

Blood Transfusion as an Adjunct Therapy in a Foal Affected with Trypanosomiasis

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Abstract

Trypanosomiasis is an infectious haemo protozoan disease that affects various domestic and wild animals. A 9-month-old foal was presented to Veterinary Clinical Complex of the College of Veterinary Science, Rajendranagar, Hyderabad with a complaint of reduced appetite, red-colored urine, and rapid loss of weight over a period of one week. Pale conjunctival and buccal mucous membranes were noticed with tachycardia and body temperature of 97.2° F. Hematological examination revealed anaemia, with pleomorphism of RBCs, microcytosis and a few acanthocytes. Wet film examination and Giemsa-stain smear examination revealed the presence of intercellular spindle-shaped *Trypanosoma evansi*. The foal was treated with Diminazene aceturate (@ 3.5mg/kg body weight), cyanocobalamin, along with blood transfusion. The foal was successfully revived following a blood transfusion.

Keywords: Trypanosomosis, foal, blood transfusion

Introduction

Trypanosomiasis is an infectious protozoan disease caused by several species of *Trypanosoma*. Trypanosomosis is of critical importance because of its destructive effects on animal health (Singh *et al.*, 2013). As there is no vaccine, Trypanosomiasis is primarily prevented and controlled using prophylactic drugs (Kumar *et al.*, 2021). Severe infection may also cause anaemia resulting in fatal outcomes, particularly in young animals (Radwanska *et al.*, 2008). The present paper puts on record about the management of trypanosomiasis in a foal with an adjunct blood transfusion.

Case History and Observations

A 9-month-old foal was presented with a complaint of reduced appetite, red colored urine and

rapid loss of weight for a week. Clinical examination revealed pale and blanched conjunctival and buccal mucous membranes with intermittent fever. The clinical signs presented in the present case are in accordance with Greif *et al.* (2018), and Rodrigues *et al.* (2015) who documented that emaciation, oedema, cachexia, abdominal pain, head pressing and paddling movements as common manifestations of trypanosomiasis in domestic animals. Peripheral blood smear stained with Giemsa stain revealed several intercellular organisms with flagellum suggestive of *Trypanosoma* (fig.1). Haematology revealed anaemia with pleomorphism, microcytes and few acanthocytes.

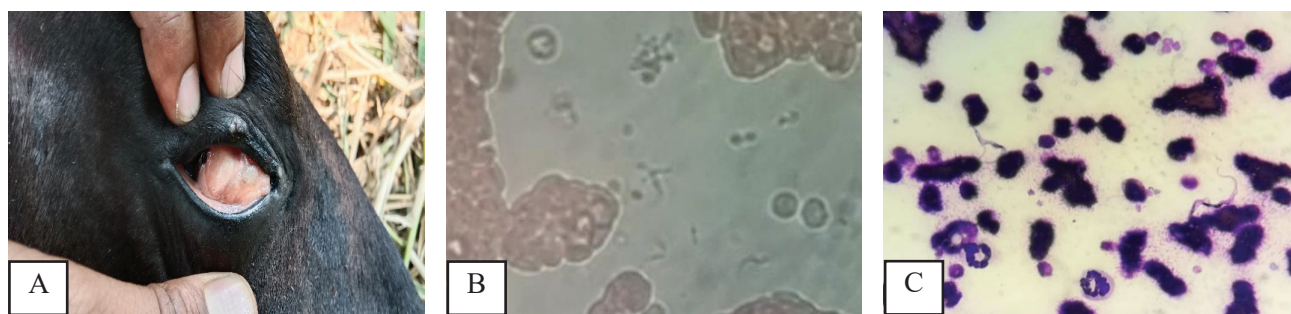


Fig. 1. Blanched conjunctival mucosa (A); Spindle-shaped organisms (yellow arrow) in between RBC in wet film(B) and stained smear (C).

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Treatment and Discussion

The foal was treated with diminazene aceturate (@3.5mg/kg body weight intramuscular). The drug is an aromatic diamidine and is primarily employed as a curative drug for *T. evansi*. However, its application in horses and dogs is restricted due to suboptimal efficacy and tolerance within these species (Halder *et al.*, 2019). The foal was also treated with cyanocobalamin 5 ml i/m for 4 days. Anaemia is a prominent character in the pathology of surra, with horses and dogs exhibiting more pronounced levels of anaemia compared to other animals (Jaimes-Dueñez *et al.*, 2017). During the acute stage, the

trypanosomes release extracellular vesicles filled with intracellular parasite cargo as well as variable surface glycoprotein that can fuse with RBCs. This causes a change in the physical properties of the RBC membrane, which enhances erythrophagocytosis resulting in anaemia and haemoglobinuria (Stijlemans *et al.*, 2018). After a thorough compatibility test, 1000 ml of blood was collected from the healthy horse and transfused to the affected foal. Following transfusion, foal showed clinical improvement and haematology examination showed near normalization of RBC parameters. Further, microscopic examination of peripheral blood smear also confirmed the absence of *T. evansi* organisms.

Table. Hematological parameters of foal before and after therapy

Hematological parameter's	PCV (%)	Platelets ($\times 10^5/\text{ul}$)	Hb (g/dl)	RBC ($\times 10^6/\text{ul}$)	WBC ($\times 10^3/\text{ul}$)
Before therapy (day 0)	18.5	8.7×10^4	5.9	5.65	15
After therapy (day7)	38	1.8×10^5	9.6	8.9	9

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