

Diverticulitis

A 44-year-old woman presented to the ED complaining of crampy lower abdominal pain with nausea and vomiting. The patient described gradual onset 2 days prior, with symptoms worsening over the previous 12 hours. She denied diarrhea, constipation, or blood in her stool. She did admit to frequency of urination, but no dysuria or hematuria. She was gravida 2, para 2, aborta 0, with a last menstrual period 3 weeks prior. She denied vaginal bleeding or discharge. Her past medical history was unremarkable, she was on no medications, and denied alcohol use. She did admit to smoking one pack of cigarettes per day.

On physical examination, the patient's vital signs were: blood pressure, 132/68 mm Hg; heart rate, 96 beats/min; respiratory rate, 18 breaths/min; and temperature, 99.8°F. Oxygen saturation was 99% on room air.

The head, ears, eyes, nose, and throat (HEENT) examination was completely normal, as was the heart and lung examination. The patient was tender to palpation in the lower abdomen, but without guarding or rebound. Bowel sounds were present and normoactive. A pelvic examination, including a bimanual examination, demonstrated mild left ovarian tenderness but without mass or cervical motion tenderness. The patient did not exhibit any costovertebral angle tenderness bilaterally. No rectal examination was performed.

The emergency physicians (EPs) ordered a complete blood count (CBC), basic metabolic profile (BMP), urinalysis, urine pregnancy test, and a vaginal wet preparation. In addition, the patient was administered 500 cc's of normal saline intravenously (IV) and ondansetron (Zofran) 4 mg IV.

The urine pregnancy test result came back negative. The urinalysis was remarkable for positive leukocyte esterase, with five to 10 white cells and bacteria present. The CBC showed a mild leukocytosis, but with a normal hemoglobin and hematocrit. The BMP and vaginal wet preparation were completely normal.

The EP was concerned the patient might have something more serious than a simple urinary tract infection (UTI), so she ordered a computed tomography (CT) scan of the abdomen and pelvis with IV contrast.

The radiologist interpreted the CT scan as normal. The patient was discharged home with a prescription for an antibiotic for her UTI, encouraged to drink liquids, and instructed to follow-up with her primary care physician in 1 week.

The patient returned to the same ED approximately 48 hours later with worsening abdominal pain. On this presentation, she was tachycardic (110 beats/min) with a temperature of 101°F. The abdominal examination was remarkable for diffuse tenderness and voluntary guarding. The patient was administered IV fluids, morphine, and ondansetron. A repeat CT scan of the abdomen and pelvis with IV contrast showed a perforated sigmoid colon, with leakage of bowel contents into the peritoneum. The EP immediately started IV fluid resuscitation and administered IV antibiotics. The patient was taken emergently to the operating room by general surgery. The colon was repaired and a colostomy placed. The patient was able to be discharged home on day number 5.

The patient sued the hospital and the treating EP for failure to make the proper diagnosis on the initial ED visit, resulting in the patient having a long and difficult recovery, and the need for a colostomy. At trial, the jury returned a defense verdict.

Author's Disclosure Statement: The author reports no actual or potential conflict of interest in relation to this article.

DOI: 10.12788/emed.2018.0104

Discussion

Diverticulitis, and its complications, account for a significant number of ED visits. It is the third most common inpatient gastrointestinal diagnosis in the United States, costing two billion dollars annually.¹ It is defined as clinically evident microscopic inflammation of a diverticulum or diverticula, and occurs in approximately 4% of patients with diverticulosis.¹ It is estimated that roughly 15% of these patients will experience a complication, defined as an abscess, perforation, fistula, or colonic obstruction; 15% to 30% will experience a recurrence.

The mean age of patients admitted to the hospital for diverticulitis is 63 years. While considered a disease of older patients, it should be included in the differential diagnosis for younger patients, as approximately 16% of admissions for acute diverticulitis are in patients less than 45 years.² Risk factors include poor diet (ie, low fiber, high fat, red meat), obesity, and smoking. The clinical presentation of diverticulitis has sometimes been referred to as “left-sided appendicitis” because of the similarities between the two entities. Patients will frequently complain of anorexia, change in bowel habits (either diarrhea or constipation), crampy abdominal pain (primarily in the left lower quadrant), low grade fever, and nausea with vomiting. Interestingly, 10% to 15% of patients with acute diverticulitis will complain of dysuria, urgency, or frequency (as in this patient) due to irritation of the bladder from an inflamed sigmoid colon.

Physical examination may reveal a low grade fever and tachycardia, if significant vomiting has been present. The abdomen is tender primarily in the left lower quadrant. The presence of severe tachycardia, hypotension, or a rigid abdomen with guarding and rebound suggests perforation. A pelvic examination should be performed on all women of child-bearing age. The rectal examination may reveal hemoccult positive stool; gross blood is rare.

Laboratory testing should include a CBC, BMP, urinalysis, and a urine pregnancy test (for women of child-bearing age). The CBC will usually reveal a mild leukocytosis. The urinalysis may reveal sterile pyuria for the reason previously described. Additional testing may be indicated by the history and physical examination.

A CT scan of the abdomen and pelvis is considered the gold standard with regards to imaging, with a reported sensitivity of 94% and specificity of 99%.³ Ideally, the CT scan should include both oral and IV contrast; however, IV alone is frequently used. In addition to identifying diverticulitis, CT can also visualize complications, including abscesses, perforation, and bowel obstruction. Ultrasound using high-resolution, graded compression has a similar sensitivity and specificity as CT, with the advantage of less cost, can be performed at the bedside, and avoids radiation exposure.³ However, it is operator dependent and inferior to CT regarding visualizing complications.

Historically, antibiotics have been considered the treatment of choice for patients with acute uncomplicated diverticulitis, usually as an outpatient. Typically, this involves prescribing ciprofloxacin (or trimethoprim-sulfamethoxazole) plus metronidazole for 7 to 10 days. Monotherapy consisting of either moxifloxacin or amoxicillin/clavulanic acid is also acceptable. However, as our understanding of the important role of inflammation in this disease process, combined with the negative effects associated with antibiotic use, the role of antibiotics in uncomplicated diverticulitis has been called into question. In one recent study of 155 patients with acute uncomplicated diverticulitis, 97% were managed successfully as outpatients without antibiotics, admission, or complications.⁴ The American Gastroenterological Association (AGA) recommends that antibiotics should be used selectively, rather than routinely, in patients with acute uncomplicated diverticulitis. However, this is considered a “conditional recommendation with a low quality

of evidence.”¹ In other words, this recommendation could easily change based on newer studies. Similarly, other “conditional recommendations” by the AGA include suggesting a fiber-rich diet, or fiber supplementation, and no need to avoid the consumption of nuts and popcorn.¹ The majority of these patients begin to feel better in 2 to 3 days and have a good outcome.

Summary

For patients that appear ill, have significant comorbidities, are immunocompromised, or have a complication of acute diverticulitis, admission to the hospital with surgery consultation is recommended. For abscesses, interventional radiology has been used with success for CT-guided percutaneous drainage of diverticular abscesses. Intravenous antibiotics should be initiated; appropriate medications include metronidazole plus a third-generation cephalosporin (such as ceftriaxone or cefotaxime) or a fluoroquinolone (such as ciprofloxacin or levofloxacin). Monotherapy for the moderately ill patient includes piperacillin/tazobactam, ampicillin/sulbactam, ticarcillin/clavulanic acid, and imipenem. In addition, these patients should be placed at bowel rest (ie, nothing by mouth) with IV fluid resuscitation and hydration.

References

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