INFECTIOUS NECROTIC HEPATITIS
(BLACK DISEASE)

The Organism

- Clostridium novyi type B
  - rod-shaped bacterium
  - soil-borne infection
  - Gram positive
  - spore-forming
  - Non motile
  - Anaerobic

Epidemiology

- An acute toxemia of sheep, cattle and sometimes pigs and horses caused by the toxin of Clostridium novyi elaborated in damaged liver tissue
- Outbreaks usually associated with fascioliasis
- C. novyi types A and C are also resident in soil and may invade a carcass postmortem, but do not cause infectious necrotic hepatitis.
- The disease is always fatal in both sheep and cattle
- The disease is rare in horses.
- Adult sheep in good condition
- Seasonal prevalence related to the migration of immature liver fluke in the liver and host snail population
- Clostridium novyi type B resident in soil and may It be present in the liver of normal animals**.**

Clinical Signs

- In sheep The course from first illness to death is never more than a few hours and death usually occurs quietly without evidence of struggling
- segregate from the rest of the flock
- Hyperesthesia
- Respiration is rapid & shallow
- Toxemia & fever
- Abdominal pain & peritonitis
- Cattle Clinical findings lasting for 1-2 days

Post Mortem Lesions

- Bloodstained froth may exude from the nostrils
- The carcass undergoes rapid putrefaction
- There is pronounced engorgement of the subcutaneous vessels and a variable degree of subcutaneous edema
- The dark appearance of the inside of the skin particularly noticeable on drying has given rise to the name black disease
- Bloodstained serous fluid is always present in abnormally large amounts in the pericardial, pleural, and peritoneal cavities
- Subendocardial and subepicardial hemorrhages are frequent.
- The liver is swollen
  - ➢ gray-brown and exhibits characteristic areas of necrosis
  - ➢ These are yellow areas 1-2 cm in diameter and are surrounded by a zone of bright red hyperemia.
  - ➢ Evidence of recent invasion by liver fluke with channels of damaged liver tissue evident on the cut surface of the liver
  - ➢ Mature flukes are not ordinarily observed

Diagnosis

- Clinical sign
- Case history
- definitive antemortem test or postmortem lesion
- Diagnostic confirmation
  - ➢ Finding of C. novyi in the typical liver lesion
  - ➢ Fluorescent antibody staining identifies C. novyi but not the type
- Histologically
  - ➢ the liver lesion consists of
    - ✓ a central tract of eosinophilic inflammation (due to fluke migration)
    - ✓ surrounded by a zone of coagulation necrosis
    - ✓ and an outer rim of infiltrating neutrophils

Differential Diagnosis

- Acute fascioliasis in sheep can cause heavy mortality due to massive liver destruction at the same time and under the same conditions as does black disease
- Other clostridial disease - blackleg, malignant edema
- Anthrax

Treatment

- Parenteral penicillin but high case fatality
- Suggested drugs/Clostridium species
  - Penicillin G
- Alternative drugs/Clostridium species
  - Tetracycline
  - clindamycin
- Antipyretics

Prevention and Control

- Vaccination with an alum-precipitated toxoid
- vaccination as a prophylactic measure should be carried out in early summer
- The host snail must be destroyed in streams and marshes and the flukes eliminated from the sheep
- Pasture contamination from cadavers should be minimized by burning the carcasses