

Case Report: Thelotomy in a Dairy Buffalo after Ultrasonographic Diagnosis of Teat Stenosis

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Abstract: Teat cistern stenosis was surgically treated by thelotomy and excision of the fibrous stenosis following teat ultrasonography to determine location and extent of the lesion in a dairy water buffalo.

Keywords: Ultrasonography, teat cistern, thelotomy.

CASE STUDY

A 13-years old dairy water buffalo was admitted to the surgery clinic of the faculty of veterinary medicine, Cairo University with a history of partial teat obstruction accompanied with hard milking of the right hind teat. The owner has observed progressive decrease of milk yield from the affected quarter since 4 months concomitant with partial thickening of the upper half of the teat. The other quarters were normal and producing milk.

Physical examination indicated that the buffalo was healthy. On palpation of the affected teat demonstrated hard fibrous area at the junction of the two halves of the cistern (Figure 1). Milk production was scarce by hand milking.

The lesion was attributed to previous mastitis. Introducing of sterile teat cannula through the streak canal, showed resistance by passing through the stenotic part of the teat cistern.

Ultrasonography of the affected teat in standing animal, demonstrated the exact seat and extent of the stenosis at 10 MHz frequency, occupying a distance of 2 cm of the proximal teat cistern and occluded $\frac{3}{4}$ of its diameter (Figure 2).

Surgical Procedure

Thelotomy was decided to remove the stenotic fibrous lesion. The buffalo was fasted 24 hours before surgery and then sedated with xylazine 2% at a dose of 0.1 mg/kg. The buffalo was placed in left lateral recumbency for exploration of the right hind affected teat. The hind legs were restrained by rope. The teat

was anaesthetized by ring block by infiltrating the base of the teat with 2% lidocaine HCl. A plastic band with self lock was tightened around the base of the teat to provide hemostasis during surgery. Following surgical aseptic preparation, a sterile teat cannula was inserted through the streak canal to the stenotic lesion in the teat cistern. A 3-cm long incision using a no.11 scalpel blade over the lateral aspect of the teat, where the stenotic fibrous lesion was palpated. The fibrous scar tissue was carefully resected from the mucosal lining without injuring the teat vein (Figures 3 and 4).



Figure 1: Udder of the presented buffalo showing the seat of stenosis at the right hind teat (arrow).

The surgical field was irrigated with sterile saline and the musculocutaneous skin incision was closed with 3/0 polygalactin 910 using vertical mattress suture pattern.

The plastic band fixed at the base of the teat was removed and followed by profuse let down of milk from the teat cannula. A dose of intramammary antibiotic was infused through the teat orifice. A teat bandage supported with adhesive tape was applied. A systemic

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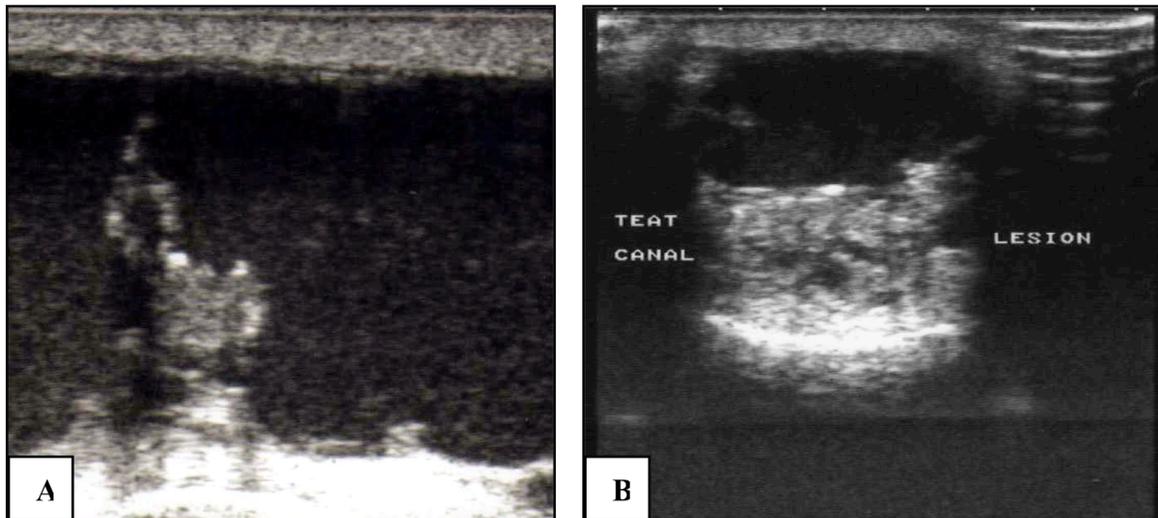


Figure 2: Ultrasound image of the affected teat demonstrating the lesion in the teat cistern using a linear probe (10 MHz) placed in a sagittal plane (A) and a transverse plane (B).

i.m injection of penicilline 10,000 Units/kg and streptomycine 10 mg/kg for 5 days P.O.

daily evacuation of milk by using a sterile teat cannula with subsequent infusion of intramammary antibiotic for 10 days.

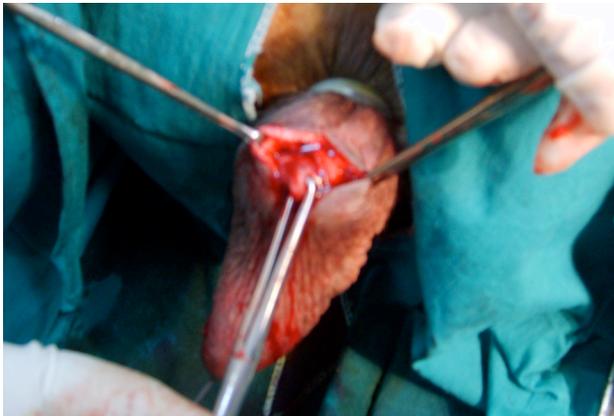


Figure 3: The stenotic fibrous lesion.



Figure 4: Closure of thelotomy wound.

The buffalo was discharged with instruction to the owner to change the teat bandage every 3 days and

RESULTS

Healing of the teat wound was uneventful with daily normal milk flow through a teat cannula for 10 days which followed by hand milking and using of long teat bouget to prevent adhesion of the cistern for extra 3 weeks. Postoperative ultrasonography was not possible because communication with the owner was lost.

DISCUSSION

Acquired thickening of the teat wall is caused by inflammatory processes in the lining of the cistern that lead to the formation of nodules, ridges and bars or by the fibrosis and scar tissue associated with obstruction of milk flow [1].

Several procedures have been adopted to restore normal milk flow. Surgical excision of granulomatous lesions and scar tissue after thelotomy. However the outcome of such procedures is often less than optimal because of recurring tissue proliferation and concurrent intramammary infection [2]. Surgical excision of stenotic lesions in the teat cistern followed by autotransplantation of oral mucosa [3] or vulvar mucosa [4] with disadvantages are that stenotic lesions commonly recur and that they cannot be used for too proximal lesions.

In addition, Donawic, [5], Ames [6], Arighi *et al.* [7] and Bristol [3] implanted an indwelling silastic

intraluminal tube for the treatment of obstructed teats, however, the major difficulties associated with this technique were infection and difficulty in permanently securing the tubing in place.

Endoscopy of the teat or theloscopy by using a urological resectoscope through the teat canal was used successfully to remove high stenotic teat lesions. However, the telescopic incision requires specialized technical equipment and surgical skills. Therefore these requirements may impede the wide spread use of the procedure [8, 9].

In the present report, ultrasonography was considered an important feasible diagnostic tool so as to allow for the localization and demarcation of the extent of pathologic changes involving the teat structures and to assess the postoperative efficiency of the teat cistern for normal milking. This is consistent with the results of John *et al.* [9] and Franz *et al.* [10]. Contrast radiography was also used for the same purpose [3, 11].

It is important to focus here on the importance of doing such teat operations to correct faulty milk flow during lactation, never on dry cows, because the handling of the teat during milking is essential to prevent the formation of adhesions of the wound

surfaces created by surgery. This agrees with that mentioned by Heidrich and Renk [12].

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