

Ask A Vet: Clostridium-A Dangerous, Deadly, and Overall Nasty Family

Sunday, February 22, 2015

Dear Dr. Weldy's,

One of my father's cows was eating and feeling fine one morning; she acted a little mopey that night and died the next day. We had our veterinarian out to do a post mortem exam to see what might have happened and he said it was Clostridium perfringens toxicity that killed her. What is Clostridium?

Dear Reader,

Your father's cow was the victim of a very deadly family of bacteria that cause serious illness and sudden death to many species of animals as well as humans. These clostridial bacteria are normally found in soil and in the intestinal tracts of animals including people. They form highly resistant spores that can survive in the soil for very long periods of time. For instance - tetanus (*Clostridium tetani*) is a clostridial disease that is toxic to the nervous system causing stiffness and progressive tightening of the muscles, lockjaw, convulsions, and eventually respiratory failure. Tetanus spores that came from the feces of some Indian's pony 200 years ago could possibly cause tetanus in an animal's or person's soil contaminated puncture wound! Other clostridial diseases such as the *Clostridium perfringens* that killed the cow are ingested with the feed and produce deadly toxins that are absorbed by the digestive system. Fluid filled often discolored (purple), sometimes hemorrhagic sections of bowel are often found on post mortem exams. Malignant Edema and Blackleg are clostridia diseases caused by *Clostridium septicum* and *Clostridium chauvoei*. These two diseases can have a very rapid onset and can cause death without clinical signs. Malignant edema usually occurs from wound contamination and causes muscle infection in cattle, horses, sheep goats and swine. Blackleg is a disease of cattle and sheep that causes infection of large muscle masses and gas gangrene. With blackleg the bacteria is usually ingested and arrives in the muscles via the bloodstream. Black disease in sheep is caused by *Clostridium novyi* and destroys the liver. Botulism is a result of *Clostridium botulinum* and is a very deadly disease of many species of animals as well as humans. It is the result of the ingestion of the toxin in food that has been contaminated by the bacteria. Muscle paralysis, disturbed vision, difficulty swallowing, and progressive weakness are the result of ingesting a very tiny amount of the toxin. It has been said that a thimble full of botulism toxin can kill many thousands! This is indeed an ugly family of bacteria that causes a significant threat to successful livestock production worldwide.

That's a lot of bad news about Clostridium - now for some good news. You have no doubt heard "an ounce of prevention is worth a pound of cure". This is so true with this disease family. Vaccination with toxoids against the specific species of Clostridial diseases and their specific subtypes is highly effective. Prevention and treatment with antitoxins obtained from the blood of hyper immunized animals very early in the disease process is sometimes successful along with large doses of penicillin, which is still the drug of choice against Clostridium. Unnoticed and untreated - death is almost certain.

-Dr. Jerry Sellon