

## Treatment of Chronic Mastitis in a Dairy Cow: A Case Report

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**Abstract:** A 4-years old crossbred cow, presented to Outdoor Hospital with a history of no milk letdown from udder even 7 days after parturition (in 3<sup>rd</sup> lactation). After complete physical and clinical examination, it was concluded that this animal was suffering from chronic mastitis. The fibrosed material in teat canal was crushed with teat bistoury and removed through hand milking process. To avoid further adhesion in the teat canal and for milking purpose, four plastic tubes made from I/V drip set having stoppers were passed through the teat canal. These tubes were fixed to teat with the help of suture material and adhesive tape. Finally, the animal was given intra-mammary tubes, parental antibiotics and NSAID. Animal recovered as milk started coming out of teat canal normally both in quality as well as quantity and after 7 days these tubes were removed. It is concluded that this procedure is a very cheap and effective surgical method for the treatment of chronic mastitis in dairy animals.

**Key words:** Mastitis • Dairy Cow • Intra-Mammary • Surgical Treatment

### INTRODUCTION

One of the most important foods of human being is milk. Due to its essential components it is universally recognized as a complete diet [1]. Mastitis is the most important and expensive disease of dairy industry as it affects the milk quality. Mastitis remains one of the most common diseases of dairy cows and represents a large economic loss to the industry as well as a considerable welfare issue to the affected cows [4, 5]. Mastitis has been ranked as number one in the most expensive disease of dairy animals in Pakistan and all over the world [6]. According to the National Mastitis Council, Bovine Mastitis is an inflammation of the mammary gland in response to injury for the purpose of destroying or neutralizing the infectious agents and to prepare the way for healing and return to normal function. In the dairy cattle, mastitis is usually caused by microorganisms like

bacteria that invade the udder, multiply in the udder tissues and produce toxins that are the abrupt cause of injury [7].

Etiological agents of bovine mastitis that have been reported in Pakistan are *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Staphylococcus hyicus*, *Corynebacterium bovis*, *Streptococcus dysgalactiae*, *Staphylococcus capotus*, *Streptococcus agalactiae* and *Streptococcus pyogenes* [8]. Mastitis is mostly caused by two types of pathogens, one are contagious while others are environmental. *Staphylococcus aureus*, *Streptococcus agalactiae* and *Mycoplasma* are major contagious pathogens which are transmitted from diseased to healthy animals during milking process while *Streptococcus dysgalactiae*, *Streptococcus uberis* and *Escherichia coli* are the major environmental pathogens responsible for this disease and are present in beddings and animal surroundings. Contagious bacteria mostly get transferred

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to teat due to unsanitized milking instruments as vacuum fluctuation in milking machine directly propels bacteria into teat sinus [9].

There are no visible signs in case of sub-clinical mastitis but decrease in milk production and increased somatic cell count are evident. Abnormal quarters contain somatic cell count above 300,000 somatic cells/ml of milk while uninfected quarters contain below 200,000 somatic cells/ml of milk [10]. Clinical mastitis is characterized by the sudden onset, swelling, pain, decline in the milk quantity and quality. Animal may show the signs of fever, depression and anorexia accompanied by altered milk quality in the form of flakes, clots or watery appearance [11]. Sometimes clinical mastitis may lead to abnormality in mammary gland. This abnormality in teat size and consistency can be seen and felt. Palpation and inspection of the udder are directed at the detection of fibrosis, inflammatory swelling and atrophy of mammary tissue. Fibrosis occurs in different forms, there may be diffuse increase in connective tissue giving the teat a firmer feel than its opposite number and usually a more nodular surface on light palpation. Local area of fibrosis may also occur in quarter. These may vary from peak line lesions to masses large as fist. The terminal stage of mastitis is atrophy of gland. On causal examination of an atrophied quarter may be classed as normal because of its small size while the normal quarter is judged to be hypertrophic. Careful palpation may reveal that in the atrophic quarter little functioning normal tissue remains [12].

In spite of world-wide efforts and different mastitis control programs, mastitis has economically remained the most important disease in dairy cattle and it is still a major challenge for the dairy industry [13].

## **MATERIALS AND METHODS**

**Case History:** A 4-year old, 350 kg (771.61-lb) crossbred cow was presented to Outdoor Hospital in the Department of Clinical Medicine and Surgery, University and Animal Sciences, Lahore, with a history of no milk letdown from all quarters even 7 days after parturition (in the 3<sup>rd</sup> lactation). Animal was suffering from chronic mastitis which had lead to fibrosis of all four quarters of the udder and was unresponsive to medical treatment of 5-7 days duration. In many cases, mastitis in dairy animals due to unawareness about dry cow therapy is observed after parturition. Similar observations were reported [14, 15] that all dairy animals usually have a dry or resting

period (non-lactating phase) of 6-10 weeks prior to calving annually, at this time the cow remains at risk to new intra-mammary infections, especially soon after the drying off or cessation of milking [16]. Reported the importance of treatment in dry cows and proved that this is the good choice for prevention from mastitis. Dry cow therapy can get rid of 70% of environmental streptococcal infections [10]. It is unfortunate that dry period antibiotic therapy is not being practiced anywhere in Pakistan [17]. In this particular case, the animal has fibroses material in all the four quarters of the udder and had closed teat sphincter along with teat canal, ultimately no milk let-down. Recovery in patient was not expected without surgical intervention. That is why, after complete clinical examination of the animal and taking with the owner, it was decided that surgery is the only solution for this animal.

**Physical Examination:** The initial physical examination revealed an elevated heart rate (95 beats/min; normal: 60-80 beats/min), elevated respiratory rate (44 breaths/min; normal: 10 to 30 breaths/min) and normal temperature (100.6°F [38.1°C]; normal: 100°F to 103°F [37.8°C to 39.4°C]). The animal was alert and responsive. Urination and defecation were within the normal limits, but her appetite was diminished. The teat canals of all quarters were closed due to fibroses and were painful on palpation.

## **RESULTS AND DISCUSSION**

The animal was properly restrained and teat bistoury (a narrow-bladed knife used for opening abscesses or for slitting sinuses and fistulas) was passed through the teat canal and all the fibrosed material in teat canal was crushed and removed through hand milking. After that, milk descended normally without flakes and any other thing. To avoid further adhesion in the teat canals and for milking purpose, four plastic tubes made from I/V drip set having stoppers were passed through the teat canal. With the help of suture material and adhesive tape these tubes were fixed with teat and stoppers were closed as shown in figure 1 (a) and (b). Animal was given intra-mammary tubes to each teat for three consecutive days (Tetra-Delta® Pfizer @10ml/large animal), parental injections of antibiotics (Formox LA® Prix Pharmaceutical Pakistan @50ml for 72 hours and repeat once) and to avoid inflammation used Inj.



Fig. 1a and b: Surgical treatment of chronic mastitis in dairy cow

Meloxi-10 (Meloxicam) @ 0.5mg/kg b.wt (Selmore Pharmaceuticals® Pakistan). The use of intramammary dry cow therapy has been shown to positive influence on milk yield and SCC in the subsequent lactation and is recommended [17]. Intra-mammary tubes were given through the plastic tubes inserted in teat canals as reported [12] that in mastitis both intra-mammary and parental routes gave better results. Animal started showing signs of recovery, as milk started coming out of teat canal normally both in quantity and quality. After 7 days, these tubes were removed. It is conclude that this is a very cheap and effective surgical method, for the treatment of chronic mastitis in dairy animals.

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