

## LEFT PARADUODENAL HERNIA: UNMASKING AN UNDER RECOGNIZED CAUSE OF ACUTE ABDOMEN

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### **Abstract:**

Internal abdominal hernias are infrequent causes (1-4%) of intestinal obstruction, making them difficult to diagnose. Paraduodenal hernias represent up to 53% of all internal hernias. Although internal hernias are rare, they should be included in the differential diagnosis of acute abdominal pain, particularly in patients who have no history of previous surgery or trauma. Internal hernias pose a serious risk as they can lead to strangulation and ischemia of the affected intestinal segments, necessitating prompt identification and management as a surgical emergency. Diagnosis primarily relies on imaging, with computed tomography being the preferred initial technique due to its ability to provide detailed, multiplanar reformatted images. We hereby report a case of a patient who underwent open surgical intervention for an internal hernia in an emergency setting, achieving a favorable clinical outcome. This case underscores the importance of diagnosing this rare disease to avoid unnecessary hospital stays and surgeries when evaluating acute abdominal conditions.

*Keywords:* internal hernia, paraduodenal hernia, acute abdomen.

### **Case**

A 38-year-old male came to the outpatient department of a tertiary care centre with complaints of sudden upper abdominal pain for two days, 4-5 bouts of non-projectile and non-bilious vomiting associated with constipation for two days, and left sided minimal abdominal fullness. The patient had no history of abdominal surgery or known co-morbid illness.

At presentation, he was normotensive, moderately dehydrated with mild tachycardia. Abdominal examination revealed upper abdominal tenderness associated with guarding. Bowel sounds were sluggishly heard in all four quadrants, and all hernial orifices were found to be intact. The per-rectal and systematic examinations were found to be within normal limits.



Fig-1: X-ray erect abdomen showing no abnormality

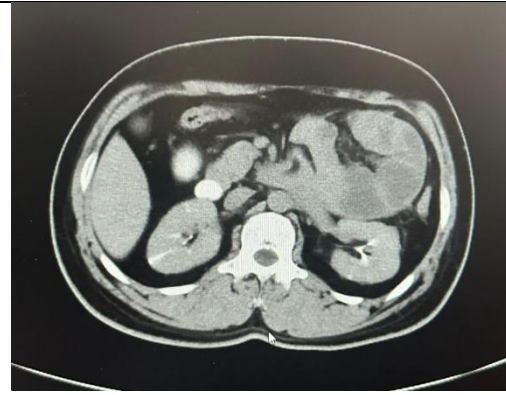
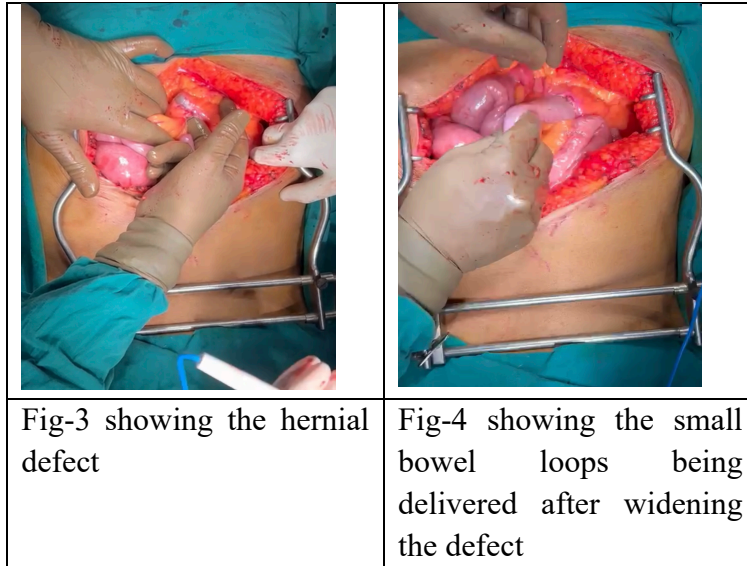


Fig-2: CECT abdomen-pelvis showing C-shaped clustered bowel loops

Hemogram, Serum electrolytes, serum amylase, lipase, liver, and renal parameters were observed to be normal. Plain X-ray erect of the abdomen showed no abnormality. Ultrasonography of the abdomen showed Multiple dilated and fluid filled small bowel loops in Left upper abdomen most likely suggestive of subacute small bowel obstruction. Contrast enhanced CT scan of the abdomen-pelvis showed evidence of cluster of small bowel loops noted in the left anterior pararenal space, posterior to the inferior mesenteric vein. These cluster of small bowel loops predominantly contained jejunal loops with associated stretching and twisting of mesenteric vessels-likely suggestive of left paraduodenal hernia. The jejunal loops in the region of hernia shows C-shaped configuration and appears dilated in caliber (maximum diameter - 3.6 cm) and shows normal wall enhancement. There is loss of free flow of oral contrast beyond the 4<sup>th</sup> part of the duodenum-suggestive of obstruction. Left paraduodenal hernial contents are posterior to ascending branch of left colic artery.



Exploratory Laparotomy was done and intraoperatively, small bowel loops visualised encapsulated lateral to Inferior Mesenteric vein and retrocolic in position. Fascia overlying the Fossa of Landzert was excised and widened and contents were reduced. Entrapped bowel fluid (850 ml) aspirated proximally via Ryles tube. Further inspection of the peritoneal cavity revealed no abnormality. The patient experienced an uneventful recovery postoperatively and showed no complications at a review visit after four weeks in the outpatient department.

## Discussion

Internal hernias, though uncommon, are significant causes of intestinal obstruction. They result from a viscus encasing a portion of the abdominal cavity after emerging from peritoneal or mesenteric opening. Paraduodenal hernias (PDH) are rare congenital defects caused by abnormalities in the rotation of the midgut and incomplete fusion of the mesentery with the parietal peritoneum. They constitute up to 1-4% of intestinal obstruction.<sup>(1)</sup> Despite being rare causes of intestinal obstruction, they carry a significant risk of mortality.

In Left Paraduodenal Hernia, the small intestine protrudes posteriorly and inferiorly into the Fossa of Landzert, surrounded by the inferior mesenteric vein, the left branches of the middle colic artery (anteriorly), posterior parietal attachments of descending mesocolon (posteriorly), and the fourth part of the duodenum (right).<sup>(2)</sup>

This hernia is usually asymptomatic, but may vary based on the extent of bowel protrusion and any associated vascular involvement. Patients might experience chronic or intermittent abdominal pain, a history of digestive discomfort from childhood, nausea, and vomiting, or even recurrent intestinal obstructions and bowel ischemia. Additionally, the presence of herniated bowel loops can cause stomach distension, leading to postprandial discomfort and pain, which may be relieved by changing posture. These symptoms can often be mistaken for other conditions such as biliary

gastritis, or gastroesophageal reflux, which might lead to missed diagnosis. Moreover, laboratory tests may not always provide clear answers, further complicating the diagnostic process.<sup>(3)</sup>

A contrast-enhanced CT scan of the abdomen is essential for diagnosing left paraduodenal hernia, with an accuracy of 95% and sensitivity between 95% and 100%.<sup>(2)</sup> A standard CT scan typically displays a clustered group of small bowel loops in the left upper quadrant of the abdomen, with the mesenteric vessels showing signs of engorgement. The scan may also reveal these bowel loops positioned behind the pancreas, transverse colon, or stomach. It may depict the inferior mesenteric vein displaced forward, small bowel loops situated between the stomach and pancreas, and the mesenteric vessels converging towards the hernia's neck near the ligament of Treitz.<sup>(4)</sup> Diagnosis prior to emergency surgery for intestinal obstruction or a surgical abdomen is crucial.

Surgical management involves reducing the herniated contents and closing the paraduodenal defect. Sometimes, enlarging the defect may be necessary to facilitate reduction of engorged bowel loops.<sup>(2)</sup> A careful incision is made along the mesocolon, extending distally to the lower edge of the defect, to avoid damaging the mesenteric vessels, especially the inferior mesenteric vein.<sup>(4)</sup> After the incarcerated small bowel is reduced, the defect is meticulously closed to avoid harming nearby mesenteric vessels.<sup>(5)</sup> The diagnostic challenges associated with paraduodenal hernias contribute to treatment delays and are implicated in approximately 20% of cases where intestinal ischemia occurs. This underscores the importance of timely intervention to mitigate the overall mortality rate reported as 20%, rising to 50% in cases of strangulated or ischemic bowel.<sup>(3)</sup> It is treated surgically, either by laparoscopy or laparotomy and repair, to relocate the small bowel and close the mesenteric opening. Exploratory laparotomy is more frequently recorded, specifically in managing life-threatening complications, including strangulation or perforation.

In our patient, we followed the basic surgical principles of hernial reduction after primarily assessing the contents.

## Conclusion

Internal hernias are increasingly common and associated with poor outcomes. Therefore, symptomatic patients displaying signs of small bowel obstruction require prompt evaluation to initiate immediate treatment and prevent potentially severe complications such as bowel gangrene and perforation. Surgical intervention is typically necessary depending on the patient's condition, and can be performed either through open surgery or laparoscopically. Elective laparoscopic procedures are preferred in many cases due to shorter hospital stays and cosmetic advantages.

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