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Research Paper

Paraduodenal Hernia: A Rare Case with Intestinal Obstruction

Medical Science

KEYWORDS : Congenital internal hernia, Peritoneal defect, Fossa of Landzert, Fossa of Waldeyer, Closure or Widening of defect on exploration

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ABSTRACT

Paraduodenal 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 mandates repair once the diagnosis is established. By presenting this case of a 55-year-old man with a left Paraduodenal hernia who presented with abdominal pain and vomiting and underwent subsequent laparotomy with hernia repair The purpose of this publication is to review the etiology, pathology, diagnosis and treatment of Paraduodenal hernia and to heighten the awareness of this rare but significant disease.

INTRODUCTION :-

Paraduodenal hernias, also called congenital mesocolial hernias, are the most common type of intra-abdominal hernias accounting for half of reported cases. 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. Paraduodenal hernias occur more commonly on the left side(75%) than on the right (25%). Paraduodenal hernias are uncommon and account for less than 1% of all cases of small bowel obstruction. 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 Paraduodenal hernia of small bowel loops. If diagnosed, the herniated loops should be reduced and the hernia orifice either closed or widened.

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. Pain aggravated after taking meal. He complained of abdominal distension since last 24 hours and has passed stool a day before. He had history of abdominal pain on and off several times in past. He had no history of abdominal surgery.

On physical examination, 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 generalized guarding but no rigidity or rebound tenderness or hyperactive bowel sounds. There were soft faeces in digital per-rectal examination without any blood stains.

The plain abdominal X-ray was consistent with intestinal obstruction (showing multiple central air fluid levels).USG abdomen was suggestive of dilated bowel loops with to and fro movement of contents. All routine blood investigations were found to be normal. The decision was made to go for an emergency laparotomy.

FIGURE 1: SHOWING TWISTED MESENTRY OF SMALL BOWEL

On exploration a left Paraduodenal- hernia with small bowel loops lying behind the descending colon in the retro peritoneum with its twisted mesentery were found (Fig.1&2). Bowel loops were brought back to the peritoneal cavity and mesentery derotated. Distal bowel loops lying normally in peritoneal cavity were dusky but there was no evidence of bowel ischemia in the loops which were in the retro peritoneum.

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FIGURE 2: SHOWING PERITONEAL DEFECT MAKING THE LEFT PARADUODENAL HERNIAL ORIFICE

The viability of the ischemic bowel loops were checked after giving 100% oxygen for ten min and keeping warm mops over the loops. They were found to be healthy. Hence it was decided to close the hernial orifice with non-absorbable sutures with the Duodeno-Jejunal junction and then appendectomy was also performed simultaneously.

The postoperative course was uncomplicated and uneventful. Patient came to follow up after 3 months and was completely alright.

DISCUSSION:-

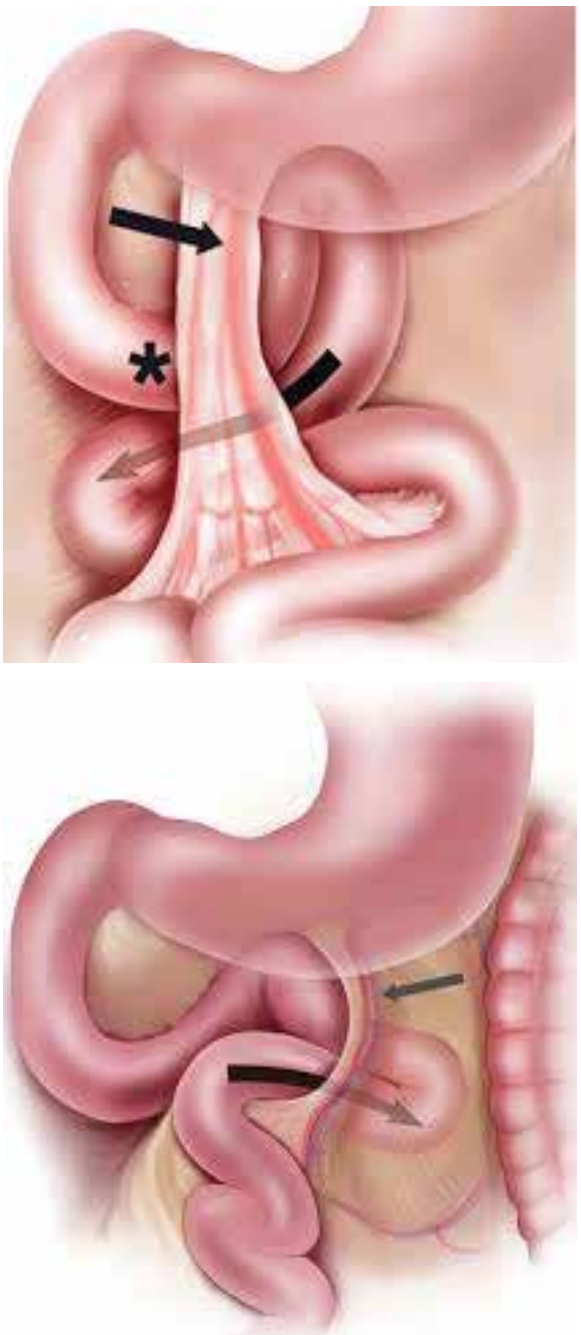
An internal hernia is the protrusion of a viscous through a normal or abnormal opening within the confines of the abdominal cavity. Internal hernias account for 0.2 to 0.9 per cent of all cases of intestinal obstruction. Para duodenal hernias are relatively rare congenital malformations and account for 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 .

The most likely mechanism for the development of left *Paraduodenal* 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 orifice.

The orifice of the internal hernia can be normal (Winslow's foramen) or abnormal (Para-duodenal, ileo-caecal etc.) or pathological (an orifice formed in a mesentery or omentum).

Left *Paraduodenal* 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 pain.

Right para duodenal hernia Left para duodenal hernia



Presentation can be varied and range from a long history of abdominal pain (intermittent, crampy, related to eating/ body position), 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 *Paraduodenal* hernia. Radio graphically, 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 inferiorly. Right Paraduodenal hernias are similarly ovoid but are located on the right, displacing the ascending colon anterolateral.

Treatment of left *Paraduodenal* 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 entrapped 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 *Paraduodenal* 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 preoperative diagnosis easier today. Timely surgical intervention effectively relieves the patient's complaints and prevents further complications.

CONCLUSION:-

Paraduodenal 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% it should be considered for treatment 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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