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Case Report

Strangulated left para-duodenal hernia: A case report and review of literature [☆]

Samiksha Lamichhane, MBBS^{a,*}, Sapana Koirala, MD^a, Bhawani khalal, MS^b

^aDepartment of Radiodiagnosis and Imaging, BPKIHS, Dharan, Nepal

^bDepartment of Surgery, BPKIHS, Dharan, Nepal

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ABSTRACT

Internal hernias are a rare entity with an incidence of 0.2%-0.9% among all hernias. Patients may present with a wide spectrum of symptoms, but strangulated para-duodenal hernias are relatively rare. We present a case of a 24-year-old male who presented with severe abdominal pain. He was diagnosed with a left para-duodenal hernia through contrast-enhanced computed tomography of the abdomen and pelvis. He underwent exploratory laparotomy followed by the resection of strangulated ileal loops with ileo-ileal anastomosis. Emergency surgery is the mainstay of management, and the approach to surgery, open vs. laparoscopic, depends on the surgeon's expertise and available infrastructure. The mortality rate is high if hernias are complicated by incarceration, strangulation, or obstruction.

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Introduction

Para-duodenal hernia occurs when small intestine becomes trapped in a congenital paraduodenal fossa on either side of the abdomen. Among the 9 fossae in the vicinity of the duodenum, left sided para-duodenal hernia occurs through the fossa of Landzert whereas right sided occurs through the fossa of Waldeyer [1]. Overall incidence of internal hernias is 0.2%-0.9%. As described by Meyers, there are several types of internal hernias, based on location, which consist of paraduodenal (53%), pericecal (13%), foramen of Winslow (8%), transmesenteric and transmesocolic (8%), intersigmoid (6%), and

retroanastomotic (5%) and other 7% are rare paravesical hernias [2]. Here we are presenting a case of strangulated left sided para-duodenal hernia in 24 years male who had visited to multiple hospital with nonspecific upper abdominal pain and vomiting.

Case presentation

A 24-year-old male presented to the emergency room with complaints of severe abdominal pain and a few episodes of vomiting. He was in good health 2 weeks prior to presentation

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* Corresponding author.

E-mail address: slamichhane215@gmail.com (S. Lamichhane).

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Fig. 1 – CECT of abdomen and pelvis axial (A), sagittal (B) and coronal (C) showing the defect in the left para-duodenal region (white arrow in A) through which there is protrusion of ileal loops. There is no enhancement of bowel loops within the sac (black arrows). Also note moderate fluid in abdomen.

when he began experiencing mild abdominal discomfort. The pain started as a dull ache mainly in the para-umbilical region and gradually worsened, becoming severe enough to limit his daily activities over the past 3 days before presentation. The pain was associated with nausea, vomiting, and loss of appetite. He had received treatment at a local hospital where he was prescribed analgesics and antacids. The pain and vomiting worsened after eating. The patient denied any history of trauma, fever, previous surgery, or weight loss. He had a similar episode of abdominal pain 2 years ago, which resolved on its own. The rest of his medical and surgical history was unremarkable.

Upon presentation in the emergency room, he had a heart rate of 130 beats per minute, normal blood pressure (120/68 mmHg), and a respiratory rate of 20 breaths per minute. He was afebrile with a temperature of 36.2°C. The abdomen was mildly distended with tenderness over the paraumbilical region. Examination findings of other systems were normal.

The patient underwent various investigations including a complete blood count, which revealed slightly elevated total counts and neutrophils. Urea, creatinine, and liver function tests were within normal limits, and urine analysis was unremarkable. An abdominal x-ray showed no abnormalities, but on ultrasound there was moderate fluid in the abdomen and pelvis with thickened bowel walls in the central abdomen. Despite initial management with analgesics, antiemetics, and antibiotics, the patient's condition worsened the following day with increased pain and vomiting. A contrast-enhanced computed tomography (CECT) of the abdomen was then performed, revealing a left para-duodenal hernia with 2 transition points at the neck of herniated sac. The bowel loops within the sac were dilated (maximum dilatation measures ~ 3.8 cm) with thickened and nonenhancing wall on post contrast study, suggestive of closed-loop obstruction with strangulation (Fig. 1). Due to these findings, the patient was promptly scheduled for surgery.

Intraoperative findings revealed a left-sided paraduodenal hernia with a defect of approximately 4 cm through which the ileal loops were herniating. The bowel loops were gangrenous. The herniated contents were reduced, (Fig. 2) the defect was closed with PDS 3-0, and the gangrenous segment

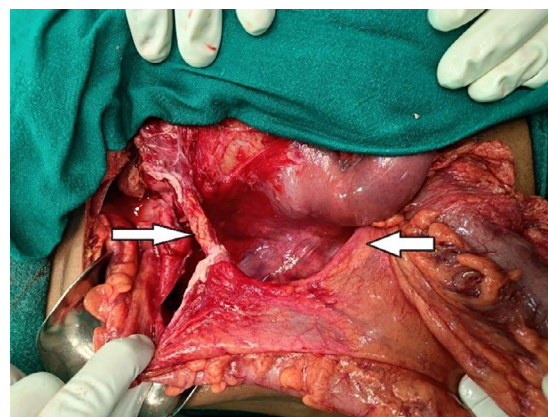


Fig. 2 – Intraoperative image showing potential fossa of Landzert for left sided para-duodenal hernia.

was resected with an ileo-ileal anastomosis (Fig. 3). The patient had an uneventful intraoperative course and was then monitored in the intensive care unit for hemodynamic stability. On the third postoperative day, the patient was transferred to the surgical ward. Feeding was started on the sixth postoperative day, and the abdominal drain was removed on the 7th postoperative day. The patient was discharged on the eighth postoperative day and is currently under regular follow-up.

Discussion

Paraduodenal hernias are herniation of small bowel through a congenital defect in the potential space behind the mesocolon. These defects are formed as a consequence of the failure of fusion of the mesocolon with the parietal peritoneum [3]. An internal hernia is known as the protrusion of a viscus through a normal or abnormal peritoneal or mesenteric defect within the peritoneal cavity. These hernias are rare and account for only 1% of all intestinal hernias [4]. The median

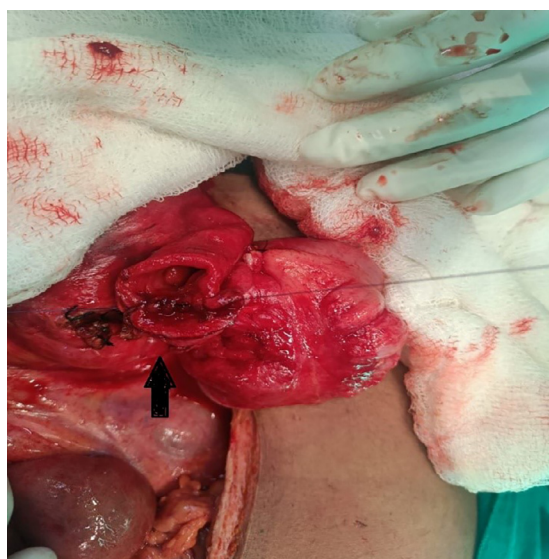


Fig. 3 – Intraoperative image showing resection of gangrenous ileal segment and ileo ileal anastomosis.

age at presentation is 47 years (range of 18–82), however, in our case, the patient was 18 years old, and hernias are more common in males compared to females with a ratio of 3 to 1 [5]. Left paraduodenal hernia is 3 times more common than right paraduodenal hernia [4]. Clinical diagnosis is challenging as the hernia is asymptomatic or may present with vague symptoms, such as nausea, vomiting, and postprandial pain [6]. Chronic presentation may be with abdominal pain and vomiting with or without signs of intestinal obstruction [7]. These types of hernias are highly likely to lead to strangulation and intestinal infarction in more than 50% of cases over the course of a lifetime, making it necessary to investigate radiological signs of hypoperfusion and intestinal ischemia [8]. Multi-Detector computer tomography (CT) offers the best resolution and multiplanar images and provides a precise and early diagnosis, useful for surgical treatment planning [4,1]. In typical CT images, paraduodenal hernias are seen as a cluster of dilated bowel segments with engorged and displaced mesenteric vessels at the hernial orifice [9]. Once the diagnosis is made; surgical repair is mandatory to avoid the increased risk of incarceration or strangulation as the mortality rate is high, up to 20%–50% [3]. The principle of surgical management is the manual reduction of the hernia contents, resection of the sac, and closing the defect with continuous or interrupted sutures [3], which were similar to the management that we had done in this case. There is a high chance of injuring adjacent mesenteric vessels, particularly the inferior mesenteric vein, while closing the defect, so a surgeon must be very cautious [10]. The approach to surgery can be both open and laparoscopic techniques. Laparoscopic surgery is preferred by experienced surgeons in high-volume centers as recovery after the laparoscopic procedure is faster, but long-term outcomes are similar for both methods [11].

Conclusion

Paraduodenal hernias are a rare entity and can present as an acute abdomen in the emergency department. Diagnosis is usually challenging due to its vague presentation. Computed tomography is the investigation of choice for the diagnosis. Since these hernias are more likely to undergo strangulation, incarceration, and obstruction, there is a high chance of morbidity and mortality. Emergency surgery is the mainstay of management, and the approach to surgery, open vs. laparoscopic, is dependent upon the surgeon's expertise and available infrastructure.

Patient consent

Written informed consent was obtained from patients for publication of this case report and accompanying images. A copy of the written consents is available for review by the Editor in chief of this journal on request.

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