NOTES ET INFORMATIONS

BLASTOCYSTOSIS IN ITALY

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The *Blastocystis hominis*, described by Brumpt for the first time in 1912 (Brumpt, 1912), is usually considered as a harmless protozoon of the bowel, even if it can sometimes be associated with signs and symptoms of disease both in man and in animals such as bird, monkeys and Guinea pigs (Zierdt, 1978).

The *Blastocystis hominis* has a variable morphology: its three possible forms are vacuolar, amebic and granular (Zierdt, 1978); the last ones would represent, according to recent studies, an adaptation of the first one (Van Saanen-Ciurea et El Achachi, 1983). The vacuolar form, be it oval, spherical or ellipsoidal, with a diameter of 8-40 μm , is characterized by the presence of a central body considerable size, optically empty, pushing the cytoplasm reduced to a very thin edge towards the periphery. Along this edge there is usually only one nucleus; if there are two, they are located at the opposite poles; if there are four, they are evenly distributed inside the perimeter of the cell.

The granular form is spherical with a diameter of 10 to 16 μm with reproductive granules, containing daughter cells, metabolites and lipids. On the other hand the amebic one is 10 to 25 μm and more and is lobated, with an irregular contour, with a slow movement of pseudopodes and it lives on bacteria.

The protozoon divides itself by binary fission in the vacuolar forms; alternatively, however, daughter cells can develop out of granular ones and come out without any lysis of the mother cell (Zierdt, 1978).

It is isolated by direct identification in fresh fecal preparations generally from asymptomatic subjects (Sheehan *et al.*, 1986). If the defecations contain a considerable quantity of protozoa, this is related to signs and symptoms of disease.

In fact finding 5 or more microorganisms of this kind per field not only at

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TABLE I. — Characteristics of study patients with *Blastocitis hominis*, infection.

N°	PATIENT	AGE	SEX	UNDERLYING DISEASES	ORIGIN	SIGNS AND SYMPTOMS	THERAPY	RELAPSE	OTHER INTESTINAL PARASITES
1	L R	25	M		autoc.	abdominal pain nausea	metron.		Entamoeba histolytica
2	G G	62	M	PGL	autoc.	diarrhea abdominal pain	metron.	1	
3	S O	46	M		autoc.	itching			Entamoeba coli
4	M P	54	M		autoc.	eosinophilia			
5	P E	38	M		autoc.	diarrhea abdominal pain			Endolimax nana Iodamoeba bütschlii
6	L A	60	M	AIDS	impor.	diarrhea nausea fever	metron.	1	Giardia lamblia
7	G A	76	M		autoc.	fever	metron.		Entamoeba coli
8	L P	15	M		autoc.	itching fever			
9	E A	57	M		impor.	diarrhea abdominal pain nausea			Endolimax nana
10	C C	27	M		autoc.	diarrhea nausea			
11	M C	46	M		impor.	diarrhea	metron.	2	
12	T A	38	M		autoc.	anorexia			Dientamoeba fragilis
13	G G	26	M	PGL	autoc.	fever	metron.		
14	G L	26	M		autoc.	diarrhea	metron.		Entamoeba coli
15	A A	48	M		autoc.	abdominal pain	metron.		Giardia lamblia
16	P A	51	M		autoc.	itching eosinophilia	metron.		
17	N J	37	M		impor.	diarrhea abdominal pain nausea	metron.		
18	V A	44	M		autoc.	diarrhea			
19	C M	32	M		autoc.	itching	metron.		Enterobius vermicularis
20	S M	47	M	atr.gastr.	impor.	diarrhea abdominal pain itching	metron.		
21	F M	36	M		impor.	diarrhea abdominal pain nausea fever anorexia	metron.	1	
22	E M	48	M	AIDS	autoc.	diarrhea abdominal pain nausea fever anorexia	metron.	1	
23	B A	23	M	PGL	autoc.	diarrhea abdominal pain nausea fever anorexia itching	metron.	1	
24	P G	28	M		impor.	diarrhea abdominal pain itching			

27	Z M	60	M	alc.cirrh.	autoc.	diarrhea abdominal pain nausea	metron.		
28	Z C	28	M		autoc.	diarrhea abdominal pain	metron.		
29	F G	58	M		autoc.	diarrhea abdominal pain			
30	T P	41	F		autoc.	fever			
31	D L	21	F		impor.	diarrhea abdominal pain itching	metron.		Giardia lamblia
32	B C	22	F		autoc.	fever			
33	S G	62	F	nephrocarc.	autoc.	diarrhea abdominal pain	metron.		Endolimax nana
34	M A	86	F		autoc.	anorexia			
35	G T	60	F		autoc.	abdominal pain itching	metron.	1	
36	M M	61	F	diab.mell.	autoc.	diarrhea nausea itching	metron.	4	Entamoeba hartmanni Dientamoeba fragilis
37	P M	58	F		autoc.	diarrhea nausea itching	metron.	1	
38	C N	64	F		autoc.	diarrhea			
39	S T	42	F		autoc.	diarrhea	metron.		Giardia lamblia
40	S T	32	F		autoc.	diarrhea abdominal pain	metron.	2	Giardia lamblia
41	B G	38	F		autoc.	itching			
42	B L	65	F		autoc.	diarrhea			
43	M B	24	F	chron.hep.	autoc.	diarrhea abdominal pain nausea anorexia	metron.		
44	T C	26	F	atr.gastr.	autoc.	diarrhea abdominal pain	metron.		
45	V F	38	F		autoc.	diarrhea			
46	S M	61	F		autoc.	diarrhea			
47	C M	40	F	diab.mell.	autoc.	diarrhea abdominal pain	metron.		
48	C Z	56	F		autoc.	diarrhea abdominal pain itching	metron.		
49	B L	59	F		autoc.	diarrhea fever			
50	R A	61	F		autoc.	abdominal pain nausea fever			
51	P M	23	F		autoc.	diarrhea abdominal pain			
52	A M	47	F		autoc.	diarrhea abdominal pain nausea fever			
53	G F	32	F		impor.	diarrhea	metron.	1	

40X (Sheehan *et al.*, 1986) but also at 100X is associated to an apparent blastocystosis (Vannatta *et al.*, 1985).

It is still unclear the way the parasitosis is transmitted to man (Sheehan *et al.*, 1986), even if the oro-fecal way seems to be the most probable channel (Garavelli et Scaglione, 1989); epidemic focuses have been found in tropical and subtropical countries (Sheehan *et al.*, 1986), while in Italy only isolated cases have been reported in the area of Ferrara and of Alessandria.

The disease, lasting 2 months to 1 year, is characterized by diarrhea, abdominal pains, anorexia, nausea, vomit, tenesmus, itching, exanthems and eosinophilia (Sheehan *et al.*, 1986): particularly severe pictures are to be found mainly in immunocompromised subjects (Garcia *et al.*, 1984) such as AIDS cases (Garavelli *et al.*, 1988).

Finally, the administration of metronidazole in a dosage of 2 g/day for a few days, eliminated the *Blastocystis hominis* from the stools and permits the bowel to go back to its normal functions (Sheehan *et al.*, 1986).

Original survey

From May 1984 through April 1989 (60 months) in General Hospital of Alessandria and in St. Anna Hospital of Ferrara the *Blastocystis hominis* was found in pathological quantity, according to Sheehan's criteria (Sheehan *et al.*, 1986), in the stools of 53 patients, 29 males and 24 females, their age ranging from 15 to 86 years (Table I).

Almost all autochthonous cases as only 9 were imported from tropical and subtropical countries. The symptoms presented by those patients are described in cases of blastocystosis: diarrhea (37 patients), abdominal pain (27 patients), fever and nausea (14 patients), itching (13 patients) and anorexia (6 patients); a total of 3 of these 53 patients had eosinophilia.

14 subjects had some underlying disease such as AIDS or PGL (5 patients), atrophic gastritis (3 patients), diabetes mellitus and alcoholic cirrhosis (2 patients) nephrocarcinoma and chronic hepatitis (1 patient). 15 patients also had a history of parasite infections which included: *Giardia lamblia*, *Entamoeba coli*, *Endolimax nana*, *Dientamoeba fragilis*, *Entamoeba histolytica*, *Enterobius vermicularis*, *Iodamoeba bütschlii* and *Entamoeba hartmanni*. In 20 of 31 patients a course of metronidazole was followed by disappearance of *Blastocystis hominis* from the faeces and a return to normal bowel function: 11 patients only had one more relapses.

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ERRATUM

In the article by Wang and Mao, Vol. 64, pp. 110-119, on page 114 the equation should read:

$$1 - \left(\frac{\text{worm survival rate in treated group}}{\text{worm development rate in control group}} \right) \times 100 \%,$$

and on page 116 in *fig. 2* the defining illustration for groups A, Y and G, should read from top to bottom A, G, Y.