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Case Report

Right paraduodenal hernia, rare cause of gangrene bowel: case report with review of literature

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ABSTRACT

A right paraduodenal hernia includes small bowel trapped within a peritoneal sac between the right and transverse colon, positioned right of midline, with the hernia sac opening to the left at the ligament of treitz, with either the superior mesenteric or ileo-colic artery at the anterior aspect of the sac. Patients with PDH often present with signs and symptoms of obstruction and/or bowel gangrene. We report a case of a 50 year old male presenting with small bowel ischaemia due to right paraduodenal hernia. Patient presented with chief complaints of colicky abdominal pain since two days and abdominal distension, and altered sensorium since one day. Abdominal ultrasonography showed dilated small bowel loops, and CT scan of abdomen was suggestive of clustering of small bowel loops with proximal dilatation. Exploratory laparotomy revealed a right PDH with a strangulated loop of 160 cm of small bowel within. The peritoneum at the ligament of Treitz was lax. The DJ flexure showed gangrenous changes along the anti-mesenteric edge. Resection and anastomosis of small bowel was done along with wedge resection of the DJ flexure, followed by feeding jejunostomy. The sac was opened up wide and plicated over itself to prevent recurrences. Perioperative course was uneventful, and patient discharged on post op day 10. Jejunostomy tube was removed after one week. Patient is being followed up at OPD level with close surveillance to prevent nutritional deficiency due to short gut syndrome. A vigilant mind is of utmost importance to suspect and diagnose paraduodenal hernia to limit morbidity and mortality.

Keywords: Para duodenal hernia, Bowel gangrene, Short gut syndrome

INTRODUCTION

There are two variants of paraduodenal hernia, right (Waldayer's hernia) and left (hernia of Lanzert) paraduodenal hernia, the right being less common.[1] The Waldeyer's fossa was found in about 1% of the population.[2] By the definition given by Moynihan in 1906, a right paraduodenal hernia includes small bowel trapped within a peritoneal sac between the right and transverse colon, positioned right of midline, with the hernia sac opening to the left at the ligament of treitz, with either the superior mesenteric or ileo-colic artery at the anterior aspect of the sac. Paraduodenal hernia may present with varied symptoms and are most common in the 4th to 6th decade, mean age 38.5 year.[3] They are known to be associated with malrotation. The malrotation of the midgut and failure of fusion of mesentery to parietal peritoneum creates a hernial defect which forms the right paraduodenal hernia. PDH can lead to bowel obstruction, ischemia, and perforation with a high mortality.[4]

Most common symptoms are that of chronic colicky abdominal pain with vomiting and abdominal distension which improves with medications like antispasmodics and conservative management suggestive of partial

obstruction. Due to nonspecific symptoms and sometimes no symptoms at all, there is often delay in diagnosis and hence treatment. Patient often present in the emergency department with signs and symptoms of obstruction and /or bowel gangrene.

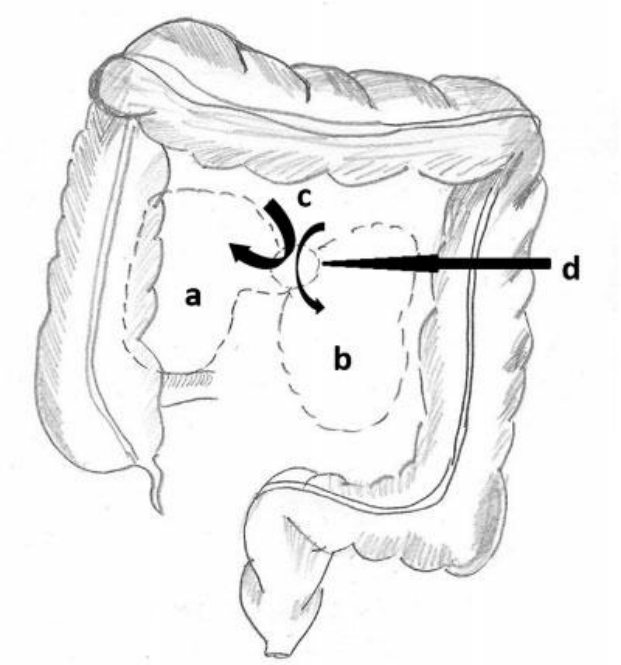

Figure 1: A line diagram depicting the anatomical positions of the colon and fossae formed by fusion of the peritoneal and mesenteric folds: (a) the fossa of Waldeyer: where the right PDH occurs; (b) the fossa of Landzert, where the left PDH occurs; (c) the retro-duodenum, from where the hernia occurs, and (d) the hernial orifice.

Definitive diagnosis is mainly by radiological imaging like a barium meal or CT scan, wherein clumped loops of small bowel are seen to the right side of the duodenum.[1]

Quite often, presentation of the patient is in the emergency department with symptoms much more than signs suggestive of mesenteric ischemia. Vague symptoms may lead to a diagnostic dilemma where such patients may be treated like an intestinal or biliary colic. It is imperative to keep internal herniation in mind, although rare, so as to investigate the patient thoroughly and prevent massive morbidity and mortality of bowel gangrene.

Here is a case of an adult patient with small bowel ischemia and obstruction due to right paraduodenal hernia and its management in an emergency setup.

We present a case report of this patient of paraduodenal hernia, admitted and treated in Department of General Surgery, Goa Medical College.

Patient has been followed up till date at OPD level.

An observational study was done for this patient.

CASE REPORT

A 50 year old male, presented to casualty with colicky abdominal pain since 2 days and abdominal distension, and history of passing normal stools prior to the onset of pain. Patient was in altered sensorium since 1 day. There was no history of vomiting or fever.

Patient's relative also revealed similar episodes in the past since a younger age, which improved with medications from a family physician. This particular episode did not improve with any medications and sensorium worsened, hence presented to a tertiary centre.

At presentation, patient was in altered sensorium, not responding to pain. Pulse and Blood Pressure was unrecordable. Carotid pulsations were feeble. Active resuscitation was started immediately. Patient was intubated and Intravenous fluids were given. Inotropes were started. Pallor was present.

Per-abdomen findings revealed a distended, guarded abdomen, bowel sounds sluggish.

Per-rectally, normal stools were present.

Ryles tube aspirate was feculent almost 600 ml.

Patient was admitted and actively resuscitated. Sensorium improved with correction of hypotension. Patient self-extubated. Intravenous volume was built up. Inotropes were tapered and radiological investigations were carried out.

Ultrasonography of abdomen showed dilated small bowel loops. Chest X-ray was normal and erect abdominal X-ray could not be done due to hypotension.

CT scan of the abdomen was suggestive of clustering of small bowel loops with proximal dilatation raising a diagnosis of mesenteric volvulus with small bowel obstruction.

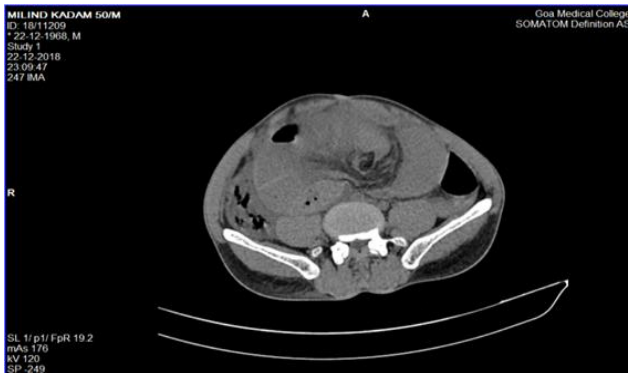

Figure 2: CT scan depicting dilated small bowel loops within the hernial sac with twisting of mesentery.

Patient was taken up for exploratory laparotomy.

Operative findings revealed a right paraduodenal hernia with a loop of 160 cm of small bowel within it. The neck of the sac was wide yet it caused strangulation of the loops within the sac. The peritoneum at the ligament of Treitz was lax and baggy. Proximal small bowel, i.e., 80cm from DJ flexure was dilated. Distally only 25 cm from IC junction was viable. Stomach was collapsed post decompression through Ryle's tube. The DJ flexure also showed gangrenous changes along the anti-mesenteric edge, apparently due to pressure necrosis by the massive bowel herniation. Large bowel and rest of the organs were normal. There was no evidence of malrotation.

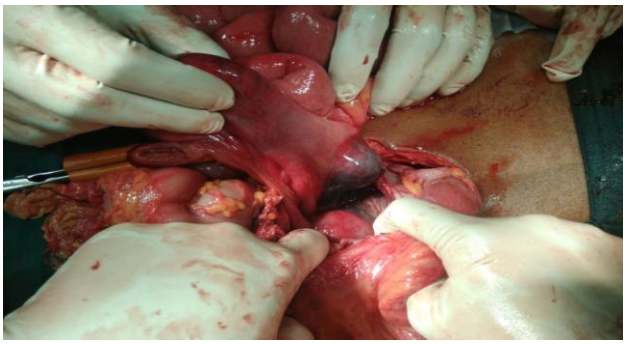

Figure 3: Gangrene of DJ flexure.

Resection and Anastomosis of small bowel was done along with wedge resection of the DJ flexure. Feeding jejunostomy was done. Care was taken not to injure the vessel with the neck of the sac. The sac was ultimately opened up wide and plicated over itself to prevent recurrences.

Figure 4: The wide neck of the sac and massive bowel gangrene.

Blood transfusion was given pre-operatively and intra-operatively. Postoperatively patient was shifted to ICU for gradual weaning and close monitoring of vitals.

Patient was weaned off ventilator gradually and shifted to general ward on postoperative day 4. Patient received parentral nutrition for 6 days till abdomen settled, following which jejunostomy feeds were started gradually. Eventually patient tolerated small frequent oral feeds well.

Post op day 10, patient was discharged and called for follow-up after a week. Jejunostomy tube was removed.

Patient has been following up at OPD level with close surveillance to prevent nutritional deficiencies due to short gut syndrome.

Paraduodenal hernia is a rare presentation in clinical practice. The surgeon should have a vigilant mind to suspect this condition and investigate accordingly. In an emergency setup, prior knowledge of the condition is mandatory, as usually anatomy is distorted and dissection has to be delicately done in order to preserve vital structures like duodenum, common bile duct and the mesenteric vessels.

Diagnosis preoperatively depends largely on radiological imaging like Contrast enhanced CT scan.

A greater challenge is in the postoperative period for this patient as there was a massive bowel resection warranted by bowel gangrene, hence nutritional deficiencies as well as long term short bowel syndrome needs to be managed effectively.

DISCUSSION

An internal hernia is defined as a hernia formed by the protrusion of a viscus through a peritoneal or mesenteric aperture, leading to its encapsulation within a compartment of the abdominal cavity. Internal hernias account for 0.2%-0.9% of intestinal obstructions.[5]

Paraduodenal hernias are very rare but account for approximately 30-50% of internal hernia, mostly congenital. Left sided is three times more common than right, more in males as compared to females.

Patient may be totally asympotomatic at presentation or may present with obstructive small bowel symptoms or just chronic abdominal pain, making preoperative diagnosis a challenge and radiological investigation of utmost importance.

Plain X-ray of the abdomen may reveal a distended stomach with dilated small bowel loops in case of small bowel obstruction. Barium meal in an aymptomatic patient, may clinch the diagnosis paraduodenal hernia by

demonstrating clustering of small bowel loops in the right upper quadrant lateral to duodenum.

CT scan is helpful to demonstrate bowel obstruction with clustering of bowel at the level of ligament of Treitz, in the paraduodenal fossae. Celiac arteriography study may be necessary to demonstrate the vessel in the fold of the paraduodenal sac, which may not be necessary or feasible in an emergency setup.

Once diagnosis is established, patient may be approached by open or laparoscopic method, the latter preferred in a routine setting and the former in emergency setting. But exploration is mandatory.[6] Treatment of an unwell patient should not be delayed for radiological investigations.

Early diagnosis, i.e., before the setting in of complications like obstruction and gangrene, patient can benefit for laparoscopic exploration. It would also mean less morbidity and mortality from dreaded complications of sepsis, short gut syndrome and malnutrition.

Once explored, it is imperative to diagnose correctly, reduce the contents of the hernia, preserve the vessel in the fold of the sac, and take adequate measure to prevent recurrence.

Postoperative care should emphasise on adequate nutritional support and supportive care, besides regular postoperative management.

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