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Case Report

Surgery Section

Superior Mesenteric Vein Thrombosis in Acute Abdomen with Underlying Left Paraduodenal Hernia: An Unusual Intraoperative Finding

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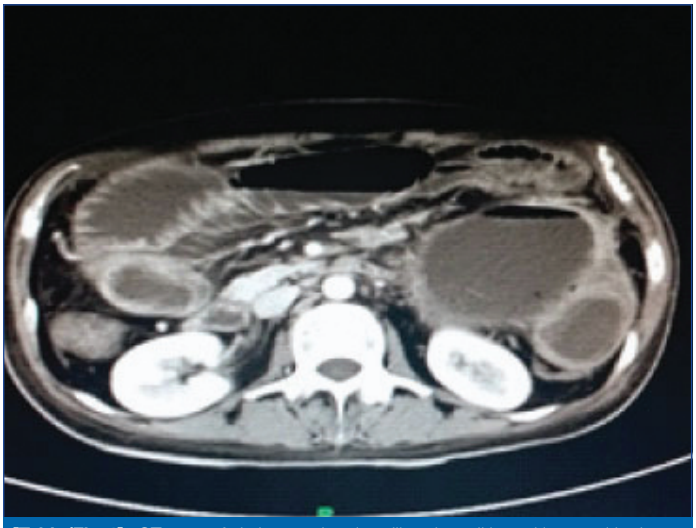
ABSTRACT

Internal hernias are rare but an important cause of small bowel obstruction. Understanding embryology as well as surgical anatomy is important in treating such cases. Paraduodenal hernias, the most common among the internal herniations, may present with symptoms of bowel obstruction, incarceration or even may be detected incidentally. They need surgical repair in all cases due to the associated morbidity and mortality. Superior Mesenteric Vein (SMV) thrombosis and bowel ischemia on other hand are surgical emergencies with high mortality and morbidity if not treated in time. We report a case which presented with features of SMV thrombosis and obstruction, which intraoperatively was found to be paraduodenal hernia with a small ischemic segment at jejunum, eliminating risk of larger resection and short bowel syndrome.

Keywords: Hernia of lanzert, Internal hernia, Ischemic bowel disease, Small bowel obstruction, Waldeyer's hernia

CASE REPORT

A 30-year-old male, previously healthy with no surgical history, presented to the gastro-intestinal and hepato-pancreatic-biliary (GI-HPB) surgery department with complaints of abdominal distension, mild abdominal pain, nausea, constipation and obstipation for 4 days. His laboratory investigations were suggestive of raised leukocyte counts, with elevated lactate levels with normal renal function tests. A provisional diagnosis of small bowel obstruction secondary mesenteric ischemia was done. His computed tomography imaging done at another institute was suggestive of complete SMV thrombosis with dilated small bowel loops and abrupt narrowing at mid jejunal level [Table/Fig-1]. In view of persisting complete obstruction and possibility of small bowel ischemia decision was taken to perform an emergency laparotomy.



[Table/Fig-1]: CT scan of abdomen showing dilated small bowel loops with abrupt narrowing.

On laparotomy, multiple adhesive bands were seen, inter-bowel as well as between bowel and abdominal wall. Proximal small bowel was grossly dilated. Duodenal-jejunal (DJ) flexure was identified and a bowel walk was done. At 20 cm from DJ flexure, jejunal loop was seen going towards medial side of DJ flexure into the retroperitoneum. Inferior mesenteric artery was seen arching over the bulge created by bowel loops in the retroperitonium. It was not possible to withdraw bowel loop from retroperitoneum, hence retroperitoneum was opened near the neck just medial to DJ flexure, taking care not to injure the Inferior mesenteric vessels and their branches. A left paraduodenal hernia was seen with jejunal loop entrapped with multiple adhesions in hernial sac. Adhesiolysis was done and bowel loops were reduced. Obstructed loop had few ischemic patches, warm saline wash was given. In view of SMV thrombosis, a resection of affected segment was done removing approximately 15 cm of mid-jejunum. A side to side bowel anastomosis was done ensuring adequate blood supply to bowel ends. Defect was closed primarily.

Patient was shifted to post-op ICU for monitoring purposes. He was kept nil per oral for 3 days. Broad spectrum antibiotics and intravenous fluids were given. Patient was started on low molecular weight heparin on post-op day 2 (POD2). Then overlapping it with warfarin, and International Normalised Ratio (INR) was targeted at 2.5. Bowel sounds resumed on POD3. Electrolyte replacement was continued with adequate hydration. He was started on oral liquids on POD4. Soft diet was started on POD6. Patient recovered well and was discharged on POD9 with oral anticogulants. On follow-up for 6 months, patient has had no complaints. On imaging there was seen partial resolution of SMV thrombosis and viable bowel loops.

DISCUSSION

An internal hernia is a protrusion of a viscus through a peritoneal or mesenteric aperture, resulting in its encapsulation within the confines of the peritoneal cavity. It is a rare cause of small bowel obstruction (0.2-0.9%) [1]. Meyers described various sites of internal herniation-paraduodenal (53%), foramen of Winslow (8%), transmesenteric (8%), transomental (1-4%), pericaecal (13%), intersigmoid(6%), supravesical and pelvic (6%), mesoappendix, broad ligament, mesentery of Meckel's diverticulum [2].

According to the definition proposed by Treitz in 1857, an internal hernia is a retro-peritoneal protrusion of an abdominal organ through a peritoneal fold, but paraduodenal hernias lack a true sac, and hence may be considered a misnomer [3,4]. In case of right paraduodenal hernia (Waldeyr's hernia), during intrauterine bowel rotation, the post-arterial segment fails to rotate completely. This segment gets entrapped in the right mesocolon. It is also called mesentericoparietal hernia and the fossa is called Waldeyer's

fossa. While in case of the more common (75%) variant, the left paraduodenal hernia (hernia of Landzert), herniation of bowel loops occurs from the fossa of Landzert (a congenital defect in ~2% of the population) located to the left of the fourth part of the duodenum, between the inferior mesenteric vein and branches of the middle colic artery [5,6]. These peritoneal fossae develop between the 5th and 11th gestational week due to an incomplete fusion of the posterior parietal peritoneum and the posterior abdominal wall.

In the case of the left paraduodenal hernia, the fossa lies below and behind the inferior mesenteric vein. The neck of which is just lateral (rarely medial) 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. It makes the intraoperative diagnosis easier while making the surgical repair challenging as preserving these vessels will be important.

Even in case of asymptomatic or incidental finding of paraduodenal hernia, the surgical repair is advised, as the life time risk of obstruction and bowel strangulation is 50-66% with mortality around 20%, usually secondary to abdominal sepsis [5,7,8].

The median age of presentation is 29-38 years with clear male preponderance (3:1) [4,9]. The presentation is typical of small bowel obstruction, it is the imaging with helps a lot to differentiate it with other etiologies. Computed tomography remains the investigation of choice, although MRI is also equally sensitive, which shows clustering of small bowel of on either right or left side. Sometimes the bowel loops may be seen clustered between stomach and pancreas which may confuse the diagnosis [10]. The diagnostic yield of these imaging modalities is highest during a symptomatic episode [11].

Intraoperatively, presence of only small length of distal small bowel into peritoneal cavity, bulge on the left side behind the left mesocolon or the duodenum should raise some suspicion about the left paraduodenal hernia.

There is no direct association mentioned in literature, between SMV thrombosis and left paraduodenal hernia. Although there are case reports mentioning internal herniation with SMV/portal vein thrombosis in patients post-laparoscopic and bariatric surgical procedures. Internal hernia after Laparoscopic Roux-en-Y-Gastric Bypass (LGBP) is a known complication (1%-5%) [12]. It can also occur after gastric or colonic surgery. In literature, it has also been described that the influence of laparoscopy on coagulations favouring a prothrombotic state [13]. In index case, patient presented with features of SMV thrombosis, which compelled the operative team for emergency surgical intervention in fear of bowel ischemia. Although intraoperatively, we found features of internal herniation with most of bowel viability intact; except a small segment, eliminating need of larger bowel resection.

Surgical management essentially requires reduction of herniated bowel loops. With closure of defect primarily or with mesh. Another option is to widen the defect to prevent future risk of herniation and possible incarceration of bowel [7]. Most surgeons advice preservation of inferior mesenteric vessels, but in case if the division is necessary due to difficult reduction, it can be sacrificed [14].

With the growing laparoscopic experience and as paraduodenal hernia being a proximal bowel obstruction with sufficient working space, minimal invasive surgery is a good option for diagnosis and treatment of bowel obstruction secondary to occult paraduodenal hernias [7,15-17].

CONCLUSION

A surgeon should be ready for unusual intraoperative findings and surprises. Pre-operative radiology is essential tool and should be used liberally to avoid post-op morbidity and mortality. Knowledge of rare variations of pathology and surgical anatomy is paramount. In index case, these things helped us avoid a larger bowel resection and improved patient outcome.

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