Cerebral Babesiosis in a Gir Bullock and its Successful Therapeutic Management

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Among haemoprotozoan diseases of the animals, babesiosis is a tick-transmitted disease caused by protozoans of the genus Babesia and it is characterized by haemolytic anemia and fever, with occasional hemoglobinuria and death (Ristic, 1981). Among six species causing bovine babesiosis, B. bigemina and B. bovis are the most important in tropical and subtropical regions (Radostits et al., 2008). The one host tick Boophilus microplus is responsible for transmission of the disease in India, both by trans-stadial and transovarian routes (Taylor et al., 2007; Lefevre et al., 2010). We came across an unusual and interesting observation about the Babesia associated with the cerebral form of the disease, the “cerebral babesiosis” in a Gir bullock, hence reporting in this communication.

Case History and Observations

A 9 years old Gir bullock having approximately 270 kg weight was found ill with fever, anorexia and circling movement since last 7 days at a Gaushala in Dharapur, Gujarat. Upon inquiry it was revealed that the animal was treated with systemic antibiotics, antipyretics and appetizers by a local veterinarian, without fruitful results.

Clinically the animal had high temperature (105° F), ruminal hypotonocity (1/3 minutes), anorexia, aggressiveness, grinding of teeth, and cessation of defaecation, icterus, anaemia, paleness of conjunctival mucous membrane, hyper-excitability and convulsions. Haematological analysis revealed reduced haemoglobin (11.0 g/dl), PCV (40%), TLC (4.0x10^3/μl) and altered differential leucocytes counts (Neutrophils 22%, Lymphocytes 69%, Monocytes 4% and Eosinophils 5%). Thin blood smears prepared with peripheral blood withdrawn from the ear tip, stained with Giemsa stain revealed intra-erythrocytic pyriform shape of Babesia spp. (Fig.1). The organisms were characteristically pea shaped and lied in pairs forming an acute angle in the red blood corpuscale. The molecular detection revealed Babesia bigemina organisms (Fig. 2) using 100 bp ladder standard (Ludwig Biotecnologia, Porto Alegre, Brazil). Clinical and laboratory findings of the case were suggestive of cerebral babesiosis.
Treatment and Discussion

The animal was treated with 2 liter of Ringer’s lactate, 2 liter of normal saline, 100 ml Steclin (Oxytetracyclin 50 mg/ml) and 15 ml Neuroxin-M intravenously (Methylcobalamin 50 mcg, Pyridoxin 50 mg & Nicotinamide 50 mg/ml), and 15 ml of Melonex (Meloxicam 5 mg/ml) intramuscularly for four days. 40 ml Berenil Vet 7% RTU was given intramuscularly on first day of treatment, along with Bol. Rumipro for five days. The animal made an uneventful recovery with improved haematology in next three days.

In the literature, more or less similar findings were reported in cattle suffering from cerebral babesiosis either with B. bigemina or B. Bovis (Zaugg, 2009; Maharana et al., 2018). Central nervous system signs are caused by brain anoxia resulting from severe anaemia (Zaugg, 2009). The clinical features observed could be due to destruction of large number of erythrocytes by blood parasites. The sudden onset of high fever (105°F) is due to non-specific toxic substances produced during the metabolism of Babesia. The haematological observations were suggestive of milder form of anaemia, severe leucopenia, lymphocytosis and moderate eosinophilia.

Treatment with 40 ml Berenil (Diminazene aceturate) Vet 7% RTU intramuscularly was found very effective along with other mentioned supportive therapy. Blood report after 3 days showed magic improvement in blood parameters with absence of piroplasms. Similar effect of diminazene aceturate (3-5 mg/kg) has also been reported earlier for babesiosis (Cebra and Cebra, 2002).

Conflict of Interest

All authors declare no conflict of interest.

References:


