RESEARCH NOTE

A COMPARISON OF DIRECT MICROSCOPY WITH CULTURE FOR THE DIAGNOSIS OF *BLASTOCYSTIS HOMINIS*

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Blastocystis is widely distributed in the animal kingdom and is also a common parasite of humans (Boreham and Stenzel, 1993). There are suggestions that it is a potential pathogen and needs to be diagnosed and treated, at least in symptomatic cases (Zaki *et al*, 1991).

The laboratory diagnosis is usually based on direct microscopy of the fecal sample and not on cultures, although it is easy to culture the organism. This study was therefore undertaken to determine the relative sensitivity of microscopy with cultures.

100 random fecal samples sent to the clinical laboratory of the Aga Khan University Hospital were used. Microscopy was done by direct wet mount in which approximately 2 mg of feces (the amount that usually adheres to one end of the wooden applicator stick) was thoroughly emulsified on a glass slide in one drop of physiologic saline and covered with a coverslip. A similar preparation was made on another slide using Lugol's iodine.

These preparations were examined under both low power (× 10) and high dry (× 40) objectives. Cultures were done by inoculating approximately 50 mg of feces into Jones' medium. This is a simple monophasic medium originally devised for culturing *Entamoeba histolytica* and contains 10% horse serum with yeast autolysate in buffered saline (Jones, 1946). For culturing *Blastocystis*, Jones' medium without starch was used, as it supports good growth of the parasite (Zaman *et al*, 1993).

The cultures were incubated at 37°C and examined after 24, 48, 72 and 96 hours. If no *Blastocystis* were seen up to the end of this period they were regarded as negative. As in the case of direct microscopy the sediment was examined under both the low power (× 10) and high dry (× 40) objectives. As there is a big size difference between individual *Blastocystis* in cultures, small sized cells can be easily missed if seen only with the low power objectives (× 10).

Direct microscopy revealed 18 positive out of 100 cases. Cultures taken after 24 hours of incubation at 37°C revealed 32 positive, after 48 hours 43 positive, and after 72 hours 45 positive. Further incubation did not increase the positivity rate.

Light microscopy is the most convenient and least expensive method of detection of *Blastocystis* in feces and it is for this reason that it is widely used. This study shows that cultures are clearly superior to direct microscopy in terms of sensitivity. This probably occurs because light infection with *Blastocystis* is common, and this can be easily missed by direct microscopy. In this respect *Blastocystis* is similar to *Trichomonas vaginalis*, in which the cultures are also more sensitive than direct microscopic examination of vaginal discharge and is recommended as a more reliable technique for diagnosis (Pillay *et al*, 1994).

These data are in variance with those of Kukoschke *et al* (1990) who did not find any difference between microscopy and cultures. Kukoschke *et al* (1990) used a highly nutritive biphasic medium (Boeck and Drbohlav, 1925) for isolation, and this could have caused an overgrowth of bacteria, resulting in low isolation rate of *Blastocystis*.

This study also shows extremely high (45%) prevalence rate of *Blastocystis* in Karachi and throws into some doubt the pathogenic role of the parasite. However, it is quite possible that there are pathogenic and non-pathogenic strains or even different species infecting humans, as has been suggested by Melhorn (1988), which could then explain why intestinal symptoms occur only in a minority of individuals. Alternately, *Blastocystis* may become a pathogen under specific conditions such as immunosuppression, poor nutrition or concurrent infections (Boreham and Stenzel, 1993).

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