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Dr. A Sucharitha
Assistant Director, Animal Disease Diagnostic Laboratory, Eluru, Andhra Pradesh, India

Dr. NVN Vijaya Sri
Veterinary Assistant Surgeon, Animal Disease Diagnostic Laboratory, Eluru, Andhra Pradesh, India

Dr. G Deepika Kumari
Assistant Professor, Department of Veterinary Microbiology, NTR CVSc., Gannavaram Andhra Pradesh, India

Corresponding Author:
Dr. A Sucharitha
Assistant Director, Animal Disease Diagnostic Laboratory, Eluru, Andhra Pradesh, India

Prevalence of Trypanosomiasis infection in Canines of Eluru District

Dr. A Sucharitha, Dr. NVN Vijaya Sri and Dr. G Deepika Kumari

Abstract
A total of 831 dogs that were brought to the hospital were examined by wet blood film and blood smear staining techniques for screening of haemoprotozoans. In the present study, 3 dogs were found positive for Trypanosomiasis 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 highest 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 *Trypanosoma* species. In the Indian subcontinent, the most common species that causes the c is *Trypanosoma evansi*, and it infects the cattle, buffalo, camels and dogs (Behera *et al.* 2017) [1]. It is usually monomorphic 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 *Stomoxys* saps. 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) [2]. The condition of anaemia vary from acute to chronic, increased erythrophagocytosis, release of trypano toxins and metabolites, suppression and exhaustion of haemopoietic system. Occurrence of trypanosomiasis varies from region to region and also depends on the host affected. Hypoglycemia is mainly seen during the surge of parasitemia codition 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 in dogs of Eluru district of Andhra Pradesh.

Methods
Examination of the blood samples were carried out on the ailing dogs presented to the hospital to observe for the 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) blood was collected aseptically and some characteristics such as sex, breed, sampling and age duly noted. The blood samples were screened for trypanosomiasis 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 one Pomeranian. The dogs were in between the age group of 3 to 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).

Table 1: Breed, Sex, Age wise and haematological parameters of T. evansi infection in Dogs

S. No.	Breed	Sex	Age	Wet blood smear	Leishman's staining method	WBC 10^3/µL	RBC 10^6/µL	HGB g/dL	Glucose mg/dL
1.	Mongrel	Male	3Yrs	+	+	2.0	1.3	2.1	35.0
2.	Mongrel	Female	4Yrs	+	+	2.2	1.8	2.4	38.0
3.	Pomeranian	Male	3Yrs	+	+	2.1	1.9	2.0	36.3

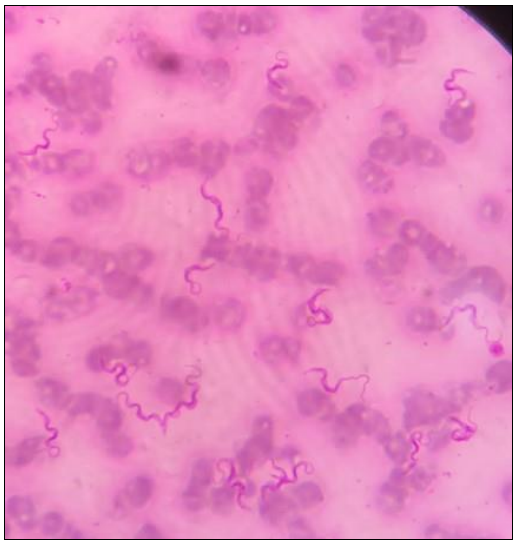

Fig 1: *Trypanosoma evansi* on Leishman's staining

Discussion

Dogs act as the main domestic animals for the source in the transmission and maintenance of trypanosomiasis cycle (Eloy 2009) [5]. In dogs, the infection is acute and sometimes leads to death. Thus ailing dogs with symptoms of high fever and weakness 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) [5] and prasad *et al*. (2015) [9] sex of the animal has no effect on *T. evansi* as both sexes are equally susceptible for the infection. Chowdhury *et al*. (2005) [5] 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) [4] reported the same that sex does not influence the incidence of *T. evansi* infection.

With regard to the breed susceptibility the present study revealed that mongrels were highly infected with the *T. evansi* infection when compared to other cross bred dogs. As mongrels are usually 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) [9], Chaudhuri *et al*. (2009) [2] and Gunaseelan *et al*. (2009) [6] 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) [9]. However, few scientists also reported the incidence in various other breeds like German shepherd dogs (Nazifi *et al*., 2004, Chowdhury *et al*., 2005) [7, 5], Labrador dogs (Chowdhury *et al*., 2005, Varshney *et al*., 2003) [3, 13]. 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 trypanosomiasis infection 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) [10] and Rashid *et al*. (2008) [11]. Pazhanivel *et al*. (2008) [8] and Gunaseelan *et al*. (2009) [6] reported in 4 and 6 years old dogs, respectively.

Conclusion

The prevalence of T. evansi infection was very less in Eluru District, only three cases were positive out of 831 cases studied. Regular screening of the blood samples would be useful in maintaining proper precautionary measures to control the infection.

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References

1. Behera SK, Sarma K, Behera P, Ayub Ali M. Therapeutic management of trypanosomosis with ophthalmic involvement in a dog. J Parasit Dis. 2017;41:1162-1165.
2. Chaudhuri S, Changkija B, Varshney JP. Concurrent infection of *Trypanosoma evansi* and *Dirofilaria immitis* in a non-descript bitch. J Vet Parasitol. 2009;23(2):167-169.
3. Chowdhury P, Biswas U, Guha C, Jana PS. Prevalence of canine trypanosomosis in and around Kolkata city. Indian Vet J. 2005;82:797-798.
4. Dash PK, Datta AK. Blue cross book. Pune: Intervet Pharma. 2001;17:35.
5. Eloy LJ, Lucheis SB. Canine trypanosomiasis: etiology of infection and implications for public health. J Venom Anim Toxins incl Trop Dis. 2009;15:589-611.
6. Gunaseelan L, Senthil Kumar K, Selvaraj P, Kathiresan D. Haemato biochemical changes in a case of canine trypanosomiasis. Tamilnadu J Vet Anim Sci. 2009;5(3):122-123.
7. Nazifi S, Razavi SM, Molazem M. Fatal trypanosomiasis in a dog, a case report. Indian Vet J. 2004;81:824.
8. Pazhanivel N, Balachandran C, Vijayalingam TA. Concurrent *Trypanosoma evansi* and *Hepatozoon canis* infections in a dog. Indian Vet J. 2008;85:774-775.

9. Prasad KL, Kondaiah PM, Rayulu VC, Srilatha C. Prevalence of canine trypanosomiasis in certain areas of Andhra Pradesh. J Parasit Dis. 2015;39:238-240.
10. Rani LN, Suresh K, Srinivas M, Sreenu M. Canine trypanosomiasis. Indian Vet J. 2007;84:186-187.
11. Rashid A, Rasheed K, Hussain A. Trypanosomiasis in dog: a case report. Iranian J Arthropod-Borne Dis. 2008;2(2):48-51.
12. Soulsby EJL. Helminths, arthropods and protozoa of domesticated animals. 7th ed. New Delhi: Elsevier; c1982. p. 533.
13. Varshney JP, Bandyopadhyay S, Raina R, Saghar SS. Diagnosis and treatment of *Trypanosoma evansi* associated corneal opacity in dogs. J Vet Parasitol. 2003;17(1):53-55.