

## Disseminated Histoplasmosis Presenting as a Colonic Mass Causing a Large Bowel Obstruction

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### ABSTRACT

Large bowel obstruction is most commonly caused by malignancy which can be the presenting symptom in patients with colorectal cancer. However, benign and infectious causes may also be responsible for a similar presentation. Although the most common cause of a benign large bowel obstruction is a sigmoid volvulus, other rare infectious causes of large bowel obstruction such as disseminated histoplasmosis (DH) can occur.

This case report presents a 58-year-old female with a past medical history of human immunodeficiency virus (HIV) who presented to an outside hospital with a few month history of abdominal distention, nausea, vomiting, and changes in bowel habits with new onset constipation. The patient was on recent antifungal therapy for oral histoplasmosis. A workup with colonoscopy demonstrated a large partially obstructing, fungating and bleeding transverse colon mass. CT scan of the abdomen and pelvis without contrast demonstrated a stricture mid transverse colon with dilated proximal colon with a large stool burden consistent with a high-grade obstruction. She subsequently underwent an open extended right hemicolectomy with end ileostomy. Intraoperative findings demonstrated a 6 cm hard and nodular mass in the transverse colon concerning for malignancy. The pathology demonstrated fungal colitis with extensive ulceration and necrotizing granulomas without any signs of dysplasia or malignancy.

DH can present as a rare cause of a large bowel obstruction in immunocompromised patients and can be considered in the differential diagnosis in select patient populations.

### KEYWORDS

Bowel obstruction; Malignancy; Abdomen; Histoplasmosis; HIV

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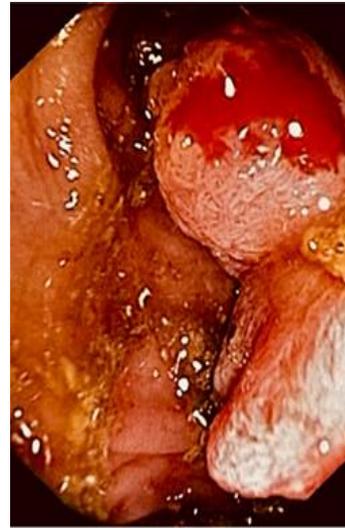
## 1. INTRODUCTION

Fungal infections causing large bowel obstruction is an extremely rare entity found more commonly in immunocompromised individuals with a CD4 count less than 200 cells/mm<sup>3</sup>. This has been linked to DH which occurs 1 in every 2,000 people who are acutely infected with HIV. In those patients up to 70% - 90% of the gastrointestinal tract can be involved in DH with manifestations that can include gastrointestinal bleeding, perforation, and obstruction of small or large bowel [1]. There have been few case reports demonstrating the management of DH with surgical excision in cases that have failed to respond to medical management with anti-fungal therapy [2]. To follow is a case report demonstrating a mid-transverse colon mass in a patient with HIV with DH who was managed with an operation and antifungal therapy.

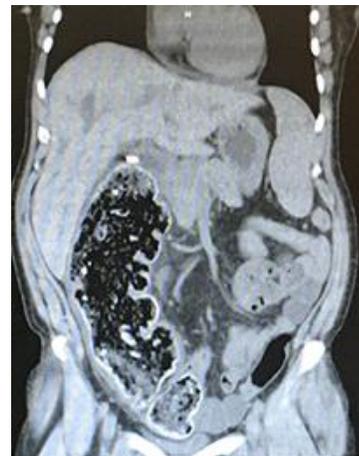
## 2. CASE REPORT

A 58-year-old female with a past medical history of HIV presented to an outside hospital with a few months' history of abdominal distention, nausea, vomiting, and change in bowel habits with constipation. This patient was recently put on antifungal therapy for oral histoplasmosis. A workup with colonoscopy demonstrated a large partially obstructing, fungating, and bleeding transverse colon mass (Figure 1). She was subsequently sent to directly to the hospital for further evaluation. Her vital signs included being afebrile at 36.7 Celsius, a heart rate of 75 beats per Minute, respiratory rate of 21 breaths per minute, blood pressure 131/71 mmHg, and oxygen saturation 96% on room air. Physical exam demonstrated a firm, distended abdomen that was tender to palpation in the right upper quadrant and in the epigastric region. Laboratory evaluations demonstrated a white blood cell count of 4.0 thousand/mm<sup>3</sup>, hemoglobin and hematocrit of 12.4 g/dL and 36.8%, platelets of 125,000 along with BUN and creatinine of 22 mg/dL and 1.26 mg/dL. CT scan of the abdomen and pelvis without

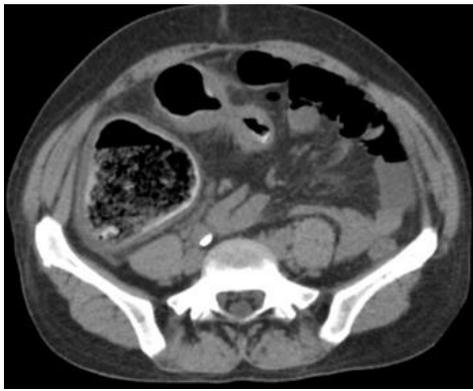
contrast demonstrated a stricture in the mid transverse colon with dilated proximal colon with a high-grade obstruction (Figure 2 and Figure3). The patient underwent an open extended right hemicolectomy with end ileostomy. Intraoperative findings demonstrated a 6 cm hard and nodular mass in the transverse colon concerning for malignancy.



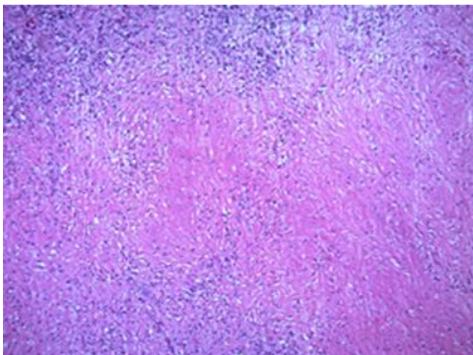
**Figure 1:** Partially obstructing, fungating, and bleeding 6 cm transverse colon mass identified on colonoscopy.



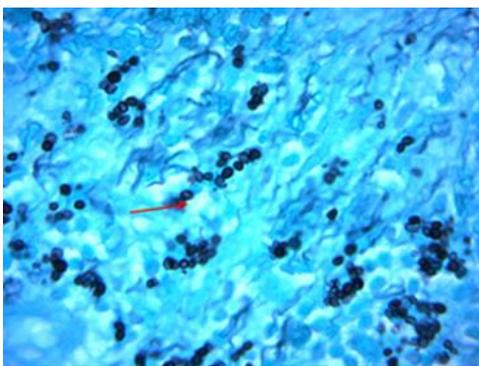
**Figure 2:** CT scan of the abdomen and pelvis without contrast demonstrated a mid-transverse colon stricture at with large stool burden in the right side of the colon.



**Figure 3:** CT scan of the abdomen and pelvis without contrast demonstrated dilated large bowel with some thickening and edema consistent with findings of a high-grade obstruction.



**Figure 4:** Necrotizing granulomas demonstrating nonspecific chronic inflammatory reaction on 100X magnification.



**Figure 5:** Grocott-Gomori's Methenamine Silver (GMS) stain demonstrated small yeast forms along with narrow based budding yeasts on 1000X magnification.

Pathology demonstrated fungal colitis with extensive ulceration and necrotizing granulomas, 35 peri-colonic

lymph nodes with fibrosis suggestive of old granulomas (Figure 4). The patient's terminal ileum was normal as was her appendix. The specimen was negative for dysplasia or malignancy. Examination for acid fast bacilli and Mucicarmine was also negative. Due to the round structures with rigid walls with budding nuclei on microscopy along with positive H and M precipitins on work up, Histoplasmosis was considered to be the culprit (Figure 5). Post operatively, the patient was placed on a clear liquid diet that was advanced to a soft low fiber diet which was tolerated well, and the patient was discharged on post-operative day four. She was started on Itraconazole 200 mg BID for management of the disseminated histoplasmosis and has been attending her routine follow ups at the Infectious Disease clinic without any further recurrences of bowel obstruction.

### **3. DISCUSSION**

DH resulting in large bowel obstructions has been sparsely reported in case reports in the published literature. Although malignancy is the most common cause of a large bowel obstruction, it is a challenge to differentiate DH causing a large bowel obstruction on CT imaging. In a study by Zhu et al. [4] demonstrated that DH can be found in immunocompetent individuals, although it is more common in immunocompromised individuals [4]. Patients with history of transplant, chemotherapy, and human immunodeficiency virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) are at increased risk for disseminated fungal infections. The patient in this case report met the increased risk factors by having HIV and an active oral histoplasmosis fungal infection that was refractory to medical management.

Histopathology of the mass in the transverse colon demonstrated inflammatory necrotizing granulomas that stained positive for GMS. Budding yeasts were identified on further magnification with architecture closely resembling histoplasmosis. AFB and Mucicarmine stains

were negative making Mycobacterium tuberculosis and Candida unlikely causes of the obstructing mass. DH results in extensive mucosal ulcerations and submucosal nodules secondary to a delayed type hypersensitivity reaction which results in diffuse lymphocyte infiltration [3]The mucosal ulcerations and submucosal nodule can lead to necrosis of surrounding mucosal blood vessels which is the proposed mechanism of DH as the cause of gastrointestinal bleeding, along with an extensive inflammatory reaction resulting in mass-like lesions causing a small or large bowel obstruction [2].

In a 44-case series by Vikram et al. [1] Basidiobolus ranarum was another fungal organism found to result in large bowel obstruction most commonly in the right side of the colon. This infection was endemic to locations in Arizona and Saudi Arabia; these patients were treated with surgical excision followed by antifungal therapy [1]. Laboratory work up including CD4 count, patient history, physical exam, along with colonoscopy and CT imaging can assist in diagnosis and management of DH.

#### **4. CONCLUSION**

The presenting symptoms of large bowel obstruction secondary to malignancy and DH can be very similar. A complete history and physical exam along with a diagnostic workup including colonoscopy and imaging can assist in the diagnosis. Although rare, a large bowel obstruction caused by fungal infection ought to be considered as a differential diagnosis for immunocompromised patients. For patients who fail non-operative management or in those where a malignancy cannot be ruled out, DH should be managed by surgical excision followed by antifungal therapy with minimal recurrence rates.

#### **5. DISCLOSURES**

All authors have no financial disclosures to report.

All authors involved in this case report have no conflicts of interest to disclose.

#### **6. CONTRIBUTORS**

Scott Kurtzman MD. FACS.

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