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BLASTOCYSTIS HOMINIS: OCCURRENCE IN CHILDREN AND STAFF MEMBERS OF MUNICIPAL DAY-CARE CENTERS FROM BOTUCATU, SÃO PAULO STATE, BRAZIL

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To study the frequency of Blastocystis hominis *among healthy individuals, feces were collected from 153 children and 20 staff members of some municipal day-care centers. Three separate stool specimens of each individual were processed by Lutz and Faust methods. From 173 studied individuals, 60 (34.7%) showed* B. hominis, *frequently in association with other intestinal parasites and/or commensals.* B. hominis *was found mainly in adults and children between 36 and 72 months old. All positive cases were detected only by Lutz method and the use of three stool specimens increased the positivity of the parasitological diagnostic.*

Key words: *Blastocystis hominis* -- day care centers – children – staff members – stool

Evidences of *Blastocystis hominis* being a protozoan and not a yeast have been persuasive for a great number of parasitologists (Zierdt, 1988). *B. hominis* infections have been reported from man and it has been recognized by some authors as a possible agent of human intestinal disease (Zierdt, 1983; Ricci et al., 1984; Garcia et al., 1984; Vannatta et al., 1986; Babcock et al., 1988).

Epidemiological surveys have demonstrated high frequency of infection by *B. hominis,* mainly in adults presenting complaints related to gastrointestinal tract, many of them aidetics (Henry et al., 1986; Teixeira et al., 1989).

Considering that, in general, the diagnostic of *B. hominis* is not made in the routine, except when it can be confused with *Entamoeba histolytica,* and a high frequency have been observed among healthy individuals, (Mercado et al., 1988, 1989; Mercado & Arias, 1991) we decided to study the frequency of *B. hominis* in children and staff members of some municipal day-care centers of Botucatu by $ZnSO_4$ centrifugation and spontaneous sedimentation methods, and to verify whether it is possible to increase the positivity of the parasitological diagnostic by the use of three stool specimens for each individual. It is important to emphasize that it is the first time that the occurrence of *B. hominis* infection is studied among healthy children and adults of day-care centers in Brazil.

MATERIALS AND METHODS

This study was conducted during March-June, 1991 in three municipal day-care centers: two in the urban area (one day-care in the city peripheric area and the other in downtown area) and the third in the rural area. A total of 153 children ranging from 0 to 72 months old (0 to 6 years old) and 20 staff members were analized for parasitological examination. All individuals did not show gastrointestinal complaints.

Three stool specimens from each individual were collected in merthiolate-iodine-formalin (MIF) with an interval of seven days between each specimen. The feces were processed by ZnSO4 centrifugation (Faust et al., 1938) and spontaneous sedimentation (Lutz, 1919) methods. In all samples which *B. hominis* was detected, smears stained by iron hematoxylin were made and examined for definite identification of the microrganism.

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TABLE I

Frenquency of *Blastocystis hominis* infection by age among children and staff members of three municipal day-care centers of Botucatu, 1991

B. hominis infection	Age (months) 0 ⊢—⊣ 23 (n = 28)		24 ⊢—⊣ 35 (n = 21)		36 ⊢—⊣ 47 (n = 33)		48 ⊢—⊣ 72 (n = 71)		Adults (n = 20)		Total (n = 173)	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Alone	1	(3.6)	–	–	1	(3.0)	3	(4.2)	6	(30.0)	11	(6.4)
With others parasites	2	(7.1)	3	(14.3)	14	(42.4)	24	(33.8)	6	(30.0)	49	(28.3)
Total	3	(10.7)	3	(14.3)	15	(45.4)	27	(38.0)	12	(60.0)	60	(34.7)

RESULTS

Out of the total number of the studied individuals, 34.7% showed *B. hominis* in the feces. In all the positive cases, 6.4% revealed only the presence of this microrganism, while 28.3% showed the presence of *B. hominis* in association with other protozoans and/or helminths (Table I). According to the age, the results showed that *B. hominis* infection was less frequent in 0 to 35 month-old children than in adults or children between 36 to 72 months old. (Table I).

The examination of three separate stool specimens increases the positivity for *B. hominis*, once only 19.1% of the positive cases were diagnosticated at the first examination, while 34.7% were detected after examinations of all samples (Table II).

The diagnostic of *B. hominis* was possible only when the stool specimens were processed by spontaneous sedimentation method, and all positive cases could be confirmed through smears stained by iron hematoxylin.

TABLE II

Results of stool examinations for *Blastocystis hominis* in children and staff members of three day-care centers of Botucatu, 1991

Specimen	No. examined	No. with *B. hominis*
1st	173	33 (33; 19.1%)
2nd	173	19 (52; 30.1%)[a]
3rd	173	08 (60; 34.7%)[a]

a: figures in parentheses are cumulative values.

DISCUSSION

In 1912, Brumpt made the first report about the presence of *B. hominis* in stool samples. This microrganism has been now recognized as a common inhabitant of the human intestinal tract and a possible pathogenic agent which may be associated with diarrheal disease in humans.

The present study confirms the findings of other epidemiological surveys that have demonstrated a significant frequency of *B. hominis* in fecal samples from individuals who have no gastrointestinal complaints (Mercado et al., 1988, 1989; Mercado & Arias, 1991). According to Mercado et al. (1989) results, *B. hominis* infection was demonstrated in 51.8% of 1075 healthy children from five schools in Chile. In the present study, out of 173 studied children and staff members of day-care centers, 34.7% showed *B. hominis* in the feces, mainly in association with other intestinal protozoans and/or helminths.

Considering the age, we also demonstrated a gradative increase of the frequency of *B. hominis*, once young children were less infected than adults and children between 36 to 72 months old (Mercado & Arias, 1991). This investigation showed that routine diagnostic of *B. hominis* can be made by spontaneous sedimentation, a simple, cheap and very known method, which can be improved by using three separated stool examinations for each individual. Smears stained by iron hematoxylin can be used together routine methods of stool examinations as a complementary diagnostic.

It is difficult to explain why the number of positive cases decreases in the third sample, because nothing is known about the parasite elimination pattern during *B. hominis* infection and what factors could influence it. In correlation to other human intestinal protozoans, like *Giardia lamblia* and *Entamoeba histolytica,* the hypothesis that this fact can be due the intermitent elimination of the parasite in the feces is now in focus.

Despite of the uncertain pathogenic role of this microrganism, it is important that the clinical laboratories do not substimate its diagnostic, once a significant frequency of infection has been demonstrated in different populations as well as in individuals with gastrointestinal complaints and in healthy ones.

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