



Abdominal Pain: A Silent and Unlikely Cause

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Abstract

While diverticulosis is a common phenomenon in the large intestine, it is a rare disease found in the small intestine accounting for only 0.06% to 1.3% of cases. Although most cases are asymptomatic, roughly 30% to 40%, it is crucial that it is on the differential of acute abdominal pain as it can be life-threatening and potentially require surgical management. Here, we describe a case of a 61-year-old Hispanic man who was found to have a perforated jejunal diverticula after initially presenting with left upper quadrant abdominal pain.

Keywords

diverticulosis, jejunum, perforation, jejunal diverticulum

Introduction

Diverticulosis of the small bowel is a rare disease that is usually discovered incidentally on imaging or during surgery for an unassociated condition. It is characterized by herniation of the mucosa through weak spots along the gastrointestinal tract, leading to sac-like protrusions. It is called a true diverticula when the protrusion involves all 3 layers (mucosa, submucosa, and muscularis externa) of the intestine wall and a false diverticula when the sac includes only the mucosa and submucosa. Most of these intestinal pathologies are acquired except for Meckel diverticulum, which is congenital in nature and usually presents at a young age (~2 years of age).

The incidence of small bowel diverticula ranges from 0.06% to 1.3%.¹ While their prevalence is significantly lower than large intestine diverticula, cases increase with age and peak in the sixth to eighth decades of life.² In the small intestine, duodenum is the most common place for those outpouches, followed by the jejunum and the ileum. In fact, duodenum diverticula are 5 times more common than jejunoileal diverticula with equal predominance among men and women, whereas jejunoileal diverticula are predominantly found in men with a 1.5:1 ratio.³

Although most cases are asymptomatic, 30% to 40% of cases progress to cause malabsorption, hemorrhage, chronic abdominal pain, diverticulitis, obstruction, abscesses, and in severe cases diverticulum perforation.⁴ Therefore, it is imperative for physicians to consider small bowel diverticula in patients presenting with abdominal pain, nausea, fever,

and other nonspecific gastrointestinal (GI) symptoms to prevent such complications that can be life-threatening and potentially require surgical management. Here, we describe a case of a 61-year-old Hispanic man who on initial presentation of left upper quadrant abdominal pain was found to have a perforated jejunal diverticula.

Case Report

A 61-year-old Hispanic man with a medical history of hypertension, which is managed by diet and lifestyle, and *Helicobacter pylori* (*H pylori*) gastritis found on esophago-gastroduodenoscopy (EGD) in 2019 presents to the emergency department due to new-onset sharp and cramping 10/10 diffuse abdominal pain that began in his left upper quadrant, which woke him from sleep at 1 o'clock in the morning. His past surgical history is significant for an exploratory laparotomy 25 years ago secondary to a gunshot wound in his right upper quadrant. He was hemodynamically stable, afebrile, and saturating well on room air. He denied of any

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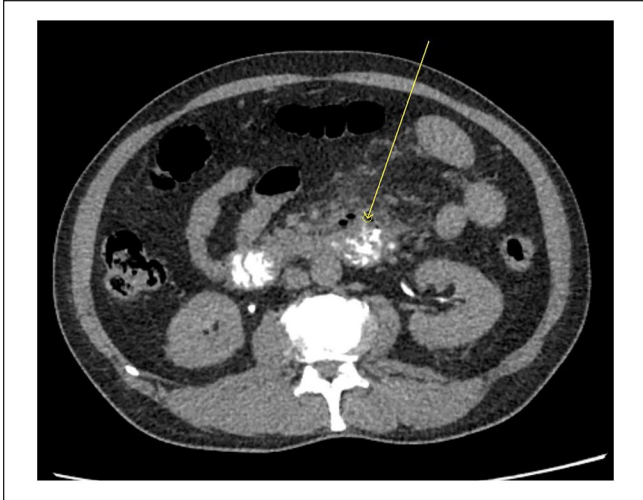


Figure 1. What was thought to be a perforated duodenal ulcer and a thin wisp of contrast adjacent to 3 extraluminal foci of gas, denoted by the yellow arrow, turned out to be a perforated jejunal diverticula visualized during surgery.

other active complaints at the time, and admission labs were only significant for hyponatremia and a low absolute lymphocyte count. An EGD and colonoscopy were performed in 2019, which were positive for *H pylori* gastritis, as mentioned above, and internal hemorrhoids, respectively. No diverticulosis was seen. The only medication he endorsed taking at home is motrin daily for the past year as he has chronic knee pain but stopped taking it 3 months ago. The patient states he has been able to eat since the pain began, but the pain did not subside. A computed tomographic (CT) scan was performed in the emergency department, which displayed a perforated duodenal ulcer at the distal third/fourth segment of the duodenum with small surrounding retroperitoneal air and mild fat stranding. No large drainable collection or phlegmon was observed. Surgery was consulted, and a second CT scan was performed with contrast, which showed free retroperitoneal air adjacent to thickened distal duodenum consistent with perforated duodenal ulcer, and a thin wisp of contrast was noted that appeared to extend to an extraluminal focus of gas as seen in Figure 1. However, there was no large extraluminal collection of enteric contrast. He was admitted under the care of the surgical department, made nil per os (NPO), given 1 dose of piperacillin/tazobactam (zosyn) and fluconazole (diflucan), intravenous fluids (IVF), and placed on a continuous proton pump inhibitor intravenous drip. After being resuscitated with fluids, he was taken to the operating room for another exploratory laparotomy with possible bowel resection. Upon opening the peritoneum, there was no gross succus, feces, blood, or bile. Omental adhesions and proximal small bowel interloop adhesions were observed. The transverse colon was then retracted cephalad and exposed several adhered loops of small bowel that appeared to be boggy and indurated with

edematous mesentery. Blunt and sharp dissection was used to continue adhesiolysis of the loops and upon freeing them an area of small bowel, approximately 5 cm from the ligament of Treitz, had stigmata of a microperforation, and this area was consistent with a mesenteric jejunal diverticulum. No active leakage of enteric contents was noted. Dissection of the duodenum was continued into the retroperitoneal portion D3 just to confirm no other areas of perforation, and no other concerning areas were noted. As the patient had no obvious gross contamination or active extravasation of enteric contents, the area of suspected jejunal perforation was sutured closed with no resection necessary. Methylene blue was passed through the nasoenteric tube, which appeared to distend the jejunal lumen without any extravasation noted around the repair, the peritoneal cavity was irrigated, and hemostasis was confirmed. The patient was seen and examined at bedside status after exploratory laparotomy and perforation repair. He complained of generalized abdominal pain which improved by postoperative day 3, and he has remained hemodynamically stable throughout hospital stay. He has been saturating well on room air without the need of any supplemental oxygen. At this time, the patient remains NPO, with supplementation of IVF and parenteral nutrition in place and intravenous esomeprazole for gastrointestinal prophylaxis.

Discussion

Jejunal diverticulosis was first described in 1794 by Sommering as only mucosa and submucosa herniating on the mesenteric side of the small intestine along the muscular layer, which today would be classified as a false diverticula. Still to date, the etiology of jejunal diverticulosis is unknown. Some hypothesize that it is caused by a combination of factors, including increased intraluminal pressure, abnormal peristalsis, and/or dyskinesia. Similar to our case, jejunal diverticula is usually found on the mesenteric side. They also tend to form at the entry point of vessels.

Within the small intestine, the duodenum is the most common localization of small bowel diverticular disease, with the incidence of jejunum and ileum being between 0.7% and 1%. The incidence of simultaneous diverticula in the large intestine and the small intestine, particularly the jejunum and ileum, is approximately 20% to 70%.⁴ However, there is only a 10% to 40% chance if it is present in the duodenum and only 2% if diverticula are found in the esophagus and stomach.

Because of their rarity, physicians must suspect these jejunal diverticula for them to be found. One study showed a 0.06% incidence of jejunal diverticula in postmortem examinations. The following year investigators used moderate air insufflation and careful inspection of the small bowel during these postmortem examinations. This resulted in an incidence of 1.33%, a 22-fold increase in incidence.⁵ Without increased suspicion, these diverticula will not be found, likely resulting in worse patient outcomes.

Sharma et al described a recent case where a patient with respiratory failure due to COVID-19 complained about sudden-onset abdominal pain without nausea, vomiting, or fever. As abdominal pain happens to be in the array of symptoms for COVID-19 among other diseases, it becomes challenging to have a high suspicion for small bowel diverticular perforation. The patient was subsequently found to have jejunal diverticular perforation requiring surgical intervention. Similar to our case, this case also highlights the importance of having a high index of suspicion for small bowel diverticulosis and perforation as it is extremely rare with low intraluminal pressure and can be fatal.⁶ Duggan et al also described a case similar to ours where the patient presented with an isolated perforation of the jejunal diverticulum requiring surgical intervention. This case also reiterates the rarity of the presentation of jejunal diverticulosis solely with perforation.⁷

Most cases of jejunal diverticula are uncomplicated and patients are usually asymptomatic. The symptoms can be as vague as nausea, vomiting, and any kind of abdominal pain whether it be epigastric or periumbilical. Complications arise in about 30% of cases, which include bleeding, obstruction, and perforation.⁴ As seen in the case presented above, he presented with perforation on initial evaluation.

Jejunal diverticulosis is a rare phenomenon that can lead to life-threatening complications. As most cases are asymptomatic and often miss being diagnosed, it is imperative that physicians consider it as a differential when the diagnosis of abdominal pain or acute abdomen is presented.

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Ethics Approval

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

Informed Consent

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