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Small Bowel Obstruction Due to Incarcerated Obturator Hernia: Successful Surgical Management with Modified Mesh-Plug Hernioplasty

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Manuscript Preparation E
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Patient: Female, 93-year-old
Final Diagnosis: Incarcerated obturator hernia
Symptoms: Diffuse abdominal pain
Medication: —
Clinical Procedure: Hernioplasty
Specialty: Surgery

Objective: Rare disease
Background:


Obturator hernia is an uncommon (0.07-1% incidence rate) subtype of hernia of the abdominal wall, with its incarceration being a rare cause of bowel obstruction. Obturator hernia has a higher incidence in elderly women and in malnourished people. This type of hernia has the highest morbidity and mortality rates of all abdominal wall hernias. This article reports a case of an emaciated 93-year-old woman who presented with small bowel obstruction due to incarcerated obturator hernia, successfully managed surgically with a modified mesh-plug hernioplasty.

Case Report: An emaciated 93-year-old woman presented with diffuse abdominal pain, more intense on the right iliac fossa, radiating to the right thigh, with 8-h evolution and associated with dark-colored vomiting but normal bowel transit. This patient had a surgical history of right Richter's femoral hernia, strangulated, with previous intestinal resection and a right femoral hernioplasty. A computed tomography (CT) scan revealed an incarcerated obturator hernia on the right side containing a short segment of small intestine. The patient underwent an exploratory laparotomy and a mesh-plug hernioplasty. During follow-up, there was no evidence of recurrence or complications.

Conclusions: Obturator hernia diagnosis is challenging due to its rarity and its signs and symptoms being often unspecific. CT scan has the highest sensitivity and is the best diagnostic tool. Surgical management is the only possible treatment for obturator hernia. Awareness of this condition is essential to allow an earlier approach and attempt to mitigate the associated high morbidity and mortality rates.


Keywords: Hernia, Obturator • Herniorrhaphy • Laparotomy

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/931398>

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Background

Obturator hernia is an uncommon subtype of hernia of the abdominal wall, representing about 0.07-1% of all abdominal wall hernias [1-5]. Its incarceration is a rare cause of mechanical intestinal obstruction (0.2-1.6%) [3,4]. Obturator hernias have a higher incidence in elderly women (70-90%) [1-8] from Asian countries [4,5] and those who are malnourished [1,2,4-7] or multiparous [2,5,6]. This type of hernia has the highest morbidity and mortality rates of all abdominal wall hernias, with 70% mortality in complicated cases [1,5,7]. The hernia sac usually contains the small intestine; however, it may rarely contain the appendix, colon, Meckel's diverticulum, or omentum [2,6]. Obturator hernia diagnosis is challenging due to its rarity and its signs and symptoms being often unspecific, leading to a delay in diagnosis and treatment [1-3,5,7]. Surgical repair is the standard treatment for this condition, and multiple approaches have been described [1-8]. Therefore, this report is of a case of an emaciated 93-year-old woman who presented with small bowel obstruction due to incarcerated obturator hernia, successfully managed surgically with a modified mesh-plug hernioplasty. With this article, the authors intend to raise awareness about this pathology that can easily go unnoticed or be forgotten, and may culminate in a deadly outcome.

Case Report

A 93-year-old, malnourished, institutionalized woman was taken to the Emergency Department after the manifestation of diffuse abdominal pain, more intense on the right iliac fossa radiating to the right thigh, with 8-h evolution. It was associated with episodes of dark-colored vomiting but presenting normal bowel transit.

The patient had a surgical history of right Richter's femoral hernia, strangulated, with previous intestinal resection and a right femoral hernioplasty.

During the examination, the patient was conscious, oriented, and collaborative, with no signs of respiratory distress. She was hemodynamically stable and afebrile. Abdominal palpation revealed pain and tenderness on the right iliac fossa and normal bowel sounds. She also had a positive *Howship-Romberg* sign. Analytically, the patient had mild leukocytosis and neutrophilia (13.4 and 88.7% respectively) and elevated lactate dehydrogenase (519 U/L). Plain abdominal radiography showed some distended bowel loops associated with multiple central air-fluid levels, suggesting small bowel obstruction. The patient underwent an abdominal-pelvic computed tomography scan, which revealed an incarcerated right obturator hernia containing a short segment of small intestine, distending the upstream loops (Figures 1, 2). The clinical situation was



Figure 1. Axial view on an abdominal computed tomography scan showing incarcerated small bowel in the right obturator hernia (yellow arrow).

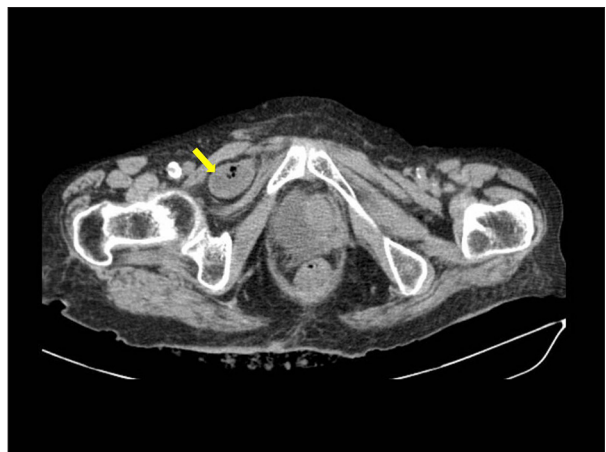


Figure 2. Axial view on an abdominal computed tomography scan showing incarcerated small bowel in the right obturator hernia (yellow arrow).

explained to the patient, as well as the need for urgent surgery, which she understood and accepted.

The patient underwent exploratory laparotomy by a low midline incision. During the intervention, the viability of the incarcerated intestine was verified, without evidence of ischemia or necrosis, and the diagnosis of obturator hernia was confirmed (Figures 3, 4). Hernioplasty was performed with a plug-mesh applied and fixed with absorbable suture (Vicryl® 0.0) in the hernial orifice and covered by peritoneum, which was closed with nonabsorbable polypropylene suture (PROLENE® 2.0).

The patient had a favorable clinical and analytical evolution and was discharged on the 5th day of hospitalization.

At the follow-up appointment, the patient had no concerns or complications.

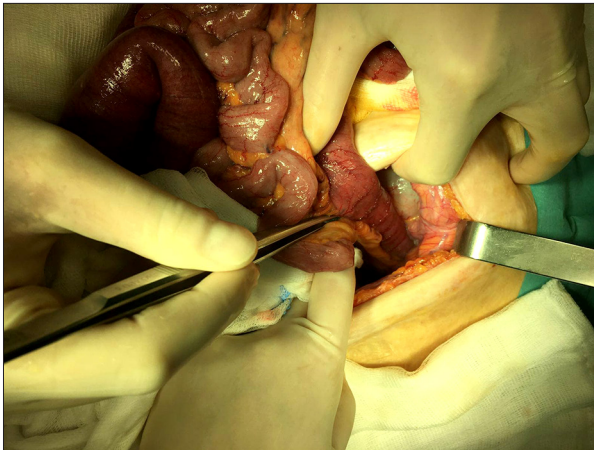


Figure 3. Exploratory laparotomy and incarcerated small bowel in the obturator hernia.



Figure 4. Incarcerated small bowel without evidence of ischemia or necrosis.

Discussion

Abdominal wall hernia is estimated to affect up to 1.5% of the world population [9], and more than 20 million hernias are repaired every year [10]. The most frequent hernia is the inguinal hernia (70-75%) followed by femoral (6-17%), umbilical (3-8.5%), and then the rare forms (1-2%) [10].

In 1724 Arnaud de Ronsil described obturator hernias for the first time [3]. However, it was only in 1851 that Henry Obre performed the first successful surgical repair [4]. This type of hernia is uncommon, ranging from 0.07% to 1% of all abdominal hernias [1,2,4,8] and it causes 0.2% to 1.6% of all small bowel obstructions [4].

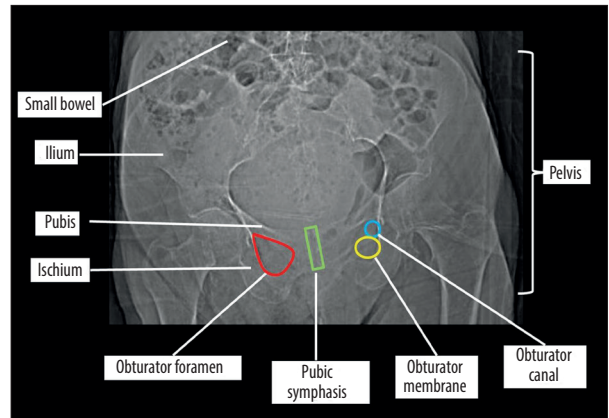


Figure 5. Anatomy of obturator foramen area.

Obturator hernia refers to the herniation of intra-abdominal contents through the obturator canal. The obturator canal is about 3 cm long and 1 cm wide [7] and it is a passage formed in the obturator foramen by part of the obturator membrane and the pelvis. Obturator foramen results from the fusion of the ischial and pubic bones [5] (Figure 5). Obturator hernia develops by the loosening of pelvic floor muscle and absence of preperitoneal fat and lymphatic tissue, which usually envelops the obturator canal [5]. The incidence of obturator hernia is higher on the right side [2,5,7]; this can be explained by the localization of the sigmoid colon on the left, thus providing protection to the obturator canal [5,7]. Extruded material in the majority of cases is the small intestine [7], but it can include the appendix, colon, omentum, Meckel's diverticulum, fallopian tube, ovary, and uterus [2,6,7].

Obturator hernia occurs more commonly in emaciated, older women [1], ages of 70-90, [4], chronically ill patients [2], and women who are multiparous, and is more prevalent in Asian countries [6]. Women have about 9 times higher risk of having an obturator hernia compared to men [5,7,8]; this can be explained by a wider pelvis, a larger obturator canal, and the tendency for the pelvic peritoneum to become looser [3]. As a result, obturator hernia has the eponym "little old lady's hernia" [2,4,6]. Concomitant conditions that tend to increase intra-abdominal pressure and relaxation of the peritoneum, such as chronic obstructive pulmonary disease, chronic constipation, and ascites, predispose these patients to herniation [2,5,7].

Obturator hernia is a diagnostic challenge. The low incidence, the normal inspection and palpation of the body surface, unlike groin hernias [3,4], and the nonspecific symptoms (nausea, vomiting, abdominal pain, obstipation and/or obstructive defecation) [7], result in delayed diagnosis and operative intervention, with a rate of small bowel resection of approximately 50% of obturator hernia cases [1,2]. Complicated obturator hernia is associated with up to 70% mortality due to advanced patient age and serious comorbidities [1]. Therefore,

a high index suspicion is demanded, especially in older women with repetitive small bowel obstruction [3].

Three signs – *Howship-Romberg* sign, *Hannington-Kiff* sign, and obturator neuralgia – have been described as concrete signs of strangulated obturator hernia [3,5]. The *Howship-Romberg* sign is considered a pathognomonic sign of strangulated obturator hernia [5], and it is present when pain is felt along the medial side of the thigh. This sign is produced by direct intravaginal palpation of the obturator foramen, or indirectly via abduction, extension, and medial rotation of the affected hip [2,4,5,8]. This sign is present in about 15-50% of the cases [5,8]. The *Hannington-Kiff* sign occurs when there is no adductor reflex of the leg in the presence of a positive patellar reflex [5,8] as a result of compression of the obturator nerve [5]. A high index suspicion is demanded, particularly in the absence of these signs, and it is important to remember that obturator hernia is a significant and often underdiagnosed cause of groin pain [8]. These signs should be considered in association with information from imagological exams [4]. Among available imaging tests, barium enema fluoroscopy, herniography, ultrasonography, CT, and magnetic resonance imaging (MRI) have been used to confirm the diagnosis [2]. Computed tomography has a high specificity and accuracy (>90%) to establish the diagnosis in both emergent and non-emergent settings, which allows faster diagnosis and quicker surgical intervention, thereby improving patient outcomes [2-5]. CT can be useful to identify the interactions between the hernia sac and the muscles that cover the obturator foramen. Furthermore, it can confirm the type of hernia, which is crucial to perform a successful approach to this type of hernia [4].

The only treatment for obturator hernia is surgery [2,11,12]; however, this has always been technically difficult [3]. Different surgical approaches are proposed: open (abdominal, retro-pubic, obturator, and inguinal) or laparoscopic (transabdominal preperitoneal patch plasty (TAPP) and total extraperitoneal patch plasty (TEP)). However, in an emergency approach, a low midline laparotomy incision is preferable [2,5,6,11] because it allows better exposure of the defect and the surrounding structures and vitals to safely proceed with bowel resection in the case of gangrenous bowel [2,6,11]. In this setting,

other approaches have been described: via transinguinal, retro-pubic, or femoral [6]. The obturator foramen can be repaired with a primary suture (associated with hernia recurrence of 3% to 10% [4,6]) or with applying an absorbable mesh, a plug, or a peritoneal and omentum patch [6]. Santorelli et al stated that the repair of the hernia with a mesh is not recommended if there is necrotic or perforated bowel [13]. Considering that in this case there was no intestinal ischemia, the authors chose to perform a hernioplasty with a mesh. The laparoscopic approach, which is increasingly being used, allowed us better visualization of the pelvis and is associated with a shorter recovery time when compared to the open techniques [3,4]. This approach demands high expertise in TAPP or TEP, which limits its use [10]. Some authors suggest an initial laparoscopic approach to confirm bowel viability and optimize subsequent procedures [1,13]. Therefore, this article demonstrates the importance of a detailed history, a thorough physical examination, and good clinical sense, as well as the essential role that imaging exams, namely CT, in accurate and timely diagnosis of obturator hernia.

Conclusions

Obturator hernia is an uncommon entity with a difficult diagnosis and high morbidity and mortality rates. In an elderly, malnourished, and chronically ill woman with signs and symptoms of bowel occlusion, this type of hernia should be searched for. Of the available imaging tests, the CT scan is the best diagnostic tool. Surgical management is the only possible treatment for obturator hernia, and the choice of approach depends on the surgeon.

Conflict of Interest

None.

Declaration of Figures Authenticity

All figures submitted have been created by the authors who confirm that the images are original with no duplication and have not been previously published in whole or in part.

References:

1. Kawanaka H, Hiroshige S, Kubo N, et al. Therapeutic strategy for incarcerated obturator hernia using preoperative manual reduction and laparoscopic repair. *J Am Coll Surg.* 2018;226(5):891-901
2. Mnari W, Hmida B, Maatouk M, et al. Strangulated obturator hernia: A case report with literature review. *Pan Afr Med J.* 2019;32:144
3. Petrushnko W, Isaacs A, Hackland T, Ghun M. Case report: Laparoscopic totally extraperitoneal repair of an obturator hernia with self-gripping mesh under spinal anaesthesia. *Int J Surg Case Rep.* 2019;62:14-16
4. Joe C, Gowda V, Koganti S. Laparoscopic assisted repair of strangulated obturator hernia – way to go. *Int J Surg Case Rep.* 2019;61:246-49
5. Memon ZA, Aisha M, Qadar LT, et al. Rare case of peritonitis due to ileal perforation secondary to Richter's type of obturator hernia. *Cureus.* 2019;11(3):e4289
6. Conti L, Baldini E, Capelli P, Capelli C. Bowel obstruction in obturator hernia: A challenging diagnosis. *Int J Surg Case Rep.* 2018;42:154-57
7. Gilbert JD, Byard RW. Obturator hernia and the elderly. *Forensic Sci Med Pathol.* 2019;15(3):491-93
8. Droukas DD, Zoland MP, Klein DA. Radiographic and surgical findings of type I obturator hernias in patients with refractory groin pain. *Clin Imaging.* 2019;55:35-40
9. Lassandro F, Iasiello F, Pizza NL, et al. Abdominal hernias: Radiological features. *World J Gastrointest Endosc.* 2011;3(6):110-17
10. Dabbas N, Adams K, Pearson K, Royle G. Frequency of abdominal wall hernias: Is classical teaching out of date? *JRSM Short Rep.* 2011;2(1):5
11. Li Z, Gu C, Wei M, et al. Diagnosis and treatment of obturator hernia: Retrospective analysis of 86 clinical cases at a single institution. *BMC Surg.* 2021;21(1):124
12. Stamatidou D, Skandalakis LJ, Zoras O, Mirilas P. Obturator hernia revisited: Surgical anatomy, embryology, diagnosis, and technique of repair. *Am Surg.* 2011;77(9):1147-57
13. Santorelli C, Leo CA, Hodgkinson JD, Rossi P. Coexisting incarcerated femoral and obturator hernia: A case report. *G Chir.* 2016;37(4):171-73