Prevalence of canine trypanosomiasis in certain areas of Andhra Pradesh

K. Lakshmi Prasad · P. M. Kondaiah ·
V. C. Rayulu · Ch. Srilatha

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Abstract A total of 937 dogs were screened for *Trypanosoma evansi* infection by wet blood film, blood smear staining techniques and micro haematocrit centrifugation technique (MHCT). In the present study, 2.28 % of male dogs and 2.40 % of female dogs were found positive by MHCT method. The findings indicated that there was no effect of *T. evansi* infection on sex of dogs. Higher prevalence of *T. evansi* infection was observed in Mongrel than in Pomeranian, Cross breeds, German Shepherd, Doberman and Labrador breeds. Age wise prevalence of *T. evansi* infection in dogs revealed that younger ones, below the 2 years age group recorded the highest prevalence than the above the 2 years age group dogs.

Keywords Prevalence · *Trypanosoma evansi* · Andhra Pradesh

Introduction

Trypanosomiasis is an important and widely prevalent haemoprotozoan disease caused by *Trypanosoma evansi*. *T. evansi* affects a wide variety of domestic, wild and zoo animals and transmitted mechanically by biting flies particularly *Tabanus* and *Stomoxys* species. In dogs, an acute and fatal type of disease is usual and death possibly occurs in 2–4 weeks (Soulsby 1982). Canine trypanosomiasis is

characterized by anaemia, anorexia, intermittent fever, generalized weakness, conjunctivitis, corneal opacity, oedema of head and throat, difficulty in swallowing, hoarse voice and staggering gait (Chaudhuri et al. 2009). The manifestation of the trypanosomiasis varies in different geographical regions and depends on the species of the trypanosome and species of the host involved. Since the prevalence studies on canine trypanosomiasis are lacking in Andhra Pradesh, hence the present investigation was designed to record the prevalence of trypanosomiasis in dogs from certain areas of Andhra Pradesh.

Materials and methods

A total of 937 dogs were screened for *T. evansi* infection by wet blood film (WBF), blood smear staining techniques Giemsa's and Leishman's as described by Jain (1986) and micro haematocrit centrifugation technique (MHCT) as described by Schalm et al. (1975).

Results

Among 438 male dogs examined 10 (2.28 %) dogs were found positive and out of 499 females examined 12 (2.40 %) dogs positive for *T. evansi* infection (Table 1). In the present study, highest prevalence was recorded in Mongrels 8 (2.73 %), followed by Pomeranian 5 (2.45 %), Cross breed 4 (2.10 %), German Shepherd 3 (2.30 %), Labrador 1 (1.69 %) and least prevalence was recorded in Doberman 1 (1.63 %) (Table 2). Among 150 dogs aged between 6 and 8 years, trypanosomiasis was observed in 3 (2.00 %) dogs with WBF, 2 (1.33 %) by staining methods and 4 (2.66 %) by MHCT method. (Table 3).

K. L. Prasad (✉) · P. M. Kondaiah · V. C. Rayulu
Department of Veterinary Parasitology, College of Veterinary
Science, SVVU, Tirupati 517502, India
e-mail: doctorlakshmi555@gmail.com

Ch. Srilatha
Department of Veterinary Pathology, College of Veterinary
Science, SVVU, Tirupati 517502, India

Table 1 Sex wise prevalence of *T. evansi* infection in dogs

	S. no	Sex	No. examined	Diagnostic method					
				WBF		Staining technique		MHCT	
				Positive	%	Positive	%	Positive	%
WBF wet blood film examination, MHCT micro haematocrit centrifugation technique	1	Male	438	7	1.59	5	1.14	10	2.28
	2	Female	499	8	1.60	6	1.20	12	2.40
		Total	937	15	1.60	11	1.17	22	2.34

Table 2 Breed wise prevalence of *T. evansi* infection in dogs

	S. no	Breed	No. examined	Diagnostic method					
				WBF		Staining technique		MHCT	
				Positive	%	Positive	%	Positive	%
WBF wet blood film examination, MHCT micro haematocrit centrifugation technique	1	Mongrel	293	5	1.70	4	1.36	8	2.73
	2	Pomeranian	204	3	1.47	3	1.47	5	2.45
	3	Cross breeds	190	3	1.57	2	1.05	4	2.10
	4	German shepherd	130	2	1.53	1	0.76	3	2.30
	5	Doberman	61	1	1.63	1	1.63	1	1.63
	6	Labrador	59	1	1.69	0	0	1	1.69
		Total	937	15	1.60	11	1.17	22	2.34

Table 3 Age wise prevalence of *T. evansi* infection in dogs

	S. no	Age (years)	No. examined	Diagnostic method					
				WBF		Staining technique		MHCT	
				Positive	%	Positive	%	Positive	%
WBF wet blood film examination, MHCT micro haematocrit centrifugation technique	1	<2	216	4	1.85	3	1.38	6	2.77
	2	2–4	195	4	2.05	3	1.53	5	2.56
	3	4–6	178	2	1.12	2	1.12	4	2.24
	4	6–8	150	3	2.00	2	1.33	4	2.66
	5	8–10	104	1	0.96	0	0	2	1.92
	6	10–12	94	1	1.06	1	1.06	1	1.06
		Total	937	15	1.60	11	1.17	2	2.34

Discussion

In the present study the results revealed that there was no effect of *T. evansi* infection in relation to sex of dogs and both sexes were equally susceptible. The results are in agreement with findings of Chowdhury et al. (2005) who recorded the prevalence 3 (2.17 %) out of 138 male dogs and out of 152 female dogs 2 (1.31 %) were found positive and opined that there was no effect of *T. evansi* infection on sex of dogs. Similar observations have been reported by Dash and Datta (2001). Regarding the breed wise prevalence of *T. evansi* infection in dogs, no significance was observed. Similar observations have been reported by Dash and Datta (2001) and present results are in agreement with findings of Chowdhury et al. (2005). More number of Mongrels being infected in the present study is similar to the findings of Pazhanivel et al. (2008), Chaudhuri et al.

(2009), Gunaseelan et al. (2009) who reported trypanosomiasis in Mongrel dogs. No care in Mongrels leads to more exposure to biting flies. Balakrishnan et al. (1994), Varshney et al. (2003), Nazifi et al. (2004), Chowdhury et al. (2005) reported *T. evansi* infection in German shepherd dogs which is in agreement with the present findings. In the present study prevalence of *T. evansi* in Labrador dogs is in accordance with Chowdhury et al. (2005), Varshney et al. (2003). In the present study, highest prevalence (2.77 %) of *T. evansi* infection in dogs was recorded in less than 2 years age group and the least prevalence of 1.92 and 1.06 % was observed in the age groups between 8 and 10 years and in more than 10 years age group of dogs, respectively. The present study validates the relationship between the age of dog and susceptibility to the parasite. The decrease in prevalence with increase in age may be due to the improved immunological status of the dogs,

there by effectively combating the infection. The present findings were in accordance with Balakrishnan et al. (1994) who observed *T. evansi* infection in 2 month old dog, Rani et al. (2007) reported *T. evansi* infection in a 6 month old dog and Baby et al. (2000) recorded *T. evansi* infection in a 1 year old dog. The present recordings were in agreement with Balakrishnan et al. (1994), Nazifi et al. (2004), Rani et al. (2007), Rashid et al. (2008) who also reported *T. evansi* infection in 2–4 years old dogs. Similar observations were also recorded by Balakrishnan et al. (1994), Pazhanivel et al. (2008) who recorded *T. evansi* infection in 4 year old dogs. The present findings were in agreement with Gunaseelan et al. (2009) who observed *T. evansi* infection in 6 year old dogs. Similar observations were also reported by Krishnamoorthy (2005), Chaudhuri et al. (2009) who observed *T. evansi* infection in 7 years old dog and 9 years old dog respectively.

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