Miscellaneous blood pathogens & Therapy and control

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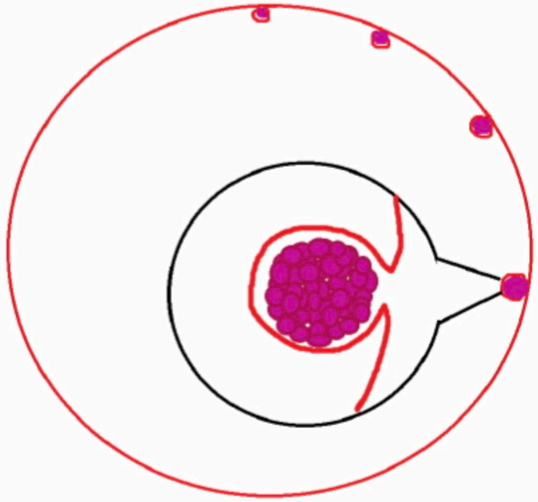
Miscellaneous blood pathogens

ANAPLASMA SPP.

- Anaplasmosis is a vector-borne rickettsial disease of animals caused by *Anaplasma* spp.
- In ruminants, the disease is caused by *A. marginale, A. caudatum* and *A. centrale.* It is known as "yellow-bag" or "yellow fever" as the affected animals develop a jaundiced appearance. It is a vector borne infectious, haemolytic rickettsial disease which causes immune mediated extravascular haemolysis.
- They appear as pinkish or magenta coloured dots of different sizes along the margins of infected erythrocytes. Each dot is actually a group of rickettsia in epierythrocytic position



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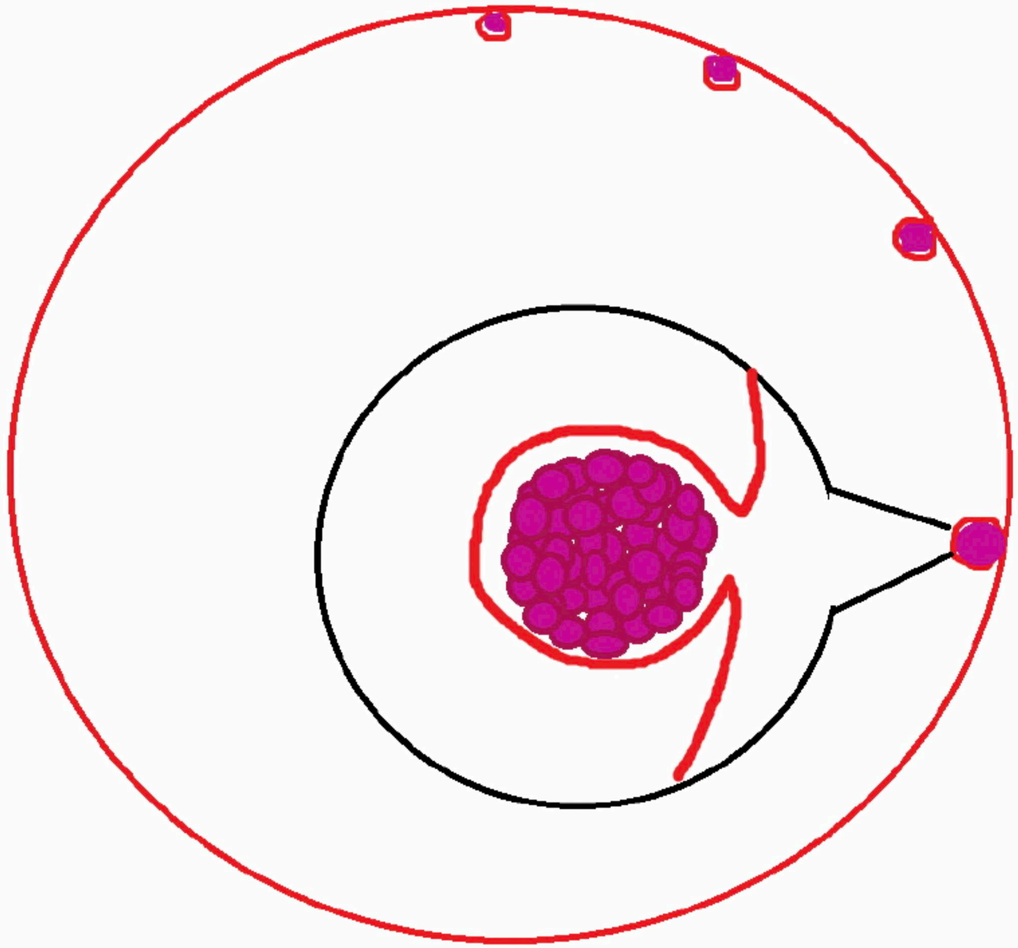

Miscellaneous blood pathogens

Transmission:

- Anaplasmosis is transmitted by ticks which act as biological vectors. Mechanical transmission occurs by blood sucking flies especially horse fly, stable fly and mosquitoes. Contaminated equipment serve as source of infection.

Pathogenesis:

- With substantial loss of RBC, clinical anaemia is seen-PCV, Hb and erythrocyte count is decreased. Many parasitized RBCs are destroyed and RBC production drops resulting in appearance of clinical signs. Usually 35-50% RBCs are infected during this stage.

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Clinical signs:

- There is increase in body temperature (40-41◦C), rapid decrease in lactation, animal becomes anaemic, weak and lags behind the herd, becomes anorectic and does not drink even water.
- Skin is pale around the eyes, muzzle, lips and teats, later skin becomes icteric.
- There is constipation, excitement and rapid weight loss. Urine voided is dark yellow, animal may fall down and is unable to get up, the affected cattle either dies due to hypoxia or recovers in 1-4 days. In convalescent stage, cattle show weight loss and abortions.

Necropsy lesions :

- Marked anaemia, jaundice, thin watery blood, enlarged spleen which is soft with prominent follicles, liver is mottled and yellow orange in colour, gall bladder is distended with thick brown or green bile, regional hepatic and mediastinal lymph nodes appear brown

Therapy and Control

Trypanosomosis - Treatment

- Quinapyramine derivatives: Antrycide prosalt (Tribexine®, Triquin®, Tevansi®, Trypnil®) is a combination of antrycide methyl sulphate and antrycide chloride. Dosage is 7.4 mg/kg b.wt. SC as a 7% solution. This is the drug of choice when curative/prophylactic effect is warranted

- Suramin: at 0.5 g/45 kg b.wt. followed by half the dose 2 weeks later. Prophylactic dose is 0.5 g/45 kg b.wt. at 4-6 weeks interval. Suramin can be given in divided doses in weak and debilitated animals

- Diminazene aceturate: 3.5 mg/kg b.wt. is given as SC or IM injections

Therapy and Control

- Trypanosomosis-Control
  1. Chemoprophylaxis.
  2. Vector control.
  3. Development of trypanotolerant breeds.

Therapy and Control

- Babesiosis-Treatment
  -Diminazene aceturate (Berenil®, Pirocide®, Ganasag®, Azidin®) at a dose of 2.5-3.5 mg/kg b.wt. SC or deep IM injection. It interferes with the aerobic glycolysis and synthesis of DNA in the parasite
  -Imidocarb-0.5 to 1 mg/kg b.wt. SC for both therapeutic and prophylactic use

Therapy and Control

- **Babesiosis-Control**
  -Tick control to be done
  -Imidocarb-0.5 to 1 mg/kg b.wt. SC for both therapeutic and prophylactic use

Therapy and Control

Theileriosis-Treatment

- Buparvaquone is the drug of choice (Butalex®, Butasun®, Bupamed®, Butarid®, Bupacin® are few of the trade names for the drug). It is given at 2.5 mg/kg b.wt. IM as a single dose
- Parvaquone: 20 mg/kg b.wt. IM
- Tetracyclines: 15 mg/kg b.wt. IV for 5 days
- Chlortetracycline: 16 mg/kg b.wt. PO is most effective against the schizonts
- Halofuginone: 1-1.2 mg/kg b.wt. PO
- For *T. equi,* Imidocarb in its dipropionate salt (ID) is considered to be the most effective drug

Therapy and Control

- **Theileriosis-Control**
  -Vaccine: Rakshavac-T (Indian Immunologicals, Hyder-abad) is available for cattle in India.
  Administered to cattle and calves of 2 months of age and above. Dosage: 3 ml of vaccine is injected subcutaneously, preferably in the mid neck region.
  Immunity develops 6 weeks after vaccination and immunized cattle withstand the attack of infected ticks for a period of 3 years and when animals are reared in tick-free conditions, revaccination is recommended every 3 years.
  -Control of the tick vector is essential.

Therapy and Control

- **Anaplasmosis-Treatment**

  -A multifaceted approach to treatment is essential. Tetracycline is the drug of choice. Oxytetracycline (10 mg/kg b.wt. IV) daily for three days along with blood transfusion, vitamin C, parenteral haematinics and liver extracts are warranted when less than 15% of RBCs are infected.

  When more than 15% RBCs are infected, recovery depends exclusively on the animal's natural ability for erythropoiesis.

Therapy and Control

- **Anaplasmosis-Control**

  -Vector control.

  -Removal of carrier animals

  -Vaccination. Anaplaz® (Fort Dodge) and Plazvax® (Schering-Plough) are used

  Combavac 3 in 1, a combination vaccine against *B. bovis*, *B. bigemina* and *A. marginale* can be used.

Vector-borne protozoan diseases of domestic livestock

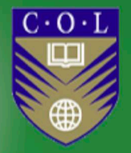
1. Trypanosmosis in domestic animals

2. Babesiosis in bovines

3. Theileriosis in cross-bred cattle

4. Diagnosis of blood protozoan diseases

5. Miscellaneous blood pathogens & Therapy and control



Thank you