

# Acute Presentations of Jejunal Diverticula as Acute Abdomen - A Case Series

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**Abstract:** *Jejunal pseudo-diverticulosis is a rare acquired herniation of the mucosa and submucosa through weakened areas of the muscularis mucosa of the mesenteric aspect of the bowel. They are asymptomatic in the majority of cases; however, they can present with a wide spectrum of non-specific symptoms such as chronic abdominal discomfort, postprandial flatulence, diarrhoea, malabsorption and steatorrhoea. In up to 15% of cases, more serious acute complications may arise such as the development of intestinal obstruction, haemorrhage or as in our case, localized peritonitis secondary to perforation. Perforation carries an overall mortality rate of up to 40% and exploratory laparotomy followed by copious lavage with segmental resection and primary anastomosis remains the mainstay of managing such sequelae of jejunal pseudo-diverticulosis. Our case series highlights the importance of maintaining a high clinical suspicion of complications of jejunal diverticula presenting with acute abdomen*

**Keywords:** Jejunal diverticula, Intestinal perforation, Intestinal obstruction

## 1. Case Series

### Case 1

A 60-year-old male, who presented in the emergency with generalized abdominal pain, distension and constipation since four days. Patient had history of frequent abdominal pain since three years. On general physical examination he had tachypnea, tachycardia and blood pressure was within normal range. Per abdominal examination revealed distension, generalized tenderness, guarding and rigidity. Routine laboratory investigations showed raised total counts of 16 thousand. Other blood investigations were normal. Abdominal X- ray showed air under the left side of dome of the diaphragm as shown in the figure 1.1.



Figure 1.1



Figure 1.2

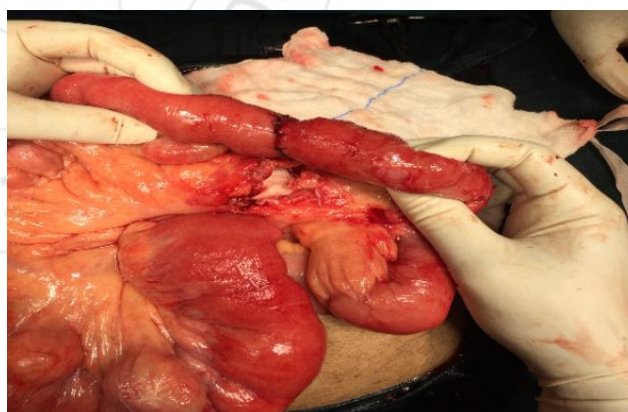


Figure 1.3

On laparotomy, multiple jejunal diverticula were present on the mesenteric side as shown in the figure 1.2. A perforation measuring  $0.5 \times 0.5$  cm was found in the diverticulum which was approximately 2 feet distal to the duodenojejunal junction. Peritoneal lavage with resection of only perforation-bearing segment with end to end anastomosis was done as shown in the figure 1.3. Postoperative course was uneventful.

### Case 2

A 65-year old man arrived at the emergency department complaining of 48-hour lasting intense abdominal pain and vomiting. He mentioned a two-year-lasting remittent abdominal pain, fullness and often abdominal distension. He also gives history of particular intolerance to pulse and vegetables. Physical examination revealed a distended abdomen with increased bowel peristalsis. Rectal examination was normal. Only his temperature was elevated (38.2°C) while other vital parameters were within normal limits. Abnormal laboratory findings included- leucocytosis (13300/mm<sup>3</sup>), anaemia (Hb:8.7gm%). A plain abdominal X-ray showed multiple air-fluid levels as shown in the figure 2.1 and dilated intestinal loops suggesting of intestinal obstruction. Abdominal ultrasonography revealed dilated and hyperactive intestinal loops but not free intraperitoneal fluid.



Figure 2.1



Figure 2.2

Operative findings- Patient underwent laparotomy on day 3 after admission. Upon exploration, we found a giant jejunal diverticulum as shown in the figure 2.2. A band

extending from the diverticulum to the adjacent small bowel was noted causing intestinal obstruction. An 80cm jejunal resection and an end-to-end anastomosis was done. Postoperative period was uneventful.

### Case 3

A 70-year-old man was admitted with an acute history of severe diffuse pain abdomen since a few hours. He had complains of nausea and was passing flatus. Last meal was 4 hours earlier. On examination, he was hemodynamically unstable BP-87/64 mmHg; PR- 109 bpm, feeble. Abdominal examination revealed diffuse pain abdomen with guarding. PR examination was found to be normal. The laboratory analysis revealed leukocytosis (19,100 leukocytes/mm<sup>3</sup>). As patient was hemodynamically unstable he was started on fluid therapy and was taken up emergency laparotomy soon after. The patient had no previous surgical history. The exploratory laparotomy revealed the presence of multiple diverticula mainly of the proximal jejunum ( Fig-3.1 ), one of which was ruptured and caused the peritonitis ( Fig-3.2 ). The patient was treated with segmental resection of the jejunum carrying the ruptured diverticulum. The intestinal segment containing the perforated diverticulum was removed and an end-to-end anastomosis was done to reconstruct the intestinal transit. Histopathology report confirmed an ulcerative jejunal diverticulitis with imminent perforation and acute local peritonitis. The patient recovered well and was discharged from hospital on postoperative day 10.



Figure 3.1: Diverticular perforation



Figure 3.2: Multiple diverticula mainly of the proximal jejunum

### Case 4

A 66-year-old female presented with a 3 day history of vague mild right sided abdominal pain and watery mucoid



diarrhoea along with minimal bleed per rectum since a day. On examination she was haemodynamically stable and tender in both iliac fossae, being more prominent on the right side. Per Rectal examination was normal. Her initial white cell count was 11.3 g/dl. An initial ultrasound scan of the abdomen and pelvis was normal. She was conservatively treated and patient improved symptomatically. A computed tomography scan, the following day, revealed a large jejunal diverticuli (Fig-4.1). Patient was planned and taken up for surgery subsequently on day 4 of admission.

Laparotomy was done and a large diverticulum arising approx. 20cms from the duodeno-jejunal flexure was revealed (Fig-4.2). Segmental resection of the jejunum was performed with a side to side stapled anastomosis. Postoperative recovery was unremarkable.

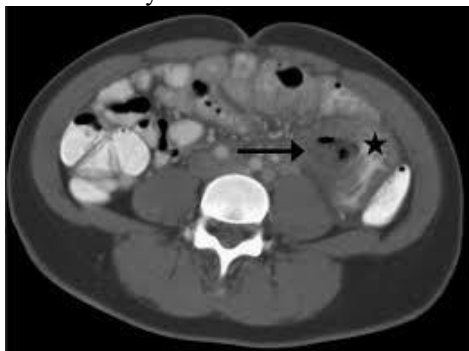


Figure 4.1



Figure 4.2:

#### Case 5:

This 76-year-old gentleman presented with a history of left iliac fossa pain since 3 days associated with vomiting. He had intermittent diarrhoea previously. On examination abdomen was mildly distended with tenderness in his lower abdomen. His leucocyte count was 13.5 cells/mm<sup>3</sup> and his abdominal radiograph showed no obvious abnormality. Computed tomography scan showing dilated intestinal loops and a single heterogenic calcified mass within the small bowel (Fig-5.1). Laparotomy was performed due to failure of conservative methods. Intra-op dilated proximal bowel loops were visualised with a transition point at the diverticular segment of the jejunum. Multiple large and medium sized inflamed jejunal diverticula were noted. An enterotomy was performed and an obstructing enterolith was removed ( Fig-5.2). Postoperatively patient had a full recovery.

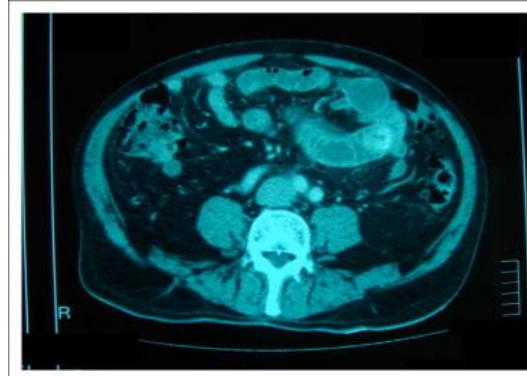


Figure 5.1



Figure 5.2

## 2. Discussion

Diverticulosis is a common disorder of the colon. Uncommonly, diverticulosis may develop in the small bowel with an incidence at autopsy of 0.3–4.5%<sup>1</sup>. Small bowel diverticula are false diverticula and do not contain all layers of small bowel tissue (epithelium, lamina propria muscularis mucosa, submucosa, muscularis propria and serosa). Etiopathogenesis is unclear but it is thought to arise in the setting of bowel dyskinesia, abnormalities in peristalsis or high intraluminal pressures. Diverticula occur on the mesenteric border of small bowel at sites of insertion of penetrating mesenteric vessels. Penetrating visceral vessels create gaps in the muscularis propria, and allow for mucosa to herniate through these defects<sup>2</sup>. The duodenum is the most frequent site of small followed by the jejunum and ileum, with an incidence of 60–70%, 20–25% and 5–10%, respectively<sup>3</sup>.

Jejunal diverticulosis is a rare clinical entity. Its reported incidence varies from 0.05 to 6%<sup>4</sup>. Involvement of the jejunum is up to 7 times more common than that of the ileum and largely affects men aged 60 to 70 years<sup>5</sup>.

Jejunal diverticulosis is associated with many diseases, including scleroderma, celiac disease, MNGIE cytopathy, and Cronkhite-Canada syndrome<sup>6</sup>. Patients can present with symptoms of SIBO, including diarrhea, steatorrhea, weight loss, and megaloblastic anaemia. Local complications of diverticula also can occur, such as diverticulitis, bleeding, and perforation.

Due to its rarity in clinical manifestation, jejunal diverticulosis may lead to a diagnostic and therapeutic delay. There should be a high index of suspicion when patients present with chronic central abdominal pain,

malabsorption and anaemia. Therefore, any patient with unresolved symptoms, complications, or recurrent symptoms should be evaluated further. The clinical presentation of this complication is similar to that of any acute intestinal obstruction, including nausea, vomiting, and absence of flatus or fecal transit as well. X-rays might show air-fluid interfaces related to obstruction and Contrast examination of the gastrointestinal tract could be useful to view jejunal diverticula and moreover a stop in gastrograffin progression. Computed tomography may raise or confirm suspicion of small intestine diverticulosis.

Jejunal diverticula are best diagnosed by UGI radiography with small bowel follow-through. They may also be found by CT.<sup>7</sup>

Diagnosis is often delayed, resulting in unnecessary morbidity and mortality. A surgeon meets the patients only in the acute phase of the disease, when the disease symptoms most commonly include bleeding and perforation. These potentially life-threatening complications require early and emergent operative intervention. Laparoscopy can be valuable in diagnosis and treatment as most of the times jejunal diverticulosis can be treated conservatively with surgery required for acute presentation as in with generalized peritonitis and massive gastrointestinal bleeding.

### 3. Conclusion

Jejunal diverticula are mostly asymptomatic, diagnosed incidentally during imaging, endoscopy, or operation (60%) or developing nonspecific symptoms such as abdominal pain or discomfort (30%).<sup>8</sup> Clinicians must maintain a high index of clinical awareness to avoid missing small intestinal diverticulosis as they have been associated with complications which include hemorrhage, intestinal obstruction, volvulus, intussusception, stenosis, and repeated episodes of diverticulitis mandating the need for surgery<sup>4</sup>. Therefore, any patient with unresolved symptoms, complications, or recurrent symptoms should be evaluated further and Jejunal diverticulosis should be considered as a differential diagnosis in cases of unclear abdominal pain.

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