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Case Report

An unusual case of early-stage obturator hernia causing bowel obstruction and strangulation [☆]

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ABSTRACT

Obturator hernia is rare, contributing to less than 2% of the total incidence of small bowel obstructions. The diagnosis of obturator hernia is still a big challenge today. Abdominopelvic Computed Tomography scans have better diagnostic value preoperatively, showing the bowel loop between the pectineus and obturator externus muscle. We report an unusual case of a 77-year-old woman who presented to the emergency ward with an acute abdominal pain. Plain abdominal radiography showed small bowel obstruction. However, a computed tomography scan only showed signs of closed-loop obstruction and strangulation with bulging of the peritoneum through the obturator foramen. Exploration by laparotomy allowed complete evaluation of the obturator canal and confirmed the diagnosis of obturator hernia as a cause of bowel obstruction and strangulation.

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Introduction

Obturator hernia accounts for about 0.07%-1% of all hernias and 0.2%-1.6% of all small bowel cases. Obturator hernia has the highest mortality rate of all abdominal wall hernias, with a predominance in women because of the larger obturator canal anatomy and its oblique inclination. Obturator hernias are more common on the right-hand side because the left obturator foramen is covered by the sigmoid colon [1]. The diagnosis of obturator hernia is often difficult because the physical examination is non-specific; patients usually present with symptoms of bowel obstruction. Computed Tomography (CT) scans are the best diagnostic tool before surgery as they show

the bowel in the obturator canal. We report a case of a 77-year-old woman whose diagnosis was confirmed as being an obturator hernia via exploratory laparotomy. However, a CT scan only showed herniation of the peritoneum into the obturator canal, with devastating consequences such as strangulation.

Case report

The patient was a 77-year-old Malayan Mongolian woman who came to the emergency ward complaining of abdominal pain for the past 2 days. Abdominal pain was felt continuously and worsened with time. In addition, the

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Fig. 1 – AP supine plain radiograph of the abdomen shows the herringbone and coiled spring signs with minimal gas in the large bowel.

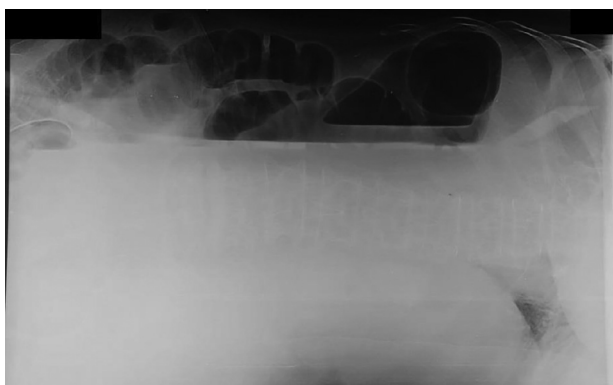


Fig. 2 – Left lateral decubitus abdominal radiograph shows air-fluid levels without free intraperitoneal gas.

patient vomited every time she ate or drank and could not pass gas or defecate for 1 day. On arrival, the patient's general condition was weak, with hypertension (150/90 mmHg) and tachycardia (110 bpm). Upon physical examination, the abdominal region appeared distended, with increased bowel sounds. The digital rectal examination indicated a collapsed rectum with smooth mucosa and a normal sphincter tone. The Howship–Romberg sign was negative. Laboratory examinations showed results within the normal ranges.

An AP supine plain radiograph of the abdomen showed partial small bowel obstruction (Fig. 1). The left lateral decubitus abdominal radiograph showed air-fluid levels without free intraperitoneal gas (Fig. 2). The patient then underwent an abdominopelvic CT scan, which demonstrated dilatation of the



Fig. 3 – Axial CT scan demonstrates dilatation of the stomach and small bowel with multiple air-fluid levels. CT, computed tomography.

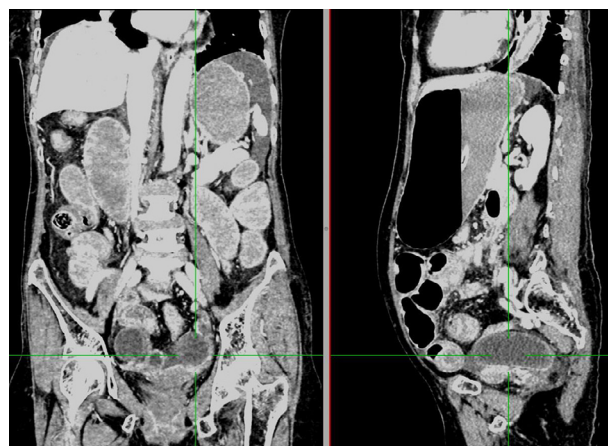


Fig. 4 – Coronal and sagittal CT images show the small bowel feces sign in the small bowel at the proximal point of obstruction. CT, computed tomography.

stomach and small bowel with multiple air-fluid levels (Fig. 3) and the small bowel feces sign in the small bowel at the proximal point of obstruction (Fig. 4). The CT scan showed a “C” loop configuration, which is a sign of a closed-loop obstruction (Fig. 5). Closed-loop obstruction was also confirmed by a double beak sign (Fig. 6). Strangulation and ischemia of the bowel were also indicated by various signs, including mesenteric edema (Fig. 7) and bowel wall thickening with decreased enhancement (Fig. 8). Early-stage obturator hernia was suspected from peritoneal herniation to the right obturator foramen (Fig. 9) but no bowel was seen between the pectineus and obturator externus muscle.

The patient was admitted to the digestive surgery service with a diagnosis of small bowel obstruction and strangulation suspected to be due to an obturator hernia. An exploratory



Fig. 5 – Axial CT scan shows a “C” loop configuration, which is a sign of a closed-loop obstruction. CT, computed tomography.

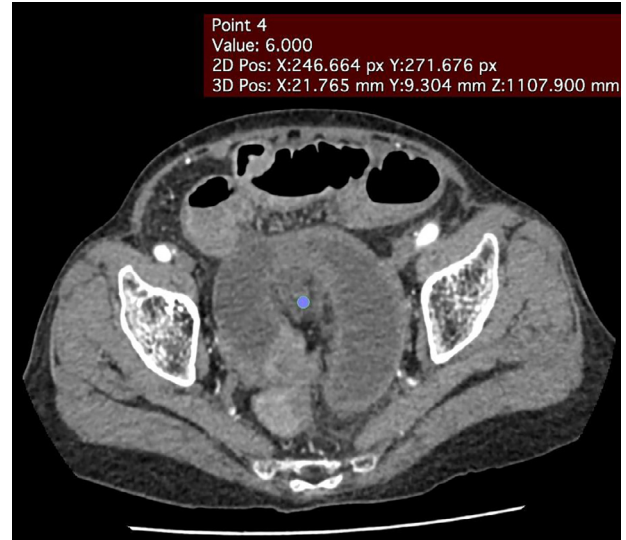


Fig. 7 – Axial CT image shows mesenteric edema. CT, computed tomography.



Fig. 6 – Coronal CT image demonstrates a double beak sign, indicating two points of obstruction in a closed-loop obstruction. CT, computed tomography.

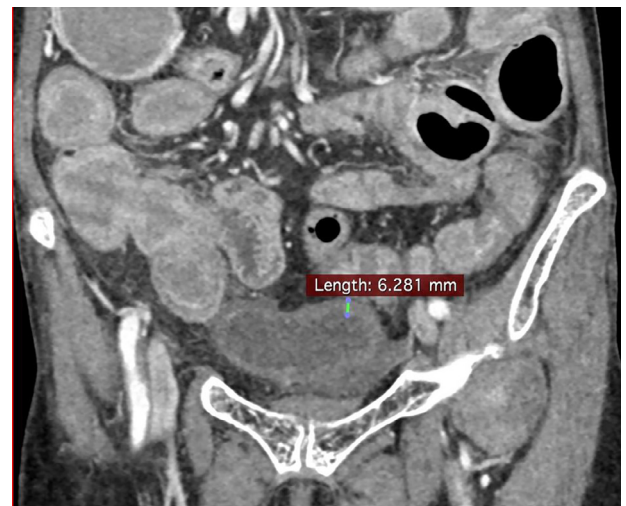


Fig. 8 – Coronal CT image shows small bowel wall thickening with decreased enhancement compared to a normal bowel. CT, computed tomography.

End-to-end anastomosis and herniorrhaphy were performed. There were no intraoperative or postoperative complications. The patient was discharged within 2 weeks.

laparotomy was planned as soon as the patient's general condition improved. In an exploratory laparotomy performed with an abdominal approach, an obturator hernia was found, with a defect of about 1 cm and a 10-cm-long necrotic segment (Fig. 10). The necrotic segment of the ileum was resected.

Discussion

Obturator hernia is the protrusion of the peritoneum, bowel, or abdominal viscera through the obturator canal. The obturator foramen is formed by the superior ramus of the pubic bone, inferior ramus of the pubic bone, and ischium bone. It is covered by the obturator membrane [2]. Obturator hernias are most common in elderly women who have a

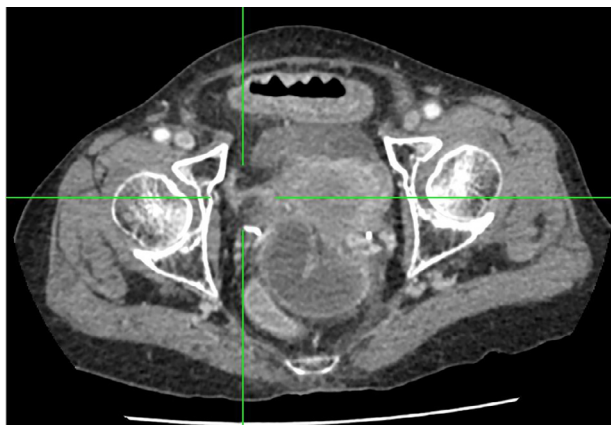


Fig. 9 – Axial CT image shows peritoneal herniation to the right obturator foramen. CT, computed tomography.



Fig. 10 – Exploratory laparotomy confirmed the diagnosis of obturator hernia with a defect of about 1 cm and a 10-cm-long necrotic segment.

history of multiple pregnancies. Therefore, obturator hernias are often referred to as “little old lady’s hernias” because women in this group have a larger pelvic diameter, larger obturator canal, and increased laxity of the pelvic tissues, and also experience atrophy and loss of preperitoneal fat around the obturator blood vessels in the obturator canal [3]. The risk factors for obturator hernia are constipation, chronic obstructive pulmonary disease, multiparity, ascites, aging, malnutrition, and increased intra-abdominal pressure [4,5]. Our patient

in this case was also an elderly woman aged 77 years with multiparity risk factors, namely seven instances of childbirth. Multiparity causes an increase in pelvic diameter and increased laxity of the pelvic soft tissues.

The clinical symptoms of obturator hernia are not specific. Most patients present with symptoms of mechanical bowel obstruction. Symptoms can be intermittent if the herniated bowel can come back out of the obturator canal [5]. The Howship–Romberg sign is defined as pain on the inner side of the thigh when performing internal rotation of the hip [6]. This pain is caused by compression of the obturator nerve, which is also in the obturator canal [7]. When positive, the Howship–Romberg sign is a pathognomonic sign of an obturator hernia. The Howship–Romberg sign is only positive in 15%–50% of obturator hernia cases [6]. This sign is also often misinterpreted as neuromuscular pain, such as hip joint pain, which often occurs in elderly patients [8]. Our patient came to the emergency ward with complaints of intestinal obstruction, including abdominal pain, nausea, vomiting, and the inability to pass gas and defecate. The complaints were persistent, without any episodes of recovery. The Howship–Romberg sign in our patient was negative, either because there was no compression of the obturator nerve or because it was masked by abdominal pain.

Because the signs and symptoms are non-specific, the clinical diagnosis of obturator hernia is very difficult. If the symptoms of bowel obstruction and peritonitis worsen, exploratory laparotomy will be performed to find the cause directly without preoperative diagnosis [7]. Several radiology modalities have been proposed to help make an accurate preoperative diagnosis, such as plain abdominal radiography, ultrasonography, and CT scans. Ultrasonography can show hypoechoic, dilated, and edematous bowel in the obturator canal area, but this examination is less sensitive and specific. In our patient, ultrasonography was not performed. Ultrasonography often leads to misdiagnosis of obturator hernia as femoral or inguinal hernia [1].

AP and left lateral decubitus views of plain abdominal radiographs are often obtained as part of the initial examination. This imaging is necessary to determine whether mechanical bowel obstruction or pneumoperitoneum is present [1]. However, we cannot determine the cause through this examination. The plain abdominal radiograph of our patient showed the herringbone sign and coiled spring sign, which are signs of small bowel obstruction. The left lateral view showed no pneumoperitoneum.

Abdominopelvic CT scan is an imaging modality that is often used in cases of mechanical obstruction because it can determine whether there is an obstruction, its level, cause, and complications. In the case of obturator hernia, the CT scan can also aid rapid diagnosis and earlier surgery to optimize results and reduce mortality and morbidity [1,3]. The most frequent CT scan features are signs of obstruction and a herniated bowel loop through the obturator foramen between the obturator externus and the pectineus muscles [4]. In strangulated obturator hernia, a CT scan demonstrated edematous and ischemic small bowel, leading to perforation [3]. In our case, the CT scan showed herniated peritoneum but no herniated small bowel in the obturator foramen. A herniated peritoneum is an early stage of obturator hernia [9]. However, our

case also showed signs of closed-loop obstruction as well as strangulation, which are uncommon findings in early-stage obturator hernia.

The only appropriate treatment for obturator hernia is surgery. In emergency cases with signs of strangulation and an unclear cause, exploratory laparotomy with an abdominal approach is favored. In our case, an obturator hernia was found with a defect of about 1 cm, so a herniorrhaphy was performed. However, because the 10 cm of the ileum was necrotic, resection and end-to-end anastomosis were also performed. Fortunately, our patient had no complications after surgery and was able to go home after 2 weeks of treatment.

Conclusion

We report the case of a 77-year-old female with clinical signs of small bowel obstruction. A CT scan demonstrated closed-loop obstruction and strangulation. The diagnosis of early-stage obturator hernia was suspected from the herniated peritoneum through the obturator foramen, which was later confirmed at the time of surgery. The CT scan remains an imaging modality that can aid rapid diagnosis to optimize results and reduce mortality and morbidity even in the early stages of obturator hernia.

Patient consent

No patient identifiers are disclosed in current report. Written informed consent was obtained from the patient.

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