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Prevalence of Trypanosomiasis Infection in Canines of Eluru District

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Abstract

A total of 831 dogs that were brought to the hospital were examined by wet blood film and blood smear staining techniques to find for any haemoprotozoans streaming in the blood. In the present study, 3 dogs were found positive on wet blood smear and staining techniques. Prevalence of T. *evansi* infection was observed in Mongrels and Pomeranian. Age, sex and breed wise studies were carried out and found out that incidence is seen in mongrels, sex wise they are equally distributed and age wise younger ones were more susceptible.

Keywords: Prevalence; T. *evansi*; Eluru.

INTRODUCTION

Dogs are the best companion animals as they have a socio and psychological bonding with the human population. However, the prevalence of canine trypanosomiasis is not much reported and the identification of the haemoparasites depends mostly on the morphological characteristics observed in a microscope. Trypanosomiasis is an important haemoprotozoan infection caused by the protozoan Trypanosomaspecies. In the Indian subcontinent, the most common species that causes the trypanosomiasis is Trypanosomaevansi, and it infects the cattle, buffalo, camels and dogs (Behera et al. 2017). It is usually momomorphic and located mainly in the blood and lymph as an extracellular parasite. It affects both domestic and wild animals and the disease is mechanically spread among the animals by the bite of flies like Tabanus and Stomoxyssps and have interrupted feeding. Usually in dogs the disease is characterised by a severe and fatal type of occurrence and leads to death within 2–4 weeks (Soulsby 1982). Clinically, canine trypanosomiasis is exhibited by fever, generalized weakness, difficulty in taking the food, anorexia, fall in red blood cells, pale mucous membranes and edema of the hind limbs. (Chaudhuri et al. 2009). The condition of anaemia vary from acute to chronic, increased erythrophagocytosis, release of trypanotoxins and metabolites, suppression and exhaustion of haemopoietic system. Occurrence of trypanosomiasis varies from region

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to region and also depends on the host affected. Hypoglycemia is mainly seen during the surge of parasitaemiccodition due to increase uptake of glucose further leading to drop in glucose.The present study was carried out to determine the prevalence of the trypanosoma infection from dogs in Eluru district of Andhra Pradesh.

METHODS

Examination of the blood samples were carried out to the ailing dogs presented to the hospital to observe for the extracellular blood protozoans to determine their prevalence in dogs of Eluru district of Andhra Pradesh over a period of two years i.e., 2022 to 2023. Dogs (n = 831) were randomly sampled, their blood collected and some characteristics such as sex, breed, sampling and age duly noted. The blood samples were screened for trypanosomosis using standard microscopic detection techniques like wet blood smear and Leishman's staining technique. Some hematological parameters of the dogs such as white blood cell count (WBC), red blood cell count (RBC), haemoglobin (HGB) and glucose concentration were also checked.

RESULTS

Of the eight hundred and thirty one dogs examined based on the wet blood smear and buffy coat staining method 3 dogs were found positive for T. evansi infection. In the present study, highest prevalence was recorded in two mongrels, followed by onepomeranian. The dogs were in between the age group 3 and 4 years. Out of the three positives two were from male dogs (one in mongrel and other in Pomeranian) and one is a female dog (Mongrel).

Breed	Sex	Age	Wet blood smear	Leishman's staining method	WBC $10^3/\mu L$	RBC $10^6/\mu L$	HGB g/dL	Glucose mg/dL
Mongrel	Male	3 Yrs	+	+	2.0	1.3	2.1	35.0
Mongrel	Female	4 Yrs	+	+	2.2	1.8	2.4	38.0
Pomeranian	Male	3 Yrs	+	+	2.1	1.9	2.0	36.3

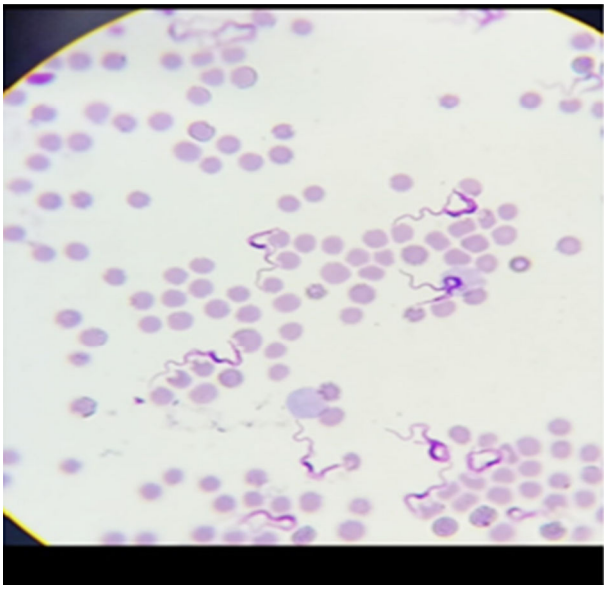

Fig. 1: Trypanosomaevansion Leishman's staining

DISCUSSION

Dogs act as the main domestic animals for the source in the transmission and maintenance of trypanosomiasis cycle (Eloy 2009). In dogs, the infection is acute and sometimes leads to death. Thus ailing dogs with high fever and weakness symptoms should be suggested for blood examination which would be quite successful in identifying the haemoparasite. The present study showed an incidence of 0.36% of trypanosomiasis occurrence in Eluru district. Of the three positives, two were male and one female. According to the studies of Chowdhury et al. (2005) and prasad et al. (2015) sex of the animal has no effect on T. evansi as both sexes are equally susceptible for the infection. Chowdhury et al. (2005) recorded an incidence rate of 3 males out of 138 male dogs and two were positive out of 152 female dogs and suggested that T. evansi infection has no effect on the sex of dogs. Similarly, Dash and Datta (2001) reported the same that sex does not influence the incidence of T. evansi infection.

In regard with the breed most affected by the T. evansi infection, in the present study mongrels were infected when compared to other dogs. As mongrels are taken less care and left for free roaming, there might be a chance of easy biting by the haematophagous flies when compared to other breeds. This is further justified with the findings of Prasad et al. (2015), Chaudhuri et al. (2009) and Gunaseelan et al. (2009) that trypanosomiasis in seen more in mongrel dogs. Only one was positive in Pomeranian breed and were in agreement with

the studies of Prasad et al. (2015). However, few scientists also reported the incidence in various other breeds like German shepherd dogs (Nazifi et al., 2004, Chowdhury et al., 2005), Labrador dogs (Chowdhury et al., 2005, Varshney et al., 2003). From the above data, it could be concluded that all breeds of dogs were susceptible and mongrels registered a higher number among all due to lack of proper care and management.

The present study found the occurrence of trypanosomiasisinfection in dogs in the age group 3 to 4 years, indicating that lesser age group is susceptible to the infection. Similar recordings were observed in 2 to 4 years age group dogs reported by Rani et al. (2007) and Rashid et al. (2008). Pazhanivel et al. (2008) and Gunaseelan et al. (2009) reported in 4 and 6 years old dogs, respectively.

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