Case Report

Jejunal diverticular perforation in an acute abdomen: A case report

Divya Jyoti Banerjee[1], Himesh Chauhan[2]

From [1]Junior Resident, [2]Associate Professor, Department of General Surgery, GMERS Medical College and Hospital, Ahmedabad, Gujarat, India

ABSTRACT

Jejunal diverticula are acquired pseudodiverticula that occur due to the herniation of the mucosa and submucosa through the weakest site of the muscularis propria of the bowel wall. Perforation of inflamed diverticula is a rare phenomenon that needs immediate operative intervention, an exploratory laparotomy along resection and anastomosis. Here, we report the case of a 50-year-old female with jejunal diverticular perforation. The patient presented with complaints of generalized abdominal pain associated with abdominal distension, constipation, and vomiting. Generalized abdominal tenderness, guarding, and rigidity were present. Ultrasound was suggestive of sealed bowel/diverticular perforation with localized peritoneal collection. The patient was taken for exploratory laparotomy which showed a jejunal diverticulum along with perforation. It was decided to do resection and anastomosis of the affected segment. The follow-up was uneventful. Since perforation of the jejunal diverticula is a rare phenomenon, the diagnosis needs to be considered in patients presenting with an acute abdomen.

Key words: Exploratory laparotomy, Jejunal diverticula, Perforation

Jejunoileal diverticula (JID), the least common of small bowel diverticula, has a rare prevalence with an incidence of <5% in imaging. The risk of diagnosis peaks in the sixth and seventh decades of life. JID is an acquired pseudodiverticula believed to result from herniation of the mucosa and submucosa through the weakest site of the muscularis propria of the bowel wall (i.e., the mesenteric border where paired blood vessels enter the bowel wall) due to increased intraluminal pressures caused by jejunoileal dyskinesia. They can be located in the jejunum (more common), ileum, or both; single or multiple (more common) [1]. Patients with JID also frequently have other coexisting gastrointestinal diverticula, including those found in the colon, duodenum, esophagus, and stomach, highlighting a potential common etiology [2]. About 40% of cases are asymptomatic while the symptoms are mostly non-specific and cannot lead to a conclusive diagnosis [2]. JID are often identified on exploratory laparotomy or laparoscopy for other indications or the evaluation of chronic or acute symptoms [1]. Computed tomography (CT), tagged red blood cell scan, or angiogram may demonstrate findings consistent with a complication of a JID such as inflammation, perforation, or bleeding. Capsule endoscopy and double-balloon endoscopy are useful in diagnosing small bowel disorders and may be of benefit in identifying JID in a non-acute setting. Unless symptomatic or present with complications, conservative management is sufficient, whereas, if there are signs of obstruction or perforation; it warrants urgent surgery and resuscitation.

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CASE REPORT

A 50-year-old female presented in the emergency with complaints of generalized abdominal pain which was insidious in onset for the past 9 days but increased for 4 days. It was associated with abdominal distension and constipation with one episode of vomiting. No aggravating or alleviating factors were present. The patient had a personal history of constipation. The family history was negative for any gastrointestinal malignancy.

On general examination, she had tachypnea, tachycardia, and dehydration while her blood pressure was in the normal range. Per abdomen examination revealed generalized abdominal tenderness, guarding, and rigidity. Bowel sounds were sluggish.

Abdominal X-ray revealed multiple air-fluid levels (Fig. 1), and routine laboratory investigations suggested neutrophilic leukocytosis having a neutrophil-to-lymphocyte ratio of 8. Rest routine investigations were normal. Ultrasound was suggestive of localized sealed bowel perforation/diverticular perforation with adjacent loculated collection (Fig. 2).

The patient was started on IV fluids and broad-spectrum antibiotics. The patient was taken for emergency laparotomy which revealed a single jejunal diverticulum 45 cm from the duodenojejunal junction with perforation (Fig. 3a). The

Correspondence to: Divya Jyoti Banerjee, GMERS Medical College and Hospital, Ahmedabad, Gujarat, India. Email: div97banerjee@gmail.com

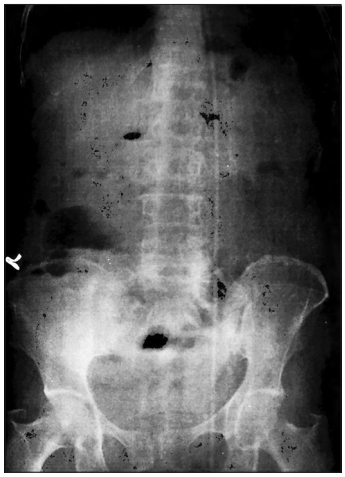

Figure 1: Abdominal X-ray showing multiple air fluid levels

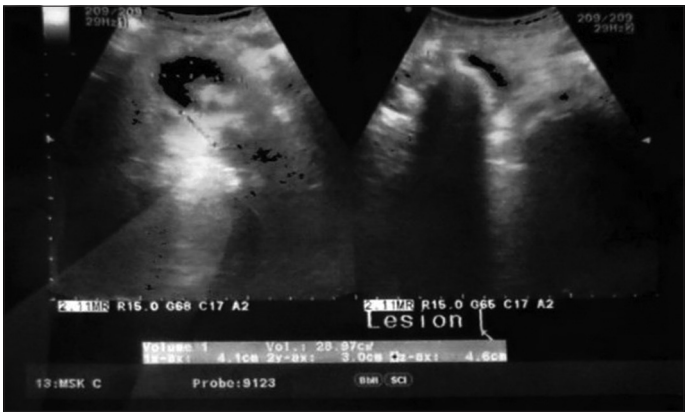

Figure 2: Ultrasound suggestive of localized sealed bowel perforation/ diverticular perforation with adjacent loculated collection

diverticulum was 5 cm in length. The rest of the gastrointestinal tract appeared to be normal in caliber. 10 cm jejunal resection was done and sent for biopsy (Fig. 3b). The patient was shifted to the intensive care unit for continuity of care.

The patient was discharged a week later. The follow-up was uneventful. Histopathology was suggestive of jejunal diverticula (Fig. 4).

DISCUSSION

While jejunal diverticula are rare, they are more common than ileal diverticula. Its prevalence ranges from 0.5% to 2.3% in imaging studies. Bowel obstruction due to jejunoileal diverticulosis is a very rare occurrence and may occur due to various reasons [3].

Although the exact etiology is still unknown, some studies demonstrate risk factors that increase the risk of developing diverticulosis, such as intestinal dyskinesia, peristalsis abnormality, and high intraluminal pressure [4].

Few patients with JID present with acute, emergent symptoms resulting from complication of the diverticulum, including gastrointestinal hemorrhage, diverticulitis, obstruction, fistula formation, and perforation.

Jejunal diverticulosis is a challenging disorder from a diagnostic perspective, with no truly reliable diagnostic tests.

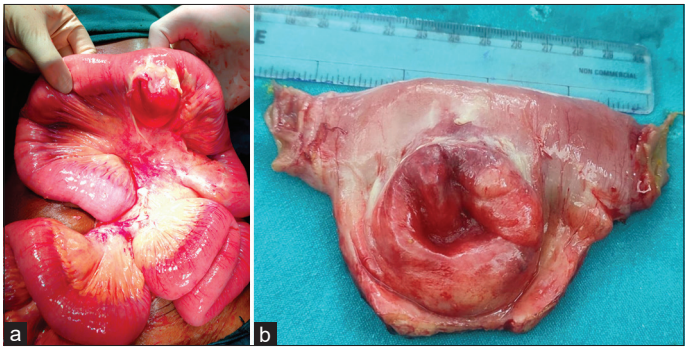

Figure 3: (a) Intraoperative image of jejunal diverticular perforation 45 cm distal to duodenojejunal junction; (b) Resected segment of jejunum showing diverticular perforation

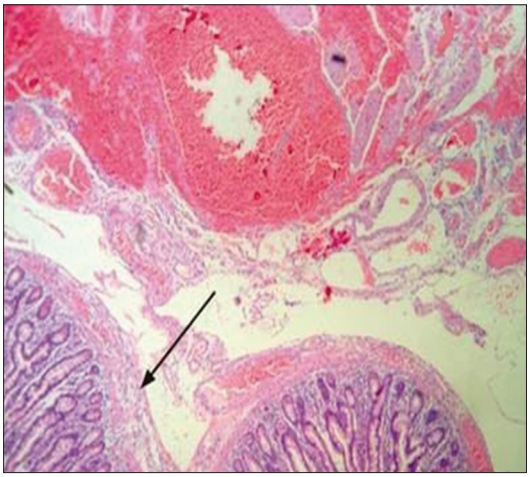

Figure 4: Segment of the jejunum (arrow) with diverticular formations

Abdominal radiographs and/or chest radiographs may demonstrate evidence of perforation, such as free air under the diaphragm or free peritoneal air; evidence of intestinal obstruction, or evidence of ileus, including multiple air-fluid levels and bowel dilatation [5,6].

The presentation and management of a patient with an acute complication of a JID depends on the complication [7,8]. Although it is debatable whether CT alters disease management in minor diverticular disease, it is invaluable in excluding other causes of abdominal pain and documenting the extent of extraluminal disease [9].

The definitive diagnosis is made through laparoscopy or an exploratory laparotomy procedure. Diagnostic laparoscopy enables an accurate diagnosis, avoiding the need for unnecessary laparotomy, and thus can be very useful in investigating patients with complicated symptomatology.

Inflammation resulting in diverticulitis occurs rarely in patients with JID and can present as mild abdominal pain or diffuse peritonitis associated with free perforation. If perforation occurs in the setting of full-thickness necrosis, it can be associated with higher mortality rates [8]. Traumatic and foreign body perforations of JID have also been described. If the perforation is contained within the mesentery, non-operative management with bowel rest and antibiotics with or without percutaneous drainage can be attempted. Lack of clinical improvement after a period of non-operative management, however, mandates resection of the affected segment of the bowel

with a primary anastomosis. Similarly, patients presenting with more significant findings of fever, leukocytosis, peritonitis, and septic physiology require immediate laparotomy with resection of the affected segment of the bowel.

Obstruction believed to be secondary to adhesions can initially be managed conservatively. However, if non-operative management fails, lysis of adhesions and segmental bowel resection of the JID with a primary anastomosis is required. Similarly, surgical resection is indicated for the management of obstruction resulting from intussusception, volvulus, or extrinsic compression. If one or multiple diverticula appear inflamed or scarred, segmental resection of the involved bowel with a primary anastomosis is mandated.

Jejunal diverticulosis tends not to be associated with surrounding diverticulitis and in our case, the adjacent tissue was normal in appearance when examined intra-operatively.

CONCLUSION

Although the perforation of the jejunal diverticula is a rare phenomenon affecting the elderly population, the diagnosis needs to be considered in patients presenting with an acute abdomen. Its symptomatology is non-specific even after complications, thus must be kept as a differential. It may be managed conservatively or surgically based on the presentation. With every case report, new information regarding the disease is found which can help with diagnosis and management.

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