

Prevalence of *Giardia* spp. in dogs in Germany

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Abstract



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Flagellates of the genus *Giardia* are ubiquitous in their distribution and found in the intestinal tract of humans and animals of several species throughout the world. The prevalence data in dogs quoted in the literature indicate that the incidence of *Giardia* spp. varies considerably and depends to a large extent on the composition of the studied population. The objective of the study presented was to determine the prevalence of *Giardia* infections in dogs in Germany.

Between January 1997 and July 2000 fecal samples of 6833 dogs from Germany were examined for the presence of *Giardia*. All fecal samples were obtained from private-owned dogs presented at local veterinary practitioners for either a medical problem, or for routine examination and vaccination. The specimen were examined for *Giardia*-specific antigen by means of the coproantigen test ProSpectT[®] *Giardia* Micoplate Assay, or for cysts of *Giardia* by means of MIFC (Merthiolate-Iodine-Formaldehyde-Concentration) technique. The evaluation of the coproscopical examination



showed 17.4 % *Giardia* positive dogs in the year 1997, 14.0 % in 1998, 16.7 % in 1999 and 18.9 % in 2000. A total of 1130 dogs (16.5 %) were proved to be infected with *Giardia* spp. The rate of infection with respect to age of the animals showed distinctly higher values in up to 1 year old dogs compared to older animals.

The results of the study indicate that *Giardia* is a common parasite in dogs in Germany and that the prevalence of *Giardia* in dogs in Germany is higher than reported by former surveys.

Introduction

Giardia are ubiquitous in their distribution, but the following examples of prevalence data in the dog in Germany of 3.5 % (Jungmann et al. 1986), in Switzerland of 6.5 % (Seiler et al. 1983), in Austria of 15.3 % (Pfeiffer and Supperer 1976) and in the United States up to 100 % (Kirkpatrick 1988) indicate that the incidence of these flagellates varies considerably and depends to a large extent on the composition of the studied canine population.

Figure 1: Structure of age of *Giardia* positive dogs

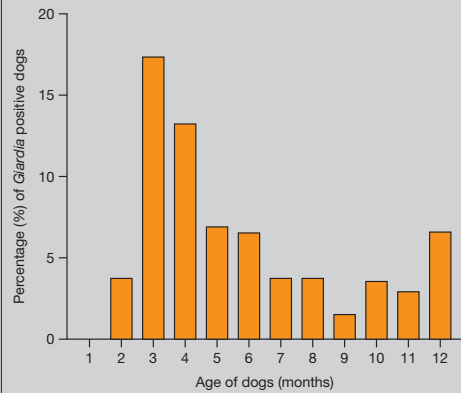
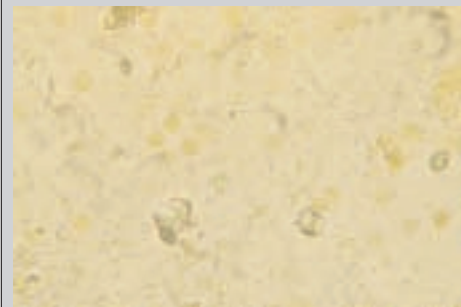


Figure 3: Cysts of *Giardia* isolated by means of MIFC (Merthiolate-Iodine-Formaldehyde-Concentration) technique (Cysts and trophozoites stain yellow brown)



Materials and Methods

Between January 1997 and July 2000 fecal samples of 6833 dogs from Germany were examined for the presence of *Giardia*. All fecal samples were obtained from private-owned dogs presented at local veterinary practitioners for either a medical problem or for routine examination and vaccination. The specimen were examined for *Giardia*-specific antigen by means of the coproantigen test ProSpectT[®] *Giardia* Micoplate Assay or for cysts of *Giardia* by means of MIFC (Merthiolate-Iodine-Formaldehyde-Concentration) technique.

Figure 2: Structure of age of *Giardia* positive dogs

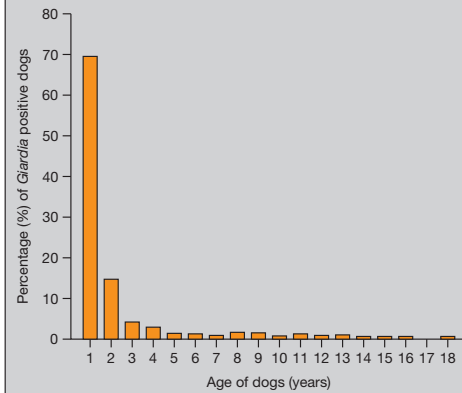
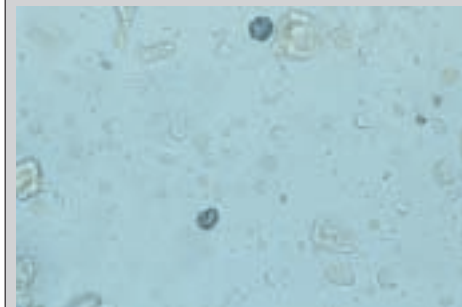


Figure 4: Cysts of *Giardia* isolated by means of NaCl/ZnCl₂ concentration method (Cysts of *Giardia* shrink and lose their characteristic internal morphology)



Results

The evaluation of the coproscopical examination of 6833 dogs showed 17.4 % *Giardia* positive dogs in the year 1997, 14.0 % in 1998, 16.7 % in 1999 and 18.9 % in 2000 (Table 1). The average prevalence over the 4-year period was 16.5 %. With reference to 492 *Giardia* positive dogs with known age, the rate of infection with respect to age of the animals showed distinctly higher values in puppies compared to older animals (Figure 1). 47.6 % of the infected dogs were 6 months or less in age and 69.1 % were less than 1 year old. 4 weeks old puppies were not yet infected with *Giardia*. 14.2 %, 4.1 % and 2.4 % of the dogs were 2, 3 and 4 years old, respectively (Figure 2). The percentages of the dogs up to 18 years old ranged between 0 % and 1.2 %.

Table 1: Prevalence of *Giardia* in dogs determined by fecal analysis

Year	Number of dogs tested	Number of <i>Giardia</i> positive dogs	Percentage (%) of <i>Giardia</i> positive dogs
1997	1463	255	17.4
1998	1892	264	14.0
1999	2139	358	16.7
2000	1339	253	18.9
Total	6833	1130	16.5

Conclusion

1. The results of the study indicate a high percentage (16.5 %) of pet dogs in Germany being infected with *Giardia*.
2. The prevalence of *Giardia* in dogs in Germany is higher than reported by former surveys conducted in Germany.
3. Infections with *Giardia* occur more often in puppies than in adult dogs.
4. Feces of pet dogs should be periodically examined for *Giardia* by means of coproantigen test or MIFC technique (Figure 3), which is more effective than concentration methods using saturated solutions like NaCl/ZnCl₂ (Figure 4).
5. Treatment of all dogs infected with *Giardia* is recommended to cure acute symptoms of giardiasis, to avoid reinfections, and to reduce the potential zoonotic risk for man.

Literature

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