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STUDIES ON MASTITIS AMONG DAIRY BUFFALOES

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ABSTRACT

A total of 2340 mammary glands of 585 primiparous and pluriparous lactating buffaloes in different stages of lactation were examined with California Mastitis Test (CMT) and laboratory examination was carried out to identify the most prevalent micro- organisms in clinical and sub-clinical mastitis. The physical examination revealed 2.61 per cent blind teats and CMT revealed 6.71 per cent positive quarters for mastitis. Microbiological examination of 157 sub-clinical mastitis milk samples and 46 clinical mastitis milk samples was carried out. There was high occurrence of streptococci (35.46%) followed by staphylococci (33.99%), *E. coli* (27.09%), pseudomonas spp. (1.97%) and *Corynaebacterium pyogenes* (1.48%). The *in vitro* sensitivity revealed kanamycin (82.6%) highly effective against various isolates followed by gentamycin (53.0%).

Key words: Mastitis, Buffalo, California mastitis test, Staphylococci, Streptococci.

INTRODUCTION

Mastitis may be classified into clinical and sub-clinical forms depending upon the presence or absence overt manifestations of inflammation. Clinical mastitis is classified according to its severity, rapidity of on set and duration. i.e: per acute, acute, sub-acute and chronic forms.

In the clinical form, milk is macroscopically abnormal and may be bloody; watery and/or purulent and contains clots, flakes and/or shreds consisting of fibrin and cellular debris. In the chronic form there is progressive fibrosis. Peracute and acute forms of mastitis are usually accompanied by systemic signs. The sub-clinical mastitis cases are characterized by normal gland and milk appearance. The alterations are only detected by using field screening tests and laboratory methods.

The present study was designed to know the incidence of sub-clinical mastitis, identify the most prevalent micro organisms in clinical and sub-clinical mastitis and *in vitro* susceptibility pattern of isolates in dairy buffalo (*Bubalus bubalis*) herd.

MATERIALS AND METHODS

A total of 2340 quarters of 585 lactating buffaloes in different stages of lactation were examined. The mammary glands and/or milk samples showing gross abnormalities were collected aseptically for laboratory examination. Califfornia mastitis test (CMT) was carried out on these samples (Schalm *et al*., 1971).

The milk samples were collected in a separate tube for each quarter and were immediately transported to the laboratory. A 0.01 ml samples was streaked on blood agar plates, incubated at 37 °C and read after 24 and 48 hours. The identification tests were used as described by Krieg and Hoft (1994).

The milk samples yielding three or more different organisms were supposed to have been contaminated at collection. The genuine mammary gland pathogens were tested for *in vitro* susceptibility to seven antibiotics.

RESULTS AND DISCUSSION

Examination of udders revealed 2.61 per cent (61/2340) blind teats and CMT diagnosed 6.71 per cent quarters positive for sub-clinical mastitis and from 203 micro-biological examinations carried out there was high occurance of *Streptococcus pyogenes* (35.46%) followed by *Staphylococcus aureus* (33.99%), *E. coli* (27.09%) *Pseudomonas* species (1.97%) and *Corynaebacterium pyogenes* (1.48%). The infection level with various micro organisms ranged from 1.48 to 35.46 per cent.

The *in vitro* sensitivity (Table 1) of these isolates revealed kanamycin (82.6%) the most effective antibiotic followed by gentamycin (53.0%), tetracycline (46.4%), Erythromycin (32.8%), Ampicillin (26.6%), tribrissen (22.8%) and streptopenicillin (23.8%).

The essential role of good management and the emphasis on hygiene in housing and at milking are well recognized, as are the value of good stockmanship, an efficient milking time hygiene and strategic use of antibiotic therapy. Mastitis represents a serious problem to be considered due to the economic losses for which it is responsible. Many micro organisms may be associated with for occurance of buffalo mastitis. Since there is low occurance of sub-clinical mastitis (less than 7.0%), there is little reduction in milk production.

Table 1: *In vitro* antibiotic susceptibility of isolates (n=203) recovered from clinical and sub-clinical mastitic milk samples.

Organism	No. of Isolates	Genta-mycin	Streptopeni - cillin	Tribrissen	Tetra-cycline	Kana-mycine	Erthero-mycine	Ampi - cilin
Streptococcus pyogenes	72	50	17	27	37	70	35	35
Staphylococcus aureus	69	62	24	28	52	71	45	36
E.coli	55	53	28	9	43	72	34	12
Pseudomonas spp.	4	---	50	---	50	100	50	50
Corynaebacterium pyogenes	3	100	---	50	50	100	---	---
Overall	203	53	23.8	22.8	46.4	82.6	32.8	26.6

The pathogens isolated in current investigation are similar to those recorded by Costa *et al.* (1997) who isolated almost similar pathogens from cases of clinical and sub-clinical bovine mastitis. The results of present investigations partially differ from the results reported by Fenizia *et al* (1988) in that they recorded high incidence of *A. pyogenes* in cases of clinical mastitis followed by *S. agalactiae, S. dysagalactiae, Staphylococci, E. coli* and *S. ubaris* where as in present work *A. pyogenes* could not be encountered. Present investigations also support the findings of Kapur *et al.* (1988), Viani *et al.* (1990) and Langoni (1997). They all isolated more or less similar pathogens from clinical cases of mastitis.

The incidence of sub-clinical mastitis in present study is similar to that reported by Viani *et al.* (1990) who observed it to be 6.0 per cent, whereas the incidence of sub-clinical mastitis recorded in present investigation do not support the findings of Iqbal *et al.* (1998) and Arshad *et al.* (1998) who observed 35.05 and 61.94 per centIq prevalence, respectively. The reasons for low prevalence of sub-clinical mastitis in present investigations can be attributed to regular post milking teat dipping.

The *in vitro* sensitivity results of current investigation are more or less similar to that reported in the review article by Allore (1994). She observed gentamycin as the drug to which highest number of isolates were sensitive, whereas in current investigation gentamycin is the second best (Allore, 1994 did not include data on kanamycin). The other effective medicines reported by same author are cloxacillin, neomycin, tetracycline.

However, Ahmad (1995) and Annomymous (1997) has observed the kanamycin as most effective medicine (*in vitro*) against the bacterial pathogens causing mastitis.

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