Short communication

DOI: 10.48165/ijar.2024.45.01.22

The Indian Journal of Animal Reproduction

The official journal of the Indian Society for Study of Animal Reproduction

Year 2024, Volume-45, Issue-1 (June)

ACS Publisher www.acspublisher.com

ISSN 0970-2997 (Print) ISSN 2583-7583 (Online)

A Rare Case of Puerperal Mortality in Ewe: Uterine Tetanus?

Balaganur Krishnappa[1,2*], Davendar Kumar[1], Kalyan De[1,3] and Shankar Lal Sisodia[1]

[1]ICAR-Central Sheep and Wool Research Institute, Avikanagar
[2]ICAR-National Institute of Animal Nutrition and Physiology, Adugodi, Bangalore
[3]ICAR-National Research Centre on Pig, Rani 781131, Assam, India

ABSTRACT

Study reports a rare case of puerperal ewe suspected for uterine tetanus. The ewe was presented with increased respiration and stiff hind limbs and became recumbent on the tenth day of her lambing. The ewe died despite being treated symptomatically, with the discharge of thick creamy pus from external genitalia. Grams-staining of the impression smears didn't reveal the *Clostridium tetani* organisms.

Key words: Puerperal, Tetanus, Lockjaw, Sawhorse, Sheep

How to cite: Krishnappa, B., Kumar, D., De, K., & Sisodia, S. L. (2024). A Rare Case of Puerperal Mortality in Ewe: Uterine Tetanus?
The Indian Journal of Animal Reproduction, 45(1), 85–88. 10.48165/ijar.2024.45.01.22

INTRODUCTION

Tetanus is an acute, fatal, non-communicable disease, caused by a specific neurotoxin -tetanospasmin released by the anaerobic, spore-forming, Gram-positive bacterium *Clostridium tetani*. The organism is found as spores ubiquitously in soil, intestinal tracts and faeces. Tetanus occurs as sporadic in sheep, but outbreaks of disease can happen following management procedures or accidents like elective surgery, burns, deep puncture wounds, animal bites, abortion and pregnancy (Popoff, 2020).

Tetanus that follows lambing is puerperal tetanus. Non-vaccinated puerperal ewes, docked, and neonatal lambs are at high risk. Microorganisms and spores may enter the animal body and multiply and release the neurotoxin under anaerobic conditions following a difficult parturition in the puerperal stage (Boora *et al.,* 2013). The neurotoxin may get disseminated via blood and lymphatics to produce clinical tetanus. Tetanus toxin interferes with the release of neurotransmitters, blocking inhibitor impulses (Popoff, 2020). The classical sign is trismus or lockjaw, followed by stiffness of the neck, difficulty in swallowing, erect ears and tail, rigidity of abdominal muscles and "sawhorse" stance. However, to the best of our literature search we couldn't find reports on puerperal tetanus in sheep. A rare case of puerperal ewe mortality due to tetanus is been documented and reported in this communication.

*Corresponding author.
E-mail address: drkittyb@rediffmail.com (Balaganur Krishnappa)
Received 09-18-2023; Accepted 27-03-2024;

CASE HISTORY AND OBSERVATIONS

The Malpura crossbred ewe aged 1.5 years was reluctant to move while returning from grazing on the 10th day of its unassisted lambing. The animal exhibited increased respirations, stiff hind limbs and became recumbent in the evening. The rectal temperature was 103.5° F. However, despite of treatment, the signs like stiff limbs, lock jaw, frothy mouth (Fig. 1a) and hurried breathing got exaggerated in next day morning. Animal took its last breath with discharge of thick creamy pus from external genitalia (Fig. 1b). Udder was examined to rule out puerperal acute mastitis. The carcass was sent for post-mortem examination within one hour of death suspecting the case for tetanus. There were no classical PM findings observed in the present study. Important findings were; Profuse unusual bleeding (un-clotted blood) while decapitation and had little tendency to clot due to lysis of platelets (Skariyachan *et al.*, 2012). Lungs, spleen, kidney, rumen and fluid in the abdominal cavity were apparently normal. The heart was filled with blood and the surface had pinpoint haemorrhage (Fig. 1c). Small intestine was empty and congested. The liver was hard in consistency and yielded blood on slicing the surface (Fig. 1d).

The uterus in pelvic cavity was normal from surface, however had a doughy consistency and on opening revealed a thick creamy pus in the uterus (Fig. 2). Impression smears from uterine discharge were subjected to Gram's staining. However, the smear didn't reveal *C. tetani* with charac-

Fig. 1: Clinical signs and PM findings of tetanus in the sheep. a: Frothy mouth, b: Thick pus from external genitalia, c: Pinpoint haemorrhage on heart and d: Blood on slicing liver surface.

teristic terminal spores, despite the admixture of Gram-negative and Gram-positive bacilli were noticed.

Fig. 2: Thick creamy pus in the uterus of sheep

TREATMENT AND DISCUSSION

Tetanus is a fatal and sporadic infection in sheep. In the present report the ewe was treated symptomatically with strepto-penicillin 2ml and meloxicam 15mg by I/M route and was futile. The organism might have invaded the uterus at lambing. A similar kind of infection mode has been reported in goats (Harish *et al.*, 2006). The uterus is prevalent with obligate anaerobes and A. pyogenes at calving and these organisms grow synergistically and increase in postpartum period making the uterus highly anaerobic which is conducive for other anaerobic microbes (Jadon *et al.*, 2005). Retention of the fetal membranes and resultant septic metritis is often associated with tetanus (Swink and Gilsenan, 2022), however, in the present case there was no evidence of retained fetal membranes. Under anaerobic condition of a contaminated uterus, the spores of *C. tetani* revive to the vegetative form and proliferate to produce potent exotoxin/neurotoxin which gets absorbed systematically to act on CNS and exert the spasm. In the present case, the incubation period was 10 days (Lombar and Zadnik, 2013) and diagnosis of the disease was made based on the history and supportive PM findings mentioned above. The symptoms exhibited were correlated with previous reports made on goats (Harish *et al.*, 2006), dogs (Ramprabhu *et al.*, 2001), cow (Bhadwal *et al.,* 2004), buffalo (Boora *et al.,* 2013) and camels (Tuteja *et al.*, 2001). In the present study, ewe succumbed to the death on very next day of the onset of symptoms. Treatment is not helpful after the onset of signs of tetanus. In a similar type of studies in goats and post-partum cows, three goats and five cows died despite an attempt to treat tetanus (Harish *et al.*, 2006). Though the disease has a high fatality rate, prompt treatment with anti-tetanus toxin along with other supportive therapy may help to remove the infection (Harish *et al.*, 2006). Many times, it has been said that it is difficult to confirm the case of tetanus by routine laboratory tests (Popoff, 2020). There is no definitive ante mortem test or PM lesions (Kay and Knottenbelt, 2007) in tetanus, as the neurological lesion is functional rather than physical. Hence ante-mortem inspection or clinical signs is therefore of the greatest value. Similarly, in the present study, the organisms were not traced in Grams-stained smears and is said it is very difficult to find, due to the need for strict anaerobic culture conditions and the presence of low numbers of *C. tetani* organisms (Sykes and Creedon, 2021). It is usual in many cases of clinical tetanus which would go unconfirmed either in isolating *C. tetani* or its spores.

CONCLUSION

Sporadic cases of tetanus are seldom reported due to challenges in diagnosis, as evidenced in this report. Therefore, it is crucial for field veterinarians to be well-versed in recognizing clinical signs, the diagnostic process, disease progression, and management. This report provides insight into the likelihood of tetanus occurring after lambing in unhygienic conditions. Moreover, therapeutic interventions initiated after the onset of clinical signs would likely be ineffective. Hence, in regions where additional cases are expected, administering two doses of tetanus toxoid during late pregnancy is advisable.

CONFLICT OF INTEREST

None

REFERENCES

Bhadwal, M.S., Kumar, S., Wazir, V.S., Bhardwaj, H.R., and Sharma, U. (2004). Tetanus in post-parturient cows-a report on six clinical cases. *Indian J. Anim. Reprod.,* **25**(1): 64-65.

Boora, A. K., Yadav, S., Jain, V. K., Rana, N., Singh, K. P., and Balhara, A. K. (2013). Puerperal Tetanus in Water Buffalo-A Case Report. *J. Buffalo Sci., **2***(1): 53.

Harish, B.R., Chandranaik, B.M., Bhanuprakash, Jayakumar, S.R., Renukaprasad, C. and Krishnappa, G. (2006). Clostridium tetani infection in goats. *Intas Polivet,* **7**(1): 72-74.

Jadon, R.S., Dhaliwal, G.S. and Jand, S.K. (2005). Prevalence of aerobic and anaerobic uterine bacteria during peripartum period in normal and dystocia-affected buffaloes. *Anim. Reprod. Sci.,* **88**: 215–224.

Kay, G. and Knottenbelt, D.C. (2007). Tetanus in equids: a report of 56 cases. *Equine Vet. Educ.,* **19**(2): 107-112.

Lombar, R. and Zadnik, T. (2013). Tetanus - three cases in calves. *In: XIII Middle European Buiatrics Congress, Belgrade, Serbia. Faculty of Veterinary Medicine, University of Belgrade and Servian Buiatrics Association, pp. 5-8.*

Popoff, M.R. (2020). Tetanus in animals. *J. Vet. Diagn. Invest.,* **32**(2): 184-191.

Ramprabhu, R., Ravikumar, M., Nagarajan, B. and Subramanian, M. (2001). Tetanus in a dog and its clinical management- a case report. *Cheiron,* **30**: 60-61.

Skariyachan, S., Prakash, N., and Bharadwaj, N. (2012). In silico exploration of novel phytoligands against probable drug target of Clostridium tetani. *Interdisciplinary Sciences: Comput. Life Sci.*, ***4*:** 273-281.

Swink, J.M. and Gilsenan, W.F. (2022). Clostridial diseases (botulism and tetanus). *Vet. Clin. Equine Pract.,* **38**(2): 269-282.

Sykes, J.E. and Creedon, J.M.B. (2021). Tetanus and botulism. In: Jane E. Sykes (ed.), Greene's Infectious Diseases of the Dog and Cat. 5th ed., WB Saunders, pp. 893-904.

Tuteja, F.C., Sahani, M.S., Rajender Kumar., Ghorui, S.K., Sharma, N. and Kumar, R. (2001). Tetanus in camel (*Camelus dromedarius*) - A case report. *Indian J. Vet. Med.,* **21**: 112-113.