



## Case Report

# Surgical Management of Teat Laceration of a Doe Using Teat Canula

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**Abstract** | An adult Jamunapari doe of two years age was presented at SAQ Teaching Veterinary Hospital, Chattogram Veterinary and Animal Sciences University, Bangladesh with a history of teat injury due to barbed wire while grazing. A deep longitudinal infected teat laceration was noticed. Milk was still coming through fibrosed teat canal. The lacerated part was sutured after scarification under sedation and regional anesthesia. A small portion of saline tube was inserted into the teat canal to maintain the flow of milk and prevent adhesion during healing. Muscle and skin were closed by interrupted and continuous sutures respectively. The animal recovered without any complications three weeks post-operatively.

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## Introduction

Teat laceration is the most common surgical condition seen in grazing animal due to barbed wires and farm machinery (Singh et al., 2012). Teat lacerations are classified according to the duration of trauma, localization and conformation of the laceration, and thickness of the lesion. The teat laceration is considered an emergency condition because any delay in repair can lead to mastitis or even necrosis of such teat (Singh et al., 2003). Early treatment of lacerated teat is required to prevent infection. Management of teat injury depends on the structures which have been injured. Trauma can lead to superficial and deep laceration and can be managed by appropriate measures (Roberts and Fishwick, 2010). In most cases, laceration of teat can be successfully treated by reconstructive surgery. However, adhesion of the teat canal after suturing is a common complication and delay the healing process. In this case study, we present successful surgical

management of old traumatic deep longitudinal teat laceration in a Jamunapari doe using a saline pipe to keep the teat canal patent until healing.

## Case presentation

A 2 years old Jamunapari doe was brought to the SAQ Teaching Veterinary Hospital, Chattogram Veterinary and Animal Sciences University with a history of teat injury due to barbed wire while grazing. The respiratory rate, pulse rate and rectal temperature were within the normal values. Clinical examination revealed that the injury was a deep longitudinal laceration extending from the base up to the tip of the teat with the involvement of skin and muscularis. The wound was infected, fibrosed and hemorrhagic with pus. Milk was still coming through the teat canal.

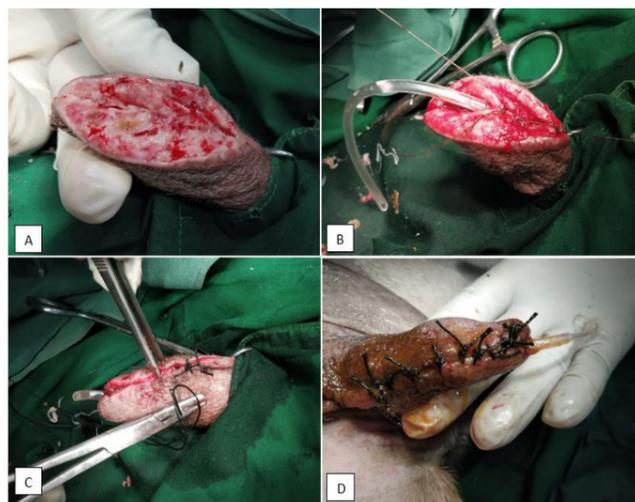
## Pre-operative preparations

The patient was sedated with Diazepam @ 0.5 mg/kg body weight intramuscularly and the animal was placed in lateral recumbency on the operative table.

Anesthesia of teat was achieved by ring block using 2% lidocaine hydrochloride. The udder and teat were thoroughly cleaned with normal saline and were aseptically prepared for reconstructive surgery using 10% povidone-iodine and 70% isopropyl alcohol.

#### Surgical technique

Surgical debridement of fibrosed lacerated teat margins was performed using a surgical blade (Figure 1A). A piece of saline infusion tube was inserted into the teat canal to prevent the closure of the teat canal during healing (Figure 1B). A simple continuous suture was placed to close the mucosa and muscularis of the lacerated teat using 2-0 catgut (Figure 1B). The skin was closed by an interrupted suture pattern using silk (Figure 1C). The piece of saline infusion tube was left in the teat canal until healing (Figure 1D).



**Figure 1:** Surgical debridement of lacerated teat (A) and suturing of lacerated teat (B). Suturing of skin edges (C) Whole teat after operation (D).



**Figure 2:** Teat on the 18<sup>th</sup> post-operative day (A). After removal of skin suture (B).

#### Post-operative treatment

Post-operatively, antibiotics Procaine penicillin (40,000 IU/kg) and Streptomycin (25 mg/kg) combination was administered intramuscularly for 5 days along with a daily antiseptic dressing of wound using povidone-iodine for 10 days. To prevent dehydration, 500 ml of 5% dextrose saline was infused intravenously up to the second postoperative day. Local application of antibiotic ointment (Bacitracin Zinc, Neomycin sulphate and Polymixin B) was advised two times a day for seven days. The wound was healed completely on the 18<sup>th</sup> postoperative day (Figure 2A) and skin sutures were removed (Figure 2B).

#### Results and Discussion

The udder and teats of ruminants are most prone to external trauma or injury because of their anatomical location (Weaver et al., 2005). The incidence of teat lacerations is comparatively higher in goats due to their pendulous udder and large teats (Singh et al., 2012). Teat injuries occur due to trauma, insect bites, environmental conditions, and by the milking machine (Sreenu et al., 2014). Surgical intervention on the teat is best performed during the first 12 hours following injury. In the present case, it was a longitudinal teat laceration, and the surgery was attempted few days after the incidence. Keeping the teat canal open after suturing the wound and prevent adhesion are challenging. We used an easily available saline infusion pipe to keep the teat canal open until healing. No complication was observed in this technique. The retention of plastic tube in teat might have been helped in preventing the closure of the teat canal and allows passive milk let-down in our case. Fibrosis and infection control were critical to reconstructing the teat in this study. Debridement and post-operative antibiotic treatment were maintained to overcome those problems. Local anesthesia techniques facilitate the surgical repair of lacerated and traumatized tissues of the udder (Steiner and Rotz, 2003). There are various local anesthetic techniques used in large animal practice include ring block, inverted-V block, teat cistern infusion, regional anesthesia of the teat, and perineal nerve block. The techniques may be used solely or in combination with other techniques to provide analgesia (Lumb and Jones, 1996). Ring block of teat performed in the present report resulted in satisfactory desensitization of the teat for its management. Surgical intervention

of the laceration to repair the teat is required for gaping wounds that expose the underlying structures (Singh et al., 2012). In the present report, the suture in mucosa and muscularis of lacerated teat surface with chromic catgut properly apposed the tissue edges and helped in the early healing process. The duration of the treatment depends on the likelihood of infection being present and the degree of contamination (Nichols, 2008; Roberts and Fishwick, 2010). In this case study, it took three weeks for the effective recovery which indicates its implication for the surgical management of lacerated teat canal without any complication in goat.

#### Conclusions and Recommendations

The traumatic injury of teat laceration with fibrosis and infection in muscle and skin involvement in goat can be managed by inserting a small piece of saline infusion tube in the teat canal to prevent adhesion along with reconstruction of the anatomical structure of teat with proper antibiotic therapy.

#### Novelty Statemnet

We have used saline pipe as a teat canula for the correction of teat laceration which has never been used previously.

#### Author's Contribution

Monoar Sayeed Pallab: study design, run the experiment, manuscript writing. Moktadir Reza: run the experiment. Debashish Sarker: run the experiment, data acquisition, manuscript writing.

#### Conflict of interest

The authors have declared no conflict of interest.

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