Black disease

Synonym: Infectious necrotic hepatitis

Etiology: *Clostridium novyi*

Definition: Black disease is an acute, toxaemic disease, which affects mainly sheep and cattle (sometimes pigs), caused by infection of the liver by *Clostridium novyi* ; the disease is commonly hurried by invasion of the liver by the liver fluke (*Fasciola hepatica*). Death usually occurs rapidly. *Clostridium novyi* classified into 3 types depending on their toxin production:

Type	disease	toxin &	Biological activity
Cl**.** *novyi* type *A*	"Big head" in young rams Wound infections	α	Necrotizing, lethal
Cl. novyi type B	(black disease) in sheep occasionally in cattle	α β	Necrotizing, lethal Necrotizing, haemolytic, lethal, lecithinase
Cl. novyi type c	osteomyelitis in buffaloes		non-toxogenic

Epidemiology:

Well-nourished adult sheep in the 2-4 years are more susceptible. outbreak are most common in summer or autumn months and grazing on marshy ground and on heavy irrigation pastures which create a favorable conditions for the development of flukes as predisposing factor.

Pathogenesis:

Spores of *C. novyi* type B are ingested and carried out to the liver by lymphatic system may germinate when hepatic tissue is damaged by migrating immature liver flukes. Sporulating bacteria produce potent necrotizing α and β toxins that damage the liver parenchyma, causing toxemia with s/c edema due to vascular system damage and increase permeability by toxin and death.

Clinical findings:

The usual clinical manifestation is sudden death. Affected animals show signs for only a few hours; the sudden onset of a fever (4O°C-4l°C) that rapidly progresses to hypothermia, signs of toxemia and respiratory distress may be observed.

In sheep; affected one is segregated from the rest of flock, lag behind and fall down if driven. Animal stay at sterna recumbency until it dies within few hours.

in cattle; animal undergo from abdominal pain ,especially on deep palpation of liver and periorbital edema may also develop.

Necropsy finding:

- the carcass undergoes rapid putrefaction.
- dark appearance of skin from the inside especially noticeable on drying therefore named black disease.
- liver is swollen, gray-brown and have a necrotic yellowish area 1-2 cm in diameter which are surrounded by a zone of bright red hyperemia.
- fluid in the thoracic cavity and pericardial sac.
- Subcutaneous odema and gelatinous exudates may be present in abdominal musculature.

Diagnosis

1. case history
2. clinical findings
3. clinical pathology(culture of liver specimen(lesion),observe recent liver flukes migration demonstrate toxin from peritoneal fluid or from liver ,serological test such as ELISA)

Differential diagnosis:

anthrax , blackleg , malignant odema , acute fascioliasis.

Treatment

Therapy is not usually effective, but affected animals can be treated with intravenous fluids and massive doses of sodium penicillin (44,000 IU/kg B.W IV) every 6 hours).

Control and prevention

⇛ Control of liver fluke infection through pasture management and treatment of individual animals.

⇛ Vaccination against *C .novyi* type B. Vaccinations should be given in the late spring and early summer previous the seasonal occurrence of black disease. In endemic fluke areas, cattle are vaccinated every 6 months.

Braxy

Synonym: Bradsot

Etiology: *Cl. septicum*.

Definition: An acute, usually fatal disease of lambs and young sheep; inflammation of the wall of the abomasum , and toxaemia. Braxy occurs only in winter. Death occurs within hours.

Epidemiology:

The disease, which occurs in winter during periods of heavy frost or snow and affect only the weaner and yeaning sheep .case fatality rate about 50%.

Pathogenesis:

Ingestion of frozen herbage may cause local devitalization of abomasal tissue at its point of contact with the rumen, allowing invasion by *C, septicum*.

Clinical finding:

The course of the disease is rapid and most animals die without observed signs. Anorexia, depression and fever. The abdomen may be distended with gas and signs of abdominal pain; sheep become recumbent, comatose and die within a few hours of first becoming ill.

Necropsy findings:

There are localized areas of odema , congestion ,necrosis and ulceration of abomasal wall. Congestion of the mucosa of small intestine.

D.D: black disease and impaction.

Treatment: no treatment at value.

Control:

- Management of the flock is important.
- The sheep should be yarded at night and fed hay before being let out to the frosted pasture each morning.
- Vaccination with a formalin-killed whole culture of *C. septicum,* preferably two injections 2 weeks apart, is also an effective preventive