CASE REPORT PEER REVIEWED | OPEN ACCESS

Broad ligament hernia: A rare cause of small bowel obstruction

Nicola Adanna Okeahialam, Andrew Brodie, Eriberto Farinella

ABSTRACT

Introduction: The broad ligament is a peritoneal fold attaching the fallopian tubes, ovaries and uterus to the wall and floor of the pelvis: herniation of abdominal viscera through a defect in this structure is rare and accounts for 4% of all internal hernias. Case Report: We present the case of a 73-year-old woman with no prior surgical history presented to the emergency department with a four-day history of abdominal distension, bilious vomiting and not opening her bowels. Computed tomography (CT) scan of abdomen and pelvis showed a dilated small bowel with a transition point in the distal ileum with no definite cause of obstruction identified. As conservative management did not relieve her symptoms she was consented for a diagnostic laparoscopy which revealed internal herniation of distal ileum through a defect in the broad ligament of the uterus. Conclusion: Small bowel obstruction due to internal herniation through a defect in the broad ligament is very rare. This diagnosis should be considered when radiological imaging is inconclusive. Early recognition is extremely important to reduce the risk of intestinal strangulation which has a high mortality rate.

Keywords: Broad ligament, Internal hernia, Laparoscopy, Small bowel obstruction

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INTRODUCTION

Internal hernias are rare and occur when there is protrusion of a hollow viscus (more commonly the small intestine) intra-abdominally through a congenital or acquired opening within the peritoneum or mesentery. Up to approximately 6% of cases of intestinal obstruction are due to internal hernias [1, 2]. The broad ligament is a peritoneal fold attaching the fallopian tubes, ovaries and uterus to the wall and floor of the pelvis: herniation of abdominal viscera through a defect in this structure is rare and accounts for 4% of all internal hernias [2–5]. Herein we report a case of small bowel obstruction due to a broad ligament hernia, managed successfully using laparoscopic techniques.

CASE REPORT

A 73-year-old woman with no prior surgical history presented to the emergency department with a four-day

history of abdominal distension, bilious vomiting and not opening her bowels. On physical examination her abdomen was markedly distended, but soft, non-tender with tinkling bowel sounds. Rectal examination revealed no abnormalities. Laboratory findings showed raised inflammatory markers: CRP 123 mg/l and plain film radiography revealed dilated small bowel loops (Figure 1). A CT scan of abdomen and pelvis was subsequently performed which showed dilated small bowel with a transition point in the distal ileum with no definite cause of obstruction identified. Initially, she was managed conservatively with nasogastric tube decompression, intravenous antibiotics and fluids with little improvement of her symptoms. Therefore a diagnostic laparoscopy was undertaken. Intraoperative findings revealed internal herniation of distal ileum through a 3x3 cm defect in the broad ligament of the uterus (Figures 2 and 3). The small bowel had no evidence of ischaemia therefore was simply reduced and the defect of the broad ligament was closed with 2-0 vicryl stitches (Figure 4). Postoperatively her symptoms completely resolved leading to her discharge after three days.

DISCUSSION

There are various types of internal hernias described in the literature; most commonly reported in 53% of cases are paraduodenal. Others examples include pericecal (13%),

Figure 1: Abdominal radiograph showing dilated loops of small bowel.

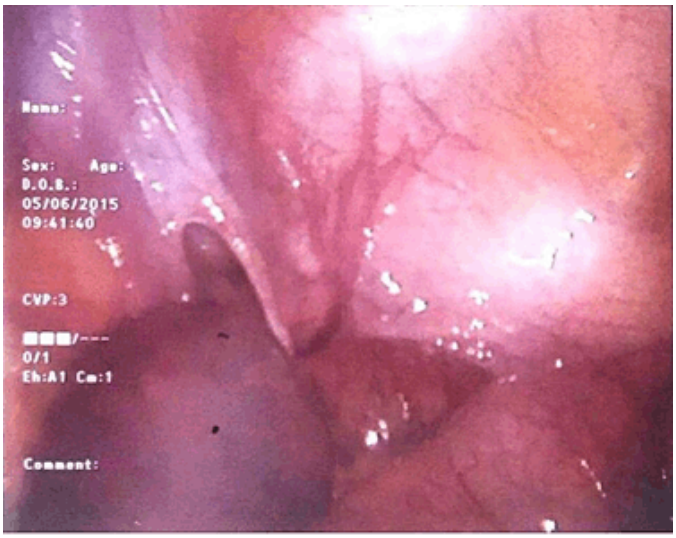

Figure 2: Laparoscopic image showing intestinal herniation through a defect in the broad ligament of the uterus.

Figure 3: Laparoscopic image showing the Type 1, fenestra, 3x3 cm defect in the broad ligament of the uterus.

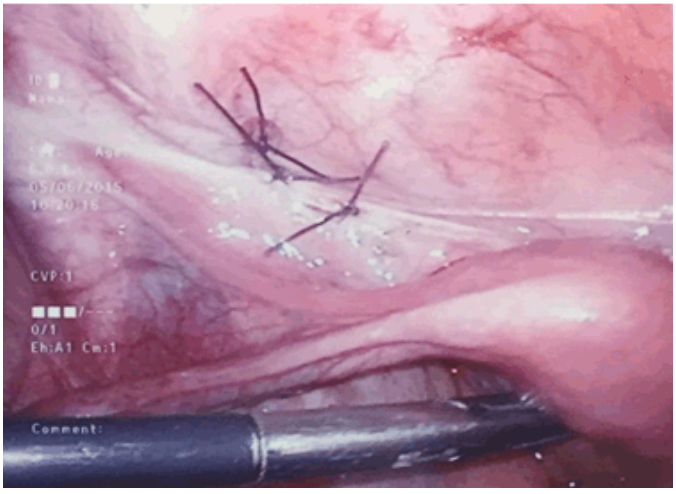

Figure 4: Laparoscopic repair of the broad ligament defect.

transmesenteric (8%), and epiploic foramen hernias (8%) [1, 2]. However, intestinal herniation through the broad ligament is the least common and only accounts for 4% of all internal hernias [4, 5]. Causes of these are either congenital or acquired in nature: usually due to obstetric trauma, abdominopelvic surgery, or pelvic inflammatory disease [5]. Therefore in a woman with a virgin abdomen and no significant medical history, a congenital cause must be considered. There are two classification systems described in literature which can be used to categorise defects within the broad ligament. The first was described by Hunt in 1934 and is based on the degree of peritoneal extension. The most common is the fenestra type, which involves both peritoneal layers, as small bowel can pass directly through this it can potentially lead to bowel strangulation. The pouch type is where only one of the two peritoneal layers is affected and may allow viscera to become trapped within parametrial tissue [6].

The second was devised in 1986 by Cilley which classified broad ligament hernias into three main categories based on the location of the defect within the broad ligament. Type 1 defects are the most common and occur in the mesometrium, which contains the greater section of the broad ligament. Type 2: interrupt the mesosalpinx and the mesovarium. Type 3: arise within the centre of the round ligament [7]. The patient in the case described above had a Type 1, fenestra broad ligament defect.

Clinically and radiologically internal hernias are very difficult to diagnose and a diagnostic delay is reported to have a mortality rate of approximately 50% due to the high risk of strangulation [2, 5]. Laparoscopic techniques are therefore extremely important as it allows early recognition and prompt surgical management, which includes reduction of the herniated bowel, potential resection and repair of the defect [8–10].

CONCLUSION

Small bowel obstruction due to internal herniation through a defect in the broad ligament is very rare. This diagnosis should be considered when radiological imaging is inconclusive. Early recognition is extremely important to reduce the risk of intestinal strangulation which has a high mortality rate.

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Author Contributions

Nicola Adanna Okeahialam – Conception and design, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Andrew Brodie – Conception and design, Acquisition of data, Analysis and interpretation of data, Critical revision of the article, Final approval of the version to be published

Eriberto Farinella – Acquisition of data, Analysis and interpretation of data, Critical revision of the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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