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RESEARCH ARTICLE

BILATERAL TEAT LACERATION AND ITS SUCCESSFUL SURGICAL MANAGEMENT IN HOLSTEIN FRIESIAN CROSSBRED CATTLE

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Abstract

A 5.5 years old Holstein Friesian crossbred cattle was presented with a history of traumatic injury by barbed metallic wire on right fore-teat six hours before. Clinical examination revealed full-thickness, bilateral, longitudinal laceration of the same teat, extending from base of the teat to the distal teat orifice with leakage of milk. Prompt reconstructive surgery was performed under sedation and local anesthesia to repair the laceration. The closure of the teat cistern was performed by suturing the laceration in three layers. Post-operative care included intra-mammary and systemic antibiotic therapy with NSAID for five consecutive days along with daily antiseptic dressing of the wound and regular drainage of milk via the fixed infant feeding tube in the teat cistern. The animal had shown uneventful recovery without any complication with removal of skin sutures on 10th post-operative day and started hand milking from the same teat on 20th post-operative day.

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Introduction:-

Teat injuries in dairy cattle are often responsible for premature culling of affected cows (Beaudeau et al., 1995). Due to trauma caused by thorny bushes, barbed wires, animal bites and sharp agricultural equipments, laceration of teat is the most common clinical condition found in dairy cattle (Singh et al., 2012). Teat lacerations are classified on the basis of depth of the wound as being full thickness (skin to mucosa with leakage of milk out of the wound) or partial thickness (skin to submucosa with no compromise in the integrity of teat cistern) (Nicolas, 2008). The defense mechanisms of the teat against mastitis are bypassed in case of full-thickness teat lesion, resulting in increased chances of clinical mastitis. Therefore, prompt surgical reconstruction of the lacerated teat is required to protect the quarter against environmental pathogens (Dyce et al., 1996). The present case report describes the surgical management of deep bilateral longitudinal teat laceration in a cow.

Case history and clinical observations

A Holstein Friesian crossbred cattle of age 5.5 years was presented to the Veterinary Clinical Complex of LUVAS, Hisar (Haryana), with a history of traumatic injury by barbed metallic wire on right fore-teat six hours before. Clinical examination revealed full-thickness, bilateral, longitudinal laceration of the same teat, extending from base of the teat to the distal teat orifice with leakage of milk (Fig. 1 and 2). Clinical examination revealed that animal was active and alert with vital parameters recorded within the normal physiological range.

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Fig. 1:- Laceration of right fore-teat extending from the base to the distal teat orifice.



Fig. 2:- Pre-operative photograph showing bilateral, longitudinal, full-thickness teat laceration.

Treatment

The animal was casted in lateral recumbency after achieving pre-surgical sedation by injecting Xylazine hydrochloride @ 0.05mg/kg body weight intravenously. The animal had also been injected with Atropine sulphate @ 0.04mg/kg body weight intramuscularly 10 minutes before giving the sedative agent to reduce the side-effects of the same i.e. xylazine induced hypersalivation and bradycardia. After positioning the animal in left lateral recumbency, all the legs were tied using a casting rope. Local anesthesia of the teat was achieved by infiltrating 10 ml of 2% Lignocaine hydrochloride solution at the base of the lacerated teat in the form of a ring block. For maintenance of the sedation, additional intraoperative doses of Xylazine hydrochloride @ 0.01-0.02mg/kg body weight were administered intravenously. Pre-operative antibiotic, Streptomycin – Procaine penicillin (Dicrysticin- S- Zydus AHL) @ 10mg/kg body weight and NSAID (Meloxicam @ 0.4mg/kg body weight) were injected intramuscularly to the cattle 30 minutes before the start of surgery.

The surgical site was prepared for aseptic reconstructive surgery of the teat. Careful debridement of the lacerated wound was performed to remove the blood clots and the adhered dirt particles with the help of a scalpel blade and irrigation of the wound was done with 0.2% Povidone iodine antiseptic solution. A sterilized metallic teat siphon was introduced in the teat cistern to facilitate easy suturing and to avoid accidental suturing of the lumen. Firstly, the inner mucosal layer of the teat was sutured followed by suturing of the muscular and connective tissue by using polyglactin-910 No. 3-0 in simple continuous suture pattern (Fig. 3). The outer-most skin layer was apposed with braided silk No. 1-0 in simple interrupted suture pattern (Fig. 4).



Fig. 3:- Intra-operative photograph showing suturing of muscular and connective tissue layer in simple continuous suture pattern.



Fig. 4:- Apposition of the skin layer in simple interrupted suture pattern.

For maintaining patency of the teat and drainage of milk from the quarter, a sterile modified polyvinyl tube (Infant feeding tube No. 8, Romsons Scientific and Surgicals India) was placed in the teat cistern and fixed with stay sutures on the skin. An intra-mammary infusion of 75 mg Cefquinomesulphate (Cobactan® LC- MSD) was done through the fixed polyvinyl tube in the teat cistern. The operated site was thoroughly cleaned and dried followed by bandaging of the teat to prevent any further injury and infection while healing (Fig. 5).

Postoperatively, the intra-mammary and the systemic antibiotic therapy along with the NSAID were continued for next five days. Daily dressing of the wound was done with 5% povidone iodine solution. Milk was drained regularly by opening the cap of the fixed infant feeding tube followed by infusion of the intra-mammary antibiotic through the tube. Skin sutures were removed on 10th post-operative day (Fig. 6).

Results and Discussion:-

Teat injuries are responsible for great economic loss in dairy animals especially in high yielder if not treated promptly. Surgical affections of teat are best operated during the first 12 hrs. of injury because adequate reconstruction of the tissue becomes very difficult in later stages due to development of severe inflammation (Devi et al., 2020). In the present report, it was an acute case of full-thickness, bilateral, longitudinal teat laceration and the surgical intervention was performed immediately after presentation. The closure of the teat cistern was performed by suturing the laceration in three layer suture pattern and found to be very effective in the present report. The similar findings were also observed by Aruljothiet al. (2012), Balagopalan and Aruljothi (2016), Ghamsariet al. (1995) and Nichols (2009). Both systemic and intra-mammary antibacterial agents were given in the present case to prevent development of clinical mastitis which has also been suggested by Roberts and Fishwick (2010) in all full thickness lacerations or injuries to the teat.



Fig. 5:- Fixation of modified polyvinyl tube along with bandaging of the teat



Fig. 6:- Skin sutures removed on 10th post-operative day.



Fig. 7:- Completely healed surgical wound on 20th post-operative day

Prompt surgery, debridement, and careful reconstruction of the tissue along with judicious use of suture materials, appropriate postoperative therapy and monitoring were all important key points to be successful in the teat laceration surgery (Nichols, 2008). All the above mentioned points were strictly followed in the present study and cow had shown uneventful recovery without any complication with start of hand milking of the teat on 20th post-operative day (Fig. 7).

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