

ACUTE DIARRHOEA ASSOCIATED WITH CRYPTOSPORIDIUM SP
IN BELÉM, BRAZIL
(PRELIMINARY REPORT)

Evaldo Carlos Brito LOUREIRO (1), Alexandre da Costa LINHARES (1) & Leonardo MATA (2)

S U M M A R Y

Cryptosporidium sp was detected in faeces from three children suffering from acute diarrhoea. In two cases no other concomitant agents were detected and in a 3rd. this agent was associated with *Entamoeba histolytic*, *Entamoeba coli*, *Endolimax nana*, *Chilomastix mesnili* and *Pentatrichomonas hominis*.

KEY WORDS — *Cryptosporidium* sp — Acute diarrhoea.

Cryptosporidium sp, a coccidian parasite, belongs to family *Cryptosporidiidae*, suborder *Eimeriorina*. It was firstly detected by TYZZER¹³ in 1907 and has recently been described as potentially important enteropathogen, affecting both children and adults throughout the world^{3,4,6,15,16}. This parasite has also been found infecting a wide variety of animals^{2,7,14}.

Recent data on *Cryptosporidium* infection in humans have been obtained from studies carried out in population groups of Costa Rica⁹ and Venezuela¹¹ where it occurs more frequently during the warmer, rainy and humid months of the year (May-August). It may also cause severe disease in patients whose immunity has been affected^{12,17,18} and is a common finding among homosexual patients with AIDS (acquired immunodeficiency syndrome)^{1,8,10}.

In our study, specimens were obtained from 61 children (1-2 years old) who were followed for 9 months, and who belong to a low socio-economic area of Belém, Brazil. 150 Faecal samples were obtained, 94 from diarrhoeic patients and 56 from non-diarrhoeic control patients.

The detection of *Cryptosporidium* was by a modified Ziehl-Neelsen staining⁵, as illustrated in Fig. 1A, which allows a presumptive diagnosis. Confirmation was by both Giemsa (Fig. 1B) and Auramine-rhodamine staining methods. The specimens were also processed for *Salmonella*, *Shigella* and *Escherichia coli* (classic serotypes, enteroinvasive and enterotoxigenic strains), and for rotaviruses, enteroviruses and adenoviruses. Faeces were also examined for intestinal parasites.

Cryptosporidium was found in three (3.19%) of the 94 samples. In two cases (specimen numbers 24.168 and 23.997) this was the only pathogen found, while in the 3rd. (number 24.004) it was associated with *Entamoeba histolytica*, *Entamoeba coli*, *Endolimax nana*, *Chilomastix mesnili* and *Pentatrichomonas hominis*. All non-diarrhoeic control patients were negative for *Cryptosporidium*.

Our findings suggest that *Cryptosporidium* may be a causative agent of diarrhoea among children, since no viruses or enteropathogenic bacteria were detected in any of these cases. We would also like to stress that this is the

(1) Instituto Evandro Chagas, Fundação Serviços de Saúde Pública, Ministério da Saúde, Caixa Postal 621 — 66.000, Belém, PA, Brasil

(2) Instituto de Investigaciones en Salud (INISA), Ciudad Universitaria "Rodrigo Facio", Universidad de Costa Rica, Costa Rica

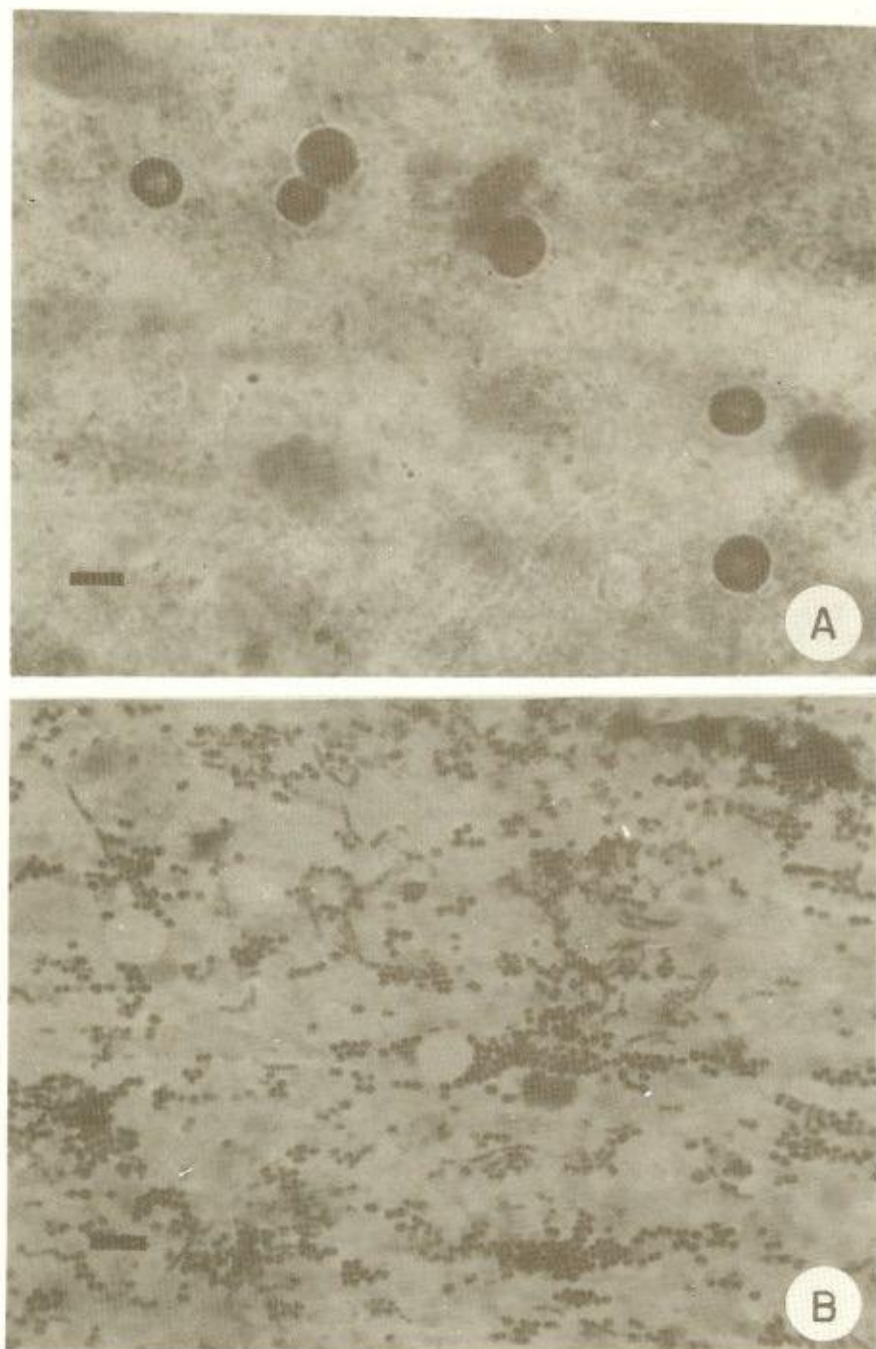


Fig. 1 — *Cryptosporidium* oocysts recovered from stool material and stained by the modified Ziehl-Neelsen (in A, bar = 4 μ m) and Giemsa (in B, bar = 4 μ m) methods

first time that this agent has been detected among patients with diarrheal syndromes in the Amazon region. Additional studies are required in order to elucidate epidemiological aspects of *Cryptosporidium* infection in our region.

RESUMO

Diarréia aguda associada a *Cryptosporidium* sp em Belém, Brasil
(Nota prévia)

Amostras de *Cryptosporidium* sp foram detectadas das fezes de três crianças com diarréia aguda. Em dois casos nenhum outro agente foi registrado, concomitantemente, e no terceiro caso, esse coccidio estava associado com *Entamoeba histolytica*, *Entamoeba coli*, *Endolimax nana*, *Chilomastix mesnili* e *Pentatrichomonas hominis*.

REFERENCES

1. ANDREANI, T.; MODIGLIANI, R.; LE CHARPENTIER, Y.; GALIAN, A.; BROUET, J. C.; LIANCE, M.; LACHANCE, J. R.; MESSING, B. & VERNISSE, B. — Acquired immunodeficiency with intestinal cryptosporidiosis: possible transmission by Haitian whole blood. *Lancet*, 1: 1187-1191, 1983.
2. ANGUS, K. W. — Cryptosporidiosis in man, domestic animals and birds: a review. *J. roy. Soc. Med.*, 76: 62-70, 1983.
3. CASEMORE, D. P. & JACKSON, B. — Sporadic cryptosporidiosis in children. *Lancet*, 2: 679, 1983.
4. CURRENT, W. L.; REESE, N. C.; ERNST, J. V.; BAILEY, W. S.; HEYMAN, M. B. & WEINSTEIN, W. M. — Human cryptosporidiosis in immunocompetent and immunodeficient persons: studies of an outbreak and experimental transmission. *New Engl. J. Med.*, 308: 1252-1257, 1983.
5. GARCIA, L. S.; BRUCKNER, D. A.; BREWER, T. C. & SHIMIZU, R. Y. — Techniques for the recovery and identification of *Cryptosporidium* oocysts from stool specimens. *J. clin. Microbiol.*, 18: 185-190, 1983.
6. HOJLYNG, N.; MOLBAK, K.; JEPSEN, S. & HANSSON, A. P. — Cryptosporidiosis in Liberian children. *Lancet*, 1: 734, 1984.
7. ISEKI, M. — *Cryptosporidium felis* sp. n. (Protozoa: Elmeriorina) from the domestic cat. *Jap. J. Parasit.*, 28: 285-307, 1979.
8. MA, P. & SOAVE, R. — Three-step stool examination for cryptosporidiosis in 10 homosexual men with protracted watery diarrhea. *J. infect. Dis.*, 147: 824-828, 1983.
9. MATA, L.; BOLAÑOS, H.; PIZARRO, D. & VIVES, M. — Cryptosporidiosis in children from some highland Costa Rica rural and urban areas. *Amer. J. trop. Med. Hyg.*, 33: 24-29, 1984.
10. PAYNE, P.; LANCASTER, L. A.; HEINZMAN, M. & McCUTCHAN, J. A. — Identification of *Cryptosporidium* in patients with the acquired immunodeficiency syndrome. *New Engl. J. Med.*, 309: 613-614, 1983.
11. PEREZ-SCHAEEL, I.; BOHER, Y.; PEREZ, M.; TAPIA, F. J. & MATA, L. — Cryptosporidiosis in Venezuelan children with acute diarrhea. *Amer. J. trop. Med. Hyg.* (in press, 1985).
12. STEMMERMANN, G. N.; HAYASHI, T.; GLOBER, G. A.; OISHI, N. & FRANKEL, R. I. — Cryptosporidiosis: report of a fatal case complicated by disseminated toxoplasmosis. *Amer. J. Med.*, 69: 637-642, 1980.
13. TYZZER, E. E. — A sporozoan found in the peptic glands of the common mouse. *Proc. Soc. exp. Biol. (N.Y.)*, 5: 12-13, 1907.
14. TZIPORI, S. — Cryptosporidiosis in animals and humans. *Microbiol. Rev.*, 47: 84-96, 1983.
15. TZIPORI, S.; ANGUS, K. W.; GRAY, E. W. & CAMPBELL, I. — Vomiting and diarrhea associated with cryptosporidial infection. *New Engl. J. Med.*, 303: 818, 1980.
16. TZIPORI, S.; SMITH, M.; BIRCH, C.; BARNES, G. & BISHOP, R. — Cryptosporidiosis in hospital patients with gastroenteritis. *Amer. J. trop. Med. Hyg.*, 32: 931-934, 1983.
17. WEINSTEIN, L.; EDELSTEIN, S. M.; MADARA, J. L.; FALCHUK, K. R.; McMANUS, B. M. & TRIER, J. S. — Intestinal cryptosporidiosis complicated by disseminated cytomegalovirus infection. *Gastroenterology*, 81: 584-591, 1981.
18. WEISBURGER, W. R.; HUTCHEON, D. F.; YARDLEY, J. H.; ROCHE, J. C.; HILLIS, W. D. & CHARACHE, P. — Cryptosporidiosis in an immunosuppressed renal transplant recipient with IgA deficiency. *Am. J. clin. Path.*, 72: 473-478, 1979.

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