



Broad Ligament Hernia as an Uncommon Cause of Intestinal Obstruction

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Abstract

We present the case of an elderly woman who was admitted with the diagnosis of bowel obstruction and hemodynamic instability, during laparotomy an internal hernia of the broad ligament was found, and intestinal resection performed. Internal hernia remains as an exceptionally rare cause of bowel obstruction. In this case report we present a review of the literature of this uncommon hernia type.

Keywords: Hernia; Intestinal obstruction; Broad ligament

Introduction

Bowel obstruction is defined as the lack of transit of intestinal contents, regardless of etiology, it may involve only the small intestine (Small Bowel Obstruction: SBO), the large intestine (large intestine obstruction), or both. The etiology of obstruction has not changed though the years and adhesions remain as the most common etiology, being obstetric, gynecologic and other pelvic surgical procedures the most associated with the development of postoperative adhesions [1]. The etiology and frequency of obstruction, however, was altered markedly throughout the 20th century when repair of hernias became a common practice, and thus the etiology of bowel obstruction related to incarceration in a hernia defect decreased and was replaced by adhesive obstruction as the most common cause of bowel obstruction. About 80% to 90% of bowel obstructions occur in the small intestine; the other 10% to 20% occur in the colon. Colorectal cancer is responsible for 60% to 70% of large bowel obstructions, while diverticulitis and volvulus account for the majority of the remaining 30%. Internal hernia-related intestinal obstruction occurs very rarely, with a reported incidence between 0.5% and 4.1%. It occurs when there is a protrusion of the viscera through the peritoneum or mesentery within the peritoneal cavity. The most common type is paraduodenal hernia [2]. Exceptionally rare kinds of internal hernia are the broad ligament hernias that make up 4% to 5% of all internal hernias. Broad ligament defects still pose questions of how to diagnose and manage them. Defects have been broadly suggested to be congenital or acquired in origin [3]. Broad ligament hernias are generally difficult to diagnose because of their tendency to cause nonspecific symptoms such as nausea, vomiting and abdominal pain. Therefore, these hernias are often found in exploratory laparotomy or diagnostic laparoscopy.

Case Presentation

We present the case of a 68-year-old woman with Parkinson Disease who presented to the emergency room with history of three days with moderate lower abdominal pain that in the past 8 h had evolved to unbearable, colicky, and intense with no irradiation. Upon physical examination a distended, tympanic abdomen was found. No sounds were found on auscultation. An abdominal radiography (Figure 1A) was performed, small bowel dilated, absence of rectal gas and stretch sign were found. Blood test showed leukocytosis (white blood cells were $16,000 \times 10^9/L$). The patient arrived with clear signs of acute abdomen, so she was transferred to the operating room where a laparotomy was performed. In the laparotomy we found an internal hernia (Figure 1B), where a segment of terminal ileum was observed under the broad ligament associated with vascular compromise, no perforation was found. Due to intense vascular compromise an intestinal resection of approximately 40 cm and a Brooke-type loop ileostomy were performed. Closure of the defect was carried out with simple 2-0 ethibond stitches. Cavity was aspirated and closed by planes, terminating the procedure. Due to hemodynamic instability, patient was transferred to intensive care unit where she had a cardiac arrest and was declared with no vital signs 6 h after the procedure.

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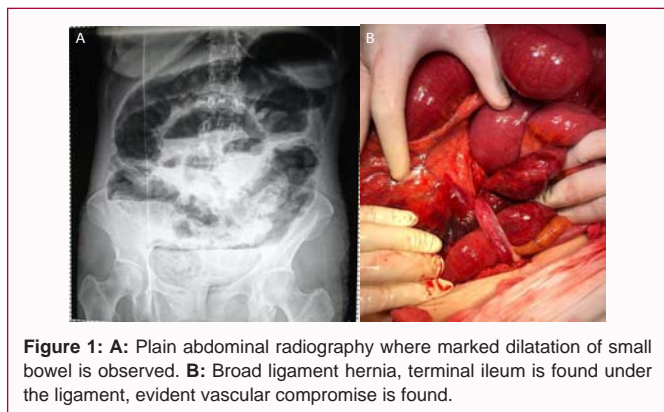


Figure 1: **A:** Plain abdominal radiography where marked dilatation of small bowel is observed. **B:** Broad ligament hernia, terminal ileum is found under the ligament, evident vascular compromise is found.

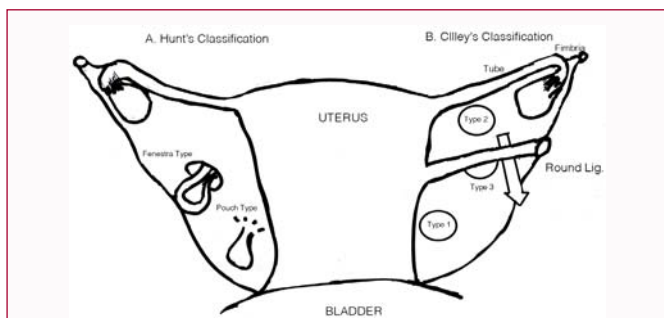


Figure 2: A. Hunt's classification, fenestra and pouch type hernias. B. Cilley's Classification: Type I defects occur throughout the entire broad ligament, Type II corresponds to a defect through the mesovarium and mesosalpinx above the round ligament, Type III corresponds to a defect through the meso-ligamentum teres, between the round ligament and the remainder of the broad ligament.

Discussion

Fifteen percent of all emergency department visits for acute abdominal pain are due to intestinal obstruction. Small Bowel Obstruction is a relatively common surgical emergency and one of the most common surgical consultations. Most of the obstructions of small intestine are caused by adhesions developed after abdominal surgeries, hernias and neoplasm [4]. The occurrence of abdominal internal hernias is rare between 0.5% to 4.1% of intestinal obstructions.

The internal hernia is defined as the herniation of hollow viscera by means of a natural or unnatural opening within the peritoneal cavity. Most of the majority of internal hernias involves postoperative mesenteric defects. The most common of the novel internal hernias include the paraduodenal recess of the foramen of Winslow, and the hernia through a defect in the broad ligament accounts for only 4% to 5% of all internal hernias. [5]. Less common types include pericecal (13%), transmesenteric (8%), Winslow Hiatal (8%), intersigmoidal (6%), supravescical and pelvic (6%) and transomental (4%) [6]. According to Hunt, internal hernias of the broad ligament may be classified as 2 types: The fenestra type that implies complete fenestration by means of a broad ligament defect and the pouch type, in which herniation occurs toward the broad ligament from an anterior or posterior opening. Cilley proposed an anatomical location based on the location of the defect (Figure 2) [7]. The cause of the defects in the broad ligament can be divided in congenital that have

an embryologic explanation and may arise from a developmental abnormality of the broad ligament or from the rupture of congenital cystic structures to be remnants of the Mullerian ducts. The acquired defects may be due to inflammatory pelvic diseases, pregnancy or injury following vaginal manipulation. It is considered as a severe condition due to its vague symptoms and the risk of strangulation and perforation of the hernia content, in most of the cases the herniated viscera is the ileum. Broad ligament hernia is difficult to diagnose preoperatively due to non-specific symptoms, sometimes is delayed due to the few cases and lack of surgical history of the patient. The preoperative diagnosis is very difficult but Computed Tomography (CT) represents the best study to evaluate small bowel, the CT findings of SBO due to broad ligament include: mechanical SBO with double transition zone located in pelvis, cluster of dilated small bowel loops herniated laterally to the uterus, enlargement of the distance between the uterus and one of the ovaries. Treatment is always surgical, with reduction of the incarcerated content and bowel resection if perforation or vascular compromise is found. There is a debate between open and laparoscopic approach; as both are reported safe, having laparoscopic a faster recovery. The decision of a laparoscopic or open surgery should be individualized, depending of patient stability and surgeon experience. In this case due to hemodynamic instability and vascular compromise, a laparotomy with Brooke-type ileostomy was performed.

Conclusion

As described before, an internal hernia is difficult to diagnose. Plain radiographs may show the typical changes of bowel obstruction. Treatment is always by means of surgery. The mortality of non-operative therapy for incarcerated or strangulated internal hernia approaches 100%. The surgical approach is usually straightforward by doing a simple manual reduction. This entity should be considered as a differential diagnosis within women with intestinal obstruction and gynecological or pelvic surgery history.

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