Case report
A Case Report on Left Paraduodenal Internal Hernia with Congenital Ladd's Bands

ABSTRACT

A 34-year-old male presented to the emergency department with complaints of sudden onset abdominal pain associated with nausea. He had similar complaints 2 months back which resolved spontaneously. Abdominal examination revealed tenderness in the periumbilical and the right lumbar region. These features were suggestive of sub-acute intestinal obstruction. The patient was diagnosed to have left paraduodenal hernia on contrast enhanced computed tomography. Jejunum and ileal loops were noted to be in the hernial sac. Surgical repair involved adhesiolysis of the bowel loops, reduction of the hernial sac contents and closure of the hernial defect. The patient had no post operative complications.

Keywords: Internal hernia; paraduodenal hernia; bowel adhesions, intestinal obstruction

1. INTRODUCTION

A defect in the mesentery or peritoneum through which protrusion of the abdominal viscera is noted is a characteristic feature of an internal hernia. [1] Of all the abdominal hernias, internal hernia accounts for less than 1% of the cases. [2] Some of the congenital causes can be attributed to anatomic recesses, foramina, and fossae. [3] Defect in internal rotation or peritoneal attachment and congenital bands have also been considered as potential reasons. [4] Acquired causes of internal herniation can be surgical procedures in the past (gastric by-pass surgery/liver transplantation). [5] The manifestations that are seen clinically range from mild digestive symptoms on one end of the spectrum to acute abdomen in the form of a closed-loop bowel obstruction on the other end of the spectrum. [6, 7] The decisive factors for the clinical presentation are duration, reducibility, presence or absence of strangulation, and incarceration. [8] The type of congenital internal hernia is based on the location of the hernia and paraduodenal hernia (PDH) has been found to be the most common out of all. [9] PDH has been found to be more common on the left side than on the right side. [10] Due to varied clinical presentations, a strong emphasis is placed on cross-sectional imaging like computed tomography (CT) scan for the diagnosis of PDH. [11]

Left-sided PDH constitutes 75% of all ~~the~~ internal hernia cases. [12] It occurs when a part of the bowel prolapses through the Landzert's fossa ~~that~~ which is located behind the fourth or the ascending part of the duodenum. Contrastingly, the right-sided PDH occurs when bowel prolapses through the Waldeyer's fossa ~~that~~ which is a defect in the first part of the jejunal mesentery. [13] We present a case of a 34-year-old male with complaints of recurrent generalized abdominal pain with no surgical history. On imaging, jejunal and ileal loops were found in the hernial sac. Laparoscopic repair was made to reduce the hernia which was later converted to open laparotomy due to dense adhesions.

2. CASE PRESENTATION

A 34-year-old male presented to the emergency department with complaints of ~~a~~ sudden onset generalized abdominal pain. The abdominal pain was accompanied with nausea. He

had similar complaints two months back that resolved spontaneously. The patient had normal bowel movements with the passage of flatus. He had no abdominal distension and no history of any abdominal surgery. On examination, he was in pain and his vital signs were stable. On abdominal examination, there was tenderness noted in the periumbilical and right lumbar region. There were no signs suggestive of peritonitis. Hyperactive bowel sounds were noted all over the abdomen. No external hernia, organomegaly, or palpable masses were noted.

Routine hematological investigations did not reveal any abnormality. The chest ~~X~~ X-ray was normal and did not reveal free gas under the domes of the diaphragm. Contrast enhanced CT (CECT) scan of the abdomen was suggestive of sac-like mass with dilated small bowel loops between the stomach and pancreas in the left hypochondrium. (Fig 1) The sac containing a small bowel was displacing the transverse colon anteriorly and splenic flexure of the colon inferolaterally. These findings were suggestive of a left PDH.

Fig 1: Dilated small bowel loops (coronal & axial section)

~~Patient~~ The patient was in a supine position under general endotracheal anesthesia. The laparoscopy trolley was placed near the patient's left shoulder with the surgeon standing on the right side of the patient. ~~Pneumoperitoneum~~ The pneumoperitoneum was created by open technique with CO2 of pressure 14 mmHg. Working ports were introduced one each along the midclavicular line in both pararectal regions. The diagnostic laparoscopy revealed cecum in the right iliac fossa with IC junction and terminal ileum, the rest of the small bowel could not be visualized. A thick sac-like structure with tense adhesions attached to the large intestine was seen in the central abdomen. (Fig 2) The anatomy could not be established laparoscopically; therefore, surgery was converted to laparotomy. The dissection was started from IC junction and adhesiolysis revealed that all of the small intestine was seen entering through a defect on the left side of the duodenojejunal junction.

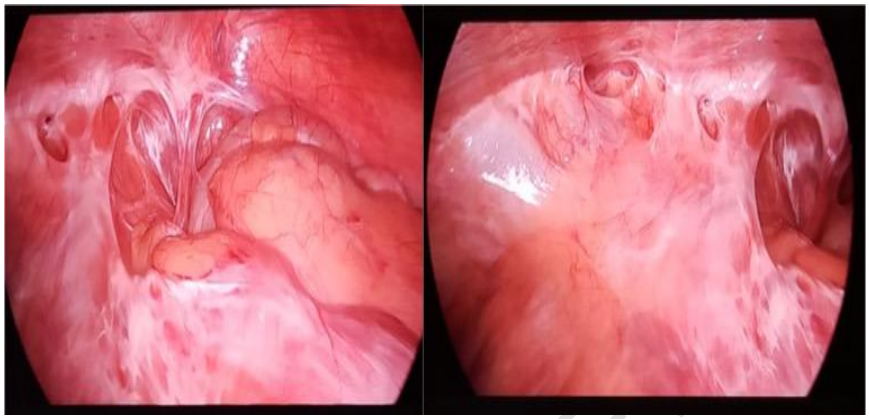

Fig 2: Adhesions noted laparoscopically

The small bowel loops were delivered out of the hernial sac and inter bowel adhesions along the small intestine were divided. (Fig 3) Upon inspection of the bowel loops, congenital Ladd's bands were noted. (Fig 4) This established the anatomy of the small and large intestines which were further cleared of any residual bands or adhesions. The defect in the left mesocolon was repaired in two layers using 2-0 Mersilk sutures. (Fig 5) Multiple bites through the left mesocolon, small bowel mesentery, and duodenum ensured complete closure of the hernial defect. ~~Patient's~~ The patient's post operative recovery was uneventful.

Fig 3: Small bowel loops taken out of the hernial sac

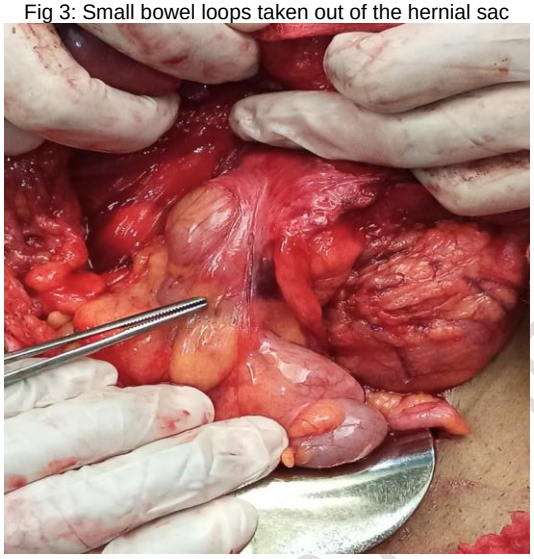

Fig 4: Congenital bands noted

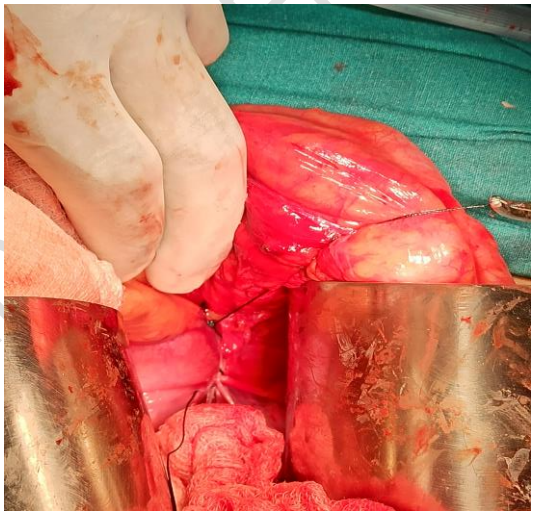

Fig 5: Hernial defect in the left mesocolon repaired with Mersilk 2-0

3. DISCUSSION

Paraduodenal internal hernias constitute about 53% of all ~~the~~ internal hernia cases. It occurs when the bowel loops get stuck in the colon's mesentery, thereby leading to obstruction. [2] They are more frequently found in males than in females. It is of two types: left-sided ~~that~~ which make up 40% and right-sided ~~that~~ which makes up 13%. Left-sided PDH mainly occurs through the Landzert's fossa ~~that~~ which is in the left portion of the transverse mesocolon.

Multiple theories have been postulated in the formation of PDH with a congenital origin. The most widely accepted theory is a defect in the rotation and fixation of the gut during ~~the~~ embryological development. Congenital bands have also been documented in a few cases as a factor responsible for the development of PDH. [4] Acquired causes include surgical procedures like gastric by-pass surgery and liver transplantation. [5] The variability in clinical presentation and the rare number of cases make the diagnosis of PDH a diagnostic challenge. The clinical presentation ranges from mild digestive symptoms to acute intestinal obstruction. [6] The first case of PDH that was correctly diagnosed preoperatively was in 1921 by Kummer with the help of a barium study. [14]

With modern imaging techniques, CECT is considered ~~as~~ the gold standard method to diagnose PDH. On an abdominal CT, left PDH is seen as dilated bowel loops at the duodenal-jejunal junction between the stomach and pancreas at or above the level of the ligament of Treitz. [11] It has been noted that these types of hernias have a 50% chance of progressing to complications like intestinal obstruction and strangulation and that is why early diagnosis and surgical management of the hernia is of utmost importance. [14]

The surgical management mainly includes reduction of the hernial sac contents, restoration of the normal lie of small and large intestines, and closure of the hernial orifice to prevent recurrence. Surgical management may be carried out laparoscopically or with an open approach. With recent advances in technology, such hernias can be managed by laparoscopic methods. In our case, due to the dense adhesions and unclear anatomy, the patient was converted to open surgery.

We are presenting this case because this hernia was diagnosed in a young patient with high level of suspicion. A timely investigation of CECT diagnosed the left PDH correctly. Before the patient developed any complications such as obstruction and strangulation, this patient underwent corrective surgery with uneventful recovery.

4. CONCLUSION

It is important to consider the diagnosis of a PDH in a case of recurrent abdominal pain presenting with or without features of acute intestinal obstruction. It is a condition that can be easily missed. CT scan has always been the gold standard modality in diagnosing internal hernias. Adhesiolysis, and establishment of normal anatomy of the bowel with the repair of hernial defect are most important steps to prevent recurrent pain and recurrence of hernia. In addition, the pathophysiological mechanism should be taken into consideration as in our case, congenital bands superimposed with a defect in malrotation led to the development of the paraduodenal hernia.

CONSENT

As per institutional or university standards, written consent was taken from the patient and is preserved by the author(s).

ETHICAL APPROVAL

As per institutional or university standards, written ethical approval has been collected and preserved by the author(s).

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