



Prevalence of Bacterial mastitis in cattle from farmers' houses in Basrah marshes.

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Abstract

The pathogenic bacterial isolated from (120) milk samples collected for mastitis cattle were coagulase negative *Staphelococcus* sp, in 50(42%), samples, *Streptococcus agalactia*, in 40(33.3%) and *Staphelococcus aureus* , in 30(25%) animals which infected with *S. aureus* had a cute infection. we found the contamination of milk with goagulase negative *Staphelococcs* are the most frequent bacterial infection in dairy cattle in farmers houses in basrah marshes. It mostly causes subacute form of the disease. *S. agalactia* are the second causative agents.

1- Introduction

Mastitis is one of the most important economical diseases of dairy cattle. The disease is produced by a variety of gram positive and negative bacterial species. Clinical diagnosis of acute mastitis does not usually present a problem to the practicing veterinarian. Dignosis of subclinical forms may by more difficult but is an important part of any herd survey to establish the disease incidence. In addition to bacterial culture of milk, several indirect tests are employed to ensure the presence of

inflammatory exudates and cells in infected milk, such as California mastitis test(CMT) (Carter and Cole, 1970; Hiroh and Zee, 1999) and somatic cell count (SCC) (Bellamy,1999) of bulk milk. Regarding some accepted criteria, milk in a good condition should not have more than 400,000- 500,000 somatic cells per ml. high incidence of SCC indicates the presence of infection or increase genetic susceptibility to mastitis. (Bellamy,1999) Bovine mastitis is mostly caused by *Streptococcus* species, like *S. agalaetia*, *S. dysyaetia*, the

leading organism is *Staphylococcus aureus*, producing acute suppurative, gangrenous, or chronic mastitis depending on the infecting strains. In gangrenous mastitis the affected quarter becomes cold and blue- black and eventually sloughs. Tissue necrosis is attributed to the alpha toxins which causes contraction and necrosis of smooth muscle in blood vessel walls, impeding blood flow in the affected quarter, in addition this toxins causes release of lysosomal enzyme from leukocytes (Quinn *et al*,2002) Shimi(1997) regarded *S. aureus* as one of the most infectious agent produces mastitis in cattle. The bacteria live around the nipples and penetrate them under in appropriate conditions of husbandry and milking. Gangrenous mastitis was also seen in a dairy cow with acute infection caused by *Pseudomonas aeruginosa*, which had asimilar course of disease to gangernus mastitis by *S. aureus* (Vodjani *et al*, 1997). Tubatabaii and firouzi (2000) regarded that mastitis due to *S. aureus* is not a major problem during the recent years. Contamination of milk and dairy products is still a big problem. Coagulase negative strains such as *Staphylococcus epidermidis* and *S. hyicus* subsp. *Staphylococcus chromogenes* are sometimes the caustive agents of bovine mastitis. (Carter and Cole, 1990). The main objective of this study was to investigate the prevalence of the bacteria

producing cattle mastitis in farmers houses in basrah marshes.

2- Materials and methods

During a period of almost 4 months , (120) milk samples were collected by standard milk sampling technique according (Carter and Cole , 1990) Quinn *et al*, 1974). The samples were submitted to our laboratory in strile screw-capped tubes bacterial culture was performed based on method described by carter and cole (1990) Enrichment medim or blood agar and MacConkey agar were used for primary cultivation of all milk samples, culture plates were examined for bacterial colonies. Gram stain was performed to distinguish Gram positive and negative organism and to reavel the bacterial shapes. The type of bacterial hemolysis (Alfa, Beta and none) was determined on blood agar plates some primary and specific biochemical test was subjected for bacterial diagnosis as Catalase test was performed according to Tabatabaii & Firouzi (2001) to distingwish streptococci and staphylococci. oxidase test used to distingwish the *enterobacteriaceae spp.* From other Gram -negative none *enterobacteriaceae* organism Coagulase test was used to detection of coagulase positive *staphylococci*. CAMP test to recognise *S. agalactia*. Vodigani *et al* (1997).

Antimicrobial sensitivity test were performed as standard plate procedure described by Carter and Cole (1990), to help the treatment of some kind of mastitis. Statistical test (chi-square and Fisher's exact tests) were employed to compare the categorical variables.

3- Results

Bacterial cultures were performed in all milk samples positive for CMT this test had been done in the farm before submitting the samples to the laboratory. (The California

Mastitis Test (CMT) is a quick, simple test that accurately predicts the somatic cell count of milk from individual quarters or on composite milk samples. The CMT is accurate on cow's and goat's milk.). From 120 sample positive for CMT all had positive for culture bacteria and three species of bacteria isolated *Staph. Coagulase negative* 42% *S. agalactia* 33% and *Staph. Aureus*.25% Table (1).

Some images 1, 2, 3, 4, 5, explain pathogenic forms which produced by these organisms in present study.

Table 1 frequency and proportion of isolated bacteria from milk samples collected from cows with mastitis during consecutive months.

Species of bacteria	No. of samples	%
<i>S. coagulase negative</i>	50	42
<i>S. agalactia</i>	40	33
<i>S. aureus</i>	30	25

4- Discussion

We found that coagulase negative *staphylococci* is the most frequent organism causing contamination of milk in industrial dairy cattle in farmer's houses in basrah marshes, in most cases also causes sub acute mastitis. The statistical analysis also showed that the frequency of these bacteria and their proportion are significant during 4 months ($p < 0.01$), ($p < 0.02$) and ($p < 0.05$). Workinen *et al*, (2002) reported that *Staphylococcus* species constituted 57% of

the isolates, of which the predominant cause of Bovine mastitis (40.5%) was *S. Aureus*.

In our study, although the prevalence of *Staphylococcus* species was predominant. *S. aureus* was not the most important cause of dairy cattle mastitis. Our findings are similar to that of Nessru *et al*, (1997), Workinen *et al*, (2002) who reported *Streptococcus* sp. (*S. agalactia* and *S. dysgalactia*) as the second and the most common cause of bovine mastitis.

Heringstad (1999) pointed out that genetic specification plays an important role in producing clinical mastitis in the Norwegian cattle. On the other hand, it is suggested that clinical mastitis occurs in a period of only six weeks around calving, therefore the infection would occur 15 days before and 30 days after the first calving.

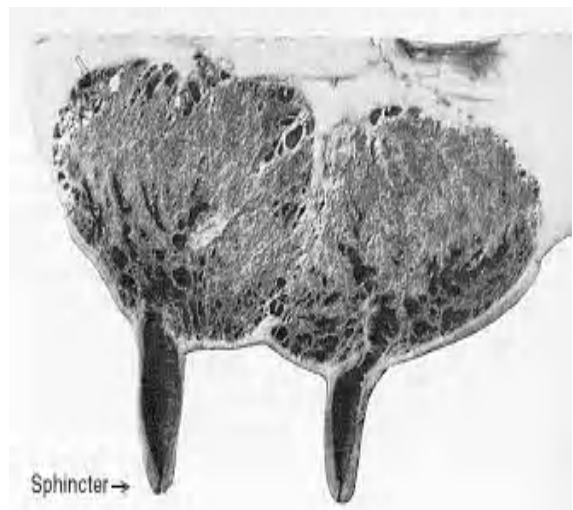
Recently, Bellamy (1999) suggested that somatic cell count is of important concern to dairy farmers. High quality milk must have fewer than 400,000 cells per ml to be suitable for human consumption. High somatic cell count indicates increasing genetic susceptibility to mastitis.

5- References

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1. Acute suppurative mastitis



2. Acute gangrenous mastitis



3. Acute mastitis



4. chronic mastitis



5. chronic mastitis



الخلاصة

البكتريا المرضية المعزولة من عينات الحليب الخام (120 عينة) والمتسببة لالتهاب الضرع كانت *Streptococcus agalactia* بنسبة 40.33% و *coagulase negative Staphelococcus sp* بنسبة 50.42% و *Staphelococcus aureus* بنسبة 30.25%، لقد تبين ان جرثومة *coagulase negative Staphelococcus sp* هي الاكثر مرضية في الماشية الحلوب.
