

Case Report

# Stercoral Ulcer-Associated Perforation and Chemotherapy

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## Keywords

Stercoral ulcer · Perforation · Chemotherapy

## Abstract

Stercoral ulcer perforation is a life-threatening surgical condition which is thought to result from necrosis of the bowel wall due to an ischemic pressure by stool. This condition usually afflicts patients with chronic constipation. CT scan can identify most of the cases and emergent surgery is usually indicated.

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## Introduction

Stercoral ulcer-related bowel perforation is rare. Chronic constipation is the main risk factor. Here, we describe 2 cases that occurred in women <65 years old immediately following chemotherapy for malignancy. Both were on narcotic analgesia for pain control and had significant stool burden apparent on imaging.

## Case 1

A 64-year-old woman with a new diagnosis of two separate lung malignancies (small cell on the left and adenocarcinoma on the right) presented to emergency room (ER) with constipation. She had been taking oxycodone for a month for back pain.

Plain abdominal X-ray showed significant stool burden (Fig. 1a). She was treated with enemas and magnesium sulfate and dismissed. The next day, she underwent cycle 1 of etoposide/VP16 and carboplatin for treatment of lung cancer. Twenty-four hours later, she was brought to ER by ambulance complaining of general weakness, nausea, and abdominal pain. CT imaging showed sigmoid perforation with free air, massive dilation of the colon and significant stool burden (Fig. 1b). Laboratory investigations were significant for a leukocytosis of 19,000 with predominant neutrophils.

She was taken emergently to the operating room (OR). Toxic megacolon with left colonic stercoral ulcer associated with multiple sites of perforation of descending and sigmoid colon, and a retroperitoneal abscess was noted. A total colectomy and Brooke's end ileostomy were performed. An incisional wound VAC was placed. Pathologic examination of the colon showed it to be filled with hard stool, with the wall stretched thin (0.1–0.4 cm in thickness). A 2.5 × 2.0 cm gross perforation of the left colon with acute inflammation and serositis was present.

Her hospital course was complicated by chemotherapy-associated pancytopenia and pulmonary emboli. On dismissal, she underwent additional chemotherapy and radiation treatment for her cancers. One year after presentation, she remains independent.

## Case 2

A 49-year-old woman with relapsed multiple myeloma with extensive skeletal metastases and several plasmacytomas (kidney, sinus) was admitted to hospital for a second cycle of VDT-PACE (bortezomib, dexamethasone, thalidomide, cisplatin, doxorubicin, cyclophosphamide, and etoposide). She was on chronic opiates (morphine, hydromorphone) for spinal stenosis related to lumbar skeletal lesions and took stool softeners for chronic constipation. On day 4 of hospitalization, she developed acute onset of left-sided abdominal/ chest pain. Stat CT of the chest/abdomen/pelvis showed new wall thickening and enhancement of the stool-filled left colon at the splenic flexure with a presumed colon perforation (air seen traversing the mesenteric side of the colon; Fig. 2). The differential was new colonic perforation at splenic flexure due to either stercoral ulcer or neutropenic colitis. She was taken emergently to the OR.

At exploratory laparotomy, the colon was seen draping up all the way under the diaphragm, and there were very large, hard stool balls palpable within the lumen of the transverse colon. There was posterior perforation with necrosis of the colon wall. Ultimately, she underwent an open partial colectomy with colostomy formation. The operative diagnosis was Stercoral ulcer perforation of splenic flexure. Pathology showed mesenteric abscess with focal perforation. Her hospital course was complicated by bacteremia due to *Ruminococcus gnavus*, multiple electrolyte abnormalities, and a symptomatic pleural effusion. She was dismissed home after a 31-day hospital course.

## Discussion

Stercoral perforation of the colon is rare. Since its first description in 1894, there have been about 150 cases reported in the literature [1]. In one case series, it accounted for 3.2% of all colonic perforations [2]. The ulcer is due to pressure from hard feces on the wall of the normal colon. Typical risk factors are chronic constipation, age >60, female sex, NSAIDs [3–6], heroin addiction [7], antacids, steroids, amitriptyline, and other constipating agents [8–10]. It has also been reported in patients receiving dialysis [8], patients on immunosuppressive therapy after kidney transplant [11], and those with spinal cord injury [10]. Perforation commonly occurs in the sigmoid colon (50%) and rectosigmoid junction (24%) [3]. The diagnosis should be suspected in anyone with a history of constipation who presents with an acute abdomen. Typical pathologic findings include areas of ischemic necrosis surrounded by nonspecific inflammatory changes [2, 12, 13].

Vascular endothelial growth factor inhibitors (VEGFIs) such as bevacizumab, sorafenib, sunitinib, and pazopanib are associated with vascular-related side effects such as gastrointestinal (GI) ulceration and/or perforation. A 1–2% risk of GI perforation with these agents has been described [14–16]. Stercoral ulcer perforation was reported in a patient with opioid-induced constipation receiving intravenous chemotherapy regimen for advanced stomach cancer [17]. Neither of the patients presented here was exposed to VEGFI, but both had a history of opioid-related constipation, had required laxatives and/or enemas, and perforation occurred within 24 h of receiving chemotherapy.

Stercoral perforation is associated with a mortality rate of 35%. Both of our patients required emergency surgery but survived and left the hospital. Clinicians should minimize narcotic use, preemptively treat opioid-related constipation, and maintain a high index of suspicion for possible stercoral ulceration and associated perforation.

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## Statement of Ethics

The authors have no ethical conflicts to disclose. Informed consent was obtained from the patients for this case report.

## Disclosure Statement

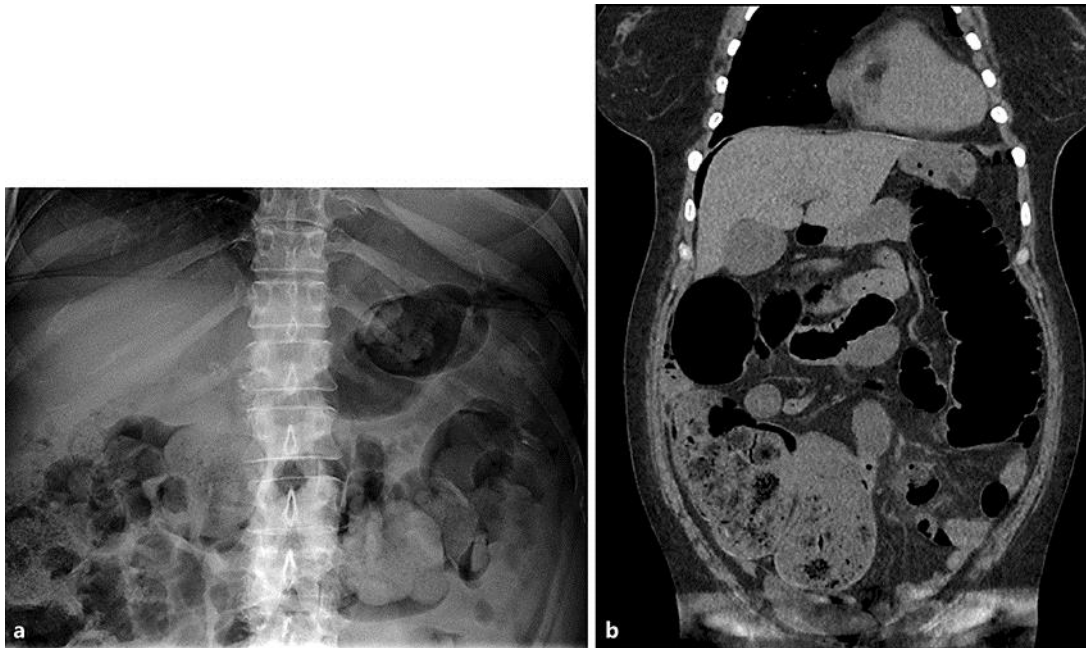
We declare that there is no conflict of interests.

### Author Contributions

M.M. reviewed medical records and data and participated in the writing of the paper.  
A.M. reviewed medical records and data and participated in the writing of the paper.

### References

- 1 Gough AE, et al: Perforated stercoral ulcer: a 10-year experience. *J Am Geriatr Soc* 2016;64:912–914.
- 2 Maurer CA, et al: Use of accurate diagnostic criteria may increase incidence of stercoral perforation of the colon. *Dis Colon Rectum* 2000;43:991–998.
- 3 Chakravartty S, Chang A, Nunoo-Mensah J: A systematic review of stercoral perforation. *Colorectal Dis* 2013;15:930–935.
- 4 Tokunaga Y, et al: Spontaneous perforation of the rectum with possible stercoral etiology: report of a case and review of the literature. *Surg Today* 1998;28:937–939.
- 5 Patel VG, et al: Stercoral perforation of the sigmoid colon: report of a rare case and its possible association with nonsteroidal anti-inflammatory drugs. *Am Surg* 2002;68:62–64.
- 6 Hollingworth J, Alexander-Williams J: Non-steroidal anti-inflammatory drugs and stercoral perforation of the colon. *Ann R Coll Surg Engl* 1991;73:337–339; discussion 339–340.
- 7 Tessier DJ, et al: Stercoral perforation of the colon in a heroin addict. *Int J Colorectal Dis* 2002;17:435–437.
- 8 Velitchkov N, et al: Stercoral perforation of the normal colon: report of five cases. *Sao Paulo Med J* 1996;114:1317–1323.
- 9 Gomez HF, et al: Charcoal stercolith with intestinal perforation in a patient treated for amitriptyline ingestion. *J Emerg Med* 1994;12:57–60.
- 10 Gekas P, Schuster MM: Stercoral perforation of the colon: case report and review of the literature. *Gastroenterology* 1981;80(Pt 1):1054–1058.
- 11 Aguilo JJ, et al: Intestinal perforation due to fecal impaction after renal transplantation. *J Urol* 1976;116:153–155.
- 12 Grinvalsky HT, Bowerman CI: Stercoraceous ulcers of the colon: relatively neglected medical and surgical problem. *J Am Med Assoc* 1959;171:1941–1946.
- 13 Serpell JW, Nicholls RJ: Stercoral perforation of the colon. *Br J Surg* 1990;77:1325–1329.
- 14 Hapani S, Chu D, Wu S: Risk of gastrointestinal perforation in patients with cancer treated with bevacizumab: a meta-analysis. *Lancet Oncol* 2009;10:559–568.
- 15 Walraven M, et al: Antiangiogenic tyrosine kinase inhibition related gastrointestinal perforations: a case report and literature review. *Angiogenesis* 2011;14:135–141.
- 16 Barney BM, et al: Increased bowel toxicity in patients treated with a vascular endothelial growth factor inhibitor (VEGFI) after stereotactic body radiation therapy (SBRT). *Int J Radiat Oncol Biol Phys* 2013;87:73–80.
- 17 Kang J, Chung M: A stercoral perforation of the descending colon. *J Korean Surg Soc* 2012;82:125–127.



**Fig. 1.** a Plain abdominal film 2 days prior to presentation. b CT scan on the day of presentation showing free air under the right hemidiaphragm, massive dilatation of colon, and significant stool.



**Fig. 2.** New wall thickening and enhancement of the stool-filled left colon at the splenic flexure with a presumed colon perforation, where air is seen traversing the mesenteric side of the colon.