

Blackleg disease

Synonym: clostridial Myositis, black quarter.

Etiology: *Clostridium chauvoei*, a gram positive, spore-forming, rod-shaped bacterium.

Definition: Blackleg, an acute disease of cattle and sheep occurs worldwide. Myositis is manifested as an acute inflammation with muscle, swelling and pain or a chronic inflammation manifested by atrophy and joint and limb contracture.

Epidemiology:

- 1) Cattle (6 months -2years) of age that are rapidly growing and on high plan of nutrition are susceptible, seasonal occurrence in worm wet months.
- 2) Cattle may develop resistance to *Clostridium chauvoei* after 2 years of age.
- 3) In sheep, this infection is associated with wounds such as those associated with shearing, docking, and castrations, particularly in unsanitary conditions

Predisposing factors:

- a) Old wounds like shearing, docking and at naval at birth.
- b) Wounds occur during lambing (vulva and vagina).
- c) Wounds caused by fighting.

Pathogenesis:

it often occurs in calves growing rapidly on a high plane of nutrition. Once ingested, the bacteria can sometimes pass through the intestinal wall, enter the bloodstream, and be deposited in muscles or other tissues. Under certain conditions, the bacteria proliferate rapidly, producing toxins that cause severe necrotizing Myositis locally in skeletal muscles and systemic fatal toxemia. In cattle and sheep clostridial toxin produce a lethal lesion of cardiac Myositis. Blackleg often occurs with no history of open wounds. The muscle damage creates an environment that is lacking of oxygen and encouraging to replication of *Clostridium chauvoei* in the damaged tissue.

Name of toxin	Biological activity
α	Lethal, hemolytic, necrotizing
β	Deoxyribonuclease
γ	Hyaluronidase
δ	Oxygen-labile haemolysin

Clinical findings:

In Cattle, this disease usually is characterized by sudden death if animal observed before death there are:

- 1) Clinical signs may include lameness, depression, anorexia, rumen stasis, reluctance to move, and fever (40°C).
- 2) Muscle swelling resulting from subcutaneous emphysema can be seen or felt on the thigh, rump, loin, or brisket.
- 3) The **typical lesion** is gaseous Crepitating sound occurs on palpation with subcutaneous edema.
- 4) Swellings may be warming painful but rapidly becomes cold and painless.
- 5) The skin over these areas feels dry discolored then cracked.
- 6) Animal die within 12-48 hrs. after signs appearance.

Necropsy finding:

Cattle found dead of black leg are often in a characteristic position: lying on the side with the affected hind limb stuck out stiffly, bloating and blood-stained froth exudes from nostrils and anus.

Incision of the affected muscle mass reveals dark red to black swollen tissue with rancid odor with fluid containing gas bubbles.

Diagnosis:

- 1) Case history.
- 2) Clinical signs.(lameness with a gaseous swelling under the skin).
- 3) Clinical pathology (samples of infected muscle placed in tight container).

Differential diagnosis:

- malignant odema.
- anthrax.
- Bacillary hemoglobin urea.

Treatment

- Although treatment is usually ineffective, if animal observer penicillin (44000IU/kg.BW) for 5-7 days or broad-spectrum antibiotics administered to animals early in the disease may be of value.
- Analgesics such as (**ketoprofen** 3 mg/kg IV or deep IM once daily for up to 3 days) or **Phenylbutazone** 4 mg/kg IV or orally q24h.
- Surgical debridement of affected part should be supplemented by large doses of a broad-spectrum cephalosporin or penicillin to control infection.



Control and prevention

Prevention is readily accomplished, by the use of Blackleg bacterins a vaccine containing killed bacterial cells. Clostridial vaccines must be injected under the skin (subcutaneously or S/C) in the neck area Calves vaccinated at less than 4 months should be revaccinated at 5-6 months, also prevent clostridial wound infections by immediate and cleansing and surgical repair of deep wounds.

Certain environmental conditions can aid transmission of clostridial bacteria. Animals that die from blackleg or other clostridial diseases can seed the environment with clostridial spores; therefore, these animal carcasses should be burned or buried in deep pits. Blackleg and clostridial disease outbreaks are often associated with land excavation or flooding that causes large amounts of spores to resurface.

