

Left Paraduodenal Hernia Presenting as Intestinal Obstruction : A Case Report

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Abstract : A case report of left paraduodenal hernia in an 18-year-old man presenting with complete small intestinal obstruction. This patient suffered from intermittent colicky abdominal pain for 10 days. The pain worsened over the 2 days before admission. He also had bilious vomiting and obstipation. He was diagnosed with complete small intestinal obstruction and sent for an emergency exploratory laparotomy. At operation, he was found to have a left paraduodenal hernia. The small bowel could be reduced manually into the normal position and the neck of the hernial sac was closed. He made an uneventful recovery after the operation and was discharged from hospital 4 days later. Although paraduodenal hernia is a rare cause of small intestinal obstruction, it should be taken into account in the differential diagnosis of small intestinal obstruction especially in a patient with no previous abdominal exploration. Early surgical intervention could prevent the possible complication of gangrenous bowel.

เรื่องย่อ : ไข้เลื่อนข้างซ้ายของคูโอดินัมที่มาด้วยอาการลำไส้เล็กอุดตัน : รายงานผู้ป่วย 1 ราย
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รายงานการศึกษานี้เป็นผู้ป่วยชายไทยอายุ 18 ปี ที่มาโรงพยาบาลด้วยอาการลำไส้เล็กอุดตัน ผู้ป่วยรายนี้มีอาการปวดท้องบีบเป็นพัก ๆ มา 10 วัน แต่อาการปวดรุนแรงขึ้นในช่วง 2 วันหลัง ผู้ป่วยมีอาการอาเจียนไม่ถ่ายอุจจาระ และไม่ผายลม ผู้ป่วยได้รับการวินิจฉัยเป็นลำไส้เล็กอุดตันแบบสมบูรณ์ และได้รับการผ่าตัดสำรวจช่องท้องพบมีไข้เลื่อนข้างซ้ายของคูโอดินัม ผู้ป่วยได้รับการตั้งลำไส้กลับเข้าในช่องท้องและเย็บปิดปากถุงไส้เลื่อน หลังผ่าตัดผู้ป่วยอาการดีขึ้นตามลำดับ และสามารถกลับบ้านได้ในวันที่ 4 หลังผ่าตัด ภาวะไข้เลื่อนข้างซ้ายของคูโอดินัมนี้เป็นสาเหตุที่พบน้อยของภาวะลำไส้เล็กอุดตัน แต่มีความสำคัญต้องนึกไว้ใน การวินิจฉัยแยกโรคของ ผู้ป่วยที่ภาวะลำไส้เล็กอุดตันเสมอ โดยเฉพาะในผู้ป่วยที่ไม่เคยได้รับการผ่าตัดช่องท้องมาก่อน การนำผู้ป่วยไปผ่าตัดแก้ไขอย่างรวดเร็วก่อนที่จะเกิดภาวะเน่าตายของลำไส้จะทำให้ได้ผลการรักษาที่ดี

Key words : Paraduodenal hernia, small intestinal obstruction, internal hernia, manual reduction of hernia

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INTRODUCTION

Paraduodenal hernia is known to be a rare cause of small intestinal obstruction. In general, the most common cause of small intestinal obstruction is postoperative adhesion which is responsible for 50-70% of cases. Hernia is the second most common cause of small intestinal obstruction, accounting for about 25% of cases.¹ An internal hernia is responsible for only 1% of cases of small intestinal obstruction.² There are many types of internal hernia. Paraduodenal hernia is the most common type of internal hernia with an incidence of 40%.³ There are two types of paraduodenal hernia, right and left. Left paraduodenal hernia is three times more common than the right. Although it is a rare condition, it is important to be aware of because without early diagnosis and prompt appropriate surgical intervention, it can cause massive bowel gangrene with a 50% mortality rate in patients with acute clinical symptoms.⁴

CASE REPORT

An 18-year-old man presented to the emergency room of Siriraj Hospital with colicky abdominal pain for 2 days. He had suffered from mild colicky abdominal pain for 10 days and was treated for gastritis with partial relief of his symptoms. His symptoms worsened over the next 2 days. The pain increased both in frequency and intensity. He also had bilious vomiting and obstipation for 2 days. On examination, he was found to have T 36°C, P 78/

min, R 20/min, and BP 130/80 mmHg. His abdomen was mildly distended with no guarding. Bowel sound were increased. There were no surgical scars nor external hernia. Plain abdominal films revealed a dilated stomach and multiple loops of dilated small bowel with no air in the colon (Figure 1, 2). He was diagnosed with complete distal small bowel obstruction. After intravenous fluid resuscitation and nasogastric tube decompression, he was sent to the operating room for an exploratory laparotomy. On exploration, there was 200 ml of straw color fluid in the peritoneal cavity. There was a 2 ft segment of jejunum in the peritoneal cavity, the rest of small bowel had passed through an abnormal peritoneal defect behind the inferior mesenteric vessels into a hernial sac behind the mesentery of the descending colon (Figure 3). The small bowel exited from this sac 10 cm proximal to the ileocaecal valve. The point of obstruction was at the exit point in which the terminal ileum was compressed at the neck of the hernial orifice. The small bowel was reduced manually into the peritoneal cavity without incising the hernial sac (Figure 4). The 3-ft-long bowel segment was trapped inside the hernial sac with 150 ml of straw color fluid. There was no evidence of gangrenous bowel nor perforation. The hernial orifice was then closed using continuous stitches of 3-0 silk (Figure 5). The patient was rapidly recovered and the nasogastric tube was removed on 2nd postoperative day. He gradually began oral feeding and was finally discharged from the hospital 2 days later.



Figure 1. Abdominal plain film, AP-supine.

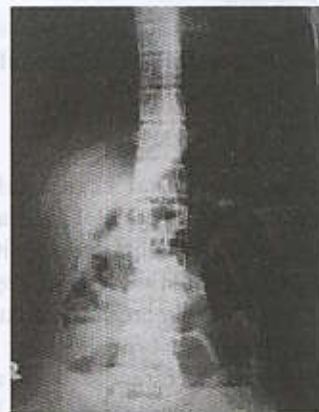


Figure 2. Abdominal plain film, AP-upright.

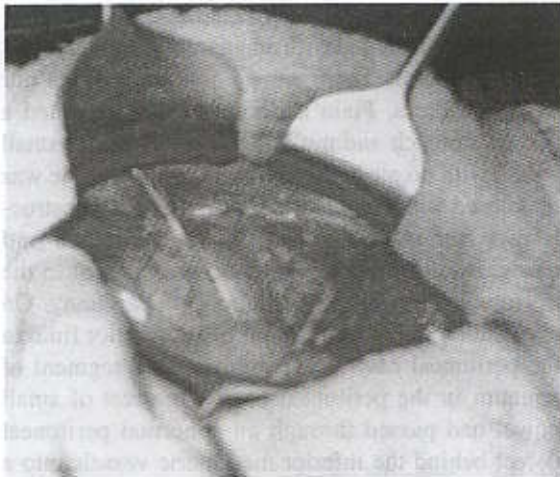


Figure 3. Small bowel loop in hernial sac behind the descending mesocolon.



Figure 4. The hernial orifice is demonstrated after successful reduction.



Figure 5. The hernial orifice after closing.

DISCUSSION

The paraduodenal hernia (also called mesocolic or mesentericoparietal hernia) is a rare cause of small intestinal obstruction with an incidence of 0.2-0.9%.⁵ It was first described by Neubauer in 1786. It is three times more common in men than women. The left-sided type is more common. Although there have been reports in all age groups from infancy to old age, the average age is 38.5 years.⁶ In a retrospective review of the medical records of

Siriraj Hospital from January 1997 to March 2002, there were only two cases of paraduodenal hernia out of 1,225 cases of all hernia which is an incidence of 0.16% (unpublished data).

The pathogenesis of paraduodenal hernia is related to an abnormality in gut rotation and reduction during the embryonic period. In the fourth week of embryonic development, the primitive gut is formed and is divided into foregut, midgut and hindgut. Due to limitation of the space within abdominal cavity, the midgut migrates through the umbilical cord into the extraembryonic coelom and forms a midgut loop which has two limbs, a cephalic or prearterial limb which forms most of the small intestine, and a caudal or postarterial limb which forms the terminal ileum and right half of the colon. At this stage, the midgut loop rotates 90 degrees counter-clockwise in relation to the axis of a superior mesenteric artery. In the tenth week of embryonic life, the abdominal cavity has enlarged enough to allow the midgut to return to the abdomen. A prearterial segment returns first with a further 180-degree counter-clockwise rotation, resulting in the prearterial segment being situated to the left of a superior mesenteric artery.

In right paraduodenal hernia, an abnormality occurs when the prearterial segment is in a nonrotated position while the postarterial segment

continues to rotate. This results in trapping of the prearterial segment in a sac with a fold of mesentery raised by the superior mesenteric artery in intimate association with the neck of the sac.

In left paraduodenal hernia, an abnormality occurs when the prearterial segment returns to abdominal cavity with normal counterclockwise rotation after the return of postarterial segment. This results in an invagination of an unsupported area of descending mesocolon and trapping of the prearterial segment in a sac that has an inferior mesenteric vein at the anterior border of the neck of the sac.^{2,7,8}

The clinical spectrum encountered with paraduodenal hernia may be divided into four patterns. The first is an incidental finding at abdominal exploration for other problems. The second is chronic mild colicky abdominal pain. The third is chronic intermittent intestinal obstruction. The fourth, which was present in this patient, is acute complete intestinal obstruction.

In patients with mild chronic intermittent symptoms, the preoperative diagnosis can be made either by GI follow through or superior mesenteric angiography. But in patients with acute complete small intestinal obstruction, like this patient, the only preoperative investigation needed is plain abdominal films, which show dilated loops of small bowel that are mostly confined to one area of the abdomen with only a few small bowel loops in the remainder of the abdomen.

Patients presenting with small intestinal obstruction should be considered into two groups. The first group is patients with a previous history of abdominal exploration without evidence of external hernia. In this group of patients, the most likely cause of obstruction is postoperative adhesions. If there is no evidence of strangulated intestinal obstruction such as fever, tachycardia, localized abdominal tenderness and leukocytosis⁹, they might be closely observed for 12-24 hours. During the period of observation, they should have intravenous fluid replacement and nasogastric decompression. If they fail to improve within this period, they should be diagnosed with complete small intestinal obstruction and sent for laparotomy. Most patients (up to 81%¹⁰) improve without an operation.

The second group is patients with no previous history of abdominal exploration. In this group of patients, it is likely that the cause of obstruction is adhesion bands and other causes of obstruction should be considered, such as internal hernia, volvulus, intussusception, foreign body, neoplasm, etc. These causes cannot be managed nonoperatively. These patients should be rapidly resuscitated and have nasogastric decompression. They should be operated as soon as the intravascular volume has been restored.

This patient had classic manifestations of small intestinal obstruction with no previous history of abdominal exploration and external hernia, so he was in the second group that required urgent laparotomy. On exploration, a left paraduodenal hernia without strangulated bowel was found. The operative management of this condition was based on a basic principle of reduction of the hernia and repair of the defect.

When reducing the hernia, care must be taken not to injure the inferior mesenteric vessels which lie at the anterior border of the neck of the hernial sac. In this case, the bowel could be reduced manually with no need to open the neck of the hernial sac. In some cases, the bowel may be tightly fitted to the neck of the hernial sac and incision of the sac may be required. Although in some cases, division of the inferior mesenteric vessels can be performed without compromising the intestine, preservation of these vessels whenever possible is highly recommended. This can be achieved by incising the sac in an avascular plane just to the right of the inferior mesenteric vein. When the sac is widely opened, the bowel can be reduced easily.

The repair of this defect, which is also known as the fossa of Landzert, can be easily performed using a few stitches without need to excise the hernial sac.

Although there are some reports of laparoscopic diagnosis and repair of this hernia from Japan and USA¹¹, it still can only be performed in some centers in only a few cases. The standard treatment for paraduodenal hernia is still exploratory laparotomy. The most important point is to make an early diagnosis and to operate urgently without injuring the superior or inferior mesenteric vessels at the neck of the sac.

CONCLUSION

I report a case of left paraduodenal hernia presented with acute complete small intestinal obstruction. With early diagnosis and prompt appro-

priate surgical treatment, the patient was uneventful recovery and was discharged on postoperative day 4.

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