

Case Report

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Strangulated Internal Hernia through Broad Ligament Defect Causing Small Bowel Obstruction in a Virgin Abdomen of a Sri Lankan Female: A Rare Case Report

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ABSTRACT

Intestinal obstruction is a common surgical emergency. Internal hernias are rare with broad ligament hernias representing an exceptionally rare subset, especially in patients with virgin abdomen. 43 years old previously well female presented with small bowel obstruction. Imaging indicated bowel obstruction without an obvious cause. Diagnostic Laparotomy revealed an internal hernia through a left broad ligament defect. As the incarcerated bowel was viable it was reduced successfully without post-operative complications. Although rare, broad ligament internal hernias should be considered in females with virgin abdomen presenting with bowel obstruction. Prompt diagnosis and management are crucial to prevent morbidity.

Keywords: Internal hernia, virgin abdomen, broad ligament

INTRODUCTION

Intestinal obstruction accounts for a significant proportion of acute abdomen cases. The most common causes include postoperative adhesions, external hernias, malignancies, and volvulus [1, 2]. However, internal hernias are a rare etiology, comprising less than 1% of all intestinal obstructions but carrying a high risk of strangulation and mortality if diagnosis is delayed [3,4].

Internal hernias occur when a segment of the bowel protrudes through peritoneal or mesenteric defects within the abdominal cavity. The broad ligament, a double-layered fold of peritoneum

attaching the uterus to the pelvic sidewalls, represents an uncommon site for such defects. Herniation through a broad ligament defect is a rare cause of small bowel obstruction, representing less than 7% of all internal hernias [5,6].

Etiologies of broad ligament defects include congenital malformations, pelvic inflammatory disease, obstetric trauma, and iatrogenic injury during pelvic surgery [9, 10, 11]. Patients typically present with nonspecific symptoms of bowel obstruction, and preoperative diagnosis is often challenging. Imaging modalities like computed



tomography (CT) can suggest internal hernias but often fail to identify the site, leading to delays in treatment [12, 13].

Timely surgical intervention reduces the risk of strangulation and necrosis, with laparotomy remaining the gold standard for diagnosis and management [14]. Awareness of this rare condition is crucial in females with small bowel obstruction and no prior abdominal surgeries, the so-called "virgin abdomen," where causes like adhesions are less likely [15].

CASE REPORT

A 43-year-old previously healthy woman, a mother of two with no history of abdominal surgery, presented to the surgical emergency department with a one-week history of central abdominal pain. The pain worsened and was accompanied by cessation of bowel movements and flatus for three days, along with nausea and repeated vomiting.

The patient's history included two uncomplicated vaginal deliveries. She denied any history of pelvic inflammatory disease or abdominal trauma. On examination, the patient was afebrile with stable vital signs except for mild hypertension (blood pressure 160/90 mmHg). Abdominal examination revealed distension, generalized tenderness with guarding, absent bowel sounds, and an empty rectal vault. Investigations showed leukocytosis with 12,000/micL and 85% neutrophils, hemoglobin of 13.5 g/dL, platelets of 313,000/micL, serum amylase of 80, AST and ALT of 27 U/L and 29 U/L, blood urea 29 mg/dL, serum creatinine 58 micmol/L, and normal C-reactive protein. Serum sodium and potassium were 139 and 4.1, respectively. Urine report was normal. Arterial blood gas revealed lactate level less than 2. Abdominal radiography (Figure 1) showed dilated small bowel loops suggestive of obstruction. Ultrasound confirmed dilated fluid-filled bowel loops with maximum dilatation of 3.2 cm in the pelvic region. CT of the abdomen and pelvis (Figure 2) revealed features consistent with acute small bowel obstruction but failed to identify a clear transition point or underlying cause. Upon admission, the patient was kept nil by mouth, a nasogastric tube inserted, and catheterized. Intravenous normal saline was administered at 100 ml/hour to maintain

hydration and electrolyte balance, with strict input-output monitoring. Empirical antibiotics (Cefuroxime 750 mg every 8 hours and Metronidazole 500 mg every 8 hours) were started. Intravenous Omeprazole 40 mg twice daily was given for gastroprotection. For analgesia, subcutaneous morphine 4 mg every 6 hours was administered. Considering the clinical and radiological findings and the absence of prior surgeries, the patient was taken for urgent exploratory laparotomy.

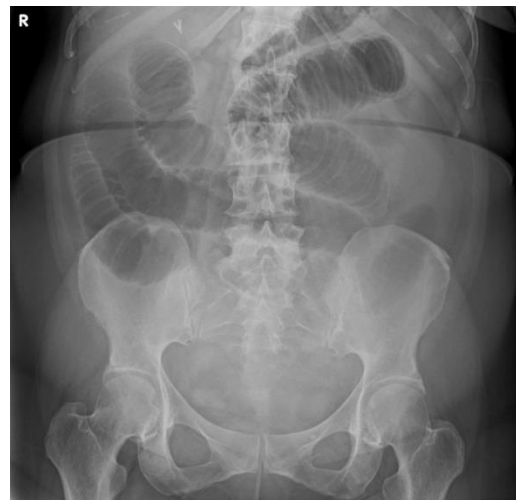


Figure 1: Plain supine Abdominal X ray shows dilated small bowels



Figure 2: Axial abdominal CT scan revealed a small bowel obstruction

Operative Findings

A midline exploratory laparotomy was performed under general anesthesia. Dilated proximal small bowel loops and a mild amount of ascitic fluid in the peritoneal cavity were found. A 3 cm defect was identified (Figure 3A) in the left broad ligament through which a loop of distal ileum was herniated and incarcerated. The entrapped bowel was carefully reduced and inspected, revealing viable bowel with no signs of ischemia or necrosis. The broad ligament defect was repaired primarily using interrupted 3/0 Polyglactin 910 sutures (Figure 3B and Figure 3C). An abdominal drain and nasogastric tube were placed prior to closure. Gynecological consultation was sought to confirm the nature of the defect and assist with repair.

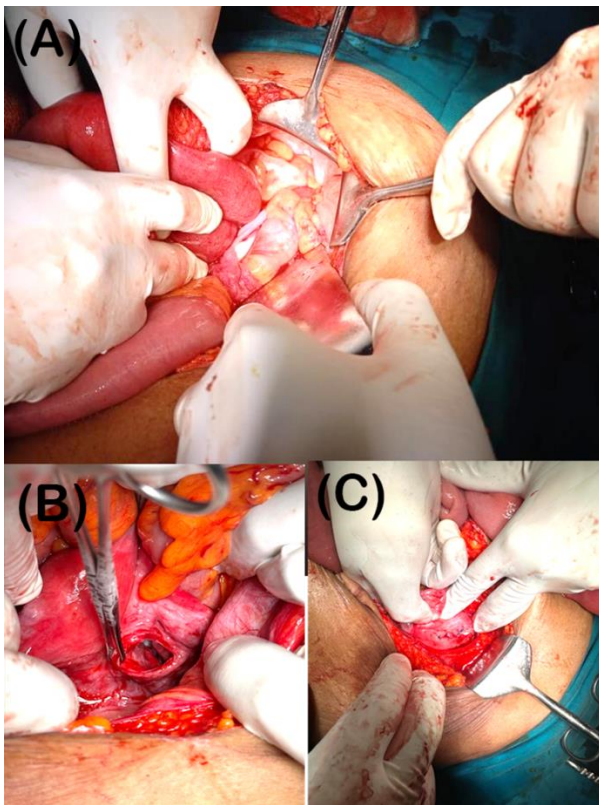


Figure 3: (A) Non ischemic bowel loops herniates through the defect (B) 3 cm defect in the left broad ligament (C) Hernia was reduced back and defect was closed.

Postoperatively, the patient was transferred to the surgical ward for monitoring. Recovery was uneventful; vital signs remained stable, and pain was controlled. Bowel function gradually returned, and the patient tolerated oral intake by postoperative day 3. The abdominal drain and

catheter were removed on day 4, and the nasogastric tube was removed following resolution of ileus. The patient was discharged on postoperative day 4 without complications. Follow-up at one week and one month post-discharge, showed satisfactory wound healing and no recurrence of symptoms.

DISCUSSION

Broad ligament hernias are of two types: the fenestra type, characterized by a complete defect allowing bowel to herniate through the broad ligament, and the pouch type, where the bowel herniates into an anterior or posterior peritoneal aperture of the ligament [3]. The presented case was compatible with the fenestra type.

The pathogenesis of broad ligament defects remains incompletely understood. They may be congenital or acquired due to factors such as prior abdominal or pelvic surgery, pelvic inflammatory disease, childbirth trauma, or congenital anomalies [4, 5]. Notably, many patients with broad ligament hernias present with no history of surgery suggesting a congenital cause.

Preoperative diagnosis is difficult due to its nonspecific clinical presentation. Imaging modalities, particularly CT, play a pivotal role in evaluation but may only provide indirect clues without definitively identifying the hernia or the site of entrapment [6]. Therefore, females with small bowel obstruction and no prior surgeries should include broad ligament hernia in the differential diagnosis.

Early recognition and prompt surgical intervention are crucial. Delayed diagnosis increases the risk of strangulation, ischemia, necrosis, and subsequent morbidity and mortality [7]. Surgical management involves reduction of the herniated bowel, resection of non-viable segments, and repair of the broad ligament defect. Examination of the contralateral broad ligament during surgery is recommended to identify and repair any additional defects, preventing recurrence [8].

While laparoscopic repair has been reported, most cases are managed by laparotomy, especially with significant bowel distention, which limits laparoscopic visibility and increases the risk of

injury [9]. Timely surgery usually results in a favourable outcome.

Author declaration

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Authors' contributions:

NK: Patient caring, manuscript drafting, literature reviewing; ANKA and LMPMB: Clinical management supervision and manuscript reviewing.

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