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Milk Flow Disorders (MFD) associated recurrent mastitis in dairy cattle

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Abstract

In a survey 140 milch animals for mastitis, 32 cows were found to have recurrent mastitis. In this, 23 (71.86 percent) cows were found to have Milk flow disorders (MFDs). Out of 23 MFDs affected cases, 34.3 (n=11) percent of cows had subclinical mastitis and 28.12 (n=9) percent had clinical mastitis. 9.4 (n=3) percent cows did not have any mastitis. Diagnosis of MFDs had clinical challenges. In field practice scenario detection of MFDs by routine clinical examination is less and requires udder and teat ultrasonographic studies. Higher number of MFDs were detected by using ultrasonography in 64.28 percent cases where as routine clinical exam detected it in only 35.75 percent cases. The mean values of Somatic Cell Count (SCC) were more in MFDs affected cases. In MFDs affected quarters the bacterial isolates identified were *Staphylococcus aureus* (4.69), *Streptococcus agalactiae* (2.34), *Bacillus cereus* (1.56), *E.coli* (0.78) and mixed infections (8.59). Culture negativity was noted in 3.91 percent of cases with MFDs. This study documented that milk flow disorder affected cows were more prone for subclinical mastitis.

Keywords: Dairy cows, milk flow disorder, mastitis, teat ultrasonography

Introduction

Farmers who depend on dairy cows for their livelihood often face economic challenges in the form of mastitis. Frequent occurrence of mastitis in a cow or a herd of cows necessitates detailed studies. Despite reducing mastitic pathogen by therapy, if mastitis reoccurs, then other factors needs to be investigated. When the free flow of milk in the teat canal is affected by anatomical, pathological and microbial factors, it results in Milk Flow Disorders (MFDs). Farmers often complain that they found it difficult to milk cows with MFDs, as the time taken for milking gets prolonged and request for veterinary interventions.

Large animal veterinary practitioners throughout India frequently encounter recurrent mastitis cases. While in few occasions they were able to detect varying degrees of teat canal occlusions, the majority of times, they fail to diagnose Milk Flow Disorders (MFDs). Most of the time MFDs cause subclinical and recurrent mastitis. MFDs were found to increase the risk of subclinical and clinical mastitis [1]. Not only their presence, but the clinical interventions to treat MFDs often complicates the condition and leads to recurrent udder health issues. Major problem encountered in the management of teat injuries and teat stenosis is compromised milk flow, poor milking ability, abnormal milk, presence of pathogens and greater risk for mastitis in the affected quarters [2]. While studies are lacking on MFDs in India, this study documents the incidence and clinical impact of MFDs.

Materials and methods

Dairy animals presented to Madras Veterinary College Hospital and Veterinary University Peripheral Hospital were screened for Mastitis and Milk Flow Disorders. In addition to hospital cases, organized dairy farms were also screened for MFDs in and around Chennai. A total of 140 milch animals was evaluated for mastitis. In this study, 32 cows with MFDs and concurrent mastitis were taken up for detailed evaluation. Physical examination and Ultrasonographic assessment of udder and teat were conducted to identify the nature of MFDs, location of the lesions and type of lesions. Teat Ultrasound was done by using a 7.5 to 12.5 MHz linear probe and the water bath scanning technique was used [3-5]. Milk samples collected from all the quarters were subjected to laboratory evaluations for mastitis.

Results and Discussion

Among the 32 cows with recurrent mastitis studied, the incidence of MFDs was found to be 71.87 (23/32) percent. Red Sindhi and its crossbred cows had an incidence of 39.13 (8/23) percent, which was followed by Jersey cross breed cows- 34.78 (9/23) percent. The Holstein Friesian cross bred cows had an incidence of 26.08 (6/23) per cent.

The incidence of MFDs was found to be higher in cows at 4th month of lactation stage (39.13 per cent (9/23)). In the study of quarter wise incidences (fig.1) all quarters were found to be equally affected. Higher incidence of teat obstruction in rear teat was reported with 84% involvement of the one third of teat [6]. Hind teats (70%) were reported to be acutely affected by milk flow disturbances caused by ruptures in the area of the teat canal [7]. In contrast equal affection of all quarters was observed in this study.

On udder health assessment, a higher percentage (47.82 (11/23)) of cows with MFDs were found to have subclinical mastitis. However the incidence of clinical mastitis is also equal 39.13 (9/23) per cent. Only 13.04 (3/23) per cent of the cows which had MFDs without any evidence of mastitis. Earlier studies reported that 17 cases had subclinical mastitis and 3 had clinical mastitis [1, 2, 8]. Further they opined that pathogens and high SCC observed in milk from teats affected

with MFDs could possibly be the consequence of teat injuries and inappropriate pretreatment measures.

Diagnosing MFDs are a clinical challenge. Physical examination alone may not help in accurate diagnosis of MFDs. In this study, teat ultrasonography detected it in 64.28 (18/28) per cent of teats, where as clinical exam detected it in only 35.75 (10/28) per cent of affected teats. While Teat cistern mucosal growth was diagnosed to occur at a higher percentage 35.71(10/28) followed by teat tip injury and covered teat injury [17.85 (5/28) (fig 2)]. The other kinds of MFDs, detected less commonly with teat ultrasonography were milk clots and teat fistula.

In MFD affected quarters, a variety of pathogens were noted. It included bacterial isolates of *Staphylococcus aureus*, *Streptococcus agalactiae*, *Bacillus cereus*, *E.coli* and mixed infections in 4.69, 2.34, 1.56, 0.78 and 8.59 per cent respectively. In some cows (3.91 per cent) no growths of organisms were evident in the culture. This documented that milk flow disorder affected cows are more prone to subclinical mastitis than clinical mastitis and hence possibly frequent recurrence of mastitis in such cows. Hence teat ultrasound based MFD diagnosis must be mainstreamed in clinical practice to minimize recurrent mastitis and its impacts.

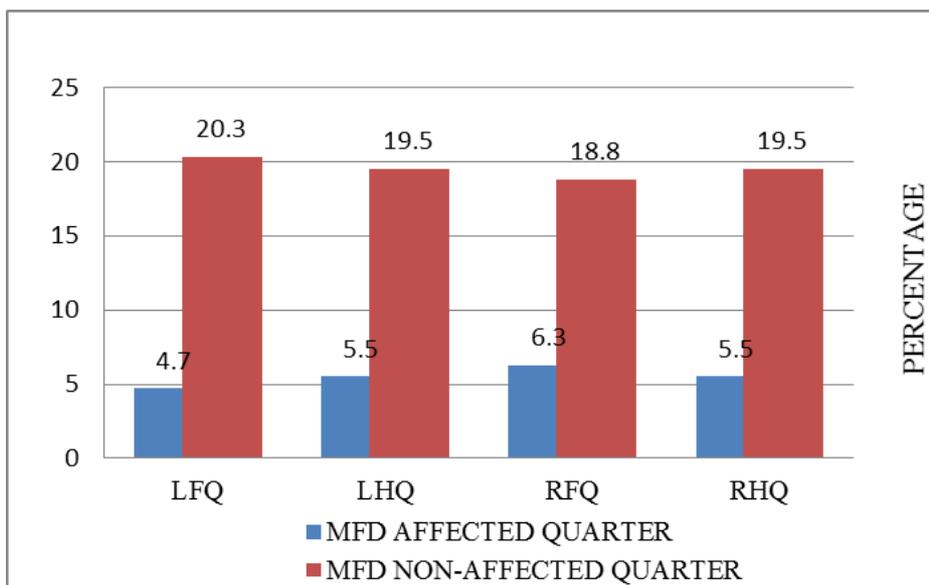


Fig 1: Quarter wise incidence of milk flow disorder in cows

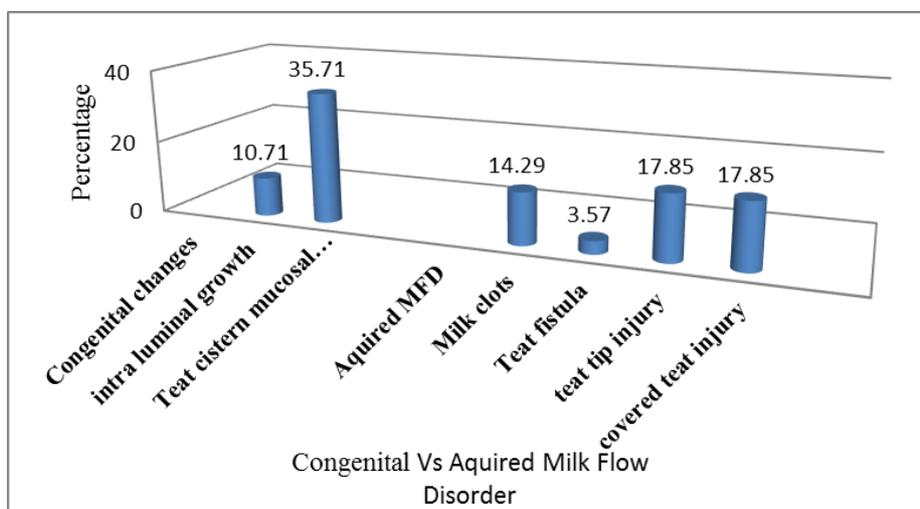


Fig 2: Different Types of Milk Flow Disorders in affected quarters.

Conclusion

Current study documented that MFDs were important factors for the recurrence of mastitis and hence their diagnosis is very important. MFDs were documented to result in more number of subclinical mastitis than clinical mastitis. Clinical assessment of every case of recurrent mastitis shall include a detailed examination for MFD. Teat ultrasound shall be included as essential examination strategy, while examining cows for recurrent mastitis.

References

1. Agger JF, Willeberg P. Epidemiology of teat lesions in a dairy herd. II. Associations with subclinical mastitis. *Nord Veterinary Medicine*. 1986; 38:220-232.
2. Querenga`sser J, Geishauser T, Querenga`sser K, Fehlings K, Bruckmaier R. Investigations of milk quality from teats with milk flow disorders. *Journal of Dairy Science*. 2002; 85:2582-2588.
3. Cartee RE, Ibrahim AK, Mcleary D. B-mode ultrasonography of the bovine udder and teat. *Journal of American Veterinary Medicine Association*. 1986; 188:1284-1287.
4. Selvaraj P, Venkatesan M, Velavan A, Ralasundarama RC, Nambi AP. Ultrasonographic assessment of bovine teat fistulation. *Indian Veterinary Journal*. 2016; 93(10):64-66.
5. Venkatesan M, Selvaraj P, Sumathi D, Nambi AP. Ultrasonographic Assessment of Teat Morphological Changes Before and After Milking in Hand Milked Dairy Cows. *Indian Veterinary Journal*. 2016; 93(09):81-82.
6. Bhawedkar RG. Studies on bovine mastitis. M.V.Sc. Thesis. Jawaharlal Nehru Krishi Vishwa Vidhyalaya, Jabalpur (MP), 1963.
7. Geishauser T, Querenga`sser K. Investigations on teat canal length in teats with milk flow disturbances. *Journal of Dairy Science*. 2000; 83:1976-1980.
8. Bhatt SM, Parrikh, PV, Patil DB, Kelawala NH, Jhala SK, Nisha Joy *et al*. Incidence and surgical management of milk flow disorders in dairy animals. *Intas Polivet*. 2010; 11(1):39-40.