



Para Duodenal Hernia: Rare Cause of Intestinal Obstruction

KEYWORDS

Bowel, Congenital, Para duodenal hernias, retroperitoneal space

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ABSTRACT

Intestinal obstruction is a common clinical condition that is usually suspected on the basis of clinical signs and patient history. They are basically congenital in origin representing entrapment of small intestine beneath the mesentery of colon probably occurring due to abnormal embryologic rotation of midgut and variation in peritoneal fixation and vascular folds. Para duodenal hernias occur more commonly on the left side. Para duodenal hernia is the most common form of congenital internal hernia and constitutes a protrusion of bowel into the retroperitoneal space through peritoneal defects near the third and fourth portion of the duodenum. The lifetime risk of obstruction and bowel strangulation is around 50% with a mortality of 20% and higher. Despite the rarity of the disease, it poses a serious surgical problem. The high risk of obstruction and the associated mortality mandate repair once the diagnosis is established

INTRODUCTION

Intestinal obstruction is a common clinical condition that is usually suspected on the basis of clinical signs and patient history. For many decades, evaluation was based on findings at conventional radiography, with a sensitivity of 69% and a specificity of 57%¹ Para duodenal hernias, also called congenital mesocolic hernias, are the most common type of intra-abdominal hernias accounting for half of reported cases². They are usually congenital in nature, developing as a result of small intestine becoming trapped beneath the mesentery of colon. This probably occurs due to abnormal embryologic rotation of midgut and variation in peritoneal fixation and vascular folds. Para duodenal hernias occur more commonly on the left side (75%) than on the right (25%). Para duodenal hernias are uncommon and account for less than 1% of all cases of small bowel obstruction³. Para duodenal hernias constitute approximately 53% of all internal hernias^{4,5}. They are associated with a high lifetime risk of causing obstruction, and in cases that present with obstruction, the mortality rate is up to 20%, probably due to a delay in diagnosis. The diagnosis should be considered when examining a patient with acute small bowel obstruction without a history of prior abdominal surgery. CT scan is the method of choice for diagnosing para duodenal hernia of small bowel loops. If diagnosed, the herniated loops should be reduced and the hernia orifice either closed or widened.

Clinical features

The clinical manifestation of para duodenal hernias can be quite variable varying from mild abdominal cramps or occasional vomiting to acute intestinal obstruction. Post-prandial pain with postural variation is a characteristic symptom. Inferior mesenteric vein compression in left para duodenal hernias may lead to hemorrhoids⁴.

CASE REPORT

A 55-year-old man farmer by occupation residing in Barmer(Rajasthan) was admitted to the emergency department of Civil Hospital, Ahmedabad with severe pain in abdomen since 2 days; vomiting since 1 day. He stated that pain aggravates after taking meals. He complained of abdominal distension and passed stool 24hours ago. He had no history of abdominal surgery. On physical examina-

tion; he was moderately dehydrated with mild tachycardia but normal blood pressure. The abdomen was distended and he had generalized tenderness with epigastric predominance. He had guarding but no rebound tenderness and hyperactive bowel sounds. There was a soft faeces in digital per-rectal examination. Laboratory investigations included normal cell blood count, biochemistry analysis. The plain abdominal X-ray was consistent with intestinal obstruction (showing multiple central air fluid levels).USG abdomen pelvis suggestive of dilated bowel loops with to and fro movement of contents. The decision was made for an emergency laparotomy.

A laparotomy for bowel obstruction was performed and a left para duodenal hernia(sac less) with small bowel loops as its contents with overlying band(ligament of treitz) was found(Fig.1&2). Band was cut. Bowel loops brought out. There was no evidence of bowel ischemia. The hernia orifice was closed with non-absorbable sutures and resuturing of treitz ligament with bowel is done and appendectomy was also performed simultaneously. The postoperative course was uncomplicated and uneventful. Patient came to follow up after 3 months and patient was completely alright.





DISCUSSION

An internal hernia is the protrusion of a viscous through a normal or abnormal opening within the confines of the abdominal cavity. Internal hernias account for 0.2 to 0.9 per cent of all cases of intestinal obstruction⁵. Para duodenal hernias are relatively rare congenital malformations and account for 30 to 53 per cent of all internal hernias. More than 50% of internal hernias reported in the literature have been paraduodenal. 75% of para duodenal hernias occur on the left, while 25% occur on the right^{6,7}. The most likely mechanism for the development of left para duodenal hernias is malrotation of the midgut during the early weeks of gestation: while rotating into the peritoneal cavity, the mesentery fails to fuse with the parietal peritoneum creating a hernia orifice⁸. The orifice of the internal hernia can be normal or abnormal or pathological. Left para duodenal hernias originate at the fossa of Landzert, this fossa is just lateral to the fourth segment of the duodenum and behind the IMV and ascending left colic artery. Right paraduodenal hernias protrude into the ascending mesocolon, involving the fossa of Waldeyer, behind the superior mesenteric artery and inferior to the third portion of the duodenum. Para duodenal hernias are more common in males (M: F ratio 3:1). The average age at diagnosis is 38.5 years with clinical presentation often due to chronic, intermittent, postprandial abdominal pain⁹.

Presentation can be varied and range from a long story of abdominal pain, which is often mistaken for irritable bowel syndrome or psychosomatic disease since childhood, to acute bowel obstruction. It can also be an incidental finding in an asymptomatic patient. The use of imaging studies such as plain abdominal film or CT scan are methods of choice when making the diagnosis: sometimes dilated small bowel loops can be displayed on the plain abdominal film, CT scan can reveal a sac-like mass of small bowel loops suggestive for para duodenal hernia. Radio graphically, left para duodenal hernias present as an ovoid conglomeration of jejunal loops in the left upper quadrant, often displacing the stomach superiorly and the transverse colon inferiorly. Right para duodenal hernias are similarly ovoid but are located on the right, displacing the ascending colon anterolateral.

Treatment of left para duodenal hernia requires surgery. The typical appearance during surgery is an "empty abdomen" with only the last segment of the ileum present in the abdominal cavity while other small bowel loops are en-

trapped in the hernia sac. The herniated small bowel loops should be reduced and the hernia orifice closed with non-absorbable sutures. An alternative surgical approach 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 that bind the hernia anteriorly, and at the hernial orifice care should be taken not to injure these vessels. Although relatively uncommon, left para duodenal hernia should be included in the differential diagnosis of small bowel obstruction in patients who are relatively young, who have repetitive attacks, and who lack any history of previous abdominal surgery. The combination of a high index of suspicion, familiarity with this condition, and modern imaging technology make pre-operative diagnosis easier today. Timely surgical intervention effectively relieves the patient's complaints and prevents further complications¹⁰.



CONCLUSION

Para duodenal hernia is a rare congenital anomaly arising from an error of rotation of the midgut. The duodenum and small intestine become trapped in a sac, lined by peritoneum, behind the mesentery of the colon, either to the right or left of the midline. This may be an incidental discovery at laparotomy or a rare cause of small bowel obstruction progressing to strangulation and perforation. Increasingly the diagnosis is made on CT scan in patients

with non-specific abdominal pain or imaging for other reasons. Bearing this diagnosis in mind, it may be suspected on preoperative X-ray examination. The small bowel loops are all on the right or on the left of the midline. Barium enema is also helpful. With a lifetime risk of obstruction being 50% I would consider treatment mandatory even in uncomplicated cases. The surgical approach is dictated by the nature of the hernia. Careful consideration is required with respect to vasculature and sac contents. Obliterating sac opening is essential. Right-sided hernias may be considered more technically difficult. Failure of the surgeon to recognize the nature of this anomaly has disastrous outcome.

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