



Veterinary Guide



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Preface

This book is intended to be an easy and rapid veterinary manual for all veterinarians. It includes four branches; veterinary internal medicine, infectious diseases, veterinary surgery and veterinary theriogenology. It is also provided with some pictures for common diseases in Egyptian veterinary field. In addition, key of differential diagnosis and list of veterinary and human drugs used in veterinary practice. On the other hand, the most important information is written in Arabic language to be very clear to the veterinarians. In other words, this book meets most of needs for all veterinarians. Finally, I express my great regards to all my teachers in The Faculty of Veterinary Medicine - Cairo University, Animal Reproduction Research Institute and union of veterinarians.

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Gallon = 3.785 Litre.

Veterinary Internal Medicine

Veterinary Internal Medicine

General Information

Cattel :

- Cattle are color-blind and have poor depth perception. They also have a fear of stepping over grid patterns. This is the reason cattle guards are so effective at keeping cattle confined.
- Healthy cattle spend considerable time in sternal recumbency, particularly after eating.
- They can drink as much as 10-15 gallons of water per day.
- Cattle have panoramic vision, which allows them to see almost 360° without turning their head. However, vision at the outer edges is distorted. For this reason cattle are easily spooked, so solid sides on working chutes will allow cattle to be moved more easily.

Horse :

- Horses are unable to see objects directly in front of them; they should be approached from a 45° angle from either shoulder.
- Horses are non-ruminant grazing animals whose digestive system is adapted to frequent small feedings, preferably three times a day.
- Do not water or feed an overheated animal.
- The adult horse drinks an average of 10-12 gallons per day.
- Horses, like rats, have no gall bladder.
- Horses are usually handled from their left side, from a close but safe position (45° off the shoulder).

Goats :

- Sexually mature males have a powerful odor that comes from the musk glands on top of the head.
- When catching goats, always catch and secure the male first, then proceed to catch the females.
- Goats are fastidious eaters and will refuse food or water that has become soiled with feces or urine.

General Examination of the animal

1- **Case history:** important for diagnosis and help in expectation of prognosis.

2- **Body temperature.**

Camel	36-38 °C
Horse	37-38 °C
Cattle	38-39 °C
Buffalo	37.5-38 °C
Sheep and goat	39 °C
Dog and cat	38-39 °C

3- **Mucous membrane.**

Conjunctival, nasal and oral mucous membranes are normally *rosy red* in equine and *pale rosy red* in ruminants.

- 1- Pale.....> Anemia and wasting diseases.
- 2- Congested.....> Colic, fever and respiratory diseases.
- 3- Echemotic.....> Septicemia and Blood parasites (in equine).
- 4- Icteric.....> Liver diseases – Blood parasites- Hemolytic conditions.

✎ **Icterus (Jaundice):**

Icterus refers to yellow discoloration in the sclera and mucous membranes. It results from increased amounts of bilirubin in tissues and increased serum bilirubin levels. It indicates decreased secretion of bilirubin with liver or biliary tract disease or increased production of bilirubin with hemolytic anemia. Icterus seen with hepatic or obstructive biliary disease. However, it is possible to have liver disease without Icterus. The **common causes of Icterus in ruminants** *Aflatoxicosis, Fat cow syndrome, Leptospirosis, Anaplasmosis, Babesiosis, Bacillary hemoglobinurea and Fascioliasis*.

4- **Lymph nodes:**

Such as prescapular and prefemoral> enlarged in some viral diseases(LSD, Three day sickness, Leukosis and Blood parasites).

5- **Auscultation of the heart:**

A-Normal (lubb)..... > is a systolic sound due to contraction of the ventricles and closure of atrio-ventricular valves and the tension of cordae tendinae. The second one is (diastolic) which is similar to (dup).....> Due to closure of the semilunar valves.

B- Abnormal sounds:

- a- Murmurs.....> Arise from the vuvles.
- b- Pericardial sounds: occurs in traumatic pericarditis.
 - 1- First stage (dry stage)> Frictional sound.
 - 2- Second stage (exudative stage).....> Dripping sound.
 - 3- Third stage (muffling stage).....> muffling sound.

6-Auscultation of the lung:

The area of auscultation is defined by posterior angle of the scapula, olecranon process of the ulna and the second last intercostals space.

✎ Normal sounds by auscultation.....> V-sound of vesicular sound (vvvvvv). While Ch-sound of bronchial sound.

✎ **Abnormal respiratory sound:**

- Dry rales, moist rales and Cripitant rales.
- Emphysematous sound.....> Pulmonary emphysema and edema.
- Frictional sounds.....> Dry stage of pleuritis.

7- **Abdominal examination:**

1. **Rumen:** left flank region normal ruminal movement is (2-5) cycles/2 min.
2. **Abomasum:** valuable in cases of left side displacement> Splashing or tinkling sound (more fluid in nature can be heard every 15 min with auscultation).

8- **Gross examination of fecal matter:**

a. **Melena** (dark, tarry feces) is caused by blood in lumen of the stomach or proximal intestinal tract.

1. Ulceration of stomach or abomasums.
2. Ingestion of blood, oral or pharyngeal bleeding.
3. **Intussusception, but accompanied with colic.**

b. **Blood, Fibrin or Mucus in feces:**

✎ **Blood (dysentery):** fresh blood or clots in the feces (hematochezia) is the result of bleeding into the *distal intestinal tract*, occasionally may be due to *Traumatic foreign body, Rectal examination*.

✎ **Fibrin or mucus:** fibrin in or on the feces appears as casts, chunks of yellow-grey material, or mucous-like sheets. Common causes in ruminants include *foreign body, Intussusception, Coccidiosis and Salmonellosis*.

When the animal is brought to the clinic with **anorexia**

Take the body temperature and other clinical parameters: → ?

A. Normal Body Temperature :

1. Auscultation of the rumen may be.....> Simple indigestion.
2. With distended rumen-----> Doughy.....> Impaction.
-----> Tympanic.....> Bloat.
3. None of the previous so it may be.....> Chronic parasitism - nutritional deficiency- ruminal atony.
4. If normal temperature + watery diarrhea> Parasitic gastroenteritis or fascioliasis.
5. Examine mouth cavity and teeth for any abnormalities.

B. High Body Temperature :

The animal body temperature increases in cases of bacterial, viral and blood parasite diseases.

1. In sheep and goat rise in temp. Commonly with respiratory affection -----> Bronchitis, bronchopneumonia, Pharyngitis, Or pneumo-enteritis.
2. In large ruminants -----> Bronchitis-mastitis-metritis-enteritis-cystitis.
3. Blood parasites -----> Babesiasis-Theileriasis-anaplasmosis (discoloration of urine or frothy urine, LN, presence of ticks, sever rise in body temperature).
4. Viral diseases (outbreaks+ characteristic signs of each disease).
5. If high, body temperature after recent parturition-----> examine carefully the udder and uterus (mastitis or post puperal infection).

C. Subnormal Body Temperature :

As in cases of **milk fever, acute ruminal impaction, during anesthesia and sedation, circulatory failure and shock**. But usually the cases of subnormal temperature under 36.5 C of bad prognosis.

poisoning

1. Fever

Rise in the body temperature **over 38 C in buffaloes, 39 C in cows, sheep and goats and over 38 C in equine**

Examine the animal for:

1. Respiratory signs -----> Bronchitis, bronchopneumonia, Pharyngitis or pneumo-enteritis.
2. Mastitis -----> swollen udder, red and painful.
3. **Metritis** -----> **recent parturition, lameness in hind limbs**
تاريخ ولادة حديثة للحيوان + مشاكل في الولادة + صعوبة في المشي خاصة القائمتين الخلفيتين + إفرازات قيحية من الرحم ذات رائحة كريهة.
4. Enteritis-----> Diarrhea with offensive odor.
5. Local septic focus-----> Abscess, cellulites and empyema.
6. Blood parasites-----> Babesiasis - theileriasis-anaplasmosis (discoloration of urine or frothy urine, enlarged LN, presence of ticks, sever rise in body temperature).

في حالة طفيليات الدم، في البدايه ممكن الحيوان يستمر في تناول الغذاء ولكن حرارته عاليه ثم بعد ذلك يتوقف عن تناول الغذاء.

7. Viral diseases (outbreaks+ characteristic signs of each disease).
Such as FMD, three day sickness, LSD.... etc.

Treatment:

R/ Cold water or alcoholic vinegar fomentation or ice bag.

R/ Vetalgine®, Analgine®, Novacid® 10 cc/100 k.B.wt I/V or in normal saline.

R/ Finadyne® as anti-inflammatory 1cc/ 45 k.B.wt I/M or I/V.

R/ Antibiotic that is specific for the current disease.

R/ Anti-blood parasite in cases of blood parasite (Imizol®, Berenil®, Trypaject®, Trypanodad®.....).

• If there is no response give oxytetracycline + Vetalgine® I/V for 7 days, if no response (bad prognosis-----> May be **malignant catarrhal fever**).

2. Hypothermia

It is a lower body temperature than the normal one (mainly less than 37 °C).

Treatment:

R/ Warm the surrounding place by firing and / or covering the animal.

R/ Rectal enema with warm water.

R/ I/V injection of glucose 25%+ Dexamethasone infusion 15-20 cc/cow or buffalo and 5-8 cc in sheep+ Oxybral 4 amp. /Cow, and 1 amp/sheep.

R/ Calcium preparation (but avoid in cases of dehydration).

R/ Treacle orally.

⚠ If no response -----> Bad prognosis.

3. Normal Body Temperature

1. Treatment of the basic causes (simple indigestion- bloat- impaction - rumenstasis - internal parasites).
2. Give stomachic, B complex vitamins.
3. Antibiotic if it is needed.

Salivation زيادة السيلان اللعابي

It is a secretion of excessive amount of saliva caused by:

1. Stomatitis: This is secondary to current infectious diseases such as FMD, vesicular stomatitis ...etc.
2. Pharyngitis.
3. Diseases of esophagus, stomach and salivary glands.
4. Organophosphorous toxicity.
5. Some chemicals such as arsenic, mercury, iodine, lead, copper, pilocarpin, arecoline and nux vomica.
6. Sharp food particles and those contaminated with fungi.
7. Cases of rabies.
8. Atropine dropping in the eye of dogs. لقطير الأتروبين في عين الكلاب
يزود اللعاب بينما حقة يوقف اللعاب
9. Esophageal paralysis.

⇒ The main clinical sign is increase in salivation.

زيادة في كمية اللعاب يتبعها حركات مضغية مع مصاصة + عمليات بلع كاذبة + تجمع كميات من اللعاب الرغوي على جوانب فتحة الفم.

Treatment:

R/ Atropine sulphate 3 cc S/C. / cattle or buffalo.

R/ Proper treatment of organophosphorous poisoning cases.

R/ Gentian violet or diluted potassium permanganate as mouth wash twice daily, for 3-5 days.

R/ Proper treatment of infectious diseases that causes salivation.

R/ Arsenical preparation could be used if the cause is unknown.

Dysphagia صعوبة البلع

It is a symptom of many disease conditions:

(1) Pharyngitis and laryngitis:

Caused by physical, chemical and infectious agents. Characterized by: palpable swelling in the pharyngeal region, difficulty in eating and swallowing, nasal discharge, extension of head and neck and rise in body temperature.

في الماشية والخيول نجد الحيوان يبلع بصعوبة وألم مع مد العنق وفي الحالات الشديدة قد يرجع الغذاء عن طريق الفم أو قد يطرده غذاء نصف ممضوغ بالسعال.

(2) Pharyngeal obstruction: caused by:

1. Congenital causes but rare.
2. Foreign body such as potatoes, turnips, whole cob corn or apple.
3. External masses such as retropharyngeal L.N adenopathy.
4. **In horses:** strangles, guttural pouch diseases, lymphoid follicular hyperplasia. Pharyngeal obstruction characterized clinically by: complete or intermittent dysphagia and inability to swallow food or water + inspiratory noises, if accompanied by esophageal obstruction will lead to bloat in ruminant.

(3) Pharyngeal paralysis:

Secondary to **rabies**, **botulism** or **leukoencephalomalacia**, characterized clinically by: dysphagia, salivation, regurgitation of food and abnormal vocalization.

يظهر على الحيوان علامات الجوع محاولاً بلع الطعام ولكن الطعام يتساقط من فمه ويصاحب ذلك سعال متميز ولا يظهر على الحيوان أية آلام وهذه علامة مميزة لتفريقة عن غيره من الأمراض + عدم انسداد البلعوم يجعلنا نشك في هذا المرض.

(4) Esophageal obstruction(choking):

The natural areas of esophageal narrowing are the anterior cervical region in cattle and sheep while in horses the midcervical region. Characterized clinically by dysphagia, extension of head and neck, coughing and retching & may be accompanied by discharge of food and saliva from the nostrils. If the obstructing mass lodged in the cervical region, it may be palpated percutaneously.

Treatment:

➔ Esophageal obstruction (choking):

- Analgesic and muscle relaxant as Xylazine I/M.
- Using of mineral oil as paraffin oil as a lubricant.
- Stomach intubation with paraffin oil.
- Manual removal of the foreign body if present in the oropharyngeal region.

➔ Pharyngitis and laryngitis:

R/ Antibiotic (Penicillin-Streptomycine) + anti-inflammatory.

R/ Bisolvon[®], as mucolytic 1 amp / 70 kg. B.wt. I/M, S/C, I/V. Other alternatives in the market such as *Mucosolvan*[®] 1 amp / 70 kg. B.wt. I/M or *Mucophylline*[®] syr 30 cc orally for horses twice daily for 3 days.



Salivation in a cow

Pharyngeal Paralysis:
 • Rabies
 • Botulism
 • Leukoencephalomalacia

Choke, esophageal obstruction انسداد المريء

It may primary (caused by feed, apple, potato) or secondary (due to intraluminal or extraluminal) characterized by:

1. Anxiety, retching and extended neck.
2. Bilateral frothy nasal discharge containing saliva and food material, coughing and dyspnea.

Treatment:

→ Removal of the obstructing body, if available and could be reached by a means or forceps.

→ Nasogastric intubation (in equine species) and stomach tube in ruminants.

→ Reduce the esophageal spasm using Acepromazine 0.05 mg/ kg. I/V, Xylazine 0.25 mg/kg I/V, or Oxytocin 0.11-0.22 IU/kg I/M. and esophageal instillation of Lidocaine (30 – 60 cc of 1% Lidocaine).

→ In very difficult cases, make incision in the esophagus then remove the foreign body.

R/ Vetalgin® 30 cc I/V as an antispasmodic.

R/ Atropine sulphate 3 cc I/M.

ملحوظة:

عادة مكان الإنسداد في الخيل يحدث في الجزء الصدري من المريء في حين أنه في الحيوانات الأخرى يكون أسفل البلعوم أو في مدخل الصدر ويحدث الإنسداد في الماشية نتيجة ابتلاع الفجل أو البطاطا أو البطاطس أو اللفت. نجد الحيوان يفتح فمه ويخرج لسانه مع نزول سيلان لعابي غزير ويصاب الحيوان بنوبات سعال. وإذا حاول الحيوان الأكل فإنه يرجعه ثانية وهذا الإرجاع يدل على مكان الإنسداد فكلما كان المكان قريبا كانت الفترة بين الأكل والإرجاع قصيرة وبالعكس. في المجترات نجد انتفاخ الكرش يحدث سريعا نتيجة امتناع التجشؤ.

Regurgitation

Vomiting القيء

It is forcible expulsion of the stomach contents through the nostrils or the mouth caused by:

- 1- Irritation of the stomach mucosa.
 - 2- Stimulation of vomiting center in medulla oblongata.
 - 3- Diseases of brain.
 - 4- Drugs causing central vomiting action.
 - 5- Plant poisoning or other poisoning or autointoxication.
 - 6- Gastritis or overeating, obstruction of the pylorus (gastrophilus larvae & small intestine)
 - 7- Involvement of organs such as kidneys, liver, pancreas.
 - 8- In dairy cattle:
 - The most common case hyperacidity of the diet.
 - Traumatic reticulo-peritonitis resulting from repetitive irritation of the reticulum.
 - Vagal indigestion.
 - Poisonous plants.
 - Calves with white muscle disease. ✓
 - Sever hypocalcemia.
- يحدث القيء نتيجة تهيج مخاطية المعدة نتيجة لاغذية خشنه او مديبة او مواد كاوية .
 - كذلك يحدث القيء في الكلاب صغيرة السن في الامراض الطفيلية في المعدة كالديدان .
 - القيء الانعكاسي يحدث في العاشبات في حالات انسداد الامعاء .
 - يحدث القيء أيضا في حالات قرحة المعدة .

Treatment:

R/ Primpran® 4-5 amp. I/V/cow infusion with dextrose 5%, as anti-emetic.

R/ Atropine sulphate 1% 5 cc S/C, I/M, or I/V.

R/ Visceralgine®, Spasmocin®, Dos pa®, Buscupan®, as spasmolytic drug, 4-5 amp. I/V/cow infusion with dextrose 5%.

R/ Epicogel® emulsion, one bottle orally / daily for 5 days.

R/ Sodium bicarbonate 100 gm/100 kg B.wt. orally 3 times / day, for 5 days.

R/ Zantac® (Ranitidine) 5 amp/ cow I/V in Dextrose 5% as infusion daily for 3-5 days.

Hematemesis نزيف المعدة أو القيء الدموي

It is a vomiting of ingesta mixed with blood caused by:

- 1- Congestion of stomach.
- 2- Gastric ulcers.
- 3- Neoplasm in the mucosa of the stomach.
- 4- Trauma during introducing of stomach tube.
- 5- Gastric rupture.

تجد الحيوان يميل للقيء + قىء مواد غذائية ممتزجة بدم سائل او متجلط بلون اسود ويكون مصحوبا بالحم في المعدة .

Treatment:

R/ Ice pieces administration through the mouth.

R/ Bismuth carbonate as coating (Mucogel[®] or Epicogel[®] of human preparation could be used).

R/ Dicynone[®] or Haemostop[®] 4-5 amp. I/V infusion with Dextrose 5%.

R/ Amri K 4 amp /cow I/M.

R/ Cal-D-Mag 200 cc/ cow, I/V.

R/ Zantac[®] (Ranitidine) 5 amp/ cow I/V in Dextrose 5% as infusion daily for 3-5 days.

R/ Amoxykel 15%[®] or Clamoxyl[®] (Amoxycilline) 25 cc I/M / cow, for 3 days.

Tympany النفخ

It is an overdistension of the rumen and reticulum, it includes many types:

1. **Free gas tympany:** caused by an obstruction in the esophageal lumen e.g. foreign body, or pressure from outside e.g. neoplastic lymph node, which prevents burping of gas, produced within the rumen. **Inflammation of the rumen (chronic reticulitis)** can also interfere with the normal ruminal contractions. Treatment is by stomach tubing to release the gas or by use of a trochar and cannula.
2. **Frothy tympany.**
3. **Recurrent tympany:** in cases of traumatic reticulitis, enlarged L.N in cases of T.B.
4. **Persistent ruminal tympany:** in case of diaphragmatic hernia and vagal indigestion.
5. **Tympany due to uterine torsion** especially in buffaloes: **does not relief even with treatment.**

Treatment:

R/ Stomach intubation or trocharization + back racking.

R/ Massage of the left flank region.

R/ Rumenotomy in sever cases.

R/ Bolatzal[®] or Dimethicone[®] or Simethicone[®] 1-2 bottle orally or intraruminal as defoming agents.

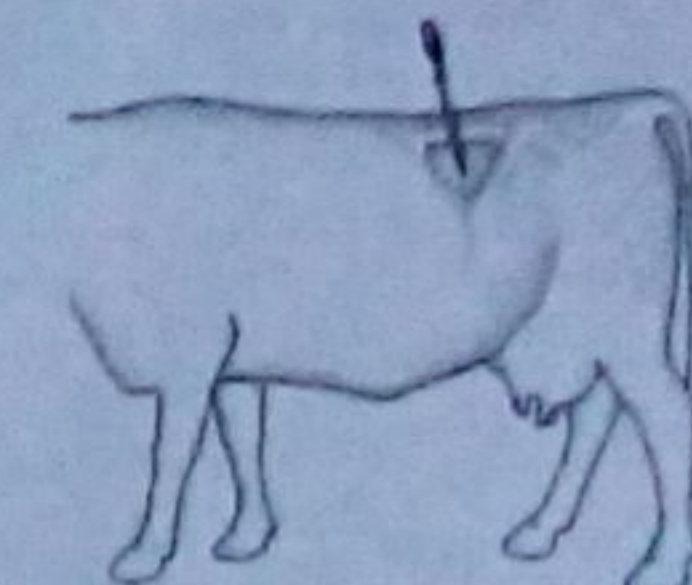
R/ Tonoplastomix[®] (1 bottle / cow add to 1 liter of water and 10 cc/ sheep and goat add to 100 cc of water).

R/ Boviestimul[®] (sachet), Cattle 50-100 gm orally divided into 2 doses.

R/ Laxavet[®] 1 sachet on the second day as rumen stimulant.



Stomach intubation



Site of trocharization

Simple Indigestion عسر الهضم البسيط

Disorder of rumen and reticulum due to presence of undigested food in the rumen → fermentation and atony of the rumen motility, characterized clinically by sudden reduction in the appetite, sharp decline of milk yield, constipation or diarrhea, dullness and reduced animal movement.

Treatment:

- R/ Avil® or Tavagyl® 4-5 amp. I/M, I/V for cattle, as antihistaminic.
- R/ Laxavet® 1-2 sachet, orally/ cow. Or Supermach, Vapcodigest, rumistomatone.
- R/ Boviestimul® (sachet) is a drug of choice, Cattle 50-100 gm orally divided into 2 doses.
- R/ Bykahepar® 20-30 cc/cow I/V or I/M. as rumen stimulant and adjustment of alimentary function.
- R/ Dexamethasone® 10-15 cc I/M, I/V for cow or buffalo.
- R/ Brower yeast orally 100 gm/ cow daily for 3 days.
- Rectal enema with soft soap and worm water, in case of constipation.
- Animal exercise is important.
- Avoid potent laxatives in late pregnancy such as magnesium sulphate.

Ruminal Impaction التخمّة

Ingestion of large amount of carbohydrate food → lactic acid formation → abdominal distention → characterized clinically by: Anorexia, rumenstasis, constipation, dehydration and low body temperature.

Treatment:

- R/ Paraffin oil 1-2 liter orally/ cow or buffalo.
- R/ Avil® or Tavagyl® 4-5 amp. I/M, I/V for cattle, as antihistaminic.
- R/ Laxavet® 1-2 sachet, orally/ cow or buffalo.
- R/ Dexamethasone® 10-15 cc I/M, I/V for cow or buffalo (avoid in pregnancy).
- R/ Sodium bicarbonate 2% solution 1000 cc, I/V for cow or buffalo, for treatment of acidemia.
- R/ Bykahepar® 20-30 cc/cow I/V or I/M. as rumen stimulant and adjustment of alimentary function.
- R/ Brower yeast or ruminal juice transplantation on the second day.
- R/ Boviestimul® (sachet), Cattle 50-100 gm orally divided into 2 doses.
- Rectal enema with soft soap and worm water.
- Rumenotomy is indicated in sever cases of impaction.
- Subnormal temperature + diarrhea + lateral Recumbency = bad prognosis.

+ pan-Terramycin
orally

Traumatic Reticulitis التهاب الشبكية الرضحي

It occurs when pieces of wire, or sharp metal objects, which have been eaten by the cow along with its food, penetrate the reticulum wall (as a result of the contractions during the cudging process). Infection spreads along the wire to the surrounding abdomen, producing an abscess and adhesions. In some cases the wire will penetrate into the chest of the animal causing abscess in the chest, and in severe cases infection of the outside of the heart (pericarditis). Characterized clinically by:

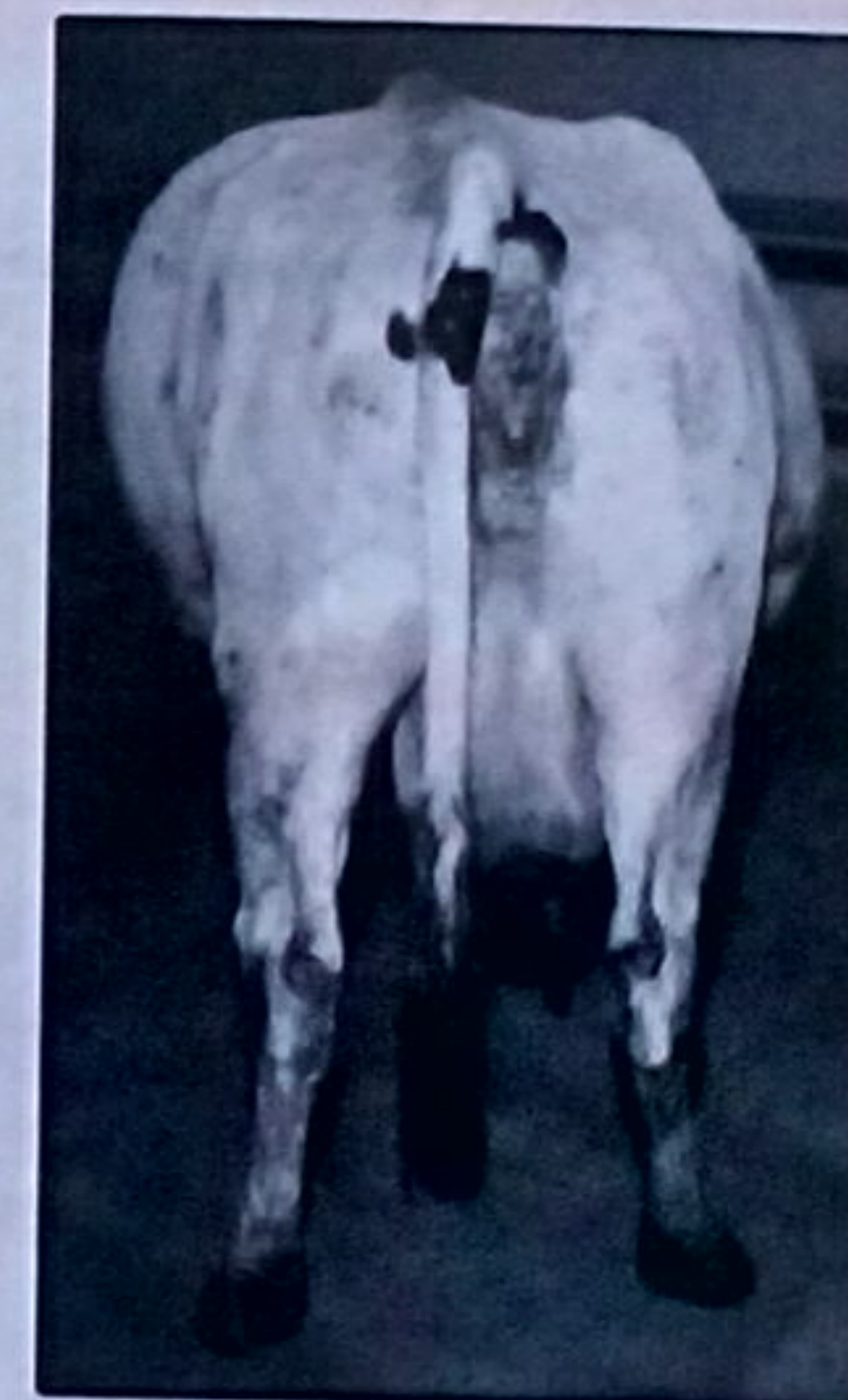
- Reduction in feed intake.
- Reduced milk yield.
- Abdominal pain, reluctant to move, often grunts when made to move.
- Stands with arched back and tense abdominal wall.
- Initially temperature will be raised, but as progresses this can fall to normal.
- Rumen movements reduced and weak.
- **Recurrent tympany**

Diagnosis

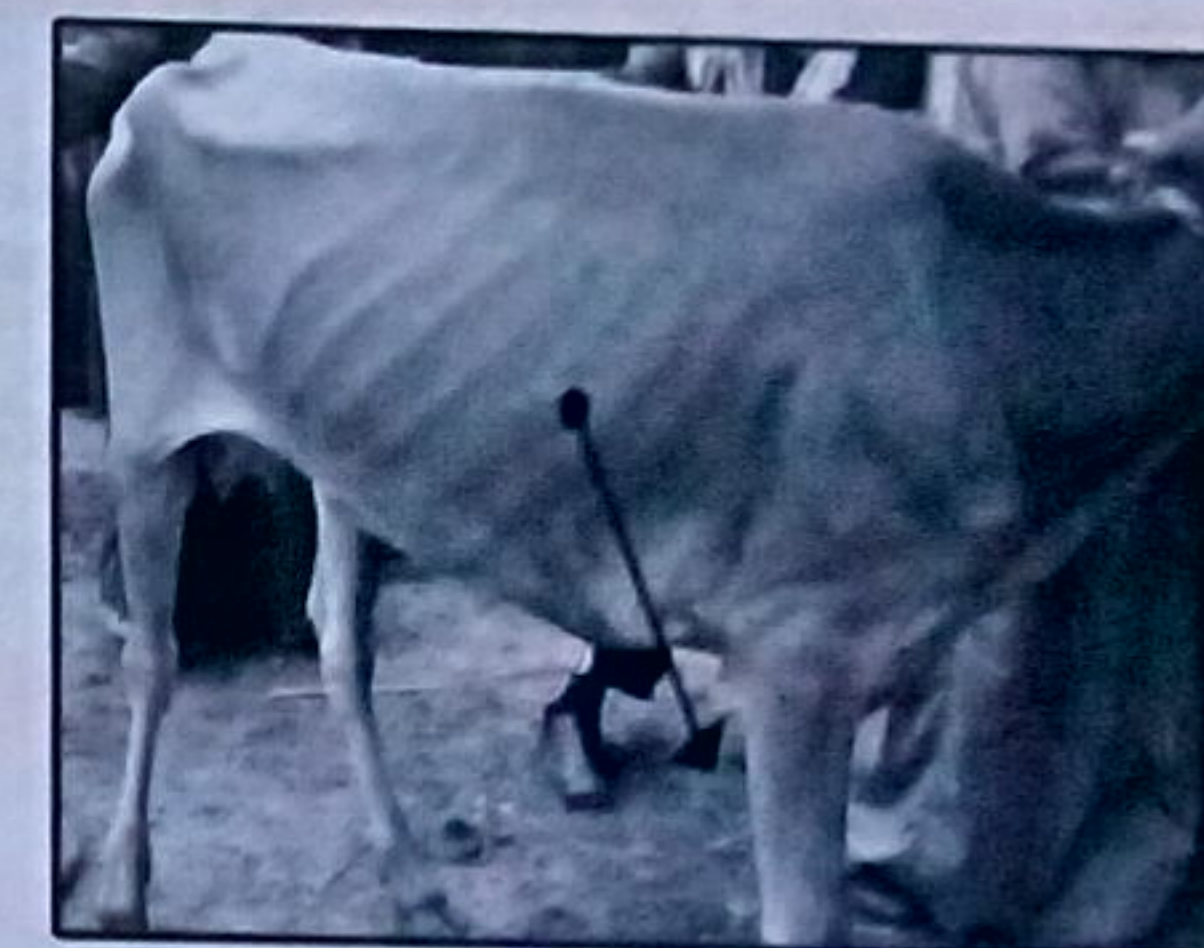
- Blood tests show increased white blood cells, a secondary ketosis.
- Exploratory rumenotomy can be used to locate wire.
- Animals will grunt when withers firmly pressed down.
- Pericarditis identified by muffled heart sounds accompanied by splashing.
- **For many cows in chronic phase** the only diagnosis possible is a non-specific indigestion, because the signs of traumatic reticulitis are limited.

Treatment:

- Surgical treatment (rumenotomy and removal of wire) can be useful in early cases if spread is not too great.
- Conservative treatment (antibiotics, anti-inflammatory and a rumen magnet) can also be effective in mild cases.
- Severely affected cases, particularly those with pericarditis, should be humanely slaughtered as soon as possible as treatment will almost certainly be ineffective.
- **Injections of anti-inflammatory** significantly improve cow wellbeing and help to restore the cow to normal production more quickly.



Tympany



Abscess in the chest

Abomasal Displacement انزياح المعدة الرابعة

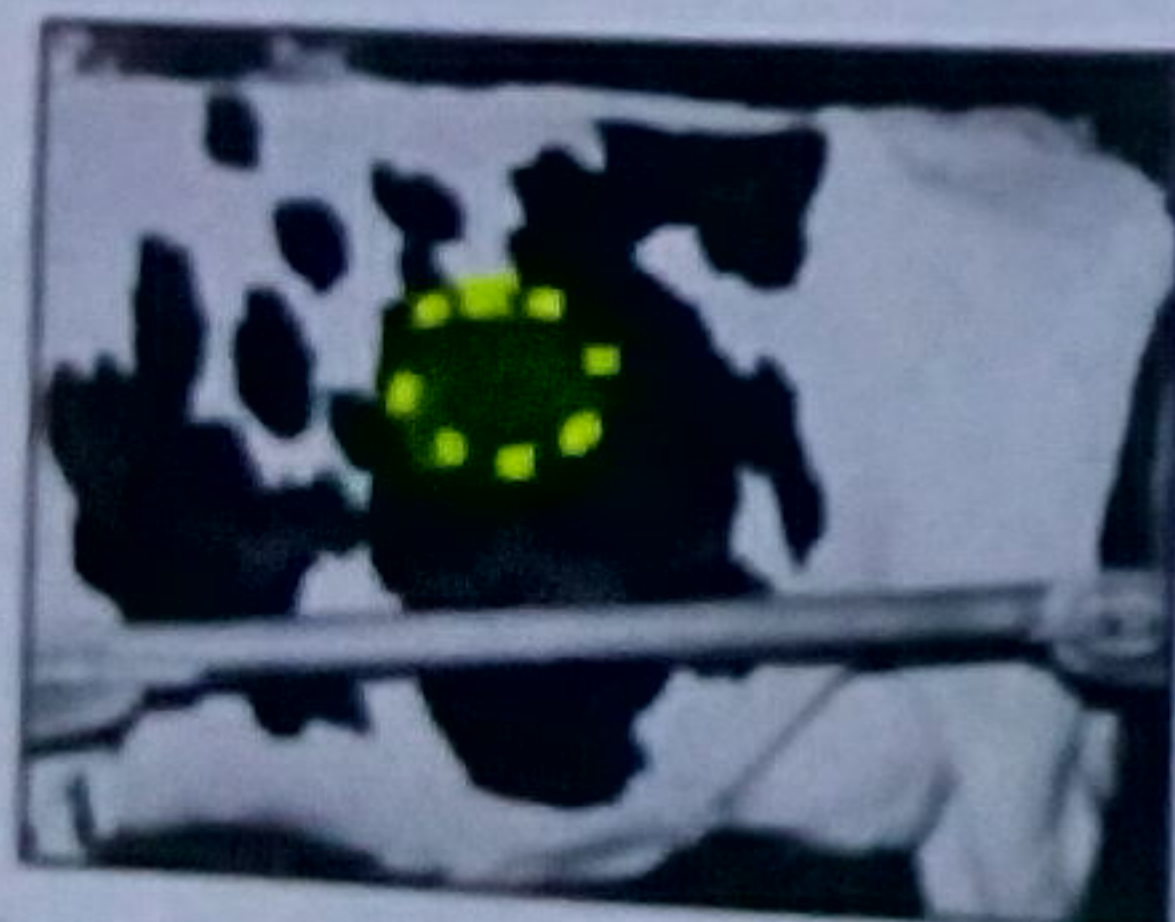
It is a common disease of high producing cows, in which the abomasum is displaced from its normal position either to the left side (between the rumen and left abdominal wall) or to the right side (between the liver and right abdominal wall) or into anterior position (between the reticulum and diaphragm).

- ✓ Auscultation of an area below a line from the centre of the left flank to behind the left elbow reveals the presence tinkling sound every 15 min.
- ✓ Bulging of the anterior part of the flank region due to distended abomasum (tympanic and gives resonant sound).
- ✓ Keton smell from the mouth.
- ✓ The disease must be suspected in every case of ketosis where there is no response to treatment.

Treatment:

- Surgical interference is the best method of treatment.
- The recovered animal does not used in milk production again.
- Rolling of the animal

يوضع الحيوان على ظهره ومحاولة جماعية لتحريك قوائمه (مع بعض) يسارا في محاولة استرجاع الوضع الطبيعي اليميني المفقود



A typical area of ping outlined in a cow with an LDA

Post-Parturient paresis, Milk fever حرش المصفر

Parturient paresis is an acute to peracute, a febrile, flaccid paralysis of mature dairy cows that occurs most commonly at or soon after parturition characterized clinically by:

Parturient paresis usually occurs within 72 hr of parturition. The disease can contribute to dystocia, uterine prolapse, retained fetal membranes, metritis, Abomasal displacement, and mastitis.

1. Stage I: Signs of hypersensitivity and excitability. Cows may be ataxic, have fine tremors over the flanks and triceps, ear twitching and head bobbing. Cows may appear restless, shuffling their rear feet and bellowing.

2. Stage II: unable to stand but can maintain sternal recumbency. Subnormal body temperature and cold extremities. Smooth muscle paralysis leads to GI stasis, which can be manifest as bloat, failure to defecate, and loss of anal sphincter tone. An inability to urinate may be manifest as a distended bladder on rectal examination. Cows often tuck their heads into their flanks, or if the head is extended, an S-shaped curve to the neck may be noted.

3. Stage III: cows lose consciousness progressively to the point of coma. They are unable to maintain sternal recumbency, have completed muscle flaccidity, unresponsive to stimuli, and can suffer severe bloat. If untreated, cows in stage 3 may survive only a few hours.

Differential diagnoses include toxic mastitis, toxic metritis, other systemic toxic conditions, traumatic injury (e.g., stifle injury, coxofemoral luxation, fractured pelvis, spinal compression), calving paralysis syndrome (damage to the L6 lumbar roots of sciatic and obturator nerves).

Treatment:

R/ Cal-D-Mag® 500-1000 cc/ cow or buffalo, I/V.

R/ Phosphnortonic® or Cafosal® 20 cc/ cow. I/V, I/M, daily for 3 days.

R/ Dexamethasone® 20 cc I/M/cow as corticosteroids for treatment of shock.

R/ Multivitamin® 20 cc I/M/cow as a nerve tonic.

R/ Dextrose 5%, 2 liters I/V/ cow or buffalo.

R/ Calci Mag® oral gel as a source of calcium and other minerals, 60 cc/ cow or buffalo, orally for 2 days.

- Hypocalcaemic cows typically respond to therapy immediately. Tremors are seen as neuromuscular function returns. Improved cardiac output results in stronger heart sounds and decreased heart rate. Return of smooth muscle function results in eructation, defecation, and urination once the cow rises.
- Approximately 75% of cows stand within 2 hr of treatment.
- Animals not responding by 4-8 hr should be reevaluated and re-treated if necessary.
- Incomplete milking has been advised to reduce the incidence of relapse.
- Administration of vitamin D₃ and its metabolites is effective in preventing parturient paresis.



Sternal recumbency in a cow with milk fever

Hypophosphatemia Post-Parturient Hemoglobinurea

It is a metabolic disease of high producing dairy cows usually occur during 2-6 weeks after parturition, the disease usually occur in buffaloes at the 5th -7th months of pregnancy caused by low phosphorous level in the blood resulting from low phosphorous through grazing on pasture for long period (3-4 months on barseem). The clinical signs are grouped in the following:

1. Haemoglobinuria.
2. Anemia, general weakness.
3. Jaundice & dehydration.
4. Ketosis & locomotion disturbance.

هذا المرض منتشر في الجاموس في مصر، خصوصاً في آخر موسم البرسيم، حيث التغذية على البرسيم فقط لفترة طويلة فنجد الجاموس يتبول بول لونه مثل لون القهوة ونجد الحيوان يعزف عن أكل البرسيم. في بداية هذا المرض نجد الجاموس يأكل أوراق البرسيم دون سيقانها (أي إختيارية في تناول الغذاء).

Treatment:

R/ Tonophosphane® 50 I/V daily for 3 days.

Or

R/ Phosphonortonic® or Tonophosphane® compositum 100 cc I/V, I/M, S/C. Divided on 3 days (more effective).

R/ Cafosal® 20 cc/ cow. I/V, I/M, daily for 3 days.

R/ Dextrose 5%, 4 liters I/V/ cow or buffalo (glucose is very important in the line of treatment because the RBCs integrity depend on glucose).

R/ Cal-D-Mag 200-500 cc/ cow or buffalo, I/V.

R/ Sodium dibasic phosphate in the ration 10 gm/daily for 5 days.

* لولم تجد استجابة للحيوان بعد العلاج بالفسفور، فقم بحقن دكستروز 5% بالوريد مع الكالسيوم.

Hypomagnesemic tetany تكزز نقص الماغنسيوم

More common in buffalo calves and characterized by:

1. Opithitonus, bellowing and frothy salivation.
2. Muscle tremors and hyperesthesia.
3. The animal appears apprehensive with the head held high and a mild tremor.
4. The gait stiffens, and the animal begins to stagger and frequently falls over.
5. The animal becomes recumbent (lies on its side unable to get up), with marked convulsions.
6. Death.

* عادة ما يأخذ المرض شكل نوبات صرعية ويحدث في العجول التي يتراوح عمرها ما بين 2-4 شهور والتي يتكون غذاؤها من الحليب فقط.

في هذا المرض يرفع الحيوان رأسه ورقبته لأعلى + ارتعاشات عضلية يعقبها زبد رغوي من الفم ويرافقها صراخ العجل المميز والذي يطلق عليه صراخ التكزز + ظهور أغلب بياض العين . بعد انتهاء نوبة الصرع ينهض الحيوان ثانية ويبدو وكأنه بصحة جيدة ثم لا يلبث أن يصاب بنوبة ثانية . (متوسط عدد النوبات حوالي 6 نوبات في اليوم) .

Treatment:

R/ Neurazin® or Neuril® 1 amp/ 70 kg. Bwt, I/M as tranquilizer for handling.

R/ Cal- D-Mag® 200 cc I/V/ calf. Other alternatives in the market such as Cal Bor Mag®, Calmagose®, Cofacalcium®.

R/ Vetalgin® 8 cc / 100 kg. Bwt I/V, as analgesic and antipyretic. In cases of hyperthermia and pain due to convulsions.

R/ Multivitamin® 10 cc I/M/calf as a nerve tonic.

R/ Calci Mag® oral gel as a source of calcium and other minerals, 20 cc/ buffalo calf, orally for 3 days.

Pregnancy Toxemia in Sheep سمية الحمل في الأغنام

This condition affects intensively raised sheep and may be associated with sudden feed changes, the risk factor increased in late pregnancy and multiple pregnancies (twins) and obesity. Characterized clinically by:

Blindness, head pressing, tremors, convulsions, star-gazing position, incoordination and ataxia.

Treatment:

R/ Extra Vit gel® 10 cc orally /sheep daily for 5 days. As a source of propylene glycol and vitamins.

R/ Neuroton® or Neurovit® 2 amp I/M/ sheep. As a source of vitamin B complex.

R/ Oxybral® 2 amp I/M/ sheep. For protection of brain from damage effect of Keton bodies.

R/ Dextrose 25% , 500 cc I/V as a source of glucose.

R/ Dexamethasone® 8 cc I/V.

→ Cesarean section:

- Is necessary immediately. Response to therapy without a cesarean is poor, and even with surgery, response is variable to poor.

Melena تَقَوُّطٌ أَسْوَد

The feces become black in color and scanty in amount. In addition, there is abdominal pain, anorexia and sometimes jaundice. Tarry-colored feces in cattle occur due to **piroplasmosis**, **Abomasal ulcers** and **displacement**.

تجد الحيوان يخرج براز لونه أسود مثل لون القطران وذو كثافة عالية.

Treatment:

R/ Epicogel® emulsion, one bottle orally / daily for 5 days.

R/ Sodium bicarbonate 100 gm/100 kg B.wt. orally 3 times / day, for 5 days.

R/ Zantac® (Ranitidine) 5 amp/ cow I/V in Dextrose 5% as infusion daily for 3-5 days.

R/ Multivitamin® 20 cc, I/M / cow daily for 3-5 days.

R/ Amoxykel® or Clamoxyl® (Amoxycilline) 25 cc I/M / cow, for 3 days.

→ In case of piroplasmosis use the proper drugs.

Diarrhea الإسهال

It is a disorder in the GIT characterized by:

- ⇒ Frequent evacuation of the bowel.
- ⇒ Feces are watery and may be tinged with blood.

ملحوظة: الإسهال عرض وليس مرض قائم بذاته وبالتالي يجب علاج السبب الرئيسي.

It may be:

1- Dietetic:

In calves-----> ingestion of large volumes of milk.

In adults-----> after ruminal acidosis as in sheep (has a characteristic odor).

2- Infectious causes-----> bacterial, viral.....etc. characterized by rise in body temperature + offensive odor of the watery feces.

3- Parasitic diarrhea: due to parasitic gastroenteritis (nematodes) or trematodes (i.e. Fascioliasis).

N.B

A. Diarrhea + fever + anorexia-----> infectious cause (viral or bacterial).

B. Diarrhea + normal body temperature + normal appetite-----> Mainly parasitic cause.

C. In buffaloes (diarrhea+ normal body temperature + sudden sharp decrease in milk yield) -----> usually Fascioliasis.

D. in sheep -----> bottle jaw ± diarrhea -----> Fascioliasis.

E. diarrhea in calves may be due to Ascariasis.

عدم استجابة العجل لأدوية الإسهال العادية وتجده يتثائب ويلحس الحائط والأرض ويأكل الأشياء الغريبة. أو تجد ديدان الأسكارس في براز العجل ذات الطول والشكل المميز.

F. Diarrhea + blood + straining in calves (6-9 months age) -----> Coccidiosis.

Treatment:

R/ Dextrose-saline or Rehydration solution 500 cc as fluid therapy + Kombitrim 240® (sulphamethoxazole+ Strimethoprim)+ Vetalgin® 10 cc. all infusion I/V + Atropine sulphate 2-3 cc S/C.

R/ Sulphadimidine powder 140 mg/kg .B.WT + tannic acid 2gm . Orally.

R/ 4.S.DAD bolus(Sulphadiazine+sulphamerazine+sulphapyridine+ treptomycine) 1 bolus / 35 kg .bwt for 3 days orally, it is an effective antidiarrheal.

R/ Biodirestin® or Sulphamix® (Sulphadimidine+sulphathiazole+sulphadiazine) sachets, 1 sachet /calve orally. 1/2 sachet/ lamb orally.

R/ Piprazine citrate 100%, 100-300 mg/ kg bwt. (20 gm/ 100kg bwt), for treatment of Ascariasis in calves.

✎ In cases of chronic diarrhea (as parasitic type) especially buffaloes and cattle.

R/ Rafoxanide 1cc/ 25 kg. Bwt, S/C. repeate after 4 weeks.

Or

R/ Fascoilide 1cc/ 25 kg. Bwt, S/C. repeate after 4 weeks.

Or

R/ Flukanile® (Rafoxanide) tablets 1 tab./ 80 kg bwt. Orally in early morning on empty stomach. (gives good results with chronic diarrhea).

R/ Super ivomec 1 cc/50 . Bwt, S/C, in cases of complicated parasitic gastroenteritis and Fascioliasis.

ملحوظة: بعض الخلطات التي تستعمل في حالات الأسهال خصوصا العجول الرضيعة

R/ Streptomycin powder 10 mg/ kg. B.wt + Neomycin + sulphaguanidine.

R/ Sulphadimidine + sulphaquinoxaline + tannic acid.

✎ In cases of straining + bloody diarrhea (Coccidiosis).

R/ Amprolium 20% 1 gm / 20 kg. BWT, orally for 4-5 days+ Kombitrim 240® (sulphamethoxazole+trimethoprim) I/V very slowly.

✎ Some drugs present in the market used for treatment of diarrhea effectively such as: Biodiaristin®, Cotrimazine® tablets, Sulphavet® powder, Compistin® powder, Enrovet® soln, Trimazin 30® powder. (see the recommended doses at the tables of the drugs at the end of the book).

Constipation in calves إمساك العجول الصغيرة

Mainly occur in young suckling calves characterized by:

- ⇒ Straining تحزيق مع رفع الذيل للأعلى
- ⇒ Cessation of suckling.
- ⇒ Some times passage of small hard fecal matter with offensive odor.

Treatment:

R/ Lactulose® syrup (of human preparation) 50 cc orally as one dose. Other alternatives in the market such as Duphalac syr, Sedalac syr, Lactulax syr, Lactoline syr.

R/ Enemax® or Enema® as rectal enema as one dose. Or rectal enema with soft soap and warm water with regular interval.

R/ Magnesium sulphate 60 gm orally.

Hind Limb Paresis in Young Lambs

Mainly vitamin E and selenium deficiency characterized by

- ✓ Weakness and trembling of the hind limbs.
- ✓ Rotatory movement of the hock joint.

تجد الحمل لا يستطيع القيام على قدمية الخلفيتين

Treatment:

R/ Vitaseleen® (vit E and selenium) 1-5 cc I/M, two days, then followed by one dose every week for 3 weeks. Other alternatives in the market such as Myogasater-E, Vitesel (inj).

R/ Multivitamin® 5 cc I/M for 3 days. Or Neurovit, Neurotone 1 amp/lamb I/M for 3 days.

R/ Dexamethasone® 5 cc I/M for 3 days.

R/ Copper sulphate 1/4 gram orally / lamb once per week for 3 weeks.

- غالبا التحسن يبدأ بعد ٣ أيام من العلاج حيث يبدأ الحمل المشي بخطوات قصيرة ثم يهوي على الأرض.

Nervous manifestation and circling in sheep

1. Listeriosis:

☛ Sudden circling in one direction + fever + blindness + occurs at any age....
تجد الحيوان يدور في اتجاه واحد في دائره كبيره ثم دائره اصغر فأصغر....

2. Coenurosis (Coenuris cerebralis - parasitic cyst):

☛ Chronic circling in the direction of the blind eye + head pressing or the head held to one side + normal body temperature + mainly in older ages.
تحدث في الأعمار الكبيرة + الأعراض تكون متقطعة + والحيوان يتجه برأسه ناحية الأركان.

3. Pregnancy toxemia:

☛ Pregnant ewe in late stages + stiffness of the neck + sometimes stare-gazing position + acetone smell from breathing.
رائحة الأسيتون من الفم مثل رائحة الثوم + وضع الحملقة في النجوم ولكن أكثر في الماعز.

4. Lead poisoning:

☛ Salivation + twitching of head muscles.

5. Thiamine deficiency

☛ Stare-gazing position is a characteristic symptom.
وضع الحملقة في النجوم.. أهم ما يميز هذا المرض.. ويزول بسرعة مع العلاج.

6. Tetanus:

Common in sheep and goat, characterized clinically by:

- ☛ Stiff gait + tympany + erected ear.
- ☛ Locked jaw + dilated nostrils.

تجد الحيوان واقف مخشب ويتحرك كقطعة واحدة + نفأخ حاد لا يستجيب للعلاج + الفم مغلق بشدة + ألعاب من الفم + ولو ضربت الحيوان تحت الفم تجد الجفن الثالث يتحرك ولو وقع الحيوان علي الأرض لا يستطيع أن ينهض ثانية بمفرده + الحساسية الزائدة للحيوان لأي مؤثر خارجي.

Treatment:

⇒ Listeriosis:

R/ Cefazone® 1 gm I/V (of human preparation to pass through blood brain barrier) + Gentamycin 10% 4 cc/100 kg. Bwt I/V.

R/ Oxybral® 1-2 amp I/M daily for 3 days.

R/ Dexamethasone® 5 cc I/M for 3 days, for sheep.

R/ Vetalgine® 8 cc/ sheep I/V.

⇒ Parasitic cyst:

The treatment is of no value, but with the following treatment, the clinical symptoms disappear for 5-7 days then return.

R/ Dexamethasone 5 cc I/M for 3 days, for sheep.

R/ Oxybral® 1-2 amp I/M daily for 3 days.

R/ Multivitamin® 5 cc I/M for sheep.

⇒ Thiamine deficiency:

R/ Varolex® 4 cc I/V daily for 3 days.

R/ Neurovit® 1-2 amp/sheep, I/M daily for 3 days

R/ Oxybral® 1 amp I/M daily for 3 days.

⇒ Tetanus:

R/ Penicillin-G sodium 3500 IU/ 1 kg. Bwt I/V.

R/ Antitetanic serum 100.000 IU kg. Bwt I/V, I/M, S/C.

R/ Vetalgine® 8 cc I/V for sheep and goat as analgesic.

R/ Xylazine 0.25 cc I/M in ewe and 0.2 cc I/M in goat, as a muscle relaxant.

- ☛ Irrigation of the site of wound with hydrogen peroxide.

Varolex®
Not given I/V
But I/M only

Nutritional Deficiency Diseases

أمراض النقص الغذائي

1. Copper deficiency:

Anemia, falling disease in cattle, beat scour syndrome, steely wool syndrome in sheep and enzootic ataxia in young lambs and kids (incoordination of hind limbs and knuckling over the fetlock).

2. Zinc deficiency:

Parakeratosis and alopecia around the muzzle, tail and back of the hind legs. Infertility, eating of wool in sheep.

3. Iodine deficiency:

Anestrous in cattle, alopecia, decrease of milk production and enlargement of thyroid gland.

4. Cobalt deficiency:

Anemia, loss of body weight, decreased wool production, milk production, and decreased appetite and pica.

5. Vitamin E deficiency:

White muscle disease in young lambs and calves, characterized by, stiffness, Weakness and trembling of the hind limbs, rotatory movement of the hock joints, muscles are hard and rubbery.

6. Vitamin B-complex deficiency:

A. Vitamin B1(thiamin):

Muscular incoordination especially in hind limbs, opisthotonus.

A. Vitamin B12(Cyanocobalamine):

Anorexia and muscular weakness.

Treatment:

NB: Generally, in the deficiency diseases, the animal is suffering from many deficiencies not in one element only, so you should give many sources for minerals and vitamins during treatment.

1. Copper deficiency:

R/ Copper sulphate, Cattle 5 gm orally /week for 3-5 times. Calf 2 gm orally /week for 3-5 times. Lamb 1-2 gm orally /week for 3-5 times.

R/ Multivitamin 10-15cc I/M for 3 days /Cow.

2. Zinc deficiency:

R/ Vitazine® 3-4 cap / cow in the morning ration for 10 days as a source for zinc, vit A, E.

or

R/ Zinc sulphate 200 mg/kg. bwt daily for 3 weeks.

3. Iodine deficiency:

R/ Potassium iodide 0.5 - 1 mg/kg dray matter / feed daily intake in pregnant and lactating cattle.

- Potassium iodide should be supplied in the ration of pregnant ewes in late stages of pregnancy to prevent goiter in lambs.

4. Cobalt deficiency:

R/ Cobalt sulphate 1 gm/cattle and 0.5 gm /sheep and calf orally.

R/ Tonophosphane compositum® 20 cc /cattle and 5 cc/sheep I/M.

R/ Multivitamin 20 cc, I/M / cow daily for 3-5 days.

5. Vitamin E deficiency:

R/ Vitaseleen® (vit E and selenium) 1-5 cc I/M, two days, then followed by one dose every week for 3 weeks. Other alternatives in the market such as Myogasater-E, Vitesel (inj).

R/ Multivitamin® 5 cc I/M for 3 days.

R/ Dexamethasone® 5 cc I/M for 3 days.

- Vitamin E and selenium should be given to pregnant cows and ewes in late stages of pregnancy to prevent white muscle disease in calves and lambs.

6. Vitamin B-complex deficiency:

R/ Multivitamin® or Vitaject® 20 cc, I/M / cow, 5-10 cc/ sheep I/M, daily for 3-5 days.

Rickets رخد-كساح

More common in young animals (calves and lambs) caused by calcium, phosphorus and vitamin D deficiency, characterized clinically by:

1. Stiffness in gait.
2. Enlargement of the forelimb joints.
3. Curvature of the long bones.

هذه الحيوانات تاريخها يدل على أنها حبيسة في الظل وبعيدة عن التعرض لضوء

Treatment:

R/ Cal- D-Mag[®] 100- 200 cc I/V, I/M calf. 50 cc / lamb. Other alternatives in the market such as *Cal Bor Mag[®]*, *Calmagose[®]*, *Cofacalcium[®]*.

R/ Tonophosphan compositum[®] or Phosphonortonic[®] 5-10 cc / calf, 3-4 cc / lamb I/M. day after day for 5 days.

R/ Multivitamin[®] 5-10 cc / calf, 5 cc / lamb I/M. day after day for 5 days.

R/ Decal-B12[®] syrup 5 cc / lamb, 10 cc / calf, orally twice daily for 10 days.

R/ Calci Mag[®] oral gel as a source of calcium and other minerals, 20 cc / buffalo calf, orally for 3 days.

➔ Expose animals to the sunlight of the morning.



Rickets in a Lamb

Skull Trauma

بعض الحالات فيها يصطدم الحيوان برأسه أو نتيجة ضربة قوية على الجمجمة والتي تؤدي الى استرخاء الحيوان وترنحه وخروج لسانه.

Skull trauma characterized by:

- ✓ Ataxia, incoordination.
- ✓ Semi-paralysis of the tongue.
- ✓ The animal appears apparently blind.

Treatment:

R/ Oxybral[®] 1 amp / 70 kg.bwt + *Dexamethasone[®]* + *Tri-B[®]* infusion with *Dextrose 5%*.

R/ Heamostop[®] or Dicynon[®] 1 amp / 70 kg. Bwt, I/M.

R/ Penicillin-Streptomycin combination I/M.

Pica انحراف الشهية

Pica defined as depraved appetite, such as eating of wood, dirt, bones or other non-specific feedstuffs, caused by:

1. Protein calorie malnutrition.
2. Parasitic infestation.
3. Nutritional deficiency, such as phosphorous, salt and protein.

Treatment:

➤ Treatment of internal parasites (give anti-parasitic drug such as Ivermectine, Albendazole, Triclabendazole or Nitroxylin....).

➤ Correction of protein and mineral supplement in the ration.

R/ Sodium chloride supplementation in the ration.

R/ Tonophosphan copositum[®] or Phosphonortonic[®] 10 cc I/M every 2 days for 5 times, as injection source of minerals.

R/ Extra vit[®] oral gel 20 cc orally / cow every day for 3 days.

Decrease growth or weight gain

Decrease growth or weight gain in ruminants caused usually by:

1. Nutritional causes → protein, copper and selenium deficiency.
2. Parasitic → nematode- liver flukes – lungworm – **external parasites (mange- lice- ticks)**.
3. Liver diseases and hepatic abscess.
4. Dental abnormalities.
5. Musculoskeletal → **foot rot-sole abscess**.
6. Other diseases → john's disease- Abomasal ulcers- traumatic reticulo-peritonitis – bovine leucosis – actinobacillosis – actinomycosis - anaplasmosis.

Treatment:

➔ Proper diagnosis and proper treatment of curable diseases.

Anemia فقر الدم

It is a deficiency of RBCs count and /or hemoglobin concentration- caused by many factors (hemorrhage, parasites, blood parasites, Hypophosphatemia.....) characterized clinically by variable degrees of **pale mucous membrane, weakness, increased respiratory rate, muscular tremors and subnormal temperature.**

Treatment:

R/ **Multivitamin[®]** 20-30 cc / cattle and buffalo, 5 cc / sheep and goat I/M. day after day for 5 days.

R/ **Cobalt sulphate** 1 gm/cattle and 0.5 gm /sheep and calf orally.

R/ **Tonophosphane compositum[®]** or **Phosphonortonic[®]** 20 cc /cattle and 5 cc/sheep I/M.

R/ **Arsinal[®]** 12-15 cc /cattle and 5 cc/sheep I/M or S/C.

NB In cases of sever anemia, blood transfusion should be done as follow:

1. Blood transfusion must be done between the same breed of the species.
2. Firstly, inject **50-100 cc by S/C route 1/2 hr before** transfusion to detect anaphylaxis.
3. Inject **100 cc blood/ 100 kg B.wt I/V within 72 hours** with sodium citrate anticoagulant (1/4 g-100cc of blood), also it could be stored in refrigerator for 2 days.
4. **Filtration with gauze could be done before transfusion.**

Cystitis التهاب المثانة البولية

It is an inflammation of the urinary bladder characterized by **frequent painful urination**, **arching of the back** especially after end of urination, **fits of colic** and **painful palpation of the urinary bladder**.

Treatment:

R/ **Enrofloxacin**® and/or **Gentamycin**® or **Gentaprim**®, **Borgal**®.

I/M, for cattle, as a specific antibiotic for urinary tract infections.

R/ **Lasix**® 3-4 amp / cow as diuretic.

R/ **Viseralgine**® 3-4 amp / cow or horse, I/V, as spasmolytic.

R/ **Vetalgin**® 20-30 cc I/M, I/V for cow or buffalo, as antispasmodic.

R/ **Coliurinal**® or **Uricol**® 20 gm/ 300 cc water as urinary antiseptic.

R/ **Potassium citrate** orally as a mild diuretic.

- Urinary catheterization and injection of mild antibiotic such as Gentamycin or diluted Oxytetracycline.



Arching of back (Cystitis in a Cow)

Urolithiasis in ram and buck التحصي البولي

It is an obstruction of the urethra leading to urine retention, it is **more common in castrated males** that feed on high concentrated ration characterized clinically by:

1. Restlessness with frequent attempts to urinate + passage of small drops of urine.
2. Grinding on the teeth.

تجد الحيوان (خصوصاً الماعز) يتألم ويصدر صوت أنين وألم ويقوم ويرقد عدة مرات ويرفس بطنه بقدميه الخلفيتين ويجز على اسنانه.

Treatment:

R/ **Xylazine** 0.2-0.3 cc/ram or buck I/M for pain relief and muscle relaxant.

Or

R/ **Vetalgin**® 5-10 cc/ram or buck, I/V.

R/ **Viseralgine**® 2 amp / ram or buck, I/V as spasmolytic.

R/ **Glucolynamine**® 1 amp/ ram or buck, I/V.

R/ **Coliurinal**® or **Uricol**® 10 gm/ 150 cc water as urinary antiseptic orally.

→ Make urethrotomy → cutting of urethral process, but if this **male used for breeding**, it become **unsuitable for fertilization** after cutting of urethral process.

NB Other spasmolytics of human preparations could be used such as *Buscupan compositum*, *Spasmofree*, *Dos-pa*, *Farcorelaxine* (ampoules).

Hematuria بيلة دموية

Hematuria defined as blood in the urine, it may appear as gross blood clots passed at the beginning, during or at the end of urination or as a more uniform of red discoloration throughout urination without clots. it may caused by :

- Urethra -----► calculi – trauma – urethritis – papilloma.
- Bladder -----► neoplasms – calculi – cystitis – polyps.
- Kidney -----► pyelonephritis – trauma - infection.

Treatment:

R/ Glucolynamine® 1 amp/ 70 Kg.b.wt, I/V.

R/ Dicynone® or Haemostop® 4-5 amp. I/V infusion with Dextrose 5% .

R/ Amri K 4 amp I/M + Vitamin K powder in the ration (10 gm daily for one week).

R/ Cal-D-Mag 200 cc/ cow or horse, I/V.

R/ Coliurinal®, Uricol® 10- 15 gm dissolved in 200 cc water and given orally as urinary antiseptic.

R/ Amoxykel 15%® or Clamoxyl® (Amoxycilline) 25 cc I/M / cow.

R/ Lasix® 1 amp. / 70 kg.b.wt. I/M / cow or horse.

NB

1. **Hematuria: red urine** but if the bloody urine begin at the onset of the urination → source is urethra. If the blood comes out at the end of urination → source is urinary bladder. If blood comes along the urine stream → source from the kidney.
2. **Hemoglobinurea: brown colored urine** → in cases of Hypophosphatemia and babesiasis.
3. **Myoglobinurea: brownish to black in color** → **azoturia in equine.**

لونه اسود بني - نقص ph
Babesiasis

لونه اسود بني إلى اسود - Azoturia في فصيلة الخيلية

Epistaxis النزيف الأنفي

Bleeding from the nostrils or from nasal sinus, the blood coming from the nostrils may be:

1. Bright red bleeding -----► of nasal origin.
2. Bright red bleeding + frothy -----► of lung origin.
3. Brown and mixed with ingesta -----► of stomach origin.

Possible causes:

1. Trauma, foreign body, or neoplasms and over exercise in equine.
2. Parasitic such as oestrous ovis in sheep, gastrophilus nasalis in equine.
3. Hemorrhagic polyps of nasal mucosa.
4. Moldy sweet clover poisoning in cattle.

Treatment:

R/ Nasal plug soaked with adrenaline 2%.

R/ Dicynone® or Haemostop® 4-5 amp I/V infusion with Dextrose 5%.

R/ Amri K® 4 amp. I/M + Vitamin K powder in the ration (10 gm daily for one week).

R/ Cal-D-Mag® 200 cc/ cow, I/V.

R/ Ivomec® 1cc/ 50 kg.bwt S/C in cases of estrus ovis in sheep.

Tracheitis, Bronchitis, Pneumonia

It is an inflammation of trachea, bronchi and/or lung tissue caused by infectious (e.g. equine influenza...) or non infectious causes (exposure to cold and irritant gases) characterized clinically by nasal discharge, *cough*, increased respiratory rate, increased temperature and congested mucous membranes.

Treatment:

R/ Combi-kel 20+20[®] or Pen&Strep[®] or Penbex[®] or Norocillin[®] 25 cc/ cow I/M, daily or Amoxy-kel 15, Cattle 1cc/10-20 kg b.wt once daily for 3-5 days, I/M and S/C. other alternatives in the market such *Amoxyveto-15, Spectrama-Vet, Nuflor (inj), Avitryl-5 (inj)*.

R/ Vetalgin[®] 8 cc / 100 kg. Bwt I/V, as analgesic and antipyretic.

R/ *Minphyllin[®]* and corticosteroids (Dexamethasone or Predef 2X) as bronchodilators.

R/ Avipect[®] or Bronchistal[®] 30 cc orally twice daily / horse, as a cough sedative, for 3 days.

Chronic alveolar emphysema نقص التهوية السنخية المزمن

Common in equine characterized by chronic dyspnea + cough + heaves line formation.

Treatment:

R/ *Etaphylline[®]* or *Ventoline[®]* 4-5 amp I/M, I/V/ horse as bronchodilator. Other alternatives such as *Minophyllin N, Minophyllin 500* amp can be used.

R/ *Tavagyl[®]* 4-5 amp I/M, I/V horse, as antihistaminic. .

R/ *Avipect[®]* or *Bronchistal[®]* 30 cc/horse orally twice daily for 3-5 days.

R/ *Dexamethasone[®]* 20 cc/horse in sever cases for 3 days.

R/ *Combi-kel 20+20[®]* or *Penbex[®]* or *Pen&Strep[®]* or *Norocillin[®]* 25 cc/ horse I/M, daily for 3 days.

40 { - pentomycin
- Tavagyl / Dexamethasone
- Etaphylline = ventoline.
- Avipect / Bronchistal

Edema وذمة

It is an excessive accumulation of fluid transudate in the tissue spaces and body cavities, characterized clinically by edematous swelling, which is soft, painless and pit under pressure. Ascites ----

-----► is distension of abdomen.

Udder edema is common in high-producing dairy cattle (especially heifers) before and after parturition. Predisposing causes include genetics, nutritional management, obesity, and lack of exercise during the precalving period. Physiologic edema is not usually painful and occurs when pitting edema develops symmetrically in the udder prior to parturition.

Treatment:

R/ *Lasix[®]* 1 amp/70 Kg.Bwt, I/M, I/V/ as a diuretic.

R/ *Diurizone[®]* 10 cc/cattle or horse I/M, I/V/ or S/C as a diuretic.

R/ *Tavagyl[®]* 4-5 amp I/M, I/V horse, cow, as antihistaminic in case of allergic edema. .

R/ *Mega mast[®]* oint. Paint twice daily in case of local edema and udder edema.

R/ *Hemoclar[®]* oint. Paint twice daily in case of local edema and udder edema.

→ Udder edema:

- Massage, repeated as often as possible and hot compresses stimulate circulation and promote edema reduction.
- Products that combine *diuretics and corticosteroids* are available for treatment of udder edema.

Milk allergy

تحدث نتيجة عدم حلب الحيوان حلبتين أو ثلاث حلبات متتاليه.

Milk hypersensitivity characterized by:

- ✓ Difficult breathing.
- ✓ Skin lesions (urticaria).
- ✓ Swollen vulva and ears become Swollen and erected.
- ✓ The udder become enlarged + dropping of milk drops.

Treatment:

R/ Tavagyl® or Avil® 5 amp/ cow and buffalo I/M or I/V as anti histaminic.

R/ Dexamethasone® 20 cc cow and buffalo I/M + cold fomentation.

⇒ Evacuation of the udder gradually.

Equine Urticaria الحساسية في الخيول

Skin eruptions appear suddenly and characterized by skin lesions (erected hair upon skin eruption).

Treatment:

R/ Avil® or Tavagyl® 4-5 amp I/M, I/V for horse, daily for 3 days, as antihistaminic.

R/ Cal-D-Mag® 100 cc I/M, I/V for horse.

R/ Dexamethasone® 10-15 cc I/M, I/V for horse.

R/ Calamly® or Calamina® lotion for extensive lesions as emollient and soothing agent. Other alternatives such as Calamidine®, Muscal® lotion.

Abnormalities of milk supply

انقطاع لبن الثدي Agalactia

Failure of milk supply:

Agalactia may be caused by the following:

1. Aplasia of mammary glands, that occasionally seen in goats.
2. Failure of milk let down:
 - Nervous inhibition..... occurs in dams that give birth for the first time.
 - Inhibition through pain.
 - Lack of stimulation of the teats by the offspring: due to a disease or hypothermia and hypoglycemia.
3. Illness of the dam: in which the dam is so debilitated that is unable to produce milk (common diseases such as septic metritis with toxemia and pyrexia).
4. Injury to the udder, that resulted in damage of secretory mammary tissue.
5. Diseases of mammary glands: mastitis especially that caused by *E. coli* and *streptococcus uberis*.

Treatment:

- Minor tranquilizers + oxytocin in case of nervous inhibition.
- Proper treatment of post-partum sepsis.
- Proper treatment of mastitis.
- Calcium preparation + Dextrose 5% + Oxytocin in cases with unknown cause.

في بعض الأحيان نجد الحيوان (في الجاموس) يحلب مرة واحدة في اليوم بعد فصل العجل الرضيع عنها وعلاج هذه الحالات كالآتي:

R/ Oxytocin 2-3 cc I/M, daily for 3 days, on the morning.

R/ Calci-Mag® one syringe (60 cc), orally, on the morning.

R/ Rafoxanide® or Fasciolide® 1 cc/ 45 kg, S/C.

R/ Minerals, vitamins and antimycotoxines to be added in the ration.

oxytocin
Cal-D-mag
Rafoxanide
Minerals & vitamins

Common forms of animal toxicity

Organophosphorous compounds

Organophosphates and carbamates toxicity characterized by salivation, lacrimation, *miosis*, muscle tremors, seizures, bloat.

Treatment:

℞ Activated charcoal 60-80 gm orally for 500 kg animal.

℞ Atropine sulphate 0.25-0.50 mg/kg I/V, I/M and I/M.

℞ Pyridine aldoxime methiodide 20 mg/kg I/V or 10-15 mg /kg S/C twice daily. (PAM)

℞ Sodium chloride 0.9% 1-2 liter I/V as fluid therapy.

Strychnine Poisoning

Strychnine toxicity characterized by sweating, incoordination, recumbency, tonic-clonic seizures that are induced by loud noises, touch or bright light.

Treatment:

℞ Activated charcoal 60-80 gm orally for 500 kg animal.

℞ Anticonvulsant and muscle relaxant to control the convulsions.

Urea/Non-protein nitrogen

Urea/Non-protein nitrogen toxicity characterized by dyspnea, salivation, bruxism, bloat and convulsions.

Treatment:

℞ 20-30 liter of cold water with 2-6 liter 5% acetic acid (vinegar) orally for 500 kg animal.

℞ Rumenotomy to remove the huge amounts of NPN.

٢٠ لتر / ٢٠ لتر - ٢٠ لتر ماء

Veterinary Infectious Diseases

Babesiosis, Red Water Fever, Texas Fever Tick Fever

داء البابسيات

Acute or chronic infectious disease of cattle, buffaloes and equine, caused by babesia species characterized by:

⇒ Cattle and buffalo:

1. Sudden onset of high fever (40-42 °C).
2. Mucous membrane firstly congested, then pale and icteric in late stages.
3. Dark red to brown colored urine **or** stable frothy urine. البول رغوي بعد التبول
4. Pipe stems feces.
5. **Cerebral babesiosis**: convulsions, ataxia, incoordination, blindness and coma then death.

⇒ Equine:

1. Sudden onset of high fever (40°C), animal become reluctant to move.
2. Mucous membrane with petichial hemorrhage, then pale, icteric in late stages.
3. Edema of fetlock and ventral abdomen.
4. Haemoglobinuria may be present.

N.B The absence of ticks on the animal does not indicate the absence of the disease but the presence of ticks confirms the disease.

Treatment:

⇒ Cattle and buffaloes:

℞ Imizol® 1 cc/ 100 kg. Bwt, I/M or S/C. and you may need to repeat the dose after 48 hours in severe infections.

℞ Berenil® dissolved in 12.5 cc of water to be a solution of 15 cc for 300 kg, I/M, (1cc/ 20 kg Bwt).

℞ Vetalgin® 8 cc / 100 kg. Bwt I/V, for cattle and equine as analgesic and antipyretic.

• Another anti-blood parasites could be used in cases of blood parasite (Trypaject®, Trypanodad®).

℞ Oxytetracycline 10 cc/ 100 kg. Bwt, I/M or S/C or I/V for 3 days.

NB: Cerebral babesiosis:

Poor prognosis, but in these cases give the following treatments in addition to the previous drugs (some times gives good results).

R/ Dextrose 5%, 2 liters I/V + Dexamethasone 20 cc + Oxybral[®] 3 amp + Nootropil[®] 2 amp. + عسل أسود عن طريق الفم

R/ Cal- De - Mag 300 cc I/V very slowly.

➔ Equine:

R/ Imizol[®] (Imidocarb Dipropionate 12%) 2 cc/ 100 kg. Bwt, I/M or S/C. and you may need to repeat the dose after 48 hours in severe infections.

R/ Acaprin[®] 1 cc/ 50 kg. Bwt, strictly S/C or in the tail fold + atropine sulphate 2-4 cc/ animal S/C.

R/ Fluid therapy (Ringer lactate) + analgesic and antipyretic.

• Apply cold fomentation on the animal.

NB Young calves rarely to be infected with babesiosis but may be infected with Theileriasis.

Theileriasis داء الثيلرياس

Acute or chronic infectious disease of cattle, caused by theileria species characterized by:

1. High fever (40-42 °C).
2. Icteric Mucous membrane.
3. Enlarged lymph nodes.
4. Corneal opacity + swelling around the eyes.
5. Nasal discharge and dyspnea due to pulmonary edema.
6. Blood stained diarrhea.

✍ Treatment:

R/ Butalex[®] (Buparvaquonone) 1cc/ 20 kg. Bwt, I/M and you may need to repeat the dose after 48-72 hours in severe infections.

R/ Oxytetracycline 10 cc/ 100 kg. Bwt, I/M or S/C or I/V.

R/ Vetalgin[®] 8 cc / 100 kg. Bwt I/V, as analgesic and antipyretic.

Or

R/ Berenil[®] dissolve in 12.5 cc of water to be a solution of 15 cc volume for 300 kg, I/M, (1cc/ 20 kg Bwt). Repeat the dose after 48 hours.

R/ Oxytetracycline 10 cc/ 100 kg. Bwt, I/V, daily for 7 days.

R/ Arsinal[®] (sodium methyl arsenate) 15 cc S/C / cow, day after day for six times.

R/ Vetalgin[®] 8 cc / 100 kg. Bwt I/V, as analgesic and antipyretic, for 4 days.

Anaplasmosis مرض الأنابلازما

An infectious disease of cattle, and buffaloes, caused by anaplasma species characterized by:

1. High fever (40-42 °C).
2. Anemia.
3. Pale then icteric mucous membrane.
4. Enlarged lymph nodes.
5. Abortion.

Treatment:

R/ Imizol® (imidocarb dipropionate) 2.5 cc/ 100 kg. Bwt, S/C. and you may need to repeat daily for 3 days or two doses with 2 weeks apart.

R/ Oxytetracycline 10 cc/ 100 kg. Bwt, I/V daily for 10 days. Or Oxytetracycline LA 4 times with 3 days interval.

R/ Vetalgine® 8 cc / 100 kg. Bwt I/V, as analgesic and antipyretic.

R/ Vitamin B12, phosphorous, and other tonics for treatment of anemia.

Three Days Sickness, Bovine Ephemeral Fever

حمى الأيام الثلاثة

An infectious viral disease of cattle, and buffaloes, caused by *Ephemerovirus* of the family *Rhabdoviridae* characterized by:

1. High fever (40°C).
2. Anorexia.
3. Salivation, nasal and ocular discharge.
4. Enlarged lymph nodes.
5. Lameness, swelling of the joints and posture of the animal similar to that of acute laminitis.
6. Pulmonary emphysema may occur.
7. Subcutaneous emphysema may occur and accumulation of air under the skin of the back.

Treatment:

R/ Diclofenac sodium or Dexamethasone as anti-inflammatory, I/M.

R/ Oxytetracycline 10 cc/ 100 kg. Bwt, I/V daily for 3 days.

R/ Vetalgine® 8 cc / 100 kg. Bwt I/V, as analgesic and antipyretic.

R/ Cal- D-Mag® 300-500 cc very slowly I/V (after fever decline).

ملحوظة : لا تعطى أدوية عن طريق الفم حتى لا يترتب عليها

Drenching pneumonia

Foot and Mouth Disease, Aphthous Fever

الحمى القلاعية - مرض الفم والقدم - حمى الطباقي

An infectious viral disease of cattle, buffaloes and all cloven footed animals, caused by *Aphthovirus* of the family *Picornaviridae* characterized by:

تبدأ الأعراض على شكل حمى مؤقتة وامتناع الحيوان عن تناول الطعام مع سيلان لعابي غزير ، وسخونة واحتقان مخاطية الفم ، لتبدأ بعدها الحويصلات بالتشكل على اللسان والشفاه واللثة والحنك والوسادة السنية ، وتكون صغيرة أو كبيرة وتحتوي سائل ارتشاحي أصفر ورائق ، وبعد 2-3 أيام تتمزق هذه الحويصلات وتترك مكانها أماكن تعري وتقرحات مؤلمة على الغشاء المخاطي .

1. High fever (40°C) + sharp decrease in milk yield.
2. Anorexia.
3. Development of vesicles contain straw yellow colored fluid inside the mouth (tongue, dental bad) also vesicle formation on the teats and interdigital space.
4. Ropy salivation.
5. Lameness.
6. In calves, malignant fatal form causes myocardial necrosis (tiger heart) leading to death.

Treatment:

R/ Gentian violet, potassium permanganate 1:1000, boric acid 2%, sodium bicarbonate or Betadine® 10% as antiseptics for dressing the oral lesions.

R/ Oxytetracycline 10 cc/ 100 kg. Bwt, I/V or I/M daily for 3 days. To overcome secondary bacterial invaders.

R/ Vetalgin® 8 cc / 100 kg. Bwt I/V, as analgesic and antipyretic.

R/ Using of cod liver oil to increase the resistance of oral mucosa.

R/ Copper sulphate 5% dressing for the feet, using of coal tar or antibiotic ointment for interdigital lesions.

R/ Betadine® oint for interdigital lesion.

Lumpy Skin Disease (LSD)

داء الجلد الكتيل - الجلد العقدي

An infectious viral disease of cattle, caused by *Nethling virus* that similar to sheep pox virus characterized by:

1. High fever (40°C), for long period, lasts for 2 weeks.
2. Anorexia, Salivation, nasal and ocular discharge
3. Sudden eruption of painful raised firm round cutaneous nodules on the muzzle, perineum, neck and dewlap.
4. Enlargement of lymph nodes.
5. Internal lesions in the nasal cavity, respiratory air passage and a lung, which is fatal form.

تجد جلد الحيوان أصبح سميك وغير لين والحيوان لا يستطيع أن يستدير برأسه لكي يلحق جسمة كالعادة .

Treatment:

R/ Diclofenac sodium or Finadyne® as anti-inflammatory, I/M, is very important in the line of treatment.

R/ Combi-kel 20+20® or Pen&Strep® or Norocillin® 25 cc/ cow I/M, daily for 5 days to overcome secondary bacterial invaders.

R/ Vetalgin® 8 cc / 100 kg. Bwt I/V, as analgesic and antipyretic.

R/ Wash the body with vinegar twice daily.

R/ Betadine® oint application on the opened lesions.

R/ Levamisole 20 cc as immune-stimulant S/C.

Malignant Catarrhal Fever

الحمى الرشحية الخبيثة في الأبقار

It is highly fatal infectious viral disease of cattle and buffaloes, caused by *Herpes virus* characterized clinically by:

1. High persistent **Fever** (40-42°C), which does **not respond** to antipyretics.
2. **Enlargement of lymph nodes.**
3. **Stomatitis** with diffuse areas of necrosis, accompanied with **ropy** and bubbly **salivation.**
4. **Mucopurulent nasal discharge.**
5. **Profuse ocular discharge** with congestion of scleral blood vessels.
6. **Corneal opacity** that begins as **grey ring** at the periphery then spread centripetally.
7. Nervous signs may be developed, in the form of incoordination, muscle tremors, convulsions and paralysis followed by death.

Treatment:

- Of no value, only symptomatic treatment.

تشك في هذا المرض عند وجود مثل هذه الأعراض على حيوان يوجد في حظيرة مع أغنام (حامل للمرض) ..
وتجد حرارة الحيوان دائما عالية ولا تستجيب لخافضات الحرارة ولا المضادات الحيوية .

NB The disease is of low morbidity (sporadic cases) but with high mortality (100%).

Rabies السعار

An acute highly fatal infectious viral disease of warm blooded animals, caused by neurotropic RNA lyssa virus of *Rabdoviridae* family characterized clinically by:

In dogs:

1. **Prodromal phase:** the animal stop eating, become irritable with frequent urination and erection of penis.
2. **Furious phase:** the animal become hypersensitive to the external stimuli bites other animals and attack people.
3. **Paralytic phase:** paralysis of throat & masseter muscles, followed by paralysis of all muscles of the body.

In cattle:

Profuse ropy salivation, bellowing without voice, the cow become aggressive then paralysis of anus and bladder.

تجد البقرة تحاول أن تصدر صوت عواء ولكن لا تستطيع أو تصدر صوت عواء متقطع (كصوت القباع).

In horse:

Colic, chewing of foreign bodies and the horse may bite his self, producing multiple skin wounds, in addition, **sexual excitation & penile erection.**

In sheep:

Become aggressive and attack people + **profuse salivation and loud voice.**

* الإجراءات الواجب اتخاذها عند حدوث عض من حيوان مصاب بالسعار :

- ١- الكلاب والقطط (غير محصنة) التي تتعرض للعض من حيوان مصاب بالسعار يجب أن تعمد . أو يتم تحصينها وتوضع في عزل لمدة ٦ شهور .
- ٢- الكلاب والقطط (محصنة) عما تتعرض للعض من حيوان مصاب بالسعار يجب إعادة تحصينها ويتم حجزها لمدة ٣ شهور .
- ٣- الأبقار التي تعض من حيوان مصاب بالسعار يجب أن تعمد على الفور . ولكن إذا تم ذبحها خلال ٧ أيام من تاريخ التعرض للعض تكون صالحة بعد التخلص من الأماكن والأسجة التي تعرضت للعض .

Sheep Pox جدري الأغنام

An infectious viral disease of sheep and goats, caused by *Capripox virus* of the family *Poxviridae* characterized by:

1. High fever, depression and anorexia.
2. Nasal and ocular discharge.
3. Characteristic pox lesions, which appears on wool free areas such as fatty tail, perineum, muzzle oral commissure, nasal mucosa.
4. Enlargement of lymph nodes.
5. Internal lesions in the nasal cavity, respiratory air passage and lungs, that manifested by respiratory signs (fatal in lambs).

تجد بدايات الأعراض على سطح اللبنة الداخلي.

Treatment:

- R*/ Diclofenac sodium or Finadyne® I/M as anti-inflammatory.
 - R*/ Combi-kel 20+20® or Pen&Strep® or Norocillin® 8 cc/ sheep I/M, daily for 3 days to overcome secondary bacterial invaders.
 - R*/ Vetalgin® 10 cc / sheep I/V, as analgesic and antipyretic.
 - R*/ Paint the lesions with Calamine® or Calamyl® losions twice daily.
- Other alternatives such as *Calamidine*®, *Muscal*® lotion.

Contagious Pustular Dermatitis (CPD) Contagious Ecthema ORF

التهاب الفم النفطي المعدي في الأغنام

An infectious viral disease of sheep and goats, caused by *Parapox virus* of the family *Poxviridae* characterized by:

1. Fever, the animal show difficult prehension and mastication.
2. Frothy oral salivation.
3. Characteristic ORF lesions, which appears on muzzle, oral commissar and nasal mucosa. These lesions appear as papules, pustules then crusts.

Treatment:

- R*/ Combi-kel 20+20® or Pen&Strep® or Norocillin® 8 cc/ sheep I/M, daily for 3 days to overcome secondary bacterial invaders..
- R*/ Vetalgin® 10 cc / sheep I/V, as analgesic and antipyretic.
- R*/ Paint the lesions around the mouth with Gentian violet or Betadine oint and / or Terramycin® oint twice daily.

Equine Influenza انفلوانزا الخيول

It is a highly contagious viral disease of equine caused by influenza virus (*Orthomyxoviridae*), characterized clinically by:

1. Fever, **characteristic dry cough** that changes into moist cough and lasts for 2-3 weeks.
2. Rapid respiratory rate.
3. Watery **nasal discharge** that changes into thick mucoid greenish in color.
4. Morbidity rate is 100% but with low mortality.

Treatment:

\mathcal{R} Combi-kel 20+20[®] or Pen&Strep[®] or Norocillin[®] 20-25 cc/ horse I/M, daily for 5 days. Other antibacterial could be used such as *Gentaprim[®]*, *Borgal[®]*.

\mathcal{R} Vetalgin[®] 25-30 cc / horse I/V, as analgesic and antipyretic.

\mathcal{R} *Avipect[®]* or *Bronchistal[®]*, *Expectyl[®]* or *Osipect[®]* 30 cc orally twice daily / horse, as cough sedatives, for 3-5 days.

\mathcal{R} *Tavagyl[®]* or *Avil[®]* or *Pirafene[®]* 3-5 amp/ horse, I/M, I/V, for 3 days.

Strangles خناق الخيل

Strangles is a respiratory infection of horses, donkeys and ponies caused by *Streptococcus equi*, characterized clinically by: Depression, anorexia and dullness. The temperature rises to 41°C. After a few days **lymph nodes around the throat swell, forming abscesses**. The horse can have difficulty breathing and swallowing (hence the name 'strangles'). A **nasal discharge** is at first clear and then becomes purulent (thick with signs of pus), after the abscesses have ruptured in the nasal passages. In some cases, the abscesses spread to other parts of the body (a condition known as 'bastard' strangles) which is **always fatal**.

Treatment:

In early stages antibiotic therapy using procaine penicillin 50000 iu/kg bwt. for 5 days.

\mathcal{R} Combi-kel 20+20[®] or Penbex[®] or Pen&Strep[®] or Norocillin[®] 20 cc/ horse I/M, daily for 5 days.

\mathcal{R} Vetalgin[®] 10 cc / sheep I/V, as analgesic and antipyretic.

⇒ Warm packs (to help the abscesses mature and possibly surgical opening), then washing (lavage) of the abscess cavity or cavities with antiseptic solution until healed, **often weeks after first signs of the disease**.

Pneumonia Pasteurellosis Shipping Fever حُمى الشَّخَن

An acute or chronic infectious disease of cattle and sheep caused by *Pasteurella hemolytica*, characterized clinically by:

1. Fever, depression, anorexia.
2. Shallow rapid respiration, dyspnea.
3. One of the characteristic clinical signs is expiratory grunting and open mouth breathing with salivation.
4. Mucopurulent nasal discharge.

Treatment:

℞ Nuflor® (Florfenicol) 1cc/ 15 kg. B.wt I/M, 2 doses with 48 hrs interval or Combi-kel 20+20® or Penbex® or Pen&Strep® or Norocillin® 20-25 cc/ cow I/M, daily for 3 days.

℞ Cephalosporin 1gm/ 70 kg. B.wt I/M, I/V.

℞ Vetalgin® I/V, as analgesic and antipyretic.

℞ Etaphyllin® and corticosteroids as bronchodilators. Other alternatives in the market such as Minophyllin N, Minophyllin 500 amp can be used.

Edematous Skin Disease مرض الجلد المتوزم في الجاموس

It is an infectious disease of buffalo and cattle caused by gram + ve bacteria (*Corynebacterium Psudotubercluis serotype 2*), characterized clinically by:

1. Fever, development of cutaneous nodules and abscess formation along the course of the lymph vessels on chest, and legs. In some cases these nodules spread all over the body.
2. Enlargement and suppuration of lymph nodes.
3. Rupture of the lesions and discharging seroheamorrhagic fluids or creamy pus.

Treatment:

℞ Combi-kel 20+20® or Penbex® or Pen&Strep® or Norocillin® 20-25 cc/ buffalo I/M, daily for 5 days.

℞ Declofalm®, Declofenile®, Carprofen® or Metacam®, as non-steroidal anti-inflammatory.

⇒ Iodine ointment preparations (Mega mast® oint) help the abscesses mature and possibly surgical opening), then washing (lavage) of the abscess cavity or cavities with antiseptic solution (Betadine) until healed.

Actinomycosis, Lumpy jaw

مرض الفطر الشعاعي

An Infection with gram + ve anaerobic *Actinomyces Bovis*, most frequently occurs in the bones of the jaw to give "lumpy jaw". The resulting lesion may interfere with eating and eventually cause death by starvation. Infection may occur elsewhere in the gastrointestinal tract.

Lesions are first noticed as a hard, painless swelling on the jawbone level with the **first molar or premolar teeth**. Enlarge rapidly in which case considerable pain may be present on palpation or grow only slowly. Soft tissue swelling may accompany the lesion. Lesions on the medial surface of the mandible may first be detected because of this swelling. **Sinuses** may erupt through the skin and discharge yellowish pus with hard sulphur **granules**. Enlargement of the lesions may lead to difficulty eating and breathing and progressive emaciation over a period of months.

Treatment:

R/ **Combi-kel 20+20[®]** or Penbex[®] or Pen&Strep[®] or Norocillin[®] 20-25 cc/ cow I/M, daily for 10 days.

R/ **Sodium iodide 100 mg/kg B.wt I/V** as 10% solution and repeated after two weeks + **organic potassium iodide 5-10 gm/ cow** daily, orally- but it may affects pregnancy and induce heart failure.

⇒ Iodine ointment preparations (Mega mast[®] oint) help the lesions to be mature and possibly surgical interference).

Tetanus تَكَزُّز

It is a fatal infectious disease (caused by *Clostridium Tetani*) characterized by:

- Muscle stiffness and tremors.
- Prolapse of the third eyelids.
- Increased response to external stimuli.
- Drooling of saliva.
- **Bloat** in ruminant (mainly sheep and goat).

تجد الحيوان واقف مخشب ويتحرك كقطعة واحدة + نفاخ حاد لا يستجيب للعلاج + الفم مقلق بشدة + لعاب من الفم + ولو ضربت الحيوان تحت الفم تجد الجفن الثالث يتحرك - ولو وقع الحيوان على الأرض لا يستطيع أن ينهض ثانية بمفرده + الحساسية الزائدة للحيوان لأي مؤثر خارجي .

- ⇒ **Duration of fatal illness in cattle and equine 5-10 days.**
- ⇒ **Sheep and goat usually die in 4th day.**
- ⇒ In mild cases recovery occur slowly over a period of weeks or months.
- ⇒ **Bad prognosis in recumbency and locked jaw.**

The infection occur through:

- ✓ Deep puncture wound.
- ✓ Genital tract injuries during parturition.
- ✓ Castration, docking in sheep.
- ✓ **Idiopathic tetanus** caused by injuries of GIT (especially equine spp).

Treatment:

R/ Penicillin-G sodium 3500 IU/ 1 kg. Bwt I/V, for 5 days.

R/ Antitetanic serum 100,000 IU/ kg. Bwt I/V, I/M, S/C.

R/ Vetalgin[®] 8 cc / 100 kg. Bwt I/V, for equine as analgesic.

R/ Xylazine 1 cc I/M in cattle and 0.5 cc I/M in buffalo, as a muscle relaxant. (the disease is rare in cattle and buffalo, but **common in small ruminants**).

- Irrigation of the site of wound with hydrogen peroxide.
- Stomach intubation or intravenous feeding.
- Use of rectal enema and catheterization.
- Keep the animal in quiet dark place with good bedding.

ملحوظة: هذا المرض الشفاء منه ضعيف جدا إذا ما ظهرت الأعراض ولكن في البداية في الخيول والحمير يمكن الاستجابة بالعلاج مع استعمال الكي .

Mastitis التهاب الضرع

Inflammation of the parenchyma of mammary glands, caused by many types of micro-organisms such as *Streptococcus agalactiae*, *Staphylococcus aureus*, *Mycoplasma*, *Coliforms* (*Escherichia coli*, *Klebsiella* spp., *Enterobacter* spp., and *Citrobacter* spp), Environmental *Streptococcal* species, *Pseudomonas* spp., and yeasts. Characterized clinically by:

1. **Peracute Mastitis:** sudden onset, severe inflammation of the udder, serous milk. Can lead to agalactia. The systemic illness is due to septicemia or toxemia, results in fever, anorexia, depression, decreased rumen motility, dehydration, and sometimes death of the cow. Systemic illness often precedes the symptoms manifested in the milk and mammary gland.
2. **Acute Mastitis:** characterized by a sudden onset, moderate to severe inflammation of udder, decreased production, and serous milk/fibrin clots. Systemic signs are similar but less severe than the peracute form.
3. **Subacute Mastitis:** characterized by mild inflammation, there may be no visible changes in udder, there are generally small flakes or clots in the milk, and the milk may have an off-color. There are no systemic signs of illness.
4. **Chronic Mastitis:** Chronic mastitis may persist in subclinical form for months, occasional clinical flareups. Treatment usually involves treating the clinical flareups, or culling the cow from the herd.
5. **Subclinical Mastitis:** most common form of mastitis. Common than clinical mastitis. There is no gross inflammation of the udder, no gross changes in the milk. There is decreased production and decreased milk quality.

Treatment:

✎ **Treatment of acute mastitis** includes: stripping frequently, administration of antibiotics (systemic or intramammary), administration of fluids if it is needed, and administration of anti-inflammatory drugs, analgesics, and/or antipyretics.

✎ **Treatment of subacute mastitis** includes intramammary antibiotic infusion and stripping the gland (after oxytocin injection).

✎ **Treatment of subclinical mastitis** is not economical during lactation, but rather is often done during the dry period with intramammary infusion of antibiotics.

NB Intramammary antibiotics are widely spread but the use of them depends of the type of micro-organism. (See the table of drugs at the end of the book).

Parasitic Gastroenteritis التهاب المعدة والأمعاء الطفيلي

Acute, subacute and chronic infectious disease of all domestic animals caused by: *Heamonchus*, *Ostartagia*, *Trichstrongylus*, *Nematodirus*, *Cooperia*, *Strongliodes*, *Bunostomum*, *Oesophagostomum*, *Trichuris* and *Oxyuris*.

Characterized Clinically by:

- Anemia and pale mucous membrane.
- *Heamonchus* causes submandibular edema (bottle jaw) and ventral edema.
- Anorexia or hyperphagia and loss of body weight.
- Intermittent or persistent diarrhea and may contain mucous or blood.
- Harsh and rough coat of the animal.
- Some times straining and suction of air through the anus.

في بعض الأحيان تجد الحيوان (الأبقار) يخرج بعض الغازات من فتحة الشرج مصدرا صوتا مميزا (خوار).

- Presence of some nematode worms in the fecal matter of the animal.
- *Oxyuris* in equine causes colic + characteristic loss of hair around the tail due to rubbing of the perineal region against hard objects.

Treatment:

R/ Zanide 2.5%, 30 ml/100 kg B.wt orally on empty stomach.

R/ Piprazine citrate 200-300 mg/kg. Bwt orally on empty stomach (4gm/10 kg Bwt. Followed by magnesium sulphate after 24 hours as a purgative. Used effectively in treatment of oxyuris in equine + Ammoniated mercury oint painting around the anus twice daily.

R/ Banmith 12.5 mg/kg. Bwt orally on empty stomach (10 gm/100kg. Bwt does not affect pregnancy).

R/ Promectine® or Tectine® (Ivermectine) 1 cc/ 50 kg. B.wt, S/C.

R/ Dectomax® (Duramectine) 1 cc/ 50 kg. Bwt, S/C.

Ascariasis داء الصفر

An infectious disease of cattle and buffalo caused by *Toxocara vitulorum*, characterized by:

- Decrease of appetite and the calves refuse suckling the dam.
- Poor growth, rough coat, and pale mucous membranes.
- Unpleasant characteristic odor of urine and breath (resembling ether or chloroform).
- Abdominal colic and sometimes intestinal obstruction.
- Dyspnea and cough may occur during migration of the larvae through the lung.

في بعض الأحيان نجد ديدان نازلة مع براز الحيوان أو يتقيأ الحيوان وتخرج الديدان مع القيء - وفي الخيول تميل المهارى للعلق الأشياء الثابتة وكذلك يلاحظ عليها التثاؤب.

Treatment:

R/ Piprazine citrate 200-300 mg/kg. Bwt orally on empty stomach (4gm/10 kg Bwt. Is the drug of choice. Followed by magnesium sulphate after 24 hours as a purgative).

R/ Banmith 12.5 mg/kg. Bwt orally on empty stomach (10 gm/100kg. Bwt).

R/ Promectine® or Tectine® (Ivermectine) 1 cc/ 50 kg. B.wt, S/C.

R/ Dectomax® (Duramectine) 1 cc/ 50 kg. Bwt, S/C.

Fascioliasis, Liver fluke**داء المتورقات Distomiasis**

It is an acute or chronic infectious disease of cattle, buffaloes, sheep and goat caused by *Fasciola Hepatica* or *Fasciola Gaigantica*.

Characterized Clinically by:

1- **Acute form:** common in sheep, characterized by **sudden death + blood stained discharges from nostrils and anus.**

2- **Chronic form:** characterized by

1. Anemia and pale mucous membrane then become icteric.
2. Submandibular edema (bottle jaw).
3. Loss of body weight.
4. Diarrhea and May with offensive odor **إسهال يشبه لون الحناء**
5. Harsh and rough coat of the animal.
6. Decreased milk production.

7. **Selectivity in appetite.** تجد الحيوان بفضل تناول نوع من الغذاء على الآخر مثل تناول الأشياء الجافة يفضلها على العلائق الخضراء.

Treatment:

R/ Rafoxanide 1 cc/ 25 kg. Bwt, S/C, **an effective drug** and repeat after 4 weeks.

R/ Albendazole 2.5% , 30 ml/100 kg Bwt orally on empty stomach.

R/ Ivomec super 1 cc/ 50 kg. Bwt, S/C. repeat after 4 weeks.

R/ Fasciolid[®] (Nitroxynil) 1 cc/ 25 kg. Bwt, S/C. repeat after 4 weeks.

R/ Flukanile[®] (Rafoxanide) 1 tablet /80 kg Bwt orally on empty stomach.

An effective drug and repeat after 4 weeks.

R/ Fasinex[®] (Triclabendazole) 10 mg / kg Bwt orally on empty stomach.

An effective drug and repeat after 4 weeks.

R/ Hapadex[®] (Netobimin 5%) 20 mg / kg Bwt orally.

Other alternatives in the market for treatment of fascioliasis such as Caliersantel (inj), Hepanil (inj), ZaniTM (susp), Dovenix (inj), Do-Nex (inj), Distomacide (inj)

Verminous Pneumonia, Parasitic Bronchitis, Lungworm infestation, Husk Disease**الديدان الرئوية**

It is an infectious disease caused by infestation of the bronchi and bronchioles with lungworm nematodes characterized clinically by:

⇒ **Acute form:**

- Rapid shallow mouth breathing + dyspnea.
- Rise in body temperature.
- Rough cough.
- Cyanosis of MM.

⇒ **Chronic form:**

- **The respiratory signs preceded by diarrhea.**
- Normal body temperature.
- Frequent paroxysmal cough.

يحدث هذا المرض غالباً في الحيوانات الصغيرة (٤ - ١٨ شهراً) ونشك فيه عند وجود أعراض تنفسية ولا يستجيب الحيوان للعلاج بالمضادات الحيوية.

Treatment:

R/ Levamisole[®] 7 cc/100 kg. Bwt, S/C.

R/ Albendazole 7.5 mg/kg. Bwt orally on empty stomach.

R/ Tectine[®] (Ivermectine) 1 cc/ 50 kg. Bwt, S/C.

R/ **Combi-kel** 20+20[®] or Penbex[®] or Pen&Strep[®] or Norocillin or Clamoxyl[®], as antibiotic cover.

R/ **Tavagyl[®]** or Avil[®] 1 amp / 60 kg. B.wt, I/V or I/M as antihistaminic.

R/ **Etaphylline[®]** or Minophylline[®] 1 amp / 60 kg. B.wt, I/M as a bronchodilator.

Estrus Ovis infestation

زبابة النغف الأتفي في الأغنام

An infectious disease of sheep caused by larvae of estrus ovis fly, characterized by:

- Sheep stamp their feet, shake their heads, and rub their noses against the ground.
- Catarrhal rhinitis, sneezing, and mucopurulent or bloody nasal discharge.
- Difficult breathing with snoring respiration.

تجد الأغنام المصابة تعاني من العطس الشديد + حك الأنف في الأرض + تساقط الديدان ذات اللون البني المعيز في العلاقات أمام الحيوانات.

Treatment:

R/ **Rafoxanide**® 7.5 mg/kg. Bwt orally on empty stomach.

R/ **Ivermectine** 1 cc/ 50 kg. Bwt, S/C. is an effective drug.

R/ **Streptopencid**®, Vitrocine®, Vetbiotic® 1/2 vial I/M for 3 days + Dexamethasone or antihistaminic and anti-inflammatory.

R/ **Dicynone**® or **Haemostop**® 2 amp. I/M /sheep as anti-hemorrhage.

Veterinary Surgery**Chemical restraint of Domestic animals****1-Local anesthesia**

- 1- **Intended line of incision:** infiltration of the anesthetic drug in the intended line of incision.
- 2- **Inverted-L:** used for rumenotomy.
- 3- **Ring block:** infiltration of the anesthetic drug in circular manner, used in cases of removal of tumors and surgery of hernias.

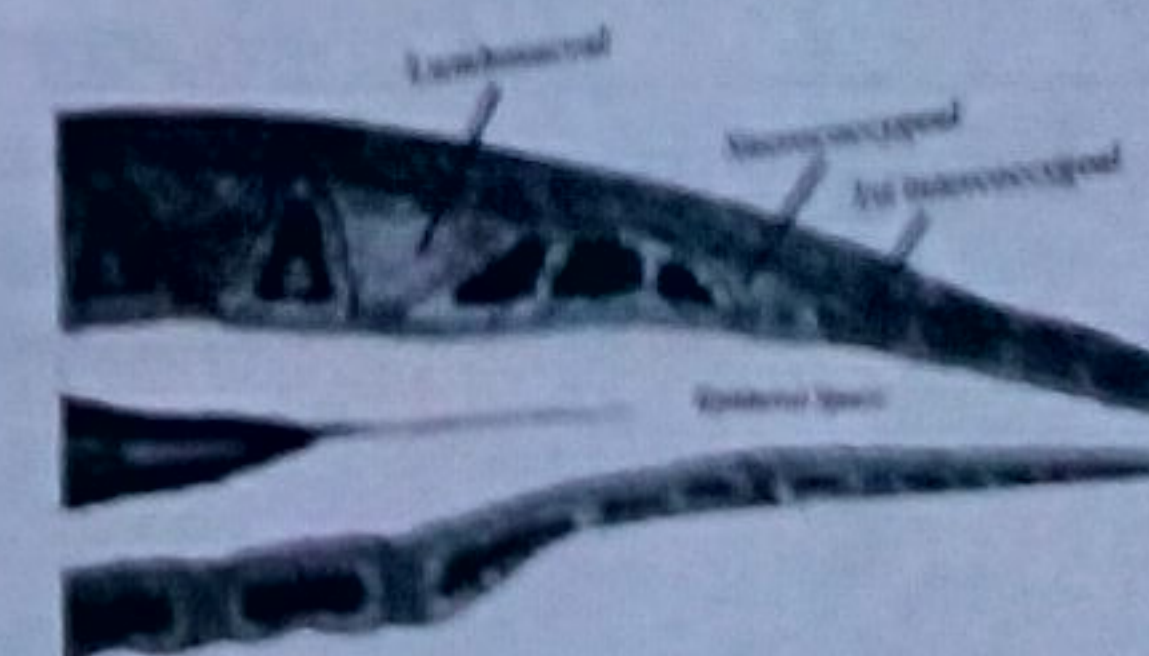
2-Epidural anesthesia تخدير فوق الجافية

A. **Lumbar epidural anesthesia:** made in lumbo-sacral space → used in small animals such as sheep and goat (3-5 cc of 2% local anesthetic drug).

B. **Caudal epidural anesthesia:** made in either Sacrococcygeal space (buffaloes) or First intercoccygeal space (cattle, camel, and horse).

It is divided into 2 types: according to amount of anesthetic drug injected.

- 1- **Posterior type:** 10-15 cc of local anesthetic drug, used in operations of anus, vulva, perineum and posterior aspect of the thigh.
- 2- **Anterior type:** 15-60 cc local anesthetic drug, used in operations of mammary gland, inguinal region.



Sites for epidural anesthesia

3- General anesthesia/ sedation and analgesia

1-Sedative/standing restraint in horses

Drug	Dosage/Route	Duration	Comments
Acepromazine	0.05 mg/kg IV or IM	15-20 minutes for effect, lasts about 90 minutes	Sedation
Xylazine	0.05-1.1 mg/kg IV or IM	3-5 minutes for effect, Lasts about 30 minutes	Sedation + some analgesia
Acepromazine + Xylazine	0.02-0.03 mg/kg IV (A) + 0.2-0.5 mg/kg IV (X)	Faster onset and longer duration than Ketamine or Xylazine alone	Sedation + some analgesia
Butorphanol + Xylazine	0.22-0.44 mg/kg IV (B) + 0.44-0.66 mg/kg IV (X)		Give Xylazine first
Detomidine	0.22 mg/kg IV	Longer duration than Xylazine, with shorter onset time	Sedation + analgesia
Acepromazine + Xylazine + Butorphanol	0.22-0.44 mg/kg IV (Ace.) 0.44 mg/kg IV (X) + 0.022 mg/kg IV (B)	Give Acepromazine 20 minutes prior to Butorphanol and Xylazine	

2-Equine anesthesia

Drug	Dosage/Route	Duration	Comments
Xylazine + Ketamine	1.1 mg/kg IV (Xylazine), Wait 3 min. and give 2.2 mg/kg IV (Ketamine)	8-12 minutes of anesthesia	Always give Xylazine first, then wait before giving Ketamine. May be repeated at 20 minute intervals (no more than twice) for longer anesthesia time
Xylazine + Ketamine + Guafenesin (in 5% or 10%)	Give Xylazine 0.4-1.1 mg/kg IV; Wait 5 min., then give Guafenesin through IV set until ataxia is apparent, and then give 2.2 mg/kg Ketamine through IV port		Using Guafenesin solutions stronger than 15% have been known to cause intravascular hemolysis. Always give in X, GG, K order
Xylazine + Ketamine + Butorphanol	0.01-0.02 mg/kg IV Butorphanol is given 5 min. after 1.1 mg/kg Xylazine IV, and 5 min. before 2.2 mg/kg Ketamine IV	This will add more analgesia and a few more minutes anesthesia than just K and X.	Always give in this order: X, B, then K.

3- Sedation and analgesia of Ruminants

Drug	Route	Dose(mg/kg)	Comments
Acepromazine	IV	0.02-0.05	Slow onset of mild sedation, usually without recumbency
Xylazine	IM	0.2-0.15	Rapid onset, produce salivation, affects pregnancy.
	IV	0.05-0.3	
Clonidine	IV	0.015	
Diazepam	IV	0.2-0.4	

Naso-lacrimal Duct Obstruction in Equine

انسداد القناة الدمعية في الخيول

The obstruction of the naso-lacrimal duct is more common in equine species especially donkeys characterized clinically by:

1. Profuse lacrimation and ulceration of the medial canthus of the eye.
2. Granulation tissue formation as a line under the eye.

نجد إدماع شديد مع احمرار تحت العين وسقوط الشعر الذي يوجد في مجري دموع العين.

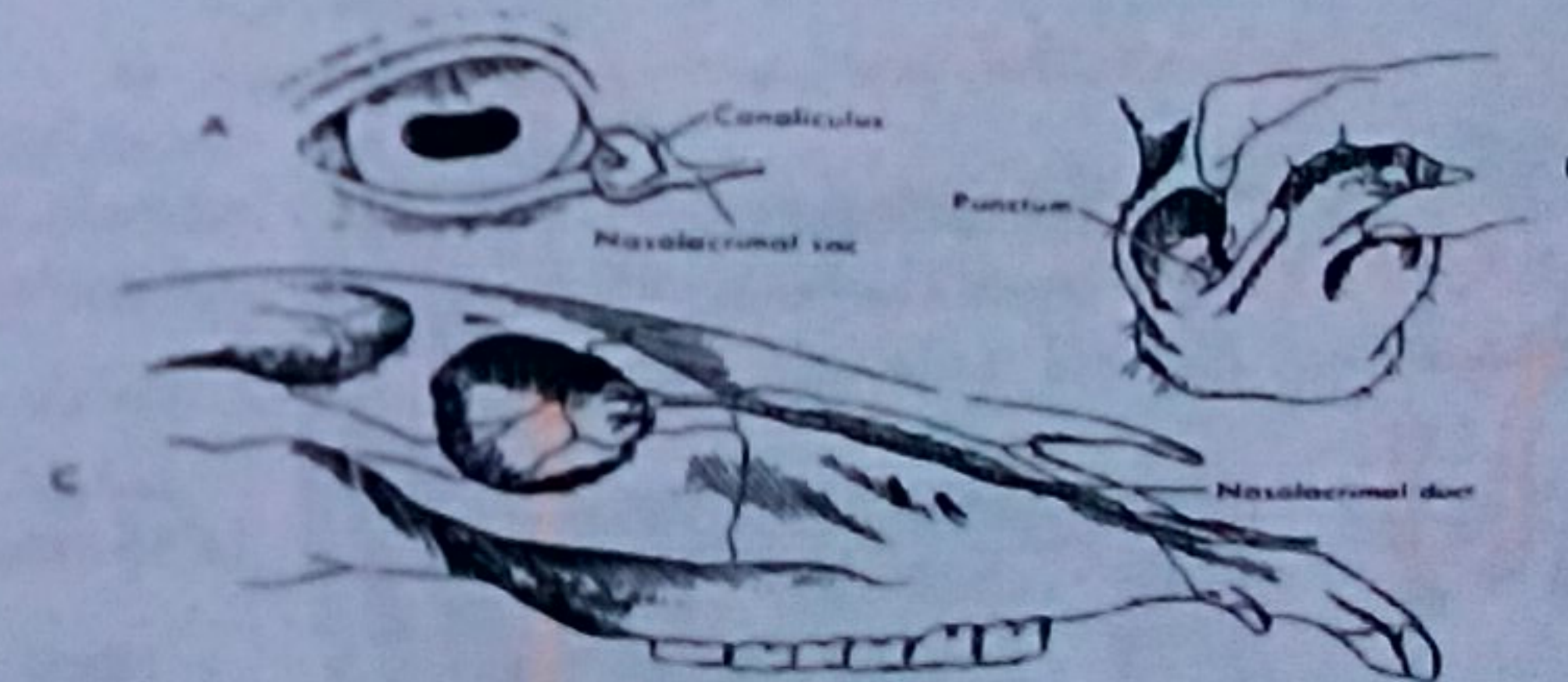
Treatment:

R/ Irrigation and flushing of the duct with trypsin (Alpha-chymotrypsine) with saline or combination between normal saline and gentamycin. Three times with two days interval.

R/ Tetracort[®] oint on the ulcerated part under the eye.

R/ Terracortril[®] eye drops twice daily for 5 days.

Trypsin + Saline
Gentamicin + Saline



Equine naso-lacrimal apparatus

انزلاق الرضفة - عرق الأنس - الخطر - النملة Patellar luxation

Fixation of the patella occurs when the patella get fixed on the medial trochlea of femur between the middle and medial patellar ligaments (upward fixation), it is **common in buffaloes**. Characterized clinically by:

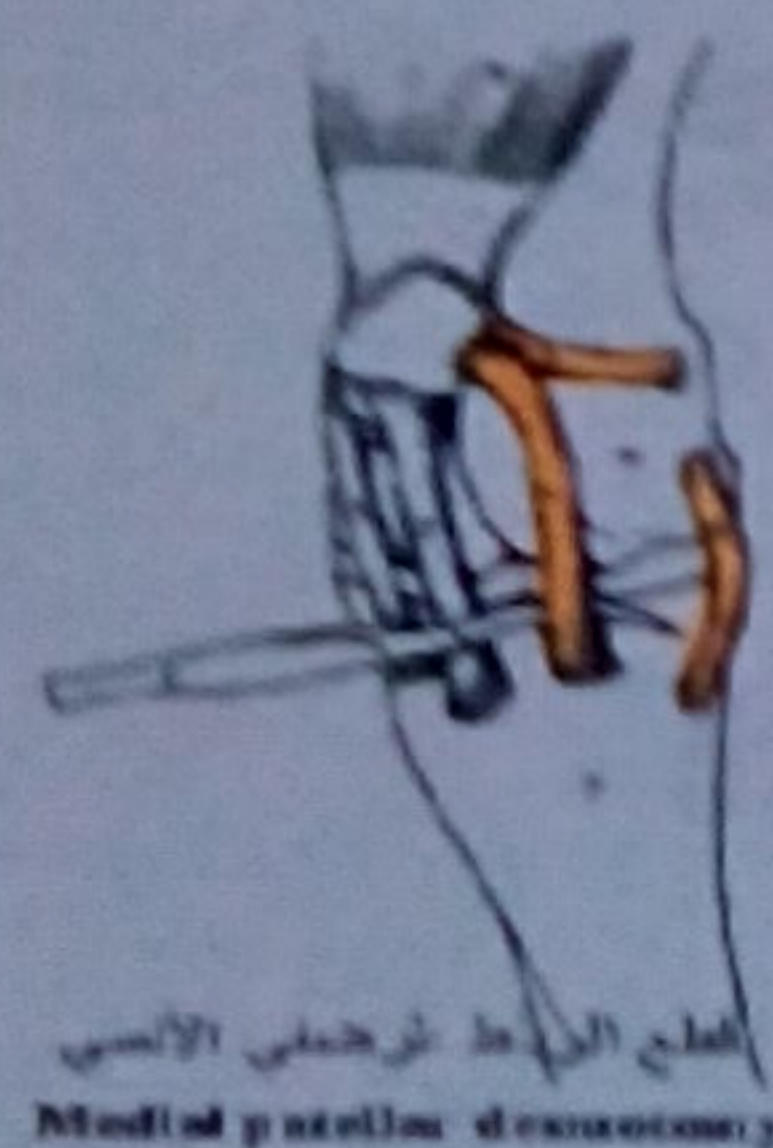
1. **Sudden fixation of the stifle and hock joints in extreme extension.**
2. **Backing of the animal is very difficult.**

⇒ Patellar luxation symptoms is divided into two types:

- 1- **Permanent:** the clinical signs appear permanently.
- 2- **Temporary:** the clinical signs appear only at the beginning of walking. However, **backing of the animal slowly then immediately forwards for a few steps provokes the appearance of clinical signs due to fixation.**

Treatment:

- ⇒ **Medial Patellar Desmotomy:** by cutting of the medial patellar ligament using tenetome or scalpel.



Bursitis

التهاب الأكياس الزلالية

1. Capped elbow:

It is a prominent swelling over the point of the elbow which may be serous, fibrinous or hemorrhagic, **results in mild lamness.**

2. Capped knee:

It is a synovial swelling over the anterior surface of the carpal joint.

3. Sternal bursitis:

Inflammation and swelling of sternal bursa, it is **more common in buffalo calves.**

Treatment:

- ⇒ **In case of acute bursitis:** evacuation of the serous fluid then injection of **corticosteroids** with crystalline penicillin, for **three to four times with one week interval.**
- ⇒ Application of iodine ointments or (**Mega mast® oint**).
- ⇒ In case of capped knee, apply **pressure bandage** after injection.
- ⇒ Systemic **antibiotic** and **anti-inflammatory.**

في حالة التهاب الكيس الزلالي المزمن نعالج بدهان مرهم حرقاة أو حقن صبغة يود أو حقن كبريتات نحاس ٥% وبعد حوالي ١٠ أيام يفتح الكيس الزلالي من جزئه السفلي ويتم اخراج الغشاء المخاطي للكيس الزلالي بواسطة الإصبع وفي هذه الحالة يكون الكيس الزلالي متكرر ويسهل إزالته.



Anal atresia انسداد فتحة الشرج

It is a congenital defect of lambs and kids commonly and some times in calves, characterized by obstruction of the anus + tympany and straining.

Absence of feces draws attention to calf that may have slightly distended abdomen. Perineum has a scar indicative of a slight bulge of the subcutaneous tissues, and become more pronounced on increased intra abdominal pressure, applied by pushing on the flanks or by spontaneous tenesmus.

في بعض الأحيان نجد فتحة الشرج مغلقة تماماً بعظم ويحدث ذلك في الماعز ولكن بصورة نادرة.

Treatment:

- Local infiltration anesthesia in the site of operation.
- Apply circular incision then make withdrawing of the rectal wall.
- Make simple interrupted stitches between the rectal wall and the outer skin layer.
- Systemic antibiotic.
- Local application of antibiotic oint. On the site of operation.
- Mild laxative for easy evacuation of fecal matter and prevention of tenesmus.

Rectal Prolapse انقلاب المستقيم

Common in young calves and yearling cattle, it may be:

- **Incomplete:** prolapse of mucosal layer only, with local edema.
- **Complete:** total eversion of caudal rectum with serosal rectal surfaces in contact.

It caused by:

1. **Sever enteritis** involving passage of sloughed epithelial debris and blood as in sever acute salmonellosis or coccidiosis.
2. **Sever straining** as (with Urolithiasis), sever ruminal tympany, high estrogen intake, following a vaginal prolapse or rabies.

Treatment:

- Epidural anesthesia.
- Small or incomplete prolapse can be manually reduced under anesthesia by using a finger or bougie. Warm saline lavage and lubrication with a water-soluble gel should be applied to the prolapsed tissue prior to reduction. Alternatively, hypertonic sugar solution (50% dextrose or 70% mannitol) applied topically may be used to relieve edematous mucosa. The placement of a loose, anal purse-string suture for 5-7 days is indicated. Straining may be prevented by applying a topical anesthetic (1% lidocain ointment).
- Systemic antibiotic.
- Local application of antibiotic oint. With local anesthetic.

ملحوظة:

يجب أن تربط العقدة أسفل الزيل مباشرة (أي بعيداً عن طريق خروج الروث) وتكون العقدة سهلة الحل والربط.

Stenosis of teat orifice, streak canal Furstenberg's rosette

Common problem, a partial obstruction (hard milker) due to local trauma, secondary to milking machine (excessive vacuum pressure), characterized by:

1. Quarters milks out slowly and viscous cycle may develop or remaining quarters tend to be overmilked, resulting in bruising and eversion of teat orifice and development of mastitis.

Treatment:

- ➔ Insertion of self-retaining cannula.
- ➔ Insertion of teat lancet.
- ➔ Systemic antibiotic and intramammary antibiotic.

Teat lumen granuloma, Pea, Spider

It is a discrete proliferation of granulation tissue covered by mucosa and caused by trauma, characterized by interference with free passage of milk. The reoccurrence is common after treatment.

Treatment:

- ➔ Insertion of teat lancet.
- ➔ Systemic antibiotic and intramammary antibiotic for 5 days.

Fissures of the teats

It a formation of cracks and fissures along the skin of the teat especially in buffaloes, the teats become painful and with prominent redness and swelling. On manual milking, the animal shows struggling, and become restless.

Treatment:

R/ Zinc oxide 10% oint, paint twice daily after milking for one week. Or human preparation such as Baby cream®.

R/ Penicillin & Streptomycin combination, injection for 3 days I/M.

Udder hematomas

Trauma (often related to inadequate housing) can result in contusions and Hematomas of the udder. Hematomas usually appear as soft-tissue swellings located anterior to the foreudder or caudodorsal to the rear udder. They may be difficult to differentiate from abscesses. Severe hematomas can result in anemia if not treated. In most instances, hematomas resolve following conservative treatment consisting of pressure wraps and rest.

Treatment:

- ➔ Hematomas that continue to enlarge should be considered an emergency because of the possibility of excessive blood loss and shock.
- ➔ Hematomas should not be incised or drained unless they become infected.
- ➔ Milking should be performed cautiously during the convalescent period.

R/ Hemoclar® oint. As paint twice daily gives good results.

Udder Abscess

Subcutaneous abscesses of the udder (not involving the milk-producing tissue) can develop between the skin and the supporting connective tissue of the udder. Diagnosis is by needle aspiration. Abscesses usually develop secondary to wounds, advanced mastitis, infected hematomas, or severe contusions. They should be incised and drained when they are chronic and near the surface of the udder. The wound should be flushed daily with an antiseptic solution or water under pressure until healing is complete.

Bloody milk

Pink- or red-tinged milk is common after calving and can be attributed to the rupture of tiny mammary blood vessels. Udder swelling from edema or trauma is a potential underlying cause. Bloody milk is not fit for consumption. In most cases it resolves without treatment in 4-14 days, providing the gland is milked out regularly. The occurrence of frank blood in a single quarter is likely the result of severe, acute mastitis or trauma, and milking should be discontinued until hemorrhage is controlled. Intramammary antibiotics should be administered if mastitis is suspected.

Ulcerative Mammillitis

A relatively uncommon condition but it can spread rapidly in herds, which are affected for the first time and cause significant pain and discomfort. It tends to occur most commonly in early winter. A herpes virus (known as BHV-2) causes it. Characterized by small irregular fluid-filled blisters, to larger areas of ulcers and scabs.

Treatment:

- Separate and milk affected cows last.
 - Disinfect clusters between cows and after milking.
 - Dip teats with iodine-based dip.
 - Emollient udder cream can speed healing of skin.
- R/Terramycin[®] oint. As paint twice daily gives good results.

Third Eyelid Flap

It is a structure placed in the third eyelid is passed through the dorsal lateral conjunctival fornix to emerge through the skin. When tightened the third eyelid is drawn across the corneal surface. Cases of extensive corneal ulceration and of traumatic damage, often in which antibiotic medication has failed to, achieve early resolution of the lesion.

Treatment:

- Injection of 2 cc of local anesthetic in the third eyelid.
- Grasp the third eye lid by small Allis forceps then hang with a hanging stitch.
- Remove the excessive part by the scalpel.
- Apply adrenaline locally+ antibiotic oint. Or drops 3 times per day.
- Systemic antibiotic for 2-3 days.

Opacity of the eye

Discoloration of the cornea caused by :

- Cornea —————→ Pigmentation (melanosis) secondary to chronic exposure; grayish scars from previous ulcerative keratitis; neovascularization secondary to chronic inflammation, bluish discoloration of corneal edema (keratitis, trauma, ulceration, uveitis, glaucoma).
- Anterior chamber —————→ trauma, uveitis, glaucoma, anterior lens luxation, mycoplasma infection (in goats).
- Lens —————→ trauma, congenital cataract, uveitis.

Treatment:

R/ Terracortil[®] eye drops used twice daily in the eyes for 7 days. Alternatively, using of mastitis preparations containing cortisone and antibiotics.

R/ Merchrous chloride powder (Calomel[®]) once/day as dusting of the eye for 7 days.

☞ In the past people used a Seton خزام in the ear that is corresponding to the affected eye (give some results).

Navel ill – Joint ill

It is a disease of calves, caused by many types of bacteria including *Staph spp.*, *Actinomyces Pyogenes*, *Fusiform Necrophorum*, *Salmonella spp.*, *E.coli* and *Psteurella spp.* Characterized clinically by:

1. Fever (in case of septicemia).
2. Enlargement of the umbilicus, becomes painful and may produce a purulent materials.
3. Localization of infection in other parts of the body (joints, brain....).

Treatment:

- ➔ Surgical treatment of the abscess (opening and washing with hydrogen peroxide followed by antiseptic solution as Betadine then application of daring).
- ➔ Systemic antibiotic especially penicillin-streptomycin preparations for 3-5 days.
- ➔ Anti-inflammatory such as Diclofenac sodium or potassium.

Tail necrosis (Arrada) In buffaloes

It is a **bacterial** disease of buffaloes, caused by many types of bacteria including *Corynebacterium bovis*, *Staph spp.*, *Bucillus subtilis*, and *Pseudomonas aurogenosa*. Characterized clinically by: hyperkeratosis, necrosis and sloughing of the tail.

Treatment:

1- Cutting and firing:

- ➔ Clean the junction between healthy and affected parts with soap and hydrogen peroxide followed by antiseptic solution as alcohol and tincture iodine.
- ➔ Above the hyperkeratosed area **by 2-3 fingers** cutting the tail then firing.
- ➔ Apply topical antibiotic till recovery.

2- Curetting :

- ➔ Clean the junction between healthy and affected parts with soap and warm water.
- ➔ Curetting the tail with sterile scalpel till blood ooze.
- ➔ Immerse the tail into ether 10%.
- ➔ Apply topical antibiotic and zinc oxide.

Veterinary Theriogenology

Important information

- ❧ **Seasonal Breeders:** animals that have one or more estrous cycles during certain periods of the year.
- ❧ **Polyestrous Animals:** Estrous cycles throughout the year i.e. *Cattle, Pigs, Humans*.
- ❧ **Seasonally Polyestrous Animals:** animals that have multiple estrous cycles only during certain periods of the year.
 1. **Short-Day Breeders:** Cycle when days are getting shorter → fall, anestrus in spring and summer i.e. *Sheep, Goats, Deer, and Elk*.
 2. **Long-Day Breeders:** Cycle when days are getting longer → spring, anestrus in fall and winter i.e. *Horses and Hamsters*.
 3. **Monestrous animals:** Animals that have one estrous cycle per year, Extended periods of estrus (days) i.e. *Dogs, wolves, foxes, and bears*.

Species Variation in Estrous Cycle Characteristics

	Ewe	Cow	Mare
Length of Cycle	17 day	21 days	21 days
Length of Estrus	24-36 hours	12-19 hours	2-11 days
Time of Ovulation	24-36 hours (after onset of estrus)	10-11 hours (after end of estrus)	1-2 days (before the end of estrus)
Time of A.I.	12-18 hours after onset of estrus	7-18 hours after onset of estrus	Second day and every other day in estrus

Umbilical cord:

1. Arise from the connecting stalk and directed towards the lesser curvature. Umbilical cord lengths are (in equine = 90 cm, bovine = 35 cm, dog and cats = 10 cm).
2. Umbilical cord contains umbilical vessels (2 arteries, 1 vein + urachus).
3. In mare, long umbilical cord> twisting ... > death of the fetus.
4. Gestation period divided into 3 stages:
 - (a) Germinal period.....> Starts form fertilization of the ovum and ends with implantation of blastocyst.
 - (b) Embryonal period.....> Starts after implantation and ends on day 45 of pregnancy. **Heartbeats begin on day 22 of gestation.**
 - (c) Fetal period> Begins from 46 days of gestation until delivery of mature fetus.
5. The amnion.....> Double walled sac surrounds the fetus except the umbilical ring. The amniotic fluid secreted from amniotic membrane and skin of the fetus.
6. The allantoic sac> Collects the fetal urine through urachus. Allantoic fluid is amber yellow and it is a waste product of fetal kidney.
7. **Duration of reproductive ability in animals:**
 - Cow.....16-18 years
 - Bull 10-14 years
 - Mare.....18-22 years
 - Ewe.....6-10 years
 - Dog and cat8-12 years

Implantation:

There is a close attachment between embryonic membranes and the endometrium overlying caruncles at **5 weeks in cattle** and **3 weeks in sheep**. Shortly thereafter, the placenta is established.

1. **Cotyledon:** the fetal side of the placenta.
2. **Caruncle:** the maternal side of the placenta.
3. **Placentome:** a cotyledon and caruncle together.

⇒ **The sheep placenta** produces enough progesterone that **by roughly day 70**, the corpora lutea can be removed and pregnancy will not be interrupted.

⇒ **In cattle and goats**, In contrast, luteal progesterone is required throughout gestation because their placenta secrete much smaller quantities of progesterone.

Interspecies breeding

Interspecies breeding (sometimes called cross breeding) is the act of creating offspring from two different species.

Interspecies breeding is a very complex subject. Obviously it is not possible to mate any animal with any other animal to produce a strange new creature.

In general, cross bred animals are sterile. This is typically related to the fact that even if the chromosomes match up enough to create the offspring, there are still genetic problems that cause the hybrid to be unable to produce offspring. In cases where then animal can (medically) produce viable eggs or sperm; it again becomes a problem of matching chromosomes with some other species. This is not to say that no crossbred animal can mate, it is just rare.

Hybrid Examples:

There are many examples of two species of animals that have/can/do produce offspring. A well known example of this is the mule. Examples below:

- Liger = male lion + female tiger
- Tigon or tiglon = male tiger + female lion
- Mule البغل = male donkey + female horse
- Hinny النغل = male horse + female donkey (jenny)
- Zorse = zebra + horse
- Zonkey or zebrass = zebra + donkey (ass)
- Cama = camel + llama
- Catalo or beefalo = buffalo + cattle
- Yakalo = yak + buffalo
- Wholphin = whale + dolphin (specifically a false killer whale and a bottlenose dolphin)
- Toast of Botswana = goat + sheep

Obviously this deserves some clarification. **While a sheep can be impregnated by a goat, the kid/lamb is always stillborn...** except in one

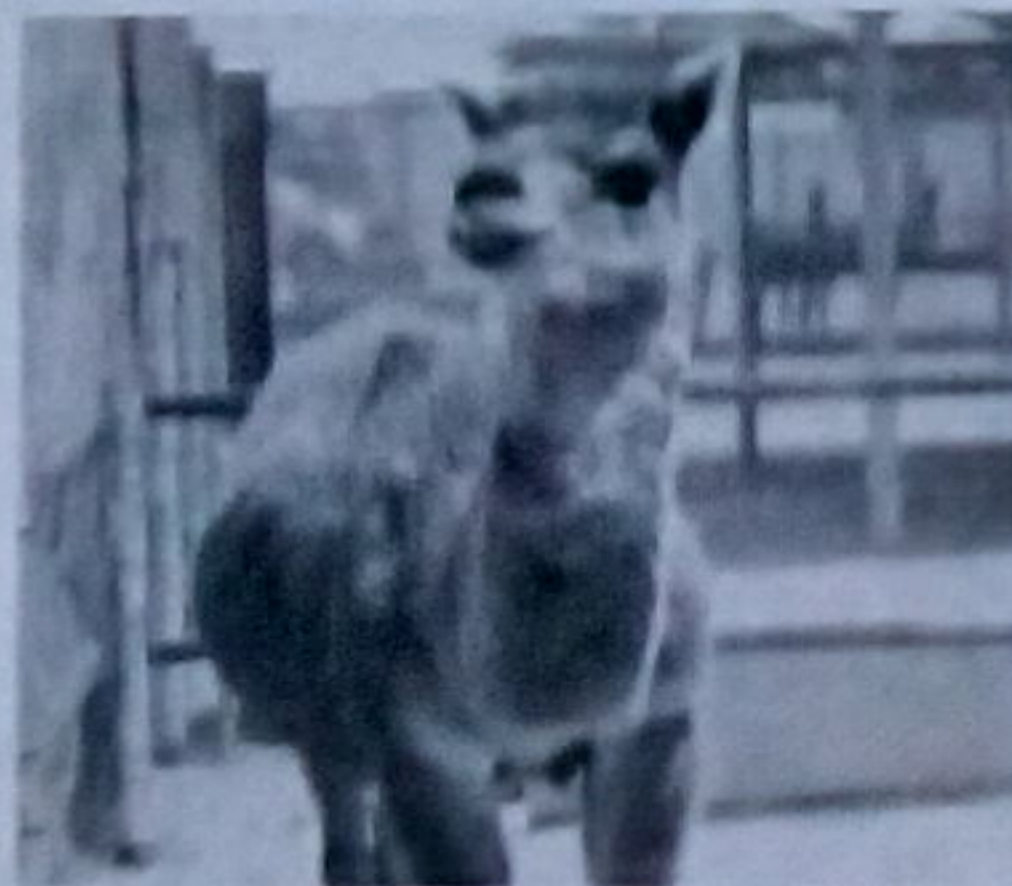
case in the early 1990s. This animal was nicknamed the Toast of Botswana. Since it was the only one ever known to have lived, no other name has been given to a goat/sheep combination.



Toast of Botswana
= goat + sheep



Beafalo



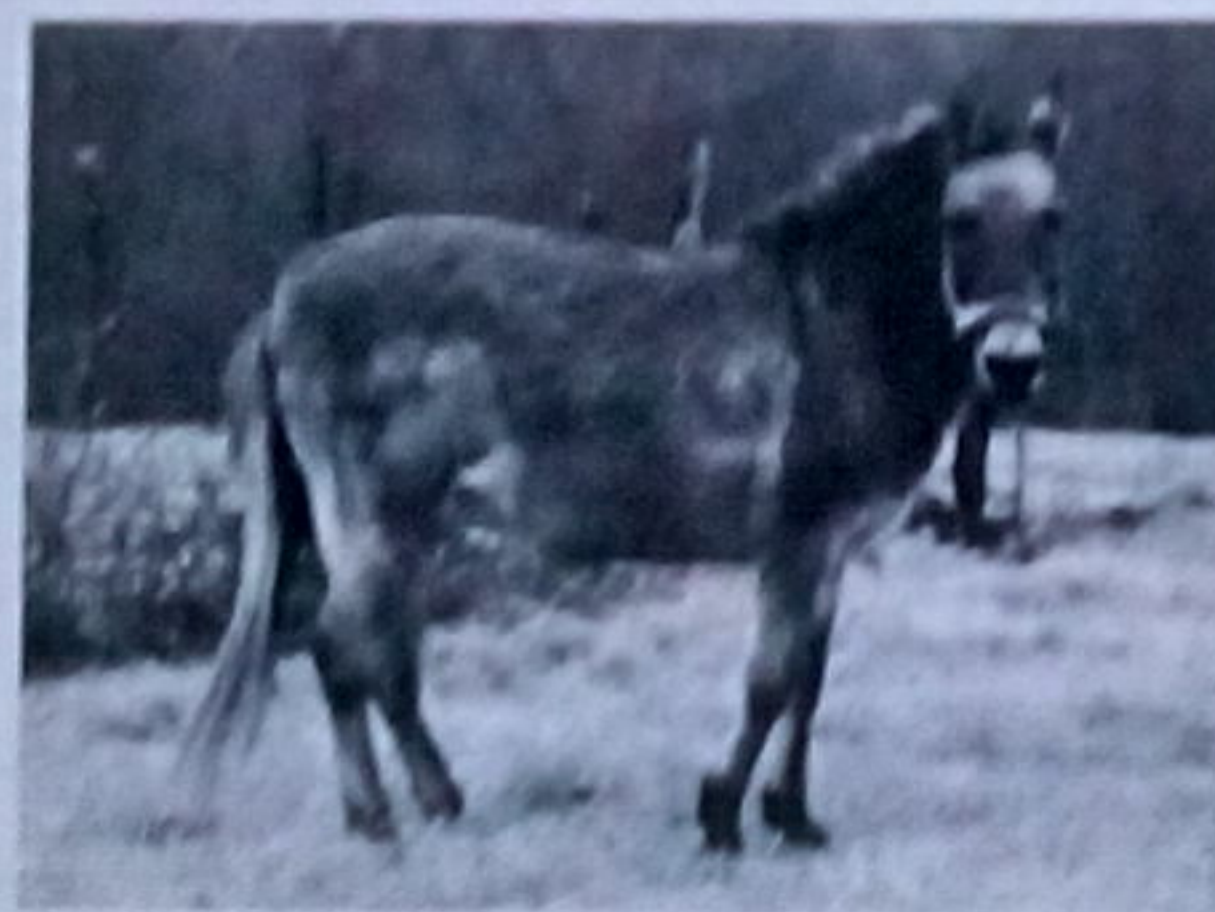
Cama



Zorse



Mule



Hinny

ملحوظة:

البغل ينتمي إلى فصيلة الخيول وهو هجين من ذكر الحمار وأنثى الفرس، وهذا النوع من التزاوج هو الأكثر شيوعاً. وأنثى البغل تكون عقيمة حيث لا يحدث عندها عملية التكاثر أو التناسل. أما الأقل شيوعاً في عملية التزاوج هي التي تتم بين أنثى الحمار وذكور الفرس والذي يسمى بـ "النقل" وليس البغل. اللون السائد للبغال هو اللون البني، وتنتشر في جميع أنحاء العالم يسمى صغير البغل "اللبا".

Gestation period in different animals

Animal	G.P (days)	G.P (months)
Human الإنسان	266	8.9 (9)
Chimpanzee الشمبانزي	227	7.5
Gorilla الغوريلا	257	8.5
Orangutan الأورانج أوتان	260	8.7
Baboon قرد البابون	187	6.2
monkey القرد	164	5.5
Llama اللاما	330	11
Black bear الدب الأسود	210	7
Wolf ذئب	64	2
Asian Elephant فيل آسيوي	645	21.5 (22)
African Elephant فيل أفريقي	640	21.5
Pig خنزير	114	3.8
Rabbit الأرانب	33	1
Raccoon الراكون	63	2
Mouse الفأر	19-24	-
Tiger النمر	104-112	3.5
Seal عجل البحر - الفقمة	255	8 (8.5)
Zebra حمار وحشي	280-290	12-13
Deer غزال	235	7.8
Giraffe النمرقة	475	15
Kangaroo حيوان الكنغر *	31-36	1
Bat خفاش	45-70	2
Skunk ظربان	75	2.5
Dolphin الدولفين	350	11.7 (12)
Ostrich نعام	40-44	1.5
Nile crocodile تمساح	96	3
Snake ثعبان	60-90	2-3
Turtle سلحفاة	100	3
Parrot بيقاء	17-31	0.5-1
Pigeon الحمام	10-18	-
Sheep, goat	150	5
Mare	335	11
Cattle	280	9

NB

● Egg laying animals

Kangaroo★: As with all marsupials, the young are born at a very early stage of development after a gestation of 31-36 days. At this stage, only the forelimbs are somewhat developed, to allow the newborn to climb to the pouch and attach to a teat. In comparison, a human embryo at a similar stage of development would be about 7 weeks old, and premature babies born at less than 23 weeks are usually not mature enough to survive. The Joey will usually stay in the pouch for about 9 months or (for the Western Grey) 180 to 320 days, before starting to leave the pouch for small periods of time. It is usually fed by its mother until the age of 18 months

Functions of Reproductive Hormones

1- Follicle stimulating hormone (FSH).

1. Stimulate follicular growth.
2. Stimulate secretion of estradiol.

2- Luteinizing hormone (LH).

1. Stimulate estrogen secretion.
2. Responsible for ovulation.
3. Responsible for growth and maturation of CL.
4. Stimulate release of progesterone from CL.

3- Prolactine hormone.

1. Responsible for maternal behavior.
2. Responsible for mammary gland development.
3. Initiation of milk secretion.
4. Maintain CL on the surface of the ovary.

4- Oxytocin.

1. Contraction of fallopian tube during the estrous for transmission of ova and sperms.
2. Contraction of the uterus during parturition.
3. Let down of milk.
4. Stimulate endometrium to secrete PGF2 α .

5- GnRH (Gonadotrophine releasing hormone).

1. Stimulate pituitary gland to release FSH and LH hormones.

6- Estrogen.

1. Control the secretion of gonadotrpip by feed back mechanism.
2. Growth of female genital system.
3. Induce signs of estrous.
4. Stimulate intrauterine deposition of glycogen.
5. Induces hyperemia and edema of the female genital organs.
6. Causes dilatation of the cervix.
7. Stimulate the secretion of mucus from cervical gland.
8. Development of duct system of mammary gland.
9. Has anabolic effect.
10. Calcification of epiphseal cartilage of a long bone.

7- Progesterone.

1. Controls the secretion of LH.
2. Inhibits the contractility of the uterus.
3. Stimulate the growth of uterine glands to secrete uterine milk.
4. Stimulate the development of alveolar system of the mammary gland.
5. Closure the cervix and formation of cervical plug.

Synchronization of estrous

The Program

Called *Ov-Synch*, which synchronizes ovulation and uses a three injection scheme.

- On day 0, a GnRH injection is given to stimulate ovulation.
- On day 5 to 7 detect estrus and breed.
- 7 days later an injection of PGF2a is given to regress the CL in those cows not bred.
- A second GnRH injection is given 2 days later to force a new dominant follicle to ovulate after 26 to 30 hours.
- Breed by A. I. 17 to 24 hours after the last GnRh injection is given or detect heat and breed.

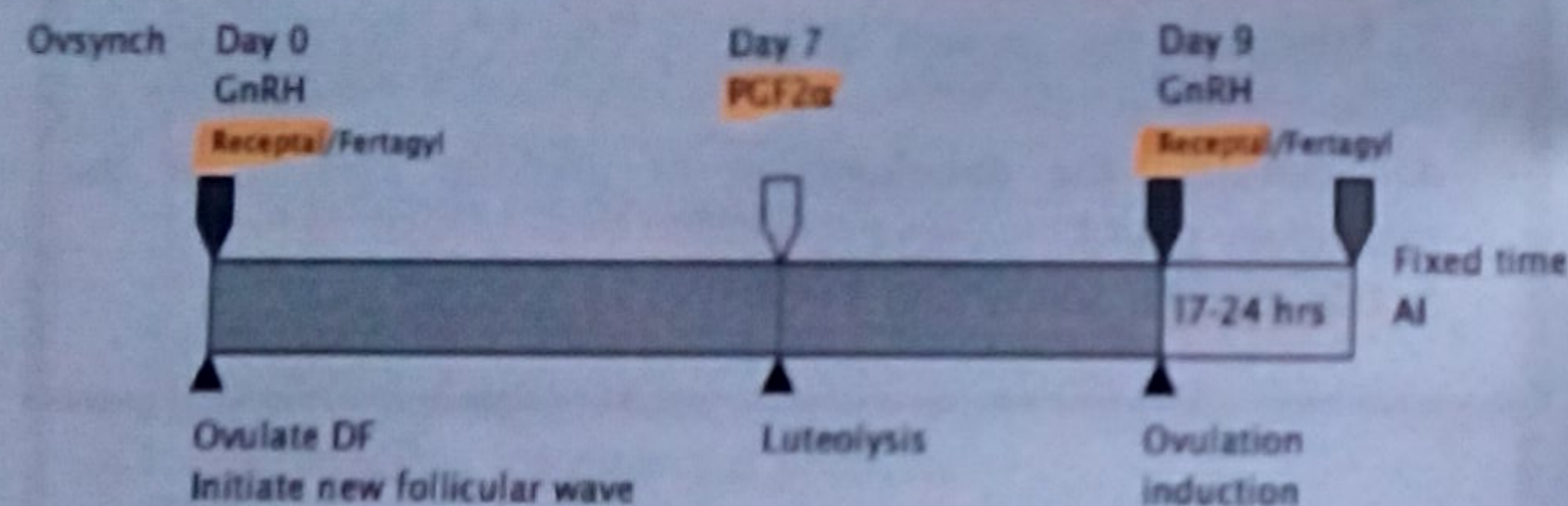


Diagram showing the ovsynch protocol

Synchronization of estrous in ewes

Using a vaginal sponge impregnated with **medroxyprogesterone acetate** (600 mg) and placed in the vagina for 12-13 days followed by withdrawal and **injection of eCG hormone** (350-600 iu) I/M on the day of sponge removal then introduction of the ram to the synchronized flock.

Clinical uses of Some Reproductive Hormones

1- Estradiol esters:

- Used in bitches, **mares**, and **cows** for induction of a fertile estrus.
- Treatment of urinary incontinence in bitches.
- For **antitumor activity** in prostatic and perianal tumors.
- Estrogenic therapy may cause bone marrow suppression and potentially fatal aplastic anemia in dogs and cats. Its use is also associated with development of cystic endometrial hyperplasia in these species.

2- Progesterone:

- Are used for **suppression of estrus** in bitches and queens.
- They have also been used in **behavior modification** and for **treatment of dermatologic disorders**.
- Progesterone supplementation is used **to support pregnancies** regarded as at risk (e.g. in pregnant mares with potentially endotoxemic conditions). **Side effects of progestin administration in small animals** include induction of cystic endometrial hyperplasia, adrenocortical suppression, induction or exacerbation of diabetes mellitus, and mammary gland development.

3- Prostaglandin PG F_{2α}:

- Used mainly for their luteolytic effects to induce predictable onset of estrus (or synchronization of estrus) in a variety of species.
- Termination of pregnancy** either alone, or in combination with **corticosteroids** (cattle, sheep) or **dopaminergic agents** (dogs). These compounds also cause marked uterine contractions, which may be useful for expulsion of uterine contents in pathologic conditions (e.g. Pyometra).

4- Oxytocin:

- Promote milk letdown, to treat agalactia, as an adjunctive treatment of mastitis, and to cause contraction of the uterus either to induce (or supplement) labor or to enhance postpartum uterine contraction and expulsion of uterine fluid or fetal membranes.
- It is administered parenterally (IV, IM, or SC), facilitating obstetrical manipulations in large domestic animals.

Pregnancy Diagnosis

☛ On 45 days (1.5 months):

1. Dorsal bulging.
2. Embryonic area size of *small egg*. حجم الرحم مثل حجم البيضة.
3. Slipping of membranes.
4. Corpus luteum on the ovary.

☛ On 60 days (2 months):

1. Pregnant horn is dropping over brim of pelvis.
2. Slipping of membranes in both horns.
3. Dorsal bulging is more pronounced.
4. Uterus feels like *a balloon filled with water*. حجم الرحم يملأ راحة اليد.
5. May be able to bump fetus.
6. Corpus luteum present.

☛ On 120 days (4 months):

1. Palpate legs of the calf, make out definite anatomical form.
2. Palpate *small placentomes*.
3. Palpate pulse of pregnancy (In the middle uterine artery).

☛ On 150 days (5 months):

1. Uterus is pulled well over brim - cervix at the brim.
2. Distinct placentomes (in size of ovaries).
3. Prominent pulse of pregnancy; artery is 1/4 to 1/2 inches in diameter.
4. Fetus is well formed and may have to reach for it.

☛ On 5.5-7.5 months:

1. Dorsal wall of uterus may be tight and hard to palpate.
2. Placentomes are variable in size.
3. Prominent pulse of pregnancy.
4. Fetus may *not be palpable*.
5. From 6 months till calving a movement of fetus may be elicited by grasping the feet, legs or nose.

☛ On 7.5-full term:

1. Cervix is right at brim of pelvis.
2. Placentomes are variable in size.
3. Good pulse of pregnancy. Artery is 1/2 inch in diameter.
4. Fetus is back up in range.

5. Feel feet.
6. Movement is detectable.

☛ Recommendations Regarding Pregnancy Diagnosis in the Cow by Rectal Palpation:

1. Pregnancy determination should be the first step of the genital examination.
2. No animal should be classified as *Non-pregnant* unless the uterus has been retracted and both uterine horns are examined their entire length.
3. No animal should be classified as **Pregnant** unless at least one **Positive** sign of pregnancy is recognized.
4. A few animals cannot be adequately examined by even the most experienced - admit this and re-examine later.
5. Do not treat for any reproductive disorder unless you are ascertaining that the animal is non-pregnant.

The average length of gestation in the cow ranges between 270 to 290 days with an average of 284 days.

Anestrus (Failure of Estrus) (تَجْفَر (فَتْرَة لَاوَدْقِيَّة)

Definition: failure of estrous in cattle, only a symptom of one of the many conditions that affect the estrous cycle.
It is divided into 2 classes:

Class 1: cows on rectal examination have CL in one of the ovaries.

1-Anestrous due to pregnancy: the animal is pregnant.

2-Anestrous due to retained or persistent CL.

(a) Retained CL associated with early embryonic death: caused by vibriosis, trichomoniasis,...

(b) Retained CL associated with gross uterine pathology: such as pyometra, fetal maceration, mummified fetus & metritis.

(c) Retained CL not associated with uterine pathology: as in high lactating animals due to high Prolactine which suppress FSH h.

3- Anestrous due to sub estrous or "silent heat": the cow does not show the typical external symptoms of estrus, although a normal cyclical change occurs in the ovaries.

4- Anestrous due to unobserved heat: due to carelessness of some farmers or observer.

N.B The presence of blood in the vaginal discharge indicates that ovulation occurred 1 - 2 days previously.

5- Anestrous due to a cystic CL: by RE cystic CL is firmer and less fluctuating, yet the central fluid can be palpated.

➤ Treatment of cystic CL as cystic ovary by using GnRH.

Class 2: cow having smooth inactive ovaries with no functional CL.

(a) Anestrous due to smooth inactive ovary:

The ovary is atrophied and small..... ➤ no palpable corpora lutea.

ph -
Co -
Cu -

Causes of this condition:

✓ Nutritional causes such as phosphorus, cobalt, copper and iodine deficiency.

✓ Phosphorous deficiency is a common cause in buffaloes.

✓ As a sequelae to chronic debilitating disease as T.B or parasitic infestation such as Fascioliasis or parasitic gastroenteritis.

(b) Cystic ovaries:

- 75% of cystic ovaries are anestrous, on rectal examination one or more follicular cyst are found & may associated with mucometra.

(c) Miscellaneous conditions:

- Uncommon and sporadic such as:

1 - Freemartinism.

2 - Congenital hypoplasia of the ovaries.

Treatment of anoestrus :

1. Treat the actual cause.

2. If the cause is smooth inactive ovaries treatment is as follow:

➤ Injection of 300 - 600 iu of PMSG (Folligone®) (in cows but in buffalo is not clear).

➤ Estradiol benzoate injection but may produce unovulatory heat without conception.

➤ Massage of the ovaries to improve the blood supply.

➤ Injection of vitamin A & vitamin E.

➤ Uterine infusion with logols iodine of 1:200 dilutions to stimulate the estrous.

➤ Injection of GnRH (Receptal®).

➤ In cases of phosphorus deficiency in buffaloes give 10 gm sodium dibasic phosphate + bran mash daily for 6 days.

➤ Tonphosphan Compositum® 10 cc I/M day after day for 5 days.

Ovarian cysts تكيسات مبيضية

Fluid filled structure on the ovary greater than **2.5 cm** in diameter; no CL present on either ovary, the cyst may persist for more than 10 days or regress and may be replaced by another cyst. Represents about 12-14% in dairy cattle, Firstly nymphomania then anestrus animal. "as8"

Causes:

1. Failure of production or release of adequate amount of LH hormone.
2. Ovary of the cow does not respond to LH hormone.
3. Closely confined animals in winter months.
4. High producing cows due to high Prolactine hormone.
5. Adrenal hyperfunction, post partum infection.
6. Cows with high selenium level.

N.B Occasionally a cow will have ovarian cysts and CL at the same time, since the cow may be pregnant and has a cyst but it is rare & occurs in the first 90 days of pregnancy.

Diagnosis :

1- Rectal examination:

Presence smooth fluctuating round structure measuring 2.5 cm or larger in diameter on one or both ovaries.

Item	Follicular cyst	Luteal cyst	Cystic corpus luteum
Wall	thin	thick	Very thick
Ovulation	anovulatory	anovulatory	ovulatory
Clinical signs	Nymphomania or anestrus	anestrus	anestrus
number	Single or multiple	single	single

Receptal
pregnyl

(2) Ultrasound scanning:

By endorectal probe, large sized (more than 2.5 cm in diameter) non echoic circumscribed structure on the ovary with thick wall or multiple cysts less than 2.5 cm but with thick wall & may be irregular due to pressure upon the wall of each other.

Treatment:

R/ GnRH (Receptal®) or HCG (Pregnyl®) 1000 iu I/M.

N.B GnRH or HCG does not induce abortion in pregnant animals

Treatment response:

✓ 14 days after treatment cow reexamined, if the cow going to respond, changes in the ovaries (the cyst becomes firm and smaller) should be detected by this time.

✓ If the cow does not respond to 2 or 3 treatments of GnRH, so use (HCG or APE).

N.B After 10 – 14 days the cyst will be regressed by treatment leading to formation of luteal tissue so in the day 14 give prostaglandins to bring the cow in estrous after 2 – 3 days.

التهاب بطانة الرحم Endometritis

Item	E1 (Catarrhal endometritis)	E2 (Catarrhal endometritis)	E3 (Purulent endometritis) or metritis
Animal	Repeat breeder	Repeat breeder	Repeat breeder
Estrual mucous	Increased + clear	Turbid + discharge in non-estrous animal	Pus of offensive odor
Rectal examination	Normal uterus + normal cervix	Uterus and cervix enlarged and hard (++)	Uterus is thick enlarged hard cervix (+++)

Treatment:

⇒ E1 ➤ Spontaneous recovery.

⇒ E2 (Catarrhal endometritis): treated as following:

R/ Oxytetracycline (oily) intrauterine irrigation 3 times with one-week interval. Or

R/ Povidone iodine (diluted), intrauterine irrigation 3 times with one-week interval.

R/ Metricure® (syringe), Cattle: 1 syringe intrauterine, using disposable intrauterine Catheter.

R/ Amoxy-Kel 15®, intrauterine irrigation 3 times with one-week interval (10 cc + 20 cc saline then uterine irrigation for 3-4 times with one week interval).

R/ Lutalyse® 5 cc /cow/ I/M for CL regression.

⇒ E3 (Purulent endometritis):

1. Liquid pus + opened cervix → injection of Oxytocin.
2. Liquid pus + closed cervix → injection of PGF2 + Oxytocin.
3. Dry pus → liquefaction with sod. Bicarbonate 100 cc 0.2% + Oxytocin.

⇒ E4 (Pyometra):

Injection of prostaglandins; evacuation of pus begins after 24 h and ends after 72 h (injection repeated 2-3 times with 10 days interval).

Intrauterine fetal death

1- Fetal Mummification نَحْط

Death and dryness of fetus under aseptic conditions. Mummified fetuses are **usually seen during routine meat inspection.**

⇒ Through rectal examination:

1. Fetal fluids are absent.
2. The wall of the uterus together with fetus is directly felt.
3. There are no cotyledons or fremitus in the uterine artery.

تجد الرحم صغير وتحس الجنين كقطعة متيبسة في الرحم.

تشك أن الحالة فيها mummification عندما يكون تاريخ الحالة يؤكد أنها كانت عشار مع ظهور العلامات المؤكدة ثم لا يلبث أن تضمحل هذه العلامات ويصغر حجم البطن.

Treatment:

R/ Lutalyse® 5 cc I/M / cow and buffalo.

R/ Dexamethasone® 20 cc I/M / cow and buffalo.

تعتن الجنين 2-Fetal Maceration

It is decay and softening of soft parts of the fetus, it occurs after vaginal prolapse or secondary to mastitis and claw affections.

Characterized by:

- ✓ Purulent bad smelling discharge with parts of fetal tissues and bones.
- ✓ With rectal palpation Doughy material can be palpated with the bony remnants of the fetus.

Treatment:

- R/Latalyse® 5 cc I/M / cow and buffalo.
- R/Decamethasone® 20 cc I/M / cow and buffalo.
- R/Penicillin-Streptomycin mixture injection, such as pen-strep® or Combi-kel 20+20® 25 cc/ cow and buffalo I.M.
- R/Metricure® (syringe), Cattle: 1 syringe intrauterine.

3-Fetal Emphysema

It is a putrefaction of the fetus and accumulation of gases under the skin and body cavities of the fetus due to entrance of gas forming bacteria (anaerobes).

* تحدث هذه الحالة نتيجة لتدخل صاحب الحيوان ويتج عن ذلك دخول بكتريا لاهوائية داخل الرحم وتغزو الجنين فيموت ويتفخ.

Clinical signs:

1. Dry birth way + emphysematous fetus. Cripitation of fetal surface.
2. Some parts of fetal membranes are protruding out of the cervix..... Brownish in color with bad smelling brownish vaginal discharge.

* تشم رائحة كريهة جدا منبعثة من المهبل وتجد الذباب الأخضر متجمعا حول فتحة الحياء. يفتحص الجنين نجدة بتكتك بالضغط عليه. كما نستطيع تحريك الغزات تحت جلده.

Treatment:

- R/ Introduce voluminous amounts of artificial fetal fluids.
- R/ Total fetotomy.
- R/ Douching of the uterus with diluted antiseptic and syphonning.
- R/ Tetracycline 4 gm intrauterine.
- R/ Combi-kel 20+20® as systemic antibiotic 30 cc / cow or buffalo for 5 days.

ملحوظة: إذا حدث وجرح الرحم وتسربت السوائل للبطن انصح ببيع الحيوان

Heat during pregnancy

Occurs in about 10% in cows.

Treatment:

R/ Vitamin E and selenium I/M. 15 cc /cow.

Stages of Calving

Stage and time	Event
Preparatory (2 to 6 hours)	<ol style="list-style-type: none"> 1. Calf rotates to upright position. 2. Uterine contractions begin. 3. Water sac expelled.
Delivery (1 hour or less)	<ol style="list-style-type: none"> 1. Cow usually lying down. 2. Fetus enters birth canal. 3. Front feet and head protrude first. 4. Calf delivery completed.
Cleaning (2 to 8 hours)	<ol style="list-style-type: none"> 1. Cotyledon-caruncle (button) attachments relax. 2. Uterine contractions expel membranes.

Vaginal discharge during pregnancy

- In all species, the vaginal discharge may indicate a pathological process in the vagina or uterus, but it may also present when a normal pregnancy is present.
- A vaginal discharge may indicate threatened or progressing abortion the discharge in such cases may be **blood stained** and may contain fresh or **macerated fetal tissues** together with **placental remnants**.
- In case of infectious cause of abortion the animal suffers from pyrexia + purulent foul smelling discharge.

* في بعض الحالات خصوصا الجاموس يحدث التهاب مهبلي تكرر ويخرج من المهبل صديد ولكن الحمل لا يزال مستمرا.

⇒ In Mare:

- Bloody discharge may arise from **varicose veins in the vaginal wall**.
- Purulent vaginal discharge may associate with **vaginitis- urinary tract infection- placentitis**.

⇒ In Bitches:

- Many bitches produce small quantities of a clear mucoidal discharge throughout pregnancy. If foul smelling apply ultrasonography.
- A mucopurulent discharge in older bitches caused by local vaginal infection associated with crops of leiomyomas in anterior vagina such infection is not harmless to pregnancy but apply ultrasonography.
- A mucopurulent discharge in cases of pyometra and the possibility of this developing about 3 weeks after service, in this case ultrasonographic evaluation of the uterus is needed.
- A dark green vaginal discharge Suggest fetal death.
- ✓ Very occasionally only one baby (that situated near to the cervix) has died and ultrasonography reveals that the rest are normal.

Treatment:

R/ **Betadine**® as a **vaginal douche** in case of simple vaginitis (diluted).

R/ **Terramycin**® oint. **paint** twice daily in case of simple vaginitis.

R/ **Combi-kel 20+20**® as **systemic** antibiotic 30 cc / cow or buffalo for 3 days.

R/ **Induction of abortion** in case of **dead feti**.

Vaginal Prolapse انقلاب المهبل

1. Inversion:

- Apple like-structure seen only when the animal lies down.

خروج جزء من المهبل ويظهر في حجم البرتقالة أثناء رقاد الحيوان فقط.

2. Incomplete prolapse:

- Round structure appears between the lips of the vulva, when the animal standing up.

خروج المهبل ويظهر في حجم البطيخة أثناء رقاد الحيوان ووقوفه.

3. Complete prolapse:

- The whole vagina is completely inverted through the vulva.
- It can be seen both in laying as well as in standing position.
- The portio vaginalis uteri appear in the middle of the prolapsed vagina.

خروج المهبل ويظهر في حجم البطيخة وفي منتصفه الفتحة الخارجية لعنق الرحم.

Treatment:

⇒ Inversion:

- Keep the hindquarters of the animals higher than the fore ones.

R/ **Tetracort**® oint (paint twice daily) on the prolapsed part.

⇒ Complete prolapse:

- 1- Epidural anesthesia (10 cc Xylocain or lidocain 2%).
- 2- Wash the prolapsed part with warm water and soft soap then with light antiseptic solution. Remove the necrotic tissues.
- 3- Raise the prolapsed part to evacuate the urinary bladder.
- 4- Apply antibiotic ointment as lubricant.
- 5- Reduce the prolapsed part gently using the fist of the hand to avoid injuring the prolapsed part.
- 6- Close the vulva with **mattress suture** (2-3 mattress suture stitches) **using gauze**.

* قم بخياطة فتحة الحيا باستخدام شريط من الشاش وتربط الغرز بطريقة يمكن حلها بسهولة.
- الحالات التي يحدث فيها خروج المهبل يكون غالبا قبل الولادة.... ويكون ذلك مهينا لحدوث خروج الرحم بعد الولادة.

انقلاب الرحم Uterine prolapse

The uterus of the animal comes out through the vagina, Uterine prolapse occurs in about 0.5% of calvings, following third stage of labor, it caused by:

1. Uterine atony during third stage of labor.
2. Hypocalcemia and milk fever.
3. Malnutrition and chronic diseases.
4. High estrogen intake is a predisposing factor.

Clinical signs:

1. The uterus found already prolapsed, and the mucosal surface with cotyledons is visible, and may found with placenta still attached.
2. The cow may be standing or shocked and recumbent.
3. The uterus may be contaminated with bedding and feces. It may be lacerated, engorged and edematous.
4. The uterus = worm = if recently prolapsed, but become cold and discolored with time progress.
5. Sudden death may occur due to rupture of ovarian arteries.

Prognosis:

Depend on duration, degree of damage, and contamination and shock.

Treatment:

- Posterior epidural anesthesia.
- Remove gross debris from the prolapsed organ by washing with saline or a very mild antiseptic solution.
- Remove the placenta or its remnants if separated easily. If not leave, it attached.
- Repair any damage of the uterine wall using absorbable suture material.
- The prolapsed portion is raised to the level of the vagina and apply oily lubricant antibiotic to help in uterine re-correction and replacement. Then reduce the uterus to its normal position using the fist of the hand, and you may use a bottle of calcium preparations to induce a maximum pushing of the uterus into its nearly normal anatomical position to prevent straining and prolapse again.
- Suturing the lips of the vulva using gauze with 2-3 mattress sutures.
- Oxytocin injection I/M (20-30 iu)
- Ergometrine (Methergin®) 5 amp I/M or I/V infusion / cow.
- Intrauterine antibiotics (8 gm tetracycline).
- Systemic antibiotic (penicillin-streptomycin).
- Injection of calcium preparations I/V (250-500 cc of Cal-D-Mag or Calmagose or Cofacalcium....).

Induction of Birth in Different Animals

Sometimes we need to induce abortion or birth in farm animals:

Cattle:

1. Termination of **abnormal pregnancy** (hydroallantios) that causes recumbency to the animal.
2. Threatened damage such as **ventral hernia**.
3. Threatened dystocia in **very young heifers**.

Sheep and goat:

1. Induce abortion as in **pregnancy toxemia**.

Methods:

✍ Cattle :

⇒ **From 1- 4 months of gestation:**

R/ Lutalyse[®] 5 cc/cow or buffalo I/M, abortion occurs after 3 days.

⇒ **From 4-8 months of gestation:**

R/ Dexamethasone[®] 20 cc/ cow or buffalo I/M. abortion expected within 5-12 days.

R/ Lutalyse[®] 5 cc/cow or buffalo I/M.

✍ Sheep :

R/ Dexamethasone[®] 5 cc/ ewe I/M. + **Folone[®]** 5 mg (estradiol) 2 amp I/M / ewe.

✍ Goat :

R/ Lutalyse[®] 1 cc/goat I/M. + **R/ Dexamethasone[®]** 5 cc/ goat I/M. abortion expected after 34-39 hours.

Caesarean section (CS)

العملية القيصرية

Indications:

1. Excessive fetal size.
2. Fetal deformity.
3. Absolute narrowing of the pelvic canal.
4. Uncorrectable malpresentation and/ or posture.

Contra-indications: "مهمة جداً"

1. **Very poor body condition of the dame.**
2. **Emphysematous fetus.**
3. Presence of uterine infections.
4. **Subnormal body temperature.**

Procedure:

- ➔ Left flank is preferred to right flank.
- ➔ Cranial epidural block (15-30 cc 2% lignocain or debocaine), or 30 cc lidocaine + inverted L-shape anesthesia in the paralumbar fossa.
- ➔ Clipping and shaving of the entire paralumbar fossa (last rib to hip) and make disinfection with Betadine antiseptic soln.
- ➔ Make 30-35 cm vertical incision in middle or caudal third of left paralumbar fossa.
- ➔ **Insert hand into abdomen pushing rumen forward and feeling ventrally and caudally.**
- ➔ Make rapid assessment of fetal position and condition of uterine wall.
- ➔ Bring the greater curvature of gravid horn towards abdominal incision by grasping uterine wall over protruding part of fetus.
- ➔ Incise uterine wall along greater curvature adjacent to the limb and towards the tip of the horn with scalpel blade. **However, avoid incising maternal caruncles.**
- ➔ Gentle grasping of the fetus outside the uterus.
- ➔ **Remove any loose protruding parts of placenta and leave the remainder in situ.**
- ➔ **Intrauterine antibiotic.**
- ➔ **Suturing of the uterus.**
- ➔ **Suturing of the abdominal muscles, S/C tissue and skin.**
- ➔ **Give systemic antibiotic for 5 days + oxytocin + ergometrine. (methergine[®]).**

Rupture of the uterus

تمزق الرحم

Uterine rupture occur commonly in cows and ewes, it takes place during dystocia treatment or accidentally during rough manipulation for treatment of uterine prolapse.

Clinical signs:

1. During post-delivery check, a hole may be detected in the uterine wall, you can feel the serosal surface of the internal organs, and you can feel the maternal intestinal loops.
2. Occasionally the intestinal loops could be present outside the vulvar lips.
3. Other cases there is no signs are seen until peritonitis develops within an hours or one day (depression, pyrexia, grinding of teeth and grunting on expiration).
4. The uterine rupture may be dorsal or ventral.

Treatment:

- ➔ In cases of large Ventral uterine rupture and peritonitis, the prognosis is guarded. While in cases of dorsal uterine rupture, the prognosis is good.
- ➔ In alert, good conditioned cases, laparotomy and repairing of uterine rupture could be achieved.
- ➔ Repairing of ruptured prolapsed uterus.
- ➔ Injection of :
 $\mathcal{R}/$ Oxytocin[®] 3-5 cc infusion + Methergin[®] 5 amp / cow and buffalo with dextrose 5% + Dicynon[®] or Haemostop[®] 5 amp / cow and buffalo I/M.
 $\mathcal{R}/$ Lutalyse[®] 5 cc/cow or buffalo I/M, on the third day after calving.
 - Give systemic antibiotic for 5 days such as Combi-kel 20+20[®] as 30 cc / cow or buffalo for 3 days.

Torsion of the uterus

انفتال الرحم- التواء الرحم

Uterine torsion represents about 7% of bovine dystocia; the pregnant uterus rotates around its longitudinal axis, with the point of torsion being the anterior vagina just caudal to the cervix. Less commonly, the point of torsion is cranial to the cervix. The degree of torsion varies from 45- 360 degree.

Clinical signs:

1. Arching of back of the animal with non-responsive (to treatment) tympany.
2. Torsion of the birth canal may cause one or both lips of vulva to be pulled in.
3. The vagina narrows conically and folds of vaginal mucosa may be felt going into an oblique spiral.
4. The direction of vaginal folds may indicate the direction of the torsion. Either clockwise or anticlockwise.
5. If the torsion is less than 180° you can reach and palpate parts of the fetus.

Treatment:

- ➔ Rolling the cow- the principle being to roll the cow around its uterus whilst that organ remains still
- ➔ The two forelegs and the two hindlegs are roped together and the head is restrained. The cow is rolled sharply over on to her other side. The patency of the vagina is checked and if the torsion persists, the cow is gently rolled back on to her other side and the process is repeated. The cow may have to be rolled two or three times before the torsion is corrected.
- ➔ The efficiency of rolling may be improved by putting external pressure on the cow's abdomen in an attempt to hold the uterus still whilst the cow's body is rolled.
- ➔ **Surgical correction:** through left flank laparotomy in standing position then correction and delivery. Once the uterus is correctly in place, the calf may be delivered per vaginam. If the process is difficult, apply cesarean section, followed by correction of the uterus.

Retention of the fetal membranes

احتباس المشيمة

Fetal membranes are considered retained if they have not been passed by 3 hours after foaling in mares and 12 hours after delivery of last fetus in ruminants. Retention of fetal membranes is more common after abortion, dystocia, caesarean section or fetotomy.

Clinical signs:

Retained fetal membranes are usually seen at the vulva. However, small tags of placental tissue may remain attached without being apparent.

Treatment:

- ➔ Manual removal- indicated only when gentle traction is sufficient to withdraw membranes from the genital canal.
- ➔ Intravenous calcium preparation (if the cause of retention is due to hypocalcemia) + oxytocin.
- ➔ Systemic and intrauterine antibiotics (Tetracycline 4-6 gm).

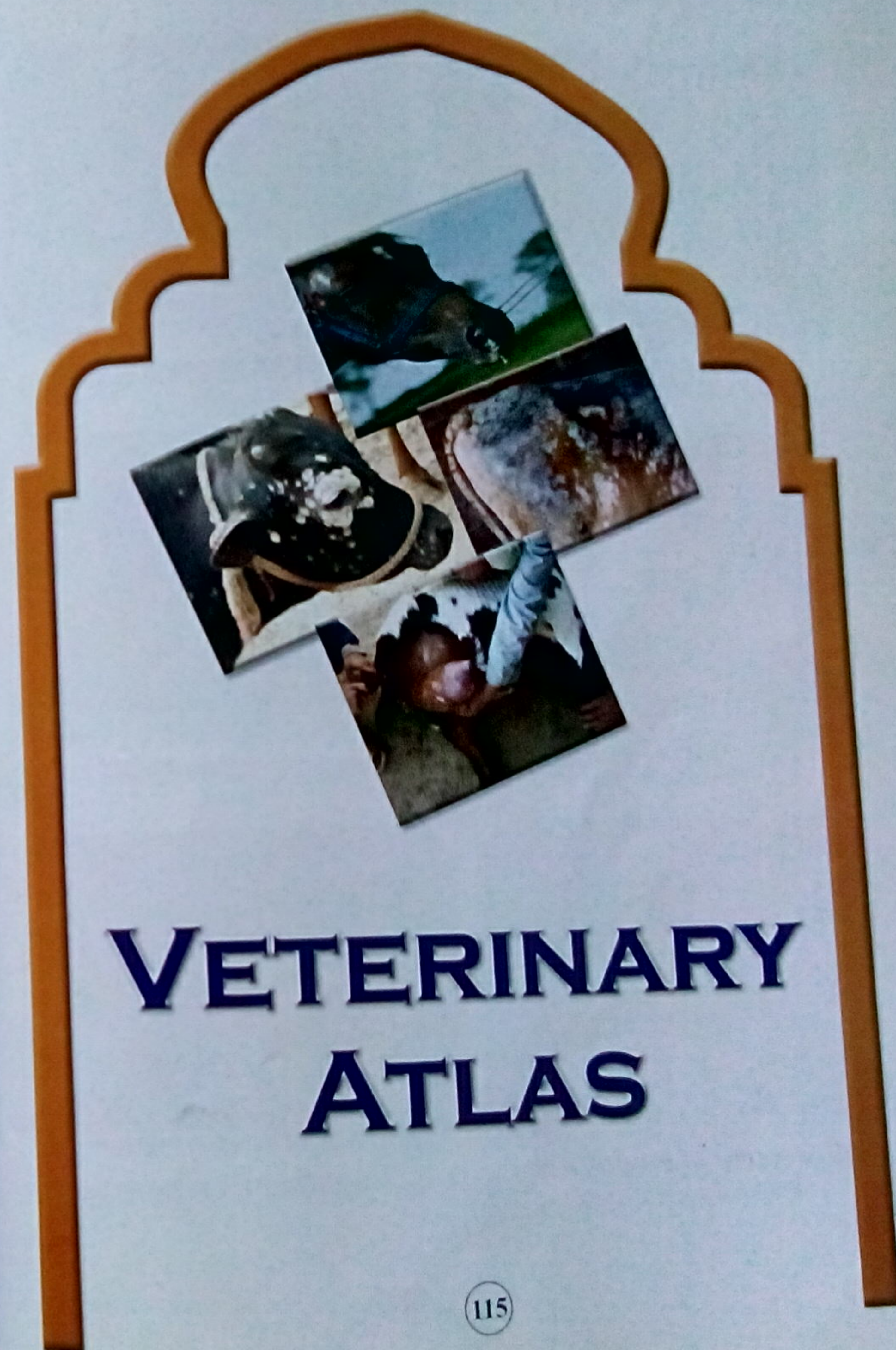
N.B The odor of the membranes may lead to milk taint and their appearance in a hygienic parlor is unpleasant.

Manual Removal of Fetal Membranes:

- This is first attempted 72 hours after calving – you should set a time limit for removal → if the membranes can not be removed within 10 min they should be left for a further 48 h before another attempt at removal is made.
- Washing of the perineal area of the cow.
- Grasp any protruding strands of placenta in one hand and twist them into rope, the other hand is introduced into the uterus and reach to the nearest attached caruncles and make gentle separation of placenta then make gentle traction.
- If the placenta has not been separated within 10 min, the case left and seen after 48 h.
- Intrauterine antibiotic (tetracycline) + systemic after removal of placenta. But if there is much unpleasant debris in the uterus it may be lavaged with warm saline and the contents siphoned out with stomach tube.

Prevention of Retained Placenta:

1. Proper nutrition in peripartum period to avoid metabolic diseases.
2. Vitamin E and Selenium supplementation.
3. Maintenance of Ca: P ratio of 1.5:1.0 and P supplementation.
4. Proper immunization against specific infections.



VETERINARY ATLAS



Mange in cattle



Emaciation due to parasites



Listeriosis in sheep



Hypomagnesemic tetany in a calf



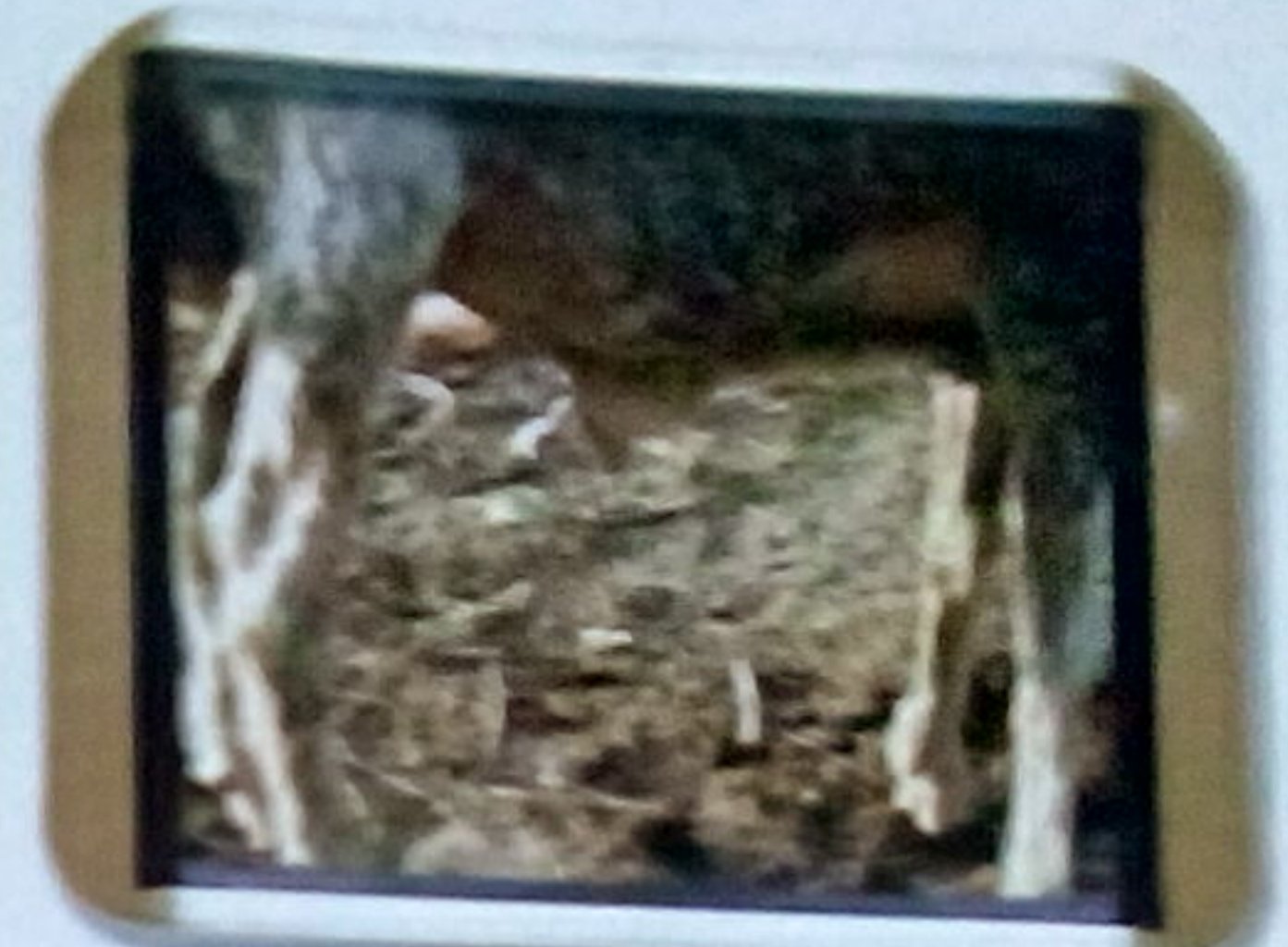
Ulcerative Mammillitis



Jaundice in a cow



Umbilical abscess in a buffalo calf



Umbilical hernia in a ram



Tetanus in a lamb



Tetanus in a donkey



Parasitic cyst (coenurosis)



Over granulation tissue in the hind limb of a horse



Several cut-wounds in fatty tail in ewe



Infectious keratitis in a goat



Rabies in a cow



Babesiosis in a cow



Strangle



Foot and mouth disease in cow



Generalized mange in a cow



Cesarean section in a native breed Cow



Recto-vaginal fistula in a mare



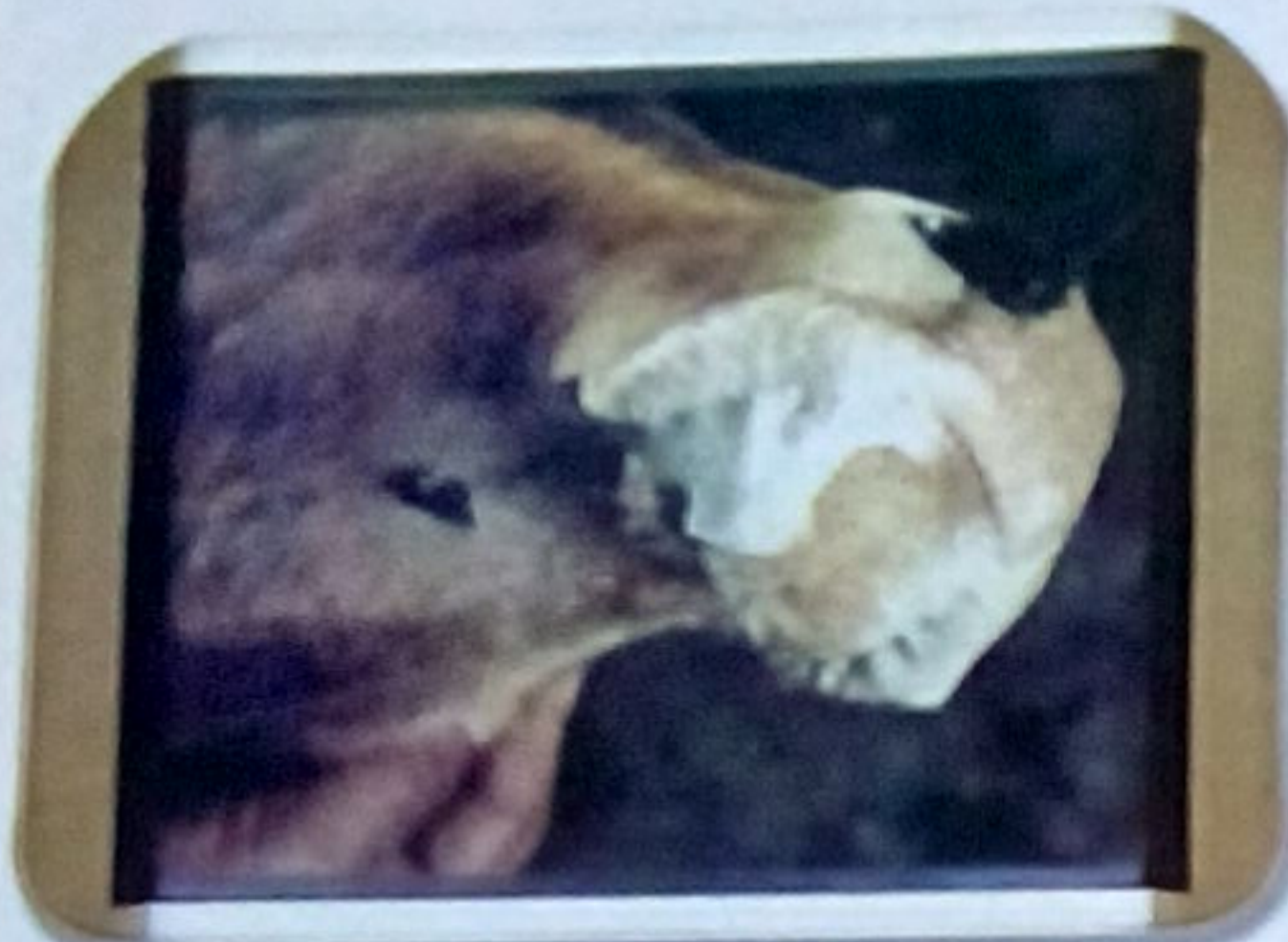
Retention of placenta in a buffalo



Vaginal prolapse



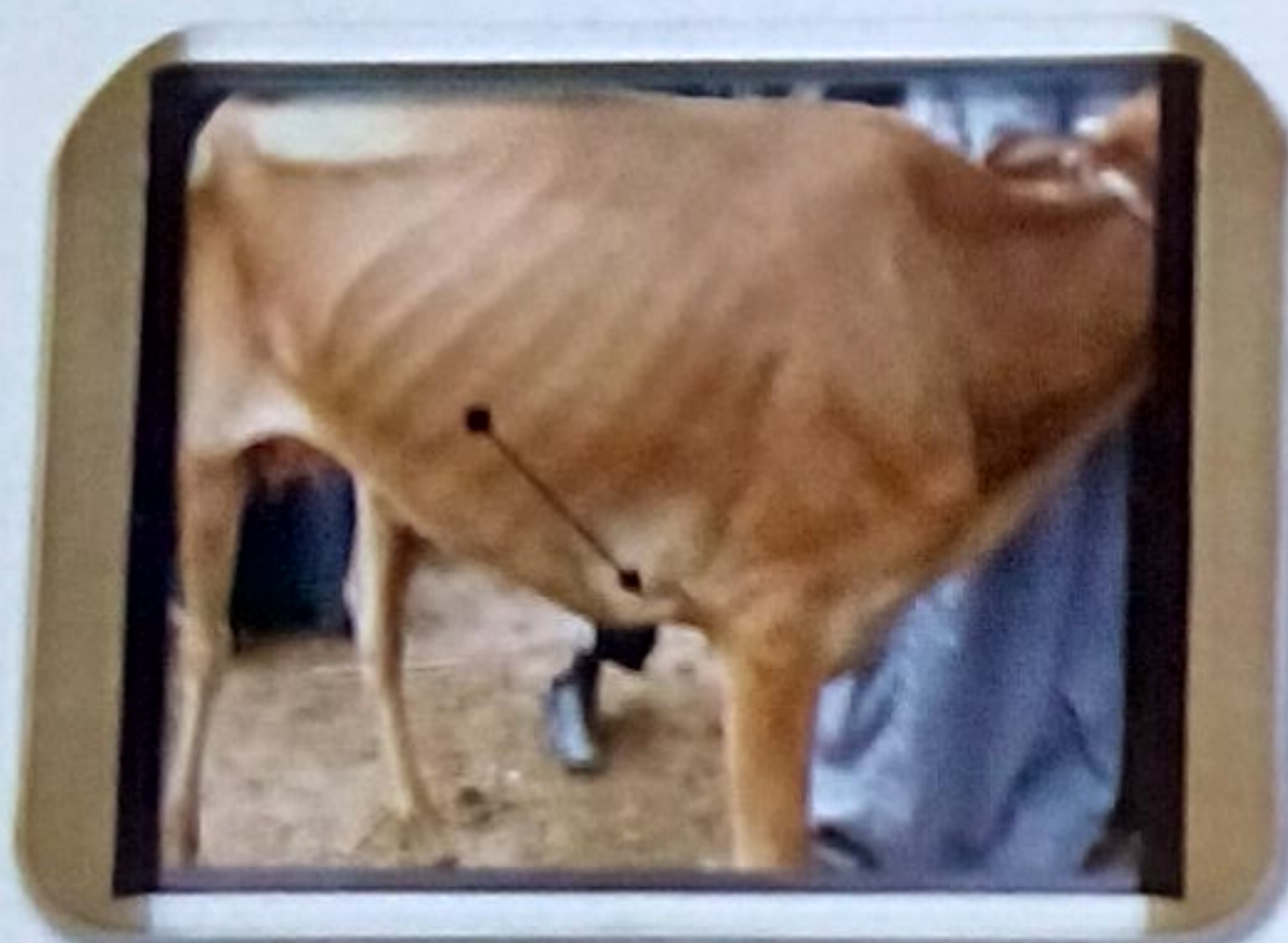
Uterine rupture with intestinal loops outside the body



Salivation in a cow



Tympany in a cow



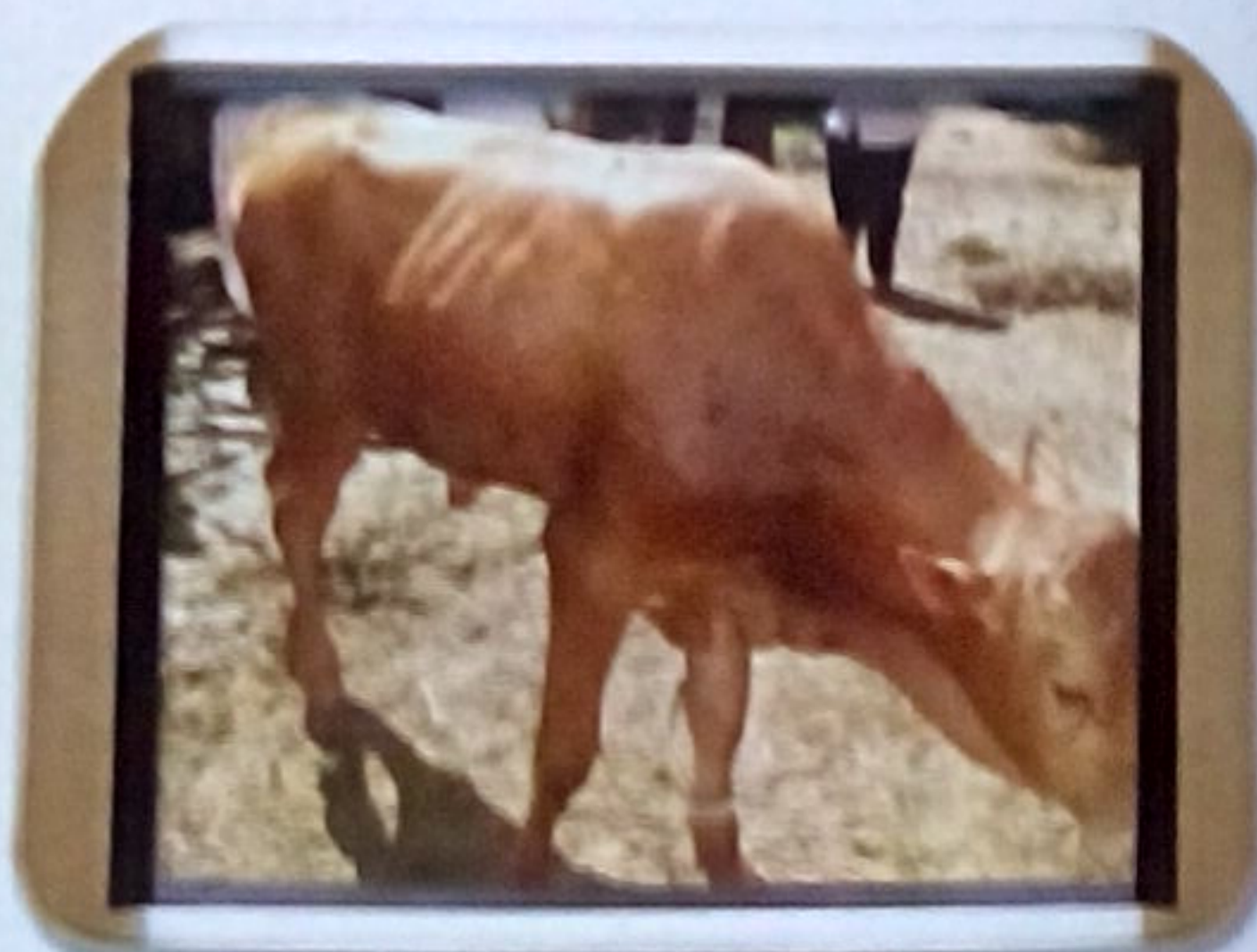
Abscess in the chest



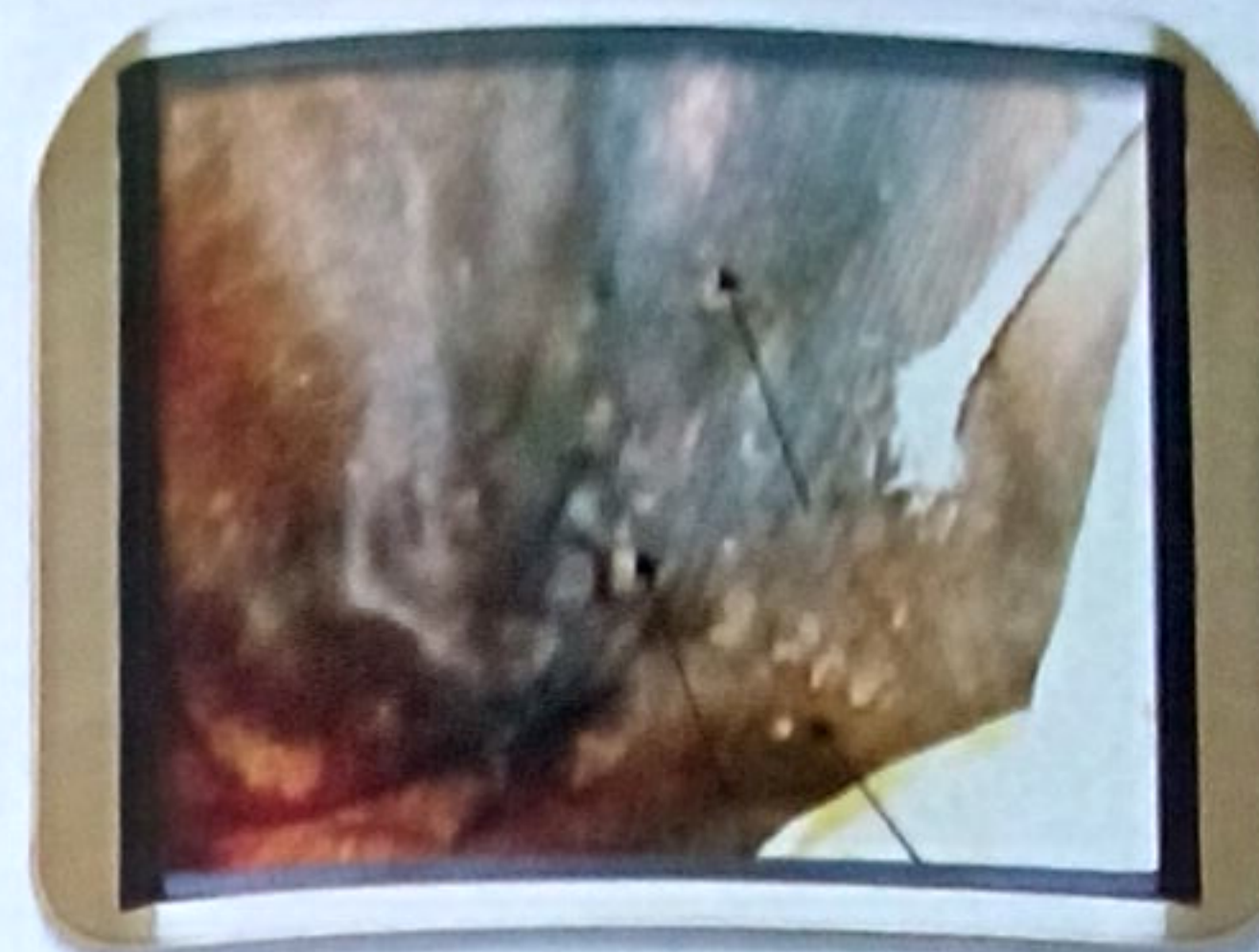
*Sternal recumbency in a cow
with milk fever*



*Arching of back
(cystitis in a cow)*



Theileriasis



Lumpy skin disease



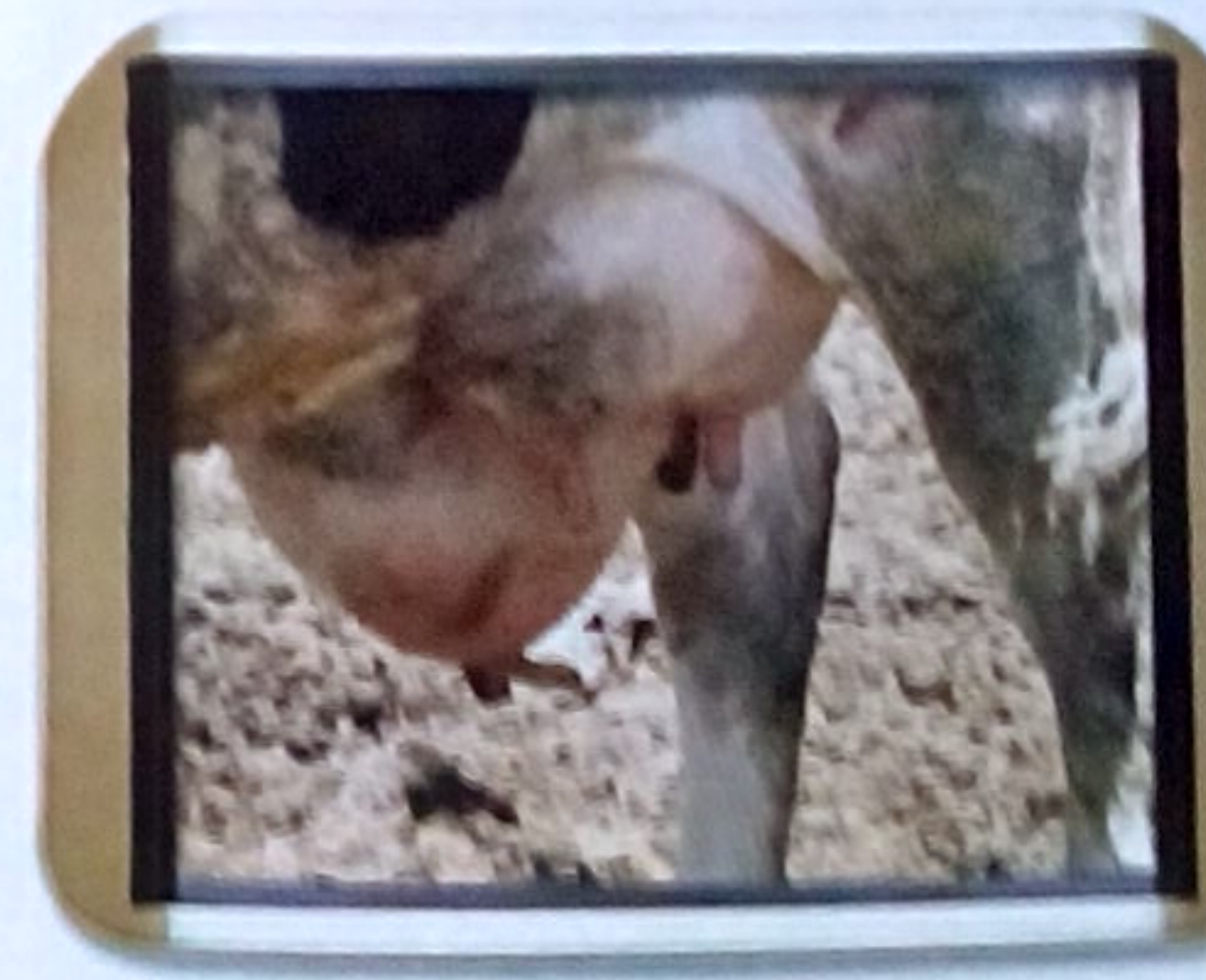
Sheep pox lesions



Actinomycosis



Acute mastitis in sheep



Forms of mastitis in cows



Gangrenous mastitis in a goat



Fetal mummification



Fetal maceration



Uterine prolapse in cross breed cow



The same cow after reduction of the prolapsed uterus

Key of Differential Diagnosis in Farm Animals

1- Bloody urine

1. Babesiosis
2. Theileriasis
3. Leptospirosis
4. Bacillary hemoglobinurea
5. Enterotoxaemia
6. Anthrax
7. Post-parturient hemoglobinurea
8. Phosphorous deficiency
9. Copper poisoning
10. Water intoxication

2- Enlargement of superficial lymph nodes.

1. Theileriasis
2. Anaplasmosis
3. T.B
4. Bovine leukosis
5. Malignant catarrhal fever
6. Edematous skin disease
7. Lumpy skin disease
8. Actinobacillosis

3- Sub-mandibular edema

1. Chronic Fascioliasis
2. Paramphistomiasis
3. Hemonchus contortus infestation
4. Liver diseases
5. Hypoproteinemia

4- Eye opacity

1. Malignant catarrhal fever
2. Theileriasis
3. Infectious bovine rhinotrachitis
4. BVD
5. Pink eye disease
6. Vitamin A deficiency
7. Trauma

5- Jaundice	<ol style="list-style-type: none"> 1. Babesiasis 2. Theileriasis 3. Leptospirosis 4. Bacillary hemoglobinuria 5. Fascioliasis 6. Trypanosomiasis 7. Copper poisoning 8. Arsenic poisoning 9. Hypophosphatemia 10. Liver damage
6- Wasting and emaciation	<ol style="list-style-type: none"> 1. T.B 2. Johne's disease 3. Parasitic infestation 4. Wooden tongue 5. Tick infestation 6. Copper, cobalt, phosphorous deficiency
7- Diarrhea	<ol style="list-style-type: none"> 1. Malignant catarrhal fever 2. Rinderpest 3. Parasitic gastroenteritis 4. BVD 5. Johne's disease 6. Salmonellosis 7. Coccidiosis 8. Fascioliasis 9. Corona and Rota viruses
8- Blindness	<ol style="list-style-type: none"> 1. Pink eye disease. 2. BVD- mucosal disease complex. 3. Listeriosis. 4. Enterotoxemia. 5. Vitamin A deficiency. 6. Magnesium deficiency. 7. Snake bites. 8. Lead and mercury poisoning. 9. Selenium poisoning

9- Staggering or paralysis	<ol style="list-style-type: none"> 1. Three day sickness. 2. Black disease. 3. Tick paralysis. 4. Foot rot. 5. Tetanus. 6. Listeriosis. 7. Rabies. 8. Milk fever. 9. Hypomagnesaemia. 10. Mechanical injuries. 11. Lead poisoning. 12. Fracture. 13. Ketosis. 14. Botulism. 15. Toxemic indigestion. 16. Ruminal impaction. 17. Toxemic conditions. 18. Acute arthritis. 19. Pregnancy toxemia. 20. Vitamin E deficiency.
10- Skin lesions	<ol style="list-style-type: none"> 1. Mange. 2. Ringworm. 3. Dermatophilosis. 4. Lice infestation. 5. Warts. 6. Pseudocow pox. 7. Lumpy skin disease. 8. Edematous skin disease.
11. Fever	<ol style="list-style-type: none"> 1. Respiratory tract infections (pneumonia, bronchitis. Pleurisy). 2. Infectious enteritis. 3. Pyelonephritis. 4. Acute mastitis. 5. Post parturient metritis. 6. Septic infection else where in the body. 7. Bacterial diseases. 8. viral diseases 9. Blood parasites.

12- Vaginal Discharge

1. Vaginitis.
2. Various genital tract infections.
3. Mycotic abortion.
4. Placentitis.
5. Trichomoniasis.
6. Septic metritis.
7. Vibrosis.
8. Infectious Bovine Rhinotracheitis-Infectious Bovine Vulvovaginitis.

13- Abnormalities in Sheep Fleece

1. Demodectic mange.
2. Mycotic dermatitis.
3. Copper deficiency.
4. Cobalt deficiency.
5. Lice infestation.
6. Fleece rot.

Drugs used in Veterinary Medicine**1- Topical preparations**

Drug	Active principle	Uses	Doses
Mega cure (oint)	Cod liver oil - chamomile oil - panthenol - zinc oxide - boric acid	Healing of wounds, saddle pressure sores, and skin diseases as eczema, burns, and allergic dermatitis, udder and teat injuries.	Apply a thick layer with gentle massage twice to three times daily.
Mega mast (oint)	Iodine - camphor - others	Myositis, chronic mastitis and tendonitis.	Paint the affected part twice daily
Mega arthrite (oint)	Bin iodide of mercury - euphorbium - cantharides - turpentine oil.	Spavin, swellings, phlegmon, chronic arthritis and joint tendonitis, distortions.	Used only in equine. Rub into affected area once for 5-10 min and repeated after 48 hrs if needed.
Mang cide (oint)	Benzyl benzoate - sulfur - salicylic acid - phenol - tar.	Treatment of all types of mange and ring worm.	Paint the affected part twice daily after removal of scales.
Iodine 5% (oint)	Iodine 5%	Ripening of abscesses, chronic inflammatory conditions.	Paint the affected part twice daily.
Zinc oxide 10% (oint)	Zinc oxide 10%	Skin burns, fissures of the teats.	Paint the affected part twice daily.
Calomel (powder)	Merchrous chloride	Corneal opacity in different animals.	Dusting of the affected eye once per day for 7 days.
Sulphar 10% (oint)	Sulphar 10%	Mange in different animals.	Paint the affected part twice daily after removal of scales.

2- Antibiotics and antibacterials

Drug	Active principle	Uses	Doses
Spectrama-Vet (inj)	Enrofloxacin 10%	Respiratory and enteric infections in ruminants.	1 cc/40 kg.b.wt S/C, I/M.
Avitryl-5 (inj) Ganadexil® Enrofloxacin 5%(inj) (Invesa)	Enrofloxacin 5%	Respiratory, digestive and urogenital tract infections.	1 cc/10-20 kg.b.wt S/C, I/M. for cattle, buffaloes, sheep and goats.
Marbocyl (inj) (Intercova)	Marbofloxacin 100 mg/1 ml	Broad spectrum antibacterial against bacteria and mycoplasma.	1 cc/50 kg.bwt I/M or S/C or I/V. Dose not used in horses less than 3 years old.
Nuflor (inj) (Schering-Plough)	Florfenicol 300 mg	Bovine respiratory disease, gastroenteritis, foot rot, metritis, omphalitis.	1 cc/ 15 kg.b.wt I/M.
Amoxyveto-15 (inj) (VMD)	Amoxicillin trihydrate	Respiratory tract infection, Gastro-intestinal tract infections.	Adult animals 10 cc/ 100 kg.b.wt Calves 2 cc/ 10 kg.b.wt I/M.
Amoxy-kel 15 (inj) (Kela)	Amoxicillin trihydrate eq. 150 mg.	Interdigital dermatitis in ruminants, Foot rot in sheep, respiratory tract, Gastro-intestinal tract infections (colibacillosis), Uro-genital tract infection (cystitis, metritis...), Polyarthritis in calves and Mastitis.	Cattle 1 cc/10-20 kg b.wt once daily for 3-5 days, I/M and S/C. In case of metritis 10 cc with saline intrauterine.
Clamoxyl™ L.A (inj) (Pfizer)	Amoxicillin trihydrate	Respiratory tract infection, Gastro-intestinal tract infections.	Cattle, sheep 1 cc/ 10 kg.b.wt I/M, S/C.
Tyloveto-20 (inj) (VMD)	Tylosin tartrate	Respiratory tract infections, especially that caused by mycoplasma.	Cattle 10 cc/ 100 kg.b.wt I/M.

Tylo-kel 20 (inj) (Kela)	Tylosin tartrate	Respiratory tract infection, especially that caused by mycoplasma.	Cattle 5 cc/ 100 kg.b.wt I/M.
Excenel (inj) (Pfizer)	Sodium ceftiofur	Respiratory tract infection, especially that caused by <i>Pasteurella</i> and interdigital necrobacillosis.	Cattle 4 cc/ 100 kg.b.wt I/M or S/C. Horse 2 cc/ 50 kg.wt I/M (1 gm dissolved in 20 cc water, 4 gm in 80 cc water).
Pan-Terramycin (inj) (Pfizer)	Oxytetracycline 3%.	Broad spectrum antibiotic for respiratory and GIT infections.	Cattle 1-3 cc/ 10 kg.b.wt I/M or S/C or I/V.
Oxytetra 20 LA (inj) (Kela)	Oxytetracycline 20 mg	Respiratory, digestive, urogenital tract infections, septicemia, foot rot and anaplasmosis.	Cattle, sheep, goat and camels 1 cc /10 kg.b.wt I/M.
Hexazol LA (inj) (Norbrook)	Oxytetracycline 300 mg + flunixin meglumine 20 mg	Respiratory, digestive, urogenital tract infections, septicemia and foot rot.	Cattle, sheep, goat 1 cc /10 kg.b.wt I/M.
Alamycin LA (inj) (Norbrook)	Oxytetracycline 200 mg	Respiratory, digestive, urogenital tract infections, septicemia, foot rot and anaplasmosis.	Cattle, sheep, goat and camels 1 cc /10 kg.b.wt I/M.
Gentaprim (inj) (Invesa)	Sulphadimethoxine 200 mg + trimethoprim 40 mg + Gentamycin 30 mg	Young animal diarrhea, respiratory tract infection, urinary tract infections.	Cattle, sheep, goat and equine 1 cc /10 kg.b.wt I/M or slow I/V.
Kombitrim (inj) (Kela)	Sulphamethoxazole 200 mg + trimethoprim 40 mg	Young animal diarrhea, coccidiosis, respiratory tract infection, urinary tract infections.	Cattle, sheep, goat and equine 1 cc /10 kg.b.wt I/M or slow I/V.
Combi-kel 20+20 (inj) (Kela)	Procaine benzyl penicillin + dihydrostreptomycin	Respiratory, digestive and urogenital tract infections (mastitis, metritis, phlegmon and clostridia infections).	Cattle, sheep, goat and equine 1 cc /20 kg.b.wt I/M for 3 days.

Pen & Strep (inj) (Norbrook)	Procaine benzyl penicillin + dihydrostreptomycin	Respiratory, digestive and urogenital tract infections.	Cattle, sheep, goat and equine 1 cc /25 kg.b.wt I/M for 3 days.
Penbex (inj) (Invesa)	Procaine benzyl penicillin + dihydrostreptomycin + chlorpheniramin mleate + local anesthetic	Respiratory, digestive and urogenital tract infections.	Cattle, sheep, goat and equine 1 cc /25 kg.b.wt I/M for 3 days.
Invemox 15% LA (inj) (Invesa)	Amoxicillin L.A	Respiratory, digestive and urogenital tract infections.	Cattle, sheep, goat 1 cc /20 kg.b.wt I/M for 3 days.
Streptopencid (inj) Vitrocin (inj) Vetbiotic (inj) Strophenject (inj)	Procaine penicillin, penicillin G sodium+ streptomycin sulphate	Respiratory, digestive and urogenital tract infections.	Cattle, equine 2 vial- sheep, goat 1/2 vial I/M for 3 days.

3- Mastitis preparations

Drug	Active principle	Uses	Doses
Drycloxa-kel (Kela)	Cloxacillin benzathine 1000 mg	Therapeutic and prophylactic treatment of mastitis in cows at drying off period	Intramammary infusion.
Masti-kel (Kela)	Procaine benzyl penicillin 3000 iu + neomycin sulphate	Treatment of mastitis in lactating cows.	Intramammary infusion.
Lincocin® Fort S (pfizer)	Lincomycin- Neomycin	Treatment of mastitis in lactating cows.	Intramammary infusion
Mastalone® (Pfizer)	Oxytetracycline, oleandomycin, neomycin and prednisolone.	Treatment of mastitis in lactating cows.	Intramammary infusion
Synulox® LC (Pfizer)	Amoxicillin- clavulanic acid	Treatment of mastitis in lactating cows.	Intramammary infusion
Tetra-Delta (Pfizer)	Novobiocin, neomycin, penicillin, streptomycin, prednisolone.	Treatment of mastitis in lactating cows.	Intramammary infusion
Mastilex (Invesa)	Cephalexin gentamycin +	Treatment of mastitis in lactating cows.	Intramammary infusion
Terrexine	Cephalexin kanamycin +	Treatment of mastitis in lactating cows.	Intramammary infusion

4- Anti-diarrheal drug

Drug	Active principle	Uses	Doses
Betamox 400 mg tablets (Norbrook)	Amoxicillin trihydrate 400 mg	Enteritis and salmonellosis in pre-ruminant calves.	1 tab. / 50 kg. bwt orally twice daily.
Biodiaristin[®] powder (Vetweek)	Neomycin, streptomycin, kaolin, ca. carbonate, vit B2.	Treatment of diarrhea.	Calves, foals 1 sachet orally daily. Lamb, kids 1/2-1 sachets daily orally.
Cotrimazine[®] tablets (Adwia)	Trimethoprim + sulphadiazine	Treatment of diarrhea.	Calves, sheep 2-4 tablet orally daily.
Sulphavet[®] powder (Agrimatco)	Sulphadiazine + sulphadimidine + sulphathiazole	Treatment of diarrhea, enteritis.	Calves, foals 2 gm/10 kg b.wt for 3 days orally.
Compistin[®] powder (Agrimatco)	Ampicillin + Colistin	Treatment of calf diarrhea, enteritis and salmonellosis.	Calves, foals 1 gm/10 kg b.wt for 3 days orally.
Trimazin 30[®] powder (Kela- Agrimatco)	Trimethoprim + sulphadiazine	Treatment of calf diarrhea, enteritis and salmonellosis.	Calves, kids, lambs 1 gm/10 kg b.wt for 3 days orally.
Enrovet[®] soln (Agrimatco)	Enrofloxacin 100 mg/1 ml	Treatment of calf diarrhea, enteritis and salmonellosis.	Calves, 1 cc/ 20 kg b.wt for 3 days orally.
Ciprofloxacin[®] 10% soln (Agrimatco)	Ciprofloxacin	Treatment of calf diarrhea, enteritis and salmonellosis.	Calves, kids, lambs 1 cc/ 20 kg b.wt for 3 days orally.
Terramycin (tablets) (Pfizer)	Oxytetracycline	Treatment of calf diarrhea and enteritis.	Sheep, goat and calf 1 tab orally.
Neo- Diaclean (Powder)	Sulpha + neomycin	Treatment of calf diarrhea, enteritis and salmonellosis.	Sheep, goat and calf 1/2-1 sachet orally.
4. S.DAD (bolus)	Sulphadiazine + sulphamerazine + sulphapyridine + streptomycin	Treatment of calf diarrhea, enteritis and salmonellosis.	1 bolus per 35 kg b.wt in calves, foals, lambs and kids.

MoloxiCam[®] (Amrya) 3 Amp / 4 I.E.

5- Analgesics, Anti-inflammatory, Antihistamines and Tranquilizers

Drug	Active principle	Uses	Doses
Xylaject (inj) (Adwia)	Xylazine 20 mg	Sedative, analgesic, preanesthetic, muscle relaxant and for animal manipulation.	Cattle 0.25-1.5 cc/ 100 kg B.wt I/M. Camel 0.3 mg/ kg b.wt. Horse 5 cc/ 100 kg B.wt I/V. Dog & cat 0.15 cc/ kg B.wt I/M.
Vetalgine (inj) (Intervit)	Metamizol sodium	Analgesic, antipyretic, spasmolytic anti-rheumatic.	Horse 20-60 cc Cow 8 cc/ 100 kg.bwt. Foal, calf 5-15 cc. Sheep and goat 5-8 cc I/V, I/M.
Novacid (inj) (Cide)			
Analgin (inj) (Vetweek)	Dipyrone		
Flunixin (inj)	Flunixin meglumine 50 mg/ml	As anti-inflammatory in cases of arthritis, tendonitis, myositis, endotoxemia, mastitis and pneumonia.	Cattle 1.2 cc/ 45 kg.B.wt I/M or I/V. Horse 2cc/ 45 kg.B.wt I/V or I/M.
Metacam (inj) (IFT)	Meloxicam 20 mg/ml	As anti-inflammatory in cases of arthritis, tendonitis, myositis, endotoxemia, mastitis and pneumonia.	Cattle 2.5 cc/ 100 kg.B.wt S/C or I/V. Horse 3 cc/ 100 kg.B.wt I/V.
Buscapina compositum (inj) (IFT)	Buscopan dipyrone.	Treatment of equine colic.	Horse 5 cc/ 100 kg.B.wt S/C or I/V.
Predef[®] 2X (inj) (fizer)	Isoflupredon.	Treatment of bovine ketosis, musculoskeletal conditions, allergic reactions, shock.	Horse, cattle 10 cc/ animal I/M.
Histacure[®] (inj) (Pharma swede)	Diphenhydramine hydrochloride	Antihistaminic effective against allergic respiratory disease, itching and upper respiratory tract irritation.	Horse, cattle 5 cc IV, I/M. Dog, cat 1-2 cc IV, I/M / twice daily.
Antistamin[®] (inj)			
Diurizone (inj) (Intercova)	Hydrochlorothiazide + Dexamethasone + benzyl alcohol	Treatment of udder edema and ansarca.	Cattle and horse 10-20 cc daily for 2-3 days I/M or I/V.

6- Anti-blood parasites

Drug	Active principle	Uses	Doses
Imidex (inj) Imizole (inj)	Imidocarb dipropionate 120 mg/ 100 ml	Treatment and prevention of blood parasites	Cattle 1 cc/ 100 kg in case of babesiosis while in anaplasmosis 2.5 cc/100. Equine 2 cc/ 100 kg. b.wt I/M.
Berenil (inj) (Intervet)	Diminazene aceturate	Treatment of babesia, theileria and anaplasma infections.	One vial dissolved in 12.5 cc water and injected for 300 kg. 1cc/20 kg bwt. I/M.
Quinuronium sulphate (inj)	Quinuronium sulphate 5%	Treatment of babesia infection.	Cattle, horse, sheep 1 cc/ 50 kg bwt S/C in the tail fold + Atropine sulphate to overcome the side effects.
Butalex (inj) (Intervet)	Buparvaquonone	Treatment of theileria infection.	Cattle, buffalo 1 cc/ 20 kg bwt I/M and second dose after 48-72 hours.
Trypaject (inj) (Adwia)	Diminazene aceturate + phenazone	Treatment of babesia, theileria and anaplasma infections.	One vial dissolved in 12.5 cc water and injected for 300 kg. 1cc/20 kg bwt. I/M.
Trypanodad (inj)	Diminazene aceturate + phenazone	Treatment of babesia, theileria and anaplasma infections.	One vial dissolved in 12.5 cc water and injected for 300 kg. 1cc/20 kg bwt. I/M.

7- Stomachic and rumen stimulants

Drug	Active principle	Uses	Doses
Genabil (inj) (IFT)	Menbutone	Digestive disturbance, diarrhea, anorexia, impaction and adjustment of alimentary function.	Horse 20-30 cc/ I/V. Foal 5-10 cc/ I/V.
Menbutone (inj) (Adwia)			
Bykahepar (inj) (Schering)	Clanbutin	Digestive disturbance, diarrhea, anorexia, impaction and adjustment of alimentary function.	Horse 20-30 cc/ I/V. Foal 5-10 cc/ I/V.
Arsinal (inj) (Vetvek)	Sodium methyl arsenate	Anemia, debilitation, anorexia, indigestion, ruminal stasis.	Horse, cattle 8 -12 cc/ I/M. Sheep, goat 1-2 cc/ I/M. Dog, cat 0.2-0.5 I/M.
Arina Ject (inj) (Adwia)	Methanarsenic acid di-sodium 10 gm	Anemia, debilitation, anorexia, indigestion, ruminal stasis.	Horse, cattle 8 -12 cc/ I/M, I/V. Sheep, goat 1-2 cc/ I/M, I/V. Dog, cat 0.2-0.5 I/M.
Laxavet (sachet) (Pharma swede)	Sodium carbonate + magnesium carbonate + nux vomica	Ruminal acidosis, Digestive disturbance, diarrhea, anorexia, impaction and adjustment of alimentary function.	Cattle 1-2 sachet orally. Sheep, goat 1/2 sachet orally.
Supermach (sachet) (Selim pharm)	Vitamin A, D3, E, manganese, zinc, iodine, selenium.	Digestive disturbance, anorexia, indigestion and adjustment of alimentary function.	Cattle 1-2 sachet orally. Sheep, goat 1/2 sachet orally.
Boviestimul (sachet) (Invesa)	Brewer yeast, starch, casein, dextrose, Disodium phosphate, monocalcium phosphate.	Improve digestion, increase milk yield, enhance growth and regulate digestive functions.	Cattle 50-100 gm orally divided into 2 doses. Sheep, goat 30 gm orally.

8- Tonics and minerals

Drug	Active principle	Uses	Doses
Cobosal (inj)	Butaphosphane + vit B12	Chronic metabolic disorders, malnutrition, lack of appetite, chronic indigestion, weakness.	20-25 cc/ cattle, horse, 10 cc /calf and foal, 5 cc/ sheep, goats S/C, I/M, I/V.
Cafosal (inj)	Phosphorous + vit B12		
Tonophosphan (inj) (Intervet)	Phosphorous	Hypophosphatemia, infertility, pica, anemia, selective appetite and depraved appetite.	20-25 cc/ cattle, horse, 10 /calf and foal, 5 cc/ sheep, goats S/C, I/M, I/V.
Vita-ject (inj) (Adwia) Multivitamin (inj) (Norbrook)	Vitamin A, D3, E, B1, B2, B6, Nicotinamide, Dexapanthanol+ vit B12.	Decreased appetite, anemia, immunosuppressed animals, nutritional muscular dystrophy, and convalescence.	Cattle, horse, camels 20 cc I/M. calves, sheep, goat 5-10 cc I/M. lambs 5 cc I/M.
Extra-vet.gel (oral gel)	Vitamin A, D3, E, B12, biotin, sucrose, propylene glycol, silicon dioxide, sorbic acid.	Anorexia, malnutrition, ketosis, emaciation, anemia, improves feed conversion & increase milk yield, alopecia and repairing of skin lesions, hair, claw, hoof and damage.	Cattle, buffalo, camel: 10 cc/ head/ day for 3-5 days. Sheep, goat 5 cc/ head/ day for 3-5 days. Horse: 10 cc/ head/ day for 3-5 days. Orally.
Electrolyte plus (oral past)	Potassium, phosphate, sodium chloride, glycine, disodium phosphate, calcium chloride, magnesium sulphate and vitamin C.	Rapid recuperation of electrolytes in race horses which have endured intense and prolonged strains.	1 single dose tube 2 hours before the race. 1 single dose tube per day/every day during racing and training periods.
Respirex (oral liquid)	Natural mixture made up of herbs and iodine.	Treatment of problems against breathing system and cough that can be caused by dust and allergy.	20 cc 2 times per day orally or mixed in daily feed. Give 40 cc before training for respiratory improvement.

Foliphos (inj) (Adwia)	Butafosfan, cyanocobalamin, folic acid.	Treatment of anemia, weakness, inappetence, fatigue, Hypophosphatemia in buffaloes	Cattle, horse 20 cc S/C, I/M, I/V. Sheep 5 cc S/C, I/M, I/V.
Myogasater-E (inj) (VMD) Vitesel (inj) (Intervet)	Vit. E+ selenium	Treatment of white muscle disease in lambs, prevention of retention of placenta and immunostimulant.	Cattle, calves and ewes 1 cc/ 50 kg. b.wt S/C, I/M. lambs 0.5- 1 cc S/C, I/M.
Cal-D-Mag (inj) (Pfizer)	Calcium glyconate, magnesium chloride dextrose	Treatment of milk fever, rickets, hypomagnesaemia, in case of poisoning.	Cattle, 500- 1000 cc I/V, S/C, I/M.
Autoplex (inj)	Vit. A, D3, E and B complex.	Vitamin deficiency, unthriftiness, anorexia and neuropathies.	Cattle, horse 20-30 cc I/M. Sheep, calves, foal 5-10 cc I/M. Lamb 2-5 cc I/M.
Adevit C (inj) (Adwia)	Vit. A, D3, E, C.	Vitamin A, D3, E deficiency.	Cattle, horse 10 cc I/M. Sheep, calves, foal 5 cc I/M. Lamb 2-5 cc I/M.
Phosphonortonic 20% (inj) (Vetoquinol)	Disodium sulphite + phenylethyl alcohol + Disodium ededate	Hypophosphatemia, infertility, pica, anemia, selective appetite and depraved appetite.	Cattle, horse 1 cc/10 kg. b.wt I/M, I/V, S/C. Sheep, calves, foal 1-2 cc kg. b.wt I/M, I/V, S/C.
Tonophosphan compositum (inj) (Intervit)	Toldimfos sodium	Hypophosphatemia, infertility, pica, anemia, selective appetite and depraved appetite.	Cattle, horse 5-20 cc I/M, I/V, S/C. Sheep, calves, foal 1-3 cc I/M, I/V, S/C.
Calci mag (oral gel) (Agrivit)	Ca, mg, vit D	Milk fever, hypocalcaemia.	Cattle, horse 20 orally daily for 3 days.

9- Antiparasitics (for treatment of internal and external parasites).

Drug	Active principle	Uses	Doses
Promectine (inj) Ivo- Max (inj) Ivermectine (inj) Ivodade (inj) Avimec (inj) Dectomax (inj)	Ivermectine	Control and treatment of internal and external parasites.	1 cc/ 50 kg B.wt S/C, for cattle sheep, goats and camels.
Ucimisol (inj) levamesole (inj)	Levamisole 10%	Antinematodal and non-specific immuno-stimulant drug.	5 cc / 100 kg B.wt S/C, for cattle sheep, goats. 1/3 dose as immunostimulant for 3 days then rest for 3 days then repeat for another 3 days.
Ivomec super (inj) Ivrmectin plus (inj)	Ivermectine + clorsulon	Control and treatment of internal and external parasites and fascioliasis.	1 cc/ 50 kg B.wt S/C, for cattle sheep, goats and camels.
Dovenix (inj) Fasciolid (inj) Do-Nex (inj) Distomacide (inj)	Nitroxyuil	Treatment of liver flukes.	1 cc/ 25 kg B.wt S/C, for cattle sheep goats.
Flukanil (bolus)	Rafoxanide 600 mg / bolus	Treatment of acute and chronic liver flukes and blood sucking nematodes (hemonchus, bunostomum, trichuris).	1 bolus/ 80 kg B.wt orally for cattle and buffaloes. 1/2 bolus /40 kg B.wt for sheep and goat-repeat after 4-6 weeks.
Banmith (powder) (Pfizer)	Pyrental tartarate	Treatment of parasitic gastroenteritis and Ascariasis.	12.5 mg/kg. Bwt orally on empty stomach (10 gm/100kg Bwt).

Drug	Active principle	Uses	Doses
Caliersantel (inj)	Closantel 50 mg	Treatment of liver flukes in cattle and sheep.	5 cc / 100 kg B.wt S/C or I/M for cattle sheep
Hepanil (inj)	Nitroxyuil 34%	Treatment of liver flukes in cattle and sheep.	1.5 cc/ 50 kg B. wt S/C.
Zanil TM (susp) (Schering-Plough)	Oxyclozanide 3.4 %	Treatment of paramphistomum, fasciola hepatica and gigantica in cattle and sheep.	Cattle 30 cc/ 100 kg B. wt, orally. Sheep, goat 4.5 cc/ 10 kg B. wt, orally.
Zanide (susp) (United biomed)	Oxyclozanide + Levamisole	Treatment of paramphistomum, fasciola hepatica and gigantica in cattle and sheep.	Cattle 5 cc/ 10 kg B. wt, orally. Sheep, goat 10 cc/ 20 kg B. wt, orally.
Triclazole (susp) (EVA)	Tric bendazole 10% al	Treatment of liver flukes in cattle and sheep.	Cattle 10 cc/ 100 kg B. wt, orally. Sheep, goat 1.2 cc/ 10 kg B. wt, orally.
Albenzole 25 (susp) (Kela)	Albendazole	Treatment of gastro-intestinal nematodes, lungworms, tapeworms and liver flukes in cattle and sheep.	Cattle 50 cc/ 100 kg B. wt, orally. Sheep, goat 4 cc/ 10 kg B. wt, orally.
Albendzole 2.5% (susp) (Pharma swede) Evazole 2.5% (susp) (EVA)	Albendazole	Treatment of gastro-intestinal nematodes, lungworms, tapeworms and liver flukes in cattle and sheep.	Cattle 50 cc/ 100 kg B. wt, orally. Sheep, goat 4 cc/ 10 kg B. wt, orally.

10- Drugs used for Veterinary Obstetrics and Gynecology

Drug	Active principle	Uses	Doses
Metricyclin oblet (Kela)	Chlortetracycline hydrochloride 1 gm	prevention of puerperal infections after parturition	Cattle 1-2 oblets intrauterine. Ewes 1 oblet intrauterine.
Metricure (syringe) (Intervet)	Cephalosporin cephapirin 500 mg	Treatment of subacute and chronic endometritis	Cattle: 1 syringe intrauterine, using disposable intrauterine catheter after AI by 24 hours.
Gynobiotic oblet (Intercova)	Chlortetracycline hydrochloride + nystatine	prevention of puerperal infections after parturition	Cattle 1-3 oblets intrauterine.
Folligon (Intervet)	Pregnant mare serum gonadotrophin(PMSG)	<ul style="list-style-type: none"> • Cattle: <ul style="list-style-type: none"> - Anoestrus and estrus induction → 500-1000 IU I/M. - Superovulation → 1500-3000 IU I/M between days 8-13 of the cycle followed by 3 cc Prosolvin I/M 48 H. • Sheep and goat: to increase fertility rate and induction of twins → 400-750 IU I/M at the end of progesterone treatment. 	
Receptal (Intervet)	Buserelin	<ul style="list-style-type: none"> • Cattle: 2.5-5 cc I/M. <ul style="list-style-type: none"> - Anoestrus. - Follicular cysts. Delayed ovulation and improvement of conception rate. • Mare: 10 cc I/M. <ul style="list-style-type: none"> - Anoestrus and induction of ovulation. 	
Fertagyl (Intervet)	Gonadotrophin	<ul style="list-style-type: none"> • Cattle: 2.5-5 cc I/M. <ul style="list-style-type: none"> - Anoestrus. - Follicular cysts. Delayed ovulation and improvement of conception rate. 	

Lutalyse TM (Pfizer)	Dinoprost-Tromethamin 5 mg/ml.	Induction of abortion and parturition-estrus synchronization and treatment of chronic metritis and pyometra.	Cattle 5 cc I/M. Mare 2 cc I/M.
Estrumate [®] (Schering-Plough)	Cloprostenol sodium 0.25 mg/ml.(synthetic prostaglandin)	Induction of abortion and parturition-estrus synchronization and treatment of chronic metritis and pyometra.	Cattle 2 cc I/M. Mare 0.5-1 cc I/M.
Oxytocin Oxytocina Diana [®]	Oxytocin	Uterine prolapse, retention of placenta, uterine inertia, milk let down.	Cattle, mare 1-3 cc. Sheep, goat 1 cc. Bitch, cat 0.1-0.5 cc. I/V, S/C, I/M.

Drugs of Human Preparation used in Veterinary Medicine

1- Topical preparations

Drug	Active principle	Uses	Doses
Terracortril (eye drops)	Oxytetracycline + hydrocortisone	Conjunctivitis, ocular discharge and ocular hypersensitivity.	4 drops in each eye twice daily for 3-5 days
Hemoclar (oint)	Pentosan polysulphate	Udder hematoma, myositis and tendonitis, simple ear hematoma.	Paint the affected part twice daily
Reparil (gel)	Asecin 1% + diethylamino salicylat 5%.	Udder hematomas, myositis and tendonitis, simple ear hematoma. Site of injection (complicated).	Paint the affected part twice daily
Dermazin (cream)	Silver sulphadiazine 1%	Skin burns	Paint the affected area twice daily.
Sulphargine (cream)	Silver sulphadiazine 1%	Skin burns	Paint the affected area twice daily.
Argiderm (cream)	Silver sulphadiazine 1%	Skin burns	Paint the affected area twice daily
Argiderm-P (cream) (15 gm Tube / 250g)	Silver sulphadiazine 1% + panthenol 5%.	Skin burns	Paint the affected area twice daily
Mebo (cream)	B- sitosterol 0.25%.	Skin burns (mainly used in pets)	Paint the affected part twice daily
Calamine (lotion) Calamyd (lotion) Calamidine (lotion) Muscal (lotion)	Calamine 15%+zinc oxide+ diphenyl hydramine	Protective and soothing action for treatment of skin eruption and insect bites and sheep pox.	Paint the affected part twice daily

Baby cream (cream)	Zinc oxide+ olive oil	Fissures of the teats.	Paint the affected part twice daily after milking.
Proctoglyvenol (cream) Anusol (cream) Procto 4 (oint)	- - -	Proctitis and after treatment of rectal prolapse, straining caused by coccidiosis.	Paint the affected posterior part of the rectum.
Collomack (paint)	Salicylic acid + lactic + polidocanol 2%	Keratolytic for skin and udder warts.	Paint the affected part twice daily until softening then apply worm water
Alpha kadol (oint)	Chymotrypsin + phenylbutazone	Myositis, tendonitis especially in equine spp.	Paint the affected part twice daily for 5 days
Tetracort (oint)	Tetracycline + prednisolone	Dermatitis, eczema, contact dermatitis, udder impetigo.	Paint the affected part twice daily for 5 days
Terramycin (oint)	Oxytetracycline + polymyxin B sulphate	Dermatitis, eczema, contact dermatitis, udder impetigo.	Paint the affected part twice daily for 5 days
Fucicort (cream)	Fucidic acid + betamethasone	Dermatitis, eczema, contact dermatitis, udder impetigo.	Paint the affected part twice daily for 5 days
Betaderm (cream)	Betamethasone valerate	Topical preparation for allergic dermatitis	Paint the affected part twice daily for 5 days
Tribiotic (spray) Trivitracin (spray) Poly Biotic (spray)	Neomycin+ polymyxin+ bacitracin	Dermatitis, eczema, contact dermatitis, udder impetigo.	Spraying the affected part twice daily for 5 days

2- Antibiotics and antibacterial

Drug	Active principle	Uses	Doses
E-mox 500, 1000 (vial)	Amoxicillin trihydrate.	Pharyngitis, bronchitis, abdominal infections, wound infection, cellulites, after cesarean section in small animals.	1 vial/ 70 kg.bwt. I/M or I/V.
Flumox 500, 1000 (vial)	Amoxicillin trihydrate + flucloxacilline.		
Dipenacid 500, 1000 (vial)	Amoxicillin + dicloxacillin		
Unictam 750, 1500 (vial)	Ampicillin + sulbactam.		
Ultracillin 750, 1500 (vial)	Sultamicillin	Respiratory tract infection, urogenital tract infection and listeriosis in small ruminants.	1 vial 70 kg bwt I/M, I/V.
Velosef 500, 1000 (vial)	Cephadrine		
Ceporex 500, 1000 (vial)	Cephalexin monohydrate		
Totacef 500, 1000 (vial)	Cefazolin sodium	Listeriosis in small ruminants.	1 vial 70 kg bwt I/M, I/V.
Totacef 500, 1000 (vial)			
Cidostin 1000 (vial)	Chloramphenicol 1000 mg	Enteric infections and salmonellosis.	1 vial 70 kg.bwt I/M, I/V.
Thiophenicol 750 (vial)	Thiamphenicol 750 mg		

3- Analgesics and Anti-inflammatory

Drug	Active principle	Uses	Doses
Aspegic (vial)	Lysine acetylsalicylic + glycine	Analgesic and antipyretic especially in buffaloes	1 vial / 70 kg b.wt. I/V, I/M.
Cevagin (amp)	Metamisole sodium + ascorbic acid 1000 mg	Analgesic and antipyretic especially in respiratory system diseases.	1 amp / 70 kg b.wt. I/V.
Ketolac (amp) Adolor (amp)	Ketolac tromethamine	Potent analgesic in case of pneumonia, pharyngitis and arthritis.	1 amp / 70 kg b.wt. I/M.
Ketolgin (amp)	ketoprofen		
Dispercarn (amp) Pirocam (amp) Voltaren (amp) Rheumarene (amp) Rheumafen (amp) Declophen (amp)	Piroxicam Piroxicam Diclofenac sodium " " "	As anti-inflammatory for treatment of arthritis, myositis and tendonitis in cattle, buffaloes, sheep, goat and horse.	Cattle, buffaloes, sheep, goat and horse 1 amp/ 70 kg bwt. I/M. liometacin is preferred in equine and used by I/V or I/M.
Liometacen (amp)	Indomethacin		
Alpha-chymotrypsin (vial)	Chymotrypsin	Treatment of mastitis, metritis (when fibrin is present).	Cattle, buffaloes, sheep and goat 1 amp/ 70 kg bwt. I/M, also injected intrauterine with saline.

4- Drugs for Respiratory system

Drug	Active principle	Uses	Doses
Ventoline (amp)	Salbutamol 2 mg	Bronchodilator for treatment of dyspnea in different animals.	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1-2 amp I/M or I/V.
Minophylline (amp)	Aminophylline 125 mg / amp	Bronchodilator for treatment of dyspnea in different animals.	Cattle and horse 3-4 amp or I/V. Sheep and goat 1 amp or I/V.
Minophylline 500 (amp)	Theophylline piprazine 500mg / amp	Bronchodilator for treatment of dyspnea in different animals.	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1 amp I/M or I/V.
Etaphylline (amp)			
Pirafene (amp)	Chlorpheniramine maleate 5mg / amp	Antihistaminic for treatment of hypersensitivity, urticaria and dyspnea in different animals.	Cattle and horse 3-4 amps I/M or I/V. Sheep and goat 1 amp I/M or I/V.
Tavagyl (amp)	Clemastine 2 mg/amp		
Avil (amp)	Pheniramine P-amino salicylate		
Bisolvon (amp)	Bromohexine Hcl 4mg / amp	Mucolytic drug.	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1 amp I/M or I/V.
Mucosolvan (amp)	Ambroxol HCL 15 mg/amp		
Avipect (syrp) Expectyl (syrp) Osipect (syrp) Bronchistal (syrp)	Pheniramine, ammonium chloride, menthol tr. Ipica.	Cough sedatives	Cattle and horse 25 cc orally twice daily for 3-5 days.

5- Drugs used for Digestive system

Drug	Active principle	Uses	Doses
Buscopan compositum (amp)	Hyoscine-N-Butylbromide+ Dipyron	Antispasmodic and treatment of renal colic	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1-2 amp I/M or I/V.
Visceralgine (amp) Spasmofree (amp)	Tiennium methyl sulphate	Antispasmodic and treatment of renal colic	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1-2 amp I/M or I/V.
Do-spa (amp)	Drotaverine HCL	Antispasmodic and treatment of renal colic	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1-2 amp I/M or I/V.
Spasmofen (amp) Fastfree (amp) Farcorelaxine (amp)	Hyoscine+ ketoprofen	Antispasmodic and treatment of renal colic	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1-2 amp I/M or I/V.
Primpran (amp) Plasil (amp) Meclopram (amp)	Metoclopramide 10 mg / amp	Antiemetic	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1 amp I/M or I/V.
Gast-Reg. (amp)	Trimebutine maleate 50 mg/amp		
Epicogel (syrp) Mucogel (syrp)	Calcium carbonate, magnesium hydroxide, dimethicone	Antiacide and treatment of Abomasal ulcers	Cattle and horse one bottle orally twice daily for 3-5 days.
Lactulose (syrp) Sedalac (syrp) Laxolac (syrp) Lactulax (syrp)	Lactulose	Laxatives	Cattle and horse one bottle orally Calf and foal 1/2 bottle orally
Duphalac (syrp)	Lactulose, galactose, lactose	Laxatives	Cattle and horse one bottle orally Calf and foal 1/2 bottle orally
Golden Cal (syrp)	Lactulose, ginger, fennel ext., mandarin oil, peppermint, Na methyl paraben		

6- Drugs for treatment of Diarrhea

Drug	Active principle	Uses	Doses
Kapect compound (susp)	Kaolin+ pectin+ sulpha+ tr.	Treatment of diarrhea in young calves, lambs and cows.	Lamb 10 cc orally, twice daily for 3 days. Calf 25 cc orally, twice daily for 3 days. Cow 100 cc orally, daily for 3 days.
Antinal (susp) Diax (susp)	Nifuroxazide	Treatment of diarrhea in young calves, lambs and cows.	Lamb 10 cc orally, twice daily for 3 days. Calf 25 cc orally, twice daily for 3 days. Cow 60 cc orally, daily for 3 days.
Smecta (susp)	Diocetahedral smectite	Treatment of diarrhea in young calves, lambs and cows.	Lamb 10 cc orally, twice daily for 3 days. Calf 25 cc orally, twice daily for 3 days. Cow 60 cc orally, daily for 3 days.
Lacteal fort (packs)	Lactobacillus acidophilus	Treatment of viral diarrhea in young calves lambs.	Lamb 1-2 packs orally, twice daily for 3 days. Calf 3-4 packs orally, twice daily for 3 days.
Pectokal-N (susp)	Kaolin+ pectin+ sulpha + neomycin	Treatment of diarrhea in young calves, lambs and cows.	Lamb 10 cc orally, twice daily for 3 days. Calf 25 cc orally, twice daily for 3 days. Cow 60 cc orally, daily for 3 days.

7- Drugs used in Obstetrics and Gynecology

Drug	Active principle	Uses	Doses
Folone (amp)	Esteradiol 5 mg	Smooth inactive ovary in heifers – in bulls to decrease signs of masturbation.	Cow 2-3 amp I/M. Bull 3-4 amp I/M. Buffalo 2 amp I/M.
Lutone (amp)	Progesterone	To inhibit the signs of estrous in cows	Cow 3-4 amp I/M. two doses with one month interval.
Pregnyl (amp) ج ۳۳/۱ Choriomon (vial) ج ۳۳/۱	HCG 1500 iu HCG 1500 iu	Treatment of cystic ovary, induction of ovulation in mare.	Cow 1500 iu I/M. Mare 1500 -3300 iu I/M.
Syntocinon 10 iu (amp) ج ۳۳/۱	Oxytocin	Milk let down, uterine inertia, uterine hemorrhage and retained placenta.	Cow, buffalo 3 amp I/V, I/M, S/C.
Vagiprost (tab) Misotec (tab)	Misoprostol (prostaglandin analog)	Induction of birth in small ruminants especially goat.	1-2 tabs intra-vaginal.
Betadine (vaginal doches)	Povidone iodine 10%.	Treatment of endometritis and repeat breeder.	5 cc/ 100 saline or distilled water IU irrigation.
Vagil (powder)	Sod. Bicarbonate+ boric acid+ sod. Chloride+ menthol.	4 sachets dissolved in 1 liter warm distilled water or normal saline then intrauterine infusion 2-3 treatments with 2 days intervals + Oxytocin for treatment of pyometra.	
Bidalkine (powder)	Sod. Bicarbonate+ alum + sod. Chlorophyll + menthol.		

8- Anti-hemorrhage

Drug	Active principle	Uses	Doses
Dicynone Haemostop Hemostat (amp)	Ethamethylate	Treatment of epistaxis, hematuria, Hematemesis, melena, uterine hemorrhage and coccidiosis.	Cattle, horse and buffalo 4-5 amp I/M or I/V infusion. Sheep, goat and calf 2 amp I/M or I/V infusion.
Haemokion Amri- K Stypotobion (amp)	Phytomenadione (vit k) " + vit C + rutin.	Treatment of epistaxis, hematuria, Hematemesis, melena and coccidiosis	Cattle, horse and buffalo 4-5 amp I/M. Sheep, goat and calf 2 amp I/M.
Methergin (amp)	Methylethergometrine hydrogen maleate	Treatment of uterine hemorrhage and atony, promote placental separation and uterine involution. Used after CS.	Cattle and buffalo 5-10 amp I/V infusion. Sheep and goat 2 amp I/V infusion.

9- Minerals and Vitamins

Drug	Active principle	Uses	Doses
Tri B Neuroton Tri- Vitacid Neurobion Neurovit (amp)	Vit B1, B6, B12,	Treatment of vitamin deficiency, anemia, neuromuscular disorders, impaction.	Cattle and buffalo 3-5 amp I/M or I/V infusion. Sheep and goat 2 amp I/M or I/V infusion.
Vitazine (cap)	Zinc + vit A + vit E.	Treatment of zinc deficiency in buffaloes.	4 cap / animal / day in the ration of the morning.
Decal B12 (syrup) Calci- cal (syrup) Pedical (syrup)	Vit B12, calcium, vit D.	Treatment of vitamin B12 deficiency and rickets in young calves and lambs.	Lamb 10 cc orally, twice daily for 10 days. Calf 20 cc orally, twice daily for 10 days.
Vi-Sol-Calcium (syrup) Multivit (syrup)	Vit A, B1, 2,6,3,5, E, C, Calcium.	Treatment of vitamin B complex deficiency and rickets in young calves and lambs.	Lamb 10 cc orally, twice daily for 10 days. Calf 20 cc orally, twice daily for 10 days.
Adenoplex forte Epinosine- B fort Adenophose Adeno-Sed B forte (amp)	ATP+ cocarboxylase B12+nicotinamide	Treatment of neuritis, lumbago, sciatica and tendonitis.	Cattle and buffalo 3-4 amp I/M Sheep and goat 2 amp I/M

10- Diuretics

Drug	Active principle	Uses	Doses
Lasix (amp)	Furosemide	Treatment of edema, udder edema, anasarca and congestive heart failure.	Cattle and horse 3-4 amp I/M or I/V. Sheep and goat 1-2 amp I/M or I/V.

11- Miscellaneous

Drug	Active principle	Uses	Doses
Oxybral (amp)	Vincamine	Increase cerebral circulation and utilization of oxygen, help in treatment of animal coma as in pregnancy toxemia, listeriosis, milk fever.	Cattle and horse 3-4 amp I/M. Sheep and goat 1-2 amp I/M.
Nootropil (amp)	Piracetam		
Mosegor (syrup)	Pizotifen	Appetizer after treatment of cases of anemia.	Cattle and horse 25-50 cc orally for 3 days. Sheep and goat 10-20 cc orally for 3 days.
Solcoseryl (oint, gel, amp)	Solcoseryl	For regeneration of skin ulcers and burns (when granulation tissue formation is needed).	Paint the affected part twice daily Cow, horse 1 amp/70 kg bwt I/M
Enemax Enema	Rectal enema	For treatment of constipation in young calves and foal	Calf and foal 1-2 bottle through rectum

معلومات تهكم

- سمك القرش لا ينم، ولا يتوقف عن الحركة منذ ولادته، وحتى موته، لأن جسمه غير مجهز كغيره من الأسماك بأوكياس هوالية تساعد على النوم.
- عضو الشم عند السحلية هو لسانها ذو الشعب.
- الجمل هو الحيوان الوحيد من ذوات الأربع الذي لا يمكن أن يسبح.
- العقارب إذا أحاطت بها النيران من كل جانب أفرغت سمومها بجسمها.
- فرخ طائر البجع يستطيع أن يصدر صوتاً خاصاً مسموعاً من داخل البيضة، كي ينبه أبويه إلى أنه يشعر بالبرد.
- يبلغ وزن قلب الزرافة حوالي ٢٠ ضعفاً من وزن قلب الإنسان .. وذلك حتى يتمكن من ضخ الدم إلى رأسها فوق رقبتها المرتفعة.
- زيت الخروع لا يتأثر بالحرارة أو البرودة، فلا يسيل أو يتجمد.
- الموجات الصوتية تسير في الماء أسرع من الهواء.
- أول من استخدم " الخيوط الجراحية " هو الطبيب العربي " أبو بكر الرازي.
- سم الأفاعي يستخدم في علاج سرطان العظام.
- حليب الماعز أسهل في عملية الهضم من حليب البقر.
- الأذن اليمنى أقوى سمعاً من الأذن اليسرى.
- السلحفاة تستطيع أن تعيش بلا طعام ولا ماء لمدة عشرين يوماً.
- الكلب يستطيع أن يسمع دقات الساعة وهو على بعد ٤٠ قدم.
- الغيل يشم رائحة الإنسان على بعد نصف كيلو متر.
- النسر لا تموت ولكنها تتحرر بسبب المرض.
- النسر يعيش مائة عام.
- الببغاء من دون الطيور كلها هي الوحيدة التي تستطيع تحريك منقارها لأعلى وأسفل أما الطيور الأخرى فإنها تحرك منقاراً واحداً.
- أكبر بيضة هي بيضة النعامة وتزن أكثر من كجم واحد وأصغر بيضة هي بيضة الطائر الطنان وهي في حجم حبة البازلاء وتزن جراماً واحداً.
- يوجد ٣٥٠٠ نوع من الثعابين في العالم من بينها ٢٠٠ نوع سام للإنسان.
- إن الزرافة إذا انزلت ووقعت على الأرض مع انفراج سيقانها .. فهي لن تستطيع القيام مرة أخرى ويمكن أن تظل هكذا إلى أن تموت.
- عدد فقرات رقبة الزرافة ٧ فقرات.
- لشارب القطة فائدة كبيرة حيث تستخدمه في الأماكن المظلمة حيث إذا اصطدم بشيء فإنها لا تعبر المكان.
- يتام السمك وعيونه مفتوحة وذلك لأنه ليس له جفون.
- سمك القرش بيض ولكن البيض يفسد داخل الأنثى.
- الدولفين أنثى تلد وتعيش في الماء وتستمر رضاعة الصغير حوالي ١٨ شهراً.
- صوت الهدد يسمى هدهد وصوت الصقر يسمى غططة وصوت الدجاجة يسمى نقطة.
- وصوت الثعلب يسمى ضباح وصوت البقر يسمى خوار وصوت البيل يسمى شحج.
- وصوت الحصان يسمى صهيل وصوت الحمار يسمى نهيل وصوت الفرد يسمى ضحك.

- وصوت الحمام يسمى هيل وصوت النعامة يسمى زمار وصوت النسر يسمى صفير.
- وصوت الجراد يسمى صرير وصوت الضفدع يسمى نقيق وصوت الحية يسمى فحيح.
- وصوت الكلب يسمى نباح وصوت الأرنب يسمى ضغيب وصوت الناقة يسمى حنين.
- وصوت الأسد يسمى زئير وصوت النحلة يسمى طنين وصوت العصفور يسمى صياح.
- وصوت البيل يسمى نهيل وصوت القط يسمى مواء وصوت الفأر يسمى نهيز.
- وصوت الغراب يسمى نقيق وصوت الغزال يسمى سيليل وصوت الثعلب يسمى عواء.
- وصوت الصرصار يسمى عرير.
- الأسد يعتبر من الحيوانات الكسولة فهو ينم ١٩ ساعة يومياً.
- تعيش الفراشة حوالي أسبوعين فقط.
- يقبل القمل قنعة خرطومته أثناء نومه حتى لا يتسرب الهواء داخله.
- الصوت المميز الذي يصدره الدولفين لا يخرج من فمه وإنما يخرج من فتحة موجودة فوق رأسه.
- الغيل هو الحيوان الوحيد الذي له أربع ركب.
- الغزال لا يشرب الماء إطلاقاً.
- جسم البط والأوز لا يمتلئ بالماء بسبب وجود بعض الغدد التي تفرز مادة دهنية تغطي الريش بنسبة ٧٥%.
- الجزء الذي يفرز عرقاً عند الكلب هو لسانه.
- أكثر الحيوانات نكاه هو فرد الشمبانزي.
- الحيوان الوحيد الذي يمكنه أن يبكي من شدة الألم هو الدب.
- ابن الأسد يسمى الشبل وابن الحصان يسمى المهر وابن الحمار يسمى الجحش وابن العزرة يسمى الجدو وابن الكلب يسمى الجرو وابن الغيل يسمى الدغفل وابن الدب يسمى النيسم وابن النعام يسمى الرال وابن الشاة يسمى الحمل وابن الناقة يسمى الحوار.
- وابن الأرنب يسمى الخرنق وابن الفأر يسمى الدرص وابن الدجاجة يسمى الثقف.
- وابن الثعلب يسمى الهجرس وابن الذئب يسمى الغلو وابن الضبع يسمى الفرغل.
- وابن البقرة يسمى المعزل وابن الصقر يسمى الهيثم وابن القطبية يسمى رشا.
- تستطيع الزرافات أن تنظف أنفها باستخدام لسانها الذي يبلغ طوله ٢١ بوصة.
- لا تستطيع القطط تذوق أي شيء ذي مذاق حلو، وهو عيب خلقي تولد به ويتعلق بخلايا التذوق لديها.
- لا تذوق الضفدع على التنفس ولها فتحة إذا فتحت فمها بالقوة مالت مختلفة.
- في جسم الغزال أماكن أخرى للتنفس غير المنخرين وقد أمدته الطبيعة بهذه الأماكن حتى لا يجهد نفسه إذا اضطر للفرار من مطارديه.
- تبتلع الأسماك طعامها بسرعة وبغير مضغ لأنها تفتح فمها وتغلقه باستمرار للتنفس، فإذا احتفظت بالطعام في فمها مالت مختلفة.
- لا تتحرك عين البومة على الإطلاق، فإنها ثابتة في محاجرها بعضلات قوية، لكنها تعوض هذا النقص بتحريك رأسها في كل ناحية ويوسعها أن ترسم بها في الهواء دائرة كاملة من غير أن يتحرك جسدها.
- تستطيع العرياء أن تدير عينيها في أي اتجاه دون أن تحرك رأسها وهي تستطيع أن ترى.
- يستطيع الخيل أن يظل أشهراً واقفاً على أقدامه، كما أنه ينم في هذا الوضع، إذ حبه الطبيعة بجهاز عضلي خاص يسمح لأرجله بأن تظل مشدودة على الدوام لتحمل جسمه الثقيل دون عناء كبير.



المؤلف

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٠١٠٠١٨٨١٩٠ - ٠٢٣٨٤٣٢٩٣٩

المؤهلات الدراسية:

- بكالوريوس العلوم الطبية البيطرية مايو ٢٠٠٤ - كلية الطب البيطري - جامعة القاهرة.
- ماجستير التوليد والتناسل والتلقيح الاصطناعي (الموجات فوق الصوتية) ٢٠٠٩ -
- قسم الولادة - كلية الطب البيطري - جامعة القاهرة.
- دراسات عليا للدكتوراه في التوليد والتناسل والتلقيح الاصطناعي

العمل:

- معهد بحوث التناسليات الحيوانية بالهرم - مركز البحوث الزراعية -
- وحدة الموجات فوق الصوتية .

الأنشطة والمؤتمرات والندوات العلمية:

- عضو بالجمعية المصرية للتكاثر والخصوبة في الحيوان.
- المشاركة في القوافل العلاجية التي نظمها معهد بحوث التناسليات الحيوانية بجميع محافظات جمهورية مصر العربية لتشخيص وعلاج المشاكل التناسلية في حيوانات المزرعة.
- مؤتمر تنمية الصادرات الريفية والإنتاج الحيواني بفندق موفينيك بمدينة الإنتاج الإعلامي.
- مؤتمر التلقيح الاصطناعي تحت رعاية شركة CBC بفندق بيراميزا بالدقي.
- المشاركة في أخذ وتحليل عينات الدم من خيول السباق في مباريات السباق بنادي الشمس ونادي الجزيرة لإكتشاف المواد المنشطة.

الخبرات العملية الحقلية المكتسبة:

- في مجال الخيول العربية:
- تشخيص الحمل المبكر باستخدام الموجات فوق الصوتية.
- تشخيص الأمراض المتعلقة بالجهاز التناسلي والمبايض في الأفراس.
- تشخيص إصابات الأوتار في الخيول باستخدام السونار.
- إجراء العمليات الجراحية الشائعة في الخيول .
- في مجال الأبقار الحلابة:
- تشخيص وعلاج المشاكل التناسلية في الأبقار الحلابة (باستخدام السونار) .
- تشخيص الحمل في أعمار مبكرة (يدويا وباستخدام السونار) .
- تشخيص مشاكل الضرع بالسونار.
- إجراء العمليات الجراحية في الأبقار الحلابة (القيصرية - فتح الكرش - الفتاق الخ).
- التلقيح الاصطناعي في الأبقار والجاموس.

وهذا للتواصل الدائم والعطاء بين النقابة وأعضائها

النقابة العامة للأطباء البيطريين

٦ ش الحديقة - جاردن سيتي

٢٧٩٥٧٢٨٠ - ٢٧٩٤٩٨٧٩

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- o applet-magic.com
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- o Livestock health and disease
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أ - المراجع العربية:

- الأمراض الداخلية وعلاجها - د/ إبراهيم عبد المعطي - الطبعة الأولى (١٩٧٧).
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- الجراحة العامة د/ محمود حسين الجندي - منشورات جامعة حلب (١٩٧٩).
- فن الولادة البيطرية د/ أحمد رياض.
- مواقع على شبكة المعلومات الدولية:
- موسوعة أمراض الأبقار.
- شبكة البيطرة السعودية.

Agrimatco Products

Agrimatco Products



Oxytetra 20 L.A.



Enrovet



Tylo-Kel 20



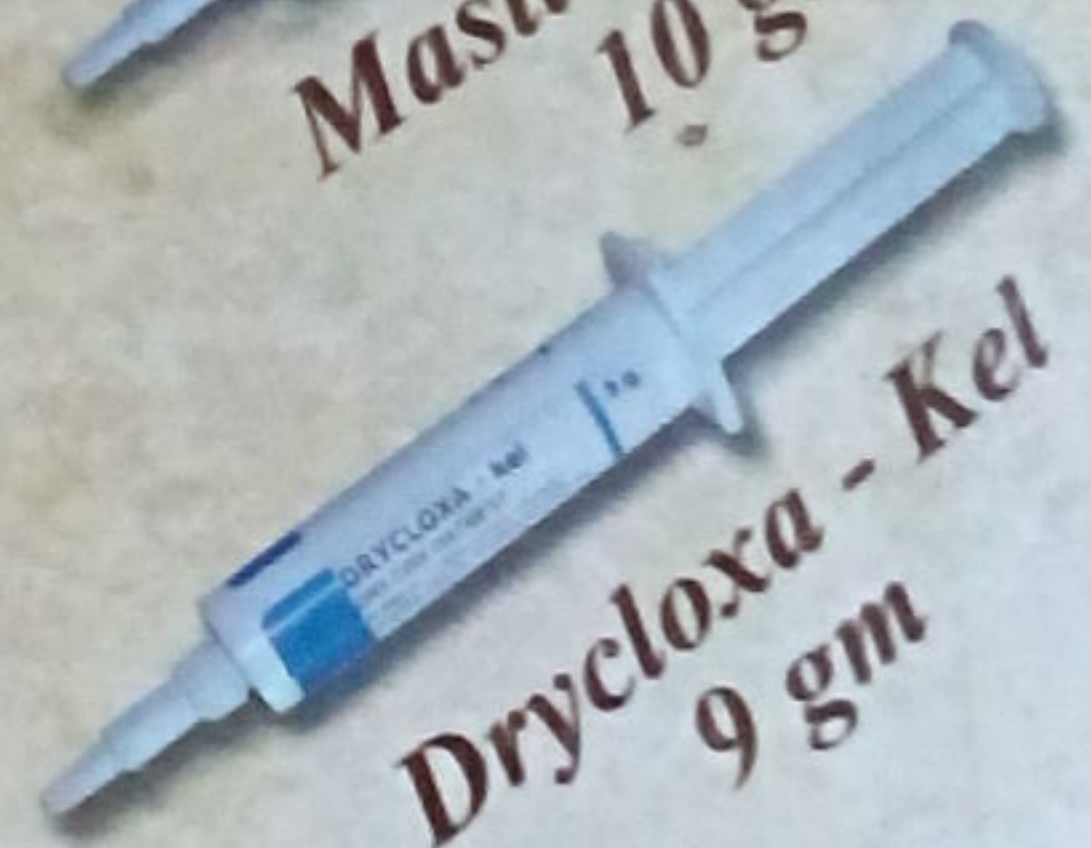
Trimazin 30



Kombitrim 240



Masti - Kel N.P. 10 gm



Drycloxa - Kel 9 gm



Sulphavet



Metricyclin



Combi - Kel 20 + 20



Ciprofloxacin



Amoxy-Kel 15%

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رقم الإيداع ٣٧٥ / ١ / ٩٩

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5- Jaundice	<ol style="list-style-type: none"> 1. Babesiasis 2. Theileriasis 3. Leptospirosis 4. Bacillary hemoglobinurea 5. Fascioliasis 6. Trypanosomiasis 7. Copper poisoning 8. Arsenic poisoning 9. Hypophosphatemia 10. Liver damage
6- Wasting and emaciation	<ol style="list-style-type: none"> 1. T.B 2. Johne's disease 3. Parasitic infestation 4. Wooden tongue 5. Tick infestation 6. Copper, cobalt, phosphorous deficiency
7- Diarrhea	<ol style="list-style-type: none"> 1. Malignant catarrhal fever 2. Rinderpest 3. Parasitic gastroenteritis 4. BVD 5. Johne's disease 6. Salmonellosis 7. Coccidiosis 8. Fascioliasis 9. Corona and Rota viruses
8- Blindness	<ol style="list-style-type: none"> 1. Pink eye disease. 2. BVD- mucosal disease complex. 3. Listeriosis. 4. Enterotoxemia. 5. Vitamin A deficiency. 6. Magnesium deficiency. 7. Snake bites. 8. Lead and mercury poisoning. 9. Selenium poisoning

9- Staggering or paralysis	<ol style="list-style-type: none"> 1. Three day sickness. 2. Black disease. 3. Tick paralysis. 4. Foot rot. 5. Tetanus. 6. Listeriosis. 7. Rabies. 8. Milk fever. 9. Hypomagnesaemia. 10. Mechanical injuries. 11. Lead poisoning. 12. Fracture. 13. Ketosis. 14. Botulism. 15. Toxemic indigestion. 16. Ruminal impaction. 17. Toxemic conditions. 18. Acute arthritis. 19. Pregnancy toxemia. 20. Vitamin E deficiency.
10- Skin lesions	<ol style="list-style-type: none"> 1. Mange. 2. Ringworm. 3. Dermatophilosis. 4. Lice infestation. 5. Warts. 6. Pseudocow pox. 7. Lumpy skin disease. 8. Edematous skin disease.
11. Fever	<ol style="list-style-type: none"> 1. Respiratory tract infections (pneumonia, bronchitis. Pleurisy). 2. Infectious enteritis. 3. Pyelonephritis. 4. Acute mastitis. 5. Post parturient metritis. 6. Septic infection else where in the body. 7. Bacterial diseases. 8. viral diseases 9. Blood parasites.