

A rare case of acute abdomen caused by diverticulum perforation in the jejunum

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Abstract

Diverticulitis of the small bowel is a rare condition that is typically asymptomatic. This study presents a case of diverticulitis of the jejunum in a 70-year-old male.

The patient presented to our clinic with acute abdominal pain. Abdominal CT revealed the presence of a diverticulum in the jejunum with mesenteric air and fat stranding. Due to clinical deterioration, the patient was taken to the operating room for surgical exploration.

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Exploratory laparoscopy revealed multiple diverticula in the proximal jejunum over a length of 50 cm, with signs of diverticulitis in one segment. The laparoscopic procedure was converted to an open approach. A segmental resection of the small bowel was performed, which included the inflamed portion and most of the diverticulum.

Laparoscopy and laparotomy are both recommended for managing complications associated with diverticulitis in the jejunum. In cases with complications such as perforation and abscess formation, segmental resection is the preferred approach.

Introduction

Diverticulosis of the small bowel is a rare condition compared to its counterpart in the colon. Small bowel diverticula are typically asymptomatic and often discovered incidentally during imaging or surgery for other reasons.¹ However, when complications such as diverticulitis occur, they can result in acute abdominal symptoms that require prompt diagnosis and surgical intervention. Diverticulitis in the small intestine is most commonly observed in the proximal jejunum² and is associated with significant clinical challenges due to its rarity and the nonspecific nature of its presentation.³ While many cases of small bowel diverticula remain asymptomatic, the condition can progress to a state requiring surgical management, particularly in the presence of complications such as perforation, abscess formation, and peritonitis.⁴

The current case report discusses the diagnostic workup, surgical management, and postoperative course of a 70-year-old male patient who presented with acute abdomen due to diverticulitis of the jejunum. This case is illustrative of the diagnostic and therapeutic challenges that arise in the management of small bowel diverticulitis.

This case report aims to detail the diagnostic approach and management strategies for a patient with small bowel diverticulitis, focusing on a patient presenting with acute abdominal symptoms. By reviewing this case, we seek to contribute to the understanding of rare complications of diverticulosis in the small bowel, adding to the limited literature available on the diagnosis and management of uncommon cases like this.

Case Report

A 70-year-old male was admitted to our clinic with complaints of acute abdominal pain that had started approximately 24 hours before presentation.

The patient had no past medical or familial history, and he had not mentioned any other episode of abdominal pain like the one present.

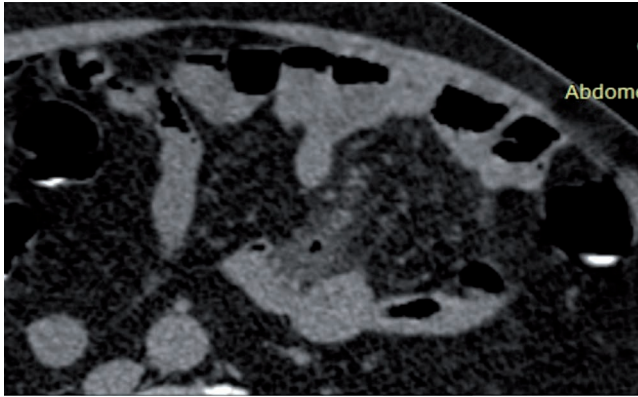


Figure 1. Abdominal CT.

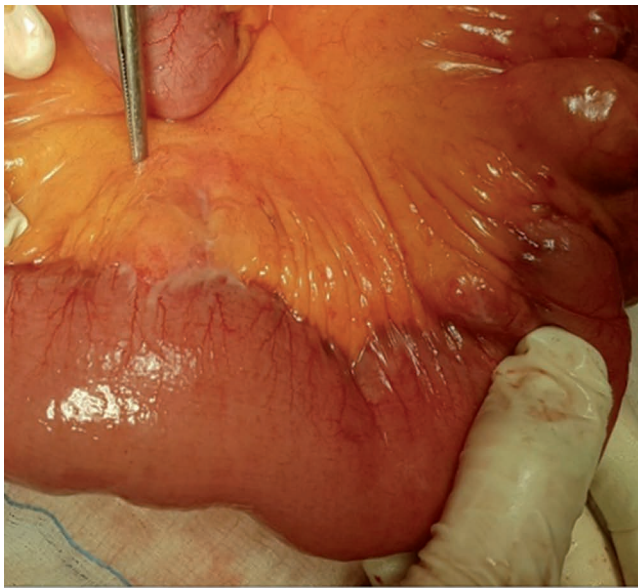


Figure 2. Exploratory laparotomy.

On physical examination, he had no fever and his vital signs were normal. On palpation, we found generalized abdominal pain with rebound tenderness.

The laboratory tests revealed elevation of white blood cells (WBC) and C-reactive protein (CRP).

Given the acute onset and nature of the patient's symptoms, a decision was made to proceed with imaging to further evaluate the source.

An abdominal CT scan with contrast was performed, which revealed a diverticulum in the jejunum (Figure 1). In addition to the presence of the diverticulum, the scan showed signs of localized inflammation, including mesenteric air and fat stranding. These imaging findings were consistent with diverticulitis complicated by perforation or the formation of an abscess, further suggesting an ongoing inflammatory process. Based on these findings and the patient's clinical deterioration, an urgent surgical exploration was indicated.

An initial exploratory laparoscopy was performed to assess the extent of the disease and identify any potential sources of peritonitis. During the procedure, multiple diverticula were identified in the proximal jejunum, spanning approximately 50 centimeters. One of these diverticula was inflamed, with signs of perforation and an associated abscess (Figure 2). Due to the extensive nature of the disease and the difficulty in fully exploring the abdomen through a laparoscopic approach, the decision was made to convert to an open surgical procedure.

The surgery involved a segmental resection of the small bowel, removing the inflamed portion of the jejunum and the majority of the diverticulum (Figure 3). After the resection, the continuity of the gastrointestinal tract was restored by performing a jejunum-jejunal anastomosis. The resected segment was sent for histopathological examination, which confirmed abscess formation resulting from a perforated diverticulum. The patient tolerated the procedure well, and the postoperative course was uncomplicated.

He also did not experience any other complications during the 30-day follow-up period.

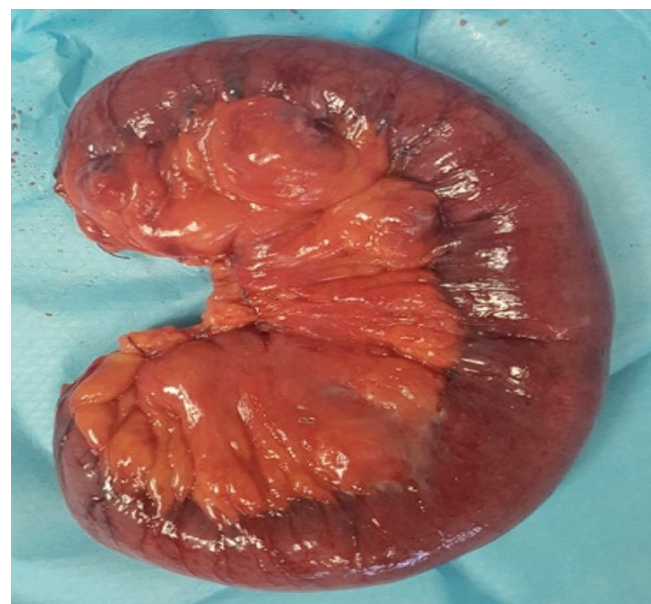


Figure 3. Resected specimen.

Discussion

Small bowel diverticulosis is less common than colonic diverticulosis and is believed to result from increased intraluminal pressure within the small intestine, causing weakness in the intestinal wall, typically where vascular supply penetrates the muscular layer through the mesentery.^{1,3} The pathogenesis of SBD is not completely understood, but factors contributing to its development include abnormal intestinal motility, high intraluminal pressure, and age-related degeneration of the bowel wall.³ It is also thought that abnormal peristalsis may lead to areas of increased pressure, which predispose to the formation of diverticula.⁵

Unlike Meckel's diverticulum, which is congenital, the majority of small bowel diverticula are acquired. These diverticula typically consist of only the mucosal and submucosal layers, making them "false" diverticula.⁴ Diverticula are most commonly located in the duodenum, followed by the jejunum. Jejunal diverticula occur more frequently than ileal diverticula due to the wider diameter of the jejunal arteries. While many patients with SBD are asymptomatic, complications such as diverticulitis, perforation, intestinal obstruction, or hemorrhage can occur, which can lead to significant morbidity.⁶

Diverticulitis occurs when the diverticula become inflamed or infected, often due to fecal material becoming trapped within them. This can lead to localized inflammation, bacterial infection, and, in some cases, abscess formation, perforation, or peritonitis. Increased intraluminal pressure within the affected diverticulum can cause it to rupture, leading to the potential spread of infection and fecal contamination into the abdominal cavity.^{4,6,7}

The diagnosis of small bowel diverticulosis is often incidental, as many individuals remain asymptomatic. When symptoms do arise, they are often nonspecific, including vague abdominal pain, bloating, and changes in bowel habits. The most common complications that prompt diagnosis are diverticulitis or gastrointestinal bleeding.^{5,7}

Imaging techniques are essential for diagnosing small bowel diverticulosis and diverticulitis.^{2,8} Contrast-enhanced abdominal CT and MRI scans are commonly used to detect the presence of diverticula, assess for complications like abscess formation, and evaluate the extent of inflammation or perforation.² In some cases, an upper gastrointestinal series with barium contrast may be used to visualize the diverticula in the duodenum or jejunum. However, conventional barium enema studies are not typically recommended due to the risk of perforation in inflamed diverticula.

Management of small bowel diverticulosis depends on whether the patient is symptomatic or asymptomatic. In most cases, asymptomatic SBD requires no specific treatment other than lifestyle modifications such as increased dietary fiber intake, which helps to reduce intestinal pressure and improve bowel motility. Fiber-rich foods, such as fruits, vegetables, and whole grains, are recommended to prevent further diverticula formation and mitigate the risk of diverticulitis.¹

For symptomatic patients with abdominal discomfort or changes in bowel habits, conservative treatment is usually sufficient. This includes the use of antispasmodic medications to reduce intestinal motility and improve symptoms. In some cases, antibiotics may be prescribed if there is evidence of mild inflammation or infection within the diverticula.^{1,9}

When complications such as diverticulitis occur, the treatment approach is more aggressive. Mild cases of diverticulitis with local inflammation may be managed with oral antibiotics, bowel rest, and hydration. If the inflammation is severe or if there is evidence of abscess formation, perforation, or peritonitis, hospitalization

and intravenous antibiotics may be required.⁷ Surgical intervention may be necessary in cases of recurrent diverticulitis, persistent symptoms, or complications such as bowel perforation or obstruction. Surgical options include resection of the affected portion of the small bowel.⁹

For patients with large or complicated diverticula, or those who do not respond to conservative measures, surgery may be required to prevent further episodes or to address life-threatening complications. In cases where perforation or sepsis occurs, emergency surgery is often indicated.⁷

The management of small bowel diverticulitis with complications generally involves resection of the affected segment of bowel. This is typically done to remove the inflamed diverticula, eliminate the source of infection, and prevent further complications such as sepsis or recurrent diverticulitis.

Both laparoscopic and open surgical approaches have been described in the literature for the management of complicated small bowel diverticulitis. Laparoscopy offers the advantage of minimally invasive surgery, which can reduce recovery time, minimize pain, and lower the risk of infection. However, in cases with extensive disease or difficulty visualizing the entire abdominal cavity, conversion to an open approach may be necessary, as was the case in this patient. Open surgery allows for more thorough exploration of the abdominal cavity and more complete resection of the affected bowel.

Postoperative management of small bowel diverticulitis typically involves close monitoring for complications such as anastomotic leaks, infection, or bowel obstruction.

The histopathological examination of the resected specimen confirmed the diagnosis of diverticulitis complicated by perforation, which was the underlying cause of the acute abdominal symptoms.

Conclusions

Diverticulitis of the jejunum is a rare condition that can present with symptoms of acute abdomen. Early diagnosis through imaging, particularly a CT scan, is critical for timely surgical intervention. In cases with complications such as perforation or abscess formation, segmental resection of the affected bowel is the treatment of choice. This case report emphasizes the importance of considering small bowel diverticulitis in the differential diagnosis of acute abdominal pain and highlights the successful management of this rare condition through surgical intervention.

The successful combination of both laparoscopic and open approaches underscores the adaptability required in complex cases like this. However, as a single case report, the findings may not be generalizable to all patients with jejunal diverticulitis. Additionally, long-term follow-up data are lacking, which limits assessment of late complications.

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