CASE REPORT JSLS

# Broad Ligament Hernia-Associated Bowel Obstruction

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## ABSTRACT

**Background and Objective:** We present the case of a female patient 29 years of age with antecedents of laparoscopic laser ablation for endometriosis, laparoscopic appendectomy, and umbilical hernioplasty.

**Methods:** The patient was admitted to the hospital's emergency room for abdominal pain in the epigastrium, transfixing, irradiating to both upper quadrants and to the lumbar region, accompanied by nausea and gastrobiliary vomiting. Lipase determination was 170 mg/dL. Other laboratory findings were normal. Plain abdominal films on the patient's admission were normal, and computed tomography (CT) showed data compatible with acute pancreatitis. Without improvement during the patient's hospital stay, pain and vomiting increased in intensity and frequency.

**Results:** New abdominal x-rays revealed dilatation of small bowel loops. Management was begun for intestinal obstruction, with intravenous hydration and placement of a nasogastric tube without a good response. At 48 hours, a diagnostic laparoscopy was performed, revealing a 3-cm internal hernia in the left broad ligament in which a 20-cm segment of terminal ileum was encased. We performed liberation of the ileal segment and closed the hernial orifice by using the laparoscopic approach.

**Conclusion:** The patient's evolution was excellent.


**Key Words:** Small bowel obstruction, Internal hernia, Broad ligament, Laparoscopy.

## INTRODUCTION

Internal hernia-related intestinal obstruction occurs very rarely, with a reported incidence of between 0.2% and 0.9%.[1,2] An internal hernia implies herniation of a hollow viscus, usually the small intestine, by means of a natural or an unnatural opening within the peritoneal cavity,[3] but there are also abnormalities of intestinal rotation and peritoneal attachment that cause an internal hernia.[4] This herniation can be acquired or congenital and persistent or intermittent. It is normally considered a severe condition due to the risk of strangulation and perforation of the hernial content, even in small hernias.

More than 50% of internal hernias reported in the literature are paraduodenal.[1,2,5] In addition, diverse internal hernia types are described, among which transmesenteric; supra- or perivesical, or both; intersigmoidal; Winslow hiatal; and transomental are the most common.[1–13]

Internal hernias are difficult to diagnose clinically as well as radiologically. In the world literature, reviews are available of 400 patients in whom diagnosis was performed the majority of times in autopsy studies or during a surgical procedure, frequently after a prolonged period of symptomatology and complications, such as intestinal ischemia.[1,3,4,]

## CASE REPORT

This case concerns a 29-year-old female patient admitted to the American British Cowdray Medical Center emergency room for abdominal pain of 8 hours duration, localized in the epigastrium and irradiating to the lumbar region, and both abdominal upper quadrants, transfixing, very intense, incapacitating, and accompanied by nausea and vomiting on one occasion with gastrobiliary contents. On physical examination, slight mucosal dehydration was found, in addition to a soft, depressible abdomen, tenderness in the upper quadrants on medium and deep palpation, without evidence of peritoneal irritation and increased peristalsis. Among the patient's important antecedents were endometriosis managed surgically by laparoscopic laser ablation, laparoscopic appendectomy, and umbilical hernioplasty. In the emergency room, plain abdominal films were taken of the patient, without signifi-

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cant data. Laboratory studies were normal with the exception of lipase of 170 mg/dL, and an abdominal CT scan revealed an increase in size of the pancreatic head and body compatible with acute pancreatitis.

The patient was admitted to the hospital for management of acute pancreatitis with parenteral fluids, digestive tract rest, and antacids. During the first 24 hours, an increase occurred in vomiting and abdominal pain, along with abdominal distension, for which new plain abdominal x-rays were obtained, showing dilatation of small bowel loops and a fixed loop in the left upper left quadrant **(Figure 1)**. Management of intestinal obstruction was initiated, placing a nasogastric tube without the patient having improvement in symptomatology. Thus, 48 hours after hospital admission, we decided to perform a diagnostic laparoscopy, finding dilatation of small bowel loops and an internal hernia at the level of the left broad ligament **(Figure 2)** that had a 3-cm defect **(Figure 3)** with a 20-cm segment of terminal ileum incarcerated in the hernia, which was completely liberated without evidence of ischemia. Closure of the defect was carried out by laparoscopy with simple 2–0 ethibond stitches **(Figures 4 and 5)**. Patient evolution was excellent, with cessation of vomiting and nausea, as well as abdominal distension, tolerating oral feeding, and with adequate intestinal transit. The patient was released from the hospital 48 hours after the surgical procedure.

## DISCUSSION

Internal hernias originating in broad ligament defects are very rare, comprising 4% to 7% of all internal hernias. The

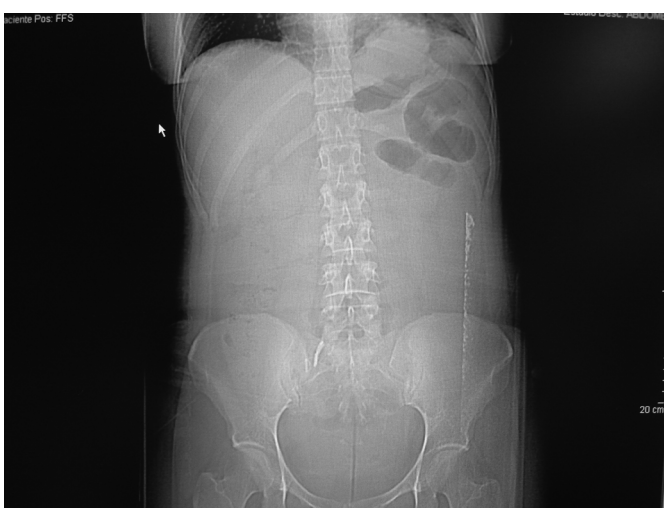

**Figure 1.** Abdominal plain radiograph showing dilated small bowel loops in the left upper quadrant.

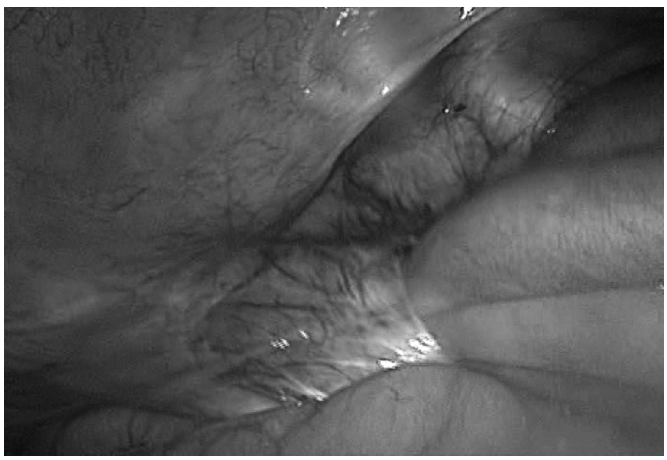

**Figure 2.** The herniated small bowel loop can be observed through the broad ligament orifice.

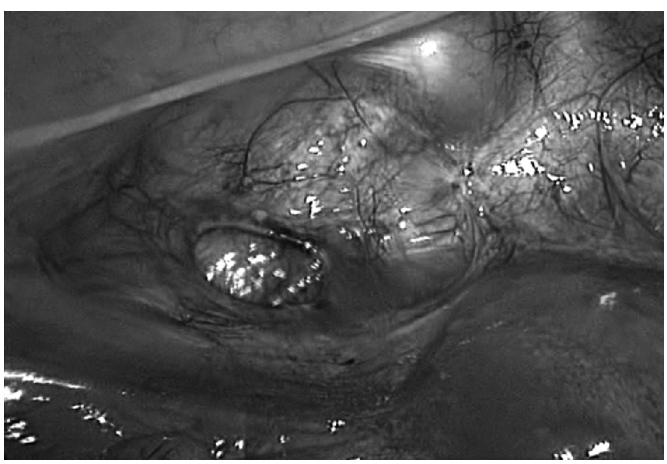

**Figure 3.** The hernial orifice and the lower portion of the uterus are seen.

first reported case was in 1861 by Quain, the finding appearing during an autopsy.[12] According to Hunt,[9] 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. Among the probable causes of broad ligament defects, we find surgery, inflammatory pelvic disease, obstetric trauma, and congenital defects.[10]

Nineteen percent of cases present as bilateral defects or defects in a nulliparous woman with no antecedent history of abdominal surgery, trauma, or pelvic infection, and in these cases a congenital origin must be considered.[4] Gray and Skandalakis[14] described the presence of cystic

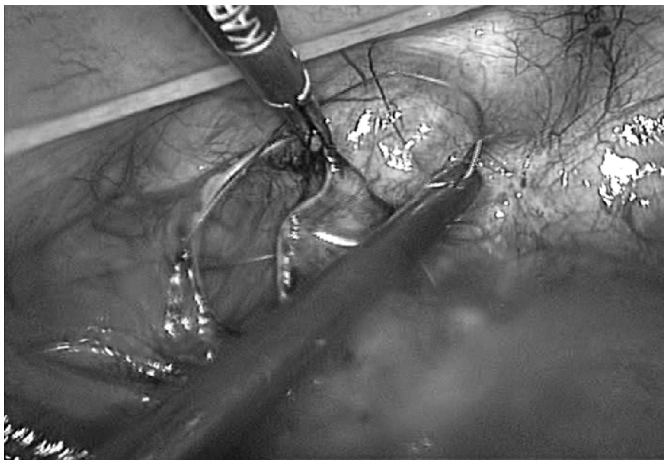

**Figure 4.** Simple stitches were placed to close the defect.

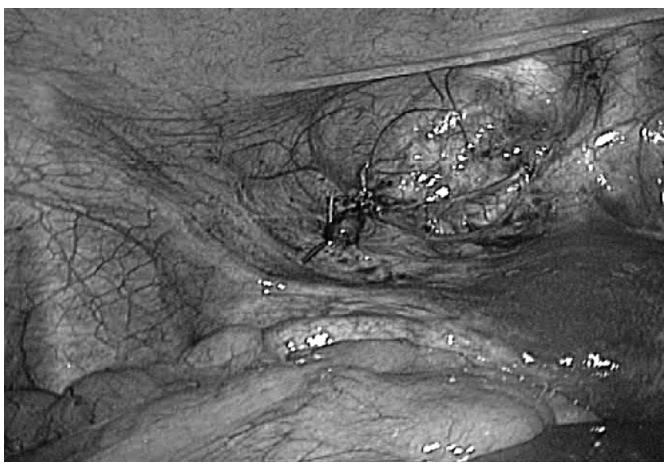

**Figure 5.** Closed hernia defect.

structures of the broad ligament, which they believed were remnants of the mesonephric of the müllerian ducts, and it was the rupture of these that led to defects within the broad ligament.

As described before, an internal hernia is difficult to diagnose radiologically. Plain radiographs may show the typical changes of bowel obstruction. Although computed tomography can suggest the presence of an internal hernia, it may be impossible to diagnose the hernia through a defect of the broad ligament[7,8]; nevertheless, barium-enhanced studies like a small bowel follow through and computed tomography may offer the greater potential for the diagnosis of internal hernias.

Treatment is always by means of surgery. The mortality of nonoperative therapy for incarcerated or strangulated internal hernia approaches 100%, and delay in surgical therapy can lead to undue morbidity. The surgical approach is usually straightforward and often requires no more than simple manual reduction.

The use of laparoscopic techniques is actually a very feasible resource in the management of bowel obstruction due to internal hernias.[15] There are several reports of laparoscopic management mainly of paraduodenal hernias, like those from Antedomenico et al[15] and Fukunaga et al,[16] with good results and practically no complications. We found no reports of an internal hernia from the broad ligament managed laparoscopically, but we believe that in the setting of a patient with bowel obstruction and the suspicion of an internal hernia, without evidence of necrosis or perforation of the hernial contents, the first choice should be a diagnostic laparoscopy, because of the ease of reduction of the hernial sac and closure of the defect, and the aesthetic results provided to the patient with minimal invasiveness.

The main concern for the surgeon performing this procedure should be the detection of possible perforations of the contents of the hernia and to be careful with the mesenteric vessels located near the hernia sac orifice to prevent their injury and further complications. The laparoscopic approach is a relatively simple one and has shown good results so far. It should be considered the first choice in the surgical management of these patients.

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