

Subclinical mastitis associated with coagulase positive *Staphylococcus aureus* in a COW

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Abstract: A cow was presented to Veterinary college hospital with history of drastic reduction in milk yield. Physical examination of udder and further testing of milk samples for California Mastitis Test, culture and biochemical tests suggested coagulase positive *Staphylococcus aureus*. Antibiogram of milk sample was sensitive to enrofloxacin. The animal was treated with enrofloxacin @ 7.5mg/kg and the cow had an uneventful recovery.

Keywords: cow, *Staphylococcus aureus*, milk, Antibiogram

INTRODUCTION

Mastitis is an inflammatory reaction of udder parenchyma caused by multi-etiological agents. It is a devastating disease which affects the dairy industry world-wide and remains the most costly livestock disease. Subclinical form does not have an apparent clinical signs and it causes unrecoverable burden to the farmer due to reduced milk yield, increased morbidity, discarding of milk and increased treatment cost. Therefore the early detection of this condition, identification of organism, selection of suitable antibiotic and prevention of further spread of disease is very important.

According to Dua in India annual losses due to mastitis reached Rs. 60.5321 billion, of which Rs. 43.6532 billion was off from subclinical mastitis alone[1].

CASE HISTORY AND OBSERVATION:

A Holstein-Friesian cross bred cow of second early lactation was presented to Medicine Unit of University Veterinary Hospital, Mannuthy with history of drastic reduction in milk yield and in-appetence since two days.

On physical examination of udder, it was warm to touch and soft to feel. Milk samples from all the quarters were apparently normal and a slight enlargement of mammary lymph nodes was noticed. All other clinical parameters were within normal range. Milk samples were collected from all the quarters and subjected to California Mastitis Test (CMT). Further

milk samples were subjected to culture and sensitivity test. A loop of milk from all quarters were streaked on the Brain Heart Infusion agar and incubated at 37°C for 24 hours. Isolate obtained was identified by using Gram's staining, colony morphology and biochemical tests.

A clearly separate colony of the pathogen was picked and suspended in 5ml of Muller Hinton broth. The suspension was used for flooding the Muller Hinton agar and antibiotic impregnated disc were placed with proper distance. Antibiotic discs were chosen according to the commercially available products for treating mastitis in this area. Zone of inhibition were measured and interpreted using the chart provide by manufacturers.

RESULTS AND DISCUSSION

California Mastitis Test gave a positive reaction for the milk sample from right hind quarter. Cultural isolate yielded growth which were Gram positive cocci in bunches and confirmed as coagulase positive *Staphylococcus aureus* based on the biochemical tests viz. catalase and coagulase and growth in Mannitol salt agar with yellow colonies. Antibiogram results showed sensitivity to enrofloxacin, ceftriaxone-tazobactam and co-trimoxazole and resistant to ampicillin, amoxycylav, cefalexin, cefoperazone, gentamicin and tetracycline. Animal was treated with enrofloxacin (Flobac SA) @ 7.5mg/kg I M at two different sites as a single dose. Other adjunct treatments included fluid therapy and B-complex

vitamins. Following the treatment animal recovered eventually.

Staphylococcus spp. is the major prevalent organism causing subclinical mastitis in India[2]. According to Sharma *et al.* [3] somatic cell count was the most accurate test after cultural isolation followed by CMT and he stated that CMT was the most reliable method for use in field condition. Antibioqram study done by Mohanty *et al.*[4] found that the organism was most sensitive towards enrofloxacin and levofloxacin. Enrofloxacin is a synthetic potent antimicrobial agent with long lasting bactericidal activit[5]. Enrofloxacin (Flobac SA) single dose treatment was sufficient to overcome the infection in this case which reduced the cost of treatment.

Most of the subclinical mastitis was undiagnosed because the clinical signs are not apparent. Prevention strategies have a greater role to play which includes hygienic washing and drying of udder before milking, proper maintenance of milking machine, frequent milking of the affected quarter, disinfection of hand before and after milking, teat dipping in 1% iodine solution and milking the infected cow last.

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