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Surgical management of teat affections in cattle

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Abstract
Cattle were presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hassan with various teat affections including traumatic teat fistulas, lacerations, teat polyp, teat spider and teat foreign bodies were selected for the study. Under sedation, ring block and Intracanal anaesthesia. The teat fistula and lacerations were closed with surgical closure of mucosal, muscular, subcutaneous and skin layers by suturing and lactoliths, teat polyps and foreign bodies are retrieved.

Keywords: Cows, traumatic teat fistula, teat laceration, teat foreign body

Introduction
In a dairy farm, affections of teat and udder of cattle are very common. Early diagnosis and treatment of such problems is very crucial for maintenance of their health and milk production which ultimately affects the productivity causing heavy economic loss (Singh, 2014) [9]. Most of the teat injuries occurs when cattle housed and also when they were kept in pasture. The teat wounds are common during parturition as a result of increase in the udder size and clumsy movement of the cow and also while crossing the wire fence (Premsairam *et al*. 2020) [4]. Management of superficial wounds involves regular cleaning the teat and udder using suitable antiseptic agents then leaving the wound to heal. Deeper lacerations involving the teat canal will require prompt suturing (within 6 hours of trauma) of the defects to prevent complications (Roberts and Fishwick, 2010) [5]. Teat fistulas are that communicates with the main teat cistern and gland complex through which milk flows out of lactating animals (Schmit *et al*., 1994) [6]. It is commonly seen in animals with long teat and pendulous udder which requires proper surgical closure (Singh *et al*., 1993) [7]. The teat spider is a condition may be due to some membranous or fibrous tissue blockage in the teat canal and teat polyp is a pedunculated pea sized growth attached to the wall of teat cistern both interferes with the milk flow. Early presentation, proper surgical closure or other suitable treatment will yields better results.

Materials and Methods
Cattle were presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hassan with various teat affections including teat fistulas, lacerations, foreign body intercanal or udder, teat polyp, leaky teats, hard teats and teat spider (Table 1). Some of the cases were presented with the history of deep wound on the teat with milk leakage other than the teat orifice occurred while crossing the wire fencing, cow stands on its own teat while standing and can occur in tie stall or free stall barns. The teat wounds are common during parturition as a result of increase in the udder size and due to random movement of the cow, other cases of teat polyp and teat spider presented with the history of difficulty in milking and nodule like structures were palpated while milking at the base also at the tip of the teat. Farmers presented the cases with complaint of broken siphon and ear buds inside the teat canal.
The various affections of the teat were diagnosed based on clinical and physical examination of the affected teat. Teat laceration are that where the mucosa was exposed without oozing of milk from the wound. Teat fistulas are that communicates with the main teat cistern and gland complex through which milk flows out of lactating animals, in dry animals the siphon is exposed to outside when it is passed into the teat canal. Teat spider will be having membranous or fibrous tissue blockage in the teat canal which results in difficulty in passing of teat siphon into the teat canal. Teat polyps are nodule like structure which obstructs the teat canal which can be palpated while examining the teat from externally. Teat forign bodies were diagnosed based on physical examination and also as per the history of owner.

All the lacerations and fistulas were presented in milking period. Teat spider and the teat affected with deep lacerations and fistulas will be swollen, pain on palpation and some amount of tissue loss was observed. The first and foremost thing is to clean the affected teat with 0.5% antiseptic solution and arrest the bleeding if any. The animals presented where subjected to hematological examination and all the results were in the normal range. The teat laceration and fistulas were surgically corrected under sedation with INJ Butorpheno @ 0.01mg/ kg B.WT, inj Xylazine @0.02mg/ kg B.WT and inj Ketamine @ 0.04 mg/ kg B.WT but the INJ Xylazine was excluded in pregnant animals. Preoperatively antibiotics and analgesics were administered. Under lateral recumbency, the affected teat facing upwards. The sedation was combined with Ring block anesthesia which can be performed by a circumferential injection of 20 ml of 2% lidocaine hydrochloride solution with inverted 'V' shaped by using a proximal tourniquet at the base of the teat in the area of annular ring avoiding the intravenous injection. The surgical site is aseptically prepared by scrubbing with 7.5% povidone iodine solution and surgical spirit. The siphon was passed into the teat canal complete milk was drained. The margins were thoroughly debrided using No.11scalpel blade. The suturing of first layer of teat included inner mucosal layer in simple interrupted pattern, muscular and connective tissue in simple continuous pattern were done with polyglactin 910 No. 2/0 in all the animals. Skin was sutured with vertical mattress pattern using monofilament polyamide 2-0. Sterile modified polyvinyl tube (Infant feeding tube No. 10) was placed in the teat to maintain the patency and fixed with stay sutures and the wound is dressed with ointment and sterile gauze.

The teat laceration was surgically corrected after debridement using by suturing muscular and connective tissue in simple continuous pattern were done with polyglactin 910 No. 2/0 in all the animals. Skin was sutured with vertical mattress pattern using polyamide 2-0. The milk is drained using siphon and the wound is dressed with ointment and sterile gauze.

Under standing position using ring block and infusion anesthesia using 2% lignocaine anesthesia. The teat spider and teat polyp was treated by using teat slitter was introduced as well as teat bistouries instrument for clearing those membranous, fibrous tissue blockage and polyps gradually.

Foreign bodies in teat canal were removed through teat orifice in two cases using micro hemostats and in two cases foreign body was pushed to base of teat and a small incision was made on the udder and foreign bodies were removed. The nick incision was sutured with polyglactin 910 No 2-0 and polyamide No.1-0

Postoperatively animal was administered with antibiotics inj Dicrystisin for 3 days and analgesics for 2 days and wound was dressed regularly. Sutures were removed after ten to twelve days. The surgical wound of teat laceration and fistulas healed without any complications.

Table 1: Cases presented with various teat affections

Case Number	Breed	Number of teats and quarter affected	Surgical condition
1	HF crossbred	1, Right forequarter	Teat fistula
2	HF crossbred	1, Left hindquarter	Teat fistula
3	Jersey crossbred	1, Left forequarter	Teat Fistula
4	HF crossbred	1, Right forequarter	Teat Fistula
5	Jersey crossbred	Left forequarter	Teat laceration
6	HF crossbred	Left hind quarter	Teat laceration
7	HF crossbred	1, Left forequarter	Teat foreign body, Teat siphon
8	HF crossbred	1, Right forequarter	Teat foreign body, ear bud
9	HF crossbred	All four teats	Teat polyp and teat spider

Results and Discussions

The six animals presented with teat fistula and laceration, four cows were on grazing and two were stall fed. Stall fed animals were kept in closed enclosure and more hence more prone for teat injuries due to stamping and grazing animals were injured because of wire fence. Similar findings were also reported with Matzke P, 1992 [2].

The poor udder conformation, with low hanging teats predisposes the teat to being kicked by the cow causing injuries (Sreenu M, *et al.*, 2014) [9]. In present cases most of the teat injuries were observed in hanging teats.

The duration of wound was in between 2-20 days and the etiological factors of the wound were due to thorn in three animals, treading in two and barbed wire in one case. Due to overcrowding in tie stall or free stall barns of recently calved animals with enlarged udder puts the teats at risk of self-inflicted injury or by the other animals (Nichols S, 2009) [3].

The reconstruction of teat laceration and fistula are corrected with a combination of sedation and ring block of teat. The suturing pattern which we followed for reconstruction was in accordance with Premsairam, C *et al*., 2020 [4].

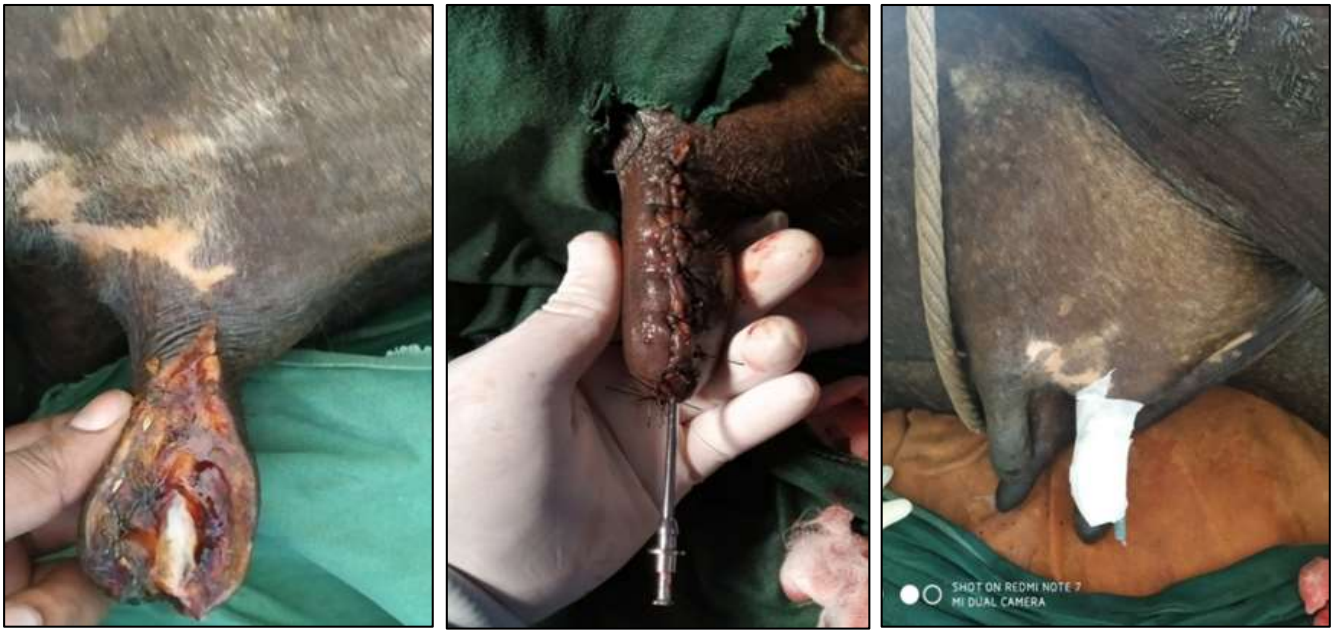
After suturing the patency of the teat canal was maintained by placing the infant feeding tube number 8 and 10 for the removal of milk without damaging the suture line and adhesive bandage was applied to the surgical wound, similar procedure was also followed by Premsairam, C *et al*., 2020 [4].

Teat spider condition may be due to some membranous or fibrous tissue blockage in the teat canal. The correction of it using teat bistouries and arrow headed teat tumor extractor it was similar to the findings of Bhowmik L, *et al*. 2015 [1].

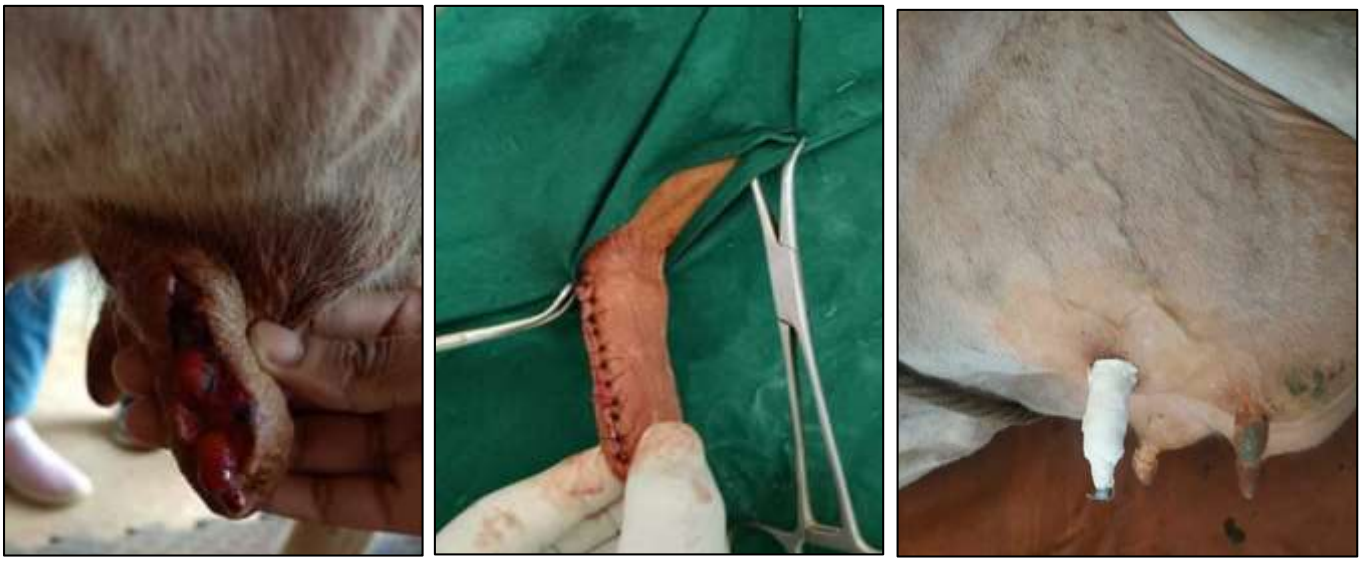
The teat foreign bodies were removed using micro hemostats along with some physical manipulation.

All the animals with teat affections recovered without any complications except one animal was affected with mastitis after a weak it may be due to improper management of hygienic condition but it recovered without any problem.

Case number 1: Teat fistula



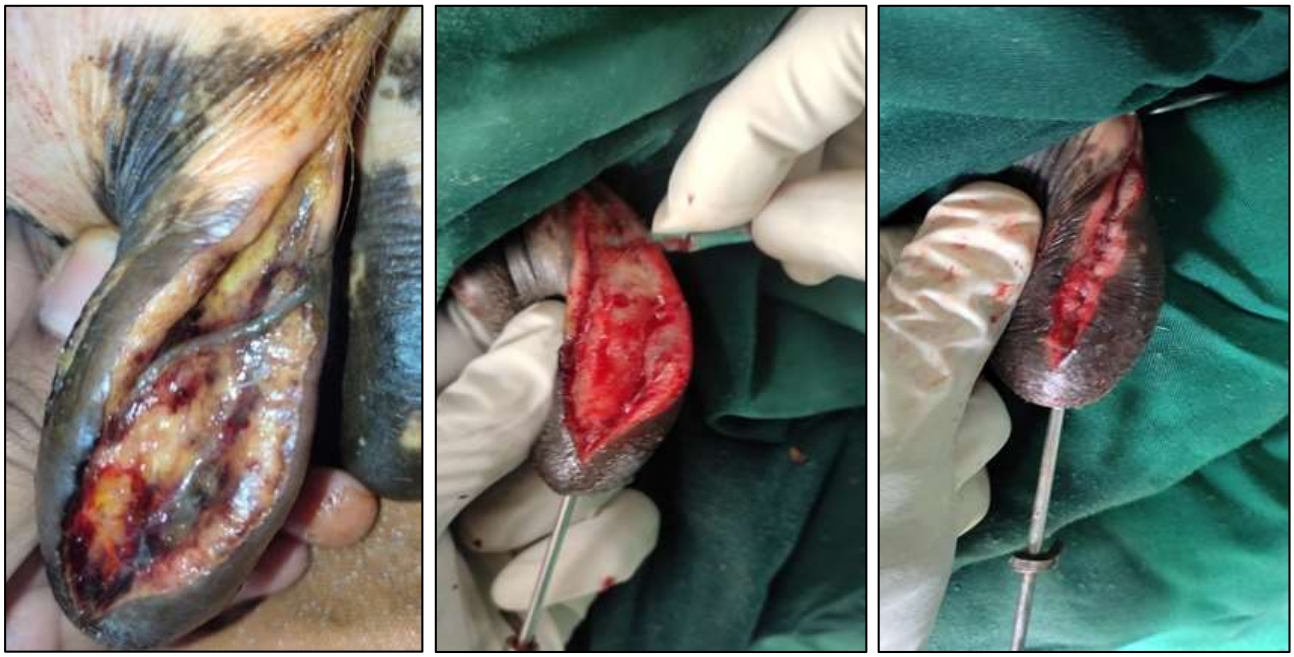
Case number 2: Teat fistula



Case number 3: Teat fistula

Case number 4: Teat fistula

Case number 5: Teat laceration



Case number 6: Teat laceration

Case number 7: Teat foreign body

Case number 8: Teat foreign body

Case number 9: Teat polyp and spider

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