Bladder neoplasm arising within a urinary bladder hernia: a rare cause of hematuria

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Special Focus: Cancer Hernia
Case Type: Clinical Cases

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Patient: 89 years, male

Clinical History:

An 89-years-old man presented to the emergency department with left groin swelling with years of evolution, irreducible in the past two days. He also referred hematuria for two weeks. The physical examination revealed a large mass in the left groin with tenderness on palpation and the abdomen soft and depressible.

Imaging Findings:

Video 1: Due to persistent hematuria requiring transfusion support, an abdominal and pelvic computed tomography (CT) was performed showing a left groin hernia containing part of the bladder that had irregular parietal thickening with enhancement after intravenous contrast administration.

Figure 2 (a): Inguinal ultrasound (US) revealed a left inguinal hernia containing a sacculation that appeared to be in continuity with the bladder, measuring 15x8x9.5 cm, interpreted as a vesical hernia. Inside the vesical hernia was echogenic, heterogeneous content, without vascularization in Doppler mode, interpreted as clots, that interfered with the evaluation of the bladder wall.

Figure 3 (a,b): Transurethral resection was not possible due to the herniated position of the bladder. The patient underwent open surgery with submucosal cystectomy. The microscopic study of the surgical specimen revealed a high-grade carcinoma with characteristics of papillary urothelial carcinoma, G2, moderately differentiated, which infiltrates the suburothelial connective tissue superficially, without invasion of the detrusor muscle.

Discussion:

Background: Inguinal hernias involving the bladder are uncommon (1–3% of all cases) [1]. The most common causes of bladder hernias are: weakness of the pelvic wall, bladder outlet obstruction, decreased tone of the bladder and obesity [2]. Cases of bladder hernias that contain tumours are rare, with few cases published in the literature [3].

Clinical perspective: Bladder hernias are usually asymptomatic but can be associated with intermittent swelling in the groin and significant urinary symptoms such as dysuria, frequency, urgency, nocturia, and hematuria. Preoperative identification of the contents of the hernia sac is prudent to minimize the risk of serious injury during herniorrhaphy since the diagnosis is not always straightforward with 16% of the patients with vesical hernia diagnosed only after postoperative complications in one study [4].
**Imaging Perspective:** Ultrasonography and Computed Tomography help delineate the contents of the hernia sac and establishing a preoperative diagnosis, while cystography and intravenous pyelography being less used nowadays as diagnostic tools. In daily practice, ultrasonography is the most commonly used modality in imaging of inguinal hernias but a high index of suspicion is required in ultrasound to diagnose bladder carcinoma. CT is the diagnostic modality utilized most often in the rare cases described in the literature and the diagnostic accuracy of CT can be increased by the use of the gaseous insufflation technique, which distends the bladder wall better and allows greater contrast between perivesical fat, wall, and air. This rare cause of hematuria hampers the evaluation of the bladder by direct methods because of the herniation [5]. A definitive diagnosis of the neoplasia subtype is possible by histologic examination alone.

**Outcome:** The surgical management consists of removing the tumour with a safety margin and repairing the hernia. If there is muscle invasion and the patient is fit for surgery, radical cystectomy is the best option. If there is no invasion of the detrusor muscle, the submucosal cystectomy is curative.

**Take-Home Message / Teaching Points:** It is important to be aware of the existence of vesical herniation in any males older than 50 years old with an inguinal hernia as bladder injury during herniorrhaphy can lead to infection, sepsis, or even death. The association of hematuria and urinary bladder hernia should prompt further evaluation for neoplastic causes.

Written patient consent for this case was waived by the Editorial Board. Patient data may have been modified to ensure patient anonymity.

**Differential Diagnosis List:** Bladder neoplasm arising within a urinary bladder hernia., Bladder diverticulum, Hernia of a mesenteric cyst, Hydrocele, Spermatic cord cyst

**Final Diagnosis:** Bladder neoplasm arising within a urinary bladder hernia.

**References:**

Figure 1

Description: Axial abdominal and pelvic computed tomography (CT) shows a left inguinal hernia containing part of the bladder that has irregular parietal thickening with enhancement after intravenous contrast administration. Origin: Department of Radiology, Coimbra's Hospital and Universitary Center, Portugal, 2020
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Figure 3

**Description:** On histology was observed a high-grade papillary urothelial carcinoma composed of papillae covered by several layers of urothelial cells with moderate nuclear pleomorphism and loss of nuclear polarity (a) which infiltrates the suburothelial connective tissue superficially, without invasion of the detrusor muscle (*) (b). **Origin:** Department of Radiology, Coimbra's Hospital and Universitary Center, Portugal, 2020