

Small Bowel Obstruction Secondary to Obturator Hernia: A Pre-Operative Diagnosis at Computed Tomography

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ABSTRACT

Obturator hernia is rare, but it must be considered in elderly patients who present with small bowel obstruction. The diagnosis is challenging unless there is a high index of suspicion as the presenting symptoms and signs are usually non-specific. Presence of positive Howship-Romberg sign is considered pathognomonic. Early diagnosis and rapid surgical intervention will reduce the high morbidity and mortality associated with undiagnosed obturator hernia. We report a case of a 93-year-old female patient who was admitted to our surgical department with symptoms of intestinal obstruction of 3-days duration. Howship-Romberg sign was negative. Computed tomography (CT) demonstrated the presence of left obturator hernia with proximal small bowel obstruction and no sign of strangulation. The patient had emergency laparotomy post-CT where the incarcerated bowel loop was released and the obstructed bowel was decompressed without any complication. The hernial defect was close with a mesh and the patient had an uneventful recovery post-surgery. In this case, we highlight that diagnosis of obturator hernia must always be considered in elderly patients who present with intestinal obstruction. Urgent CT could establish a rapid pre-operative diagnosis and aids in appropriate surgical intervention planning which is crucial in optimising the outcome.

KEYWORDS: Obturator hernia, Small bowel obstruction, Computed tomography (CT), Howship-Romberg sign, Emergency laparotomy

INTRODUCTION

Although uncommon, obturator hernia an important cause of small bowel obstruction in elderly females. The real incidence is unknown; however, obturator hernia is thought to constitute less than 1% of all hernias worldwide [1]. Even though approximately 80% of cases will present with intestinal obstruction symptoms, only 20% will be diagnosed preoperatively [2]. The delay in diagnosis especially in cases of strangulation and incarceration will lead to an increase in peri and postoperative morbidity and mortality especially in older patients and those with other co-morbid conditions [3,4].

We present a case of an elderly lady with lower abdominal pain associated with nausea and vomiting due to an incarcerated left obturator hernia. Due to the unresolved symptoms and clinical deterioration, an urgent computed tomography (CT) scan was requested

and laparotomy was performed. This case aims to demonstrate that the pre-operative diagnosis of obturator hernia is extremely difficult unless there is a high index of suspicion and that CT scan of the abdomen can lead to an earlier diagnosis, more rapid surgical intervention and a more favourable outcome for the patient.

CASE PRESENTATION

A previously fit, thin, 93-year-old, Chinese lady was admitted to the surgical ward with a 3-day history of nausea, profuse vomiting, colicky abdominal pain and bloatedness. She also complained of absent bowel movements and not passing flatus for the past 3 days. Her past medical history included osteoporosis and previous right knee replacement. The patient had no prior history of any abdominal surgery.

Clinically, she was haemodynamically stable. On examination, she had a distended and mildly tender left lower abdomen with no palpable masses or hernias. Howship-Romberg sign was negative. Digital rectal examination was unremarkable. Bowel sounds were high pitched and "tinkling."

All her blood investigations were unremarkable. The abdominal radiograph demonstrated dilatation of the loops of small bowel suggestive of small bowel obstruction (Figure 1a).

She was managed conservatively for small bowel obstruction with a nasogastric tube, intravenous fluids and antibiotic cover. Unfortunately, her bowel obstruction was not resolving after 5 days of treatment. She also deteriorated with increasing dehydration and abdominal pain. The surgical team decided to proceed with an urgent exploratory laparotomy with an urgent abdominal CT scan before the laparotomy.

The CT demonstrated a left-sided obturator hernia with upstream small-bowel obstruction (Figure 1b, 2, 3). Normal enhancement and no oedema were seen within the wall of the affected bowel loops. The small bowel loops distal to the hernia as well as the large bowel were normal. There was no evidence of free fluid, pneumoperitoneum or mesenteric stranding to indicate bowel perforation.

The patient then underwent an emergency laparotomy which was done through an infra-umbilical midline incision. 5cm of proximal ileum was found trapped in the left obturator canal. The herniated loop of proximal ileum was found to be viable and was released without complication. The obstructed small bowel proximal to the hernia was decompressed. There was no evidence of bowel perforation or faecal contamination noted intra-operatively in the peritoneum. A Prolene mesh was used to close the obturator canal.

The patient subsequently opened her bowels after 3 days of ileus post-surgery. She recovered well on light diet and physiotherapy and was discharged home 7 days post-surgery.

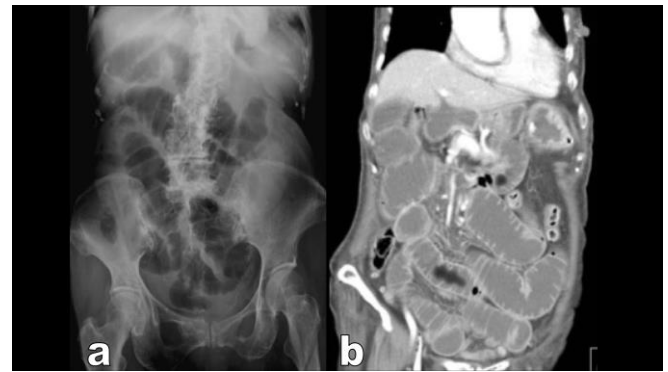


Figure 1: a) Abdominal radiograph b) Coronal reconstructed CT images showing multiple dilated small bowels consistent with small-bowel obstruction.



Figure 2: Contrast enhanced axial CT scan of the pelvis showing: a) A small loop of bowel seen herniating into the left obturator canal (white arrow); b) The loop of small bowel is detected between the pectineus (yellow line) and obturator externus muscles (blue line) in the left obturator foramen (white arrow).

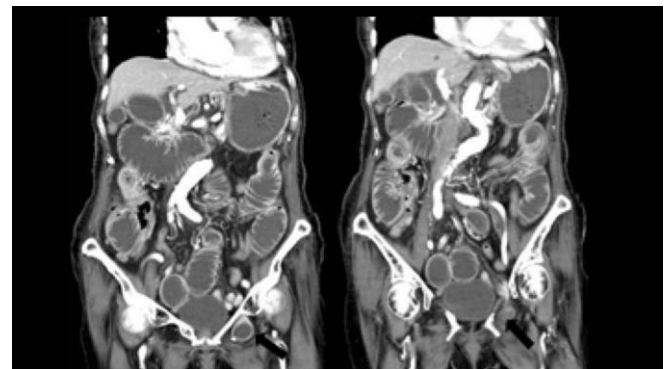


Figure 3: Coronal reconstruction CT images showing a left obturator hernia (black arrows) with upstream small-bowel obstruction. There is normal enhancement of the wall of the affected loops of bowel. The small bowel loops distal to the hernia as well as the large bowel are normal.

DISCUSSION

Although obturator hernia accounts for approximately 0.4% of small-bowel obstruction, the majority of cases are diagnosed at laparotomy for small bowel obstruction [1]. Due to the non-specific symptoms and signs at presentation, diagnosis is often delayed initially which consequently contribute to the high mortality rate [2].

Obturator hernias usually present in the seventh and eighth decades of life, are 6 times more common in women and usually involve the terminal ileum [3,5]. More than 60% occur on the right and about 15% are bilateral [4]. The predisposing factor to develop obturator hernia in women includes the presence of more horizontal obturator canal with larger and wider pelvic bones. Other contributing factors include chronic illness, malnutrition, prior pregnancy and conditions that weakened the peritoneum [2].

The obturator canal is located within the obturator foramen and is surrounded by fatty tissue. The obturator nerve, artery and veins travel through the canal. Conditions contributing to the loss of fatty tissues surrounding the canal, including ageing, malnutrition and weight loss, will create a space within the canal and facilitate the obturator hernia development [3-4].

Clinically, between 71-80% of obturator hernias present as mechanical small-bowel obstruction. The obstruction may be acute or intermittent and is usually partial rather than complete [3-4]. Exploratory laparotomy is usually required as the obstruction commonly fail to resolve on conservative treatment. Diagnosis of hernia is often made during laparotomy. Howship-Romberg sign is the most common indicator of the presence of obturator hernia and is found in about 50% of patients [1-4]. This sign, caused by impingement of the obturator nerve in the obturator canal, present as pain or tingling sensation of skin just above the knee on the medial aspect of the thigh. Other symptom includes recurrent attacks of bowel obstruction which resolve spontaneously. Although the hernia usually contained small bowel, it has also been described to contain the appendix, Meckel's diverticulum or urinary bladder [3]. Hence, the presence of obturator hernia needs to be excluded in a thin elderly woman who presents with a positive Howship-Romberg sign and small bowel obstruction. The diagnosis was

challenging in our patient as the initial clinical presentations were non-specific. This was further compounded by the absence of Howship-Romberg sign, which was considered pathognomonic.

Pre-operative detection of obturator hernias is more frequent with the increasing use of CT as the first-line imaging modality for bowel obstruction, [6]. As morbidity and mortality associated with small bowel obstruction are high in elderly patients, urgent CT scan should perform early to establish the cause of obstruction [7]. CT has superior sensitivity and is the most accurate imaging modality for the diagnosis of obturator hernia. Common CT findings include herniation of small bowel loops through the obturator foramen between the pectineus and obturator externus muscle. Dilated loops of bowels proximal to the herniation will be observed in an incarcerated hernia. Poor or absent enhancement and oedema of the bowel wall suggest the presence of strangulation. This information obtained from CT is invaluable in planning for appropriate surgical intervention [8]. In their review of nine cases, Terada R and colleagues found that CT scan was useful in establishing the correct pre-operative diagnosis of obturator hernia and in the planning for surgical intervention [9]. Furthermore, Kammori M et al reported that the use of CT significantly improved the pre-operative diagnostic accuracy of obturator hernia in tandem with a decrease of intestinal resection and surgical mortality [10]. In our patient, CT was only done 5 days post-admission. The CT demonstrated an incarcerated left obturator hernia, with herniation of a loop of small bowel through the obturator foramen between the pectineus and obturator externus muscle and dilated loops of bowel proximally. No evidence of strangulation was seen in our patient as CT showed normal enhancement with no oedema of the affected bowel wall in keeping with viable bowel loops. These CT findings concurred with the intraoperative findings.

CONCLUSION

In conclusion, pre-operative diagnosis of an obturator hernia poses a challenge unless there is a high index of suspicion. Earlier diagnosis aided via CT abdomen and rapid surgical intervention are crucial to prevent the high morbidity and mortality associated with undiagnosed obturator hernia.

Conflict of Interest

Authors declare none.

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None.

Author's contribution

Literature search and manuscript were prepared by MTRH. The manuscript was edited by MSMK and KR. All authors approved the final version of the manuscript submitted for publication and take responsibility for the statements in the article.

Informed Consent

Informed consent was obtained from the patient.

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