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A case report on treatment of *Babesia bigemina* in cross-bred jersey cow

S Preethi**Abstract**

Bovine babesiosis is a common tick borne disease of cattle in tropical regions. A four and half year old crossbred jersey cow weighing 300kg was presented with the history of high fever 106.3 F, cessation of rumination, anorexia, dropped milk yield and haemoglobinuria (dark brown coloured urine). Clinical examination revealed icteric mucous membrane, more number of ticks all over the body, increased body temperature. Haematology revealed anaemia, Haemoglobin – 7.5 mg/dl, Packed cell volume – 20%. Peripheral blood smear revealed presence of *Babesia bigemina*. The cow was then treated with Berenil 7% (Diminazene aceturate) at the rate of 3.5mg/kg body weight along with oral iron supplements like ferikind liquid. After five days of treatment the animal recovered uneventfully.

Keywords: Babesiosis, *Babesia bigemina*, hemoglobinuria, Diminazene aceturate

Introduction

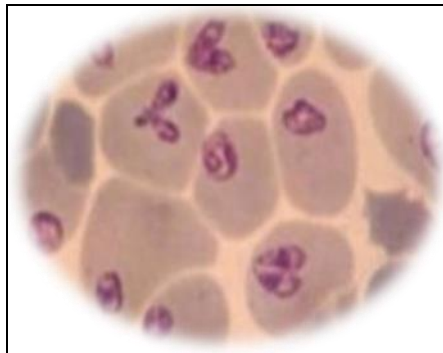
Bovine babesiosis is a tick borne disease caused by intra erythrocytic protozoan parasite *Babesia*. It is also called as Cattle tick fever, piroplasmiasis, red water disease and texas fever. *Babesia* species is most commonly transmitted through boophilus and ixodus ticks. Infection is transmitted through transovarian or transtadial route. The main vector of *Babesia bigemina* and *Babesia bovis* are one host tick rhipicephalus (*Boophilus*) spp ticks in which transmission occurs transovarially^[1]. However, two important species affecting cattle are *Babesia bovis* and *Babesia bigemina*^[2] and is more commonly found in the tropical and subtropical regions of the world. Disease is highly pathogenic and death rate is higher in adults. In endemic areas features like immunity level of calves, breeds of cattle are important in determining the clinical stage of the disease animal^[1]. The principal pathogenic effect is intra vascular haemolysis due to multiplication of *Babesia* in peripheral blood vessels. Ischemic changes in skeletal and cardiac muscles are noticed with icteric appearance of mucous membranes. The acute disease runs a course of fever for one week with body temperature ranging 106 F, haematological changes like decreased haemoglobin and packed cell volume^[3] which is accompanied by inappetance, increased respiratory rate, muscle tremors, jaundice, haemoglobinemia and haemoglobinuria in final stage^[1]. Death is due to destruction of RBCs by auto-antibody mechanism, failure to recoup blood loss, cerebral anoxia and accumulation of toxic by-products.

Case History and Observations

A four and half year old crossbred jersey cow weighing 300kg was presented with the history of high fever, anorexia, cessation of rumination, dropped milk yield and haemoglobinuria since three days. Clinical examination revealed animal had icteric mucous membrane, dry muzzle, lacrymation, more number of ticks all over the body, enlarged lymph nodes and the animal appeared anaemic with increased body temperature 106.3 F. Haematology revealed anaemia, Haemoglobin – 7.5 mg/dl, Packed cell volume – 20%. Peripheral blood smear stained with giemsa revealed the presence of pear shaped piriform structures *Babesia bigemina* in RBC.

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Treatment and Discussion

The cow was treated with berenil 7% (diminazene aceturate) at the rate of 3.5mg/kg body weight ^[4] along with oral liquid supplements like ferikind vet ^[5]. On fifth day of treatment the animal recovered uneventfully. Other treatment protocol includes Imidocarb dipropionate (Imizol) @ 1 mg/kg subcutaneous route and it is most effective against *B. bigemina*. Other Aromatic diamidines like Diamprone -@ 10 mg. kg, deep Intra muscular injection, Phenamidine-@ 12 mg/kg, Subcutaneous route in 40% aqueous solution and Pentamidine are used as Chemo immunizing agent against *B. bigemina* in cattle. Others unconventional methods include treatment with Tryphan blue solution (1-2%) 100 ml intravenously. Control of ticks using acaricides and repellants, along with regular dipping of animals is the effective way to prevent the disease. Live attenuated vaccines are also available against babesiosis.

Differential Diagnosis

The differential diagnosis includes anaplasmosis, trypanosomiasis, theileriosis, leptospirosis, and chronic copper poisoning. Rabies and other encephalitides may also be considerations in cattle with central nervous system signs.

Conclusion

An important tools to control babesiosis is detection and treatment. Microscopy detection methods are the swift and cheapest methods used to identify *Babesia* parasites. Recently, several pharmacological compounds were developed and evaluated, offering new options to control the disease. With the complete sequence of the *Babesia bovis* genome and the *B. bigemina* genome project in progress, the post-genomic era brings a new light on the development of diagnosis methods and new chemotherapy targets ^[6]. But still under field conditions and considering the economic status of livestock owners the more safe and most effective and affordable treatment is using diminazene aceturate.

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