



## Canine Helminthoses in Udgir: A Preliminary Prevalence Study

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### ABSTRACT

**Objective:** This study was carried out to investigate the gastrointestinal helminthes of dogs in Udgir area.

**Materials and Methods:** This study consisted of 218 dogs over period of 10 months. A total of 218 faecal samples collected over a period of 10 months from dogs in Udgir area were subjected to fecal sample examination by standard parasitological procedures.

**Results:** An overall prevalence to the tune of 31.65% was noted. The major helminthes parasites recovered were *Ancylostoma caninum* (66.67%), *Ancylostoma braziliense* (4.35%), *Toxocara canis* (26.08%) and *Dipylidium caninum* (2.89%).

**Conclusion:** There were non-significant differences in age wise and sex wise distribution of helminthes infecting dogs of the area.

**Key word:** Stray Dogs, Helminthes, Parasites, Udgir.

### INTRODUCTION

Human animal bonds constitute an integral part of lives especially in communities of developing world. Amongst those, dogs have accustomed to a greater extent being treated not less than a family member. It is very likely that an uncontrolled growth in urbanization poses a risk of transmission/sharing of pathogens between the increasing densities of human population and stray dogs due to their close proximity. However, villages often stake a close relationship with the semi domesticated dogs and therefore are constantl

y exposed to such transmissions. Besides transmitting some of dreadful disease such as rabies, salmonellosis, leptospirosis, Lyme disease *etc*, the zoonotic parasites shared between dogs and human are also a cause of

concern. There are a number of intestinal parasites of dogs which are not only detrimental to the health of the dogs but also for humans who come in contact with them. Amongst them, *Toxocara canis*, *Ancylostoma caninum*, *Ancylostoma braziliense*, *Taenia* sp *etc* are some of important and most prevalent zoonoses of canine origin worldwide. They are responsible for cutaneous larva migrans, visceral larva migrans, hydatidosis *etc* diseases in human. Recently the role of the dog as a mechanical reservoir for human parasites was explored in tea-growing communities in Assam, where parasitic stages presumed to be host-specific for humans such as *Ascaris* spp., *Trichuris trichiura*, *Hymenolepis diminuta* and *Isospora belli* were encountered in dog faeces (Traub *et. al*, 2005). Therefore, the contemporary yet reliable data on the prevalent gastrointestinal parasites is valuable for

practicing veterinarians to develop a logical deworming prescriptions for the animals they treat. Looking towards the scarcity of such data from Marathwada region of Maharashtra a study was planned to estimate the prevalence of gastro intestinal parasites of dogs of this area.

## MATERIALS AND METHODS

For a period of 10 months (June 2016- March 2017) faecal samples from dogs presented to teaching veterinary clinical complex were collected routinely. Additionally, fecal droppings from stray dogs of Udgir town were also included in this study. Method for sample collection in TVCC was adopted per rectal as per standard guidelines while freshly voided faecal droppings were collected after defaecation from the respective dog, put into a container and brought to the laboratory. The samples were processed for detection of helminthic/coccidial ova/eggs by following standard methods *viz.* Floatation and Sedimentation techniques. (Soulsby, 1982). Over the period of 10 months, a total of 218 fecal samples collected from domestic as well as stray dogs of either sex and different age groups were used. A prevalence was calculated as  $p=h/n$ , where h denotes the number of dogs detected positive for helminth parasites; while n denotes the total number dogs examined. Statistically the data were subjected to chi squared test and results presented as significant and non-significant.

## RESULTS

Out of total 218 fecal samples of dogs checked for presence eggs/ova of gastrointestinal parasites 69 samples were found positive *i.e.* with a prevalence rate of 31.65%. Sex wise prevalence was noted as 28.23% in males while 36.17 % in females. As regards age wise distribution of GIT parasites, 33.33% prevalence was noted in age group 1 *i.e.* 0-4 months of age while that in age group 2 (4 months to 1 year of age) 44.44% dogs were found positive for GIT parasites. In age group 3 *i.e.* adults dogs of more than 1 years of age, a total

prevalence of 28.57% was noted. In age group 3 *i.e.* adult dogs of more than 1 years of age, a total prevalence of 43.48% was noted.

Parasites species found were *Ancylostoma caninum* (66.67%), *Ancylostoma braziliense* (4.35%), *Toxocara canis* (26.08%) and *Dipylidium caninum* (2.89%). Yet a year round data was not available for this study, season wise estimates roughly showed higher prevalence in winter months (35.86%) followed by monsoon (26.23%) and summer months (8.33%).

## DISCUSSION

From the present study, gastrointestinal helminthoses in dogs at Udgir showed a higher prevalence and this relatively high prevalence definitely correlates with lack of deworming history as most of them are free ranging dogs. One of most important finding of this study is that the helminthes such as *Ancylostoma* sp. and *Toxocara* sp. occur persistently throughout the study period which are considered as one of major public health risk. This higher rate of prevalence may be attributed to the lack of deworming to dogs and to the lack of health care measures from municipal councils towards control of the stray dogs.

As far as infections with *Toxocara* sp are concerned, the dogs are vulnerable to this parasitizes from its early life with possibility of trans-mammary and trans-placental transmission. Even the infective eggs prevalent in soils of community places are a constant source of infection to the dogs as well as to the children. (Thomas and Jayathilakan, 2014). The reports on the three major clinical signs associated with toxocariosis in human *viz.* visceral larva migrans, ocular larva migrans and covert toxocariosis are meagre, only limited to a few case studies. (Mirdha and Khokar 2002, Joshi and Sabne, 1977, Jagannath *et al*, 2009, Thakker *et al*, 2012, Laroia *et al*, 2012). Adolescents and children are at high risk of contracting the disease due to the viability of eggs in the soils for long period of time. Infected dogs generally contaminate the soil with toxocara eggs and accidental ingestion of these infective eggs by the children is the

	Total number of samples	Samples positive	Percent prevalence	p value
<b>Total prevalence</b>	218	69	31.65	0.11 <sup>#</sup>
<b>Age group 1</b>	12	4	33.33	0.19 <sup>#</sup>
<b>Age group 2</b>	45	20	44.44	
<b>Age group 3</b>	161	46	28.57	
<b>Male</b>	124	35	28.23	0.3 <sup>#</sup>
<b>Females</b>	94	34	36.17	

**Table 1** - Prevalence of Gastrointestinal Helminthes of Dogs in Udgir. # - Non-significant if  $p > 0.05$ , \$ - Significant if  $p < 0.05$  \*- Highly significant  $p < 0.01$

major route of infection. Other factors such as geophagia, poor hygiene, consumption of raw vegetables, friendly yet bodily playing with pets and exposure to contaminated soil are favorable for disease contraction. (Malla *et al.*, 2002; Dar *et al.*, 2008, Tavalla *et al.*, 2012, Dar *et al.*, 2014). Recently a lot of scientists have recorded the extent of soil contaminations of this important nematode form different parts of country. (Kumar and Hafeez 1998, D'Souza *et al.*, 2002, Dass *et al.*, 2009, Charita *et al.*, 2013, Thomas and Jayathilakan, 2014,)

Although the erratic reports of human ancylostomosis of canine origin with manifestations of cutaneous larva migrans (CLM) are confined to the cases primarily reported to the clinics and hospitals, the consistent public health risk cannot be overlooked in the light of large number of free roaming dogs in urban and semi-urban human settings. (Sugathan and Bhagyanathan, 2016; Thappa and Karthikeyan 2002). Earlier reports of prevalence of ancylostomes from different parts of the country underlines the fact that the occurrence of CLM is closely associated with poor socioeconomic status of the communities (Traub *et al.*, 2004, Mapplestone and Bhaduri, 1940, Joshi and Sabne, 1977, Siddalingappa *et al.*, 2015 and Paul and Singh, 2018).

It is concluded from this study that the gastrointestinal heminthes infections are prevalent in this area and the areas which are similar in terms of agro-climates and demography and therefore intensive efforts need to be taken to formulate comprehensive disease control program in dogs and particularly periodic deworming of domestic as well as stray dogs needs to be implemented.

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