

VETERINARY MNEMONIC SERIES

Small Animal Infectious Diseases Mnemonic Cartoons

(Bacteria-Viruses-Protozoans)

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PREFACE

Classical books are not the only way to store information. You can fit the symptoms, clinical signs, and treatment options of a disease in a tiny drawing. The main purpose of this cartoon book is to show veterinarians that it is possible to learn the countless diseases they encounter in a permanent and easy way.

In this book, which can be considered as interactive, you, dear readers, are expected to carefully examine the drawings and create a story. This story must include your experiences and knowledge about the disease, as well as the events, places, and medical terms that are included in the drawing. In this way, you will have your own 'disease mnemonic' that is completely unique to you.

Bacterial Infections

Bartonellosis

Cause: *Bartonella henselae*, *B. clarridgeiae*, *B. koehlerae*, and *B. bovis*

Signs: Fever, heart valve abnormalities, lymphadenopathy, uveitis, gingivitis, endocarditis

Treatment: Macrolides (azithromycin) - fluoroquinolones (enrofloxacin)

Bartender hensley is alone

B. hensloe

on Valentines Day and ...

Valve (Heart) → anemia → Lymphadenomegaly



... the bar infested by fleas

↓
Intravascular
infection

↓
Blood sucking
arthropods esp. fleas

Brucellosis

Cause: *Brucella canis*

Signs: Lymphadenopathy, splenomegaly, reproductive failure, testicular atrophy, epididymitis, sterility, abort.

Treatment: Minocycline and dihydrostreptomycin-Ovariohysterectomy and castration

Bruce's absurd camel enzo

Bruella abortus suis canis melitensis

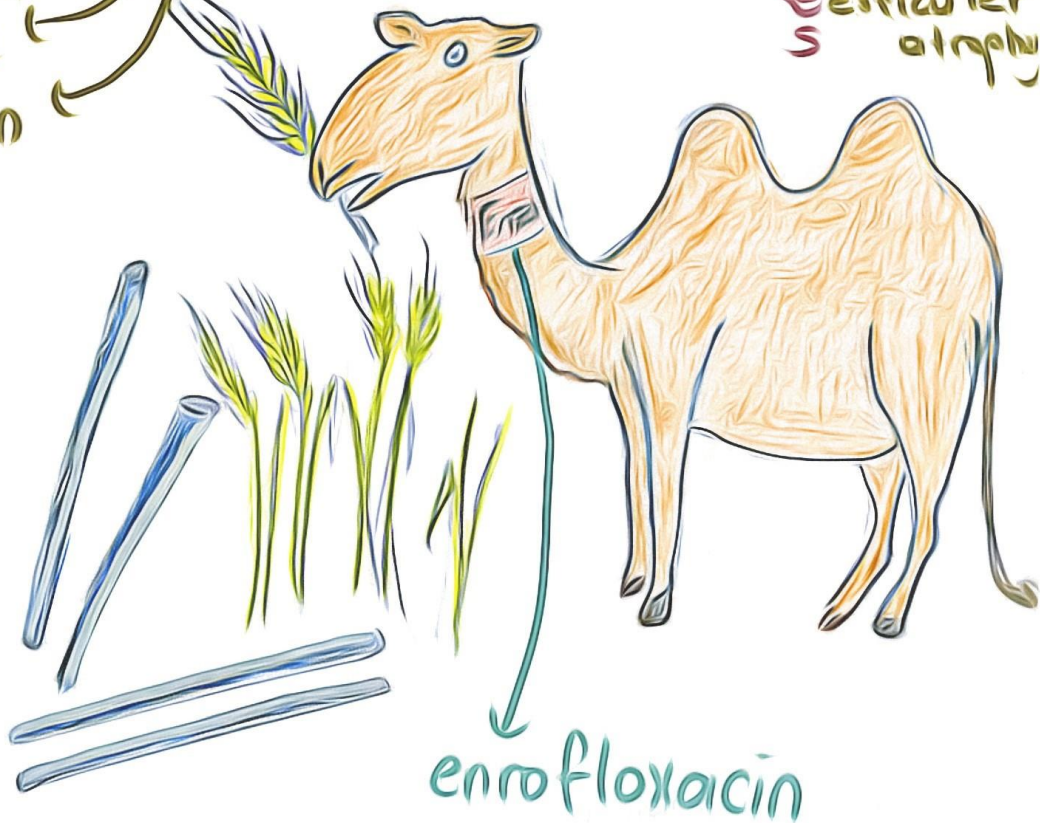
has amused with

aborts
milk
urine
semen

discharges

Reproductive
Organs and
Steroid
dependent

Orchitis
aborts
testicular
atrophy



Lyme

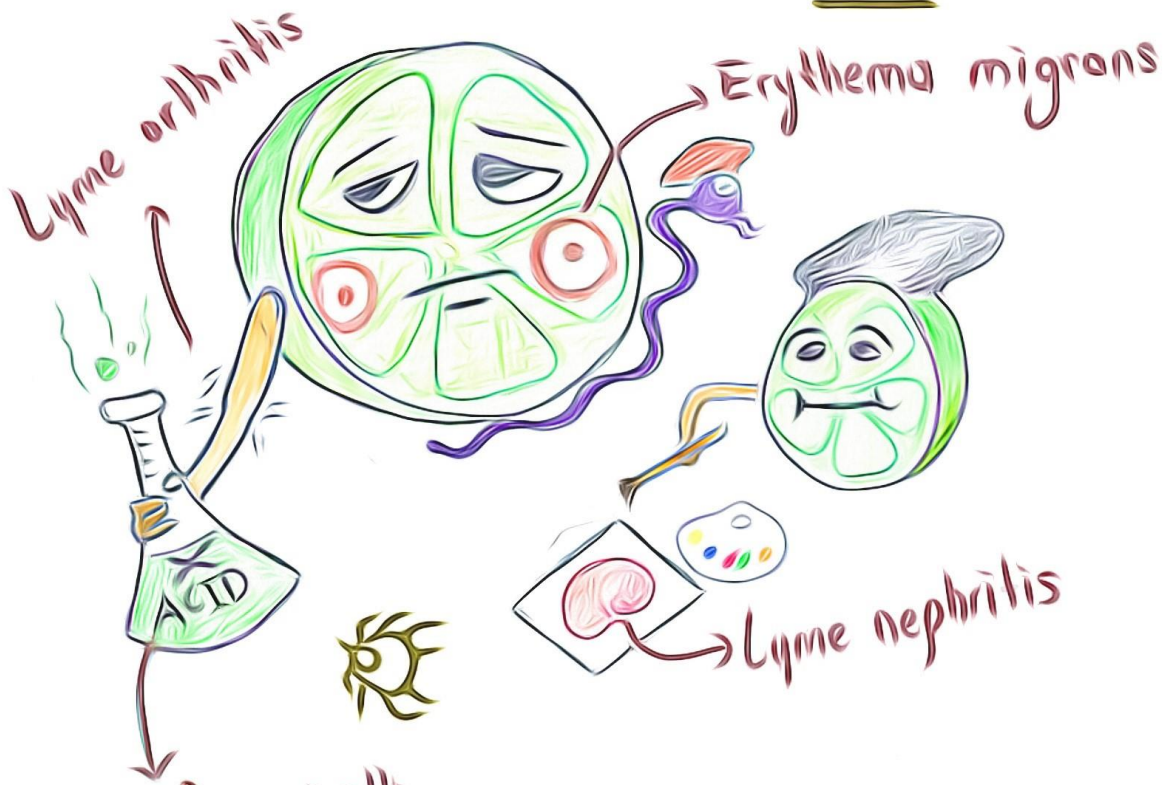
Cause: *Borrelia burgdorferi*

Signs: Polyarthropathy causing shifting-leg lameness, swelling and joint pain
chronic arthritis, protein-losing glomerulopathy, erythema migrans

Treatment: Doxycycline, Pain relief

Borrelia

Bored Lime's nephew is an artist



Amoxicillin
Ceftriaxone
I (1 month duration of treatment)
Doxycycline

Leptospirosis

Cause : *L. icterohaemorrhagiae*, *L. canicola*, *L. pomona*, *L. bratislava*,
L. grippotyphosa, and *L. autumnalis*

Signs : *Icterus, renomegaly, splenomegaly, hypokalemia, AKF*

Treatment : *Supportive care for acute renal failure, penicillin, amoxicillin, doxycycline*

Doxycycline

IV Penicillin



Warmer parts of the year

Thin, elongated coiled, hooked end

Na-K ATPase inhibition (hypokalemia)

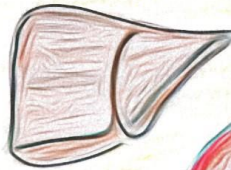


Small rodents reservoir



Anemia

Cortical hyperplasia
Renomegaly
AKF



Splenomegaly



Caudodorsal interstitial pattern

Jaundice

Nocardiosis

Cause : *Nocardia* species

Signs: *Cutaneous - SC lesions, superficial abscesses, indurated masses (mycetomas)*

Treatment: *Superficial disease initially respond to treatment, many are euthanized due to deterioration despite treatment or recurrence of disease.*

Nocturnal Superman has
found Sapphire on the soil
Nocardia Saprophytic Soil organism



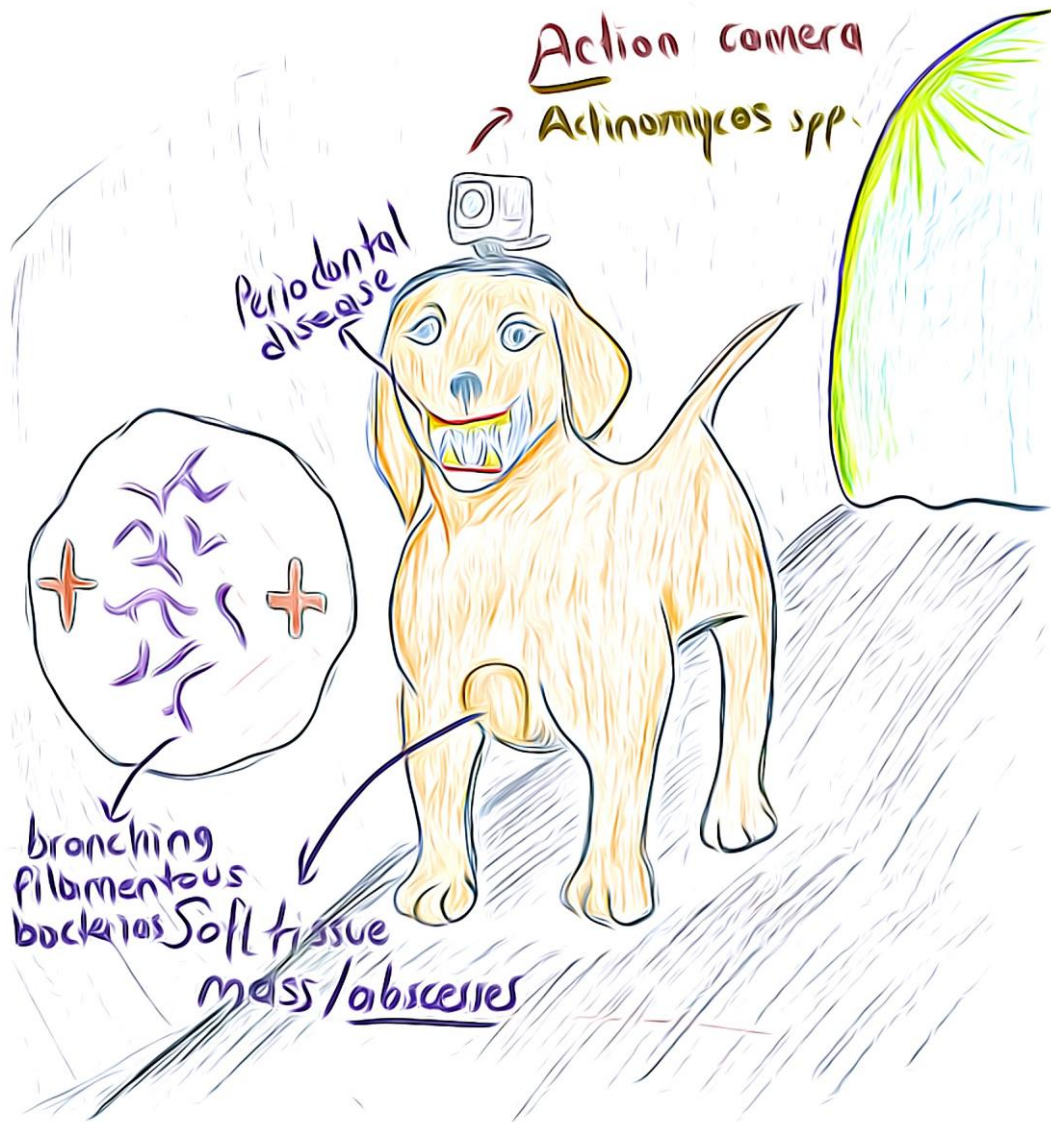
Actinomycosis

Cause: *Actinomyces* spp

Signs: Periodontal disease, SC or soft tissue abscesses,

Treatment: High dosages of penicillins

The dog with the action camera
found a new cave painting



Enteric Bacterial Infections

Cause: *Clostridium* spp. *Salmonella* spp. Enteric *Escherichia coli* (E. coli) Infections

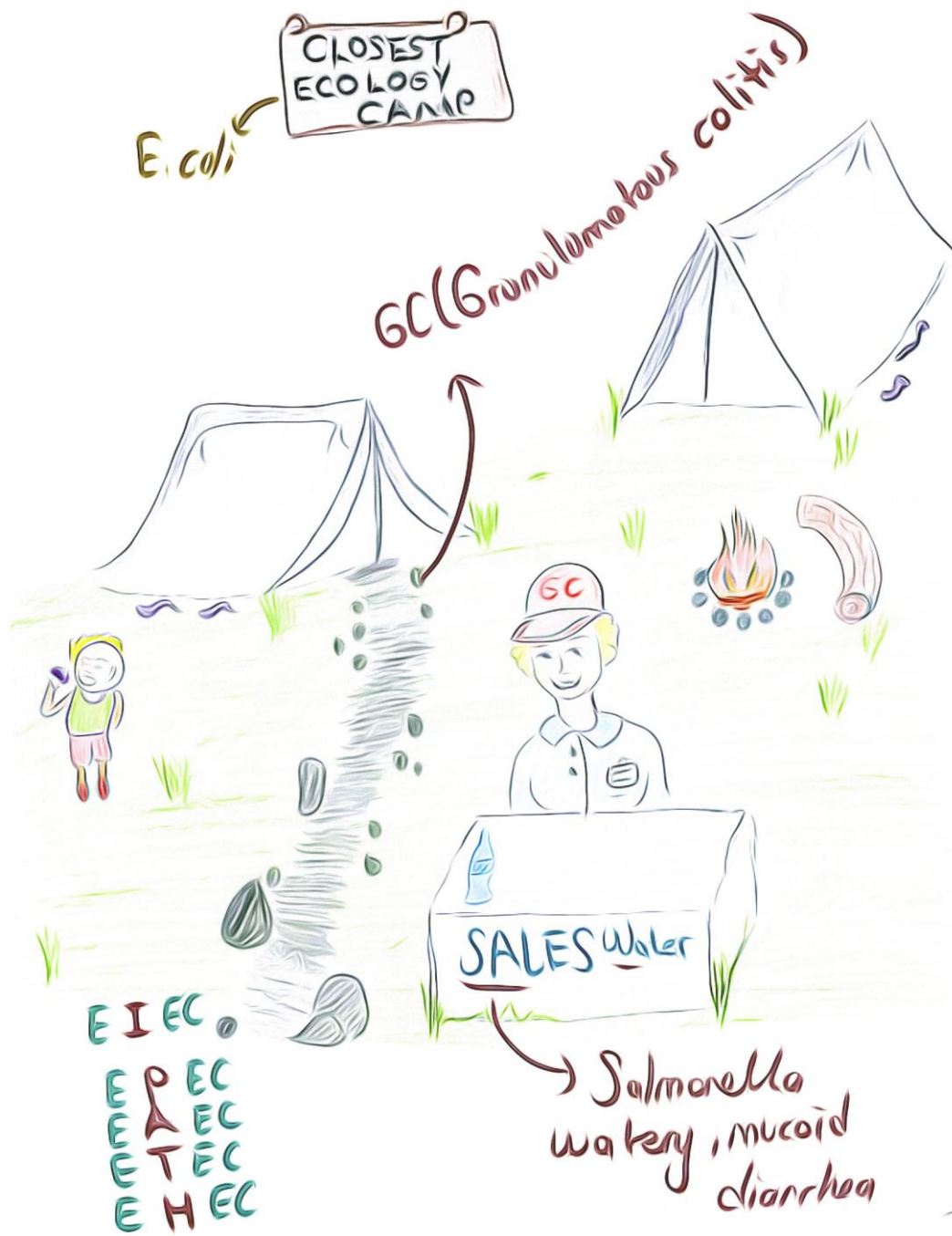
Signs: Diarrhea, dehydration

Treatment:

C. Perfringens- ampicillin metronidazole, tylosin

Salmonella- fluoroquinolones, chloramphenicol, trimethoprim-sulfonamide, amoxicillin.

GC can show dramatic responses to treatment with enrofloxacin



Hemotropic Mycoplasmas (Hemoplasmas)

Cause:

Mycoplasma haemofelis *Candidatus*

Mycoplasma haemominutum

Candidatus Mycoplasma turicensis

Mycoplasma haemocanis

Candidatus Mycoplasma haematoparvum'

Signs: *Lethargy, pallor, weakness, Inappetence, dehydration, weight loss, intermittent fever*

Treatment: Doxycycline

The Hemp Picture is need a

Hemotropic
mycoplasmas

Wall

wall-less
organisms

→ Romanowsky
Stain



Flute

Comb (+Coombs
test)

Fluoroquinolones

Tetracycline

Rickettsiales

Cause:

Anaplasma phagocytophilum (Canine Granulomatous Ehrlichiosis)

Rickettsia rickettsiae (Rocky Mountain spotted fever)

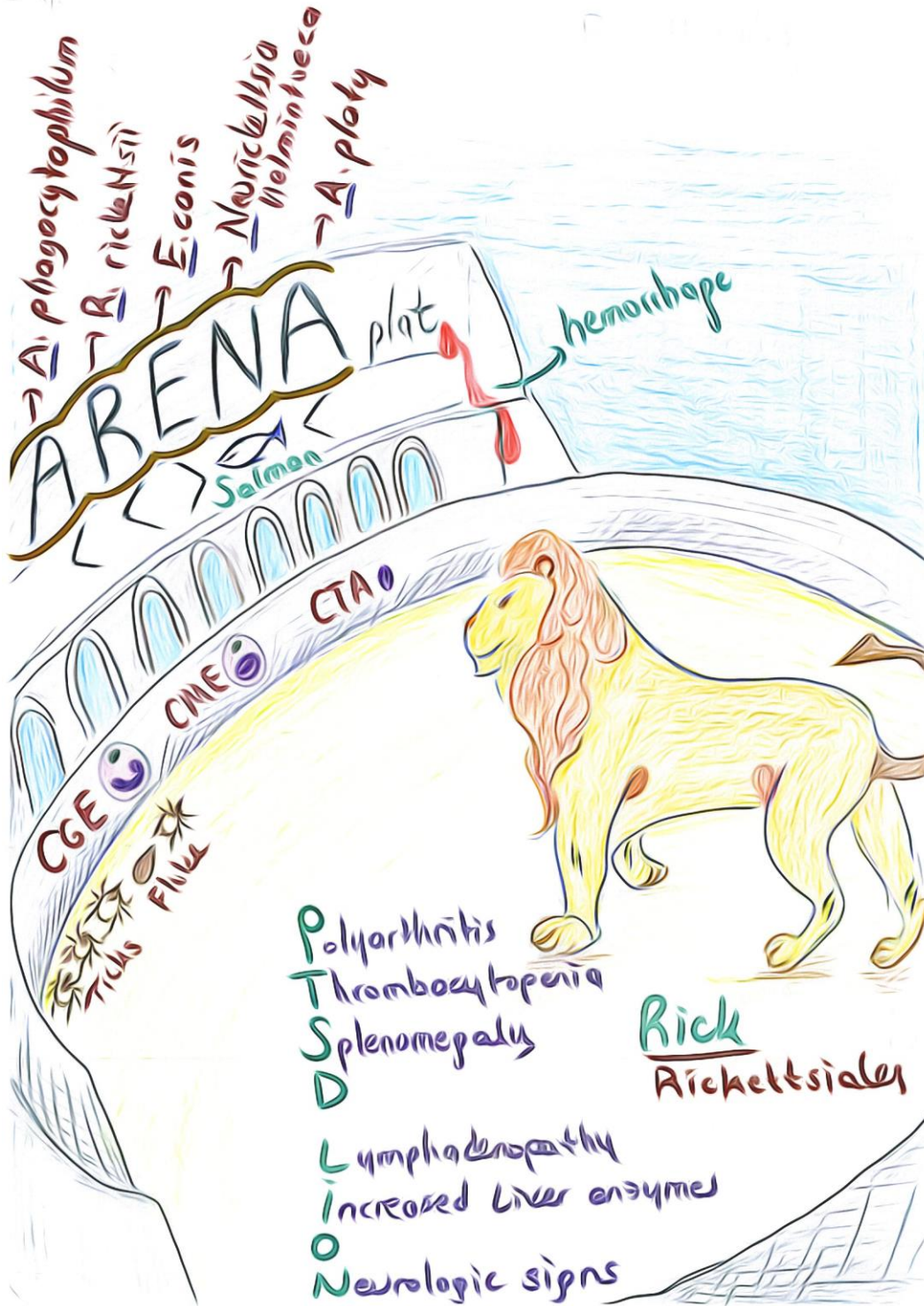
Ehrlichia canis (Canine Monocytic Ehrlichiosis)

Neorickettsia helminthoeca (Salmon poisoning disease)

Anaplasma platys (Canine Thrombocytic Anaplasmosis)

Signs: Polyarthritis, thrombocytopenia, splenomegaly, lymphadenopathy

Treatment: *Doxycycline*, tetracycline, imidocarb



Tetanus

Cause: *Clostridium tetani*

Signs: Single muscle rigidity, entire limb rigidity, facial muscle spasms; cats-carpal flexion, dogs-extension, increased muscle tone, dyspnea, elevated tail "sawhorse stance,"

Treatment: Neutralize toxin; *destroy organisms*, intensive care

Class I - Focal signs

I - Generalized rigidity

III - Recumbency - seizures

IV - Abnormal HR, RR, BP



Tuberculosis

Cause: *M. tuberculosis*

Signs: Granulomatous inflammation, chronic pulmonary infection

Treatment: Macrolide, *Fluorquinolone*, Euthanasia

Mice in the Tube

M. microti
(rodents)

M. tuberculosis



Viral Infections

Feline Infectious Peritonitis

Cause: *Feline coronavirus (FCoV)*,

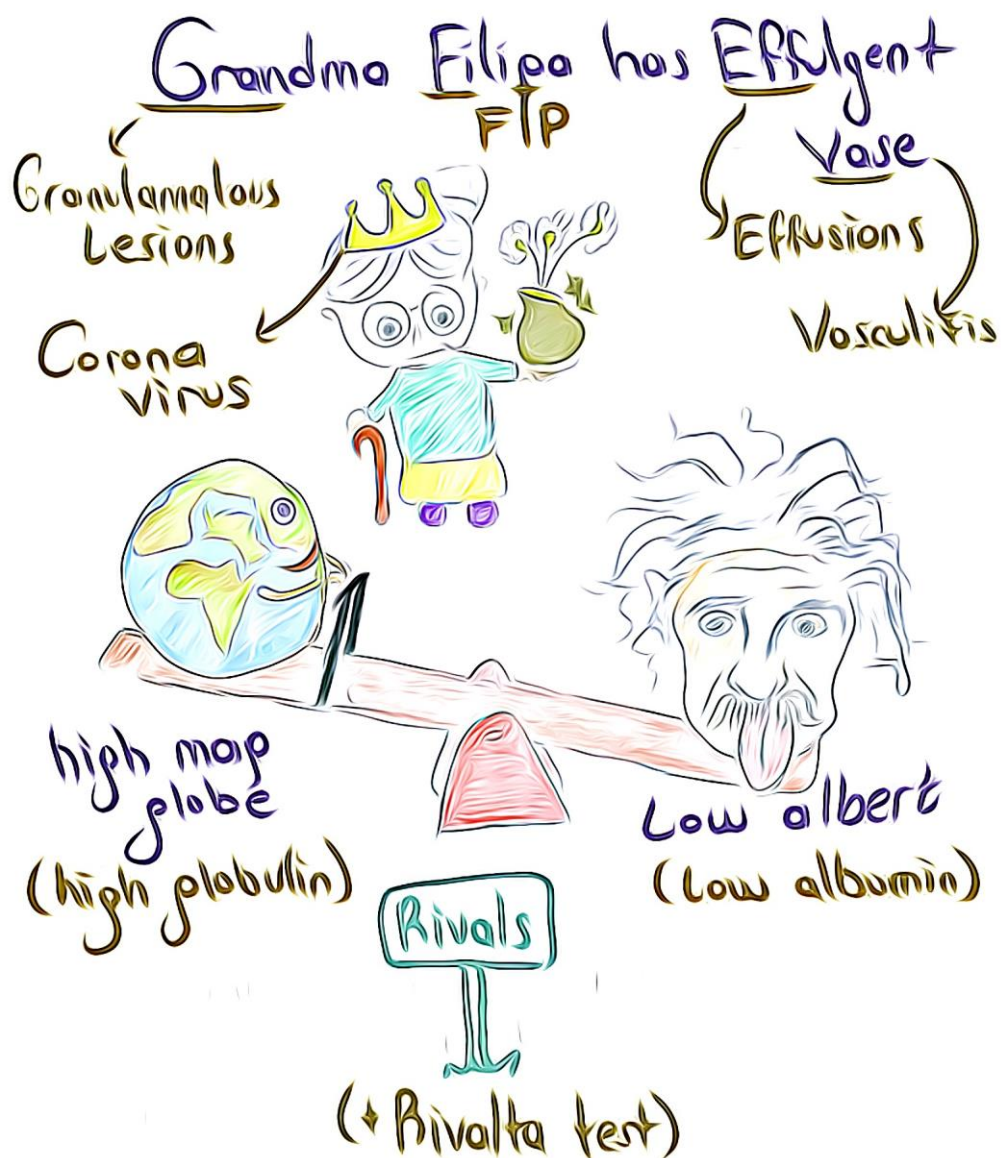
Signs: Effusive (wet) form of FIP

Inflammatory fluids, thoracic and abdominal effusion, pericardial effusion

Noneffusive (dry) form of FIP

Pyogranulomatous inflammation, necrotizing vasculitis, ataxia, tremors, vestibular dysfunction, seizures, paresis, behavioral changes.

Treatment: Interferon therapy, high-dose corticosteroid, cytotoxic alkylating agents (chlorambucil, cyclophosphamide)



Feline Immunodeficiency Virus

Cause: *Lentivirus subfamily of retrovirus, FIV*

Signs: Weight loss, wasting, recurrent fever, lymphadenopathy, polyclonal hypergammaglobulinemia, recurrent anemia, leucopenia, thrombocytopenia, chronic infections, neuronal damage, ocular disorders

Treatment: AZT , feline or human interferon, general supportive therapy

Ω
 IPN
 Omega


 Aelee
 AZT


 CD

FIV
 Five cats

3 pillow
 3 stages of FIV



Demodicosis

Retro
 Orthodox
 fasting
 during
 Lent



Wasting
 Syndrome
 Refractory
 Bacterial
 Infections

Lentivirus

Retroviridae, Orthoretrovirinae

Feline Leukemia Virus

Cause: *RNA retrovirus feline leukemia virus (FeLV)*

Signs: FeLV can be a primary cause of lymphoma, alimentary, mediastinal, multicentric, renal, ocular, neural, cutaneous lymphoma, nonregenerative anemia, neutropenia, thrombocytopenia, secondary infections, immune-mediated disorders

Treatment: Zidovudine (AZT), interferon

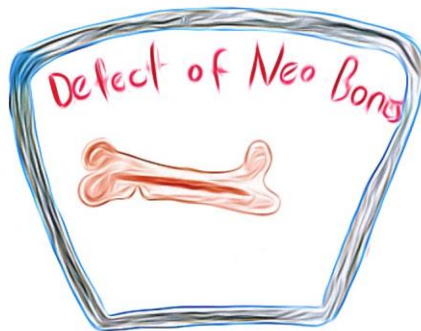
Cat is watching the Defect
of Neo-Bones...
Neoplasia Bone marrow suppression
Immunodeficiency



FLV



Transmission
Saliva-milk-urine
nasal secretions



... via FLV media player

Feline Herpes Virus-1

Cause: *Feline herpesvirus-1 (FHV, feline viral rhinotracheitis)*

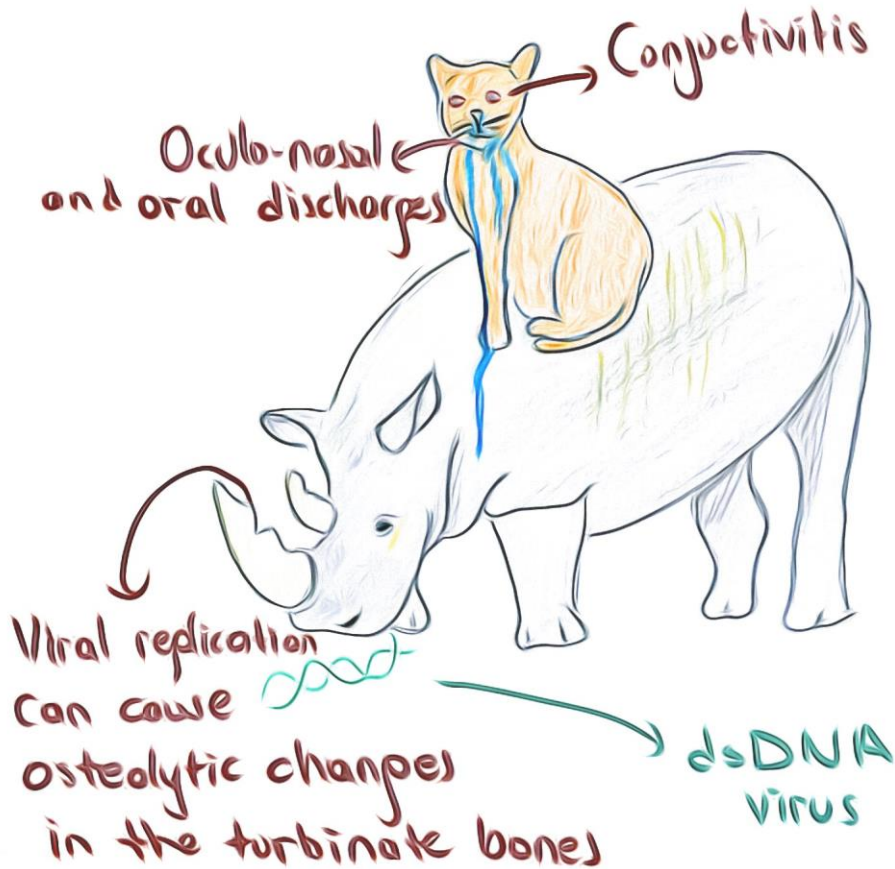
Signs: Anorexia, fever, depression, sneezing, lacrimation, naso-ocular discharge, coughing, excess salivation, turbinate damage

Treatment: Fluid therapy, nutrition, topical antiviral drugs, tetracycline ophthalmic ointment, systemic antibiotics

Famous cat and rhino

Famciclovir

Feline Rhinotracheitis
(FeHV-1)



Calicivirus

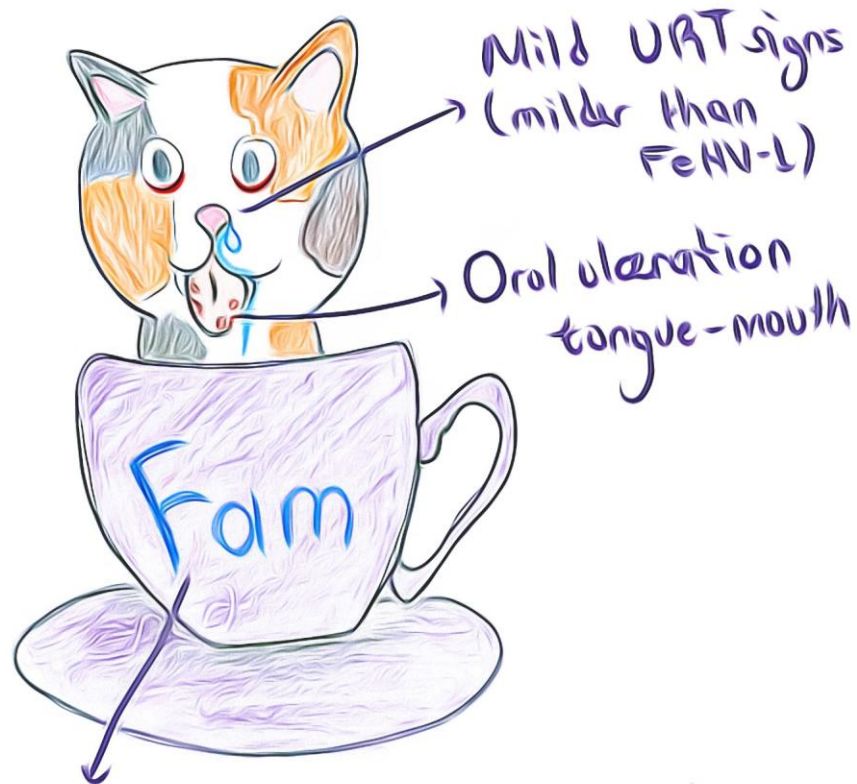
Cause: *Feline calicivirus(FCV)*

Signs: Oral ulcers, nasal crusting - ulceration, mild rhinitis - conjunctivitis

Treatment: Fluid therapy, nutrition, topical antiviral drugs, systemic antibiotics

Calico Cat In the cup

Feline Colici Virus



Famciclovir → topical acyclovir

Kennel Cough

Cause: CPiV, CHV-1, CAV-2, CnPnV, CIV, B.bronchiseptica

Signs: Loud hacking cough, serous naso-ocular discharge, generally non-febrile

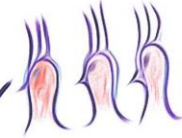
Treatment: Doxycycline, amoxicillin, azithromycin, hydrocodone, butorphanol, corticosteroids, bronchodilators (e.g., theophylline, aminophylline)

Happy Dog
↓
CHV-1
↓
CAV-2
↓
CPiV
↓
CnPiV
↓
CIV

(+) Tracheal palpation
Bob Trapped to Kennel
B. bronchiseptica



↓
Kennel
Cough



ciliostasis



loss of
cilia

Canine *Distemper Virus*

Cause: *Paramyxoviridae - Morbillivirus*

Signs: Depression, anorexia, fever, rhinitis, nasal discharge, cough, tachypnea (due to pneumonia), vomiting, diarrhea, keratoconjunctivitis, CNS signs, twitches, photophobia, enamel hypoplasia, hard pad disease, nasodigital hyperkeratosis

Treatment: Broad-spectrum antibiotics, restrict food intake, antiemetics, dexamethasone for CNS, anticonvulsant therapy

Epic Distended Dancers

Epitheliotropic Distemper



Team Paramedic
Paramyxoviridae

Canine Parvovirus

Cause: *Canine parvovirus (CPV-2)*

Signs: Vomiting and bloody diarrhea, severe dehydration, DIC

Treatment Balanced crystalloid, potassium, magnesium, dextrose, broad-spectrum antibiotics (cefazolin – ampicillin), metoclopramide, ranitidine or famotidine, chlorpromazine (if metoclopramide is unsuccessful)

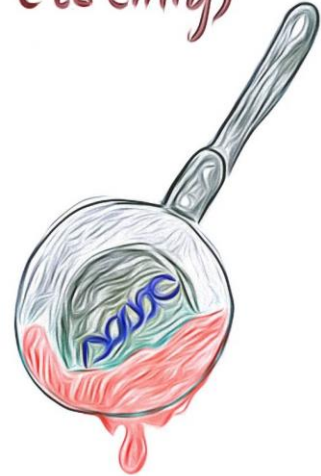
Pablo Picasso's DNA

Parvo

ssDNA virus

Transferred ...

transferrin receptors
(to entry)



... rapidly to bloody pan! → panleukopenia
rapidly dividing cells → Bloody diarrhea
thymus, bone marrow, crypt cells of the gut

Rabies

Cause: *Rhabdoviridae Lyssavirus*

Signs:

Prodromal phase - there may be subtle signs of erratic behavior

Furious phase - erratic behavior (aggression, irritability, pica, roaming, ataxia, seizures, paralysis)

Paralytic phase - ascending paralysis of the limbs, laryngeal - pharyngeal paralysis.

Treatment: Quarantine - euthanize

Bat and Bullet racing

Bullet shape
virus

for

Behavioral changes
Increased saliva
Swallow inability
Cranial nerve involvement
Unsteadiness



Nucleus
basalis

Pyramidal
cells, within
ammon's
horn



Ten day
Quarantine
for
bite-scratch

Protozoal Infections

Babesiosis

Cause: *Babesia* spp

Signs: Fever, icterus, hemoglobinuria, cytologic findings

Treatment: Imidocarb dipropionate, azithromycin, atovaquone

Single gypsy dog has a fever
of tick *B. gibsoni*
(single piroplasm)



Toxoplasmosis

Cause: Toxoplasma gondii

Signs: Affected organs;(lungs, eyes, liver, pancreas, CNS, and skeletal muscles)
uveitis, blindness, chorioretinitis, pneumonia encephalomyelitis or myositis

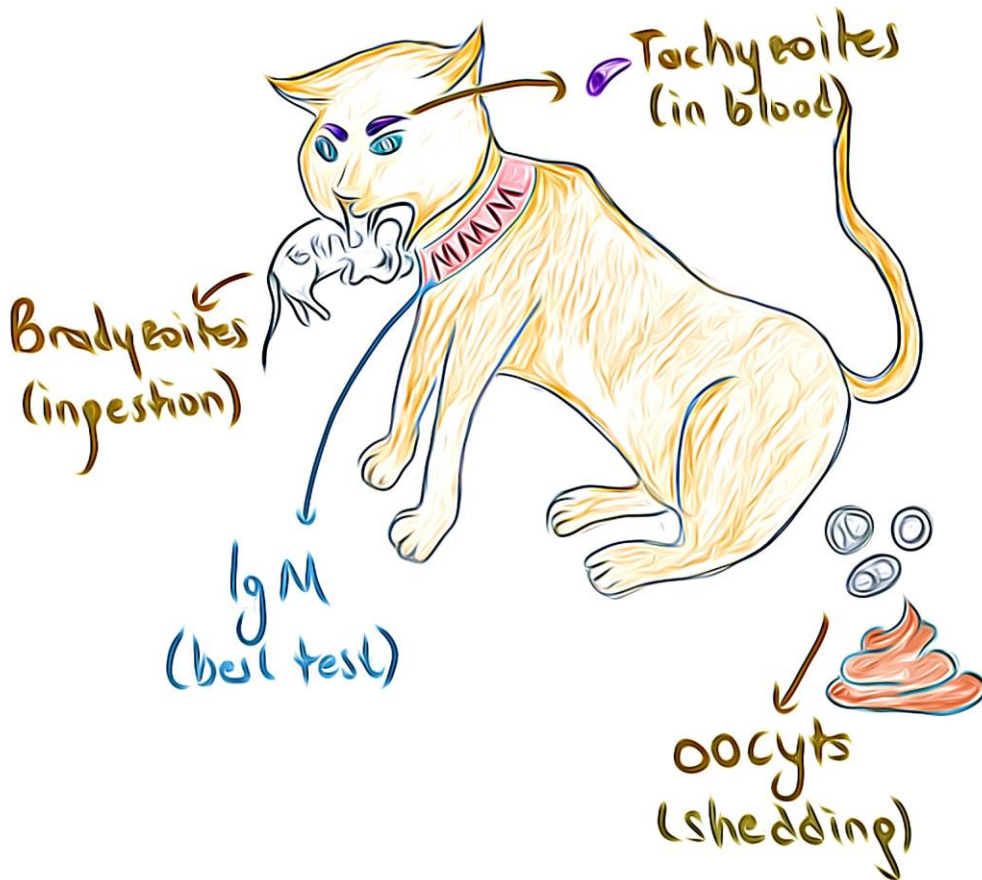
Treatment: Clindamycin

Clinical Toxoplasmosis

Clindamycin

Brod was fever
anorexia
CNS
to death

uveitis
Pulmonary signs



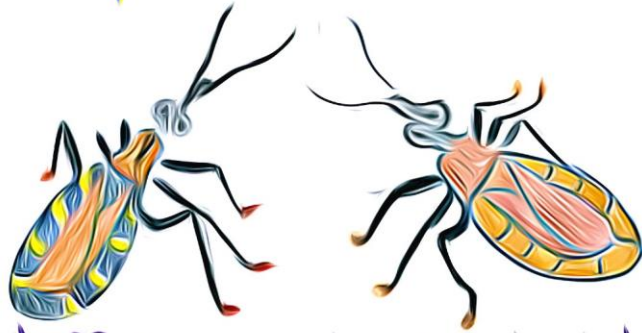
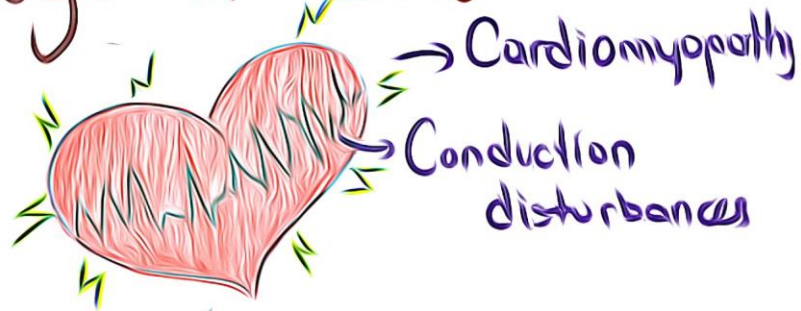
Trypanosomiasis

Cause: *Trypanosoma cruzi*

Signs: Cardiomyopathy, conduction disturbances, ventricular arrhythmias, supraventricular arrhythmias Laryngeal paralysis, neurologic disease (ECG) findings; Ventricular premature contractions, heart block, T-wave inversion

Treatment: Simvastatin, glucocorticoid therapy

Bugs in Love



Vectors (kissing bugs, reduviid bugs)

Tripod
(Trypanosoma
cruzi)



Raven is taking photo

Ravuconazole, allopurinol

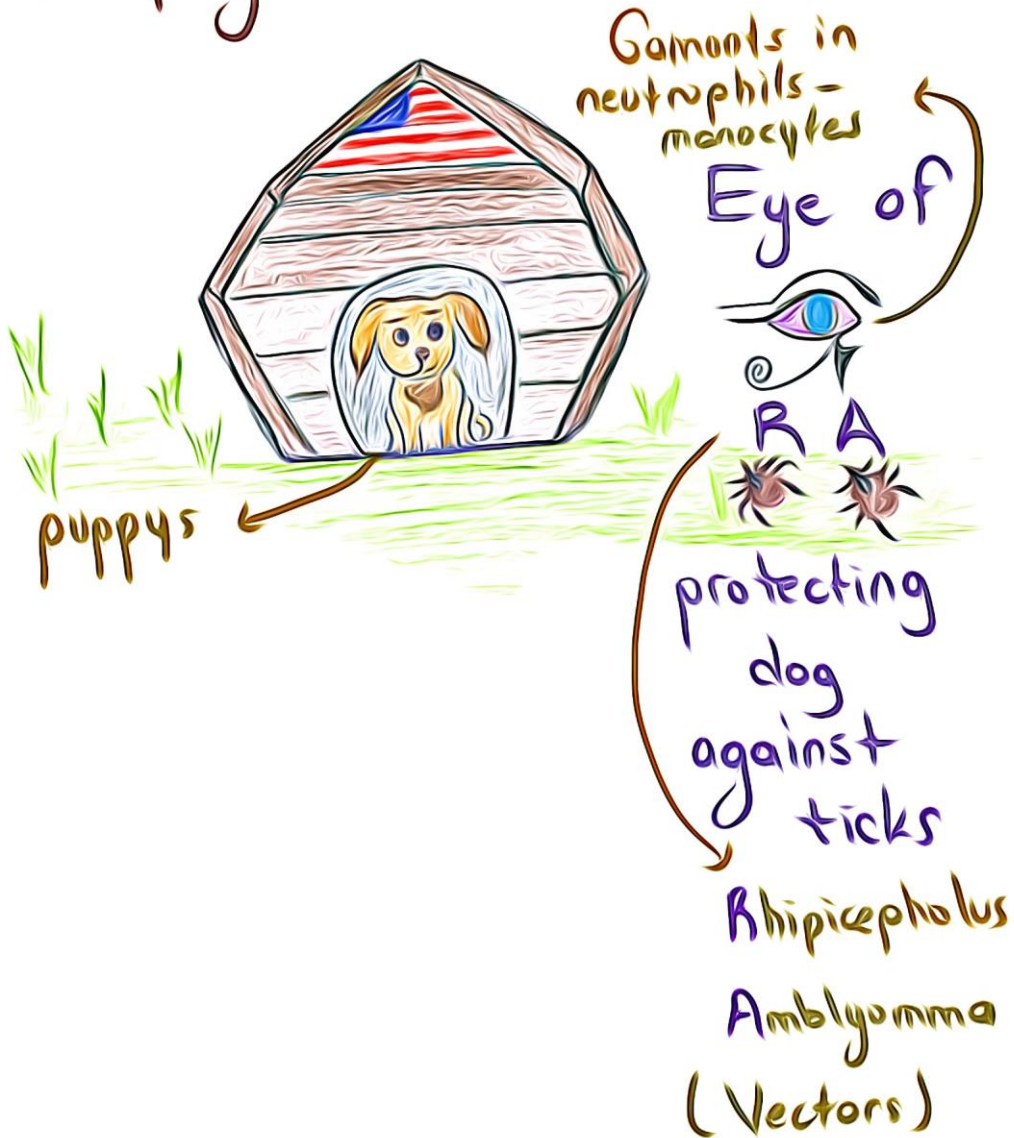
Hepatozoonosis

Cause Hepatozoon americanum, Hepatozoon canis

Signs: Fluctuating fever, muscle pain, stiffness, lameness, hyperesthesia, weight loss, weakness, muscle atrophy, mucopurulent ocular discharge, transient diarrhea, protein-losing glomerulopathy

Treatment *H. Americanum*; clindamycin, trimethoprim-sulfadiazine, pyrimethamine, followed with decoquinatate for 2 years
H. Canis; imidocarb

Heptagon American cabin
Hepatozoon americanum, canis
for dogs



Cytauxzoonosis

Cause: *Cytauxzoon felis*

Signs: Obstruction of blood flow through tissues by mononuclear infiltrates, hemolytic anemia, coagulation abnormalities

Treatment: Atovaquone, azithromycin, imidocarb is inferior

Cyclope cat's ring is
Cytouneoon
fells

Ring shape piroplasm

obstructed in a balloon

→ Obstruction of
blood flow



→ The tick burst the
balloon



→ hemolytic
anemia

Leishmaniasis

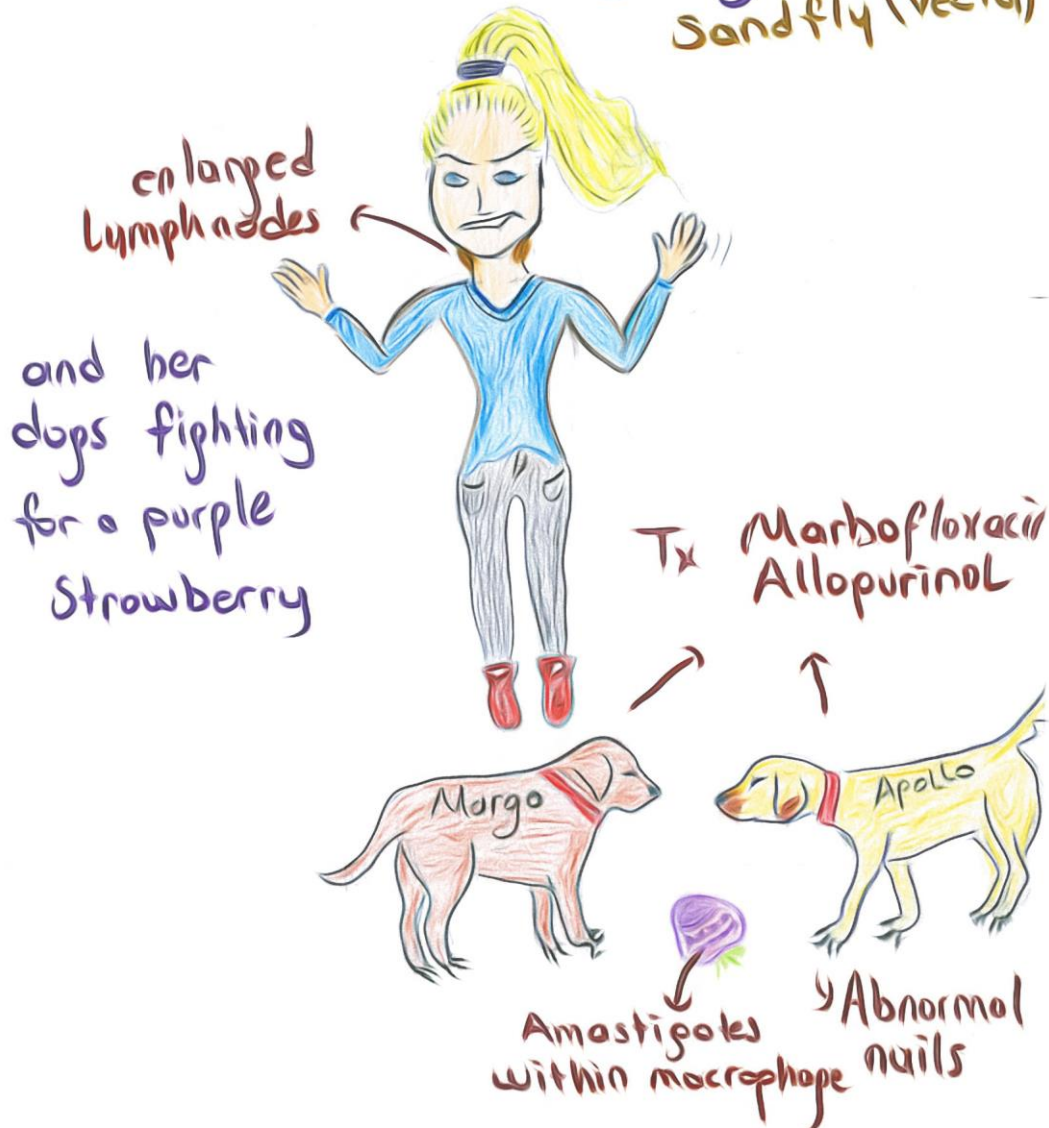
Cause: *Flagellated protozoal parasites, Leishmania infantum*

Signs Fever, chronic weight loss, vomiting, diarrhea, lymphadenopathy, granulomatous dermatitis, elongated brittle toe nails, uveitis, coughing, sneezing, polyarthritis, glomerulonephritis, icterus

Treatment: Allopurinol, Marbofloxacin, Meglumine antimonite,

Leishmania
Skinny ponytailed Leisha
Skin lesions polyclonal gammopathy

is look like a sandglass
sandfly (vector)



Neosporosis

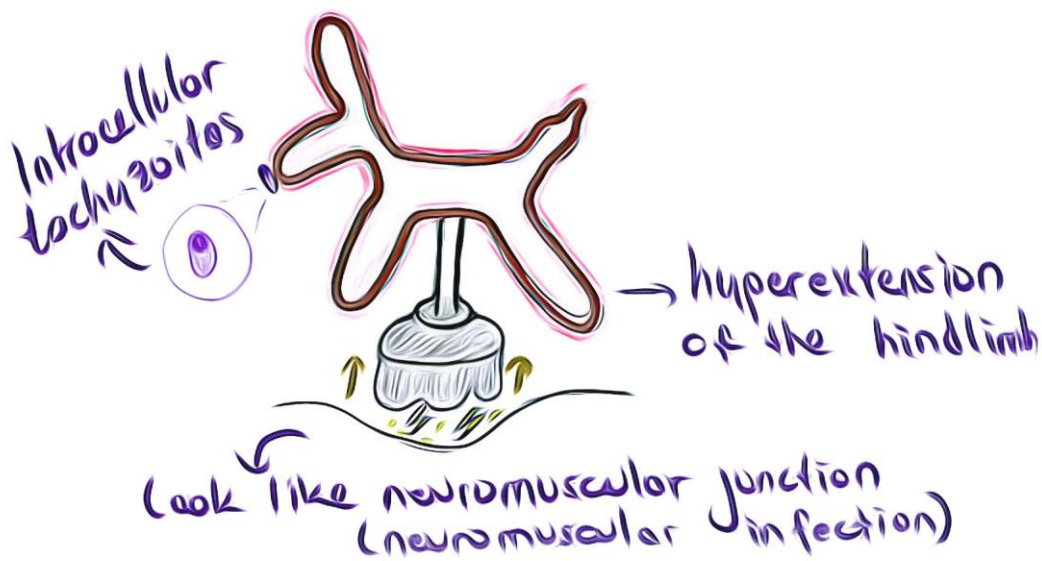
Cause: *Neospora caninum*

Signs: Neuromuscular signs; paresis, ataxia, ascending paralysis, muscle atrophy, contracture

Treatment: Clindamycin, trimethoprim-sulfadiazine, pyrimethamine.

Neon puppy lamp

Neosporosis puppies
(severe disease)



Wireless electric current ascending
from bottom

Ascending
paralysis

Appendix Gr(+) Bacteria

Listeria, Mycobacterium, Streptococcus, Peptostreptococcus, Corynebacterium, Staphylococcus, Nocardia, Actinomyces, Clostridium, Enterococcus, Lactobacillus

