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A Rare Case of Closed-Loop Small Bowel Obstruction Secondary to Herniation Through A Defect in the Broad Ligament of the Uterus- A Case Report

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Abstract:

Internal hernias in intra-abdominal spaces or cavities may cause small bowel obstruction¹. However, internal hernia through the broad ligament of the uterus remains rare, accounting for approximately 4% of internal hernia cases^{2,3}. Diagnostic dilemmas are common with this variant of internal hernia, often leading to delayed treatments⁴.

We present a rare case of a 34-year-old female with a day history of significant suprapubic pain and nausea.

Examination revealed a patient with mild tachycardia and suprapubic tenderness with normal laboratory workup.

Contrast-enhanced computed tomography (CECT) scan showed a closed-loop small bowel obstruction in the pelvis without demonstrating the cause of this.

Diagnostic laparoscopy revealed an internal hernia through a defect in the left broad ligament of the uterus, causing closed-loop small bowel obstruction. The hernia defect was managed with intracorporeal suturing after release of bruised but viable incarcerated small bowel.

With this report, we emphasise the importance of diagnostic laparoscopy as a vital diagnostic and treatment tool in patients with bowel obstruction and an unclear cause on CECT.

Herniation through a defect in the broad ligament of the uterus should be considered in females presenting with suprapubic pain and CECT findings of bowel obstruction with no clear aetiology.

Key Words:

Internal Hernia, Broad Ligament of the Uterus, Hernia

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Introduction

Internal hernias account for about 1% small bowel obstruction^{1,2}. The earliest recorded literature on internal hernia through the broad ligament of the uterus dates back approximately three-quarters of a century⁵, and very few reports of this condition are available in the literature to date. They have been recently referred to as broad ligament hernias (BLH)⁶. Small bowel, as well as other viscera, have been implicated in herniation through the broad ligament hernias⁷.

Case presentation.

This is the case of a 34-year-old lady who presented to our acute surgical department with a day's history of severe lower abdominal pain of a day's duration. There was associated nausea, but no vomiting.

She had presented 5 months prior with lower abdominal pain similar to the current episode which resolved with non-operative management.

Relevant history include- laparoscopic appendicectomy 3 years prior, a history of two previous vaginal deliveries and colposcopy evaluation for cervical polyp, which was found to be normal.

Clinical examination revealed a flushed patient in painful distress, with mild tachycardia of 96 bpm, and otherwise normal vital signs.

Abdominal examination revealed stigmata of previous laparoscopic surgery, a generally soft abdomen. There was suprapubic tenderness worse on the left.

Striking was the fact that the patient's pain was out of proportion to clinical findings.

The blood workup was normal, except for a mildly elevated CRP of 11 mg/L.

CECT showed a dilated segment of small bowel in

the pelvis, described as a closed-loop obstruction with two distinct transition points and small bowel fecalization.

Given the clinical and radiological findings, without a clear cause, a clinical decision was made to proceed with diagnostic laparoscopy.

This revealed small bowel herniation through a 2.5 cm defect in the left broad ligament of the uterus with two transition points. We reduced the bruised but viable small bowel from the defect. No bowel resection was needed. The defect was closed with a “figure-of-eight” 2/0 Vicryl suture.

The patient made an uneventful recovery and was discharged home on the second postoperative day.

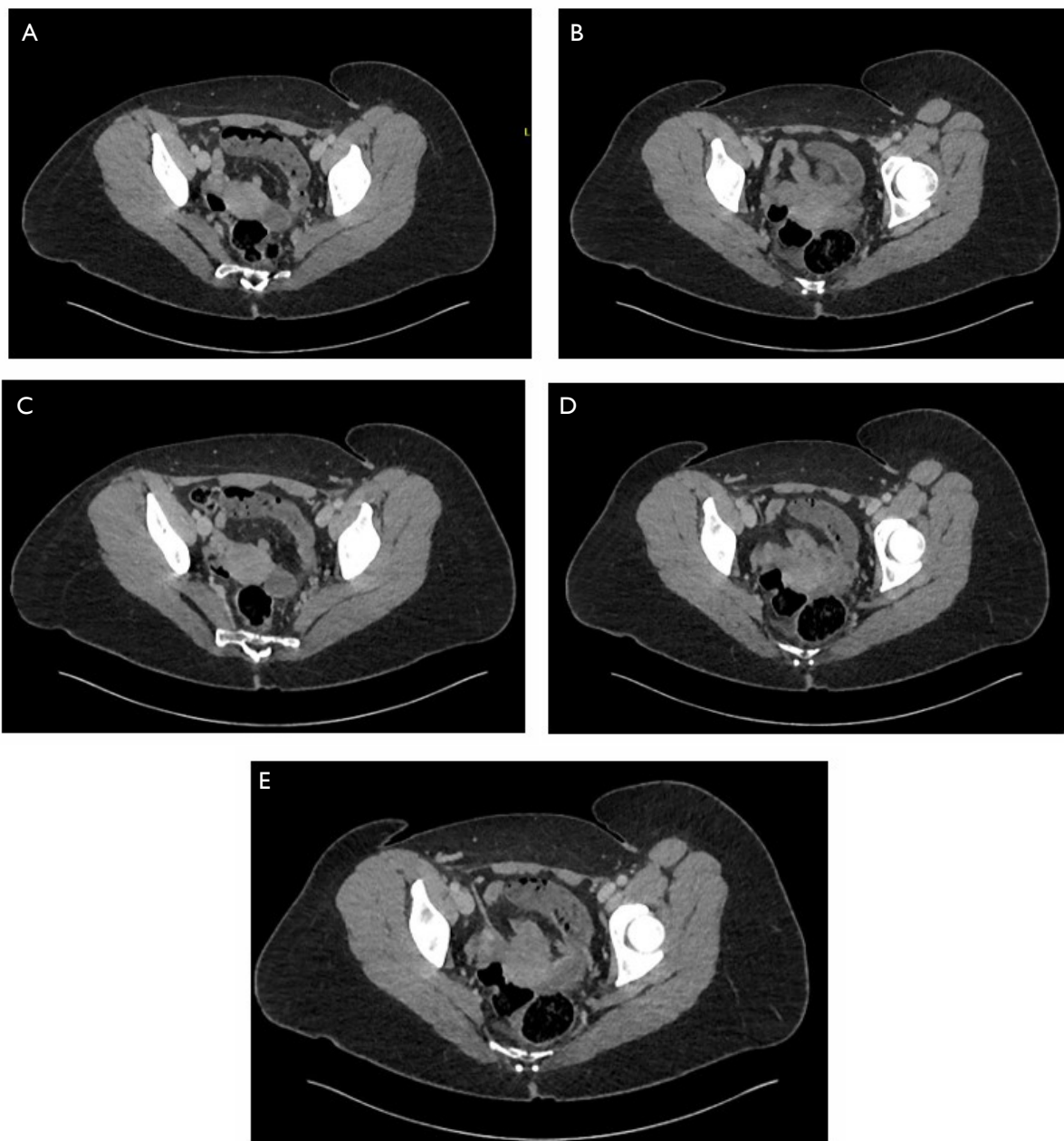
See Figure 1 (A-E):

Discussion

A variety of acquired predisposing factors, such as multiparity and pelvic inflammatory disease, have been described for broad ligament hernias^{2,6}

The critical factor that led to surgical exploration in our case report was the finding of abdominal pain, which was disproportionate to the clinical findings. The patient was in severe pain with a relatively soft abdomen to palpation.

Blood workup with findings of metabolic acidosis and rising lactate on arterial blood gases may sometimes point to the presence of clinical



deterioration or raise the suspicion of pending or already ischemic bowel/ viscera. However, this was not the case with our patient, whose blood workup was normal, except for a mild rise in CRP to 11 mg/L. Her normal laboratory test may be explained by compensation in a relatively fit and well young patient or perhaps, a reasonably short history at presentation.

CECT scans may aid diagnosis and the need for surgery⁶. They, however, do not always diagnose the small bowel herniating through the broad ligament of the uterus, as was the case for our patient, and this has been mirrored in similar reports.^{2,4,3}.

The CECT scan in our case report, in addition to other findings, showed faecalisation of the small bowel. We wondered if there was a bit of chronicity to this, given the similar presentation by the patient 5 months prior, which had resolved with non-operative management.

In cases with equivocal CT findings and a clinically unwell patient, diagnostic laparoscopy is a reasonable option⁸. This should be done in appropriately consented patients for diagnosis and treatment, as was the case with our patient.

Early diagnosis and timely treatment ensure the best outcomes for patients, while bearing in mind the attendant risks of surgery and anaesthesia with a negative laparoscopy. However, in these cases, the benefit of diagnostic laparoscopy significantly outweighs its risks, especially in fit and young patients.

Open and minimally invasive management options have been described for broad ligament hernias^{6,7,4,3}.

However, more extended hospital stays have been reported in patients managed with laparotomy compared to minimally invasive options. Nozoe et al. report a 10-day postoperative hospital stay for laparotomy, whereas Toolabi et al. report a 2-day postoperative hospital stay for laparoscopic management. Similar to Toolabi et al, our patient had a 2-day postoperative stay after laparoscopic management of the BLH^{3,2}.

Reyes et al, who had converted their laparoscopy to laparotomy due to safety concerns and poor access with distended bowel, report a 4-day hospital stay post-operation.

Laparoscopic management of broad ligament hernias requires advanced skills in laparoscopic surgery of intracorporeal suturing. The defect causing the

hernia must be closed surgically to prevent recurrence of bowel obstruction⁶.

In the absence of this laparoscopic skillset, then a laparotomy to manage broad ligament internal hernia and closure of the hernia defect is advised.

Ahuja et al. suggest closing the defect with non-absorbable sutures may prevent the recurrence of the hernia⁶.

Reyes et al. performed a salpingo-oophorectomy to eliminate the defect entirely⁴.

In cases with evidence of ischemic viscera needing resection, an emergency laparotomy is the preferred option^{7,4}. Regardless of the preferred approach, the defect in the broad ligament should not be left open on reduction of the hernia content. The main limitation of this report is the absence of operative images. This was not possible due to a lack of facilities for intra-operative image capture with the laparoscopic stack used for this operation. It is unethical in our institution to take photographs of intra-operative procedures using mobile phones.

Conclusion

Broad ligament hernias should be considered in females presenting with suprapubic pain and CECT findings of bowel obstruction of uncertain aetiology. Diagnostic laparoscopy is a validated diagnostic and treatment tool in these cases.

Funding

None

Conflict of interest

None

Ethical approval

The patient's consent was sought for this work.

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