International Journal of Health Sciences and Research
[Indexed, Peer-Reviewed Journal]
Volume 16; Issue: 5; May 2026
Website: www.ijhsr.org
Case Series *ISSN: 2249-9571*

Jejunal Diverticular Perforation: A Case Series of a Rare Complication Seen in Geriatrics in Tertiary Care Centre in South Maharashtra

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DOI: https://doi.org/10.52403/ijhsr.20260527

ABSTRACT

Jejunal diverticulosis is a rare acquired disorder of the small intestine caused by abnormalities in smooth muscle or myenteric plexus function, resulting in increased intraluminal pressure and subsequent mucosal–submucosal herniation through weak points in the bowel wall. Although the condition is frequently asymptomatic, particularly in younger individuals, it may occasionally present with chronic nonspecific gastrointestinal symptoms or severe complications such as diverticulitis, intestinal obstruction, hemorrhage, and perforation. Among these, perforation is uncommon but associated with considerable morbidity and mortality due to delayed diagnosis and vague clinical presentation.

We report a series of five geriatric patients managed at a rural tertiary care centre in southern Maharashtra between 2020 and 2025. The patients presented with features of acute abdomen including abdominal pain, distension, vomiting, constipation, and signs of localized or generalized peritonitis. Laboratory investigations revealed leukocytosis in all cases, while radiological evaluation demonstrated findings such as pneumoperitoneum, interbowel collections, bowel wall thickening, and inflammatory changes suggestive of small bowel perforation. Contrast-enhanced computed tomography proved to be the most valuable diagnostic modality in identifying the pathology preoperatively.

Emergency exploratory laparotomy was performed in all patients. Intraoperatively, multiple jejunal diverticula with perforation along the mesenteric border were identified, associated with varying degrees of purulent or feculent contamination. Segmental jejunal resection with primary jejunojejunal anastomosis was performed in all cases. Four patients had uneventful postoperative recovery, while one patient developed a burst abdomen during the postoperative period. No mortality was observed in this series. This case series emphasizes the importance of maintaining a high index of suspicion for jejunal diverticular perforation in elderly patients presenting with acute abdomen. Early radiological evaluation and prompt surgical intervention remain crucial in reducing morbidity and improving outcomes in this rare but potentially life-threatening condition.

Keywords: Jejunal diverticulosis, Diverticular perforation, jejunal diverticulitis.

INTRODUCTION

Jejunal diverticulosis results from smooth muscle dysfunction causing increased intra luminal pressure and mucosal–submucosal herniation.[1] The radiological incidence of small-bowel diverticula ranges from 0.02–2.3%.[2] First described by Sommering in 1794 and surgically treated in 1906,2 it is uncommon and usually asymptomatic; however, 10–30% develop complications including abdominal pain, malabsorption, hemorrhage, and perforation.[3] Although perforation is rare, it carries a mortality of up to 40%.[4] As diverticula are often concealed within the mesentery and may be missed intraoperatively, early recognition is essential. We report five cases managed at a tertiary care hospital in rural southern Maharashtra between 2020 and 2025, focusing on presentation, evaluation, and management.

CASE SERIES

CASE - 1

A 72-year-old man presented with two days of acute abdominal pain and distention following eight days of constipation. He was tachycardic with localised tenderness. CT revealed jejunal diverticulosis with a contained perforation and mild-to-moderate peritonitis. Laboratory tests showed leukocytosis and acute kidney injury. Emergency laparotomy identified a 1 × 1 cm mesenteric-border perforation 30 cm distal to the duodenojejunal junction with feculent contamination (Figure 1). Segmental resection with primary anastomosis was performed. He recovered uneventfully and was discharged on postoperative day 10.

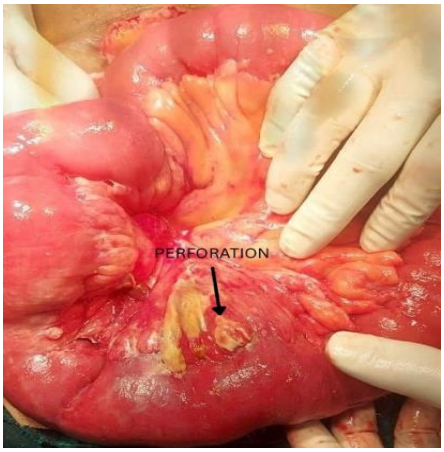


Figure 1: Jejunal diverticulosis with perforation.

CASE - 2

A 75-year-old hypertensive man presented with two days of abdominal pain, vomiting, and three days of constipation. Examination showed focal epigastric and right-sided tenderness with guarding. CT demonstrated pneumoperitoneum from an ileojejunal perforation and significant celiac and superior mesenteric artery stenosis. Laboratory tests revealed leukocytosis and renal dysfunction. Laparotomy found extensive jejunal diverticulosis from the duodenojejunal to jejunoileal junction with two 3×3 mm mesenteric-border perforations in the distal jejunum (Figure 2). Wedge resection with primary anastomosis was performed. Recovery was complicated by a urinary tract infection treated conservatively; he was discharged on postoperative day 10.

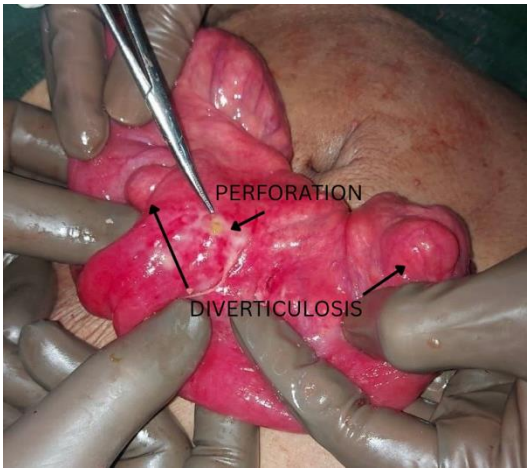


Figure 2: Jejunal Diverticulosis with Diverticular Perforation.

CASE - 3

A 63-year-old man presented with one day of acute abdominal pain and distention. Outside CT imaging suggested perforated jejunal diverticulitis with contrast extravasation from the proximal jejunum. On admission, he was tachycardic with abdominal distention and generalised tenderness. Laboratory tests showed marked leukocytosis. Emergency laparotomy confirmed a mesenteric-border perforated jejunal diverticulum. Segmental resection with primary end-to-end jejunojejunal anastomosis was performed. Recovery was uneventful; oral intake was started on postoperative day 4, and he was discharged on day 12.

CASE - 4

A 70-year-old woman presented with two days of abdominal pain and vomiting, with blunt abdominal trauma 13 days prior. Examination showed generalised tenderness with guarding and rigidity. Laboratory tests revealed leukocytosis with normal renal function. Ultrasound showed edematous bowel loops with inflamed mesentery and minimal pelvic fluid, and erect radiograph confirmed pneumoperitoneum (Figure 3). Laparotomy revealed multiple small-bowel diverticula up to the ileum, with a mesenteric-border perforated jejunal diverticulum and approximately 200 mL purulent contamination. Segmental resection with primary anastomosis was performed. She recovered uneventfully and was discharged on postoperative day 10.

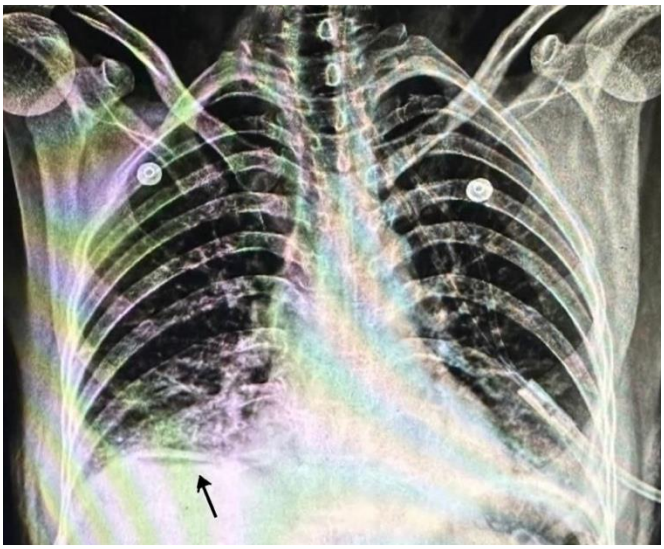


Figure 3: X-ray Erect Abdomen showing Gas under Diaphragm.

CASE - 5

A 56-year-old hypertensive and diabetic man presented with four days of abdominal pain and fever. CT showed a contained perforated jejunal diverticulum. On admission, he had abdominal distention with generalised tenderness and guarding; erect radiograph demonstrated pneumoperitoneum. Laboratory tests revealed mild leukocytosis and acute kidney injury. Laparotomy identified a solitary perforation 30 cm distal to the duodenojejunal junction with approximately 200 mL purulent contamination. Segmental resection with primary anastomosis was performed (Figure 4). Recovery was delayed by a lower respiratory tract infection, and he was discharged on postoperative day 17.

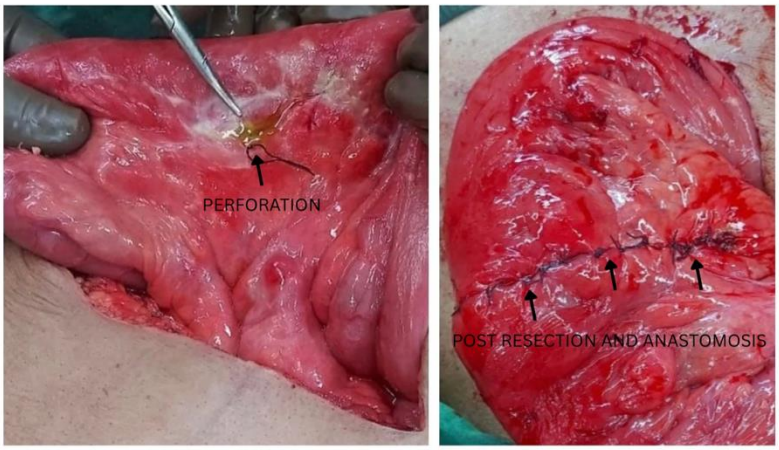


Figure 5: Jejunal Diverticular Perforation, Managed with Resection and Anastomosis

DISCUSSION

Small intestinal diverticula are out pouching of the bowel wall into the mesentery or peritoneal surface. Jejunoileal diverticula are false diverticula (Table 1), formed by herniation along the mesenteric border.[1] They are typically acquired rather than congenital. Although the exact pathogenesis remains unclear, smooth muscle or myenteric plexus dysfunction has been implicated. Increased intra luminal pressure may promote mucosal and submucosal protrusion through weak points in the bowel wall, particularly where the vasa recta penetrate the muscularis propria.[5]

Table 1: Classification of Diverticula

Anatomical	
True Diverticula	False Diverticula
Contents all layers	Lacks muscular layer
Developmental	
Congenital	Acquired
Etiological	
Primary	Secondary

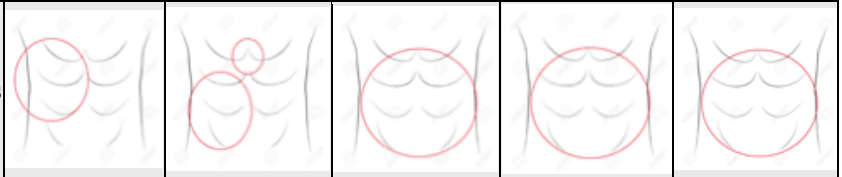
Gastrointestinal diverticula are most commonly found in the colon, while other sites—including Meckel's diverticulum of the ileum, duodenum, pharynx, oesophagus, stomach, jejunum, and ileum—are less frequently affected.[6] Jejunoileal diverticula are rare, with a reported prevalence of 0.2–5% in imaging and pathological series.[7] Approximately 80% occur in the jejunum, 15% in the ileum, and 5% at the jejunoileal junction, often presenting as multiple lesions that decrease in frequency distally.[8]

Most acquired small-bowel diverticula are asymptomatic and detected incidentally. Approximately 10% develop complications, most commonly diverticulitis, while perforation, bleeding, and obstruction are less frequent.[3] Intermittent abdominal pain, bloating, diarrhoea, and constipation have been reported in 10–30% of cases, although a direct causal relationship remains uncertain. Only a minority, around 10%, of symptomatic patients ultimately require surgery.[3]

Perforations are often contained by the mesentery or adjacent bowel, mimicking perforated colonic diverticulitis or appendicitis and potentially delaying diagnosis; mortality may reach 40% in such cases.[4]

In our series, four of five patients were male, with a mean age of 70 years, reflecting the predilection for the elderly. Age-related motility changes causing chronic stagnation and increased intra luminal pressure may contribute to disease development and complications.[9] All patients presented with acute abdominal pain, commonly with distention and vomiting, and some reported intermittent constipation. None had a prior diagnosis. Tachycardia occurred in 80%, and leukocytosis was universal. Findings ranged from localised tenderness to generalised peritonitis with guarding and rigidity, highlighting the variable presentation (Table 2).

Table 2: Clinical abdominal findings at presentation

	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Tenderness					
Guarding	No	Localised	No	Generalised	Generalised

Plain chest and abdominal radiographs may show indirect signs of complications, such as pneumoperitoneum, bowel obstruction, or paralytic ileus with dilated loops and air–fluid levels which were rare and non-conclusive. Computed tomography provides greater diagnostic accuracy, demonstrating jejunal wall inflammation, mural thickening, or localised collections suggestive of abscess formation.[5]

Incidental diverticulosis is usually clinically insignificant; however, its complications can be difficult to diagnose and manage. Uncomplicated diverticulosis cases may be treated conservatively with bowel rest and antibiotics. Selected hemodynamically stable patients with localised perforation and limited peritoneal contamination can also be managed non-operatively with close monitoring, intravenous antibiotics, supportive care, and image-guided drainage of collections.[4] In contrast, patients with generalised peritonitis, hemodynamic instability, or overt perforation require urgent surgical intervention.[3]

Surgery typically consists of exploratory laparotomy with segmental resection and primary anastomosis, tailored to the extent of disease and the patient's physiological status.[8] Procedures such as diverticulectomy, invagination, or simple primary closure are discouraged due to the risk of ischemia and anastomotic leak.[10]

CONCLUSION

Jejunal diverticulosis is a rare and often under diagnosed condition, as uncomplicated disease is typically asymptomatic and incidentally detected. It predominantly affects the elderly and is associated with age-related motility changes. Owing to its nonspecific presentation, complications such as perforation may manifest as acute abdomen and pose diagnostic challenges hence it should be considered as an important differential diagnosis for acute abdomen in geriatric patients. In our series, all patients were diagnosed after developing complications, with contrast-enhanced CT proving most useful. Peritonitis or radiological evidence of perforation calls for urgent surgery. Segmental resection with primary anastomosis resulted in favorable outcomes in all cases.

Declaration by Authors

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Rahul Patil, Moses Ingty, Rohit Desai. Jejunal diverticular perforation: a case series of a rare complication seen in geriatrics in tertiary care centre in South Maharashtra. *Int J Health Sci Res.* 2026; 16(5):237-242. DOI: *10.52403/ijhsr.20260527*

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