

# Acute Constipation and A Stercoral Perforation: A Case Report

SAGE Open Medical Case Reports  
Volume 12: 1–5  
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DOI: 10.1177/2050313X241263756  
journals.sagepub.com/home/sco



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## Abstract

Stercoral perforation typically arises as a sequela of chronic constipation and can lead to bowel perforation due to fecal impaction. While uncommon, maintaining a high clinical suspicion in the appropriate setting is crucial. We present a case report involving a 52-year-old female with no history of chronic constipation, who presented with an unexplained large bowel obstruction. Subsequent extensive diagnostic workup revealed stercoral perforation, necessitating diagnostic laparoscopy and sigmoidectomy. This case underscores that while stercoral perforation can be life-threatening, clinical stability permits the use of minimally invasive techniques without compromising patient safety or health.

## Keywords

Stercoral ulcer, fecalith, large bowel obstruction, constipation, fecal impaction, ulceration, bowel perforation

Date received: 11 March 2024; accepted: 6 June 2024

## Introduction

Stercoral perforation is an uncommon cause of bowel perforation developing from fecal impaction that may eventually result in a perforation.<sup>1</sup> Only an estimated 200 patients have been diagnosed with a stercoral perforation, based on systematic reviews. However, it is believed that this number is underestimated.<sup>2</sup> When a stercoral perforation occurs in the setting of constipation or fecal impaction the diagnosis is frequently missed; this delay contributes to the elevated mortality rate associated with this condition.<sup>1,2</sup> Generalized stercoral peritonitis has often been a reported finding when this occurs.<sup>3</sup> It is unclear which gender and age division is more susceptible to the development of stercoral perforations. Some studies estimate the mean age to be  $75.7 \pm 9.0$  years with a female predominance<sup>4</sup> while others postulate that the mean age has decreased over recent years with an emphasis on higher occurrences in opioid users.<sup>2</sup> In the wrong patient, this can ultimately lead to their demise with reported cases of mortalities following late diagnosis of stercoral perforation.<sup>5</sup>

We report the case of a 52-year-old female patient with no known history of chronic constipation and an unusual-appearing fecal impaction that caused a sigmoid stercoral perforation.

## Case report

A 52-year-old female presented to the Emergency Department with a complaint of 3 days of constipation and distention associated with absence of flatus, loss of appetite, and abdominal pain. A two-day trial of MiraLAX was initiated by the patient but proved to be ineffective. The patient had no known prior history of prior constipation, but a family history of colon cancer in both her mother and two sisters. She has had several screening colonoscopies, the most recent performed at age 40 with no significant findings. Her past medical history includes endometriosis and polycystic ovarian syndrome. Her past surgical history included a laparoscopic surgery for endometriosis, an oophorectomy, and a prior cholecystectomy.

Physical examination revealed mild abdominal distention and tenderness to palpation in the left lower quadrant.

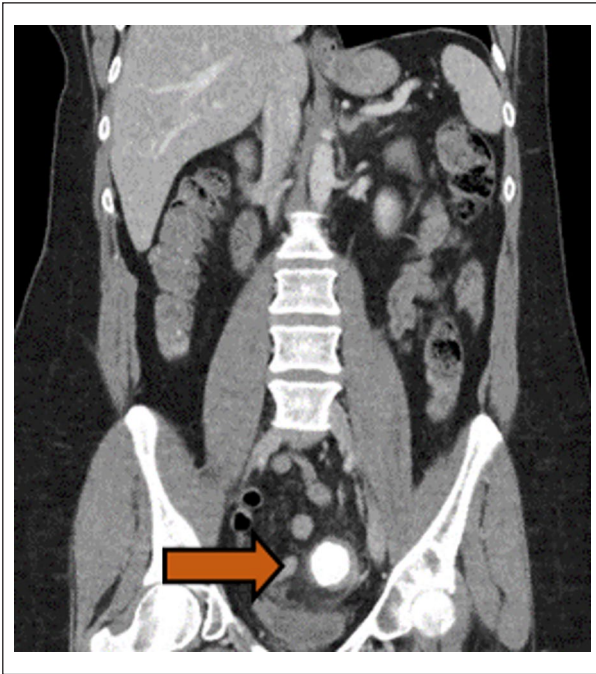
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**Figure 1.** Computed tomography scan obtained at admission. Scan shows moderate stool retention and a notable thickened sigmoid. Blurred fat around the sigmoid is also visible. The hypodense structure (arrow) is noted with an appearance resembling barium.

Laboratory investigations were all within range except for creatinine of 1.2 mg/dL, likely secondary to mild dehydration. The patient was taken for a computed tomography (CT) scan of the abdomen/pelvis with contrast which demonstrated a moderate amount of stool in the proximal colon, leading up to a 3.2 cm hypodense structure (Figure 1). She had no recent administration of contrast to explain the hypodense appearance. A thickening of the sigmoid colon, accompanied by a blurred appearance of the sigmoid fat was also observed and attributed to mass effect. The patient was admitted to the surgical unit and both surgery and GI were consulted.

The patient was managed with intravenous fluids, but given her absence of nausea or vomiting with no small bowel dilation on imaging a nasogastric tube was not placed. A gastrografin enema was obtained the next morning to evaluate for any cause of obstruction given the CT scan findings (Figure 2). Results found stool retention throughout the entirety of the colon with no signs of obstructive or constrictive lesions.

The patient continued to have worsening distention and did not have return of bowel function including flatus after the enema, so colonoscopy was planned as the next step in evaluation. Colonoscopy revealed a foreign object in the proximal sigmoid colon, resembling either a gallstone or fibrous material (Figure 3). Attempts to break the material apart with the use of forceps were unsuccessful due to the rigid nature of the foreign body. Efforts to use Roth net or to snare around the

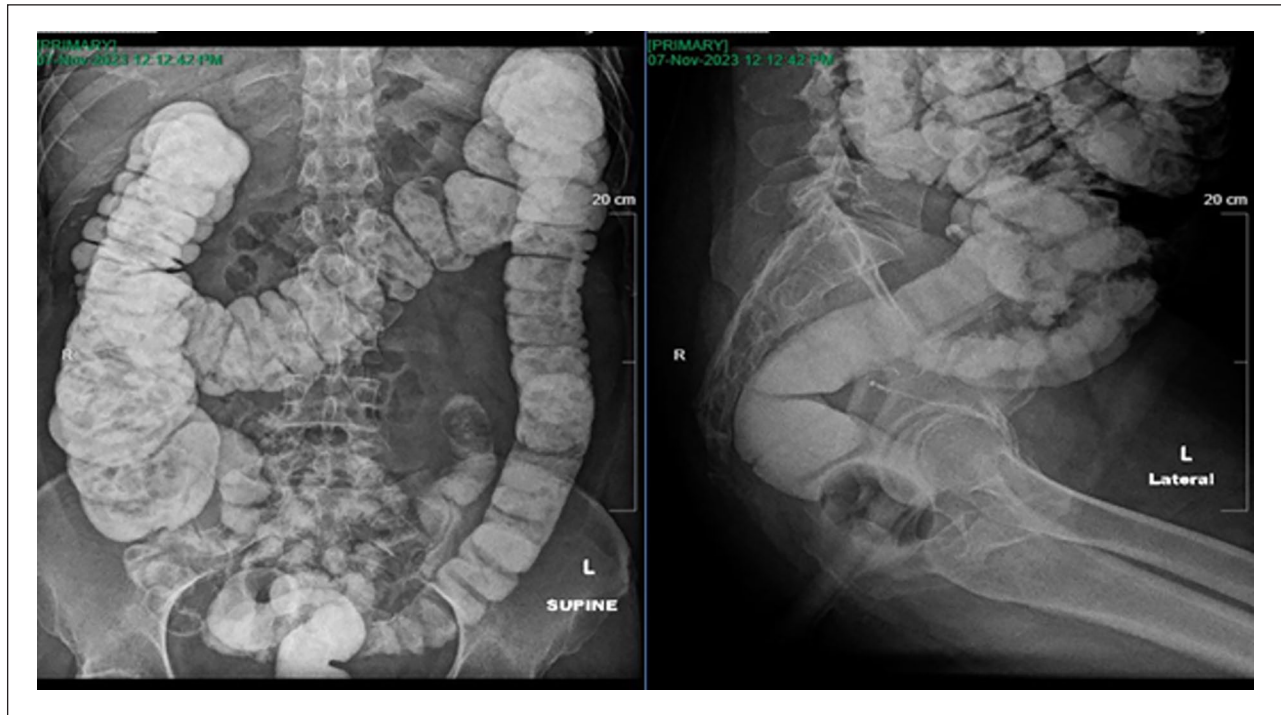
object were also futile. The surrounding mucosa was also noted to display signs of ulceration, indicating potential stasis or chronicity in the area. The scope was unable to traverse past the lesion despite switching to an Esophagogastroduodenoscopy scope. The area was marked with an injection of 3 mL of Spot (carbon black).

Based on the findings of the colonoscopy and the lack of resolution of the patient's obstruction clinically, a surgical intervention was deemed appropriate and necessary. A diagnostic laparoscopy was performed with several 54 mm ports and the bowel was inspected noting both the tattoo and a very hard portion of sigmoid colon consistent with colonoscopy findings. There was minimal proximal dilation and no stool spillage was noted. The descending and sigmoid colon were mobilized along the white line of Toldt and further separated from retroperitoneal structures to bring out the sigmoid colon through a Pfannestiel incision which was subsequently made. The sigmoid colon was externalized, and the foreign body was palpated adjacent to the tattoo. Upon separation of adjacent epiploic appendages, there was a full-thickness perforation noted with the foreign body blocking the 2 cm perforation of the sigmoid wall (Figure 4). The tissue surrounding the perforation also appeared necrotic and unhealthy. The state of the damaged tissue and the size of the mass led to the decision to perform a sigmoidectomy. The portion with the perforation was stapled off and sent for pathology, and the rest of the sigmoid resection and colorectal anastomosis were performed laparoscopically. A completion flexible sigmoidoscopy was performed that showed the patency of the anastomosis and a negative leak test as well as no further ulcerations noted.

The patient had an uneventful postoperative course with a gradual diet advancement. A return of bowel function was noted on postoperative day 2, and she was discharged later that day. She was discharged on a regular diet, and an "as tolerated" activity restriction, and she was given acetaminophen and oxycodone for pain management. She was seen in clinic 2 weeks later doing well and was back to her baseline bowel function. She was given instructions to maintain a healthy bowel regimen with Miralax once a day to prevent further occurrences. The subsequent pathologic report identified the mass as a fecalith associated with ulcerated mucosa with adjacent ischemic changes and transmural acute inflammation perforation associated with acute serositis.

## Discussion

The build-up of fecal matter preceding stercoral ulceration is believed to exert substantial pressure on the colon or rectal wall, hampering local transmural perfusion and resulting in ischemic necrosis. This necrosis eventually weakens the wall leading to a stercoral perforation.<sup>1</sup> The most common locations for a perforation have been described to take place in the sigmoid (specifically the rectosigmoid and mid-sigmoid regions).<sup>2,6</sup> This area may be more susceptible to ischemia



**Figure 2.** Stool retention through gastrografin enema with no point of obstruction or foreign body.



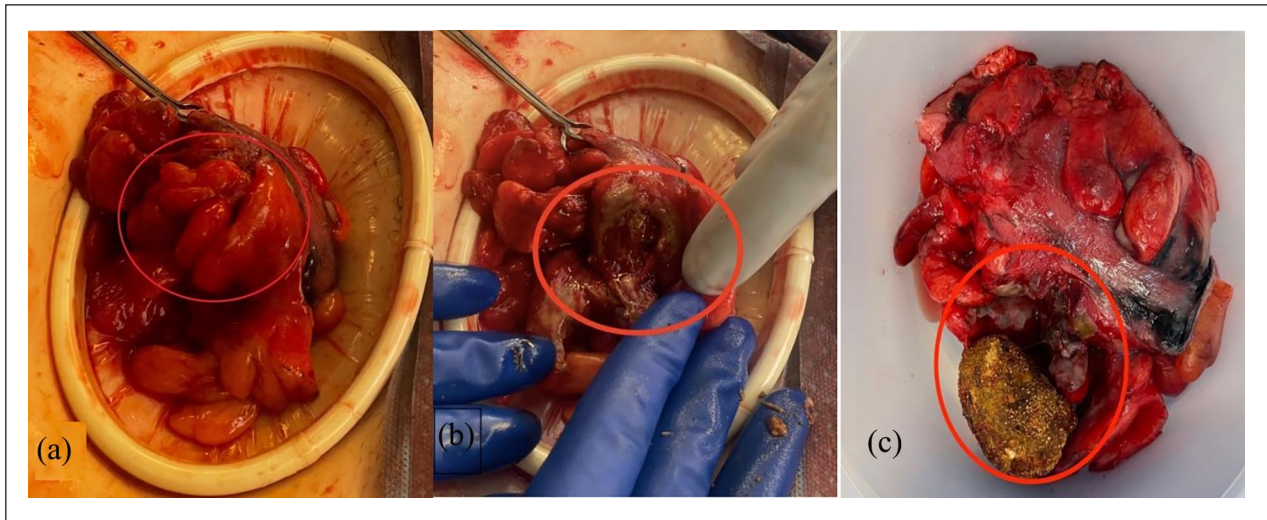
**Figure 3.** Colonoscopic image of fibrous/gallstone appearing foreign object visualized in proximal sigmoid colon.

and perforation due to the lack of more fluid stool compared to the proximal colon, weak blood circulation, and the narrowing of the intraluminal diameter that increases pressure.<sup>7</sup> Apart from chronic constipation, there have been numerous potential risk factors described in studies including female sex, advanced age, being bed bound or status post renal transplant, and use of non-steroidal anti-inflammatory drugs, opioids, antacids, or tricyclic antidepressants. Outside of sex,

none of these risk factors were present in our case.<sup>6,4,8</sup> There has been some improvement in diagnosis as evidenced by a slight increase in incidence of stercoral perforation from 2.3% to 3.2%.<sup>9</sup> Clinical presentation of a stercoral perforation is usually characterized as an acute onset of diffuse abdominal pain, diffuse peritonitis, or pneumoperitoneum.<sup>8,10</sup>

In our case, the patient did not present with the typical clinical picture; there was no evidence of pneumoperitoneum, peritonitis, or perforation. Additionally, despite a thorough workup, the primary differentials involved a foreign body or bezoar. This delay in her diagnosis highlights the complexity of diagnosing stercoral perforation prior to direct visualization, with only an estimated 10% of patients being diagnosed preoperatively.<sup>11</sup>

There appears to be a consensus that early surgical intervention is imperative for the best potential outcome as well as being the only known therapeutic intervention.<sup>8-10</sup> The surgical plan with the lowest mortality rate, reported as approximately 23%, appears to be resection of the involved segment of bowel with an end colostomy and Hartmann's closure of the rectum.<sup>12</sup> In the case presented here, it was noted that the fecalith appeared to provide protective coverage to the perforation along with the epiploic appendage. This illustrates the significance of epiploic fat in containing perforations and allowing the body to naturally seal off ulceration before developing into peritonitis. This contained perforation also allowed us the opportunity for a complete workup and to prepare the patient for a minimally invasive approach with a primary anastomosis as opposed to the more aggressive



**Figure 4.** Intraoperative findings of stercoral fecalith. In Figure (a), one can see that the epiploic fat is covering the ulceration, likely allowing the patient to remain stable and non-peritonitic. Figure (b) shows the full-thickness ulceration causing sigmoid perforation is noted. Figure (c) notes the fecalith alongside the resected bowel. This measured approximately 4 cm × 3.5 cm × 2.5 cm.

Hartmann's approach with its associated morbidity. Further intraoperative procedures proposed for efficacy and additional safety precautions include the need for an intraoperative colonoscopy, as an estimated 28% of patients with a colonic stercoral perforation also have numerous stercoral ulcers along the colon.<sup>13</sup> Resecting any abnormally dilated area of the colon<sup>6,10</sup> is also essential. In the patient presented, the bowel immediately surrounding the perforation was damaged and unhealthy. Yet, the rest of the bowel appeared viable. She also remained hemodynamically stable, requiring no vasopressor support. This allowed for a primary anastomosis, eliminating the need for a colostomy as advised in stercoral cases per the literature. This also highlights the versatility of minimally invasive procedures. This surgery, which would have routinely been performed in an open manner in the past, can now be performed laparoscopically and without any diversion, leading to a shorter length of stay and avoiding the morbidity of a large exploration and diversion procedure.

Apart from the distinctive clinical presentation and management of this patient's stercoral perforation, a special note must be given to the unique characterizations of the fecalith. Little to no existing literature specifies features of fecaliths causing ulceration. Although it may initially appear non-contributory, this case exemplifies how such features may pose a significant delay in diagnosis. To illustrate, it is postulated that the calcified elements of the fecalith could have hindered its detection on gastrografin enema. Furthermore, initial CT evaluation of the patient, as read by our radiology colleague, noted a hypoechoic mass resembling barium, but the patient has never had a past procedural history involving barium. It may be necessary to consider these features in the future when there is clinical suspicion to avoid a delay in diagnosis or in providing improper treatment.

## Conclusion

This case highlights the potential for stercoral perforation to be masked by a large bowel obstruction presenting only distention and abdominal discomfort. Even with clinical and CT findings, a calcified fecalith can evade detection on gastrografin enema. It underscores the possibility of fecalith development without typical risk factors. When symptoms persist despite extensive investigation, ongoing scrutiny is crucial for diagnosing and managing large bowel obstructions. Additionally, it demonstrates the safety and efficacy of a laparoscopic approach in hemodynamically stable patients, challenging the notion of exploratory laparotomy as the default operation in such cases.

## Acknowledgements

None.

## Author contributions

M.F. Drafted the article, did critical revision of the article, and performed the collection of the narrative; M.M.M. Conceived the article and design, drafted key portions, and did revisions of the article; A.L. Critical revisions of the article and initial draft; L.P. Critical revisions of the article and final approval of the version to be published.

## Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The author(s) received publication support from Ascension Providence

Hospital Medical Education Fund. No additional funds were provided or utilized for this case study.

### Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

### Informed consent

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

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