

INFECÇÕES POR *Cryptosporidium* spp. EM CÃES DE ARAÇATUBA, SP, BRASIL

Katia Denise Saraiva Bresciani¹
Alessandro Francisco Talamini do Amarante²
Valéria Marçal Felix de Lima³
Mary Marcondes³
Francisco Leydson Formiga Feitosa³
Cilene Vidovix Táparo¹
Anna Claudia Marques Serrano¹
Mirian Naomi Ishizaki¹
Rozeani Olimpio Tome¹
Sílvia Helena Venturoli Perri¹
Marcelo Vasconcelos Meireles³

RESUMO

Amostras fecais de 420 cães foram processadas pela técnica de Kinyoun e por meio da técnica de Sheather para observação de oocistos de *Cryptosporidium* spp. A técnica de ELISA direto foi utilizada para detecção de antígenos de *Cryptosporidium* spp. Dos 420 exames, 10 (2,4%) foram positivos pela técnica ELISA e 4 (1,0%) pela técnica de Kinyoun. Apesar do uso de três diferentes métodos diagnósticos, a ocorrência de *Cryptosporidium* spp. nos cães deste estudo foi muito pequena. Esta baixa incidência associada à ausência de sintomas, sugere que este protozoário não assume importância clínica nas áreas estudadas.

Palavras-chave: cão; *Cryptosporidium* spp.; oocistos, antígenos, ELISA.

INFECTION BY *Cryptosporidium* spp. IN DOGS FROM ARAÇATUBA, SP, BRAZIL**ABSTRACT**

Fecal samples from 420 dogs were examined in order to detect *Cryptosporidium* spp. oocysts by means of Kinyoun acid-fast stain and Sheather techniques. The *Cryptosporidium* spp. antigens were detected by direct ELISA technique. Out of the 420 samples, 10 (2.4%) were positive by the ELISA technique and 4 (1.0%) by the Kinyoun acid-fast stain and Sheather techniques. Despite the use of three different diagnostic methods, occurrence of *Cryptosporidium* spp. in the dogs of this study was low. Such low incidence, associated to the absence of symptoms, suggests that this protozoa has no clinical relevance for the dogs in studied areas.

Key words: dog; *Cryptosporidium* spp.; oocysts; antigens; ELISA.

INFECCIÓN POR *Cryptosporidium* spp. EN PERROS DE ARAÇATUBA, SP, BRASIL**RESUMEN**

Muestras fecales de 420 perros fueron analizadas para detectar el *Cryptosporidium* spp, por medios de una mancha de ácido Kinyoun y técnicas Sheather y también de antígenos del *Cryptosporidium* spp usando la técnica de ELISA directo. De los 420 exámenes, 10 (2.4%) fueron positivos por la técnica de ELISA y 4 (1.0%) por la técnica de ácido y mancha Kinyoun. A pesar del uso de tres métodos de diagnóstico diferentes, la frecuencia de *Cryptosporidium* spp en los perros de este estudio fue muy pequeña. Esta baja incidencia asociada a la ausencia de síntomas, sugiere que este protozoario no tiene importancia clínica en las áreas estudiadas.

¹Departamento de Apoio, Produção e Saúde Animal (DAPSA) da Faculdade de Odontologia de Araçatuba (FOA) - UNESP - Araçatuba, São Paulo (SP). Rua Clóvis Pestana, 793 Jardim D. Amélia - CEP 16050-680 Telefone: (018) 36361370 Fax: (018) 36361350 e-mail: bresciani@fmva.unesp.br.

²Departamento de Parasitologia, Instituto de Biociências – UNESP – Câmpus de Botucatu, CEP 18618-000.

³Departamento de Clínica, Cirurgia e Reprodução Animal, FOA, UNESP, Araçatuba, SP, Brazil.

Palabras-clave: perros; *Cryptosporidium* spp.; antígenos ; ooquistes; ELISA.

INTRODUCTION

Epidemiological studies using a variety of fecal examination techniques have been carried out in Brazil in order to detect infection by *Cryptosporidium* spp. in dogs (HUBER et al., 2005; LALLO & BONDAN, 2006, MUNDIM et al., 2007). In most cases, canine cryptosporidiosis is asymptomatic (FIGUEIREDO et al., 2004). However some symptoms like diarrhea and dehydration can be observed (SATO et al., 2006).

The goal of this research was to evaluate the occurrence of *Cryptosporidium* spp. infection in dog's fecal samples from Araçatuba, SP, Brazil.

MATERIAL AND METHODS

This study was carried out on 420 dogs sent by their owners' to the Zoonoses Control Center, of the city of Araçatuba, São Paulo, Brazil, from September/2003 to April/2004 to undergo euthanasia. All animals were submitted to a thorough physical examination whose results were individually recorded. Special attention was paid to the presence and to the intensity of diarrhea and dehydration.

Age was estimated by inspection of dental arcade. In all cases euthanasia was performed by intravenous administration of Tyopental 2.5% in association with potassium chloride. Stools samples were collected directly from the rectal ampulla of each animal. This study had the approval of the cleared by the Animal Experimentation Ethics Committee of FOA, UNESP, Araçatuba.

Cryptosporidium spp. oocysts detection in stools was obtained by processing samples according to the Sheather technique and to the modified Kinyoun acid-fast stain technique (LENNETTE, 1985). A *Cryptosporidium* Test® kit (TechLab, Blacksburg, Virginia) was also employed for the ELISA test in fecal samples.

RESULTS AND DISCUSSION

Of the 420 animals evaluated, 28.3% (119/420) were of pure breed while 301 (71.7%) were of mixed breed. Of the total dogs, 46.7% (196/420) were male and 53.3% (224/420) female. Regarding age, 23.6% (99/420) was rated as young (up to one year), 46.4% (195/420) as young adult (1 to 4 years), 21.7% (91/420) as adult (4 to 7 years) and 8.3% (35/420) as old (>7 years). In 84.6% (355/420), 7.1% (30/420), 5% (21/420) and 3.3% (14/420) of the animals the dehydration degrees were, respectively, absent, light, moderate and severe. As for the fecal hydration degree, 323 (77%) showed consistent, 38 (9%) semi-consistent, 22 (5.2%) fluffy and shapeless, 15 (3.6%) semi-watery and 22 (5.2%) watery stools.

The occurrence of *Cryptosporidium* spp. in the canine population under study was quite low. Of all animals examined, only 2.4% reacted to ELISA and only 1.0% were positive to Kinyoun and to Sheather techniques. Studies in other countries showed a positivity percentage for this coccidium ranging from 0% to 44.8% (FAYER et al., 2001). Results similar to those shown here were obtained in other Brazilian states by Lallo & Bondan (2006) in São Paulo; by Huber et al. (2005), in Rio de Janeiro; and by Figueiredo et al. (2004) and Mundim et al. (2007), in Minas Gerais.

Lallo & Bondan (2006) did not observe association between breed pattern and sex and *Cryptosporidium* spp. positivity. Huber et al. (2005) and Mundim et al. (2007) did not associate age as a factor in the *Cryptosporidium*-positive ratio. In our research, dogs did not show any symptoms of infection by *Cryptosporidium* spp. Evidence of asymptomatic carriers were also reported in other studies in dogs (FIGUEIREDO et al., 2004; GIANGASPERO et al., 2006).

Despite the use of three different diagnostic methods, occurrence of *Cryptosporidium* spp. in the dogs of this study was very low. Such low incidence, associated to the absence of symptoms, suggests that this protozoa has no clinical relevance for the dogs in studied areas.

ACKNOWLEDGEMENTS

This study was granted by Fundação de Amparo à Pesquisa do Estado de São Paulo (03/09053-8).

REFERENCES

- FAYER, R., TROUT, J.M., XIAO, L., MORGAN, U.M., LAI, A.A., DUBEY, J.P. *Cryptosporidium canis* sp. from domestic animals. **J. Parasitol.** v.87, p.1415-1422, 2001.
- FIGUEIREDO, H.C.P., JUNIOR, D.J.P., NOGUEIRA, R.B., COSTA, P.R.S. Excreção de oocistos de *Cryptosporidium parvum* em cães saudáveis das cidades de Lavras e Viçosa, Estado de Minas Gerais, Brasil. **Ciênc. Rural.** v.34, p.1625-1627, 2004.
- GIANGASPERO, A., IORIO, R., PAOLETTI, B., TRAVERSA, D., CAPELLI, G. Molecular evidence for *Cryptosporidium* infection in dogs in Central Italy. **Parasitol. Res.** v.99, p.297-299, 2006.
- HUBER, F., BOMFIM, T.C.B., GOMES, R.S. Comparison between natural infection by *Cryptosporidium* sp., *Giardia* sp. in dogs in two living situations in the West Zone of the municipality of Rio de Janeiro. **Vet. Parasitol.** v.130, p.69-72, 2005.
- LALLO, M.A., BONDAN, E.F. Prevalência de *Cryptosporidium* sp. em cães de instituições da cidade de São Paulo. **Rev. Saúde Pub.** v.40, p.120-125, 2006.
- LENNETTE, E.H. **Manual of clinical microbiology.** (4 ed.), American Society of Microbiology, Washington, 1985. 1149pp.
- MUNDIM, M.J.S., ROSA, L.A.G., HORTÊNCIO, S.M., FARIA, E.S.M., RODRIGUES, R.M., CURY, M.C. Prevalence of *Giardia duodenalis* and *Cryptosporidium* sp in dogs from different living conditions in Uberlândia, Brazil. **Vet. Parasitol.** v.144, p.356-359, 2007.
- SATO, M., MATSUBARA-NIHEI, Y., SASAKI, T., NAKAI, Y. Characterization of *Cryptosporidium canis* isolated in Japan. **Parasitol. Res.** v.99, p.746-748, 2006.

Recebido em: 01/11/2007

Aceito em: 15/10/2008