**Blastocystis hominis**—An Emerging Cause of Diarrhoea in Renal Transplant Recipients

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**Abstract**

*Blastocystis hominis* is an intestinal protozoan that is emerging as an important cause of diarrhea in the immunosuppressed population. We report two cases of diarrhea caused by this organism in renal transplant recipients. The infection was diagnosed promptly by careful stool examination and treated successfully with metronidazole. These case reports highlight the fact that unusual parasites like *Blastocystis hominis* should be looked for and treated in cases of diarrhea occurring in renal transplant recipients. This reduces the rate of post-transplant morbidity and mortality.

**INTRODUCTION**

Infective complications remain a major challenge in organ transplant recipients. Following a transplant, approximately two-thirds of patients will experience infection-related complications leading to graft failure with significant morbidity and mortality. This increased rate of infection reflects the overall immunosuppression associated with ESRD, transplant, donor factors and environmental exposure. In addition many renal diseases are also treated with immunosuppressive medications prior to transplant. Subclinical abdominal infections and infestations with gastrointestinal pathogens can flare up after transplant leading to diarrhea and dysentery.

One of the gastrointestinal pathogens in the immunosuppressed host is *Blastocystis hominis*. This protozoan parasite had long been considered non-pathogenic but more recently there have been many reports supporting its role as a diarrheagenic agent.\(^1\) We report here recurrent diarrhea with dehydration leading to reversible graft dysfunction caused by *Blastocystis hominis* in two of our transplant recipients.

**CASE REPORT**

**Case 1**

A 44-year-old male who had undergone live renal transplant in 1994 presented with the complaints of abdominal pain, passing watery loose stools more than ten times a day and associated vomiting 4-5 times a day for the preceding three days. He also had colicky abdominal pain. Patient was on double immunosuppression - Tab. Prednisolone 10 mg od and Sandimum Neoral 100 mg BD. On admission he was empirically treated with Inj. Ciprofloxacin 200 mg IV BD and was given IV fluids.

On examination the patient had signs of dehydration but no evidence of acute abdomen. The pulse rate was 92/min, and the blood pressure was 100/70 mm of Hg. Investigations showed Hb of 12.8 gm%, PCV 37.3%, RBC 4.41 million/cu mm, TC 18000, DC Poly 90.8%, Lymphocytes 4%, Eosinophils 1.5%, Monocytes 2.1%. The liver function tests were within normal limits. BUN was 34 mg/dl and creatinine was 2.3 mg/dl. A fresh sample of stool sent for routine examination showed cysts of *Blastocystis hominis* with a few WBCs and no RBCs. Culture of the stool was negative for bacterial pathogens. The patient was treated with Inj. Metronidazole IV 500 mg TDS and his diarrhea subsided in 24 hours. Ciprofloxacin was stopped and metronidazole was continued for seven days. The dose of Neoral was reduced to 175 mg/day.

**Case 2**

A 64-year-old male who had undergone live related renal transplant in 1995 was previously treated for pulmonary tuberculosis in 1996. He was on double immunosuppression with Tab. Prednisolone 5 mg OD and Azathioprine 100 mg OD. He had excellent graft functions with post-transplant diabetes mellitus. The patient presented with the complaints of passing loose stools > 7 times a day with associated low grade fever for the preceding three days.

On examination the patient had evidence of mild dehydration and the abdomen was soft without tenderness. He was afebrile on admission. Investigations showed Hb of 8.5 gms%, PCV 27.6%, RBC 2.57 millions/cu mm, TC 2000, DC Poly 60%, Lymphocytes 35%, Eosinophils 5%. The random...
blood sugar, renal and liver functions were within normal limits the serum potassium level was 2.4 mmol/litre. Examination of fresh stool sample showed cysts of *Blastocystis hominis*. The stool culture was negative for bacterial pathogens. The patient was treated with Tab. Metronidazole 400 mg TDS, Tab. Domperidone and syrup KCl. The dose of prednisolone was reduced to 25 mg OD. His symptoms improved within two days and metronidazole was discontinued after seven days.

**DISCUSSION**

*Blastocystis hominis* is a unicellular protozoan of undefined taxonomical status. Since its basic biology is unknown, its role in human pathogenesis remained controversial. It is a definite pathogen in immunosuppressed population. It is found in the gastrointestinal tract of both symptomatic and asymptomatic individuals. It’s rapid proliferation in the gut leads to diarrhea. The source of infection is contaminated drinking water and outbreaks have been traced to food handlers and domestic pets. The high risk population for infection includes the HIV infected, patients with haematological and intestinal malignancy, diabetes mellitus, ulcerative colitis and renal transplant recipients. In renal transplant recipients with gastrointestinal symptoms it has been found in 39.1% of faecal specimens examined. The clinical picture includes persistent diarrhea, traveller’s diarrhea, irritable bowel syndrome, non-specific abdominal pain with loose stools and extra-intestinal manifestation like arthritis.

Laboratory diagnosis of *Blastocystis* infection includes examination of fresh stool by wet preparation and a stained smear. It is pleomorphic varying in size 4-40 µm and can be seen in three forms - vacuolated, granular and amoeboid. More than five organisms per high power field of the microscopic field is considered significant and the organisms appear vacuolated with treatment. It can coexist with *Entamoeba histolytica*, *Isospora*, *Giardia* and *Cryptosporidium*. Since they are irregularly shed in stool repeat examination of the stool sample is very essential to make the diagnosis in symptomatic individuals. Other laboratory methods for diagnosis are colonic brush cytology, fluorescent antibody techniques and serum antibody estimation by ELISA. Treatment of *Blastocystis* infection includes metronidazole and trimethoprim-sulphamethoxazole. Both clear the organisms in 3-7 days and reduce the frequency of diarrhoea in a day. Other drugs reported effective include diiodohydroxyquin, rifaximin and furazolidine.

Although infections are common in the first six months after transplant due to the heightened immunosuppressive dosage, we should be vigilant looking for the opportunistic infections involving the gastrointestinal tract as they may surface years later in immunosuppressed transplant patients. It is our practice to administer cotrimoxazole prophylaxis for renal transplant recipient indefinitely to prevent infections like *Pneumocystis carinii*, *Listeria* and *Nocardia*. But these two patients had stopped taking the drugs on their own a couple of years after the transplant. Additionally one of the patients was a diabetic and this could have added to the immunosuppression to precipitate the infection.

These patients highlight the fact that many years after
transplantation with reasonably good graft function and low
doses of immunosuppressive drugs can also have intestinal
infestation with emerging pathogens and this can lead on to
profound morbidity. Enteric colonization and infection with
protozoans and helminths is not uncommon in renal transplant
recipients especially in developing countries. Repeated stool
examination to look for the pathogen is necessary to establish
the aetiology. Prompt diagnosis and therapy reduces the
morbidity and mortality in such patients. Blastocystis hominis
is an emerging intestinal pathogen which is to be borne in
mind in cases of diarrhea with an immunocompromised status.

REFERENCES

R. Clinical significance of Blastocystis hominis infection:

2. Pinel P, Rejasse C, Picot S, Brenier-Pinchart MP, Grillot R,
Ambroise-Thomas P. Blastocystis hominis epidemiological
and clinical remarks from more than 3500 stool examinations.
Blastocystis hominis. Annales de Biologie Clinique 1999;57:601-
4.

3. Hellard ME, Sinclair MI, Hogg GG, Fairley CK. Prevalence of
enteric pathogens among community band asymptomatic

4. Prasad KN, Nag VL, Dhole TN, Ayyagri A. Blastocystis in HIV
patients. Identification of enteric pathogens in HIV positive
patients with diarrhea in Northern India. J Health Popul Nutr

5. Ok UZ, Crit M, Uner A, Ok E, Cicak F, Basci A, Ozcel MA.
Blastocystis in renal transplant recipients. Nephron

6. Lee MG, Rawlin SC, Didier M, Deceulaer K. Infective arthritis