Flabby Udder Mastitis Due to Leptospirosis in a Cow

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Abstract

An adult Holstein-Friesian cross bred cow had a sharp drop in milk production with reddish milk from the udder which was soft and flabby, and lameness. Leptospira were detected by dark ground microscopy (DGM), and L. Pomona and L. Autumnalis were the serovars identified by microscopic agglutination test (MAT). Mineral and enzyme levels were found to be altered and streptopenicilllin was effective in the treatment.

Key words: Flabby udder mastitis, Leptospirosis

Mastitis causes a marked reduction in the quality and quantity of milk and the annual losses incurred in the dairy industry were estimated to be 526 millions dollars in India (Varshney and Naresh, 2004). Flabby udder mastitis is caused by the pathogenic serovars of Leptospira (Radostitis et al., 2006) and is a major economic concern in food animals. This paper presents a case of haemorrhagic and flabby udder mastitis in a cross bred Holstein-Friesian cow.

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Case History and Observations

An adult H-F cross bred cow of 5 years old was reported to have a sharp drop in milk production since three days from the left hind quarter of the udder and the milk appeared thick, flaky, blood tinged with lysed red blood cells. The left hind quarter of mammary gland was flabby and the cow had lameness on a hind limb. Fresh serum sample of the case was examined by dark ground microscopy (DGM) for demonstration of leptospires (O’Keefe, 2002). Microscopic agglutination test (MAT), the confirmatory and ‘gold standard test’(OIE) was performed to identify the serovars (Ahmad et al., 2005). The serum sample was analysed for biochemical alterations and peripheral blood smears were examined for the presence of any haemoparasites.

Treatment and Discussion

The clinical signs observed in this case are concurrent to that of Mahajan and Chhabra (2008) who described ‘cold mastitis’. Appearance of red coloured milk could be attributed to the toxic effect of bacterial haemolysin and vascular
endothelial haemorrhage in udder, and the lameness could be due to the synovitis (Radostits et al., loc cit). DGM revealed leptospiromaemia of low grade (+) as it is an useful diagnostic tool to detect the early infection (Saravanan et al., 2014). L. Pomona and L. Autumnalis were the serovars identified by MAT however, Sivaraman et al. (2013) reported the serovars L. Hardjo and L. Tarrosovi. The biochemical analysis revealed no alterations in the levels of total protein (5.8 g/dl), albumin (3.1 g/dl), globulin (2.6 g/dl), urea nitrogen (11.5g/dl), creatinine (1.2 mg/dl), alanine aminotransferase (20.0 IU/L), alkaline phosphatase (274.0 IU/dl), total cholesterol (153.1 mg/dl) and triglycerides (152.0 mg/dl). However, a reduction in the levels of serum glucose (23.53 mg/dl), calcium (5.5 mg/dl) and phosphorous (6.4 mg/dl), and an elevation in aspartate aminotransferase (165.0 IU/L) were observed which could be attributed to the altered functions of liver and kidney and these findings are concurrent to that of Guzel and Tanriverdi (2013). Examination of Leishman stained peripheral blood smears revealed no haemoparasites.

The cow was successfully treated with streptopenicillin @ 40,000 Units/kg bodyweight, intramuscularly for 5 days (Saravanan et al., 2014), along with meloxicam @ 0.5mg/ kg bodyweight, intramuscularly; however, there was a reduction in milk yield. Hence, leptospirosis seemed to affect milk production in terms of both quality and quantity and in view of the above, directed actions viz., periodical vaccination of animals with specific leptospiral serovars, elimination of reservoirs (rodents) coupled with good sanitation in farm premises should be initiated to contain leptospirosis in dairy animals.

References