

Case Report



Therapeutic Management of Anaplasmosis in A Cross-Bred Jersey Cow: A Case Report

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ABSTRACT

Anaplasmosis is an infectious and transmissible disease manifested by progressive anemia and the appearance of other characteristic disease symptoms. It is a world-wide tick-borne disease of cattle and some wild ruminants caused by the rickettsia *Anaplasma marginale*. A cross-bred Jersey cow aged six years was presented with a history of high fever, anorexia, reduced water intake, depression, unusual bellowing and reduced milk production. Animal was weak and emaciated with severe tick infestation under the ear. Haemogram revealed low levels of PCV, anemia and thrombocytopenia. No hemoglobinemia and hemoglobinuria was evident. Blood smear examination revealed presence of *Anaplasma marginale* within the RBCs. The animal recovered uneventfully upon treatment with long acting oxytetracycline and supportive therapy.

Keywords: Anaplasmosis; anemia; thrombocytopenia; oxytetracycline.

INTRODUCTION

Bovine anaplasmosis is a tick-borne disease caused by anaplasma species and causes considerable economic loss to both dairy and beef industries worldwide. The disease is endemic in tropical and subtropical areas of the world. In cattle, it is characterized by severe debility, emaciation, anemia and jaundice². *Anaplasma* spp. are obligate intraerythrocytic parasites belonging to the order Rickettsiales and infecting ruminants. *Anaplasma marginale* is the causative agent of anaplasmosis in cattle and wild ruminants, and *A. ovis* in sheep and goats¹⁰. Sir Arnold Theiler (1910) first described *A. marginale* infection in erythrocytes of South African cattle as "marginal points". The transmission of *A. marginale* can be affected both mechanically by biting flies or blood-contaminated fomites and biologically by ticks⁵. The distribution of anaplasmosis may continue to change due to the trend of global warming, which may influence the movement of the tick hosts³.

MATERIALS AND METHODS

A cross-bred jersey cow aged six years was presented to Govt Veterinary Hospital, Cheruthuruthy, Thrissur, Kerala with the history of high fever for 24 hours, anorexia, reduced water intake, depression, respiratory distress, unusual bellowing and reduced milk production. Animal was found to be weak and emaciated. On close physical examination, dullness, enlarged prescapular lymph nodes, serous nasal discharge, severe tick infestation and pale conjunctival mucous membrane was noticed. Physiological parameters like rectal temperature, heart rate and respiratory rates were found to be 104.6 °F, 85 beats per minute and 46 per minute respectively. About five millilitres of blood sample was collected by jugular venipuncture into an EDTA vacutainer for haematological

examination. Peripheral blood was also collected from ear vein and a smear was stained with Giemsa to look for any blood parasites. Ticks were collected, processed and identified as per standard procedure⁹.

RESULTS AND DISCUSSION

Haemogram revealed low levels of total erythrocyte count (TEC) and low hemoglobin level i.e., 3.2 million cells/cmm and 4.8 g/dl respectively. Giemsa stained blood smear examination revealed the presence of *Anaplasma marginale* within the RBCs. (Figure 1). In thin blood films, *Anaplasma* spp. appear as dense, homogeneously basophilic staining blue to purple inclusions 0.3 to 1.0 µm in diameter within erythrocytes, in small clumps of two to eight organisms referred to as morula. Based on the morphological characters, the collected ticks were identified as *Haemaphysalis* spp. Based on all these findings, the case was diagnosed to be bovine anaplasmosis.

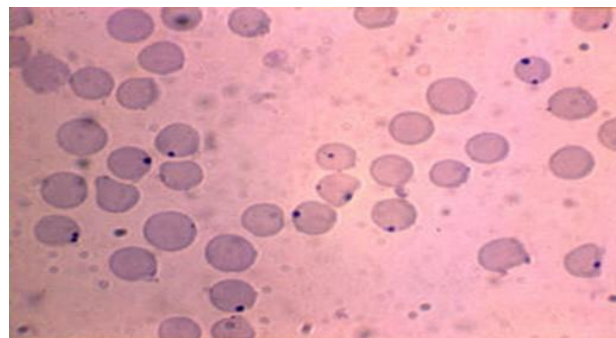


Figure 1: Presence of *Anaplasma marginale* within RBCs of Giemsa stained blood smear

The cow was treated with two doses of long acting oxytetracycline @ 20 mg/kg body weight I/M 48h apart. Other supportive therapies like Meloxicam @ 0.5 mg/kg



body weight I/M for five days and B- complex injection @ 10 mL I/M once in three days was given. Significant clinical improvement was noticed after three days of treatment and the case was discharged after complete clinical recovery.

Anaplasma is an obligate intracellular rickettsial organism which infects the blood cells of mammals⁸. The presence of pyrexia, enlargement of lymph nodes and inappetence were identified in the similar cases reported before^{4,6}. Symptoms like grinding of teeth⁴, staggering gait and incoordination⁷ were not observed in the present case history. This might be attributed to the fact, that the temperature recorded in present case was slightly lower (105.3 °F) in comparison to the findings (108 °F) reported in a similar case⁸. Faster recovery might be attributed to the early diagnosis and higher dose of Oxytetracycline used in the present case. This is in agreement with the findings of Ananda *et al.*, who opined that Oxytetracycline is more effective at higher doses¹.

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