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Surgical reconstruction of traumatic teat fistula in a goat: A case report

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Abstract

A two-year-old female goat was presented with history of traumatic injury to the left teat due to fencing wire and leakage of milk from teat cistern since two months. On physical examination, a fistulous tract extending from skin to teat cistern of left teat was noticed which led to leakage of milk from cranial aspect of left teat and thus confirmed as teat fistula. All physiological parameters were in normal range. Under sedation and ring block of teat, teat fistula was reconstructed using three-layer suturing technique and patency of teat canal was maintained using teat plug. Post-operatively, the goat was maintained with antibiotics and anti-inflammatory drugs. Animal showed uneventful recovery after 12 days without any post-operative complications.

Keywords: Teat cistern, teat fistula, ring block

Introduction

Teat fistula is a condition where there is an abnormal tract connecting the teat cistern to the skin with leakage of milk in lactating animals (Ducharme *et al.*, 1987) ^[3]. If the condition is untreated, it may lead to mastitis or even necrosis of teat. Teat fistula is not common in goats. The incidence of teat fistula was 9.61 percentage in comparison to other teat and udder affections in goats (Chakrabarti *et al.*, 2014) ^[2]. The vulnerability of teat to injuries in goat may be attributed to its peculiar pendulous structure and anatomical location (Angelo and Dhar, 1971) ^[1]. They are most common in animals between the ages of five and six or in the early stages of lactation (Molaei and Ebrahimi, 2014) ^[7]. Teat fistula may be seen as a congenital or acquired condition. Acquired teat fistulas often result from full thickness teat wound or as a complication to thelotomy closure (George *et al.*, 2008) ^[4]. Since the condition affects the economic output of the farmer by the direct effect due to leakage of milk and indirect effect on the growth of the young one and ensuing mastitis, teat fistula may be considered as an emergency surgical condition. The present case reports successful management of acquired teat fistula in a goat.

Materials and Methods

A two-year-old female goat was presented to Department of Veterinary Surgery and Radiology, Veterinary college, Hebbal, Bengaluru. The goat had a history of traumatic injury to the left teat due to fencing wire and leakage of milk from teat cistern since two months. On physical examination, a fistulous tract extending from skin to teat cistern of left teat was noticed which led to leakage of milk from cranial aspect of left teat and thus confirmed as teat fistula (Fig. 1). All physiological parameters were in normal range.

Animal was initially sedated with Inj. Diazepam at 0.05mg/kg body weight administered intravenously (Total dose of 2 mL). Ring block was performed by using 1% Lignocaine solution at the proximal part of affected teat after applying tourniquet at the base of the teat. Pre-operatively, Inj. Ceftriaxone at 10 mg/kg body weight and Inj. Meloxicam at 0.2mg/kg body weight were administered intravenously.

Animal was positioned in left lateral recumbency. The surgical site was aseptically prepared with 7.5% povidone iodine scrub solution and surgical spirit. The wound edges were debrided

minimally using bard parker's blade No 22 and wound was thoroughly flushed with normal saline. Fistula was sutured by three-layer suturing technique, submucosal and muscularis layer of teat were sutured together in simple continuous pattern using Polydioxanone No. 3-0 in two layers avoiding mucosal layer (Fig. 2). Then skin was sutured using Polydioxanone No. 3-0 in horizontal mattress pattern. A sterile teat plug was placed inside the teat canal to maintain the patency (Fig. 3). Surgical site was applied with povidone iodine ointment and bandaging was done.



Fig 1: Preoperative appearance of teat fistula



Fig 2: Suturing of submucosal and muscularis layer



Fig 3: Insertion of teat plug into teat canal

Post-operative management included intramammary preparation, Pendistrin-SH administered BID for 7 days, Inj. Dicrysticin at 10000IU/kg body weight administered intramuscularly SID for 7 days, Inj. Meloxicam at 0.2mg/kg body weight administered intramuscularly SID for 3 days. Wound dressing was done once in 3 days. The owner was advised to drain out milk by opening the cap of the teat plug every day.

Results and Discussion

Immediately after surgery and placement of teat plug, the passage of the milk through teat plug was noticed without any leakage from surgical site indicating successful surgical reconstruction of teat fistula (Fig. 4).

Sutures were removed on 12th post-operative day. Surgical site healed without any complications (Fig. 5).

Passage of the milk through the natural teat orifice was noticed without any leakage after recovery (Fig. 6).

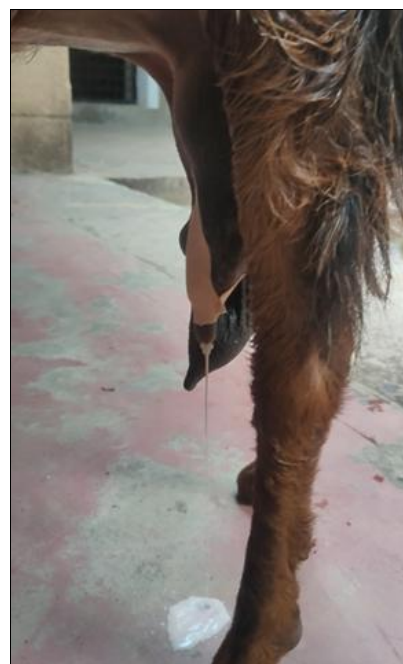


Fig 4: Passage of milk through teat plug immediately after surgery

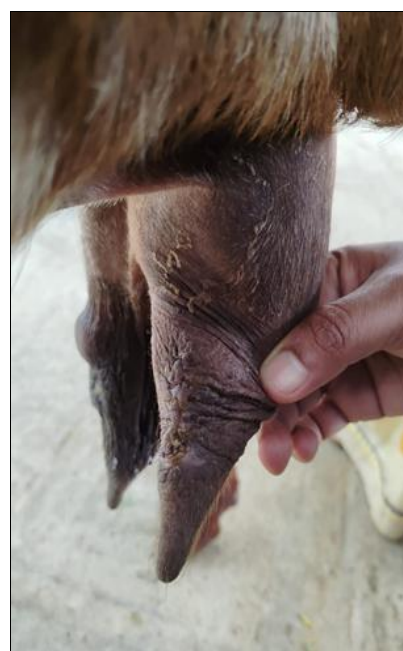


Fig 5: Removal of sutures on 12th post-operative day



Fig 6: Passage of milk through teat orifice after recovery

Teat fistula is considered as an emergency situation especially during lactation as the nutrient rich milk outflow can lead to mastitis resulting in economic losses to the farmer. The immediate repair of teat fistula within 12 hours will give good results (Kashyap *et al.*, 2017) ^[5]. After 12 hours, there will be swelling of the wound edges and repair during this time is to be undertaken after the swelling subsides for which a waiting period of two to three days may be needed. The wound healing time ranged from 2 to 12 days, and barbed wire was the main cause of the damage. Overcrowding of animals with swollen udders after calving in tie-stall or free stall barns increases the danger of injury to the teat from the other animals or self-inflicted injury (Mulon, 2016; Nichols *et al.*, 2016) ^[8,9]. Poor udder conformation and low-hanging teats make the goat more likely to injure itself by kicking the teat (Sreenu *et al.*, 2014) ^[12]. The udder and teats are vulnerable to the external trauma or injury because of their anatomical location, increase in size of the udder and teats during lactation (Weaver *et al.*, 2005) ^[13]. Infective organisms gain entry through teat fistula, leading to mastitis (Kumar, 2000) ^[6]. Different suture techniques are used to repair the teat fistula but double layer simple continuous suturing with PGA 3-0 and simple interrupted suturing of skin with nylon 1-0 is found suitable for repair of teat fistula (Shiju Simon *et al.*, 2010) ^[11]. Roberts and Fishwick (2010) ^[10] opined that suturing of fistulous tract without penetrating the mucosal layer and opposing only muscularis and sub muscularis was helpful in better healing of the teat wound. Similar procedure was followed in the present case.

Conclusion

In the present case, use of reconstructive surgery, following a precise protocol of sedation and local anaesthesia facilitated in successful repair of teat fistula. Post operative care including systemic antibiotic and anti-inflammatory therapy and wound dressing also contributed to the uneventful healing of the wound.

Conflict of Interest

Not available

Financial Support

Not available

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