

## Case Report

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# Left paraduodenal hernia causing acute bowel obstruction: report of a case and review of literature

Kanakeswar Bhuyan\*, G. N. Hemanth

Department of Surgery, Gauhati Medical College & Hospital, Guwahati, Assam, India

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**\*Correspondence:**

Dr. Kanakeswar Bhuyan,  
E-mail: kanakbhuyan@gmail.com

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## ABSTRACT

Internal hernia is a protrusion of viscera or a part of it through a normal or abnormal peritoneum or mesenteric aperture and into a compartment of the abdominal cavity. This condition is difficult to diagnose preoperatively because of its non-specific presentation. It may remain silent or present as severe acute intestinal obstruction. Paraduodenal hernias are common type of internal abdominal hernia accounting to 53% and the majority of it (75%) is of left sided. Imaging study especially contrast-enhanced computed tomography abdomen during a symptomatic episode can make a diagnosis preoperatively. We report a case of 24 year male with left paraduodenal hernia presenting with acute intestinal obstruction.

**Keywords:** Internal hernia, Intestinal obstruction, Left paraduodenal hernia

## INTRODUCTION

Internal hernia is the protrusion of a viscus through a normal or abnormal mesenteric or peritoneal aperture. It can be acquired following a surgical procedure or trauma and to congenital peritoneal defects.<sup>1</sup> Paraduodenal hernias are most common type of internal abdominal hernias accounting for more than 50% of all cases and responsible for <1% of small bowel obstruction.<sup>1-5</sup> Left sided paraduodenal hernia is 3 times more common as that of the right side and occurs commonly in males.<sup>5</sup> The left-sided paraduodenal hernia has got 50% lifetime risk of developing small bowel obstruction and 20-50% rate of mortality.<sup>5,6</sup> Preoperative diagnosis is difficult due to its non-specific presentation. Computed tomography (CT) scan of the abdomen is the choice of investigation in suspected paraduodenal hernias.<sup>1,4</sup> Surgical repair of the abnormal aperture is the treatment of choice.

In this report, we present a case of 24-year-old male patient reporting with acute pain abdomen which later diagnosed to be a duo to obstructed left paraduodenal hernia (LPDH).

## CASE REPORT

A 24-year-old male person reported to the emergency department with a history of acute pain abdomen which was colicky in nature associated with vomiting. He had a history of similar episodes of pain abdomen associated with vomiting during last 1 year which resolved spontaneously.

Examinations revealed a slightly distended abdomen with a vague lump in the epigastrium. Initial emergency investigations consisting of plain X-ray abdomen in an erect posture, ultrasonography and blood reports revealed no significant abnormality. In view of persistent symptoms of pain abdomen with absolute constipation an emergency contrast-enhanced CT (CECT) abdomen was scheduled. CECT suggested an altered relationship between superior mesenteric artery and superior mesenteric vein (Figure 1), non-passage of contrast into the distal loops of bowels (Figure 2).

The patient was scheduled for emergency laparotomy. A large part of small bowels are seen in a sac towards the left side of the abdomen (Figure 3). The root of mesentery

was twisted, and the anterior border of the sac was formed by inferior mesenteric vein (IMV) (Figure 4). The small bowel loops were reduced carefully and found to be in viable condition. The sac was ligated at its' neck and sutured to the posterior abdominal wall. The abdomen was closed without difficulty, and the post-operative recovery was uneventful.

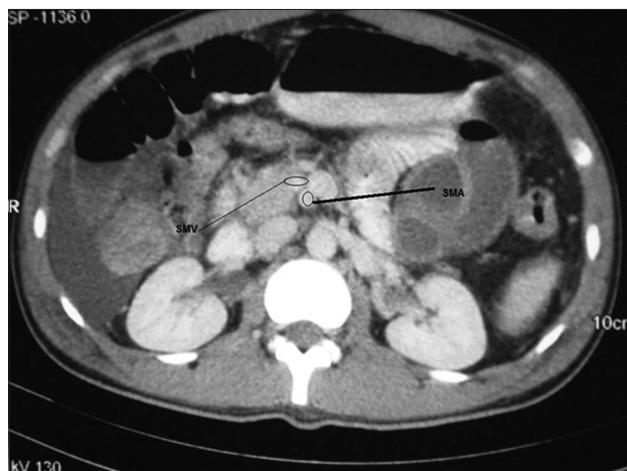
## DISCUSSION

Paraduodenal hernias are rare (0.2-0.9%) condition but accounts for 53% of all internal hernias.<sup>1,2</sup> The LPDH is 3 times more common than its' right counterpart.<sup>3,5</sup> The LPDH results from abnormal rotation of midgut.<sup>3</sup> During fifth intrauterine life, the rapidly elongated midgut herniates through the umbilical cord. This herniated midgut returned to the abdominal cavity by the end of 10<sup>th</sup> week. Under normal circumstances, the fusion of mesocolon and peritoneum of the body wall follows it. In the event failure of fusion to take place, a potential space is left behind the mesocolon (the fossa of landzert). The LPDH results from invagination of a small intestine into this space. Loops of bowels interposed between the attachment of mesentery and posterior abdominal wall.<sup>7</sup> This is bounded anteriorly

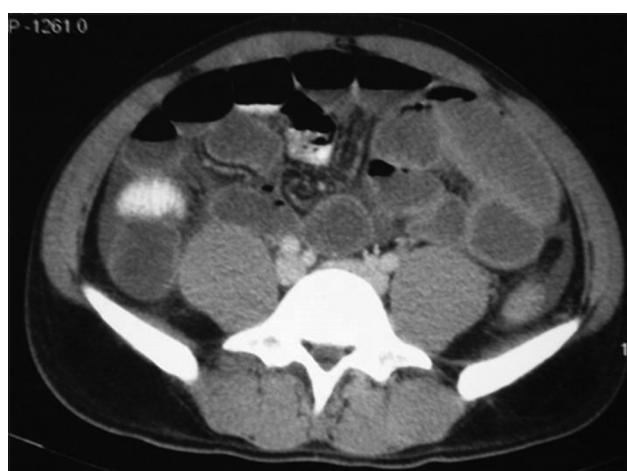
by the IMV and ascending left colic artery and laterally by fourth part of the duodenum.<sup>3,5,8</sup> The fossa of Landzert is seen in 2% of autopsy.<sup>4,9</sup> Although left paraduodenal fossa (fossa of Landzert) hernia is congenital most are recognized in the fourth-sixth decades of life.<sup>3,6,10</sup>

It is difficult to diagnose preoperatively many a times because of non-specific presentation and discovered incidentally at laparotomy or at autopsy. The presentation can be varied from vague abdominal pain to recurrent to acute bowel obstruction. With acute bowel obstruction, the mortality is as high as 20%.<sup>1,11,12</sup>

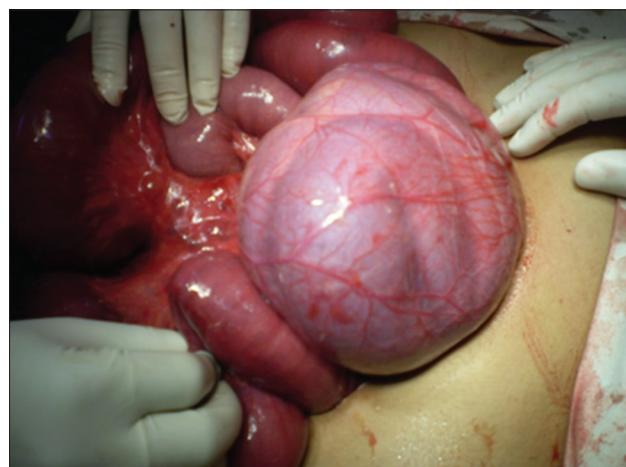
Plain X-ray and CT scan of the abdomen are choices of investigation to diagnose this condition. Imaging can be of no help if it is not done during symptomatic episode.<sup>5</sup> Plain X-ray may show signs of bowel obstruction, a mass effect with displacement of other abdominal organs by herniated bowel segment.<sup>8,13</sup> Angiography may be helpful in demonstrating displacement or twisting of blood vessels.<sup>2,8</sup> CT findings of LPDH involve encapsulation of bowel loops showing a sac-like mass of small bowel loops at the level of duodeno-jejunal junction or interposed between



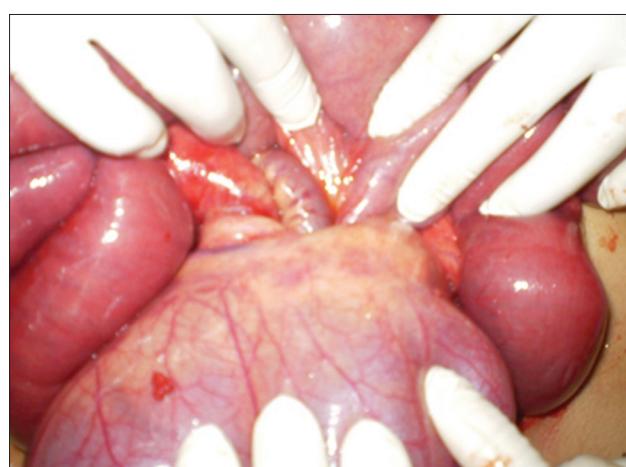
**Figure 1: Superior mesenteric vein placed anterior to superior mesenteric artery.**



**Figure 2: Oral contrast fails to reach distal bowel.**



**Figure 3: Loops of bowel in the hernia sac.**



**Figure 4: Inferior mesenteric vein forming border of hernia sac.**

the stomach and pancreas or behind the descending colon, dilatation and air filled level in the trapped loops, sign of ischemia like wall thickening, pneumatosis, ascites may be apparent<sup>4,8</sup> There is anterior or leftward displacement of the superior mesenteric vein and abnormal takeoff in the superior or inferior mesenteric artery.<sup>14</sup> Diagnostic laparoscopy for verification of diagnosis and simultaneous surgical intervention can be tried in cases that cannot be diagnosed with radiological method.<sup>15</sup>

The LPDH requires manual reduction of bowel loops with surgical repair of the abnormal aperture. The abdomen typically looks an “empty” one with only last segment of ileum present in the abdominal cavity as all the others bowel segment entrapped in the hernial sac.<sup>16</sup> The loops are reduced, and the orifice closed with non-absorbable sutures. Care should be taken not to injure the inferior mesenteric vessels as it forms the anterior boundary.<sup>4</sup> In the case of difficulty in reduction of hernial content, an incision can be made in the avascular part of the hernial sac right to the inferior mesenteric vessels. In addition to “open” approach laparoscopic repair of LPDH has been reported.<sup>17,18</sup>

## CONCLUSION

LPDH is an uncommon cause of intestinal obstruction. This condition should be considered in a person having recurrent episode of abdominal pain and intermittent bowel obstruction. There should be a high index of suspicion if the person is males and relatively young with no history of previous abdominal surgery. Modern imaging technique can make a preoperative diagnosis. Timely intervention relieves the complaints and prevents complications.

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