Internal abdominal hernia: Intestinal obstruction due to trans-mesenteric hernia containing transverse colon

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ABSTRACT

INTRODUCTION: Internal abdominal hernias are infrequent but an increasing cause of bowel obstruction still often underdiagnosed. Among adults its usual causes are congenital anomalies of intestinal rotation, postsurgical iatrogenic, trauma or infection diseases.

PRESENTATION OF CASE: We report the case of a 63-year-old woman with history of chronic constipation. The patient was hospitalized for two days with acute abdominal pain, abdominal distension and inability to eliminate flatus. The X-ray and abdominal computerized tomography scan (CT scan) showed signs of intestinal obstruction. Exploratory laparotomy performed revealed a trans-mesenteric hernia containing part of the transverse colon. The intestine was viable and resection was not necessary. Only the hernia was repaired.

DISCUSSION: Internal trans-mesenteric hernia constitutes a rare type of internal abdominal hernia, corresponding from 0.2 to 0.9% of bowel obstructions. This type carries a high risk of strangulation and even small hernias can be fatal. This complication is specially related to trans-mesenteric hernias as it tends to volvulus.

Unfortunately, the clinical diagnosis is rather difficult.

CONCLUSION: Trans-mesenteric internal abdominal hernia may be asymptomatic for many years because of its nonspecific symptoms. The role of imaging test is relevant but still does not avoid the necessity of exploratory surgery when clinical features are uncertain.

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1. Introduction

Internal abdominal hernia is the protrusion of a viscus that herniates through an intraperitoneal aperture but remains within the peritoneal cavity.1,2 The sex ratio exposed a male prevalence of 3:2. The aperture can be normal, incised with a sac or either abnormal, not processing a sac.2 It is a rare cause of intestinal obstruction and leads from 0.5 to 4.1% of acute obstruction cases caused by hernias.1,3 Ordinarily, hernias develop in a pre-existing anatomical orifice, such as the foramen of Winslow. Congenital anomalies due to improper intestinal rotation, previous trauma, vascular or inflammatory diseases, or postsurgical iatrogenic are predisposed factors to internal herniation.2 The herniated viscus is generally the small-bowel and could be rather intermittent or persistent.6 Based on location, hernias can be paraduodenal, pericecal, Winslow’s foramen, trans-mesenteric, pelvic, inter-sigmoid, and supravesical and rarely omental hernias.2,5 Paraduodenal hernia accounts for over 50% of reported cases being the most prevalent type. However, relatively recent studies appointed trans-mesenteric hernia rising numbers as consequence of surgical procedures in which a Roux-en-Y was constructed.2,6

Internal abdominal hernias present a nonspecific and intermittent clinical presentation, therefore presurgical diagnosis is rare.3 Its diagnosis remains difficult even after the CT scans disseminated accessibility and use. Fifty percent of current studies have showed volvulized trans-mesenteric hernias, what increases lethality.2,5

We report the case of a 63-year-old female patient with intestinal obstruction due to a trans-mesenteric internal hernia of unknown etiology. According to the patient’s self referring, the origin of the hernia might be due to an oophorectomy performed 25 years ago or perhaps a late-presentation of mesentery’s birth defect.

2. Presentation of case

A 63 years old female patient born in Cajamarca countryside of Peru, was admitted at the Surgery Department of Hospital de Emergencias Grau in Lima presenting progressively worsen epigastric abdominal pain and abdominal distension for the last two days. Lack of flatus started on the previous day and a relevant weight loss...
of 8 kg in a month. There was no history of nausea, vomiting or fever. The patient affirmed a long prior history of not treated chronic constipation and a bilateral oophorectomy secondary to cysts performed 25 years ago. On examination the patient was lucid and cooperative. The abdomen was distended and depreessive, without any signs of peritonitis. During digital rectal examination there was evidence of feces in the rectal ampulla.

Abdominal radiography revealed colonic distension with fluid levels. At that time potential diagnosis included bowel obstruction, intestinal volvulus, and colon cancer. Digital rectal stimulation was performed and an enema was applied resulting in 350 g evacuation of solid stools.

Exploratory laparoscopy procedure exhibited the cause of the bowel obstruction: a trans-mesenteric internal hernia (see Fig. 1). Small and large bowels distension was evident. Mainly cecal (12 cm diameter) with large mesentery, mobile caecum, ascending colon distended (40 cm x 20 cm) and rotated 360° through hernial ring in meso-sigmoid of 15 cm. Serohematic peritoneal liquid of approximately 50 ml was drained during surgery.

Surgical treatment consisted on volvulus decompression and derotation of the small and large intestines followed by cecal pexia in the right iliac fossa. The procedure was successful and the portion of intestine inserted into the hernia did not show ischemia or perforations. As a result the intestine was completely preserved.

3. Discussion

Internal abdominal hernias have an incidence of 0.2–0.9%.1 Moreover, the trans-mesenteric hernia presented in this report only represents 8% of the total internal abdominal hernias3 contributing even more to the rarity and singularity of this paper. The types of trans-mesenteric hernias include (a) transmesocolic due to defects of the small intestine’s mesentery, and (b) Peterson’s hernia, a defect through the transverse mesocolon. Among adults the main causes of internal hernias are previous gastrointestinal surgery, abdominal trauma or intraperitoneal inflammation.7–9

In this particular case the cause of the trans-mesenteric internal hernia was unknown. Yet, a late oophorectomy might suggest a surgical etiology. This previous procedure could have impaired the mesenteric wall; but at the intra-operative period no evidence of the cause-effect relationship between the trans-mesenteric hernia and the oophorectomy was noticed. Thereby, a second theory emerges: congenital defect in the mesenteric could have been the cause of the internal hernia as it has been reported in young adults. Even though, it is very unusual in the elderly.8,9

The clinical detection of an internal abdominal hernia is infrequent and symptomatology is unspecified.1 Consequently, it is often confused with diverticulitis and colon cancer.1 In this case the constitutional symptoms such as abdominal pain and distension were very unspecific.

CT scan is the gold standard test to diagnose internal abdominal hernia. It has a specificity of 76%, sensitivity of 63%, and accuracy of 77% for trans-mesenteric hernias.1 Visible CT scan’s signs may include displacement of the mesenteric trunk toward the hernia, elongation, grouping and engorgement of mesenteric vessels, abnormal encapsulation of intestinal loops in the peritoneal cavity, stasis and absence of intraluminal contrast progression associated with distention content.7–9 In spite of all those CT scan signs, the diagnosis of a trans-mesenteric hernia is extremely difficult as it is not encapsulated or wrapped in a sack, making imaging tests helpful in the diagnosis although it can mostly be found only at surgery or necropsy.9

In the present case, the diagnosis occurred during surgery. Radiological studies of the abdomen featuring thickened bowel loops can also be used in diagnosis of trans-mesenteric hernias.11

4. Conclusion

In conclusion the trans-mesenteric internal abdominal hernia may be asymptomatic for many years and only be discovered when it causes complications such as bowel obstruction. Ideally, the diagnosis should occur preoperatively as ischemia and necrosis are potential severe complication. Unfortunately, this type of hernia does not have distinctive symptoms, so it is generally diagnosed just intraoperative. The role of imaging test is relevant but still does not avoid the necessity of exploratory surgery when clinical features are uncertain. Surgical treatment is to reduce the hernia, close the defect, and assess whether a bowel resection is required.

Conflict of interest

None declared.

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Ethical approval

The Institucional Review Boarding of Hospital de Emergencias Grau in Lima, Peru has given the ethical approve under the reference name of Edwin Orendo-Velásquez the leader surgeon in the paper.

Author contributions

Brenda Crispín-Trebejo – Data collection and writing; María Cristina Robles-Cuadros – Study Concept and data collection; Edwin Orendo-Velásquez – Data Collection and Surgery performance; Felipe P. Andrade – Study design, data analysis and writing the paper.

Consent

“Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.”
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