



BOTULISM

What is botulism?

Botulism is a progressive neuromuscular disease caused by the toxin produced by the bacteria *C. botulinum*. This organism is related to the one that produces Tetanus, and they both work in similar ways: by producing an extremely powerful toxin that paralyzes the body. It is the toxin, rather than the bacterial infection, that proves fatal. Horses in particular are extremely sensitive to this toxin, and the same amount that would prove fatal to a full grown horse would be harmless to a cat. One milligram (0.000035 ounce) of toxin can kill a 1,200 pound horse. One teaspoon of toxin is sufficient to kill 5,000 horses.

Once acquired, the toxin quickly leads to weakness and flaccid paralysis (lack of muscle tone with reduced ability to move), and the horse becomes paralyzed on the ground. Death usually comes from respiratory failure or starvation and dehydration. The first sign many people notice is an inability to swallow. The horse will go to the feed tub, fill its mouth with food and begin chewing, but never swallows. Other signs soon follow.

How does a horse catch Botulism?

The disease is usually acquired by consuming the already formed toxin. In people, this is usually from eating improperly canned food. In the horse, it comes from eating decaying material in hay, fermenting grain or other spoiled feeds. It can also come from an active infection with the organism, as in wound contamination and toxoinfectious botulism (Shaker Foal Syndrome). Some areas are endemic for the bacteria, and the horse (and especially foals) can acquire it from grazing and an infection developing in the intestine. Once *C. botulinum* has contaminated a pasture, it remains practically forever. The organism forms tough spores and can survive even the harshest conditions for years. Hay bales that are contaminated with animal parts or were stored without proper curing are especially dangerous. Round bales are frequently implicated. Clinical signs begin 1-3 days after consuming the toxin and progress steadily.



Botulism is found in spoiled hay and feed

Treatment

Treatment is difficult. There is a specific antiserum (antitoxin) available, but it costs thousands of dollars a dose. It works better in foals because they can tolerate being on the ground for the days and weeks it takes to treat the disease. Adult horses develop pressure sores and muscle atrophy, and often panic and injure themselves trying to get up. Around the clock supportive therapy must be provided (rolling and repositioning the horse, feeding by stomach tube, keeping hydrated). The prognosis is poor.

Prevention

Fortunately, there is a vaccine available against equine botulism. After an initial series of three vaccinations one month apart, an annual booster is necessary to maintain protection. The vaccine is safe and effective, with no or minimal side effects (short term swelling at the injection site, etc.).