

## Case Report

# Trypanosomiasis in Dog; A Case Report

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## Abstract

*Trypanosoma* are extra-erythrocytic, protozoan parasites of domestic and wild animals. It is transmitted by biting flies and a cause of fever, anemia, myocarditis and corneal opacity. In the present study, *Trypanosoma* infection is reported in a male bull dog of two years age at Lahore, Pakistan. Clinical signs and symptoms of infection are recorded. Confirmation of case was done by microscopic examination of *Trypanosoma* organism in thick blood smear. Furthermore, their effect on certain hematological parameters was studied and concluded that there was decrease of hemoglobin (Hb) concentration and packed cell volume (PCV) while erythrocytes sedimentation rate (ESR) was increased in the infected dog. The animal was successfully treated with single dose of diminazene diaceturate at the dose rate of 3.5 mg/kg body weight, intramuscularly alongwith the supportive therapy.

**Keywords:** *Trypanosoma*, Dog, Pakistan

## Introduction

Trypanosomiasis is a hemoprotozoan disease of domestic and wild animals, spread by biting tabanid flies. The disease is generally acute and fatal in canines (Soulsby 1982) and a cause of fever, anemia, myocarditis and corneal opacity.

Trypanosomiasis has been reported for the past 70 yr in a number of populations of opossums, wood rats, raccoons, armadillos and coyotes (Olsen et al. 1964, Burkholder et al. 1980, Grogl et al. 1984, John and Hoppe, 1986, Barr et al. 1991, Telford and Forrester 1991, Karsten et al. 1992).

All species of *Trypanosoma*, with the exception of some strains of *T. vivax* which produce a hyper acute and acute infection, characterized by high parasitaemia, fever, severe anemia and hemorrhages on the mucosal and serosal surfaces (Urquhart et al. 2002).

Trypomastigote form of trypanosoma enters host cells soon after infection, multiplies sub clinically, escapes the immune system and spread throughout the body primarily within macrophages. Parasitaemia develops within a few day and peaks 2 to 3 weeks post infection, coinciding with clinical disease (Barr et al. 1991). Anemia is a cardinal feature of the disease in which red blood cells are removed from the circulation by the expelled mononuclear phagocytic system. Later, in infection of several months duration, when the parasitaemia become low and intermittent, anemia may resolve to a variable degree (Urquhart et al. 2002).

There are a number of effective trypanosomacidal agents for dogs including suramin, quinapyramine and diminazene but single dose of diminazene diaceturate is effective in eliminating the natural trypanosomiasis infection in canine (Rani and Suresh 2007).

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The present report describes a case of trypanosomiasis in a dog, its effect on some blood parameters and treatment with dimina-zene diaceturate.

### History of case

A male bull dog of two years age was brought to a private clinic at Lahore, Pakistan with history of anorexia, dullness and persistent fever for three days. On clinical examination, there was high rise of rectal temperature (40.8 °C), pale mucous membrane, bilateral lacrimation and generalized debility. The dog was tested for the presence of hemoparasites through blood smears (Coles 1986). For this purpose, hair was clipped from the outer surface of the pinna of ear near the margin. The marginal ear vein was pricked with sharp sterilized needle after disinfection with methylated spirit. A drop of blood was place on a clean glass slide and smear was made and air-dried. The smear was stained with the Giemsa stain (Coles 1986) and examined under light microscope by using the immersion objective. Microscopic examination revealed the presence of *Trypanosoma* organism outside the RBC's.

### Hematological and therapeutical study

After confirmation of *Trypanosoma* through blood smear, hematological examination included hemoglobin estimation (Hb), packed cell volume (PCV) and erythrocytes sedimentation rate (ESR) using the methods as described by Benjamin (1978) was carried out to check the severity of disease. For this purpose, ten ml of blood was collected from cephalic vein in heparinized vacutainer tube containing anti-coagulant.

Simultaneously, treatment of dog with trypanosomiasis was carried out with dimina-zene diaceturate at dose rate of 3.5 mg/kg body weight intramuscularly along with supportive therapy including oral preparation of liver tonic (Hepamerz) and vitamin E for 5 d.

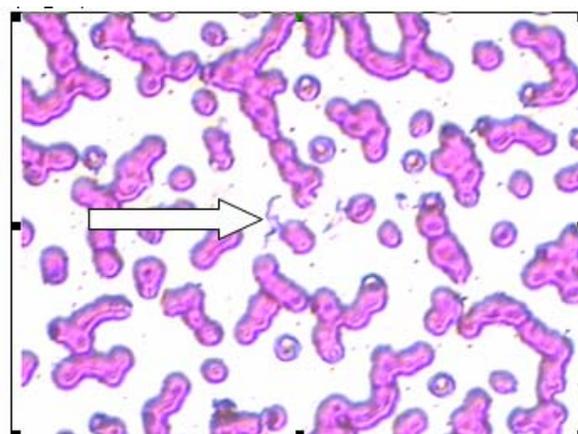
## Discussion

### Clinical signs and symptoms

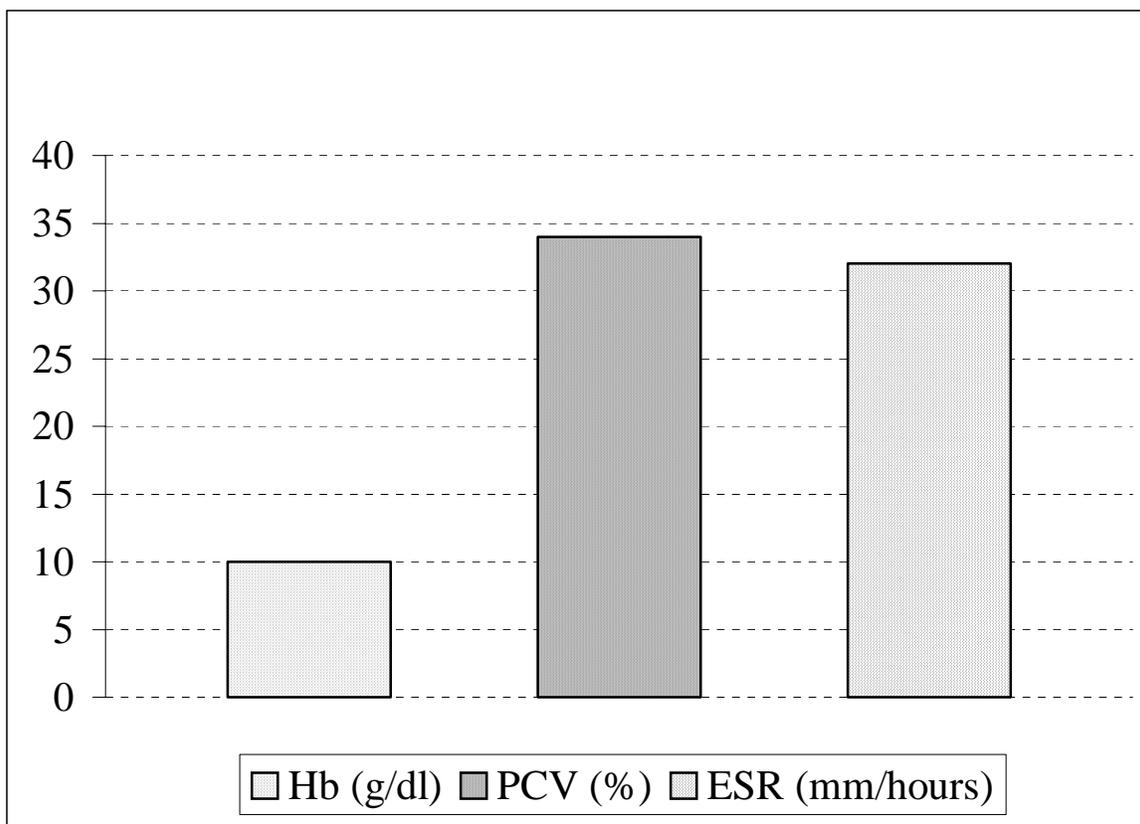
There is limited published literature available regarding the prevalence of trypanosomiasis in dog in Pakistan. In the present study, microscopic examination revealed the presence of *Trypanosoma* organism outside the RBC's (Fig. 1). The reported clinical signs and symptoms were high rise of temperature (40.8 °C), pale mucous membrane, bilateral lacrimation, and generalized debility. These observations were in agreement with the findings of Rani and Suresh (2007) who reported *T. evansi* organism in peripheral blood with history of in appetite, dullness and persistent fever since five days but the same authors also observed bilateral corneal opacity which is a characteristic finding in chronic trypanosomiasis (Thirunavukkarasu et al. 2004).

### Hematological and therapeutical study

Hematological examination included Hb, PCV and ESR were carried out and concluded that there was decrease of Hb and PCV while ESR was increased in the infected dog (Fig. 2).



**Fig. 1.** Blood smear showing abnormalities in erythrocytes with *Trypanosoma* parasites



**Fig. 2.** Blood Picture in canine trypanosomiasis

The results of the present study are in accordance to Kjos et al. (2008) who studied clinical hematology of canine chagas disease in Texas and reported hypoproteinemia, hypoalbuminemia, anemia (decrease packed cell volume) and thrombocytopenia.

Diminazene diaceturate given IM once at a dosage of 3.5 mg/kg was effective for trypanosoma infections in dog and animal showed good clinical improvement after treatment. Supportive therapy was continued for 5 d. Similar results were observed by Rani and Suresh (2007) who treated trypanosomiasis in Pomeranian dog with a single dose of diminazene acetate.

In conclusion, clinical signs and symptoms along with the microscopic examination of *Trypanosoma* organism through peripheral blood smear suggested the case of trypanosomiasis. However, it was difficult to

distinguish the species of *Trypanosoma* at clinic so there is need of serological and molecular tests for the diagnosis of species of *Trypanosoma* in Pakistan. Moreover, it was also concluded that single dose of diminazene diaceturate successfully treated the dog with trypanosomiasis.

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