

## Abstract

Obturator hernia is a rare condition that may present in an acute or subacute setting in correlation with the degree of small-bowel obstruction. Pre-operative diagnosis is difficult, as symptoms are often non-specific. A high index of suspicion should be maintained for emaciated elderly women with small-bowel obstruction without a previous abdominal operation and a positive Howship–Romberg sign. When diagnosis is in doubt, computed tomography scan of the abdomen and the pelvis (if available) or laparotomy should be performed immediately, as high mortality rate is related to the perforation of gangrenous bowels. We present 2 cases of strangulated obturator hernia, managed differently with both open and laparoscopic approaches. The diagnostic accuracy of computed tomography scan is highlighted followed by a brief literature review with an emphasis placed on surgical management.

**Keywords:** digestive system surgical procedures, gut, intestinal obstruction, laparoscopy, obturator hernia, X-ray computed tomography scanners

## Introduction

Obturator hernia is a rare type of hernia but is an important cause of intestinal obstruction in elderly, thin woman with concurrent medical illnesses. A high index of suspicion is important, as symptoms are often non-specific. A delay in the diagnosis will lead to a high mortality rate due to acute strangulation of the small bowel. Computed tomography (CT) has a good accuracy in diagnosing this disease and should be performed as soon as possible. We present 2 cases of obstructed obturator hernia, managed differently with both open and laparoscopic approaches. We also highlight the difficulty with clinical diagnosis and the use of CT for accurate diagnosis.

## Case Report

### Case 1

A 72-year-old woman presented with a 3-day history of colicky abdominal pain associated with bilious vomiting. Further history showed that she had had no bowel opening for 4 days but was passing flatus. For the past 2 to 3 years, she had severe intermittent colicky lower abdominal pain that usually lasted several hours but resolved spontaneously. She had no other co-morbidities.

Clinical examination revealed a dehydrated, relatively thin afebrile patient. The abdomen was soft, non-tender, and not distended. There was no

palpable mass, and bowel sounds were present. Digital rectal examination revealed brownish stool with no mass felt. Chest and abdominal radiographs were normal with no free air seen under the diaphragm and no dilated bowels. Urgent upper endoscopy was normal, and urgent abdominal ultrasonographic assessment showed only minimal free fluids at Rutherford Morrison's pouch.

Routine blood investigations showed hyponatraemia with impaired renal function, which became normalised after adequate fluid resuscitation.

When attempts to initiate oral feeding resulted in repeated vomiting, a nasogastric tube was inserted for free flow, which drained more than 500 mL of brownish fluid within 12 hours. At that point, the abdomen was still soft and slightly tender towards the right lower quadrant on deep palpation. Bowel sounds were sluggish. An urgent CT scan of the abdomen showed bilateral obstructed obturator hernia (Figure 1). A decision for surgery was made.

At laparotomy, bilateral obturator hernia was identified, with the right side containing omentum and the left side containing a loop of strangulated small bowel entering the defect. The peritoneal cavity was contaminated with pus and slough. Gentle reduction revealed a segment

of gangrenous small bowel with circumferential perforation, 80 cm from the duodenojejunal flexure. Small-bowel resection of the gangrenous segment was performed, and an end-to-end anastomosis was created. The obturator foramen was repaired bilaterally with nylon 1/0 in a purse-string fashion. The patient recovered uneventfully and was well during follow-up review.

### Case 2

A 52-year-old woman with a background medical illness of end-stage renal failure on regular haemodialysis presented with 5 days' history of generalised colicky abdominal pain associated with vomiting clear fluid. She had had no bowel opening for 2 days and no flatus for 1 day. In addition, she also complained of right hip pain. Her past surgical history included a history of Mayo repair for obstructed paraumbilical hernia 1 year earlier.

On examination, the patient appeared to be well, with no signs of dehydration. The abdomen was distended but soft with no peritonitis. There was a supraumbilical midline scar with no cough impulse noted. Inguinal hernia orifices were normal. Rectal and right hip-joint examinations were unremarkable.

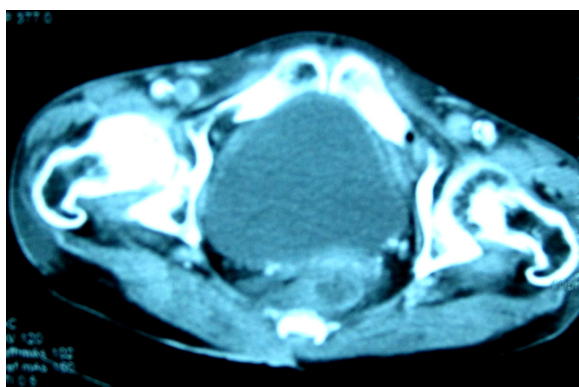
The abdominal radiograph showed dilated loops of small bowel. An initial diagnosis of small-bowel obstruction secondary to adhesion was made. When the patient did not improve after 2 days of drip and suck, a decision was made to proceed with CT scan of the abdomen. CT confirmed the findings of right obturator hernia with intestinal obstruction.

Upon laparoscopic assessment, a strangulated loop of small bowel was identified, 20 cm from the ileocaecal valve, with proximal dilation and distal collapse entering the right obturator foramen, which appeared congested and ischaemic (Figure 2). Laparoscopic reduction resulted in perforation of the ischaemic segment and spillage of bowel contents into the pelvis. Laparoscopic intracorporeal suturing of the right obturator foramen in the shape of a figure-8 was performed using polypropylene 1/0. A left obturator foramen was noted to be patent and was repaired similarly. A mini-Pfanstiel incision was made to retrieve the ischaemic small bowel segment followed by extracorporeal resection and primary anastomosis.

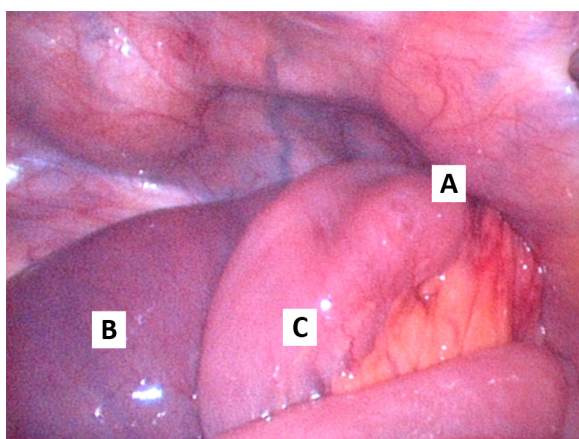
The patient recovered uneventfully and was well during follow-up review.

## Discussion

Obturator hernia is rare, accounting for 0.07% to 1.00% of all hernias (1,2) and 0.40% of bowel obstructions. A high index of clinical suspicion is required when small-bowel obstruction of unknown origin is encountered in emaciated elderly women, as delayed diagnosis and delayed surgical intervention are associated with high morbidity and mortality rates. The condition occurs most commonly in thin, elderly multiparous women, hence the nickname "little old lady hernia" (1). It is 9 times more common in females due to their wider pelvis, more triangular obturator canal opening, and greater transverse diameter (3).



**Figure 1:** Computed tomography image of the pelvis showing bilateral obturator hernia.



**Figure 2:** Laparoscopic view of strangulated obturator hernia. A: obturator canal, B: proximal dilated congested small bowel, C: distal collapsed small bowel.

Obturator hernia is a diagnostic challenge because the signs and symptoms are usually non-specific. The clinical course is usually manifested by one of the followings (4):

1. Acute small-bowel obstruction is the most common presentation, as seen in both our cases. The diagnosis is often made upon exploratory laparotomy for small-bowel obstruction of unknown aetiology, unless CT imaging of the abdomen and pelvis is performed before the surgery. The high frequency (41%–100%) of Richter's herniation of the small bowel into the obturator canal (3) causes partial obstruction without overt abdominal distension, as demonstrated in both our cases.
2. The Howship–Romberg sign, which is present in 15%–50% of cases (5), is characterised by pain in the medial thigh, less often in the hip, to the knee along the distribution of the obturator nerve. It is due to compression of the obturator nerve by the hernia sac and its contents. Typically, pain is exacerbated by extension, adduction, and medial rotation of the thigh and is relieved by flexion. It is present in our second patient but was overlooked as hip arthritis, as we lack familiarity with the condition.
3. Past history of recurrent attacks of intestinal obstruction that relieve spontaneously, as demonstrated in our first patient.
4. A palpable mass in the groin or during rectal and vaginal examination.

Various imaging modalities have been used in the diagnosis of obturator hernia. Herniography, plain radiography of the abdomen, ultrasonography of the inguinal region and inner aspect of the thigh, small bowel follow-through study, barium enema, and magnetic resonance imaging were reported in the literature, but CT of the abdomen and pelvis is the gold standard, with a 78%–100% diagnostic rate demonstrating the hernia and its contents in the obturator canal (2,6), and should be recommended for elderly patients with a non-specific small-bowel obstruction. In our case, CT scan confirmed the diagnosis prior to the surgery. Nevertheless, no single imaging modality should compromise operative intervention should patients require emergency laparotomy for clinical signs paramount to intestinal obstruction or peritonitis.

There are several open operative approaches

described for the repair of obturator hernia. These include the abdominal, retropubic, obturator, and inguinal approaches (7). In the emergency setting, the abdominal approach via a low midline incision is most commonly favoured, as it allows adequate exposure of the obturator ring as well as the identification and resection of any ischaemic bowel. Closure of the defect by synthetic mesh is not to be encouraged in the setting of perforation and gangrenous bowel. In such cases, the sac is left in situ and the neck closed by non-absorbable purse-string sutures (7) or one or more interrupted sutures (3). Simple closure has an acceptable recurrence rate of less than 10% (3) and is being utilised in both our cases.

Laparoscopic surgery has a role in the management of obstructed obturator hernia, provided the necessary surgical expertise is available, as it is technically more demanding to perform laparoscopic surgery in an obstructed bowel due to limited intraabdominal space. Both transabdominal and extraperitoneal approaches have been described. The laparoscopic transabdominal approach is appropriate for the emergency setting, as it allows exploration of the abdominal cavity, diagnosis of the cause of the bowel obstruction, reduction of the hernia, thorough inspection and identification of ischaemic bowel, and resection of bowel if required (8). The laparoscopic total extraperitoneal (TEP) approach is more feasible if the diagnosis is established before surgery in symptomatic patients. More often than not, obturator hernia is detected during TEP repair for inguinal hernias. This reflects the importance of inspecting all the myopectineal orifices during the TEP approach to allow for the diagnosis and repair of asymptomatic obturator hernias (9).

Whatever the approach, the emphasis should be on rapid evaluation, adequate resuscitation, and early operative intervention to reduce morbidity and mortality (3). The high mortality rate, ranging 11%–50% (2,10), is directly related to the rupture of the gangrenous bowel in elderly patients with multiple comorbid illnesses. In our case, CT of the abdomen and pelvis confirmed the diagnosis, and we were able to intervene early, thus avoiding any morbidity and mortality.

In conclusion, obturator hernia is rare, and a high index of clinical suspicion allied with CT imaging is required for early diagnosis. The role of clinical examination is limited, as the signs are often non-specific. Once diagnosed, the transabdominal approach (either open or laparoscopic) allows the direct repair of hernia defects and identification and resection of any ischaemic bowel.

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