

Left Paraduodenal Hernia: A Rare Cause of Small Bowel Obstruction - Case Report and Literature Review

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1. Abstract

1.1. Background

Internal hernias represent a rare but clinically significant cause of intestinal obstruction, with paraduodenal hernias (PDHs) accounting for 53% of cases. Left PDHs, occurring through Landzert's fossa, present diagnostic challenges due to their nonspecific symptoms and rare incidence.

1.2. Case Presentation

We report a 65-year-old male presenting with 10 days of progressive left upper quadrant pain and vomiting. Computed tomography revealed clustered jejunal loops with mesenteric vessel swirling. Diagnostic laparoscopy confirmed left PDH, which was successfully repaired.

1.3. Conclusion

This case underscores the importance of considering PDH in the differential diagnosis of recurrent abdominal pain, particularly when imaging demonstrates characteristic findings. Early surgical intervention can prevent catastrophic complications including bowel ischemia and strangulation.

2. Introduction

Internal hernias constitute less than 1% of all abdominal hernias, yet represent an important diagnostic consideration in cases of unexplained small bowel obstruction [1]. Among internal hernias, the paraduodenal variety is most prevalent, with left-sided PDHs representing approximately 73% of cases [2]. These

hernias develop when intestinal loops protrude through congenital peritoneal recesses, most commonly Landzert's fossa - an anatomical variant present in only 2% of the population [3]. The clinical significance of PDHs lies in their potential for catastrophic complications. Mortality rates approach 50% in cases of delayed diagnosis, primarily due to bowel ischemia and strangulation [4]. The diagnostic challenge stems from the nonspecific nature of symptoms, which often mimic more common abdominal pathologies. Modern cross-sectional imaging, particularly computed tomography (CT), has improved preoperative detection rates, yet approximately 57% of cases remain undiagnosed until surgery [5]. We present a classic case of left PDH along with a comprehensive literature review to highlight key diagnostic features and management principles. This case exemplifies the importance of maintaining clinical suspicion for internal hernias in patients with recurrent abdominal pain, even in the absence of prior abdominal surgery.

3. Case Presentation

A 65-year-old obese male (BMI 32 kg/m²) with controlled hypertension presented to our emergency department with a 10-day history of intermittent, colicky left upper quadrant pain that had acutely worsened over the preceding 48 hours. The pain radiated to the back and was associated with nausea and six episodes of vomiting. Notably, the patient reported three similar episodes over the past two years that resolved spontaneously. He was admitted in our institution previously and CT scan findings were suggestive

of cocoon abdomen or possibility of paraduodenal hernia but as his symptoms were vague and pain settles spontaneously after 1-2 days of hospitalization previously surgical management was not offered to him and he was discharged home safely. He denied fever, diarrhea, constipation or weight loss. Physical examination

revealed a hemodynamically stable patient (BP 172/95 mmHg, HR 73 bpm, afebrile) Abdominal examination demonstrated a tender, firm mass measuring approximately 5×5 cm in the left upper quadrant. Bowel sounds were normoactive, and there was no rebound tenderness or guarding.



Figure 1 A: Initial abdominal radiography revealed a dilated small bowel loop in the mid-abdomen.

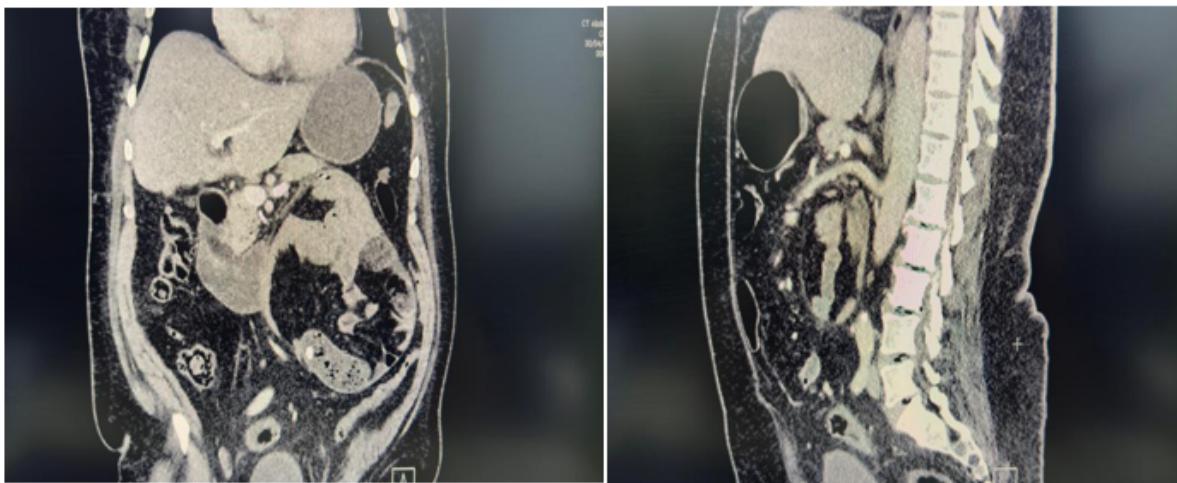


Figure 2 (A): CT showing clustered jejunal loops; (B) Coronal CT demonstrating mesenteric vessel swirling.

3.1. Diagnostic Workup

Laboratory evaluation showed:

Hb 11.7 g/dL, MCV 82 fL

White cell count ($8.57 \times 10^3/\mu\text{L}$)

CRP (12.3 mg/L)

Unremarkable electrolytes, renal, and liver function tests

4. Surgical Management

Given the concerning radiographic findings and recurrent abdominal pain the patient underwent urgent diagnostic laparoscopy.

4.1 Key operative findings included:

Herniation of jejunal loops through a 3 cm defect in Landzert's fossa

Viable bowel without evidence of ischemia

No associated adhesions or additional pathology

4.2. The Surgical Team

Reduced the herniated bowel segments

Closed the defect using two interrupted V-Loc™ sutures

Performed plication of the posterior peritoneal wall

Added a reinforcing 2-0 polypropylene suture between the defect margin and proximal jejunum

The patient tolerated the procedure well and had an uncomplicated recovery, being discharged on postoperative day 3. At 6-month follow-up, he remained asymptomatic with no evidence of recurrence.

5. Discussion

Our case exemplifies several critical aspects of paraduodenal hernia management. The patient's presentation with recurrent episodes of pain prior to definitive diagnosis highlights the often-indolent course of PDHs. This pattern occurs in approximately 40% of cases and frequently leads to misdiagnosis as functional gastrointestinal disorders [6].

6. Diagnostic Considerations

The CT findings in our case demonstrate three pathognomonic features of internal hernias:

Clustered bowel loops: Result from confinement within the hernia sac

Swirling mesentery: Caused by torsion of mesenteric vessels

Proximal obstruction: Evidenced by duodenal dilation

Blachar et al. reported that the combination of these findings has 78% sensitivity and 89% specificity for internal hernia diagnosis [7]. However, as noted in our literature review, even with optimal imaging, nearly half of PDHs are missed preoperatively [5].

7. Surgical Anatomy

Landzert's fossa, the anatomical site of our patient's hernia, represents a persistence of the left paraduodenal fossa. Its boundaries are:

Anteriorly: Inferior mesenteric vein and left colic artery

Posteriorly: Posterior parietal peritoneum

Medially: Fourth portion of duodenum

Laterally: Descending mesocolon

Recent 3D reconstruction studies classify Landzert's fossa into three variants (Table 1):

Our case exhibited Type I anatomy, correlating with superior outcomes

This anatomical knowledge is crucial for surgeons, as improper dissection can lead to injury of critical vascular structures [8].

7.1. Management Strategies

The evolution from open to laparoscopic repair has significantly improved outcomes for PDH patients. Current evidence suggests: Laparoscopic approach reduces postoperative morbidity by 40% compared to open surgery [9]

Primary suture repair (as performed in our case) has equivalent recurrence rates to mesh repair for defects <5 cm [10]

Routine fixation of the duodenojejunal junction may prevent recurrence [11]

Our patient's excellent outcome supports these findings, though long-term follow-up remains essential as recurrence rates approach 5% even after proper repair [12].

8. Conclusion

This case underscores several key clinical lessons:

PDH should be considered in patients with recurrent, unexplained abdominal pain

CT imaging with attention to mesenteric vessel patterns can increase preoperative diagnosis

Laparoscopic repair is the treatment of choice when expertise is available and in hemodynamically stable patients

Understanding the surgical anatomy of Landzert's fossa is essential for safe repair

Future research should focus on improving radiographic diagnostic criteria and evaluating long-term outcomes of minimally invasive repair techniques.

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