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A case of a paraduodenal hernia with a concomitant mesosigmoid defect

Case Report

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Abstract: Introduction. Intestinal obstruction by congenital internal hernia is rare and unsuspected. Case report. We report the case of a 45 years-old-man diagnosed to have an intestinal obstruction caused by a double concomitant internal hernia. CT scan can provide a fast diagnosis in order not to delay the surgical intervention: the ileum had been entrapped into a big internal hernia between the transverse and the descending colon and the patient was diagnosed to have a paraduodenal hernia. During the intervention a concomitant mesosigmoid defect was found. Results. Our patient had a left paraduodenal hernia with much of the small bowel crowned into a round peritoneal membrane just in front and left to the duodenum and pancreas and between the transverse and descending colon. CT scan showed encapsulated cluster of small bowel loops in the hernia sac. He was taken up for surgery and an urgent laparoscopic access was performed for definitive diagnosis and treatment 4 days after the beginning of the symptoms. Conclusions. Congenital Internal Hernia should be considered as a cause of bowel obstruction in absence of previous abdominal surgery and, even if preoperative diagnosis of a paraduodenal hernia is difficult, it must be considered as part of differential diagnosis.

Keywords: *Paraduodenal hernia • Urgent laparoscopy • Mesosigmoid defect*

1. Introduction

Internal hernias are uncommon and are responsible for less than 2% of cases of intestinal obstruction; and paraduodenal hernia accounts for nearly half of those that do occur [1]. Specific clinical signs are often absent, leading to the frequent delay of correct diagnosis, with bowel necrosis resulting in up to 20% of patients. We describe a case of a 45-year-old man who presented to us with an acute abdomen caused by a large left paraduodenal hernia with a concomitant mesosigmoid defect. The clinical presentation, diagnosis and treatment of two internal hernias are discussed.

2. Case report

A 45-year-old man presented to the emergency room with a 2 day history of intermittent colic pain, nausea and bilious emesis. The patient had no history of previous abdominal surgery and he denied any similar pain in the past. His abdomen was distended without any tenderness or masses. On arrival, his body temperature was 37.7°C, blood pressure 120/70 mmHg and heart rate 72 beats/min. Laboratory examination showed leucocytosis (15,000/mm^3), an hematocrit of 45 percent while serum electrolytes and tumor marker level (carcinoembryonic antigen, carbohydrate antigen 19-9, tissue polypeptide

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antigen) were within the normal limits. Abdominal radiographs showed small bowel distention with liquid and material stasis and prominent small-bowel gas. He was admitted to the emergency surgical unit with a diagnosis of an intestinal obstruction. A nasogastric tube was inserted, he was given nothing by mouth and parenteral fluids were administered. Computer tomography (CT) revealed the distention of some ileum loops that appeared trapped from the left hypochondria to the left iliac fossa. Some of the loops were turned with the meso thickening and showed that the inferior mesenteric vein was laterally displaced (Figure 1).

After CT, he was successful treated with an exploratory laparoscopy: the colon and the terminal ileum were found collapsed while a dilated and edematous loop of the small intestine was found in the left quadrant with the bowel being incarcerated by the hernia, which consisted of an abnormal peritoneal membrane formed a peritoneal sac between the transverse and the mesocolon. The ileum had herniated into an oval defect measuring 15 cm in diameter inside a big sac formed a paraduodenal hernia (left paraduodenal hernia). The hernial ring was dissected and only a section of the sac was performed. The incarcerated bowel appeared congested, but after some minutes it was felt to be viable. Subsequently, the entire small bowel was examined and a concomitant mesosigmoid defect measuring 3 cm in diameter was found. The defect was round and no small bowel loop was found invaginated into this ring, which was repaired with interrupted suture. No other intra-abdominal abnormality was found and the postoperative course was uneventful and the patient was discharged on day 10.

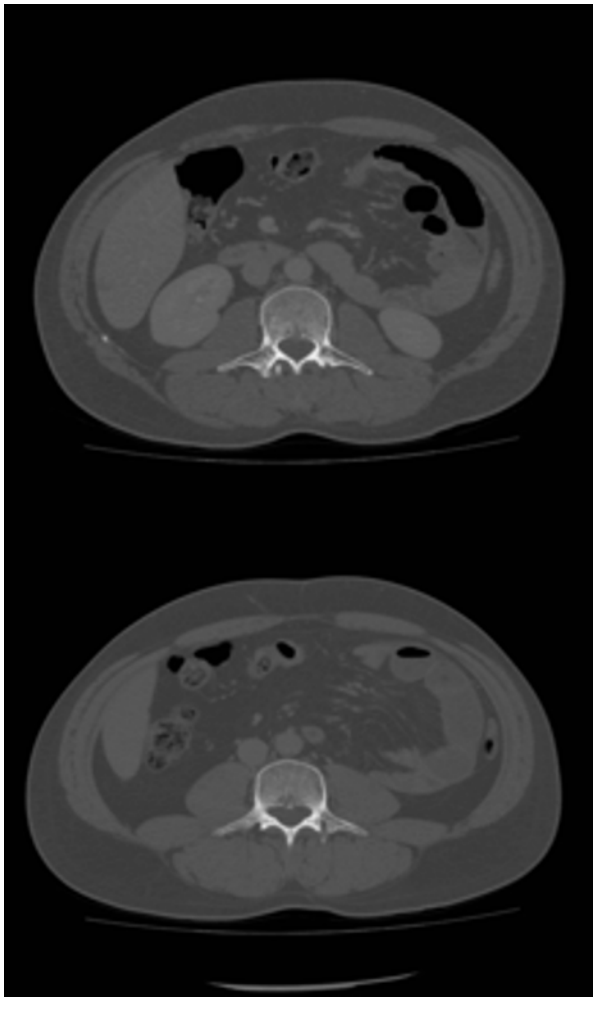


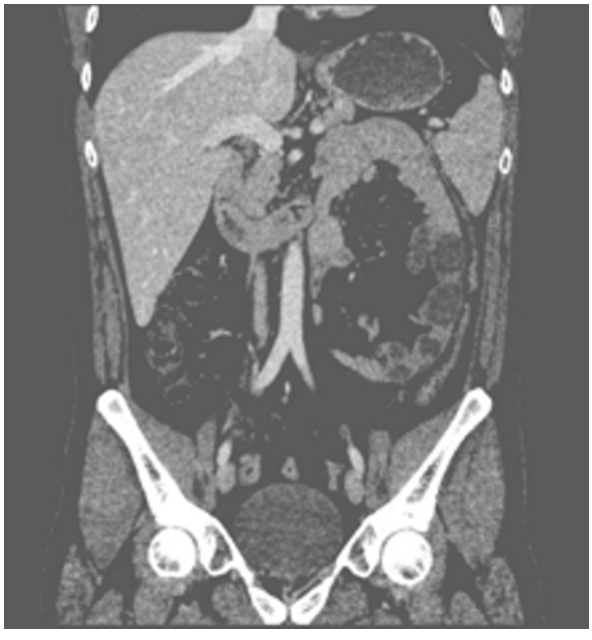
Figure 1. Computer tomography scan, showing fluid filled ileum in the left paraduodenal space with wall thickening.

3. Discussion

An internal hernia is defined as a protrusion of an organ through a normal or abnormal opening within the boundaries of the peritoneal cavity. Acquired internal hernias can occur after any abdominal operation that involves resection or rearrangement of the gastrointestinal tract. The autopsy incidence of internal hernia is 0.2-2%, most of them asymptomatic and acquired [2] and they account for 0.6 to 5.8% of all cases of small bowel obstruction [3].

Although paraduodenal hernias are congenital, most patients present between the 4th and 6th decades of life (mean age 38.5 years), as our patient [4-7].

Congenital internal hernias (CIH) may be classified, in decreasing order of frequency, paraduodenal, pericecal, transmesenteric, intersigmoid and paravescical



hernias [8]. A history of chronic, vague abdominal pain or cramps without previous surgery may be suggestive of the diagnosis and fortunately the recent radiology literature has described CT scan findings a good means for a right diagnosis in a patient with an intestinal obstruction who has not undergone previous abdominal surgery [9], even if small intestinal obstruction, in the absence of previous abdominal surgery, can include undiagnosed Crohn's disease, incarcerated femoral or obturator hernia, an obstructing phytobezoar, gallstone ileus or obstructing neoplasm [10]. More than 50% of CIH are paraduodenal and fewer than 10% are sigmoid mesocolon hernias [8]. Failure of mesenteric fusion with the parietal peritoneum and an associated abnormal rotation during embryological development era are postulated as causing these anomalies [11]. Paraduodenal hernias are usually left-sided (75%) and are believed to occur due to congenital defect in the descending mesocolon. Several fossae have been described as being involved in left paraduodenal hernia, including the superior duodenal fossa, the fossa of Treitz, the fossa of Waldeyer, the fossa of Brosike and the fossa of Landzert. The hernia in the fossa of Landzert is the most common, the small bowel may invaginate into this space, which lies to the left of the fourth portion of the duodenum.

The herniated small-bowel loops may become trapped and there is usually mass effects causing displacement of the posterior wall of the stomach, duodenojejunal flexure and transverse colon. Benson and Killen [12] classified sigmoid mesocolon hernias into the following three types: intersigmoid hernia (herniation into an intersigmoid fossa, situated at the attachment of the lateral aspect of the sigmoid mesocolon); transmesosigmoid hernia (incarceration of intestinal loops through an isolated, oval defect in the sigmoid mesocolon. No hernia sac is present); intramesosigmoid hernia (a congenital, oval defect unrelated to the intersigmoid fossa is present in the lateral peritoneal surface of the mesocolon, and herniation occurs. A normal fusion fascia is present, and the right leaf is intact in this setting). The current patient was therefore considered to have a mesosigmoid defect and if some loops had been herniated into the defect we would have had a transmesosigmoid hernia according to the Benson classification.

Our patient had a left paraduodenal hernia with much of the small bowel crowned into a round peritoneal membrane just in front and left to the duodenum and pancreas and between the transverse and descending colon.

The clinical symptoms of left paraduodenal hernia formation are variable, as are the gastrointestinal manifestations, such as abdominal pain, nausea, and vomiting.

However, our patient had no history of previous abdominal surgery, he denied any similar pain in the past and he complained of intermittent colic pain for 2 days, even Akbulut and Chatterjee describe case reports of patients with similar symptoms [13]. There are also cases characterized by atypical symptoms [14]. So preoperative diagnosis of paraduodenal hernia possesses a real clinical challenge due its nonspecific symptoms [7].

The clinical course can be asymptomatic, cause chronic or intermittent abdominal pain, or present with acute abdomen. Omland reports a case which shows that the clinical entity is a diagnostic challenge and the difficulty in diagnosing the disease by plain abdominal radiography [15].

So the diagnosis of paraduodenal hernia formation is often difficult to make due to ambiguous presentation. This makes CT scanning a valuable initial tool for investigation [6]. In our case report CT scan showed encapsulated cluster of small bowel loops in the hernia sac. In conclusion even if preoperative diagnosis of a paraduodenal hernia is difficult CIH should be considered as part of differential diagnosis for patients with bowel obstruction in absence of previous abdominal surgery. Recent literature suggests that CT scan is likely to be diagnostic in order to perform an effective surgical intervention and may be helpful not only for the diagnosis of paraduodenal hernia but also for the diagnosis of differential subtypes of left paraduodenal hernias. In our patient the inferior mesenteric vein was located in the neck of the hernia sac spreading outward to the descending colon and since he had no history of previous abdominal surgery probably the abnormal peritoneal membrane may have been formed either congenitally or postnatally. Page et al. [16] conceded that surgical exploration is the only means of definite diagnosis. We want to stress that although is important to establish a correct diagnosis preoperatively sometimes the clinical aspects of the patient may lead to a early laparoscopic surgical intervention in order to reduce morbidity and mortality.

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