

# Incarcerated obturator hernia, an extremely rare cause of intestinal obstruction: case series

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## ABSTRACT

Protrusion of abdominal contents through the obturator foramen is a rare type of abdominal wall hernia. It is usually seen unilaterally and right-sided. Predisposing factors are old age, high intra-abdominal pressure, pelvic floor dysfunction, and multiparity. Obturator hernia has one of the highest mortality rates of all abdominal wall hernias, with a difficult diagnostic process that can be misleading even for the most experienced surgeons. Therefore, to suspect and easily diagnose an obturator hernia, it is important to understand its characteristics. Computerized tomography scanning remains the best diagnostic tool with the highest sensitivity. Conservative approach is not recommended in obturator hernia cases. Once diagnosed, urgent surgical repair is indicated to prevent further ischemia, necrosis, and risk of perforation that can lead to peritonitis, septic shock, and death. Although open repair is a widely used and effective method for reducing abdominal hernias, including obturator, laparoscopic repairs have been described and become preferred. In this study, we present female patients aged 86, 95, and 90 years who were operated with the diagnosis of obturator hernia on computed tomography. The diagnosis of obturator hernia should always be kept in mind, especially in the presence of acute mechanical intestinal obstruction findings in an elderly woman.

**Keywords:** Acute mechanical intestinal obstruction; emergency surgery; obturator hernia.

## INTRODUCTION

Obturator hernia was early described by Pierre Ronald Arnaud de Ronsil in 1724 and the first obturator hernia repairment was performed by Obre in 1851. It is a rarely encountered pelvic hernia, accounting for 0.05–1.4% of all hernias, frequently leading to intestinal obstruction.<sup>[1-4]</sup> A classic presentation is in elderly women with intermittent abdominal colic and pain along the medial aspect of the thigh. Obturator hernia is thought to result from progressive laxity of the pelvic floor and observed in elderly, between 7th and 9th decades, emaciated and multiparous women.<sup>[5]</sup> Old age, high intra-abdominal pressure, pelvic floor dysfunction, and multiparity have been found to be predisposing factors. The

hernia sac frequently includes the small intestine, rarely the appendix, colon, Meckel diverticulum, or omentum. Symptoms are often non-specific and it should be kept in mind that comorbid conditions can hide physical examination findings, especially in the elderly.<sup>[8-9]</sup> In this study, we present female patients aged 86, 95, and 90 years who were operated with the diagnosis of obturator hernia on computed tomography.

## CASE REPORT

### Case 1

An 86-year-old cachectic female patient was admitted to our clinic with the complaint of abdominal pain. On physical examination, there were no other symptoms other than disten-

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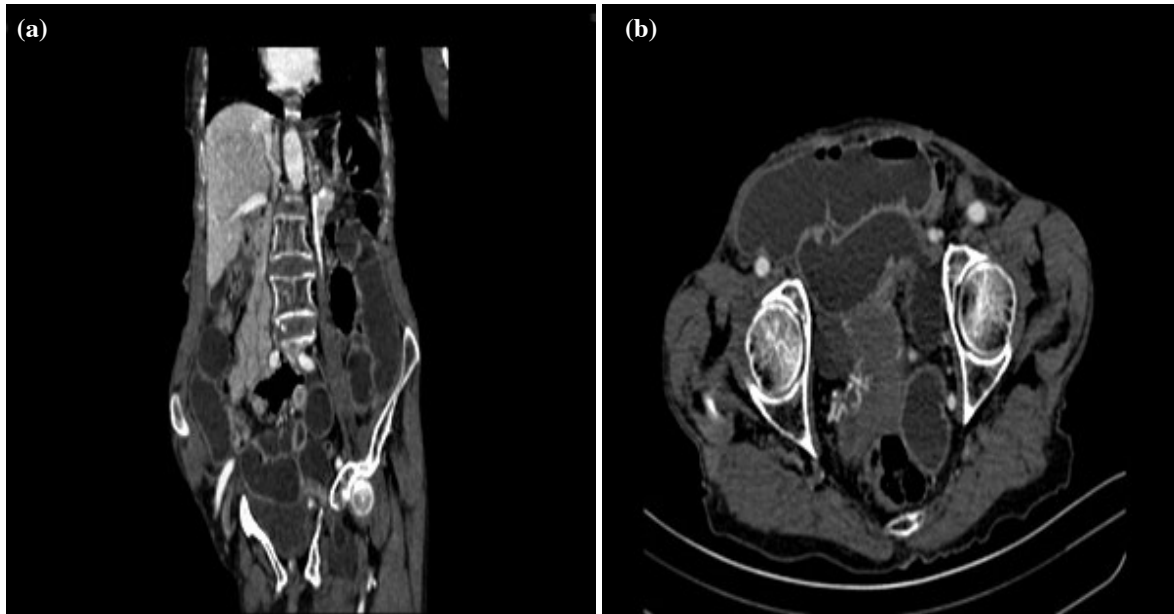
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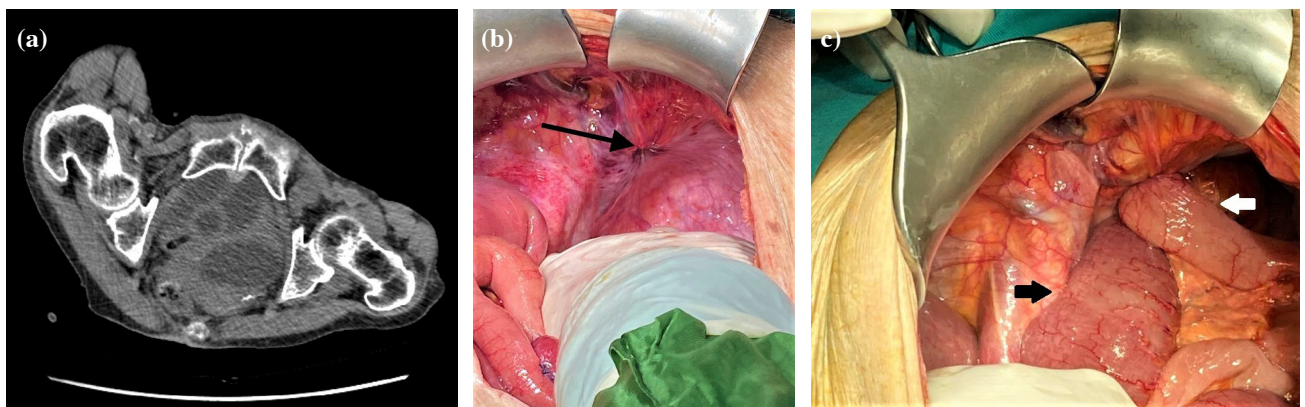


**Figure 1.** (a) A radiologic image; transverse view, demonstrating a left-sided obstructive obturator hernia, Case N.1 (Computed tomography scan; Axial view). (b) A radiologic image; transverse view, demonstrating a left-sided obstructive obturator hernia, Case N.1 (Computed tomography scan; Transverse view).

sion and tenderness. Laboratories were normal, except for a white blood cell count (WBC) of  $15,060/\text{mm}^3$ . Contrast-enhanced computerized tomography (CT) scan, dilatation of approximately 4 cm in the small bowel loops, air and fluid leveling in the lumen, a small amount of diffuse free fluid in the perisplenic region and between the intestinal loops, in the left obturator canal reported as herniated bowel segment (Figures 1a and b). The patient was taken into surgery with the preliminary diagnosis of acute mechanical bowel obstruction. Small intestine herniated into the left obturator canal was detected during exploration. After the abdominal reduction of the relevant segment and hot compress, the intestinal blood flow improved, the hernia defect was repaired with 2/0 vicryl, and the operation was terminated. The patient was discharged on the 5th post-operative day with good recovery.

## Case 2

A 95-year-old female patient was admitted to our clinic with complaints of inability to defecate for 2 days, bloating, nausea, and vomiting. He had no previous history of abdominal surgery. In his physical examination, abdominal distension and rebound were present, other system examinations were unremarkable. The laboratory tests were within the normal limits except for WBC,  $11,700/\text{mm}^3$ , blood urea nitrogen, 61 mg/dL, and creatinine, 1.3 mg/dL. Abdominal X-ray and air-fluid levels were seen in the small intestines. Abdominal sonography enlarged intestinal segments and intestinal segments detected free fluid between them. Contrast-enhanced CT scan: It was reported as a left obstructive obturator hernia. After pre-operative antibiotic administration, she was op-



**Figure 2.** (a) A radiologic image; transverse view, demonstrating a left-sided obstructive obturator hernia, Case N.2 (Computed tomography scan; Axial view). (b) An intraoperative photograph; the proximal and distal intestinal segments, black and white arrows, respectively, demonstrating a left-sided obstructive obturator hernia, Case N.2 (c) An intraoperative photograph; the right obturator canal towards the right obturator foramen, black and white arrows, respectively, demonstrating a left-sided obstructive obturator hernia, Case N.2



**Figure 3.** A radiologic image; transverse view, demonstrating a right-sided obstructive obturator hernia, Case N.3 (Computed tomography scan; Axial view).

erated with the diagnosis of left-sided incarcerated obturator hernia (Fig. 2a). In the abdominal exploration, an incarcerated intestinal loop was observed in the left obturator canal and it was reduced to the abdomen (Figures 2b and c). In addition, no additional intervention was performed because intestinal ischemia, necrosis or perforation was not detected. Then, the defect was repaired with a polypropylene mesh placed in the preperitoneal region. He died on the 22nd day after surgery in the intensive care unit, where he was followed up due to respiratory distress.

### Case 3

A 90-year-old female patient was admitted to our clinic with complaints of inability to defecate for 3 days, bloating, nausea, and vomiting. He had no previous history of abdominal surgery. On physical examination, there was tenderness in the abdomen. Laboratory tests were within normal limits except for WBC ( $18,460/\text{mm}^3$ ). Abdominal X-ray and air-fluid levels were detected in the small intestines. Contrast-enhanced CT scan: The right obturator hernia was detected (Fig. 3). The patient was operated under emergency conditions. In laparotomy, right-sided incarcerated obturator hernia and ileus were detected, incarcerated intestinal ans in the canal was reduced. After confirming the absence of intestinal ischemia, necrosis, or perforation, the hernia defect was repaired with 2/0 vicryl. The post-operative period was uneventful and the patient was discharged on the 4th post-operative day.

## DISCUSSION

The most common reason for admission in obturator hernia patients is abdominal pain and small bowel obstruction findings. Delay in diagnosis can cause intestinal necrosis and

ultimately morbidity and mortality.<sup>[10,11]</sup> Although most of the obturator hernia cases in the literature are unilateral, as well-reported cases of bilateral hernia are available. This phenomenon is more common on the right side<sup>[6]</sup> with the proposed theories for lower rates on the left side which is the existence of the sigmoid colon covering the left obturator foramen.<sup>[7]</sup> Remarkably, two of three cases of the present case series have been presented as the “left-sided” incarcerated obturator hernias that lead to intestinal obstructions.

Prompt diagnosis is important because obturator hernias have the highest mortality among other abdominal wall hernias with rates as high as 40%.<sup>[11,12]</sup> The mortality is due to strangulation of the bowel, which can cause necrosis, rupture, and eventually, lead to bacterial peritonitis with associated significant morbidity and mortality even when treated. The increased mortality is also associated with the multiple comorbidities and the older age of the “characteristic” obturator hernia patients.<sup>[13]</sup> In one retrospective study of 20 consecutive patients with obturator hernia, the mortality rate was noted to be 47.6%.<sup>[14]</sup>

The mortality rate at this study was 33%.

Diagnostic methods of obturator hernia include plain radiographs, barium enema fluoroscopy, herniography, sonography, CT scan, and magnetic resonance imaging.<sup>[19]</sup> CT scan is considered the most accurate diagnostic tool among available methods. Typically, the CT is performed with oral and I.V contrast, but sometimes patients with bowel obstruction do not tolerate oral contrast. In such, a situation CT is performed only with IV contrast. CT is an indispensable modality in preoperatively determining any signs of ischemia or necrosis and, thus, has a major effect when selecting the appropriate operative approach.<sup>[20]</sup>

In this study, three patients were given I.V. Contrast CT was taken.

Conservative approach is not recommended in obturator hernia cases. Once diagnosed, urgent surgical repair is indicated to prevent further ischemia, necrosis, and risk of perforation that can lead to peritonitis, septic shock, and death. Although open repair is a widely used and effective method for reducing abdominal hernias, including obturator, laparoscopic repairs have been described and become preferred. Surgery is a mainstay of treatment which could be technically difficult. The surgical approaches include conventional (transperitoneal, abdominal extraperitoneal, retroperitoneal, obturator, and retropubic), laparoscopic (transabdominal preperitoneal patch plasty and total extraperitoneal patch plasty [TEP]), and a combination of these approaches. Surgically, the obturator foramen can be repaired with absorbable prosthetic mesh, a plug, or a peritoneal and omentum patch. The prospective studies have shown that laparoscopic repair has advantages of post-operative pain reduction, short recovery period, earlier

return to work, better cosmetic results, and cost-effectiveness.<sup>[16-18]</sup> One such study also demonstrated that in 16.7% of the cases diagnosis and repair of additional unexpected hernias were made that would have been undetected and unrepaired with more traditional approaches.<sup>[18]</sup>

Karashima et al.<sup>[19]</sup> in a recent study conducted by, ten of the 22 patients studied underwent laparotomy and 12 underwent laparoscopic surgery with the TEP technique. The operation was converted to open surgery in three patients. Operative time and blood loss were similar in both techniques, and hospital stay was shorter in the laparoscopic group.

In this study, three patients were operated with the conventional surgical method.

## Conclusion

Obturator hernia is a rare type of hernia with high morbidity and mortality, which has diagnostic difficulties. The diagnosis of obturator hernia should always be kept in mind, especially in the presence of acute mechanical intestinal obstruction findings in an elderly woman. The treatment is always surgical and traditional and laparoscopic approaches are preferred depending on experience.

**Informed Consent:** Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

**Peer-review:** Externally peer-reviewed.

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**Conflict of Interest:** None declared.

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OLGU SERİSİ - ÖZ

## İnkarsere obturator herni, son derece nadir bir intestinal obstrüksiyon nedeni: Olgu serisi

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Abdominal içeriğin obturator forameninden protrüzyonu, nadir görülen bir karın duvarı fıtığı türüdür. Genellikle tek ve sağ taraflı görülmektedir. Predispozan faktörler yaşlılık, yüksek karın içi basıncı, pelvik taban disfonksiyonu ve multiparitedir. Obturator herni, en deneyimli cerrahlar için bile yanıltıcı olabilen zorlu bir tanı süreci ile tüm karın duvarı fıtıkları arasında en yüksek ölüm oranlarından birine sahiptir. Bu nedenle obturator herniden şüphelenmek ve kolayca teşhis etmek için özelliklerini anlamak önemlidir. BT taraması en yüksek hassasiyete sahip en iyi tanı aracı olmaya devam etmektedir. Obturator herni vakalarında konservatif yaklaşım önerilmez. Tanı konulduktan sonra, daha fazla iskemi, nekroz ve peritonit, septik şok ve ölüme yol açabilecek perforasyon riskini önlemek için acil cerrahi onarım endikedir. Açık onarım, obturator dahil karın fıtıklarının azaltılmasında yaygın olarak kullanılan ve etkili bir yöntem olmasına rağmen, laparoskopik onarımlar tarif edilmiş ve tercih edilir hale gelmiştir. Bu çalışmada, bilgisayarlı tomografide obturator herni tanısı ile ameliyat edilen 86, 95 ve 90 yaşlarındaki kadın hastaları sunuyoruz. Özellikle yaşlı bir kadında akut mekanik intestinal obstrüksiyon bulguları varlığında obturatuvar herni tanısı her zaman akılda tutulmalıdır.

Anahtar sözcükler: Acil cerrahi; akut mekanik intestinal obstrüksiyon; obturator fıtık.

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