

TETANUS - THREE CASES IN CALVES

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ABSTRACT

Tetanus toxemia is caused by a specific neurotoxin produced by *Clostridium tetani* in necrotic tissue. There is a characteristic elevation of the ears and tail with generalized stiffness. The incubation period varies from 1 to several weeks, but usually averages 10 – 14 days. Bloat is often one of the first signs noted in ruminants. Usually, but not always, associated with visible infected wounds. Tetanus occurs in all parts of the world and is most common in closely settled areas under intensive cultivation. It occurs in all farm animals, mainly as individual, sporadic cases, although outbreaks are occasionally observed in young cattle, goats, and sheep following wounding management procedure. Cases of tetanus in cattle of Slovenia are rare.

Reported are three cases of tetanus in calves. Photos and video film were taken.

Key words: calves, tetanus, clinical manifestation

INTRODUCTION

Tetanus is a fairly common disease occurring in all types of livestock. It is relatively rare in cattle, but outbreaks of disease can cause very severe losses. Tetanus is caused by toxins produced by the bacterium *Clostridium tetani*. This bacterium is found in the soil and the guts of animals, especially horses, and in the soil contaminated by these feces. Surveys in different areas of the world shows it is present in 30 – 40% of soil samples (Radostits et al., 2007; Robson, 2007). The disease starts when the organism gets into wounded or damaged tissue as a result of contamination. In the absence of oxygen the bacteria multiply and produce a local infection. As they grow, the bacteria produce toxins, which spread along the nerves to the brain and cause the clinical signs of tetanus. The time between infection and disease can be very short (two or three days) or quite long (four weeks or more), depending on how long it takes for the contaminated area to develop a low level of oxygen (such as by a wound healing over sealing off the tissue from the outside).

The disease is seen in all ages of stock. Calving and castration seem to be the most common procedures linked to the development of tetanus (O'Connor et al., 1993; NADIS, 2011)

Clinical signs are stiffness and reluctance to move are normally the first signs, Twitching and tremors of the muscles, Lockjaw, Prominent protruding third eyelid, Unsteady gait with stiff held out tail, Affected cattle are usually anxious and easily excited by sudden movements or handling. Bloat is common because the rumen stops working, later signs include collapse, lying on side with legs held stiffly out, spasm and death (O'Connor et al., 1993, Radostits et al., 2007).

Treatment is not worth it in cattle with fully developed tetanus (Wallis, 1963; Radostits et al., 2007).

In our extensive clinical practice tetanus very rarely occurred in cattle. Only three cases in cattle, two cases in sheep and eight cases in goats (figure 1) were established from the archives of medical records. The clinical picture and the progress of tetanus in three calves will to be dealt with.

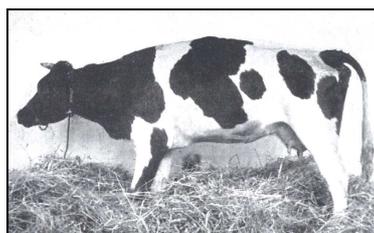


Figure 1: Cow with tetanus showing muscle stiffness, stiffness of the hind limbs, straddling gait and the tail is held out in stiffly (Photo dr. I. Jazbec, 1972)



Figure 2: Goat kid with tetanus following cautery dehorning shows erect carriage of the ears, muscle stiffness, tail is held out and gait stiffness (Photo Dr. Zadnik T., 2001)

MATERIAL AND METHODS

During 2010 to 2012 three cases of tetanus in calves were found in our clinical practice around Kranj on three farms of dairy cows. In spite treatment all three calves died. Photos and video film were taken.

Case 1: Calf, ♂, Simmental breed, age 7 days. On the first day of treatment diagnosis was omphalophlebitis. The animal was treated with i/m administration of antibiotic and surgical removal of the navel necrotic odor mass. Clinical symptoms of tetanus were ascertained on the second day and the diagnosis tetanus was confirmed (gait stiff, rigid stance, nasal regurgitation of milk, erect carriage of the ears, rapid movement of the third eyelid across the cornea followed by a slow retraction, prolapse of the third eyelid, muscle stiffness, tail is held out stiffly and recumbency). Calf was fed with stomach-tube. After two days of treatment the calf dies.

Case 2: Calf, ♀, Friesian breed, age 9 months. In pen the calf was lying down and was unable to rise. At first call signs of the tetanus were fully developed and clinically so distinctive that diagnosis was not problematic. Affected calf showed drooling saliva, trismus, third eyelid prolapsed, gait stiff, rigid stance, muscle rigidity and recumbency. The animal was treated with antibiotics and fed with stomach-tube. Calf died after 4 days (figure 3).



Figure 3: Affected Friesian calf showed drooling saliva, trismus, rigid stance, muscle rigidity and lateral recumbency with opisthotonos (Photo Lombar Rok, DVM, 2011)

Case 3: Calf, ♂, Friesian breed, age 4 months. By the first clinical examination the calf was in standing position (erect carriage of the ears, prolapsed of the third eyelid, gait and muscle stiffness, trismus with restriction of jaw movements and drooling saliva). Diagnosis of tetanus was made at first examination. On the second day the calf was lying down. He was treated with antibiotics and fed with stomach-tube. After 5 days of treatment the calf began to eat and drink, but had rigidity of stance, recumbency and difficulty in rising. Because calf got decubital ulcers we euthanized him.

By two calves the wound was not determined via clinical examination. Neither of the calves was treated with tetanus antitoxin.

DISCUSSION

Tetanus rarely occurs in Slovenia. In local literature available to us we couldn't find any source published. There exist only some oral reports and 3 registered cases of tetanus in the archive of medical records on the Clinic for ruminants in Ljubljana. Low incidence of the disease might be the reason why preventive practice in cattle is not the same as in horse (vaccination, etc.). Tetanus in horse occurs quite often in Slovenia (Gregorović, 1988).

All three calves showed characteristic signs of tetanus, so the section was not carried out. In our cases it is of interest that in two calves the clinical examination did not reveal any wounds that would point to the portal of entry of bacteria. In one calf the navel might be the portal of entry. According to the literature the probable cause is application of rubber ring for castration (Magrath and Magrath, 1954). However, such practice is not used in our environment. One case could be of neonatal tetanus form, as there is no evidence that the farmer disinfected the navel after birth. The other two cases could be classified in the category outbreaks of idiopathic tetanus (Lang, 1963; Radostits et al., 2007). This form of diseases occur occasionally in young calves without a wound being apparent, usually in association with the grazing or rough, fibrous feed, and it is probable that toxin is produced in wounds in the mouth or gastrointestinal tract or is ingested preformed in the feed. Proliferation in the rumen may also result in toxin production (O'Connor et al., 1993; Radostits et al., 2007).

Three cases of tetanus in calves warn us, that the prevention of the disease is of utmost importance because of its highly case fatality.

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