case report

Barium meal followthrough and CT findings in paraduodenal hernia

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An internal hernia is defined as the protrusion of the viscus through a normal or abnormal opening within the confines of the abdominal cavity. It constitutes 0.2% to 0.9% of all cases of intestinal obstruction.[1] Internal hernias are either congenital or acquired. Acquired hernias usually result from failure to close the mesenteric defect after bowel resection. Congenital hernias are paraduodenal (53%), transmesenteric (12%), at the foramen of Winslow (80%), paracecal (6%) and transomental (<5%).[2]

Because of the risk of strangulation of the hernia contents, even small hernias are dangerous and may be fatal.[3,4] They may also present with vague chronic intermittent abdominal pain.[1] Clinical and radiological diagnosis in the asymptomatic stage is probably impossible. With time and repeated episodes of herniation, the mesenteric defects enlarge and long segments of small bowel may herniate more, twist and become obstructed and ischemic.[1]

Paraduodenal hernia is the commonest type of internal hernia[3] and accounts for more than 50% of internal hernias.[3,5] It is left sided in 75% of patients[3,6] and is believed to occur because of congenital herniation of the small bowel into the left paraduodenal fossa of Landzert,[6] which is a peritoneal pocket present in 2% of autopsies.[5]

Hernias are rarely diagnosed preoperatively.[3,4] Several suggestive findings on upper gastrointestinal series include an abnormal position of the third portion of the duodenum, the presence of an ovoid intestinal mass, delayed transit of contrast through the small bowel, and an absence of small bowel in the pelvis.[7] In recent years, computed tomography (CT) has begun to play an important role in the diagnostic workup of suspected paraduodenal hernia.[8]

In this report, we describe the classical specific and diagnostic radiographic features of this disease, which constitutes an uncommon cause of intestinal obstruction, but also can cause bowel ischemia due to prolonged symptoms without a specific preoperative diagnosis.

CASE

A 38-year-old man presented with a 2-week history of recurrent crampy abdominal pain, distension, nausea and infrequent vomiting. He gave no history of abdominal operation. A small bowel followthrough examination showed a cluster of jejuneal segments on the left side of the upper abdomen giving the appearance of an ovoid mass as if contained in a sac (Figure 1). Under fluoroscopic control, manual palpation failed to displace the cluster of bowel loops or change their position. The pelvic cavity showed nearly absent opacified small bowel loops with the cluster of small bowel loops in the left paraduodenal area compressing the left side of an opacified transverse colon on delayed images (Figure 2).

A diagnosis of left paraduodenal internal hernia was made. A confirmatory post-contrast CT study of the abdomen showed an encapsulated cluster or sac-like mass of jejuneal loops between the pancreatic tail and stomach, compressing the transverse colon inferiorly (Figure 3). The inward direction of the mesenteric vessels is seen within the hernia. In both examinations, bowel loops were mildly dilated but gave no evidence of small bowel loop obstruction. Laparoscopic surgery confirmed the presence of a left paraduodenal hernia, which was reduced after excision of the containing sac.

DISCUSSION

Internal hernias present with a variety of symptoms, ranging from vague abdominal pain up to acute intestinal obstruction. Although internal hernias are rare, paraduodenal hernia, also called congenital mesocolic hernias, mesenterico-peritoneal hernias or retroperitoneal hernias, is the commonest.[3,9,10] They result from abnormal rotation of the midgut during embryonic development.[5]

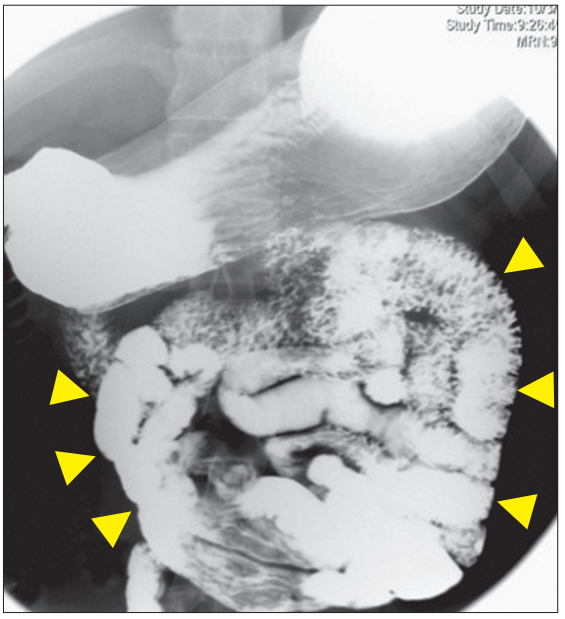

Figure 1. Small bowel followthrough study (SBFT): Cluster of jejuneal loops are seen in an abnormal location in the left upper abdomen giving the appearance of a contained mass (arrow heads).

Figure 2. Delayed film of SBFT: The abnormally located small bowel loops (star) are smoothly indenting the transverse colon (long arrow). Note that the pelvic cavity is nearly devoid of small bowel loops (short arrow).

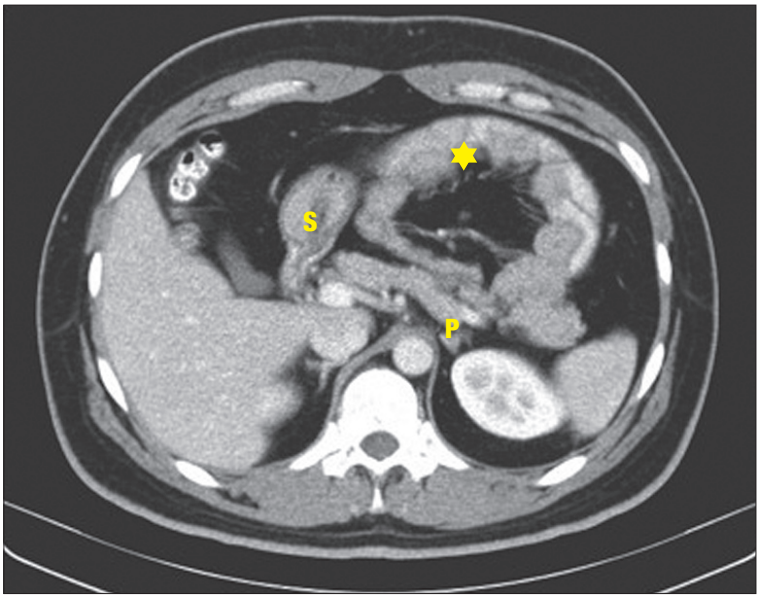

Figure 3. Post-oral and intravenous contrast CT of the abdomen: A circumscribed cluster of small bowel loops (star) are seen anterior to the pancreas (P) and posterior-lateral to the stomach (S), containing inward directed mesenteric vessels (arrow).

The diagnosis of internal hernia is difficult to make before abdominal exploration.[1] These hernias are often difficult to diagnose preoperatively and often present at surgery or autopsy.[1] However, it is important to consider the diagnosis in patients with obstructive symptoms and no history of prior abdominal surgery.[7] Because the clinical diagnosis of internal hernia is difficult, imaging studies such as CT and small bowel followthrough play an important role.[11] In the absence of a specific radiographic diagnosis, internal hernias may not be evident at surgery because they may be inadvertently reduced.[6]

The diagnosis of paraduodenal hernia can be made using small bowel contrast studies.[10] Several reports describe the CT findings of left paraduodenal hernia.[5,8,12,13] However, the bowel loops, on barium study, are seen as an encapsulated circumscribed mass of a few loops of small bowel (usually jejuneal) in the left upper quadrant, lateral to the ascending duodenum. They may have a mass effect, depressing the distal transverse colon and indenting the posterior wall of the stomach[11] plus the absence of small bowel loops in the pelvis gives the characteristic appearance (as in our case), which are diagnostic. CT confirms location and allows proper operative design for correction.

In our case, in the small bowel followthrough study, the appearance of a well-contained small bowel with well circumscribed borders in an abnormal location with an empty pelvis and compression on the transverse colon was diagnostic and it was confirmed by CT, which showed herniated small bowel loops in Landzert's fossa.

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