

## INTRODUCTORY VETERINARY MEDICINE:

**Veterinary Medicine:** - Art and science of diagnosis and treatment of disease of animal and maintenance of health is called vety. Medicine.

**or**

The treatment of non-surgical diseases is called Medicine.

**Preventive Vety. Medicine:** It deals with the diseases of infectious origin and of contagions nature, its occurrence among animals population and its prevention & control by suitable and appropriate measures.

**Infection :-** When any harmful germ (bacteria, virus, protozoa, fungus, parasite etc.) enters in the body creates infection.

**Disease:** - Any deviation from the normal structure and function of the body part(s) or organ(s) is called disease or Deviation from physical, physiological and mental state of affairs and is caused by

(i) Intrinsic or (ii) Extrinsic factors

**Intrinsic factors:** Metabolic dysfunction eg. Ketonaemia, PPH etc.

**Extrinsic factors:**

**Mechanical**

— Trauma, wound & abrasion etc.

**Physical**

— Hot, Cold dust smoke etc.

**Chemical**

— Acid, alkali, poison etc.

**Infective factors**

— Virus, bacteria fungus, protozoa, helminthes etc.

**Types of diseases:** - Two types:

1. **Infectious disease:** - The diseases which are caused by virus, protozoa, fungus, parasite etc. i.e. which are caused by infection, are known as infectious disease. e.g. FMD, HS, Mastitis, Anthrax etc or are those caused by organism, infective in nature.
2. **Non-infectious disease:** - The diseases, which are not caused by virus, bacteria etc. are known as non-infectious diseases. e.g, Milk fever, Ricketts, Hburia, Tympany etc.

**Different kinds of animal diseases .**

1. **Infectious disease:** are due to a specific organism such as bacteria, virus, protozoa & fungus etc. Examples; Wooden tongue, tetanus & lumpy jaw etc.
2. **Contagious disease :** are those transmitted from one animal to another by direct or indirect contact. Example: FMD, HS etc. or which spread from one animal to other by direct contact or indirect contact through other agencies.

3. **Parasitic diseases:** are due to different kinds of internal & external parasites like stomach worms & mange.
4. **Deficiency diseases :** are due to different kinds of nutritional deficiencies. Example: Ricket, Osteomalacia etc.
5. **Metabolic diseases:** are due to some kind of upset in metabolism that effects important body processes. Example: Ketosis & Milk fever.
6. **Allergic disorder:** can be due to allergic reactions. Photosensitization, serum shock.
7. **Poisoning:** can occur in animals due to eating some thing that destroy tissues or interferes with normal body activities. Examples — Sweet clover diseases, Cyanide poisoning etc.
8. **Congenital:** defects are due to hereditary or improper foetal development. Example- Freemartins atrecia ani etc.
9. **Injuries :** are damages done to body by cuts, blows by other accidents result in broken skin surface, fractures etc.
10. **Miscellaneous troubles** — include those that can be classified under any other heading such as tumors, prolapsed of uterus, bloat etc.

**Types of infectious agents:** - These are mainly of two types.

1. **Bacteria:** - very-small structure which has cell wall. These are small structure elements having definite shape and size and can be grown in artificial medium. They are sensitive to antibiotics and can only be seen with the help of simple microscope.

**Types of bacteria:** - three types

- 1) **Streptococcus:** - Thebacteria which occur in chain shape.
- 2) **Staphylococcus:** - The bacteria which occur in the shape of bunch of grapes.
- 3) **Diplococcal:** - When bacteria are in pair.
2. **Virus:** - The living structure even smaller than the bacteria. These don't have any definite shape and these also don't have any cell wall

**Difference between Bacteria and Virus:-**

Bacteria	Virus
1. Small Size	1. Very Small Size
2. Can be grown on artificial medium	2. Can be grown on only on living medium
3. Can be seen by simple mircroscope	3. Can be seen by electron mircroscope
4. Sensitive to antibiotics	4. Not Sensitive

5. Have cell wall

5. No cell wall

**Examples of bacterial , viral & fungal diseases :****Bacterial:**H.S., B.Q., Glander, Actinobacillosis, Actinomycosis etc.**Viral :-** FMD Rinderpest, Hog cholera, Rabies, TDS etc.**Fungus:-**Moneliasis, Degnala disease**Parasites:-**These are very small creatures which are dependent on other elements for their survival. These parasites cause many types of diseases. The elements on which they depend are know as hosts.**Infestation: It indicates the presence of animal parasites in or on the body of the host animal Example: Lice, fleas, tapeworm flukes etc.****Types of parasites:**

- 1. Obligatory parasites:** - The parasites, which spend their whole life on others, are called obligatory parasites.  
e.g. Ascaris, liver fluke etc. .
- 2. Temporary parasites:** - which spend the some part of their life on others for their survival is called temporary parasites.  
e.g. Ticks etc.
- 3. Endoparasites:** - The parasites that are found in the body.  
e.g. Ascaris, Babesia, Liver fluke etc.
- 4. Ectoparasites:** - The parasites, which are, found outside the body.  
e.g. Lice, Ticks, Mange & mites, Fleas etc.

**Protozoa: - The living structures constituted of the single cell e.g. Trypanasoma, Babesia, and Anaplasma etc.****Metazoa:** - The living structure constituted of many cells i.e. is multicellular. e.g. Helminthes, Arthropods etc.**Helminthes:-**Round, longand flat worms are known as helminthes. These are of three types: -Nematodes 2. Cestodes .3. Trematodes (flukes)**Harmful effects of parasites: -**

1. They suck the blood from the intestines, leading to many types of diseases.  
Example , Hookworm
2. They interfere in digestion and absorption due to which the growth of host is stopped.
3. They increase agony in the animal. If they are present in more number they may do mechanical obstruction.
4. Some parasites secrets some secretions which help in anticoagulation of blood.
5. If they die inside the body, they release toxins.
6. If they are in stomach or intestines, they may cause diarrhea or constipation.
7. If they are present outside the body, they do itching leading to baldness.

8. They may cause nodules/tumors inside or outside the body.

### Susceptibility

It refers to the risk of being infected by a disease.

e.g. Canine distemper in pups, FMD in cattle, Glander in horses, B.Q. in young calves.

**Predisposing factor-** anything that makes the animal more prone to infection. Eg-habit(smoking) age(prostate cancer in older age)

**Resistance:** - There are some diseases, which don't occur in some particular species. This is called resistance. e.g. Horse is resistant to FMD.

**Carrier(vector):** - The animals in which the symptoms of any disease are not seen clearly but have disease causing agents.. Such animals spread the diseases in other animals by contact or by other means. They are called carrier of that disease.e.g. Brucellosis.

### Types of diseases on the base of Severity; -

1. **Per acute :-** In this type sudden death in few (2-3) hours.  
e.g. H.S., Anthrax etc.
2. **Acute:-** Death in 2-3 days.  
e.g. Surra, FMD etc.
3. **Sub acute:-** Less loss in this type as compared to acute death in 3-4 days.  
e.g. Mastitis.
4. **Chronic:-** The disease, which goes for a long time.  
e.g. J.D., T.B.

### Forms of diseases: - On the basis of clinic: -

1. **Clinical form:** - If the symptoms of the disease are seen clearly, called clinical form of disease.  
e.g. swelling of lymph nodes in Theileriasis.
2. **Sub clinical form:** - If the symptoms of the disease are not seen properly but the disease causing agents (bacteria etc.) are found in the body, the form is called sub clinical form of disease.

### Vector: -

The living factor which spread the disease in the healthy animals from the sick or diseased animals. They take bacteria from the blood of sick animal and when they suck the blood of healthy animal then put those bacteria in it due to which the healthy animal becomes sick.

e.g. Ticks, insects, mosquito etc.

### Immunity: -

The power to fight against any disease is known as immunity.

This is of two types: -

#### 1. Acquired Immunity 2. Natural immunity

### Acquired immunity: -

This is of two types: -

- **Active immunity:** -By vaccination ii After disease
- **Passive immunity:**-By Colostrums ii By antiserum

**Difference between active and passive immunity**

Active Immunity	Passive Immunity
1. It is for long time	1. It is for short time
2. It takes time to develop	2. It occurs immediately
3. It occurs by injection	3. It occurs by antibodies and colostrums & serum
4. It is strong	4. It is weak
5. It prevents the animal from a large number of diseases	5. It prevent the animal from a few no. of diseases.

**Note: - Immunity occurs due to the immunoglobulin (Ig) in the blood of animal.**

**Vaccination: -**

To prevent any disease some attenuated bacteria/virus, killed bacteria/virus, live bacteria/virus are injected in the body of animal in the form vaccine to produce the power to fight against that disease. This process is known as vaccination.

Simply, vaccination is done to improve the immunity of the animal. e.g. DNA, RNA subunit vaccine.

**Process of Control of infection :**

- 1. Sterilization:** is the process of destruction of all forms of micro-organisms. It is mostly done through heat and divided into moist heat and dry heat.

Moist Heat	Dry Heat
1. Autoclave	1. Red hot
2. Boiling	2. Flaming
3. Pasteurization	3. Hot air oven

**Disinfectants :** are the agents which are too toxic to be applied to the tissues of the host but which are used in destroying contaminating inanimate objects e.g. drain, faecal matter building; surgical instruments & apparatus etc. or freeing of objects from harmful germs. Disinfectants are to be used depending upon the nature of organisms. Some organisms are killed in acid media and therefore acids has to be used for them. Some virus is killed by alkali (like Rabies, FMD etc). Disincentive agents are :

1. Washing Soda ( $\text{NaCO}_3$ )

2. Bleaching powder or Soda

### 3. Phenol

### 4. Fumigation

**Antiseptics:** An agent which prevents septic i.e. prevents the growth of infective agents.

**Examples:**

1. Oxidizing agents – H<sub>2</sub>O<sub>2</sub>, KMnO<sub>4</sub>, Chlorine Iodine Iodoform, etc.
2. Reducing agents – So<sub>2</sub>, Formaldehyde
3. Metallic compound – Mercuric chloride and iodine
4. Acids & Alkalis – Boric acid & various soda etc.
5. Alcohol (70%) (ethyl alcohol)
6. Phenol & cresol
7. Various dyes – acriflavin, brilliant green
8. Detergents – Various soaps
9. Cetrimides
10. Antimicrobial agents – various antibiotics and chemotherapeutics.

**Antibiotics:** Chemical substances elaborated by various species of micro-organisms such as fungi actinomycetes and bacteria which suppress the growth of other micro-organisms and may ultimately destroy them. The antibiotics can be classified based on mechanism of action.

1. Drugs that inhibit bacterial cell wall.  
e.g. Penicillin, cephalosporin & betalactams
2. Drugs that effect on cell membrane permeability.  
e.g. Antifungals, Nystatin & Amphotericin B.
3. Drugs that effect bacterial ribosomes (50°S) subunit.  
e.g. Chloremphenicol, Erythromycin and Tetracyclines.
4. Drugs that bind to 30°S Ribosomal subunit  
e.g. Aminoglycosides, Streptomycin & Gentamycin.
5. Agents that effect the Nucleic acid metabolism.  
e.g. Refampicin, Nalidixic acid, Metronidazole & Quinolones.

**General methods for prevention and control of infectious diseases:-**

**1. General hygiene and disinfections: -**

The space where animals are kept should be disinfected to reduce the probability of diseases. For this purpose sunlight, heat or chemicals (phenyl, Na<sub>t</sub> CO<sub>3</sub> 4%) are used.

**2. Isolation and Segregation: -**

The diseased or sick animals must not be kept along with the healthy animals, so that the disease causing bacteria or virus etc. may not reach to the healthy animals. Water and food is given separately.

- a) Affected animals should be given antibiotics

- b) Susceptible 'should be given antiserum
- c) Healthy animals should be given vaccines.

MRCVS MRCVS MRCVS

### 3. Quarantine: -

The animals, which are brought from the foreign countries or other states or distant places, must not be kept along with other animals. They are kept separate so that they may bear the environment. If there is any symptom of any disease in the sub clinical stage, it is diagnosed and treated well. After some days (5-6 days) they are mixed up with other animals.

### 4. Disposal of Carcass: -

The dead body of animals is called carcass. There are two methods of disposal of carcass: - a) Burial of carcass

b) Burning of carcass. If any animal is died of Anthrax then its postmortem must not be done, because this is a zoonotic disease. When the bacteria of this disease come in the contact of air or goes to sand then a thick wall is formed around them and bacterial spores are formed. These spores present in the environment for many years and these cannot be destroyed easily. Spores cannot be killed by boiling may spread disease in other animals and even in the human beings also. That is why, the animal died of Anthrax must be buried deeply and some lime is put/spread on it. Burning of the carcass is the best way.

### 5. Elimination of carrier: -

If any animal is the carrier, it should be destroyed immediately. It is tested or diagnosed with the help of antigens.

### 6. Regular deworming and tests of various diseases:

The animals are to be given deworming medicines regularly, so that any worm may not live in the stomach or intestine. Some test should also be done from time to time for some diseases. e.g. mastitis test, agglutination test for brucellosis, tuberculin test for T.B., Johnin test for J.D. etc.

### 7. Vaccination:-

vaccination should be done in some diseases at proper time e.g.FMD, HS, BQ, Rabies, Sheep pox, Enterotoxaemia etc.

### Plan of clinical examination of animals: -

**History:** - History is very useful in the diagnosis of the disease. The nature of the disease may be detected by the history. In the same way, by asking other question of diseases such as the disease is in your animals or in other animal also, we can say that the disease is infectious/contagious or non-infectious/non-contagious. By asking about the feeding of

the animal, the case of food poisoning and impaction may be detected. The cases of diarrhea, chronic and recurrent tympany can be diagnosed by the history.

## 2. General Examination: -

### 1. Description of the animal: -

- a) **Species:** Glanders in horses only Hog cholera in swine only
- b) **Age:** Canine distemper in pups only  
B.Q. in animals of 6 months to 2 years age.  
J.D. in animals above 2 years age.
- c) **Sex:** Urolithiasis in bullock.

### 2. Habit, Posture and Movement: -

- i. **Excited:-** rabies, surra, tetanus, ketosis .
- ii. **Dullness:-** anorexia, fever, liver damage
- iii. **Continuous standing:-** peritonitis, FB syndrome, traumatic pericarditis, pneumonia, pain in chest, arihritis
- iv. **Legs held apart :-** traumatic pericarditis, pneumonia, and foreign body syndrome.
- v. **Head towards flank:-** Milk fever, Colic
- vi. **Circular Movement :-** Brain abscess, brain hemorrhage, gid, listeriosis, and surra.
- vii. **Jerky Movement :-** string halt, ergot poisoning in sheep.
- viii. **Difficulty in Movement:-** arthritis, rheumatism, paralysis, hygroma (fluid in joints)

### 3. Examination of skin: -

- i) **Rough hair coat:** - fever, ectoparasites, ticks, mange and mites.
- ii) **Alopecia (baldness):** - Mange, mites, deficiency of iodine, in calves due to more administration of sulphonamide drugs
- iii) **Hyperidrosis:** - more sweating than normal is known as hyperidrosis and is seen in case of pain, rabies, tetanus, severe infection, weakness, fever and colic in equines.
- iv) **Hide bound condition:** - animal becomes weak, ribs are seen. In this condition the muscles reduce and skin sticks with the bones. Example — J.D. and T.B.
- v) **Emaciation:** - continuous reduction of body wt. In the cases of J.D. and T.B.
- vi) **Elasticity of skin:** - loss of skin elasticity is seen in J.D and T.B.
- vii) **Oedema can be seen in following conditions: -**  
Traumatic pericarditis , Snake bite , Anthrax in pigs, Malignant oedema Fasciola (bottle jaw) due to clostridial infections (malignant oedema) , Liver fluke condition.

### 4. Examination of mucous membrane: -

- (i) **Yellow:** - anemia, jaundice, RBC lysis
- (ii) **Frequent blinking of eye:** - deficiency of Mg
- (iii) **Lacrimation discharge:** - (water in eyes) glanders, strangles, and influenza.

(iv) **Nasal discharge:** - not specific But mainly seen in respiratory diseases

## 5. Systemic examination: -

Examination of digestive system, Circulatory system , Urinary system, Respiratory system, Musculoskeletal system , Nervous system , Reproductive system

## 6. Specific examination: -

- (i) Johnin test for J.D.
- (ii) Tuberculin test for T.B.
- (iii) Singleintra dermal (SID test)
- (iv) Double intra dermal (DID test)
- (v) Stormont test and short thermal test
- (vi) Mallein test for glander.
- (vii) Blood test, urine test, faecal test. Milk test etc.

## 7. Special examination: -

- (i) X-ray
- (ii) ECG (Electro Cardio Graph)
- (iii) EEG (Electro Encephalograph)

## 1. STOMATITIS

**Definition:** - The inflammation of buccal cavity characterized by anorexia and excessive salivation is called stomatitis.

**Etiology:** -

### 1. Physical cause

- a. Hot and cold water and food
- b. Irregular molars and premolars
- c. Foreign body in mouth e.g. awn

**2.Chemical cause:** - If the animal is given irritant drug without dilution or takeaccidentally.

e.g. T.T. oil, caustic soda, chloral hydras, formaline etc.

### 3.Bacterial cause/Bacterial infections: -

a. Actinomycosis b. Actinobacillosis

4. **Viral infection:** - FMD , Rinderpest , Blue tongue (sheep)

5. **Fungal infections:** - moniliasis/candidiasis

**Symptoms:** -

1. Difficulty in taking food which leads to anorexia
2. Pain while chewing food
3. Excessive salivation
4. Inflammation of lymph nodes of head and neck
5. Increased thirst

6. Off smell from respiration.

**Diagnosis: -**

1. Examination of buccal cavity — redness of mm, tongue gums & vesicles.
2. Examination of molar and premolars
3. Foreign body in mouth awn etc.
4. By history.

**Treatment (First aid): -**

1. Wash the mouth with Candy's lotion 1:1000 solution or 2% borax or 2% Copper Sulphate, 1% alum lotion or 1% sulphonamide in glycerine. After that some Boroglycerine or Tr.myrrh is applied in the mouth.
2. If molars and premolars are irregular then teeth arc cut with the help of tooth cutter and tooth is rasped with tooth rasp.
3. If there is anorexia, stomachic powder 50-100g should be given.

Composition of stomachic powder

Sodabcarb 180g

Sodium chloride 180g

Pulv nux vomica 24g

Pulv gentian 48g

Divide in 6 parts, mf haust drench c treacle.

4. If stomatitis is due to bacterial infection, then the animal is given broad-spectrum spectrum antibiotics

e.g. Terramycin 30ml I/M

If stomatitis is due to actinobacilliosis or actinomycosis, the animal is given potassium iodide 8gm daily X 7 days.

## 2. PHARYNGITIS

**Definition:** - Inflammation of pharynx is called pharyngitis which is characterized by coughing, pain while eating food, anorexia, excessive salivation and nasal discharge.

**Etiology:** - same as that of stomatitis, pharyngitis is also seen in case of strangles in horses, pharyngeal anthrax in pigs.

**Symptoms: -**

1. Anorexia
2. Pain while eating food and in serious case food comes out through the nose.
3. Difficulty in respiration and if the throat is compressed then coughing.
4. Excessive salivation.
5. Nasal discharge in which blood may also come.

**Diagnosis:** - By history and symptoms

**Treatment ( First aid ):** -

1. Wash the mouth with candy's lotion
2. Antiseptic inhalation Tr. Benzoin co., T.T.oil, Eucalyptus oil **50-100** nil/gallon of warm water.
3. Sulpha drugs - 200 mg/kg boot X 3days s/c or slow I/v
4. Broad spectrum antibiotics — terramycin
5. Expectorants in saline electuary  
Amm.chloride 16g  
Pot. Nitras 8 g
6. If pain, then use novalgin, analgin, cemizol,
7. Soft diet (gruel)

### 3. URT (UPPER RESPIRATORY TRACT) INFLAMMATION

**Definition:** - This includes laryngitis, tracheitis and bronchitis, which are characterized by coughing, difficulty in respiration and sound in respiration.

**Etiology:** -

1. Change in season
2. By infections
  - a. **Cattle** — IBR (Infectious bovine rhinotracheitis) virus
  - b. **Calf** — calf diphtheria
  - c. **Sheep** — corynebacterium pyogens bacteria
  - d. **Horse** — Equine viral rhinopneumonitis (EVR) and strangle
3. URT inflammation may also occur due to allergic conditions such as allergic bronchitis bronchial asthma
4. Environmental irritants.

**Symptoms:** -

1. Dry cough — harsh — moist cough
2. If there is more inflammation *then* infection may reach to the lungs leading to pneumonia
3. Nasal discharge may come.
4. Difficulty in respiration and snoring sound

**Diagnosis:** - By history and symptoms

**Differential diagnosis:**

Pharyngitis	URT Inflammation
1. Difficulty in	1. Not difficulty

engulfing the food 2. Feed may come out through the nostrils	2. Not so
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**Treatment ( First aid ) : -**

- If the URT inflammation is due to allergy, the animal is given antiallergic substances .

Inj. Avil	}	10ml, I/m
Inj. Phenergan		
Inj. Anthisan		

- If there is difficulty in respiration, Dexona — 6 ml I/m may be given
- Inj. Coramine 6 ml I/m, I/v or I/cardial may be given in serious case.
- If dry cough, Codeine phosphate tabs. 8-10 bid in S.E.
- If chronic cough, sodium iodide pot. Iodide 8-10 g orally may be given.

Note: - Drenching be avoided in respiratory disorders otherwise drenching pneumonia may occur.

**4. PNEUMONIA****Definition: -**

Inflammation of lungs, which is characterized by dyspnoea, fever, nasal discharge, coughing and pain-in chest.

**Etiology: -**

1. **By bacteria:** - Streptococcus, staphylococcus, corynebacterium, mycobacterium, salmonella, pasteurilla (H.S.). In equines also in strangles and glanders.
2. **By virus:** - viral pneumonia  
Cattle para influenza  
equine influenza and EVR
3. **By parasites :** - By ascaris namely neoascariasis vitulorum.
4. **By fungus :** - Histoplasma
5. By cold
6. If medicine is given by wrong method that is drenching by holding the tongue, then medicine goes to respiratory tract leading to drenching pneumonia.

**Symptoms: -**

- Like URT inflammation
- Shallow respiration

- Dyspnoea
- Nostrils wide during respiration
- Temp. 103 — 106 F due to which pulse rate may increase
- Anorexia and decreased milk yield
- Constant standing due to pain in chest area.

If animal is not treated in the last stage temperature becomes subnormal.

**Diagnosis: - By history and symptoms**

**Treatment ( First aid ): -**

- Like URT inflammation
- Prevent from cold and direct cold air. If pneumonia is due to cold then

(i) Fomentation of chest

(ii) Massage of T.T. oil on chest with mustard oil

(iii) Soft diet should be given

Broad spectrum antibiotics

- Sulpha drugs

Sulfamezathine

Sulfamethazine

Sulfadimidine

} 0.2 g/kg boot I/v or S/c

- Expectorants: -

Amm. Chloride

10-15g

Pot. Nitras

4-8g in

Diuretic mixture or febrifuge mixture

Composition - amm. Chloride

16g

Mag. sulphate

180g

Pot. Nirtras

8g

If pain novalgin, cemizol

30ml I/M

## 5.- CHOKE (OESOPHAGEAL OBSTRUCTION)

**Definition: -**

Any obstruction in the esophagus is called choke, which is characterized by difficulty in engulfing, salivation and coming out of feed from nostrils.

**Etiology:-**

1. Foreign body: - Apple, pear, potato, sweet potato, turnip, carrot, radish or any other material. When choke is due to FB, it is called **acute esophagealobstruction**. This type of choke occurs mostly in the cervical part of oesophagus and less in thoracic part.

2. Due to abscess or tumor or swelling of mediastinal lymph nodes (mainly in case of TB). This type of choke is known as **chronic esophageal obstruction** and it occurs mostly in the thoracic part of esophagus.

**Symptoms: -**

1. Off feed
2. Coughing
3. Salivation.
4. Coming out of feed from nostrils
5. Head and neck extended
6. Swelling of oesophagus at the area of obstruction
7. The gas formed in rumen due to obstruction is not expelled. This accumulation of gas in rumen may lead to tympany, dyspnoea and death also

**Diagnosis: -**

1. By history and symptoms
2. By probang or stomach tube.  
Probang is put in mouth and stomach tube in nostrils, if this can not go to rumen/stomach it means there is obstruction
3. By external palpation
4. By X-ray (for TB and abscess)

**Treatment ( First aid ) : -**

1. Oesophagotomy: - Foreign body is taking out from the oesophagus by cutting it. For this, inj. Siquil 5ml I/m, Novalgin 30ml I/m Atropine sulphate 6ml S/c is given.
2. If TB: Destruction of animal by euthnesia.
3. Dextrose (5%) 4-5 bottles I/v.
4. Giving excess of water may result in spontaneous recovery.
5. **INDIGESTION**

**Definition:-**

A minor disturbance in the gastrointestinal function is called indigestion, which is associated with the change in feed and by overeating and is characterized by less regurgitation, less ruminal movements\_ and anorexia.

**Etiology: -**

1. Change in feed or by giving spoiled food or frozen foods, introduction of urea to a ration.
2. Grains — carbohydrates produce lactic acid in rumen due to which the ruminal movements reduce leading to indigestion. "

3. More administration of antibiotics. If antibiotics are used in excess then they also kill the useful bacteria which synthesis vit.B Complex. In this case ruminal pH is also changed. Both of these factors lead to indigestion.
4. Deficiency of calcium
5. Less intake of water.

**Symptoms: -**

1. Anorexia
2. Decreased ruminal movements and regurgitation
3. Constipation/diarrhea.
4. Temperature, pulse rate and respiration rate are normal
5. Dullness
6. Dehydration due to acidosis or withdrawal of water which may lead to shunken eyes. –
7. Moderate drop in milk production.

**Diagnosis: -**

1. By history and symptoms
2. Ruminal pH (falls to acidic)

**Treatment ( First aid ): -**

1. Stomachic powder such as digestovet, HB, Pashurakshak Pachvardhak 50-100 gm orally

Composition of stomachic

Soda bi carb	180g
Sodium chloride	180g
PNV	24g
Pulv Gention	48g

Divide in 6pts one such dose sid. orally

2. Pulv nux vomica 4-8g orally
3. Sodabcarb 50-100g (if pH is 4.0-4.8) If pH-9.0-10.0 Glacial acetic acid 5% 1 litre or vinegar sol. 200ml.
4. Liquor strychnine 1-2 ml s/c
5. If calcium deficiency then cal. Preparations Mifex, Calciumborogluconate, Thiactal, Calborol (250ml I/v slow and 200ml s/c) Cal. preparations increase the ruminal movements.
6. Tab. Yeast 50-100 tabs.bid oral.
7. Tab. Liv 52 10-20 tab. Bid powder liv.52 - 10g bid
8. Inj. B complex 10ml I/m
9. Tab. Anorexon or tab. Rumenton 2 tab. Bid.

## 7. TYMPANY / BLOAT



Ammonia aromaticus 30ml

Mustard oil 700ml Mft haunt

5. Formaldehyde : 10ml + water : 1-2 litres orally
6. Chloral hydras: 15-20 gm + water : 500-1000ml orally for pain
7. Carminative mixture: C&B 30ml TDS , S&G 5-15ml TDS
8. Pulv ginger : 50-100 gm orally
9. Tympol powder : 100gm orally
10. Tr.Asfoetida : 30-60ml orally, pulv asfoetida : lgorally
11. Boatasil : 100ml- I/Ru
12. Use of trocar and cannula.

## 8. DIARRHEA (LOOSE MOTION )

### Definition: -

When frequency of defecation is more than normal, it is called diarrhea.

When mucous or blood comes in faeces, then it is called dysentery.

### Etiology: -

1. By giving spoiled or frozen food.
2. Irregular molars and premolars
3. Chemical poisoning e.g. BHC/DDT, Malathion, Sumithion, Lead, Arsenic.
4. By infection (infectious diarrhea)

#### a) Bacterial diarrhea : due to following bacteria

- i. Escherichia coli
- ii. Salmonella
- iii. Mycobacterium tuberculosis (in T.B.)
- iv. Mycobacterium paratuberculosis (in J.D.)

#### b) Viral Diarrhea : Myxo virus (in rinderpest)

#### c) Parasitic diarrhea :

- a) Young calves : Neoscaris vitulorum
- b) Adult cattle : Strongylus
- c) Horse and camel : Strongyles
- d) S and G : Liver fluke - Fasciola hepatica
- e) Poultry : Coccidia (Eimeria)

### Symptoms:

1. Faeces on perineal region.
2. Dry muzzle, dehydration, shunken eyes, red conjunctiva
3. Animal will be dull and weak.
4. Kicking on belly due to pain in abdomen.
5. Temp. is normal, if diarrhea is chronic then temp. subnormal. If diarrhea is due to infection then high temp. C.-fey ear

### Diagnosis: -

1. By history and symptoms
2. By faecal exam. (eggs and parasites will be seen)

### Treatment(First aid): -

1. Astringent powder: 60gm orally bid in adult cattle antidiarrhoic powder

Kaolin	:	15gm
Cal. Carbonate	:	15gm
Pulv catechu	:	15gm

Pulv opium : 2gm orally

2. Tab. Diorex' :15-30 tabs. . Tab. Neblon :15-30 tabs.
3. Pectilin: 30-40 ml TDS or Diorden powder : 50-60gm
4. KMnO4 solution 1 litre concentration 1g : 1000ml of H2O
5. If diarrhea is due to bacteria:

Inj. Terramycin	}	5 -10 mg/kg between I/M
Inj. Ampicillin		
Inj. Chloremphenicol		

6. Diarrhea is due to parasites :-

Piperazine adepate : 100-200 mg/kg bwt. Orally (mainly for neoscras)

For strongyles, liquid Banminth : C&B – 60ml, Camel –100ml orally

Tab. Banminth : C&B 2tabs. Camel – 3 tabs orally

Nilverm : 35mg/kg

Tetramisol : 15mg/kg

Thiabendazole : 44mg/kg bwt orally

For liver fluke,

Tab. Distoden 1tab/sheep oral

Zanil 1ml/kg bwt oral

7. If dehydration – dextrose 5% 3-4 bottles I/V

8. To check diarrhea – Molars/premolars for their irregularity – them with the help of tooth cutter or rasp them with the help of tooth rasp.

## 9. TRAUMATIC PERICARDITIS (RETICULOPERITONITIS)

### Definition: -

The inflammation of pericardium is known as pericarditis. If the inflammation is due to any sharp object such as needle, nail etc.; it is called traumatic pericarditis.

### Pathogenesis: -

When animal eats any foreign sharp object like iron nail, needle etc accidentally, then this object goes in to the reticulum via rumen. This foreign body gets pricked into the reticulum because the shape of reticulum is like honey comb. Then, it causes inflammation in the reticulum. It is known as traumatic reticulitis. In this condition, indigestion occurs. Animals feel pain in changing the posture (sitting and standing). Milk production lowers down.

Diaphragm is near to the reticulum, needle may rupture the diaphragm and some part of reticulum goes into thoracic cavity. This condition is called diaphragmatic hernia (DR). In this condition, recurrent tympany is seen, which can be cured by giving antizymotic drugs. But after some time it reoccurs. Sometimes, from reticulum the needle goes towards heart and caused inflammation of the outer layer of heart

(pericardium). This condition is known as Traumatic pericarditis (T.P.). Sometimes, the needle punctures endocardium, then it is called T.endocarditis. These conditions are more seen pregnant animals because in pregnancy, there is pressure of foetus on rumen / reticulum.

If the needle punctures the peritoneum the condition is known as reticuloperitonitis.  
Foreign Body (needle) - Rumen -Reticulum -Diaphragm - Heart Pericarditis / Endocarditis

1. Indigestion
2. Pain while sitting and standing
3. Milk yield reduced

If the foreign body is sharp ended and animal slip suddenly, then foreign body may puncture the heart leading to sudden death.

**Etiology:** - Any sharp object.

**Symptoms:** -

1. Complete anorexia
2. Sudden fall in milk yield
3. In early stages high temp.  $103^{\circ}$  -  $104^{\circ}$  F, increased pulse rate, increased ruminal
4. Jugular vein prominent/pulse in jugular vein.
5. Constant standing, arched back, reluctant to move.
6. Brisket edema.
7. Pain in sudden turn in left side.
8. Recurrent tympany
9. Uneasy gait
10. Wide apart fore limb while moving (abducted elbows)

**Diagnosis:** -

1. By history and symptoms
2. By blood exam. (DLC) - Neutrophilia (neutrophils > 60%)
3. By X-rays

**Treatment (First aid ): -**

1. Surgical operation after X-ray. If the needle is in reticulum rumentomy
2. Course of antibiotics e.g. Dicrysticin, Combiotics Munomycin etc
3. Course of analgesics. E.g. Novalgin, Analgin, Feva, Diclofenac sodium, Cemizol etc. dose 20ml I/m x 3 days
4. Before operation the animal is kept on inclined surface
5. Luxatives and less feed intake.

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## 10. RHEUMATISM

### Definition: -

A disease of muscles, tendons, joints, ligaments, bones resulting in pain and disability to move.

### Etiology: -

1. Change in season (mostly in rainy season)
2. By keeping the animal at wet space and where sunlight is not reached.
3. By virus: This condition is seen in Ephemeral fever or three day sickness i.e. TDS disease.
4. By deficiency of phosphorus.

### Symptoms: -

1. Pain in any part of the body.
2. Shifting lameness - chronic
3. Stiffness of head and neck
4. Hard muscle.

### Diagnosis: -

1. By history and season
2. By symptoms

### Treatment (First aid): -

1. Course of analgesic
2. Esgipyrin - 15-20ml deep I/m on alternate day
3. Soda salicylas with iodine or pot.iodide : 20-30ml I/m
4. Massage of T.T. oil, Rumalya cream, medicream, mustardoil.
5. Aspirin 10g  
Soda salicylas } 5g orally  
Soda bicarb. 30g
6. Animal should be kept on warm place.
7. Hot application exercise, warmth etc.
8. In phosphorus deficiency : Sodium acid phosphate : 50g orally or Vet. Phos. AD3 plus Or Cal. Phos. 50gm x 20 days orally.
9. If not cured by above medicines and methods then give Betnesol or Dexona : 6 I/m

## 11. COLIC IN HORSES

### Definition: -

A syndrome caused by the disease of Alimentary tract and it is characterized by sub acute or acute abdominal pain.

It is of two types :

### 1. True colic 2. False colic

1. **True colic:** -When abdominal pain is due to disease of alimentary canal.
2. **False colic:** - When abdominal pain is not due to the disease of alimentary canal but due to other diseases such as hepatitis, abdominal obstruction, haemorrhage, peritonitis, tetanus etc.

Colic is more seen in horses because :

1. The size of stomach is smaller as compared to the small and large intestine. Size of large intestine is much larger
2. The cardiac end of stomach is thick and fibrosed due to which horse is unable to vomit.
3. The shape of duodenum towards pyloric end is of 'S' shape.

### Types of colic:

1. Spasmodic colic
2. Impactive colic
3. Flatulent colic

### a) SPASMODIC COLIC(intermittent colic) Etiology: -

Due to increase in spasms of intestine which may be due to excitement and due to excessive exercise and giving water to animal without providing rest.

### Symptoms: -

1. Restlessness
2. Kicking on belly
3. Rolling on ground
4. No urination and defection
5. Pulse rate increase, profuse patchly sweating
6. Violent nature of horse

### Diagnosis: - By symptoms

### Treatment (First aid): -

1. Chloral hydras : 30gm + Mustard oil 750ml(by stomach tube)
2. Inj. Novalgin/Analgin/Balargan : 20ml I/m

3. Atropine sulphate : 6ml I/m or S/c
4. Tr. Morphine : 30 ml orally
5. Inj. Aminopromazine — 10-30 ml of 3% soln. I/v

#### **b. IMPACTIVECOLIC (The impaction of caecum and colon)**

##### **Etiology: -**

Due to sand in food and ingestion of dry fodder, sudden change in diet. Poor teeth, old age, debility (weakness), indigestible roughage in feed, overfeeding etc. may also cause impactive colic.

##### **Symptoms: -**

1. Restlessness but pain is less as compared to the spasmodic colic.
2. Kicking on belly and rolling on ground.
3. Pulse rate and temp. will normal.
4. Constipation and animal look towards right flank.
5. Sometimes, dog sitting posture is also seen.
6. Many times urine may come with faecal material.

##### **Diagnosis: -**

1. By symptoms
2. By rectal exam — impacted material

##### **Treatment ( First aid ):**

1. Soap water enema : 50g/litre
  2. Mustard oil : 750ml orally
  3. Saline purgatives : Mag sulph : 300-400 gm orally in H<sub>2</sub>O
  4. Inj. Novalgin/Baralgin : 20-30ml I/m
  5. Inj. Carbachol : 1-2ml Sic
- Before giving this injection administer mustard oil 1000ml by stomach tube because this inj. increases the movement of intestines and can rupture them.

#### **C. FLATULENT COLIC**

##### **Etiology: -**

When leguminous plants such as berseem or grams are fed in large quantity to the animal, they cause tympany in the caecum and colon due to the fermentation. The animal is unable to expel gases from intestines. This accumulation of gas in the intestines causes pain.

##### **Symptoms: -**

1. Distension of right flank.
2. Drum beating sound from right flank.
3. No urination

4. Difficulty in respiration but temp. will be normal. Increased pulse rate.
5. Restlessness and kicking on belly.

**Diagnosis: - By symptoms**

**Treatment (First aid): -**

1. Colley draught

- |                         |                       |
|-------------------------|-----------------------|
| a. T.T. Oil             | 60 ml                 |
| b. Mustard oil          | 750ml By stomach tube |
| c. Tr. Asafoetida       | 60 ml                 |
| d. Spt. Amm. Aromaticus | 60 ml                 |

2. Chloral hydras: 15-30gm + Mustard oil: 750ml (by stomach tube)

3. Irtj. Novalgin/Baralgin 20 ml I/M.

4. In emergency cases trocar and canula can be used.

5. Surgical operations for acute/chronic intestinal obstructions, torsion of intestines anintusseption etc.

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## METABOLIC DISEASES

### 1. MILK FEVER (PARATURIENT PARESIS)

#### Definition:-

An afebrile disease occurring mostly at or soon after parturition manifested by circulatory collapse, generalized paresis & depression of consciousness.

#### Etiology:-

1. Hypocalcaemia i.e deficiency of calcium in blood. Normally the level of calcium in t blood is 10mg/100 ml of blood but in the case of milk fever, this level of calcium is reduced to 3-7 mg/100ml of blood.
2. Sudden onset of profuse lactation
3. Mostly occur in 5-9 years age.

#### Symptoms:-

1. Stage of excitement
2. Stage of sternal recumbancy
3. Stage of lateral recumbancy

#### I) Stage of excitement:-

Animal is excited and off feed.

1. Pupil dilates muscles stiff, animal is unable to walk if collapse then the animal unable to stand due to muscles tremors.
2. Generally temp normal but sometimes 103-104 F

#### II) Stage of sternal recumbancy:-

1. No excitement, dullness, depresses.
2. Animal is lying on sternum area
3. Temp subnormal i.e. Hypothermia
4. Decreased ruminal movement — complete anorexia
5. Normal respiration rate, pulse rate weak
6. Difficulty in giving I/V due to weak pressure of blood in veins.
7. Dry muzzle, cold skin & ear
8. Slight blindness, muscles of anus relax-constipation.

#### III) Stage of lateral recumbancy:-

1. Comatose- Unconsciousness
2. Blood circulation is weak
3. Subnormal temp.
4. Muscles relax and animal assumes lateral recumbency
5. Tympany & death within 12-24 Hrs if not treated

**Diagnosis:-**

1. By History
  - i) Milk yield ii) Time of parturition iii) Sudden onset of colostrums/milk.
2. By typical symptoms (All 3 stages)
3. Blood examination- hypocalcemia.

Differential diagnosis::

Ketosis, Metritis. Acute indigestion, Gross tetany, Traumatic gastritis Pneumonia- may also occur as complication.

**Treatment (First aid):-**

1. Calcium preparation Mifex, calborol, calcium borogluconate, Thiocal etc 450 ml half slow IN & half S/C (repeat after 1-2 hrs).
2. In phosphorus deficiency,
  - Sod. Acid phosphate: 50-80 gm bid orally

**2. RICKETS**

**Definition:** A disease of young calves caused due to the deficiency of Ca, P & vit.D characterized by enlargement of joints and bending of bones.

- Etiology:**
1. Due to deficiency of Ca, P & Vit.D in young animals e.g. calves, pigs, lambs, pups & poultry due to which calcification of bones can not take place
  2. Lack of sunlight.
  3. Diet rich in oat & maize

**Symptoms:**

1. Enlargement of joints.
2. Bending of long bones of animals towards outside
3. Shifting lameness & tries to sit down.
4. Weakness of teeth.
5. Ricket rosary or rosy beads (knot on costocondrial junction on ribs of animal)

Diagnosis: By symptoms

**Treatment (First aid):**

1. Osteo calcium syrups ltsf bid in dogs
2. Tab. Calcium sandoz. 1-2 tid x 7 days in dogs .
3. Inj. Mifex 20 ml s/c in young animals x`4 days
4. Minerals mixtures . Vetphos or minimix 5-10 g x 1 month
5. Sod acid phosphate 10 —15 g in calves & 5 g in dogs
6. Inj. Caldee 12 calf 5 ml, dog 1ml I/ M for absorption of ca. & phosphorus.

**3. OSTEOMALACIA**

**Definition:**

A disease of adult animals caused due to the deficiency of Ca, P & vit.D characterized by weak bones.

**Etiology:**

1. By giving diet deficient in Ca, P & vit. D due to which decalcification of bones starts. calcium of bones dissolve and goes to other parts of the body leading to weakness of bones.
2. Hereditary factors.

**Symptoms:**

1. Loss in appetite, poor growth
2. Allotrophagia / pica
3. Lameness
4. Decrease milk production
5. Infertility, if the disease is due to deficiency of phosphorus.
6. Cracking sound from-bones
7. Spontaneous fractures & sometimes anaemia

**Diagnosis:**

1. By Symptoms
2. Herd history of low fertility

**Treatment (First aid ) :**

1. Calcium preparations :  
Mifex, thiacol, calborol, cal. borogluconate  
150 ml s/c x 4-5 days in cattle
2. Min. mixture: 100 gm daily orally for 20-30 days.
3. Bone meal : 50 gm daily for 30 days orally  
Sodium acid phosphate: 100 gm x 7 days  
Inj. Caldee-12      30 ml I/M weekly

**Control:**

Animal should be given phosphorus rich diet Regular exercises.

**4. HAEMOGLOBINURIA****Definition :-**

Primarily a disease of high milk yielding cows & buffalos, that occurs after 4 weeks of parturition & it is characterized by intravascular haemolysis (breaking of RBC in arteries & veins), anemia.

**Etiology:**

1. Hypophosphate: i.e. deficiency of phosphorus. Normal level of phosphorus in blood is 4-7 mg/100 ml of blood but in case of Hb uria this level reduced to 1-3 mg/100 ml of blood.

2. Deficiency of copper & Excess of Molybdenum.
3. By giving diet rich in cruciferous plants e.g. Kale, Rape etc.
4. Feeding of Cabbage, mustard leaves.
5. Cold water intake in winter season.

**Symptoms:**

1. Urine dark coffee colour / brown colour due to the presence of Hb in urine.
2. Tem. normal but pulse rate increases -> 120/minute.
3. Anorexia
4. Constipation, Allotrophagia/Pic.)
5. Respiration rate increases leads to Anoxia
6. Milk production decreases
7. Colour of conjunctiva will be white or light yellow due to anemia
8. Death due to anemia & anoxia (deficiency of oxygen)

**Diagnosis:**

1. By history of lactation, parturition, milk yield, type of diet & cold water intake
2. By symptoms - Dark coffee colour of urine but normal temp.
3. Exam of blood - Hb level reduced
4. Exam of urine - Protein & Benzidine test will be +ve.

**Differential Diagnosis:-**

1. Babesiosis
2. Leptospirosis
3. Poisonous snake bite
4. Phenothiazine medicine
5. Onion poisoning
6. Burns
7. Haematuria

**Babesiosis :-**

- Temp. will be high
- No constipation
- Blood smear – protozoa +ve (Babesia)

**Leptospirosis :-**

- Bacterial disease
- High temp.
- Blood in milk
- Blood smear - No protozon

**Poisonous snake bite:-**

- By history of snake bite
- Blue swelling - Fang mark

**Phenothiazine Medicine :- (Phenovis) :-**

- Protein & Benzidine test will be -ve
- Hb level normal

**Onion poisoning: - By history**

**Burns :-**

- By symptoms
- Kidney failure

**Haematuria :-**

Hb uria	Haematuria
1. Hb in blood	1. Complete blood in urine
2. Colour of urine dark coffee color or brown colour	2. colour of urine bright red

3. If we keep urine sample in test tube for 30-60 minutes without disturbing & stirring. In case of haematuria - Red colour sediment will settle down in test tube.

**Treatment (First aid) :**

1. Sodium acid phosphate - 80 g orally & 80 g slow I/V till recovery in 500 ml dw bid.
2. Inj. Tonophosphon : 30 ml I/M
3. Copper sulphate : 2 gm in 2 lt; of water orally
4. Extra pure CuSO<sub>4</sub>  
500 mg in 500 ml, 5% dextrose I/V
5. Caprostat : 50 nil in 500 ml dextrose
6. Unipamba or PAMBA : 30 ml in 500 nil dextrose
7. Epsilon Amino caproic Acid or EACA : 20 mg in 500 ml dextrose
8. Inj. Imferon : 10 ml I/M or Folic acid tab. with iron : 10 tab. Bidor Inj. B. complex 10 ml I/M
9. Ascorbic Acid 7.5g/500ml of dextrose 3-4 day

**Control / Prevention:**

1. Min mix 50 gm/day for one month.
2. Animal must not be given cabbage, mustard, lucern, cold water etc.
3. If phosphorus deficiency give grael.

**. KETOSIS (ACETONEMIA)****Definition:-**

Ametabolic disease of lactating cows & buffalo occurring within a few days to a few weeks after calving & it is characterized by Hypoglycemia (Def of glycogen), Kentonuria (Ketone in urine), Ketonernia (ketone in blood), high excitability, decreased milk yield, loss of wt. & incoordination.

**Etiology:**

1. Less feeding of carbohydrates in diet.

2. Chronic indigestion
3. Mainly the energy is stored in liver as glycogen & this glycogen is utilized by the animal for energy when no storage of glycogen then animal gets this energy from fat & protein & there is formation of ketone bodies and this ketone bodies is harmful for body.

**Symptom:** - Two types of symptoms.

In some cases only one type of symptoms are seen but in some cases, both types of symptoms are seen.

(1) Wasting Form (2) Nervous form.

**1) Wasting Form:-**

- (i) Sweet odor of acetone in the urine, milk & respiration.
- (ii) Anorexia
- (iii) Milk production (Decreased milk production)
- (iv) Respiration rate & pulse rate are normal
- (v) Weakness due to decreasing fat day by day
- (vi) Loss of weight
- (vii) Animal lying in the 'milk fever posture'
- (viii) Constipation, faeces covered by mucous.
- (ix) Normal urine secretion (5-10 lt/day in cattle) decreased.
- (x) Rumination decreased

**2) Nervous Form:-**

- i) Trembling of animal
- ii) Circling movement
- iii) Pressing head against wall
- iv) Apparent blindness
- v) Incoordination

**Diagnosis: -**

- 1) By History (Loss of wt. & weakness)
- 2) By symptoms (Wasting & Nervous form)
- 3) By Blood examination - Hypoglycemia
- 4) By urine exam - ketone bodies +ve

**Treatment (First aid) :-**

1. Dextrose saline 50% : 1 lit I/V
2. Dextrose saline 20%: 2 lit IN
3. Dextrose saline 10%: 2-3 kr I/V
4. High energy diet or glycerine : 200 ml diluted in water orally
5. Amm lactate / Sod. Lactate / calcium lactate : 200 gm orally
6. Vit. B comp : 10 ml IIM
7. Inj. Betnesol or Dexona : 6 ml  
This inj. converts protein into glucose

8. Galog powder - 50 g x 20 days orally

**Prevention :**

1. High energy diet e.g. gruel
2. Light exercise

**6. ALLOTROPHAGIA**

**Definition:-**

A craving for substances not ordinary considered as food. Cattle ingest cloth, leather, metal pieces, wood, stones, carcass material such as bones & hides. They may lick longer objects or sides of wall/building. The horse may ingest dirt, sand & chew bones.

**Etiology:**

**1. Due to parasites: -**

Round worms such as *Trichostrongylus* & *oesophagostomun*

These parasites live in the intestines & suck blood from there leading to anaemia.

**2. Deficiency of minerals (Mainly phosphorus)**

**Symptoms:-**

- 1) Animal eat sand, cloth etc.
- 2) Indigestion, Loss of appetite
- 3) Weakness, emaciation, anaemia, dullness, depression
- 4) Loss of weight,
- 5) Less elasticity of skin.

**Diagnosis:**

- 1) By History & Symptoms
- 2) Faecal examination- Ova of parasites.
- 3) Blood examination - Phosphorus level reduced

Normal level — 4-7 mg/100 ml of blood

In case of pica = 2-3 mg /100 ml of blood.

**Treatment (First aid ) :-**

- 1) Liquid Banmith Camel • : 100 ml , C & B : 60 ml orally
- 2) Banminth bolus - Camel: 3 , C&B : 2 orally
- 3) Thiabendazole : 66-110 mg./kg bwt oral Total dose for camel = 35 gm C&B = 25 gm
- 4) Nilverm : 35 mg/kg bwt orally
- 5) Min. mixture: Such as Vetmin, Minmix, Vetphos etc.

Camel: 100 gm daily

C&B : 50-60 g daily for 30 days

Repeat Anthelmintic after 21 days.

- 6) Tab. Ferseolate : 10 tab. bid orally  
Folic acid tab with iron: 10 tab bid orally.

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# PARASITOLOGY

## Diseases Spread by Protozoa (1-5)

### 1. Trypanosomiasis (Surra)

### 2. Babesiosis

### 3. Theileriosis

### 4. Anaplasmosis

### 5. Coccidiosis

### 6. Fascioliasis (Liver Fluke Disease)

### 7. Amphistomiasis

### 8. Schistosomiasis

### 9. Taeniasis

### 10. Ascariasis

### 11. Gastroenteritis (Parasitic Disarrhoea)

### 12. Hook Worm Disease in Dog (Ancylostomiasis)

### 13. Parasitic Bronchitis/Lung Worm Disease in Sheep/ Verminous Pneumonia /

**'Husk' Hoose**

## 14. Filarial Dermatitis (Filarial infection in cattle)

### 1. TRYPANOSOMIASES (Surra)

#### Definition:-

All the domestic mammals are susceptible to this disease but this disease is fatal in case of camel, horse & dogs. All other animals act as carriers.

#### Etiology:-

It is caused by protozoa called Trypanosoma evansi. It has typical shape. It is extra cellular & lives in plasma.

#### Transmission:-

This disease is transmitted by a fly named Tsetse flies. These flies suck the blood of infected animal (s). When they bite the healthy animal, spread this disease. This process is known as Mechanical Transmission. Tsetse flies live on the body of horse & human beings. The carnivore's animals are infected by eating the meat of infected animals.

#### Symptoms: 3 types:-

##### 1. Per Acute Symptoms :-

In this form, generally no symptom is seen; only nervous form of symptoms may be seen. Death within 2-4 hrs.

##### 2. Acute Symptoms :-

- (i) Kicking of legs on belly
- (ii) Pressing head against wall
- (iii) Temp. 105° F
- (iv) Nervous symptoms — Circling, Excitement.

##### 3. Chronic Symptoms :-

- (i) Lacrimation, Dullness, Depression, Weakness, Red conjunctiva.
- (ii) Intermittent fever
- (iii) Oedema of legs
- (iv) Hyperesthetic leaves the herd & seek shade.

##### 4. Specific symptoms in horses :-

- (i) Intermittent fever
- (ii) Anemia
- (iii) Oedema of dependent parts
- (iv) Pin point haemorrhage of conjunctiva

##### 5. In camel, mainly in chronic form about 3 years it is known as Tibera

- (i) Intermittent fever
- (ii) Oedema

(iii) Progressive weakness

## 6. Symptoms in dog :-

- (i) Intermittent fever
- (ii) Corneal opacity, that may lead to blindness
- (iii) Marked oedema
- (iv) Voice of rabies

### Diagnosis :-

1. By typical symptoms.
2. By blood exam
  - (i) Wet smear (Live protozoa)
  - (ii) Stained smear
    - a) Leishman's stain (Dead protozoa)
    - b) Giemsa stain

### 3. Biological method:-

Inject the blood of suspected animal into the body of lab animal (Mice or G. pig). After 1-2 days, the lab animals start to die. Collect the blood of lab animal & examine under microscope. We will find *T. evansi*. After 5 days, all animals will die.

### Treatment:-

- (i) Antrycide prosalt : Chloride 2 Parts , Sulphate 1 Part  
12 mg/kg bwt s/q repeat after 8 weeks
- (ii) Berenil 8-16 mg/kg b/wt. Deep I/M
- (iii) Gilpol salt 6 g in camel S/c  
2 g in after one week (May be given UM)  
2 g after two weeks

Cattle, B, H — 0.4 g to 0.5 g / 45 kg B/wt.

- (iv) Inj. Triquin 2.5 g + 15 ml DW
- (v) Dose — 1ml /40 kg bwt S/c

## 2. BABESIOSES (PIROPLASMOSES)

### Definition Synonyms:-

Piroplasmosis, Red water, Texas fever, Tick fever, Bovine haemoglobinurea.

### Definition: -

A group of tick borne disease of animal caused by blood protozoa *Babesia* & it is characterized by high fever, anemia, jaundice and Hburia.

### Etiology:-

This disease is caused by intracellular blood protozoa which is pear shaped and mostly two in number in each RBC. But in horse they are 4 in no. in each RBC that is known as Maltese cross.

The different protozoa in different species:-

Cattle & B	Babesia bigemina, B. bovis
Horse	B. equi
Dog	B. canis
S&G	B. motasi, B. ovasi

### Mode of Transmission:-

This disease is transmitted by both ways :-

1. Mechanical transmission: - This disease is spread by infected hypodermic needle.
2. Biological transmission :- When Hyalomma, Boophilus or Ixodes ticks spread disease then this method is called Biological transmission due to which this disease is also known as Tick fever. The infected ticks bite the healthy, pour the protozoa in the blood of healthy animal & spread the disease.

### Symptoms:-

1. Temperature increase 107° F (Mainly in cross breed animal)
2. Constipation/Diarrhea/decreased ruminal movement.
3. Anemia/Cattle stands arched back
4. Jaundice (Icterus) – Colour of 44onjunctiva–Yellowish/Whitish.
5. Haemoglobinuria- Colour of urine — coffee colour because RBCs are destroyed by the protozoa.
6. Nervous symptoms such as trembling of muscles, grinding of teeth, death within 3-1( days.

### Diagnosis:-

1. History of Hyalomma, Boophilus and Ixodes tick bite.
2. By symptoms- Temp., Jaundice, Anemia, Hburea.
3. By blood examination — Giemsa or Leishman staining — Intracellular blood protozoa (pear shaped)
4. By post mortem exam. — Splenomegaly (Enlargement of spleen).

### Treatment:-

1. Berenil 8-16 mg/kg bwt
2. Babeson 1 ml/50kg bwt in case of cattle  
1 ml/20 kg bwt in case of dog.
3. Blood transfusion — The blood having sodium citrate as anticoagulant can be transfused in the infected animal.
4. Inj. Inferon 5-10 ml Large animal I/M  
1-2 ml small animal
5. Calcium preparations

### Control

- (i) Control of ticks
- (ii) Cross breed & pure breed must be protected from biting of ticks.
- (iii) Use of dipping tank which is having insecticide not more than 0.05 %

- (iv) Good Management.
- (v) Treatment of sick animal.

### 3. THE THEILERIOSIS

#### Synonyms:

East Coast fever, Coastal Fever.

**Definition :**

A group of diseases caused by protozoa parasites of Genus Theileria, which invade RBC but do not destroy RBC is characterized by high fever, swelling of LN, emaciation & death (high mortality).

**Etiology:**

Intracellular protozoan parasites viz.

Theileria parvavi/T.armulata/T.mutans — cattle

T. hirsi/T.ovis — S&G

Shape of these parasites may be comma, round, oval, pear.

These may be one or more in number.

**Mode of Transmission:-**

1. Biological Transmission :- This disease spread by ticks namely Hyalomma, Rhipicephalus
2. Mechanical Transmission: - By blood transfusion. This disease is very fatal for exotic, cross breed & pure breed. Local breeds are resistant to it to some extent.  
First of all, this parasite enters in Lymphoid tissues e.g. spleen, lymph nodes & liver & from these organs these parasites enters into RBCs but don't destroy them. Therefore, there is no anemia in the case.

**Symptoms :**

- a) High Temp. (105° F)
- b) Nasal discharge/Lacrimation/Conjunctivitis. Pale mm.
- c) Cough, salivation and anorexia.
- d) Emaciation due to diarrhoea & loose motion/Clay colored tongue.
- e) Enlargement, of LN
- f) Death with in 14 days. If no death, the animal becomes immune for Theileria but the animal will not be carrier.

**Diagnosis :-**

- a) By history
- b) By symptoms
- c) LN Biopsy - Kock's blue bodies
- d) Blood exam - Blood – comma shape structure in RBCs
- e) Post mortem - punched ulcer in abomasum & white nodules an kidney & liver

**Treatment :-**

- a) Inj. Berenil 8-16 mg/kg bwt deep I/n
- b) Inj. Oxysteclin 5 mg/kg bwt I/m
- c) Inj. Chlortetracyline 20mg/kg bwt I/m
- d) Buparvoquone 2.5 mg/kg bwt I/m
- e) B-Complex 5-10 ml I/m

MRCVS MRCVS MRCVS

## 4. ANAPLASMOSIS

### Definition :-

It is a per acute to chronic disease caused by blood protozoan parasite of Genus Anaplasma & is characterized by Fever/Anemia & Icterus.

### Etiology :-

Cattle - Anaplasma marginale/centrale

S&G - Anaplasma ovis

### Mode of Transmission :-

1. **Biological Transmission** :-Through ticks Hyalomma & Ripicephalus.

2. **Mechanical Transmission** :-

- a) By blood transfusion
- b) By ear tagging
- c) By castration
- d) By dehorning
- e) By tail docking
- f) By vaccination

### Symptoms :-

- a) Temp. (150°) & Depression
- b) Anemia & Icterus
- c) Dehydration & Constipation, Loss of wt.
- d) Abortion in case of pregnant animal mainly in sheep.

### Diagnosis:-

- a) History of tick bite.
- b) Typical symptoms such as temp., anemia, icterus but no Hburia.
- c) Blood exam. – in RBCs Anaplasma marginale/centrale (cattle), Aovis (sheep) protozoa are seen

### Treatment :

As in the theileriasis.

The recovered animals act as carrier through out their life.

### Prophylaxis:-

- (i) Dipping, dusting, spraying of animals at frequent intervals should be carried out.
- (ii) All precautions should be taken while doing the operation such as ear tagging, tail docking, castration, dehorning & vaccination etc.

## 5. COCCIDIOSIS

### Definition:-

A parasitic disease caused by one or more than one coccidian\* & they are found in wide variety of birds & this disease also found in large animals & is characterizes by diarrhea, dysentery with mucous or blood, economic losses & high mortality. (10-90 %)

### Etiology:-

Cattle	Eimeria bovis
Sheep	E. atisata
Poultry	E. tenella, E. necatrix, E. maxima, E. acervulina, E. mitavi, E. brunette, E. hagani, E. mists, E. procox.

These Eimeria cause caecal coccidiosis & intestinal cocci diosis.

- E. tenella :- This protozoa accumulates in the ceca & it causes the caecal coccidiosis. The infection is seen in 2-8 wks chicks.
- E. necatrix :- These coccidian are found in mid of the intestine & causes intestinal coccidiosis. This is seen in 8-16 wks chicks.
- E. maxima: - It causes dilation & thickening of the small intestine & responsible for intestinal coccidiosis.
- E. acervulina :- It causes numems grey or whitish patches on the anterior most part of small intestine & hence causes duodenal coccidiosis.
- E. mitavi :- Duodenal coccidiosis.
- E. brunetti :- It is found in the lowermost part of small intestine, caeca & cloaca. Therefore, it causes caecal & intestinal coccidiosis.

E. hagani/mistis/procox are not very much harmful ..

\* Coccidia in this case host specific.

### Mode of Transmission:-

In this case the oocyst are shed in faeces & they are changed in sporulated oocyst after getting the required air, moisture & sunlight. These oocyst are the infective stage and spread disease in healthy animals .

### Symptoms :- (General)

Incubation period 16/20 days.

- Diarrhoea with foul smell with mucous & blood.
- The hindi quarter & tail are soiled with faeces.
- Weakness & the active time is 4-6 days after infection

### In sheep

- Diarrhea but without blood.
- Less production of wool.

**Symptoms in Poultry :-**

Caecal Coccidiosis	Intestinal Coccidiosis
(i) Occurs in age of 2-8 wks	(i) Occurs in age of 8-16 wks.
(ii) Diarrhoea with blood, off feed high mortality.	(ii) Less fatal (less mortality) as compared to caecal cocci.
(iii) Chicks hide in the one corner of the room	(iii) Decreased egg & meat production.
(iv) Exam. Of oocyst in the faeces. Intestinal Coccidiosis	(iv) The infected birds spread disease in healthy birds .

**Diagnosis :-**

- (i) By typical symptoms
- (ii) Faecal exam — oocyst are seen.
- (iii) Post Mortem exam — Intestine & caeca are filled with blood.

**Treatment :-**

- (i) Diadin 16 % : 10 ml/ltr. of drinking water x 3 days.
- (ii) Codrinal power : 4 g/ltr. of drinking water x 3-4 days
- (iii) Suhnet 12.5 % : 30 ml/4ltr of water (3-2-3). Give for 3 days, then 2 days rest, again give for 3 days.
- (iv) Amprosol : 30 g / 25 ltr. of water x 7 days.
- (v) Tab. Bifuran : 1 tab/ltr. of water x 7 days.

**Control :-**

- a) Good hygienic condition.
- b) Avoid over crowding of chicks.
- c) Keep adult & chick birds in separate space. •
- d) Adults act as carrier & they shed oocyst in faeces, therefore regular checking should be done .Carriers should be destroyed.

## 6. FASCIOLIASIS (LIVER FLUKE DISEASE)

### Definition:-

It is world wide distribution & mainly affects sheep & cattle. In sheep it causes 3 types of symptoms- chronic, subacute & acute. This disease is spread by snail (Lymnaea).

### Etiology:-

It is caused by Fasciola hepatica & Fasciola gigantica. These are trematodes.

### Life cycle:-

The eggs of this parasite, pass in the faeces of animal & meracidium are developed from these eggs in 2-4 wks under suitable temp. & moisture. The meracidium infect the snail known as Lymnaea, where they multiply & changed in cercariae. These cercariae are transformed into Metacercariae. These Metacercariae stick to the leaves & plants & when an animals eat these plants, the metacercariae enter in the body of the animals & young flukes travel to peritoneum & through the duodenum, they reach to liver and mature flukes are formed. They lay eggs which travel through the bile duct & comes in the faeces.

Symptoms (in sheep) : 3 types

#### 1. Acute Form :-

- (i) Distended & Painful abdomen
- (ii) Anemia / sudden death
- (iii) Necropsy — Atrophy liver, peritonitis
- (iv) Blockage of bile duct

#### 2. Sub acute form :-

- (i) More damage to liver.
- (ii) Haemorrhage, anemia — death
- (iii) Mucous membrane — pale

#### 3. Chronic form :-

- (i) Anemia
- (ii) Submandibular oedema
- (iii) Reduced milk production, less wool production
- (iv) Constipation & diarrhoea

#### Symptoms (in cattle) :-

- a) Chronic diarrhoea
- b) Less milk production
- c) Anemia
- d) MM - pale.

### Diagnosis :-

- a) By typical symptoms such as anemia, submandibular oedema & diarrhoea.

- b) By Faecal examination — oval, uperculated yellow/golden colour eggs are seen under microscope exam.
- c) Necropsy — Liver damage (Atrophy of liver), fluke in liver & bile duct.

**Treatment :-**

- a) Carbontetrachloride (CCl<sub>4</sub>) (in sheep)  
1 ml +4 ml liquid paraffin  
It must not be given in cattle because it is toxic in cattle.
- b) Cap. CCl<sub>4</sub> (One caps per oral)
- c) Avlo thane : 15-40 g oral
- d) Zani ( oxycloxanide ) : 1 ml / kg bwt in water oral
- e) Distoden tab. : 1 tab. (100 mg) oral S&G  
1 tab. (1 g) oral cattle

**Control :-**

- a) Control of Lymnaea
- b) Spray of CuSo<sub>4</sub> soln. In field 1.5 ppm
- c) Biological control : By keeping ducks in the ponds.
- d) Prompt treatment of sick animals.
- e) Avoid grazing of animals in the pastures having Lymnaea & low lying areas.
- f) Use tractors or plough. The field in the pastures having snails & spray their CuSo<sub>4</sub>® 1.5 ppm in that field.

**7. AMPHISTOMIOSIS****Definition:-**

This disease is caused by a parasite Amphistomes which is responsible for inflammation of m.m. of intestine which leads to enteritis (diarrhoea). This is seen in sheep, goat, cattle & buffalo. The adult fluke worms which are found in the rumen & reticulum do not cause harmful disease but the immature fluke which travel from the intestine to rumen/reticulum are responsible for the inflammations of intestine (diarrhoea).

**Life Cycle:- •**

The life cycle of Amphistome is same as that of Fasciola hepatica.

The main differences are

	F. Hepatia	Amphistome
1. Colour of egg	Golden/Yellow	Colourless
2. Size of egg	Small	Large
3. Name of snail	Lymnaea	Planorbis
4. Site of living	Liver	Rumen/reticulum

**Etiology:-**

It is caused by a parasite — Amphistomes

**Symptoms:-**

- a) The immature fluke travel through duodenum to rumen/reticulum which
- b) leads to enteritis (diarrhoea). Weakness/emaciation
- c) Anemia
- d) \*Bottle jaw condition
- e) Mortality 30-40 %

**Diagnosis:-**

- a) By typical symptoms (diarrhoea, bottle jaw condition)
- b) By faecal exam. — large size eggs having upperculum.
- c) Post mortem exam. — Mature flukes are seen in rumen & reticulum and immature flukes are seen in intestine (mainly in duodenum)

**Treatment: -**

As in case of Fascioliasis.

**Control: -**

As in case of Fascioliasis.

## 8. SCHISTOSOMIASIS

**Synonyms: -**

Nasal Granuloma, Nnoring disease, Blood Fluke disease.

**Definition:-**

It is caused by a parasite — *Schistosoma nasalis*. The main hosts affected are cattle, horses & goat. This disease is characterized by abscess or tumour in nostril, difficulty in respiration & snoring sound which is due to the habit (living) of the parasite in the nostril.

**Etiology: -**

*Schistosoma nasalis*

**Life cycle :-**

Eggs – miracidium – snail – cercaria leave – snail water penetrate skin & mm of animals – lymph - blood

**Symptoms:-**

- (i) Dyspnea & snoring sound
- (ii) Tumour & abscess in nostrils which leads to sneezing & nasal discharge, Epistaxis.
- (iii) Emaciation and death.

**Diagnosis:-**

(i) Exam of nasal discharge — Specific (Boomerang) eggs of size  $\frac{1}{4}$  to  $\frac{1}{3}$  mm

of shape of Napoleon hat.

**Treatment:-**

- (i) Inj. Anthiomaline (50'ml) :15 ml I/M  
2-4 injections (Repeat vial after one weak.)

**Control: -**

Same as in case of Fascioliasis.

**9. TAENIASIS (Taeniasis due to Adult Tape Worm)**

**Definition:-**

The disease caused by adult tape worm is called Taeniasis. The tape worm has small segment & the last segment is called Gravid Segment which has about 40,000 eggs in it. Both male & female reproductive organs are found in these segments. The small number of parasites in the intestine are harmless. If the no. is high, then diarrhea & emaciation are seen in the infected animals.

**Etiology: -**

Human beings, cat, dog - Taenia\* [H.beings- T. solium] [Dogs- T. multiceps]

Cattle -Moneizia

Poultry -Raillitina

**Symptoms: -**

In adults (C,B,S,G, Pig)

- (i) Emaciation, Rough hair coat  
(ii) Constipation, diarrhoea

In Poultry,

- 1) Egg production decreased
- 2) Increased thirst
- 3) Weakness, emaciation

In dogs,

- 1) Indigestion
- 2) Nervous symptoms (Paralysis of hind limb)
- 3) Itching of anus on soil due to irritation.
- 4) Characteristic smell from the dog.

**Diagnosis:-**

- (i) By Symptoms

- (ii) By Faecal exam.

### **Measly Pork:-**

This condition is caused by the larvae of the *T. solium* tape worm & this tape worm lives in the small intestine of the human beings. The larvae is called *Cysticercus cellulosae*. The pigs are infected by eating of faeces of human beings & the larvae migrate in the body parts via blood. These larvae are harmless in pigs (intermediate host). When human beings eat raw meat of pig, then this infection takes place.

### **Gid**

This disease is found mainly in sheep & it is also called sturdy or stagger. This is caused by a larva of *T. multiceps*. These larvae of *T. multiceps* live in small intestine of dog. Name of larvae is *coenurus cerebralis*. This larva migrates in the brain of sheep & causes the nervous symptoms such as blindness circling (towards larvae) movements, & the animal is unable to keep balance of body.

### **Diagnosis of Gid :-**

- (i) By Nervous symptom  
(ii) Larvae cyst in the brain — By X-Ray.

### **Treatment :-**

No treatment except surgery.  
The surgery is known as Triphining.

### **Treatment of Taeniasis :-**

#### **In cattle & Buffalo, Goat & Sheep :-**

- (i) Tin butyrate : 100 mg/kg bwt oral  
: 250 mg/kg bwt in feed  
(ii) Copper sulphate 1% : 100 ml in cattle & 40-50 ml in S&G  
(iii) Dichlorophen (Dicestol) : 150-200 mg/kg bwt oral  
(iv) Yomesan ( : 75 mg/kg bwt oral  
(v) Taenil : 5g oral

#### **In dogs & cats:-**

- a) Arecholine hydrochloride : 1-2 mg/kg bwt after  
Fasting (12-24 hrs.)  
b) Dichlorophen : 200 mg/kg bwt oral  
c) Yomesan : 50 mg/kg bwt oral  
d) Taenil : 5 g oral

### **Control:-**

- a) Regular deworming should be done in dogs & poultry. (at 6 months interval)  
b) The dogs should be checked to feed raw material or spoiled meat.  
c) The dogs are not let go to the butcher shop.

d) Taeniasis is difficult to be controlled in large animal.

## 10. ASCARIASIS

### Definition:-

The ascaris round worms (nematodes), are found in the intestine of cattle, pigs, dogs, cats, equine & in poultry. They can migrate from small intestine to stomach & may obstruct the ST and cause diarrhoea or constipation.

### Etiology:-

Cattle	: Neoascaris vitulorum
Pig	: Ascaris suum
Dog & Cats	: Toxocora canis/cati
Horse	: Parascaris equorum
Poultry	: Ascaridia Galli/Asceris ga lli

### Life cycle:-

The size of the worm is 30 c.m. male & female are separate, their size is also different from each other. The size of male is smaller than that of female.

Eggs - Larvae (infective eggs) - Infections through water or feed - By Blood - Liver (Hepatoportal blood stream) - Lungs - Trachea - Larynx - Pharynx - Oesophagus - SI - Adult - Interuterine infection in buffalo and dog - Eggs.

### Symptoms: - In Buffalo Calf

- Parasitic white diarrhoea (60% buff. Calves suffered)
- Intra uterine infection
- Off feed, Rough hair coat
- Obstruction of intestine
- Colic or tympany
- Dysentery
- Subnormal temp.
- Collapse & death due to respiratory failure, or toxins release.
- Butyric odour from respiration.

### Symptoms:-

- Diarrhoea/Weakness
- Decreased egg Production
- Obstruction of intestine

### Diagnosis:-

- Faecal. examination.— eggs of neoascatis vitulotort
- Postmortem exam – intestinal haemorrhage, Enteritis and blockage of intestine due to worms.

**Treatment :-**

- (i) Piperazine salts : 100-200 mg/kg bwt oral
- (ii) Piperazine citrate : } (liquid) Helmacid (Trade name)  
 Piperazine adepate } : 5 ml/10kg bwt  
 Piperazine hexahydrate :
- (iii) Vermex : Cattle 4 ml/10kg bwt  
 Dogs 2.5 ml/kg  
 Poultry 30 ml/4<sup>1/2</sup> ltr. Of drinking water
- (iv) Thiabendazole : 66-110 mg/kg bwt in cattle &  
 44-66 mg/kg bwt in S & G
- (v) Albendazole : 5-10 mg/kg bwt
- (vi) Dextrose : 2-3 bottle
- (vii) Enema : of Luke warm soap enema.

**Control :-**

- (i) Regular faecal exam.  
 (ii) Proper disposal of faeces.  
 (iii) General hygienic condition.

**11. PARASITIC DIARRHOEA OR GASTROENTERITIS****Definition:-**

It is caused by strongyles round cattle, buffalo, camel, pig, equine, S&G etc. and  
 Etiology:-

Name of parasite	Location	Species
a) Haemonchus concortus	Abomasum	C, B, S, G, Camel
b) Oesophagostomum radiatum	SI	C, S, G, Pig
c) Strongyloides	SI	Camel
d) Strongylus vulgaris	SI	Equine

**Symptoms:-**

If the no. of parasites is less, no symptom is seen. But if the no. is more then following symptoms are seen.

- a) Weakness/Emaciation/Stunted growth/weight loss  
 b) Pica in camel  
 c) Indigestion & rough hair coat & dark coloured diarrhoea  
 d) Anaemia & bottle jaw condition in S&G  
 e) Nodules on blood vessels in equines

**Diagnosis:-**

- (i) By typical symptoms
- (ii) By faecal exam. — Ova of parasites are seen.

**Treatment:-**

- a) Thiabendazole : 66-110 mg/kg bwt in cattle orally  
44-66 mg/kg bwt in S&G orally
- b) Nilverm : 35 mg/kg bwt orally
- c) Tetramisol hydrochloride: 35 mg/kg bwt orally Max. dose in
- d) Banminth bolus : 2 bolus orally in cattle buff is 10 g.  
3 bolus orally in camel
- Banminth liquid : 60 ml in cow & buffalo
- e) Phenovis : 200-220 mg/kg bwt orally

**Control:-**

- a) Large & small animals should be kept separately.
- b) General hygienic condition
- c) Regular faecal exam./Regular deworming.

**12. HOOK WORM DISEASE TN DOG (Ancylostomiasis)****Definition:-**

Hookworms, they are round worms & found in SI of dogs & human beings and characterized by anaemia, diarrhea & blood in faeces.

**Etiology:-**

Dog	Ancylostoma caninum
Human being	Ancylostoma duodenale
Life cycle:-As in case of	Ascariasis

**Symptoms:-**

- a) Anaemia, dullness, pale or white mucous membrane of conjunctiva.
- b) Rough hair coat/emaciation
- c) Diarrhoea/Dysentery or Blood in faeces
- d) Itching & Dermatitis due to migration of larvae
- e) Death (if no treatment)

**Diagnosis:-**

- a) By typical symptoms .
- b) By stool (faecal) exam. — Ova (eggs) are seen.
- c) Necropsy — Anaemia, Oedema, Parasites (worms) in intestine.

**Treatment:-**

- (i) Inj. Ancylool : 1 ml/4.5 kg bwt S/c
- (ii) Tetracap capsules : 1 cap/4.5 kg bwt orally

**Control:-**

- a) General hygienic condition
- b) Regular deworming
- c) Bitch should be free from hookworms before breeding.

**13. PARASITIC BRONCHITIS OR Lung Worm disease in sheep OR Verminous Pneumonia OR 'Husk' Hoose****Definition:-**

This disease is caused by round worms & is characterized by coughing, nasal discharge & pneumonia. It is seen in sheep, goat, cattle & pig mainly.

**Etiology:-**

Dictyocaulus filaria' parasite which is of thread like structure & found in bunches.

**Symptoms:-**

- (i) Coughing, nasal discharge, pneumonia.

Anorexia, anaemia, diarrhoea.

- (ii) Decreased wool and meat production in case of sheep.

**Diagnosis:-**

- (i) Coughing & nasal discharge in flock of sheep.
- (ii) Exam. of faecal material
- (iii) Exam. of nasal sputum — Larvae of the parasite.
- (iv) Postmortem exam.:-
  - 1) Worms in the bronchi
  - 2) Mucous in the bronchi
  - 3) Blood in bronchi (if pneumonia)

**Treatment:-**

- a) Thiabendazole : 66-110 mg/kg bwt orally
- b) Nilverm : 35 mg/kg bwt orally
- c) Pancur (Fenbendazole) : 5 mg/kg bwt

**Control:-**

- a) Regular faecal exam.
- b) Large & small animals should be kept separately
- c) Prompt treatment of sick animal.

**14. FILARIAL DERMATITIS (Filarial infection in cattle)****Definition:**

This disease is mainly seen in bullock & cow and is characterized by small abscess on whole body with bloody discharge.

**Etiology:**

*Filaria haemorrhagica*

Larvae — microfilariae

These parasites live in sub cutaneous tissue and this disease is spread by biting of mosquitoes. Therefore, this disease is mainly seen in summer & rainy season.

**Symptoms:**

(i) Small wound (abscess) on body of animal.

**Diagnosis:**

a) By clinical exam.

b) Blood exam. — microfilariae

c) Skin scrapping — microfilariae & adult filariae

**Treatment: (1)** Anthiomaline 15-20 ml 1/M rpt after one week, 2-3

Injs. Are sufficient •

(2) Inj. Antimosan 15-20ml I/M (3) Tartar emetic

**BACTERIAL DISEASES****1. ACTINOBACILLOSIS****Definition:**

It is a chronic infectious disease, which mainly affects soft tissue such as tongue, cheeks, lips, parotid lymph node (LN), maxillary LN and pharyngeal LN and is characterized by abscess, inflammation of tongue, salivation and hardness of tongue.

**Etiology:**

Its causative agent is *Actinobacillus lignieresii*. This is G — ve bacterium, rod shape. This bacterium can be isolated from the pus of abscess and bacteria remain in abscess in radiating fashion.

**Transmission:**

1. Through Infected food 2. Through injury to mouth or buccal mucosa

**Symptoms:**

1. Excessive salivation due to inflammation of tongue
2. Thick purulent pus forms the abscess.
3. Swollen/hard tongue, therefore, difficulty in taking food.
4. Emaciation, off feed, decreased milk production.
5. Difficulty in respiration.
6. Inflammation of lymph nodes (diffuse or multiple swelling)
7. Death, if not treated.

**Diagnosis:**

1. By typical symptoms
2. By Isolation of bacteria from pus (granules)

**Differential Diagnosis****In Rabies**

1. No pus
2. Excitement / constant urination
3. Bellowing, are seen in rabies and not in actinobacillosis.
4. Mouth exam. — If foreign body — actinobacillosis

**Treatment ( First aid )**

1. Pot. Iodide: 8 g oral x 7 days. If it is given for more than 7 days, then symptoms of toxicity are seen e.g. alopecia, lacrimation, coughing.  
It must not be given IN because it affects on heart.
2. Sod. Iodide 10 per cent: 100 ml i/v ,
3. Streptopenicillin : 5 g I/M or,
4. Streptomycin: 5 g I/M or,
5. Terramycin : 5-20 mg/kg\_ boot I/M or UV or S/C or
6. Sulpha drugs 33.33 per cent : 150 — 200 ml slow IN or S/C
7. Massage of iodine ointment on affected area
8. Flushing of wound with lugol's iodine soln. (1:100).
9. Open and drain abscess where possible.

**Control:**

Healthy animals should be kept separate from the infected animals.

**2. ACTINOMYCOSIS OR LUMPY JAW**

**Definition :** It is a chronic infectious disease which mainly affects hard tissue such as mandible , maxilla and has very little effect on soft tissue and it is characterized by salivation.

**Etiology:**

Actinomyces bovis, G+ve rod shaped, non spore forming,

**Transmission:** Same as in actinobacillosis

**Symptoms:**

1. Salivation due to swelling of mandible (painless)
2. Pain in teeth
3. Dyspnoea
4. Infection of udder therefore, the milk should not be taken.

**Diagnosis:**

Same as in actinobacillosis

## Treatment and Control :

### 3. TUBERCULOSIS

**Definition:** Chronic contagious zoonotic bacterial disease characterized by the development tubercles or nodules in lungs and emaciation.

#### Etiology:

Mycobacterium tuberculosis in human beings, Mycobacterium tuberculosis variety bovis in bovine.

This bacteria acid fast,, coccoid rod shaped

**Note: The bacteria are secreted in milk, so the milk is consumed after boiling.**

#### Transmission

1. Inhalation
2. Ingestion of contaminated feed & water
3. Through milk, uterine discharge, blood, sputum, teat canal infection, infected dung, wound.

#### Symptomatology:

It is a chronic disease. Incubation period is very lengthy.

1. Respiratory symptoms: Coughing — harse — dry — moist — dyspnoea — rapid laboured breathing.
2. Purulent yellowish white sputum.
3. Tubercles or nodules on lungs, which become hard after calcification.
4. Hide bound condition, emaciation and loss of elasticity of skin.
5. Profuse diarrhoea due to infection in GI tract.
6. Chronic tympany due to swelling of mediastinal lymph nodes.
7. Anaemia, mm pale and sometimes nodes on udder.
8. Milk production & quality decreased
9. Metritis, sterility, swelling of LN.
10. Arthritis and the bacteria may travel to all parts of body through blood.

#### Diagnosis

1. By symptoms e.g. respiratory symptoms, hide bound condition, and emaciation etc
2. By x-ray — swelling of mediastinal LN
3. Demonstration of acid fast organisms in smear .
4. By Tuberculin test (i) SID test (ii) DID test  
(iii) Stormont test (iv) Short thermal

#### 1. Single Intradermal test

After shaving on neck, measure the thickness of skin with the help of vernier calipers. inject 0.1 ml of tuberculin antigen with the help of tuberculin syringe I/dennally. Measure the

thickness after 72 hrs. of injection. If the swelling is painful and thickness is double, it means the case is +ve for TB.

## 2. Double Intradermal test

At the site of injecti, inject 0.1 ml of tuberculin antigen (after 48 hr) with the help of tuberculin syringe Intra dermally. Measure the thickness after 24 hrs. of injection. If the swelling is painful and thickness is double, it means the case is for TB.

## 3. Stormont Test

Inject 0.1 ml of tuberculin antigen with the help of tuberculin at the site of previous injection syringe Intra dermally, after one week. After 24 hr. if the thickness increases more than 5 mm, the case is +ve for TB.

## 4. Short thermal test.

First, note the temp. of animal. Inject 4 ml of tuberculin antigen S/C. After 8 hrs. start measuring the temp. of animal at the interval of 2 hours. If the temperature increase by 2°F, then the case is + ve for TB.

### Treatment:

No treatment generally in animals as it is very costly

Inj. Streptomycin 5 gm I/ M

### Control :

1. General hygienic condition
2. Regular testing of animal : If any animal is + ve for TB, then euthnised it.
3. Vaccination of healthy animal.

BCG ( Bacillus Calmette Guerin ) 50 — 100 ml S/C Immunity lyear Age of animal — 4 months.

Note: When this injection is given the animal is + ve for TB.

## 4. JOHNE'S DISEASE ( PARATUBERCULOSIS ) OR CHRONIC BACCILLARY DYSENTERY

**Definition:** Chronic infectious bacterial disease of cattle, S,G which is characterized by emaciation, hide bound condition, thickening and corrugation of intestinal mucosa chronic recurrent diarrhoea etc.

**Etiology:** Mycobacterium paratuberculosis small, acid fast rod shaped bacteria.

### Transmipion:

By contaminated pasture/feed

### Symptoms:

Incubation period = 2.5 years.

1. Emaciation, hide bound condition.
2. Pulse rate, resp. rate, temp., appetite normal.
3. Submandibular oedema.
4. Profuse diarrhoea due to thickening and corrugation of intestine and animal faeces come out without straining.
5. Loss of skin elasticity.
6. Decreased milk yield.
7. Loose motion in sheep, falling of wool due to thickening of intestine, not corrugation.
8. Death, if not treated.

**Diagnosis:**

1. By symptoms (chronic recurrent diarrhoea , emaciation )
2. Rectal washing (rectal pinch) and histopathological exam. of rectal pinch and staining of the material with Ziel Nielson Fuchsin stain for acid fast bact.
3. By faecal exam .
4. By PM exam. - Thickening and corrugatin of intestine.
5. By Johnin test.

After shaving the right side of neck of animal, measure the thickness of skin. Inject 0.1 - 0.2 ml of Johnin antigen I/d at that site. Measure the thickness of that area after 48 hrs. If the thickness increases by 3 mm, then the case + ve for JD , otherwise - ve.

**Treatment:**

1. Injection Streptomycin 5 gm I / M
2. Astringent powder 50 -100 gm. oral

**Prevention:**

1. Herd control method. Johnin test if any + ve - euthnesia.
2. Disinfectants must be used to kill the bacteria.
3. Segregate the suspected or infected animal.
4. Contaminated pastures must not be used.
5. Test all animals regardless of age and remove reactors from herd.

**5. HEAMORRYIAGIC SEPTICEMIA ( PASTEURELLOSIS )****Definition :**

It is acute infectious disease of C, B, S swine which is characterized by sudden onset, swelling on throat region, pneumonia, difficulty in respiration and death.

**Etiology:**

G- ve ,bacteria - Pasteurella multocida non motile ,non spore forming rod shaped, bipolar  
Note: These bacteria mainly affect the body of animal in stress (in rainy season or in transportation).

**Mode of Transmission:**

1. Contaminated feed and water
2. Through inhalation

**Symptoms :**

Four types of symptoms are seen.

1. **Septicaemic Form:** When bacteria are in blood then called septicemic condition.  
1. Temp. (107°F). 2. Increased pulse rate and RR 3. Increased salivation, dullness  
4 . Decreased ruminal movement and anorexia 5 . Death within 24 hrs of this stage.

2. **Oedematous Form:** 1. Hot and painful swelling under the neck or jaw or dewlap. This swelling exerts pressure on trachea which leads to dyspnoea. 2 . Rapid breathing and a loud sound in the inspiration haemorrhag in internal organs and conjunctiva 3. Death within 1-2 days. If colour of conjunctiva becomes red then death within 48 hrs.

3. **Pneumonia Form :** 1 Painful coughing and nasal discharge. 2 .Inflammation of URT. 3 .High temperature. 4 .Nostril dilate and difficulty in breathing. 5. Animal is unable to move.6. Death may occur within 72 hrs.

4. **Intestinal form** 1 .Diarrhoea, or Dysentery 2. Constipation.

Note: Mortality in H.S., 50 - 100 per cent.

**Diagnosis:**

1. By History (of transportation, stress) and season (rainy).
2. Symptoms (High temperature, oedema, dysphoea, swelling of throat region).
3. By blood exam. - Pasteurella multocida bacteria ,G- and pink colour.

**Treatment :**

1. Sulpha drugs (Sulphadimidine 33.33 % Sulphaguinidine 33.33 % Sulphamethazine 33.33 % ) 0.2 g/kg bwt I/V or S/C OR  
200 ml 1 day , 150 ml 2nd day , 100 ml 3rd day
2. Terramycin/Oxysteclin/Chlortetracycline.  
30 - 60 ml I/M ( 5 -20 mg/kg bwt I/M Terramycin 90 ml may be used in this case (slow I/V).
3. Streptomycin
4. If swelling then Injection Lasix 5 ml I/M

5. Saline electuary mix with expectorant , 30 gm aspirin Amin. Chloride & Pot Nitras
6. Tab. Sulpha 6 tabs bid orally in astringent powder.
7. If last stage then give - Inj. Coramine 6 ml I/V
8. Amoxicillin + Cloxacillin (Intamox) 6-10 mg/kg. b.wt.
9. Intecf (Ceftriaxone) 2.0 gm I/M, I/V/SC
10. Entrofloxacin 1ml/20 kg b.wt., 5ml/IM/IV
11. Intamycin LA (Oxytetra) 30 ml I/M.

### Prevention and Control

1. Healthy animal should be kept separately. Vaccination (before the onset of rainy season.). Two types of vaccine are available 1 H.S. alum ppt vaccine 5 ml S/C. Immunity 6 months
2. Oil adjuvant vaccine 3 ml I/m immunity 1 year  
S & G should be vaccinated before transportation . .

### 6. MASTITIS

**Definition:** It is a bacterial disease of dairy cattle which is characterized by inflammation/nodules on udder and teats, flakes / water or blood in milk.

**Etiology, :**

1. Predisposing causes 1. Unhygienic condition 2. Defective milking 3. Incomplete milking
2. Exciting causes Streptococcus agalactiae (80 % infection) Streptococcus dysgalactiae, Streptococcus aureus, Corynebacterium tuberculosis, Escherichia coli, Pseudomonas auregenosa, Diplococcus (all species)

**Transmission:**

By milker's hand and machine 2. By teat canal.

**Symptoms:** Four types

1. **Pa acute mastitis:** Inflammation of udder and teats (painful) 2. Temperature 3. Swelling 4. Death
2. **Acute mastitis:** Infl. of udder and teats with small pain 2. Increased temperature (104°F) 3. Hard tissue 4. Growth of bacteria in udder 5. Anorexia
3. **Subacute mastitis:** No. of udder and teat and no pain 2. Change in colour of milk- It may be yellowish watery, blood or flakes in milk. 3. No temperature no anorexia 4. Decrease milk production
4. **Chronic mastitis:** 1. No pain and inflammation 2. Mainly flakes in milk or no milk in teat The udder will be fibrosed.

**Diagnosis :**

1. By history and symptoms.
2. By Mastoid test or California Mastitis test : Take 2 ml of milk from the affected udder and add 2 ml of mastoid solution. Mix it. If thickening of milk. Then + ve for mastitis.
3. By Lab test: 1. Bacteriological exam. of milk. 2. Culture of milk - sensitivity test.

**Treatment :**

1. Intramammary infusions

Note: 1° drain out all the milk from the affected quarter of animal and I/mammary infusions should be used. Don't use the milk of affected quarter until 2-4 days after the completion of treatment.

2. Inj. Hostcortin H 10 ml I /m Inj. Avil 10 ml I/M For Aute Mastitis, Inj. Terramycin 30 ml I / ml Inj. Dicrysticin 5 g I /m
3. If blood in milk, then use : Formalin 10 ml in 1-2 it of water oral Styplon tab 20 tabs. bid orally ; Styplon DS 10 tabs. bid orally  
Inj. Claudin/Chromostat/vit k 10-40 ml I/M or IN  
Human beings — Chromostat 2ml. I /M

4. If blockage in teat canal then remove that blockage with the help of Hug's knife and then apply the polythene tube.

MRCVS MRCVS MRCVS

**Control:**

1. Hygienic condition
2. Washing of hands and udder and teats before and after milking
3. Full hand milking should be done.
4. The milking of affected animal should be done in the separate utensil.

**7 ANTHRAX (SPLENIC FEVER )****Definition:**

It is a peracute febrile bacterial disease of cattle, S and G which is characterized by septicemia, high temperature and dark coloured blood from the natural orifices (mouth, anus, nostrils etc.), on PM no rigor mortis (stiffness) but sweating and splenomegaly is seen. This is a zoonotic disease.

**Etiology:**

Bacillus anthracis, G + ve bacteria, rod shaped . The spores of this bacteria are very resistant to chemical, heat and gastric juice. But these bacteria can be destroyed by disinfectant. The spores of this bacteria may live for years.

**Transmission:**

1. Through contaminated feed and water/needle .
2. Through cut on skin (through inhalation in human beings).
3. In case of pig, through contaminated bone meal. •

The spores of this bacteria enter in the respiratory tract of human being and they lead to the disease (Wool sorter's disease).

The bacteria are destroyed by gastric juice. But spores are resistant to it , in the intestine the bacteria are released from spores and cause disease.

**Symptoms :**

**1. Per acute symptoms:** 1. Death within 2. hrs, if live then,

High temperature (107° - 108°F); tremors, convulsions, dyspnoea; red mucous membrane of eye and nostril; before death sweating and dark coloured blood from natural orifices after death.

**2. Acute form:** Death within 24-48 hrs and if live then 1. Temperature (107° - 108F) .  
 2. Decreased ruminal movement 3. Anorexia 4 Abortion (in case of pregnancy)  
 5. TyMpany/bloat b .Diarrhoea/contipation/dyseentry 7. Decreased milk yield 8. Oedema of throat and perineal region or any part of the body. 9. Laboured breathing 10. After death dark coloured blood from the natural orifices.

In pigs mainly pharyngeal oedema is seen no septicemia in horse but oedema on abdomen, chest, throat and genital organ.

**Note :**

1. In anthrax, PM not to be done because when bacteria of this dis. come in contact with air they are changed into spores.
2. It is a zoonotic dis.
3. No rigor mortis
4. There is smell and accumulation of gas in the body of the dead animal.

**Diagnosis:**

1. By history and symptoms
2. By blood exam.
3. Post mortem lesions

**Differential Diagnosis:**

1. B.Q.
2. H.S.
3. Electric shock
4. Snake bite - fang mark, blue swelling
5. Tympany
6. Poisoning - Dysentery, diarrhoea, intestinal pain
7. Bacillary Hb uria - coffee coloured urine.
8. Electric shock - burnt hair, internal haemorrhage

**Treatment:**

1. Anti anthrax serum 150 - 200 ml IN. bid 5-6 days.
2. Inj. Penicillin - 20-40 lacs I/V
3. Inj. Terramycin/Cloxacillin/Ampicillin/Combiotic/Dicrysticin/Munomycin etc

**Control:**

1. Vaccination in healthy animals Anthrax vaccine 1 ml S/C 1 year Segregation of affected animal

Disinfectant of the area by caustic soda 5-10 per cent; bleaching powder 10 per cent.

**8 BLACK QUARTER (BLACK LEG)**

**Definition:** Acute febrile infectious bacterial disease of mainly young cattle characterized by rapid myositis (shoulder, thigh muscle), high mortality, toxæmia. It may be seen in buff, S and G swine and deer .

**Etiology:**

*Clostridium chauvoei* : Rod , G + ve , motile form spores . Cattle of aged 6-24 months and sheep of aged 1 year are more affected.

**Transmission:**

1. Tail docking
2. Shearing
3. Tattooing
4. Castration

5. Contaminated ground

6. Cuts

Spores of clostridium are very resistant. When they are absorbed by blood they travel in different parts of body.

**Symptoms:**Incubation period 1-5 days; duration of disease 24-36 hrs.; mortality 100 per cent

1. Inflammation of muscles (myositis) of shoulder, thigh
2. Accumulation of gas (gas pockets)
3. Crepitating sound from the muscles when pressed.
4. Rancid butter smell from the affected area.
5. Color of muscle is black.
6. Dark colored frothy blood from the muscles come out after the incision.
7. Suddenly rise in temperature or may be subnormal.
8. Decreased PR and RR, dull and depress.
9. Swelling of hind quarters which may go upto hock joint.
10. Lamene

**Diagnosis:**

1. By History of age , lameness , sudden death
2. By symptoms e.g. temperature gas pocket, oedema,
3. Exam. of blood ,G + ye rod shaped bacteria.
4. Accumulation of gas in the body.

**Treatment :**

1. Anti B.Q. serum 40 ml, 60 ml after 2 hrs, 100 ml after 2 hrs.
2. Penicillin 20 — 80 lacs IU I / M
3. Terramycin, Dicrysticin etc.
4. NSS 2-3 ltrs. to dilute the toxins
5. Keeping of ice packs at the inflammatory areaof muscle.

**Control :**

1. Formalin killed B.Q. vaccine 5 ml, S/C, Immunity 1 year.
2. Segregation of affected animal.
3. Burning of dead animal.
4. Disinfectant.

## 9 TETANUS ( LOCK JAW )

**Definition:** It is fatal infections bacterial disease of mammals ( human beings , horse, dogs may be in cattle ) and is characterized by hyperaesthesia tetani, convulsion, opisthotone and increase reflex excitability of nerve centers .

### **Etiology:**

*Clostridium tetani*; G + ve ; rod shaped bacteria . These bacteria grow in muscles and release two types of toxins: tetanospasmin and tetanolysin.

**Tetanospasmin:** It is absorbed by the nerves and show the nervous symptoms e.g. muscles tremor, excitement, opisthotone.

**Tetanolysin:** It lyses (kill) the RBCs.

### **Transmission :**

1. *Cl. tetani* bacteria live in intestines of horses, mules & donkeys ; these animals shed the bacteria and they are converted into spores. If they enter in the deep wound of the body then they release toxins and cause disease
2. Shearing, tattooing, tail docking, castration, tagging etc

**Symptoms:** Incubation period — 7-10 days

1. Stiffness of muscles
2. Lock jaw condition
3. Animal is unable to drink and eat.
4. Saw horse condition and opisthotone condition.
5. Prolapse of third eye lid, nictitating eye membrane.
6. Excitement, convulsion, hyperaesthesia
7. Temperature normal, PR normal.
8. Temperature rise when excitement.
9. Tympany
10. Difficulty in defecation
11. Death due to accumulation of gas in intestine or stiffness of respiratory muscles (lungs)

### **Diagnosis :**

By history and symptoms

### **Treatment:**

1. Anti tetanus serum 1.5 — 3.0 lacs IU , UV ; repeat after 12 hrs.
2. Penicillin 60-80 lacs IU , I/M
3. Glucose saline 3-4 bottle I / V
4. Inj. Largactil or Inj. Siquil 5 ml , I/M
5. Provide soft diet, keep the animal in dark place, don't disturb the animal.

**Prevention:**

1. Before any operation, inject tetanus toxoid 5 ml ,UM — Horses 2 ml I/M — S & G ;  
1 ml , UM — Small animal
2. Sterilization of the instruments.

**10. GLANDERS (FARCY)**

**Definition:** Highly communicable contagious bacterial disease of horses, may be found in acute or chronic condition and it is characterized by , septicemia and high fever , nodes or ulcers in the respiratory tract ,thick mucopurulent discharge from the nostrils and oedematous swelling of maxillary lymph node .

**Etiology :**

Malleomyces mallei ; G — ve ; rod shaped , non spore forming, non motile very sensitive to light and chemicals

**Transmission :**

1. By inhalation
2. By contaminated feed and water
- 3 .By cuts (abrasions)
4. By contact with lab animals
5. saliva, tears ,urine and feces

**Symptoms :**Two forms are seen

1. Acute Form — High fever, coughing, nasal discharge ulcer or nodules in respiratory tract.
2. Chronic form. Three forms- 1. Pulmonary form — epistaxis and chronic cough :2 Nasal form (a) Nodules in nasal septum, (b). Unilateral nasal discharge (c) Ulcer formation
3. Cutaneous form (Farcy) (a) Nodules on body (b) Purulent foul smell nasal discharge (c) Swelling of LN (lymph glands) near head and neck.

**Diagnosis :**

1. Typical symptoms
2. By Mallein test

This test should be done at the age of 6 months then every year.

**Procedure :**

1. Inject 0.1 — 0.2 ml of Mallein antigen in eye at intradermopalpebral (lower eye lid)
2. If there is lacrimal discharge, then wash the eye with NSS.
3. If there is oedema or pain or conjunctivitis (redness) then + ve for glander.

4. In case of suspected animal (no pain, less lacrimal discharge, less swelling) repeat this procedure again. If again, pain, conjunctivitis then + ve for glander.

**Precautions:**

1. Wash, your hands before and after test.
2. Use gloves on hands.
3. Cover your mouth and nose.
4. The test should not be done if the swelling is already in the eye.

**Treatment:** No treatment

**Prevention and Control :**

1. Proper sanitation, hygienic condition.
2. Regular Mallein test of equines.
3. Proper disposal of dead animal.
4. Destroy the animal if found + ve by Mallein test under Farcy act 1899. No one can keep this type of animal.

**11. STRANGLES**

**Definition:** Acute, contagious, fatal bacterial disease of equines characterized by inflammation of respiratory tract, abscess in LN near head and neck. It is also called suppurative regional lymphadenitis.

**Etiology :**

Streptococcus equi ; G + ve coccoid rod shaped bacteria excreted in the nasal discharge. Life long immunity after treatment.

**Transmission:**

1. By inhalation
2. By contaminated feed and water.

**Symptoms :** Incubation period 4 — 8 days.

1. Temperature increase, anorexia,
2. Bilateral nasal discharge
3. Discharge — thin — thick — mucopurulent
4. Pharyngitis, Laryngitis, coughing (painful)
5. Swelling of LN near head and neck.
6. Discharge from abscess
7. Pneumonia.

**Diagnosis :**

By symptoms — Inflammation of URT ,bilateral nasal dis., abscess formation in nodules.

**Treatment:**

1. Procaine penicillin 20-60 lacs 1U , I/M
2. Tetracycline 10 mg/kg bwt. I/M
3. Sulpha drugs (sulphonamide, sulphadimidine etc) 200 mg/kg bwt IN .

**Control :**

1. Segregation/Isolation of the effected animal.
2. Killed bact. vaccine 6 ml S/C, 2 ml•after 2 weeks again 2 ml after 2 weeks.

**12. ENTEROTOXAEMIA (OVER EATING DISEASES).**

**Definition :** Per acute bacterial disease mainly found in sheep but may also be seen in goats, calves, foals or younger animals, characterized by suddern onset, diarrhoea, toxaemia, enteritis, death. This disease is less seen in the animals which are of 2 years or more in age. Etiology: Clostridium perfringens — Type A, B, C, D, E, F. Gram + ye, rod shaped. These bacteria are natural habitat of intestine and they produce toxins. These toxins cause different types of dis/symptoms.

**Symptoms:**

1. **Clostridium perfringens Type A ( Haemolysis )** release toxins due to which following symptoms are seen ; Haemorrhage ; aemoglobinuria ; • jaundice ; anaemia ; high temperature 107°F ; death in 12 hrs.
2. **Clostridium perfringens Type B (dysentery)**
  - Diarrboea, dysentery in lambs.
  - Blood in faeces
  - Color of faeces — dark brown
  - Bellowing of the animals
  - Unable to suck milk
  - Sudden onset
  - Death within few hrs.
3. **Clostridium perfringens Type C ( Struck)** in sheep of age 1-2 year )
  - Pain in abdomen due to peritonitis
  - Animal runs aimlessly
  - Nervous symptoms — convulsions, opisthotones
  - Diarrhoea
  - Spasm of muscles lead to high temperature.

**I. Clostridium perfringens Type D ( Pulpy kidney disease.)**

This disease is mainly seen in well fed animals, Excitement, convulsion, grinding of teeth, circular movement , pressing head against wall, opistJaOtones , green coloured diarrhea, increase in temperature and death .

**Diagnosis :**

1. By typical symptom of different types
2. By sending intestinal fluid to the lab
3. By sending 1 foot part of intestine to the lab.

**Treatment :**

Very difficult to treat the animal because of the sudden onset of disease.

1. Hyper immune serum — for *C. perfringens* Type C.  
S & G 15 —20 ml S/C ; Calves 25 — 30 ml S/C 3-4 days
2. Sulpha drugs 200 mg/kg bwt , IN or S/C
3. Tetracycline- 5-10 mg/kg.b.wt. I/M

**Prevention :**

1. Hyper immune serum in suspected animal 20 ml S/C
2. ETV (Enterotoxaemia vaccine) before the onset of rainy season and stress. Immunity — 1 year -2.5 ml.
3. Multicomponent clostridial vaccine.
4. Auriomycin in the feed in rainy season

**VIRAL DISEASES**

**1. Foot & Mouth Disease (F.M.D.)**

**Definition:-**

It is an acute contagious viral disease of cattle, buffalo, sheep, goat and pigs (not of horses) and is characterized by vesicles on dorsal side of tongue, cheeks, and gums and at coronet joint: excessive salivation, less mortality and more economic losses.

**Why more economic losses:**

1. Less production of milk & spread of disease in out break;
2. Bullock becomes panthers.
3. The skin of the suffered animal is not fit for export.
4. Decrease growth rate and meat production.
5. Due to vesicles in coronet joint and in hoof there is deformation and shedding of hoof.
6. Abortion in pregnant animal.

**Susceptibility:**

1. Exotic breeds are more susceptible.
2. Cross breeds are less susceptible.
3. Indian breeds are susceptible less than cross breeds.
4. Animal susceptible - cattle, buffalos, sheep, goat, pigs.
5. Vesicles near the mouth are seen in human beings.

**Etiology: -**

It is caused by virus, Stain of virus are A.O.C. Asia SAT I, SAT H, SAT III. The virus is sensitive to formalin, caustic soda, UV-ray and resistant to cold.

**Transmission:-**

1. By direct contact with affected animal.
2. By contaminated feed and water.
3. By inhalation.

4. Saliva
5. Mechanical Transmission...

**Symptoms: - In the early stages:**

1. High Temp (105 F)
2. Dull and Depressed
3. Vesicles on dorsal side of tongue which are of large size as compared to vesicles of rinderpest.
4. Vesicles on cheeks, gums, coronet joint, hoof and also on udder and teats that may lead to mastitis.
5. Excessive salivation, pain in mouth and difficulty in mastication and anorexia.
6. Difficulty in walking.
7. Decreased milk yield
8. Abortion in pregnant animals.

If no treatment then secondary infections occur. If no secondary infection then animal become healthy in 7 days.

9. Bullock become panthers
10. Less mortality (2.5%) in large animal (50-70%) in small animals, infant 100% due to pneumonia, high temp.

**Diagnosis: -**

1. By history and symptoms.
2. By serological exam.

**Treatment:-**

- a. Washing of mouth with candy's lotion and then applying Boroglycerine.
- b. In hoofs use copper sulphate (2%) and candy's lotion.
- c. Broad spectrum antibiotics to avoid secondary infections.
- d. Soft diet
- e. Diuretic mixture in panthers.

**Prevention and Control:-**

1. Segregation of affected animals.

**Vaccination**

1. BAIF FMD vaccine
2. Hoechst FMD vaccine
3. Tissue culture FMD vaccine (IVRI)
4. Raksha - 3ml. S/C Immunity - 6 months.

**2. RINDERPEST****Definition:**

Acute, highly contagious, febrile, fetal viral disease of cattle, buffalo, sheep & goat and is characterized by vesicles on ventral side of tongue. The size of vesicles is very small like wheat bran, shooting diarrhea.

**Etiology:** - It is caused by paramyxovirus. This is seen in exotic, cross and Indian Breeds.

**Transmission:-**

By saliva, nasal discharge, lacrimal discharged.

By inhalation

By mechanical transmission.

By direct contact with affected animal.

By contaminated feed and water.

**Symptoms:-**

**Three stages:**

**1. STAGE OF HIGH TEMP:-'**

- (i) High Temp (106F), dull, depress, anorexia.
- (ii) The mucous membrane of vagina, anus will be red or purple.
- (iii) Lacrimal discharge.
- (iv) Nasal discharge, coughing.
- (v) Dry muzzle.

**2. STAGE OF BUCCAL LESIONS:-.**

- (i) Necrotic ulcers are found on the ventral side of tongue, gums, lips cheeks etc.
- (ii) Excessive salivation.
- (iii) No regurgitation.
- (iv) Ulcers may spread unto pharynx and esophagus.

**3. STAGES OF DIARRHOEA:-**

- (i) Shooting diarrhea
- (ii) Foul smell in faecal material, faeces come out with blood or mucous.
- (iii) Less production of milk.
- (iv) Abortion in pregnant animal.
- (v) Death due to dehydration.

**Diagnosis:-**

1. By history of outbreak.
2. By symptoms i.e. high temp. Vesicles on ventral side of tongue.
3. Post mortem lesions zebra marking intestine.

**Treatment:-**

1. Broad spectrum antibiotics.
2. Astringent powder to control diarrhea.

3. Dextrose 5-6 bottle I/v.
4. Antirinderpest serum 100-150 ml. I/v.
5. Washing of mouth.

### Prevention And Control:-

1. Segregation of affected animal.
2. No shifting of animal in outbreak.
3. Washing of shed with 5% phenol.
4. Antirinderpest serum in healthy animal.
5. Vaccination — Freeze dried goat tissue rinderpest viral vaccine — 1 ml. S/c Immunity 5 yrs.

### 3. RABIES (Hydrophobia)

#### Definition:-

A zoonotic viral disease of animals and is characterized by excitement, paralysis, tremors and death.

#### Etiology:-

Rabies virus which is neurotropic in nature and is excreted through saliva.

#### Transmission:-

1. Through biting
2. By licking

#### Symptoms:-

There are three forms of symptoms in case of dogs :-

##### (a) Prodromal form :

1. Change in behavior
2. Ignorance of the owner
3. Anorexia
4. Biting of flies

##### (b) Furious form :

1. Excitement
2. Out of control
3. Pupil dilate
4. Excessive salivation
5. Temp. normal

##### (c) Paralytic form / dumb form :

1. Excessive salivation
2. Paralysis of lower jaw; pharynx and larynx
3. Death within 7-10 days.

**Symptoms in Cattle:**

1. Continuous bellowing
2. Frequent urination and defecation
3. Grinding of teeth.
4. Paralysis of hind limbs

**Diagnosis:-**

1. By history of dog bite.
2. By symptoms death with in 7-10 days,continuous bellowing frequent urination etc.
3. P.M. Lesson — Intra cytoplasmic inclusion bodies and these bodies are known as Negri bodies in brain.

**Treatment:-**

1. Wash the wound with carbolic acid, Tri. Iodine or with any antiseptic sol. And keep the wound open
2. Antirabies vaccination :- Post bite antirabies vaccine (5% sheep brain suspension) Route S/C, duration -14 days.

Dogs/Cats -2ml

Calf/S&G 5ml

Heifer — 10ml

Heifer 3yrs -15-20 ml

Cattle/Buffalo — 30ml

Camel — 60ml

**Prophylactic Anti-Rabies Vaccine**

(20 % sheep brain suspension) vial — 5ml.

inj. 3 months 2-3 ml. S/c

Ind inj. After 6 months 5 ml S/c

11rd inj. After one year and then every year — 5ml. S/c

**4. T.D.S. (Three days sickness)****Definition :-**

Acute, infectious viral disease and is characterized by muscles tremors, pain, stiffness, shifting lameness etc.

**Etiology :-**

TDS Virus — Mortality 1-5 %

Morbidity 50-80%

**Transmission :-**

1. By sand flies
2. Mainly seen in rainy seasons.

**Symptoms:-**On day 1<sup>st</sup>:-

1. Temp. 106F
2. Anorexia, milk production and ruminal movement decreased.
3. Contipation or diarrhea
4. Lacrimal discharge
5. Lymph nodes swelling

On day 2<sup>nd</sup>:-

1. Muscle stiffness
2. Rheumatism
3. Milk fever posture

On day 3<sup>rd</sup> :-

1. Tremors
2. Drenching pneumonia
3. Recovery (3-5 days)
4. Shifting Lameness

**Diagnosis:-**

1. By history of rainy seasons and flies.
2. Recovery of animal after 3 days.
3. Symptoms i.e. sudden onset, muscles stiffness, shifting Lameness.

**Treatment:-**

1. Complete rest to the animal.
2. Antipyretics drugs e.g. Inj. Novaloin, Soda salicylas with Iodine, Inj. Paracetamol, Inj. Feva Analgin etc. 20-30 ml. L/M
3. Broad spectrum antibiotic.

**Prevention:-** Prevent from flies.**5. CANINE DISTEMPER****Definition:-**

Acute contagious viral disease of dogs which is characterized by inflammation of respiratory tract, high temp. vesicles on skin, on digestive tract and also nervous symptoms are seen.

**Etiology:-**

It is caused by canine distemper virus and mainly seen in the pups of age upto 6 months all the unvaccinated pups aged up to 1 yr. will suffer from this disease.

**Transmission:-**

1. Direct contact
2. Contaminated feed and water
3. By nasal discharge

#### 4. By inhalation

#### Symptoms:-

Four form of symptoms are seen.

#### 1. Pneumonic form :-

All the pneumonic symptoms are seen i.e.

- i. Painfull, harsh or dry cough
- ii. Sneezing
- iii. Greenish nasal discharge
- iv. Dyspnoea
- v. Resp. troubles and high temp.

#### 2. Gastrointestinal Form :-

- i. Constipation
- ii. Diarrhea
- iii. Vomition
- iv. Emaciation
- v. Brownish mucos membrane of digestive tract Pain in abdomen and high temp.

#### 3. Cutaneous Form :

- i. Pustules/vesicles/high temp.
- ii. Papules formation on the belly of dog. '
- iii. Scab formation.

#### 4. Nervous Form :

- i. Epilepsy.
- ii. Epilectic convulsion.
- iii. Tremors of muscles.
- iv. Restless ness.
- v. Urination and defecation will be difficult.
- vi. Tapping sound while walking.

#### Sequele

1. Corneal opacity.
2. Paralysis of hind limbs.
3. Decreased smelling power.

#### Diagnosis —

1. By History of age.
2. Symptoms — 4 types

#### First Aid:

1. Broad spectrum antibiotics :  
Inj Dicrystcin :250 mg. l/m  
Inj. Synthocillin :250 mg. in pups 1/m

- Inj. Ampicillin :250 mg. in pups Um.
2. Fluid therapy :1/2 — I bottle 1/v
  3. Washing of eyes : Boric acid eye drop.  
Zinc sulphate 2% eye drops.  
Mouth washing : candy's lotion
  4. To Prevent gastrointestinal troubles :  
Ant acid : 1 t.s.f. oral  
Siquil : ml. 1/m
  5. Application of antiseptic oint on lesions
  6. Nervine tonic i.e. Neurobion, Neuroxin, Elneuron, Optineuron, Polybion B1+B6+B12 ,  
1-2 ml. 1/m x 5 days.
  7. Soft and nutritious diet

**Control:-**

1. Hygenic conditions.
2. Segregation of animal.
3. Vaccination : condur DHL 1 ml. age 4 months s/c

**6. COW POX****Definition:-**

It is a contagious viral dis. of cattle

**Etiology:-**

Variola vaccinia virus.

**Transmission:-**

1. By contact.
2. By milker's hand
3. By milking machine
4. By inhalation in sheep

**Symptoms:-**

5 stages of symptoms of pox lesions are :

- (a) Roseolar stage : Redness on under, teat, ear etc.
- (b) Papular stage : Papules formation on red area.
- (c) Vesicular stage : Watery fluid In papules.
- (d) Pustular stage : Thick watery fluid or pus formation.
- (e) Scab stage : Scab formation and this is responsible for spreading of diseases.
- (f) Pain, difficulty in milking, mastitis.
- (g) Lesions on mouth or on lips of calf which takes the milk of effected animal.

**Diagnosis:-**

1. By Specific 5 stage of symptom

## First Aid

1. Washing of lesions with candy's lotion or alum solution.
2. Apply zinc oxide or boric acid ointment on lesions.
3. Broad spectrum antibiotics.

## Prevention and control:-

1. Disinfection of the house.
2. Segregation of the effected animal
3. Washing of hands of milker before and after milking.
4. Milking should be done in the effected animal at the end of milking process.

## 7. SHEEP POX :

In the sheep this disease is spread in the form of outbreak and symptoms are :-

1. Temp. 106 F
2. Lacrimation
3. Salivation
4. Nasal discharge
5. Pneumonia
6. Enteritis may lead to heavy mortality
7. Fatal in case of lambs.

## First Aid

Antipyretic and antibiotics are given : Washing of lesions with candy lotion or alum lotion, applied zinc oxide and boric acid ointment.

## Prevention and control :-

- Aluminium gel absorbed sheep pox virus vaccine :-
- $\frac{1}{2}$  ml. S/c at the age of 3 months, immunity — 4 months, at base of ear.
- Tissue culture sheep pox vaccine : 1 ml. Sic immunity 2 ys.

## 8. BUFFALO POX —

Pox lesions are seen at vulva, vagina, perineum, scrotum in male and some time in generalized form.

## 9. HOG CHOLERA (Swine Fever)

### Definition:-

Acute, highly contagious and infectious viral disease of pigs characterized by out break, foul smell diarrhea, vomition haemorrhage of internal organs and death of piglets.

### Etiology:-

By swine fever virus and mainly seen in piglets and recovered animal become immune (life long immunity) .

**Transmission:-**

By milk, urine, nasal discharge, faeces & saliva.

**Symptoms:-**

- a) Acute Form : Death of piglets with in few hours.
- b) Acute and chronic Form :
  - (i) High temp. 105-106F PR, RR increased.
  - (ii) Dullness & anaemia, and back arched.
  - (iii) Foul smelling green brownish diarrhea & vomition
  - (iv) Skin become purple at abdominal area.
  - (v) Haemorrhage & redness .
  - (vi) Conjunctivitis & purulent discharge from eye.
  - (vii) Nervous symptoms i.e. circling etc. , muscle toemors.
  - (viii) Abortion in animals. Post Mortem: Inflammation and haemorrhage in kidney, larynx, Ileocaecal junction, L.N. etc.

**Diagnosis :**

1. By outbreak
2. By symptoms
3. By P.M. Exam.
4. Blood in G. Pig.

**Treatment :**

1. Hyper Immune antihagcholera serum 50-150 I/V.
2. Antipyretic — Novalgin, Cemizole 5ml IN.
3. Claudin/Chromostat — 2-3 ml 1/M
4. Antibiotics / Sulpha Drugs

**Prevention & Control :**

Crystal violet killed vaccine 5 ml S/C, 10ml S/C Above 35kg. Immunity —1 yr.  
(IVIZI) Lapinized Swine fever Vaccine (Live attenuated) 1ml S/C) 2-3 months of age. Immunity —1 year.

Segregation of effected animals. Transportation not allowed. Proper disposal of dead animals.

**FUNGAL DISEASES ,****DEGNALA DISEASE****Defintion :**

Infectious fungal disease of buffalo, buffalo calves and cows and is characterized by necrosis of tail, ear tips etc.

**Etiology:**

Toxins of fungus *Fusarium equisetii*.

**Transmission :** Fungus contaminated feed

**Symptoms:**

1. Oedema of dependent parts.
2. Necrosis of coronet, patella, ear tips and the tail, ear tips may be separated from the body.
3. Lameness, weakness and death.

**Diagnosis:**

History of taking fungus contaminated wheat bhusa.

**Treatment (First Aid):**

1. Change of fodder at once.
2. Feed the affected animal fresh fodder which was taken from healthy source.
3. Mineral mixture 30 g x daily with treacle.
4. Liquor Arsenicol —10-20ml oral after feed for 5 days.
5. Antiseptic dressing of wound.
6. Mifex —100 — 250 ml I/V on S/C.
7. Broad spectrum antibiotics.

**Prevention and control:**

Prevention is more important than treatment.

1. Do not put dry fodder at moist places
2. Always keep the dry fodder at a dry and elevated surface.
3. It should be complete dry before storage.
4. It should be free from contamination of fungus.
5. Hygienic conditions
6. Protect the animal from cold waves.

## DISEASES OF CAMEL

### 1. JHOLLING

**Definition:** Contagious disease of camel characterised by ulcers on skin and mainly seen in winter.

**Etiology :-** May be Streptococcus bacteria

**Transmission:** By contact

**Symptoms:**

- (1) Swelling on any part of body but mainly on neck hind quarter and abdomen.
- (2) After swelling there is itching — raw patch on skin
- (3) Suppurative and maggot wound and white scar
- (4) Weakness.

**Treatment (First aid) :**

- (1) Penicillin

- (2) Sulphanilamide + Iodoform + Zinc oxide + Vaseline 1 part + 1 part + 4 parts + 10 parts
- (3) If only swelling Red Iodine of mercury ointment — 1:16 & then washed with carbolic acid. .
- (4) Sod. chloride — 150 gm for prevention.

## 2 .KUMRI OR SHIVERING DISEASE

### Definition:

A disease of camel which is characterized by shivering of thigh muscles.

### Etiology:

Not known, Hot and cold exposure , (Continuous work and not rest)

### Symptoms:

Difficulty in sitting and standing (it takes about 5-10 minutes), Shivering of thigh muscle, Bubbling sound while sitting, In advance stages there is sound while sitting and animal muscles become useless.

### Treatment (First aid) :

No treatment only pain killer can be administered.

## 3. MALLI OR ABSCESS OF LUNGS OR SUPPURATION OF LUNGS

### Definition:

Disease of camel which is generally seen when the complete treatment of pneumonia is not given.

### Etiology:

Mainly seen after pneumonia

### Symptoms:

1. Weakness/emaciation
2. Off feed
3. Coughing after 2-3 weeks
4. Grinding of teeth
5. Dull sound in the effected areas (Auscultation)
6. Death due to asphyxia, pleuritis
7. P.M. Exam — Abscess in lungs

**First aid:** No treatment  
Euthanasia

## VIRAL DISEASES OF BIRDS

### 1. A.L.C. (AVIAN LEUCOSIS COMPLEX) OR MAREK'S DISEASES

**Definition:**

Disease of chicks characterized by paralysis, cheesy discharge from eyes, tumour formation on spleen and liver etc.

**Etiology :**

Avian leucosis complex virus.

**Transmission:**

By contact, by feed and water by eggs and through faeces.

**Symptoms:**

Five types of symptoms are seen

1. Paralytic forms (Marek's Disease). Paralysis of legs and neck is seen at age of 3-6 months.
2. Ocular form (Grey eye) Cheesy discharge from eye.
3. Visceral form (Lymphoid Leucosis tumour form) Tumours in the internal organs.
4. Osteopetrotic form (Thick leg disease). Long bones become thick. Kidney becomes hard.
5. Leucaemic form — Ratio of WBC and RBC becomes 1:2 while normal ratio is 1:100. The colour of blood becomes yellowish.

**Diagnosis:**

By five types of symptoms.

**Treatment (First aid) :No Treatment****Control:**

1. It can be prevented by giving vaccines. 0.2 ml s/c to day old chicks in neck.  
Immunity — life long
2. Purchase birds from disease free flocks.
3. Hygienic condition.

### 2. RANIKHET DISEASE (NEW CASTLE DISEASE)

**Definition:**

Acute & contagious viral disease of birds characterized by high fever, dyspnoea, sneezing, rales, paralysis of neck and leg, high mortality etc.

**Etiology:**

R.D. virus

**Transmission:**

By contact, contamination of feed and water, carrier birds, nasal discharge, by faeces & by eggs.

**Symptoms:**

(I.P. 2-15 days) (Temp (110° — 112°F)

1. Resp. symptoms Such as — dyspnoea, sneezing, rales etc. (a long gassy inhalation through opened beak)
2. Paralytic form — paralysis of neck and leg.
3. High Mortality (upto 100%).
4. Greenish diarrhoea.

**Diagnosis:**

1. By symptoms and P.M. exam — Cheasy material in caecum
2. Congestion in trachea, lungs and in air sacs.
3. Haemorrhage at the junction of proventriculus and gizzard.

**Treatment: (First aid) :**No treatment

**Control:** By R.D. vaccine

1. RDF 1 (Lasota) strain

Dose — 1 ampoule = 100 doses

1 drop is given intraocular in day old chicks.

Immunity — 7-8 weeks.

2. RDF2 or R2B (Freeze dried R.D. vaccine)

Dose — 1 ampoule = 200 doses

½ ml S/C per bird at the age of 6-8 weeks under wing, Immunity life long.

3. B-complex syrup 5 ml /It of water.

**3. FOWL POX (AVIAN DIPHTHERIA)****Definition:**

It is a viral disease, of birds characterized by nodules or warts formatiotat the featherless parts of birds such as comb, wattle, eyelids, corners of mouth, nostrils etc. This disease is found in two forms — skin form and diptheric or wet form.

**Etiology:**

Fowl pox virus

**Transmission:**

By contact, contaminated feed and water, by eggs, by skin abrasions, faeces etc.

**Symptoms:**

Two types of symptoms are seen :

**1.Skin form:** Formation of white colour nodules. & change into yellow colour. Five stages of pox lesions are seen & they are

- |                    |  |
|--------------------|--|
| a) Roseolar        | : redness of featherless area.   |
| b) Papular stage   | : papules formation on that area<br>: watery fluid in papules.           |
| c) Vesicular stage | : thick watery fluid like pus in papules.                                |
| d) Pustular stage  | : Scab formation on that area. This stage is responsible for spread of . |
| e) Scab stage      | : diseases.  |

Mortality is less in this form.

## 2. Wet or Diphtheric form :

- 1) There is formation of yellowish false mucous membrane at the oesophagus area,
- 2) dyspnea — it may lead to death
- 3) Mortality upto 50%
- 4) Dropping of feathers.

### Diagnosis:

By symptoms and lesions.

### Treatment:

(First aid) : No treatment (only slaughtering of animal).

### Vaccination:

Fowl or pigeon pox vaccine — by wing web method 2 drops.

Dose: 1 Ampoule = 100 doses.

### Immunity:

6-8 weeks.

## BACTERIAL DISEASES OF BIRDS

### 1. PULLORUM (BACILLARY WHITE DIARRHOEA)

#### Definition:

Acute septicaemic bacterial disease of chicks, adults, turkeys and is characterized by heavy mortality, white diarrhoea and adults become carrier.

#### Etiology:

Salmonella pullorum, G-ve, nonmotile, cocobacillus bacteria.

#### Transmission:

- 1) Vertical transmission (Through ovary).
- 2) Mechanical transmission.

- 3) Hatchery
- 4) transmission.
- 5) Contamination of feed and water.

**Symptoms:**

1. White diarrhoea
2. Pasty vent.
3. Sticky feather
4. Death within 3 to 5 days.
5. Mortality — 30 to 50%
6. P.M. exam — unabsorbable yolk, necrosis of liver, spleen muscle, cheesy material in caeca.

**Diagnosis:**

1. By symptoms.
2. By P.M. examination
3. Isolation of bacteria from blood .
4. Blood agglutination test.

**Treatment: (First aid) :**

1. Furazolidone — 0.05% in water.
2. Neftin powder — 50 to 100gm per quintal of feed.

**Control :**

1. Hostacycline Powder 5gm / gallon of water.
2. By regular blood examination.

## 2. FOWL TYPHOID

### Definition:

Acute septicaemic bacteria disease of chicks characterized by greenish yellow colour diarrhoea and high mortality and symptoms are same as in pullorum.

### Etiology:

Salmonella gallinarum, G-ve, non motile cocobacillus bacteria.

### Transmission:

Same as in case of Pullorum disease

### Symptoms:

1. High temperature.
2. Dyspnoea.
3. Loss of appetite
4. Green yellow diarrhoea.
5. Dehydration.
6. Anaemia,
7. Draw siness
8. Mortality — 30 to 50%
9. P.M. lesion — Swollen and friable liver and large kidneys.

### Diagnosis :

1. By history.
2. By symptoms
3. By blood test
4. By culture exam
5. By serum agglutination test.

### Treatment (First aid) :

1. Furazolidone powder — 1gm/litr of water for 7 days.
2. Neftin powder — 50 —100 gm/Quintal feed.
3. Inj. Teroamycin ml I/M per bird
4. Hostacycline Powder 5gm / It for 5-7 days. Oral
5. Sulphaquinoxaline 16% 10ml / It of water 3-2-3.

### Control:

1. Segregation and elimination of effected birds.
2. Agglutination test and destroy the positive case.
3. Disinfection of instruments.

### 3. CRD (CHRONIC RESPIRATORY DISEASE) OR INFECTIOUS SINUSITIS OF TURKEY

#### Definition:

Infectious diseases of birds (mainly turkeys) characterized by URT infection, high mortality, in chicks and low eggs production in adults.

Etiology : *Mycoplasma gallisepticum*

#### Transmission:

1. By contact
2. By contaminated feed and water
3. By air and by stress

#### Symptoms: In broilers

##### URT Symptoms:

1. Sneezing, sinusitis and discharge from nostrils.
2. Discharge from eyes.
3. Loss of appetite.
4. Diarrhoea with foul smell etc.
5. P.M. lesions : tracheitis and sacculitis (inflammation of air sacs)
6. Congestion of lungs.

#### Diagnosis:

1. By symptoms.
2. By P.M. lesion : Tracheitis & sacculitis.
3. By blood agglutination test.

#### Treatment (First aid) :

1. Injection streptomycin 25 mg/kg of body weight I/M
2. Hostacycline powder — 5gm/ltr of water for 5-7 days.

#### Control :

1. Hostacycline Powder 5gm / gallon (5 hr.)
2. Change of litter
3. Vit. A in feed.

### 4. SPIROCHAETOSIS

#### Definition:

Bacterial disease of hen characterized by chronic fever, listlessness and leg weakness etc.

#### Etiology:

It is caused by a Spirochaets named *Borrelia anserina* bacteria.

**Transmission:**

- a. By ticks(*Argas persicus*) or fowl ticks
- b. By faeces

**Symptoms:**

1. High Temperature
2. Paralysis of legs
3. Yellow green diarrhoe
4. Convulsions, emaciations anaemia
5. PM — Splenomegly & haemorrhage

**Diagnosis :**

1. By symptoms.
2. By blood examination
3. By presence of ticks around poultry farm

**Treatment (First aid) :**

1. Penicillin 50000 IU, I/M/bird
2. Hostacycline powder 5 gm/lt of water for 7 days.

**Control :**

1. By disinfection of area
2. By control of ticks
3. By giving vaccination *Spirochaetes* vaccine Dose — 1mlS/C  
Immunity — 1 year

**5. FOWL CHOLERA (AVIAN PASTEURELLOSIS)****Definition:**

It is a contagious, septicaemic bacteria disease of birds characterized by high temperature, diarrhoea and sudden death.

**Etiology:**

G-ve, bipolar, rod shaped *Pasteurella aviseptica* bacteria.

**Transmission:**

1. By contaminated, feed and water
2. By wound, flies and dirty waters
3. By inhalation
4. Through contact of disease birds.

**Symptoms: Three type of symptoms (IP 2-9 days).**

1. Per acute — sudden death.
2. Acute
  - a. Green colour diarrhoea, anorexia depression.
  - b. Blue colour of comb & wattle, eyelobes etc.

c. Froath of saliva from mouth

### 3. Chronic

- a. Symptoms of URT-such as coughing, sneezing and nasal *discharge etc.*
- b. Lameness
- c. Swollen wattles, dropping of wings.
- d. Nervous symptoms also seen
- e. Mortality 90 to 100%

#### **Diagnosis:**

1. By symptoms
2. By isolation of bacteria from blood

#### **Treatment (First aid) :**

1. Liquid Embazine 16% : 10 Mu litr of drinking water for 3-2-3 days.
2. Sulphadimidine liquid (16%) in water for 3-2-3 days.
3. Injection streptomycin : 30 mg/kg body weight I/M + Hostacycline powder etc 5gm/gallon of water.
4. Inj. Terramycin etc. 1ml I/M on alternate day.

#### **Prevention and Control :**

1. Hostacycline powder 2.5 gh/5 ltr of water oral for 7 days.
2. Segregation of affected birds.
3. Hygeinic conditions
4. Proper disposal of dead birds & disinfection of instruments.
5. Vaccination — Fowl Cholera vaccine : 1ml S/C at the age of 10 weeks. Immunity-8