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Clinical Article

TRYPANOSOMOSIS IN DOG FROM NAGPUR REGION OF MAHARASHTRA, INDIA: A CASE REPORT

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SUMMARY

A 1.5-year-old male stray dog was presented to the Veterinary Clinical Complex, Nagpur, with clinical signs of anorexia, fever (104° F), weakness, and lethargy. Physical examination revealed pale mucous membranes, swollen lymph nodes (popliteal and submandibular), bilateral corneal opacity and hind limb weakness with oedema. Despite prior treatment with eye drops, antipyretics and antibiotics, the dog's condition persisted, prompting further investigation. A blood smear from ear pinna capillaries, stained with Leishman's stain, revealed *Trypanosoma* organisms. Diagnosis of trypanosomiasis was confirmed, and treatment with diminazene aceturate (3.5 mg/kg), antihistamine, antipyretic and vitamin supplementation was initiated, along with supportive fluid therapy. The dog showed improvement after three days, with full resolution of hind limb swelling by day 8 and complete recovery, including cleared corneal opacity, by day 21 of the therapy.

Keywords: Trypanosomosis in dogs, Corneal opacity in dogs, diminazene aceturate

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Trypanosomiasis is a vector-borne haemoprotozoan disease caused by various *Trypanosoma* species, affecting domestic animals (e.g., cattle, horses, dogs) and wildlife. It is more common during the rainy season; though sporadic cases occur year-round. The disease is primarily transmitted by hematophagous flies, such as *Tabanus*, *Stomoxys* and *Glossina* species, except *T. equiperdum* in horses, which is transmitted through coitus. The clinical presentation varies, ranging from mild to chronic forms. In dogs, common signs include intermittent fever, hind limb oedema, corneal opacity and progressive weight loss (Kalaivanan *et al.*, 2021).

A 1.5 year old male stray dog was presented in the Veterinary Clinical Complex (VCC) at Nagpur showing clinical signs such as anorexia, high recurring temperature (104° F), weakness and lethargy. The dog's physical examination revealed pale mucous membranes, swollen lymph nodes (popliteal and submandibular), impaired vision with mild bilateral opacity in the eyes (Fig. 1) and weakness in hind legs with oedematous swelling. The history revealed that the dog was treated previously with Hatmox-D (Moxifloxacin & Dexamethasone) eye drops for impaired vision along with antipyretics and antibiotics. However, due to continuous pyrexia and a null response to the treatment, we decided to go further for a blood haemoprotozoan examination. The hairs from the ear pinna were clipped and cleaned with a spirit swab. Following the cleaning, we drew 2-3 drops of blood using a syringe from the fine blood capillaries and prepared a thin blood smear. This smear was then dried, labelled and sent to the Department of Veterinary Parasitology at Nagpur Veterinary College for the diagnosis of blood haemoprotozoan. The smear was stained with Leishman's stain for 15 minutes, rinsed under running tap water and allowed to air dry. A detailed microscopic examination at 40X and then 100X oil immersion revealed the presence of *Trypanosoma* organisms among the red blood cells (Fig. 2). After confirming the diagnosis, we commenced the standard treatment protocol for trypanosomiasis in the dog. Initially, the dog was pre-hydrated with 500 ml of Dextrose Normal Saline (DNS). We administered a deep intramuscular injection of diaminazine aceturate (Berenil RTU) on the first day at 3.5 mg per kg of body weight. Alongside this, we provided an antihistamine (Anistamin) at a dosage of 1 ml intramuscularly, melonex@0.25 mg per kg of body weight, and Vitcofol-C (a combination of Vitamin B complex, Vitamin C and folic acid), while also ensuring supportive fluid therapy was provided over three consecutive days. By the third day of treatment, the dog began to eat again. The swelling in its hind limbs took 7 to 8 days to resolve fully. After three weeks of treatment, the corneal opacity had completely cleared and the dog returned to its normal state of health.

Trypanosoma infection is common in domestic as well as in wild animals. It has been observed that stray dogs or dogs that are kept near places of livestock farms get *Trypanosoma* spp. infection (Dangolla *et al.*, 2020). The prevalence of trypanosomiasis in the dog population of Andhra Pradesh has been studied by Lakshmi Prasad et al. (2015) where the highest prevalence has been seen in young dogs less than 2 years out of which (2.28%) male and (2.40%) female dogs were found affected. Kalaivanan

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Fig. 1. Bilateral corneal opacity in the dog diagnosed to be affected with canine trypanosomosis.

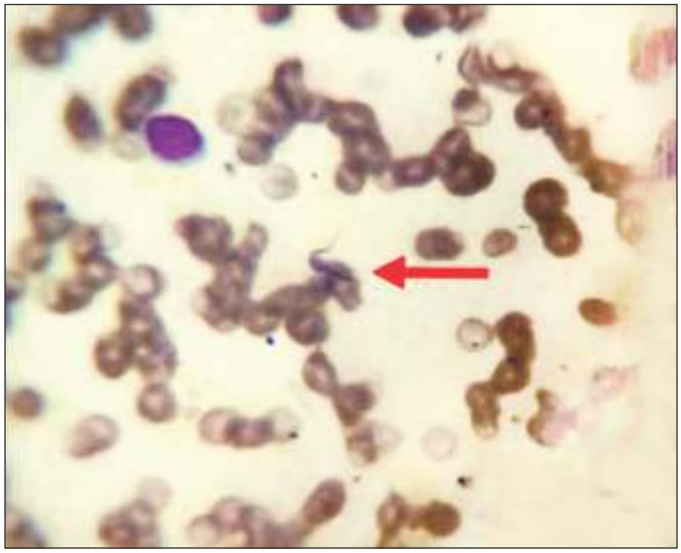

Fig. 2 *Trypanosoma evansi* trypomastigote form in Leishman stained blood smear of dog.

et al. (2021) observed a high prevalence of trypanosomiasis in non-descript dogs under 1 year of age (2.94%) followed by a 1-2 year age group (2.5%) as compared to pure-bread dogs. Ravindran *et al.* (2008) found that 7.69% of seemingly healthy dogs tested positive for trypanosomiasis through PCR analysis conducted in Gwalior, Madhya Pradesh, India. The trypanosome species affecting the dogs are most likely to be *T. evansi* as its occurrence is very common in livestock in India (Singh *et al.*, 1993). The transmission of *Trypanosoma* spp. in dogs occurs by hematophagous flies of the species *Tabanus* spp., *Glossina* spp. and *Stomaxys* spp. It has also been recorded that carnivores may acquire infection via feeding on the fresh carcasses of animals died of trypanosomiasis via ruptured gums of dogs while chewing bones and flesh of infected animals (Sinha *et al.*, 1971) and Raina and co-workers (1985). The signs and symptoms observed in the dog are in agreement with the readings by (Agrawal *et al.*, 2020) where rectal temperature (104° F), oedematous swelling of hindlimbs along with bilateral corneal opacity were observed in the infected dog. Several effective agents exist for treating trypanosomiasis in dogs, including suramin, quinapyramine and diminazene. However, a single dose of diminazene aceturate is sufficient in eradicating natural trypanosomiasis infections in canines (Rani and Suresh, 2007). Diminazene aceturate at 3.5 mg/kg body weight of the animal is the standard medication for treating trypanosomiasis since it has a broader therapeutic index (Eloy *et al.*, 2009). In contrast, the frequency of the drug to be used has a question mark. Many reports are suggesting different frequencies to be used. The findings of Ramesh *et al.* (2016) and Kumar *et al.* (2017) align with the results of the current study where a single dose of diminazene aceturate at 3.5mg/kg body weight was enough to cure the affected animal. However, a study by Silva *et al.* (2008) showed that a single dose of diminazene aceturate is ineffective in curing disease in some animals. T. evansi can exhibit very high or very low parasitemia or it may be absent from blood stream but may be present in the nervous system (Hoare, 1972). The reports by Howes *et al.* (2011) reported that treatment with diminazene aceturate for 5 consecutive days showed successful recovery of the animal where he further stated that, 5 consecutive dosages can maintain enough concentration of the drug to cross the blood-brain barrier and eliminate the organism from the brain. The reports by Dangolla *et al.* (2020) reported that treatment with diminazene aceturate for 7 consecutive days resulted in the death of dogs suffering from trypanosomiasis. He also noted that, after treatment with diminazene aceturate on 1st day and repeated shots on 5th day, the dog succumbed to death after developing signs like in-coordination in gait, rapid breathing, increased pulse rates and heart rates. It can be concluded that a single dose of diminazene aceturate @3.5mg/kg body weight can cure the disease. However, more molecular diagnostic studies are needed to identify the species affecting the dogs for the betterment of treatment protocols.

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