

PREVALENCE OF HELMINTS IN DOGS IN DAUGAVPILS TOWN (LATVIA)

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A study of helminthofauna in 24 dogs collected from veterinary clinics and shelter in 2010 revealed four helminth parasites: *Toxoascaris leonina* (41,7%), *Uncinaria stenocephalus* (4,2%), *Trichinella* sp. (4,2%) and *Methorchis* sp. (8,3%). There was difference in prevalence of infection between male (63,6%) and female (38,5%). Animal carcasses were examined according to conventional helminthological methods. Additionally musculature samples were tested to detect *Trichinella* spp. larvae.

Key words: dog, helminth, *Trichinella*, Daugavpils, Latvia

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INTRODUCTION

Dog infection with endoparasites cause different clinical symptoms and some of parasitic agents play an important role in the transmission of pathogenic agents due to contact with humans. There have been numerous reports concerning the dog and cat parasitological investigations in different part of the world. Mostly they are focused on faecal examination; autopsy and helminthological study of internal organs, as well *Trichinella* investigation are seldom. Only few studies on the prevalence of intestinal parasites in Latvia are available.

This study aimed to understand helminthofauna of dogs and frequency of major zoonotic agents in dogs depending from the animal style of live.

MATERIALS AND METHODS

Carcasses of 24 dogs (*Canis familiaris*) were collected from veterinary clinics and shelter between January and May 2010. Information was obtained on the approximate age, sex, breed, fur colour, and life mode of each dog. 15 dogs originating from shelter and 9 from veterinary clinic have been included in investigation. Animals were studied by investigation of internal organs (heart, liver, lungs, kidneys, stomach, intestine, urinary bladder and gallbladder) examined according to conventional helminthological methods. Parasites were observed by light microscopy and identified using established structural and morphometric criteria (Скрябин, 1950, 1951, Мозговой, 1953a, 1953b, Матевосян, 1963), sexed where appropriate and counted. Animal carcasses were kept frozen until examination.

Muscle samples (25g) from each animal were tested using magnetic stirrer artificial digestion to detect *Trichinella* spp. larvae.

The dogs' ages were estimated – up to one year old, between 1 and 7 years, and older than 7 years. Results of investigation are statistically evaluated - determined the prevalence (P,%) and intensity (I) of infection.

RESULTS

Dogs were separated into three age groups: 8 were up to one year old, 5 were between 1 and 7 years, and 11 were older than 7 years. Of the total dogs sampled (n=24), 13 were females (54,2%) and 11 males (45,8%).

All first group's dogs from shelter were infected by *Toxoascaris leonina* with average intensity 20,8 nematodes per animal.

Dogs from second group were infected by four helminth species, besides in one animal was found three parasites species: *Toxoascaris leonina*, *Trichinella* sp. and *Methorchis* sp.

Intensity of *Trichinella* sp. was determined and construct 13,6 (larvae/g of tissue).

No helminths were detected in older age group. 14 dogs were infected with at least one of helminth species. Totally four parasite species were recovered: *Toxoascaris leonina*, *Uncinaria stenocephalus*, *Trichinella* sp. and *Methorchis* sp. The most prevalent endoparasite was *Toxoascaris leonina* (41,7%), followed by *Methorchis* sp. (8,3%), *Trichinella* sp. (4,2%) and *Uncinaria stenocephalus* (4,2%).

The majority of dogs were infected by only one species of helminth (91,7%). Mixed infection by three species was recorded in second age group from shelter.

There was difference in prevalence of infection between male (63,6%) and female (38,5%).

DISCUSSION

The main objective of this study was to generate new data on the occurrence of internal organs'

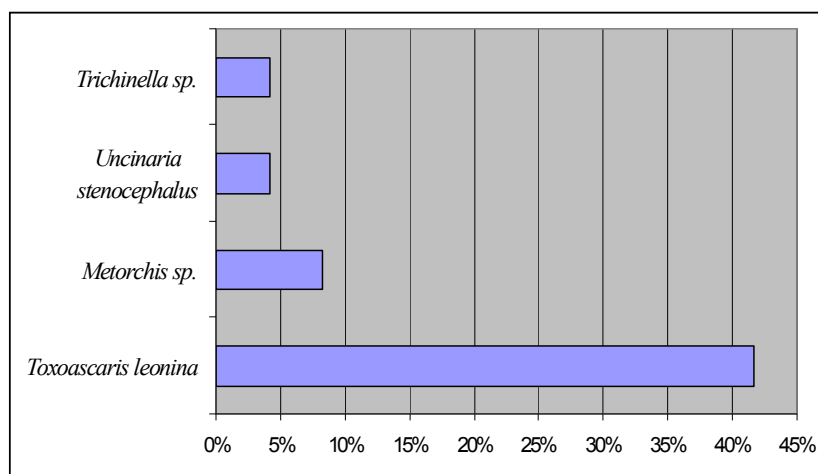


Fig. 1. Prevalence (%) of helminths in dogs (n=24)

helminths of dogs and *Trichinella* in dogs muscle.

Necropsy surveys of dogs provide more detailed information concerning helminths. We detect *Methorchis* sp. in dog's liver and *Trichinella* sp. in animal leg muscle.

Coprological investigation of intestinal parasites carried out in BIOR during routine studies in time period from 1998 till 2009 has show more rich parasitofauna of dogs (Kirjusina *et.al.* 2010). In present research we not discover following species: *Dipylidium caninum*, *Taenia sp.*, *Toxocara canis* and *Trichuris vulpis*. It can explain by smaller amount of investigated dogs and restricted territory of animal origin in present investigation.

The prevalence of helminths in dogs collected from veterinary clinics and shelter during investigation was 50%, revealing a higher level of infection in shelter's dogs.

Gastrointestinal parasites were detected in two age groups with higher prevalence and intensity in first age group. Older dogs (all from veterinary clinics) none showed any helminth infection.

In summary, the present investigations provide additional data about dogs helminths in urban area. Previous studies evidenced of imperative request of adequate diagnostic methods need to be used for planning surveys on prevalence and intensity of parasitic infections in dogs.

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REFERENCES

- Kirjušina M., Jaunbauere G., Daukste A., Vorfolomejeva J., Bakasejevs E. 2010. Endo- and ectoparasites of dogs and cats in Latvia. 52nd International scientific conference of Daugavpils University, April 14-17, 2010. Book of abstract. 50 p.
- Матевосян Е.М., 1963, Дилепидоиды – ленточные гельминты домашних и диких животных, Основы цестодологии, 3 том, Москва, 687.
- Мозговой А.А., 1953а, Аскариды животных и человека, Основы нематодологии, 2 том, книга вторая, Москва, 616.
- Мозговой А.А., 1953b, Аскариды животных и человека, Основы нематодологии, 2 том, книга первая, Москва, 351.
- Скрябин К.И., 1950, Трематоды животных и человека, Основы трематодологии, 4 том, Москва, Ленинград, 495.
- Скрябин К.И., Шихобалова Н.П., Мозговой А.А., 1951, Оксигураты и аскариды, Определитель паразитических нематод, 2 том, Москва, 631.

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