

## GIARDIASIS AS A ZONOSIS: THE PREVALENCE OF GIARDIA IN DOGS IN BELGRADE

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*Giardiasis is the most common intestinal protozoan parasites of human in Serbia. Thus, 8.2% of the children are infected with Giardia lamblia. In Serbia, as elsewhere, dogs are suspected to play an important role as reservoirs of human infection, especially in urban areas.*

*In the present study the overall prevalence of Giardia in pet dogs was 3.8 (3/78 dogs examined), but none of the owners of dogs with Giardia and their family members yielded any cysts.*

*Although this first assessment provides no evidence of any possible transmission between dogs and man in close contact, it does underline the fact that a potential reservoir exists in urban Serbia.*

*Key words: Giardiasis, dogs, protozoa, zoonosis*

### INTRODUCTION

Protozoan parasites of the morphologically defined group of *Giardia lamblia* (Filice, 1952) are important causative agents of intestinal disease in humans and various other animal species.

Giardiasis is the most common intestinal protozoan parasites of man in Serbia, since 8.2% of the children are infected with *Giardia lamblia* in urban areas (Nikolić et al., 1990).

*Giardia* has the widest host range, affecting many species of mammals and the central question in *Giardia* research is whether cross-transmission of this parasite between animals and humans is possible, and whether such transmission could play an epidemiological role under natural conditions. Although symptom-free carriers may be a reservoir of the infection, while direct contact (Black et al., 1977) and water-borne spread (Dykes et al., 1980) are thought to be major routes of transmission, companion animals such as dogs and cats have been implicated as alternative sources of infection (Faubert, 1988). However, despite the potential public health significance of *Giardia*, there is no published report of its prevalence in potential animal reservoirs in Serbia.



The aims of the present study were to estimate the prevalence of giardiasis in dogs of different ages, to look for gastrointestinal symptoms in infected dogs, and to examine dog owners for giardiasis.

#### MATERIAL AND METHODS

In the present study we sampled dogs attending an urban veterinary clinic for a wide variety of reasons. The animals studied were all domestic pets from urban homes. One faecal specimen was collected from each of 78 dogs attending training classes. The donors included 34 puppies, less than 9 months old, 25 adolescent dogs 9-18 months old and 19 adult dogs more than 18 months old.

Samples were stored at +4° C before examination for protozoal cysts by direct saline smear, a Lugol stained smear and zinc sulphate flotation technique.

A short questionnaire was answered by all owners of dogs about gastrointestinal symptoms in their pets, and when *Giardia* cysts were found in the faeces of a dog, the owners and their family members were examined for *Giardia* excretion by the same methods.

#### RESULTS AND DISCUSSION

Only three of the 34 puppies (8.8%) were excreting *Giardia* cysts, but none were found in the excreta of the adolescent and adult dogs (Table 1). The overall prevalence of infection was 3.8% (3/78 dogs examined).

Table 1. Prevalence of *Giardia lamblia* in dogs in Belgrade.

Age / months	No. examined	No. positive (%)
<9	34	3 (8.8)
9-18	25	—
>18	19	—
TOTAL	78	3 (3.8)

This study was the first assessment of the infection rate of *Giardia* in dogs from Serbia. The overall prevalence reported in this study (3.8%) is similar to the report of 4% of dogs with *Giardia* in a survey in the United Kingdom (Burnie et al., 1983). A much higher prevalence rate (20%) for dogs in the United Kingdom was reported by Winsland et al. (1989). In Sweden, Australia and America the prevalence of giardiasis in dogs was found to be 19%, 21% and 22% respectively (Castor and Lindqvist, 1990; Swan and Thompson, 1986; Baker et al., 1987). In the present study, however, it was possible to collect only one sample from each dog, so the resulting prevalence is most probably an underestimate, since a single sample probably allowed us to identify only about 75% of the infected dogs, just as in humans (Boreham et al., 1981).

None of the adolescent and adult dogs were found to be excreting *Giardia* cysts, and that supports previous observations. Swan and Thompson (1986)



and Sykes and Fox (1989) found a higher prevalence of infection in younger animals, and suggested that this may be due to the development of acquired immunity to *Giardia*, or decreased susceptibility with age.

According to the questionnaires answered by the owners of the dogs all infected dogs had diarrhoea, and this was probably because gastrointestinal symptoms were common in all puppies. There was no evidence to suggest that the presence of *Giardia* was associated with diarrhoea, although giardiasis in dogs has been reported to cause dysentery and malabsorption syndrome.

Faecal samples from 3 owners of dogs excreting *Giardia* and 11 of their family members were negative.

This study indicates that zoonotic transmission appears to be less important than "person-to-person" transmission. If there were no intraspecific variations (Meloni et al., 1988), we would expect to see far more dog infections, since the parasite is so common in humans, especially in urban areas.

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**ĐARDIJAZA KAO ZOONOZA: PREVALENCA GIARDIA LAMBLIA KOD PASA U BEOGRADU****ALEKSANDRA NIKOLIĆ, Z. KULIŠIĆ I J. BOJKOVSKI****SADRŽAJ**

Đardijaza (lamblijaza) je najčešća crvena protozoarna parazitska infekcija ljudi u Srbiji, sa prevalencom kod dece od 8,2%. U svetu postoje podaci o ulozi pasa kao potencijalnih rezervoara infekcije ljudi, pogotovo u urbanom predelima.

Ustanovljena prevlencija Giardia lamblia kod pasa je 3,8% (3/78), a niko od vlasnika pasa ni članova njihovih porodica nije bio inficiran.

Mada u ovim prvim istraživanjima nije potvrđena mogućnost unakrsnog prenosa infekcije između ljudi i pasa, psi kućni ljubimci su potencijalni rezervoari infekcije ljudi u urbanim predelima Srbije.