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LEFT PARADUODENAL HERNIA PRESENTING AS SMALL BOWEL OBSTRUCTION: A RARE CASE REQUIRING TIMELY SURGICAL INTERVENTION

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ABSTRACT **Background:** Paraduodenal hernia (PDH) is the most common congenital internal hernia, arising from an anomaly of midgut rotation and mesenteric fixation. It accounts for well under 1% of all cases of intestinal obstruction, and left-sided hernias through the fossa of Landzert are more common than right-sided hernias through the fossa of Waldeyer. PDH can present as an acute closed-loop obstruction and carries a risk of strangulation if it is not recognized and intervened promptly. **Case presentation:** A 30-year-old man presented with a one-day history of acute colicky abdominal pain and vomiting. He was hemodynamically stable, with diffuse abdominal tenderness but no distension and absent bowel sounds; rectal examination was unremarkable. An erect abdominal radiograph showed dilated small bowel loops with air-fluid levels in the left hypochondrium. Contrast-enhanced computed tomography (CECT) of the abdomen and pelvis was done on an emergency basis and showed a cluster of dilated bowel loops in the left paraduodenal region, with jejunal loops crowding within the hernia sac with normal bowel wall thickness and enhancement. Emergency exploratory laparotomy revealed the jejunum and proximal ileum entrapped within a cocoon-like peritoneal recess in the left lumbar region, producing a closed-loop obstruction. The recess was opened and the bowel fully reduced without resection. The ascending left colic artery and the inferior mesenteric vein formed the anterior border of the hernial opening. **Conclusion:** Left paraduodenal hernia should be considered in any patient with small bowel obstruction and no history of prior abdominal surgery. Immediate radiological investigation and timely surgical management by exploratory laparotomy reduce the chances of strangulation and help avoid resection of small bowel.

KEYWORDS : paraduodenal hernia; internal hernia; fossa of Landzert; intestinal obstruction

INTRODUCTION

Internal hernias occur when a viscus protrudes through a normal or abnormal peritoneal or mesenteric opening while remaining within the confines of the abdominal cavity. They are an uncommon cause of intestinal obstruction, responsible for well under 1% of cases, but carry disproportionate clinical risk because a delayed diagnosis can progress to closed-loop obstruction, strangulation, and bowel infarction. Paraduodenal hernia (PDH) is the most frequent subtype, accounting for roughly half of reported internal hernias; left-sided hernias through the fossa of Landzert are considerably more common than right-sided paraduodenal hernias through the fossa of Waldeyer (Shadhu et al., 2018).

PDH arises from an error in the normal rotation and peritoneal fixation of the midgut during fetal development, which leaves behind a peritoneal recess capable of trapping bowel loops as they return to the abdominal cavity. During migration to the left superior portion of the abdomen, the bowel invaginates an avascular portion of the left mesocolon posterior to the inferior mesenteric vein. Because the defect is congenital, it may remain clinically silent for decades before presenting as an acute condition, typically in young to middle-aged adults, with vague or recurrent abdominal pain that can progress to overt obstruction (Shadhu et al., 2018; Lin & Liu, 2017). We describe a case of left paraduodenal hernia presenting as acute small bowel obstruction, with the anterior border of the hernial defect lined by the left ascending colic artery — a detail with direct implications for safe operative reduction (Figure 1).

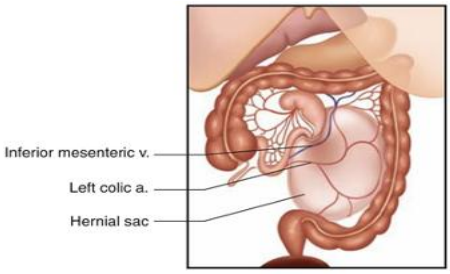

Figure 1. *Schematic illustration of the anatomical boundaries of a left paraduodenal (Landzert) hernia, showing the inferior mesenteric vein and left colic artery forming the anterior border of the hernial sac.*

Case Presentation

A 30-year-old man presented to the emergency department with a one-day history of acute colicky abdominal pain and repeated vomiting. He had no history of previous abdominal surgery. On examination, his vital signs were stable. Abdominal examination revealed diffuse tenderness without distension; bowel sounds were absent. Digital rectal examination was unremarkable.

Investigations: An erect radiograph of the abdomen demonstrated dilated small bowel loops with multiple air-fluid levels localized to the left hypochondriac region, raising suspicion for a closed-loop small bowel obstruction (Figure 2).

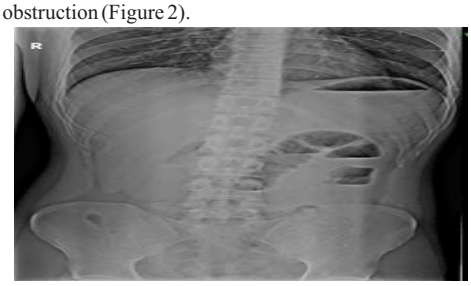

Figure 2. *Erect abdominal radiograph showing dilated small bowel loops with air-fluid levels in the left upper abdomen.*

Contrast-enhanced CT of the abdomen was subsequently reviewed. Axial sections revealed a cluster of dilated jejunal loops near the left paraduodenal region. Jejunal loops within the hernia sac appeared crowded, with normal wall thickness and enhancement; mesenteric vessels were seen converging and passing through the neck of the sac (Figure 3).

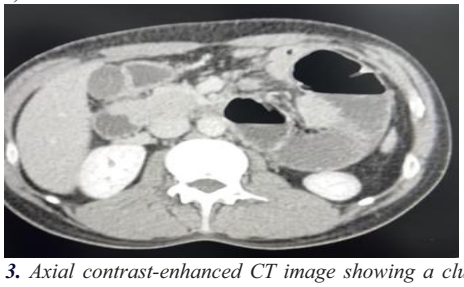

Figure 3. *Axial contrast-enhanced CT image showing a cluster of dilated jejunal loops in the left paraduodenal region with normal*

bowel wall thickness and enhancement.

Coronal contrast-enhanced CT images showed an encapsulated cluster of dilated small bowel loops in the left hypochondrium/lumbar region, with displacement and crowding of mesenteric vessels, consistent with a left paraduodenal hernia (Figure 4).

Figure 4. *Coronal contrast-enhanced CT image showing an encapsulated cluster of dilated small bowel loops in the left hypochondrium/lumbar region, with crowding of mesenteric vessels.*

Management

Given the clinical and radiological findings of obstruction, the patient underwent emergency exploratory laparotomy. Intraoperatively, the jejunum and proximal ileum were found entrapped within a cocoon-like peritoneal recess in the left lumbar region, producing a closed-loop obstruction (Figure 5). The recess was carefully opened to release the entrapped loops, and the herniated small bowel was fully reduced. The bowel was viable throughout its length and did not require resection.

Figure 5. *Intraoperative photograph showing the jejunum and proximal ileum entrapped within the cocoon-like peritoneal recess in the left lumbar region.*

Notably, the ascending left colic artery and mesenteric vessels were found coursing along the outer wall of the peritoneal recess, forming the border of the hernial opening (Figure 6). The vessels were carefully identified and preserved during reduction and closure of the defect.

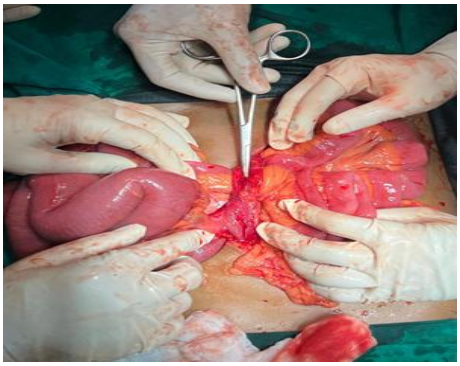

Figure 6. *Intraoperative photograph showing the ascending left colic artery coursing along the outer wall of the peritoneal recess, forming the anterior border of the hernial opening.*

The point posterior to the band formed by the mesenteric vessels and the left colic artery was identified, distal to which the small bowel was seen to be collapsed (Figure 7).

Figure 7. *Intraoperative photograph showing the point posterior to the band formed by the mesenteric vessels and left colic artery, distal to which the small bowel is collapsed.*

Outcome and Follow-up

The patient's postoperative course was uneventful. Bowel sounds returned on postoperative day 2, and oral intake was initiated on postoperative day 3. He remained hemodynamically stable throughout the recovery period, with no wound-related, infective, or thrombo-embolic complications. He was discharged in a stable condition on postoperative day 5, with advice for outpatient follow-up in the surgical clinic. At subsequent follow-up, he remained asymptomatic with no recurrence of obstructive symptoms.

DISCUSSION

Left paraduodenal hernia results from incomplete fixation of the descending mesocolon during midgut rotation, creating the fossa of Landzert, behind which small bowel loops can become trapped. The hernia's anterior boundary is classically described as being formed by the inferior mesenteric vein and the ascending left colic artery, with the neck of the sac lying just to the left of the fourth part of the duodenum (Shadhu et al., 2018; Lin & Liu, 2017). In the case presented here, the ascending left colic artery and the inferior mesenteric vein were found forming the anterior border of the sac. This distinction is clinically important: because reduction of an internal hernia may require incising the neck of the sac to release trapped bowel, failure to recognize a vessel at this margin risks inadvertent vascular injury.

Preoperative diagnosis of PDH is difficult because clinical features are nonspecific and mimic other causes of small bowel obstruction. Plain radiographs, as in this case, may show only nonspecific dilated loops and air-fluid levels; contrast-enhanced CT is the investigation of choice where available, since it can demonstrate an encapsulated cluster of bowel loops together with displacement of the associated mesenteric vessels, helping delineate the anatomy before surgery (Shadhu et al., 2018; Lin & Liu, 2017). In this patient, the diagnosis was established intraoperatively during emergency laparotomy for evolving obstruction.

Management of PDH is surgical — open or laparoscopic reduction of the herniated bowel, with or without closure of the defect, and resection where the bowel is compromised. A high index of suspicion is essential in any patient, particularly a young adult without prior abdominal surgery, who presents with signs of small bowel obstruction, since early recognition and prompt surgical intervention remain the principal determinants of outcome and of avoiding strangulation-related morbidity and mortality.

CONCLUSION

Paraduodenal hernia is a rare but important cause of small bowel obstruction that can pose a diagnostic dilemma because of its nonspecific presentation. Sound anatomical knowledge and a high index of suspicion — especially in patients without a history of abdominal surgery — are essential for timely diagnosis. This case highlights the challenges encountered in diagnosing and managing left paraduodenal hernia; surgeons should be alert so that the vessels are identified and preserved, rather than ligated, during operative reduction.

Declarations

Ethics approval and consent to participate

Not applicable (individual case report).

Consent for publication
Written informed consent was obtained from the patient for publication of this case report and any accompanying clinical images. A copy of the consent form is available for review by the Editor-in-Chief on request.

Availability of data and materials
Data supporting this case report are available from the corresponding author on reasonable request.

Competing interests
The authors declare that they have no competing interests.

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Authors' contributions
PJA managed the patient, collected clinical data and images, and drafted the manuscript. SV and KKM supervised clinical and operative management and critically revised the manuscript. All authors read and approved the final manuscript.

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