

Original Research Article

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## The Occurrence of Bovine Babesiosis in a Crossbred Dairy Cow and its Successful Therapeutic Management

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### ABSTRACT

#### Keywords

Babesiosis; *Babesia bovis*; Crossbred

#### Article Info

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Bovine babesiosis significantly reduces the productivity of cattle throughout the world including India. A crossbred dairy cow in the Livestock Farm Complex, Lakhimpur College of Veterinary Science, AAU, Joyhing, North Lakhimpur, Assam was reported with high rise of temperature (40°C) and haemoglobinuria from 2 days. Blood smear examination revealed the presence of intraerythrocytic *Babesia bovis* organism. The affected animal later was treated with imidocarb dipropionate @ 1mg/kg body weight once through subcutaneous route, Meloxicam @ 2mg/kg body weight through intramuscular route for 2 days (stopped once fever subsided), Mecopac forte 5ml through intramuscular route for 3 days, Normal saline 500ml twice daily for 3 days (till fever subsided) and Floraboost bolus. Later the animal started showing recovery from 2<sup>nd</sup> day onwards without any complications. In the present study Imidocarb constantly cleared *Babesia* organism. Hence, the information from the present communication will help the field veterinarians to adopt effective therapeutic management strategy for the control bovine babesiosis.

### Introduction

Bovine babesiosis is a disease caused by tickborne intraerythrocytic piroplasm of the genus *Babesia* which has global economic importance. Livestock production is the

backbone of Indian Agriculture that generates employment in rural areas (Puneeth Raj and Vyakaranahal, 2016). Cattle is an integral part of Indian economy that play a major role in the rural livestock economy. It contributes about 6 percent to the Gross Domestic

Product and 25 percent to the Agricultural Gross Domestic Product (Paturkar, 2019). With a population of 192.49 million nos. of cattle India ranked second in the World (20<sup>th</sup> Livestock census). But haemoprotozoan parasitic diseases are responsible for reducing the productivity of dairy cattle. Babesiosis, out of many haemoparasitic diseases is most frequently encountered in India which results in a great economic loss (Ghosh *et al.*, 2006). The species of *Babesia* involved are *Babesia bigemina*, *B. bovis* and *B. divergens*. Among them, *B. bigemina* is a large piroplasm and the other two species are small forms (Soulsby, 1982). Bovine babesiosis is characterized by haemolytic anemia and fever, with occasional hemoglobinuria and death (Ristic, 1981; Soulsby, 1982). Bovine babesiosis can be controlled either by tick management, immunization, anti-babesia chemotherapy or by a combination all these (Suarez and Noh, 2011). Chemotherapy of babesiosis includes drug like diminazine aceturate, imidocarb dipropionate etc. (Mosqueda *et al.*, 2012). In the field conditions chemotherapy is the best possible way to control babesiosis (Rodriguez and Trees, 1996). The present communication is intended to report the occurrence of *B. bovis* infection in a dairy cow and its successful therapeutic management.

### **Materials and Methods**

A crossbred dairy cow in the Livestock Farm Complex, Lakhimpur College of Veterinary Science, AAU, Joyhing, North Lakhimpur, Assam was reported with high rise of temperature (40°C) and haemoglobinuria from 2 days. Blood from the affected animal was collected by jugular venipuncture and kept in vials containing EDTA (anticoagulant). Thin blood smears were prepared which was later stained by Giemsa staining technique after fixation with absolute methanol for laboratory diagnosis following standard protocol (Zajac

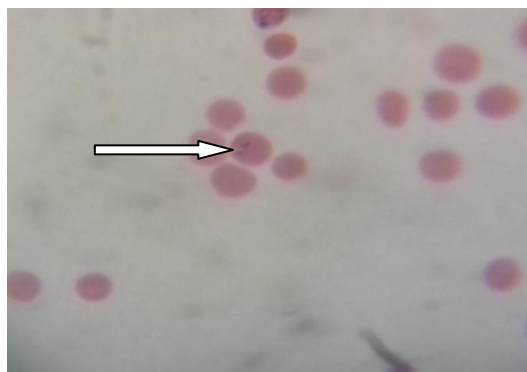
and Conboy, 2011). Giemsa stained blood smears were examined later under oil immersion objective of a light microscope for the presence of haemoprotozoan parasites, if any.

### **Results and Discussion**

Blood smear examination revealed the presence of intraerythrocytic stages of *B. bovis* organism (Fig.1). The organism was identified on the basis of its morphological characters (Soulsby, 1982). The affected animal later was treated with Imidocarb dipropionate @ 1mg/kg body weight once through subcutaneous route. To reduce the high rise of temperature Meloxicam was given @ 2mg/kg body weight through intramuscular route for 2 days (stopped once fever subsided). Supportive treatment included Mecopac forte 5ml given through intramuscular route for 3 days, Normal saline 500ml twice daily for 3 days and Floraboost bolus was also given. Fever subsided from 2<sup>nd</sup> day onwards. Gradually the animal recovered. No parasite was detected in blood examination done after 5 days. Prevalence of *B. bigemina* and *B. bovis* is previously reported from Assam (Barman *et al.*, 2018). Previously Imidocarb at the dose rate of 1-3 mg per kg body weight either SC or IM has been suggested as chemotherapeutic agent for bovine babesiosis (Kuttler, 1981; Mosqueda *et al.*, 2012).

The present communication corroborated the report that Imidocarb constatntly clear *Babesia* organism (Vial and Gorenflot, 2006). Similarly in another report splenectomised calves with *Babseiosis* were rapidly cured by the subcutaneous injection of imidocarb at 1 mg/kg. (McHardy and Simpson, 1974). The occurrence of bovine babesiosis and its successful therapeutic management from the present area of study is not reported till date.

**Fig.1** Intraerythrocytic stage of *Babesia bovis* (Giemsa stained blood smear X100)



In conclusion the present communication is intended to report the occurrence and successful therapeutic management of bovine babesiosis with the use of Imidocarb dipropionate regarding which no previous report was found from the present area of study. This will help the field veterinarians to adopt effective therapeutic management strategy for the control of bovine babesiosis.

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