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TETANUS (LOCK JAW) IN A WEST AFRICAN DWARF RAM USED FOR RAM FIGHTING COMPETITION IN IBADAN, NIGERIA: A CASE REPORT

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Abstract

Ram fighting is one of the unimaginable sports practiced all around the World. It is often associated with all sorts of injuries which may predispose animals to tetanus. Tetanus is an acute, severe and potentially fatal toxin-mediated disease caused by *Clostridium tetani* infection. This organism thrives under anaerobic conditions, such as unclean environment, contaminated wounds. A case of an adult West African Dwarf Ram, weighing 45kg presented with generalized stiffness, mild opisthotonus, difficulty in swallowing and signs of generalized pain was presented. On physical examination, rapid breathing and mild bloat were observed, but every other clinical parameter was within the normal reference values. Tentative diagnosis of tetanus associated with injuries sustained during animal fighting. The patient was treated with human tetanus immunoglobulin followed by intravenous metronidazole, procaine penicillin streptomycin and diazepam injection administered intramuscularly. High dose of multivitamins was administered I/M. The symptoms were relieved after three hours of intensive treatment each day for two consecutive days. The client failed to present the patient to the clinic for follow-up on the third day citing cost and distance to the clinic as excuses. To the authors' knowledge a tetanus infection associated with injury from Ram fight has not been previously reported in Ibadan, Nigeria.

Introduction

Tetanus is an acute, most often fatal, toxin-mediated infectious neuromuscular disease of all farm animals caused by infection by spores of *Clostridium tetani* (*C. tetani*) most often associated with infected or contaminated wound (Wernery *et al*, 2004; Driemeier *et al*, 2007;

Muralidharan *et al.* (2010). Poudel *et al.*, (2009) has also described tetanus as a

deadly infection, caused by toxins of *Clostridium tetani*. The spores of this organism can survive in the soil for years and can present a continuing disease problem in the flock which often time is sporadic in nature. Studies worldwide indicate the presence of *Clostridium tetani* in 30-40% of soil samples (Radostits *et al.*, 2007). Tetanus is seen in all ages of stock and common farm procedures have been linked to its development such as unhygienic

parturition, castration, inappropriate injection procedure, unhygienic disbudding and wool shearing in sheep with contaminated equipment (Aslani *et al.*, 1998). Other procedures such as poor surgical management, umbilical infections, ear tagging, snake bites, dog bites, fighting, bucal mucosa penetration by sharp fibrous grass or pasture, infected umbilical cord associated with unhygienic parturition, prolonged tying with ropes, skin irritation resulting in rubbing body against sharp metal or wood, trimming of hoof, tail docking, vaccination, penetration of nails and wires, contamination during parturition or manual handling of genitalia, uterine and placenta retention have all been incriminated as less frequent causes of tetanus in ruminant (Linnenbrink and Macmichael 2006; Smith and Sherman 2009; Kumar Das *et al.*, 2011; Pugh and Baird 2012). All animals are susceptible to tetanus but occurrence is known to be more in small ruminant and horses (Wernery *et al.*, 2004; Driemeier *et al.*, 2007). Tetanus is usually an isolated case (one animal), but multiple infection affecting many animals have been described in flocks or herds of farm animals, especially in relation to post injection wound contamination (Barbosa *et al.*, 2009).

The disease commences when the organism enters wounded tissue as a result of contamination. In the presence of anaerobic condition the bacteria multiply and produce a localised infection. As they multiply, the bacteria produce toxins, which bind irreversibly to the nerves causing clinical signs of tetanus. The incubation period can be short (two or three days) or

quite long (four weeks or more). It depends on the time it takes the contaminated wound or area to develop an anaerobic condition suitable for the organism to multiply. Tetanus can be manifested in two forms, generalized and local or cephalic. Generalized tetanus affects the muscles of the entire body and usually leads to opisthotonus. It often causes rigidity and spasms of the laryngeal and respiratory muscles that may result to respiratory failure and death (Bleck, 2005).

Depending on whether it is local or generalized, tetanus typically manifests as lockjaw, risus sardonicus, dysphagia, stiffness of the neck, abdominal rigidity, and opisthotonus. There is also flexion of the arms and extension of the legs; especially with full opisthotonus, ordinarily the limbs are less severely affected. Trismus is frequently the symptom at the onset in both local and generalized tetanus (Amare *et al.*, 2012). Natural immunity does not developed after tetanus infection; protection can only be provided by active immunization (World Health Organization, 2010). This case report describes a tetanus case in an adult West African Dwarf ram used in ram fighting competition. This particular case was as a result of wound sustained during the fight that was poorly managed. Ram fighting is a kind of sport activity between two rams usually those with large strong horns. It's often held in an open field or in a ring. This cruel activity is gaining unnecessary popularity among locals, especially in Nigeria, Uzbekistan and Indonesia (NBC news, 2016). Urgent action must be taken against this ugly development in our society.

Case history and diagnosis

An adult male (Ram) West African Dwarf breed of sheep, weighing 45kg presented with generalized stiffness, slight episode of opisthotonus when touched and signs of pain was presented to the large animal clinic of the Veterinary Teaching Hospital, University of Ibadan (Figure 1). The history revealed that the ram was a good fighter that participated recently in Ram Fighting competition in Ibadan, Oyo state Nigeria. The client reported recent wound close to the left horn, which was poorly treated by the owner and healed successfully. No history of prophylactic treatment with tetanus antitoxin or tetanus toxoid. On close examination, the patient was alert, appeared healthy but for the lateral recumbence, neck twisting and retraction, gait and muscle stiffness, inability to open mouth and frequent breathing (Figure 2). The uptake of food and water was impossible due to severe lock-jaw and bloat manifestation (Figure 3). The animal could still defecate and urinate in a normal way. A bruise or healed wound was observed close to the left horn. Clinical examination revealed the following; rectal temperature 39.4degree celcius, heart rate 72beats per minute, respiratory rate 45 times per minute (Figure 4). Tentative diagnosis of clostridium tetani infection was made based on the presented signs and history provided.

Treatment

Treatment commenced by manually compressing the abdomen in order to relieve the patient of the bloat presented (Figure

5). Single dose of 500IU tetanus immunoglobulin given intramuscularly which was subsequently followed by intravenous infusion 500mg/100ml metronidazole at general dosage of 15 mg/kg IV administered two times each day at 3hours interval for two days, 4.5mls of procaine penicillin at 22,000IU/kg and streptomycin at 22mg/kg administered intramuscularly two times per day for two days. 2mls of diazepam injection in one vial was intramuscularly given at 0.16-0.2 mg/kg for two times each day at 3 hours interval each day for two days (Figure 6). 5mls of multivitamins injection was also administered during each time of treatment. The patient symptom was relieved, physiological parameters improved and animal that was previously on lateral recumbence was able to withstand sternal recumbence without any support (Figures 7 and 8). Patient was meant to be treated for 5 days consecutively but the client failed to present the animal to the clinic on the third day. When the client was contacted, he gave high cost of treatment and long distance between his residence and the Veterinary Teaching hospital as excuses.

Tetanus is rarely being reported in Nigeria, be it in animals or in human. In local literature available to us, I could not find any source published. The low incidence of the disease might be the reason why preventive practices in ruminant animals are not being practised (vaccination, etc.). Various circumstances determine the occurrence of tetanus. Circumstances such as contaminated wounds, obstetrical interventions or routine procedures such as



Figure 1: Muscle rigidity and lateral presentation



Figure 2: Neck twisting and retraction displayed



Figure 3: The animal has bloated bloated appearance



Figure 4: Monitoring of Heart rate



Figure 5: Bloat being relieved by manual abdominal compression



Figure 6: Intra-venous infusion with Metronidazole and other medications



Figure 7: Patient's condition improved



Figure 8: Patient able to withstands being on sternal recumbence after intervention

disbudding, dehorning, tattooing, castration, injection, shearing, tagging and hoof trimming (Upadhyay *et al.*, 2013). In this case, the circumstance was improperly managed wound resulted from injury sustained during Ram fighting competition. Treatment of clinical Tetanus can be very expensive and the success rate is usually very low. In most times, the condition often leads to the death of the affected animal or animals. Sometimes, it is often very difficult to establish the organism's point of entry because the wound itself may be small or had healed. It was difficult to establish the point of entry in this particular case as the only reported wound had healed. To the best of the authors' knowledge, this will be the first time of reporting tetanus infection associated with the wound sustained from Ram fighting competition in Nigeria. The clinical symptoms manifested by this patient were similar to the signs of tetanus in camel described by (Wernery *et al.*, 2004). The signs exhibited were also in agreements with the signs that had been described by (Radostits *et al.*, 2007).

Tetanus bacterium produces tetanolysin and tetanospasmin toxins. Tetanolysin has the potential to destroy the membrane of the cells, causing destruction of tissue and propagating the development of an anaerobic environment (Valgaeren *et al.*, 2011). The clinical symptoms presented by this patient correlated with what had been described by (Singh *et al.*, 2000) where they observed difficulty in an attempt to open the mouth of *clostridium tetani* infected patient. This difficulty had been linked to hyperactivity of voluntary muscles

in the form of rigidity and spasms due to the blockage of the spontaneous and nerve impulse by the toxins. This often potentiates the release of neurotransmitters, leading to the disinhibition of gamma motor neurons. Complete clenching of the jaws as a result of spasms linked to forceful manipulation of the mouth of a tetanic patient has been previously described. The treatment protocol for tetanus in human and animal that had been described by various authors was adopted in the management of this particular patient. The improvement in the health condition of this patient as of the second day of treatment was similar to what had been described by several authors on successful reports on treatment of tetanus in animals (Harish *et al.*, 2006; Kumar Das *et al.*, 2011; Bhikane *et al.*, 2005).

Recommendations.

Ram fighting competition should be discouraged by all means and any animal to be used in Ram fighting at all should be prophylactically treated with anti-tetanus serum and animals that recovered from tetanus should be routinely vaccinated. The animal welfare associations need to rise against this act of cruelty to animals and ensure that the laws against cruelty to animals is enforced.

References.

- Amare, A., Melkamu, Y and Mekonnen, D.: Tetanus in adults: Clinical presentation, treatment and predictors of mortality in a tertiary hospital in Ethiopia. *Journal of Neurological Science*, 317: 62–65 (2012)
- Aslani, M.R., Bazargani, T.T., Ashkar, A.A., Movasaghi, A.R., Raoofi, A and Atiabi, N.: Outbreak of tetanus in lambs. *The*

- Veterinary Record*, 142: 518–519 (1998)
- Barbosa, J.D., Dutra, M.D., Oliveira, C.M.C., Silveira, J.A.S., Albernaz, T.T and Cerqueira, V.D.: Outbreak of tetanus in buffaloes (*Buballus bubalis*) in Pará, Brazil. *Pesquisa Veterinaria Brasil*, 29: 263–265 (2009).
- Bhikane, A.U., Yadav, G.U., Karpe, A.G and Ambore, B.N.: Tetanus in a Deoni calf - a case report. *Intas Polivet* 6: 42–43(2005).
- Bleck, T.P.: *Clostridium tetani* (Tetanus). In *Principles and Practice of Infectious Diseases*, (6th ed.; Mandell, G.L., Bennett, J.E., Dolin, R., Eds.; Elsevier: Amsterdam, The Netherlands, pp.2817–2822, 2005).
- Bradford, Alina.: Rams: Facts About Male Bighorn Sheep". *Live Science*. (31 July 2014)
- Driemeier, D., Schild, A.L., Fernandes, J.C.T., Colodel, E.M., Correa, A.M., Cruz, C.E.F and Barros, C.S.L.: Outbreaks of tetanus in beef cattle and sheep in Brazil associated with disphenol injection. *Journal of Veterinary Medicine. A, Physiology, Pathology, Clinical Medicine*, 54: 333–335 (2007).
- Harish, B.R., Chandranaik, B.M., Bhanuprakash, R.A., Jayakumar, S.R., Renukprasad, C and Krishnappa G.: *Clostridium tetani* infection in goats. *Intas Polivet*, 7: 72–74 (2006).
- Kumar Das, A., Kumar, B and Kumar, N.: Tetanus in a buffalo calf and its therapeutic management. *Intas Polivet*, 12:383–384 (2011).
- Linnenbrink, T and Macmichael, M.: Tetanus: Pathophysiology, clinical signs, diagnosis, and update on new treatment modalities. *Journal of Veterinary Emergency and Critical Care*, 16: 199–207 (2006).
- Muralidharan, J., Ramesh, V and Saravanan, S.: Tetanus in sheep of an organized livestock farm A case report. *Indian Journal of Field Veterinarians*, 5:43–44 (2010).
- Poudel, P., Budhathoki, S and Manandhar, S.: Tetanus. *Kathmandu University Medical Journal*, 7:315–322 (2009).
- Pugh, D.G and Baird A.N.: *Sheep and Goat Medicine*, 2nd edn. Saunders, an imprint of Elsevier Inc: Philadelphia, PA (2012).
- Radostits, O.M., Gay, C.C., Hinchcliff, K.W and Constable, P.D.: *Veterinary Medicine*, (Saunders, Elsevier. 822–824, 2007).
- Ram Fighting Battles For Acceptance in Nigeria". NBC News. 25 March 2016.
- Singh, A.P., Tanwar, R.K., Meena, D.S and Gahlot, A.K.: Tetanus in a cow- A case report. *Veterinary Practitioner*, 1: 137–138 (2000).
- Smith, M.C and Sherman, D.M.: *Goat Medicine*. (92nd edn. Wiley-Blackwell: Hong Kong, Printed in Singapore, 2009).
- Stöber, M.: Tetanus. In: *Innere Medizin und Chirurgie des Rindes*. 4th Edition, Parey Buchverlag im BlackwellVerlag GmbH, Wien, 1068–1071 (2002).
- Upadhyay, S.R., Hussain, K and Singh, R.: Bovine neonatal tetanus: A case report. *Buffalo Bulletin*, 32: 18–20 (2013).
- Valgaeren, B., De Schutter, P., Pardon, B., Eeckhaunt, V., Boyen, F., Van Immerseel, F and Deprez, P.: Thermic dehorning and ear tagging as atypical portals of entry of *Clostridium tetani* in ruminants. *Vlaams Diergeneeskundig Tijdschrift*, 80:351–354 (2011).
- Wernery, U., Ui-Haq, A., Joseph, M and Kinne, J.: Tetanus in a camel (*Camelus dromedaries*) - A case report. *Tropical Animal Health and Production*, 36:217–224 (2004).
- World Health Organization, WHO Technical Note.: Current recommendations for treatment of tetanus during humanitarian emergencies (2010).