

# BLOOD TRANSFUSION IN A CALF WITH ANAEMIA DUE TO BABESIOSIS – A CASE REPORT

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## ABSTRACT

A four month old calf weighing 69 kg was attended at door step in the position of lateral recumbency with a history of anorexia, dyspnoea and voiding coffee coloured urine. Physical examination revealed subnormal temperature, pale mucous membrane, tachycardia with haemic murmur, tachypnoea and pounding femoral pulse. Examination of the blood smear revealed *Babesia bigemina* and complete blood count findings were reduced haematological parameters RBC–(1.5x10<sup>6</sup>), PCV–(14%) and Hb–(3.5mg/dL). Based on the clinical and laboratory findings, the case was confirmed as Babesiosis and the calf was treated with Inj. Diminazene aceturate (Berenil) @ 3.5 mg/kg deep IM, Inj. Oxytetracycline @ 22 mg /kg IV and Inj. Ferritas 3 ml I/M on day 1. Subsequently on day 2 calf was transfused with two units (700 ml) of fresh whole blood as emergency treatment with dexamethasone @ 0.2 mg/kg BW IV, Avil 0.25 mg/kg IM. The calf was completely cured on day five and day 10 blood smear was negative for *Babesia bigemina*.

**Keywords:** Calf, Babesiosis, Anaemia, Blood Transfusion

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## INTRODUCTION

Bovine babesiosis is a tick-borne parasitic disease that results in significant morbidity and mortality in cattle. It is

mainly transmitted by the tick, *Boophilus microplus*. Two species of *Babesia* causes most clinical cases in cattle viz. *Babesia bovis* (highly pathogenic and smaller in size) and *B. Bigemina* (Gungi *et al.*, 2016). Generally young calves exhibit a strong innate immunity in comparison to adult cattle (Kumar and Kala 2018). Haemolytic anaemia is encountered in the haemoprotozoan infections such as babesiosis, theileriosis and anaplasmosis. (Singh *et al.*, 2014) causing severe anaemia in the bovines. In anaemic conditions oxygen carrying capacity of the blood is very low

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which is the reason why the affected animal has respiratory difficulties. During this stage the emergency blood transfusion is highly recommended with a proper treatment regimen (Saritha *et al.*, 2016 and Arul *et al.*, 2019).

### HISTORY AND CLINICAL FINDINGS

A four month old calf weighing 69 kg was attended at the door step in lateral recumbency with a history of anorexia, dyspnoea and haematuria (Fig. 1). Physical examination revealed subnormal temperature (97.8°F), pale mucous membrane (Fig. 2), tachycardia (118 bpm) with haemic murmur, tachypnoea and pounding femoral pulse. Peripheral blood smear revealed *Babesia bigemina* (Fig. 3) and anaemic changes were also observed in the blood picture. Complete Blood Count (CBC) showed low RBC ( $1.5 \times 10^6$ ), PCV (18%) and Hb (3.5 mg/dL).

### TREATMENT AND DISCUSSION

Based on clinical and laboratory findings, the calf was diagnosed and confirmed as Bovine babesiosis with severe anaemia due to *Babesia bigemina* and it was treated with Inj. Diminazene aceturate @ 3.5 mg/kg deep IM, Inj. Oxytetracycline @ 22 mg /kg IV and Inj. Ferritas 3 ml I/M on day 1. Subsequently on day 2 calf was transfused with two units (700 ml) of whole blood along with dexamethasone @ 0.2 mg/kg BW IV, Chlorpheniramine maleate @ 0.25 mg/kg IM, Inj. Iron sorbitol @ 3ml I/M. Except Inj. Diminazene aceturate other medications were followed for next three days. As a result on day 5 animal showed recovery and on day 10 blood smear was also negative for *Babesia bigemina*.

The whole blood was collected from the cow (donor) owned by the same calf owner the donor was found to be free from ticks and apparently healthy with normal blood parameters Hb – 11.5 g/dl and PCV– 40 %. Whole blood was collected in an empty fluid bottle which is filled with 70ml of 3.8% sodium citrate (anticoagulant) 9 parts of blood and 1 part of anticoagulant (Saritha *et al.*, 2016). The cross matching done between donor and recipient blood showed no agglutination. Inj. Dexamethasone @ 0.2 mg/kg BW IV and Chlorpheniramine maleate @ 0.25 mg/kg was given to counteract the transfusion reaction. Following successful transfusion, Inj. Oxytetracycline @ 22 mg /kg IV, Inj. Tribivet 10 ml IV (Arul *et al.*, 2019) and Inj. Imidocarb dipropionate @ 2 mg/kg S/C were also be given (Kumar and Kala 2018). A second dose of Inj. Diminazene aceturate (Berenil) was given after seven days (Gungi *et al.*, 2016). Anticoagulant which was used for blood collection is sodium citrate (3.8 %). It is very cheap and readily available as mentioned by Gareth B (2006). Blood transfusion is a simple form of transplantation to improve the oxygen carrying capacity and treat the clinical signs of anaemia as we performed the transfusion in our case (Ramkant *et al.*, 2023).

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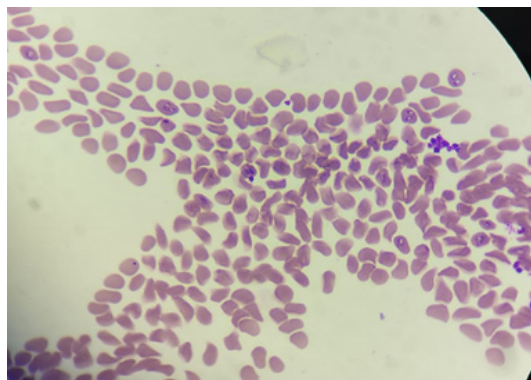
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**Fig. 1. Coffee coloured urine**



**Fig. 2. Pale mucous membrane**



**Fig. 3. Babesia bigemina in blood smear**