



Left Paraduodenal Hernia: A Case Report

KEYWORDS

Intestinal obstruction, Paraduodenal hernia

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ABSTRACT

We present the case of a 26 year old man who presented to our emergency department with progressive left sided abdominal pain of 3 days duration. He had a past history laparotomy done 2 years back. CT scan revealed dilated jejunal loops with maximum diameter of 5 cm with definite transition point at jejuno-ileal junction. Ileum and large bowel loops were collapsed. At laparotomy, a left paraduodenal hernia was found, the herniated loops were reduced and the hernial orifice closed. The patient had an uneventful postoperative stay in hospital. With modern imaging modalities, early and correct diagnosis is possible. Due to the risk of obstruction and strangulation, surgical treatment is indicated. Early intervention increases the likelihood of a favourable outcome. Paraduodenal hernias are a rare congenital anomaly which arises from an error of the rotation of the midgut.

INTRODUCTION

Paraduodenal hernias are uncommon and account for <1% of all cases of small bowel obstruction. They are associated with a high lifetime risk of causing obstruction and in these cases; mortality rate is up to 20%, probably due to missed diagnosis¹. Internal hernias are a rare cause for intestinal obstruction. Paraduodenal hernias constitute approximately 53% of all internal hernias². Several studies have demonstrated the value of computed tomography (CT) in confirming the diagnosis and revealing the cause of small bowel obstruction, with a sensitivity of 94-100% and an accuracy of 90-95%³. If diagnosed, herniated loops should be reduced, and the hernia orifice closed or widened. In this case report, we report the case of a 26-year old man who had an acute small bowel obstruction caused by a left paraduodenal hernia.

CASE REPORT

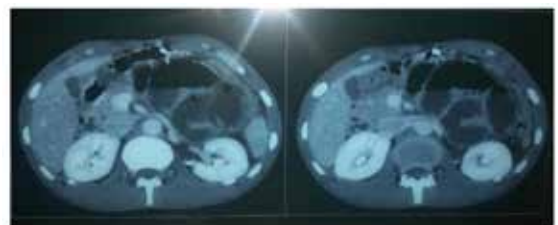
A 26 years young boy came in emergency department of Saint George's hospital with chief complaints of pain in abdomen since 3 days, vomiting since 3 days. Patient was apparently alright 3 days back when he started having pain in abdomen more on left side of abdomen, which was continuous type. It was associated with vomiting, multiple episodes containing food particles and bilious in nature. It was also associated with distension of abdomen and constipation. Patient has a past history of exploratory laparotomy done 4 years back due to intestinal obstruction. Patient also has a history of taking antituberculous treatment for one year in past for recurrent abdominal pain.

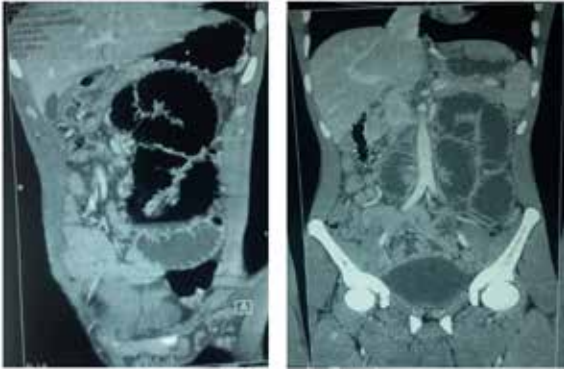
On examination, patient was dehydrated but conscious and oriented and vitals are stable. On per abdomen examination, distension in left lower abdomen with visible peristaltic movement was seen. Diffuse tenderness was present with no guarding and rigidity. Midline scar mark of previous surgery was also noted. Haematological investigations were normal. On X ray abdomen in standing position, multiple air fluid levels were seen.



X ray erect abdomen showing multiple air fluid levels suggestive of intestinal obstruction

On ultrasound examination, dilated small bowel loops [4.2cm in diameter] was seen in left flank with sluggish to and fro peristalsis. On contrast enhanced CT scan of abdomen, dilated jejunal loops were noted with maximum diameter of 5 cm with definite transition point at jejuno ileal junction. Ileum and large bowel loops were collapsed.





Contrast enhanced CT scan of abdomen showing dilated small bowel loops situated behind collapsed ileum and large bowel loops

Patient was posted for exploratory laparotomy. With previous midline incision, abdomen was opened. Dilated small bowel loops were seen on left site of abdomen which was entering into left paraduodenal space with a mesenteric defect through which hernia occur. Distal ileum and large bowel were collapsed. Hernia was reduced and defect closed with 2-0 mersilk. Proximal bowel was dilated but viable. Drain was kept in left paraduodenal space and abdomen closed in layers. Patient tolerated surgery well.



Intraoperative finding: Arrow indicating mesenteric defect through which hernia occur

DISCUSSION

Internal hernias, herniation of a segment of intestine into an intraperitoneal fossa, are uncommon causes of intestinal obstruction and are difficult to diagnose preoperatively. It may be discovered as an incidental finding at laparotomy or may be the cause of acute small bowel obstruction which can go on to strangulation and perforation. Its presence may also lead to confusion and errors in diagnosis. Internal abdominal hernias are defined as the herniation of a viscus through an intraperitoneal orifice or aperture within the confines of the peritoneal cavity⁴. These hernias give rise to chronic dyspeptic symptoms or be asymptomatic and only found at autopsy. More than 50% of internal hernias reported in the literature have been paraduodenal⁵. Seventy-five percent of paraduodenal hernias occur on the left while 25% occur on the right. They originate at the fossa of Landzert, which is just lateral to the fourth segment of the duodenum and behind the inferior mesenteric vein and ascending left colic artery⁶. The most accepted mechanism of left paraduodenal hernias involves malrotation of the midgut during the early weeks of gestation. In the 5th week of embryonic development, the rapidly elongating midgut herniates into the umbilical cord. Later, the herniated midgut undergoes a counter-clockwise rotation

of 90° around the superior mesenteric artery (SMA), leaving the prearterial limb on the left side. The herniated intestinal loop, first the prearterial then the postarterial limb, returns to the abdominal cavity by the 10th week. During this process, the intestinal loop undergoes another 180° counterclockwise rotation. In the end, the prearterial limb lies left to the SMA and the postarterial limb lies superior and right to the SMA⁷. Under normal circumstances, fusion of the mesocolon with the peritoneum of the body wall follows this process. Failure of the fusion to take place in time leaves a potential space (the fossa of Landzert) behind the mesocolon. While rotating into the peritoneal cavity, the mesentery fails to fuse with the parietal peritoneum creating a hernia orifice. Small bowel loops can become trapped between the mesocolon and the posterior abdominal wall when they herniate through this orifice, lateral to the fourth segment of the duodenum, the paraduodenal fossa of Landzert^{1,8}. The left Para duodenal fossa of Landzert present in 2% of autopsy cases is situated to the left of ascending or fourth part of the duodenum and is caused by the raising up of a peritoneal fold by the inferior mesenteric vein as it runs along the lateral side of fossa and then above it⁹. Small intestine may herniate through the orifice posteriorly and downward to the left, lateral to the ascending limb of duodenum extending into descending mesocolon and left part of the transverse mesocolon. The free edge of hernia thus contains the inferior mesenteric vein and ascending left colic artery¹⁰. Because internal hernias are not detectable on physical examination, imaging is relied upon for preoperative diagnosis. Since herniation is often intermittent, the radiographic diagnosis therefore depends on the time of imaging. Plain film radiographic findings are usually nonspecific. UGI-small bowel follow-through, CT scan and occasionally ultrasound may make the diagnosis by identifying isolated bowel, "a bag of bowel", in the hernia sac. Radiographically, left paraduodenal hernias present as an ovoid conglomeration of jejunal loops in the left upper quadrant, often displacing the stomach superiorly and the transverse colon inferiorly¹¹.

Treatment of left paraduodenal hernia requires surgery. The typical appearance during surgery is that of an "empty abdomen" with only the last segment of the ileum present in the abdominal cavity while other small bowel loops are entrapped in the hernia sac¹². The herniated small bowel loops should be reduced and the hernia orifice closed with non-absorbable sutures. A different technique is to widen the hernia orifice to prevent future incarceration of bowel loops.

Often, there is a close anatomical relationship between the inferior mesenteric vessels which bound the hernia anteriorly and the hernia orifice and care should be taken not to injure these vessels. Although Bartlett indicated that these vessels can be divided without compromising blood supply to the colon, they should be preserved whenever possible as in our case¹³. Studies have revealed that when the diagnosis is made preoperatively, a laparoscopic approach is possible. Since the first laparoscopic repair by Uematsu in 1998, the laparoscopic approach has been a way of diagnosis and repair for paraduodenal hernias¹⁴. Intestinal resection is needed in cases of strangulation and gangrene. In our patient, we performed a laparotomy because of unavailability of diagnosis of paraduodenal hernia on imaging study. A high index of suspicion along with excellent imaging like CT scan helps in arriving at a correct preoperative diagnosis. Early surgical intervention is critical in avoiding the morbidity and mortality associated with paraduodenal hernias.

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