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Internal hernia through a congenital peritoneal defect in the vesico-uterine space

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ABSTRACT

INTRODUCTION: An internal hernia is a rare type of hernia that may either be congenital or acquired in etiology. Acquired internal hernias generally develop from mesenteric defects or adhesions from prior surgery. These hernias can trap and/or twist small bowel, resulting in bowel obstruction. The diagnosis of small bowel obstruction (SBO) secondary to internal hernia is particularly challenging given its non-specific clinical presentation. Thus, it is critical for the clinician to keep internal hernias as part of the differential for a patient presenting with SBO.
PRESENTATION OF CASE: In this case, we present the first reported case of a hernia through the vesico-uterine space as a cause of an SBO. Our patient was a 38-year-old female with no past medical or surgical history who presents with nausea, vomiting, and obstipation. Upon exploratory laparoscopy, she was found to have an internal hernia through a peritoneal defect in the vesico-uterine space.
DISCUSSION: To our knowledge this is the first report of an intestinal obstruction caused by herniated bowel through a congenital vesico-uterine peritoneal defect. It is important for surgeons to keep in mind that while rare, congenital pelvic peritoneal defects can lead to bowel obstructions.
CONCLUSION: The patient underwent laparoscopic exploration, during which the incarcerated bowel was freed and appeared to be viable. The peritoneal defect was subsequently closed. Post-operatively, she recovered without issues and her obstructive symptoms resolved.

1. Introduction

Internal hernias are defined by the extension of viscus through normal or abnormal apertures within the peritoneal cavity, with the overall lifetime incidence in the general population ranging from 0.2 to 0.9% [1]. Internal hernias can be divided into congenital or acquired hernias. Within congenital internal hernias, the most common location is paraduodenal (53%) followed by pericecal (13%), foramen of Winslow (8%), transmesenteric or transmesocolic (8%), and intersigmoid (6%) [1–3]. Very few cases of internal hernias have been described due to pelvic peritoneal defects [4–7], and to our knowledge our case is the first reported case of a congenital peritoneal defect through the vesico-uterine space. Acquired cases of internal hernias are mostly iatrogenic secondary to surgically created defects in the mesentery, and adhesions from prior surgical interventions. Additional mechanisms of herniation including intraperitoneal inflammation and trauma have been observed [1,8].

Internal hernias are the cause of 0.6–5.8% of cases of small bowel obstruction (SBO) [8]. Though they account for a small percentage of SBOs, they often evade the clinician's differential diagnosis given their atypical clinical presentation. Unlike ventral and inguinal hernias, no physical protrusion can be appreciated on the abdominal exam. Thus, otherwise healthy patients with virgin abdomens can present with persistent obstructive symptoms with an unrevealing physical exam, and this can present a conundrum to the clinician. In this case, we present a 38 year old female with no previous abdominal surgery who presented with a small bowel obstruction of the distal ileum due to an internal hernia caused by a peritoneal defect in the vesico-uterine pouch.

2. Case report

A 38-year-old female without any previous medical or surgical history presented with a several day history of nausea, vomiting, abdominal distention, and obstipation. In the ED, the patient's bloodwork revealed a white blood cell count of 13,000. CT scan of the abdomen with IV and oral contrast was suggestive of small

Abbreviations: SBO, small bowel obstruction.

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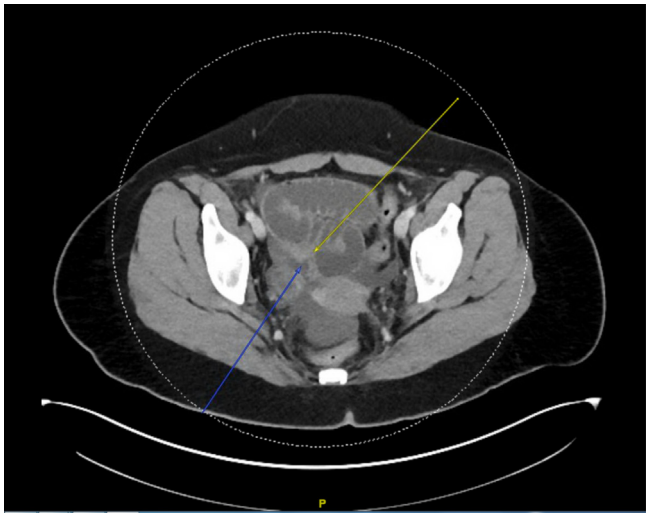

Fig. 1. CT abdomen demonstrating SBO with transition point in distal ileum.

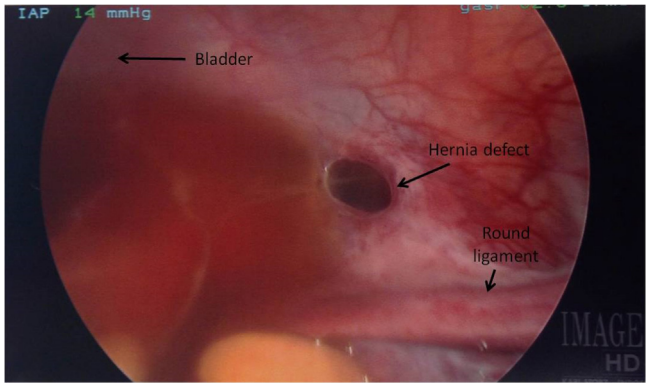

Fig. 2. Peritoneal defect identified in the vesico-uterine space.

bowel obstruction with a transition point at distal ileum down in the pelvis (Fig. 1). The small bowel loops distal to the transition point were decompressed. No bowel wall thickening, pneumatosis, or pneumoperitoneum was appreciated, though there was a small amount of mesenteric fluid surrounding the dilated loops of small bowel. The patient had mild diffuse abdominal pain without any evidence of peritonitis. Given the patient's lack of prior surgical history and the concerning findings of a small bowel obstruction, it was decided to pursue laparoscopic exploration to investigate the etiology of the obstruction.

On entry into the peritoneal cavity, free serous fluid was appreciated in the pelvis. The small bowel was then run from the terminal ileum in reverse fashion. Approximately 15–20 centimeters from the terminal ileum, a loop of small bowel was found to be incarcerated in a peritoneal defect in the pelvis. The bowel was gently reduced and found to be viable. The location of this defect was clearly in the vesico-uterine space, just to the right of the midline (Fig. 2). There was no evidence of direct or indirect inguinal hernia.

The peritoneal defect was closed primarily with two interrupted Vicryl sutures. The rest of the bowel was inspected and no other pathology was noted. The patient tolerated the procedure well and recovered without any issues.

3. Discussion

Internal hernias are an uncommon but important cause of small bowel obstruction, accounting for less than 6% of all SBOs [2]. SBOs due to internal hernia remains a challenging diagnosis, as clinical symptoms may vary widely, ranging from a mild abdominal discomfort to constant, vague epigastric pain, to colicky periumbilical pain [1]. The severity of symptoms correlate strongly to the reducibility of the hernia and the presence or absence of incarceration or strangulation which can result in an acute abdomen [1,8]. CT imaging is now considered the first-line imaging technique for diagnosis of internal hernias. Characteristic CT findings include distended bowel loops in abnormal locations, crowding of small-bowel loops within a hernia sac, evidence of obstruction with segmental dilatation, and mesenteric vessel engorgement/stretching/twisting [1]. However, definitive diagnosis of an SBO from an internal hernia remains a challenge. Typically, a combination of clinical symptoms and CT findings dictate whether or not conservative medical management including nasogastric decompression and IV hydration or surgical intervention is needed.

Peritoneal defects leading to internal herniation and small bowel obstruction have been described in a variety of locations, though peritoneal defects leading to herniation in the pelvic region are rarely observed. There are several case reports describing peritoneal defects in the pouch of Douglas [4–7]. However, to our knowledge, this is the first case report of a small bowel obstruction due to a peritoneal defect in the vesico-uterine pouch. Three of the reports of pouch of Douglas peritoneal defects describe patients who presented with small bowel obstruction [5–7] while one report describes a patient who presented with acute groin pain [4]. For one of these patients, it was hypothesized that the peritoneal defect in the Pouch of Douglas was related to previous hysterectomy [6]. The other three instances of peritoneal defects in the Pouch of Douglas occurred in patients without prior abdominal surgery [4,5,7], though one patient had a previous induced abortion of pregnancy [5]. Three of the peritoneal defects were managed with laparotomy and primary closure [5–7] while the fourth was repaired laparoscopically with placement of mesh [4].

Our case presents the first reported case of an SBO from a congenital vesico-uterine defect. It is important to consider internal hernias through pelvic peritoneal defects as part of the differential in patients who present with an SBO without prior surgical intervention.

Conflicts of interest

No conflict of interest for any of the authors.

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Ethical approval

Written consent obtained from patient.

Consent

Written consent obtained from patient.

Author contribution

Danny Mou led the bulk of the writing of the paper, gathered data, provided clinical care and chart-reviewedthe patient, and iterated drafts of the paper with Reza Askari and Anupamaa Seshadri.

Reza Askari and Anupamaa Seshadri provided senior level guidance in formulating the case and proofed may iterations of the drafts. They were also part of the clinical team that took care of the patient.

Margaret Fallon and Rohit Thummalapalli contributed significantly to background research and writing of the paper.

Guarantor

Danny Mou.

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