

Left Paraduodenal Hernia: A Rare Case Report of Internal Herniation

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Abstract

Internal herniation is a rare cause of acute abdomen. If it is not diagnosed and treated in time, it can cause death. This case report discusses the clinical findings and surgical treatment of a case of left paraduodenal hernia, a rare cause of internal herniation. The diagnosis and treatment process of a 24-year-old female patient with ileus findings was retrospectively evaluated and presented in the literature. The patient was operated on with a preliminary diagnosis of internal herniation and the definitive diagnosis was made intraoperatively. At laparotomy, it was observed that almost all of the small intestines herniated posteriorly from the left paraduodenal region. Small intestinal loops were reduced and the hernia sac defect was primarily repaired. The patient was discharged on the fifth postoperative day with complete recovery. Left paraduodenal hernia is a type of internal herniation that should be considered in the differential diagnosis of patients with recurrent abdominal pain and intestinal obstruction. Surgical reduction and primary repair of the defect is an appropriate treatment.

Keywords: Emergency department, emergency surgery, internal herniation, intestinal obstruction, paraduodenal hernia

Introduction

An internal herniation is defined as a herniation of the small intestine from the mesenteric defect in the abdominal cavity [1]. Internal herniation is a rare cause of acute abdomen and if it is not diagnosed and treated in time, it can cause intestinal obstruction and ischemia. It can even cause death [2,3]. Internal herniation accounts for 0.6-5.8% of intestinal obstruction cases [4-6]. Paraduodenal hernias cause approximately 50% of internal hernias and are responsible for approximately 1% of all small bowel obstructions. Left paraduodenal hernia is observed 3 times more often than right [2,3,5-9]. It is most commonly observed between the 4th and 6th decades. It is three times more common in men than in women [3,5,6,9]. About half of the life-long cases are at risk of intestinal obstruction or strangulation, while the other half may take a quiet course [5]. Here, we share a case report that we operated for left paraduodenal hernia.

Case Report

A 24-year-old female patient presented to the emergency department with abdominal pain, nausea, and vomiting. On physical examination, there was widespread tenderness in the abdomen. In the examinations, the white blood cell: $8.57 \times 10^3 / \text{mm}^3$, C-reactive protein (CRP): 7 mg/L and the air-fluid level was not detected in the direct abdominal X-ray (AXR), the patient was given symptomatic treatment by applying a nasogastric tube (Figure 1). Abdominal computed tomography (CT) was performed because there was no significant regression in abdominal pain and examination findings after treatment. CT showed that “intestinal segments in the right half of the abdomen were not observed. Intestinal loops were displaced to the left and showed retraction. The calibration of the intestinal loops remaining proximal to internal herniation increased up to 33 mm. The cecum is displaced toward the midline” reported as (Figure 2). The patient, who applied to the emergency department several



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Received: 29.03.2022 **Accepted:** 13.06.2022

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times with similar complaints, suffered from gas pain, received symptomatic treatment with unknown fluids and drugs, and whose symptoms and examination findings regressed after the treatment, was discharged from the emergency room. He stated that his pain was more severe than in his current application. He was admitted to the general surgery service and planned for symptomatic treatment and follow-up due to recurrent admissions with emergency treatment, absence of septic findings, and mild regression in signs and symptoms. The oral was closed. Daily hemogram, CRP and biochemistry values, and AXR were followed. In the follow-ups, air-fluid

level and free air were not observed in AXRs (Figure 3). There was no significant increase in white blood cell and CRP values. Abdominal pain persisted despite intermittent relief and there was no gas or stool. Although the abdominal pain was relieved intermittently, it continued, there was no gas or stool. On the second day of hospitalization, abdominal pain increased, nausea and vomiting symptoms recurred. On his examination, there were signs of tenderness, defense, and rebound, especially in the left upper quadrant, and surgical intervention was decided (Figure 4). On laparotomy, it was observed that approximately 3/4 of the intestinal segments with a hernia sac in the left upper quadrant were in the hernia sac, and the diameter of the distal segments where the proximal segments were dilated was decreased. The cecum was retracted to the midline of the abdomen. The mouth of the hernial sac was expanded and the intestinal segments were released. We



Figure 1. First standing direct abdominal X-ray

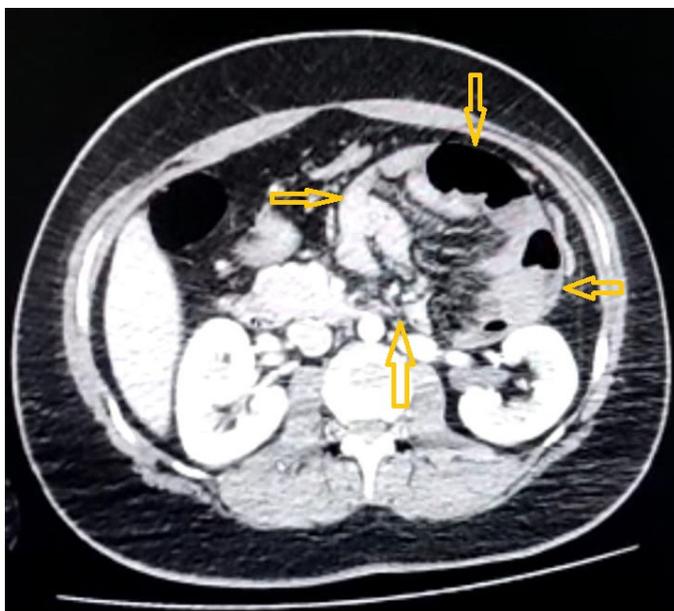


Figure 2. Computed tomography of the abdomen at first admission (yellow arrow)

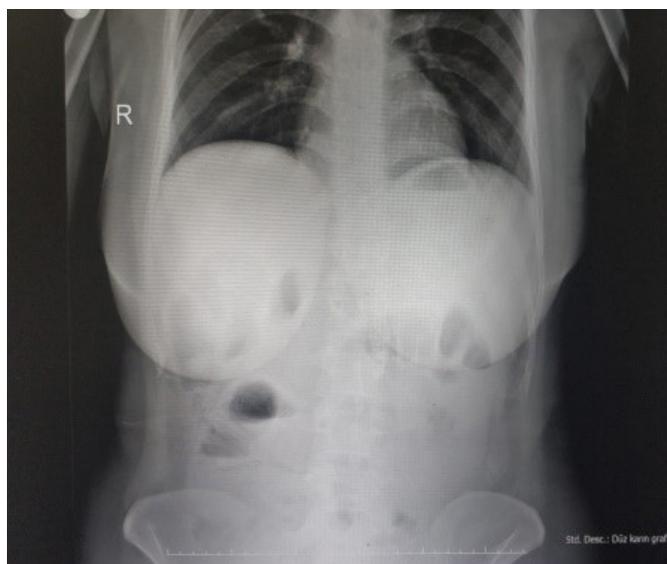


Figure 3. 1st day of hospitalization, standing direct abdominal X-ray



Figure 4. 2nd day of hospitalization, standing direct abdominal X-ray

observed that the hernia defect was located just adjacent and inferior to the ligament of Treitz. The defect was repaired and closed. All the intestinal segments were evaluated. Except for dilatation, no signs of ischemia or perforation were detected; small serosa defects in 2 separate regions were repaired (Figure 5-7).

Postoperative follow-up of the patient was uneventful. Stool discharge occurred on the 2nd postoperative day, oral intake was opened and continued without any problems. He was discharged on the fifth postoperative day with good recovery.

Discussion

The most accepted theory for the formation of paraduodenal hernia was described by Andrews in 1923. This theory states

that paraduodenal hernia results from the penetration of the intestines between the mesentery and the posterior abdominal wall due to the midgut rotation disorder that occurs during embryological development [1,5-7]. In the left paraduodenal hernia, the jejunal anus herniated through an opening to the left of the ligament of Treitz. The left paraduodenal fossa was first described by Landzert in 1871 and is located lateral to the fourth part of the duodenum, behind the inferior mesenteric vein and the left colic artery. The contents of the hernia consist of small intestinal loops. It does not contain the colon or omental tissue. The hernia sac may contain a loop of the small intestine a few centimeters long, or it may include all the small intestines [4,7,8]. Tong et al. [6] evaluated 32 cases and reported that 69% of the patients had chronic symptoms and 66% of the patients presented with acute obstruction or strangulation. Our patient had a similar clinical picture. She had been describing occasional abdominal pains since childhood. Collected intestinal loops and non-displaced air-

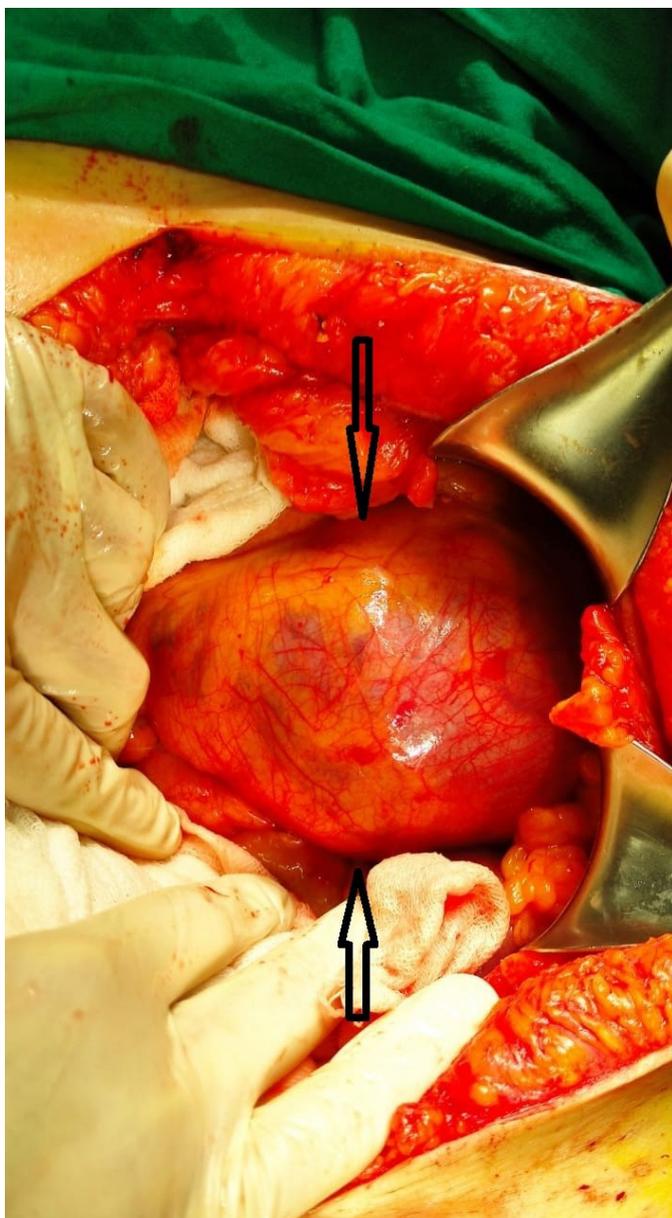


Figure 5. Hernial sac and hernia defect at the bottom (black arrow)

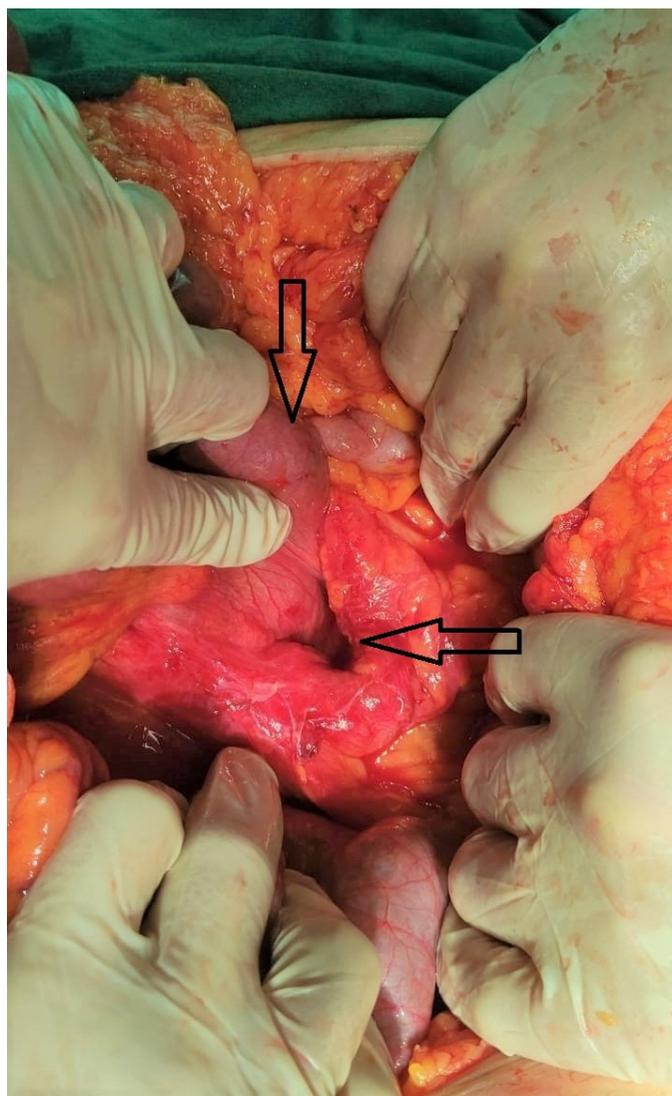


Figure 6. Treitz ligament and hernia defect (black arrow)

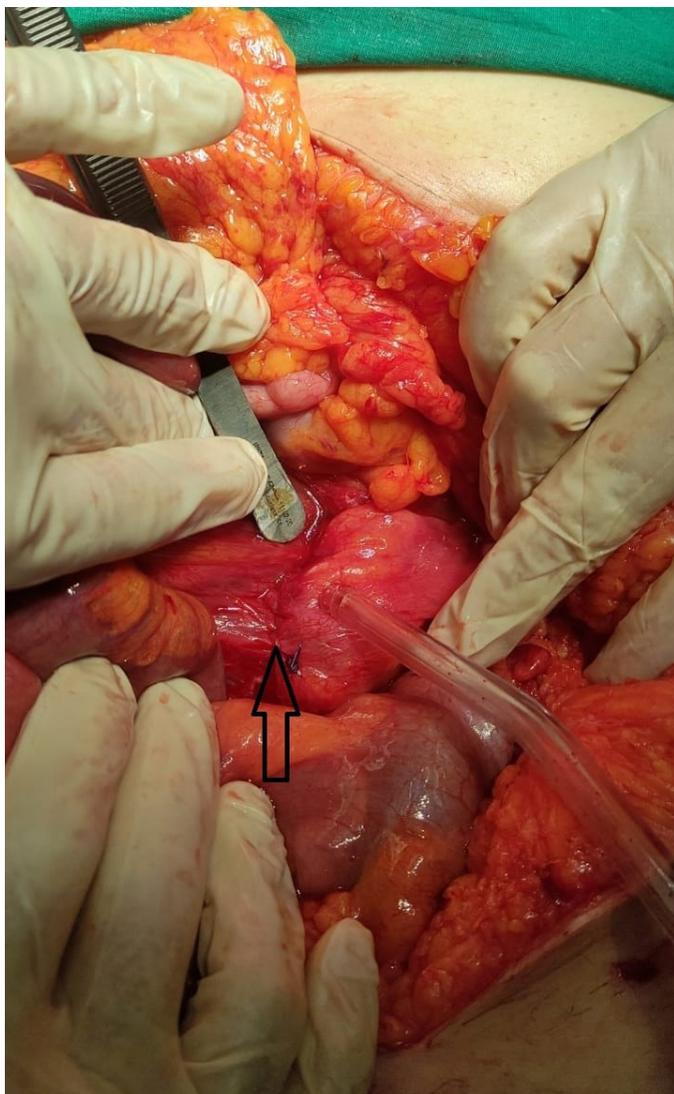


Figure 7. Hernia defect after repair (black arrow)

fluid levels can be observed in the standing direct abdominal X-ray. However, in our patient, there was no air-fluid level at the time of admission and follow-up. Observation of dilated small bowel loops clustered between the stomach, pancreas, and spleen in CT is highly diagnostic, and typically, a collective extension of the vascular structures feeding the herniated dances into the sac can be observed. CT findings similar to those in the literature were detected in this study. Complete blood count and biochemical parameters may vary depending on whether ischemia or necrosis develops in the herniated small bowel loop. The basic principles of treatment are based on the reduction of herniated small bowel loops and primary repair of the defect [1-3,5,6]. However, it may be in cases where the neck of the sac is narrow and there are adhesions and severe swelling between the intestinal loops. It is also stated that in these cases, the inferior mesenteric vessels can

be cut or the hernia sac can be reached with an incision made from the avascular plane to the left of the inferior mesenteric vein [2,3,6].

Conclusion

Internal herniation, which is a rare cause, should also be considered in the differential diagnosis of mechanical intestinal obstruction, particularly in patients without previous abdominal surgery, and in describing recurrent episodes of intestinal obstruction. Timely diagnosis and surgical treatment are critical for preventing complications such as intestinal ischemia and necrosis.

Ethics

Informed Consent: Informed consent was obtained from the patient.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: B.B., İ.G., B.K., B.Ç., Concept: B.B., İ.G., B.K., B.Ç., Design: B.B., İ.G., B.K., B.Ç., Data Collection or Processing: B.B., İ.G., B.K., B.Ç., Analysis or Interpretation: B.B., İ.G., B.K., B.Ç., Literature Search: B.B., İ.G., B.K., B.Ç., Writing: B.B., İ.G., B.K., B.Ç.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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