

Gastrointestinal infection by *Basidiobolus* spp. A case report

Infección gastrointestinal por *Basidiobolus* spp. Presentación de caso

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Summary

Gastrointestinal basidiobolomycosis is a rare diagnosis, with multiple presentations. It must be taken into account in the differential diagnoses of intra-abdominal masses since late diagnosis impacts morbidity and mortality. We report below a case of gastrointestinal basiodiobolomycosis presented as irregular thickening of the terminal ileum and cecum with symptoms and clinical examination of pain in the right hemiabdomen and sensation of abdominal mass without signs of peritoneal irritation. Abdominal tomography showed mural thickening of the terminal ileum and cecum forming an intra-abdominal mass. After inconclusive histopathological studies, gastrointestinal basidiobolomycosis was diagnosed thanks to a culture sample of secretion incidentally evidenced by cystoscopy with growth of *Basidiobolo* spp. The follow-up findings by ultrasound, computed tomography, and magnetic resonance imaging are described.

Resumen

La basidiobolomicosis gastrointestinal es un diagnóstico infrecuente, con múltiples presentaciones. Debe tenerse en cuenta en los diagnósticos diferenciales de las masas intraabdominales, ya que su diagnóstico tardío impacta en la morbilidad y mortalidad. Se presenta un caso de basidiobolomicosis gastrointestinal que debutó imagenológicamente como engrosamiento irregular de íleon terminal y ciego con síntomas y examen clínico de dolor en hemiabdomen derecho y sensación de masa abdominal sin signos de irritación peritoneal. Luego de estudios histopatológicos no concluyentes, se diagnosticó basidiobolomicosis gastrointestinal en una muestra de cultivo en secreción evidenciada incidentalmente en cistoscopia con crecimiento de *Basidiobolus* spp. En el seguimiento se describen los hallazgos por ultrasonografía, tomografía computarizada y resonancia magnética.

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Introduction

Basidiobolus spp. infection is a rare entity that poses a diagnostic challenge, especially from a radiological point of view. Although the skin is the most common site of infection, gastrointestinal involvement, as in the case documented here, can mimic other pathologies. Radiologically, these infections can manifest as extensive retroperitoneal masses that infiltrate abdominal structures such as the stomach, liver, or intestine (1-3). Diagnostic imaging findings, although not definitive, can point to a diagnosis of gastrointestinal basidiobolomicosis, which is confirmed by biopsy and culture (4). Abdominal ultrasound allows the identification of suspicious signs, including wall thickening, collections, and invaginations (5-7). Moving forward in the sequence of studies, computed tomography (CT) allows for a more detailed characterization of the images, enabling the identification of masses that could mimic metastases or abscesses (3). Endoscopic examination can reveal lesions with characteristics suggestive of neoplasia when hollow viscera are involved (8). This case is presented to highlight the importance of considering gastrointestinal basidiobolomycosis in the differential diagnosis of patients with peritoneal masses and gastrointestinal involvement. The radiological findings described here may serve as a reference for future cases and contribute to earlier detection and appropriate management of this pathology.

Case description

A 23-year-old male patient from La Guajira was admitted to the institution with a clinical picture of 15 days of pain in the right lower abdomen. The patient had a history of appendectomy with no other significant personal or family medical history.

Two days prior to admission, the patient underwent a total abdominal ultrasound at another institution, which revealed ileocolic intussusception or severe colitis of the ascending colon and bilateral non-obstructive renal lithiasis. His vital signs were normal upon admission. Abdominal physical examination revealed tenderness on palpation in the flank and right iliac fossa, a mass in the right flank, and no signs of peritoneal irritation.

The total abdominal ultrasound on admission showed an irregularly shaped, partially defined, heterogeneous image measuring 73 × 36 × 71 mm located intra-abdominally toward the flank and right iliac fossa (Figure 1). Additionally, distension of intestinal loops was found in the left iliac fossa with increased endoluminal fluid content (not shown in Figure 1). The diagnostic impression was crushing of the intestinal loops in the right iliac fossa, with an edematous appearance. Signs of intestinal obstruction could not be ruled out, so a contrast-enhanced abdominal CT scan was recommended.

The abdominal CT scan with oral and intravenous contrast revealed wall thickening of the terminal ileum and cecum, forming a large mass in the same location described in the total abdominal ultrasound in the right iliac fossa (Figure 2). An extended chest CT scan was performed, as a neoplastic process was considered among the differential diagnoses based on the diagnostic studies performed to date, but no abnormalities were found; possible implantations of a probable intestinal tumor were ruled out.

Subsequently, a colonoscopy was performed, which showed a lesion described as tumorous or pseudotumorous, inflammatory, ulcerated, and friable, located in the cecum and ascending colon. The histopathological result of the biopsies taken suggested pyogenic granuloma; inflammatory bowel disease was not ruled out, but tuberculosis and malignancy were excluded. The results of the first biopsy sample were considered inconclusive; in the second sample, changes were detected due to lymphoplasmacytic infiltration accompanied by numerous eosinophils (>200 × field) forming microabscesses with granulation, findings consistent with acute ulcerative colitis with a marked increase in eosinophils.

Contrast-enhanced magnetic resonance imaging (MRI) of the abdomen and pelvis revealed a multilocular lesion in the right flank and iliac fossa in contact with the psoas muscle, with heterogeneous signal intensity, enhancement of the peripheral tissue that significantly restricted diffusion with extension to the lateral wall of the abdomen along the lateroconal fascia, as well as thickening of the anterior and posterior fascia of the psoas muscle (Figure 3). Based on the information obtained, the differential diagnoses were neutropenic colitis, active Crohn's disease, and neoplasia.

Subsequently, without a conclusive diagnosis and given the hematuria, a cystoscopy was performed and, upon finding intravesical mucoid secretion, a sample was taken for microbiological study, the culture of which resulted in the growth of *Basidiobolus* spp.

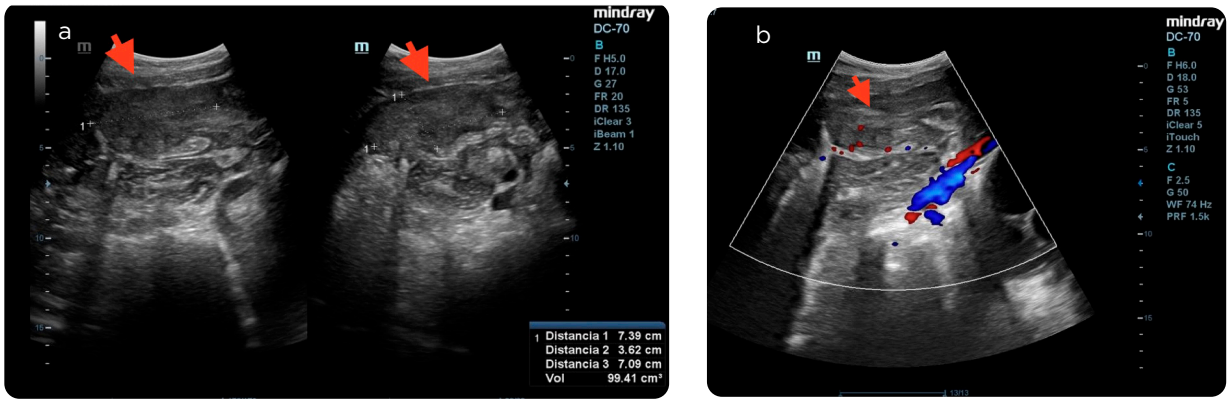


Figure 1. Total abdominal ultrasonography. a) Image of lower right intraabdominal location, irregular shape, defined margins, heterogeneous. b) The Doppler image showed flow inside.

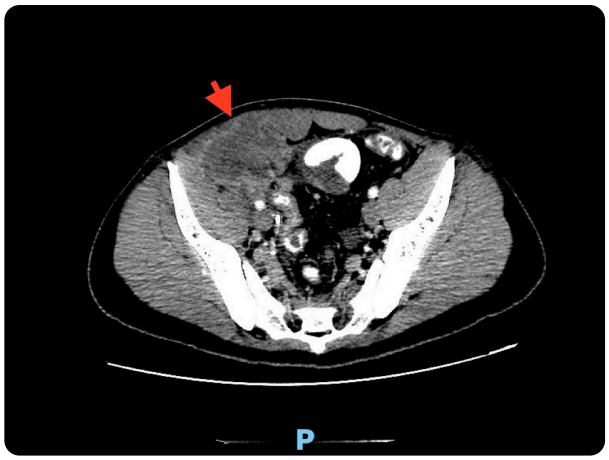
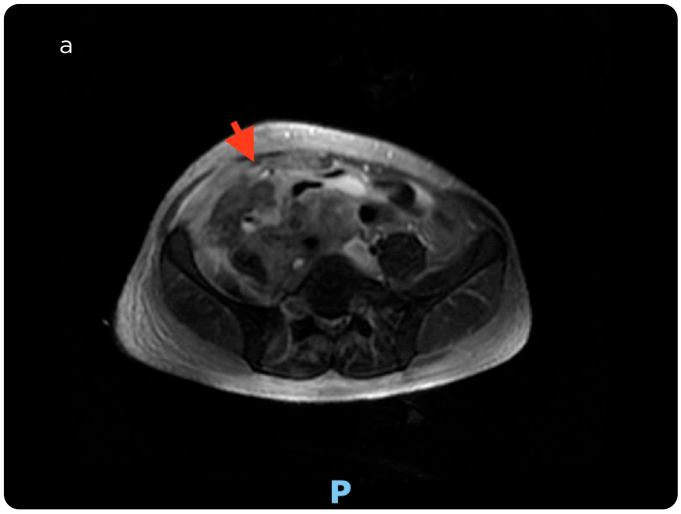
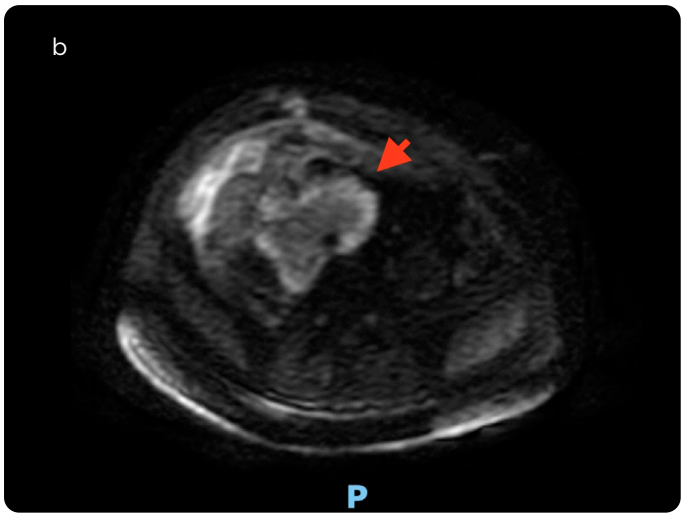


Figure 2. Total abdominal CT scan with oral and intravenous contrast medium, axial section and soft tissue window. Intra-abdominal mass in the flank and right iliac fossa, irregular in shape, with partially defined margins, peripheral enhancement, and a low-density center compared to the muscle tissue.





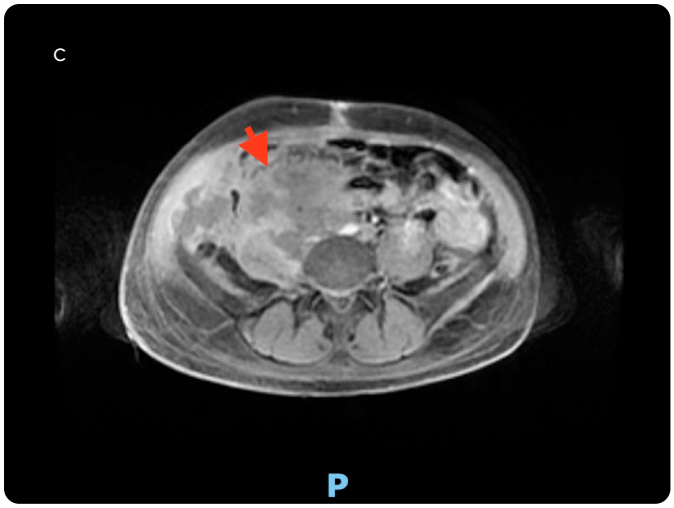


Figure 3. Contrast-enhanced abdominal MRI. a) Axial T2-weighted sequence with fat saturation. Intra-abdominal mass, irregular in shape, with lobulated borders, high-signal peripheral margins and a low-signal center; b) diffusion restriction in the periphery; and c) enhancement of peripheral tissue with vascular contrast.

Discussion

Basidiobolus species cause subcutaneous infections and, infrequently, gastrointestinal infections in immunocompetent hosts (2).

Basidiobolus spp. are both parasites and saprobes (5). It is proposed that they are transmitted via spores present in some insects, which are then swallowed by reptiles and amphibians, in whose intestines they spend part of their life cycle before being eliminated in their excrement in the form of spores and mycelia, where they germinate and behave saprophytically (6).

Their geographical distribution is concentrated in tropical and subtropical regions (6).

Gastrointestinal basidiobolomycosis can present in various forms. The most common finding is an abdominal mass in the colon, liver, or, particularly, in the form of focal thickening of the intestinal wall (7), which can lead to confusion with neoplasms, inflammatory bowel disease, or intestinal tuberculosis.

The gold standard for diagnosis is culture. Direct microscopy can characterize pathological and/or infectious findings by visualizing hyphae in hematoxylin-eosin (HE) staining surrounded by Splendore material (eosinophilic deposits surrounding the hyphae), also visualized in periodic acid-Schiff staining, or Grocott's methenamine silver staining, but these findings are not sensitive or specific for the diagnosis of *Basidiobolus* spp. infection (6).

Diagnostic imaging findings of gastrointestinal basidiobolomycosis may show a rapidly growing abdominal mass with inflammatory components in adjacent tissues, focal thickening of the intestinal wall, multiple heterogeneous densities in the liver, and single or simultaneous foci of infection in the intra-abdominal cavity (8, 9).

The most effective management strategy is described as surgical resection of the mass, accompanied by pharmacotherapy with amphotericin B, itraconazole, voriconazole, or posaconazole in monotherapy or combination therapy.

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