RESEARCH NOTE

PREVALENCE OF *BLASTOCYSTIS* IN ANIMALS FROM DOMESTICATED SURROUNDINGS

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The intestinal protozoan parasite, *Blastocystis hominis* (Brumpt, 1912), continues to remain an enigma among the protists. The mode of transmission of the parasite to humans still remains to be elucidated. It is generally assumed that *B. hominis* is transmitted by the fecal-oral route in a manner similar to *Giardia* and *Entamoeba*, but there appears to be no evidence for this. Evidence is still lacking to support the suggestion made by Garavelli and Seaglione (1989) that this is a zoonotic parasite transmitted through food and water.

Doyle *et al* (1990) reported that 44% of 121 patients infected with *B. hominis* had a history of exposure to pets or farm animals. The suggestion that the intimate association between man and animals could facilitate transmission of the parasite led us to investigate the prevalence of *Blastocystis* in animals and insects from domestic environment. The study could contribute to better understanding of the mode of transmission of *Blastocystis* especially in the local context.

Fecal samples were collected from cats, dogs, cockroaches (*Periplaneta americana*), houseflies (*Musca domestica*) and house lizards (*Cosymbotus platyurus*). A total of 60 fecal samples were obtained from cats and dogs from the Animal House, Institute for Medical Research, Kuala Lumpur, the local SPCA (Society for the Prevention of Cruelty to Animals), at village dwellings, 25 km away from the city and at the hostel surrounding near the Institute Medical Research, Kuala Lumpur (Table 1). Thirty samples of both cockroaches and houseflies were obtained from the insectarium, Institute for Medical Research, Kuala Lumpur, the same village dwellings as above and in one of the restaurants in Kuala Lumpur. The 30 samples from house lizards were obtained from home dwellings in the city (Table 1).

The fecal samples collected from dogs and cats were immediately cultured in Bijou bottles containing Jones' medium (Jones, 1946), at 37°C for 48 hours.

House lizards and cockroaches caught from the various areas were anesthesiszed. The stomach walls were cut open and the intestinal contents were cultured in Bijou bottles containing Jones' medium at room temperature for 48 hours.

House flies were crushed and placed in Bijou bottles containing Jones' medium. The contents of the culture bottle were examined 48 hours after incubation at room temperature with a microscope at × 400 magnification.

Table 1

Prevalence of *Blastocystis* in cats, dogs, lizards, house flies and cockroaches caught from different areas. (Number in brackets indicate percentages)

Animal	Sample size	Area caught	Number positive
Cats	40	Animal House, IMR	0
	10	Village	0
	10	Hostel	0
Dogs	40	SPCA	0
	10	Village	0
	10	Hostel	0
Lizards	30	Home dwellings	2 (6.7)
Houseflies	10	Insectarium, IMR	0
	20	Restaurant	0
Cockroaches	10	Insectarium	0
	20	Village	3 (10.0)

Fig 1–*Blastocystis* in cockroaches. Note rounded, vacuolar and granular forms with sizes ranging from 5-15 μm.

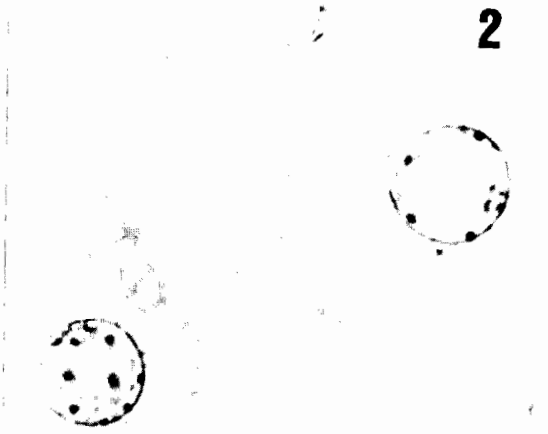

Fig 2–Granular forms of *Blastocystis* seen in house lizards. Note the prominent granules.

House lizards and cockroaches were the only two groups of animals that were positive for *Blastocystis*. 10% of cockroaches and 7% of lizards caught showed positive results for the presence of *Blastocystis*. Trichomands were also seen in the cultures from house lizards. These *Blastocystis*-positive cockroaches and house lizards were caught from home dwellings. Zaman *et al* (1993) reported that 80% of the cockroaches caught from the sewage tanks in their study were positive for *Blastocystis*. The low incidences in the present study can be attributed to the fact that the cockroaches caught were from home dwellings and not from the sewage tanks.

Blastocystis in cockroaches appeared rounded and vacuolar with size ranging from 5-15 μm (Fig 1). Most of the stages seen in the intestinal contents of house lizards were that of granular forms. Prominent granules were also seen within the parasite (Fig 2). These granules were rounded and very refractile. The parasites from house lizards died after several sub-cultures in Jones' medium. We are presently attempting to isolate more *Blastocystis* from house lizards and grow them in Iscoves Modified Dulbecco's Medium (IMDM) which has been shown to produce better results especially in the cultures of *Blastocystis* isolated from reptiles (Ho *et al*, 1993). The presence of *Blastocystis* have been reported in other reptiles (Teow *et al*, 1992) such as tortoises, snakes, crocodiles and iguana. The authors have suggested that since the habitats of these repltiles are seldom far away from water, the intake of feces-contaminated water may be a route of transmission of *Blastocystis*.

In our study we did not see *Blastocystis* in all 60 cats and dogs. Perhaps we should have cultured the fecal samples for a period longer than 48 hours. It is also possible that in nature there is a low incidence of *Blastocystis* in cats and dogs since the only other published report of *Blastocystis* seen in cats was that of Knowles and Das Gupta (1924). It is also possible that the authors could have mistaken yeast for the parasite since it has been known that during the early part of the century there was confusion and controversy with regard to the identification and taxonomy of *Blastocystis*. If this is so then there appears to be a paradox as to how this largely prevalent parasite which lacks host specificity is not present in cats and dogs.

The incriminating evidence that *Blastocystis* is present in house lizards and cockroaches implies that food contaminated by the fecal droppings of these'house visitors' could transmit *Blastocystis* to humans. Presently attempts are being made to axenize the isolates of *Blastocystis* from cockroaches and lizards so that a DNA profile can be made to compare with human isolates of *Blastocystis*.

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