BACILLARY HEMOGLOBINURIA

The Organism

- Clostridium haemolyticum (novyi type D)
  - rod-shaped bacterium
  - soil-borne infection
  - Gram positive
  - spore-forming
  - Non motile
  - Anaerobic
  - Necrotoxic and hemolytic beta toxin produced by Clostridium haemolyticum, a soil-borne anaerobe, growing in a necrotic infarction of the liver

Epidemiology

- Cattle are the usual species involved although occasional cases occur in sheep and rare cases in pigs
- animals in good condition are more susceptible
- Occurs in summer and autumn in endemic areas, which are usually irrigated or subirrigated fields

Clinical Signs

- found dead without signs having been observed
- cessation of rumination, feeding, lactation, and defecation
- Abdominal pain
  - disinclination to move
  - archedback posture
  - Grunting may be evident on walking
- Respiration is shallow and labored
- pulse is weak and rapid

Post Mortem Lesions

- Subcutaneous, gelatinous edema, which tends to become crepitant in a few hours, and extensive petechial or diffuse hemorrhages in subcutaneous tissue are characteristic
- There is a variable degree of jaundice
- Excessive amounts of fluid, varying from clear to bloodstained and turbid, are present in the pleural, pericardia!, and peritoneal cavities
- ischemic infarct in the liver One or more may be present in any part vary from 5-20 cm in diameter.
  - The infarct is pale, surrounded by a zone of hyperemia, and has the general appearance of local necrosis
- Red urine is present in the kidneys and bladder and petechiation is evident throughout the kidney

Diagnosis

- Clinical sign
- Case history
- definitive antemortem test or postmortem lesion
- Diagnostic confirmation
  - Typical liver lesion
  - positive fluorescent antibody
  - staining of organism in lesion
- Bacteriology
  - tissue from edge of liver infarct, placed in an airtight container
  - four air-dried impression smears from lesion border
  - anaerobic Culture
  - fluorescent antibody test (FAT)
- Histology
  - fixed liver lesion
  - kidney

Differential Diagnosis

- differentiation from
  - other diseases in which hemoglobinuria, myoglobinuria, and hematuria are cardial signs.
  - In an animal found dead differentiation from other clostridial diseases and anthrax may be required
  - Acute leptospirosis
  - Postparturient hemoglobinuria
  - Hemolytic anemia caused by cruciferous plants
  - Babesiosis and anaplasmosis
  - Enzootic hematuria
  - Chronic copper poisoning (sheep)

Treatment

- Suggested drugs/Clostridium species
  - Penicillin G
- Alternative drugs/Clostridium species
  - Tetracycline
  - clindamycin
- Antipyretics
- Antiserum
- Supportive treatment
  - blood transfusion
  - parenteral fluid
  - electrolyte solutions
  - Bulls should not be used for service because of the danger of liver rupture.
- protected from nutritional and climatic stress until they are fully recovered.
- Hemopoiesis should be facilitated by the provision of mineral supplements containing iron, copper, and cobalt.

Prevention and Control

- Annual vaccination preceding the period of risk
- The carcasses of animals dying of the disease should be disposed of by burning or deep burial.