

Case Reports

Left Paraduodenal Hernia: A Surgical Conundrum - A 3 Case Series Analysis and Review Literature

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Intestinal obstruction is one of the most common surgical emergencies, with various underlying causes, of which internal hernias account for 0.6% to 5.8% of small bowel obstructions¹. Internal hernia is the protrusion of viscus through an intraabdominal aperture without traversing the fascial planes. Internal hernia could be a congenital or acquired type. Congenital internal hernia, though named congenital, has an average age of presentation of 30-50 years, and the mean age is 38.5 years. Para-duodenal hernias account for 50% of all congenital hernias, of which left para-duodenal hernias are more common (70% of all para-duodenal hernias)¹. Typically, patients with para-duodenal hernias present with symptoms of intestinal obstruction and have a history of intermittent obstruction and associated vague abdominal pain². The malrotation of the midgut and failure of fusion of mesentery to parietal peritoneum create a hernial defect. Para-duodenal hernia can lead to bowel obstruction, ischemia, and perforation and has a high mortality rate of 30-50%.⁴

Herein, we report a case series of three patients with left para-duodenal hernias, all presenting as intestinal obstruction with bowel ischemia.

Case Series

Case 1

A 35-year-old male presented to casualty with symptoms of abdominal pain, distension, constipation, and obstipation

for 3 days. There was history of similar episodes in the past for which he was hospitalized once. The patient was conscious and oriented. His pulse rate was 97/min, blood pressure was 130/70 mmHg, and SpO₂ was 98% on room air. Abdominal examination revealed diffuse tenderness all over the abdomen and distension. Bowel sounds were sluggish. Ultrasound abdomen and pelvis revealed dilated bowel loops with sluggish peristalsis. Contrast Enhanced CT scan revealed clumping of the small bowel loops over left upper abdomen and closed loop obstruction, likely internal hernia (para-duodenal hernia) (**Figure 1,2**). The patient was taken up for exploratory laparotomy. The intraoperative findings were a hernial sac with inferior mesenteric vein (IMV) and ascending left colic artery placed antero-lateral to the sac. The afferent limb of the hernia was 4th part of the duodenum, and the efferent limb was the terminal ileum. The neck of the sac was narrow, causing obstruction and gangrene of ileum, which was about 50 cm proximal to the ileo-cecal junction, and the gangrenous bowel was 3 cm in length. The gangrenous bowel was resected, and end to end anastomosis was done (**Figure 3**).

The mesenteric defect was closed with a non-absorbable suture to prevent further herniation. The post-operative period was uneventful, and the patient is on follow-up.



Figure 1: Clumping of bowel loops in CECT abdomen.

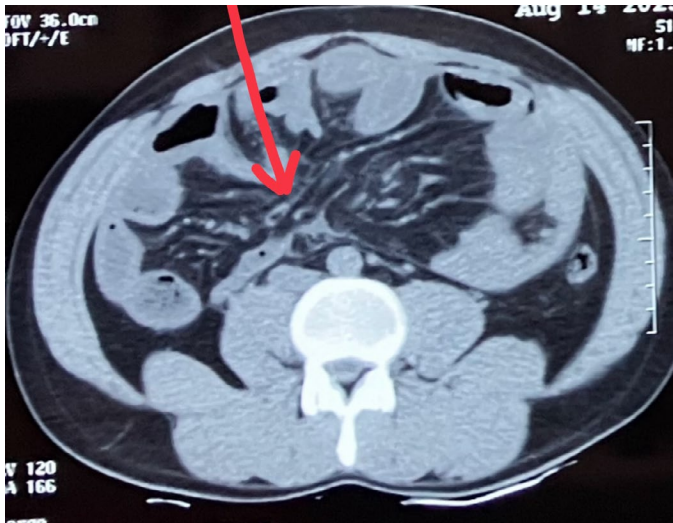


Figure 2: Swirl Sign in CECT abdomen.

Case 2

A 15-year-old male presented to the casualty with symptoms of abdominal pain, constipation, obstipation and bilious vomiting for 5-6 episodes over 4 days. On examination, patient was conscious and oriented. His pulse rate was 120/min, blood pressure was 90/60 mmHg and SpO₂ was 94% on room air. Abdominal examination revealed distension, diffuse tenderness, guarding, and rigidity. Bowel sounds were absent. Despite adequate resuscitation, vital signs did not improve. He was started on inotropic support. His routine investigations revealed a total leucocyte count of 35,000 cells/mm³, hemoglobin of 10 g/dL, and hypokalemia (3.0 mEq/dL). X-Ray erect abdomen and pelvis revealed multiple air-fluid levels and clumping of bowel loops in the left upper quadrant. Ultrasound abdomen showed diffuse distension with sluggish peristalsis. The patient was taken up for an emergency exploratory laparotomy. Intraoperative findings revealed dilated loops of small bowel within a hernial sac in the left upper abdomen. The hernia appeared to protrude through the mesentery of the large bowel and incorporated a large segment of bowel from the duodenum to 40 cm proximal to ileo-cecal junction (**Figure 4,5**). The sac was opened near the neck to reduce the contents, and the small intestine was found to be gangrenous, 200 cm

proximal to ileo-cecal junction. Around 150 cm of small bowel was gangrenous, which was resected, and ileo-ileal anastomosis was done. The mesenteric defect was closed to prevent further recurrences. The postoperative period was uneventful; the patient was discharged and is doing well.

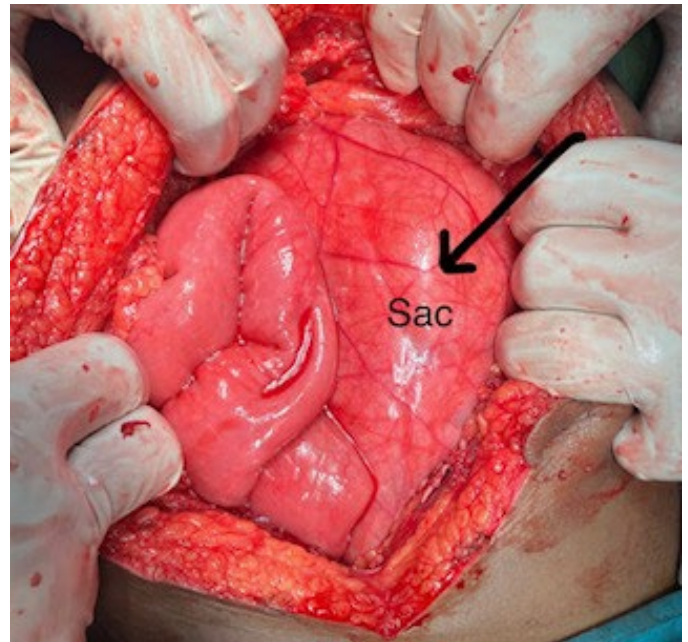


Figure 3: Intraoperative image showing hernia sac.

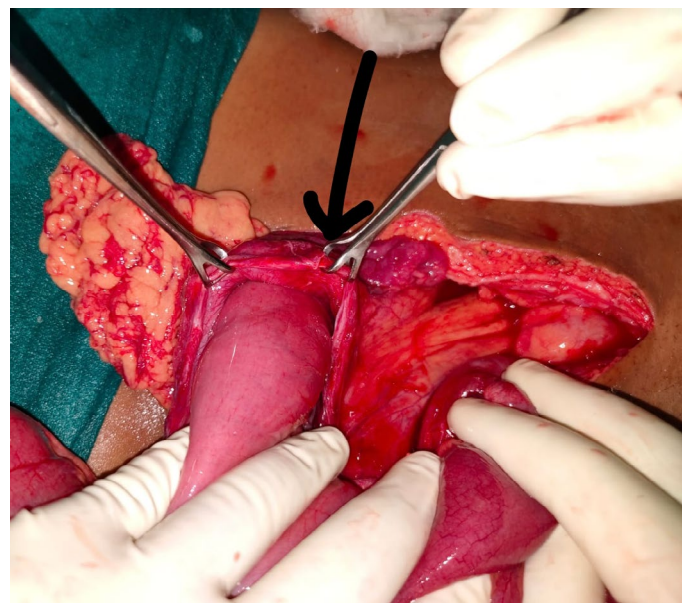


Figure 4: Intraoperative image showing the defect.

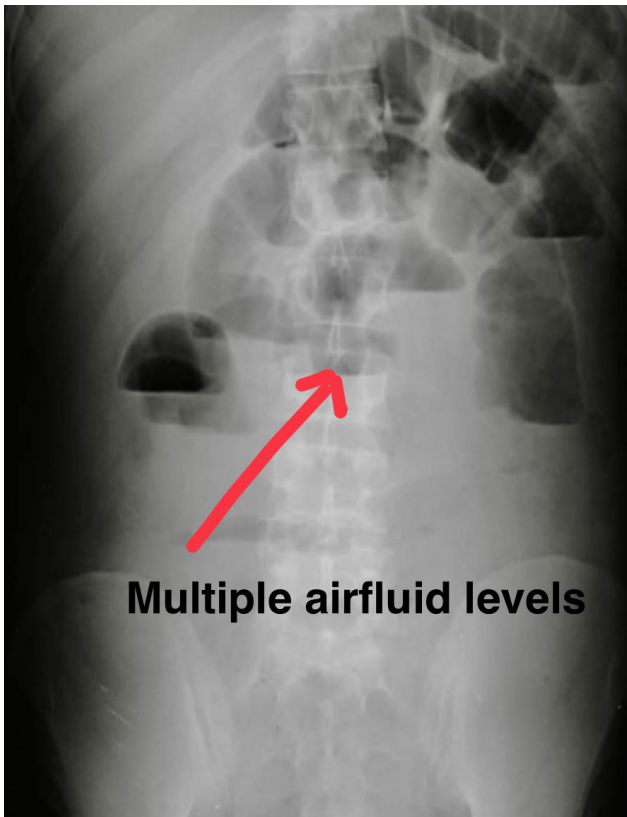


Figure 5: X-ray erect abdomen showing multiple airfluid levels.

Case 3

A 25-year-old female patient presented to the casualty with complaints of pain abdomen, associated with nausea and bilious vomiting (3 episodes) for 2 days. History of similar complaints of vague abdominal pain was present. On examination, the patient was conscious-oriented, febrile, and had pulse rate of 110/min, blood pressure of 90/65mmHg and SpO₂ of 96% on room air. Abdominal examination revealed diffuse tenderness, guarding, and rigidity. Bowel sounds were exaggerated. Patient was resuscitated adequately with intravenous fluids. Routine blood investigations showed hemoglobin of 10 g/dL and total leucocyte count of 15,000 cells/mm³. X-Ray erect abdomen and ultrasound were inconclusive; hence, a contrast-enhanced CT scan was done, which revealed a left-sided clumping of small intestine with distorted vascular anatomy likely a closed-loop obstruction or para-duodenal hernia. An exploratory laparotomy was planned, and intraoperative findings revealed a hernial

sac on left upper abdomen, displacing the IMV, and left colic artery anterolaterally. The neck of the sac was identified, and the contents, which started proximally at jejunum and extended distally up to terminal ileum, were reduced. About 50 cm of bowel was gangrenous, 100 cm proximal to the ileo-cecal junction. Resection and anastomosis was done. The mesenteric defect was closed. The postoperative period was uneventful, and the patient was discharged (**Figure 6,7; Table 1**).

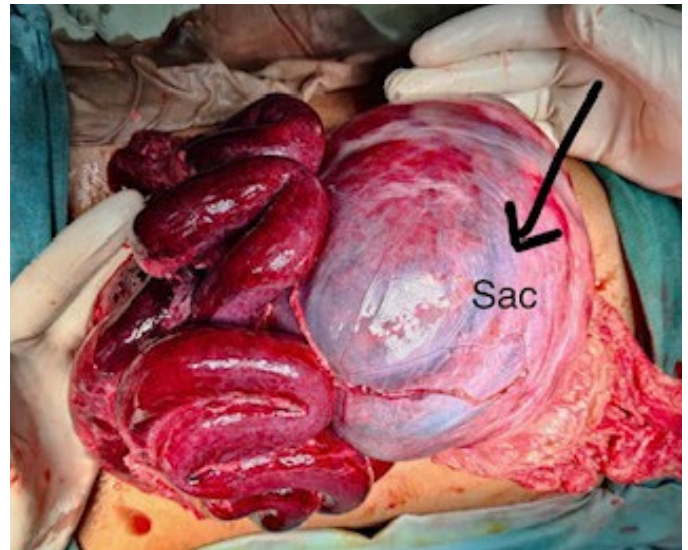


Figure 6: Intraoperative image showing hernia sac.

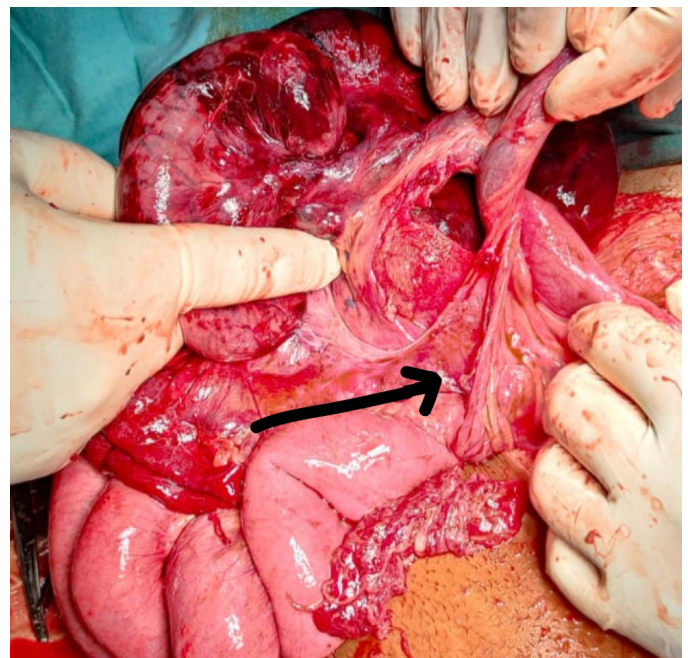


Figure 7: Intraoperative image showing the defect.

Table 1

Case	Presentation and Investigations	Intra OP Findings and Outcomes
Case 1	Recurrent episodes of pain abdomen and abdominal distension. CECT-Clumping of small bowel in left upper abdomen,? closed loop obstruction / internal hernia.	Left paraduodenal hernia with IMV and ascending colic artery placed antero-laterally. Content- Jejunum upto 50cms proximal to IC Junction with 3 cms of ileum found to be gagrenous at the neck of the sac. Resection anastomosis done with closure of defect with nonabsorbable suture
Case 2	Pain abdomen, multiple episodes of Bilious vomiting, guarding rigidity. Patient was hemodynamically unstable. X-ray revealed Multiple air fluid levels.	Abnormal anatomy with dilated small bowel loops within a sac in left upper abdomen. Anteriorly bound by IMV and ascending colic artery. Content- gangrenous jejunem and ileum upto 30cms proximal to IC junction. Jejunio-ileal anastomosis done. Patient landed in type I short bowel syndrome
Case 3	Pain abdomen associated with vomiting. Bowel sounds exaggerated. CECT- Clumping of bowel loops in left upper abdomen? Closed loop obstruction.	Small bowel herniating into left side of duodenum, IMV formed the anterior border of sac. Content- Jejunum and Ileum upto 50cms proximal to IC junction. Defect closed with nonabsorbable sutures.

Discussion

Para-duodenal hernia, also known as mesocolic hernia, occurs due to embryonal peritoneal anomalies and associated abnormal intestinal rotation⁴. Typically, patients present with symptoms of vague abdominal pain with or without symptoms of obstruction. Left paraduodenal hernia occurs due to the herniation of intestinal loops into a potential space known as the Landzert Fossa, which failed to obliterate. The left para-duodenal hernia is posterior to the inferior mesenteric vein and left branch of the middle colic artery and is situated to the left of fourth part of the duodenum. It occurs in 2% of the population³. The small bowel becomes entrapped between the mesocolon and the posterior abdominal wall, forming the anterior wall of the hernia sac⁶. It is a rare condition, and to establish the diagnosis, an experienced radiologist, and a high index of suspicion is required. About 50% patients are associated with a lifetime risk of obstruction and strangulation.

High rate of mortality necessitates early diagnosis and precise surgical management. The surgical intervention involves identification of the hernial sac and the defect, reduction of the contents, checking for the viability of the bowel, and avoiding injury to the

vasculature. A downward incision of the ring will avoid injury to the inferior mesenteric vein. Awareness of the vascular anterior border of the aperture during repair is imperative. The defect should always be closed either continuously or in an interrupted manner, preferably using non-absorbable sutures. Surgical aspects include timely intervention, as the outcome largely depends on appropriate management at the right time. All our cases underwent exploratory laparotomy. The postoperative period was uneventful, and all the cases were discharged without further complications.

References

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Gastric Pneumatosis in Acute Pancreatitis: A Diagnostic Dilemma

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Gastric pneumatosis is the presence of air within the stomach wall, which may be associated with a spectrum of clinical entities ranging from benign gastric emphysema to ischaemic gastropathy to fatal emphysematous gastritis. Ischaemic gastropathy is rare due to the rich collateral blood supply of the stomach. In this case report, we present a unique case of ischaemic gastropathy secondary to acute necrotizing pancreatitis with splenic vein thrombosis. Our patient showed a remarkable recovery with timely management. We highlight the role played by imaging in early diagnosis and differentiation of benign gastric emphysema and gastric ischaemia from the more lethal emphysematous gastritis, thus guiding appropriate management.

Case Report

A 68-year-old woman presented with severe epigastric pain radiating to the back and vomiting for one day. Physical examination was notable for epigastric tenderness with no palpable mass. The patient was afebrile and preliminary

lab investigations revealed leukocytosis (16800 cells/mm³; normal range 4000-11000 cells/mm³) with neutrophilia (9472 cells/mm³; normal range 2000-7000 cells/mm³), elevated serum amylase level (4230 U/L; normal range 22-80 U/L) and lipase level (10690 U/L; normal range <67 U/L). Serum lactate levels were normal (1.7 mmol/L; normal range < 2 mmol/L).

Conservative management, including fluid resuscitation by administration of IV fluids, IV analgesics for the pain, and parenteral feed for bowel rest, was done.

However, the patient continued to have severe abdominal pain and vomiting. Due to a lack of symptomatic improvement despite conservative management, abdominal ultrasonography was done on day 5 of admission. It revealed an edematous and bulky pancreas with a poorly circumscribed peripancreatic fluid collection.

Esophagogastroduodenoscopy (EGD) done on the same day for nasojejunal tube placement was unremarkable.

Contrast-enhanced CT abdomen performed within an hour after EGD demonstrated a bulky pancreas with non-enhancing areas within and an ill-defined heterogenous peripancreatic collection, suggestive of acute necrotizing pancreatitis with acute necrotic collection. Long-segment splenic vein thrombosis was seen (**Figure 1**).

Gastric fundus and body showed non-enhancing mucosa with extensive intramural air, extending into the immediate perigastric soft tissue, and the portal venules. Several small venous collaterals were seen within the gastric wall (**Figure 2,3**). These findings suggested the diagnosis of gastric ischemia.

Mucosa in gastric antrum showed normal enhancement. The coeliac trunk and its branches were patent and of normal caliber.

Given the discrepancy between findings on the EGD and CECT scan, a repeat endoscopy was performed on day 7 of admission, which revealed multiple gastric mucosal ulcerations and sloughed-off mucosa along the greater curvature, thus confirming the diagnosis of ischaemic gastropathy (**Figure 4**). Patient was promptly started on heparin infusion.

After a multidisciplinary team discussion, a laparoscopy was done on day 10 of admission to assess the severity of gastric ischaemia, the presence and extent