

# Strangulated obturator hernia: **Report of 2 Cases**

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**Key Clinical Message :**

Obturator hernia is a rare condition which can be life threatening if misdiagnosed. We must consider the diagnosis in front of a bowel obstruction especially in elderly women.

**Key Words:** Hernia, obturator foramen, bowel obstruction, treatment

## 1. Introduction

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Obturator hernia (OH) is a rare condition (1) . With an incidence rate varying from 0.05 to 1.4% of all hernias , it causes 0.2 to 1.6% of all small bowel obstructions(2) .It affects women much more often than men owing to the greater width of their pelvis and larger obturator canal. Called the “little old lady's hernia”, OH occurs in elderly women , probably due to enlargement of the obturator canal after pregnancy and age-related increased tissue laxness(3)

Given the high rates of bowel incarceration and perforation, obturator hernias are always treated surgically. The classical approach is abdominal laparotomy, although laparoscopic techniques are increasingly being used for the repair of the OH .

## 2. Cases

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**Case 1:**

A frail 83-year-old woman with a 72 h history of acute abdominal pain, absolute constipation and vomiting has visited the emergency department. She had never undergone abdominal surgery. Clinical examination showed a moderate built patient with a temperature of 37.5°C. On local examination, she had a distended abdomen with generalized tenderness and no groin hernias. Other systems were essentially normal. Rectal examination and bloods were normal. Plain X-rays revealed dilated bowel loops with multiple central air-fluid levels suggestive of complete small bowel (SB) obstruction with no signs of perforation. Urgent CT scan of the abdomen and pelvis performed with contrast. It revealed a dilated SB loops with a transition point caused by a lateral pinching loop of SB with herniation through the left obturator foramen; the loops down and the colon were collapsed.

The diagnosis of strangulated small-bowel obstruction secondary to a left obturator hernia was confirmed and the decision was to carry out surgery. At laparotomy, a strangulated centimeter segment of ileum was resected from the left obturator hernia defect and a side-to-side anastomosis was done. (Figure 1) The obturator defect was closed with simple sutures. Patient was discharged after 5 days.

**Figure 1 :** preoperative imaging of incarcerated bowel in obturator canal

**Case 2:**

A 66-year-old woman with a history of weight loss, anorexia and episodic vomiting has visited the emergency department. She had no history of abdominal surgery. On examination, she was noted to be cachectic with a distended abdomen, demonstrating epigastric tenderness with normal bowel sounds and a normal digital rectal exam. No inguinal hernias were evident. Apart from mild tachycardia the vital signs were normal. Blood investigations revealed an elevated. Plain abdominal films demonstrated dilated small bowel. A diagnosis of mechanical small bowel obstruction was made. CT-scan with intravenous contrast revealed a left-sided obturator hernia (figures 2), containing incarcerated small bowel, with no features of strangulation or perforation. There was no evidence of ischaemic bowel on the contrast CT images. At laparotomy, a strangulated segment of ileum was with no features. (figure 3) The obturator defect was closed with simple sutures

**Figure 2:** CT scan showing right obturator hernia- reconstruction

**Figure 3:** peroperative imaging

### 3. Discussion

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#### 3.1. Epidemiology

An obturator hernia is a rare condition with incidence rates varying from 0.07 to 1% of all abdominal hernias (1, 2) and 0.2% to 1.6% of all cases of intestinal obstruction.(1,3) Usually it is the small intestine that herniates through the 2–3 cm long and 1 cm wide obturator duct in pelvis. The hernia most often occurs in older women, and because the foramen on the left is protected by sigmoideum, it is most commonly on the right. Although the condition is rare, It has one of the highest mortality rates of all abdominal wall hernias due to delayed diagnosis (13-70% mortality in various studies) (1, 2).

#### 3.2 Victim's anatomy

An obturator hernia, a very rare entity, proceeds through the obturator canal, which is approximately 2–3 cm long and 1 cm wide. The obturator foramen is the space between the pubic rami and ischial bones, which is covered by the obturator membrane in all but the anterior superior aspect. The obturator nerve, artery and vein travel through the foramen and canal. The peritoneal obturator hernia sac can develop through a widening defect of the obturator externus and internus muscles (1,6). Obturator hernias are much more common in elderly female and post-pregnancy patients owing to the greater width of the pelvis, larger obturator canal and increased laxity of the pelvic tissues.(7,8) The hernia is most often the Richter's type and usually contains ileum.(2) They occur more frequently on the right side because the left obturator foramen is protected by the overlying sigmoid colon (9).

Embryologically, as soon as it is formed, the obturator foramen is almost completely closed by the obturator membrane leaving one canal through which pass the obturator nerve, artery, and vein. The obturator hernia is defined as a herniated viscus through this obturator canal (3) (Figure 4).

**Figure 4 : Pathway of the Obturator Hernia**

1=pubic ramus, 2=peritoneum, 3=obturator nerve, 4=pectineus muscle, 5=obturator hernia, 6=obturator membrane, 7=external obturator muscle, 8= internal obturator muscle, 9=ischium

The three stages of obturator hernia formation were described by Gray et al (4). First, preperitoneal connective tissue and fat enter the obturator canal. Then, a dimple is formed in the peritoneum over the internal orifice of the obturator canal resulting in the formation of a peritoneal sac. In the third stage, visceral organs, mostly ileum, enter the sac (4). The hernia usually contains small bowel, but in less common cases it can also contain colon (cecum or sigma), appendix, greater omentum, Meckel's diverticulum, or urinary bladder(5,6).

### 3.1. Diagnosis

Clinical symptoms are not specific. A mechanical small-bowel obstruction presentation predominates in 90% of the cases (5,6). OH should be suspected in thin, multiparous, elderly women with chronic diseases and without prior surgery presenting an intestinal obstruction or pain in the base of the thigh(6).

Occasionally, a palpable mass is present in the upper part of the medial thigh, together with intermittent abdominal pain. Rectal or vaginal examination may detect a mass in the obturator area. Differential diagnoses include psoas abscess, femoral and perineal hernias, inguinal adenitis and diseases of the hip joint.

The Howship-Romberg sign (inner thigh pain on internal rotation of the hip) is present in 15–50% of obturator hernias (1,5); but it is not pathognomonic. However, the Hannington-Kiff sign is less well known but more specific (3). It refers to the absence of the thigh adductor reflex due to compression of the obturator nerve.

Up to 50–60% of cases present with Richter hernias resulting in a partial small bowel obstruction (1). The hernia orifice is small, so bowel pinching and strangulation are frequent and mortality remains high, ranging from 12 to 70% (6). These mortality rates are related to the difficulty in establishing a correct preoperative diagnosis.

In fact, the rates of correct preoperative diagnosis ranged from 21.5 to 31.3% (7). The early diagnosis is challenging when the symptoms and signs are nonspecific. Various imaging modalities have been applied to establish the diagnosis, including ultrasonography, herniography, CT scan (1).

Ultrasonography can show a hypoechoic mass reflecting a dilated, edematous portion of the bowel (8). However, CT scan has a superior sensitivity and accuracy, showing a mass between the obturator externus and pectineus muscles and air-fluid levels (1,9). In our two cases, diagnosis was correctly made preoperatively after performing CT scans.

In cases with progression of clinical signs and symptoms of bowel obstruction or peritonitis, early exploratory surgery is performed to clear the diagnosis without further explorations. These delays result in resecting gangrenous bowel which is associated with high mortality rates (10,11).

### 3.3. Treatment

Several open and laparoscopic techniques are described in the literature to repair the OH . Conventional surgery include abdominal, retropubic, obturator, and inguinal approaches (9). In the emergency setting, the classic low midline incision is most commonly preferred , as it allows the best exposure of the obturator ring as well as the identification and resection of any ischemic bowel (12,13).

Recently, laparoscopic techniques (both transabdominal and Extra-peritoneal) are increasingly being used in these high-risk patients: it is useful for both diagnosis and treatment; it enables clear bilateral visualization of the inguinal space, femoral and obturator spaces; a lower rate of postoperative ileus, fewer pulmonary complications, and less postsurgical pain resulting in shorter hospital stays (6).

In the case of perforation or gangrenous bowel, simple closure with a non absorbable suture leaving the sac in situ is most appropriate and has an acceptable recurrence rate of less than 10% (12).

Large defects require hernioplasty. A suitable reconstruction can be made with a peritoneal fold, the greater omentum, the round ligament, the uterine fundus, the ovary, the bladder wall, or with a mesh made of synthetic material .However A mesh repair is not advocated if bowel resection has been made (6).

After reviewing the literature and analyzing our clinical cases, we elaborated a diagnostic and therapeutic algorithm that could help in the management of this rare condition (Figure 5).

**Figure 5 :** Algorithm for management of suspected obturator hernia

## 4. Conclusion

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Isolated ischemic cecal necrosis is an infrequent variant of ischemic colitis. The diagnosis should be considered when an elderly, patient presents with right lower quadrant pain, particularly if cecal wall thickening is noted on abdominal CT scan. If evidence of peritonitis persists, right hemicolectomy with anastomosis can be performed with satisfactory results.

## 5. Conflicts of interest

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None declared

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Published with the consent of the patients.

## 6. Authors' contribution

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Z Hadrich conceived the idea for the document and contributed to the writing and editing of the manuscript. N Kardoun contributed to the writing and editing of the manuscript. A Masmoudi reviewed and edited the manuscript. H Harbi reviewed and edited the manuscript. S Boujelben contributed to the literature review, manuscript writing, editing, and review of the manuscript. All authors read and approved the final manuscript.

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### **Figures :**

**Figure 1 :** preoperative imaging of incarcerated bowel in obturator canal

**Figure 2:** CT scan showing right obturator hernia- reconstruction

**Figure 3:** peroperative imaging

**Figure 4 :** Pathway of the Obturator Hernia

**Figure 5 :** Algorithm for management of suspected obturator hernia

**Ethic Statement :** personal data have been respected

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