Case Report

BABESIOSIS IN A PREGNANT COW: A CASE REPORT

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ABSTRACT

Five years old seven month pregnant crossbred Jersey cow was presented with the history of anorexia and passing coffee coloured urine. Clinical examination of the animal revealed fever, pale mucous membrane, haemoglobinuria, suspended rumination and moderate tick infestation. Peripheral blood smear was stained with Giemsa stain and examined under compound light microscope found that the sample was positive for Babesia spp*. The animal was treated with diminazine aceturate @ 3.5mg/kg b.wt IM along with supportive therapy. The animal was successfully recovered from the Babesiosis, after the ten days of recovery the cow was aborted.*

Keywords: Abortion, Babesia spp, Bovine, Diminazine aceturate

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Babesiosis is an important tick borne and intraerythrocytic protozoan disease caused by apicomplexan protozoan *Babesia* species, which are transmitted by *Rhipicephalus (Boophilus) microplus* as the main biological vector (Bock *et al.,* 2014) and mechanically by biting flies and blood-contaminated fomites (Kocan *et al.,* 2010). The most important species *Babesia bovis* and *Babesia bigemina* are responsible for the disease in cattle in the tropics and subtropics between 40 N and 32 S which includes India (OIE, 2000). In India, the climatic conditions are most congenial for the intermediate host i.e. *Rhipicephalus* (*Boophilus)* spp. tick vector propagation, which observed as the predisposing factor in the development of clinical symptoms. The disease is clinically characterized by high fever, inappetence, emaciation, anaemia, jaundice and haemoglobinuria, occasionally diarrhoea and abortion may occur in pregnant cattle (Salem and El-sherif., 2016). In India, Babesiosis is one of the most widespread tick-borne intraerythrocytic blood borne disease caused by *Babesia* spp. (Homer *et al*., 2000) in cattle causing economic losses to the farming community through reduction in milk and meat production, occasionally causing abortion in pregnant cows.

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Transplacental transmission of *Babesia* spp. has been described (Costa *et al.,* 2016); Cases of fetal or neonatal death associated with direct damage induced by such agents have been reported (Trueman and Mclennan, 1987; Henker *et al.,* 2020). Four major species of Babesia causes bovine babesiosis which includes *Babesia bovis*, *B. bigemina*, *B. divergens* and *B. major* (Callow *et al*., 1997; Zintl, 2003).

The bovine babesiosis leads to negative impact on livestock health and losses of production. Many animals die or undergo a long period of convalescence entailing loss of meat and milk production. Incidental costs of immunization and treatment add to the economic burden (Zahid *et al*., 2005; Radostits *et al.,* 2006). This study describes the clinical observations in *Babesiosis* infected pregnant cattle and its therapeutic management.

Case history and observations

Five year old seven month pregnant crossbred Jersey cow was presented to the Veterinary Dispensary, Vilakkanampudi, Thiruvallur district of Tamil Nadu with the history of anorexia and passing coffee coloured urine. Complete physical examination of the animal revealed fever (103.5^{o}F), pale mucous membrane, swollen prescapular lymphnodes, haemoglobinuria, suspended rumination and moderate tick infestation. The animal was suspected for haemoprotozoan disease.

Blood smear preparation and Giemsa Staining

Peripheral blood smear was prepared and fixed with methanol for 30 seconds. The smear was stained with the Giemsa stain at 1 in 10 dilutions for 40 minutes. After washing, the slides were examined under oil immersion objective of the microscope for the presence of intraerythrocytic blood parasites at least 50 fields per slide as described by OIE (2008).

Findings of the study

Microscopic examination under 1000X oil immersion of blood smear revealed that the animal was positive for *Babesia spp* (Fig.1) having the typical morphology (two pear shaped piroplasm fused at an acute angle located intraerythrocytically.

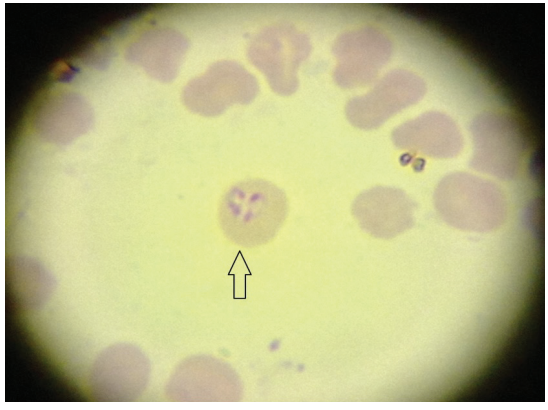

Fig. 1. *Babesia bigemina* pear shaped piroplasmstained with Giemsa (1000X oil immersion)

The light microcopy examination for detection of *Babesia* piroplasm is relatively cheap, quick and gold standard. Bose *et al*. (1995), claimed that the method of choice to detect Babesial parasites in acute conditions was the examination of Giemsa stained thin blood films for excellent demonstration of morphological details of the parasites and species identification were possible.

The animal was treated with two doses of diminazine aceturate @ 3.5mg/kg body weight I/M on alternate days. Supportive therapies of Meloxicam and paracetamol @ 0.5 mg/kg body weight I/M for 5 days, Tribivet injection @ 20 ml and chlorpheniramine maleate @ 10 ml I/M each at alternate days for 5 occasions were given. Other supportive therapies like liquid sharcoferrol (oral haematonics) 50ml BID and liquid Brotone (oral liver tonic) 50ml BID were given for one week. The animal was recovered after treatment with 2 doses of diminazine aceturate @ 3.5mg/kg body weight I/M on alternate days. On sixth day, blood smear was collected and subjected to Giemsa staining technique revealed that the animal was negative for blood parasites. De Vos (1979) suggested the most commonly used chemotherapy for Babesia infections in cattle is Diminazine aceturate. It has rapid action against *B. bovis* and *B. bigemina* and can protect cattle for 2 to 4 weeks. The cow aborted (Fig.2) after ten days. It might be due to loss of haemoglobin in dams blood causes decrease the oxygen supply to the fetus leads to hypoxia and death which also corroborated by Bock *et al.* (2014) revealed that haemolysis leads to anemia and consequently hypoxia, which likely plays an important role in these episodes of fetal loss.

The present study was concluded that while treating the pregnant cow affected with bovine babesiosis should be clinically monitored till calving. To confirm the cause of abortion, appropriate samples such as impression smear from spleen, blood vessels and brain for cytological examination and tissue samples of lung and heart for immune histochemistry (IHC) should be collected. Tissue samples of brain, spinal cord, skeletal muscle, tongue, bone marrow, skin, eyelid, placenta when available, and the main organs of the thoracic and abdominal cavities should be collected and fixed in 10 % buffered formalin for histopathology (Henker *et al.,* 2020).

Fig. 2. Aborted calf

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