Single Case

Perforated Jejunal Diverticulitis

Dhineshreddy Gurala^a Pretty Sara Idiculla^b Prateek Patibandla^a
Jobin Philipose^a Michael Krzyzak^a Indraneil Mukherjee^a

^aInternal Medicine, Staten Island University Hospital, Northwell Health, Staten Island, NY, USA; ^bMedicine, Sree Gokulam Medical College and Research Foundation, Trivandrum, India

Keywords

Diverticulitis · Jejunum · Perforation

Abstract

Small intestinal diverticula are very rare; their incidence ranges from 0.06 to 1.3%, with a higher prevalence after the 6th decade of life. Among these small intestinal diverticula, duodenal diverticula are more frequent, followed by diverticula of the jejunum and ileum. A jejunal diverticulum is usually asymptomatic; sometimes patients complain of vague chronic symptoms like malabsorption, pain, or nausea that easily lead to misdiagnosis. Complications are rarely reported, only in 10% of patients. We report a unique case of a 70-year-old female who presented with confusion due to sepsis from perforated jejunal diverticulitis, which was successfully managed with initial resuscitation and definitive surgery.

© 2019 The Author(s)
Published by S. Karger AG, Basel

Introduction

Small intestinal diverticula are very rare; their incidence ranges from 0.06 to 1.3% [1]. Except for Meckel's diverticulum, which is congenital, all diverticula are usually acquired. Among these, duodenal diverticula are the most frequent (in 79% of patients), followed by diverticula of the jejunum or ileum (18%) and diverticula in all segments together (3%) [2]. The prevalence of diverticula increases with age and peaks in the 6th–8th decades of life. A

jejunal diverticulum is usually asymptomatic; only 29% of the patients present with symptoms like nausea, abdominal pain, and malabsorption. Complications such as perforations, adhesion, fistula, and peritonitis are more common than massive lower gastrointestinal bleeding, and these complications are reported only in 10% of cases [1, 3]. Surgery is the definitive treatment option in case of complicated diverticulitis with perforation like in our case.

Case Description

A 76-year-old female presented to our institution with abdominal pain and confusion 2 days prior to presentation. The abdominal pain was located in the epigastrium, crampy in nature, constant, nonradiating, 7/10 in intensity associated with nausea, vomiting, decreased appetite, with no aggravating and relieving factors. The family reported that she was less interactive, subjectively more withdrawn, and not oriented to her surroundings. Her vital signs were stable with a temperature of 97.5°F, a heart rate of 65 bpm, blood pressure at 147/68 mm Hg, and saturation 98% on room air. A physical examination was positive for epigastric tenderness with no abdominal distension, guarding, rigidity, or rebound tenderness. Bowel sounds were present in all four quadrants. She was alert and oriented to persons and place but not to time, but a neurological examination revealed no focal deficits. Laboratory studies showed leukocytosis of 15,000 cells/ μ L with a left shift (predominant neutrophils), hemoglobin at 13 g/dL (normal 12–16), a platelet count of 220,000 (130,000–400,000), blood urea nitrogen at 15 mg/dL (10–20), creatinine at 0.9 mg/dL (0.7–1.5), calcium at 9.2 mg/dL (normal 8.5–10.1), lactate at 1.1 mmol/L (normal 0.5–1.6), lipase at 14 U/L (7–60), and amylase at 25 U/L (normal 23–85).

A plain radiograph of the abdomen was negative for obstruction or perforation. Computed tomography (CT) of the abdomen with oral and intravenous contrast showed a ring-enhancing collection with an air-fluid level and extensive adjacent mesenteric inflammation measuring 4.4 $\times$ 4.4 cm within the mesentery in the left hemiabdomen adjacent to the loop of a thickened and edematous mid-jejunum and intraperitoneal free air consistent with perforated small bowel diverticulitis with abscess formation, and no evidence of bowel obstruction or ascites (Fig. 1). The patient reported a past history of cholecystectomy and hysterectomy.

The diagnosis was considered to be contained perforation. The patient was initially resuscitated with intravenous fluids and was started on intravenous antibiotics. Her mentation gradually improved, and her abdominal discomfort and tenderness resolved. On discussion for the definitive treatment, she was taken to the operating room 2 days later after medical and cardiac risk stratification. She was intubated because of an increased risk for surgery and underwent diagnostic laparoscopy with extensive lysis of adhesion and drainage of multiple small interloop abscesses. Two jejunal diverticula were found next to each other, one of which was perforated. The segment of jejunum containing the two diverticula was resected. The ends were primarily anastomosed. The procedure was completed without any complications, and the patient was extubated and on the same day transferred to the critical care unit for monitoring. She did well postoperatively. She was started on a liquid diet and advanced. She was discharged after 6 days of hospital stay and recovered completely with no residual symptoms.

Pathology of the small bowel resection showed segments of the small bowel with diverticular disease, one with perforation, acute and chronic diverticulitis, fistula formation with abscess and extensive necrosis, and acute serositis with marked inflammation of the mesentery; the rest of the small bowel showed congestion.

Discussion

Sömmering and Baille first reported a case of jejunoileal diverticula in 1794 [4]. Jejunal diverticula are usually multiple in number and localized in the proximal jejunum, and they develop as a result of herniation of the mucosa, submucosa, and serosa through the muscular layer of the bowel at the point where the vasa recta enter the muscularis propria. It is a pseudodiverticulum, because it does not involve all layers of the bowel wall. The prevalence of jejunoileal diverticulosis is about 2% in the population, slightly higher among men than among women, and also slightly higher among elderly patients [5, 6]. These diverticula are frequently associated with disorders of intestinal motility, such as progressive systemic sclerosis, visceral neuropathies, and myopathy. Their causes are unclear, but intestinal dyskinesia, abnormal peristalsis, and high intraluminal pressure are implicated in their pathogenesis.

Jejunal diverticulosis usually asymptomatic; only 29% of the patients develop signs and symptoms [4], and 10% develop complications [3] such as perforation, obstruction, adhesion, fistula, peritonitis, and lower gastrointestinal bleeding. Acute complications are related to the inflammation of the mucosa, which leads to perforation and subsequent abscesses, as in our patient. Perforation of jejunal diverticula is a severe complication that occurs in 2–6% of cases [7].

Diagnosis is often challenging even with symptoms; therefore, a high degree of clinical suspicion is required. A plain abdominal radiograph is the initial imaging modality of choice, since it can show signs of perforation such as the presence of free air, or signs of intestinal obstruction such as the presence of dilated intestinal loops and air-fluid levels. CT scanning or magnetic resonance imaging can help recognize the condition, exposing signs of inflammation, thickening of the bowel wall with outpouchings, lesions, free air, and air-fluid levels [8]. Mortality from jejunal diverticulitis ranges from 0 to 5%, increasing to 40% in case of perforation [9].

Acute uncomplicated jejunal diverticulitis is managed with intravenous fluids, bowel rest, and antibiotics [10]. Acute complicated diverticulitis causing perforation with localized peritonitis with stable vital signs can be managed with conservative treatment as well as with percutaneous CT-guided aspiration without the need for surgery [8, 11]. Perforation with generalized peritonitis needs surgical intervention such as laparotomy with segmental small bowel resection with primary anastomosis. Overall mortality after general surgery is 24% because of poor prognostic factors such as advanced age and delays in diagnosis and treatment.

Conclusions

Even though colonic diverticulitis is almost always suspected in an elderly patient presenting with abdominal pain and fever, jejunal diverticulitis should be considered as a differential diagnosis. It requires a high degree of clinical suspicion, given the low incidence of the condition. Early diagnosis and prompt treatment are essential to prevent complications and to improve the patient's outcome.

Statement of Ethics

Consent was obtained from the patient. IRB approval was not needed.

Disclosure Statements

The authors declare no financial disclosures or conflicts of interest.

Funding Sources

No funding was obtained for this case report.

Author Contributions

D. Gurala, P. Patibandla, and J. Philipose wrote the Introduction, Case Description, and Discussion; P.S. Idiculla drafted the Introduction; M. Krzyzak and I. Mukherjee reviewed and edited the manuscript.

References

- 1 Staszewicz W, Christodoulou M, Proietti S, Dermartines N. Acute ulcerative jejunal diverticulitis: case report of an uncommon entity. *World J Gastroenterol*. 2008 Oct;14(40):6265–7.
- 2 Akhrass R, Yaffe MB, Fischer C, Ponsky J, Shuck JM. Small-bowel diverticulosis: perceptions and reality. *J Am Coll Surg*. 1997 Apr;184(4):383–8.
- 3 Transue DL, Hanna TN, Shekhani H, Rohatgi S, Khosa F, Johnson JO. Small bowel diverticulitis: an imaging review of an uncommon entity. *Emerg Radiol*. 2017 Apr;24(2):195–205.
- 4 Singal R, Gupta S, Airon A. Giant and multiple jejunal diverticula presenting as peritonitis a significant challenging disorder. *J Med Life*. 2012 Sep;5(3):308–10.
- 5 Maglinte DD, Chernish SM, DeWeese R, Kelvin FM, Brunelle RL. Acquired jejunoileal diverticular disease: subject review. *Radiology*. 1986 Mar;158(3):577–80.
- 6 Fintelmann F, Levine MS, Rubesin SE. Jejunal diverticulosis: findings on CT in 28 patients. *AJR Am J Roentgenol*. 2008 May;190(5):1286–90.
- 7 Sibille A, Willocx R. Jejunal diverticulitis. *Am J Gastroenterol*. 1992 May;87(5):655–8.
- 8 Butler JS, Collins CG, McEntee GP. Perforated jejunal diverticula: a case report. *J Med Case Reports*. 2010 Jun;4:172.
- 9 Kassir R, Boueil-Bourlier A, Baccot S, Abboud K, Dubois J, Petcu CA, et al. Jejuno-ileal diverticulitis: etiopathogenicity, diagnosis and management. *Int J Surg Case Rep*. 2015;10:151–3.
- 10 de Bree E, Grammatikakis J, Christodoulakis M, Tsiftsis D. The clinical significance of acquired jejunoileal diverticula. *Am J Gastroenterol*. 1998 Dec;93(12):2523–8.
- 11 Syllaos A, Koutras A, Zotos PA, Triantafyllou E, Bourganos N, Koura S, et al. Jejunal diverticulitis mimicking small bowel perforation: case report and review of the literature. *Chirurgia (Bucur)*. 2018 Jul–Aug;113(4):576–81.

Fig. 1. Computed tomography image of the abdomen with oral and intravenous contrast showing mesenteric inflammation and intraperitoneal free air consistent with perforated small bowel diverticulitis with abscess formation.