

## Laparoscopic treatment of incarcerated hernia through right broad ligament in patients with bilateral parametrium defects

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**SUMMARY:** Laparoscopic treatment of incarcerated hernia through right broad ligament in patients with bilateral parametrium defects.

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*We present the first case reported in the literature of small bowel obstruction due to internal incarcerated hernia through a diagnosed bilateral broad ligament defect, and treated by laparoscopy.*

*A 36-year-old white woman, gravida 0, para 0, was admitted to our hospital with intestinal obstruction symptoms. A laparoscopic approach was performed with 3 trocars and internal incarcerated hernia due to a defect in the right broad ligament was found. There was a similar defect in the left broad ligament. The small bowel, once reduced, appeared viable. Closure of both defects was carried out by laparoscopy with 2-0 monofilament absorbable running suture.*

*The patient's postoperative course was unremarkable and she was discharged from the hospital 4 days after the surgical procedure. The classification of defect was a bilateral fenestrate type I defect. Congenital etiology is plausible because of the presence of bilateral defects and the absence of surgical trauma, pregnancy, pelvic inflammatory disease, endometriosis in the clinical history.*

**RIASSUNTO:** Trattamento laparoscopico di ernia incarcerata nel legamento largo destro in paziente con difetti parametriali bilaterali.

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*Viene riportato il primo caso in letteratura di un'ernia interna strozzata da difetto bilaterale del legamento largo dell'utero diagnosticato e trattato esclusivamente per via laparoscopica.*

*La paziente di 36 anni, nullipara e senza antecedenti gravidici, era giunta alla nostra osservazione per un quadro clinico di occlusione intestinale. L'approccio laparoscopico con 3 trocars ha permesso la corretta diagnosi evidenziando la presenza di un'ernia interna dell'ileo medio-distale attraverso il legamento largo di destra. Analogo difetto, ma senza ernia, era presente nel legamento largo di sinistra. Per via laparoscopica, mediante sutura continua con filo riassorbibile 2/0, si è provveduto alla sutura dei difetti dei legamenti larghi previa "liberazione" dell'intestino incarcerato, che si manteneva vitale.*

*Il decorso postoperatorio è stato esente da complicanze con dimissione dell'operata in 4ª giornata. In base alla classificazione delle ernie del legamento largo si trattava di un difetto del tipo I, fenestrato, bilaterale. La bilateralità della lesione e l'assenza di gravidanze, traumi o interventi chirurgici nell'anamnesi della paziente fanno ipotizzare una genesi di tipo congenito dei difetti parametriali.*

**KEY WORDS:** Internal hernia - Broad ligament - Small bowel obstruction - Laparoscopy.  
Ernia interna - Legamento largo - Occlusione dell'intestino tenue - Laparoscopia.

### Introduction

Internal hernias are a very unusual cause of intestinal obstruction accounting for less than 1% of cases. Traditionally, paraduodenal hernias have been described as

the most common subtype, representing more than 50% of all internal hernias, while broad ligament hernias are even more rare, accounting for 4-7% of all internal hernias (1).

Preoperative diagnosis is difficult because of the absence of typical symptoms and signs, frequently by a long period. The delayed diagnosis could play a role in a higher rate of morbidity, mortality and complications such as strangulation, ischemia or perforation of the intestinal loop.

We report a case of bilateral broad ligament defect with small bowel obstruction due to an incarcerated hernia treated by laparoscopy.

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## Case report

A 36-year-old white woman, gravida 0, para 0, was admitted to the Emergency Department for severe acute abdominal pain and vomiting. Her clinical history was not significant and she had undergone either abdominal or pelvic surgery. The abdomen was slightly distended and the palpation elicited slight tenderness in the right abdominal lower quadrant; the bowel sounds were guarded and increased. There were no peritonitis signs or fever. The patient reported a "foecaloid" vomiting and she presented dehydration signs.

An upright abdominal radiograph showed some loops of dilated small bowel with air fluid levels; ultrasonography confirmed the signs of intestinal obstruction and disclosed the presence of fluid in Douglas's fossa. Laboratory findings were normal with the exception of mild leucocytosis.

Nasogastric tube, bladder catheter and intravenous line for rehydration were inserted; the patient was treated with antibiotic piperacillin/tazobactam also. After 14 hours the high output from nasogastric tube became and "fecaloid". We took the decision to operate with diagnosis of intestinal obstruction of unknown origin.

A laparoscopic approach was performed with 3 trocars; the first trocar for pneumoperitoneum was inserted by open technique through an umbilical port and the exploration of the peritoneal cavity was performed after introduction of the optic system. Intestinal obstruction due to an incarcerated hernia of ileum through a defect in the right broad ligament was found. The small bowel, once reduced, appeared viable and the exploration of peritoneal cavity showed another similar defect in the left broad ligament (Fig. 1). Closure of both defects was carried out by laparoscopy with 2-0 monofilament absorbable running suture (Fig. 2).

The patient was discharged from the hospital on day 4<sup>th</sup> with no postoperative complications.

## Discussion

Approximately 150 cases of internal hernia through the broad ligament have been reported in the literature (2) from 1861, when Quain described the first autptic case of herniation and incarceration of bowel through the defect (3).

The average age at diagnosis is 47 years (4). In most of reported cases, the herniated organ was the ileum, however other viscera, such as colon, ovary, omentum, appendix and ureter, have also been involved (5). Hunt (6) classified two types of hernia of the broad ligament: the fenestrae type, a defect in the anterior and posterior leaves of the broad ligament; and the pouch type, which incorporates a single-layer defect. Another classification based on anatomical position of broad ligament defects has been proposed: type I defect, the most frequent, which occurs throughout the entire broad ligament; type II, which occurs throughout the mesosalpinx and the mesovarium; type III, which occurs throughout the meso-ligamentum teres. Type IV, in which the defect involves only the mesosalpinx has been added later (7). In most of the reported cases there was one-sided defect, while only 4 cases of bilateral defects of broad ligament have been reported in the literature over the past 40 years (8-11).

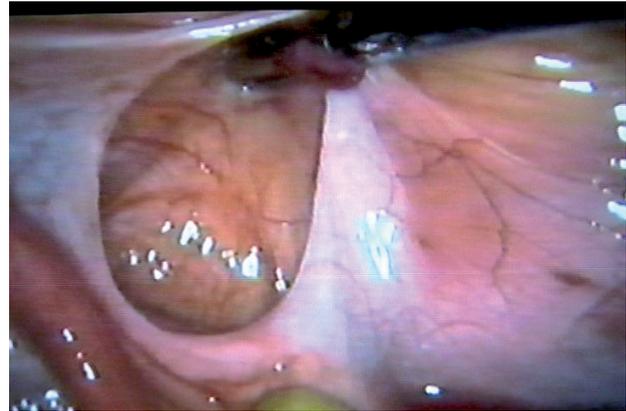


Fig. 1 - The right hernial orifice after reduction of the incarcerated hernia.

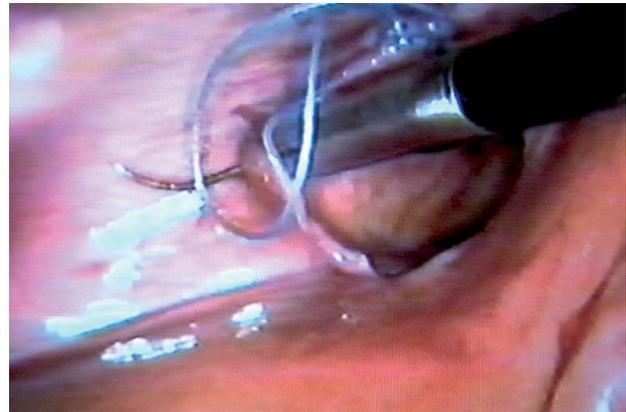


Fig. 2 - Laparoscopic closure of the broad ligament defect.

The proposed pathogenesis is congenital or acquired (12). The congenital hypothesis describes the presence of cystic structures in the broad ligament, remnant of the mesonephros of the Müllerian ducts. Rupture of this cystic structure may lead to broad ligament defect. An acquired defect may result from either operative trauma, pregnancy and trauma during delivery, pelvic inflammatory disease, endometriosis. In the past, several cases of iatrogenic broad ligament defects occurred as result of the Baldy-Webster technique for uterine suspension, first described in 1901. An incorrect closure of the section of ligament, necessary for the uterus retroversion, can lead to a broad ligament hernia. The delivery trauma is probably the major possible etiological factor because of more than 80% of the cases occurred in multiparous women (13); however, such defects also have been reported in women nulligravid or with no history of abdominal or pelvic surgery, endometriosis, trauma or pelvic inflammatory disease. In these cases is plausible a primary congenital etiology.

The diagnosis of broad ligament hernia is difficult

and rarely preoperative because of non-specific clinical symptoms: abdominal pain and distension, vomiting, nausea are the most aspecific symptoms of intestinal obstruction. However, a correct preoperative diagnosis can be made by CT-scan which shows characteristic findings, i.e. C-shaped, U-shaped, “coffee bean” configuration of bowel loops, or “whirl sign” (5). Sometimes, this technique identifies a loop of dilated small intestine in an anomalous location, displacing the uterus laterally.

The use of laparoscopic technique is a very feasible alternative. Laparoscopy has been demonstrated to be superior to other diagnostic tools and it has also the therapeutic potential (12). In fact, small bowel incarceration

through a broad ligament defect requires a prompt diagnosis and an emergency surgical treatment. The diagnostic delay causes mortality rates until to 40% as well as been reported in literature (12).

Our literature review from 1950 to 2007 found only four cases of bilateral defects (8-11) and only seven cases treated by laparoscopy (12, 14-18); our case is the 8<sup>th</sup> and, to the best of our knowledge, it is the first bilateral broad ligament defect (fenestrate type, type I) to be diagnosed and treated successfully by laparoscopy. Congenital etiology is plausible because of the bilateral of the defects and the absence of surgical trauma, deliveries, pelvic inflammatory diseases, endometriosis in the history of the patient.

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