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Case Report

Surgery Section

Left Paraduodenal Hernia: A Tricky Situation

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ABSTRACT

Paraduodenal hernias are important cause of internal hernia. Left paraduodenal hernia occurs through paraduodenal fossa of Landzert. Paraduodenal hernia occur due to errors of midgut rotation during embryological development. Most of the patients present in emergency with acute or subacute intestinal obstruction. X-ray shows air fluid levels which maintains their position with change of position. CT of abdomen is more reliable investigation for diagnosis. For left sided paraduodenal hernia, neck of the sac should be divided caudally, or can be divided cranially to avoid injury to the vessels. Sound embryological knowledge about the condition will ease the surgical management. Elective laparoscopic surgery can be considered for non obstructive left paraduodenal hernia.

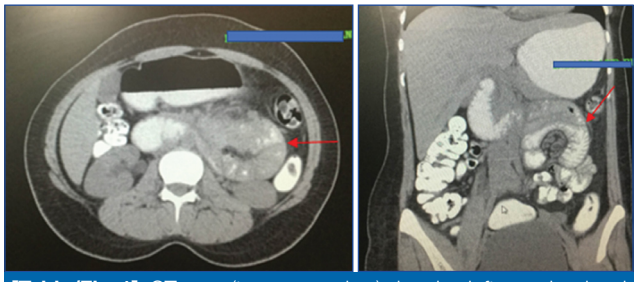
Keywords: Fossa of landzert, Intestinal obstruction, Midgut rotation

CASE REPORT

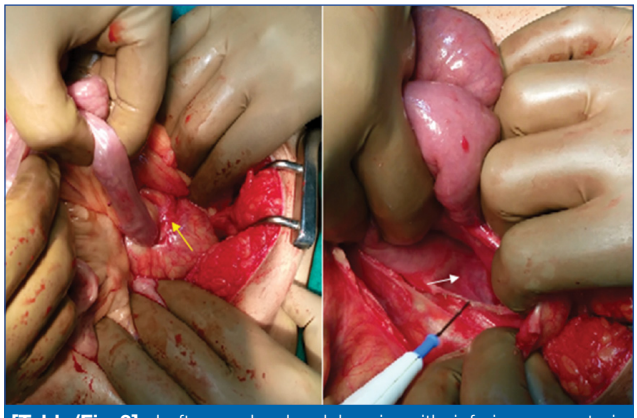
A 32-year-old female patient presented in the Emergency Room with complaints of pain in abdomen and vomiting since one day. Patient didn't have constipation or obstipation. Patient didn't have any previous history of any surgery or history of Koch's or Koch's contact. Patient had mild intermittent pain in abdomen without vomiting for one year. Patient took anti-spasmodic and antacid medications prescribed by local practitioner for these complaints. She also noticed that she had intermittent gurgling noise in the abdomen especially postprandially. Patient didn't have any co-morbidities and major medical illness. There was no history of intake of medications other than above mentioned drugs.

On physical examination abdomen was non distended, soft and non tender. Abdominal X-ray was normal with single gastric fundic shadow. On our surprise ultrasonography was also normal without any evidence of dilatation of small or large bowel. CT-abdomen was suggestive of clumping of the small bowel on the left side of the abdomen and normal large bowel with general abdominal cavity devoid of the small bowel loops. CT-scans were suggestive of left paraduodenal hernia [Table/Fig-1,2]. Other investigations were normal.

Patient underwent exploratory laparotomy electively for subacute intestinal obstruction due to left paraduodenal hernia. Intraoperative findings confirmed the diagnosis of left paraduodenal hernia. Hernia opening was situated just left and lateral to the 4th part of the duodenum with whole of small



[Table/Fig-1]: CT-scan (transverse view) showing left paraduodenal hernia (red arrow).
[Table/Fig-2]: CT-scan (coronal view) showing clumped small bowel loops on left side of abdominal cavity in continuity with duodenum.



[Table/Fig-3]: Left paraduodenal hernia with inferior mesenteric vein anteriorly (yellow arrow) at neck of sac, opening of the defect (white arrow).

bowel as a part of hernia sac, neck was arched anteriorly by inferior mesenteric vein [Table/Fig-3]. General peritoneal cavity was devoid of small bowel except terminal ileum exiting from the opening of the sac. Neck of the sac was divided caudally, and contents of the hernia were reduced in general abdominal cavity. Patient recovered well and discharged. On subsequent follow-up, patient was well without any complaints.

DISCUSSION

Compared to the other causes of obstruction like postoperative adhesions, stricture, malignancy, the patients presenting with internal herniations are rare and incidence is less than 1% [1].

The paraduodenal fossa of Landzert is formed by dipping of posterior parietal peritoneum on right side of inferior mesenteric vein. The fossa lies below and behind the inferior mesenteric vein. At neck of this fossa posteriorly there is left colic artery. Frequently, this fossa is associated with other paraduodenal fossae. Left paraduodenal hernia occurs at this location and "complications are almost as frequent as normal" [2].

Complex embryological developmental events during development of the midgut give rise to paraduodenal hernia. Due to rapid development of the midgut compared to abdominal cavity, midgut herniates. During further development there is reduction of the herniated bowel along with counter clockwise rotation. During reduction, instead of going into free peritoneal cavity if it enters the unsupported area created by and to the left side of the inferior mesenteric artery but anterior to the left colic branch of the inferior mesenteric artery, it lies behind the mesentery of the left colon and on the left side of the midline of the body, it now called as left paraduodenal hernia. The neck of which is just lateral to the fourth part of duodenum and bounded anteriorly by the inferior mesenteric artery and posteriorly by left colic branch of the inferior mesenteric artery [3,4].

Treitz has dictated three necessary prerequisites for the occurrence of left paraduodenal hernia:

1) Presence of a fossa; 2) Presence of inferior mesenteric vein in neck of the sac; 3) Sufficient mobility of the small bowel to allow it into the sac derived from this fossa [3].

Male preponderance is observed in paraduodenal hernias. Presentation is extremely variable and can present at any age. History of intermittent colicky abdominal pain with or without vomiting, postprandial sense of heaviness and intervallic distention of abdomen. Symptoms may be present for chronic duration. Sudden acute intestinal obstruction can be initial presentation. Ahmad A et al., reported similar case of left paraduodenal hernia, where patient presented with vomiting and absolute constipation [5]. Cathartics and enemas can provide some relief. On physical examination eccentric distention of abdomen may be visualised with, gurgling, tympanitic soft vague mass can be palpated [6].

X-ray of the abdomen shows one or two dilated loops of small bowel which are more or less spherical, and rest of the intestine has limited gas. They are soundly maintained in the abdomen with little effect with the change of position from supine to standing [6].

The diagnosis of the paraduodenal hernia before the invention of the modalities like CT was based on appearance of small bowel on barium follow-through examination and arteriographic studies. On barium studies, there is apparent stasis of the small bowel loops on one side of the body midline either on right or left. This is accompanied with failure to move bowel segment with manipulation and absence of the small bowel segments in the pelvis. On CT, there is apparent clustering of the small bowel on either right or left side of the body. The hernia sac may be visualised depending on the thickness of the hernia sac. In left paraduodenal hernia bowel loop seen clustered in between stomach and pancreas which may be dilated or non dilated [7].

Chaudhary B et al., reported a case of left paraduodenal hernia presented with subacute intestinal obstruction. In that patient X-ray and ultrasonography were unremarkable and CT-abdomen with oral contrast was suggestive of left paraduodenal hernia [8]. In our patient too, X-ray and ultrasonography were inconclusive, and the diagnosis was solely based on CT findings. This way CT-scan can be the most useful means for diagnosis.

It is authors opinion that if in cases intestinal obstruction patients not diagnosed preoperatively as paraduodenal hernia, presence of only small length of distal small bowel into peritoneal cavity, presence of bulge on the left side of the abdomen behind the left mesocolon, on left side of the duodenum should raise some suspicion about the left paraduodenal hernia. If its neck arched anteriorly by inferior mesenteric vein, then it is confirmed. Once the diagnosis is confirmed then surgical management is tricky and easy which is done by dividing neck of the sac caudally.

Aim of the surgery is to reposition of the small bowel into normal anatomical position. Sometimes, it is not necessary to divide the neck of the sac to reduce the content into the abdominal cavity. Reduction of the small bowel into peritoneal cavity can be done without any injury to inferior mesenteric vein if the neck of the sac divided caudally [4,9]. Sometimes inferior mesenteric vein can be divided if reduction is difficult [10]. Uematsu T et al., and Palanivelu C et al., suggested elective laparoscopic surgery for the patients with non obstructive left paraduodenal hernia as it bears the benefits of minimal access surgery [11,12].

CONCLUSION

Paraduodenal hernias occur due to errors of rotation of midgut during intrauterine development. Effective use of newer modalities of diagnosis like CT will be most useful for the diagnosis of paraduodenal hernias. Sound embryological knowledge about this condition and preoperative diagnosis will ease the surgical management. Elective laparoscopic surgery can be considered for non obstructive left paraduodenal hernia.

Consent

Informed consent of the patient was taken. Approval of Institutional ethical committee was not required.

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