

THERAPEUTICAL MANAGEMENT OF TETANUS IN KUNDHI BUFFALO CALF AT HYDERABAD, SINDH

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ABSTRACT: The study was going to evaluate the therapeutic management of kundhi buffalo calf suffering from tetanus in Sindh (Pakistan). It was caused by a specific neurotoxin produced by *Clostridium tetani* in necrotic tissue. Tetanus was diagnosed in Kundhi buffalo calf on the basis of their clinical signs, high temperature, contracting of whole body muscles and arduousness of hind legs that is developed into the whole body of an animal. Positive rods shaped *Clostridium tetani* were present in the blood of the diseased animal. Treatment was recommended with anti-tetanus serum, Penicillin G Procaine, Meloxicam, Chlorpromazine, Dexamethasone and Dextrose 5%. Feeding to the calf through the stomach tube and the urinary catheter was administered to ease out the problem of urine retention. After treatment for 10 days animal complete recover to the healthy condition.

Key Words: Kundhi Buffalo Calf, *Clostridium Tetani*, Clinical Manifestation, Treatment, Management

CASE REPORT
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INTRODUCTION

The causative agent of tetanus in cattle's is bacterial gram positive microorganism *Clostridium tetani* which are a similar family of organisms which caused blacklegs (Bizzini et al., 1986). It is also called Lock Jaw disease (Bizzini et al., 1986). This microorganism can serve for several years as in spores form in the soil. This bacterial microorganism can enter the body of animals via injury of skin and access to deep tissue through the blood which had drumsticks appearance in the blood smear. These spores of this organism are very resistance to disinfectants, for example, acidified phenols take about 2 hours to kill them. The Injuries they may happen through many ways such as castration of animal, dehorning, tattooing, hoof trimming, docking, injection of medicines, surgery intervention, vaccination, insertion of item sand bacterial contamination during parturition the infection of this disease is due to rough sanitary condition of animals (Upadhyay et al., 2013).

Tetanus is the sporadic and ubiquitous disease that occur worldwide (Smith, 2002). Contaminated soil spores are attached to a wound of animals and go inside the body. Satisfactory circumstances of development for such microorganism happen that minor quantity of soil or an external item reasons to inner deep tissue necrosis. The organism remains in the unique position of contamination and reproduces and as result from the localized necrosis in deep tissue of muscle. Autolysis of bacterial cell occurs and thus they release neurotoxin. The neurotoxin is a zinc-binding protease which producing reserve for broadcast desires by stopping the discharge of neurotransmitters (Montecucco et al., 1995). Other clinical signs include twitching and tremors of the muscles, firmly fixed jaws (Lockjaw), protrusion of the third eyelid, and lameness with alert expressions, hyperesthesia, erected ears and dilated nostrils. Bloat can also, occur because the rumen stops working. In young calf from tetanus due to umbilicus contamination during parturition (Suleman, 1982). The mortality rate is low in adult ruminants while in young it may go up to 80% (Radostits et al., 2000). Treatment is not significance it in cattle with fully developed tetanus (Radostits et al., 2007). As concentrate giving in feeding to diseases animals also cause the production of toxin in the wound of jaws of the gastrointestinal tract where theses organism are the ordinary resident.

CASE PRESENTATION

Kundhi buffalo calf of 03 months old was presented at Department of Veterinary Medicine Clinic which was suffering from high fever with lock jaw having anorexia. The animal was not to be able to take food; On the other

hand, there was the problem with mastication and urination. Additional signs exhibited by the animal included dilation of nostrils, hyperesthesia, drooling of saliva from mouth and urine retention.



Figure 1 - The hind limb stuck out stiffly behind and the forelegs forward.



Figure 2 - Sawhorse Posture

HISTORY AND CLINICAL OBSERVATION

According to the owner that it was injected with used and old needle by which inflammation and swelling occur at the site of injection. Initials treatment given as such as, diclofenac sodium 5cc, penicillin G procaine antibiotic 30000 IU per kg of body weight was given intramuscularly 10cc. At the time the animal feels better. While On next day, the rectal temperature of the calf was persistent at 107°F, and the calf was depressed and anorexic. There was stiffness of the neck and jaw muscles, both the ears were erected with alert and anxious expressions. After that, boost spasm of spontaneous body muscles seemed with the fierce irregular association in head and neck area. Progressively the head and neck were stretched spinal region with bendy of the collar (Singh et al., 2009). The jaws of animals are lock and animal are not able to take food. Watery saliva was continued going out from the mouth of an animal. Legs of animals will be lengthy. Due to arduousness, ear and tail will be straight. Quick association of the third eyelid. Additional signs exhibited by the animal included dilation of nostrils, hyperesthesia, drooling of saliva from mouth and urine retention. The pretentious Kundhi buffalo calf had not given vaccine against the tetanus particular previously.

DIAGNOSIS

For the necessary blood test, the sample was collected through disposable syringe from jugular vein with anticoagulant was taken for laboratory test. The wound area was palpated and there was some pus containing swelling. A smear collected from the location of injection was collected for the documentation of diseases microorganism. The tissue sample from the same site was also, taken for culture and isolation of *Clostridium tetani*.

Smear Preparation

To prepare a fresh smear, a sterilized glass slide was taken and touched with the deep tissues of the site. The slide was then immersed in absolute alcohol to fix and then air dried at room temperature (Congera et al., 2009)

Graham's staining technique

The prepared slide was flooded with basic crystal violet for a minute and washed with tap water. Then Graham's iodine was applied for one minute and washed with tap water. After decolorized of the slide with alcohol for 15 seconds and washed with tap water. At last, the counter stain "safranin" was applied for 30 minutes, washed with tap water and dried. Using the compound microscope the slide was examined under oil immersion lens (100×) as used by (Khan et al., 2016). After the comprehensive assessment of the slide under the microscope, a violet colure Graham positive rod shaped bacteria has appeared like drumsticks.

TREATMENT

Shifted the affected animal into isolated room and cotton plugs were applied in both ears to reduce hyperesthesia then treatment of affected Kundhi buffalo calf was continued as documented by (Radostits et al., 2000), such as first administrated the multivitamin and Dextrose 1,500 IU I/V to reduce the weakness and dehydration intravenously in jugular vein for first 8 days. Then administrated sedatives such as diazepam as 0.3 mg/kg I/M of live animal body weight. After that give broad spectrum antibiotic such as penicillin G Procaine @ 30,000 IU per kg of body weight I/M every day for 10days. The affected calf was kept in dark room to escape from hyperesthesia (Boora et al., 2013). An I/V injection of ATS (anti-tetanus serum) @ 1,500 IU is recommended also administrated extra injection in the inflamed area of diseased animals to low the toxicity of the microorganism in the body of the animal (Bhikane et al., 2005). Dexamethasone used as lifesaving drugs and to relax the muscles stiffness. Chlorpromazine for deep body muscle relaxation, as well as escape suffocation, was used @ 50 mg/ kg I/M and Meloxicam (*Diclostar*) @ 0.6 mg/kg bwt used to reduce pain and inflammation. For rehydration and neutralization of going toxin, intravenous fluid therapy (Intalyteb) @ 30 ml/kg b.w.t. I/V was used for five days. Vitamin B complex (TribivetB) 10 ml, AnistaminB 5 ml as antihistaminic I/M was used for 10 days. The feed was given through a stomach tube and urinary catheter was administered to ease out the problem of urine retention. After continues treatment and care of the animals, it can be capable for stand after 4 days, whereas it completely recovered after 10 days.

RESULT AND DISCUSSION

In the current diseases animal, bacterial microorganism *C. tetani* inside in tissues throughout the use of unhygienic old used injection. The organism developed them will start to produce neurotoxins, which directly affect CNS (Radostits et al., 2007). Patient in the present case was completely anorexic; therefore the calf was fed through the stomach tube, which is fully in line with that of (Lombar et al., 2013). A continue and use of high dose treatment we succeed fully to save the life of young kundhi buffalo calf. Use of high dose of ATS, as a result of that toxin, are neutralized with antitoxin and circulated in the blood which can't cross the BBB (blood brain barrier) (Coetzer et al., 2004). The Meloxicam provided relief from pain and inflammation (Khan et al., 2016). Use of diazepam as sedative and dexamethasone which relaxes the muscles as well as internal organ such as the diaphragm, and give wide relief to continue the normal respiration. Meloxicam used for the painkiller and Antipatriotic. Dextrose and multivitamins are used due to lock jaws that animal was not capable due to feeding orally.

CONCLUSION

From the current case, it is concluded that it is necessary for tetanus to take the full history about urination and nutrition status of the animals from the owner. If the animal has urine problem for a long time, then the urinary catheter should be used to relieve out the problem of urine retention. Also, stomach tube should be used in case of firmly fixed jaws for the feeding of the animals to avoid debility.

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Authors' contribution

Dr. Adnan Yousaf was main author of the study carried out. Dr. Riaz Ahmed Laghari was supervisor, Muhammad Abbas and Tahseen Jamil assisted in results analysis, Dr. Allah Bux Kachiwal was main advisor in treatment line and Dr. Jameel Ahmad Gandahi and Uzma Abbas helped in proposal making.

Competing interests

The authors declare that they have no competing interests.

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