

## Prevalence of Gastrointestinal Helminthic Infestation in Pet and Stray Dogs in Tabriz (East-Azerbaijan Province), Iran

<sup>1</sup>Garedaghi Yagoob and <sup>2</sup>S. Safar Mashaei

<sup>1</sup>Department of Pathobiology, Faculty of Veterinary Medicine, Islamic Azad University, Tabriz Branch, Tabriz, Iran

<sup>2</sup>Young Researcher Club, Islamic Azad University, Tabriz Branch, Tabriz, Iran

---

**Abstract:** From September to December 2010 fecal samples of 100 stray and pet dogs in Tabriz area were examined by saturated salt flotation and Telmann sedimentation methods to determine the prevalence of gastrointestinal helminthes infestation. Helminthic infestation was encountered in 41 cases (41%) of the fecal samples examined. The egg and larvae of 3 different cestodes and 4 different nematodes were identified in the contaminated fecal samples. The helminthes eggs found were identified as *Echinococcus granulosus* (8%, only in stray dogs), *Taenia hydatigena* (5%), *Dipylidium caninum* (7%), *Toxocara canis* (12%), *Ancylostoma caninum* (8%), *Trichuris vulpis* (6%), one larvae belong to *Angiostrongylus vasorum* (respiratory nematod) and also one case of *Alaria canis* (Trematoda) were absorbed in this study.

**Key words:** Dogs, methods, fecal samples, helminth, egg, Iran

---

### INTRODUCTION

Dogs and other canine act as definitive hosts for many intestinal parasites, some of which are responsible for several zoonotic diseases such as hydatidosis. It is caused by the *Echinococcus granulosus* (Eslami, 2008a, b). In fact dogs are associated with >60 zoonotic diseases among which parasites in particular helminthiasis can pose serious health concern. As well as significant economic impacts from veterinary standpoint (Ranjbar-Bahadori *et al.*, 2008; Rinaldi *et al.*, 2006). The number of stray and pet dogs that coexist with human being is high in most cities and villages of the world especially in developing countries because of this bring about great quantity of feces which constitute a potential risk of infection for human beings especially children due to their land-grabbing habit. Because the distribution and intensity of disease are influenced by climatic, geographical, cultural and economic factors, it is necessary to analyze situation in every given region. Accordingly, several studies have been carried out on the gastrointestinal parasites of stray and pet dogs in the world and Iran (Dalimi and Mobedi, 1992). Although, human infection with *Echinococcus granulosus* have very importance but other helminths reported in this study also have importance rule for health of stray and pet dogs (Orhun and Ayaz, 2006). This study was performed in order to determine the prevalence of gastrointestinal

helminthic infection among stray and pet dogs in Tabriz (center of East Azerbaijan province) and to emphasize the importance of this concept for public health and veterinary standpoint.

### MATERIALS AND METHODS

This study is one cross-sectional study and from September to December 2010, 100 fecal samples from 50 stray and 50 pet dogs in Tabriz area were collected. The aim of this study was to determine of gastrointestinal infestation among stray and pet dogs in Tabriz. For sampling of glove, sampling container and glassier bars were used. In beginning onedesignated form consist of age, sex, species, body weight, place and time of sampling and telephone number of dog's owners also for intimation from results of examination were collected of course the last choice not exist for stray dogs also in this form reason of examination and rule of this research in health of dogs and owners of them had recommend.

For keeping the samples of formalin 10% (three fold of samples bulk) were used and for laboratory survey this samples were transferred to parasitology laboratory of veterinary faculty of Islamic Azad University, Tabriz branch.

In examination of samples at first seeming disposition of this fecal samples were observed because in some time can with survey by non-armed eye some helminthic

infection distinguished. In present survey fecal samples were examined using flotation technique in saturated sodium chloride solution and shittersolution and of sedimentation technique also were used (Faust and Ingalls, 1946; Sheather, 1923; Willis, 1921).

## RESULTS AND DISCUSSION

In this study 41% of dogs (stray and pet) infected to egg and larvae of various gastrointestinal helminths were observed, also Table 1 shows the prevalence of helminths found in 100 stray and pet dogs from Tabriz area.

In this study contamination rate to egg and larvae of gastrointestinal parasites in stray and pet dogs from Tabriz area, 41% were computed. Maximum infestation rate with *Toxocara canis* (12%) and minimum infestation rate with *Angiostrongylus vasorum* (1%) in this study were observed. Infestation rate with *Ancylostoma caninum* and *Dipylidium caninum*, respectively 8 and 7% were observed also infestation rate of *Trichuris vulpis* 6% were distinguished. In this study conform to two study by Hejazi *et al.* (2003) and with Hoghooghi-Rad and Mosallanegad (1995). The egg of *Echinococcus granulosus* only in fecal samples of stray dogs was isolated. Incidentally in present study one type digestive Trematoda of stray dogs were isolated that withresult of (Fok *et al.*, 2001; El-Shehabi *et al.*, 1999) have not conformances. In this study contamination rate to *Dipylidium caninum* 12.24% were appointment that this case have conform with results of Martinez-Moreno *et al.* (2007) on Spanish stray dogs which was 13.12%. Unlike results of Senlik *et al.* (2006) which 1.2% of samples of them was infected to egg of *Uncinaria stephanocephala* in samples of this study egg of *Uncinaria stephanocephala* were not observed (Senlik *et al.*, 2006; Martinez-Carrasco *et al.*, 2007). Incidentally unlike one study by Sowemimo and Asaolu (2008) and Martinez in Spanish (2007) in this study macracantorhincus hirodinasesus were not isolated. In this study 5.08% of stray dogs was infected to egg of *Taenia hydatigena* that this subject have difference with one study by Dalimi *et al.* (2006) in west of Iran with 53.01% infection rate which can say infestation rate of *Taenia hydatigena* in Tabriz is rare. In this study 11% of stray dogs fecal samples infected to *Toxocara canis* were observed that this result also is conform to one study by Eguia-Aguilar *et al.* (2005) in Mexico with infestation rate of this nematoda 13.3% had reported. Also in this study unlike results of one study by Unlu and Eren (2007) Turkish and one study by Oliveira-Sequeira *et al.* (2002) in Brazil *Spirocerca lupi* and *Toxascaris leonina* were not isolated (Unlu and Eren, 2007).

Table 1: Prevalence of GI helminths in 100 stray and pet dogs from Tabriz, Iran

Parasites	Number	Actual (%)	Commulative (%)
No parasites	59	59	59
<i>Toxocara canis</i>	12	12	71
<i>Ancylostoma caninum</i>	8	8	79
<i>Dipylidium caninum</i>	7	7	86
<i>Trichuris vulpis</i>	6	6	92
<i>Taenia hydatigena</i>	5	5	97
<i>Alaria canis</i>	2	2	99
<i>Angiostrongylus vasorum</i>	1	1	100
Total	100	100	-

Of whole dogs in this study 4.2% of them had been infected to egg of *Taenia hydatigena* and *Ancylostoma caninum* and 14% of them had been infected to *Toxocara canis* which with results of one study by Shirzad gholami in Sari region in 2006 with 56.7% infestation rate and in one other study by Motamedi in western part of Iran with 53.1% infestation rate for *Taenia hydatigena* and 4.54% infestation rate for *Ancylostoma caninum* is unlike (Dalimi *et al.*, 2006).

In present study 8% of stray dogs fecal samples infected to *Echinococcus granulosus* were observed which have medical and veterinary importance (Eslami, 2008b). The finding showed that dogs (especially stray dogs) are under constant exposure to risk factors to many parasites. Therefore to control stray dogs population, to avoid contamination of environment, water supplies and food with dog faces, to reinforce social behaviors, to take care of pets and avoid having them being contact with contaminated environments are essential to ensure human health and reduction economic losses caused by stray dogs parasitism.

## CONCLUSION

According to results of this study can say, use of raw food regime, non-execution of anti-parasitic therapy and non-execution of anti-parasitic spray in environment especially in case of stray dogs in comparison with gastrointestinal helminths.

By attention to not isolation the eggs of *Trichuris vulpis* and *Dipylidium caninum* and *Echinococcus granulosus* in pet dogs can such comprehension that anti parasitic therapy program, type and quality of nutrition, hygienic systems and act was with success in pet dogs.

Also in this study egg of *Uncinaria stephanocephala*, *Macracantorhincus hirodinasesus*, *Spirocerca lupi*, *Toxascaris leonina* were not isolated that can for dry weather, decrease in rate of rain in recent years, winter with cold weather and dry summer and oven nutrition of this animals from drug plants in pastures and farms. In this study for pet dogs of breeds consist of Spitz, Terrier, Pekingese, German shepherd, Great Dane,

Rottweiler and Chihuahua for fecal sampling were used but between breed of dogs and infestation rate no implication relation were observed.

#### REFERENCES

- Dalimi, A. and I. Mobedi, 1992. Helminth parasites of carnivores in Northern Iran. *Ann. Trop. Med. Parasitol.*, 86: 395-397.
- Dalimi, A., A. Sattari and G. Motamedi, 2006. A study on intestinal helminthes of dogs, foxes and jackals in the western part of Iran. *Vet. Parasitol.*, 142: 129-133.
- Eguia-Aguilar, P., A. Cruz-Reyes and J.J. Martinez-Maya, 2005. Ecological analysis and description of the intestinal helminthes present in dogs in Mexico City. *Vet. Parasitol.*, 127: 139-146.
- El-Shehabi, F.S., S.K. Abdel-Hafez and S.A. Kamhawi, 1999. Prevalence of intestinal helminths of dogs and foxes from Jordan. *Parasitol. Res.*, 85: 928-934.
- Eslami, A., 2008a. *Veterinary Helminthology, Cestoda*. 4th Edn., Tehran University Press, Tehran.
- Eslami, A., 2008b. *Veterinary Helminthology, Nematoda and Acaothocaphala*. 4th Edn., Vol. 3, Tehran University Press, Tehran.
- Faust, E.C. and J.W. Ingalls, 1946. The diagnosis of schistosomiasis japonica; technics for the recovery of the eggs of *Schistosoma japonicum*. *Am. J. Trop. Med. Hyg.*, 26: 559-584.
- Fok, E., V. Szatmari, K. Busak and F. Rozgonyi, 2001. Prevalence of intestinal parasites in dogs in some urban and rural areas of Hungary. *Vet. Q.*, 23: 96-98.
- Hejazi, H., N. Pestechian and J. Abdi, 2003. Survey on cestodes of stray dogs in Esfahan. *Med. Sci. Mag. Esfahan Univ.*, 33: 50-50.
- Hoghooghi-Rad, N. and B. Mosallanegad, 1995. Survey on intestinal cestodes of stray dogs in Ahvaz. DVM Thesis, Collage of Veterinary Medicine, Shahid Chamran University.
- Martinez-Carrasco, C., E. Berriatua, M. Garijo, J. Martinez, F.D. Alonso, R.R. de Ybanez, 2007. Epidemiological study of non-systemic parasitism in dogs in Southeast Mediterranean Spain assessed by coprological and post-mortem examination. *Zoonoses Public Health*, 54: 195-203.
- Martinez-Moreno, F.J., S. Hernandez, E. Lopez-Cobos, C. Becerra, I. Acosta and A. Martinez-Moreno, 2007. Estimation of canine intestinal parasites in Cordoba (Spain) and their risk to public health. *Vet. Parasitol.*, 143: 7-13.
- Oliveira-Sequeira, T.C.G., A.F.T. Amarante, T.B. Ferrari and L.C. Nunes, 2002. Prevalence of intestinal parasites in dogs from Sao Paulo State, Brazil. *Vet. Parasit.*, 103: 19-27.
- Orhun, R. and E. Ayaz, 2006. Prevalence of helminths in dogs in the region of Van and their potential public health significance. *Turkiye Parazitol Derg.*, 30: 103-107.
- Ranjbar-Bahadori, S., S. Lotfollahzadeh, G. Vaezi and A. Eslami, 2008. Epidemiological study of the human cystic echinococcosis in Iran. *Res. J. Parasitol.*, 3: 130-136.
- Rinaldi, L., A. Biggeri, S. Carbone, V. Musella, D. Catelan, V. Veneziano and G. Cringoli, 2006. Canine faecal contamination and parasitic risk in the city of Naples (Southern Italy). *BMC Vet. Res.*, 2: 29-29.
- Senlik, B., V.Y. Cirak and A. Karabacak, 2006. Intestinal nematode infections in Turkish military dogs with special reference to *Toxocara canis*. *J. Helminthol.*, 80: 299-303.
- Sheather, A.L., 1923. The detection of intestinal protozoa and mange parasites by a flotation technic. *J. Comp. Ther.*, 36: 266-275.
- Sowemimo, O.A. and S.O. Asaolu, 2008. Epidemiology of intestinal helminth parasites of dogs in Ibadan, Nigeria. *J. Helminthol.*, 82: 89-93.
- Unlu, H. and H. Eren, 2007. Gastro-intestinal helminths detected by fecal examination in stray dogs in the Aydin province. *Turkiye Parazitol Derg.*, 31: 46-50.
- Willis, H.H., 1921. A simple levitation method for the detection of hookworm ova. *Med. J. Australia*, 29: 375-376.