OCCURRENCE OF Ancylostoma IN DOGS, CATS AND PUBLIC PLACES FROM ANDRADINA CITY, SÃO PAULO STATE, BRAZIL

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SUMMARY

The aim of this study was to determine the frequency and intensity of Ancylostoma spp. in 33 dogs and 52 cats by means of coproparasitological examinations and parasitological necropsy, and assess the presence of contaminated feces with eggs of that parasite in public places of Andradina Municipality, São Paulo State, Brazil. Willis-Mollay and Sedimentation methods indicated Ancylostoma spp. eggs in 87.8% (29/33) dogs and 94.2% (49/52) cats. The species A. caninum and A. braziliense were found in 63.6% (21/33) and 30.3% (10/33) of dogs, respectively. Considering cats, 67.3% (35/52) were parasitized by A. braziliense, 21.1% (11/52) by A. caninum, and 9.6% (5/52) by A. tubaeforme. Forty-two canine fecal samples were collected from public environments, including 23 squares/gardens and 19 streets/sidewalks. Positive samples for Ancylostoma spp. accounted for 64.3% (27/42); squares/gardens had 60.9% (14/23) positive samples, and streets and sidewalks, 68.4% (13/19). No association was observed between the number of Ancylostoma spp. parasites and age, sex and breed of the animals and also the ratio of EPG counts and the parasitic intensity observed at necropsy ($p > 0.05$). Based on the high occurrence of hookworm in dogs and cats in this study, the treatment with anti helminthics are needed even in those animals with negative stool tests, besides adopting control of the number of animals in public places, in order to decrease the likelihood of environmental contamination, since this parasite represents a potential hazard to human and animal health.

KEYWORDS: Ancylostomiasis; Cutaneous larva migrans; Helminths; Small animals; Zoonosis.

INTRODUCTION

The urban development and environmental changes caused by humans have increased the occurrence of parasitic zoonoses emerging and re-emerging[1]. Dogs[2,22,23]and cats[6,16]can act as reservoirs of evolutive parasitic forms that contaminate the environment with their feces, mainly with infective larvae of hookworms, representing a serious public health problem[14]. This fact is confirmed by the work of SANTARÉM et al. (2004), which detected the occurrence of Cutaneous Larva Migrants (CLM) in children from Taciba Municipality, São Paulo State, Brazil, due to their contact with sand in public parks where Ancylostoma spp. larvae were found.

Some species of Ancylostoma present zoonotic potential[6], as Ancylostoma braziliense and Ancylostoma caninum, who are the etiologic agents of the diseases known as cutaneous larva migrans[7] and eosinophilic enteritis[8].

The aim of this study was to determine the occurrence of Ancylostoma sp. in domestic dogs and cats by means of coproparasitological examinations and parasitological necropsy, and evaluate the occurrence of this parasite in public places of Andradina Municipality, São Paulo, Brazil.

MATERIAL AND METHODS

In this study 33 dogs and 52 cats were included. The animals were captured or delivered by their owners to the Center for Zoonosis Control (CZC) of Andradina Municipality, (20.8961° South, 51.37944° West and at 405 m altitude) for euthanasia. Of the dogs analyzed, 19 were females and 14 males being, 24 without defined breed (WDB) and nine with defined breed (DB). The group of cats consisted of 30 males and 22 females, with 47 WDB and five with DB.

The age of the animals was estimated according to the analysis of the dental arcade, being classified as young (until one year), adult (between one and seven years) and elderly (over seven years of age). Among the dogs, seven were young, 21 adults and five elderly. Of the cats, 18 were young, 30 adults and four elderly.

This procedure was previously approved by the Animal Experimentation Ethics Committee of the São Paulo State University

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Table 1
Occurrence of different species of Ancylostoma in dogs and cats from Andradina Municipality, São Paulo State, Brazil

<table>
<thead>
<tr>
<th>Ancylostoma specie</th>
<th>Dogs (n = 33)</th>
<th>Cats (n = 52)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>%</td>
</tr>
<tr>
<td>A. caninum</td>
<td>21</td>
<td>63.6</td>
</tr>
<tr>
<td>A. braziliense</td>
<td>10</td>
<td>30.3</td>
</tr>
<tr>
<td>A. tubaeforme</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A. caninum + A. braziliense</td>
<td>7</td>
<td>21.2</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>87.9</td>
</tr>
</tbody>
</table>

n = number of animals examined; *parasites observed simultaneously, included on lines of A. caninum and A. braziliense

DISCUSSION

Eggs of Ancylostoma spp. were detected in 64.2% (27/42) samples collected from the environment, and positivity percentages were similar (χ² 0.5807; p = 0.7480) between feces from squares/gardens, 60.8% (14/23), and those from streets/sidewalks, 68.4% (13/19). Compared to our results, lower percentages of the genus Ancylostoma in dogs have been reported in Poland1, Venezuela3, United States1 and other regions of Brazil10.

Using parasitological necropsy, YACOB et al. (2007), in Ethiopia, and KLIMPEL et al. (2010), in Brazil, reported the occurrence of A. caninum in 70% (14/20) and 95.6% (44/46) respectively, in the examined dogs. These values are lower and higher, respectively, when compared with those observed in the present study for Ancylostoma species. In cats, also using the parasitological necropsy, ISHIZAKI et al. (2006) found 66.6% (40/60) of A. braziliense and 18.3% (11/60) of A. tubaeforme, corroborating with the findings of our study and those of OGASSAWARA et al. (1986) who found 37% (20/54) of A. braziliense and 25.9% (14/54) of A. caninum/tubaeforme. Similarly, the predominance of A. braziliense (70.9%) relative to A. caninum (36.7%) was observed in 196 cats from Ribeirão Preto Municipality, São Paulo State, Brazil, by ZAGO-FILHO et al. (1957). Unlike our study, MILLÁN & CASANOVA (2009), in Spain, observed that A. tubaeforme was the specie with the highest prevalence in cats. These differences are mostly due to the fact that A. tubaeforme is the dominant cat specie in Europe (DUARTE et al., 2010).

Although A. caninum is not considered as a common species in cats, similarly to our work, OGASSAWARA et al. (1986) showed a high occurrence of A. caninum in cats from São Paulo, Brazil, and BAKER et al. (1989) found 5.2% (78/1502) of occurrence of this specimen in young cats in Africa. These observations elucidate that, eventually, the cat can be considered as a host of A. caninum, as previously demonstrated by SCOTT (1928) and FOSTER & CORT (1937).

As for the agreement between the coproparasitological values and necropsy, our results differ from those obtained by SOUZA-DANTAS et al. (2007), who found a positive association between the numbers of eggs shedding and intensity of adult forms recovered at necropsy.

Animal feces contaminating the soil have been reported in several studies. Higher12 and lower13 percentages than those detected in the present study have been presented. Using Willis technique, SILVA FRANCISCO et al. (2008) evaluated 66 fecal samples of dogs and cats from public squares of Anápolis Municipality, Goiás State, Brazil, and observed Ancylostoma eggs and larvae in 46.9% (31/66) and 15.1% (10/66) samples, respectively.

Public squares particularly present a high level of contamination by enteroparasites, mainly Ancylostoma4. The occurrence of CLM in children from Taciba Municipality, São Paulo State, Brazil, was observed, due to their contact with sand in public parks where Ancylostoma spp. larvae were detected27.
CONCLUSÃO

Based on the high occurrence of hookworm in dogs and cats in Andradina, the treatment with anti-helmintics are needed even in those animals with negative stool tests, besides adopting control of the number of animals in public places, in order to decrease the likelihood of environmental contamination, since this parasite represents a potential hazard to human and animal health.

RESUMO

Ocorrência de Ancylostoma em cães, gatos e locais públicos da cidade de Andradina, São Paulo, Brasil

O objetivo deste estudo foi determinar a frequência e intensidade parasitária de Ancylostoma spp. em 33 cães e 52 gatos por meio de exames coproparasitológicos e pela necropsia parasitológica, bem como avaliar a presença de fezes contaminadas com ovos destes parasito em locais públicos do município de Andradina/SP. Por meio das técnicas de Willis-Mollay e Sedimentação, ovos de Ancylostoma spp. foram observados em 87,9% (29/33) e 94,2% (49/52) dos cães e gatos, respectivamente. As espécies constatadas nas cães foram A. caninum em 63,6% (21/33) e A. braziliense em 30,3% (10/33). Dos gatos, 67,3% (35/52) estavam parasitados por A. braziliense, 21,1% (11/52) por A. caninum, 4,9% (2/42) por A. tubaiforme. Foram coletadas 42 amostras fecais caninas do ambiente público sendo, 23 de praças/jardins e 19 de ruas/calçadas. Positividade para Ancylostoma spp. foi observada em 64,3% (27/42) destas fezes sendo 60,9% (14/23) provenientes de praças/jardins e 68,4% (13/19) de ruas e calçadas. Não foi observada associação entre a presença para o parasito e a idade, sexo e raça dos animais, bem como entre o número de parasitos observado na necropsia e o OPG (p > 0,05). Baseado na alta ocorrência de anciolostomídeos em cães e gatos neste estudo, o tratamento com anti-helmínticos faz-se necessário, mesmo nos animais com exames de fezes negativos, além da necessidade de adoção de controle do número de animais em locais públicos, a fim de diminuir a probabilidade de contaminação do meio ambiente, uma vez que este parasito representa um perigo potencial à saúde humana e animal.

REFERÊNCIAS


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