CASE REPORT

Acute Small Bowel Obstruction due to Internal Hernia Through Defect in Broad Ligament: A Rare Case Report

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Received on: 03 March 2022; *Accepted on:* 14 May 2022; *Published on:* 16 August 2024

Abstract

Internal hernia through a defect in the broad ligament of the uterus is a very rare condition. We review a case of a 55-years-old female with small bowel obstruction due to herniation of a small bowel loop through a defect in the broad ligament of the uterus on the right side. Computed tomography of the abdomen reported finding of small bowel obstruction, a small bowel loop seen between the uterus and urinary bladder in the right lower pelvis with surrounding inflammatory changes, possibility of an Internal hernia through a defect in the broad ligament. This was managed laparoscopically.

Keywords: Broad ligament, Case report, Internal hernia, Laparoscopy, Small bowel obstruction.

World Journal of Laparoscopic Surgery (2024): 10.5005/jp-journals-10033-1621

Introduction

The broad ligament hernia is a variety of internal hernia that occurs rarely, accounting for a mere 4–7% of the known internal hernias;[1,2] of which the premier description is given by Quain as an autopsy finding.[3] Preoperative diagnosis is difficult due to the lack of overt clinical symptomology, thus rendering surgical exploration as the most accurate modality for apt diagnosis. Internal herniation through the uterine broad ligament due to a defect within the ligament; could be either unilateral or bilateral. Furthermore, the etiology of the defect in the broad ligament causes internal hernia can be attributed to being primary or secondary; developmental abnormality leads to a congenital defect in a broad ligament is primary, and acquired defects occur due to various causes such as traumatic, postoperative, pregnancy and rupture of cystic lesion causes the secondary defect.[2]

Case History

A 55-years-old multiparous lady was admitted with chief complaints of lower abdominal pain and nausea of 3 days duration with one episode of bilious vomiting. The patient's vitals were within normal limits. Abdominal examination revealed the distended abdomen and on palpation generalized tenderness was present. She underwent lower segment cesarean section (LSCS) 17 years before. She was a known case of pulmonary tuberculosis started upon anti-tubercular therapy for the previous three months. Also, an X-ray and ultrasonogram of the abdomen showed the features of intestinal obstruction and contrast-enhanced computed tomography reported changes of small bowel obstruction, a small bowel loop seen between the uterus and urinary bladder in the right lower pelvis with surrounding inflammatory changes. Internal hernia (broad ligament hernia) is shown in Figure 1; complete blood count was normal, and renal function test and serum electrolytes were within normal range.

The patient underwent laparoscopy under general anesthesia. A 10-mm supraumbilical port was inserted by open method, after that under vision another 5-mm port was inserted over the right lumbar region and a 6-mm third port was placed in the left iliac fossa. On laparoscopy, we found the trapped loop of small bowel through a defect of 3 × 3 cm in the right broad ligament of the uterus (Figs 2A and B) with dilated jejunum and proximal ileum

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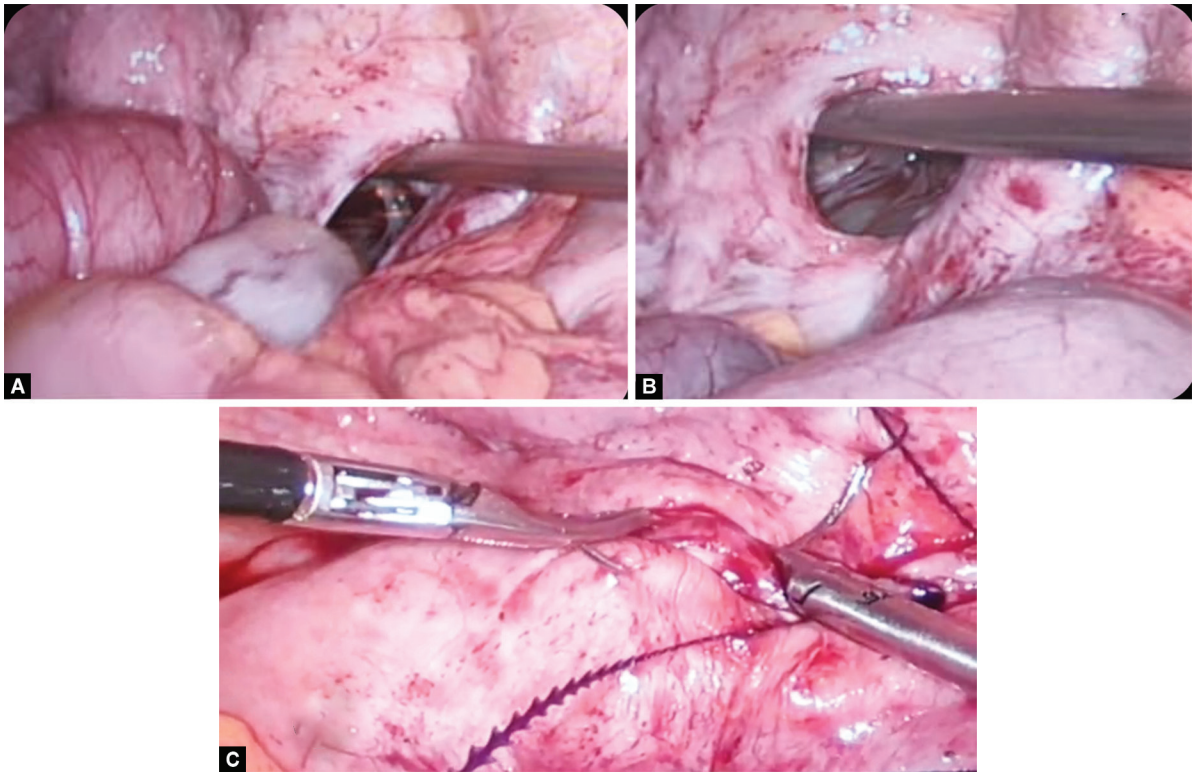
How to cite this article: Rajyaguru AM, Karamata VS, Bhatt JG. Acute Small Bowel Obstruction due to Internal Hernia Through Defect in Broad Ligament: A Rare Case Report. World J Lap Surg 2024;17(3):172–174.

Source of support: Nil

Conflict of interest: None

Patient consent statement: The author(s) have obtained written informed consent from the patient for publication of the case report details and related images.

Fig. 1: The CT scan image showing small bowel loops that are seen between the uterus and urinary bladder on the right side



Figs 2A to C: (A) Defect in right side broad ligament with bowel loop within; (B) Defect in broad ligament after reduction of bowel loop; (C) Defect closure with knotless suture

with collapsed distal terminal ileum, cecum, and ascending colon. Then about 25-cm loop of the small bowel was reduced with gentle traction which was found viable. The defect was closed using an antibacterial knotless tissue control device (STRATAFIX™ Symmetric PDS™ Plus 1–0 Ethicon®) (Fig. 2C). There was a defect of 2 × 2 cm sized, found on the opposite side of the broad ligament which was managed by a wide opening of the defect by dividing the broad ligament. The postoperative period was uneventful.

Discussion

Internal abdominal hernia causes small bowel obstruction in approximately 4% of cases which is very rare.[4] Internal abdominal hernia is a hollow visceral herniation in the peritoneal cavity due to any defect within the peritoneal cavity. An *internal hernia* is defined as a protrusion of abdominal viscera through an opening within the confines of the peritoneal cavity.

In 1934, the first classification of broad ligament defect by Hunt was based on the involvement of the peritoneum.[5]

- Fenestra type: If the defect in the two layers of the peritoneum, it is the commonest variety.
- Pouch type: The defect in only one of the peritoneal layers.
- Hernia sac type: A hernial sac formed by layers of peritoneum covering the viscera.

In 1986, Cilley et al. simply classified broad ligament hernia based on the anatomical location of the defect.[6]

- Type I: Defect caudal the round ligament of the uterus.
- Type II: Defect above the round ligament, that is, defect in the mesosalpinx and mesovarium.
- Type III: Defect between the round ligament and the remainder of the broad ligament through the meso-ligamentum teres.

The defects in hernia can be congenital or acquired. Acquired opening or defect is usually unilateral due to surgery, trauma, inflammation, pregnancy, or rupture of cystic lesion whereas congenital defect is usually bilateral due to developmental abnormalities. Broad ligament hernia is the most frequently encountered type of pelvic internal hernia it occurs on either the left or right side (unilateral) or both sides of the broad ligament of the uterus (bilateral) due to congenital or acquired defect in the ligament. The majority of defects in broad ligaments have been reported in multiparous women.[7] Herniation of small bowel loops most commonly occurs, also other organs such as the colon, ovary, and ureter have been reported.[8]

Management consists of two steps as follows: First gently reduce the contents, if nonviable than resection, and the second step is either closing the defect or dividing the broad ligament to prevent recurrence.[9] The laparoscopic surgery has the advantage of greater postoperative comfort and shorter duration of hospital stay when compared to the open approach.[10]

Conclusion

Acute small bowel obstruction through a defect in the broad ligament occurs very rarely and is difficult to diagnose clinically. A high index of suspicion is required in females presented with acute small bowel obstruction and a contrast-enhanced computed tomography scan has a pivot role in the diagnosis. Early diagnosis and immediate treatment prevent catastrophic events in the cases of acute obstruction due to a broad ligament hernia. The laparoscopic approach should be considered as a better option for

confirmation of the diagnosis and management of this condition in experienced hands.

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