

Clinical pointer-01

- 1) **Sodium and potassium iodide** have both been used to treat selected bacterial, actinomycete, and fungal infections, although sodium iodide is preferred
- 2) The dosage rate for treating **actinomycosis and actinobacillosis** in cattle is 66 mg/kg, by slow IV, repeated weekly. Potassium iodide should never be injected IV.

Clinical pointer -02

- 1) In cattle, **Prominent Abdominal wall Movements** (Respiration) suggest painful conditions of the Thorax such as pleurisy
- 2) **Prominent Thoracic wall movements**(respiration) indicates severe Pulmonary Diseases such as Pulmonary edema, Pnuemonia, and pulmonary emphysema.

Ref-Veterinary clinical Examination and diagnosis -O.M.Radostits et all.

Clinical pointer -03

- 1) **SARA**-SubAcute Ruminant Acidosis- is one key factor in development of laminitis in cattle
- 2) High levels of carbohydrate in the diet in SARA invoke an increase of *Streptococcus bovis* and *Lactobacillus* spp, which induce a state of acidosis in the rumen
- 3) This causes gram-negative organisms to die and release vasoactive endotoxins. Rumenitis is frequently associated with ruminal acidosis.
- 4) High levels of histamine in the blood have been found in the early stages of the disorder.

Ref-MSD manual.

Clinical pointer-04

- 1) **Thiamine(vitamin B1)**, is normally produced by bacteria in the ruminants on well-balanced roughage diets.
- 2) Thiamine deficiency reduces energy availability to the brain, which leads to a type of brain degeneration called polioencephalomalacia or PEM.
- 3) Thiamine injections treat the thiamine deficiency, but will not fix the problem of thiaminase-producing bacteria in the rumen, meaning there is the potential for relapse.
- 4) Providing the animal with a high-quality hay diet and an oral supplement of thiamine will help significantly in returning thiamine availability in the rumen to normal.

Clinical pointer-05

- 1) **Bruxium or Grinding of Teeth**- occurs in state of Encephalomalacia or Abdominal pain or increased intracranial pressure
- 2) **Abnormal movements of the eyelids**-seen in Hypomagnesemia, Lead poisoning and Encephalitis.
- 3) **Regurgitation or Dropping cuds** on the ground suggests disease of esophagus or the cardia of Reticulorumen, Painful cuds of Oral Cavity, Diseases affecting Facial Nerves- Listeriosis, Otitis, Incomplete Eruption of Molar Tooth

Ref- VCE and Diagnosis by O.M.Radostits et al.

Clinical Pointer-06

- 1) **Foot Bath**-Formalin FB @2-5% used for treatment of Digital and interdigital Dermatitis, & Foot Rot.
- 2) **Animal with an arched back** and moves reluctantly-also Suspect it for Peritonitis, Liver Abscessation, Endocarditis, Chronic Supportive Pneumonia, pleurisy apart from TRP.
- 3) **Prepartum single inj of Vitamin E and Selenium** reduces the incidence of RFM, increases Pregnancy rate and reduces Calving to Conception in Lactating dairy Cows.

Clinical pointer-07

- 1) **inj Imidocarb dipropionate** 12% single dose gives protection against babesiosis upto 4wks in cattle .For treatment, imidocarb is given SC at 1.2 mg/kg. At a dosage of 3 mg/kg, imidocarb provides protection from babesiosis for ~4 wk and will also eliminate B bovis and B bigemina from carrier animals.
 - 2) **Blood in Milk(Hemolactia)**-inj of adrenaline(VC action) diluted in NS intramammary.
- Adm of oral camphor(contains volatile acids act as styptics)and iv or intramammary calcium also might be used.(calcium has a Coagulant effect).

Clinical pointer-08

- 1) **Immunostimulants in Veterinary practise**- Vitamin E, Levamisole,and Zinc Sulphate
- 2) **Feeding germinated Horse gram**,After germination they are grinded,cooked and fed along with the water in which the gram was boiled-Supplements Vitamin E and Selenium
- 3) **Rumen contractions** are reduced,or entirely absent in Hypocalcemia, Endotoxemia,SI,Acute Carbohydrate Engorgement,TRP.

Clinical pointer-09

- 1) **Mastitis in Dogs and cats**-DOC Acidic milk-Erythromycin or Lincomycin- Alkaline Milk- Amoxicillin or cephalosporin.Either acidic or alkaline-Chloramphenicol and Enroflox Infuse 1% Betadine solution intramammary.
- 2) **clinical Manifestation of Toxicity** do not occur in majority of animals receiving recommended dose rates of **NSAIDs**.
- 3) **AntiBiotics contraindicated in Rabbits** are clinda,Linco,Erythro,Ampi,amoxy/clavulnic acid and all cephalosporins.

Clinical pointer-10

- 1) **Septic Metritis**-usually Sequelae of RFM,TUP,or Successfully Managed with BS AB(esp Ceftiofur), Intrauterine Metronidazole, NSAID esp Flunixin to control Endotoxemia, Antihistamines and Supportives like Liver extract inj and Vitamin C for Tissue repair and Resistance for 5 days atleast.
- 2) Supplementation of **Vitamin E, Selenium and Zinc** Helps faster recovery in all stages of Metritis
- 3) **Intrauterine Therapy in case of Metritis**- Lugols solution or BS AntiBiotics works well in Luteal phase while Furea gives better results in Follicular phase.

Preparation of Lugols iodine- for PUO in ruminents,actinomycosis, dermatomycosis , iodine deficiency in calves(hypothyroidism)

Lugols Iodine as Blood Antiseptic

If given by **IV route** # it is good for many diseases like FMD, HS, PPR, Septic wounds, Pyaemia Eczema and joint troubles etc

Dose : by IV route Sheep / Goats 2-4 ml LA - 20-40 ml

Making Lugols Iodine (aqueous solution of Iodine) at Hospital level is very simple

Iodine (Iodum) - 2 Pot Iodide -3 Dist.Water - 40

Clinical pointer-11

- 1) A diagnosis of Infection by M.bovis(**Mycoplasmosis**) should be considered when pneumonia and arthritis and synovitis occur at about the same time in cattle
- 2) **In Ruminal Examination**, Fluid splashing sounds suggest diseases such as Grain overload,or an atonic Rumen associated with prolonged anorexia,as in Chronic diffuse Peritonitis,or abomasal or omasal impactions.
- 3) **In coliform Mastitis**,inj oxytocin at 30-100units per adult cow given IV,followed by vigorous hand massage and hourly stripping of the affected quarter,will assist in removing inflammatory debris.(Removal of the bacteria and Endotoxins minimizes their local effects in the Mammary gland.)

Clinical pointer-12

- 1) **In Bovine Ketosis**-The use of dextrose should be considered for animals with severe ketosis with concurrent hypoglycemia,especially in animals with nervous signs.
- 2) Due to the potential for **immunosuppression secondary to corticosteroid** use and the frequency of underlying post partum disease in ketotic patients, corticosteroid use is not recommended as part of **routine ketosis treatment**.
- 3) VitaminB12(cyanocobalamin) and phosphorus(butaphosphan) are often used in combination as a supportive therapy for **ketosis** since they are integral to the Krebs cycle.

Clinical pointer-13

- 1) **Local and systemic corticosteroids** are contraindicated in any animal diagnosed with demodicosis.
- 2) **Tests for Blindness** in cattle includes The Menace Reflex(Peripheral or central Blindness) and an Obstacle Test.
- 3) In Cattle,**The pulse** is taken at the Ventral coccygeal artery,and in young calves,Sheep and goat,pigs The pulse is taken at the Femoral Artery.

Clinical pointer-14

- 1) **Sarcoptic Mange in dogs**-Nonseasonal,Intensely pruritic,Highly contagious parasitic skin disease of dogs-Simple diagnosis by Positive pinnal-pedal reflex (75%-90%)
- 2) **Canine Demodicosis**-inflammatory parasitic disease leads to furunculosis and sec bacterial infection -Diagnostic procedures-Skin Scrapings or biopsy
- 3) Always consider **Sarcoptic Mange** as a possible cause of pruritus in allergic dogs that cease to responsive to steroid therapy whereas local and systemic Corticosteroids are contraindicated in Demodicosis.

Clinical pointer-15

- 1) Cows are more resistant to uterine infection during estrus, and as cows undergo more estrous cycles after parturition, the prevalence of endometritis diminishes. This has led to increased use of prostaglandin F_{2α} or its analogues, at usual luteolytic doses, for the management of endometritis, although there is little evidence that such use reduces the incidence or effect of endometritis.
- 2) **Calcium is cardiotoxic**; therefore, calcium-containing solutions should be administered slowly (10–20 min) while cardiac auscultation is performed. If severe dysrhythmias or bradycardia develop, administration should be stopped until the heart rhythm has returned to normal. **Endotoxic animals** are especially prone to dysrhythmias caused by IV calcium therapy.
- 3) Regardless of the source of **oral calcium**, it is important to note that cows with hypocalcemia often have poor swallowing and gag reflexes. Care must be exercised during administration of calcium-containing solutions to avoid **aspiration pneumonia**.

Clinical pointer-16

- 1) **Interdigital Dermatitis** is caused by a mixed bacterial infection (an anaerobe and exceptionally proteolytic), can be confused with FMD-Treated with Systemic AB, and Topical Bacteriostatic agents eg 50% mixture of Sulfamethazine and anhydrous copper sulphate and Regular Foot bath using 3-5% Formalin, 1hr bid for 3days
- 2) If a cow is recumbent, **Acute Hypophosphatemia** is suspected with or without Hypocalcemia, It is advisable to inject SAP (Sodium Acid Phosphate) IV or oral dosing with 90g of SAP every 8hrs.
- 3) In winter, In a herd, **Milk drop syndrome** -without Mastitis is suspected for Leptospirosis.
- 4) **Milk fat depression** is corrected by addition of Sodium bicarbonate and Magnesium oxide in the diet of Ruminants.

Clinical pointer-17

- 1) **In Bovine Ketosis** -It is mistaken belief that sugars (Molasses) given orally would be absorbed as such by Ruminants, These rapidly ferment in the Rumen to yield VFF which only add to the animals biochemical embarrassment
- 2) Administration of **single inj of Dexamethasone** (10-30mg) to a cow in late pregnancy is followed by parturition within 72hrs, These Induced parturitions are accompanied by a very high incidence of RP and calf mortality by 15%
- 3) **Glucocorticoids** are contraindicated in Deep corneal ulcerations, Recent major surgery, Diabetes mellitus (conditions called steroid diabetes if used), Cardiac insufficiency apart from pregnancy.

Clinical pointer-18

- 1) **Dry cow therapy for Mastitis** -I/Mam adm of AB's at the end of lactation has been a standard of Dairy Mastitis Management -Penicillin, cloxacillin, cephapirin, ceftiofur, or novobiocin. One tube per quarter is sufficient and should be adm immediately after the last milking of lactation. Therapy should not be repeated by I/Mam infusion.
- 2) **Wound Lavage** -Hydrogen peroxide is toxic to healthy tissue and should not be used for lavage of wounds.Povidone-iodine is an effective antiseptic, but it has minimal residual activity and may be inactivated by purulent debris.
- 3) **In Bovine Theileriosis -Buparvaquone** is highly effective when administered in the early stages of clinical disease but is less effective in the advanced stages, in which there is extensive destruction of lymphoid and Hematopoietic Tissues.

Clinical Pointer-19

- 1) **Ceftizoxime sodium** is a broad spectrum 3rdG cephalosporin for Antimicrobial treatment for Staphylococcal Mastitis.Single dose provides optimum bactericidal Therapeutic Antibiotic Concentration in udder Tissue for 5days.
- 2) **Dry Cow Therapy**-BS pencillins is infused into each gland after last Milking of the Lactation and left in situ .The benefits are elimination of existing and prevention of New i/mam infections during Dry period
- 3) **In Bovine Babesiosis** -The Anaemic Crisis and death is prevented by Proper deworming, Tick control and Prophylactic use of DA.(The Non infected Animals in a herd can be given with dose of DA as Prophylactic Measures)

Clinical Pointer-20

- 1) **Sodium Acid Phosphate** , inorganic phosphorus has variety of important role in Bovine infertility cases as Phosphorus def may leads to Repeat breeding,poor conception rate(Sathish kumar 2003),Delayed onset of puberty,silent or irregular estrus in heifers(Chaudhary and singh,2004)
- 2) **Neonatal Calf scours** -Main causes are Giardiasis,Cryptosporidiosis,Coccidiosis apart from Worm Scours.
- 3) **Cefquinone sulphate** -4G cephalosporins in Clinical Mastitis has enhanced ability to cross the blood udder barrier and it shows improved AB activity over 2 and 3G cephalosporins (Sadar and Jones,1993)

Clinical pointer-21

- 1) **Milk Fever (Parturient Paresis)** has its clinical stage when plasma Ca falls below 7mg/dl (Normal-9.7-12.4mg/dl)
- 2) An **intravenous infusion of Ca** can be adm at a dose of **1g of Ca per 45.4kg** of BW ,as Calcium is **cardiotoxic**, a controlled infusion is recommended
- 3) Intramammary infusion of 1.6g of Ca ,3times at 12hrs intervals immediately postpartum enhanced the ability of the cow to maintain a stable plasma Ca concentration
- 4)This stabilization inturn assist the cow in expulsion of placenta, consumption of more feed and digestibility by increased Strenght of Ruminal contractions.

Clinical pointer-22

- 1) **Numerous sequelae** have been associated with clinical rumen acidosis and include polioencephalomalacia (PEM), rumenitis, liver abscessation, laminitis, and vena caval thrombosis
- 2) **Recommended AB therapies** is the administration of procaine penicillin G at a dose of 22,000 IU/kg IM or Ampicillin trihydrate at a dose of 11 mg/ kg IM once daily for 3 to 5 days to animals with Acute Rumen Acidosis.
- 3) **Heart Rate** in a cow with clinical Acidosis is a **prognostic indicator**.(HR above 120bpm-grave prognosis) - other cdt's includes Downer Cow, Acute Intussception, Acute Diffuse peritonitis, and Abomasal Torsion)

Clinical pointer-23

- 1)The role of **MDA** (Maternally derived Antibody) Neutralization is one of the important causes in CPV vaccine failure.To reduce its risk,New Vaccination strategies of Vaccinating puppies at 6th,9th,12th,and 15th weeks of age.(Day et al.,2010) is recommended.
- 2) **The Ear Mange** (Psoroptes cuniculi)in Rabbits causes pyoderma and itching can be treated by a alternative therapy using a Herb called Acorus calamus ,(Sweet Flag),(Vasambu in Tamil),has medicinal value as insect and pest repellent, anti feedant,and chemo sterilant(10g dry powder in 10ml of Neem oil applied externally)
- 3) **Non specific Bacteria** that causes Dairy Cattle Reproductive Tract infections were due to Corynebacterium genus, Escherichia genus, and Staphylococcus genus which causes Repeat Breeding and Reproductive Disorders.

Clinical Pointer-24

- 1) **Yawning movements** in cattle is indicative of paralytic form of Rabies.
- 2) **PICA** also noticed in chronic abdominal pain due to peritonitis or gastritis, CNS signs in Rabies, Nervous acetonemia apart from def of Na, Co, P
- 3) Use of **Xylazine in pregnant cows** in last trimester of pregnancy is Contraindicated, as it causes contractions of uterus similar to Oxytocin

Clinical Pointer-25

- 1) Sodium Iodide and Potassium Iodide, acts as **Locally acting Expectorants** in Chronic conditions, as Iodide rapidly excreted through bronchial mucosa and increases its secretory activity.
- 2) **Frog like attitude posture** with hindlegs extended in sternal Recumbency is seen in Hypocalcemia in sheep and Bilateral Hip dislocation in cattle.
- 3) In Bovines, Excess oral administration of **Potassium** will lead to Hypomagnesemic, Excessive **sodium bicarbonate IV** lead to Hypokalemia

Clinical Pointer-26

- 1) Spasms and Excessive Blinking of eyelids (**BLEPHAROSPASM**) indicates Pain or peripheral Nerve involvements.
- 2) **Swelling below the Jaw** may be Inflammatory As in Actinobacillosis and Strangles, or edematous as in Acute Anemia, Protein Starvation or CHF
- 3) In Cattle, The dose rate of **Posterior Epidural Anesthesia** in Sacro- Coccygeal space with 2% Lignocaine is 1ml per 100kg btwt (Arthur et al., 2001)

Clinical pointer-27

- 1) In Cows, **Haemolactia (Blood in Milk)** integrative therapy of 200 grams of curry leaves mixed with 5 lemon as paste bid orally for 2 weeks along with standard Therapy gives clinical recovery due to its styptic action on Mammary gland.
- 2) In Dogs, **Iron deficiency Anaemia** ,Inj Iron dextron at the dose rate of 10-20mg per kg once, along with oral ferrous sulphate at 100-300mg daily for 14 days
- 3) In **Snake Envenomation in canines** ,the rate of adm of PVAnti-Snake venom serum is 1ml per 3minutes slowly ,if Anaphylaxis, *adrenaline*as Adrenaline Acid Tartrate (1mg/ml) along with Corticosteroids adm slowly.

Clinical pointer -28

- 1) **Uterotronic drugs** like PGF2@ and its analogue, Oxytocin and its analogue, Methylethergometrine maleate can be adm during **puerperal phase** in cows to evacuate uterine contents, and accelerate the process of uterine Involution ..ie.. quicker involution, higher overall Conception.
- 2) In dogs, **Simultaneous adm** of Ketoconazole and ivermectin leads to adverse drug interactions,which increases Toxicity of Ivermectin by decreasing clearance of Ivermectin.
- 3) The drug **Metronidazole** reported to be effective against Anaerobes, can be used for treatment of Tetanus along with Tetanus AntiToxins.

Clinical pointer-29

- 1) **Acid-base imbalances** like Ruminal lactic acidosis, dehydration, hypocalcemia and hypokalemia were attributed as the reasons for Paralytic ileus (reduction of intestinal peristalsis)- (Radostits et al.2003)
- 2) **CBG intravenous** injection was help to improve the tonicity of fore stomach and intestine (Prathan et al 2008).
- 3) In Ruminants, apart from Rabies , Botulism, Tetanus, can all cause **Bloat, dysphagia, and ptyalism** (Profuse salivation).
- 4) **Antibacterials** Targetting the bacteremia Caused by Coliforms in Coliform Mastitis are **Fluoroquinolones and Cephalosporins** of 3rd and 4th Generations for Which there is atleast some evidence of positive effects were attributed

Clinical pointer-30

- 1) **Cattle in Third trimester of pregnancy** had highest prevalence of GI motility disorders (esp **paralytic ileus**) followed by post calving and Second Trimester of pregnancy, Highest prevalence might be due to pressure exerted by uterus on intestines.
- 2) Forestomach disorders like Diaphragmatic hernia and Vagus Indigestion were predominantly noticed in **recently calved cattle** when compared to pregnant cattle (Sharma et al.,2015)
- 3) In Bitches ,**Prolactin secretion** by pituitary might promote anoestrus, hence dopamine agonists such as **Cabergoline and bromocriptine** could be used to shorten anoestrus in both normal and in bitches with secondary anoestrus of unknown etiology (Davidson,2006).For induction of estrus in Late anestrus animals, Cabergoline at 5ug/kg bt wt SID PO until signs of proestrus noticed.

Clinical pointer-31

- 1) **Agalactia or Hypogalactia in bitches** -Oral adm of **Metoclopramide** (0.2 mg/kg, PO, q 6 h for 6 days) to healthy bitches after parturition induced a transient increase in serum prolactin concentration and can be used for treating bitches with insufficient or delayed milk production.
- 2) **Dystocia in Bitches** with primary uterine inertia can be treated with Oxytocin (3–20 U in bitches) given IM up to 3 times at 30-min intervals, with or without 10% calcium gluconate (3–5 mL, IV slowly) (The adm of calcium increases the strength of myometrial contractions , while Oxytocin increases the frequency)
- 3) **Autohemotherapy**(10ml blood collected,injected IM for interval of 5weeks) considered to be an alternative treatment options to **Canine TVT**
- 4) **In Bovines** ,DD of animals with **muscle weakness** shld always include **Hypokalemia** (Constable et al)

Clinical pointer-32

- 1) **In Bovine Ketosis** , Detection of **Blood** Beta-Hydroxy Butrate BHB is gold standard Test using a point of care device, whereas **Milk** BHBA strip test(95%) is highly sensitive than **Urine** Dipstick Test(86%).
- 2) **In Hypomagnesimia Cows** after IV infusion,**additional Mg sulfate** (200 mL of a 50% solution/cow) can be given SC to avoid recurrence.
- 3) **In Cyanide poisoning**, after IV infusion, **additional Sodium thiosulfate** 30 g/cow, PO, to detoxify any remaining HCN in the rumen.
- 4) Dose rate of **Vitamin K** in anticoagulant poisoning of Dogs is 1-2mg per kg, 24 hrs interval, oral and injectable,(IM route slower onset but prolonged effect)

Clinical Pointer-33

- 1) **Erythromycin**, a Macrolide, Motilin agonist could be an effective prokinetic agent, and can be used in **Functional ileus**, abomasal emptying in dairy calves, and restoration of GI motility disorders in small ruminants. (other prokinetic drugs are **Lidocaine and Metoclopramide**).

Motility Modifiers in LA (Functional Ileus)

- 1) **Azithromycin-1mg/kg IV; upto 8.8mg/kg IV for 3days**
 - 2) **Neostigmine-0.02mg/kg SC/IV**
 - 3) **Metaclopramide-0.15mg/kg IM**
- 2) **Vitamin A** plays an important role for the treatment of Canine Distemper but mechanism is still unknown
 - 3) Dose rate of **Ivermectin** in **Sarcoptic Mange** is 0.2-0.4mg per kg once SC or PO every 1-2wks, whereas in **Demodectic mange** is 0.3-0.6mg per kg q24hr PO, treating for 30-60days beyond negative skin scrapings.
 - 4) Role of **Magnesium Sulphate** in **Tetanus** as Subcutaneous is **Multifactorial**, non specific Ca channel blocker, reducing release of Acetylcholine choline at NeuroMuscular Junction, and decreasing release of catecholamines from adrenal glands and peripheral adrenergic nerve terminals thus reducing Muscle spasms in Tetanus.

Clinical Pointer-34

- 1) The dose rate of **Dexamethasone** in **Bovine Ketosis** is 0.04mg per Kg. Or 20mg Per Cow IM (GC are used to cause Hyperglycemia and reduce Tissue Glucose Uptake and reduces Milk Production. So less Glucose is Needed, thus preventing Ketosis)
- 2) **Ivermectin usage** -lack of data and the higher susceptibility in young animals it is advisable not to administer cattle and horses **younger than 4 months**, as well as puppies and kittens **younger than 6 weeks**.
- 3) 100% Success was achieved in the Treatment of Bovine Papillomatosis with **Levamisole** (Cihan et al..2004)
- 4) The dose rate of KCL in Hypokalemia case is Isotonic solution @a rate not to exceed **0.5mEq of Potassium per Kg per Hour in Normal Saline**

Clinical pointer-35

- 1) In Bovines, **Transplacental Transmission** of Tick Borne Disease(TBD) esp Theileriosis, Anaplasmosis, and Babesiosis can occur, and can cause undiagnosed Neonatal death
- 2) Infectious cause of **Acute Blindness in cattle** are particularly due to Eye worm parasites, bacterial (IBK) and Viral (IBR, MCF) whereas Nutritional cause is PEM and Hypovitaminosis A
- 3) In dogs, **Pinna Pedal reflex(PPR)** is characteristic of Sarcoptic Mange whereas in Demodectic mange it is absent.
- 4) **Prednisolone** at 1mg per kg can be used to control severe pruritis in case of sarcoptic mange whereas pruritis is occasionally present in Demodectic mange, and Prednisolone should not be used.

Clinical pointer-36

- 1) Orally **Aspirin** at 6mg/kg q48hrs, can be used as **Antipyretic in Cats**, whereas in Dogs at 10mg/kg q12hrs.
- 2) Parenteral **Carprofen and Flunixin** can be used SC as an **Antipyretic in Dogs** at the rate of 2mg/kg q12h and 0.25mg/kg respectively.
- 3) **Eyeworm of Cattle**-ExtraOcular form is caused by *Thelazia Spp.* and IntraOcular form is caused by *Setaria Spp.* which causes Cerebrospinal Nematodiasis.
- 4) **Repeated IV Calcium** Adm is Not Warranted in A Recumbent Cow without the signs of Defaecation and Urination during IV adm Immediately after Parturition, as it might be not a Case of Hypocalcemia.

Clinical pointer-37

- 1) In Bovine Theileriosis, **Abomasal ulcers and Cutaneous Hemorrhages** are caused by severe damage to Hepatobiliary System due to Hypoxia, that resulted from Hemolytic Anaemia and jaundice (*santhu, 1996*)
- 2) Diluted solution of **0.5% Lugol's iodine** is an effective IU (Than any other IU preparations) for treatment of Endometritis as it causes more or less intense irritation of Endometrium, Stimulates uterine tone and mobilizes Neutrophils into uterine Lumen (*singh et al*)
- 3) **Meloxicam Toxicity in Canines**-Tab Misoprostol (PGE1 analogue) at 5mcg/kg PO TID can be used to treat NSAID induced Nephropathy (Dagher and K Moore, 2001)
- 4) **Paracetamol Toxicity in Cats**-Adm of N-acetylcysteine (NAC), a sulfur-containing amino acid, can reduce the extent of liver injury IV and PO, Activated charcoal at 1-2g per kg btwt Po., Both 2hrs apart

Clinical pointer-38

- 1) The condition **Acute bilateral Exophthalmus in Neonatal calves** may be caused by *Theileria_annulata* due to Transplacental Transmission.
- 2) In Bovines ,**Bloat with distended left sublumbar fossa**,with excessive salivation...might be indicative case of Oesophageal obstruction
- 3) In Ruminants , **Ruminal Hypomotility** is indicative of Milk Fever, Acidosis,and painful cdt's of Abdomen, whereas **Hypermotility** is indicative of Frothy Bloat,Vagal indigestion, Enteritis and Johnes disease.
- 4) In canines, **Doramectin 600 mcg per kg** per wk SC for 6weeks is effective alternative Macrocylic lactones for Treatment of **Canine Recurrent Demodicosis** as it is painless and its usage results in complete remission of disease

Clinical Pointer-39

- 1) In Bovines ,**The blood phosphorous level** is direct indicator of dietary intake and Bioavailability of **Phosphates(inorganic)**
- 2) Conservative Therapy for **Caecal Dilatation or distention in Ruminants** is Fluid and Calcium Therapy along with **Neostigmine at 0.02mg per kg SC** ,oral Laxatives like Liquid paraffin and oral Sodium sulphate at 1mg per kg PO
- 3) **AntiEmetics in dogs and cats** commonly used are **Ondansetron** (0.5mg per Kg PO or IV q12-24 hrs) and **Metaclopramide** (0.5mg per kg PO or IM q8hrs).. Former has an advantage of per day effect while later has disadvantage of 8hrs once dosage and as **prokinetics** cannot be used in diarrheic cases.

Clinical pointer-40

- 1) In a case of **Scrotal Eczema in dogs**,the drug **Pentoxifylline** ,xanthine derivative can be used to improve microcirculation of Scrotal skin to facilitate the reach of Antibiotics and its faster action.it is also used in **Ulcerative dermatitis in dogs**.
Dose rate-**Dogs**-10-25mg per kg every 12-24hrs.**Cats**-100mg q12hrs Total Dose
- 2) **In dogs with UTI** ,Most preferred group of ABs are Amoxy clav,Cephalosporins and Fluroquinolones,(Nephrotoxic Aminoglycosides like Gentamycin are CI in cases of oliguria/Anuria)

- 3) Cattle with signs of **carpal Hygroma** either uni/bilateral, conditions might be a consequence of **Bovine Brucellosis** apart from physical chronic trauma.



Clinical pointer-41

- 1) Economical Clinical Management of **Burn injuries in Large animals** are external application of Camphorated Honey, Boric Acid, Sulphur powder apart from Silver Sulphadiazine.
- 2) Effective Ethnoveterinary Medicines used to Treat FMD oral lesions are Ext application of Sodium bicarbonate solution, Honey and Finger Millet Flour

Sodium bicarbonate kills the FMD virus instantaneously as it is pH sensitive (Radostitis et al. 2000)

Honey has antibacterial properties due to production of hydrogen peroxide which is formed and released slowly by glucose enzymes when the honey is diluted (Vaux, 2009) .

Finger millet as aqueous paste accelerated the process of wound healing by significant increase in protein and collagen contents in the granulation tissues.(Hedge et al. 2005)

- 3) **Oral Cefixime** a 2nd Gen cephalosporins at 5mg per kg q12-24hrs has been used to Treat **Cystitis in Dogs.**

Clinical pointer -42

1-Heart sounds in disease diagnosis

- 1) **Low intensity Heart sounds** in Milk Fever
- 2) **Loud Heart Sound** in Hypomagnesemia
- 3) **Muffled Heart sound** in TRP/TP

2- Conditions and its complications

- 1) **Ruminal Stasis** Induces Hypocalcemia
 - 2) **Abomasal Stasis** induces Hypokalemia
 - 3) **Alimentary track Stasis** induces Hypophosphatemia
- 3) Hypokalemia and hypophosphatemia** are commonly quoted causes of **Creepers** cows (cows able to crawl but unable to stand).
- 4) **Pseudopericarditis**-jugular engorgement, oedema of the brisket and ventral abdominal wall also happens in **Bovine Theileriosis** due to swelling(schizogony stage) of **Mediastinal LN** around the base of cranial and caudal vena cava returning blood to the heart.

Clinical Pointer-43

- 1) **In Downer cow with parturient Hypocalcemia** ,It is undesirable to adm parentally **Sodium Acid Phosphate(SAP)** along with Calcium and Magnesium salts IV..As sudden Hyperphosphatemia caused by rapid infusion of Phosphorous precipitates Calcium and Magnesium salts further aggravates the conditions.
- 2) **The peculiarity in ruminants** is that it has **high salivary phosphorus** concentration ie.5- to 10-fold the concentration in serum.So in case of Panting and summer stress ,There **is loss of Phosphorous in saliva apart from Bicarbonates**
- 3) **Parenteral adm of organic phosphorus** (inj toldimphos, butaphsphan, phosphite, or hypophosphite) as phosphite are unsuitable for increasing plasma phosphorus because they do not provide the form (ie, phosphate , PO₄).Animal doesnt have any pathway to change phosphite to phosphate which is biologically active form of phosphorous.
- 4) **Phosphorus depletion** may occur after oral or **parenteral carbohydrate adm** and after parenteral insulin administration as a result of increased cellular phosphorus uptake in combination with glucose.

Clinical pointer-44

- 1) **Ketosis-associated pica** is characterized by rejection of concentrate but the continuation of eating of roughages (Ranjhan and Pathak, 1992).
- 2) **Contraindication of feeding oral sugars or Molasses** in clinical case of Ketosis is that they will readily be digested into VFAs (Glucogenic and Ketogenic)..ketogenic VFA will only aggravate the Biochemical cdt's of the animal as there is already Ketonemia.so **oral Glucogenic Precursors** only recommended.
- 3) **Adm of oral Antacids** (Antibloat agents) are Contraindicated in case of Cyanide and urea poisoning as Alkaline pH after adm of Antacids only promotes the absorption of Toxins cyanide and Urea,it will only aggravate the cdt's.

Clinical pointer-45

- 1) **Lymphadenopathies in cattle** usually associated with some underlying causes like Blood protozoan, Lymph node Hyperplasia and Lymphoma
- 2) In Bovines, **Anaemia** generally occurs due to Blood protozoan diseases, Ecto-Endoparasites and Nutritional deficiency.
- 3) Drugs like OTC in pyrexia, Thiamine in PEM ,Sodium bicarbonate in Acidosis,ASV in Snake bite **shld be diluted** and given IV route so as to avoid Anaphylactic Reactions.
- 4) **In Female cattle** ,Left displacement of Abomasum(LDA) is more common than right side Displacement(RDA),and can be confirmed by **LipTak Test** .(pH of Abomasal fluid is 2-3)

Clinical pointer-46

- 1) **DIC (Disseminated Intravascular Coagulopathy)** clinically manifested in Cows with Mastitis of Gram Negative (Ecoli) than gram positive (S.aureus) Mastitis,due to release of Endotoxins that significantly alters the mean value of Hemostatic analytes (Welles et al 1993). It is also observed in cow with Mastitis by Pasteurella hemolytica (Kiper and paulsen,loc.cit)
- 2) In cases of **Obstructive Thelitis** ,The Protein enzyme **Hyaluronidase 1500IU** administered **Intra-lesion infusion** enhances the distribution of other injected drugs thereby providing Satisfactory results.
- 3) In Cattle, **Unilateral Exophthalmus** ,Mucopurulent Nasal discharge with blood(Chronic Epistaxis),purulent conjunctivitis are indicative of signs of **Ethmoidal Tumours**

Clinical pointer -47

- 1) In cattle, **Differential diagnosis for Acute Ruminal Acidosis** are Parturient Paresis, Per Acute coliform Mastitis, and Acute diffuse peritonitis.
- 2) In Cattle, **Alkali in Warm water** / Antacids like Magnesium Hydroxide(100-300g) or Magnesium carbonate (10-80g) shld be mixed in 10litres of Warm water to ensure adequate dispersion through the ruminoreticular contents in cases of Acidosis
- 3) In cattle, **Weak Acids in Cold Water*** like Acetic acid (4%–5%) or vinegar (cattle: 4–8 L) are Acidifying Agents used in cases of ruminal stasis or simple indigestion as well as acute ammonia(urea) poisoning.
- 4) **Ear Mite in Dogs** Mix 1ml of Amitraz in 10-20ml of Mineral oil, apply topically qod *3wks.

Clinical pointer-48

- 1) In cattle, **Atropine Test to diagnose Vagal Indigestion** in animals with Bradycardia <60bpm , A dose of 40 mg/cow as a 1% solution, SC is given ,an increase of >16% in heart rate 15 min after atropine adm is considered indicative of VI.(Atropine inhibits the effect of vagal Bradycardia on the heart)
- 2) **Oral adm of sodium bicarbonate** (baking soda)* , either as powder dissolved in water or commercially available solutions prepared for IV infusion, rapidly neutralize the rumen pH but are accompanied by rapid release of large amounts of CO₂ . Because of decreased rumen motility in ruminants with acute rumen acidosis, these animals are at increased risk of developing potentially life-threatening free gas bloat.
- 3) Infectious diseases that causes **Epistaxis in dogs** are Ehrlichiosis, Babesiosis, Anaplasmosis, RMSF.

Clinical pointer -49

- 1) In Dogs, **Rectal Levetiracetam**(40mg per kg) can be useful additional treatment for cluster seizures and Status epilepticus(Cagnotti et al.,2018)
- 2) In Cow ,**suffering from clinical Milk Fever** typically have Low blood Phosphorus,high blood Magnesium, High blood Glucose, and Normal to Slightly low blood potassium. (Larsen T,et all 2001),So it is highly **irrational to adm IV fluids** containing Mg,Glucose and potassium in a Milk Fever Cow.
- 3) In Cows, **Rectal adm of Magnesium** is the route of choice to Hypomagnesemic Cows with severe Convulsions and /or poor Peripheral perfusions (60g of MgSo₄ dissolved in 200ml warm water adm into Colon via a Short Tube),As Rectal absorption is very good , (within 30min, CSF Mg concentration gets increased). (Goff JP 1999)

Clinical pointer-50

1) **Ranitidine** (6.6mg/ kg IM) increases Abomasal pH when adm Parentrally, can be used as Abomasal Antiulcer agents. (Pantoprazole in Ruminants is still unclear)

2) **Whitfield's ointment** , a mixture containing 6% benzoic acid and 3 % salicylic acid, has been used for the topical treatment of **Dermatophytosis** . Benzoic acid has antibacterial and antifungal properties, and salicylic acid has keratolytic and fungicidal activity.



3) Usage of **PGF2Alpha** in Brachycephalic Breeds of dogs (Pug,Boxer,Shih Tzu..) is **Contraindicated** due to their predisposition to Bronchospasm.

Clinical pointer-51

1) **Benzoyl Peroxide** slowly releases Oxygen act as Oxidizing antiseptics when used Externally, and also Keratolytic, Antiseborrhoeic , used in Treatment of Pyoderma in Dogs.

2) In Dogs, For **Amitraz Toxicity** , The Antidote is Yohimbine and Atipamezole. But due to its Non availability, **Atropine Sulphate**(0.045mg/kg SC) can be used Successfully to reverse Amitraz induced Bradycardia and associated Signs (Hai et al., 1986)

3) **Dyschezia, Tenesmus, Stranguria and Empty Rectum** are clinical signs also Noticed in **Proctitis**(Inflammation of Mucosa of Rectum) and **Ulcerative Colitis in Cattle** Which may be due to Salmonellosis, Adeno Virus infection, BVD and Trauma (Braun et al., 2015)

MASTITIS-Clinical Differentiation

1) In staphylococcus mastitis

Udder parenchyma is swollen and milk is white or creamy with flakes

2) In E.coli mastitis





Milk is serosanguinous or watery.

Will both teat and udder parenchyma be swollen

3) Leptospiral Mastitis -no udder swelling, hemagalactia, cold udder

4) Mycoplasmal Mastitis -with arthritis or abortion, severe form, all quarters mostly, foul smelling yellowish milk

Guideline to Diagnose Mastitis caused by Different Organisms					
Udder Examination	Milk Examination	Possible Organism Involved	Type of Mastitis	Suggested Treatment	
Swelling at Upper Part of Teat & Udder Inflammation at Lower Part of Udder	White Flakes in Milk	Staphylococci & Streptococci Spp.	Clinical Mastitis	IMM Preparations & Parenteral Therapy	
Painful Inflammation & Excessive Edema of Udder	Straw Colored Watery or blood tinged Milk	E. coli, Klebsiella spp.	Coliform Mastitis	IMM Preparations & Parenteral Therapy	
Sudden Swelling of Individual Quarter or Whole Udder. Multiple Quarter may be Affected	Sandy or Flaky Sediments in Watery or Yellowish Milk	Mycoplasma spp.	Mycoplasmal Mastitis	Parenteral Therapy	
Udder is Swollen & Hard on Palpation. Teats are always Surrounded by Flies	Foul Smelling, Thick Yellowish Milk	Corynebacterium pyogenes & Streptococcus dysgalactiae	Summer Mastitis	IMM Preparations & Parenteral Therapy	

Streptococcal	<ol style="list-style-type: none">1. Reduced milk yield2. Forestrip milk with visible clots (blood stained curd)3. Swelling at lower portion of udder & teat.	
Staphylococcal	<ol style="list-style-type: none">1. Off coloured milk containing flakes and clots2. Abscess formation & infection upto deep interior of udder leading to inflammation of upper portion of udder.3. Patchy blue discoloration and coldness of the affected tissue	
E. Coli	<ol style="list-style-type: none">1. Abnormal milk (watery or blood tinged and drop in milk production)2. Excessive udder edema3. Fever more than 106°F along with diarrhoea and dehydration	
Pseudomonas	<ol style="list-style-type: none">1. Marked swelling of udder2. High body temp around 107 °F3. Greenish milk / Pinkish milk	
Mycoplasma	<ol style="list-style-type: none">1. Mastitis found in more than one quarter sometime in all four Quarters2. Sharp drop in milk production Leads to agalactia3. Watery milk with a few clots to a thick colostrum like material(sandy or flaky sediments in watery or serous fluid)	

The urine pH of nearterm prepartum cow is good indicator for prevention of MF.

By testing urine pH with pH paper,**if it is acidic it is safe..<7**

if it is alkaline,it is unsafe.. >8 supplement with Ammonium chloride or Magnesium Sulphate 25g initially and increasing Upto-100 gms daily for last 10days.

(Inducing Acidosis enhances Calcium Mobilization and Ionization)

Ref-Vet Medicine Otto M.Radostits et all. 9th Edi