

39-Year-Old Woman With Constipation and Abdominal Pain



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A 39-year-old woman presented to the clinic with an 8-month history of worsening constipation, abdominal pain, and intermittent episodes of hematochezia. On average, she reported having one bowel movement per week. Each bowel movement was associated with a prolonged restroom visit as a result of excessive straining. The passage of stool was frequently accompanied by excruciating tearing pain and visible bright red blood mixed with stool and on the toilet paper. The episodes of hematochezia occurred with approximately half of her bowel movements. She also reported abdominal pain that was worse in the evenings, exacerbated by movement and lifting, and alleviated by getting into the fetal position. At times, she experienced a sensation of incomplete evacuation and had to use her fingers to manually remove stool. In addition, she reported difficulty with urination and intermittent incontinence. She had not undergone a colonoscopy previously. Her medical history was notable for type 2 diabetes mellitus, hypertension, hyperlipidemia, gastroesophageal reflux disease, and obesity with a body mass index of 38 kg/m². She had no history of anemia. Her family history was notable for colorectal cancer in her maternal grandfather diagnosed at age 78 and small-bowel ischemia in her maternal uncle.

At presentation, the patient's vital signs were within normal limits, with a heart rate of 81 beats/min and blood pressure of 122/60 mm Hg. Physical examination revealed left lower quadrant tenderness to light palpation with normal bowel sounds and no peritoneal signs. Rectal examination revealed a heightened sphincter tone, and nonbleeding external hemorrhoids were present. Insertion of the examining finger was noted to be particularly painful for the patient. There was reduced perineal descent when the patient was asked to bear down as if she were having a bowel movement. Abdominal pain was elicited when the patient

tensed her abdominal muscles by lifting her head and shoulders from the examination table.

Laboratory evaluation yielded the following results (reference ranges provided parenthetically): hemoglobin, 13.7 g/dL (12.0-15.5 g/dL); leukocytes, $8.8 \times 10^9/L$ ($3.5-10.5 \times 10^9/L$); platelets, $250 \times 10^9/L$ ($150-450 \times 10^9/L$); sodium, 139 mmol/L (135-145 mmol/L); potassium, 4.0 mmol/L (3.6-5.2 mmol/L); calcium, 9.1 mg/dL (8.9-10.1 mg/dL); fasting glucose, 106 mg/dL (70-140 mg/dL); creatinine, 0.82 mg/dL (0.6-1.1 mg/dL); and thyroid-stimulating hormone, 1.7 mIU/L (0.3-4.2 mIU/L). Urinalysis results were unremarkable.

1. Which one of the following is the most likely cause of rectal bleeding in this patient?

- Diverticular bleed
- Anal fissure
- Hemorrhoids
- Colorectal cancer
- Angiodysplasia

Rectal bleeding is a relatively common problem in the general population. Its prevalence in the community, however, may be low because of patient underreporting. In fact, a cross-sectional analysis found that only one-third of those with rectal bleeding see a physician regarding this condition.¹ Although anorectal outlet bleeding may be secondary to benign conditions such as anal fissure or hemorrhoids, both of which may be associated with constipation, other more serious etiologies also exist. It is important for health care professionals to assess patients with anorectal outlet bleeding and use history and physical examination to determine the underlying diagnosis. The differential diagnosis of rectal bleeding is broad and includes hemorrhoids, anal fissures, diverticulosis, angiodysplasia, and colorectal cancers.

In general, diverticular bleeds usually present with painless hematochezia. Additionally,

See end of article for correct answers to questions.

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the presentation is often acute and may be characterized by higher-volume bleeding. Our patient had a self-reported history of tearing pain associated with passage of stool and visible blood on the toilet paper and in the toilet after defecation. This presentation is strongly suggestive of anal fissure as the underlying disorder. An anal fissure is a tear in the anoderm distal to the dentate line.² Anal fissures represent a common anorectal problem and typically occur secondary to local trauma to the anoderm caused by the passage of hard stool. Hemorrhoids also classically present with painless bleeding, and patients often report stools covered with bright red blood. Physical examination, including careful inspection of the anal and perianal area for external hemorrhoids and digital examination for prolapsed internal hemorrhoids, is important for uncovering this diagnosis. Severe pain on insertion of the examining finger may be a clue to a diagnosis of anal fissure, as was the case in our patient. Colorectal cancer can present with a myriad of symptoms, including weight loss, altered bowel habits, hematochezia, and abdominal pain. Malignancy is less likely in this patient given her young age and absence of red flag symptoms such as weight loss. Lastly, angiodysplasia is commonly present in patients older than 60 years of age.³ In contrast to our patient, bleeding associated with angiodysplasia is often painless.

Given the patient's symptoms of rectal bleeding, constipation, and abdominal pain, she was referred to gastroenterology for further evaluation.

2. Which one of the following is the best treatment approach for this patient's rectal bleeding?

- a. Topical nitrate
- b. Fiber alone
- c. Botox injection
- d. Fiber and topical nifedipine
- e. Lateral internal sphincterotomy

Nonoperative management is the mainstay of treatment for anal fissures. Nonoperative therapies include warm sitz baths, psyllium fiber or other bulking agents, topical nitrates, calcium channel blockers, and botulinum toxin. The American Society of Colon and

Rectal Surgeons recommends first-line treatment for anal fissures with nonoperative measures, as they have minimal to no adverse effects and good patient accessibility.⁴ While surgery has been reported to be more effective for the treatment of chronic anal fissures, it is associated with more potential complications, including fecal incontinence.⁵ Although topical nitrates are effective in decreasing resting anal pressures, their use is limited by adverse effects, including headaches and hypotension. Fiber therapy is effective in softening stools, which prevents repeated injury of a healing fissure; however, fiber is more effective when used in conjunction with a topical vasodilator. Botulinum toxin injection has been found to relax the internal and external anal sphincters, but it can often result in mild incontinence, acting as a "chemical sphincterotomy." Currently, the combination of a stool-bulking agent and a topical vasodilator is recommended for treatment of acute typical anal fissures. This approach is supported by a prospective study in which patients randomized to topical vasodilators in conjunction with warm sitz baths and a fiber-bulking agent had good results.⁶ This combination therapy provides adequate relaxation of the internal anal sphincter and ensures the atraumatic passage of stool. Lastly, lateral internal sphincterotomy, as previously stated, can be considered if conservative measures fail. Otherwise, this approach is used sparingly because of its poor adverse effect profile.

In our patient, a combination of fiber and topical nifedipine was used. This treatment provided symptomatic relief, with immediate improvement in the pain she experienced during defecation.

3. Which one of the following is the most likely cause of this patient's abdominal pain?

- a. Ulcerative colitis
- b. Ischemic colitis
- c. Abdominal wall pain
- d. Diverticulitis
- e. Solitary rectal ulcer

All of these diagnoses can present with abdominal pain. A thorough history and physical examination can aid in narrowing the differential diagnosis and help in deciphering between benign causes and more serious

ones that may require more urgent evaluation. Patients with ulcerative colitis often present with colicky abdominal pain, which may be associated with systemic symptoms including fever, fatigue, and weight loss. In addition, bloody diarrhea may be a predominant symptom in ulcerative colitis, except in cases of isolated proctitis in which constipation and tenesmus are more common. Patients with ischemic colitis present with abdominal pain that is often rapid in onset and continuous in nature, usually followed by the passage of bloody stool. Classically, ischemic colitis is seen in older adults with underlying risk factors, such as hypotension and congestive heart failure. Abdominal wall pain is a common, and often overlooked, etiology for abdominal pain. It is the most likely etiology for abdominal pain in our patient given her history of constipation and excessive straining, with the straining likely making the abdominal wall pain worse. History and physical examination provide useful clues in isolating this diagnosis. On physical examination, our patient had a positive Carnett sign, as abdominal pain was elicited with tensing of abdominal muscles. This finding is characteristic of abdominal wall pain.⁷ Trigger point injection is the mainstay of therapy for abdominal wall pain and has been reported to provide significant and long-term symptomatic relief.⁸ Patients with diverticulitis usually have left lower quadrant abdominal pain, with accompanying low-grade fever, nausea, and emesis. Moreover, patients with diverticulitis are typically elderly. Lastly, a solitary rectal ulcer may result in rectal pain but not abdominal pain as seen in our patient.

Given the presence of bright red blood in stool, our patient initially underwent a flexible sigmoidoscopy, which revealed a 6-mm polyp in the distal transverse colon and a 10-mm polyp in the rectum. A full colonoscopy was subsequently performed, revealing no additional pathology. Importantly, no findings of inflammatory bowel disease were visualized or appreciated on pathologic review.

4. Which one of the following is the best next test for evaluation of the cause of this patient's constipation?

- a. Computed tomography of the abdomen and pelvis

- b. Defecating proctography
- c. Anorectal manometry with balloon expulsion
- d. Full-thickness rectal biopsy
- e. Gastrointestinal transit study

The clinical features highlighted in this patient scenario are suggestive of pelvic floor dysfunction. The reduced pelvic floor descent on physical examination, excessive straining, incomplete evacuation, and manual digitation support this diagnosis, which represents a dynamic problem. Computed tomography of the abdomen and pelvis would not be helpful in this particular case, as the primary defect is not structural. Defecating proctography may be considered if there is a high clinical suspicion for pelvic floor dysfunction in the setting of equivocal anorectal manometry with balloon expulsion results. Anorectal manometry with balloon expulsion is an effective way to assess anal sphincter and rectal pressures and can provide insight into the dynamics of defecation. Therefore, this is the best next test for evaluation of our patient's constipation. Importantly, before anorectal manometry, the patient's anal fissures must be healed. In clinical practice, therapy is typically undertaken for a full 6 weeks to prevent false-positive results. Full-thickness rectal biopsy is invasive and has no role in the evaluation of pelvic floor dysfunction. In patients with suspected slow transit constipation (less than one bowel movement per week), a gastrointestinal transit study may be a reasonable option. However, in the setting of constipation and abnormal pelvic descent, a colonic transit study is not the most appropriate next test. If anorectal manometry results are negative, a transit study may then be warranted.

Ultimately, anorectal manometry was performed, which revealed elevated anal pressures at rest. When defecation was simulated, the anal pressures remained high with an abnormal rectal anal gradient. As a result, the balloon expulsion test result was grossly abnormal (taking greater than 60 seconds to expel the balloon). Given the patient's clinical history, physical examination findings, and grossly abnormal results on anorectal manometry, a diagnosis of pelvic floor dysfunction was made.

5. Which one of the following is the initial treatment of choice for constipation secondary to pelvic floor dysfunction?

- a. Osmotic laxative
- b. Stimulant laxative
- c. Anopexy
- d. Linaclotide
- e. Biofeedback program

Osmotic laxatives are often used in the management of constipation. Stimulant laxatives are sometimes used in those patients with constipation not responding to osmotic laxatives, patients taking narcotics, and those with gastrointestinal tract dysmotility disorders. However, laxatives are often ineffective in patients with pelvic floor dysfunction. Anecdotally, oral laxatives in these patients are often associated with increased abdominal discomfort, bloating, and other adverse effects. A lack of response to laxative therapy can often increase clinical suspicion for pelvic floor dysfunction as the underlying etiology. Anopexy is a surgical option used for advanced hemorrhoidal disease; however, it has no role in the treatment of defecatory disorders. Linaclotide is a US Food and Drug Administration approved promotility agent for constipation-predominant irritable bowel syndrome and chronic idiopathic constipation.⁹ However, it has little to no role in the treatment of pelvic floor dyssynergia. Biofeedback therapy is the best initial treatment for patients with pelvic floor dysfunction because it allows for retraining of the defecatory process. Biofeedback provides visual and auditory feedback on the functioning of the anal sphincter and pelvic floor muscles, which can result in effective defecatory coordination. Multiple studies highlight high success rates with biofeedback therapy in pelvic floor dysfunction, with results approaching 80%.¹⁰ In clinical practice, biofeedback is more effective in younger patients and is often not pursued in the elderly population.

Following diagnosis, the patient was educated on the natural history of pelvic floor dysfunction and the various available treatment options. Biofeedback therapy was subsequently initiated. At the time of her last follow-up, she continued to have minimal symptoms.

DISCUSSION

A cross-sectional analysis investigating the comparative epidemiology of constipation subtypes estimated the overall prevalence of constipation to be 14.7%.¹¹ Constipation represents a major public health burden because of its considerable financial consequences and substantial impact on patient health-related quality of life. Patients with constipation can present with excessive straining, hard stools, or a sensation of incomplete evacuation. Approximately 25% of chronic constipation occurs secondary to defecatory disorders, notably pelvic floor dysfunction, which is also known as dyssynergic defecation.¹²

Normal defecation is characterized by coordinated relaxation of the pelvic floor muscles, increased intra-abdominal pressures, and activation of the anorectal inhibitory reflex. In dyssynergic defecation, patients experience inappropriate contraction of the anal sphincter at rest and while bearing down, and the pelvic floor muscles fail to relax. In patients with continued symptoms despite laxative therapy and physical findings suggestive of pelvic floor dysfunction, the American Gastroenterological Association recommends further work-up with anorectal manometry and rectal balloon expulsion studies. Defecography may be considered if results of anorectal manometry and rectal balloon expulsion studies are inconclusive.¹³

Defecatory disorders may result from pain associated with anal fissures, hemorrhoids, or passage of large, hard stools. Structural abnormalities, such as rectoceles, are less common causes of defecatory disorders. Once diagnosed, prompt initiation of appropriate treatment is crucial. Biofeedback therapy remains the cornerstone of treatment for defecatory disorders given its high rate of success. Biofeedback is a behavioral therapy that utilizes a multidisciplinary approach to correct pelvic floor dysfunction. Specifically, anorectal manometers are implemented for close monitoring of the external anal sphincter pressures during simulated defecation of anal plugs, with appropriate modification by the patient. Although its implementation may be relatively labor intensive, it has no adverse effects.

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CORRECT ANSWERS: 1. b. 2. d. 3. c. 4. c. 5. e