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A rare case of intestinal obstruction in a case of left paraduodenal hernia with malrotation

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Abstract

A 23-year old male patient presented with a 5 day history of paraumbilical pain, multiple episode of vomiting and absolute constipation. Intestinal obstruction was diagnosed following an abdominal x ray and CECT abdomen.

At laparotomy, a left paraduodenal hernia containing small bowel with malrotation was present, without ischemia of small bowel. The herniated loops were reduced and the defect closed. Malrotated bowel loops were repositioned and sigmoidopexy was done in left iliac region and caecopexy done in right iliac region. The incidence, anatomy and treatment of this uncommon diagnosis are discussed.

Keywords: paraduodenal hernia, intestinal malrotation, intestinal obstruction, internal abdominal hernia

Introduction

Paraduodenal hernias, also called congenital mesocolic hernias, are the most common type of intra-abdominal hernias accounting for half of reported cases^[1, 2]. 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^[1, 2].

Para duodenal hernias occur more commonly on the left side than on the right^[3]. Para duodenal hernias are uncommon causes of obstruction and account for less than 1% of all cases of small bowel obstruction^[1, 2]. They are associated with a high lifetime risk of causing obstruction, and in cases that present with obstruction, the mortality rate is high.

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 sac should be closed.

In this article we report a 23-year-old young male with obstruction symptoms due to left paraduodenal hernia with malrotation.

Case Report

The patient was 23 years old young male who came with complains of paraumbilical pain which was acute in onset, diffuse in nature, non-radiating and moderate to severe in intensity since previous 5 days associated with multiple episodes of bilious vomiting, non-projectile in nature since 3 days and absolute constipation since two days. The patient was referred to G. G. Hospital, Jamnagar, Gujarat, from private hospital. There was no history of previous similar complaints or any previous operative procedure. He had no significant past medical and surgical history. On physical examination, patient was conscious with a pulse rate of 110, respiratory rate of 20, temperature of 37 degrees Celsius and blood pressure of 100/70 millimeters of mercury. Cardio-respiratory examination was unremarkable. The abdomen was symmetrically distended without any obvious scars. The abdomen was tense and generalized tenderness was present. Bowel sounds were sluggish. There was ballooning in digital rectal exam. Laboratory investigations included normal cell blood count, biochemistry and urine analysis.

The plain abdominal X-ray(standing was consistent with intestinal obstruction (fig. 1).

CECT Abdomen was done which was suggestive of "possibility of small bowel loops obstruction due to midgut volvulus" A laparotomy for bowel obstruction was performed and a left paraduodenal hernia with midgut malrotation was found.

There was no evidence of bowel ischemia (Figure 3). The hernia content were reduced and hernia sac was excised.

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Malrotated bowel loops were repositioned and sigmoidopexy was done in left iliac region and caecopexy done in right iliac

region. The postoperative course was uncomplicated.



Fig 1: X-Ray Abdomen (standing)

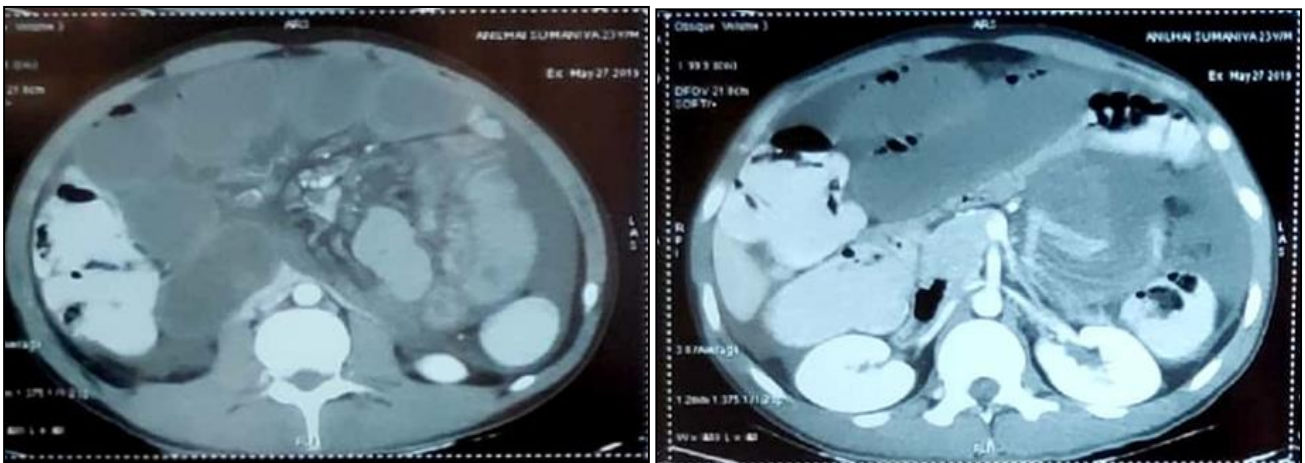


Fig 2: CECT Abdomen



Fig 3: Hernia Sac with healthy adjoining bowel



Fig 4: Intraoperative bowel and sac

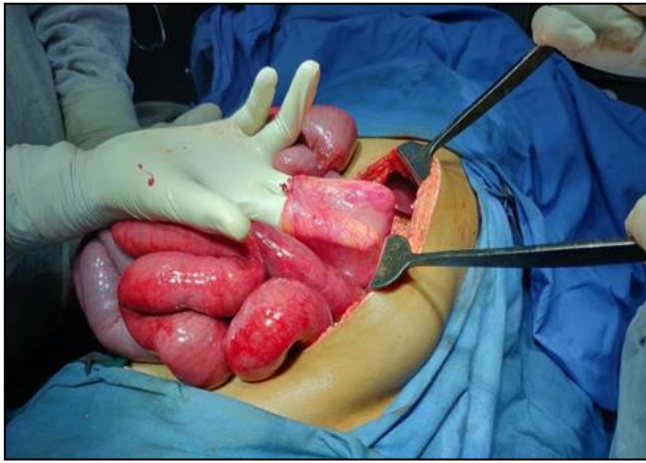


Fig 5: Sac isolated and content reduced

Discussion

An internal hernia (IH) is defined as the protrusion of abdominal viscera, most commonly small bowel loops, through a peritoneal or mesenteric aperture into a compartment in the abdominal and pelvic cavity [3]. Internal hernias account for 0.2 to 0.9 percent of all cases of intestinal obstruction. Paraduodenal hernias are relatively rare congenital malformations and account for 30 to 53 per cent of all internal hernias [1, 2, 6, 7]. Seventy-five percent of paraduodenal hernias occur on the left, while 25% occur on the right [7]. 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 [1, 2, 9, 10]. The orifice of the internal hernia can be normal (Winslow's foramen) or abnormal (Paraduodenal, 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 para-duodenal 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. Paraduodenal 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. An accurate incidence of paraduodenal hernias in infancy and childhood is unknown, but quite rare⁸. Presentation can be varied and range from a long story of abdominal pain (intermittent, crampy, related to eating/body position), which is often mistaken for irritable bowel syndrome or psychosomatic disease, 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 [5]. In a radiograph, 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 [8]. Despite these imaging techniques, the diagnosis of left paraduodenal hernias can be missed. This may be due to a complete reduction of the hernia, either spontaneously or after changing the body position. Studies have revealed that when the diagnosis is made preoperatively, a laparoscopic approach is

possible [5]. 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 [7]. 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.

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