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Case Report

Radiology Section

Unilateral Obturator Hernia in an Elderly Male: A Case Report

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ABSTRACT

Obturator Hernia (OH) is a rare type of pelvic hernia in which abdominal contents protrude through the obturator canal. This condition can lead to bowel obstruction, gangrene, or ischaemia, all of which pose significant risks and can be life-threatening. OH predominantly affects elderly, thin females and often remains asymptomatic until there is compression of the obturator nerve. As a result, OH should be considered in the differential diagnosis of intestinal blockages of unknown origin. For preoperative diagnosis, Computed Tomography (CT) is regarded as the optimal imaging modality. However, Ultrasonography (USG) may sometimes misidentify it as a femoral or inguinal hernia. Due to its non specific symptoms and clinical presentations, early preoperative identification of OH can be challenging. Hereby, the authors present a case of OH in an 80-year-old male patient with biopsy-proven prostate carcinoma who reported burning sensations and difficulty in micturition over the past month. His medical history included insulin-managed diabetes and extensive alcohol consumption. Physical examination revealed a non tender swelling on the medial aspect of the right upper thigh, prompting imaging studies that included a Kidney, Ureter, and Bladder (KUB) radiograph and a CT-KUB. The radiograph showed a radiolucent area in the right obturator canal, while the CT confirmed the diagnosis, revealing a herniated sac within the obturator externus muscle, measuring 61×109×89 mm, with associated bone remodelling of the pubic symphysis and mild prostatomegaly. Despite understanding the risks, the patient has not yet undergone surgery due to his age and co-morbidities. The present case underscores the need for heightened awareness of OH in elderly males, especially those with significant medical histories, as early recognition and intervention are crucial to preventing serious complications.

Keywords: Computed tomography, Gangrene, Ischaemia, Obturator nerve

CASE REPORT

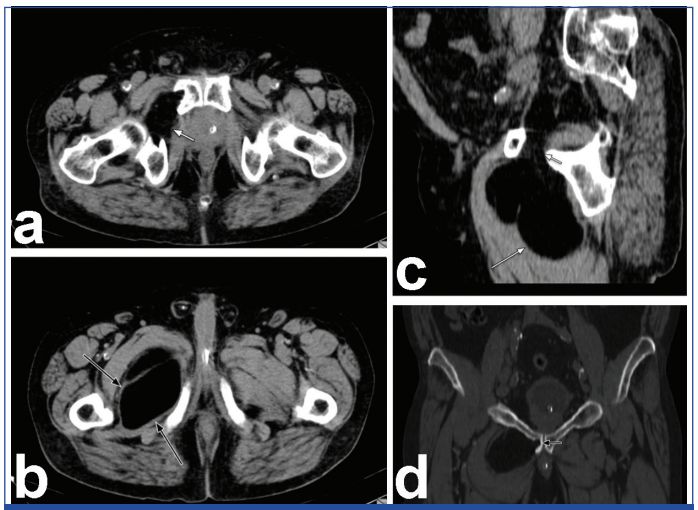
An 80-year-old male patient, who is a known case of biopsy-proven prostate carcinoma, has been experiencing burning and difficulty in micturition for one month. He has been diagnosed with diabetes for the past eight years and has been receiving insulin injections for the past five years. The patient also has a history of alcohol consumption spanning 50 years. The family history is unremarkable, and his bowel habits are regular.

Physical examination revealed a non tender focal soft swelling measuring 8×5 cm in the medial aspect of the right upper thigh, prompting a referral for KUB radiograph and the CT KUB. The KUB radiograph shows a subtle radiolucent area (likely fat) in the right obturator canal/foramen. Radiolucency from the true pelvis on the right side extends to the visualised medial aspect of the right upper thigh [Table/Fig-1].

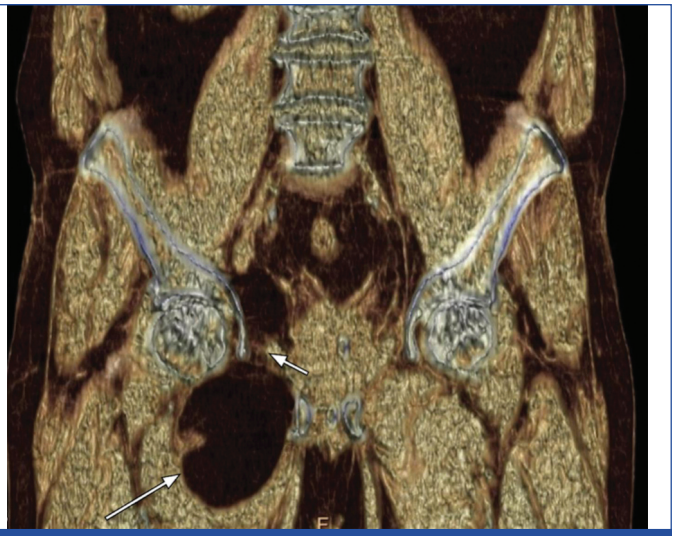
[Table/Fig-1]: The frontal KUB radiograph shows subtle radiolucency in the right obturator foramen/canal (short white arrow). Radiolucency extends from the true pelvis on the right side to the visualised right upper thigh medial aspect (long white arrow).

The CT KUB of the upper thighs, with three-dimensional and volume-rendered imaging, shows that the sac is herniating in the obturator externus muscle. It is situated between the superior and middle fasciculi (anteriorly and posteriorly) and reaches the medial aspect of the right upper thigh. The dimensions of the herniated sac are 61×109×89 mm (anteroposterior×transverse×craniocaudal), with a smooth margin. The contents include omentum, and the herniated sacs cause bone remodelling of the right pubic symphysis, superior pubic rami, and inferior pubic rami. Mild prostatomegaly was noted [Table/Fig-2a-d,3].

A right OH was considered based on clinical and imaging findings. The 80-year-old male has not undergone surgery, despite the



[Table/Fig-2]: The CT KUB with upper thighs - (a, b) Axial sections, (c) Sagittal section in soft tissue windowing shows herniation of hypoattenuating/fat density mass (omental/paravesical fat) through right obturator foramen/canal (short white arrow). The sac is herniating in the right obturator externus muscle. It is present between the superior fasciculus (anteriorly) and the middle fasciculus (posteriorly) (long black arrows). It continues to the right upper thigh medial aspect (long white arrow) and (d) Coronal section in the bone windowing shows bony remodelling of the right pubic symphysis, superior and inferior pubic rami (short black arrow).



[Table/Fig-3]: The CT KUB with upper thighs with three-dimensional (3D) Volume Rendered (VR) coronal section shows herniation of hypoattenuating/fat density mass (omental/paravesical fat) through right obturator foramen/canal (short white arrow). The sac is herniating in the right obturator externus muscle. It extends to the right upper thigh medial aspect (long white arrow).

possible benefits being explained. A comprehensive follow-up plan was established, involving regular monitoring of his symptoms to detect potential complications such as bowel obstruction or ischaemia. Symptom management focused on alleviating discomfort and addressing any urinary issues related to his prostate cancer, with adjustments in diabetes care as needed. Periodic imaging, including follow-up CT scans or ultrasounds, was planned to assess the hernia's size and changes in surrounding tissue. Continuous evaluation of his overall health would guide any reconsideration of surgical options, especially if his condition deteriorated or new complications emerged. Additionally, a multidisciplinary approach would involve urologists and surgeons to provide holistic care, while the patient would receive education on warning signs for complications, ensuring he knows when to seek immediate medical attention.

DISCUSSION

A rare type of pelvic hernia, called an OH, occurs when the abdominal cavity pushes through the obturator foramen or canal. It accounts for approximately 0.07-1% of all mechanical obstructions of the small bowel and 0.2-1.6% of other cases, respectively [1]. Because the hernia orifice is about 1 cm in diameter, intestinal segment herniation often becomes incarcerated and strangulated. It is usually found in multiparous and elderly emaciated females, commonly referred to as "little old lady's hernia." The female-to-male ratio is 6:1. OH occurs due to factors such as a wider pelvis, greater transverse diameter, and the triangular shape of the obturator canal opening. These females also experience increased pelvic atrophy, tissue laxity, and preperitoneal fat loss around the obturator vessels. Other predisposing risk factors that cause increased intra-abdominal pressure include multiparity, ascites, chronic constipation, and chronic obstructive pulmonary disease [2]. OH is more frequent on the right side because the sigmoid colon rests above the left obturator foramen.

The obturator canal, which is 1 cm wide and 2-3 cm long, is the location where OH occurs. The obturator membrane creates the obturator foramen, which facilitates the passage of the obturator nerve and vessels. The separation of the muscular bands in the obturator internus and externus muscles is the cause of this defect. During the first stage, preperitoneal fat tissue passes through the pelvic orifice of the obturator canal, forming a fat plug. In the second stage, a peritoneal dimple forms a peritoneal sac. The third stage involves the herniation of viscera, leading to the onset of symptoms [3]. Hernial contents usually include omentum or fat and may consist of the small bowel, colon, ovary, fallopian tube, uterus, or peritoneum. OH occurs with decreasing frequency in three forms: herniation between the pectineus and obturator externus muscles, and herniation between the superior and middle fasciculi of the obturator externus muscle [4].

Clinical diagnosis of OH is difficult due to its uncommon incidence, deep location, and infrequent signs and symptoms. Obturator neuralgia occurs less frequently. The most common and cardinal clinical symptom is acute intestinal obstruction. Other symptoms include nausea, vomiting, and abdominal cramping pain. The hernial sac compresses and irritates the anterior division of the obturator nerve within the canal, leading to the Howship-Romberg sign, which manifests as medial thigh pain. Between 15% and 50% of cases are considered pathognomonic. The Hannington-Kiff sign indicates the absence of an adductor reaction in the thigh, making it more specific than the Howship-Romberg sign, although it is less prevalent [5].

The OH is a condition characterised by the protrusion of abdominal contents through the obturator foramen, and its diagnosis relies on various imaging modalities. USG can help identify the presence of a hernia but may not be definitive; CT is the most sensitive and specific modality, revealing herniation through the obturator foramen and often identifying the "cervical" or "Ramsay" sign, indicative of small bowel loops within the hernia [6]. Other imaging options include herniography for direct visualisation and barium enema fluoroscopy, which can help evaluate bowel obstruction. However, plain abdominal radiographs typically show signs of small bowel obstruction, such as dilated bowel loops, but are not diagnostic for OH.

Complications associated with OH include bowel obstruction, which can occur due to strangulation, presenting with symptoms like abdominal pain, vomiting, and distension. Strangulation poses a significant risk as it compromises the blood supply to the herniated bowel, potentially leading to ischaemia. If not addressed promptly, strangulation can result in bowel perforation, causing peritonitis and a high risk of sepsis. Early detection and intervention are crucial, as they are associated with lower morbidity and mortality rates, while delayed diagnosis often leads to worse outcomes.

Yokoyama Y et al., indicated that preoperative CT scans have significant diagnostic capability, while Nishina M et al., emphasised that early diagnosis followed by surgical intervention leads to favourable patient outcomes, highlighting the importance of prompt recognition via imaging [1,7]. Kammori M et al., reported a remarkable diagnostic rate of approximately 93.75%, successfully identifying OH in 15 out of 16 patients [8]. Additionally, Haraguchi M et al., noted a diagnostic rate of 87%, suggesting that while CT is highly effective, there remains a small chance of missed cases [9].

The management of OH is significantly influenced by the size of the hernia and its contents, such as bowel or omentum, which determine the urgency and surgical technique required. If the hernia contains viable bowel, surgeons may focus on repair techniques that preserve bowel function; conversely, a hernia with non viable or strangulated bowel may necessitate more extensive procedures, including bowel resection [4].

Delaying or forgoing surgery can lead to severe complications, including the risk of strangulation, which compromises the blood supply to the bowel, potentially resulting in bowel perforation and life-threatening peritonitis. Untreated intestinal strangulation increases morbidity and mortality, with possible complications like sepsis and multi-organ failure, and may lead to chronic pain or bowel dysfunction, adversely affecting the patient's quality of life [6]. Furthermore, delayed intervention can require more extensive surgeries later, increasing operative time, complications, and hospital stays. Thus, the nature of the hernia's contents directly impacts management decisions, highlighting the critical need for prompt surgical treatment.

CONCLUSION(S)

The present case underscores the significance of prompt recognition and management of OH. The present rare yet critical condition can lead to intestinal obstruction, particularly in vulnerable populations such as the elderly. The findings highlight that early diagnosis through imaging modalities, especially CT, is essential for identifying the hernia and its contents, which can include bowel, omentum, or other structures. Timely surgical intervention is crucial to prevent severe complications, such as strangulation and perforation, which can lead to increased morbidity and mortality.

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