ignore, having the dog wear a headcollar and a leash allows the handler to simultaneously withdraw attention and gently pull on the leash, applying pressure to the bridge of the dog's nose, inhibiting mouthing behavior. When the mouthing has ceased and the dog is calm, the human can return their attention to the dog, ideally getting the dog to perform a command prior to interaction.
 - Interactive punishments, such as holding the muzzle closed/hitting the dog on the muzzle/scruff shaking the dog, should not be done as they may have harmful consequences including creating a dog that is apprehensive/aggressive about the approach of human hands near its face.
 - Remote punishments such as squirts of water or making an aversive sound for mouthing can be applied successfully in some cases; however, there is still a risk of creating a negative association toward the person delivering the punishment. Timing is important any time punishment is used; it needs to be tightly correlated (1–2 seconds) with the behavior that is being punished. Often when owners try to use tools such as shake cans or water pistols, the items are not readily available and the timing of the punishment is off, rendering it ineffective.
 - In some cases, simply redirecting the oral behavior/aggressive play to a more appropriate target is successful at curbing the problem. This is most

appropriate when the owners can anticipate when the mouthing/aggressive play is likely to occur. For example, if the dog always mouths people during excited greetings, providing the dog with a special toy to carry/chew when they first arrive home may avert inappropriate human-directed mouthing.

- All interactions with the dog should be based on a command/reward relationship. Prior to any attention, food, access to areas, etc., the dog should be given an obedience command. If the dog responds immediately to the command, it can be given the reward of attention, treat, dinner, access to yard, etc. If the dog does not obey the command, the dog should not be rewarded and the owner should temporarily cease interaction with the dog. Nonresponse should **not** result in repeated requests or forcing the dog to comply with the command.

Accompanying Handouts

Acute Management of Problem Behavior
Jumping Up: teaching controlled greetings
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Teaching Drop and Retrieving Stolen Items
Teaching "Leave It"
Tranquility Training Exercises

Drugs

- No drugs are indicated for mouthing/play biting/play aggression.

Other Treatment

- Basic obedience skills should be mastered in group or private lessons.
 - A release command may be helpful to interrupt any tugging/biting at clothing.

Contraindications/Precautions

- While the intent of most mouthing/play biting/play aggression is not to injure, people can sustain bruises, cuts, and scratches; or more serious injury if they are knocked down; at-risk individuals should be protected.

Surgical Considerations

- If dental disease is identified, it should be addressed.
 - Surgical removal of retained deciduous teeth, if present
- Extraction of teeth is not recommended as a treatment protocol.



COMMENTS

Client Education

- Clients should recognize that dogs explore their world with their mouth and that some oral play and exploration is to be expected and therefore need to provide and encourage use of appropriate items.
- Owners need to be part of teaching a puppy bite inhibition by responding consistently to painful bites with attention withdrawal.
- The dog's perspective is what is important when determining efficacy of a response. Although we may intend something to be punitive, it may actually be rewarding to the animal.

Patient Monitoring

- Initial follow-up should be weekly to assess owner compliance and dog's response to therapy.

Prevention/Avoidance

- Provide puppies and adolescent dogs with appropriate outlets for exercise such as walks/games in the yard directed toward toys, etc.; avoid full contact wrestling with dogs.
 - Provide puppies and adolescent dogs with appropriate oral toys and encourage their use, especially during periods when the dog may be likely to mouth/play bite. For example, if the dog is particularly excited upon greetings and likely to mouth, carry a toy and offer it to the dog during the greeting.
 - Teach puppies bite inhibition or a “soft” mouth.
 - Recognize that some oral exploration is normal; gentle mouthing can be allowed and may be necessary for the puppy to learn adequate bite inhibition.
 - If the pressure increases to anything more than minimal force, the human should immediately withdraw from all interaction with the puppy for several moments. A bridging sound can be used with the withdrawal such as a high-pitched yelp or “ouch.”
 - When the puppy is no longer biting/mouthing, the human can reengage the puppy.

Possible Complications

- Poor owner compliance will perpetuate the problem, especially if the dog is intermittently reinforced for behavior.
- If other more appropriate interactions and means of gaining attention are not provided, the behavior may actually escalate.
- Human injury may occur.

Expected Course and Prognosis

- When owners first withdraw attention for the undesirable mouthing or play aggression behavior, the behaviors may escalate for a period before extinguishing.
- If the treatment plan is followed, improvement should be noted within 2–4 weeks.
- Relapse is uncommon unless mouthing is inadvertently or intentionally encouraged again.

See Also

Chapter 2, Aggression/Canine: classification and overview

Chapter 43, Jumping on People: canine

Suggested Reading

Lindell, Ellen. 2002. Control problems in dogs In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 71–73.

Nocturnal Behavior: canine and feline



DEFINITION/OVERVIEW

Nocturnal behavior is usually classified as behaviors that occur at night while the owners are sleeping. Commonly reported disruptive nocturnal behaviors include vocalization (whining, barking, meowing), restless movements (pacing, shaking, pawing, grooming), and play-related behaviors.



ETIOLOGY/PATHOPHYSIOLOGY

- May be associated with painful conditions, endocrinopathies, inability to go without elimination overnight, cognitive changes, and other metabolic diseases
- May be associated with other anxiety or phobic problems such as storm phobias, barrier frustration (if crated at night), separation anxiety
- May be attention seeking, including solicitation for a service such as feeding, access to another location, etc.
- May be a manifestation of the crepuscular nature of the feline daily rhythm; increased activity at dawn and dusk



SIGNALMENT/HISTORY

- No breed or gender predilection
- More often reported in young animals and older animals

Historical Findings

- The owner complains of inability to sleep due to the behavior of the pet.
- Frequency and duration of the nocturnal behavior may be variable.
 - Some animals wake frequently for short periods of time, while others are awake for hours.
 - Some pets gradually awaken the owners earlier each morning; this may correlate with seasonal changes in the time of dawn.
- Owner tolerance of waking up at night may vary.
- Common complaint of owners is when the dog experiences a storm phobia.

- Nocturnal behavior may be associated with the inability of the pet to hold the urine/feces overnight and subsequent requests to be let outside.

Contributing/Risk Factors

- Any pain-related syndrome can cause an animal to wake at night.
 - Arthritis, ear infections, dental disease may be factors.
 - Allergies and resultant pruritus may be contributory.
- Endocrinopathies, metabolic, and neurological diseases may be causes of the behavior.
 - Some neurological disorders could include sleep disorders.
- Iatrogenic factors may be a reason for nocturnal behavior.
- Increased water consumption and consequently increased urination may be a factor.
- Cognitive changes in elderly pets may be a cause.
- Lack of appropriate exercise, activity, and environmental enrichment during daytime hours for younger animals may be a cause of nocturnal behavior.
- Owner response (attention, feeding, etc.) to nocturnal behavior that the pet perceives as reinforcing may maintain and/or escalate the nocturnal behavior.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the dog or cat.
- What is the daily routine, including feeding, training, exercise and play, and social interaction? Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
 - This allows the clinician to evaluate if the physical and mental needs of that pet are being met.
- What has been the duration and progression of the problem behavior?
 - Onset in mature animals is more likely to be associated with age-related disease pathology such as hyperthyroidism, metabolic diseases, degenerative diseases, etc.
- Where does the pet sleep?
 - This may elucidate possible underlying causes for the nocturnal behavior.
- What is the problem behavior the pet engages in at night and how often does the pet wake the owners at night?
- Is there only one family member targeted?
 - Specific target individuals may indicate reinforcement by that person.
- What is the owner's response to the behavior?
 - What do they think the pet "wants" and what do they do? Response may be inadvertent reinforcement of the nocturnal behavior such as providing feeding, attention, access to outdoors.
 - How does the pet respond to their intervention?

- Learn about the ability of the owner to settle the pet at night and whether this lasts or the behavior returns.
 - Does the pet ever sleep through the night?
- Treatments tried and response to those treatments.
 - Have they used isolation, verbal, and/or physical reprimands?
 - Have they tried any medications?
- Do they believe the behavior is associated with any trigger such as storms, newspaper delivery, or early work departure by neighbors, etc.?
 - If identified, specific triggers may be avoided or targeted for treatment.



DIFFERENTIAL DIAGNOSIS

- Medical conditions causing pain/discomfort
 - Skin allergies and resultant pruritus must be considered.
- Endocrinopathies
- Cognitive decline
- Neurological conditions
- Metabolic diseases
- Iatrogenic
- Compulsive disorders
- Attention-seeking behavior
- Solicitation for a service, such as feeding, access to outdoors, etc.



DIAGNOSTICS

Complete physical and neurological examinations should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.

- In elderly animals, a cognitive assessment may be useful. (See Chapter 28, Cognitive Dysfunction: canine and feline.)

Pathological Findings

- None particular to nocturnal activity, but findings may be associated with metabolic disorders



THERAPEUTICS

Management

- If the pet can be confined at night, it might be useful to confine the pet away from owner's sleeping areas to allow the owners to rest. (If unable to confine the pet, see the Teaching Your Pet How to be Confined handout in Appendix D.)

- This also may help to reestablish a routine of sleep during nighttime hours and extinguish any attention-seeking behaviors.
- For dogs, the use of a headcollar (e.g., Gentle Leader®) may allow the owner to control and settle the dog so that it goes back to sleep.
- Dogs should be taken out to eliminate just prior to bedtime accompanied by the owner to verify outdoor elimination and emptying of the bladder and bowel.
- Providing activity in the early evening such as playtime or walks may be useful.
 - Play and activity should not occur just prior to bedtime since the animal may still be excited and unable to settle down.
- Avoid engaging in activities/providing treats that promote large quantities of water consumption late in the evening as this may trigger the need for middle of the night elimination.
- Providing a pet door with free access to the outdoors may eliminate waking associated with request for outdoor access.

Behavioral Modification Techniques

- Restructuring the pet-owner relationship: create rules for interaction so the owner knows when and how to interact with their pet.
 - Initially, all attention is initiated by the owner.
 - The pet receives attention when it is calm and quiet.
 - The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
 - The owner calls the pet over, begins the attention session, and also ends it before the pet does.
 - Initially, the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later if the animal requests the item by calmly sitting and waiting, it will be given.
- All forms of positive reinforcement for waking must be identified and eliminated.
 - It is important for the owners to recognize that simple things such as eye contact, telling the pet “no,” and/or pushing the pet away may be interpreted by the pet as positive reinforcement since it gained some acknowledgment for the behavior.
 - Owners must be warned not to pay any attention except as outlined above.
 - Using extinction to eliminate a behavior often results in frustration and an escalation in the behavior before it declines, which may result in the owner giving up the treatment plan.
 - In cats, the owner must not get up and feed the pet or let it outside to roam; this is extremely reinforcing for the cat.
- Teach the pet to be calm, settled, and relaxed on cue in a specific location. (See the Tranquility Training Exercises handout.)
 - For dogs, this may be “go to your bed and stay” or “head down” command.
 - For cats, this can be a specific location as well such as a basket or bed.
- Create a reliable, predictable, enriched environment.
 - Provide regular feeding, play, walks, grooming, and interactive time.

- To the best of their ability, the owner should strive to include these interactions in their daily routine and as close to the same time as possible.
- When the owner knows they have allotted time to the social and physical needs of their pet, they may find it easier to ignore attention-seeking behaviors at other times.
- If the owners are gone for long hours during the day, creating an enriched environment to allow adequate play and exploration for the pet is essential.
- Provide CCDS to specific triggers if they exist, such as storms, noises, etc.

Accompanying Handouts

Desensitization and Counterconditioning: the details
 Managing Noise and Storm Phobias
 Structuring Your Relationship with Your Pet
 Teaching Your Pet How to be Confined
 Tranquility Training Exercises

Drugs

- Drugs are only indicated in conditions where an underlying pathology is identified.
 - Pain medications as indicated for arthritis or other musculoskeletal pain
 - Antipruritic medications for animals suffering from pruritus
- Anxious/phobic animals may benefit from anxiolytic medications. (See associated chapters for treatment of specific conditions.)
 - Benzodiazepine therapy
 - Serotonin-enhancing medications
- Animals suffering from a compulsive disorder may benefit from serotonin-enhancing medications.
- Animals suffering from cognitive decline may benefit from selegiline (Anipryl®) therapy.
- No medication is indicated for normal animals engaging in attention-seeking behaviors or solicitation of services.
- Phenothiazine tranquilizers such as acepromazine do impart significant sedation; however, their use does not address the underlying cause of the nocturnal activity and should not be the mainstay of treatment.

Other Treatments

- All underlying medical problems that have been identified should be treated.
- For elderly dogs, treatment of painful conditions can aid sleep.
- Dogs or cats showing cognitive changes should receive appropriate intervention for that condition. (See Chapter 28, Cognitive Dysfunction: canine and feline.)
- Dogs with storm phobias need other interventions. (See Chapter 60, Thunderstorm Phobia.)
- Suggest a pheromone product (e.g., DAP—dog appeasing pheromone® or Feliway®) diffuser if anxiety is suspected as a component.

Contraindications/Precautions

- In young animals, using medication to induce sleep without addressing other social and activity needs is unlikely to be successful.
- Medication in elderly pets should be chosen based on medical health status and monitored over time.



COMMENTS

Client Education

- Owners should be educated as to how behaviors become perpetuated and how reinforcing waking with attention or feeding makes it more likely in the future. Short-term attempts to ignore the behavior backfire because rather than diminishing the behavior, the delay between the actions of the pet and response will generally strengthen the response.
- Verbal chastisement is not effective since pets are nonverbal and respond to what we do rather than what we say.
- Emphasis should focus on finding the reason for nocturnal activity and addressing the underlying needs of the pet whether they are medical or social.
- A complete treatment plan must include ways to eliminate the behavior, and also outline clear and consistent rules for interactions.

Patient Monitoring

- Weekly telephone follow-up will help answer questions about the treatment plan, assess the frequency of nocturnal behaviors (i.e., their increase or decrease), allow for changes in the treatment plan, and encourage the owner to continue.
- Once the behaviors begin to change, the follow-up interval can be lengthened.
- Animals on long-term medication should have blood work evaluated every 6–12 months.

Prevention/Avoidance

- Enriched environment and appropriate activity may be preventative in some dogs and cats.
- Daily social and exploratory activities will help meet the needs of young animals and make it more likely that they will sleep at night.
- Treatment of emerging medical and behavioral disorders early in the course may help.

Possible Complications

- Inability to rest at night causes the owner to relinquish the pet.

Expected Course and Prognosis

- If nocturnal activity is due to lack of appropriate daytime interactions and these are provided, the prognosis is good. Most behaviors will begin to respond within 2–6 weeks.
- If the problem is due to underlying medical conditions, resolution of nocturnal behavior is likely to be dependent on their resolution.
- If storm phobias contribute to nighttime waking, unless properly treated, the problem may be ongoing.

See Also

Chapter 25, Attention-Seeking Behaviors: canine and feline
 Chapter 28, Cognitive Dysfunction: canine and feline
 Chapter 56, Separation Anxiety: canine and feline
 Chapter 60, Thunderstorm Phobia
 Chapter 63, Vocalization: canine and feline

Abbreviations

CCDS—counterconditioning and systematic desensitization
 DAP—Dog Appeasing Pheromone[®]

Suggested Reading

- Bowen, Jon. 2002. Miscellaneous behaviour problems In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 119–127.
- Landsberg, Gary, Wayne Hunthausen, Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*, Philadelphia: Elsevier.



Noise Phobia: canine and feline



DEFINITION/OVERVIEW

A noise phobia is a profound, persistent, and excessive fear of noises. A phobic response can vary from a catatonic state to a manic state. The prevailing characteristic is that the response is extremely excessive and considered abnormal in relation to the context. A fear of noises describes a feeling of apprehension associated with a noise. Fearful behavior may be normal or abnormal depending upon the context.



ETIOLOGY/PATHOPHYSIOLOGY

- When frightened, the sympathetic branch of the autonomic nervous system is activated initiating a cascade of physiological events associated with epinephrine release from the adrenal medulla; classically known as the “fight or flight” survival response.
- The following systems may be affected:
 - Behavioral: hypervigilance, avoidance behaviors, possible aggression if handling or restraint attempted
 - Cardiovascular: tachycardia
 - Endocrine/Metabolic: alterations in the HPA axis; release of glucocorticoids; glucose release into the bloodstream
 - Gastrointestinal: inappetence; aberrant appetite; gastrointestinal distress (salivation, vomiting, diarrhea, tenesmus, hematochezia)
 - Nervous: increased motor activity; repetitive activity; trembling; self-injury
 - Musculoskeletal: weight loss over time as response to chronic stress effects on appetite; decreased food intake due to hiding behavior; poor condition attributable to increased motor activity and self-injury (weight loss, injured pads, damage to teeth and gums, and abrasions and lacerations)
 - Ophthalmic: dilated pupils in response to autonomic nervous system stimulation
 - Respiratory: tachypnea and the attendant metabolic changes
 - Skin/Exocrine: lesions, usually secondary to self-injury (lick granulomas); excessive shedding

- Pathology is unknown in animals that develop an excessive fear or phobic response to noises.
 - The following areas of abnormalities are suspected:
 - Neurotransmitter (e.g., serotonin, norepinephrine, GABA) abnormalities
 - Overactive locus ceruleus in the brain stem
 - Malfunctioning amygdala
 - Hippocampal atrophy
 - Genetics may influence auditory sensitivity.
 - Inadequate exposure to noises during early development may play a role in development of noise phobias.
 - A learned aversion due to a particularly traumatic or aversive noise-associated event.
 - A learned behavior due to owner response may be a cause for noise phobias.
 - If the owner attempts to comfort a slightly anxious animal, this may be misinterpreted as praise for their actions by the animal and actually encourage anxious response.
 - If the owner punishes an anxious animal, it may increase the fear.
 - Hypothyroidism has been proposed to be associated with the development of fearful/phobic responses; however, significant data for an association between hypothyroidism and a noise phobia is lacking.
 - Auditory sensory changes (Partial hearing loss) may affect response to noises.



SIGNALMENT/HISTORY

- Any age, gender, or breed can present with noise phobias.
 - Sensitive canine breeds may include shepherds, collies, and other herding dogs.
 - Certain lines of dogs may be considered “noise sensitive” or “noise stable.”
 - Adolescent and elderly animals may be more susceptible.

Historical Findings

- Certain noises, often loud or sharp noises, trigger a cascade of nonspecific signs of anxiety including but not limited to the following:
 - Salivation
 - Defecation
 - Urination
 - Destruction
 - Vocalization
 - Trembling
 - Escape attempts

- Increased or decreased locomotor activity (e.g., pacing or frozen)
- Hiding
- Increased vigilance/scanning
- Vomiting
- The animal may become fearful of stimuli associated with the noise.
 - For example, an animal may get nervous when the owner starts the toaster if a previous toasting experience resulted in burned toast setting off the fire alarm.

Dogs

- High variability of signs can occur between individuals.
 - Owners are usually most concerned about the more active response, such as destruction, vocalization, escape behavior, pacing, elimination, etc.
 - Passive behaviors, such as a catatonic state, withdrawal, hiding, hypersalivation may be overlooked by owners, however are consistent with an anxious state and may impact the animal's welfare.

Cats

- Hiding and escape behaviors are more typical for cats.
- Noise phobias may trigger secondary problems such as
 - urine marking
 - toileting problems
 - redirected aggression
- Occasionally noise reactive cats may respond to loud noises by offensive aggressive attacks that can be very injurious and dangerous.

Contributing/Risk Factors

- Presence of other phobias such as separation anxiety or thunderstorm phobia
- Effects of sensory deprivation during developmental stages unknown but may contribute to development of problems
- Noise-sensitive breeds or lineages
- Exposure to loud or sharp noises

Pertinent Historical Questions

- Inquire and confirm that a noise triggers the phobic response.
 - If dog acts fearful at other times, it may have a comorbid anxiety diagnosis or be suffering from another condition.
 - The clinician should pursue, identify, and treat all anxiety-related conditions.
 - If the noise only occurs when the dog is outdoors, they may begin to show a fear of going outside, which also may need to be addressed.

- Identify which noises or types of noises trigger the phobic response.
 - This will allow the clinician to develop a treatment plan targeted at those specific noises.
- Learn the onset and duration of phobic response to noises.
- Gather detailed descriptions of the pet's behavior during the most recent noise phobic event.
 - Confirm that the clinical signs are truly phobic.
 - Recognize that affected animals may show active or passive behavior, but the response is sudden and profound.
 - Identification of individual responses will help to target management.
- Gather descriptions of pet's typical response to a variety of noises and ask if there have been any changes in response over time.
 - Phobic animals generally develop an unvarying pattern of response.
- Ask owners how they respond to the pet during an episode.
 - This will help to identify inappropriate responses.
- Establish time lapse to recovery for pet.
 - This will allow clinician to assess progress; a quicker recovery time suggests improvement.
- Identify owner's ability to control pet's exposure to trigger noises.
 - Treatment will require avoidance of those noises for a period of time.



DIFFERENTIAL DIAGNOSIS

- This includes any condition with nonspecific signs of anxiety/fear.
- The decisive diagnostic factor is that a noise triggers the phobic response/undesirable behavior.
- If inappropriate urination or defecation is part of the clinical presentation, then differentials for those must be considered, which include:
 - Gastrointestinal disease
 - Parasitism
 - Upper or lower urinary tract disease
 - Incomplete house training
 - Litter box aversion
 - Endocrinopathy resulting in polyuria/polydypsia

Dogs

- Separation anxiety
 - Some dogs are afraid to be at home alone because they fear the occurrence of the phobic event, in this case the noise. These cases require treatment for the noise phobia perhaps in conjunction with therapy for separation anxiety.
- Claustrophobia (barrier frustration)
- Fear of people, places, animals

- Play/exploration
 - May result in destructive behavior that owners mistakenly attribute to an anxiety-related condition, especially if they did not witness the event
- Territorial aggression
 - May result in destructive behavior at barriers and vocalization that owners mistakenly attribute to an anxiety-related condition, especially if they did not witness the event
- Acute or chronic painful conditions
- Auditory sensory changes
- Cognitive dysfunction syndrome

Cats

- Separation anxiety
- Fear of people, places, animals
- Chronic or acute painful conditions
- Metabolic diseases
- Cognitive dysfunction syndrome
- Urine marking



DIAGNOSTICS

- Historical information is usually adequate to make a presumptive diagnosis of a noise phobia.
- Physical and neurological examinations should be conducted.
- CBC, chemistry panel, and thyroid testing are indicated to rule out metabolic causes for nonspecific signs or if drug therapy is to be considered.



THERAPEUTICS

- Management
 - In some cases, avoidance of specific noises is feasible and curative.
 - For example, if a pet shows a phobia to the electronic beeping of a fire alarm, change the batteries on the fire alarm regularly so that it won't give intermittent beeps to warn that the battery is getting low.
 - Avoid leaving a noise-phobic pet alone during an anticipated noise exposure.
 - Ensure that the animal is always either contained or on a leash so that unanticipated noises don't result in a pet bolting away and getting hurt or lost.
 - Provide a reliable hideout/escape spot for the pet.
 - It always needs to be accessible.
 - It should be in a location that minimizes the intensity of the phobic event.
 - Preferably it would be in a dark/quiet location.

Behavioral Modification Techniques

■ Foundation work

- Mastery of basic obedience commands (e.g., sit/stay) must be established.
- Owners of dogs should implement the Structuring Your Relationship with Your Pet program. (See handout.) All interactions are based on a command/response relationship, to teach the dog to view household members as predictable, consistent, and reliable leaders. Only calm, relaxed, and obedient behavior is rewarded.
- Owners of dogs should implement the Tranquility Training Exercises (see handout) initially with very few external distractions present. These daily training sessions reward calm, relaxed, obedient behavior. With success, the sessions should be repeated in more distracting circumstances. Using a mat or bed allows a “mobile” tranquil spot that can be transported to other locations.
- Create a hierarchy of reinforcers for the pet. These can be food, play, or attention. The most desirable ones should be reserved for therapy sessions only. Highly valued food generally works best for dogs and cats.

■ Systematic desensitization

- Avoid exposure to trigger noises unless part of the controlled training program.
- Identify some way to modify the noise so that it isn't as intense.
 - Have owners purchase a commercially recorded soundtrack of noises; www.soundsscary.com or CD recording sold under the category of “sound effects.”
 - Have owners create a taped version of the noises that elicit the phobic response.
 - Have owners use distance from noise, muffling of the noise, etc.
- Establish the intensity/volume of the noise that is necessary to evoke fear response.
- Play recorded noise at a level *below* that which triggers the phobic response for 3–5 minutes; the pet should show no signs of anxiety, fear, or agitation.
 - If the pet reacts with anxiety, fear, or agitation, lower the volume until the pet is comfortable.
 - It is preferable for the pet owner to expose the pet to the sound CD for multiple short (3–5 minute) training periods spaced throughout the day instead of one long (30-minute) training period.
- With success, gradually increase the volume until the pet is nonreactive at full volume.

■ Counterconditioning

- Pair the recorded noise with a pleasurable activity for the pet such as eating or playing. The pet can be first asked to assume the previously trained relaxed state in the training location.
 - Play the CD and when sounds first occur, engage the animal in a pleasurable activity (provide with food, engage in play).
 - As the pet is eating or playing, continue to have the CD running.

- If the pet shows signs of anxiety, fear, or agitation then the volume is too high. Return to a lower volume and proceed more gradually.
- Proceeding when the pet is anxious may intensify responses rather than lessening them.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Managing Noise and Storm Phobias
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Pharmacological intervention targeted at the neurotransmitters involved in anxiety and fear responses may be helpful. Involved neurotransmitters include:
 - Serotonin
 - Norepinephrine
 - Dopamine
 - GABA
- Benzodiazepines: episodic, acute, short-acting, anxiolytic medications; enhance GABA
 - Give approximately an hour prior to anticipated noise event.
 - Anticipate 3–6 hours of anxiolytic benefits.
 - Undesirable side effects may include sedation and disinhibition of aggression.
 - Regular use may result in dependence and tolerance.
 - Paradoxical reaction (increased agitation, anxiety) can occur in a small percentage of animals.
 - Diazepam is associated with acute liver failure in a small percentage of cats.
 - Examples of benzodiazepines and doses:
 - Diazepam
 - Canine: 0.5–2.0 mg/kg q6h
 - Feline: 0.2–0.5 mg/kg q8–12h
 - Alprazolam
 - Canine: 0.02–0.1 mg/kg q6–8h
 - Feline: 0.02–0.05 mg/kg q8–24h
 - Clorazepate
 - Canine: 0.55–2.2 mg/kg q8–24h
 - Feline: 0.2–0.5 mg/kg q12–24h
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - Indicated for situations where exposure to the noises is unpredictable and unavoidable or a comorbid diagnosis of other anxiety-related conditions.

- Some serotonergic medications are specific for serotonin, and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
- Give on a daily schedule regardless of noise exposure.
- These drugs may take 2–4 weeks to achieve efficacy.
- Continue until successful completion of treatment regime; anticipate several months of treatment.
- These can be used in combination with a benzodiazepine to achieve sufficient anxiolytic effects during a noise event.
- Examples:
 - Fluoxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h
 - Paroxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h
 - Clomipramine
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Selegiline (Anipryl®)
 - Canine: 0.5–1.0 mg/kg q24h in the morning
 - Feline: 0.5–1.0 mg/kg q24h in the morning
 - Buspirone
 - Canine: 1–2 mg/kg q8–24h
 - Feline: 0.5–1.0 mg/kg q8–24h
- Dopaminergic agents
 - Dopamine blockers include the phenothiazines such as acepromazine; although widely used in the veterinary profession, this class of drugs is not recommended as a standard course of treatment for noise phobias as their primary effect is to render the animal physically unable to respond but do not address the problematic anxiety.

Other Treatments

- Canine pheromone product (e.g., DAP—Dog Appeasing Pheromone®) has been shown to be efficacious in reducing signs of noise phobias in dogs. It is available as a diffuser, spray, and collar.
- Feliway® pheromone diffuser may have general anxiolytic properties for cats. It is available as a diffuser and spray.
- A headhalter on dogs may help to reduce anxiety, provide greater security against an escape, and help refocus the dog during a noise exposure.
- Acupuncture may be a helpful treatment.
- Anxiety wrap may be helpful.

- Various homeopathic and naturopathic remedies have been promoted as treatments, but rigorous scientific data on efficacy is lacking.

Contraindications/Precautions

- Do not punish an animal for fearful behavior as this is likely to aggravate the condition.
- Do not comfort an animal for fearful behavior as this may inadvertently reinforce the undesirable outward behaviors.
- No drugs are currently labeled by the FDA to treat noise phobias.
- Do not use selegiline (Anipryl®) with other serotonergic medications or other MAO inhibitors.
- Inappropriately applied treatment programs may intensify rather than diminish phobic responses. Ongoing treatment when phobic responses do not decrease can make the pet more sensitive to the noise rather than less sensitive.

Surgical Considerations

- Surgical intervention is not a standard treatment for fear-based conditions.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Clients should be made aware that CCDS to a recorded sound may not translate into full resolution of real noises.
- Not all recordings are equal. The owner should attempt to get a professionally recorded soundtrack designed for animal use.
- Clients with new pets should attempt to stay at home with pets during their first exposures to loud noises (e.g., fireworks) to assess the pet's response.
- Affected pets should be supervised whenever possible.
- Escape behavior associated with noise phobias results in missing pets; pets should be safely contained during anticipated noise exposure. Microchip identification may help in the recovery of lost pets.
- Since all noises can't be anticipated, these pets should always be either contained or on a secure leash.

Patient Monitoring

- Regular follow-up contact should be made throughout the treatment period.
- If on prolonged drug therapy, annual or semiannual physical examinations and blood work should be performed.

Prevention/Avoidance

- Puppies should be exposed to a variety of stimuli, including noises, at safe levels for habituation.
- Avoid placing animals in situations that may result in a traumatic experience. As a general rule, pets should not be taken suddenly and directly into noisy events such as firing ranges or fireworks displays. Instead, gradually acclimate the pet to those environments over time.

Possible Complications

- Despite a successful treatment program, the pet may relapse if it experiences a traumatic/aversive noise-associated event.
- If the noises only occur sporadically, training exposure may need to be periodically revisited to prevent resensitization.

Expected Course and Prognosis

- A CCDS program may take several weeks or months to complete.
- Severely phobic animals may relapse, especially if training is not maintained.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline
 Chapter 36, Fireworks Phobia
 Chapter 60, Thunderstorm Phobia

Abbreviations

CBC—complete blood count
 CCDS—counterconditioning and systematic desensitization
 CD—Compact disc
 DAP—Dog Appeasing Pheromone®
 FDA—Food and Drug Administration
 GABA—gamma-amino butyric acid
 h—hour
 HPA—hypothalamic–pituitary–adrenal
 MAO—monoamine oxidase
 mg/kg—milligrams per kilogram
 q—every

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 251–255.

Overall, Karen L. 2002. Noise Phobia in Dogs In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 164–172.



Pica: canine and feline



DEFINITION/OVERVIEW

Pica is generally described as the ingestion of nonfood items. Most cases are not usually caused by disease, but anemia and gastrointestinal or hepatic disease may lead to ingestion of nonfood items. In rare cases, malnutrition due to feeding regime or medical causes may lead to polyphagia and ingestion of nonfood items. Pica can also be an attention-seeking behavior, a compulsive disorder, and sequelae to various types of anxiety including separation anxiety.



ETIOLOGY/PATHOPHYSIOLOGY

- No clear documented etiology is known.



SIGNALMENT/HISTORY

- Species: affects both dogs and cats
- Gender: no sex predilection known
- Breed: may be more common in Oriental breed cats (See Chapter 64, Wool Sucking and Fabric Eating: feline.)
- Age: more common in young animals

Historical Findings

- Pica includes ingestion of nonfood items.
- Dogs tend to eat rocks, clothing, and feces. (See Chapter 30, Coprophagia for details.)
- Cats are commonly presented for eating fabrics, plastics, and plants.

Contributing/Risk Factors

- Young, curious animals lacking more attractive or appropriate outlets for play and exploration exhibit this behavior.
- In cats, many things have been proposed as causative factors but have not been substantiated: deprived environment, indoor only, separation anxiety, multicat household, feeding patterns/routine, early weaning.

- Large breed dogs without adequate activity and social interaction may be at risk for pica.
- Pica may occur in conjunction with stealing behavior in some dogs as they attempt to prevent owner from retrieving the object.
- An underlying disease predisposing the pet to anemia, maldigestion, or malabsorption may be present.
- Other anxieties that result in destruction and then ingestion of nonfood items may be present.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.
- What is the daily routine, including feeding, training, exercise and play, and social interaction?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
 - Learn the behavior of the pet at owner departure. Are there any signs of separation distress?
- What is the duration and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
 - Has there been the need for surgical intervention to remove ingested items?
- What are the daily incidents and time spent engaging in the behavior?
 - For cats, how long are the bouts of fabric eating/chewing and how many are there per day? If these occur with great frequency, consider a compulsive disorder and see Chapter 64, Wool Sucking and Fabric Eating.
 - Does it occur only when the pet is unsupervised or at other times as well?
- What is the owner's ability to interrupt the behavior and the rate and time course of return of the behavior?
- What are the eliciting stimuli, location, and/or circumstances in which the behavior occurs?
- What is the owner's response to the behavior?
- What treatments have been tried and the response to those treatments?
 - Have verbal or physical reprimands been used, and if so, how did the pet respond to them?



DIFFERENTIAL DIAGNOSIS

Dogs

- Normal exploratory behavior
- Deprived environment
- Medical problems that cause polyphagia
- Compulsive disorder

- Anxiety with destructive chewing and subsequent ingestion of items
- Iatrogenic induction of polyphagia

Cats

- Normal exploration and play
- Deprived environment
- Medical problems that cause polyphagia
- Compulsive disorder
- Anxiety related
- Iatrogenic induction of polyphagia



DIAGNOSTICS

- A complete physical and neurological examination should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.
- Contrast imaging, endoscopy, or surgical exploration may be necessary if the animal is showing signs of foreign body obstruction.
- Fecal examination may be beneficial.
- For severe pica or pica in an older animal, a CBC, chemistry panel, and thyroid panel should be performed. In addition, serum folate, cobalamin, and TLI may be indicated to check for malabsorption issues.

Pathological Findings

- The clinician may see anemia, hypoproteinemia (maldigestion/malabsorption), or changes representative of a portosystemic shunt (microcytosis, target cells, hypoalbuminemia, low BUN, ammonium biurate crystalluria) if the problem has a medical cause or interferes with normal eating.
- Peripheral eosinophilia may occur with gastrointestinal parasitism or eosinophilic inflammatory bowel disease.
- Results may suggest diabetes mellitus, hyperthyroidism, hyperadrenocorticism, or drug-induced causes of polyphagia.



THERAPEUTICS

Safety

- Pica does not present safety concerns for the people, but it can be injurious to the pet.
- Dental trauma may occur if the pet targets hard objects; physical containment from the items may be necessary.

- If the animal ingests items that can cause obstruction and possible surgical intervention, then confinement where nonfood items are unavailable when unsupervised is prudent.

Management

- Treat any underlying disease (e.g., endocrinopathies, gastrointestinal disease, or pancreatic disorders) and withdraw any drugs that could cause polyphagia.
- Correct any dietary deficiencies and make sure the animal is on a complete and balanced diet for their lifestage and is being provided with the proper amount.
 - In homes with multiple pets, make sure each animal has a food bowl and the opportunity to eat undisturbed. This may mean separation of animals during feeding times. This also allows food consumption to be verified.
- Limit access to targeted nonfood items via containment, remove items from environment, or use a basket muzzle.
- Change the animal's motivation to ingest the nonfood item by providing attractive alternatives and sufficient exercise.

Behavioral Modification Techniques

- Some cases of pica have underlying anxiety issues that need to be addressed.
 - If separation anxiety is part of the problem, this must also be treated. (See Chapter 56, Separation Anxiety: canine and feline.)
 - If the problem appears to be a compulsive disorder, see Chapter 29, Compulsive Disorder: canine and feline and Chapter 64, Wool Sucking and Fabric Eating: feline.
- Suggest owners perform environmental manipulation to reduce identified stressors, which may include blocking windows, separation of animals within the home to prevent social conflicts, and increase in resources such as food and water bowls, resting areas, and litter boxes.
 - Do not allow dogs that show extreme territorial responses related to the pica behavior such as grabbing and eating mail, curtains, window covering to be unsupervised with visual access to people entering, leaving, or going by the property.
 - Do not allow dogs to have unrestricted and unsupervised access to the yard or outdoors if pica occurs at those times.
- Teach a “leave it” command to call the dog away from inappropriate items when outside under supervision; a headcollar with a leash attached will facilitate compliance with this technique. Reward the pet when it complies. (See the Teaching “Drop It” and Retrieving Stolen Items handout.)
- Pica, due to play and exploration, is best treated by adding structure and creating appropriate play, exploration, and exercise opportunities.

- Add structure by restructuring the pet-owner relationship: create rules for interaction so the owner knows when and how to interact with their pet.
 - In the beginning, all attention is initiated by the owner.
 - The pet can receive attention when it is calm and quiet.
 - The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
 - The owner calls the pet over, begins the attention session, and also ends it before the pet does.
- Initially the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later if the animal requests the item by calmly sitting and waiting, it will be given.
- Create a reliable, predictable environment.
 - Keep to a schedule of regular feeding, play, walks, grooming, and interactive time.
 - To the best of their ability, the owner should strive to include these interactions in their daily routine and as close to the same time as possible.
 - If the pet knows that a daily walk or playtime is forthcoming, often they will wait for it and are satiated once it is complete.
 - When the owner knows they have allotted time to the social and physical needs of their pet, they may find it easier to ignore attention-seeking behaviors at other times.
- Teach the pet to be calm, settled, and relaxed on cue in a specific location. (See the Tranquility Training Exercises handout.)
 - For dogs, this may be “go to your bed and stay” or “head down” command.
 - For cats, this can be a specific location as well such as a basket or bed.
- Providing adequate activity and attention and appropriate chew items may help pica in dogs and cats.
 - Chew items should be made more desirable by enhancement with food.
 - Daily aerobic activity is useful including fetch, walks, and training.
 - Teaching basic mastery of obedience tasks may help with mental stimulation and decrease random exploration and possible pica.
- Providing feeder toys and foraging opportunities may diminish pica in cats.
 - Use multiple food bowls dispersed throughout the environment and only fill certain ones on different days. Allows for “foraging” to find food. Figure out total daily allotment of food prior to dispersal to avoid obesity.
- At no time should physical or verbal punishment be used with the exception of a “no” and redirect the dog to an appropriate item. This works best with a headcollar with a leash attached.

Accompanying Handouts

Structuring Your Relationship with Your Pet
Tranquility Training Exercises

Teaching “Drop It” and Retrieving Stolen Items

Teaching “Leave It”

Teaching Your Pet How to be Confined

Drugs

- If the problem is due to a barren environment or lack of appropriate interactions, then medication is unwarranted.
- If pica is a component of anxiety or a compulsive disorder, medication such as TCAs and SSRIs may be useful. (See appropriate chapters for individual anxiety conditions and compulsive disorders.)
- No medications are approved for use in cats and dogs for this condition; owner consent forms are advisable.
- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid profile should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.

Other Treatments

- If anxiety is suspected, pheromone diffusers may be useful.

Contraindications/Precautions

Pica is a clinical sign with multiple different possible underlying etiologies. Haphazard application of treatments without achieving a probable diagnosis is unlikely to be successful.

Surgical Considerations

- Surgery may be necessary if the ingestion of inappropriate items leads to intestinal blockage.



COMMENTS

Client Education

- If the problem is a compulsive disorder, clients should be made aware that there may be a decrease in the frequency of the problem, but pica episodes may still occur.
- Providing enriched environments, adequate interaction, and good supervision are essential for improvement.
- If the owner continues to leave items out for the pet to obtain, the problem will be more difficult to treat.

Patient Monitoring

- Telephone follow-up should be scheduled within 2 weeks to determine if the client is complying with the treatment plan and if any behavior changes have occurred.
- If dietary management and environmental and behavioral changes did not markedly improve the problem, prescribe further diagnostic work and/or medication.

Prevention/Avoidance

- Providing enriched species-appropriate environments and interaction may prevent pica behavior.
- Adequate resources in multiple animal households help diminish anxiety that can lead to inappropriate behaviors such as pica.

Possible Complications

- Gastrointestinal complications: foreign bodies, diarrhea, vomiting, halitosis

Expected Course and Prognosis

- If the behavior is not due to underlying anxiety or a compulsive disorder, then treatment is often successful if social and environmental needs can be met.
- Some animals may still have predilection for certain items that may be managed by avoidance.

Pregnancy

- Both queens and bitches will ingest placenta and offspring fecal matter; this is not pica nor abnormal.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline
Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 29, Compulsive Disorder: canine and feline overview
Chapter 56, Separation Anxiety: canine and feline
Chapter 64, Wool Sucking and Fabric Eating: feline

Abbreviations

BUN—blood urea nitrogen
CBC—complete blood count
SSRI—selective serotonin reuptake inhibitor
TCA—tricyclic antidepressants
TLI—trypsin-like immunoreactivity

Suggested Reading

- Bowen, Jon. 2002. Miscellaneous Behaviour Problems In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, p. 124.
- Landsberg, Gary Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*, Philadelphia: Elsevier, p. 175.



Predatory Behavior: canine and feline



DEFINITION/OVERVIEW

Predatory aggression refers to the sequence of behaviors that are associated with the catching and killing of another animal for consumption. It is considered a very innate or “hard-wired” behavior and is linked to basic survival needs. It differs significantly from other forms of aggression that are performed with the intent of intimidating or threatening another entity. Most owners consider some level of predation, such as dogs chasing squirrels or cats hunting mice, to be species-typical behaviors that don’t require intervention. However, when the targets of predatory behavior are more socially unacceptable (e.g., dog to cat, dog to infant; cat to pet hamster) or the owner is concerned with welfare for wildlife (e.g., cat predation of birds), they may seek assistance.



ETIOLOGY/PATHOPHYSIOLOGY

- Predatory aggression is considered a normal behavior in carnivores.
- Neural pathway for predatory aggression follows: cortex to the amygdala to the lateral hypothalamus to ventral tegmental area via the medial forebrain bundle.
- Research has elucidated neural components that are involved in the predatory sequence.
 - Lateral hypothalamus: Stimulation facilitates predatory behavior.
 - Medial forebrain bundle: Stimulation facilitates predatory behavior.
 - Ventral tegmental area: Stimulation elicits predatory aggression.
 - Acetylcholine facilitates predatory behavior.
 - Serotonin inhibits predatory behavior.
 - GABA inhibits predatory behavior.



SIGNALMENT/HISTORY

- Age: Predation can be seen at any age when an animal is physically capable (sensory and motor skills are adequate).
 - Queens start bringing prey to the nests for kittens to practice their skills when kittens are about 4 weeks of age.

- Breeds: Any breed can exhibit.
 - Certain breeds have been selectively bred for various aspects of their predatory behavior; examples follow:
 - Terriers were bred to chase and catch small burrowing creatures such as rats.
 - Herding breeds such as Australian shepherds were bred to chase and round up livestock.
 - Hounds were bred for hunting using sight (greyhounds) or smell (bloodhounds/dachshunds) to track prey.

Historical Findings

- Predatory aggression may involve the complete predatory sequence or portions thereof.
 - Stalk: crouched down, stealth-like movements, intense visual focus on target
 - Chase: quick run to target
 - Catching: contact with target
 - Biting: oral contact with target
 - Killing
 - Consumption
- There is a lack of preliminary threats such as hissing or growling/barking as these would be counterproductive and serve to warn the prey of an impending attack.
- Targets may vary but usually involve a quick moving stimulus and/or stimuli with high-pitched vocalizations.
 - Typical targets that present for behavioral intervention with dogs include cats, small dogs, skateboarders, bicyclists, livestock, human infants.
 - Typical targets that present for behavioral intervention with cats include birds, mice, snakes, human infants.
- Predation of wildlife intensifies when prey species is most active, often at dawn/dusk.
- Digging may be part of the chase sequence if the prey species lives underground.

Contributing/Risk Factors

- Genetic predisposition
 - Selective breeding for aspects of the predatory sequence (e.g., herding dogs) will increase the likelihood of those behaviors.
- Early experience
 - Early observation of and participation in predatory behavior will facilitate its expression; however, it is not mandatory for expression of predation.
 - Cats reared in isolation will still show predatory behavior.
- Learning/positive reinforcement
 - The predatory act provides physical and mental stimulation for the animal. The pet may experience internal self-reward by engaging in some or all of the predatory sequence, thereby increasing the likelihood that they will repeat the behavior.

- **Hunger**
 - Most client-owned pets do not need to hunt prey to meet their caloric needs, as is often evidenced by the lack of consumption; however, for those animals in need of calories, hunger can motivate predation.
 - In cats, predation appears to be somewhat independent of hunger.
- **Access to prey**
 - Predation cannot occur without a target.
 - Predatory-type play may occur in cats directed toward other animals and people.

Pertinent Historical Questions

- **What is the household composition, including people and other pets?**
 - This will help to identify other household members at risk; potential prey species must be kept segregated from the predator.
 - If a human infant is the target of predatory behavior, risk of cohabitation even with segregation is usually considered too high; placement in a situation with absolutely no access to infants or euthanasia should be considered.
- **What is the environment where the animal is kept?**
 - Management will be a key factor in controlling predatory behavior; if the animal has uncontrolled access to prey (e.g., outdoor cat or dog on an unfenced rural property), then the prognosis is very poor.
- **What is the typical daily routine for the pet?**
 - This will help the clinician to identify areas where lapses in management may occur (e.g., dog allowed off leash at the park).
 - This will help the clinician to assess if the animal's physical and mental needs are being met with adequate exercise and mental activity.
- **What was the age at onset/duration?**
 - Animals with a long history of reinforcement (fun chase, successful catch of prey, etc.) may be more resistant to intervention.
- **Describe the behavior including targets, body postures, and behavioral sequences.**
 - It is important to gather actual descriptions rather than owner interpretations.
 - Predation will involve some or all of the following: stalk, chase, catch, bite, kill, eat.
 - If vocalization is part of the preliminary sequence, it is unlikely to be solely predatory behavior.
 - Components of the predatory sequence may be expressed during other behavioral motivations. For example, cats exhibit predatory behaviors during play, and dogs may chase away targets during territorial protection, etc.
 - Target information will help to determine the prognosis and safety of treatment.
 - If owners can't or are unwilling to control the pet's access to targets, then prognosis is poor.
 - If people are the target of predatory behavior and are at significant risk, euthanasia needs to be considered.

- What is the owner's response/intervention?
 - Gathering information about effectiveness or lack thereof of interventions already tried will help the clinician to determine level of motivation and responses that may have exacerbated the condition.
 - Punishment after the event is unlikely to change the pet's motivation to engage in the predatory act and may create other behavioral problems.
- Query all family members as to any human encouragement of predatory behavior.
 - Some family members may encourage predatory behavior in some scenarios, such as chasing stray cats off the property.
 - All encouragement of predatory behavior needs to cease.
- Learn the ability of the owner to control access to prey.
 - If the owner cannot or will not control the animal's opportunity to engage in predatory behavior, then treatment success is unlikely.



DIFFERENTIAL DIAGNOSIS

Dogs

- Attention-seeking behavior
 - If humans intermittently or consistently pursue the dog when they suspect predatory behavior, the dog may manipulate this response into a way to achieve attention.
- Play
 - The dog's play patterns may contain aspects of the predatory sequence. The intensity, sequence, target, and overall demeanor of the dog may help the clinician to determine if it is true predation or part of the play sequence.
 - Dogs that are playing will have a lower intensity; they won't follow the predatory sequence, may target unlikely stimuli (e.g., bigger dog), and intersperse other body postures that are consistent with play (play bow, wagging tail, vocalizations, etc.).
- All other forms of aggression
 - Other forms of aggression are generally referred to as affective aggression and involve threat displays, either offensive or defensive in nature.
 - Sympathetic arousal and the attendant behavioral changes will be noted.
 - Vocalization and prominent postural displays are often part of the sequence, in direct contrast to the predatory aggressive animal that tries to stay hidden and quiet until successful capture.
 - Components of the predatory sequence may be present during other forms of aggression (e.g., the chase component is involved in chasing intruders off property in a display of territorial aggression).

Cats

- Play behavior
 - Components of the predatory sequence are seen in feline play behavior.

- All other forms of aggression
 - Other forms of aggression are generally referred to as affective aggression and involve threat displays, either offensive or defensive in nature.
 - Sympathetic arousal and the attendant behavioral changes will be noted.
 - Vocalization and prominent postural displays are often part of the sequence, in direct contrast to the predatory aggressive animal that tries to stay hidden and quiet until successful capture.



DIAGNOSTICS

- In most cases, predatory behavior is not due to any underlying disease process, so extensive diagnostics are not necessary.
- For any animal experiencing a change in behavior, it is prudent to perform a physical examination, neurological examination, and baseline blood work: CBC, chemistry panel, and thyroid panel, as well as additional tests as indicated by findings during initial screening.
- For those animals consuming prey, perform diagnostics to rule out diseases that cause polyphagia. The baseline should include a physical exam, CBC, chemistry profile, thyroid panel, and fecal analysis.
 - Perform thyroid profile in older feline patients with sudden increase in predatory behavior.



THERAPEUTICS

Safety

- The prey targets will always be vulnerable regardless of apparent treatment success since predatory behavior is very resistant to change, and relapses are likely; therefore, lifelong management is indicated.
- If human infants are the target of predatory behavior, euthanasia needs to be considered.

Management

- The safest and most successful treatment protocol is purely management—do not allow access to the prey.
 - For cats, this may mean making them indoor only.
 - For dogs, this may include proper solid fencing (not electronic fencing), leashed at all times when outside, etc.
 - For predatory behavior between two animals in the same home, segregation will need to be maintained, especially when not directly supervised.
 - Create lots of escape options for the target prey (e.g., high perches for cats) that are not accessible to the predator.

- Have the predator wear a sensitive bell (or other noise maker) so that both the prey and the human can keep track of its location.
- Remove any items from the prey that makes them more vulnerable. They should not wear bells or tags that make noise.

Behavioral Modification Techniques

None of the behavioral modification techniques are considered curative; however, depending upon the situation, it may be prudent to engage in these treatments to minimize the likelihood of predation if there is a break in management.

Dogs

- Depending upon the target and the situation, different treatment objectives may be desired. Full avoidance/aversion to target may work in some situations while, in others, being able to verbally interrupt the predatory sequence may be adequate. In all of these situations, the dog must be managed during the training so the dog can't practice the uninhibited predatory behavior.
- Ensure that diet is meeting the caloric needs of the dog.
- Ensure that the dog is getting adequate physical and mental stimulation in the form of walks, play, etc.
- If the dog does not have basic obedience skills, these will need to be established via positive-based reinforcement training before proceeding with other training.
 - Headcollars (e.g., Gentle Leader®) and leashes help with control.
- Owners should implement the suggestions in the Structuring Your Relationship with Your Pet handout. All interactions are based on a command/response relationship, to teach the dog to view household members as predictable, consistent, and reliable leaders. This regular practice of deference may help to improve overall responsiveness of dog to owners' commands.
- Owners should implement the Tranquility Training Exercises (see handout) initially with very few external distractions present. These daily training sessions reward calm, relaxed, obedient behavior. With success, the sessions should be repeated in more distracting circumstances. This will help to strengthen responsiveness to owners' commands.
- Make target aversive.
 - Identify a form of punishment that is significant enough to inhibit the predatory behavior but does not compromise the dog's welfare. The punishment needs to be remotely activated so the dog doesn't associate it with the presence of a person. A remotely activated citronella collar is an example of remotely activated punishment device. It is advised that owners work with a trained professional when implementing this type of training to assure proper timing, intensity, and consistency in training.
 - Set up the dog in a situation where it is likely to exhibit the predatory sequence but not put others at risk. For example, dog may be able to view

a cat with a barrier separating them. When the dog shows the first signs of predation (usually intense visual focus/crouch), deliver the punishment.

- If it is the proper intensity and form of punishment, it should inhibit the predatory sequence.
 - If the punishment does not inhibit the predation or it results in another unacceptable behavior such as aggression/extreme fear, then it is not an appropriate punishment and treatment with it should be discontinued.
 - This sequence will need to be repeated in a variety of locations/targets, etc., so the dog learns that the consequences of predation are universal.
 - Success is reached when the dog no longer engages in the predatory sequence when faced with a likely target in a wide variety of circumstances; ideally the dog would consider the prey item aversive and actually avoid the prey target.
 - While this might work for some dogs, it may only result in the inhibition of the outward manifestations of predation and if placed in the circumstance where predation can occur and there is no adult supervision, predation with injurious consequences is possible.
- Create a positive association with the target: Perform CCDS to target.
 - Daily or twice daily training session of 5 minutes duration should be attempted.
 - Identify a gradient to expose the target; this may include distance from target, movement/speed of target, size of target, etc.
 - The dog needs to be on leash. A headcollar may be a helpful tool in controlling and redirecting the dog.
 - Identify a fabulous reward for the dog, such as tasty food, favored toy, etc.
 - Expose the dog to the modified, low-intensity prey target (perhaps sedentary cat at a significant distance).
 - Ask the dog to do something that is incompatible with the predatory sequence, such as sit/watch owner, using slight pressure on the headcollar as needed to aid in gaining compliance.
 - If the dog complies, any pressure is released from the headcollar and the dog is rewarded with praise/treats.
 - If the dog doesn't comply, it is not rewarded; the dog is removed from the situation and the target prey is modified at the next session to be even less provocative to the dog.
 - With success, the intensity of the prey can be increased (closer to dog, prey more active, etc.).
 - Continue to reward acceptable behavior.
 - When the dog does not exhibit predatory behavior toward the target or can easily be redirected by verbal cues, training is complete. Regular (weekly) practice should be maintained to help prevent against relapse.
 - Since the owner is an integral part of this training, the dog may still exhibit predatory behavior when the owner is not directly present. Therefore, the dog should never be left alone with access to the prey.

- Create a taste aversion.
 - Taste aversions develop when an animal experiences a violent gastrointestinal illness following the consumption of a food. The animal learns to avoid that food in the future.
 - This would only be attempted on animals that consumed their prey.
 - Ideal window for triggering illness is within 30 minutes of prey consumption.
 - After consumption, the animal is given a medication to induce illness such as apomorphine.
 - This may be of limited use since vomiting and gastrointestinal illness is not necessarily the same physiological state; to create a taste aversion, significant gastrointestinal illness is necessary.

Cats

- Since most of feline predation is targeted at wildlife over which owners have little to no control, management consisting of restricted access is the most successful treatment.
- Providing the cat with adequate acceptable ways to express their predatory drive through play with fishing pole type toys, laser lights, etc., may help to reduce predatory behaviors directed at other animals.
- Owners should be advised to remove any devices (e.g., bird feeders) that may attract prey species to the cat's territory.
- Placing large, loud bells on the cat's breakaway collar that alert prey to an impending attack may thwart a predatory attack.
- A commercially available bib (Cat BibTM) has been shown to reduce predation on birds (www.catgoods.com).

Accompanying Handouts

Acute Management of Problem Behavior
 Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Safety Recommendations for Aggressive Animals
 Structuring Your Relationship
 Teaching Your Pet How to be Confined
 Tranquility Training Exercises
 Teaching "Leave It"
 Using Classical Counterconditioning to Change Emotional State

Drugs

- There is no evidence to support successful treatment of predatory aggression with any drugs aside from drugs that incapacitate the animal.

Contraindications/Precautions

- Improper delivery of punishment (timing, intensity, inconsistency) can result in a significant stress response for the animal as well as affective aggression or other behavioral problems.
- Ingestion of infected paratenic hosts or intermediate hosts by a predator may result in the predator becoming infected with a variety of agents including viruses and parasites. Some of these infections have zoonotic potential, such as toxoplasmosis.
- If the predator targets livestock as prey, various laws often allow the ranchers to shoot the predator on site; management is critical for these pets.
- If you train the predator to ignore prey targets in certain settings, this may not translate to all settings/situations.
- Redirected aggression is common in cats.
- Relapse is common.
- Treatment does not eradicate need for management.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- There are surgical procedures that may reduce factors that aggravate the predatory behavior.
 - Neutering male dogs and cats can significantly reduce roaming behavior. Since dogs and cats may encounter targets for predation when roaming, predation may be reduced by neutering.
- Declawing cats will not affect predatory drive; the procedure may put the cat at a slight disadvantage but declawed cats are frequently reported to capture/kill prey.



COMMENTS

Client Education

- Owners should be educated regarding normal canine and feline behavior and that not all species will cohabitate successfully.
 - Specific breed propensities for predatory behavior should be considered.
- Owners should be counseled that adequate containment needs to be provided for pet safety.
- Owners should be counseled that predatory behavior is resistant to change and may relapse at any time; steps to protect targets need to be maintained long term.
- The target prey is not the only animal at risk during a predatory attack; often the predator takes off after the prey without consideration for safety issues. The predator may get hit by a car, get disoriented and lost, etc.
- Pets may change prey targets over time; therefore, constant supervision is usually necessary.

Patient Monitoring

- Monitoring will depend upon the target, treatment implemented, and severity of the condition.
- Minimally, follow-up contact at 10 days, 30 days, and 60 days postconsultation should be completed.

Prevention/Avoidance

- Cohabitation postbirth may prevent against predation directed at that particular breed/species.
 - Cats raised with certain strains of rats postbirth do not attack that breed of rat with which they were raised, but will attack other breeds of rats.
- Good management from an early age will reduce opportunities to express predatory behavior and remove the inherent reward that accompanies the behavior.
- Establishing indoor only access for cats prevents against most predation.
- Predatory behaviors should not be encouraged.

Possible Complications

- Relapse or breakthrough event is possible.
- If the predator/prey live in the same home, the animal that perceives itself to be at constant risk of attack may develop anxiety-related problem behaviors, such as house soiling, compulsive behaviors, etc.
- If supervision or separation is not adequate or well maintained, injury or death to the prey species is possible in animals that cohabitate.

Expected Course and Prognosis

- Predatory aggression carries a poor prognosis.
- The best hope for success is with rigorous management.

See Also

Chapter 2, Aggression/Canine: classification and overview
 Chapter 12, Aggression/Canine: territorial
 Chapter 14, Aggression/Feline: classification and overview
 Chapter 19, Aggression/Feline: redirected
 Chapter 32, Digging: canine

Abbreviations

CBC—complete blood count
 CCDS—counterconditioning and systematic desensitization
 GABA—gamma amino-butyric acid

Suggested Reading

- Bowen, John. 2002. Miscellaneous behavior problems In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath. Gloucester: BSAVA, pp. 122–123; 126–127.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 411–412; 435–436.

Psychogenic Alopecia/ Overgrooming: feline



DEFINITION/OVERVIEW

Psychogenic alopecia is thought to be excessive grooming to the exclusion of other activities. It may occur only on selected body areas such as the abdomen, flanks, or front legs or can be nearly all over the body. This behavior is often labeled overgrooming. Some consider hyperesthesia as part of psychogenic alopecia, others do not. It is considered a compulsive disorder by some people. Currently, there is no universal consensus on labeling or cause.



ETIOLOGY/PATHOPHYSIOLOGY

- This is diagnosis of exclusion; the clinician must rule out pathophysiologic causes before the diagnosis may be made.
- This may be a behavioral response to confinement or undefined environmental conditions (e.g., stress, anxiety, frustration).
- The behavior may generalize over time and occur independent of the environment.
- Species, breed, and family lines may be predisposed.
- Behaviors may be self-reinforcing, possibly caused by the release of endogenous opioids in the CNS. It may allow some animals to cope with conditions that do not meet their species-specific needs.
- The behavior may be a component of hyperesthesia.



SIGNALMENT/HISTORY

- Any age, sex, or breed may exhibit this behavior.
- Siamese and other Asian breeds and crosses may be overrepresented.

Historical Findings

- The owner relates that the cat may spend large portions of the day involved in grooming activities.
- The behavior may include chewing and pulling out the hair.
- Behavior may occur away from the owner to avoid negative response.
- Duration of the problem is variable; onset may be coincident with an environmental change (e.g., a move or new household member).

Contributing/Risk Factors

- Perhaps changes in surroundings or schedule may predispose the cat.
- The behavior is more commonly reported in indoor cats, and it may be an artifact of the higher level of attention and supervision indoor cats receive or may be related to the stress of confinement or social isolation.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the cat.
 - In multiple cat households, social interactions between cats may cause anxiety and stress and be contributory to the problem. These should be explored in depth.
- What is the daily routine, including feeding, training, exercise, and play?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
- What is the duration and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
- What are the daily incidents and time spent engaging in the behavior?
 - How long are the licking bouts and how many are there per day?
 - May help to distinguish from normal grooming behavior
 - Is the behavior associated with rippling of the skin on the back, vocalization, startle responses, running, or hiding?
 - This may indicate a neurosensory disorder.
- What is the owner's response to the behavior?
 - Ability to interrupt the behavior; rate and time course of return of the behavior
- Has there been previous medical workup for skin problems?
 - Treatments tried and response to those treatments
- What treatments were tried for the behavioral aspects of overgrooming and the response to those treatments?
 - Have they used isolation, verbal, and/or physical reprimands?
 - Have they tried any psychotropic medications?
- Do they believe the behavior is associated with any trigger?
 - Learn about possible triggers, such as work hours, vacation, agonistic interactions between cats.
 - Have there been abrupt changes in family dynamics?



DIFFERENTIAL DIAGNOSIS

- Primary dermatological disease
- Attention seeking
- Hyperesthesia
- Psychomotor seizures
- Compulsive disorder



DIAGNOSTICS

- Perform physical and neurological examinations.
- Complete dermatological workup is essential including but not limited to food elimination diet for food allergy, skin scrapings, flea treatment, and treatment for pruritus. Take skin scrapings, dermatophyte culture, bacterial culture and sensitivity if indicated, allergy testing, and possible skin biopsy.
- Further diagnostic testing would be determined by physical examination findings and minimally would include CBC, chemistry profile, endocrine (thyroid) testing, and urinalysis.

Pathological Findings

- Hair loss may be focal, partial, and bilateral; most commonly in the groin, ventrum, and medial or caudal thigh regions.
- Appearance of the skin is variable (normal or abnormal; erythematous to abraded).



THERAPEUTICS

Management

- Restrictive devices to prevent licking are not recommended. While they stop licking, they may increase anxiety and frustration.
- Provide treatment for any skin conditions that might coexist or be contributory.

Behavioral Modification Techniques

- Since frustration, anxiety, and stress are thought to be contributory, treatment is aimed at changing the environment, creating consistent social interactions, behavior modification and, when necessary, medication.
- Identify and remove triggers.
 - If stressful social interactions between cats are problematic, then separation may be prudent.
 - Adequate resources should be available in the environment including multiple locations for food and water bowls, resting places, and litter boxes.
 - Consult Chapter 16 for additional information on intercat aggression.
- If specific triggers cannot be removed, CCDS to them should be attempted.
 - This may include structured reintroduction of cats (see appropriate chapter).
- Perform daily predictable social and play interactions with the owners.
 - Attention should be given for calm, quiet, and nongrooming behavior.
 - Owners should strive to provide attention at the same time daily.
 - Play should be with toys, and some cats can be clicker trained to perform various tasks.

- Attention can be put on a command-response relationship even in cats.
 - The cat is called to the owner, petting and interaction is given, and then the owner stops the interaction after a period of time.
 - Attention is not given for crying, pawing, etc.
- All punishment both verbal and physical must stop.
- Supervise the cat so that overgrooming behavior cannot occur.
 - When the cat begins to engage in inappropriate grooming activity, it is distracted and the behavior redirected to play.
- Outdoor access in a previously indoor-only cat may provide enrichment and reduce any in-house conflict; however, it could also increase stressors (interactions with neighborhood cats) and is associated with inherent risks.

Accompanying Handouts

Creating Harmony in Multiple Cat Homes
Desensitization and Counterconditioning: the details
Structuring Your Relationship with Your Pet
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Some cases respond to behavior modification alone, but many need medication to help diminish concurrent anxiety and stress.
- Commonly used medications include TCAs and SSRIs.
- Prior to medication, routine blood work including CBC, chemistry screening, and thyroid panel should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.
- Serotonergic medications:
 - These drugs are indicated for situations where there is unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin, and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - Give on a daily schedule regardless of exposure to trigger stimuli.
 - It may take up to 4 weeks to achieve efficacy.
 - The drugs are to be continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response.
 - Amitriptyline
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine
 - Feline: 0.5–1 mg/kg q24h
 - Fluoxetine
 - Feline: 0.5–1.0 mg/kg q24h
 - Paroxetine
 - Feline: 0.25–0.5 mg/kg q24h

Other Treatments

- Some cats may benefit from pheromone treatment with Feliway[®] diffusers.

Contraindications/Precautions

- Medications used to treat feline behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban[®]) and selegiline (Anipryl[®]).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Clients must realize reoccurrence is common especially if triggers cannot be eliminated.
- The problem may be managed, but not cured.

- Long-term changes in interaction and behavior modification may be necessary and may be lifelong.

Patient Monitoring

- Follow-up should occur at one week and then every two weeks after that.
- Owners should be encouraged to keep journals of the frequency and duration of licking bouts to help assess progress.
- Patients on long-term medication should have routine blood work every 6–12 months.

Prevention/Avoidance

- Proper pet-owner interactions should occur.
- An enriched environment and appropriate activity may be preventative in some cats.
- Flea prevention should be implemented if in an endemic area.

Possible Complications

- If underlying skin conditions are part of the problem, these may reoccur.

Expected Course and Prognosis

- Usually long-term therapy is required.
- The behavior may wax and wane over time.
- Monitoring licking and grooming level may allow intervention early in reoccurrences.

Pregnancy

- Excessive grooming may occur during lactation to keep mammary area clean.

See Also

Chapter 1, Acral Lick Dermatitis: canine
Chapter 16, Aggression/Feline: intercat
Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 28, Cognitive Dysfunction: canine and feline
Chapter 39, Generalized Anxiety

Abbreviations

CBC—complete blood count
CCDS—counterconditioning and systematic desensitization
FDA—Food and Drug Administration
h—hour
MAO—monoamine oxidase

mg/kg—milligrams per kilogram

q—every

SSRI—selective serotonin reuptake inhibitor

TCA—tricyclic antidepressant

Suggested Reading

- Landsberg, Gary, Wayne Hunthausen, Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*. Philadelphia: Elsevier, pp. 195–226.
- Luescher, Andrew U. 2002. Compulsive behaviour In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra F Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 229–236.



DEFINITION/OVERVIEW

Roaming refers to the tendency for an animal to stray from its own territory. It is considered to be a sexually dimorphic behavior as males are more likely to roam than females. It may involve escape behavior from an enclosure with subsequent roaming or opportunistic roaming when exercised or outside without containment. The safety of the pet and others may be compromised when roaming with events such as vehicular accidents and aggressive encounters with other animals. Trespassing and destruction of the property are other possible consequences of roaming animals. The underlying cause for roaming may include a variety of motives such as exploration, reproductive opportunity, search for food, and social contact.



ETIOLOGY/PATHOPHYSIOLOGY

- Roaming behavior is not necessarily considered abnormal behavior; however, it is often an unacceptable behavior.
- Seeking out mates for reproductive success is a primary motivation for roaming.
- Social animals deprived of contact may roam to seek out companionship.
- Roaming may provide significant environmental enrichment for pets in a deprived environment.
- Rewards encountered when roaming (food, mating, social contact, etc.) may sustain the behavior.
- Animals experiencing separation anxiety or noise phobias may escape from enclosures or the home during anxiety episodes and be loose but not truly “roaming.”



SIGNALMENT/HISTORY

- Gender
 - Intact males more likely to engage in roaming behavior.
- Age
 - Any age may exhibit roaming behavior.
 - Roaming to search for mates coincides with sexual maturity.
- Breed
 - Any breed may roam.
 - Scent hounds may be predisposed to following a scent.

Historical Findings

- The animal wanders from its territory.
 - The animal may escape from enclosures to engage in roaming behavior.
 - The animal may leave its core area to roam.

Contributing/Risk Factors

- Lack of appropriate stimulation in the home territory
- Inadequate enclosure that is easy to break through or inadvertent escape due to owner negligence, i.e., open door
- Lack of a containment system
- Lack of trained, reliable recall command
- Presence of potential mates outside home territory
- Presence of attractive food sources (prey, garbage, other pet food) outside home territory
- Social reinforcement outside home territory (e.g., neighbors play/pet animal)
- Social conflict on the home territory with other pets/people

Pertinent Historical Questions

- What is the household composition, including people and other pets?
 - This may help the clinician to identify potential conflicts within the home.
- What is the daily routine for the pet, including feeding schedule, exercise/play, and social contact with family members?
 - This may allow the clinician to identify deficiencies in physical or social outlets.
 - Does the pet exhibit signs of separation distress at owner departure? If unknown, then audio or videotaping may be useful.
- What are the relationships between all household members?
 - Areas of social conflict/aggression may encourage the pet to leave the home territory.
- Did household changes coincide with onset of roaming behavior?
 - Any schedule changes that negatively impact the time spent with pet such as a new baby, new work schedule, illness, etc., may impact roaming.
 - Additions to the household such as a new dog, new cat, new baby, new spouse may be considered offensive to resident pet and that pet may expand its territory or seek out a new home territory.
 - If recent relocation to a new home, the pet may be trying to return to its previous home territory.
- Ask about the presence of intact female dogs or cats in the vicinity.
 - Intact males will often roam to seek out potential mates, females in estrus.
- Inquire about concomitant signs of anxiety such as running frantically, pacing, panting, salivating, destruction, or vocalization.
 - If signs of anxiety exist, consider other anxiety-related conditions such as noise phobia or separation anxiety as a primary motivation for escape/roaming behavior.

- Inquire as to where the pet goes/what it does when it roams.
 - This may help to identify the underlying motivation for roaming.
 - Pets that go to garbage cans may be scavenging for tasty food scraps.
 - Pets that seek out social contact with other animals/people may be bored or suffering from separation-related anxiety.
 - Sexually mature intact animals may be motivated by mating opportunities.
 - Pets that appear relaxed and inquisitive may be entertaining themselves.



DIFFERENTIAL DIAGNOSIS

Anything that drives an animal away from its home territory or that attracts it off its home territory may be a possible cause of roaming behavior. Single or multiple factors may trigger roaming behavior in a specific case.

Dogs

- Separation anxiety
- Noise phobia
- Thunderstorm phobia
- Predatory aggression
- Interdog aggression

Cats

- Fear of something in home territory
 - Noise
 - Person (e.g., child)
 - Animal
 - Object
- Intercat aggression
- Hyperthyroidism
- Predation



DIAGNOSTICS

- In most cases, roaming behavior is not due to any underlying disease process, so extensive diagnostics are not necessary.
- For any animal experiencing a change in behavior, it is prudent to perform a physical examination, neurological examination, and baseline blood work: CBC, chemistry panel, and thyroid panel; and additional tests as indicated by findings during initial screening.



THERAPEUTICS

Safety

- When roaming, animals are vulnerable to a variety of hazards including vehicles, toxic substances, and other animals. Containment in a secure enclosure is important for animal safety.
- Roaming animals present a possible hazard to others. The roaming animal may trigger a car accident or aggress to other animals or people that it encounters.
- Lack of proper identification may preclude safe return and possible detention in a shelter with resultant euthanasia. All animals should have collars and/or microchips to help them be reunited with their family.

Management

- If properly instituted, adequate containment should resolve the problem.
 - If the animal is suffering from anxiety-related escape behavior, containment alone will rarely be successful.
 - Cats can be more challenging to contain than dogs, since traditional fencing won't contain most cats. Creative owners often make outdoor cat enclosures to provide cats with outdoor exposure without the opportunity to roam. There are commercial cat fence products that help to secure yards to prevent escape/roaming.

Behavioral Modification Techniques

Identification of underlying motivation(s) for roaming in a particular case can help shape the treatment plan for that patient. The basic treatment premise is to make the home territory more rewarding while making roaming off the home territory less attractive.

- Enrich the home territory.
 - Provision of randomly dispensed food puzzles, social contact time with people, interesting perches, etc.
- Provide adequate outlets for play, exploration, and social contact.
 - Canine
 - Daily leashed walks
 - Contact time with other dogs, if dog compatible
 - Games
 - Feline
 - Daily play with toys, multiple short sessions per day
 - Enhance feeding time by creating treasure hunts or use toys that disperse treats
 - Set aside time to groom or pet the cat
- Provide both regular meals and random extra treats to keep the animal at home.
 - Use of a puzzle food toy will lengthen the time that it takes to acquire food.
 - Use devices that deliver treats on a random schedule (e.g., Kong Time™).

- Identify and remove reinforcements that the animal may receive when it roams.
 - Ask neighbors not to pet, play with, or feed your pet when it is roaming.
- Practice recall (“come” command) regularly.
 - It may be helpful to have a unique, loud sound associated with the recall (e.g., whistle, duck call) in case you need to recall from a significant distance.
 - Initially, practice recall in a secure, nondistracting environment. For example, you may start recall in the house.
 - Have owner sound the unique signal and then encourage dog with physical and auditory signals to come to them. If the dog complies, it is rewarded with a fabulous reward (praise, food treat, toy, play, etc.).
 - Noncompliance is not rewarded. At subsequent sessions, the distractions need to be reduced to maximize success.
 - With success, practice in more distracting circumstances.
 - If the pet does roam, this recall may assist in successful retrieval.

Accompanying Handouts

Acute Management of Problem Behavior
Creating Harmony in Multiple Cat Homes
Structuring Your Relationship with Your Pet
Teaching Your Pet How to be Confined

Drugs

- There are no drug therapies indicated for roaming behavior.
- If anxiety or social conflict is the underlying motivation for escape/roaming behavior, then drug therapy may be indicated. See specific chapters on these conditions for suggestions.

Contraindications/Precautions

- Despite efforts to enrich the home territory, there may be too many interesting aspects of the greater world that can't be minimized. Therefore, containment is critical to success.

Surgical Considerations

- A majority of male animals will have a significant reduction in roaming after castration.
- Ovariohysterectomy of female animals will reduce enticement for male dogs to roam.



COMMENTS

Client Education

- It is an owner's responsibility to provide adequate containment for their pet.
- Roaming of intact animals may result in unwanted litters of puppies/kittens.

- Spread of disease (parasites/viruses, etc.) may occur when animals roam.
- Pets are at increased risk of injury when roaming.
- Outdoor cats have a shorter average lifespan than indoor-only cats.

Patient Monitoring

- Follow-up contact at 10 days, 30 days, and 60 days postconsultation will allow the clinician to assess compliance with suggestions and success of treatment.
- If the pet does not respond despite good owner compliance, then reassess the case to make sure that the correct diagnosis was achieved.

Prevention/Avoidance

- Neutering reduces the desire to roam.
- When an animal learns that roaming is rewarding, it may be more difficult to inhibit the behavior. Proper containment from the outset is advisable.

Possible Complications

- If the pet continues to have intermittent opportunities to roam and enjoys these opportunities, the roaming behavior will be maintained.
- Restricting access to indoor only for a cat with previous indoor/outdoor access may create problems such as marking, vocalization, house soiling, etc. The transition needs to be done with thought as to these concerns.

Expected Course and Prognosis

- Compliance with containment and enrichment suggestions should resolve most cases.

See Also

Chapter 16, Aggression/Feline: intercat
 Chapter 50, Noise Phobia: canine and feline
 Chapter 56, Separation Anxiety: canine and feline
 Chapter 60, Thunderstorm Phobia

Abbreviations

CBC—complete blood count

Suggested Reading

- Connolly, Patricia B. 2002. Reproductive behaviour problems In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 135–136.
- Frank, Diane. 2002. Management Problems in Cats In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, pp. 86–87.



Scratching Behavior: feline



DEFINITION/OVERVIEW

Owners usually complain about two components of feline scratching behavior: scratching that is directed toward household objects and scratching that is directed toward people. Scratching that is directed toward people is often due to fear or defensive reactions, redirected aggression, or during play. These are all covered under other chapters. This chapter will only deal with scratching behavior that is directed toward household possessions.



ETIOLOGY/PATHOPHYSIOLOGY

- Scratching on either a vertical or horizontal substrate is a normal feline marking behavior.
- Scratching may be part of normal grooming behavior to condition claws and/or remove loose or dead nail material.
- Scratching may occur as an attempt to leave both visual marks with the claws and a scent mark from the sebaceous glands on the feet.
- The cat may target household items if an appropriate marking post is not available or is in a location the cat considers unsuitable.
- Scratching may be attempts to escape from confinement if the cat is kept in a carpeted area.



SIGNALMENT/HISTORY

- No breed, gender, nor age predilection

Historical Findings

- The owner complains that the cat scratches on household possessions.
 - Tends to occur in prominent locations and attractive substrates such as end of a couch, speakers, treads of stairs
 - May only become a problem when new items (couches, chairs) are purchased
- The number of locations and daily episodes may vary.
 - Most frequently occurs upon arising

- In multiple cat homes, the damage can be quite extensive if no appropriate scratching materials are available.

Contributing/Risk Factors

- Lack of acceptable places to engage in scratching/markings behaviors may be a factor.
- Household possessions are preferable to designated cat scratching posts/pads.
- Multiple cat homes where attempts to delineate territory via scratching may occur.
- Confinement and attempts to escape may be reasons cats scratch.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - Multiple cats in the home may be contributory to problem scratching behaviors.
- What is the daily routine, including feeding, training, exercise and play, and social interaction?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
- What is the duration and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
 - Cats previously allowed to scratch on furniture that now must be retrained because of new items or change in owner expectations may resist for a longer period of time.
- Description of designated cat-scratching devices currently provided in the home including material, location, sturdiness, size, orientation (horizontal versus vertical), etc.
 - Often times the provided scratching posts/pads are inadequate in one or more characteristics.
 - If the cat is being allowed to scratch on items that are identical or very similar to nonacceptable items, the cat may have difficulty distinguishing between the two.
- Identify all targets for inappropriate scratching and their characteristics: material, location, sturdiness, orientation (horizontal versus vertical), etc.
 - This may help to identify individual preferences and direct recommendations for alternative cat-scratching options.
- When does the inappropriate scratching occur?
 - Scratching behavior has inherent rewards (stretching, grooming nail bed, marking) so is rarely dependent upon the presence of people. Many cats have learned to inhibit the behavior when people are present due to punishment. This impacts treatment since any course of treatment that requires human interaction is likely to fail if the behavior occurs in the absence of people.
- Is the cat confined in any way?
 - Containment may trigger scratching as a means of escape.
- What has the owner done to intervene and to stop the behavior?

- Owners often deliver punishment when they catch the cat in the act of scratching inappropriate targets. This is usually futile because at best the cat learns to avoid inappropriate targets when the owners are directly present.
- What treatments have been tried and what was the response to those treatments?
- Can the owners trim the cat's nails?
 - While this will not inhibit the behavior, it may reduce damage inflicted on items.



DIAGNOSTICS

- Scratching is a normal feline behavior, so extensive diagnostics are not usually required.

Pathological Findings

- Usually none related to this condition



THERAPEUTICS

Management

- If the owner tolerance for ongoing destruction due to scratching behavior is low, then a way should be found to keep the cat out of areas where scratching occurs.
- Furniture upholstery that provides little or no purchase (ability to dig the claws into it) should be selected for the home.
- Offering alternate marking sites and materials may also be useful for some cats.
 - These include brushes that are wall mounted for facial marking, food dispensers that work by clawing, etc.

Behavioral Modification Techniques

- Treating scratching behavior has two major components: providing the cat with a suitable scratching post and making the previously targeted unacceptable items unattractive or unavailable.
- The cat will usually mark or scratch with their feet when they awaken and to mark areas where they spend a great deal of time.
 - An assessment of the scratching pattern, both time course and location, will help determine scratching postplacement.
 - Frequently targeted items may help determine what type of material would be best for the scratching post.
- Since a cat wants to leave both a visual and scent mark, initially the placement of the scratching post must incorporate a prominent location or at least some place where the cat spends a great deal of time.



■ **Fig. 55-1** Alternate marking/scratching toys for cats.

- Appropriate climbing and scratching and other marking surfaces are essential.
 - Placement is critical. The items should be placed in a location where the cat is likely to use them; most often this means near a sleeping area and in a prominent location.
 - Choosing the appropriate covering is essential; some cats prefer tightly woven materials while other prefer loose woven materials that allow a “drag” and pulling motion on the fabric; others prefer soft wood.
 - Height of the scratching post is important. The cat should be able to stretch, and some suggest at least a height of 30 cm.
 - The post must be sturdy and not fall over when used.
 - The orientation (horizontal versus vertical) of the provided scratching surface should mimic the cat’s preference.
- Once the cat reliably uses the post, then it may be possible to move it to a less prominent location, but not usually to another room.
- To encourage usage, the cat should be rewarded for approaching and scratching the post.
 - Food rewards work well for some cats.
 - Catnip sprinkled over the post may encourage its use.
 - Some cats respond to play in the area and then will begin to use the post after play is finished.



■ Fig. 55-2 Cat scratching posts and climbing towers.

- If the acquisition of a new piece of furniture is part of the complaint, if possible some fabric from the old furniture can be removed and fastened to the scratching post, which is then placed next to the new furniture.
 - The new furniture should be protected with a sheet or blanket.

- An application of Feliway® spray to the new objects may be useful as well because it should encourage facial marking (bunting) instead of scratch marking.
- Make unacceptable locations unattractive:
 - Some cats find double-sided tape aversive or other commercial products that prevent contact with the material.
 - Some cats may respond to devices that emit noises or a spray of compressed air and avoid the area.
- Harsh physical reprimands should be avoided since they are unlikely to stop ongoing behavior but may cause pain, fear, and/or aggression.

Accompanying Handouts

Acute Management of Problem Behavior

Drugs

- Since this is a normal behavior, no drugs are indicated for this problem.

Other Treatments

- Some cats may respond to Feliway® and have a decreased motivation to mark with their claws on treated locations.
- Keeping the claws trimmed may minimize damage to household possessions.
 - The cat must allow handling of the feet and nails.
- Plastic nail caps can be applied to the nails to prevent scratching.
 - The cat must allow handling of their feet and nails for application.
 - These must be changed monthly.

Contraindications/Precautions

- Routine surgical declawing procedures are not without the potential for complications.
- Owners may be upset that other nonsurgical options were not offered nor supported.

Surgical Considerations

- In North America, declawing has been a relatively routine surgical procedure to prevent or stop damage inflicted by scratching behavior.
- Declawing surgery is against the law in many other countries.
- Currently, there are no studies that clearly indicate excessive pain or a link with increased behavior problems due to declawing surgeries.

- Each case should be evaluated individually and owners informed of other options to surgery.
 - Discuss with the owner the welfare implications of declawing cats.
 - Determine if the animal can be taught to use a scratching post.
 - Determine if the owner is willing to work with other alternatives to surgical removal of the claws.
- Alternative surgeries such as tendonectomy have been proposed.
 - This type of surgery prevents flexion and retraction of the claws by removing 5 mm of the deep digital flexor tendon on each digit.
 - Some cats are still able to claw to some extent.
 - Claws will still grow and therefore require regular trimming. If the client is unable or unwilling to do so, this is not a practical option.
 - The cat must allow handling of the feet and claws.



COMMENTS

Client Education

- Owners should be educated on the alternatives to declawing surgery in young kittens and adult cats presented for persistent scratching behavior.
- Clients should be educated how to provide appropriate outlets for normal scratching and claw-marking behaviors.
 - Information on how to construct or obtain appropriate scratching posts should be offered.
 - Scratching substrates should be offered in multiple locations including sleeping areas and prominent locations.
- If a cat has been allowed to scratch furniture for some time, change will be slow and the cat may not completely stop scratching on household possessions.
- Well-used posts should be retained, not replaced.

Patient Monitoring

- Telephone follow-up at weekly intervals is best initially to monitor progress and make adjustments to the treatment plan.
- If surgery has been performed, adequate pain control is essential and good follow-up to assess healing and behavioral changes once the pet is at home.

Prevention/Avoidance

- Teach owners how to provide proper scratching surfaces for their new kittens by providing information about placement and materials to increase their success.
- Teach owners how to teach young kittens how to use a scratching post when they first enter the home.

- Good supervision of young kittens so that they can be redirected to appropriate scratching areas is important.
- Placing scratching posts in areas where cats will use them is key to success.
 - Adequate numbers of scratching posts in multiple cat homes
- Provide scratching posts of suitable materials that will show a visual mark.
- Teach owners how to train young kittens to accept handling of their feet and claws so nail trimming can be performed.

Possible Complications

- Some cats may experience complications from declawing surgery.
- Some cats may be relinquished to shelters if scratching behavior cannot be resolved.

Expected Course and Prognosis

- If given time, many cats can be taught to scratch in the appropriate location.

Abbreviations

cm—centimeter
mm—millimeter

Suggested Reading

Frank, Diane. 2002. Management problems in cats In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 80–89.



Separation Anxiety: canine and feline



DEFINITION/OVERVIEW

Separation anxiety is a distress response that dogs/cats may experience when separated from the person or persons to whom they are most attached, usually their owner(s). This distress may result in problem behaviors in the absence or perceived absence of the owner, including episodes of destruction, vocalization, and elimination. Separation anxiety is a subset of separation-related problems that may have different underlying motivations including fear, anxiety, overattachment to owners, and lack of appropriate stimulation or interactions.



ETIOLOGY/PATHOPHYSIOLOGY

- Specific etiology is unknown.
 - See Chapter 24, Anxiety Disorders: general overview canine and feline for general information regarding the developments of anxieties.
- Canines and felines are social animals; therefore, separation from attachment figures may create some level of distress. Animals with separation-related anxiety show excessive levels of distress when separated from attachment figures.
- Pathophysiology includes:
 - adrenergic/noradrenergic overstimulation, which may affect multiple systems including the following:
 - Gastrointestinal: possibly causing stress diarrhea, inappetence, gastrointestinal upset
 - Cardiac: tachycardia
 - Respiratory: tachypnea
 - Musculoskeletal: increased activity
 - Ophthalmic: dilated pupils



SIGNALMENT/HISTORY

- Breed: Any breed can develop separation anxiety.
 - Mixed breed dogs are just as likely to exhibit separation anxiety as purebred dogs.

- Gender
 - There is no gender predilection in dogs.
 - Male neutered cats (68%) may be more likely to exhibit separation anxiety than female spayed cats (29%).
- Age: Any age can exhibit separation anxiety.
 - The majority (55%) of dogs have onset of separation anxiety before 3 years of age.
 - Older dogs may present for age-related anxiety that may also be manifest as separation distress.
 - The majority of cats present for diagnosis before 5 years of age.

Historical Findings

- Pets with separation anxiety show signs of distress when left alone or separated from attachment figures. These signs may include:
 - Destruction directed at the home
 - Often targeted at items with owner scent
 - Often targeted at exit points
 - Self-inflicted trauma
 - Escape attempts
 - Excessive vocalization
 - Inappropriate elimination: urination or defecation
 - Repetitive locomotor activity (e.g., pacing)
 - Hypersalivation
 - Panting
 - Anorexia
 - Withdrawal/inactivity
- The pet may exhibit excessive shadowing/following behaviors when the attachment figure(s) are home.
- The pet may exhibit signs of distress as the attachment figure(s) prepares to leave.
 - This may include shaking, trembling, panting, salivating, closer proximity to attachment figure.
 - This may include avoidance to prevent placement in containment area.
 - This may include aggression directed at attachment figure as they attempt to exit or place them in confinement.
- The pet may exhibit excessive greeting ritual upon return of attachment figure(s).

Contributing/Risk Factors

- Dogs
 - Single owner
 - Neutered
 - Dogs acquired from shelters, rescue groups, veterinary hospitals
 - Dogs found as strays
 - Lack of attendance in an obedience class

- Following owner excessively
- Displaying excessive greeting behaviors
- Cats
 - Data are currently lacking on risk factors for cats, however, initial studies suggest living exclusively indoors and being a male neutered cat may be contributing factors to the development of separation anxiety.

Pertinent Historical Questions

- What is the household composition, including humans and pets?
- What is the daily schedule/routine of all household members?
 - This allows the clinician to determine periods when the pet is left alone.
- What is the daily feeding, exercise, and play regimes for the pet?
 - The clinician can establish if the pet's daily emotional and physical needs are being met.
 - The clinician may identify ways to manipulate the daily schedule to maximize treatment success. Adjustments may include providing daily exercise walk prior to departure instead of upon return home; adjusting feeding routine so that the dog is hungry when owners depart to maximize interest in food treats left at departure, among others.
- What are the social interactions between patient and other household members?
 - This may elucidate preferential bonds/attachment figure(s).
- Is there a presence of following/shadowing behaviors when the attachment figure(s) is home?
 - If identified, this may strengthen the diagnosis and also direct treatment as establishing independence when the attachment figure(s) is home as the first treatment goal.
- Describe problematic behaviors.
 - The behaviors exhibited should be consistent with a distress response as outlined above.
 - This will help to confirm or reject the diagnosis of separation anxiety.
 - The critical diagnostic factor is that the distress signs only occur during the absence or impending absence of the attachment figure(s). Signs may also be noted when the attachment figure is home but not accessible to the pet.
- When do the problematic behaviors occur?
 - The problematic behaviors should occur in conjunction with departure of or separation from the attachment figure(s).
- What is the owner's response to the problematic behaviors?
 - Punishment or comforting is contraindicated for anxiety-related problems; identification of either of these responses should be addressed in the treatment plan.
- What is the typical greeting response of the pet and how do humans behave during the greeting?
 - Excessive greetings from the pet are typical with separation anxiety; if owners participate in or encourage these excessive greeting rituals, it needs to be identified and addressed in the treatment plan.

- What are the typical predeparture routine and the pet's response?
 - This may establish steps in the predeparture routine that trigger anxiety and therefore need to be addressed in the treatment program.
- Which departures trigger anxiety?
 - The anxiety may occur on every departure and absence or only with atypical departures such as after work, evening, or weekend departures; the reverse pattern may also be seen.
 - Identification of these patterns will help to establish an appropriate treatment plan.
- What has been the shortest departure where the owner has returned home to find evidence of distress response?
 - Most dogs with separation anxiety exhibit distress within 30 minutes of owner departure.
- Where is the pet left when owners depart?
 - If pet is left in a restricted area such as a crate, barrier frustration may contribute to the problematic behavior or be the sole cause.
 - An established negative association with a containment area may encourage the clinician to identify a novel departure site for training.
- How is the pet when left in different venues/with different people?
 - If alternative, safe venues can be identified, they can be used when attachment figures can't avoid separation.
- Does the pet get along with unfamiliar dogs?
 - Social compatibility with other canines may allow attachment figures to utilize dog day-care facilities when separation can't be avoided.
- Do other phobias/fears exist?
 - Pets with separation anxiety may suffer from other phobias such as noise phobias; if these exist, they need to be identified and treated.



DIFFERENTIAL DIAGNOSIS

Dogs

- Vocalization due to
 - Reaction to environmental stimuli
 - Socially facilitated
 - Play
 - Territorial aggression
 - Other fear-related conditions (e.g., noise phobia)
 - Pain
 - Cognitive decline
- Destruction due to
 - Play/exploration
 - Territorial behavior
 - Other fear-related conditions
 - Escape behavior to roam

- Barrier frustration: includes dogs who are unable to be confined in crates or behind barriers but who are fine if not confined
- Elimination due to
 - Medical problem (cystitis, kidney failure, gastrointestinal disease, etc.)
 - Lack of house training
 - Other fear-related condition (e.g., noise phobia)
 - Lack of adequate opportunity for outdoor elimination
 - Incontinence
 - Marking
 - Cognitive decline
- Self-directed licking
 - Primary dermatological disorder
 - Compulsive disorder

Cats

- Urine marking
- House soiling due to box aversions or preferences
- House soiling due to illness, endocrine dysfunction, cognitive decline
- Vocalization due to pain/discomfort
- Destruction due to normal play/exploration; normal scratching behavior; wool sucking (compulsive) behavior; attempts to achieve outdoor access
- Self-directed trauma due to dermatological disease or psychogenic alopecia
- Barrier frustration: most likely in cats experiencing unaccustomed confinement
- Cognitive dysfunction syndrome



DIAGNOSTICS

- Video or audio taping the animal when left alone can provide definitive evidence of anxious behaviors.
- Complete physical and neurological examinations should be performed; perform further diagnostic testing as indicated by presenting clinical signs and the results of these examinations.
 - For example, any animal with an elimination component will minimally need a CBC, chemistry panel, urinalysis, and/or fecal exam.



THERAPEUTICS

Safety

- Of primary concern is usually the safety of the pet experiencing the separation anxiety as escape attempts and destructive behavior can result in self-inflicted trauma.
 - Avoid traumatic departures by taking the pet with the attachment figure, using alternative venues that don't elicit anxiety, etc.

- If the pet must be left alone, consideration should be given as to the safety of the enclosure; try to avoid glass windows that may be broken, metal bars where teeth may get caught/broken, etc.

Management

- During the treatment phase, the pet should not experience any anxiety-provoking departures.
 - This means that the pet must either stay with the attachment figure or in a venue where it does not experience anxiety (dog day care, in the car, etc.).
- Daily adequate exercise is important; try to schedule walks/exercise prior to departures.
- Try to schedule feedings so that the pet is hungry at departure times.

Behavioral Modification Techniques

Behavioral modification involves the same basic principles that are used with any fear-related condition, that is, CCDS. Desensitization involves a graduated exposure to the fear-evoking stimulus. In the case of separation anxiety, this is separation from the attachment figure(s). In addition, the animal can be counterconditioned to departures, that is, learn a new response that is incompatible with anxiety/fear. Depending upon the severity of the condition, the pet may require some or all of the following treatment suggestions.

- Independence Training: teaching the dog to be more independent
 - No attention is given on demand by the pet.
 - All attention is at owner initiation; the owner begins and ends attention sessions.
 - Spontaneous independent behaviors should be rewarded.
 - Reduce shadowing/following behavior in the home by closing doors, using sit/stay commands, tethering, baby gating, etc.; these actions should not be so extreme as to create distress in the pet.
- Change the Predictive Value of Predeparture Cues
 - Present predeparture cues (picking up keys, walking to the door) without leaving.
 - Repeat 2–4 times daily until the animal does not respond to cues with anxious behaviors (panting, pacing, following, or increased vigilance). The dog must be calm between repetitions.
 - Goal is to disassociate the cues with departures and diminish the anxious response.
- Modify the Departure and Greeting Routine
 - Remove any emotional departures or greetings by ignoring the pet for 5–15 minutes prior to departure and upon return home.
 - On return, attend to the pet only when it is calm and quiet; the owner may, however, allow the dog outside to eliminate.
- Perform Departure Counterconditioning

- Give the pet a delectable food treat or food-stuffed toy upon departure thus associating something pleasant with departure of attachment figure(s).
- Teach the dog to settle and relax in a preferred location. This allows the dog to have a safe place where they associate calm, nonanxious behavior. This can be a room, mat, bed, or even a crate if it does not make the dog anxious to be in a crate. (See the Tranquility Training Exercises handout.)
- Graduated Planned Departures and Absences
 - If the pet has established a correlation between the traditional departure location and onset of anxiety, it may be helpful to leave the pet in an alternative area for planned training departures. This can be the location where the dog has learned to settle and relax or the bed or a mat can be in this spot. (The traditional location should still be used on departures where the length of absence is not controlled, such as work departures.) When the program is successfully completed, the pet will routinely stay in the training departure location.
 - If leaving the pet in an alternative area is not an option, the owner should develop some sort of safety cue (radio or television on, ring a bell) to use on planned departures only (must not be used on departures where length of absence is not controlled, such as work departures). When the program is successfully completed, the safety cue will be sounded before all departures. The cue may then be slowly phased out over time or used indefinitely.
- Do one to two training departures per day. The dog must be calm and relaxed between training departures.
- Identify the departure duration where the pet remains calm/relaxed; this may be seconds/minutes. This is the starting point of training.
 - The attachment figure should depart, providing a special treat as they exit.
 - The duration of the departure should be short enough not to elicit a separation distress response.
 - The attachment figure should return without any emotion/excitement.
 - If the pet abandons the food treat to greet the attachment figure, the remaining treat should be removed.
 - With success (no evidence of anxiety/distress upon previous training departure), the attachment figure can gradually increase the departure duration.
 - The increase in interval must be variable and not too dramatic (1–3 minutes).
 - Departures must be just like real departures. (The owner must do all components of departure including leaving in the car if that is how they usually depart and taking significant items such as purses, briefcases.)
 - In this manner, the animal learns consistency of owner return and to experience departure and absence without anxiety.
- If the pet exhibits anxiety during a training departure, then the owner has progressed too quickly and they will need to return to a previous successful training level and progress more gradually.

- Usually when the pet has successfully handled a 30-minute departure, escalations in departure duration can be greater between trials (5- to 10-minute incremental jumps).
- Once the pet can be left for 2–3 hours on a planned departure, it often can be left all day.

Accompanying Handouts

Acute Management of Problem Behavior
 Desensitization and Counterconditioning: the details
 Separation Anxiety Treatment Protocol
 Structuring Your Relationship with Your Pet
 Teaching Your Pet How to be Confined
 Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- The only drug that is FDA approved for the treatment of separation-related anxiety in the dog at the time of publication is Clomicalm® (clomipramine HCl).
- Pharmacological intervention targeted at the neurotransmitters involved in anxiety and fear responses may be helpful. Involved neurotransmitters include:
 - Serotonin
 - Norepinephrine
 - Dopamine
 - GABA
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - These drugs are indicated for situations where separation is unavoidable or a comorbid diagnosis of other anxiety-related conditions.
 - Some serotonergic medications are specific for serotonin, and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - These drugs are to be given on a daily schedule regardless of separation.
 - It may take 2–4 weeks to achieve efficacy.
 - These drugs are to be continued until successful completion of treatment regime; anticipate several months of treatment.
 - They can be used in combination with a benzodiazepine to achieve sufficient anxiolytic effects during a separation event.
 - Examples:
 - Clomipramine (FDA approved for treatment of canine separation anxiety)
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Fluoxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h

- Paroxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h
 - Sertraline
 - Canine: 1–3 mg/kg q24h
 - Feline: 0.5 mg/kg q24h
 - Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Selegiline
 - Canine: 0.5–1.0 mg/kg q24h in the morning
 - Feline: 0.5–1.0 mg/kg q24h in the morning
- Benzodiazepines: episodic, acute, short-acting, anxiolytic medications; enhance GABA
 - Give approximately 30–60 minutes prior to anticipated separation.
 - Anticipate 3–6 hours of anxiolytic benefits.
 - Undesirable side effects may include sedation and disinhibition of aggression.
 - Regular use may result in dependence and tolerance.
 - Paradoxical reaction (increased agitation, anxiety) can occur in a small percentage of animals.
 - Diazepam is associated with acute liver failure in a small percentage of cats.
 - Examples of benzodiazepines and doses:
 - Alprazolam
 - Canine: 0.02–0.1 mg/kg q6–8h
 - Feline: 0.02–0.05 mg/kg q8–24h
 - Diazepam
 - Canine: 0.5–2.0 mg/kg q6h
 - Feline: 0.2–0.5 mg/kg q8–12h
 - Clorazepate
 - Canine: 0.55–2.2 mg/kg q8–24h
 - Feline: 0.2–0.5 mg/kg q12–24h
- Dopaminergic agents
 - Dopamine blockers include the phenothiazines such as acepromazine. Although widely used in the veterinary profession, this class of drugs is not recommended as a standard course of treatment for separation anxiety as their primary effect is to render the animal physically unable to respond but do not address the problematic anxiety.

Other Treatments

- Anxiolytic environmental synthetic pheromones
 - Canine pheromone product (e.g., DAP—dog appeasing pheromone[®]) has been shown to be efficacious in reducing signs of separation-related anxiety in dogs and is available as a spray, diffuser, or collar.
 - Some cats may benefit from Feliway[®] pheromone preparation as a spray or diffuser.

- Touch therapy
- Acupuncture
- While alternative medications such as herbal preparations have been suggested for separation anxiety-related behaviors in animals, these substances have not yet been scientifically studied for this condition.

Contraindications/Precautions

- **Drugs**
 - Apart from clomipramine for canine separation anxiety, no other medications are approved for use in dogs for this condition. Owner consent forms are advisable.
 - Prior to medication, routine blood work including CBC, chemistry screening, and thyroid evaluation should be performed. For pets on long-term medication, yearly or semiyearly recheck is recommended.
 - Do not use TCAs (Clomipramine, Amitriptyline) with MAO inhibitors (selegiline [Anipryl®]), clonidine, anticonvulsants, oral anticoagulants, steroids, antihistamines, or aspirin.
 - Do not use SSRIs with MAO inhibitors (selegiline [Anipryl®]).
 - Serotonergic drugs may lower the seizure threshold, avoid in epileptics.
 - Drug therapy alone is rarely curative for most behavioral disorders.
- **Behavioral Modification**
 - If training departures and absences are continued even though distress behaviors are present, the dog will get worse.
 - Improperly applied behavioral modification may make dogs more anxious rather than less anxious.
 - A crate or other small containment area can often aggravate signs of separation anxiety. Unless the pet is already positively conditioned to a crate, it may be best to avoid its use in training.
- Getting another animal to serve as a companion is generally not recommended as a treatment since it often is not successful.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since these animals may harbor a genetic predisposition for anxiety-related behaviors, these animals should be neutered.



COMMENTS

Client Education

- Clients must be educated to understand that the pet is not spiteful or acting out of revenge for being left behind; their pets are distressed.
- Punishment has no role in treating separation anxiety.
- Approximately 14% of dogs are suspected to suffer from separation anxiety.

- While progress can be made with medication and behavioral therapy, responses can be slow and resolution may take months.
- Set backs such as increased destruction, elimination, or vocalization may occur when the owner travels, is home for extended periods then leaves again, changes jobs, or any other disruption in the usual household routine occurs.

Patient Monitoring

- The best way to monitor progress is for the owners to set up some type of surveillance when they are absent. This will allow them to assess the presence of anxiety-related behaviors and modify training departures as needed.
- Client contact should be made weekly initially and then monthly until the problem is controlled.
- Medication should be continued for 1 month beyond resolution and then the pet should be slowly weaned off by decreasing the dose 25% a week while watching for a reoccurrence of anxiety symptoms.

Prevention/Avoidance

- Spoiling activities such as letting the dog sleep on the bed or feeding the dog from the table are not associated with the development of separation anxiety.
- Prevention of separation anxiety can be attempted by gradually exposing puppies to separation from their human counterparts.
- To increase the odds of a successful, anxiety-free departure, exercise the puppy prior to your absence. Leave the puppy in a comfortable, safe environment. Give the puppy a reward upon your departure. Keep departures/greetings low key.

Possible Complications

- Relapse may occur if there is a period where attachment figure spends extended period of time with the pet and then departs again.
- Injuries during escape attempts and ongoing destruction and elimination disrupt the human-animal bond and result in pet relinquishment.

Expected Course and Prognosis

- Owners need realistic expectations of the time course of treatment and the need for behavior modification in order to have successful resolution of the problem. Problem behavior may take weeks or months to resolve depending on severity and duration of the problem.
- Separation anxiety often responds well to behavioral modification with or without medication; medication may accelerate improvement.
- Some severe cases can be very resistant to treatment.
- Other concurrent behavioral disorders may make resolution more difficult.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline

Abbreviations

CBC—complete blood count
CCDS—counterconditioning and systematic desensitization
DAP—Dog Appeasing Pheromone[®]
FDA—Food and Drug Administration
GABA—gamma-amino butyric acid
h—hour
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
q—every
SSRI—selective serotonin reuptake inhibitors
TCA—tricyclic antidepressant

Suggested Reading

- Flannigan, Gerald, and Nick Dodman. 2001. Risk factors and behaviors associated with separation anxiety in dogs In: *JAVMA* 219 (4), pp. 460–466.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 258–266.
- Schwartz, Stephanie. 2002. Separation anxiety syndrome in cats: 136 cases (1991–2000) In: *JAVMA* 220 (7), pp. 1028–1033.
- Takeuchi, Y., K.A. Houpt, and J.M. Scarlett. 2000. Evaluation of treatments for separation anxiety in dogs In: *JAVMA* 217 (3), pp. 342–345.



Shadow and Light Chasing: canine



DEFINITION/OVERVIEW

Some dogs will focus on and/or chase shadows caused by ambient or artificial lighting. Individual dogs may only stare at the shadows while others may see them and follow or chase those created by movement. Some dogs do not chase shadows but will fixate and/or chase light that reflects and flickers on walls, ceilings, and floors. In most cases, these are considered compulsive disorders since they usually do not vary in their form, occur at a high rate of frequency, and interfere with function.



ETIOLOGY/PATHOPHYSIOLOGY

- Compulsive disorders are a diagnosis of exclusion. The clinician must rule out other pathophysiologic causes of the aberrant behavior before the diagnosis is made.
- Compulsive behaviors may be a behavioral response to confinement or other undefined environmental conditions (e.g., stress, anxiety, frustration). Over time, the behavior may become fixed and independent of the environment.
- Stress or conflict within the home environment or social situation may initially precipitate the behavior as a coping mechanism. Over time, the behavior becomes generalized to other situations and occurs earlier in the arousal sequence.
- The pathophysiology of compulsive disorders is not well understood, but neurochemicals such as beta-endorphins, serotonin, and dopamine are implicated.
- Compulsive behaviors may be self-reinforcing, possibly caused by the release of endogenous opioids in the CNS. This may allow some animals to cope with conditions that do not meet their species-specific needs.
- Species, breed, and family line dispositions for certain compulsive behaviors suggest genetic predispositions for compulsive behaviors.
- By giving a pet attention (either positive or negative) during an episode of compulsive behavior, the owner may be inadvertently reinforcing the undesirable behavior.



SIGNALMENT/HISTORY

- Any age, gender, or breed can present with a compulsive disorder.
- Age: Average age of onset of compulsive behavior correlates with social maturity (canine 12–36 months). The median age of onset for dogs is 12 months of

age; therefore, approximately half of the population will first show signs of their compulsive disorder by a year of age.

- Gender: Some sources suggest that male dogs are overrepresented in the population diagnosed with compulsive behaviors.

Historical Findings

- The pet tracks light or shadows in a repetitious, relatively unvaried sequence that has no obvious purpose or function. Alternately, the pet may stare fixedly at a light or shadow for prolonged periods; vocalization may accompany the behavior; and often dogs pounce at the light/shadow and many will injure themselves by repeated blunt force to the nose as they hit their face against the ground in apparent attempts to catch the light/shadow.
- The compulsive behavior interferes with normal daily activities and functioning.
- The behavior may be first exhibited in an acute conflict situation and then it generalizes to other situations, especially if the animal is exposed to prolonged or repeated conflict or frustration.
- Compulsive behaviors generally worsen over time. The compulsive behavior occurs in more contexts and with less provocation.
- Relatives of an affected pet are more likely to also exhibit compulsive behaviors.
- The owner has often attempted a variety of interventions, many of which may have aggravated the problem, prior to seeking consultation.

Contributing/Risk Factors

- Predisposed breed or familial line may be a factor.
- An environment with stress, conflict, or frustration may contribute to this behavior.
- Anxiety may cause displacement behavior such as shadow searching or light chasing.
- An uncertain and inconsistent relationship with owners may be contributory.
- Uncertain access to play, activities, and outdoors may be a factor.
- An inciting play-related cause could be an owner who initially encourages shadow or light chasing either by using a laser pointer or encouraging the dog for the behavior when it self selects it.
- The owner reinforces the behavior by giving it attention.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the dog.
 - Other pets may cause a stressful social environment and this should be examined.
- What is the daily routine, including feeding, training, exercise and play, and social interaction?

- Learn the pet's typical daily routine. This can help the clinician to identify specific areas of conflict, stress, or frustration. Specifically look for adequate social, physical, and mental stimulation.
- What is the pet's behavior at owner departure? Are there any signs of separation distress?
- What is the general temperament of pet?
 - The pet's responses to a variety of social and environmental situations may help determine if the pet is highly reactive/anxious or confident/calm.
- What has been the duration and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
 - Have owners describe the condition and its progression including historical and current behavior.
- What are the triggers for this behavior, including time of day, presence of others, situations, events, locations, etc.?
- What are the daily incidents and time spent engaging in the behavior?
 - How long are the shadow or light chasing bouts and how many are there per day?
- Is the owner able to interrupt the behavior, and rate and time course of return of the behavior?
- What is the eliciting stimuli, location, and/or circumstances in which the behavior occurs?
- Does the pet engage in the behavior when no one is home? Videotaping may be necessary to answer this question.
- What is the owner's response to the behavior?
- What treatments have been tried for the behavior and what was the response to those treatments?
 - Have any verbal or physical reprimands been used?
 - Have any psychotropic medications been used in the past?
 - Have any control devices such as headcollars (e.g., Gentle Leader®) been used?
- Have owners recount the two most recent bouts of the behavior in question with specific details.
 - Time of day
 - Location
 - Others present (pets and people)
 - Pet's behavior before, during, and after the bout
 - Owner's behavior before, during, and after the bout
 - Pet's response to any owner interventions



DIFFERENTIAL DIAGNOSIS

- Normal behavioral response in an acute conflict situation
 - The historical information will reveal that the behavior in question is confined to a specific situation and does not interfere with daily function/life of the animal.

- Attention-seeking behavior
 - The behavior only occurs in the presence of people and people have historically given the pet attention for the behavior.
- Seizures
 - Seizures cannot be interrupted, and there is usually a postictal phase.
- Central brain lesions
- Infectious diseases
- Metabolic diseases
- Toxin exposure
- Trauma
- Degenerative disease



DIAGNOSTICS

- A video recording should be solicited of the behavior in question.
- Complete physical and neurological examinations should be performed.
- A CBC, chemistry panel, thyroid evaluation, and urinalysis should be conducted.
- Further diagnostic testing as indicated by the results of these examinations should be conducted.

Pathological Findings

- No specific findings associated with shadow and light chasing



THERAPEUTICS

Safety

- Safety of the pet and people must be considered a priority.
- Owners should be instructed to avoid direct physical intervention of a pet engaged in shadow and light chasing especially if the pet responds aggressively when interrupted.

Management

- Identify and remove the triggers.
 - Environmental manipulation to reduce identified stressors that may include blocking windows, separation of animals within the home to prevent social conflicts, increase in resources such as food and water bowls, resting areas
- Decrease or increase light sources to change shadow images.

Behavioral Modification Techniques

- Restructure the pet-owner relationship. Create rules for interaction so the owner knows when and how to interact with their pet. (See the Structuring Your Relationship with Your Pet handout.)

- In the beginning, all attention is initiated by the owner.
- The pet can receive attention when it is calm and quiet.
- The pet must earn attention by either performing a task such as “sit” or by remaining calm and quiet nearby.
- The owner calls the pet over, begins the attention session, and also ends it before the pet does.
- Initially, the pet is required to “earn” all things such as food, access to the outdoors, play, walks, etc., by performing a task on command such as “sit.” Later if the animal requests the item by calmly sitting and waiting, it will be given.
- All forms of positive reinforcement for shadow and light chasing must be identified and eliminated.
 - If it is determined to be an attention-seeking behavior based upon the requirement of an audience for the expression of the behavior, then treatment for attention-seeking behavior should be pursued. (See Chapter 25, Attention-Seeking Behavior: canine and feline.)
 - It is important for the owners to recognize that things as simple as eye contact, telling the pet “no,” and/or pushing the pet away may be interpreted by the pet as positive reinforcement since it gained some acknowledgment for the behavior.
 - Owners must be warned not to pay any attention except as outlined above.
 - Using extinction to eliminate a behavior often results in frustration and an escalation in the behavior before it declines, which may result in the owner giving up the treatment plan.
- At no time should physical or verbal punishment be used.
- Teach the pet to be calm, settled, and relaxed on cue in a specific location. (See the Tranquility Training Exercises handout.)
 - This may be “go to your bed and stay” or “head down” command.
- Create a reliable, predictable environment.
 - Provide regular feeding, play, walks, and grooming and interactive time.
 - To the best of their ability, the owner should strive to include these interactions in their daily routine and as close to the same time as possible.
 - If the pet knows that a daily walk or playtime is forthcoming, often they will wait for it and are satiated once it is complete.
 - When the owner knows they have allotted time to the social and physical needs of their pet, they may find it easier to ignore attention-seeking behaviors at other times.
- Perform counterconditioning.
 - Teach the dog to perform another task incompatible with the chasing response (settle and relax in a specific location).
 - Give a verbal command.
 - Give the command when the pet begins to engage in chasing behavior.
 - New behavior is rewarded.

- Use headcollars for control.
 - The headcollar and an attached leash can be used to stop shadow and light chasing and then reward the dog for an alternate behavior.
- Daily training exercises may be useful for control and structure.

Accompanying Handouts

Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Medication can help facilitate the treatment program and in many cases, may be necessary to appreciate improvement.
- No drugs are approved for use in dogs for compulsive behaviors, and appropriate pretreatment chemistry screenings are indicated.
- Serotonergic medications:
 - Drugs are indicated for situations where there is an unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - Given on a daily schedule regardless of exposure to trigger stimuli.
 - It may take up to 4 weeks to achieve efficacy.
 - Continue for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response. Canine doses:
 - Amitriptyline: 1–2 mg/kg q12h
 - Clomipramine: 1–2 mg/kg q12h
 - Fluoxetine: 0.5–2.0 mg/kg q24h
 - Paroxetine: 0.5–1.0 mg/kg q24h
 - Sertraline: 1–3 mg/kg q24h

Other Treatments

- Headcollars help with control and allow interruption and redirection of the pet.
- In anxiety conditions, a canine pheromone product (e.g., DAP—dog appeasing pheromone®) diffuser may be a useful adjunctive approach.
- Various homeopathic remedies may be useful, but no studies exist to support dosages or treatment length.

Contraindications/Precautions

- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.

- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately. A minimum database should include a complete blood count, chemistry panel, and thyroid evaluation.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban[®]) and selegiline (Anipryl[®]).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Clients should be informed that in many cases, compulsive disorders may require lifelong treatment.
- Accurate record keeping may help assess treatment success.
- In long-standing cases, progress may be very slow. Decreased frequency of bouts or decreased intensity may be the first signs.
- Total resolution may not be possible.

Patient Monitoring

- Have client keep daily and/or weekly logs of the occurrence of the compulsive behavior including duration of bouts and frequency of bouts. This will allow for accurate assessment of behavioral change.
- Initially, weekly or biweekly follow-up is desirable to manage the treatment program and response to medication.
- Regular (semiannual to annual) monitoring is necessary for pets on long-term drug therapy; examination and laboratory evaluations (CBC, chemistry panel, urinalysis) should be conducted.

Prevention/Avoidance

- Appropriate daily mental and physical stimulation in the form of exercise, play, and social interaction should be provided for all pets.
- No attention should be given for compulsive disorders, even if it is considered entertaining the first few times it is observed.
- Avoid playing with laser lights or flashlights, especially if the dog gets very excited/intent.
- Predictable interactions and environments may help prevent onset of the behavior.
- If client sees signs of compulsive behavior developing in a animal derived from a line where other animals are affected, early intervention is advised.

Possible Complications

- Poor owner compliance with treatment recommendations leads to relapse of the problem.

Expected Course and Prognosis

- It may take several weeks to see improvement.
- If no improvement is seen after 4 weeks, the diagnosis, treatment plan, medication dosage, and owner compliance should be reevaluated.
- Relapse may occur if stress/conflict/frustration is reintroduced into the environment.
- Clinical improvement is negatively correlated with duration of compulsive behavior; treatment should be sought early in the course of problems to maximize treatment success.
- Control, not cure, is a realistic expectation for a compulsive disorder.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline
 Chapter 29, Compulsive Disorder: canine and feline overview
 Chapter 59, Tail Chasing and Spinning: canine and feline

Abbreviations

CBC—complete blood count
CNS—central nervous system
DAP—Dog Appeasing Pheromone®
FDA—Food and Drug Administration
h—hour
MAO—monoamine oxidase
mg/kg—milligrams per kilogram
q—every
SSRI—selective serotonin reuptake inhibitors
TCA—tricyclic antidepressants

Suggested Reading

- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*, Philadelphia: Elsevier.
- Luescher, Andrew U. 2002. Compulsive Behaviour In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 229–236.

Stealing Household Objects: canine and feline

chapter 58



DEFINITION/OVERVIEW

Stealing behavior usually involves actions in which the pet takes items that the owner feels belong to them and should not be touched by the pet. These items include but are not limited to clothing, shoes, food, children's toys, electronics (remote control, Palm Pilot), books, magazines, etc. The animal may only take the items and hoard or protect them, and at other times, they may destroy them. Attempts by the owner to retrieve the items may result in aggression directed toward the owner, and the problem may be accompanied by possessive aggression. This chapter will deal primarily with stealing that occurs without aggression.



ETIOLOGY/PATHOPHYSIOLOGY

- In food-stealing behaviors, the animal may be hungry due to poor diet or underlying medical problems.
- Food-seeking behaviors in normal dogs are not uncommon and probably part of the normal behavioral repertoire.
- In rare circumstances, stealing may be a symptom of hyperactivity or a compulsive disorder, but this is not usually likely.



SIGNALMENT/HISTORY

- Any breed or sex may be represented.
- Breed: This behavior is more often reported by owners of larger dogs perhaps due to access to items or the destruction of items.
- Age: Young, exuberant animals often present with this complaint.

Historical Findings

- Owner complains of the pet taking personal items.
- This may also include destruction of certain items.
- It can occur when the owner is home and when the owner is away.
 - When the owner is home, stealing may occur when the owner is otherwise occupied with other tasks as a means of self-entertainment or attention seeking.

- Certain possessions may be targeted such as children toys or getting into the garbage.

Contributing/Risk Factors

- Lack of appropriate or adequate outlets for play and exercise may be contributory in some animals.
- Lack of adequate social interaction or clear rules or expectations for social contact may lead to stealing as an attention-seeking behavior.
- Poor training and owner control may be factors.
- Food-seeking behavior may be associated with illness or poor diet or simply leaving food in places readily accessible to the pet.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.
- What is the daily routine, including feeding, training, exercise, play, and social interaction?
 - Environmental enrichment activities such as walks, feeder toys, climbing towers, and other play items should be explored.
 - Compliance to obedience commands, specifically a “drop it” or “leave it” command should be established.
- Does the pet show any signs consistent with separation anxiety?
- What has been the duration and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
- Obtain descriptions of incidents.
 - Are there specific times of day when stealing is more likely?
 - This may indicate times where the pet needs to be contained or otherwise engaged.
 - If the dog steals items only when the owner departs, signs of separation anxiety need to be explored; this could just be an opportunistic pet.
 - Does the behavior tend to occur when the owner is occupied doing something else, such as talking on the phone, taking care of children, or working on the computer?
 - This may indicate an attention-seeking component.
 - Does the pet purposefully show the stolen item to a person?
 - This indicates the pet is more interested in the interaction that may take place as a consequence of stealing the item and not the item itself.
 - How many episodes occur daily?
 - Frequent incidents indicate a need for better management and prevention.
- If the owner catches the pet prior to taking an item, can they interrupt the behavior, and how quickly does the pet try again?

- What is the owner's response to the behavior?
 - If the owner can catch the pet and tries to get the object back, does the pet respond aggressively?
 - If yes, what does the owner do?
 - How do they get items of value back if they cannot catch the pet?
 - Oftentimes, a chase or bribery with a treat occurs; both of these may be highly reinforcing for the pet.
- What treatments have been tried and what was the response to those treatments?
 - Any verbal and physical reprimands and the pet's response should be noted.



DIFFERENTIAL DIAGNOSIS

- Attention-seeking behavior
- Normal exploratory and play behavior in dogs and cats
- Separation anxiety and subsequent destruction of owner's possessions
- Noise phobias that result in destruction of items
- Social status/conflict challenge



DIAGNOSTICS

- A complete physical and neurological examination should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.

Pathological Findings

- Usually none are noted unless underlying pathology contributes to hunger and food stealing.



THERAPEUTICS

Safety

- If the pet is aggressive when the owners attempt to take things from the dog or cat, this must be avoided.
 - Aggressive pets must be supervised around children to prevent the child from attempting to take things back from the pet.
- Owners should be taught how to get items back that are either dangerous to the pet or extremely important to the owner. See behavior modification techniques below.

Management

- If certain objects are commonly targeted, these must be securely put away out of the pet's reach.
- It may be advisable to make certain areas inaccessible to the pet with baby gates or closed doors if items cannot be stored out of reach.
- If stealing occurs at predictable times, the pet should be confined with a delectable food-stuffed toy some place safe where stealing cannot occur.
 - If the pet will not tolerate confinement, then confinement training should be instituted.
- Make sure that daily activity, exercise, and social needs are met with walks, play, and training.
 - Provide the pet with appropriate toys, perhaps enhanced with food and then encourage and reward their usage.

Behavioral Modification Techniques

- In situations where the stealing is attention motivated, simply ignoring the behavior may drastically reduce or eliminate the activity. The only time the pet is not ignored is if the stolen item is dangerous to the pet or extremely valuable to the owner.
- In situations where the pet is self-motivated to perform the behavior, the treatment is two-fold: prevent stealing and be able to safely and quickly retrieve stolen items.
 - Increasing responses to commands is useful so training classes may be appropriate.
 - Prevention is mentioned under the management heading.
- Strategies for retrieving items include redirecting the dog or cat to other activities, trading for a higher value item, teaching "leave it" or "drop it" commands, which generally work better for dogs than cats.
- **Redirect to other activities:** For some dogs and cats, a diversion with something else they really want to do will result in them leaving an object. This may be taking a walk, a ride in the car, ringing the doorbell, play with an attractive toy, etc. If the pet is offered an alternate activity, it must be given even if it is short. This could inadvertently reinforce the stealing behavior.
- **Trade for stolen items:** Some items of value or those that are dangerous to the pet may need to be retrieved quickly before they are damaged or the pet is injured. Only the adult that has the most control over the pet should do this. **Children should never attempt this exercise.**
 - When the pet has the stolen item, the owner goes and gets a highly valued food reward that the pet reliably wants.
 - Then the food is shown to the pet from 5–6 feet away and the pet is called to "come."
 - When the pet leaves the item, the owner backs up and calls the pet again and for dogs may add "sit."
 - This is repeated two to three times without giving the pet the food reward until they are at least 15–20 feet from the object and preferably in another room.

- The pet is then given the food, gently taken by the collar or in the case of a cat, picked up if they will reliably allow that without aggression and put into another room with a closed door or outside. Only at that time does the owner retrieve the item. The exchange NEVER takes place right in front of the pet and the item. See Table 10.1 for more detail.
- **Teach “leave it” for dogs using a headcollar (e.g., Gentle Leader®) and leash:** With the dog wearing a headcollar and an adult holding the leash, the dog is walked toward an item he may wish to pick up such as a ball or chew toy. As the dog reaches for the item, calmly say “leave it” and turn the dog’s head using the headcollar and quickly offer a food reward and “good dog” as the head comes toward you. Repeat several times with low value items.
 - As the dog learns the meaning of the phrase, he will begin to turn his head prior to the pull of the leash. Immediately reward that behavior.
 - Progress to more valued items and gradually phase out food rewards while retaining verbal praise.
- **Teach “drop it” to a dog:** The goal is to teach the dog to give up items with a verbal command.
 - Initially, this task is taught using an item of low value that the dog has never guarded or stolen paired with high value rewards.
 - Since dogs are more likely to relinquish an item of which they only have partial control, you should start by engaging the dog in a gentle game of tug with a low value item. The human should stop tugging and the pet is offered a small piece of food along with the words “drop it” as the dog opens his mouth to take the food. Repeat several times so that the dog begins to anticipate the actions.
 - Next, hold the food away from the dog and say “drop it,” only giving the food once the item has been dropped. Repeat until the response is reliable and then begin to phase out the food by skipping the food reward on some repetitions.
 - Gradually, use items of higher value to the dog. As you increase the value of the item, you may need to reinstate continuous food rewards until the drop command becomes reliable.
 - Then practice the command when the dog has full control over an item.
 - Once the “drop it” command is well established, it can be used to retrieve stolen items.
- Punishment must be avoided since harsh verbal or physical reprimands may cause the pet to become defensive and/or aggressive, which could lead to owner injury.
- Chasing the pet should also be avoided since it may be interpreted as play.

Accompanying Handouts

Maximizing Treatment Success
 Safety Recommendations for Aggressive Animals
 Structuring Your Relationship with Your Pet
 Teaching “Drop it” and Retrieving Stolen Items

Teaching “Leave it”

Teaching Your Pet How to be Confined

Tranquility Training Exercises

Drugs

- Unless the problem is associated with separation anxiety or another anxiety condition, medication is not indicated.

Other Treatments

- Headcollars and leashes on dogs allow for increased owner control and early intervention if the dog steals something.
- Body harnesses and leashes on cats can be useful in some situations.
- Remotely activated or motion-activated noise devices or remotely activated citronella dish/collar arrangement may help keep the pet from certain locations and prevent stealing in that location.

Contraindications/Precautions

- Harsh physical reprimands often result in defensive responses that not only may result in owner injury but also create fear and anxiety in the pet. These must be avoided.
- If a pet ingests stolen items, this may result in intestinal obstructions. Management is critical.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.



COMMENTS

Client Education

- Clients often believe that pets that steal items are being spiteful and know they have done something wrong. It is useful to help owners understand the relationship between punishment and timing. When the owner punishes the pet when they have an object, they are punishing “having the shoe” rather than “taking the shoe.” Animals have a difficult time chaining backwards and therefore are likely to repeat the behavior again.
- Young animals have exercise, play, exploratory, and social needs that must be met. Long periods of time without companionship can lead to attention-seeking and play behaviors that are objectionable to owners.
- Time must be made daily to meet the social, play, and exploratory needs of the pet in a way that is satisfying to them.

- Realistic expectations should be set for a decrease in the problem behavior. Most behaviors take between 2–6 weeks to change, and over that time a decrease should be noted.

Patient Monitoring

- Telephone follow-up at intervals of 7–10 days for the first month are useful.
- This allows monitoring of the treatment plan and modifications if things are not progressing satisfactorily.

Prevention/Avoidance

- Setting up regular interactions that include play, exploration, and social interactions will help meet the needs of young, inquisitive pets.
- Having set rules and expectations for interactions allows pets to know how to obtain attention in an appropriate manner.
- Regular training and exercise increase owner control and calm the pet.
- Keeping important items out of the reach of the pet can avoid development of problem stealing behavior.
- Providing adequate and appropriate toys for chewing and play and rotating them regularly may be useful.

Possible Complications

- Punishment and harsh physical reprimands may lead to the development of aggressive responses. These may lead to owner injury and/or pet relinquishment.
- Ingestion of stolen items may result in gastric or intestinal foreign bodies and perhaps the need for surgical intervention.

Expected Course and Prognosis

- Most cases respond well to treatment if the underlying problems are addressed.
- If owners do not have time for the pet or cannot meet their needs, then stealing may continue.
- Some dogs and cats may revert to previous behaviors when ignored or distressed.

Pregnancy

- Dogs experiencing pseudocyesis may steal, protect, and attempt to nurse items.
- Spaying is usually curative unless a learned component is part of the problem.

See Also

Chapter 4, Aggression/Canine: food
 Chapter 10, Aggression/Canine: possessive
 Chapter 25, Attention-Seeking Behavior: canine and feline
 Chapter 56, Separation Anxiety: canine and feline

Suggested Reading

- Bowen, Jon. 2002. Miscellaneous Behaviour Problems In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 119–127.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*. Philadelphia: Elsevier, pp. 310–313, 326–329.
- Lindell, Ellen. 2002. Control Problems in Dogs In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 69–79.

Tail Chasing and Spinning: canine and feline

chapter 59



DEFINITION/OVERVIEW

Tail chasing or spinning describes the behavior where an animal spins in tight circles apparently trying to catch its tail. Some animals make contact with their tail and injure it, while others just go through the chase sequence. Those that create physical injury to the tail are considered to be manifesting SIB. Tail chasing/spinning is a non-specific clinical sign that can have different etiologies. In this chapter, the focus will be tail/chasing spinning as a compulsive behavior; however, differential diagnoses should be considered and are detailed under the appropriate heading. Historical and physical examinations can help elucidate the cause and target treatment.



ETIOLOGY/PATHOPHYSIOLOGY

The pathophysiology will depend upon the primary diagnosis for many behavioral conditions including compulsive disorders. The pathophysiology is speculative. Three main neurotransmitter systems—dopaminergic, serotonergic, and opiodergic—have been implicated in compulsive, self-injurious behaviors.

Complex partial seizures have been implicated as a causative factor of tail chasing in bull terriers.



SIGNALMENT/HISTORY

- Any age, breed, or gender can exhibit tail chasing/spinning behavior; signalment may depend upon an underlying cause.
- Tail chasing or spinning that is diagnosed as a compulsive behavior is more likely to be seen in neutered males and breeds that are bred for herding work. The age of onset coincides with social maturity (dogs 18–24 months, cats 30–36 months).
 - Breeds with high prevalence for tail chasing:
 - English bull terrier
 - Staffordshire bull terrier
 - German Shepherd dog
 - Australian cattle dog



■ **Fig. 59-1** This dog tail chases in situations of acute conflict; the tail is not traumatized and recovery is rapid.

Historical Findings

- Animal is described as chasing its tail or spinning in tight circles for periods of time that exceed any normal grooming or locomotion patterns.
- In some cases, the tail is caught and traumatized by the animal; in other cases, contact is never made with the tail.
- Tail chasing may occur in times of stress/frustration/conflict.
- Some owners describe the animal as acting as if the tail is a foreign entity; the animal catching sight of their own tail triggers the chase sequence.
 - In cats, the sequence may include growling and hissing at the tail when visualized.
- Spinning or tail chasing occurs at such a high rate that it occupies a great deal of the pet's daily time budget and interferes with normal functioning.

Contributing/Risk Factors

- Genetic predisposition may be a factor.
- Any situation that causes stress, conflict, or frustration can contribute. The animal may be motivated to perform a behavior but is prevented from doing so, causing frustration. Or the animal has two competing motivations in a situation,

such as approach and withdrawal, causing internal conflict. Stress may arise from unpredictable environments or disorders that cause stress/anxiety, such as separation anxiety, noise phobias, etc.

- Major household changes in schedule, composition, etc.
 - Noise phobia
 - Separation anxiety
 - Inconsistent or improper training/punishment
 - Frustrating situations, such as a barrier-preventing territorial defense
 - Impoverished environment
- Trauma or disease of hindquarters, including dermatological problems, musculoskeletal pain, and sensory deficits or pain

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This can help the clinician identify sources of conflict/stress.
- What is the daily routine, including feeding, training, exercise, and play?
 - This allows the clinician to evaluate if there is appropriate mental and physical stimulation for the pet.
 - Is there any evidence of separation distress at owner departure?
- Learn the source of the pet, age at acquisition, and whether any known relatives exhibit the condition.
 - If relatives/littermates of the animal exhibit the same behavior, a genetic component is suspected.
- Does the pet show extreme reactions to noises, storms, owner departure, or other triggers?
 - This can elucidate underlying conditions that cause chronic stress.
- What was the age of onset and were there any changes at that time?
 - Compulsive disorders are often first seen at social maturity.
 - If significant social/environmental changes coincided with onset, they may be contributory; this is more likely in cats.
- What has been the duration and progression of the problem behavior?
 - Long-standing behaviors may be more resistant to change.
- What is the frequency and duration of the bouts and have there been any changes in bouts that have occurred over time?
- Can the owner identify specific situations or triggers or time of day for the behavior?
 - This may help to elucidate triggers that need to be avoided or addressed with behavioral modification.
- Have the contexts for the behavior changed over time?
 - The spinning may have begun in selected situations and now has generalized to multiple situations and interferes with normal functioning of the pet.
- Obtain an accurate description of the behavioral sequence. Video tapes are often useful.

- What happens just prior and just after the tail chasing episodes and who is present?
 - Events surrounding the tail-chasing episode may provide insight into its triggers, if they exist.
 - If tail chasing is restricted to a specific audience, then they may trigger or contribute to the behavior in some manner.
- How much time is spent engaging in the tail-chasing behavior?
 - This information will allow the clinician to assess the severity and provides a baseline for monitoring improvement.
- What is the owner's response when the animal begins to tail chase?
 - Owner response may impact expression of the behavior; attention or punishment could result in an escalation.
- Can the owner interrupt and/or redirect the animal to another activity while the animal is engaged in the behavior?
 - This may help the clinician establish a treatment protocol; animals that have resisted distractions may be more difficult to redirect onto an alternate activity as part of the treatment plan.
- Does the presence/absence of an audience influence the expression of the behavior?
 - Must consider attention-seeking behavior as a diagnosis for behaviors that only occur when there is an audience
- What has been done to try and change the behavior in the past?
 - The clinician may identify interventions that actually aggravated the problem behavior.
 - This allows the clinician to avoid repeating failed treatments.
 - Alternately, some treatments that have been used may have been potentially useful but were not properly applied or used for a long enough period of time.
- Was there any response to previous interventions?
 - Positive response to interventions may give insight as to the most appropriate treatment plan.
- Does the pet suffer from other behavioral problems?
 - Comorbid problems must be treated as they could be contributing to tail chasing.
- Were there skin lesions present prior to the tail chasing?
 - Presence of dermatological lesions prior to tail chasing may suggest primary dermatological disease.



DIFFERENTIAL DIAGNOSIS

- Compulsive disorder
- Attention-seeking behavior
 - May be a component of spinning/tail-chasing behaviors

- Neurological disease: e.g., complex partial seizures; vestibular disease; sensory neuropathy; encephalitis; tumor
- Dermatological disease: e.g., flea allergy dermatitis
- Toxicosis: e.g., lead poisoning
- Congenital or acquired metabolic disease: hepatic encephalopathy
- Infectious disease: e.g., distemper, FIV
- Trauma: e.g., bruising, fracture of tail
- Degenerative disease: e.g., arthritis, disc disease
- Pain/discomfort: e.g., anal gland abscess; gastrointestinal disease with lower GI distress
- Intestinal parasites
- Hyperesthesia



DIAGNOSTICS

- Complete physical and neurological examinations should be performed including digital rectal examination.
- Perform CBC, chemistry profile, viral titers, urinalysis, and fecal examinations.
- Perform imaging studies of the lower spine/tail.
- Perform further diagnostic testing (EEG, CSF analysis, etc.) as indicated by the results of these initial examination/tests.

Pathological Findings

- If contact is made with the tail, skin biopsies may show evidence of dermatological lesions consistent with self-inflicted trauma.
- Other pathological findings will correlate with primary disease processes.



THERAPEUTICS

- In cases where the behavior does not interfere with function or cause the pet or owner problems, no intervention may be warranted.
- In cases where an underlying etiology can be identified, treatment for that specific condition should be attempted.

Safety

- Attempts to physically intervene during tail chasing could result in a redirected aggressive event; owners should be cautioned against interactive physical intervention.

Management

- If inciting triggers can be identified and controlled, they should be avoided unless they are part of the treatment process.
- Secondary dermatological infections need to be treated.

Behavioral Modification Techniques

- Behavior therapy is based on the assumption that the behavior is a compulsive disorder and is potentially related to conflict, frustration, and stress in the pet's environment.
- Reduce stress by creating a predictable environment for the pet.
 - Change the pet-owner interaction to be more predictable and based on a command-response relationship. Perform reward-based training to teach the dog to obey commands in daily situations. (See the handout on Structuring Your Relationship with Your Pet in Appendix D.)
 - Feed on a routine schedule.
- Provide daily scheduled exercise, social interactions, and play.
 - Ignore all attention-seeking behavior and only give attention when earned and when the pet is calm and quiet.
- Stop all punishment for the behavior.
- Practice tranquility training (see the handout) by rewarding the dog for obedient, relaxed behavior.
- Desensitize and countercondition to triggering situations if these can be identified.
- Teach a competing response when the dog engages in the tail chasing such as sit, get a toy, or perform a trick.
 - In some cases, headcollars (e.g., Gentle Leader®), which allow control of the muzzle and face, may be useful to interrupt the behavior and redirect the dog to other activities.
- For cats, owner may anticipate and redirect the cat onto another activity such as chasing a tossed toy.
- Treat any concurrent behavioral conditions.

Accompanying Handouts

Acute Management of Problem Behavior
Desensitization and Counterconditioning: the details
Maximizing Treatment Success
Structuring Your Relationship with Your Pet
Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- In cases where a compulsive component is suspected, serotonergic medication may be indicated. Medication can help facilitate the treatment program.

- No drugs are approved for use in dogs or cats for compulsive behaviors, and appropriate chemistry screenings are indicated.
- While opioid and dopamine antagonists may reduce compulsive behaviors, the side effects and/or dosing regimes make them impractical for clinical use to treat compulsive behaviors.
- Drug effect is not immediate and may take 3–5 weeks to be noted.
- Medication is used for several (3–6) months after a positive effect is noted and then a gradual weaning off of the medication is attempted. If the behavior reoccurs during the weaning-off procedure, the previous dose is reinstated.

Selective Serotonin Reuptake Inhibitors (SSRIs)

- Fluoxetine
 - Canine: 1–2 mg/kg PO q24h
 - Feline: 0.5–2 mg/kg PO q24h
- Paroxetine
 - Canine: 0.5–2 mg/kg PO q24h
 - Feline: 0.5–1 mg/kg PO q12–24h
- Side effects: inappetence and irritability, gastrointestinal signs, and increased agitation

Tricyclic Antidepressant (TCA)

- Clomipramine
 - Canine: 2–3 mg/kg PO q12h
 - Feline: 0.5–1 mg/kg PO q24h
- Beginning dosage at the low level for 2 weeks, if no effect noted, increase the dose for another 2 weeks
- Side effects: sedation, anticholinergic effects, and cardiac conduction disturbances if predisposed; label restrictions on use in aggression

Contraindications/Precautions

- TCAs and SSRIs should not be combined with MAO inhibitors (including amitraz [Mitaban®] and selegiline [Anipryl®]). Use caution if combining SSRIs and TCAs as this can result in potentially fatal serotonin syndrome.
- TCAs and SSRIs should not be used in animals with a history of seizures.
- Electrocardiography should be performed on any animal predisposed to a conduction disturbance.
- Altered drug clearance and potentiation may occur with hepatic or renal function impairment.
- See individual drug monographs or pharmacology appendix for additional drug contraindications/precautions.
- Restraint devices do not treat the underlying problem and may aggravate stress/frustration actually worsening the condition.
- Punishment is contraindicated in compulsive disorders.

Alternative Drugs

- In anxiety conditions, a canine pheromone product (e.g., DAP—dog appeasing pheromone®) diffuser may be a useful adjunctive approach.
- Various homeopathic remedies may be useful, but no studies exist to support dosages or treatment length.

Surgical Considerations

- Tail amputation is not generally recommended as a behavioral therapy as the animal may still spin even though the tail is no longer present.
- Indications for tail amputation may include serious, nonhealing lesions of the tail; lesions of the tail that are triggering tail chasing; in cases where the sight of the tail movement appears to trigger the chasing episode.



COMMENTS

- Often the only reason owners seek help is when the pet engages in the behavior excessively or inflicts trauma to the tail.
- In some cases, tail chasing may be a calming/coping strategy and if not performed excessively may not need intervention.
- At the time of presentation it may be difficult to assess if the injury to the tail was the inciting cause or the result of the tail chasing.

Client Education

- Clients should be informed that in some cases compulsive disorders may require lifelong treatment.
- Accurate record keeping may help assess treatment success.
 - Changes in intensity, frequency, or duration can all be used to measure successful outcome.

Patient Monitoring

- Have client keep daily and/or weekly logs of the occurrence of the tail-chasing behavior including duration of bouts and frequency of bouts. This will allow for accurate assessment of behavioral change.
- Initially weekly or biweekly follow-up is desirable to manage the treatment program and response to medication.
- If on prolonged drug therapy, annual or semi-annual physical examinations and blood work should be performed.

Prevention/Avoidance

- Appropriate daily mental and physical stimulation in the form of exercise, play, and social interaction should be provided for all pets.
- No attention should be given for tail chasing, even if it is considered funny or cute the first few times it is observed.

- Preventative veterinary care, such as treatment with antiparasitics, may help reduce possible inciting causes.
- Predictable interactions and environments may help prevent onset of the behavior.

Possible Complications

- Serious self-inflicted injury to the tail

Expected Course and Prognosis

- It may take several weeks to see improvement.
- If no improvement is seen after 4 weeks, the diagnosis, treatment plan, and owner compliance should be reevaluated.
- Relapse may occur if stress/conflict/frustration is reintroduced into the environment.
- Control, not cure, is a realistic expectation for compulsive disorders.

See Also

Chapter 25, Attention-Seeking Behavior: canine and feline

Chapter 29, Compulsive Disorders: canine and feline overview

Abbreviations

CBC—complete blood count
 CSF—cerebrospinal fluid
 DAP—Dog Appeasing Pheromone®
 EEG—electroencephalogram
 FIV—Feline Immunodeficiency Virus Infection
 GI—gastrointestinal
 h—hour
 MAO—monoamine oxidase
 mg/kg—milligrams per kilogram
 q—every
 SIB—self-injurious behavior
 SSRI—selective serotonin reuptake inhibitors
 TCA—tricyclic antidepressants

Suggested Reading

- Hewson, C.J., U.A. Luescher, J.M. Parent, et al 1998. Efficacy of clomipromine in the treatment of canine compulsive disorders In: *JAVMA* 213, pp. 1760–1766.
- Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of Behavior Problems of the Dog and Cat*. 2nd Edition, Philadelphia: Saunders, pp. 215–217.
- Luescher, Andrew U. 2002. Compulsive behaviour In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills and Sarah Heath, Gloucester: BSAVA, pp. 229–236.



Thunderstorm Phobia



DEFINITION/OVERVIEW

Phobias are generally thought to be maladaptive responses of persistent fear and anxiety reactions that are out of proportion to the actual stimulus. Storm phobias range from those that are mild (pacing, shaking, drooling, hiding) to those that are quite extreme (panic, escape) and result in destruction and potentially dangerous or injurious responses by the animal. In some cases, the reaction may occur with one very intense exposure to a storm, but many storm phobias appear to develop and worsen over time. Individuals vary in what causes the reaction: thunder, lightning, rain, wind, darkening skies. Any or all of them may trigger the response.



ETIOLOGY/PATHOPHYSIOLOGY

- When frightened, the sympathetic branch of the autonomic nervous system is activated initiating a cascade of physiological events associated with epinephrine release from the adrenal medulla; this is classically known as the “fight or flight” survival response.
- Systems affected may include
 - Behavioral: hypervigilance, avoidance behaviors, possible aggression if handling or restraint attempted
 - Cardiovascular: tachycardia
 - Endocrine/Metabolic: alterations in the HPA axis; release of glucocorticoids; glucose release into the bloodstream
 - Gastrointestinal: inappetence; aberrant appetite; gastrointestinal distress (salivation, vomiting, diarrhea, tenesmus, hematochezia)
 - Nervous: increased motor activity; repetitive activity; trembling; self-injury
 - Musculoskeletal: weight loss over time as response to chronic stress effects on appetite, decreased food intake due to hiding behavior; poor condition attributable to increased motor activity and self-injury (weight loss, injured pads, damage to teeth and gums, and abrasions and lacerations)
 - Ophthalmic: dilated pupils in response to autonomic nervous system stimulation
 - Respiratory: tachypnea and the attendant metabolic changes
 - Skin/Exocrine: lesions, usually secondary to self-injury (lick granulomas); excessive shedding

- Genetic predisposition, traumatic experiences, and learning may all contribute to the development of storm phobias.
- Extreme reactions may be associated with poor functioning of the locus ceruleus, neurotransmitter abnormalities, malfunction of the amygdala, and changes in the hippocampus.
- Thunderstorm phobias may simply be a special type of noise phobia.
- This phobia may occur in conjunction with separation anxiety or may be mistaken for separation anxiety.
- Some animals may be experiencing panic attacks and be unaware of the danger they put themselves in while they try to escape the stimuli.



SIGNALMENT/HISTORY

- No real breed or sex predilection has been noted, although anecdotally, hunting and herding breeds seem to be commonly represented.
- This behavior probably also occurs in cats, but symptoms are less profound and may be overlooked by pet owners.

Historical Findings

- Owners may relate a gradual onset of the phobic responses that grew more profound, intense, and dangerous over time.
- Various weather elements may become predictive of a storm and the pet begins to show behavioral signs earlier in the storm sequence.
 - These elements include drop in barometric pressure darkening skies, wind, rain, and eventually lightning and thunder.
- Once the stimuli are noted, the pet may exhibit various responses that include pacing, panting, hypervigilance, whining, shaking, hiding, vocalization, following the owner, destruction, attempts to escape, freezing, elimination. Usually multiple responses occur in individual animals.
- The intensity of the response may vary with the storm itself or the presence/absence of the owners.
 - Some dogs are much worse if left home alone.
 - Some dogs will be worse if in close confinement such as a crate.
- House soiling while the owner is gone may be the only complaint and must be differentiated from other causes of house soiling.
- Storm phobias in cats may be underdiagnosed if the only symptom is hiding.
 - May also be manifest as house soiling due to unwillingness to go to the litter box during storms

Contributing/Risk Factors

- Presence of other phobias such as separation anxiety or fireworks phobia
- Noise-sensitive breeds or lineages

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.
- What is the daily routine, including feeding, training, exercise, play, and social interaction?
 - What is the pet's reaction to owner departure? Are there any signs of separation distress?
- What has been the duration and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
 - Do storm-related phobic behaviors occur when the owner is home as well as when the owner is gone?
- What are the exact behaviors the pet exhibits when a storm is present?
 - Does anything they do alter the progression or expression of the behaviors?
 - Does the pet react differently to different family members?
 - Is the response invariant, or is the behavior expressed different ways at different times?
 - Do all storms elicit the same response?
- What is the owner's response to the behavior?
 - Does the owner coddle, foster, or attempt to soothe the pet during storms?
 - Does this appear to help?
 - What is the pet's response to the owner's interventions?
 - Is the pet ever aggressive if they attempt to move or interact with the pet during a storm?
- Do other anxiety conditions appear to be present?
 - For example, does the dog show distress at owner departure?
 - Is the dog fearful or anxious with visitors or household changes?
 - Does the dog show fearful or phobic responses to other noises such as fireworks, vacuum cleaners, etc.?
- What treatments have been tried and what were the responses to those treatments?
 - Have any medications been tried? If yes, which ones and at what dosages and for how long?



DIFFERENTIAL DIAGNOSIS

- If inappropriate urination or defecation is part of the clinical presentation then differentials for those must be considered which include:
 - Gastrointestinal disease
 - Parasitism
 - Upper or lower urinary tract disease
 - Incomplete house training

- Litter box aversion
- Endocrinopathy resulting in polyuria/polydypsia

Dogs

- Separation anxiety
- Cognitive dysfunction
- House soiling due to lack of house training or some other fear or anxiety
- Noise phobia unrelated to the storm
- Play/exploration
 - May result in destructive behavior that owners mistakenly attribute to an anxiety-related condition, especially if they did not witness the event
- Territorial aggression
 - May result in destructive behavior at barriers and vocalization that owners mistakenly attribute to an anxiety-related condition, especially if they did not witness the event
- Acute or chronic painful conditions
- Auditory sensory changes

Cats

- Hiding due to other problems, both medical or behavioral
- House soiling due to other problems either litter-box related or related to social factors in the home
- Separation anxiety
- Other noise phobias
- Fear of people, places, animals
- Chronic or acute painful conditions
- Metabolic diseases
- Cognitive dysfunction syndrome



DIAGNOSTICS

- A complete physical and neurological examination should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.

Pathological Findings

- Unless other medical problems exist, no pathology is associated with this condition.
- Animals may injure themselves during escape attempts during storms.



THERAPEUTICS

Safety

- Most dogs that suffer from thunderstorm phobias are not usually a safety risk to people, but some may panic and attempts to stop or restrain them may be met with aggression. If so, this must be avoided.
- Some dogs are a safety risk to themselves during storms and this must be addressed.

Management

- It usually is not possible to totally avoid storms, but if possible, a safe place should be identified for the pet.
- Block windows so that lightning is not visible.
- Provide white noise or loud background noise to block the sound of thunder.
- Offering fun, distracting toys may be useful for some pets.

Behavioral Modification Techniques

- Prior to beginning a treatment program establishing a reward gradient for the pet is useful.
 - This is usually a food reward, but the reward can be play or attention.
 - The reward must be highly valued and reserved for training sessions only.
 - Use of the reward at other times may diminish its value for training in stressful situations.
- Teach the dog to settle and relax on a verbal command (See the Tranquility Training Exercises handout.)
 - Creating a designated location for relaxation using a mat or bed is useful.
 - This allows a “mobile” calming spot for the pet that can be taken to other places or used at other times.
- Systematic desensitization
 - Usually avoiding exposure to storms unless part of the controlled training program is not realistic, but is desirable if possible. Therefore, most desensitization should occur when storms are not likely (i.e., the winter time).
 - Have owners purchase a commercially recorded soundtrack of storms.
 - Establish intensity/volume of storm that is necessary to evoke fear response.
 - Play recorded storm tracks at a level below that which triggers the fear response for 3–5 minutes; the pet should show no signs of anxiety, fear, or agitation.
 - If the pet reacts with anxiety, fear, or agitation, lower the volume until the pet is comfortable.
 - It is preferable for the pet owner to expose the pet to the sound CD for multiple short (3- to 5-minute) training periods spaced throughout the day instead of one long (30-minute) training period.

- With success, gradually increase the volume until the pet is nonreactive at full volume.
- Counterconditioning
 - Pair the recorded storm tracks with a pleasurable activity for the pet such as eating or playing.
 - Play the CD and when sounds first occur, engage the animal in a pleasurable activity (provide with food, engage in play).
 - As the pet is eating or playing, continue to have the CD running.
 - If the pet shows signs of anxiety, fear, or agitation then the volume is too high, return to a lower volume and proceed more gradually.
- All punishment must be avoided during storms.
- Attempts to comfort the dog must be avoided also as they may be interpreted by the pet as praise.

Accompanying Handouts

Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Tranquility Training Exercises
 Managing Noise and Storm Phobias

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Pharmacological intervention targeted at the neurotransmitters involved in anxiety and fear responses may be helpful. Involved neurotransmitters include:
 - Serotonin
 - Norepinephrine
 - Dopamine
 - GABA
- Benzodiazepines: episodic, acute, short-acting anxiolytic medications; enhance GABA
 - Give approximately 30–60 minutes prior to anticipated storm.
 - Anticipate 3–6 hours of anxiolytic benefits.
 - Undesirable side effects may include sedation and disinhibition of aggression.
 - Regular use may result in dependence and tolerance.
 - Paradoxical reaction (increased agitation, anxiety) can occur in a small percentage of animals.
 - Diazepam is associated with acute liver failure in a small percentage of cats.
 - Examples of benzodiazepines and doses follow:
 - Diazepam
 - Canine: 0.5–2.0 mg/kg q6h
 - Feline: 0.2–0.5 mg/kg q8–12h

- Alprazolam
 - Canine: 0.02–0.1 mg/kg q6–8h
 - Feline: 0.02–0.05 mg/kg q8–24h
 - Clorazepate
 - Canine: 0.55–2.2 mg/kg q8–24h
 - Feline: 0.2–0.5 mg/kg q12–24h
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - These drugs are indicated for situations where there is unavoidable prolonged exposure to storms (i.e., when storms occur daily or every other day for weeks or months) or comorbid diagnosis of other anxiety-related conditions.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - Give on a daily schedule regardless of storm exposure and beginning prior to the start of the storm season.
 - These are not suitable on an “as needed basis” because they may take 2–4 weeks to achieve efficacy.
 - Continue throughout thunderstorm season and/or completion of treatment regime.
 - These drugs can be used in combination with a benzodiazepine to achieve sufficient anxiolytic effects during a thunderstorm event.
 - Examples of serotonergic medications and doses follow:
 - Fluoxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h
 - Paroxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h
 - Sertraline
 - Canine: 1–3 mg/kg q24h
 - Feline: 0.5 mg/kg q24h
 - Clomipramine
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Amitriptyline
 - Canine: 1–2 mg/kg q12h
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Selegiline (Anipryl®)
 - Canine: 0.5–1.0 mg/kg q24h in the morning
 - Feline: 0.5–1.0 mg/kg q24h in the morning
 - Buspirone
 - Canine: 1–2 mg/kg q8–24h
 - Feline: 0.5–1.0 mg/kg q8–24h

- Dopaminergic agents
 - Dopamine blockers include the phenothiazines such as acepromazine. Although widely used in the veterinary profession, this class of drugs is not recommended as a standard course of treatment for storm phobias as their primary effect is to render the animal physically unable to respond but do not address the problematic anxiety.

Other Treatments

- Some dogs are much calmer and easier to control during storms when wearing a headcollar (e.g., Gentle Leader®) and leash.
- Canine pheromone product (e.g., DAP—dog appeasing pheromone®) has been shown to be efficacious in reducing signs of storm phobias in dogs.
 - Plug diffuser into the environment 2 weeks prior to anticipated storms and have the diffuser running throughout the storm period.
 - Spray may be useful in the safe location.
 - DAP® collars may help for dogs that must be transported during that time.
- A Feliway® pheromone diffuser may have general anxiolytic properties for cats.
- Acupuncture may be useful.
- The efficacy of an anxiety wrap is uncertain. It may be useful in some animals.
- A Storm Defender® cape may be helpful. Its special metallic lining reportedly reduces the dog's sensitivity to the static charge associated with storms.
- Various homeopathic and naturopathic remedies have been promoted as treatments, but rigorous scientific data on efficacy are lacking.

Contraindications/Precautions

- Do not punish an animal for fearful behavior as this is likely to aggravate the condition.
- Do not comfort an animal for fearful behavior as this may inadvertently reinforce the undesirable outward behaviors.
- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use; therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately. A minimum database should include a CBC, chemistry panel, and thyroid evaluation.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.

- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban®) and selegiline (Anipryl®).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs. If combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/ precautions.
- Paradoxical excitement is a rare side effect of TCAs, SSRIs, and benzodiazepines.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.



COMMENTS

Client Education

- Clients are often distressed not only by their pet's behavior, but the concurrent destruction and/or disruption that a storm phobic pet causes.
- Realistic expectations should be set. It may be realistic to diminish destruction and profound responses, but some dogs may continue to pant, pace, or stay close to the owner despite treatment.
- Clients should be made aware that CCDS to a sound recording of thunderstorms may not translate into full resolution of real storm phobic responses.
- Clients may always need to be aware of the weather and medicate the pet in a preemptive manner if storms are likely.

Patient Monitoring

- Regular follow-up contact should be made throughout the treatment period.
- If on prolonged drug therapy, annual or semiannual physical examinations and blood work should be performed.
- For animals with profound problems, a reminder system that will notify the owner prior to storm season that medication may be useful might help prevent severe problematic responses.

Prevention/Avoidance

- Supervision, noise reduction, and distraction should be attempted during thunderstorms.
- Owners should avoid inappropriate fostering and coddling during early responses to storms.
- Teaching pets how to settle and be calm to a verbal command may help when the pet is unsure how to respond in future potential anxiety-provoking situations.

Possible Complications

- When storm phobias occur with other anxiety conditions, resolution and/or improvement may be difficult to obtain especially if those conditions are left untreated.

Expected Course and Prognosis

- Realistic expectations are essential. Many dogs will improve with treatment and appropriate medications.
- Animals with profound panic attacks may be difficult to control during storms.
- If other anxiety conditions coexist, the prognosis may be worse.

See Also

Chapter 24, Anxiety Disorders: general overview canine and feline

Chapter 36, Fireworks Phobia

Chapter 50, Noise Phobia: canine and feline

Chapter 56, Separation Anxiety: canine and feline

Abbreviations

CBC—complete blood count

CCDS—counterconditioning and systematic desensitization

CD—compact disc

CNS—central nervous system

DAP—Dog Appeasing Pheromone®

FDA—Food and Drug Administration

GABA—gamma-amino butyric acid

h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

q—every

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, Lowell Ackerman. 1997. *Handbook of behaviour problems of the dog and cat 2nd edition*, Philadelphia: Elsevier, pp. 251–255.

Overall, Karen. 2002. Noise Phobias in Dogs In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 164–172.

Travel-Related Problems: canine and feline

chapter 61



DEFINITION/OVERVIEW

The expectations of pets to travel with their owners either locally or to distant destinations is on the rise as is evidenced by pet-friendly hotels and local dog destination activities such as doggie day care/dog parks. In addition, pets usually need to travel to get veterinary care, grooming, etc. Conditions that make travel difficult or dangerous for the pet or the owner need to be addressed. Concerns about travel with pets generally fall into one of three categories: motion sickness; anxiety-related behaviors; or unruly behaviors. Pets may present with multiple problems and they may be interrelated.



ETIOLOGY/PATHOPHYSIOLOGY

- Motion sickness occurs when two motion detectors in the brain, the vestibular system and the ocular system, send conflicting information. When the body is subjected to accelerations of movement in different directions, it predisposes the subject to motion sickness. In people, fear and anxiety can promote the expression of motion sickness.
- Anxiety may be a primary problem associated with some aspect of travel (barrier frustration/noises) or may be secondary to anticipated event associated with car travel such as motion sickness; unpleasant destination.
- Unruly behavior may be due to a variety of underlying issues such as territorial aggression, anticipation of exciting destination, general lack of obedience, etc.



SIGNALMENT/HISTORY

- Age: Young animals are predisposed to motion sickness.
- Breed: no predisposition
- Gender: no predisposition
- Species: Expectations for dogs to travel are higher than those for cats; cats seem to have a lower incidence of emesis-associated motion sickness.

Historical Findings

- Motion sickness
 - The pet generally starts to hypersalivate, and they often become subdued (motionless). Their symptoms can progress to retching, vomiting, and/or diarrhea.
- Anxiety
 - The initiation of anxious behavior may occur at different points in the travel experience. Some pets may show active avoidance of items associated with travel (car, crate, leash). Some may not start to show signs of anxiety until later in the trip.
 - Anxiety presents with signs of sympathetic autonomic nervous system activity.
 - Preliminary signs of anxiety: yawning, lip licking
 - Mild fears: tensing, trembling, tail tucked, withdrawal, and hiding; reduced activity and passive escape behaviors
 - Panic: active escape behavior; increased, out-of-context, and potentially injurious motor activity
 - If the fear is intense, the animal may lose bladder and bowel control and may express its anal glands.
- Unruly behavior
 - Generally, owners complain about vocalization, excessive movement in the car, darting in/out of the car.
 - The difference between anxious behavior and unruly behavior is the underlying emotional state of the pet; unruly animals appear confident and comfortable.

Contributing/Risk Factors

- Motion sickness
 - Volatile movements during transportation; erratic and fast movements with sharp turns are more likely to trigger motion sickness.
 - The inability to visually orient when in motion may cause motion sickness.
 - A full stomach may trigger vomit component of motion sickness.
- Anxiety
 - Genetic Predisposition: may be difficult to substantiate in individual cases but in laboratory settings it has been substantiated that fearful behavior can be heritable in both dogs and cats
 - Lack of adequate socialization to travel during sensitive periods
 - Horrific experiences during or associated with travel
- Unruly Behavior
 - Lack of obedience
 - Exciting destinations
 - Territorial aggression
 - Lack of proper restraint/containment during car travel

Pertinent Historical Questions

- Obtain an accurate description of the problematic behaviors associated with travel. It is important to focus on what the pet actually does and not the owner's interpretation of what the pet is doing.
 - This should help identify which of the three categories—motion sickness, anxiety, unruly behavior—that the pet is exhibiting.
- Identify when problem behaviors first occur in the course of travel or travel preparations.
 - This will help establish a starting point for training. Start below the level that triggers anxiety.
- Identify how owners respond to the problematic behavior.
 - Punishment is contraindicated for anxious or ill pets; it may aggravate the problem.
 - Comforting an anxious pet may inadvertently reinforce undesirable behavior.
 - Excitatory responses (e.g., yelling) may escalate an unruly pet.
 - Any type of interactive behavioral modification is difficult to perform if the person trying to train or control the pet is also operating the vehicle.
- Obtain the pet's response to previously tried owner interventions.
 - This will give the clinician some insight into things to avoid and consider for treatment.
- Where do the owners take their pet?
 - Destinations may influence behavior of the pet during car travel. If the pet only goes to unpleasant destinations, then the pet may become anxious in anticipation of the destination. If the pet goes to very exciting destinations, the pet may become unruly in anticipation of the destination.
- What are the owner's goals regarding pet travel?
 - Training programs may vary considerably based upon owner goals.
 - Must the pet travel often or is travel an owner desire but not necessary (i.e., the owner wishes to take the dog to the park or pet store but the animal does not need to go there)?
- What modes of transport—air, car, etc.—need to be addressed?
- How is the pet currently and historically been contained during travel?
 - Identification of what has been tried in the past and its success or failure may lead to future treatment plans.
- Basic obedience skills
 - If the pet does not have basic obedience skills, training classes should be recommended.



DIFFERENTIAL DIAGNOSIS

- Motion sickness
 - Any other illness that may cause nausea/vomiting
 - Nausea and vomiting due to anxiety

- Anxiety
 - Previous episodes of motion sickness may trigger anticipatory anxiety.
 - Noise phobia
 - Fear of places, specifically the destination (e.g., veterinary clinic)
 - Separation anxiety
 - Barrier frustration
 - Fear of unfamiliar people (e.g., as may be encountered during air travel)
- Unruly
 - Territorial aggression
 - Protective aggression
 - Alert vocalization at exterior stimuli
 - Hyperactivity
 - Attention-seeking behavior
 - Lack of obedience



DIAGNOSTICS

- Complete physical and neurological examinations should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.
- If there is any question as to the emotional and physical state of the pet during transport, accompany the pet for a ride or have the owners capture the behavior on video for review.



THERAPEUTICS

Safety

- Safety of the pet and the person operating the vehicle can be compromised significantly when a pet has travel-related behavioral problems. The pet's behavior can be extremely distracting for the owner, making them more prone to accidents. Pets that get into the front seat of the car may jeopardize the owner's ability to actually operate the car properly and put themselves at increased risk of injury. For example, airbag deployment could seriously injure or kill a small- or medium-sized pet. If the pet's behavior is deemed to be too dangerous, then the owner should either avoid traveling with the pet until training can be completed or the pet needs to be contained in some manner to minimize its threat to itself or others during travel. Carriers or restraint devices such as canine seat belts may provide restraint.

Management

- Don't allow the pet to experience or exhibit the undesirable behavior; avoid problematic travel until the behavioral modification has been successfully completed.
- Permanently avoiding the mode of travel that causes the undesirable behavior may be an option in some cases.

Behavioral Modification Techniques

■ Motion sickness

- Avoid travel that may elicit illness.
 - Providing a smoother/slower driving experience may reduce motion-related illness; avoid rapid acceleration, sharp turns, bumpy rides and winding roads.
 - Allowing the pet better visualization during travel via access to windows or a booster pet seat may reduce the disconnect between visual and vestibular input thereby reducing illness.
 - Keeping the car cool and well ventilated may reduce nausea.
 - Avoid feeding the pet prior to travel.
- Desensitize and perform counterconditioning to travel. (See information under Anxiety below.)

■ Anxiety

- Owners should implement the Structuring Your Relationship with Your Pet program (see handout). All interactions are based on a command/response relationship, to teach the dog to view household members as predictable, consistent, and reliable leaders. Only calm, relaxed, and obedient behavior is rewarded.
- Owners should implement the Tranquility Training Exercises (see handout) initially with very few external distractions present. These daily training sessions reward calm, relaxed, obedient behavior. With success, the sessions should be repeated in distracting circumstances, eventually in the travel location. Use of a specific mat or bed that can be also used in the car may help transition to the car location.
- Consider introducing a headcollar (e.g., Gentle Leader®) for dogs; having the pet wear it in the car may provide anxiolytic benefits and/or a means of redirecting the pet's attention.
- Identify where in the sequence of travel preparation or actual travel the pet starts to exhibit anxiety. Training exercises will be started at a level that does NOT elicit anxious response. For many pets, anxiety occurs when the engine is started; therefore, training exercises would start in a parked car.
- Treat the car with a canine pheromone product (e.g., DAP—dog appeasing pheromone®) or feline pheromone product (e.g., Feliway®) a few minutes before introducing the pet. Use 10 sprays inside the car or carrier 10 minutes prior to car travel.
- Take the pet out to the parked car twice daily, have the pet enter the car in the location where owner intends to have pet travel, and provide something positive for the pet, perhaps its dinner, praise, or a special food treat.
- With success, extend the time that the pet can be relaxed and comfortable in the parked car. When the pet is comfortable in the parked car and has made several positive associations with being in the parked car, the engine can be started.

- When the engine is started, sit with the engine running (make sure area is well ventilated to avoid carbon monoxide poisoning) for a few minutes, engaging the pet in a pleasurable activity.
- Next, add on short periods of movement, perhaps backing out of driveway. Ideally there would be a second person in the car able to focus on the pet. That person would give the pet commands and reward compliant, relaxed responses. The pet should be monitored so that it is not pushed to the point of experiencing anxiety.
- If the pet does experience anxiety, the session should be terminated and the intensity of the exercise reduced at the next training session.
- With success, gradually increase the duration of the trip until the pet is calm during longer trips.
- If the pet exhibits an anxiety reaction to specific triggers such as noises experienced during car travel, a specific program of CCDS to that trigger will need to be performed.
- Unruly behavior
 - Adequate daily exercise and mental stimulation for the animals needs to be a priority; ideally this would be provided prior to any travel.
 - Provide private obedience training for dogs using positive reinforcement training to establish calm, relaxed behaviors on cue.
 - Owners should implement the Structuring Your Relationship with Your Pet program. All interactions are based on a command/response relationship, to teach the dog to view household members as predictable, consistent, and reliable leaders. Only calm, relaxed, and obedient behavior is rewarded.
 - Owners should implement the Tranquility Training Exercises (see handout) initially with very few external distractions present. These daily training sessions reward calm, relaxed, obedient behavior. With success, the sessions should be repeated in more distracting circumstances, eventually in the travel location.
 - Proper restraint such as a crate or seatbelt harnesses may significantly improve unruly behavior as it prevents locomotion and can block view of stimulatory external stimuli.
 - If there is an additional passenger in the car that can work with the pet, they can remotely interrupt and redirect undesirable behaviors.
 - For dogs, a headcollar with a drag leash can be very helpful in interrupting undesirable behaviors (e.g., pacing/barking) and redirecting the pet into more appropriate behaviors (e.g., sit).
 - The animal is rewarded for offering calm, relaxed behaviors during travel.
 - Some dogs may benefit from the use of a Calming CapTM, which partially obstructs vision and appears to diminish reactivity.
 - If there is no one available to focus on the pet, and the main problem is reactive barking, an independently bark-activated citronella spray collar may successfully interrupt the undesirable behavior. The driver can give verbal praise when the pet is calm/quiet.

Accompanying Handouts

Acute Management of Problem Behavior
 Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Teaching Your Pet How to be Confined
 Tranquility Training Exercises

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Motion Sickness drug therapy
 - Diphenhydramine (Benadryl®)
 - Dogs: 2–4 mg/kg orally 30–60 minutes prior to travel
 - Cats: 2–4 mg/kg orally 30–60 minutes prior to travel
 - Meclizine (Bonine®)
 - Dogs: 25 mg orally once daily 30–60 minutes prior to travel
 - Cats: 1.25 mg/kg orally once daily 30–60 minutes prior to travel
 - Dimenhydrinate (Dramamine®)
 - Dogs: 4–8 mg/kg orally 30–60 minutes prior to travel
 - Cats: 4–8 mg/kg orally 30–60 minutes prior to travel
- Antianxiety drug therapy
 - For intermittent treatment, benzodiazepines may be acceptable. They work best if administered before any signs of anxiety are present and must be given minimally 30–60 minutes before travel. The pet may experience side effects that make treatment unacceptable. Examples of medications in this class include:
 - Alprazolam
 - Canine: 0.02–0.1 mg/kg q6–8h
 - Feline: 0.02–0.05 mg/kg q8–24h
 - Diazepam
 - Canine: 0.5–2.0 mg/kg q6h
 - Feline: 0.2–0.5 mg/kg q8–12h
 - Clorazepate
 - Canine: 0.55–2.2 mg/kg q8–24h
 - Feline: 0.2–0.5 mg/kg q12–24h
- Unruly behavior
 - No drugs indicated

Other Treatments

- Anxiolytic environmental synthetic pheromones
 - DAP® has been shown to be efficacious in reducing signs of travel-related anxiety in dogs when used in the spray formulation. The collar may also be useful.
 - Feliway® may be useful when placed in the cat carrier to diminish anxious responses.

- While alternative medications and procedures such as herbal preparations and acupuncture have been suggested for the treatment anxiety-related behaviors in animals, they have not yet been systematically, scientifically studied for this condition in dogs and cats.

Contraindications/Precautions

- None of these medications are licensed for this use; full disclosure should be given to owner prior to prescribing these medications.
- A small percentage of animals will have a paradoxical reaction (increased agitation/anxiety) to benzodiazepines so they should be tested at least once before used during travel.
- Benzodiazepines may cause sedation/ataxia as side effects; this makes them an inappropriate choice if the animal is expected to be alert/active at its destination.
- If benzodiazepines are used on a routine basis, they must be weaned off gradually or the patient will suffer withdrawal symptoms.
- Tolerance to benzodiazepines may develop with prolonged use.
- Drugs should be used with extreme caution if the pet is not going to be supervised (e.g., traveling in the cargo area of planes) since adverse reactions cannot be addressed in a timely manner and the ataxia/disorientation/sedation that may accompany some of the medications may put the pet at greater risk of injury/illness during travel.

Behavioral Modification

- People should not try to engage in interactive pet training while operating a motor vehicle; it is too distracting and may result in accidents.
- Animals should not be allowed to travel in the front of cars; they are at greater risk of injury in an accident and may cause an accident by interfering with driving.
- Animals should not be allowed to travel loose in the back of pick up trucks due to the risk of injury or escape or both.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since anxious animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- It is important for owners to appreciate the difference between anxious and unruly behaviors.

- Owners need to avoid intensifying the problem by continually allowing pets to exhibit undesirable behaviors.
- Proper pet restraint (harness seat belt, inside a carrier, behind a grate, etc.) during travel is important for pet safety and human safety.
- Owners must also realize that their pet may not wish to travel in the car for routine errands and visits, and leaving the pet at home may be best.

Patient Monitoring

- This will depend upon the severity of the problem, underlying motivation, and the need to transport the pet. For more severe cases, client contact should be made weekly initially and then monthly until the problem is controlled.

Prevention/Avoidance

- Acclimate young or new pets gradually to travel by starting with very short excursions and gradually increasing their duration.
- First travel experiences should be on an empty stomach.
- Pheromone sprays applied to the vehicle or crate prior to travel may provide beneficial effects.
- Drivers should be mindful of their route and driving habits when there is a new pet in the car; they need to avoid twisting roads, fast accelerations, fast turns, etc.
- Owners should make sure that the pet has some pleasurable destinations; if all travel is associated with unpleasant activities at the destination, the pet may be classically conditioned to dislike travel.

Possible Complications

- Unavoidable travel during a CCDS program may result in loss of any progress made up until that point.
- Inconsistent owner compliance may interfere with any improvement.
- Highly aroused/upset animals may redirect inappropriate behaviors such as aggression to fellow passengers in the vehicle.

Expected Course and Prognosis

- Puppies often outgrow motion sickness with age.
- Prognosis will depend upon severity of the problem; mild problems have a good prognosis and severe problems have a more guarded prognosis.
- Some pets, just like some people, seem to have very sensitive systems that react to mild movement with illness.

See Also

Chapter 12, Aggression/Canine: territorial
 Chapter 24, Anxiety Disorders: general overview canine and feline
 Chapter 34, Fear of Places and Things: canine and feline

Abbreviations

CCDS—counterconditioning and systematic desensitization

DAP—Dog Appeasing Pheromone[®]

h—hour

mg/kg—milligrams per kilogram

q—every

Suggested Reading

Lindell, Ellen. 2002. Control Problems in Dogs In: *BSAVA Manual of Canine and Feline Behavioural Medicine*, edited by Debra Horwitz, Daniel Mills, and Sarah Heath, Gloucester: BSAVA, p. 77.

Urine Marking: feline



DEFINITION/OVERVIEW

Urine marking usually manifests as spraying; the cat is standing and backs up to a vertical surface, stiffens its posture, raises and quivers its tail, and directs a small burst of urine caudally. Although less common, horizontal urine marks may be found on clothing or bedding often associated with a particular person. Fecal marking is very rare. Marking is a normal form of feline communication and is often associated with intercat conflict.



ETIOLOGY/PATHOPHYSIOLOGY

- Urine marking is a normal behavior observed in feral and domestic cats.



SIGNALMENT/HISTORY

- Urine spraying is more common in intact and neutered male cats than in female cats but both can mark with urine.

Historical Findings

- Urine marks may be found at prominent vertical sites such as around doorways or windows or selectively sprayed on new objects brought into the house.
 - Spraying around doors or windows may suggest a marking response to the presence of an outdoor cat.
 - Spraying on new objects such as grocery bags or new furniture suggests olfactory marking associated with arousal in response to new stimuli.
- Marking may be a response to the presence of another cat in the home and as a result of social conflicts between cats. Both the aggressor and/or the victim may mark. Targets are often internal walls or objects.
- Targeted items may have special social significance, such as the scent of a particular person.
- Feces can be used to mark, however, this is rare.

Contributing/Risk Factors

- Environmental factors appear to contribute to urine marking; these include new scents, new household members, and outside cats.
- Multiple cat households may be more prone to urine marking.
- The probability of urine spraying appears to be directly proportional to the number of cats in the household.
 - Agonistic interactions between household cats appears to be causative.
- The presence of outdoor cats may elicit spraying around doorways and windows.

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - Have there been changes in roommates, job hours, a move to a new home, or a new baby in the house?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.
- What is the daily routine, including feeding, training, exercise, play, and social interaction?
 - How much time is spent with the cat in play and other activities?
 - Environmental enrichment activities such as feeder toys, climbing towers, and other play items should be explored.
 - What is the pet's reaction to the owner's departure? Are there any signs of separation distress?
- What has been the duration and progression of the problem behavior?
 - Has the frequency of urine spraying changed over time?
- Obtain a complete understanding of litter box usage.
 - Does the cat use the litter box at all? Spraying cats usually continue to use the litter box.
- Obtain specific litter box information.
 - Type of litter material provided to the cat
 - Any recent change in litter material type
 - Litter maintenance routine
 - How often is the box scooped?
 - How often is the litter material totally changed?
 - How is the box washed when it is changed? Strong chemicals may create box aversions.
 - Type of litter box—covered or uncovered—and size of the box
 - Location of litter box
 - Due to social factors, placement of litter boxes may influence spraying behavior.
 - Number of litter boxes available in multicat homes
- What is the problem elimination behavior?
 - How many spots are in a given room and what is the location of the elimination (i.e., near doors or windows)?

- What is the substrate under the cat's feet where it deposits the urine? Cats with marking usually have no substrate pattern. Targets are chosen for their social significance, not physical attributes.
- What is the quantity of urine deposited? Marking cats generally deposit small quantities, but it can vary.
- Is fecal material found outside the litter box? Presence of inappropriate defecation and urination makes a diagnosis other than marking, more likely.
- Is the elimination found on horizontal or vertical surfaces? Deposition of urine about 8–10 inches up vertical surface is pathognomonic for marking; urine found on horizontal surfaces may be due to marking or other causes.
- Ask for a diagram of the locations where urine spraying is found; this may help identify if outside animals are a factor.
- What is the frequency of urine spraying on a daily or weekly basis?
- Multiple cat homes may be a factor in urine marking.
 - How are resources allocated throughout the house: number and location of food and water bowls, resting areas, marking posts, and litter boxes? This may identify areas of social conflict for the cats.
 - Are other cats also urine spraying?
 - Are there signs of intercat aggression?
 - Do owners witness growling, swatting, hissing, scratching, chasing, and biting. Social issues between cats can often contribute to nonlitter box usage.
- What are the eliciting stimuli, location, and/or circumstances in which the behavior occurs?
- What is the owner's response to the behavior?
- What treatments have been tried and what was the response to those treatments?



DIFFERENTIAL DIAGNOSIS

- Primary medical disease
- House-soiling due to aversions or preferences
- Separation anxiety



DIAGNOSTICS

- A complete physical examination should be performed including examination of genitalia; further diagnostic testing as indicated by the results of these examinations should be conducted.
 - Urinalysis
 - Imaging studies of the urinary tract

- In multicat households, it may be difficult to determine which cat is responsible for urine marking. Identify the offending cat in one of two ways:
 - Isolate each cat, one at a time, in a small room to identify the culprit by process of elimination; however, this protocol may alter the social situation enough or eliminate the environmental trigger that urine marking does not occur. Video monitoring of frequently targeted sites may be more useful.
 - Giving oral sodium fluorescein (10 mg/cat) to cats in a sequential manner can alter the quality of their urine to make it more strongly fluorescent when viewed with a fluorescent black light. However, sodium fluorescein only fluoresces in alkaline solutions, and since most urine is acidic, many false negatives may occur.

Pathological Findings

- Urinalysis is usually normal.



THERAPEUTICS

Management

- Neutering intact animals decreases spraying behavior in up to 90% of males and 95% of females.
- Separate cats that show social conflicts within the home.
- If there are signs that the cat is spraying in response to cats outside, prevent visual or olfactory access to those cats by blocking inside cat's ability to see outside cats.
 - Remove window perches.
 - Cover windows.
 - Make outdoor areas unattractive to outside cats by not feeding outside animals, both other cats and birds, which may draw them to the property.
 - Use deterrent materials such as motion-activated sprinklers to keep animals away.
- Provide adequate resources throughout the household to decrease any indoor social tension with multiple feeding stations, resting areas, and a minimum of one litter box per cat plus one additional that are spread throughout the environment, not all in one location.
- Adequately clean all soiled areas using enzymatic products specifically designed to manage and eliminate feline urine staining and odor.

Behavioral Modification Techniques

- Reduce conflict and stress within the environment.
 - If tension between household cats appears to be correlated with urine spraying, then segregation/separation for at least part of the time may be useful. This allows the spraying cat to have access to an area all by him/herself without the presence of the other cats in the household. This can be in the

basement or a bedroom, but the cat should have a minimum of 4–6 hours of alone time daily. Food, water, and a litter box should be provided in this area.

- A bell on an approved quick release cat collar on one or more cats may allow the cats to separate themselves throughout the environment and decrease agonistic encounters.
- Make the sprayed areas aversive for marking.
 - Tactics include placing aluminum foil, upside down carpet runners, contact paper sticky side up, potpourri, food/water bowls at targeted spots
 - Some cats will just relocate, especially if underlying motivation is not addressed.
- Because urine marking is a normal cat behavior, another strategy that may work is creating an acceptable spraying spot for the cat.
 - Lean an empty plastic box up against target spots, creating a cat urinal.
- The owner should spend time interacting with the cat daily to calm the cat and focus attention away from other cats.



■ **Fig. 62-1** Empty litter pan as a spraying station.

- Encourage other forms of marking.
 - Provide scratching posts/pads.
 - Promote facial marking via pheromones.
- Maintain litter box management. Rarely will this be curative, since marking is a form of communication, not elimination but should include daily scooping of solid waste and regular (every 1-4 weeks depending upon litter type) washing of box.

Accompanying Handouts

Creating Harmony in Multiple Cat Homes
Litter Box Tips
Introducing Cats

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Anxiety is often a major component to urine marking behaviors in cats, and medication is a useful adjunct to diminish and/or eliminate spraying.
- Prior to medication, routine blood work including CBC, chemistry screening, thyroid panel, and urinalysis should be performed. For cats on long-term medication, yearly or semiyearly recheck is recommended.
- Current preferred medications are the TCAs and SSRIs; others that can be considered include benzodiazepines and azapirones. (See Appendix A for dosages and information.)
- Serotonergic medications:
 - These drugs are indicated for situations where there is unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin, and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - These drugs are to be given on a daily schedule regardless of exposure to trigger stimuli.
 - It may take up to 4 weeks to achieve efficacy.
 - Continue for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response.
 - Amitriptyline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine: 0.5–1 mg/kg q24h
 - Fluoxetine: 0.5–1.0 mg/kg q24h
 - Paroxetine: 0.25–0.5 mg/kg q24h
- Medication should be used for a minimum of 8 weeks if urine-spraying behavior has diminished to acceptable levels.
- Gradual withdrawal of medication at 25% a week while watching for increase in spraying behavior can be attempted. If spraying returns, medication should be reinstated at the previous dose.
- Some cats may need to be maintained on medication indefinitely.

Other Treatments

- An environmental product (Feliway[®], Veterinary Product Laboratories), a concentrate of synthesized feline facial pheromone, is commercially available as a treatment for urine marking. The product is sprayed regularly or diffused in the environment.

Contraindications/Precautions

- Medications used to treat behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Serotonin-enhancing medications should be used with caution or avoided in animals that suffer from epileptiform seizures as they may aggravate the seizures.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz (Mitaban[®]) and selegiline (Anipryl[®]).
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Avoid using TCAs and phenothiazines in breeding males, patients with seizure disorders, cardiac disease, diabetes mellitus, or glaucoma.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- Consult individual drug monographs for complete lists of side effects and contraindications.
- Many cats will return to urine spraying once medication is withdrawn.

Surgical Considerations

- Neutering intact animals decreases spraying behavior in up to 90% of males and 95% of females.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- Owners should be aware that urine spraying is a normal part of the feline communicative repertoire, and some cats may be highly motivated to mark areas with urine despite treatment.
- Owners should be informed that marking behaviors could have a variable response to treatment. Factors such as the presence of outdoor cats and the ability to control them, household social conflicts with other cats, and ongoing household changes may affect total resolution of the spraying behavior.
- Attention to social factors in the home and litter box placement and cleanliness are also crucial factors for success.
- Success may only be a decrease in the number of urine marks per time period, but not total cessation of urine marking.
- Owners should be encouraged to keep daily journals of urine marks found and any agonistic encounters between household cats.

Patient Monitoring

- Telephone follow-up should occur every 1–2 weeks, especially for animals on medication, to monitor response to treatment.
- Patients on long term medication should have annual or semi-annual physical examinations and blood work.

Prevention/Avoidance

- Good socialization and habituation to other cats, novel odors, and changes within the environment may help some cats cope with change and decrease the possibility of urine marking.

Possible Complications

- Relinquishment of the cat due to persistent urine marking

Expected Course and Prognosis

- While urine marking decreased with pheromone therapy, urine marking was sustained at a higher level in households with intercat aggression.
- Mills and Mills (2001) found that while urine marking decreased with pheromone use, it often was not eradicated. However, the reduction in spraying behavior was acceptable to the clients as an outcome. This is similar to what has been found in previous studies on treatment of spraying behavior with medication by Hart (1981), marking behavior may persist or return after treatment when medication is stopped.

- Prognosis may be improved in marking behaviors by keeping household stress to a minimum and the scent profile in the home constant. Long-term use of pheromone spray or diffuser may also be useful.

See Also

Chapter 16, Aggression/Feline: intercat
Chapter 41, House Soiling: feline

Abbreviations

CNS—central nervous system
FDA—Food and Drug Administration
FLUTD—feline lower urinary tract disease
h—hour
MAO—monoamine oxidase
mg—milligrams
mg/kg—milligrams per kilogram
q—every
SSRI—selective serotonin reuptake inhibitor
TCA—tricyclic antidepressant

Suggested Reading

- Horwitz, Debra F. 2002. Housesoiling by cats In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 97–108.
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Vocalization: canine and feline



DEFINITION/OVERVIEW

Vocalization by pets usually only becomes a problem to owners when it is excessive or the owner cannot control the onset or duration of the vocalization. Animals vocalize for various reasons including but not limited to pain, territorial displays, attention, anxiety, social facilitation, and aggressive encounters. This chapter will primarily deal with vocalization that is disruptive such as territorial barking, and barking and meowing for attention.



ETIOLOGY/PATHOPHYSIOLOGY

- Vocalization is a normal communicative behavior pattern in dogs and cats.
- Excessive vocalization may be a component of certain disease processes involving pain or disorientation.
- Female cats will vocalize when in estrus.



SIGNALMENT/HISTORY

- Breeds:
 - Breeds of dogs that were bred for guarding and territorial behaviors may be presented more often for the complaint of barking.
 - Oriental breeds of cats, most specifically the Siamese, may be overrepresented in complaints of vocalization.

Historical Findings

- Generally, the owner complains that the pet vocalizes at inappropriate or inconvenient times.
 - This might be when the owners are sleeping, resting, or otherwise engaged in other activities.
- The owner complains of excitement barking that occurs just prior to a walk or car ride, when they come home, or are about to depart.

- The owner complains of excessive barking at windows, doors, and fences at people, animals, and traffic that go by.
 - In some cases, the behavior happens in the car as well.
 - Barking when visitors arrive may be so disruptive that it prohibits conversation.
- Dogs will also vocalize for attention, play, or food.
- Dogs may vocalize when the owner is engaged in other activities such as working on the computer, talking on the phone, or interacting with other family members.
- The complaint of cat owners generally focuses on vocalization when the cat wants attention or food.
 - Some cats vocalize at night, keeping owners awake.

Contributing/Risk Factors

- No clear rules for interaction
- Inability to have social, biological, and environmental needs met without some proactive interaction
- Lack of intervention when vocalization first begins
 - Inability to stop the behavior may have been interpreted as encouragement.
- Breed predilection toward vocalization
- Underlying anxieties and fears

Pertinent Historical Questions

- What is the household composition, including family members and other pets?
 - This allows the clinician to identify areas that need additional management and also evaluate the amount of time available for rehabilitating the pet.
- What is the daily routine, including feeding, training, exercise and play, and social interaction?
 - Environmental enrichment activities such as feeder toys, climbing towers, walks, and other play items should be explored.
 - What is the pet's reaction to owner departure? Are there any signs of separation distress?
- What has been the duration and progression of the problem behavior?
 - Long histories of problem behavior have a poorer prognosis.
- What are the daily incidents of vocalization and time spent engaging in the behavior?
 - Does the pet vocalize at certain times or is the behavior triggered by certain stimuli?
 - Are those stimuli reliable predictors of vocalization?
- What is the owner's ability to interrupt the behavior and what is the rate and time course of return of the behavior?
 - Have they ever been successful in getting the pet to cease vocalization?
 - If so, how soon did the vocalization return?
 - When they attempt to interrupt the pet, how does the pet respond?
 - Are aggressive responses possible?

- What are the eliciting stimuli, location, and/or circumstances in which the behavior occurs?
- What is the owner's response to the behavior?
 - Have they ever been successful in teaching a "quiet" command to the pet?
- What treatments have been tried and what was the response to those treatments?
 - Were any physical reprimands used?
 - Have disruptive devices such as antibark collars, noise distracters, etc., been employed, and if so, what was the outcome of their usage?



DIFFERENTIAL DIAGNOSIS

Dogs

- Various anxiety conditions can result in excessive barking, most particularly separation anxiety.
- Fear or anxiety of certain situations or people
- Territorial behaviors
- Excitement and social facilitation
- Compulsive disorder
 - Usually presented as monotonic barking without identifiable triggers
- Cognitive dysfunction
- Pain
- Solicitation of social, biological, or environmental needs
- Attention seeking

Cats

- Estrus
- Intercat aggression
- Separation anxiety
- Pain
- Social distress
- Endocrine conditions such as hyperthyroidism
- Cardiovascular conditions such as hypertension
- Solicitation of social, biological, or environmental needs
- Cognitive dysfunction
- Attention seeking



DIAGNOSTICS

- Complete physical and neurological examinations should be performed; further diagnostic testing as indicated by the results of these examinations should be conducted.

Pathological Findings

- Usually none associate with vocalization unless underlying illness is the cause for distress and resultant vocalization.



THERAPEUTICS

Safety

- If barking is associated with territorial behaviors and aggressive responses, owners must avoid placing the dog in situations where the behavior can occur.
 - This may mean blocking access to windows and doors.
 - The owner may no longer allow the dog outside unattended.
- If attempts to physically interrupt vocalization result in redirected aggression, these methods should not be utilized.

Management

- When triggers are identified for vocalization, avoiding those triggers may make vocalization diminish.
- Making sure that the animal's social, play, and exploratory needs are met may diminish vocalizations that are attempts to gain these resources.
- For cats that vocalize at night, confinement in another area may allow owners to sleep.

Behavioral Modification Techniques

- Decreasing vocalization centers on removing the stimuli for vocalizing, extinction for inappropriately timed vocalization, counterconditioning a new response, teaching a “quiet” command, increasing owner control, and providing for the animal's social, play, exploratory, and metabolic needs.
- **Removing the stimuli:** If the dog is barking due to stimulation from outside triggers, these must be avoided if possible. (See Chapter 12, Aggression/Canine: territorial for additional suggestions.)
 - This may mean blocking visual access to windows, no longer allowing the dog outside unattended, and if barking happens on walks, curtailing those or choosing times when encounters with others can be minimized.
 - If the dog barks excessively when visitors come and the owners cannot control the barking, then prior to allowing visitors in the home, the dog should be confined and remain there until calm.
 - If the dog or cat vocalizes excessively while their meals are being prepared, they should be confined elsewhere during preparation of their daily meal. For some animals, frequent smaller meals may help control hunger and begging.
- **Extinction:** This refers to the removal of all reinforcement for the vocalization in hopes that the vocalization will cease. While this may be effective for nuisance

and attention-seeking/solicitation vocalization, it requires that the owner pay no attention to the pet for any vocalizations. This is often difficult for owners to achieve. If they do give attention to the pet (including eye contact, saying “no”), this will usually result in making the vocalization response stronger. If this technique is to be utilized, the owners must be cautioned that vocalization may increase and persist for some time before it declines in what is known as an “extinction burst.”

- **Counterconditioning a new response (also called response substitution):** The goal is to provide the pet with an alternative activity or response to the stimuli that previously caused vocalization. For example, if excitement vocalization is a problem, then the pet is taught to go pick up a toy and sit quietly for a food reward when people arrive rather than barking. For this to be effective, the animal must reliably pick up a toy and sit when there are no distractions. Once this is perfected, the behavior can be requested when visitors are present.
 - Dogs that bark at visitors can also be taught to sit/stay or down/stay and relax on a verbal command when there are no distractions.
 - This works best if a specific location such as a mat or bed is utilized.
 - Once the dog can do this well, it can be asked to perform the task when company is present.
 - For cats that vocalize for attention, attention should be given when the cat is quiet.
- **Classical counterconditioning a new response:** If the problem is the doorbell itself, then the dog should be taught a new response to the doorbell.
 - Favored food rewards should be identified for the dog; these must be extremely delectable.
 - The dog is placed somewhere else in the home with one family member, but not restrained.
 - Another family member quietly leaves the house and comes to the front door, which must be kept unlocked.
 - They must have a large supply of the delectable treat with them.
 - They ring the doorbell and the dog is allowed to run to the door unimpeded.
 - As they hear the dog approach, they open the door, throw the treats inside and close the door.
 - If the dog could see them from windows, these must be blocked.
 - When the dog gets to the door, if the correct food has been chosen, the dog will usually eat the treats and perhaps also bark.
 - Then the family member rings the bell and throws in the treats again.
 - A training session is usually only one to three repetitions since when the dog realizes it is a known person at the door, they may not bark.
 - After several sessions, many dogs will decrease their barking or at least diminish emotional arousal to the doorbell so other training techniques can be utilized.
- **Teaching a “quiet” response:** The most important element in teaching a quiet command is for the pet to learn that the word the owner uses is indicating that

the pet should be silent. If this does not happen, then the pet has not learned that no vocalization is what is requested.

- If possible, the dog should be fitted with a headcollar (e.g., Gentle Leader[®]) and a leash. When the dog barks, the owner can pick up the end of the leash, close the dog's mouth and say the term that will be used to signify silence such as “quiet, enough, no bark,” but they must use the same phrase each time.
 - If the dog is quiet, they should release the tension on the leash and reward the dog with a food treat and praise.
 - The dog should be allowed to bark again and the steps repeated.
 - Over time, the dog should learn that the phrase used signifies silence and respond to the phrase alone.
 - If done repeatedly, the dog will learn that the phrase means silence and then the interval between silence and reward can be lengthened.
- Disruption devices such as shaker cans or noisemakers can be used to interrupt barking. At the same time the owner makes the noise, they must



■ **Fig. 63-1** Dog wearing a citronella bark collar. Photograph courtesy of Premier Pet Products.

also use their key phrase. This method is not without risk because it can increase anxiety and arousal and barking rather than decrease it.

- If the dog is silent even for an instant, they must immediately be rewarded with food and praise.
- If done repeatedly, the dog will learn that the phrase means silence and then the interval between silence and reward can be lengthened.
- Citronella antibark collars can be used.
 - If citronella antibark collars are utilized, they should only be used in dogs that do not have an anxiety disorder and are not displaying aggressive tendencies associated with the barking behavior. Initially, the collar should be used with supervision. In some dogs, it may increase anxiety or other problems may become prominent. For many dogs, collars only control barking when the dog wears them. Unless taught how to be quiet, barking may persist at other times.
- **Meeting pet needs:** Because both dogs and cats vocalize for things they want/need such as food, attention, access to the outdoors, play, etc., time must be set aside to be sure these needs are met on a regular and predictable basis.
- **Increasing owner control:** Placing the pet on a command/response relationship with all family members often is useful. This entails the pet earning all things such as food, petting, and access to outdoors by performing a requested task. The goal is to teach the pet to be calm and quiet when asking for things and to obey owner commands. (See the Structuring Your Relationship with Your Pet handout.)
- Avoid yelling and harsh punishment since these increase arousal and may cause fear, anxiety, and even aggression.

Accompanying Handouts

Desensitization and Counterconditioning: the details

Maximizing Treatment Success

Structuring Your Relationship with Your Pet

Teaching a New Response to the Doorbell

Tranquility Training Exercises

Using Classical Counterconditioning to Change Emotional State

Drugs

- If vocalization is not associated with an anxiety condition, then medication is not indicated.

Other Treatments

- Headcollars can be useful for control.
- For dogs that bark excitedly in the car, Calming Caps™ that cover the eyes with a thin layer of fabric may be useful; alternately, dogs can be crated to reduce visualization of provocative stimuli.

- Pheromone diffusers/spray/collar for both canine and feline may be useful if anxiety is a component of the problem vocalization.

Contraindications/Precautions

- If barking is due to underlying anxiety or territorial aggression, the owner's attempts to quiet the dog may be met with redirected aggression.
- Owner injury due to aggressive responses by the pet to the owner intervention is possible.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
 - Although debarking is often requested, it does not address the underlying reasons for vocalization and is not recommended.



COMMENTS

Client Education

- The most important component is that realistic expectations be set. Most dogs and cats do not have a problem with their vocalization. For dogs, barking is often self-reinforcing and not easy to change.
- Owners need to be committed to spending time over several weeks administering a treatment plan in order to see sustained changes.
- The owner must determine what type and duration of vocalization is allowed and enforce that rule. If a dog is allowed to bark one to three times when people arrive before it must be quiet, this must be consistently applied. Inconsistent application will probably result in treatment failure.
- If underlying problems are not treated, vocalization is unlikely to change.
- If medical problems are contributory, these must be treated and addressed.

Patient Monitoring

- Telephone follow-up within 7–10 days is necessary to assess efficacy and compliance with treatment plans.
- Continued monitoring and coaching as needed to help keep owners on the right path may be needed for several weeks to months.

Prevention/Avoidance

- Teaching pets to settle and relax early in life is useful.
- Good socialization and habituation to people, cars, traffic, and other pets may help diminish territorial barking.

- Do not allow vocalizations to be used to obtain desired responses by the pet.
 - Owners must never reward vocalization with attention or feeding.
- Interrupting and redirecting vocalization early will help pets learn how to be quiet.

Possible Complications

- Ongoing vocalization results in increased owner frustration and pet relinquishment.

Expected Course and Prognosis

- Most vocalization problems require several weeks of therapy before successful resolution.
- If the underlying reasons for vocalization are not identified and addressed, results are unlikely to be satisfactory.

See Also

Chapter 12, Aggression/Canine: territorial
Chapter 25, Attention-Seeking Behavior: canine and feline
Chapter 47, Mourning Behavior: canine and feline
Chapter 49, Nocturnal Behavior: canine and feline

Suggested Reading

Landsberg, Gary, Wayne Hunthausen, and Lowell Ackerman. 2003. *Handbook of behaviour problems of the dog and cat 2nd edition*. Philadelphia: Elsevier, pp. 314–319.

Lindell, Ellen. 2002. Control Problems in dogs In: *BSAVA Manual of Canine and Feline Behavioral Medicine*, edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA, pp. 69–79.

Wool Sucking and Fabric Eating: feline



DEFINITION/OVERVIEW

Classically labeled as wool sucking, this term encompasses the sucking, chewing, and/or consumption of all types of fabric and other materials such as plastic. Of cats that engage in this nonnutritive oral behavior oriental breeds, including the Siamese and Burmese, are overrepresented. It is generally considered to be a compulsive behavior, although mild manifestations could be associated with other motivations such as play, exploration, and attention-seeking behavior.



ETIOLOGY/PATHOPHYSIOLOGY

- The pathophysiology of compulsive disorders is not well understood, but neurochemicals such as beta-endorphins, serotonin, and dopamine are implicated.
- Compulsive behaviors may be self-reinforcing, possibly caused by the release of endogenous opioids in the CNS; this may allow some animals to cope with conditions that do not meet their species-specific needs.



SIGNALMENT/HISTORY

- Breed: This behavior can occur in any breed, but oriental breeds (Siamese and Burmese) are overrepresented.
- Gender: There is no gender predilection.
- Age: While any age can present with fabric eating, the majority show onset of the behavior before 8 months of age.

Historical Findings

- In cases of wool sucking, cats suck, chew, or consume fabric or materials in a repetitive, exaggerated, ritualistic, and sustained manner.
- Cats may actively seek out fabrics to target their aberrant oral behavior.
- Cats often start with wool as the target fabric but will then generalize to other fabrics including cotton and synthetics. Some cats will target nonfabric items (i.e., plastic).

- For cats that just suck fabric, the target item may sustain no permanent damage.
- For cats that chew or ingest fabric, owners will often complain about destruction of materials/clothing in the home.

Contributing/Risk Factors

- Oriental breeds may have a genetic predisposition to this behavior.
- A factor may be an event that causes social upheaval or trauma.
- Many other things have been proposed as causative factors but have not been substantiated: deprived environment, indoor-only pet, separation anxiety, multicat household, feeding patterns/routine, early weaning.

Pertinent Historical Questions

- Obtain the general history and management of the pet.
 - Source of the pet/lineage, if known
 - May help identify a genetic predisposition
 - Incidence of affected relatives
 - Heritable factor of compulsive disorders support likelihood of compulsive behavioral patterns in relatives.
- What is the household composition and interactions, including people and other pets?
 - May help identify sources of conflict for the cat
- What is the cat's typical daily routine?
 - This can help the clinician to identify specific areas of conflict, stress or frustration; specifically look for adequate social, physical, and mental stimulation.
- What is the general temperament of the cat?
 - By interviewing the owner about the cat's responses to a variety of social and environmental situations, the clinician may be able to establish the cat as being highly reactive/anxious or confident/calm. This may help to identify other behavioral problems or contributing behavioral problems that need to be addressed.
- What are the cat's feeding and elimination habits?
 - This may help to elucidate causative or consequential problems associated with fabric eating. For example, an unbalanced diet, inappropriate feeding schedule, chronic diarrhea, or difficulty with eating may direct the clinician in diagnostics and treatment.
- Learn the specific information about the compulsive behavior.
 - What was the approximate or specific date of onset?
 - Is there a correlation of onset with any social upheaval or physical trauma?
 - Have owners describe the condition and its progression, including historical and current behavior.
 - Behaviors observed during a bout including any postural changes, vocalizations, etc.
 - This will help to determine if the behavior in question meets the criteria of a compulsive disorder.

- Triggers for behavior including time of day, presence of others, situations, events, locations, etc.
 - This may help determine inciting triggers.
 - Frequency of bouts
 - Compulsive behaviors tend to escalate over time.
 - Duration of bouts, including range of durations
 - Compulsive behaviors interfere with normal life/activity.
 - Outcome of the action: item is sucked, chewed, or ingested
 - Ingestion of fabric makes the condition more critical, as the animal is at risk of intestinal blockage.
 - Ease of distraction
 - This may help to identify treatment options and prognosis.
 - If the material is removed or made inaccessible, does the cat seek out other materials?
 - Owner response
 - This may help to identify inappropriate interventions.
- Have owners recount the two most recent bouts of the behavior in question with specific details.
 - Time of day
 - Location
 - Target material
 - Others present (pets and people)
 - Pet's behavior before, during, and after bout
 - Consequence of the action: fabric sucked, chewed, or ingested
 - Owner behavior before, during, and after bout
 - Pet's response to any owner interventions
- Learn what previous treatments have been tried, both successful and unsuccessful.
 - Pet response to each treatment and how long they were used
 - Allows the clinician to avoid unsuccessful therapies and identify potentially useful therapies that may not have been used properly or long enough



DIFFERENTIAL DIAGNOSIS

- Normal play/exploration
- Gastrointestinal distress, chronic or acute gastrointestinal disease
- Dental disease
- Attention-seeking behavior
- Compulsive behavior



DIAGNOSTICS

- Complete physical and neurological examinations should be performed with special focus on the oral cavity and gastrointestinal tract.

- A fecal analysis, urinalysis, CBC, chemistry panel, viral titers, and thyroid evaluation should be performed.
- Further diagnostic testing as indicated by the results of these initial examinations/diagnosits should be conducted.

Pathological Findings

- There are no specific pathological findings currently associated with this condition.



THERAPEUTICS

Safety

- The safety of the cat is of concern as chewing or ingestion of nonfood items may result in life-threatening injuries/conditions.
 - If the cat is attracted to electrical cords, these must be unplugged or adequately protected from the cat with covers or made inaccessible.
 - If the cat ingests materials, then it is best if the materials are removed from the cat's environment to prevent against intestinal foreign body.
- The safety of household items may be of concern; destruction of clothing or expensive furniture may occur.

Management

- Remove cat's access to target items.
- This may mean creating a safe room in the house that does not contain the targeted items. If the cat is not used to confinement, then confinement training must be implemented. (See the Teaching Your Pet How to be Confined handout.)

Behavioral Modification Techniques

- Identify and remove or reduce any environmental stressors.
- Desensitize and countercondition cat to stressors that cannot be eliminated.
- Enrich the environment with physical and mental stimulation.
 - Daily short play sessions
 - Rotating new toys, boxes, bags, and perches on a regular basis may be useful.
 - Consider outdoor enclosure if an indoor-only cat
- Experiment with novel feeding routines/dietary options.
 - If only eating canned food, try adding dry food.
 - If on meal feeding, split daily ration into more frequent meals or try free-choice feeding.

- Use feeder toys that simulate foraging and prolong eating and buccal activity. Toys that dispense kibble when manipulated work best. Alternately, food bowls can be spread around the environment and filled with different amounts at different times of day.
- Increase fiber in diet.
- Provide other food items that may provide acceptable outlets for oral behavior and stimulate chewing behavior, such as rawhides, grass garden, jerky, etc.
- Make target items unattractive with aromatic deterrents such as oil or eucalyptus or methanol; this may have limited success if the underlying problem is not addressed.
- Remove any owner reinforcement for the behavior.

Accompanying Handouts

Acute Management of Problem Behavior
 Desensitization and Counterconditioning: the details
 Maximizing Treatment Success
 Structuring Your Relationship with Your Pet
 Teaching Your Pet How to be Confined
 Tranquility Training

Drugs

- Note: All medication dosages are for oral dosing (PO)
- Medication can help facilitate the treatment program and in many cases may be necessary to appreciate improvement.
- Serotonergic medications are the current mainstay of pharmacological intervention. These include SSRIs and TCAs with potent effects on the serotonergic system.
- Medication is used for several (3–6) months after a positive effect is noted and then a gradual weaning off medication is attempted. If the behavior recurs during the weaning-off procedure, the previous dose is reinstated.
- Examples of possible drugs to try include:
 - Fluoxetine: 0.5–2.0 mg/kg q24h
 - Clomipramine: 0.5–1.0 mg/kg q12–24h
 - Paroxetine: 0.5–1.0 mg/kg q24h

Other Treatments

- Alternative and complementary therapies such as acupuncture and homeopathy have not been systematically studied for the treatment of this condition but may have indications if they can reduce stress.
- Synthetic pheromones (e.g. Feliway®) may be indicated for general stress reduction.

Contraindications/Precautions

Drug Therapy

- There is currently no FDA-approved medication to treat wool sucking in cats. Owners should be advised of the off-label usage.
- TCAs and SSRIs should not be combined with MAO inhibitors (including amitraz [Mitaban[®]] and selegiline [Anipryl[®]]). Use caution if combining SSRIs and TCAs as this can result in potentially fatal serotonin syndrome.
- TCA and SSRIs should not be used in animals with a history of seizures.
- Electrocardiography should be performed on any animal predisposed to a conduction disturbance.
- Altered drug clearance and potentiation may occur with hepatic or renal function impairment.

Behavioral Modification

- Punishment is contraindicated in compulsive disorders.
- Restriction to target items may result in selection of a new target or destruction in attempts to access the target item.

Surgical Considerations

- There is no surgical procedure recommended to treat this behavioral condition.
- Since these animals may harbor a genetic predisposition for undesirable behavior, these animals should be neutered.



COMMENTS

Client Education

- It is important for owners to recognize that these cats are not spiteful or vengeful and that punishment may only aggravate the condition.
- Cats that ingest items are at heightened risk of intestinal blockage; careful monitoring is needed and signs of vomiting, constipation, anorexia, or other intestinal distress should result in immediate veterinary care.
- Cats need proper social and environmental stimulation. Owners need to provide their cat with appropriate outlets.
- Clients should be informed that in many cases, compulsive disorders may require lifelong treatment.
- Accurate record keeping may help assess treatment success.

Patient Monitoring

- Have client keep daily and/or weekly logs of the occurrence of the wool sucking, including duration of bouts and frequency of bouts. This will allow for accurate assessment of behavioral change.

- Initially weekly or biweekly follow-up is desirable to manage the treatment program and response to medication.
- Regular (semiannual to annual) monitoring is necessary for cats on long-term drug therapy; examination and laboratory evaluations (CBC, chemistry panel, urinalysis) should be conducted.

Prevention/Avoidance

- Appropriate daily mental and physical stimulation in the form of exercise, play, and social interaction should be provided for all cats.
- No attention should be given for compulsive disorders, even if it is considered entertaining the first few times it is observed.
- Predictable interactions and environments may help prevent onset of the behavior.
- If a client sees signs of wool-sucking behavior developing in a cat derived from a line where other cats are affected, early intervention is advised.
 - In some cases, removal of the items and preventing all access may curtail the problem in the early stages.

Possible Complications

- Owner relinquishment due to destruction
- Intestinal foreign body/blockage
- Relapse of condition

Expected Course and Prognosis

- It may take several weeks to see improvement.
- If no improvement is seen after 4 weeks, the diagnosis, treatment plan, and owner compliance should be reevaluated.
- Relapse may occur if stress/conflict/frustration is reintroduced into the environment.
- Clinical improvement is negatively correlated with duration of compulsive behavior; treatment should be sought early in the course of problems to maximize treatment success.
- Control, not cure, is a realistic expectation for compulsive disorder.

See Also

Chapter 29, Compulsive Disorder: canine and feline overview
 Chapter 51, Pica: canine and feline
 Chapter 56, Separation Anxiety: canine and feline

Abbreviations

CBC—complete blood count
 FDA—Food and Drug Administration
 h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

q—every

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

Suggested Reading

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Pharmacology



INTRODUCTION TO PHARMACOLOGY

Medications can be a useful adjunct to the treatment of behavioral disorders. Before medication is instituted, it is essential to have ruled out all underlying medical causes for the behavior and a behavioral diagnosis must be established. For best results, a behavioral modification plan must also be instituted. Most medications are not licensed for use in companion animals, and dosages have been extrapolated from human literature or small case studies; few controlled studies have been performed. Practitioners should be educated about the indications/contraindications and side effect profiles of the drug and be aware of local regulations on off-label dispensing. A valid veterinarian/client/patient relationship must be present before prescribing medication. A physical examination, CBC, and chemistry panel is advised prior to starting the pet on medication. When appropriate, owners should be informed that use of the prescribed medication is off-label and that communication should be documented in the medical record, and release forms may be prudent.

Practitioners should evaluate the suggested medication within the context of each particular patient and their clinical presentation. The field of behavioral pharmacology is changing rapidly and veterinarians should attempt to stay current and consider new developments when prescribing therapies.

Please note that the drug examples given here are not an exhaustive list of all possible treatments; instead they represent some of the more clinically practical treatments when efficacy, dosing frequency, cost, and side-effect profiles are considered. For most conditions, there is a lack of comparative efficacy studies to indicate the preferential treatment and the most effective dose; individual variation in response to medication may further confound drug selection. Treatment is generally considered a therapeutic trial for each animal, and failure to respond to treatment should result in discontinuation of that medication. Failure to respond to one medication is not necessarily indicative of potential treatment success with other medications.

Two drug groups will be focused on: the benzodiazepines and the serotonergic medications. Although other drug classes exist, they do not represent the current trend in practical clinical therapy.

For a more comprehensive consideration of all potential treatments, please consult a pharmacological text such as the following:

Psychopharmacology of Animal Behavior Disorders. 1998. Nicholas H. Dodman and Louis Shuster, Editors Blackwell Science.

Veterinary Psychopharmacology. 2006. Sharon Crowell-Davis and T. Murray. Ames, IA: Blackwell Publishing Professional. Blackwell Science.

Chapters on pharmacology in the following books may also be referenced:

BSAVA Manual of Canine and Feline Behavioral Medicine. 2002. Edited by Debra F. Horwitz, Daniel S. Mills, and Sarah Heath, Gloucester, UK BSAVA.

Handbook of Behaviour Problems of the Dog and Cat 2nd edition. 2003. Gary Landsberg, Wayne Hunthausen, and Lowell Ackerman. Philadelphia: Elsevier.

- Benzodiazepines: episodic, acute, short-acting, anxiolytic medications; enhance GABA
 - Give approximately 1 hour prior to anticipated problematic event.
 - Anticipate 3–6 hours of anxiolytic benefits.
 - Undesirable side effects may include sedation and disinhibition of aggression.
 - Regular use may result in dependence and tolerance.
 - Paradoxical reaction (increased agitation, anxiety) can occur in a small percentage of animals.
 - Diazepam is associated with acute liver failure in a small percentage of cats.
 - Examples of benzodiazepines and PO doses follow:
 - Diazepam
 - Canine: 0.5–2.0 mg/kg q6h
 - Feline: 0.2–0.5 mg/kg q8–12h
 - Alprazolam
 - Canine: 0.02–0.1 mg/kg q6–8h
 - Feline: 0.025–0.05 mg/kg q8–24h
 - Clorazepate
 - Canine: 0.55–2.2 mg/kg q8–24h
 - Feline: 0.02–0.5 mg/kg q12–24h
- Serotonergic medications: continuous, chronic, long-acting anxiolytic medications
 - These drugs are indicated for situations where there is unavoidable prolonged exposure to trigger stimulus.
 - Some serotonergic medications are specific for serotonin and others have effects on multiple neurotransmitters such as norepinephrine and dopamine.
 - In healthy animals, side effects from SSRIs and TCAs are usually mild, if they occur at all, and resolve within a week of treatment initiation: a reduced appetite and sedation are the most common side effects noted by owners, other side effects are possible including increased agitation.
 - Give on a daily schedule regardless of exposure to trigger stimuli.
 - It may take up to 4 weeks to achieve efficacy.
 - Continued for several months until the client has successfully completed the treatment regime and the pet has a new well-established, desirable behavioral response.
 - These drugs can be used in combination with a benzodiazepine to achieve sufficient anxiolytic effects.

- Examples of serotonergic medications and PO doses follow:
 - Amitriptyline
 - Canine: 2.2–4.4 mg/kg q12–24h
 - Feline: 0.5–1.0 mg/kg q12–24h
 - Clomipramine
 - Canine: 1–3 mg/kg q12h
 - Feline: 0.5–1 mg/kg q24h
 - Fluoxetine
 - Canine: 0.5–2.0 mg/kg q24h
 - Feline: 0.5–1.0 mg/kg q24h
 - Paroxetine
 - Canine: 0.5–1.0 mg/kg q24h
 - Feline: 0.25–0.5 mg/kg q24h
 - Sertraline
 - Canine: 1–3 mg/kg q24h
 - Feline: 0.5 mg/kg q24h

CONTRAINDICATIONS/PRECAUTIONS

General

- Another class of drugs, the phenothiazines (e.g., acepromazine), is widely used in the veterinary profession, often as a premedication for general anesthesia but also for behavioral intervention. This class of drugs is **not** recommended as a standard course of treatment for behavioral conditions as their primary effect is to render the animal physically unable to respond, but they do not address the primary problem.
- Most medications used to treat canine and feline behavioral conditions are not FDA approved for that use, therefore, the clinician should advise the clients of any use of extra-label medication and document this communication.
- Prior to medicating a pet, the pet should be examined and laboratory screenings conducted to evaluate the ability of the pet to metabolize and excrete the medication adequately. A minimum database should include a complete blood count, chemistry panel, and thyroid evaluation.
- Paradoxical reactions and unacceptable side effects to the medications are possible. The pet's response to therapy should be monitored and treatment modified or discontinued when indicated.
- Medications that are given for any substantial period of time should ideally be tapered down in dose rather than abruptly withdrawn.
- Consult individual drug monographs for complete lists of contraindications/precautions.
- For pets on long-term medication, an annual or semiannual recheck (including physical exam, CBC, and chemistry panel) is recommended.

Serotonergic Drugs

- Use of TCAs such as amitriptyline or clomipramine in patients with cardiac abnormalities should be avoided or only done with extreme caution as these drugs may potentiate preexisting cardiac conduction problems.
- Avoid use of TCAs in animals with glaucoma.
- Avoid use of serotonergic drugs (TCAs and SSRIs) in animals with a history of epileptic seizures; they may aggravate the seizures.
- Avoid use of serotonergic medications (TCAs and SSRIs) in breeding/pregnant animals.
- TCAs and SSRIs should not be combined with MAO inhibitors including amitraz and selegiline. Many preventative tick collars contain MAO inhibitors and therefore should not be used with serotonergic drugs.
- Due to the potential for serious side effects including fatal serotonin syndrome, concomitant use of multiple serotonin-enhancing medications should be done with caution.
- Caution is advised in using psychotropic medications in conjunction with other CNS active drugs including general anesthesia, neuroleptic, anticholinergic, and sympathomimetic drugs.
- TCA overdoses can cause profound cardiac conduction disturbances leading to death; all medications should be stored and managed carefully.

Benzodiazepines

- Use caution when prescribing benzodiazepines in animals exhibiting any level of aggression as benzodiazepines may disinhibit aggression if they reduce fear-based inhibition to biting.
- About 10% of animals have a paradoxical reaction to this class of drugs; they become anxious/agitated instead of calm and relaxed.
- Diazepam-induced hepatotoxicity has occurred in some cats, so this drug and other benzodiazepines should be used with caution in cats.
- Benzodiazepines are lipophilic and may be potentiated by other lipophilic drugs. If combination treatment is warranted, use lower dosages.
- Benzodiazepines are a controlled substance and are at risk of human abuse.

ABBREVIATIONS

CBC—complete blood count

CNS—central nervous system

GABA—gamma-amino butyric acid

h—hour

MAO—monoamine oxidase

mg/kg—milligrams per kilogram

q—every

SSRI—selective serotonin reuptake inhibitors

TCA—tricyclic antidepressants

TABLE A-1. Pharmaceutical Table

Drug Name	Time to Effect	Drug Class	Canine Dose	Feline Dose	Indications F = Feline C = Canine	Comments/Side Effects
Alprazolam	~ 60 min	Benzo	0.02–0.1 mg/kg q6–8h or PRN	0.025–0.05 mg/kg q8–24h or PRN	Anxiety, fears, phobia (C & F) Urine marking (F)	Sedation, lethargy, increased appetite, paradoxical agitation/excitement, disinhibition of aggression possible
Amitriptyline	1–4 weeks	TCA	1–2 mg/kg q12h	0.5–1.0 mg/kg q12–24h	Urine spraying (F), reactivity (C), generalized anxiety (C & F), anxious aggression (C & F), self-trauma/overgrooming (C & F)	Tachycardia, constipation, mydriasis, urinary retention, sedation, avoid in epileptics, overdose at 15 mg/kg
Clomipramine	1–4 weeks	TCA	1–2 mg/kg q12h for separation anxiety; 2–3 mg/kg q12h for compulsive disorders	0.5 mg/kg q24h	Urine spraying (F), anxiety (C & F), separation anxiety (C), compulsive disorders (C & F)	Decreased appetite, lethargy, gastrointestinal upset, tachycardia, urinary retention, avoid use in epileptics
Chlorazepate	~ 60 min	Benzo	0.55–2.2 mg/kg q8–24h or PRN	0.02–0.5 mg/kg q12–24h	Anxiety fears and phobias (C & F) Urine marking (F)	Sedation, lethargy, ataxia, paradoxical increased excitement

(Continued)

TABLE A-1. (Continued)

Drug Name	Time to Effect	Drug Class	Canine Dose	Feline Dose	Indications F = Feline C = Canine	Comments/Side Effects
Diazepam	~ 60 min	Benzo	0.55–2.2 mg/kg every 6–8 hours or PRN	0.2–0.5 mg/kg q8–12h	Urine marking (F), anxiety disorders (C & F)	Lethargy, increased appetite, possible hepatotoxic in cats, disinhibition of aggression possible
Fluoxetine	1–4 weeks	SSRI	0.5–1.0 mg/kg q24h to start; can increase up to 2.0 mg/kg q24h	0.5–1.0 mg/kg q24h	Urine marking (F), conflict aggression (C & F), impulsivity disorders (C & F), compulsive disorders (C & F), anxiety disorders (C & F)	Constipation, anorexia, insomnia, irritability, gastrointestinal effects, urinary retention; sedation
Paroxetine	1–4 weeks	SSRI	0.5–2.0 mg/kg q24h	0.25–0.5 mg/kg q24h	Urine marking (F), general anxiety (C & F), overgrooming (F), anxious aggression (C & F)	Constipation, urinary retention, lethargy, gastrointestinal effects, irritability
Sertraline	1–4 weeks	SSRI	1.0–3.0 mg/kg q24h	0.5 mg/kg	Urine marking (F), anxiety disorders (C & F), Impulsivity disorders (C & F), compulsive disorders (C & F)	Constipation, anorexia, insomnia, irritability, gastrointestinal effects, urinary retention; sedation

Benzo = Benzodiazepine; TCA = Tricyclic Antidepressant; SSRI = Selective Serotonin Reuptake Inhibitor

The doses given are typical dose ranges for the drug; all doses should be tailored to the specific patient and condition and appropriate additional sources utilized for additional information on dosing.

Learning and Behavior Modification

appendix

B



LEARNING AND BEHAVIOR MODIFICATION

Understanding basic learning principles is necessary to achieve treatment success.

Operant conditioning is learning how one's actions result in consequences; i.e., the individual causes the results. This is a stimulus-response/response-consequence relationship.

1. Behavior can result in positive consequences. This is **positive reinforcement** and will produce an **increase** in the behavior that resulted in the positive event.
2. Behavior can result in negative consequences. This is **punishment**, and should result in a **decrease** in the behavior that caused it.
 - a. Often punishment is referred to as “positive punishment” and “negative punishment.”
 - b. Positive punishment is the addition of something aversive to make behavior decrease or stop.
 - c. Negative punishment is the removal of something pleasant or withholding something pleasurable. Common examples of negative punishment include “time out” and removal of play items.
3. Behavior can result in the removal of something unpleasant. This is **negative reinforcement** and will **increase** the likelihood that the preceding behavior will occur again. Learning occurs best when there is a clear relationship between the timing of the two events (behavior and consequence) and the predictiveness of the consequences.

Classical conditioning (the term conditioning refers to learning) is the pairing of an unconditioned stimulus with a neutral stimulus that results in a conditioned stimulus and a conditioned response. Classical conditioning can occur in both positive and negative ways. The timing of the presentation of the stimulus, the saliency of the stimulus, and the predictability of the stimulus and the reinforcement influence the conditioning process.

1. A neutral stimulus (such as the doorbell) becomes paired with a certain event (the arrival of unfamiliar people), which causes fear or anxiety. Soon the doorbell causes fear and anxiety all by itself.

Schedule of Reinforcement The way that both reinforcement and punishment are used can greatly influence their effectiveness. This is often termed the “schedule of reinforcement.” How behaviors are rewarded can be powerful determinants of

future behavior. Schedules of reinforcement can be based either on time (intervals) or amount of work, or number of responses (ratio). Schedules can be fixed, meaning that after so much time or a set number of responses, reinforcement is given. Alternatively, behavior can be reinforced on a variable schedule, meaning that a period of time or a number of responses must take place, but that period varies from reinforcer to reinforcer, with an average time or number of responses. Reinforcement given on a variable schedule results in strong acquisition of the response, which will be hard to extinguish and the response may occur for some time. This means that the rewards are given intermittently, and the animal is not exactly sure when the reinforcement will occur.

Extinction is a procedure used to end a behavior. Extinction occurs when behavior is no longer reinforced. When this occurs, eventually the behavior will stop. However, it is very common, especially if the behavior has been maintained on a variable ratio of reinforcement, for the behavior to temporarily increase, and this is called an **extinction burst**. When trying to get a behavior to extinguish, it is **extremely** important to identify ALL reinforcers and eliminate them.

Habituation is a process by which a stimulus no longer evokes a response. Usually this occurs with repeated presentation of a stimulus and the animal learning that it does not signal anything important and ceases to respond.

Flooding is used to treat fears of harmless stimuli by forcing the animal to stay in the presence of the stimuli until the fear is extinguished. This procedure is difficult to use in animals since it may be difficult to judge when all physiologic signs and emotional signs of fear are gone. If done improperly, flooding can increase rather than decrease problem behaviors.

Conditioned emotional response refers to establishing fears through a classical conditioning paradigm. This entails the association of a fear-producing stimulus with a previously neutral object. Once this occurs, the object itself may be enough to elicit the fearful response. This type of learning can be very powerful and hard to extinguish.

Counterconditioning (also called response substitution) is teaching a behavior that is incompatible with the previous response. In other words, instead of trying to eliminate a conditioned response by extinction, you eliminate it by conditioning another response that is incompatible with the original one and replaces it. What is wanted is that the response be behaviorally and physiologically different from the previous response. Therefore, facial expressions, body postures, respiratory rate, etc., are all-important components in the response. The goal is to change the association with the stimulus.

Systematic desensitization is gradually exposing an animal to stimuli at a low level so as not to evoke an undesirable response. As the animal gives a neutral response at low levels, the intensity is gradually and systematically increased until the pet is neutral at full stimulus intensity. Paired with counterconditioning, this allows animals to learn to behave properly to stimuli that previously caused fear, aggression, or other problem behaviors. The stimuli must be presented on a gradient from low to high without evoking the inappropriate or unwanted response. Therefore, the arrangement of the stimuli becomes very important.

Additional Resources for Veterinarians



ASSESSING PROGNOSIS IN AGGRESSIVE ANIMALS

When owners bring in an aggressive animal for a behavioral evaluation, they often want to know the prognosis for improvement and how to grade the aggression. While the only way to guarantee that a dog will not bite again is euthanasia, certain factors can be used to help assess the prognosis and develop realistic expectations in aggression cases. This will allow pet owners to make decisions regarding the pet's behavior. The commonly used factors include willingness to live with risk, family composition, the ability to provide safety, size of the pet, predictability of the behavior, the context, severity of injuries sustained, and the choices the pet made.

Living with risk: Owners must understand that an aggressive pet with a history of biting is likely to bite again even with treatment and safety precautions. Animals that have shown aggressive behaviors and biting are usually controlled but rarely, if ever, cured. There are no quick fixes for biting, and owners need to determine if they are able and willing to live with ongoing risk. In some cases, the owners will not tolerate any more aggression and that is not possible with a known aggressive pet.

Family composition: In households where there are small children, unpredictable schedules, immunocompromised or elderly individuals, treatment of aggressive pets and the ongoing risk may not be acceptable.

Ability to provide safety: Does the household composition allow for safety precautions to be implemented and observed? If the household has frequent visitors, insecure enclosures, multiple caregivers for the pet, and poor adult supervision of pets and children, it may be unrealistic and difficult to provide safety for those who might come into contact with the aggressive pet and possibly be injured.

Size of the pet: In one study that looked at risk factors for euthanasia for dogs showing aggression toward family members, dogs that were greater than 18 kg were more likely to be put to sleep. This makes sense because bigger dogs can do more damage and be more difficult to control. So, the larger the dog, the greater the risks in keeping the dog and perhaps, lower the prognosis for a good outcome.

Predictability: Predictability has two components. Pets that are predictable about when they will be aggressive perhaps can be better controlled if all known trigger situations can be identified and avoided. Pets that are unpredictable about when they will be aggressive are more dangerous since their aggression is difficult to avoid.

Pets that are predictable about what aggressive responses they will use may allow for better management since the level of aggression is known. Pets that are unpredictable in their response pose a greater threat, meaning that one time they may growl but later in the same circumstance may inflict multiple bites.

Context: In some situations, the aggression occurs within contexts where, although unwanted, aggression is understandable. These contexts include handling food, painful manipulations, extremely frightening situations, and redirected aggression. In some cases, these situations can be managed or the animal can be medicated to diminish the response.

Severity of injuries sustained: Animals that have inflicted serious injury (broken skin/drawn blood) on their targets are more dangerous than animals that have displayed significant bite inhibition.

Choices that the pet had and made: Aggression is part of an animal's communication repertoire and may be one of the choices utilized in a social situation. So, if an animal wished to let someone know they are unhappy, frightened, or in pain, they may attempt to escape and if they cannot escape, they may growl, snarl, or snap, perhaps even bite. When an animal responds with severe aggressive actions relative to the stimulus and if they had other lower level aggressive choices, that may signal a poorer prognosis.

CLINICIAN'S CHECKLIST

These are basic concepts to help keep diagnosis and treatment on track and assess progress:

- Determine what the target behavior(s) is that you wish to change. There may be more than one problem behavior necessitating triaging treatment plans.
- Establish the frequency of the target problem behavior(s). How often does it occur and does it vary across time of day, location, people present, etc.?
- What is the intensity of the behavior? Does the intensity vary across circumstances? What factors affect the intensity (distance, location, sound, speed, etc.)?
- How is the home environment contributing to the expression of the problem behavior? Can alterations to the environment change the expression of the problem behavior? (See the Acute Management of Problem Behavior handout.) Does the dog have unrestricted access to all areas? Is the dog left unattended outdoors when no one is home? Does access to fences, windows, and doors contribute to the problem behavior? Can access be restricted or changed?
- Are certain family members more likely to experience the problem behavior than others? Can access to those persons be restricted? If the problem is aggression, can safety be provided for those persons?
- How can you provide safety in aggressive situations? (See additional handout Safety Recommendations for Aggressive Animals.)
- Once all stimuli that seem to elicit the problem responses are identified, they must be avoided and the pet kept from encountering them outside of training sessions.
- Establish a stimulus gradient. How does the response vary across the components of the stimulus? These may be distance, size, speed of approach, or personal characteristics (hats, bicycles, age).
- Establish a reward gradient. Find rewards that are extremely valuable, some of lesser value, and finally lower value treats. Usually high value treats will be consumable people food. These should be reserved for treatment sessions and withheld at all other times.
- The first step before you can begin any other treatment is for the owner to be able to control, calm, and settle the dog. This can be accomplished not only with training but with training aids such as a head collar.
- Next it is useful to get the pet to respond to simple, basic commands such as sit, down, or stay. Initially, these should be practiced in calm, quiet locations. If the pet is not able to perform these tasks without distractions, they will not be compliant during distractions and the presence of the inciting stimulus.
- Training sessions should typically be short and frequent rather than long and infrequent. Ten-minute sessions daily are better than 30 minutes once a week.
- Avoid all punishment and physical reprimands. These are difficult to use to change behavior and often result in increasing anxiety and possibly aggressive responses.

History Form

This form is not a comprehensive history form, but a general guide for history taking. Use each chapter to help target additional questions for each specific behavioral problem. Keep in mind that more than one problem may be present in each case.

Owner Informations:

Name: _____

Address: _____

Phone: Home: _____ Work: _____

Cell: _____

Email: _____

Best method to contact: _____

Patient Information:

Name: _____ Age: _____

Gender: Male Female Neutered/Spayed: Yes No

Species: Canine Feline

Breed: _____

Medical History:

When was the last physical examination performed on your pet? _____

Have there been any medical tests performed associated with the behavioral problem? Yes No

If yes, please obtain a copy of all medical tests performed and submit with this form.

Is your pet spayed or castrated (neutered)? Yes No

1. If yes, at what age? _____

2. If yes, reason for procedure? routine/attempt to modify behavior/other

3. If no, are you planning on breeding your pet? Yes No

Are vaccinations, including rabies vaccination, current? Yes No

List any medications that your pet has received in the past month or is currently taking:

List any medications, including homeopathic remedies, that your pet has ever received for the treatment of a behavioral problem:

Does your pet have any preexisting or current medical problems?

- ☐ Yes
☐ No

If yes, please list: _____

Has your pet ever had a seizure?

- ☐ Yes
☐ No

Household Information:

Please list all members of your household, include ages of children and hours away from home.

Name	Gender	Age	Relationship (self, husband, wife, etc.)	Hours away/day

Please list all household pets, including the patient, in the order acquired:

Name	Species	Breed	Gender	Age	Age acquired

Background Information:

How old was your pet when you first acquired him/her? _____

Where did you acquire this pet from?

- ☐ stray/found
☐ professional breeder
☐ hobby breeder

- ☐ humane shelter/SPCA
☐ breed rescue group
☐ newspaper adoption (not breeder)
☐ pet store
☐ friend
☐ other (please explain)

Why did you get this pet?

- ☐ family pet
☐ working dog (hunting)
☐ protection/guard dog
☐ for breeding

- ☐ aggressive
☐ playful
☐ other_____

Describe your pet as a puppy/
 kitten:

- ☐ friendly
☐ shy
☐ outgoing
☐ fearful

Is your pet (please check all that apply):

- ☐ allowed to run free, unsupervised
 when outside
☐ always enclosed in a contained
 area when not on leash
☐ leash-walked
☐ outside, unleashed but supervised
☐ outdoors only

How many times is your pet walked per day?_____

If your pet is walked, what is the average length of time for each walk
 (in minutes)? _____

Who walks your pet?_____

What type of collar/leash do you use to walk your pet?_____

What percentage of the day does your
 pet spend inside?

- ☐ 0–25%
☐ 25–50%
☐ 50–75%
☐ 75–100%

Have you had pets before?

- ☐ dogs
☐ cats
☐ other
☐ none

What kind of living situation do you
 have?

- ☐ apartment
☐ townhouse/condominium
☐ house with small yard
☐ house with large yard
☐ farm/rural property

Is your pet allowed on furniture?

- ☐ yes, all furniture
☐ yes, only specific pieces
☐ yes, only if invited
☐ no, but gets on anyway in
 presence and absence of people
☐ no, but gets on furniture in
 absence of people
☐ no, to my knowledge never gets
 on furniture

Is your pet fed:

- ☐ free choice (bowl is kept full
 of food)
☐ one meal per day
☐ two meals per day
☐ more than two meals per day

Where is your pet when left home alone?

- ☐ free in house
☐ outside house; describe:_____
☐ in crate
☐ restricted to certain areas in
 house

Is your pet fed treats on a daily basis?

- ☐ Yes
☐ No

Do you play with your pet routinely? Yes No

If yes, describe a typical play episode:

Describe how you prepare to leave the house when the pet will be left alone. Do you ignore your pet, put it in a crate, say goodbye to pet, etc.?

For Dogs Only:

What is your dog's obedience school history?

- ☐ no school, trained yourself
- ☐ puppy kindergarten
- ☐ group lessons, basic
- ☐ group lessons, advanced
- ☐ private trainer at house
- ☐ private trainer, sent to trainer

What commands does your dog know and how well (circle)?

- | | | | |
|----------|---------|---------|------------|
| sit | perfect | usually | needs work |
| stay | perfect | usually | needs work |
| lie down | perfect | usually | needs work |
| come | perfect | usually | needs work |
| heel | perfect | usually | needs work |
| fetch | perfect | usually | needs work |
| drop it | perfect | usually | needs work |
| watch me | perfect | usually | needs work |

Is your dog trained to go to a certain spot/location (e.g., bed, crate, mat) on a verbal command? Yes No

If yes, how reliable is the response?

Perfect Good Moderate Poor

For Cats Only:

How many litter boxes do you have?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ >4

Describe the litter boxes (check all that apply and put in parentheses the number of boxes for which the description is true):

- | | Number |
|-----------------------------------|--------|
| <input type="checkbox"/> open | () |
| <input type="checkbox"/> covered | () |
| <input type="checkbox"/> large | () |
| <input type="checkbox"/> small | () |
| <input type="checkbox"/> liner | () |
| <input type="checkbox"/> no liner | () |

What kind of litter do you put in the boxes (check all that apply)?

- ☐ clumping litter
- ☐ plain clay
- ☐ scented
- ☐ unscented
- ☐ playground sand
- ☐ large pellets
- ☐ wheat litter
- ☐ cedar chips
- ☐ varies with each purchase
- ☐ other, please specify:_____

Where are the litter box(es) located (check all that apply)?

- ☐ closet
- ☐ kitchen
- ☐ bathroom
- ☐ bedroom
- ☐ attic
- ☐ laundry room
- ☐ living room
- ☐ basement
- ☐ stairwell
- ☐ other_____

Is your cat declawed?

- ☐ no
- ☐ yes, front declawed only
- ☐ yes, back and front feet declawed

Does your cat use a scratching post?

- ☐ yes
- ☐ no

Does your cat have any outdoor access?

- ☐ yes
- ☐ no

Reaction to handling by family members

Does your pet show aggression in the following circumstances? This can include growling, hissing, snarling (showing teeth), lunging, nipping, snapping, or biting. Please fill in the chart: (Y = Yes, N = No, N/A = doesn't apply). If biting has occurred in any of these circumstances, please describe the wound (tear, puncture, bruising).

	Adult owner (female)	Adult owner (male)	Children	Any specific individual
Handling/ grooming				
Petting or hugging				
Disturbed when resting				
Disciplining				
Walking on the lead				
Taking food away				
Taking other objects				

Behavioral Problem:

Please use the chart below to list the behavioral problem(s) that you wish to address, and how much of a problem do you consider the behavior to be?

Behavior Problem	very serious	serious	not serious

Describe a typical episode of the behavioral problem(s):

The behavior occurs_____ times per day / week / month

Describe the first incident (including date):

Describe the most recent episode (including date):

Has the frequency of the behavior increased / decreased / remained unchanged?_____

Has the intensity of the problem increased / decreased / remained unchanged?_____

Have there been any changes in the household (new pet, new family member, schedule change, etc.)? if so, describe:_____

What have you tried to do to change the problem behavior? Please list all things you have tried whether they have been useful or not._____

Have you considered finding another home for your pet? Yes No

Have you considered euthanasia (putting your pet to sleep)? Yes No

Is there any other information you would like to add?_____



ACUTE MANAGEMENT OF PROBLEM BEHAVIOR

Management is critical for any behavioral problem. It serves to provide safety and/or stops the escalation of the behavior while you work on a behavioral modification program.

Safety: Often there is potential for injury. Aggressive pets may harm targets via biting/scratching. In cases of anxiety or obsessive-compulsive disorders, the pet may inflict injury upon itself. Owners must engage in steps to protect the safety of others and the pet. Proper containment is indicated at all times. The level of containment will vary between cases but minimally should include secure property fencing or the pet being leashed when not enclosed in home property.

Interrupting the escalation of the problem behavior: When the pet engages in the undesirable behavior, there is usually pay-off/reinforcement for the pet. When a dog barks aggressively at a person passing by the house, their retreat rewards the aggressive display. When a dog urinates on the rug, the immediate relief of an empty bladder makes the pet more comfortable. The following steps will interrupt the escalation of the problem behavior:

- **Identify and avoid triggers for undesirable behavior.** Examples follow:
 - Interdog aggression:* Avoid high-density dog areas/times on walks; if you do encounter other dogs, create space between your dog and the other dog.
 - Owner-directed aggression:* Avoid triggers, don't disturb when resting, don't allow dog on bed if dog is aggressive when disturbed in bed; feed dog without disturbances for food aggression, etc.
 - Aggression to visitors to home:* Place dog in another area before allowing visitors in house.
 - Dog with separation anxiety:* Avoid leaving alone in home for periods that evoke the distress.
- **Don't respond to undesirable behavior with interactive aggression/punishment:** Punitive responses often escalate the problem. An animal in an aggressive state is highly aroused and highly reactive. Pets with aggression or other problem behaviors may have underlying anxiety. Aggressive responses will likely aggravate the condition and may result in injury.
- **Don't respond to undesirable behavior with comforting:** While trying to reduce anxiety/distress, comforting from the dog's perspective is very similar to praise. The dog may misinterpret this interaction and think you actually like the undesirable behavior.

- **Respond in a calm, controlled fashion to undesirable behavior:** If you find something after the fact (elimination/destruction), there is no helpful response. Clean it up and try to avoid the trigger circumstance that caused it in the future. If the pet is highly aroused and actively engaged in the undesirable behavior, try to remove the pet from the situation or remove the trigger for the behavior. Remain calm, give direction to the pet for an alternative behavior, such as obedience commands, and recognize that this is a damage-control situation; you are trying to prevent this episode from making things worse. Since the pet is highly aroused/reactive/upset, these are not good training opportunities. If the pet is too aroused to follow a command, try “changing the subject” by offering another activity the pet may want such as a ride in the car. This activity is used to divert the pet in a critical situation only; repeated use could inadvertently reinforce the undesirable behavior.

BASIC PRINCIPLES FOR INTRODUCING PETS TO A NEW BABY

It is important to remember that no child should ever be left alone with a pet; even the “best” pet may hurt a baby. Close supervision is mandatory when an infant/toddler and a pet are together.

- Anticipate schedule and household changes that may occur when the baby arrives; try to implement these changes well in advance of the actual arrival of the baby. This may mean spending less time with the pets, pet segregation from certain areas of the house, teaching the pet to stay off the furniture, awakening at night, etc.
- Practice Tranquility Training Exercises (see handout) with your pet prior to the arrival of the baby.
- Prior to the arrival of the baby, obtain a recording of a baby crying. One resource is www.soundsscary.com, Soothing Sounds CD with baby noises. Play on low volume for 5–10 minutes multiple times daily. During sessions, have the dog do basic obedience commands and reward good, obedient, calm behavior. Gradually increase the volume at successive training sessions until the recording is played at true baby crying volume. If at any time during increases in the volume the dog appears to be agitated, return to a lower volume and progress more gradually. It may be beneficial to start carrying around a baby doll and rewarding the dog for good behavior around the “baby.”
- Get the pet used to new baby product odors and furniture by having them in the house prior to arrival of the baby.
- Get pets used to pulling on hair/ears by initially doing it very gently and rewarding them for good behavior with a treat/affection. Gradually increase the intensity of the pulling until you mimic what a toddler may do.
- Do not allow pets to get into the crib or sleep in areas where the baby will be sleeping/resting.
- For particularly anxious dogs/cats, consider placing a canine pheromone product (DAP—dog appeasing pheromone®) or Feliway® (cat calming pheromone) diffuser in the house about 2 weeks before the baby's arrival.
- After the baby is born, bring some of the clothing that the baby has worn in the hospital home for the pets to smell.
- When you bring the baby home, have another person hold the baby so that you can greet the pets.
- Once things have calmed down, introduce your pets one at a time to your new baby. The pet must be controlled during the introduction. Leashes and head halters or harnesses can be helpful. Have one person hold the baby while sitting comfortably on a chair. Another person should be carefully monitoring your pet's behavior. At any sign of aggressive or unacceptable nonaggressive behavior (i.e., crawling on top of baby), interaction with the pet and the baby should be immediately interrupted. Aggressive behavior should result in immediate isolation of the pet and contact with your veterinarian. Unacceptable, nonaggressive behavior should result in redirection of the pet to do an alternative behavior (e.g., sit); desirable behavior is rewarded.

- If there is only one spouse at home during the first few weeks that the baby is at home, then the pets should be restrained or confined in the presence of the infant. Tethers, crates, or baby gates may be helpful.
- Usually when a new baby enters the household, the adults ignore the pets when the baby is active and give the pets attention when the baby is sleeping. Inadvertently this teaches the pet that the baby is something negative (baby equals no attention) and that the absence of the baby is a good thing. This is the opposite message that we want to give our pets. Therefore, make a point of trying to pay attention to the pets when the baby is active/present. This can be done with verbal engagement or if two adults are present, one adult can attend to the baby and the other adult can pet or play games with the pets. When the baby is sleeping, you should pay less attention to the pets.

BEGGING: HOW TO STOP BEGGING AT THE TABLE

The fundamental principle is to extinguish the begging behavior by removing all rewards:

- The pet should not receive any food or attention for begging.
- If there is any chance that food will inadvertently fall off the table, put the pet in another location when people eat.

Expected pitfalls include:

- The begging behavior is likely to escalate before it diminishes.
- The pet may try different behavioral patterns for begging; however, if they are not rewarded, they too will decrease.
- This can be a difficult treatment plan to maintain; frustration, guilt, escalated pet effort, and inadvertent reward (food falling off table) all contribute to failure.

Additional steps that may help with success include:

- Exercise the pet prior to periods where begging is anticipated; a tired pet is less likely to beg.
- Feed the pet before humans eat; a satiated pet may beg less.
- Feed the pet two to three smaller meals as opposed to one big meal in a 24-hour period.
- Segregate the pet in another location before eating.
- Anticipate situations that may elicit begging and distract the pet with a different activity.
 - Provide the pet with a long-lasting food treat; food puzzle toys filled with pet food or treats can be a distraction.
 - Teach the pet to go to a location on command, such as a bed or a crate; send there when begging is likely.
- Deliver a remote punishment for begging behavior.
 - Remote punishments such as squirts of water or making an aversive sound may help in some cases. Timing is important when remote punishment is used; it needs to be tightly correlated (1–2 seconds) with the behavior that is being punished. If items are not readily available to deliver the remote punishment and the timing of the punishment is off, it will render it ineffective and may be inhumane. The intensity of the punishment needs to be sufficient enough to inhibit the behavior but not so extreme as to cause fear/anxiety/distress. Finally, punishment should be delivered consistently (every time the pet begs), a difficult task for many people.
- Interactive punishments (yelling, hitting, etc.) are not recommended since they are often ineffective (pet perception is that it gained attention) or they may create anxiety/aggression problems in the pet.

CREATING HARMONY IN MULTIPLE CAT HOMES

The domestic cat is a social animal; however, not all cats will get along well together when there are multiple cats in restricted spaces. These techniques help promote harmony. Serious aggression needs a more comprehensive treatment plan.

Resources:

- Resources should be plentiful and dispersed throughout the environment. Critical resources include:
 - Litter boxes (See the handout Litter Box Tips for more information.)
 - Feeding and water stations
 - Scratching posts/pads
 - Resting perches at different vertical heights
- Single cat-sized resting perches at different vertical heights throughout the home significantly expand the usable space.
- Resting perches should be just big enough to accommodate one cat comfortably; larger spaces may allow for confrontations.
- Avoid creating spaces where a cat can trap another cat easily; offer more than one exit route from an area/resource site.
- Catnip toys can arouse certain cats into a highly reactive/aggressive state. If this occurs, the toys should be removed from the environment.

Techniques to prevent/diffuse tension:

- Cats with high play drives often bother more sedate/elderly cats. Owners should channel this excess playful energy onto appropriate toys in short owner-initiated play sessions daily.
- Cats who harass other cats in the house should be fitted with a cat-safe collar with bells to provide an advanced warning system to other cats.
- Daily short-term segregation of cats may provide restful periods; all cats should have access to a litter box and water at all times.
- Blocking eye contact between two cats caught in a stare down can readily diffuse a tense situation—hold up an inanimate object (pillow cushion, paper) between the cats. When tension is reduced, the cats can be independently redirected onto another activity (e.g., play with a toy) or safely segregated.
- The synthetic pheromone, Feliway[®], may help reduce overall tension in multiple cat homes.
- Transfer of scent from one cat to another may help create an affiliation or familiarity between cats. This scent transfer may occur passively as the cats come in contact with the same inanimate objects or may occur actively as the cats rub or groom each other. Humans can augment this scent transfer by petting cats with a common towel/rag/glove on a daily basis.

DESENSITIZATION AND COUNTERCONDITIONING: THE DETAILS

1. The goal is to help your pet learn new tasks to help them deal with situations, people, or places that make them fearful, anxious, or exhibit undesirable behavior.
2. The first step is helping your pet to learn to relax and be calm on a verbal command. Animals cannot learn if they are emotionally aroused.
 - a. See handout on Tranquility Training Exercises.
 - b. This can be accomplished not only with training but with training aids such as a head collar.
3. The adult who has the most control over the pet should do these sessions.
 - a. For additional safety, a leash and/or a head collar or harness is advised.
 - b. For cats, a harness and leash or a crate may be necessary for control.
4. Be aware of the stimulus gradient before you start.
 - a. How does the response vary across the components of the stimulus? These may be distance, size, speed of approach, personal characteristics (hats, bicycles, age).
 - b. Then arrange the stimuli from the least likely to cause a problematic response to the one most likely to elicit the problem behavior.
5. Establish a reward gradient. Find rewards that are extremely valuable, some of lesser value, and finally lowest value treats. Usually high value treats will be consumable people food. These should be reserved for treatment sessions and withheld at all other times.
6. Engage in daily training sessions lasting approximately 10 minutes.
 - a. Expose the pet to the stimulus at a level below that which evokes the anxious/fearful/undesirable reaction.
 - b. When exposed to this low level stimulus, the animal should be rewarded for calm, relaxed, obedient behavior. Rewards may include play, praise, tasty food treats, etc.
 - c. With success, gradually increase the intensity of the stimulus until it is at full strength without evoking a fearful/undesirable response.
 - d. If the animal responds with anxiety, fear, aggression, or any undesirable behavior, the stimulus intensity was too strong. Do not reward or scold the pet but back away until the pet is calm.
 - e. Try to end each session with a successful exposure.
7. Avoid the following pitfalls, which will make progress more difficult:
 - a. All situations known to elicit undesirable responses must be avoided unless they are part of the controlled training exercise. This may mean curtailing walks, confining the pet when visitors come over, not allowing the pet outside in the yard unattended and off leash, not allowing aggressive displays at windows, doors, and fences.
 - b. Avoid long training sessions where the pet becomes distracted/agitated or upset.

- c. If the pet becomes very reactive, the stimulus was too close or too intense, and future sessions must have better control of the stimulus intensity. You may need to be quite a distance away for the pet to be calm and controlled. Remember, the pet learns best when calm.
- d. Progress slowly and be conservative in expectations. You want the pet to be successful and end each session on a positive response.

INTRODUCING CATS

Adding another cat to a household can be a smooth transition or one fraught with problems. The worst outcome may include serious overt aggression between the cats and/or elimination problems. While it may be impossible to prevent all problems, certain introduction techniques may facilitate the process of integration.

- A transition room should be created for the new cat. This transition room will house the new cat as it is being gradually introduced into the family and should be a secure area. The door should latch securely and/or lock. Be sure to provide everything a cat may need including a feeding/watering site; a litter box; perches at different vertical heights, hiding spots, scratching posts/pads, toys, etc. Remove any items of value, any items that may be dangerous to the cat (e.g., plants, electric cords, strings), and any target items that may encourage inappropriate elimination (e.g., plush bath mats).
- About 2 weeks prior to introduction of the new cat, a pheromone diffuser, Feliway[®], should be placed in the home; one in the main area and one in the transition room.
- Make any necessary adjustments to the house prior to the arrival of the new cat. This may include adding cat perches/cat trees around the home, litter boxes, and feeding stations; closing off access to the transition room that will contain the new cat; adding bells to the collars of anticipated bully cats, etc.
- Identify favored activities/treats of the resident cats to use during introductions with the new cat.
- When the new cat arrives, it should be placed in the transition room.
- Place a dumbbell-type toy under the door that separates the new cat from the resident cats to encourage play at the barrier door; you can create a dumbbell-type toy by tying two cat toys together with heavy string.
- Identify a common rag/towel/glove with which to pet each cat every day to facilitate scent transfer. Concentrate on wiping the towel against the cheek area and the base of the tail.
- If there is overt persistent aggression at the barrier door, a neutral zone will have to be created by closing another door.
- Identify favored activities/treats for the new cat.
- When the new cat appears comfortably settled in the transition room, start to rotate segregation locations. If the new cat is particularly fearful, you may need to retain its ability to access its transition room as it explores the rest of the house. In this case, the resident cats will need to be contained elsewhere.
- The next step is to progress to short (less than 5 minute) visual introductions. Cats are contained in some manner (in crates, on harnesses/leashes, behind doors with windows) so they can't make physical contact but they can see each other. Try to engage cats in a favored activity in their respective locations during these visual opportunities. Perform these two to three times daily until all cats appear relaxed and there is no aggressive posturing.

- The cats then should be allowed supervised physical contact; owners should have remote devices (water squirt bottles, canned fog horns, large blankets to cover the cats with) ready to interrupt any escalation in aggression, if it occurs. Owners should NEVER handle aggressively aroused cats, because cats redirect their aggression readily to the closest target.
- With success, interaction periods can gradually increase in duration and human supervision can gradually decrease until the cats are living in harmony.

JUMPING UP: TEACHING CONTROLLED GREETINGS

Three main treatment modalities alone or in combination work best to control jumping behavior: withdrawal, control devices (leashes and head collars), and teaching an alternative behavior such as “sit” or retrieve.

- **Withdrawal:** Remove any inadvertent reinforcement for the behavior by ignoring the dog and withholding all interactions until the dog is calm.
 - The person should stand calmly, turn away from the dog with arms crossed and no eye contact until jumping ceases; in cases where the dog persistently jumps, the person may need to walk out of the area, closing a door.
 - Once jumping has stopped, the person can return attention to the dog and calmly interact with the dog but should cease interaction if jumping begins again.
 - People should avoid rewarding the jumping with interactive responses such as pushing the dog off or yelling.
- **Increasing control and using control devices:**
 - Head collars greatly facilitate owner control and the ability to restrict jumping by providing control of the head. Pulling up and guiding the dog into a sit will stop the dog from jumping up.
 - Visitors can be greeted outside or inside with the dog on a leash and head collar, or the dog's access to the situation can be restricted by placing it in another room until the visitor is seated.
- **Teach “sit” and “stay” as an alternative method to greet people.**
 - When the dog is calm and relaxed, practice sitting for a food reward in different areas of the house with the dog wearing a leash and head collar.
 - Begin with short sessions of 3–5 minutes with 8–12 repetitions per session.
 - Use highly palatable food rewards cut into small pieces.
 - Add the word “stay” when the duration of sitting is a few seconds; take a step away, return to the dog and give the food reward.
 - Build up the time away from the dog to 1–2 minutes.
 - Repeat exercises near the door and with the addition of leaving and returning.
 - Next ask the dog to sit for a food reward when returning from work or other absences of a few hours' duration.
 - Familiar visitors can enter, ask the dog to sit, and give a food reward.
 - Alternatively, the owner can reward the dog for remaining seated as people enter also using the head collar and leash for control.
 - Eventually the food rewards can be reduced to intermittent use.
- **Some dogs remain too excitable to sit when visitors or even the owners enter the home. These dogs may do better if a ball is tossed as a visitor enters.**
 - This is more beneficial if a dog has been taught to sit prior to an item being tossed again.

- In all situations, the owner should avoid increasing the dog's excitement by walking calmly to the door and speaking in a quiet voice.
- Stepping on the dog's toes or squeezing the paws should never be done; activities like these are cruel, often are ineffective at diminishing the jumping, and can lead to more problematic behaviors, including aggression.

LITTER BOX TIPS

Boxes:

- Provide one litter box for each cat in the house, plus one additional box.
- Boxes should be in different locations around the house to provide multiple and different access points. In multilevel houses with multiple cats, litter boxes should be offered on each floor level.
- Boxes should be easily accessible, especially for young kittens, physically disabled cats, and elderly cats.
- Avoid placing boxes in high traffic zones or very remote locations.
- Most cats prefer uncovered boxes.
- Boxes should be large enough for the cat to comfortably move around in the box. The box should be at least 1.5 times the length of the cat. Consider getting a plastic storage container to use as a litter box, if commercially available litter boxes are too small.
- Since plastic can absorb and retain odor over time, boxes should be replaced annually.
- Do not bother a cat when it is in the litter box as this may create an aversion to the litter box.

Litter:

- Most cats prefer unscented, clumping (fine, sand-like clay) litter.
- Offer enough litter so that the cat can dig/cover adequately (at least an inch in depth).
- Plastic litter liners may be aversive to some cats.
- Some cats have unusual litter preferences. To test a specific cat's preference, a variety of litters can be offered simultaneously and the preferentially used litter retained.

Cleaning:

- Most cats prefer a pristine litter box.
- Boxes should be scooped at least once daily.
- Boxes should be completely changed with a box washing on a regular basis. This may vary from weekly to monthly depending upon the litter type, cat's hygienic standards, and box usage. Old litter should be dumped, the box washed with liquid soap/water, rinsed thoroughly with water, and filled with new litter. Avoid using harsh chemicals when cleaning as these may repel the cats from the box. If a box needs extensive soaking/chemical treatment to clear the odor, then it is time to purchase a new box.

MANAGING NOISE AND STORM PHOBIAS

When the problematic noise or storm is occurring, how you manage the situation can help your pet cope and hopefully minimize your pet's distress.

Medication is a useful adjunct for very distressed pets but should only be used under veterinary supervision. Make sure to have prescribed medication on hand. Event medications work best if given at least 30 minutes prior to the stressful situation. Some severely affected animals may be prescribed daily medication during storm season or other noisy periods like the 4th of July holiday period.

Pitfalls to avoid:

- Punishment must never be used since it will only increase rather than decrease your pet's distress.
- Encouragement, praise, or fostering are not helpful either as the pet may interpret them as rewards for the behavior they are performing at the time.
- Try to remain calm yourself. If you are calm, it will help your pet.

Useful interventions:

- If possible, make sure your pet is not alone during the stressful event.
- Create a safe and secure environment for your pet. This might be a darkened room where lightning flashes will not be noted or a windowless indoor room where sound is muted.
 - If your pet has self-selected a hiding place, do not try to forcibly remove them. This is not helpful and may result in an aggressive response.
- Try playing music that is loud or has a strong beat or some type of white noise (such as an exhaust fan) to muffle the outside noises that cause the distress.
- Playing with familiar toys, engaging in games, or practicing obedience may help to distract the pet.
- Use of a head collar and leash may offer additional control and can be calming for some dogs.
- If you have pretrained your pet to go and settle on a mat, bed, or other location, use this strategy to help calm the pet.
- Finally, once the event has passed, be proactive and contact your veterinarian for information on how to start desensitization and counterconditioning exercises to help your pet cope better with the next episode.

MAXIMIZING TREATMENT SUCCESS

Rewards

Identify very valuable rewards for the pet that you are training; for most dogs this will be delectable food treats. The treats should be tiny (less than 1 cm in length) and readily consumable. Some options include soft jerky treats cut into tiny pieces, small pieces of hot dogs, small cubes of cheese, small strips of deli meat, etc. Consideration should be given to any medical dietary restrictions.

Target Fist

When an animal is trained to attend to a target, they will follow that target, allowing the handler to easily lure them into certain positions (e.g., sit) and to redirect their attention away from competing attractions. Using the closed fist as the target makes great sense, since it is always with us. It also is a natural place to hold a treat. To train a pet to a target fist, simply put the tiny tasty treat in your hand and close the hand into a fist. Allow the pet to smell the closed fist, then release the treat. Usually after two to three repetitions, the pet readily focuses on the closed fist in anticipation of a tasty morsel. Then the fist can be manipulated in different directions. Where the closed fist goes, the head follows and then the body follows. If the target fist is brought from the pet's nose up and back over the head in a gentle arc, the pet will sit; if the target fist is brought up toward the forehead, the pet will make eye contact, etc. As the pet successfully completes these tasks, it is rewarded by release of the treat from the target fist. Once the pet has established great compliance with following the target fist, the food rewards can be intermittent from the fist.

Giving Commands

Many people yell commands repeatedly at their dogs in order to achieve compliance. In all pets, but especially those with behavioral problems, yelling/loud voices can increase arousal levels and/or aggravate anxiety. Both of these consequences are counterproductive when you are trying to teach a pet to respond in a tranquil manner. Before giving the command, gain the pet's attention by saying their name, then the command should be given in a gentle voice and there should be a pause to allow the pet to respond. Responses are rewarded. Nonresponse or undesirable behavior is not rewarded, if the pet has a head halter on, you may be able to gain compliance with some gentle pressure. If this is not possible, the situation needs to be changed so the pet can be compliant.

A pet that has anxiety or a competing undesirable response needs constant direction when exposed to the provocative stimulus. The pet should stay engaged with the handler via a constant dialogue. For example, the handler can say "Sophie, sit. Watch me. Stay. Watch me. Stay. Watch me." Success is unlikely if the pet is given a single verbal command such as "stay" and expected to hold that command for a prolonged period with the distraction present.

Principles of Rewarding

When you are first establishing a new behavior, valuable rewards should be given every time for success. When the new behavior is firmly established, the rewards can be intermittent. For pets that have particularly challenging behaviors that we are trying to change their response, consistent fabulous rewards will need to be maintained for significant periods before moving to an intermittent reward schedule. Rewards should be given immediately after the task is completed. Praise should always be part of the reward package in addition to other rewards such as food treats.

SAFETY RECOMMENDATIONS FOR AGGRESSIVE ANIMALS

- All animals have the potential to bite. The only way to absolutely guarantee no aggression is euthanasia.
- Animals usually give preliminary warning postures prior to an actual bite; all warnings should be heeded and all interaction with the animal discontinued.
 - Dog aggression warnings: body tensing/stiffening, intense stare, pupils dilated, growling, snarling (lifts their lip and shows teeth), lunging, snapping
 - Cat aggression warnings: tail rapidly flicking, ears pinned back, pupils dilated, hiss, growl, swat
- Interaction with the animal should only be resumed again when the animal is no longer aggressively aroused, which may be difficult to determine, so caution is needed.
 - The aggressively aroused pet should be segregated in a secure location with necessary resources and minimal stimulation until the pet is calm again. Periodic visits to the containment may allow owner to assess the animal's reactivity and ability to rejoin the household.
 - For cats, there may be a prolonged recovery period; it can take hours or days for them to return to a calm state.
- To decrease aggressive episodes, avoid all known situations that trigger aggression.
 - If your pet exhibits warning signals or actually bites when you physically interact with them, then this interaction must be avoided. This may include petting, hugging, pushing, stepping over them, grabbing by the collar, picking them up, wiping feet, cleaning ears, etc.
 - If your pet exhibits warning signals or actual bites when you approach his/her food or when in possession of a toy, chew bone, or stolen item, this must be avoided.
 - If your animal is aggressive around human food, they should not be in the room while food is being prepared and consumed. Children must not walk around the home eating food if the animal is in the house.
 - If your pet is aggressive around their pet food then one should:
 - Prepare the pet's food when the pet is outside or contained in another area of the house.
 - Place the prepared food in a room that can be closed/locked.
 - Let the pet into the room with the food.
 - Close and lock the door, allowing the pet to eat without any contact.
 - Once the food is consumed, let out the pet and put outside or contain in another area of the house.
 - Once the pet is contained away from the feeding room, the human can go into the room and retrieve the food bowl and put it away.
 - If your pet is aggressive toward children, they must never be left alone with the children. An adult must closely supervise all interactions. If close supervision is not possible, the pet needs to be confined away from the children. Muzzles may be appropriate in some situations.

- If your pet aggresses toward visitors to your home, the pet must be confined before visitors are allowed in the house.
 - The pet should be placed in confinement by an adult.
 - The confinement must be some place secure such as a room with a lock, a kennel or crate, or a fenced back yard.
- If your pet exhibits aggression when outside in the yard, they must not be outside alone. They should be supervised by an adult and preferably on a leash for additional control. They must never be left outside when no one is home.
 - The yard should be securely locked at all times so that people cannot get in and dogs cannot get out.
 - Do not tether aggressive dogs in the yard or any public place.
 - Electronic containment systems should not be used with aggressive animals.
- If your dog shows aggressive behavior to other dogs, avoid walks in high traffic areas or where you are likely to encounter other dogs.
- If your cat shows aggressive behavior to other cats in the neighborhood, outdoor access is not advised.
- Avoid all physical reprimands, as these are likely to increase rather than decrease aggressive responses.

SEPARATION ANXIETY TREATMENT PROTOCOL

- During treatment for separation anxiety, it would be best not to allow your dog to experience anxiety during your departures. So, apart from the very defined and controlled training departures, your dog would not be left alone. Doggie day care or taking your dog to work are options for people that must work outside the home. If you are unable to avoid anxiety-ridden departures, you should make a clear distinction between “safe” training departures and other departures that will most probably evoke the anxiety. The most effective way to do this is to leave the dog in different locations for the training versus nontraining departures. Alternatively, a sound cue can be used to differentiate training from nontraining departures.
- Most dogs become anxious as you go through preparations for departure. Therefore, you must work on desensitizing your pet to your predeparture cues. List your predeparture cues (e.g., pick up keys, put on shoes, etc.) that trigger anxiety in your pet. Then start to perform these randomly when you do not intend to leave. Do not overwhelm your dog to the point of eliciting anxiety; just do a few a day at an intensity level that your dog can handle.
- Many dogs with separation anxiety are very attached to their owners. Making them more independent is a useful adjunct to the treatment plan. To increase your dog's independence when you are home, do not allow your dog to follow you everywhere. For example, instead of sitting right next to you while you are relaxing at home, have the dog sit a few feet away from you. Or when you go up to go to the bathroom, don't allow the dog to follow you. To achieve this gradual independence, you can use sit/stay commands, tie-downs (a leash attached to a sturdy piece of furniture), or close doors. The key is that you want to progress gradually enough so that you don't elicit the anxious response from your dog. If you do happen to progress too rapidly and your dog exhibits anxiety, just return to a comfortable level and progress more gradually.
- If you are using a crate during training departures, you first want to acclimate your dog to being in the crate when you are at home. Do one to two sessions per day. Start by putting your dog in the crate with a tasty treat and then sitting in the same room for a short period of time (a few minutes) perhaps reading a book. Release your dog from the crate. Gradually increase the duration of the sessions until your dog is comfortable in the crate for 30 minutes when you are in the room. Then start to leave the room, initially just for a very short period. Gradually increase the duration of your room departure until you can be elsewhere in the house for 30 minutes while your dog is comfortably resting in the crate. How quickly you progress will depend upon your dog. You do not want to elicit anxiety (panting, whining, barking, escape attempts, destruction, etc.) from your dog.
- If crate training your dog is not possible, train your pet to settle and relax in a safe location. See the Tranquility Training Exercises handout for more details.

- When you must leave, keep departures and returns low key. Ignore the dog for 5–10 minutes prior to ALL departures and whenever you return. Always take your dog out for an elimination opportunity prior to your departure.
- Exercise is important for the health of any dog. Try to provide daily exercise for your dog, ideally prior to your departures.
- On training departures only, present the dog with a new signal or cue or leave them in a novel location. This can be the radio or television left on, spraying air freshener, or ringing a bell. Always use the same signal on all planned departures.
- Give the dog a delicious but long-lasting food item to consume in your absence. Toys stuffed with food work best.
- **Departure Desensitization:** This is the critical part of the behavioral modification program. You need to start with short departures and gradually increase their length. A videotape of your dog during a departure can help you to see the length of departure that is “safe”—the amount of time that you can be absent before your dog starts to show signs of anxiety. Most dogs become anxious very shortly after the owner's departure. When you start to actually leave the home, you should start with safe departure times and then gradually increase departure length. An example of a departure schedule is 1 minute, 1 minute, 1 minute, 3 minutes, 2 minutes, 3 minutes, 4 minutes, 5 minutes, 5 minutes, 1 minute, 5 minutes, 7 minutes, etc. There is an occasional shorter departure so that your dog doesn't start to anticipate your departure length. Of course, the departure schedule needs to be tailored to your dog. You may find that your dog needs fewer or greater number of trials at each departure length. Usually, after you have successfully completed the first 30 minutes of departure, you can increase the departure lengths by greater increments (1 hour, 1 hour, 1.5 hours, 1.5 hours, 2 hours, etc.). Remember that your dog can hear your car and knows if you have truly left. Even during the 4-minute departures, you will have to actually drive away! When your dog has achieved relaxation at a departure duration that is typical of your routine departures, your dog has successfully completed the program and should be left in the training departure location for your routine departures.
- If at any time your dog exhibits anxiety or you return to find signs of destruction/elimination, then you have progressed too quickly. Return to a “safe” departure time and progress more gradually.
- Never punish your dog for behavior that has happened in your absence. This behavior is a result of anxiety, and punishment will probably make your pet more anxious.
- Vary the time of day that you practice planned departures.
- Progress through the schedule of planned departures gradually. Do not increase the time away in a regular progression and never increase the time if the dog has engaged in any separation-related behavior while you were gone.

STRUCTURING YOUR RELATIONSHIP WITH YOUR PET

Why: Structure and predictability can be a very important for animals, especially those that suffer from anxiety. By providing guidance to the pet during all interactions and rewarding calm and quiet behavior, you establish a new way of relating to your pet that rewards desirable behavior and provides added structure and predictability for the pet. You are also constantly practicing having your pet respond to your commands when there are relatively few distractions. This will increase the chance that your pet will be able to focus on you when there are distractions present.

When: This program is integrated into your everyday life and all interactions with your pet. It is not to be done during a “special training session” but instead is a fundamental and long-term change in the way you interact with your pet. Every time you interact with your pet, you should first ask the pet to do a command.

Who: All family members should abide by these new rules for pet interaction. All dogs in the home can participate.

How: It is important that the human involved in these interactions remains calm, controlled, and patient. These exercises are not about forcing a dog to respond; it is a simple request and, if completed correctly, compliance is rewarded. Commands should be given in a soft, calm voice—do not shout or repeat commands. Say the pet's name, then the command, then pause and give the pet a chance to respond. Use commands that your pet knows: For some pets, you may use the sit command frequently. For others, they will have a larger repertoire of commands to select from, such as sit, down, shake, watch me, etc. Noncompliance is not rewarded; essentially the dog is ignored for noncompliance. However, you can try giving another command in a few minutes. Once the dog “learns” the new system, they are usually very compliant.

Giving attention to your pet: Attention-seeking behaviors such as pawing, barking, meowing, jumping up, etc., should be ignored—no attention should be given. This includes eye contact, touching, or speaking to the pet. Attention should not be given on demand, but either for compliance with a command as described above or when the pet is calm and quiet. If your pet is asking for attention by standing or sitting quietly, ask the pet to comply with a command and then pet them. The goal is not to ignore the pet, but rather ignore the attention-seeking behaviors. If this is too difficult, try a signaled nonattention time. For a set period of time (perhaps using a timer), you will not pay any attention to your pet's demands for attention. To help the pet understand what is happening, you can also add a signal such as a towel or blanket on your lap. When the time begins, place the towel on your lap and ignore the pet. When the time limit has ended, remove the towel. For the rest of the time try to ignore attention-seeking attempts and have your pet earn all things. As your pet learns what the signal means, they often will go lay down when they see the towel come out.

Structured interactive time: All pets need social interactions, play, exercise, and grooming. Make sure to incorporate these into your regular routine on a predictable

basis. If the pet knows that play time, a walk, or petting are forthcoming, they often can be relaxed and calm at other times.

What: As a general rule, your pet should be given a command before engaging in all interactions. This includes giving any attention, food, access to new areas, etc., to your pet. While many people are “trained” to give a command to their dog before giving a treat or a meal, most people give away attention for free. Therefore, you may need to focus on making sure you request a command prior to all social interactions with your pet. Listed below are four possible responses from the pet and the recommended human reaction to these responses. Also noted are common errors in human response that you should avoid.

Dog's response to command	Human action	Avoiding common errors
Your dog responds immediately to your command.	Provide the dog with a reward. The reward may be attention, food, access to a different area, etc.	Some people reward noncompliance—don't do this!
Your dog does not respond to the command.	Give no reward and terminate interaction with dog (e.g., look away, walk away, etc.).	Do not repeat command multiple times. Do not physically manipulate dog into compliance. Do not inflict interactive punishment for noncompliance.
Your dog anticipates the command and performs it <i>before</i> your request.	Ask the dog to perform another command prior to rewarding.	Don't reward the action if you didn't give the command; these exercises are intended to improve leadership and encourage the dog to look to humans for direction.
Your dog exhibits aggression either during the command request or during delivery of reward.	Aggression always results in social isolation. Immediately turn away from the dog and exit the area or put the dog in a time-out spot until it has calmed down. This social isolation is a form of punishment and gives the dog a chance to calm down.	Do not interactively punish the dog: aggressive dogs are aroused, and interactive corrections may serve to escalate the aggression. If the dog is aggressing, trying to escort it to a time-out spot may be dangerous. If this is the case, just leave the dog alone where the incident occurred.

TEACHING A NEW RESPONSE TO THE DOORBELL

- Until the new behavior is mastered, it is important to avoid the full strength stimulus (stranger coming up to the front door).
- Daily training exercises lasting 5–10 minutes should be performed.
- Identify fabulous rewards for the dog; usually this is delectable tiny food treats.
- Start the training with no distractions present (nobody at door, house quiet, other pets elsewhere).
- The dog should be taught to go to a greeting spot (mat, rug, bed) on voice command; the spot should be within sight of the front door but a few feet away from it. Only proceed to the actual door work when the dog can reliably go to the greeting spot and hold the sit/stay for 10 seconds when there are no distractions. See Tranquility Training Exercises handout for additional training tips.
- Set up daily exercises with one family member handling your dog and the other family member being a “visitor.” The family member playing the “visitor” should have spent time with the dog just prior to doing the training exercises.
- The dog should be on a leash or there should be some type of barrier across the door that allows full visualization of the “visitor” but no access (screen door/baby gate) to the outdoors.
- Have the “visitor” approach the open door and either knock gently or ring the doorbell. The handler should give the command to your dog to go to the greeting place and sit/stay. Reward good behavior. Since the stimulus level is low (familiar person, recently seen them) the dog should be able to perform the desired behavior and be rewarded.
- If the dog isn’t compliant, give no reward and reduce the intensity of the exercise (maybe leave out knocking/doorbell ringing) at the next attempt.
- Repeat until the dog is very obedient about going to the greeting location every time the “visitor” approaches the open door and knocks/rings.
- Then close the door slightly so that it is open three-quarters of the way and repeat the entire sequence.
- Continue gradually closing the door over multiple sessions until the “visitor” can approach a closed door and knock/ring and the dog will hold a sit/stay at the greeting place as they enter the home.
- After this has been successfully completed with the family member as the “visitor,” try to recruit a less familiar person to be the “visitor.” Return to the open door and repeat until your dog will hold the sit/stay even with a nonfamily member knocking/ringing bell of a closed door and then entering the house.

In other situations, it may be necessary to just change the emotional state of the dog when they hear the doorbell before any training can begin. The exercise below may work better for some pets, especially those that bark excessively without severe aggression.

- Favored food rewards should be identified for the dog. These must be extremely delectable; generally this means table food.

- The dog is placed somewhere else in the home with one family member, but not restrained.
- Another family member quietly leaves the house and comes to the unlocked front door. They must also have a large supply of the delectable treat with them. If the dog could see them from windows, the windows must be blocked.
- They should ring the doorbell and the dog is allowed to run to the door unimpeded.
- As the outside person hears the dog approach, they open the door, throw the treats inside and close the door.
- When the dog gets to the door, if the correct food has been chosen, the dog will usually eat the treats and perhaps also bark.
- Then the outside family member rings the bell and throws in the treats again.
- A training session is usually only one to three repetitions since when the dog realizes it is a known person at the door, they may not bark.
- After several sessions, many dogs will decrease their barking or at least diminish emotional arousal to the doorbell so other training techniques can be utilized.

TEACHING “DROP IT” AND RETRIEVING STOLEN ITEMS

Teaching “Drop It”

The goal is to teach the dog to give up items with a verbal command. Two weeks of daily short (3- to 5-minute) training sessions should establish this command. Dogs with a history of severe aggression with object possession may need additional safety measures and counseling before attempting any training.

1. Start by using an item of low value that the dog has never guarded or stolen.
2. Identify a high value reward item. Rewards need to be hidden (e.g., treat pouch behind body or in a back pocket) so the dog will not be totally focused on the reward.
3. Since dogs are more likely to relinquish an item of which they only have partial control, you should start by engaging the dog in a gentle game of tug with a low value item. The human should stop tugging. With a low value item and no pulling on the item by the owner, the dog is likely to release the item. As the pet opens its mouth to release the item, the owner then pairs the verbal cue “drop it” and offers the pet a fabulous reward. Repeat several times so that the dog begins to pair the verbal cue with the action and subsequent reward.
4. If the pet does not relinquish the item, find a lower value item with which to practice or wait until the dog does relinquish the item (eventually it will let it go). Reward the dog when it releases the item.
5. Next, start to use the verbal cue as a prompt to drop the item, still stopping active pulling before making the verbal request.
6. With success, gradually make the request more challenging by allowing the dog to have full control of the item before requesting the drop and/or increasing the value of the item.
7. If the dog doesn't release the item, don't repeat the command multiple times or try to steal the items back. Simply withdraw all attention from the dog and don't give any reward. During the next training opportunity, modify the situation so success is more likely (less valuable item, retain partial control of item, etc.).
8. Repeat until the response is reliable, then begin to phase out the food by skipping the food reward on some repetitions.
9. As you increase the value of the item, you may need to reinstate continuous food rewards until the drop command becomes reliable.
10. Once the drop it command is well established, it can be used to retrieve stolen items.

Retrieving Stolen Items

This exercise should only be done by an adult who has control of the dog, **NEVER** by children. This exercise should only be used if the item is potentially dangerous to the dog or the item is highly valuable to the family.

1. Use highly valued rewards (i.e., table food).

2. Show the food to the dog from 5–6 feet away.
3. Give the command “come.”
4. When the dog leaves the item, back up and call the dog again and add, “sit.”
5. Repeat two to three times without giving the dog the food reward until he is at least 15–20 feet from the object, preferably in another room.
6. Give the dog the food reward.
 - a. If possible, gently take the collar and put the dog into another room with a closed door or outside.
 - b. If the dog will not allow you to touch the collar, do not attempt this; rather use another food reward to lead the dog into another room where you can shut the door.
7. After the dog is contained in another area securely away from the item, go and retrieve the item.
8. The exchange **NEVER** takes place right in front of the dog and the item.

TEACHING "LEAVE IT"

- This technique works best using a head collar and leash.
- To facilitate learning, start with low value items that the dog will willingly walk away from.
- With the dog wearing a head collar and an adult holding the leash, the dog is walked toward an item he may wish to pick up such as a ball or chew toy.
- As the dog reaches for the item, calmly say, "leave it" and turn the dog's head using the head collar and quickly offer a food reward and "good dog" as the head comes toward you.
- Repeat several times with low value items.
- As the dog learns the meaning of the phrase, he will begin to turn his head prior to the pull of the leash. Immediately reward that behavior.
- Progress to more valued items and gradually phase out food rewards while retaining verbal praise.
- Once the dog knows the command well, you can try letting him drag the leash and see if he can be called away from an item with a verbal prompt.
 - If the dog does not comply, use the leash to turn his head and reward him.

TEACHING YOUR PET HOW TO BE CONFINED

Having a safe and secure place for your pet can be reassuring. Keep in mind that confinement should not be problematic once a pet learns that it is safe and secure. But until the pet is comfortable being confined, he may resist. Therefore, it is important to slowly teach your pet how to be confined and relaxed at the same time.

1. Find a location where you wish to confine your pet when he should not be present in a given situation.
 - a. This can be a bedroom, laundry room, crate, or kennel but should be someplace that can be securely closed and locked.
2. Place the pet in the area with a distraction such as a food stuffed toy, a feeder toy, or catnip.
 - a. If the pet is to be put in a crate and has not been in one before, you may need to leave the door open or take off the top to make it more acceptable.
 - b. A family member should also be present but engaged in another task such as reading a book and not interacting with the pet.
3. Stay with the pet in the area for a predetermined amount of time. A good starting point may be between 2 and 10 minutes.
 - a. If the pet is calm and quiet at the end of the allotted time, the pet can be released.
4. If the pet is unable to be calm and quiet, you must first work on teaching how to settle and relax on a verbal command. See handout on Tranquility Training Exercises.
5. Gradually increase the amount of time the pet is in the location, but always intersperse short confinement times with longer ones.
6. Once the pet is doing well with a family member present, the family member can step outside briefly and then return.
 - a. It is important to ignore the pet upon return and calmly sit down.
7. Gradually increase the amount of time outside the room, but again, always intersperse short departures with longer ones.
8. Always provide a distraction such as a food stuffed toy.
9. Try to avoid letting the pet out when he is barking, meowing, whining, crying, or scratching; an exception should be made if the pet is in a state of extreme panic.

TRANQUILITY TRAINING EXERCISES

Listed below are guidelines for a series of daily training exercises, taking less than 10 minutes to complete. These are the foundation work for later desensitization and counterconditioning exercises. It may be more successful to start with the dog on leash and head collar, then progress to off-leash training on the second rotation through the exercises. If the dog's problematic behaviors only occur outside the home, do all the tranquility training on leash. If a dog routinely gets bored, distracted, agitated, or distressed during these exercises, they can be broken down into two 5-minute sessions. The person with the most control over the pet should begin the training first.

- Find a quiet place in your home for initial training.
- In some cases, you may want to use a small rug or bed as a location to train your pet to settle and relax.
 - Using a rug or bed will allow you to take this item to other locations where your pet may need to be calm. Naturally if the problem occurs outdoors, this is not necessary.
 - Having a reliable “go to X” command is very helpful for a wide range of undesirable behaviors ranging from obnoxious greeting behaviors to aggression.
 - This can be used in separation anxiety exercises for independence training and teaching a safe place to remain when alone.
- In all of the exercises, the dog has to do a simple command (sit or down) and then remain in that position and in a tranquil state to gain the reward.
- You may want to add in a key phrase like “relax” or “easy” to teach the dog to associate relaxation with sit/down and stay.
 - The goal is for the pet to be relaxed and calm.
 - Relaxation is measured by watching the facial expressions and body postures of your pet; ears should be relaxed and the body soft and loose.
 - You also want slow and relaxed respirations.
- As you progress through the exercises, the handler will start to engage in mild distractions during the command phase.
- Remember that the handler throughout the exercise should give the dog verbal direction. The distractions will become greater as the training progresses.
- Noncompliance is not rewarded. Just turn away, take a short (e.g., 30-second) break, and adjust the exercise to increase chances of success then try again.
- Between each exercise, the dog should break the sit, get up and move, and sit again. To get this to happen, the handler can move to another spot in the room and call the dog to them for the next exercise.
- The first round of these exercises should be done inside the house with minimal household distractions; other dogs should be confined elsewhere, it should be quiet, etc.
- The second round can be in slightly more distracting circumstances such as in a secure yard.

- Once the dog has successfully completed these exercises in at least two different locations, you can progress to desensitization and counterconditioning to the trigger stimuli.

Example Training Day

Day One

1. Sit
2. Sit, watch you for 2 seconds
3. Sit, watch you for 5 seconds
4. Release for a rest
5. Go to spot, sit
6. Sit, watch you for 3 seconds
7. Sit, watch you while you take one step backwards and return
8. Release for a rest
9. Go to spot, sit, stay for 3 seconds
10. Sit, watch you while you raise your free arm to chest level and return it to your side again
11. Go to spot, sit, watch you for 10 seconds
12. Sit while you walk one step to the right and return
13. Go to spot, sit while you walk two steps backward and return
14. Sit, watch you for 5 seconds
15. Go to spot, sit while you walk three steps backward and return
16. Sit, watch you for 5 seconds

Day Two

1. Repeat steps 1–16, varying the time the pet remains in place from 3 to 10 seconds
2. Vary the direction of movement; go left then back, swivel and turn away one step and return, or turn in a circle or march in place
3. Vary the distraction, perhaps clapping your hands softly two to three times

Subsequent Days

1. For the remainder of the first week, continue to vary the amount of time the pet remains stationary in each step.
2. Continue to vary the distractions, include jumping jacks, knocking on furniture, talking, jogging in place, turning your back on the dog, etc.
3. After a week, return to Day One and repeat in a different location.
4. Repeat with different family members handling the pet.

USING CLASSICAL COUNTERCONDITIONING TO CHANGE EMOTIONAL STATE

When a pet is showing an undesirable response to a stimulus, that response is usually associated with an underlying emotional state that is also undesirable. Anxiety, fear, and aggression are common motivational emotions for unwanted pet responses. To help the pet respond in a different way, it is useful to change the association with the stimulus and hence, the underlying emotional state. The goal is to change the meaning of the stimulus from one that predicts something unpleasant to one that predicts something desirable. Although some animals will respond to play, for most animals, the best way to do so is using food.

- A first step in changing a response to a stimulus is to attempt to grade the response across varying characteristics of the stimulus. In other words, how does the pet respond to the stimulus as that stimulus changes either in its proximity, speed of approach, location, or other characteristics such as sound or size.
- The next step is to find a reward that the animal finds especially enticing (an “A” treat), usually food and especially table food. It is important to have a gradient of reinforcers, from those that are extremely desirable to those that are less so. Extremely desirable rewards are saved for training and conditioning sessions.
- Finally, two simple tasks must be taught to the pet.
 - The first is a task to get the pet’s attention. This can be as simple as teaching the pet to look at you using a phrase such as “watch me” or “focus.” The goal is for the animal to have eye contact for several minutes but remain neutral and relaxed. A leash and possibly a head collar should be used for additional control.
 - The second is a following command that allows you to leave the situation. The dog should learn to associate a phrase such as “let’s go” with turning 180 degrees and briskly walking the other way. This should be performed quickly, but without anxiety or tension.
- Once the gradient of response to the stimuli and the gradient of rewards have been established and the pet can focus and then leave on command, it is time to begin the conditioning. Begin with the stimulus at the predetermined distance at which little or no response is noted. Have the “A” treat ready. Ask the pet to “focus” and begin feeding the treat regardless of what the pet does as long as they are not lunging or barking. They can look at the stimulus. As the stimulus gets closer to the predetermined spot where undesirable behavior is going to begin, quickly but calmly exit the situation using the “let’s go” command. Do several repetitions at the same distance.

Avoid the following pitfalls, which will make progress more difficult.

- All situations known to elicit undesirable responses must be avoided. This may mean curtailing walks, confining the dog when visitors come over, not allowing the dog outside in the yard unattended and off leash, not allowing aggressive displays at windows, doors, and fences.

- Do not attempt to remain longer than the dog can behave. If the dog becomes very reactive, the stimulus was too close or too intense, and future sessions must have better control of the stimulus intensity. You may need to be quite a distance away for the dog to be calm and controlled. Remember, the dog learns best when calm.
- Limit the number of exposures within a training session. You want the dog to be successful and end each session on a positive response.

The goal is for the dog to learn to associate the sight of the stimulus with something pleasant. This treatment can often help decrease the arousal level so that the dog can be controlled during the situation.

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