Paraduodenal Recess with Herniation - An Incidental Finding in Cadaveric Dissection: A Case Report

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The peritoneum is a serous sac which lines the abdominal cavity and is reflected over the viscera to invest them partially or completely. Duodenum has four parts. The fourth part of the duodenum is related to a number of recesses in the peritoneum known as the peritoneal recesses. They are the superior recess, inferior recess, retro and para duodenal recesses namely. Paraduodenal recess is a blind sac on the left side and its opening is directed towards the right. Anteriorly the opening is bounded by the paraduodenal fold which contains the inferior mesenteric vein. Herniation of a loop of small gut is not very uncommon in any one of these recesses. During the routine dissection procedure for the 1st year MBBS students, herniation of a loop of small intestine into the paraduodenal recess was observed incidentally. Paraduodenal hernias lead to chronic, atypical, abdominal pain which can be resolved post operatively.

Keywords: Peritoneum, Peritoneal recesses, Paraduodenal hernia
**INTRODUCTION**

Hernia is the outward protrusion of any organ from the cavity within which the particular organ is contained. Hernias are of different types and the broader classification of hernias can be made as external and internal hernias. External hernias are a result of the prolapse of the intestinal loops through the defect in the abdominal wall whereas the internal hernias are said to be the protrusion of the viscera through a normal or an abnormal aperture in the peritoneum or in the mesentery within the peritoneal cavity.

According to Meyer’s, the internal hernias can be broadly classified based on their location as paraduodenal, pericaecal, Foramen of Winslow, transmesenteric, transmesocolic etc. The overall incidence of the internal hernias is 0.2–0.9 %. Paraduodenal hernia is a rare congenital anamoly which may occur due to the malrotation of the midgut loop. It is the most common type of intra abdominal hernia and are responsible for 1% of the small bowel obstructions. These were first described in the nineteenth century under various names: left paraduodenal hernia, Treitz retroperitoneal hernia, hernia of the fossa of Landzert, mesentericoparietal hernia of Longacre and hernia into the descending mesocolon of Callander.

The present case report reveals the presence of a small bowel into the left paraduodenal recess. Paraduodenal hernias account for about 53% of the internal hernias. Most of the paraduodenal hernias are left sided, accounting for about 75% of the paraduodenal hernias. Partial or complete intestinal obstruction is observed in most of the patients suffering from paraduodenal hernias and hence it needs to be corrected surgically. The clinical features are intermittent and nonspecific and includes pain abdomen, nausea, vomiting and distension of the abdomen.

**CASE REPORT**

During the gross anatomical dissection of an adult male cadaver, we observed a rare finding of herniation of the loops of the small gut into the Fossa of Landzert (Left sided paraduodenal hernia) as shown in Figure 1 & 2. The left paraduodenal hernia occurs into the paraduodenal fossa of Landzert to the left of the fourth part of duodenum. The fossa is deep and forms a bag which may contain loops of small intestine which is limited posteriorly by posterior parietal peritoneum.

The fossa is edged in front by inferior mesenteric vein. The paraduodenal hernias account to 0.2 – 0.9% strangulation of the intestines. However, among these the left sided paraduodenal hernias are the major type of paraduodenal hernias observed, right sided hernias being very rare.

**DISCUSSION**

Paraduodenal hernia, a congenital anomaly which may arise from an error of rotation of midgut, is the most common type of intraabdominal hernia. The term paraduodenal hernia refers to a hernia of the entire small bowel or part of it into a sac derived from the folds of peritoneum and fossae normally found at the terminal or the fourth portion of the duodenum. No less than 10 such peritoneal fossae have been described, however the most frequently encountered are: inferior paraduodenal fossa of Treitz (60%), combined superior and inferior paraduodenal fossae (30%), superior paraduodenal fossae (5%), paraduodenal fossa of Landzert (2%), paraduodenal fossa of Landzert (2%).
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Two hypotheses are suggested to explain this anatomical abnormality. The mechanical theory states that, the increased abdominal pressure pushes the bowel in areas of low peritoneal adhesion. The second theory which is widely accepted states that left paraduodenal hernia is secondary to errors of midgut rotation during the fifth to eleventh weeks of gestation, with the loops of bowel becoming interposed between the attachment of the mesentery and the posterior abdominal wall, the rotation of the midgut occurs dorsally to the colic branches of the inferior mesenteric artery instead of ventrally allowing invagination into the mesocolon.

It’s been reported by Martin et al, that the paraduodenal hernias account to about 53% of all the various types of hernias. These occur most commonly in males than in the females, the ratio being 3: 1. Left paraduodenal hernias approximate to 40% of all the internal hernias whereas the right paraduodenal hernias account to about 13% of all the internal hernias. Left sided paraduodenal hernia occurs when the intestinal loops prolapse through the Landzert’s fossa which is an aperture present in 2% of the population whereas the right paraduodenal hernias occur when the bowel herniates through the Waldeyer’s fossa (defect in the first part of the jejunal mesentery), which is related posteriorly to the superior mesenteric artery and inferior to the transverse or third part of the duodenum. It is found in less than 1% of the population.

Left sided paraduodenal hernias are classified as congenital type and normal aperture subtype. Landzert’s fossa is located behind the fourth part of duodenum and is formed by the lifting up of a peritoneal fold by the inferior mesenteric vein and left colic artery. At least 477 cases of paraduodenal hernias have been reported in literature. Moynihan was the first one to describe these hernias however the exact cause of them is still open to debate. Most of the authors however believe that the paraduodenal hernias are a result of abnormal rotation of the midgut and failure of the mesentery to fuse with the parietal peritoneum. A left paraduodenal hernia is produced if the small intestine invaginates the connective tissue beyond the descending mesocolon after failing to fully rotate counterclockwise around the superior mesenteric vein during the embryonic development.

Though the disease is congenital most of the cases are diagnosed between fourth and sixth decades, the most common clinical presentation being the intestinal obstruction. Patients often report a history of vague abdominal pain which
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occurs postprandially, varying with the change of position. Occasionally, an abdominal mass may be palpable. Most patients remain asymptomatic with left paraduodenal hernia discovered accidentally during laparotomy and autopsy. The lifetime risk of incarceration of paraduodenal hernia is reported to be approximately 50% and as a result, it is recommended that all incidental paraduodenal hernias be corrected surgically.

In the present case report we found the loops of the small intestine which prolapsed posteroinferiorly through the Landzert’s fossa to the left of the fourth part of the duodenum into the left portion of the transverse and descending mesocolon. This pattern is suggestive of the typical left sided paraduodenal hernias reported by Martin et al in 2006.

CONCLUSION

The incidence of the intestinal hernias has become more frequent recently due to increase in the liver transplantations and gastric bypass surgeries for bariatric treatment. Hence, it is necessary to increase the awareness and understanding of these hernias which can be often misinterpreted leading to significant morbidity and mortality therefore it becomes imperative for the radiologists and the operating surgeons to be familiar with and understand the different types of peritoneal fossae and the occurrence of herniation of the abdominal structures (particularly the intestinal herniation) into them. So that prompt and accurate diagnosis and surgeries of these conditions can be carried out effectively.

CONFLICTS OF INTEREST

None declared

REFERENCES


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