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Multiple Jejunal Diverticula Presenting As Small Bowel Obstruction And Peritonitis: A Case Report

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Abstract:
Jejunal diverticulosis (JD), a rare condition characterized by outpouchings of the small intestine, often presents a diagnostic challenge. While typically asymptomatic, JD can lead to complications like intestinal obstruction and diverticulitis. This case report describes a 75-year-old male who presented with acute abdominal pain, vomiting, and signs of intestinal obstruction. Imaging studies suggested a small bowel obstruction with a possible right para duodenal hernia. However, exploratory laparotomy revealed a more complex picture: multiple inflamed jejunal diverticula with adhesions and impending perforation, consistent with jejunal diverticulitis. This case highlights the challenges associated with diagnosing JD and its complications, particularly due to the non-specific symptoms it can present with. It emphasizes the importance of maintaining a high index of suspicion for JD in the differential diagnosis of intestinal obstruction, even in the absence of a clear history suggestive of diverticular disease.

Keywords: *Jejunal diverticulosis, small bowel obstruction, peritonitis, case report*

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I. Introduction:

Jejunal diverticulosis, characterized by outpouchings of the small intestine, presents a diagnostic challenge due to its relative rarity.[1] While the risk of diagnosis peaks between the sixth and seventh decades of life, jejunoileal diverticulosis can occur at any age. These are acquired pseudodiverticula, believed to form when the inner layers of the bowel wall (mucosa and submucosa) push through weak points in the muscular layer, typically along the mesenteric border where blood vessels enter the intestine.[2] While various examinations, including contrast studies and autopsies, reveal a prevalence range of 0.5-4.5%, the condition often remains asymptomatic.[3] This frequently leads to incidental diagnoses during surgical procedures performed for unrelated reasons. However, for symptomatic patients, jejunal diverticulosis can manifest through a spectrum of non-specific complaints like chronic abdominal pain, bloating, and altered bowel habits.[4-6] It's important to note that CT scans may miss uncomplicated jejunoileal diverticulosis. For a more definitive diagnosis in non-acute settings, capsule endoscopy or double-balloon endoscopy can be helpful in visualizing the small intestine.[2]

More concerning are the potential complications associated with jejunal diverticula. Hemorrhage, perforation, and diverticulitis, an inflammatory process within the pouches themselves, pose significant risks. Perhaps the most concerning complication is intestinal obstruction. This can occur when recurrent episodes of diverticulitis lead to scar tissue formation (adhesions) that bind and constrict loops of intestine, ultimately compromising intestinal passage.

Management of jejunoileal diverticulosis depends on the presence and severity of symptoms. In uncomplicated cases, conservative management is the norm. However, if jejunoileal diverticulosis presents with signs of obstruction, perforation, or other serious complications, urgent surgery and resuscitation become necessary.[3]

This case report describes a patient with multiple jejunal diverticula who presented with symptoms of intestinal obstruction. Our investigation revealed the underlying cause to be adhesions likely secondary to prior diverticulitis. This case highlights the potential complications associated with jejunal diverticulosis and underscores the importance of considering this condition in the differential diagnosis of patients presenting with acute intestinal obstruction.

II. Case Patient Presentation :

A 75-year old male patient presented himself at the Emergency Department with extensive diffuse abdominal pain and multiple episodes of bilious vomiting for the previous two days. On presentation, the patient was found to be hemodynamically stable. Abdominal examination showed distension in the epigastric and umbilical regions with localized tenderness and hyperactive bowel sounds.

Laboratory work-up revealed raised blood urea and serum creatinine. Erect and supine abdominal radiograpghs revealed multiple air fluid levels and dilated jejunal loops, respectively. The patient was started on IV fluids and broad-spectrum antibiotics.

Differential Diagnosis:

Category	Possible Cause	Relevant Investigations
Widespread inflammation	* Peritonitis (inflammation of abdominal lining) * Sepsis (widespread body infection) * Inflammatory bowel disease (ulcerative colitis, Crohn's disease)	* Blood tests (CBC, CRP) * Imaging studies (ultrasound, CT scan)
Vascular Issues	* Mesenteric ischemia (reduced blood flow to intestines) * Aortic dissection (tear in the aorta)	* Blood tests * Imaging studies (CT scan with contrast) * Angiography
Organ Dysfunction	* Pancreatitis (inflammation of the pancreas) * Diabetic ketoacidosis (complication of diabetes)	* Blood tests (amylase, lipase, electrolytes) * Imaging studies (ultrasound, CT scan)
Early Stage of Localized Conditions	* Appendicitis (before pain localizes to lower right quadrant) * Cholecystitis (inflamed gallbladder) * Ectopic pregnancy (rupture)	* Blood tests * Imaging studies (ultrasound, CT scan) * Depending on suspected cause: pelvic ultrasound, pregnancy test
Intestinal Obstruction	* Blockage in the small intestine or large intestine	* Blood tests (electrolytes) * X-ray * CT scan

After adequate fluid resuscitation ultrasound was done which was suggestive of small bowel obstruction with maximum dialted bowel loop of 34mm. CECT scan abdomen was suggestive of multiple dilated small bowel loops with maximum dilatation of 31 mm. Along with it paralytic ileus was present. However, CT also showed cluster of duodenal and jejunal small bowel loops adjacent to head of pancreas suggestive of right para duodenal hernia.

Treatment Pathway:

Clinically, peritonitis was suspected since there was no improvement with conservative management and thus an emergency exploratory laparotomy was performed. This revealed multiple inflamed diverticulae in the jejunum. The largest diverticulum was 5x4x4 cm at the mesentric border with multiple adhesions in jejunum and proximal ileum forming a blind loop. Pin-point pus exudation was seen from one of the diverticulum with thinning of wall and changes of impending perforation. The diverticuli extended 15 cm from Duodenojejunal juntion and extended till 70 cm. A segmental resection of 55 cm of jejunum with end-to-end jejuno-jejunostomy was performed.

The histopathological examination of the specimen showed focal mucosal ulceration with sub-mucosal edema and chronic inflammatory infiltrate along with necrosis, whereas multiple sections taken from diverticulae exhibited features of diverticulitis.

Outcomes:

The patient’s post-operative course was uneventful and the patient was discharged on Day 12 after surgery.

III. Discussion:

Jejunal diverticulum is an acquired condition first described in 1974 by Sommerings and later by Astley Cooler. It is an uncommon entity affecting only 0.07-1% of the population, often presenting a diagnostic dilemma due to its asymptomatic nature and the rarity of complications.[4] While most cases remain undetected, complications like intestinal obstruction can occur, posing a significant clinical challenge. This case highlights a patient with jejunal diverticula presenting with intestinal obstruction and peritonitis, likely a sequela of undiagnosed prior diverticulitis.

The diagnosis of JD itself can be elusive. Non-specific symptoms and the limitations of traditional imaging modalities often lead to incidental diagnoses during laparotomy for unrelated indications. Even in symptomatic cases, differentiating JD from other causes of small bowel pathology can be difficult. This case further emphasizes this challenge, as the underlying JD was not identified before the presentation of intestinal obstruction.[2]

The most common complications associated with JD include hemorrhage, perforation, diverticulitis, and intestinal obstruction in around 2.3-4.6% cases.[7] In this case, intestinal obstruction arose due to adhesions, a potential consequence of prior episodes of diverticulitis. While adhesion formation is a known complication of abdominal surgeries, it can also occur secondary to inflammatory processes within the abdomen, such as diverticulitis. In this specific scenario, the patient's lack of prior abdominal surgeries suggests that adhesions likely stemmed from undiagnosed diverticulitis involving the jejunal diverticula.

This case underscores the importance of considering JD in the differential diagnosis of intestinal obstruction, even in the absence of a clear history suggestive of diverticular disease. Furthermore, it highlights the limitations in diagnosing JD pre-operatively. While advanced imaging modalities like CT scans can offer clues, a definitive diagnosis often relies on surgical exploration like in this case.[8-9] This case emphasizes the importance of maintaining a high index of suspicion for JD, particularly in patients presenting with intestinal obstruction and a history of non-specific abdominal complaints.

IV. Conclusion:

Jejunal diverticulosis is an uncommon cause of SBO and peritonitis. A high index of suspicion is necessary for timely diagnosis and surgical management. This case report highlights the importance of considering jejunal diverticulosis in the differential diagnosis of patients presenting with acute abdomen and features of SBO.

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