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Case Report

Internal hernia a preoperative diagnostic challenge in virgin abdomen: case report

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ABSTRACT

Internal hernias are classified in congenital or acquired. Congenital arises from abnormalities during embryonic development, whereas acquired result from trauma, surgical procedures, or another. Gastric surgical procedures can increase susceptibility to internal hernias. A 85-year-old female, denies previous surgeries. Went to the emergency department due to vomiting, adding colicky abdominal pain. Was discharged with a diagnosis of acute gastroenteritis. Came back 12 hours after discharge due to mesogastric pain accompanied by general malaise, abdominal distention and hyporexia, reporting a lack of evacuation. She was algid, pale, abdomen globose, distended, tympanic colonic frame, peristalsis increased. An evaluation was requested from general surgery for probable appendicitis in the elderly vs. secondary ileus. Went to operation room, finding an internal hernia. Transomental herniations are rare conditions. An abnormal omental opening can be either acquired following abdominal surgery, trauma, inflammatory conditions, low body mass index (BMI) and be associated with a long mesentery, intestinal malrotation, or abnormal peritoneal attachments. Although internal hernias are extremely rare (between 1 and 4% of acute or intermittent intestinal obstructions) it is essential not to miss this diagnosis, even in patient whit no previous surgeries. Management of omental hernias are critical as the postoperative mortality rate is over 30% and even 50% if strangulation is present. The lack of current literature on this rare condition, particularly for lesser omental hernias (because can present with nonspecific signs and symptoms) makes diagnosis and management difficult.

Keywords: Internal hernia, Omentum, Inter sigmoid hernia, Small bowel obstruction

INTRODUCTION

Internal hernias are intestinal herniations primarily associated with abnormal anatomical structures within the gastrointestinal system, particularly related to mesenteric or peritoneal defects. Unlike abdominal wall hernias, these occur by entering various peritoneal or mesenteric regions instead of the abdominal wall. Anatomical structures such as mesenteric vessels or angles are potential weak points that play a role in the development of internal hernias, constitute approximately 5% of all intestinal obstructions, and are a leading cause of intestinal ischemia.

Etiologically, internal hernias are generally classified into two categories: Congenital or acquired. Congenital internal hernias arise from abnormalities that occur during embryonic development, whereas acquired internal hernias result from trauma, surgical procedures, or other pathological conditions. Gastric surgical procedures (such as Roux-en-Y gastric bypass, choledocojejunostomy, and gastrectomies) can increase susceptibility to internal hernias. The topographic classification developed by Welch and colleagues categorizes internal hernias into eight distinct groups based on different anatomical regions.[1]

Historically, Benson and Killen classified sigmoid mesocolon-related hernias into three subtypes: inter-sigmoid hernia, intra-mesosigmoid hernia, and trans-mesosigmoid hernia. Intersigmoid hernia was defined as the herniation of bowel loops into the intersigmoid fossa. The inter sigmoid fossa is present in 50-80% of autopsies, with no difference between sexes. It is an inverted V-shaped cul-de-sac situated at the top of the two roots of the parietal brim of the sigmoid mesocolon. It is formed by a fusion defect between the mesentery and the parietal peritoneum, so both structures enclose their space. The orifice points downward and slightly to the left. Intersigmoid hernia has been reported as the most or the second most frequent type of sigmoid mesocolon-related internal hernia.[2]

CASE REPORT

A 85-year-old female with family history: unimportant for the case, denies previous surgeries. She went to the emergency department due to vomiting on five occasions, adding colicky abdominal pain. She is discharged with a diagnosis of acute gastroenteritis. She came 12 hours after her discharge due to mesogastric pain of three days' duration accompanied by general malaise, abdominal distention, and hyporexia, reporting a lack of evacuation for three days. Conscious, oriented, facies algid, pale, lung fields without alterations, abdomen globose, distended, tympanic colonic frame, peristalsis increased, McBurney doubtful, Von Blumberg doubtful, extremities without alterations. An evaluation was requested from the general surgery service for probable appendicitis in the elderly vs. secondary ileus. Laboratories are performed and was normal. Medical management for intestinal obstruction was initiated with the placement of a nasogastric tube fluid replacement with Hartman solution 1000 cc for 12 hours. Abdominal tomography was performed (Figure 1 and 2).

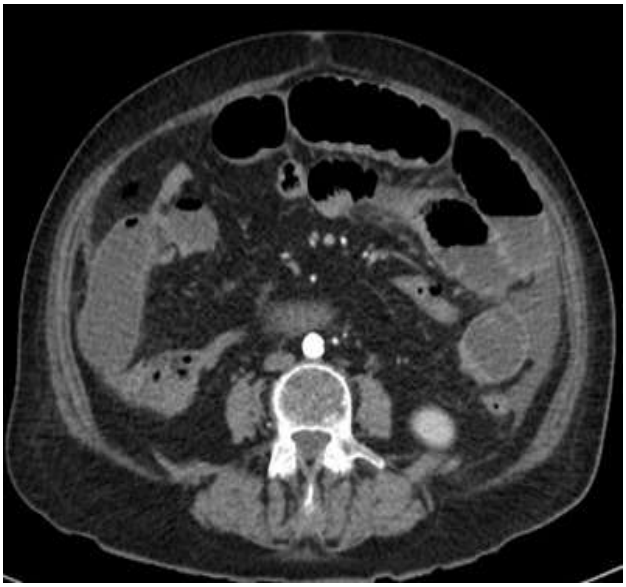

Figure 1: Air is observed in the intestinal wall.

Figure 2: Dilation of the loops of the small intestine.

During his stay on the general surgery floor, the patient presented neurological deterioration, with a nasogastric tube with low intestinal content, so it was decided to perform exploratory laparotomy in which the following findings were found: dilated small intestine without vascular compromise, finding hematoma and decreased intestinal lumen that does not obstruct 200 cm of Treitz angle. Herniation of the small intestine is observed in the omentum foramen, causing mechanical obstruction of 40 cm from 210 to 250 cm of Treitz angle, which is released, and adequate blood return is observed from the compromised intestinal portion. Diverticula throughout the sigmoid colon, without signs of complications, without abscess or perforation, free fluid in both slides and pelvic cavity (Figures 3-6).

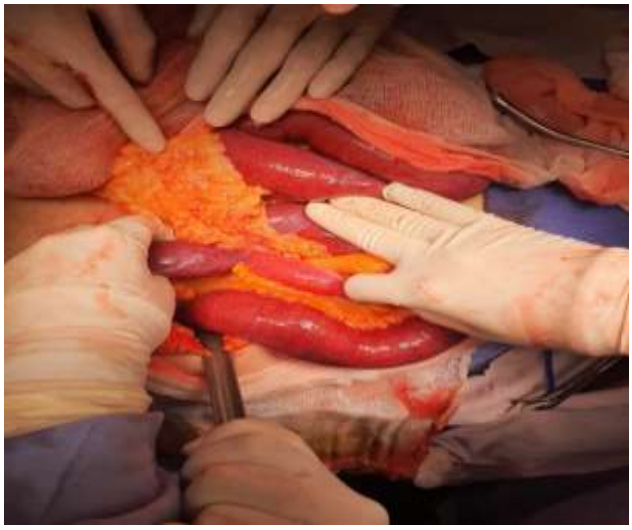

Figure 3: Intestinal contents through omentum hiatus.

Figure 4: Evidence of internal hernia with small intestine involvement.

Figure 5: A portion of the small intestine with the presence of an incarceration site.

Figure 6: Portion of intestine with adequate reperfusion after release.

The patient was admitted to the floor, which showed adequate improvement, evacuating, tolerating diet, and ambulating, so she was discharged 72 hours after the surgical event. During the follow-up of the outpatient consultation, the patient is in adequate condition.

DISCUSSION

There are multiple cases of spontaneous intra-abdominal hernias in abdomens that have not undergone surgery; for example, trans omental hernia is without a hernia sac, commonly small bowel herniation through an omental defect, and accounts for 1-4% of internal hernias. The omentum defect occurs congenital/acquired for surgical operation, trauma, and abdominal inflammations.[3]

Although lesser omental hernias are more common after colostomies, that is, operated abdomen, several studies reported lesser omental hernias in patients without a history of abdominal surgery. In previously reported cases, intestinal herniation occurred through both layers of the lesser omentum. The diagnosis of lesser omental hernia is difficult because of the nonspecific findings in physical examination and blood tests, and CT findings are crucial for making a definitive diagnosis. The CT findings of lesser omental hernia include dilated bowel loops located in the ventral part of the stomach, mesentery gathered in the lesser curvature of the stomach where the hernia ring is also present and distorted and relocated stomach, with similar changes that may occur in surrounding organs, as was our case.[4]

Transomental herniations are rare conditions, primarily reported in patients over 50 years old. An abnormal omental opening can be either acquired following abdominal surgery, trauma, inflammatory conditions, low BMI, or be due to congenital disabilities and be associated with a long mesentery, intestinal malrotation, or abnormal peritoneal attachments. Although internal hernias are extremely rare and represent between 1 and 4% of acute or intermittent intestinal obstructions, it is essential not to miss this diagnosis. Emergency management of omental hernias by surgery is critical as the postoperative mortality rate is over 30% and even 50% if strangulation is present. Lack of current literature on this rare condition, particularly for lesser omental hernias, which can present with nonspecific signs and symptoms, makes diagnosis and management difficult.[5-7]

Ping et al report a case seen in a 76-year-old Malay gentleman with no known medical illnesses presented with acute symptoms of vomiting and periumbilical pain radiating to the epigastric region for two days.[8] The abdominal pain was cramping, and the pain score was graded as 10. Notably, the patient had experienced constipation for the past three days but had no constitutional symptoms or family history of malignancy. Vital signs showed a slightly hypertensive state with a blood pressure of 145/86 mmHg and an irregularly irregular heart rhythm but not tachycardic. Physical

examination revealed a distended abdomen with tenderness over the epigastric and right hypochondrium while hernial orifices remained intact, and no mass was detected during digital rectal examination. The diagnosis of internal herniation through an omental band leading to ileal ischemia was confirmed during an emergency laparotomy. Postoperative recovery was uneventful, and the patient experienced relief from abdominal pain and resolution of bowel obstruction symptoms.[9,10]

Internal hernias were previously considered a rare cause of small bowel obstruction, but their incidence has been increasing in the past two decades. This is partly due to increased detection but likely also due to the increased use of laparoscopic and robotic surgery for abdominopelvic procedures, which makes closure of internal defects more challenging. Although the overall incidence is less than 1%, they account for up to 6% of all cases of small bowel obstruction. Ghahremani devised a classification for internal hernias, which includes six groups: para duodenal hernias (most common), hernias through the foramen of Winslow, trans mesenteric hernias, pericecal hernias, inter sigmoid hernias and perivesical hernias.[11-15]

Sigmoid mesocolon hernia is a rare form of congenital internal hernia, and transmesosigmoid hernia is one type of sigmoid mesocolon hernia. Internal hernias are difficult to diagnose because of their vague signs and symptoms. For proper care, a preoperative diagnosis must be accurate. Internal hernias account for only 0.2-0.9% of cases of intestinal obstruction. Internal hernias have been reported to have an overall mortality of more than 50% without surgery. A preoperative diagnosis is rarely confirmed in an emergency setting.[16-18]

An internal abdominal hernia involves the protrusion of an abdominal organ through a normal or abnormal mesentery or peritoneal pore. Internal hernias may occur because of trauma, surgical procedures, or other reasons related to congenital peritoneal defects. Internal hernias with unique clinical and imaging features are classified according to their anatomical regions: para duodenal (left or right) (53%), foramen of Winslow (8%), cecum (13%), sigmoid colon (6%), intestinal membrane (8%), interventricular (1-4%), and anastomotic, bladder, and pelvic (6%) hernias. Transmesenteric hernias are difficult to diagnose preoperatively and typically require the removal of the affected intestinal area

during surgery. Few mesocolic hernias have been reported. Congenital mesocolic hernias have three types. The first two are the right and left types, comprising 25% and 75% of all cases. The third type is scarce, known as a transverse mesocolic hernia.[19,20]

CONCLUSSION

Although internal hernias are extremely rare (between 1 and 4% of acute or intermittent intestinal obstructions) it is essential not to miss this diagnosis, even in patient whit no previous surgeries. Management of omental hernias are critical as the postoperative mortality rate is over 30% and even 50% if strangulation is present. The lack of current literature on this rare condition, particularly for lesser omental hernias (because, can present with nonspecific signs and symptoms) makes diagnosis and management difficult.

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