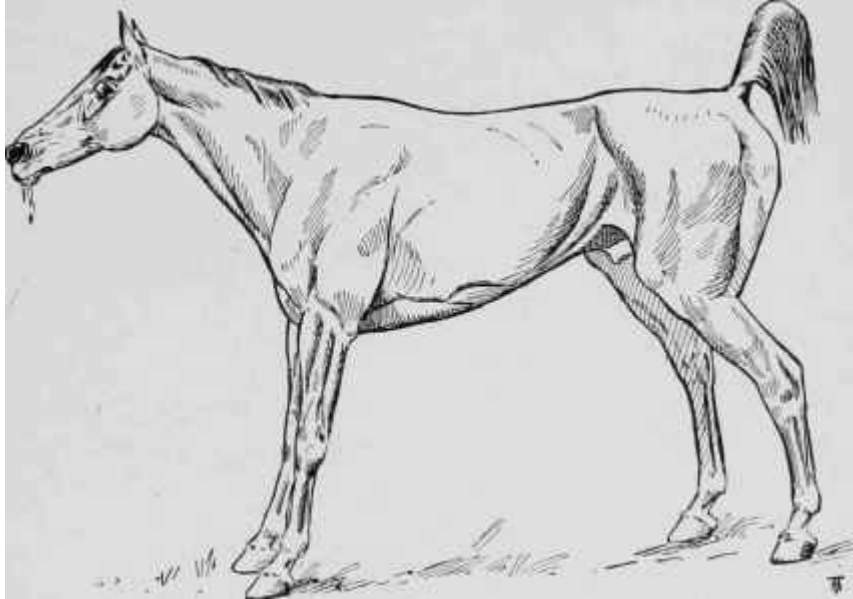


Tetanus Fact Sheet



Tetanus is a neuromuscular disease that causes paralysis, rigidity and sometimes death in horses. Compared to other animals, the horse is especially sensitive to the neurotoxins produced by *Clostridium tetani*, bacteria which are commonly present in soil and are normally found in the intestinal tract of people and animals. Horses are also especially likely to acquire types of wounds that permit growth of these organisms. In the soil, clostridial bacteria are present as spores, which protect the organisms from adverse environmental conditions. When these bacteria are introduced into deep wounds, they encounter favorable conditions that allow them to reproduce and produce toxins. Factors that promote bacterial growth are the absence of oxygen and the presence of dead tissue. Wounds which are commonly involved in the development of tetanus include puncture wounds in the sole of the hoof, castration incisions, bone fractures, umbilical cord severance and obstetrical trauma.

Clinical signs

Signs of tetanus become apparent within several days to several weeks, depending on how close the contaminated wound is to the central nervous system. The extensor muscles of the jaw are often

affected, leading to the common name of the disease, "lockjaw". Saliva may drip from the horse's mouth and attempts to eat or drink may cause regurgitation of food or water from the nostrils. Paralysis and rigidity progress to the face, neck, trunk and legs. The third eyelid may prolapse, the ears may be held erect and rigid, and the nostrils may be flared. Once the limbs become affected, the horse stands with all four legs stiff, in a characteristic "sawhorse stance." The affected animal reacts violently to external stimuli, such as loud noises or sudden light, and may go into convulsions. Other possible signs of tetanus include profuse sweating, colic and difficulty walking and breathing. Laminitis and pneumonia may develop as secondary complications. After treatment has begun, clinical signs may persist for up to six weeks, and muscle spasms may occur for weeks to months before full recovery. If death occurs, it is usually due to respiratory failure. Generally, about 80% of affected horses die.

Diagnosis

Clinical signs, a history of a recent wound, and the horse's lack of current vaccination history are usually diagnostic for tetanus. Bacteriologic cultures, along with specific serology testing, may also be used to support the clinical diagnosis.

Treatment

Tetanus antitoxin (preformed antibodies against tetanus toxin) and tetanus toxoid (vaccination to elicit antibody production by the horse's immune system) are given as soon as tetanus is suspected. Because antitoxin cannot enter the central nervous system from blood, antitoxin may also be given directly into the cerebrospinal fluid in severe cases. Antitoxin and toxoid injections are repeated as prescribed by the veterinarian. Antibiotics, usually penicillin, are also given to kill the bacteria. Thorough cleansing of wounds, and surgical removal of necrotic tissue or of any foreign bodies should be done promptly. Sedatives, tranquilizers and muscle relaxants may be used to minimize rigidity, spasms or convulsions, but their use may increase the risk of respiratory failure.

Supportive nursing care is essential and intense. An affected horse should be kept in a quiet, dark stall to minimize external stimulation. Thick bedding and padding will help reduce injuries from falling or

convulsing. Intravenous fluid and tube feeding may be necessary to maintain electrolyte balance and nutritional status. If the horse is unable to stand for a prolonged time, a sling or bales of hay may be necessary to prop up the animal. Urine and feces may need to be removed by catheter and by hand, respectively. If respiratory paralysis occurs, ventilation must be provided. Secondary complications, such as pneumonia, are likely and must be managed.

Prevention

Tetanus toxoid should be given to all horses, beginning at 10-12 weeks of age. Boosters are given according to veterinary instruction. All adult horses should received annual toxoid vaccination, and brood mares should be boosted during the last 4-6 weeks of pregnancy to ensure optimum passive transfer of tetanus antibodies to the foal. Antitoxin should be given to foals at birth.

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