



## *Blastocystis hominis:*

### To Treat or Not to Treat? *That is the Question*

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*Blastocystis hominis* is an anaerobic protozoan parasite commonly found in the human gastrointestinal tract. The species has generated considerable interest and controversy about whether it represents a true pathogen or non-pathogenic resident organism, leaving many physicians with the inevitable question—to treat or not to treat? Thus, *B. hominis* is this month's **Bug**.

#### *How is it transmitted?*

It is generally presumed that the transmission of *B. hominis* occurs through the fecal-oral route, similar to other protozoal parasites, yet specific data is lacking. Water-borne transmission of *B. hominis* via untreated municipal water supplies with poor sanitary conditions, particularly in developing nations, has been implicated as a source of human infection. These modes of transmission are consistent with observations that *B. hominis* infection is associated with travel to developing countries and wilderness areas where untreated water is often consumed. Reports also suggest sexual transmission among men who have sex with men. Persons who work closely with animals are also at risk, implying that the transmission of this species may have a zoonotic component.

#### *What are the risk factors?*

Higher prevalences have been reported among adults as compared to children. Young adults appear to have the highest rates of infection of all groups, though the explanation for these observations is not forthcoming. In addition, there appears to be no gender difference in infection rates for *B. hominis*.

Reports from developing countries give higher prevalence rates when compared to developed nations, such as Canada. Interestingly, immigrants, refugees and adopted children from devel-

oping countries appear to have higher incidences of *B. hominis* infection than adults and children raised from birth in their new country. Individuals residing in lower socio-economic strata or those with poor standards of personal hygiene may be at increased risk. Immunocompromised patients, particularly those with human immunodeficiency virus infection, have been reported to be at increased risk, but only limited data are available about the prevalence and impact of infection in immunocompromised patients.

#### *What are the clinical features?*

Symptoms commonly ascribed to *B. hominis* infection include:

- diarrhea,
- abdominal pain,
- cramps or discomfort and
- nausea.

Profuse watery diarrhea and fever have been attributed to acute cases. Additional signs and symptoms are rare, but may also include:

- the presence of fecal leukocytes,
- eosinophilia and
- hepatosplenomegaly.

It is, however, important to note that the presence of *B. hominis* in stool samples from patients with the above-noted symptoms does not guarantee the diagnosis. In the absence of other identifiable causes, including simultaneous infection



with other pathogens and non-infectious causes, symptoms may be tentatively ascribed to *B. hominis*.

### *How is it diagnosed?*

Light microscopic examination of fecal material identifies the organism. Stool samples should be placed in a sterile sample collection tube with normal saline, as *B. hominis* is subject to osmotic lysis when suspended in distilled water.

A wet mount preparation of unstained or iodine-stained fresh fecal material can be examined by a trained technologist; this method has the advantage of simplicity and low cost with good results. Stool culture appears to have no advantage over light microscopy of fecal material.

Trichrome staining of permanent smears is recommended, as *B. hominis* is difficult to identify under wet mount to the untrained eye. Serology can detect antibodies to *B. hominis*, but more sophisticated techniques are available, yet are rarely used at the present time.

### *Why the confusion?*

Confusion regarding *B. hominis* arises from numerous epidemiologic and clinical studies that implicate or exonerate this species as a pathogen. A paucity of researchers, the presence of large genetic variation among morphologically similar parasites and a lack of suitable animal models discourage study of the species at present.

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R e c e n t advances in the taxonomy and biology of the species may facilitate increased interest. Other protozoans that were previously thought to be non-pathogenic have

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now been determined to initiate disease. Perhaps *B. hominis* will be shown to be a pathogen under specific host conditions of immunosuppression, concomitant infection or poor nutrition. Further research is indicated to elucidate the true nature of this peculiar protozoan.

### *What is the treatment?*

Asymptomatic patients with *B. hominis* infection do not require therapy. Patients with symptoms should have a comprehensive evaluation to exclude other pathogens and non-infectious causes of their symptoms. If no other etiology can be found, it is reasonable to administer treatment for confirmed *B. hominis* infection. If the decision has been made to treat, the recommended choices and doses include:

- metronidazole, 750 mg, three times a day (tid) for 10 days,
- iodoquinol, 650 mg, tid for 20 days or
- trimethoprim-sulfamethoxazole, one double-strength tablet, twice a day for seven days.

### *Conclusions...*

While the pathogenicity of this species remains suspect, it is reasonable to treat *B. hominis* infection in symptomatic patients in which other pathogens and non-infectious causes have been excluded. However, the infection is self-limited and asymptomatic in a large subset of patients. Prevention of infection can be achieved, at least in part, by exercising sound personal and community hygiene practices.