A Rare Cause of Small Bowel Obstruction in Adults: Left Paraduodenal Internal Hernia

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ABSTRACT

A 47 years old lady presented with repeated intermittent, colicky, left upper, and periumblical abdominal pain associated with nausea and vomiting since two years prior to admission. Each episode of the pain spontaneously subsided after bilious vomiting. The patient had no history of surgery, abdominal trauma or intra-abdominal infection, weight loss or previous history for small bowel obstruction (SBO). MRI enterography was suggestive of internal hernia and surgery documented left paraduodenal (mesocolic) internal hernia (LPDIH). After surgery the patient was followed for three months without any abdominal symptoms.

KEYWORDS

Congenital hernia; Paraduodenal (mesocolic) internal hernia; Small bowel obstruction (SBO).

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INTRODUCTION

Small bowel obstruction (SBO) may occur due to many causes. Postoperative adhesions and malignancies are first and second most common causes of SBO respectively and hernias the 3rd one (0.6-5.4% of all cases of SBO).[1,2] The risk of postoperation adhesions in different studies is estimated to be 15-42 percent.[1,3-6] Congenital internal hernias are rarer in adult and include: obturator, paraduodenal, transmesenteric, and transomental types of hernias .[1,2] In this manuscript we present a middle aged lady with paraduodenal hernia.

CASE REPORT

The patient was a 47 years old lady who came in to the emergency ward due to severe abdominal pain with a bending position like the typical presentation of acute appendicitis. The associated symptoms were nausea and non-bilious vomiting. There was no history for associated melena, diarrhea, constipation or obstipation. The patient has had several similar attacks during the last two years that referred to many physicians and has also had 3 times hospital admission without definite diagnosis. Previous workup including abdominal sonography, small bowel follow throw and abdominal CT scan were inconclusive. A gastroenterologist who has visited the patient during an acute abdominal

pain attack and suspected a clinical diagnosis of jejunal volvulus, but after esophagogastroduodenoscopy (EGD) the patient had lost her follow up due to poor compliance. In new presentation surgical visit was done without definitive diagnosis so EGD and full colonoscopy and terminal ileal intubation were done with negative results. In the last episode of abdominal pain and with suspicion to internal hernia, we decided to do MRI enterography, which was in favor of left paraduodenal internal hernia (LPDIH). The patient was operated.

MRI Findings of The Patient

Diagnosis of left paraduodenal internal hernia rarely can be made preoperatively. The presentation is indistinguishable from other causes of mechanical small bowel obstruction. Imaging plays an essential role in diagnosis of SBO and LPDIH. MRI enterography can be diagnostic in suspected cases and is a useful and safe technique due to high soft tissue contrast resolution, lack of radiation, detection of intraluminal and extraluminal as well as mural lesions.[2] MRI enterographic findings in our patient included:

A) Clusters of bowel loops within a hernia sac in abnormal duodenal location in left upper quadrant (LUQ) (Figure 1).

B) Small bowel folds thickening due to vascular congestion and ischemia (Figure 2).

C) Additional findings include engorgement, twisting and crowding of mesenteric vessels and bowel volvulus that named 'whirlpools sign'.

Operative Findings

The patient underwent midline laparotomy with impression of internal hernia. In the operation left paraduodenal (mesocolic) internal hernia was detected. All parts of small bowel trapped in this Landzert's fossa were examined and were devoid of gross evidence of bowel ischemia (Figure 3). Enlargement of the mesocolic space by mobilizing the left colon and opening the neck of the sac was done sufficiently so that the chance of future strangulation be minimized. The web was released totally in all parts. Incidental findings were two cystic lesions in the left ovary that were resected and sent for histopathologic evaluation.

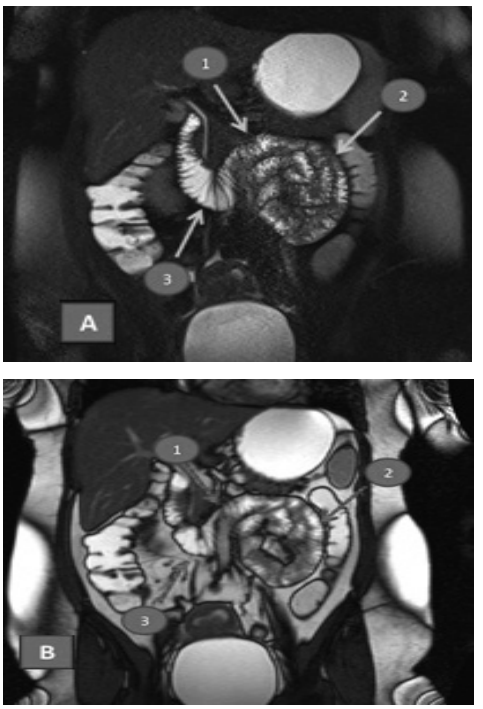

Fig 1: Our patient MRI (A&B), A) MR Enterography T2 HASTE, B) MR enterography Trufisp; 1. Cluster of twisted small bowel loops in abnormal location was seen at LUQ that is characteristic for left paraduodenal internal hernia with small bowel volvulus. 2. Mild small bowel mural and fold thickening. 3. Preobstruction duodenal dilatation secondary to internal hernia.

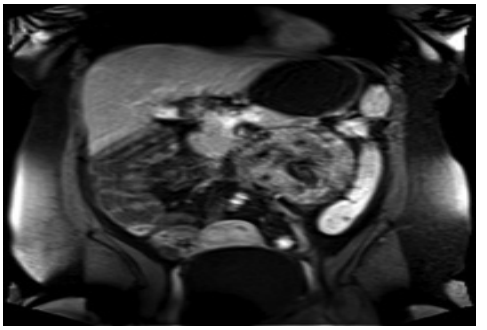

Fig 2: Our patient MR Enterography T1 VIBE with Gadolinium: Mild enhancement of herniated and twisted loops in left paraduodenal hernia secondary to vascular congestion and ischemia.

Patologic Findings

Histopathologic findings were in favor of congested

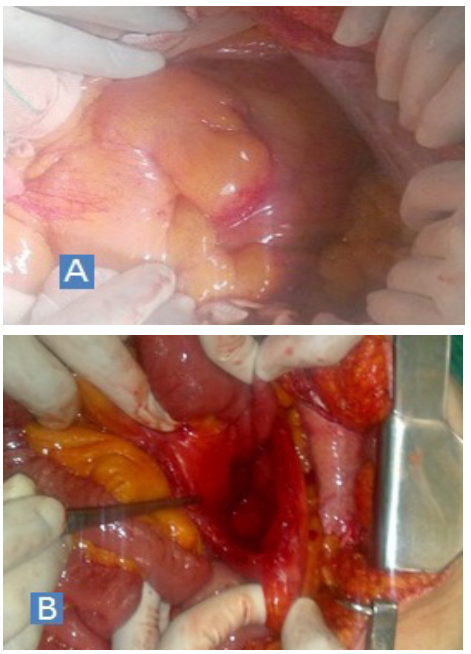

Fig 3: **Paraduodenal hernia sac of our patient in Landzert's fossa was seen at LUQ before (A) and after (B) small bowel reduction.**

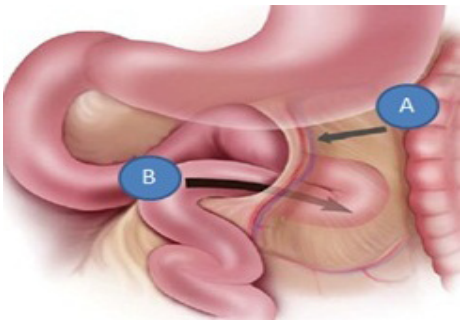

Fig 4: **Schematic presentation of left paraduodenal hernia in Landzert's fossa, fibrous band and associated vessels and sac (A) sequestration and entrapment of the small intestine between the mesocolon and posterior peritoneal wall (B).**

fibroadipose tissue with mild infiltration of chronic inflammatory cells and no sign of malignancy in web sample and the simple ovarian cyst and the luteal cyst.

DISCUSSION

The most common causes of SBO in adults are adhesions bands, malignancy and hernias.[1-3,7-10] Congenital hernias occur most commonly in infancy and childhood but rarely can be seen in adults. The most common congenital hernias in adults include obturator (little old ladies hernia), paraduodenal, transmesenteric, and transomental hernias.[8,9] In children the paraduodenal hernias are the most common type of internal hernia (50%) and are at least three times more common on the left side and among males.[11,12] In a report approximately 500 cases of paraduodenal hernias were reported in the literature.[13] In review of 32 cases from 1981-2000 by Raymond et al the following were reported: left sided predominance (75%), male predominance (72%), mean age of 29 years, and chronic symptoms in 69%. The most common presentation was small intestinal obstruction (with previous recurrent vague abdominal pain), and mean duration of symptoms was 1.8 years. Location of pain was usually in left upper abdomen and acute obstruction or strangulation were reported in 66% of cases. Risk of incarceration was about 50% and mortality rates of 20-50% have been reported.[14]

Mesocolic hernias are a rare but surgically important group of malformation that results from failure of left or right mesocolon to fix normally to the posterior peritoneal wall. The resulting spaces offer the potential for sequestration and entrapment of the small intestine between the mesocolon and posterior peritoneal wall on either left or right side (Landzert's fossa) (Figure 4). Signs and symptoms of internal hernias are related to recurrent, intermittent bouts of intestinal obstruction. The patient may present with recurrent colicky abdominal pain, nausea, vomiting and sometimes constipation. Milder forms of this hernia may be considered a psychological problem as in our patient who was marked as irritable bowel syndrome. The preoperative diagnosis of paraduodenal hernias can be established only by radiologic evaluation. The characteristic findings on a small bowel Series (SBS) are a circumscribed, ovoid mass of intestinal loops, the main axis of which is lateral to the midline. Arteriography may also be helpful because it can demonstrate vascular anomalies.[12] CT can demonstrate encapsulated cluster of small bowel loops, the hernia sac, the relationship of the loops to the surrounding

organs, and vascular abnormalities. CT can also be performed in patients with an ileus.[15-19] For creating multiplanar CT images helical CT is helpful. MRI can also make images in multiple planes, be used in patients with ileus. SBFT and CT scan were inconclusive in our patient in her previous admissions.

In our patient MRI showed not only findings similar to the small bowel series but also the relationship to surrounding organs and hernia sac. Finally, conventional MRI is not a good option for imaging of the small intestine due to motion artifact and performing MR enterography is mandatory. Paraduodenal hernias are fixed to the retroperitoneum and are often adhered to the hernia sac, thus motion artifacts are limited. Thus, MRI may be useful for imaging most paraduodenal hernias. Magnetic resonance angiography may be able noninvasively to provide information as well as arteriography. Both MRI and CT can support the preoperative diagnosis of a paraduodenal hernia.

Our patient was a 47 years old lady and was completely asymptomatic up to 45 years old which is surprisingly unusual. Another surprising point in her history was spontaneous relief of her symptoms after forceful bilious vomiting. She was completely asymptomatic between attacks. Forceful vomiting may probably reduce hernia spontaneously due to wide mouth (a large hiatus) of the hernia sac (Landzert's fossa). So we should consider congenital hernias in the differential diagnosis of SBO. Although this hernia is rare in adults, however we should be aware of this disease especially in the absence of previous surgery, abdominal trauma, suspected history of malignancy, bezoars, history of gallstone, biliary colic or significant weight loss (may cause superior mesenteric syndrome).

Congenital internal hernia must be considered in the differential diagnosis of any small bowel obstruction (SBO) in cases without obvious previous risk factors for SBO. Both MRI and CT can support the preoperative diagnosis of a paraduodenal hernia. Open or laparoscopic surgery are treatments of choice.

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CONFLICT OF INTEREST

The authors declare no conflict of interest related to this work.

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