

## INCIDENCE OF GASTROINTESTINAL HELMINTHS OF STRAY DOGS : A POST MORTEM STUDY

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Received: 12.03.2018; Accepted: 26.11.2018

### SUMMARY

The present study determined the incidence of gastrointestinal (GI) helminths based on necropsy examination of 25 stray dogs died in road accidents in Jammu. The examination revealed an overall positivity of 84% (n=21) for single or mixed GI helminths. Out of 21 positive dogs, 14 revealed single GI helminthic infection whereas 7 GI tracts revealed mixed infection. Overall 56% dogs were positive for *A. caninum*, 28% for *T. hydatigena*, 24% for *D. caninum*, 16% for *T. canis*, 12% for *C. sinensis* and 4% for *E. granulosus*. Out of 7 mixed infections, 4 GI tracts were positive for *A. caninum*+*T. hydatigena*+ *D. caninum* (16.0%), 2 tracts were positive for *A. caninum*+ *T. canis*+ *C. sinensis* (8.0%) and 1 for *T. hydatigena*+ *D. caninum*+ *C. sinensis* (4.0%).

**Key words:** Dog, Gastrointestinal helminths, Incidence, Jammu

Dog is the animal which has been living in association with man since ages. The dog population in India is about 11.67 million and that of Jammu and Kashmir it is 2,70,577 (19<sup>th</sup> Livestock census). Infection of various gastrointestinal helminths such as *Toxocara canis*, *Ancylostoma* spp., *Trichuris* spp., *Echinococcus* spp., *Taenia* spp., *Clonorchis* spp. etc. are generally seen in dog population (Yacob *et al.*, 2007; Singh *et al.*, 2011; Qadir *et al.*, 2012). These parasites may lead to contamination of the environment through their indiscriminate eating and defecation habits.

The close relationship between human and dog not only offers psychological significant benefits to many people but it also represents a potential public health threat that has led to greater risk for contacting dog borne zoonotic diseases of parasitic origin to human population (Thompson and Morgan, 1999). Echinococcosis/hydatidosis is widely prevalent throughout the subtropical regions and in human beings it causes various complications (Hedge and Jagannath, 1975). The infective larvae of canine hookworm species penetrate human skin causing cutaneous larva migrans, while that of ascarid larvae migrate through the visceral organs and are responsible for visceral larva migrans (Bonaguru, 1995).

The research work was carried out at the Division of Veterinary Parasitology, Faculty of Veterinary Sciences and Animal Husbandry (F.V.Sc& A.H.) of Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu (SKUAST-J) R. S Pura. Necropsy examinations of 25 stray dogs died accidentally during the study period were carried out for examination of different GI helminths.

Helminths from each segment of the GI tract (oesophagus, stomach, small intestine and large intestine) were collected in separate petridishes. Nematodes collected from the GI tract were put in glycerin alcohol for clearing; cestodes and trematodes were pressed gently

between the two glass slides, fixed in hot formalin, stained with aqueous borax carmine and mounted for identification as described by Soulsby (1982).

Necropsy of 25 stray dogs died in road accidents revealed an overall positivity of 84 per cent (n=21) for single or mixed GI helminths. Out of 21 positive dogs, 14 revealed single GI helminthic infection, whereas 7 GI tracts revealed mixed infection. Out of 14 single helminthic infections, 8 were positive for *A. caninum*, 2 for *T. canis*, 2 for *T. hydatigena*, 1 for *E. granulosus* and 1 for *D. caninum*. Out of 7 mixed infections, 4 GI tracts were positive for *A. caninum*+*T. hydatigena*+*D. caninum*, 2 tracts were positive for *A. caninum*+*T. canis*+*C. sinensis* and 1 for *T. hydatigena*+ *D. caninum*+ *C. sinensis*.

Overall 56 per cent dogs were positive for *A. caninum*, 28 per cent for *T. hydatigena*, 24 per cent for *D. caninum*, 16 per cent for *T. canis*, 12 per cent for *C. sinensis* and 4 per cent for *E. granulosus* which were largely in agreement with the findings of Hedge and Jagannath (1975) who reported *A. caninum* as a common parasite in dogs of Bangalore. Other workers also reported *A. caninum* as predominant species in dogs (Agarwal *et al.*, 1980). The presence of *A. caninum*, *T. canis*, *D. caninum* and *E. granulosus* in this study is significant due to their public health implications. Eosinophilic enteritis in man has been associated with *A. caninum* infection while *T. canis* infection associated with visceral and ocular larva migrans in man (Soulsby, 1982). Dogs originating from a humid tropical climate are more at risk for hookworm infections than dogs which are from temperate areas (Singh *et al.*, 2011; Qadir *et al.*, 2012) due to prevailing optimum favourable temperature and humidity in the surroundings, particularly in rainy seasons for faster propagation, development to infective stage and larger intake dose of infection while dog moving in gardens, and from contaminated food and drinking water. Hookworms have serious pathogenic effects on dog health and cause normocytic hypochromic anaemia in parasitized dogs

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(Sawleha *et al.*, 2011). Higher prevalence of hookworms has also been reported from different parts of country by various workers using faecal examination (Agnihotri *et al.*, 2008; Godara *et al.*, 2010; Singh *et al.*, 2011; Qadir *et al.*, 2012). These workers also reported that the prevalence of helminthic infections is more in young animals as compared to adults and attributed this to the well established fact that in older animals the gradual development of age resistance to repeatedly exposed low-grade of re-infection, stimulated and conferred acquired immunity in adults (Soulsby, 1982). In another study, Yacob *et al.* (2007) reported the prevalence of *A. caninum*, *T. canis*, *S. lupi* and *T. vulpis* as 70, 45, 23.5 and 5 per cent, respectively in dogs of Ethiopia. However, Umar (2009) reported *D. caninum* as predominant parasite followed by *T. hydatigena*, *D. latum*, *A. caninum* and *T. canis* in dogs of Nigeria.

The high prevalence of GI helminths can be attributed to free roaming habits of dogs that generally acquiring food and water from the surroundings contaminated with various infective stages of helminths. Thus, the presence of *A. caninum*, *T. canis*, *E. granulosus* and *C. sinensis* is of great importance since these parasites are well recognized zoonotic agents. Therefore, people should be educated regarding transmission of zoonotic diseases and other formulation of preventive measures including restriction of stray dogs.

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