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Case Report

Para-duodenal hernia: a rare case report

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ABSTRACT

A para-duodenal hernia (PDH) is a rare type of internal hernia, which results from anomalous rotation and reduction of the midgut loop in the embryo. Diagnosing para-duodenal hernias can be difficult due to the wide range of symptoms that can occur. Preoperative computed tomography of the abdomen facilitates diagnosis and timely surgical intervention, which can be performed openly or laparoscopically. We here report the case of a 22-year-young male patient with a left para-duodenal hernia. He arrived in the emergency with generalized intermittent crampy abdominal pain, associated with nausea and obstipation. An abdominal computed tomography (CT) revealed that he had a left PDH, which was effectively treated with open surgical repair. Clinical presentation of para-duodenal hernia ranges from asymptomatic to manifest. The greatest difficulty regarding the management of para-duodenal hernias lies in their diagnosis. Many studies have shown that the best option for diagnosis is computed tomography (CT). Open and laparoscopic techniques are used in the treatment of para-duodenal hernias with similar results. We report our experience in the management of left para-duodenal hernia. The case of a 22-year-old male patient with LPDH with non-specific symptomatology was presented. CT scan is the best diagnostic option for this condition. The open surgical approach was used with great success.

Keywords: Para-duodenal hernia, Treitz hernia, Internal hernia, Intestinal obstruction, Hernia

INTRODUCTION

An internal hernia can be defined as the protrusion of parts of internal organs (most commonly the meander of the small intestine) through normal (foramen of Winslow), paranormal (ileocecal, para duodenal fossa), or abnormal (trans omental) mesenteric or peritoneal defects into various sections of either the abdominal or the pelvic cavity.[1,2]

These defects can be acquired (caused by abdominal surgery, trauma, peritoneal infection or ischemic processes, increase in intra-abdominal pressure and consequent dilatation of the Winslow opening, omental atrophy) or congenital (embryonic malformations such as intestinal malrotation, absence of retroperitoneal attachments- ileocecal fossa, Para duodenal fossa). Para-duodenal hernia (PDH) is the most common form of internal hernias and occurs with an incidence of 53% of all internal hernias; it causes 0.2-0.9% of all cases of intestinal obstruction.[3,4] Internal hernias are rare and pose a significant diagnostic and therapeutic challenge for both radiologists and clinicians. PDH is three times more frequent in males and usually present around the third or fourth decades of life with the average age of diagnosis at 38.5 years. There are two types of PDHs: left-sided (75% of all PDHs) and right-sided (25% of all PDHs).[4,5] Asymptomatic PDH may be incidentally discovered at laparotomy for some other condition. Symptomatic PDH usually presents with vague nonspecific symptoms and is therefore difficult to diagnose hence the definitive treatment may be delayed. The reported mortality is as high as 50% in untreated cases. Therefore, early diagnosis and treatment are essential in limiting morbidity and mortality.

The diagnosis is established by medical history, clinical examination of the patient, laboratory diagnostics, and preoperative computed tomography. Despite the stated diagnostic possibilities, the final diagnosis is often made during surgery. Treatment consists of surgery, either in the form of open surgery or laparoscopy. Laparoscopic surgery is preferred by experienced surgeons in high-volume centers. Recovery after the laparoscopic procedure is faster, but long-term outcomes are similar for both methods.[4-6] In this paper, we will describe the case of left PDH in a 22-years old man who presented with acute abdominal pain on arrival at the hospital, and who was diagnosed using abdominal CT and successfully treated with open surgery.

There are numerous classifications of internal hernias, and one of the more acceptable ones is suggested by Welch, who divides internal hernias into 8 types: 1a: left Para duodenal hernia, 1b: right Para duodenal hernia, 2: foramen of Winslow hernia, 3: peri cecal hernia; 4: sigmoid mesocolon-related hernia; 5: trans mesenteric hernia; 6: trans omental hernia; 7: supravesical and pelvic hernia. Morishita et al. classify internal hernias into 3 main groups according to the type of hernia opening (normal opening, recess into retroperitoneum or unusual peritoneal fossa, and abnormal opening in mesentery or peritoneal ligament).[6] Left para duodenal hernias (LPDHs) occur when the proximal jejunum or parts of the duodenum prolapse through the Para duodenal fossa or Landzert's fossa.[7] This is an opening at the duodenojejunal junction (the junction of the transverse mesocolon, the descending mesocolon, and the mesentery of the small intestine), behind the descending mesocolon, and to the left of the fourth segment of the duodenum.[7,8] Pathoanatomically, in LPDH, small bowel loops enter posteroinferiorly through the mesocolic defect and remain trapped in Landzert's fossa, further spreading into the descending mesocolon and the left half of the transverse mesocolon. The afferent gyrus enters the hernia sac posteriorly, at the point where the duodenum emerges from its fixed retroperitoneal position so that only the efferent gyrus passes through the hernia opening.

CASE REPORT

A 22 -year-old male patient came to the emergency surgical department with generalized intermittent crampy abdominal pain, Obstipation associated with nausea for the last 4 days, H/o recurrent hospitalization in past with the same concerns, treated conservatively, improved, and discharged without an accurate and definitive diagnosis. No history of vomiting or fever, no other urinary symptoms. No chronic medical illness or surgical history. The patient did not smoke, was nonalcoholic, and denied any drug allergies.

Examination revealed that the patient's general condition was stable, alert, conscious and oriented, vital signs were within normal limits, abdomen soft, mildly distended (fullness on left hemiabdomen) generalized tenderness, more at left hemiabdomen (epigastric and left hypochondrium), No guarding/rigidity, gut sounds hypoactive, Hernial orifice intact and genitalia examination unremarkable. Digitorectally: ampoule filled with feces, no neoplasm is felt at the fingertips, normal colored stool on the glove. Laboratory findings are unobtrusive, except for leukocytosis of 11.4×109 /L. Erect abdomen radiograph: air and residual intestinal contents without pathological air-fluid levels or intestinal distension. There is no evidence of free gas under the diaphragm. Ultrasound abdomen is inconclusive. Since the laboratory findings, abdominal X-ray, and abdominal ultrasound were inconspicuous, we decided on a diagnostic contrast-enhanced abdominal computed tomography (CT), which showed the following result (Figure 1) anterior to the left para-renal space, there is a sac-like of the like structure containing a crowded proximal small bowel loop (jejunal loops), which is absent from pelvis with crowded mesenteric vessels and displaced anterior mesenteric vein. A mild amount of free fluid was seen in the pelvis. No dilatation or obstruction of bowel was noted and no pneumoperitoneum. These findings were highly suggestive of internal herniation of small bowel loops (left para-duodenal hernia).

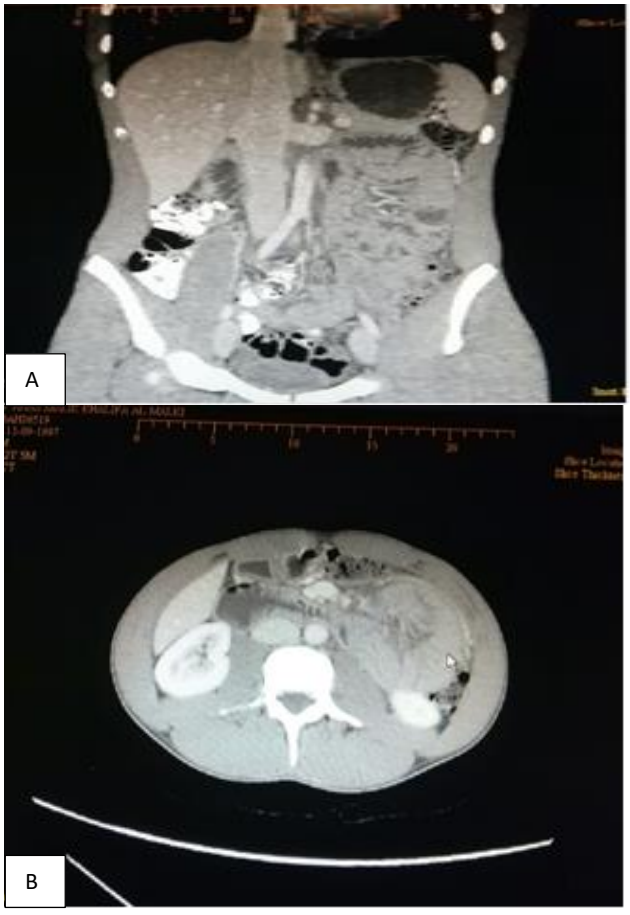

Figure 1 (A and B): Pre-operative computer tomogram CT, coronal and axial CT images of the abdomen demonstrating sac-like clustered small bowel loops noted in the left upper quadrant, in the anterior pararenal space.

These findings are suggestive of the diagnosis of left para duodenal hernia.

After preoperative preparation and under general anesthesia, surgery was performed. A laparotomy was performed through an upper midline incision. Intra-operatively found mild to moderated reactive fluid in the abdominal cavity, distended stomach, left para-duodenal large hernial sac (Retroperitoneum in lesser sac) (Figure 2) anterior to kidney, containing whole healthy, viable small gut (Jejunum and proximal ileum located to the left of the fourth segment of the duodenum and the duodenojejunal junction). The rest of gut and solid viscera were normal. Appendicectomy was done for kinked, congested appendix. Obliteration of hernial neck done by reducing contents, and the potential space was obliterated by taking interrupted suturing in between hernial sac edges and jejunal loop (Lambert's) (Figure 3). The postoperative course was uneventful and the patient was discharged on the 5th postoperative day.

The wound healed primarily and sutures were removed on the tenth postoperative day. The patient was monitored via clinical examinations once a week for the first month after discharge, and then monthly. He was in good clinical condition and did not have any complaints during the follow up.

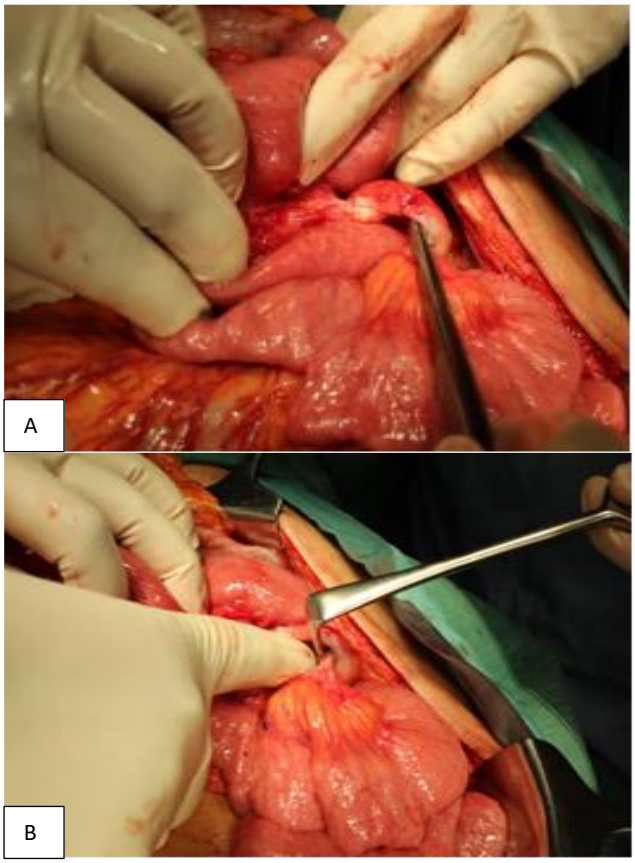

Figure 2 (A and B): Intraoperatively, the large hernia sac and neck of the para duodenal hernia could be seen.

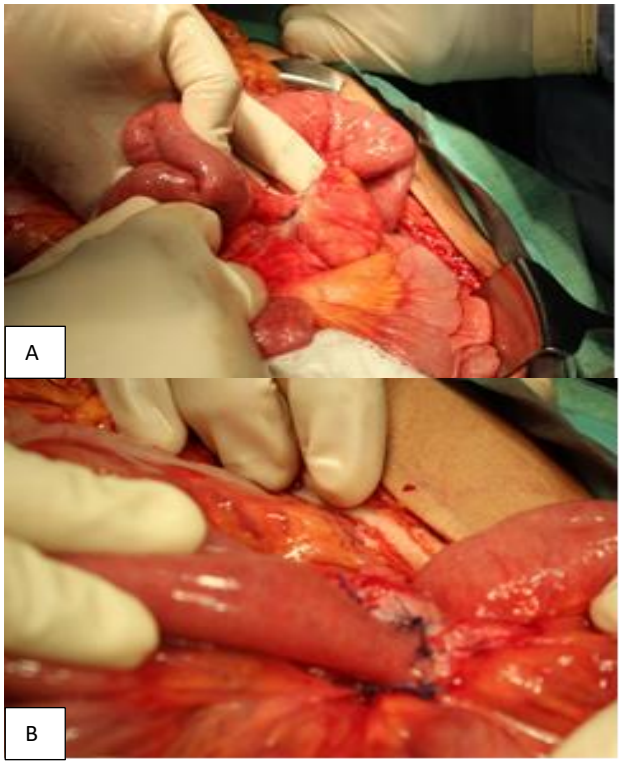

Figure 3 (A and B): Intraoperative, obliteration of hernial neck after reducing the sac contents.

DISCUSSION

An LPDH is defined as an abnormal protrusion of the bowel into the Landzert fossa. This fossa is a space that typically gets obliterated around five to ten weeks of embryonic life, when the left mesocolon ascending left colic artery and the inferior mesenteric vein (IVM), fuses with the retroperitoneum. This occurs at the same time when the small bowel is completing the 270-degree anti-clockwise rotation about the superior mesenteric artery (SMA).[3,8,9] In about 1% to 2% of the people, it is thought that bowel invagination into the avascular plane posterior to vessels behind the left mesocolon, predisposes to the formation of the fossa. Therefore, the anterior border of this orifice, the IVM, and the left colic artery are shifted or transposed anteriorly, and the left colon mesentery (mesocolon) forms the anterior wall of this hernia. The afferent limb is generally formed by the jejunum close to the fourth portion of the duodenum, and the efferent limb can go as far as the ileum if extensive herniation occurs.[9-11] Awareness of the vascular anterior border of the aperture during the repair of an LPDH is important. According to Schizas et al the mean age of onset of para duodenal hernia is 44.1 years (Schizas), and according to Muneer et al it is between the ages of 40 and 60. It is three times more common in men than in women.[8-12]

Clinical presentation of para duodenal hernia is not unambiguous but ranges from asymptomatic to manifest (abdominal pain as the most common symptom, vomiting, nausea, symptoms of intestinal obstruction). Among the rarer symptoms that can be mentioned are

secondary pancreatitis, biliary colic, and palpable tumefaction in the upper left part of the abdomen. In many cases, the patient has non-specific symptoms which last for years. CECT scan of the abdomen can depict pathognomonic findings and can probably be considered the gold standard investigation in PDH. CT appearance of LPDH includes clustering or bunching up of small bowel in the left side of the upper abdomen, into a closed-loop forming a 'C' or 'U' shaped mass like sacculation with the displacement of the stomach, transverse colon, and the duodenal-jejunal junction.[8,9]

This case report concerns such a patient, a 22-year-old man. The greatest difficulty in the management of para duodenal hernias lies in their diagnosis, especially in the case of asymptomatic patients or non-specific symptoms of a chronic nature. In such cases, with a well taken medical history, clinical examination of the patient, abdominal X-ray, abdominal ultrasound and laboratory tests and contrast CT scan of the abdomen plays a crucial role (accuracy 95%, sensitivity 95-100%), and in most cases confirms the diagnosis.[9,13,14] We must not forget that in a certain number of patients, a definitive diagnosis is made during surgery or autopsy.[9] Definitive treatment of LPDH involves surgery, which can be performed laparoscopically or openly. The procedure involves releasing the intestinal loops from the hernia sac and repairing the defect by closing or widely opening the hernia orifice, whereby the hernia sac becomes a part of the peritoneal cavity. With the laparoscopic approach, early recovery is faster, but long-term results are similar.[10,13,15] In the case of our patient, LPDH was easily reduced, so the primary closure of the hernia orifice with sutures was sufficient.

CONCLUSION

In this paper, a case of a 22-year-old male patient with LPDH with non-specific symptomatology was presented. Due to the recurrent attacks of abdominal pain, nausea, and obstipation, we approached a detailed diagnostic treatment of the patient and arrived at the above diagnosis. We performed open surgery, which confirmed the formation of LPDH, and we resolved it in the usual way, by releasing the trapped loops of the small intestine and closing the hernia orifice with sutures. Furthermore, a timely and correct diagnosis is together with prompt surgical intervention is essential for achieving the patient's cure and preventing future complications. A retrospective analysis showed that the mortality rate of PDH is >20%.

Computed tomography of the abdomen helps us make an accurate diagnosis and perform timely surgery, which was the case with our patients. CT scan is the diagnostic modality of choice in PDHs. Timely recognition and surgical intervention can improve the outcome.

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