



MANAGEMENT OF MASTITIS IN GIR CATTLE AND JAFFRABADI BUFFALO

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ABSTRACT

A present study was carried out in Veterinary college hospital, COVS & AH, KU, Junagadh on Gir cattle and Jaffarabadi buffalo presented with history of mastitis. Bovine mastitis, an inflammation of the mammary gland, is the most common disease of dairy cattle causing economic losses due to reduced yield and poor quality of milk. Total three years of epidemiological data gives an idea about seventeen pathogens and eleven pathogens were mainly acts as causative factors in Gir cows and Jaffarabadi buffaloes respectively. Common bacterial causative agents of mastitis in Gir cow and Jaffarabadi buffalo were *Staphylococcus* spp., *Streptococcus* spp., *Pseudomonas* spp., *Proteus* spp., *Micrococcus* spp., *Bacillus* spp., *Escherichia coli*, *Klebsiella* spp., and yeast or fungus growth responsible for different type of mastitis. Common symptoms noticed udder swelling, hardness, painful, watery milk, flakes, pus or blood clots in milk in Gir cow and Jaffarabadi buffalo. Antimicrobial therapy with Levofloxacin, Amoxicillin / Sulbactam, Ceftriaxone / Sulbactam, Chloramphenicol, Cefoperazone / Sulbactam, Gentamicin and Oxytetracycline found suitable in different type of mastitis treatment in Gir cow and Jaffarabadi buffalo.

KEYWORDS: Mastitis, Gir cattle, Jaffarabadi buffalo and bovines.

INTRODUCTION

Mastitis is the inflammation of parenchyma of mammary glands, is a complex multi-etiological disease affecting dairy cattle worldwide. Mastitis causes serious wastage of health and loss of milk quality which has emerged as major challenge and become costly disease in dairy animal. Epidemiological study of mastitis gives an idea about mastitis host pathogen and environment effect, managerial and housing determinants in farms as well as local rising. Present study is designed to investigate the prevalence, treatment response and better management of sub-clinical, clinical and chronic mastitis in Gir Cattle and Jaffarabadi buffalo. Objectives of this study to collect epidemiological data of sub-clinical, clinical and chronic mastitis in Gir Cattle and Jaffarabadi buffalo in veterinary college hospital. To collect information of multiple causative agents of sub-clinical, clinical and chronic mastitis in Gir Cattle and Jaffarabadi buffalo during study period. To develop are standardize protocol for mastitis management in Gir Cattle and Jaffarabadi buffalo

MATERIAL AND METHODS

The study was carried out in Junagadh veterinary college hospital mainly mastitis cases registered in which prevalence was studied by filling of Performa including history and other information such as treatment,

recovery, re-occurrence of mastitis. The etiological factors were studied by history, bacterial resistance, and pedigree history, if any. The total number of Gir Cow and Jaffarabadi buffaloes treated for all type of mastitis was one hundred and fifty four in which one hundred twenty two Gir cows and thirty two. Jaffarabadi buffaloes were recorded for different type of mastitis during experimental period. Different type of micro-organisms, fungal/yeast growth was found in antibiotic sensitivity test.

Gir cow and Jaffarabadi buffalo's mastitis symptoms were recorded as udder inflammation or swelling, hardness, painful, watery milk, flakes, pus or blood clots in milk. Sudden drop in milk production, fever, loss of appetite and weakness. All cases i.e., one hundred fifty four clinical mastitis cases were classified mainly in acute, per-acute and chronic mastitis depends upon severity and response of treatment.

Antibiotic Susceptibility Testing (AST) of milk sample in all mastitis affected cases helps to select effective and specific antimicrobial therapy to control the disease. ABST also prevent acute, sub-clinical mastitis cases into chronic, fibrinous and gangrenous type of mastitis with effective antimicrobial therapy for a causative agent.

RESULTS AND CONCLUSION

In the present study in Gir cow total seventeen different causative factors for mastitis including bacteria, fungus and yeast were observed. Staphylococcus spp., Streptococcus spp., Gram negative bacilli, Gram positive bacilli, Gram negative coccobacilli, Gram positive coccobacilli, Micrococcus spp., Corynebacterium spp., Gram positive diplococci, Gram negative diplococci, Yeast growth, Proteus spp., Bacillus spp., Pseudomonas spp., Escherichia coli, Fungal growth and Klebsiella spp. were found in one hundred twenty two mastitis samples of Gir cow.

Table no.1: Major Causative agents in Gir Cow Mastitis.

Sr. No.	Major causative factors of Mastitis in Gir cow
1	Staphylococcus spp.
2	Streptococcus spp.
3	Gram negative bacilli
4	Gram positive bacilli
5	Gram negative coccobacilli

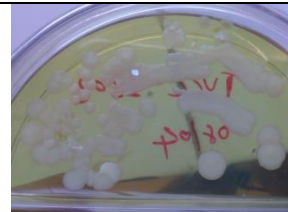
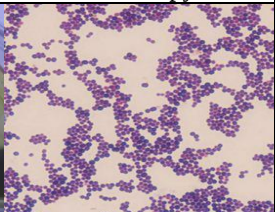
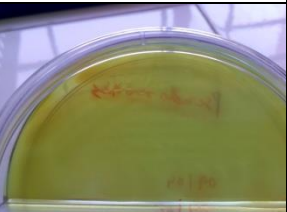
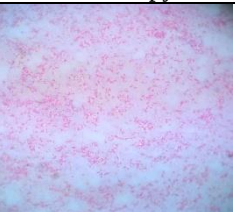
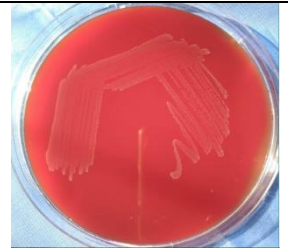
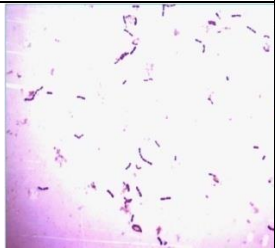
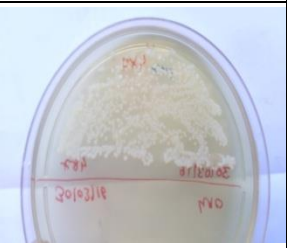
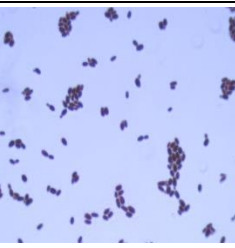
6	Gram positive coccobacilli
7	Micrococcus spp.
8	Corynebacterium spp.
9	Gram positive diplococci
10	Gram negative diplococci
11	Yeast growth
12	Proteus spp.
13	Bacillus spp.
14	Pseudomonas spp.
15	Escherichia coli
16	Fungal growth
17	Klebsiella spp.

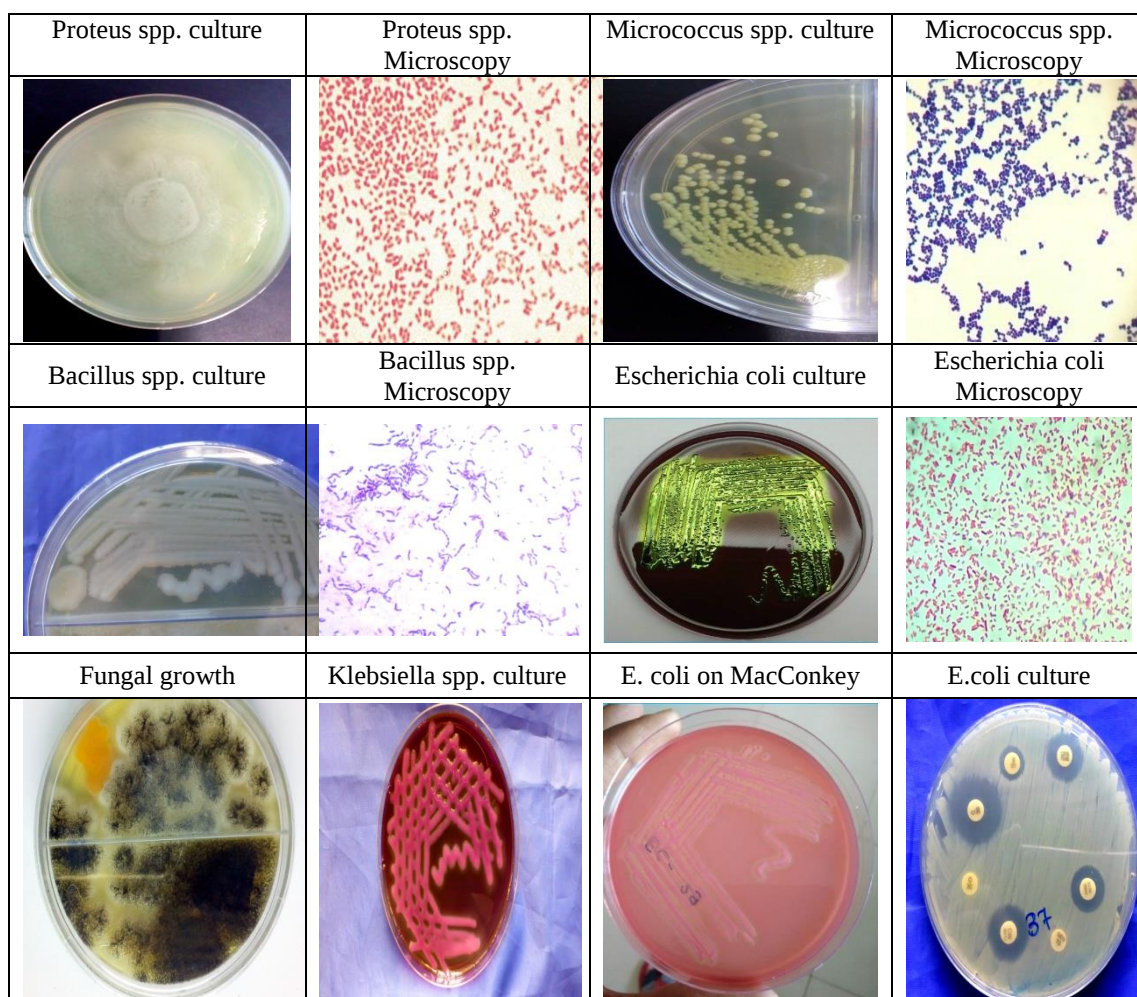
In Jaffarabadi buffaloes total eleven different causative factors for mastitis including bacteria and yeast were observed. Gram negative coccobacilli, Staphylococcus spp., Streptococcus spp., Proteus spp., Bacillus spp., Pseudomonas spp., Gram positive bacilli, Micrococcus spp., Corynebacterium spp., Gram positive diplococci and Yeast growth were found in thirty two mastitis samples of Jaffarabadi buffaloes.

Table no.2: Major Causative agents in Jaffarabadi buffalo Mastitis.

Sr. No.	Major causative factors of Mastitis in Jaffarabadi buffalo
1	Gram negative coccobacilli
2	Staphylococcus spp.
3	Streptococcus spp.
4	Proteus spp.
5	Bacillus spp.
6	Pseudomonas spp.
7	Gram positive bacilli
8	Micrococcus spp.
9	Yeast growth
10	Corynebacterium spp.
11	Gram positive diplococci

Table no.3: Photographs showing AST culture.

Staphylococcus spp.	Staphylococcus spp. Microscopy	Pseudomonas spp.	Pseudomonas spp. Microscopy
			
Streptococcus spp. on blood agar	Streptococcus spp. Microscopy	Yeast culture	Yeast growth Microscopy
			



Common bacterial causative agents of mastitis in Gir cow and Jaffrabadi buffalo were *Staphylococcus* spp., *Streptococcus* spp., *Pseudomonas* spp., *Proteus* spp., *Micrococcus* spp., *Bacillus* spp., *Escherichia coli*, *Klebsiella* spp., and yeast or fungus growth responsible for different type of mastitis. All type of mastitis can be treated with suitable antimicrobial therapy. Antimicrobial therapy with ILevofloxacin, amoxicillin/Sulbactam, Ceftriaxone/Sulbactam, Chloramphenicol, Cefoperazone/Sulbactam, Gentamicin and Oxytetracycline found suitable in different type of mastitis treatment in Gir cow and Jaffarabadi buffalo. Mastitis in Gir cow and Jaffarabadi buffalo shows udder swelling, hardness, painful, watery milk, flakes, pus or blood clots in milk. Antibiotic Susceptibility Testing (AST) of milk sample helps to select effective and specific antimicrobial therapy to control mastitis.

REFERENCES

1. A.J. Bradley, M.J. Green: An investigation of the impact of intramammary antibiotic dry cow therapy on clinical coli form mastitis; *Journal of Dairy Science*, 2001; 84: 1632-1639.
2. Chavan, V.V., S.U. Digraskar, S.N. Dhonde and P.B. Hase, 2007. Observation on bubaline subclinical mastitis in and around Parbhani. *Indian J. Field Vet*, 3: 50-50.
3. G.C. White, G. W. Couture, E. O. Anderson, R.E. Johnson, W. N. Plastringe, F. J. Weirether: Chronic bovine mastitis and milk yield *J. Dairy Sci*, 1937; 20: 171-180.
4. G.E. Ward, L.H. Schultz Incidence and control of mastitis during the dry period *J. Dairy Sci*, 1974; 57: 1341-1349.
5. Goswami, S.N., 1998. Comparative study for detection of bovine subclinical mastitis by direct and indirect tests. M.Sc. Thesis, Gujarat Agricultural University, Anand.
6. Hawari, A.D. and F. Al-Dabbas, 2008. Prevalence and distribution of mastitis pathogens and their resistance against antimicrobial agents in dairy cows in Jordan. *Am. J. Anim. Vet. Sci*, 3: 36-39.
7. J Sol, O.C. Sampimon, J. J. Snoep, and Y. H. Schukken: Factors associated with bacteriological cure during lactation after therapy for subclinical mastitis caused by *Staphylococcus aureus* *J. Dairy Sci*, 1997; 80: 2803-2808.
8. J. Sol, O.C. Sampimon, H.W. Barkema, Y.H. Schukken: Factors associated with cure after therapy of clinical mastitis caused by *Staphylococcus aureus* *J. Dairy Sci*, 2000; 83: 278-284.
9. Lalita Sharma, Amit Kumar Verma, Amit Kumar, Anu Rahat, Neha and Rajesh Nigam Incidence and Pattern of Antibiotic Resistance of *Staphylococcus*

- aureus isolated from Clinical and Subclinical Mastitis in Cattle and Buffaloes Asian Journal of Animal Sciences, 2015; 9(3): 100-109.
10. M. Pol and P.L. Ruegg: Relationship between antimicrobial drug usage and antimicrobial susceptibility of gram-positive mastitis pathogens J. Dairy Sci, 2007; 90: 262-273.
 11. Moroni P., Sgoifo Rossi C., Pisoni G., Bronzo V., Castiglioni B., Boettcher P.J. 2006. Relationship between somatic cell count and intramammary infection in buffaloes. J. Dairy Sci, 89: 998-1003.
 12. N.I. Valeeva, T.J.G.M. Lam, H. Hogeveen: Motivation of dairy farmers to improve mastitis management J. Dairy Sci, 2007; 90: 4466-4477.
 13. Naiknaware H.S., Shelke D.D., Bhalerao D.P., Keskar D.V., Jagadesh S., and Sharma L.K. 1998. Prevalence of subclinical mastitis in buffaloes in and around Mumbai. Indian Vet. J, 75: 291-292.
 14. Paranjabe V.L. and Das A.M. 1986. Mastitis among buffalo population of Bombay. A bacteriological report. Indian Vet. J, 63: 438-441.
 15. P.L. Ruegg: Practical approaches to mastitis therapy on large dairy herds D.K. Beede (Ed.), Large Dairy Herd Management (3rd ed.), Am. Dairy Sci. Assoc., Champaign, IL, 2017; 933-948.
 16. Saini S.S, Sharma J.K., and Kwatra M.S. 1994. Prevalence and aetiology of subclinical mastitis among crossbreed cows and buffalos in Punjab. Indian J. Dairy Sci, 47: 103-107.
 17. T.J. Lam, Y.H. Schukken, J.H. vanVliet, F.J. Grommers, M.J. Tielen, A. Brand: Effect of natural infection with minor pathogens on susceptibility to natural infection with major pathogens in the bovine mammary gland; American Journal of Veterinary Research, 1997; 58: 17-22.