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CASE REPORT

Colonic Obstruction Due to *Blastocystis hominis* Infestation: A Rare Case Report

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ABSTRACT

Blastocystis hominis (B. hominis) is an intestinal parasite that is usually asymptomatic and transmitted by the feco-oral route. It is commonly found in human and animal fecal samples. The role of *Blastocystis* in human health and disease is controversial. Studies have shown a relationship between subtypes and symptom presentation. Patients frequently present with abdominal pain, nausea, bloating, and diarrhea. In our case, intestinal obstruction was observed, which is the exact opposite of the usual *B. hominis* symptoms. The patient was evaluated for malignancy. On radiologic examination, the appearance of an almost complete obstruction of the distal sigmoid colon passage was highly suspicious of malignancy. An endoscopic evaluation revealed a mass almost completely obstructing the lumen. Malignancy was not pathologically confirmed. We performed surgical treatment in accordance with oncologic principles.

This study aimed to share our experience in the diagnosis and treatment of an obstructive mass caused by a single-celled organism.

Keywords: *Blastocystis hominis*, colon, ileus, infestation, obstruction

Introduction

Blastocystis hominis (B. hominis) is an anaerobic protozoan parasite found in the gastrointestinal tract of humans and animals.[1] *Blastocystis spp.* are the most commonly detected eukaryotic parasites in human stool specimens. *Blastocystis* was first described by Alexieff in 1911 and subsequently given its worldwide name by Brumpt in 1912. Currently, at least 13 subtypes have been identified due to morphological and genetic variations. Subtype 3 is the most frequently isolated genotype in epidemiologic studies.[2] Pathologic effects may depend on host factors, such as lowered immunity, or disturbances in gastrointestinal function caused by other factors. The prevalence in humans ranges from 0.5% to 24% in industrialized countries and from 30% to 76% in developing countries.[3,4]

B. hominis may manifest in patients with symptoms such as diarrhea, nausea, loss of appetite, abdominal cramps, bloating, gas, urticaria, itching, and fatigue. Typically, the diagnosis of *B. hominis* is established through direct microscopic examination of fecal samples processed with trichrome stain and the Kinyoun acid-fast technique. Polymerase chain reaction (PCR) techniques are highly sensitive and are becoming increasingly common.[5,6] Endoscopic findings usually show a macroscopically normal-appearing mucosa. The parasite typically does not invade tissues.[7-9]

The differential diagnosis includes intestinal malabsorption syndromes, such as celiac disease and inflammatory bowel diseases. It is not necessary to treat asymptomatic patients identified through stool examination, as *Blastocystis spp.* are commensal organisms. Metronidazole, tinidazole, and paromomycin play an important role in the medical treatment of symptomatic patients.

Case Report

A 47-year-old male patient was referred to the general surgery clinic with complaints of abdominal pain, recent constipation, intermittent fever, and weight loss. He had no known

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comorbidities and no history of surgery. The patient had no family history suggestive of parasitic infection or malignancy. Physical examination revealed left lower quadrant tenderness. Sedimentation rates were slightly above the upper limit, whereas other biochemical parameters remained normal. According to ultrasonography, there was no intra-abdominal free fluid, and the small bowel diameters appeared mildly increased. A computed tomography scan displayed a massive soft tissue lesion in the proximal 85 mm segment of the sigmoid colon, with marked narrowing of the lumen, as well as contamination of the surrounding fatty planes and lymph nodes with a short axis <1 cm (Figure 1). On endoscopic examination, the colonic mucosa was irregular, edematous, and fragmented in the area corresponding to the sigmoid colon. Erosions and sporadic ulcers were observed. It was not possible to proceed proximally from this area where the lumen was narrowed (Figure 2). Endoscopic biopsies revealed focal adenomatous changes and were diagnosed as chronic non-specific colitis. During the evaluation, the patient developed abdominal distension. His condition was reviewed by the oncology council. Low anterior resection with colorectal anastomosis and diversion ileostomy was performed according to oncologic principles. Infiltration was seen in the upper left side of the bladder. Partial resection was applied to this region (Figure 3). Pathologic evaluation of the specimen revealed areas of ulceration extending into the muscular layer. However, no evidence of malignancy was found. A microbiology opinion was requested for diagnosis. It was reported that microorganisms compatible with parasites featuring eosinophilic cytoplasm and large nuclei were observed among the dense inflammation, leading to a consideration of invasive parasitic infection (Figure 4). The diagnosis of *Blastocystis* infestation was confirmed by PCR. The patient was referred to the infectious diseases department, where he received metronidazole at a dosage of 500 mg every 8 hours. After a 3-month follow-up, complete eradication of *B. hominis* was confirmed. Ileostomy closure was performed in the 4th week post-operation.

The patient provided informed consent for publication.

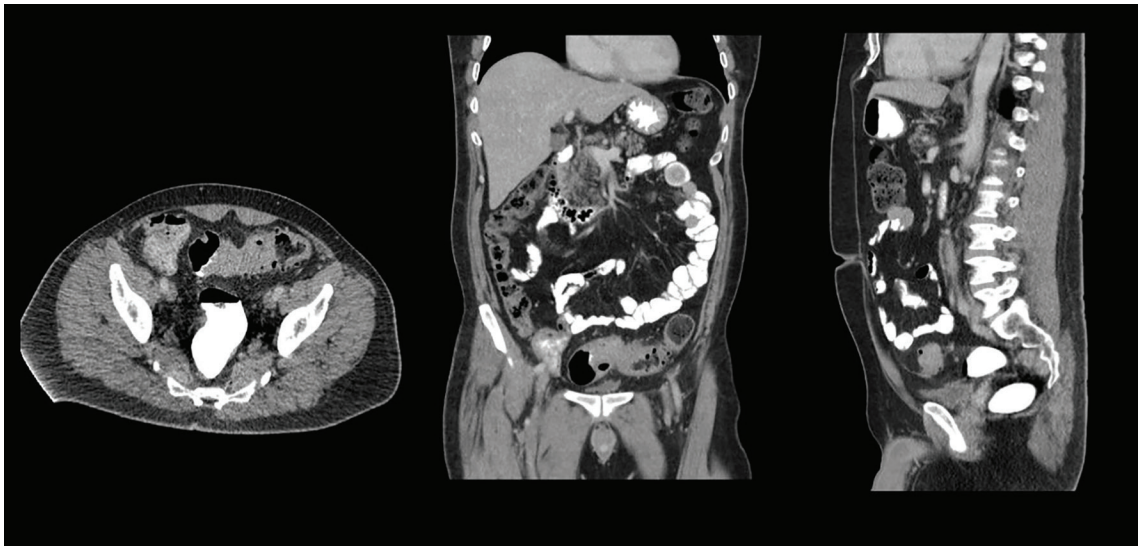

Figure 1. Computed tomography images. A narrowed rectosigmoid junction is seen in the axial plane. A dilated segment is demonstrated in the coronal plane and a suspicious infiltration with the bladder wall in the sagittal plane

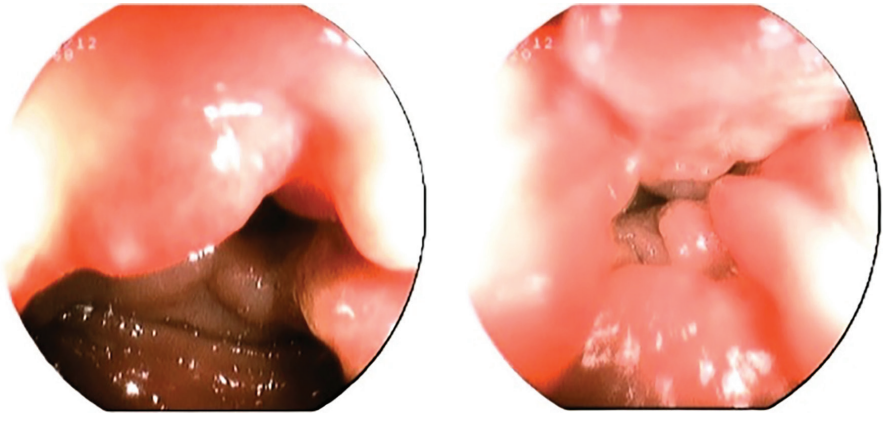

Figure 2. Obstructive, edematous, and fragile mucosal areas at the endoscopic examination

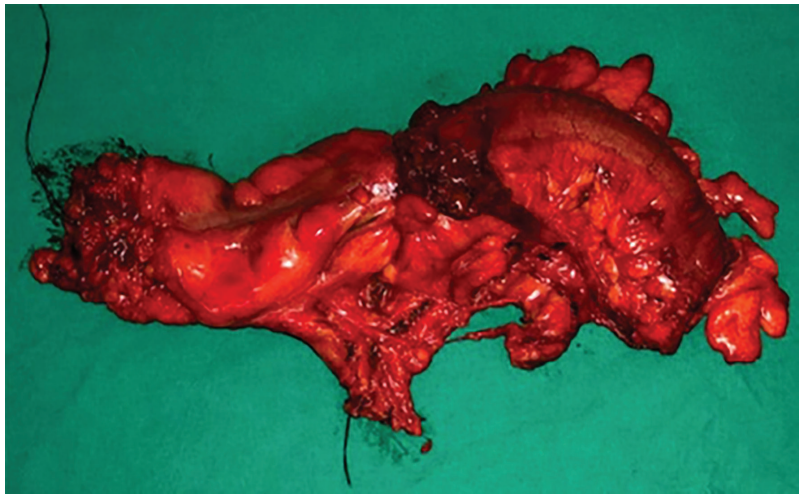

Figure 3. Peroperative macroscopic view (Blastocystis infestation is indicated with the yellow arrow)

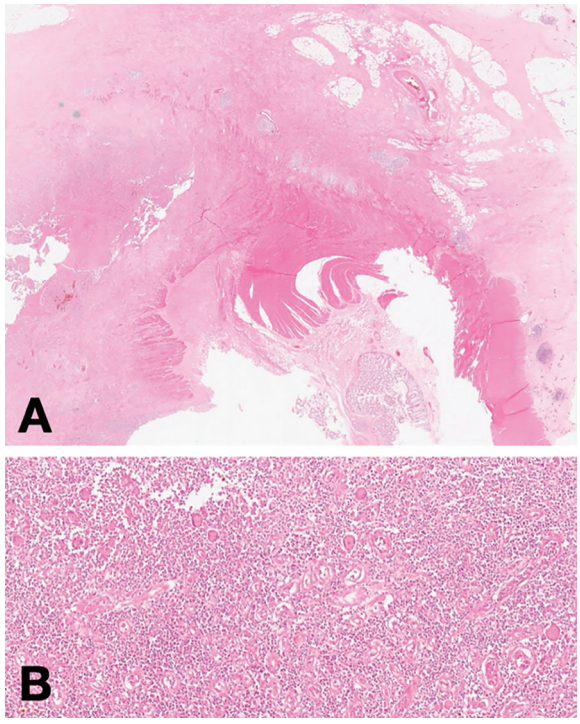

Figure 4. Histopathological views of the obstructed colonic segment
A) Ulcerated area in the muscularis mucosa of the colonic epithelium, H&E x4, **B)** Giant cell-like microorganisms among intense inflammation, H&E x100
H&E: Hematoxylin and eosin

Discussion

The pathogenicity of *B. hominis* remains controversial, and there is ongoing debate regarding whether treatment is warranted.[10] Some clinicians consider treatment necessary if no other infectious agent is detected and symptoms are attributed to *B. hominis*. In recent years, several studies have reported on symptomatic patients. Some have even studied the relationship between *Blastocystis spp.* and inflammatory bowel diseases, various cutaneous lesions, and intestinal malignancies. Although *Blastocystis* infections cause gastrointestinal symptoms ranging from diarrhea to constipation, we did not expect to encounter an isolated obstructive mass. Horiki et al.[11] presented four patients with *B. hominis*-positive occlusive intestinal cancer. They aimed to demonstrate that cancerous neoplasms can create a suitable environment for the parasite to proliferate. Horiki et al.[11] concluded that *B. hominis* infection in four cases was incidental and unrelated to neoplastic growths. They also did not detect a specific localization for *Blastocystis* colonizations. In all four instances, the obstructive

zone was located in the ileum, transverse colon, sigmoid colon, and rectosigmoid junction, respectively. In our case, we faced an isolated *Blastocystis* infestation at the rectosigmoid junction. In several animal studies, penetration of *Blastocystis spp.* into the intestinal epithelium and colonic distension were observed.[12] In contrast to our case, Horiki et al.[11] reported that histological examination of resected cancerous lesions did not invade into the mucosa by the organism even when large numbers of *B. hominis* were found in fecal samples.

B. hominis infection may be associated with mucosal ulcers, as reported in a few cases in the literature.[13] Lintong et al.[14] showed with their case report that *B. hominis* invaded and destroyed the mucous layers of the appendix. In the presence of an occlusive mass, the diagnosis-treatment process can be challenging. When radiologic and endoscopic evaluations lead to suspicion of a malignant mass, time becomes an important factor for curative treatment. Diarrhea, the most common symptom of *Blastocystis* infection, was not seen in our case. The *Blastocystis* infestation mimics an occlusive mass; therefore, *Blastocystis* infection should be considered in the differential diagnosis when histopathologic findings are inconclusive.

Ethics

Informed Consent: An informed consent was obtained from the patient for this case report.

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Footnotes

Authorship Contributions

Surgical and Medical Practices: Ç.K., S.A., Concept: S.A., Design: Ç.K., Data Collection or Processing: Ç.K. S.A., Analysis or Interpretation: S.A., Literature Search: Ç.K. S.A., Writing: Ç.K.

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