

Constipation

A 26-year-old woman presented to the ED with a chief complaint of chronic constipation. This was the patient's fourth ED visit for the same complaint over the previous 12 days. The patient stated that, at the prior visits, she was prescribed stool softeners and instructed to increase the amount of green vegetables in her diet and to drink plenty of fluids. She further noted that although constipation had been a long-standing problem for her, the condition had become worse over the past several weeks.

The patient described some lower abdominal discomfort, but denied nausea, vomiting, fevers, or chills. She also denied any genitourinary complaints or flank pain. Her last menstrual period was 2 weeks prior and normal. Her medical history was unremarkable; she denied smoking cigarettes or drinking alcohol and had no known drug allergies.

On physical examination, the patient's vital signs were normal and she did not appear to be in any distress. The lung and heart examinations were also normal. Her abdomen was found to be soft, with slight tenderness in the lower abdomen, but with no guarding, rebound, or distention. Bowel sounds were present and hypoactive. A rectal examination revealed minimal stool in the vault, which was heme negative.

Since previous outpatient therapies failed to resolve the constipation, the emergency physician (EP) ordered a soapsuds enema for this patient. Approximately 30 minutes after administration of the enema, the patient began to complain of severe abdominal pain, and her heart rate increased to 120 beats/minute. Repeat abdominal examination revealed a very tender abdomen. A STAT computed tomography (CT) scan of the abdomen and pelvis with intravenous (IV) contrast was ordered, which demonstrated a sigmoid volvulus with perforation. The patient was immediately taken to the

operating room, and a colostomy was performed. She had a complicated postoperative course, which necessitated a second surgery and treatment for a wound infection. The patient eventually recovered and was discharged home with an ileostomy.

The patient sued the EP and the hospital, stating that the enema was not only contraindicated, but also caused the colon perforation. She further alleged that the EP failed to properly diagnose the sigmoid volvulus. The defense argued that the patient suffered from an uncommon condition, and the treatment provided was appropriate given her symptoms. The defense further stated that the perforation was present prior to the administration of the enema. At trial, a defense verdict was returned.

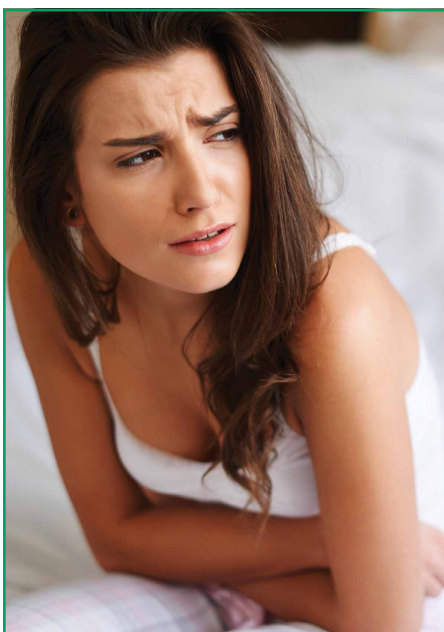
Discussion

Sigmoid volvulus is a relatively rare cause of bowel obstruction, accounting for only 2% of intestinal obstructions in the United States between 2002 and 2010.¹ The majority of cases occur in older patients (mean age, 70 years).¹ Risk factors for development include a history of laxative abuse,

chronic constipation, and institutionalized patients with underlying neurological or psychiatric disease. There also appears to be an increased incidence during pregnancy. When observed in the pediatric population and in young adults, sigmoid volvulus is frequently due to an underlying colonic motility disorder.

A volvulus occurs when the colon twists on its mesenteric axis with greater than 180° rotation, resulting in obstruction of the intestinal lumen and mesenteric vessels.² The most common locations for volvulus are the sigmoid colon, followed by the cecum. Though rare, the condition can occur in other locations.

The patient in this case presented very atypically for someone with a sigmoid volvulus as the majority of pa-



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tients present with progressive abdominal pain, nausea, vomiting, and constipation. On physical examination, the abdomen is frequently distended and tympanitic with diffuse tenderness. If perforation has occurred, then peritoneal signs predominate (eg, guarding, rigidity, rebound tenderness) and abnormal vital signs (eg, fever, tachycardia, hypotension) are frequently present.

While a diagnosis of sigmoid volvulus may be suspected through the history and physical examination, it is confirmed through imaging studies, with abdominal/pelvic CT being the modality of choice. On CT scan, the “whirl sign” is frequently present, representing the dilated sigmoid colon twisted around its mesocolon and vessels.³ The tightness of the whirl is proportional to the degree of torsion. If rectal contrast is administered, the “bird-beak” sign is often present, representing the afferent and efferent colonic segments.³

As with this patient, if the colon has been perforated, IV fluid resuscitation, IV antibiotics, and immediate surgery are indicated. In cases in which there is no evidence of gangrene or perforation, sigmoidoscopy can be attempted to detorse the twisted bowel segment. This technique is successful in correcting torsion in the majority of cases. However, if detorsion attempts fail, emergent surgery is indicated.

Even when nonsurgical detorsion is successful, controversy exists over its use as the sole treatment for sigmoid volvulus. Due to a 50% to 60% chance of recurrent sigmoid volvulus, some experts recommend surgery immediately following detorsion, while others advise a wait-and-see approach.

The risk of complications from administering a soap-suds enema to an immunocompetent ED patient without signs or symptoms of peritonitis is exceedingly low. While no good data exist on the rate of complications from enemas administered for constipation, perforation of the bowel from barium enemas occurs in only 0.02% to 0.04% of patients undergoing radiologic imaging.⁴ The jury appears to have come to the proper conclusion in this atypical presentation of an uncommon condition with a rare complication.

References

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Missed Diabetes Mellitus

A 27-year-old man presented to the ED with a 3-day history of severe abdominal pain, nausea and vomiting. The patient denied fevers, chills, or diarrhea, as well as any sick contacts. The patient stated he was otherwise in good health, on no medications, and had no known drug allergies. He denied alcohol or tobacco use.

His vital signs at presentation were: temperature,



98.6°F; pulse, 116 beats/minute; blood pressure, 152/92 mm Hg; and respiratory rate, 24 breaths/minute. Oxygen saturation was 100% on room air. On head, eyes, ears, nose, and throat examination, the patient’s mucous membranes were noted to be dry. The lung examination revealed bilateral breath sounds clear to auscultation. The heart examination was remarkable for tachycardia, but the rhythm was regular and with no murmurs, rubs, or gallops. The abdomen was soft with slight diffuse tenderness, but no guarding, rebound, or masses.

The EP ordered 1 L normal saline IV and ondansetron 4 mg IV for the nausea and vomiting. No laboratory or imaging studies were ordered.

On reexamination approximately 1 hour later, the patient denied any abdominal pain and stated he felt improved and was no longer nauseous. The abdominal examination remained unchanged. The patient was discharged home with a prescription for ondansetron and instructed to return to the ED if his symptoms did not improve within the next 12 hours.

The patient did not return to the ED, but was found dead at home 3 days later. An autopsy revealed the patient died from metabolic consequences of diabetes mellitus (DM). The plaintiff's family argued the standard of care required a complete set of laboratory studies, the results of which would have revealed the hyperglycemia, prompting further evaluation and treatment. The defense contended the standard of care did not require laboratory evaluation since the patient responded well to the IV fluids and ondansetron, reported an improvement in pain and nausea, and had no history of DM. At trial, a defense verdict was returned.

Discussion

Emergency physicians are well versed in diagnosing and treating DM and its complications. Typical symptoms of new-onset diabetes include polyuria, polydipsia, abdominal pain, nausea, vomiting, and lack of energy. Occasionally, the patient will present with more severe symptoms (eg, altered mental status) when diabetic ketoacidosis is the initial presentation of the disease. It is unclear from the medical records in this case whether additional history, such as polyuria, was obtained. If so, and the answers were in the affirmative, this information might have led the EP to order laboratory studies. Similarly, we do not know how many episodes of emesis the patient experienced—eg, only one to two episodes of emesis or more than 10. It is important to have an appreciation of the severity of the presenting symptoms.

Emergency physicians frequently diagnose and manage patients appropriately without ordering laboratory or imaging studies. Acute asthma attacks, migraine

headaches, bronchitis, sprains, and upper respiratory tract infections are just a few examples of the many conditions that are frequently managed by EPs based solely on history and physical examination. However, it is important the EP take a thorough enough history and physical examination to ensure confidence in excluding more severe disease processes. The severity of the symptoms must also be considered in the decision to order laboratory or other evaluation.

In this day and age of point-of-care testing, one should consider checking the glucose and electrolytes in patients with symptoms consistent with fluid loss (ie, vomiting, diarrhea, decreased oral intake).

A Note about Diabetes Mellitus

Emergency physicians should be aware of the increasing incidence of DM in the United States and around the world. The global prevalence of diabetes in adults in 2013 was reportedly 8.3% (382 million people), with 14 million more men than women diagnosed with the disease.¹

Broadly defined, diabetes is a group of metabolic diseases characterized by chronic hyperglycemia resulting from defects in insulin secretion, insulin action, or both.¹ Type 1 DM constitutes approximately 5% to 10% of patients diagnosed with diabetes and is due to the destruction of beta cells in the pancreas.¹ It accounts for approximately 80% to 90% of DM in children and adolescents, and is thought to be present in approximately 3 million patients in the United States in 2010.¹ Type 2 DM is the most common form, with 90% to 95% of patients belonging to this category, most of whom are adults. The problem in type 2 DM is primarily insulin resistance, as opposed to a lack of insulin. Obesity is the most common cause of insulin resistance in type 2 DM.¹

Reference

1. Kharroubi AT, Darwish HM. Diabetes mellitus: the epidemic of the century. *World J Diabetes*. 2015;6(6):850-867.