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Case Report

SURGICAL REPAIR OF RECURRENT TEAT FISTULA USING SUTURES AND TISSUE ADHESIVE IN A COW- A CASE REPORT

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ABSTRACT
Teat affections in dairy animals cause immediate and major financial loss to the farmer and predispose the animal to mastitis. Among teat affections teat fistula is a challenging condition to treat. It is still challenging to treat if recurrent teat fistula case comes. Here we have reported successful surgical correction of such recurrent teat fistula in a cow. The different diagnostic and surgical techniques were discussed in detail to avoid recurrence of the same problem in future.

Keywords: *Teat Fistula, Sutures, Tissue Adhesive, Recurrence, Surgical Repair*

INTRODUCTION
Most of the teat lacerations and teat canal problems are treated by practitioners and teat fistula is the challenging condition often referred to Veterinary Colleges and Hospitals (Ducharme *et al.*, 1987). Teat fistula is the milk flow in an abnormal opening apart from the normal teat opening observed commonly in high yielding animals. Mostly teat fistula is caused due to traumatic origin and rarely congenital. The main complication of teat fistula is predisposing the animal to mastitis. Treatment of teat fistula condition needs reconstructive surgery in most of cases. The purpose of this paper is to describe different diagnostic and surgical techniques followed in the successful management of recurrent teat fistula in a cow.

CASES
A 5 year old Holstein – Friesian cow was brought to the hospital with the history of milk let down from the abnormal teat opening (Fig 1). The animal calved 5 days back since then milk let down is observed in the abnormal opening and not in the normal teat opening. History revealed that the animal was already treated for the teat fistula in the previous calving by local veterinarian. On examination 0.5mm diameter large teat fistula on the left fore teat was found. The fistulous tract diagnosis was confirmed by ultrasound also. Ultrasonographic view of the teat fistula is shown (Fig 2). A sterile surgical pack containing general instruments and teat instruments was made ready. The animal was sedated using Inj. Xylazine HCl @ 0.1 mg/kg/bodywt (Xylaxin®) and it was made into left lateral recumbence and ring block of right hind teat was done at the base of the teat using 2% lignocaine solution (Tignocaine ®). It was observed that the natural opening at teat base was absent. Using one 16 gauze sterile needle natural teat opening was made. Then teat fistula area was cleaned with 5% povidone Iodine (Drez ®) and Inj.Metronidazole ® solution.
A small elevated and fibrosed area observed over the teat fistula which prevented the teat to heal was removed using scissor. Then using No.4/0 PDS the fistulous tract was sutured in three layered suturing technique (Fig 3). First layer included inner mucosal layer in simple continuous pattern, second layer included muscular layer and connective tissue layer in simple continuous pattern and third layer included outside teat skin layer in simple interrupted pattern. After suturing N-butyl cyanoacrylate tissue adhesive was added over the sutured line to reinforce the sutured line. Post operatively Inj. Amoxycillin Dicloxacillin 4.5 g (Intamox-D ®) i/m for 7 days and Inj. Meloxicam 100 mg (Melonex ®) i/v for 3 days were administered. Intramammary infusion was done using Pendistrin-SH tubles in the affected teat for the first five days after the surgery. Since hand milking interferes with wound healing the same Pendistrin-SH tubes were used for the milk removal but sterile tubes were used every time. After 12 days, the teat fistula repaired clinically and we could able to see no milk letdown from the fistula site. The Ph of the affected teat milk was 6.2 and the samples were negative for the California mastitis test. After one month period it was observed that the animal was milked manually without any problem. No recurrence was reported even in the third calving.

Figure 1: Milk let out from teat fistula in a cow

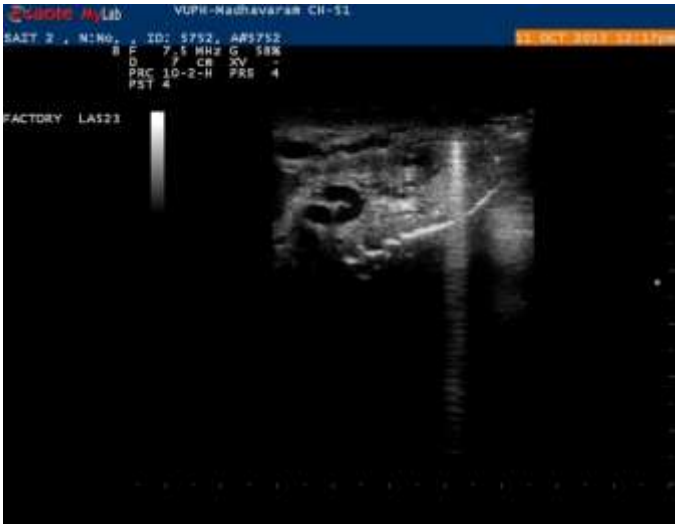

Figure 2: Ultrasonographic view of the teat fistula in the cow

Figure 3: Three layer suturing of the teat fistula in the cow

RESULTS AND DISCUSSION

The failure in the treatment of teat fistula is due to development of fibrous tissue at the fistulous tract which prevents the normal healing of three layers of teat anatomy. Majority of the cases fibrous tissue was the cause of the obstruction before and after the surgical manipulation in the teat lacerations (Ducharme *et al.*, 1987). So, in this case we have removed the fibrous growth at the initial point of treatment and we have added both suturing and tissue adhesive so that there is no room for the development of fibrous tissue. Regarding the use of tissue adhesive in teat fistula condition is still in controversy. In this particular case, N-butyl cyanoacrylate was used as a tissue adhesive. Makaday *et al.*, (1991) found in their study that on experimentally induced teat lacerations in different groups of lactating dairy animals, three layers of fine absorbable sutures and closure with tissue adhesives gave good results and satisfactory healing of all layers. However, when suturing and tissue adhesives were combined foreign body reaction was marked and skin and submucosa healed only partially. Alan *et al.*, (2008) reported that use of one or two simple interrupted sutures in teat lacerations glued with fibrin showed more reliable healing than suturing alone in experimentally induced teat lacerations in goats.

Most of the cases treated for the teat lacerations end up in mastitis. Schmit *et al.*, (1994) justified the above truth that Keratin production from the epithelial cells lining the normal teat canal reduces bacterial penetration into the gland and quarters. When these anatomical barrier is damaged with leaky teat canal, mammary gland gets high infection rate and easily susceptible to mastitis.

The expenses of the reconstructive surgical procedure can be an important consideration in dealing with food producing animals. However, in high producing animals or cattle from superior genetic potential this procedure may be economically justified.

Drugs and Their Company Details Used In This Case

(Xylaxin®) Indian Immunologicals Limited, Jublee Hills, Hyderabad-500033
Inj. Metronidazole ® solution – Parenteral Drugs (India) Limited, Dudhia, Indore-453331
(Drez ®) – Stedman Pharmaceuticals Pvt Ltd, Alathur, Thiruporur-603110, Tamil Nadu
(Tignocaine ®)- Tamman Titoe pharma Pvt Ltd, Alathur-603110, Tamil Nadu
(Melonex ®) Intas Pharmaceticals Ltd, Matoda-382210, Ahmedabad
(Intamox-D ®) Intas Pharmaceticals Ltd, Matoda-382210, Ahmedabad

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