Oncology

Vesical tumor within an inguinal bladder hernia: A case report

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ABSTRACT

Bladder herniation through the inguinal canal is a rare condition, accounting for only 1–4% of all inguinal hernias. The majority of cases are observed in obese male patients older than 50 years. Most patients are asymptomatic, which leads to difficulty in diagnosing a bladder herniation, with less than 7% of cases being diagnosed preoperatively. Some patients may present with atypical symptoms, such as voiding when manual compression is applied over the inguinal area. A literature search revealed hundreds of inguinal hernia cases containing the bladder, of which only 21 contained a bladder neoplasm. We report the case of a patient who presented with a vesical tumor within a right inguinal hernia.

Introduction

Bladder herniation through the inguinal canal is a rare condition, accounting for only 1–4% of all inguinal hernias. The majority of cases are observed in obese male patients older than 50 years. Most patients are asymptomatic, which leads to difficulty in diagnosing a bladder herniation, with less than 7% of cases being diagnosed preoperatively. Some patients may present with atypical symptoms, such as voiding when manual compression is applied over the inguinal area. A literature search revealed hundreds of inguinal hernia cases containing the bladder, of which only 21 contained a bladder neoplasm. We report the case of a patient who presented with a vesical tumor within a right inguinal hernia.

Case presentation

A 65-year-old obese male, known to have benign prostate enlargement, presented to our outpatient clinic with a chief complaint of gross hematuria for 1 month. The hematuria was associated with urinary frequency, urgency, nocturia, a feeling of incomplete emptying, and a right inguinal swelling that spontaneously regressed after voiding or manually regressed on compression while voiding. He had no relevant past surgical history and was a non-smoker.

Physical examination revealed a BMI of 35, and abdominal examination revealed a right inguinal bulge, which was approximately 6 cm, compressible, and non-tender. Digital rectal examination revealed an enlarged prostate, which felt benign and did not contain any suspicious nodules.

All laboratory findings were within normal limits. Urine culture and sensitivity and urine cytology were negative. Preoperative contrast-enhanced computed tomography (CT) of the abdomen and pelvis revealed a 4 × 6 cm polypoid enhancing lesion within a herniated urinary bladder, and no evidence of abdominopelvic metastases (Figs. 1 and 2).

After preoperative clearance for anesthesia, the patient underwent transurethral resection of bladder tumor (TURBT), followed by hernia repair by the general surgery team.

Intraoperative cystoscopy showed a normal urethra, prostate, and bladder. The right lateral wall of the bladder was pulled inside the right inguinal canal. Manual compression of the right inguinal swelling revealed multiple papillary tumors. Resection of the tumors in a herniated bladder via endoscopic surgery is challenging. Therefore, we kept applying manual compression over the right inguinal area to fully access and completely resect the tumors. Specimens were sent for histopathological examination. A 3-way Foley catheter was inserted, and a mesh repair for the inguinal hernia was performed by the general surgery team. The operative procedure was smooth, and there were no intra- or postoperative complications.
On postoperative day 2, the patient was doing well and had a clear urine output; therefore, his Foley catheter was removed, and he was discharged. The patient was seen in the outpatient clinic again after 2 weeks. Post-operative histopathology showed invasive subepithelial connective tissue, suggestive of a high-grade urothelial carcinoma. Hence, the patient was started on intravesical Bacillus Calmette-Guerin (BCG), and was planned for cystoscopic surveillance.

Discussion
Bladder herniation through the inguinal canal is a rare condition, accounting for only 1–4% of all inguinal hernias. Studies have reported that 11.2% of bladder inguinal hernias were associated with urological malignancies, of which 23.5% were associated with various complications.\(^1\)\(^,\)\(^3\)

Bladder outlet obstruction, benign prostatic hypertrophy, bladder underactivity, weak abdominal fascia, obesity, male gender, and advanced age have been identified as risk factors for vesical herniation through the inguinal canal.\(^1\)

Of all cases reported, most bladder inguinal hernias were identified in obese male patients above 50 years of age, with some reports stating that males are 10 times more affected than females. Vesical herniation has also been more commonly reported in the right side, as seen in this case.\(^1\)\(^,\)\(^2\) The majority of patients are asymptomatic, although atypical or nonspecific symptoms, such as urinary frequency, urgency, nocturia, and hematuria, may occasionally be reported, as were by our patient.\(^1\)\(^,\)\(^5\)\(^,\)\(^4\)

Considering the low incidence and nonspecific presentation of inguinal bladder hernias, preoperative diagnosis is often extremely challenging. It has been reported that only 7% of all cases are diagnosed preoperatively, whereas the intraoperative and postoperative diagnostic rates are 77% and 16%, respectively. A preoperative diagnosis can be made through history, physical examination, and imaging (by ultrasonography, cystography, and/or CT), which can help prevent the occurrence of intraoperative complications, such as bladder injury and leakage.\(^3\)\(^,\)\(^1\)\(^,\)\(^5\)\(^,\)\(^4\) A literature search revealed hundreds of inguinal hernia cases containing the bladder, of which only 21 cases contained a bladder neoplasm.

We reported a case of a 65-year-old male who presented with gross hematuria, right inguinal swelling, and a feeling of incomplete emptying. Through a combination of medical history, physical examination, and radiological and intraoperative findings, we perioperatively diagnosed the patient with a bladder neoplasm within a right inguinal vesical hernia. Most of the cases described in the literature were also diagnosed perioperatively.\(^5\) CT scans have been used to accurately diagnose and stage the tumor,\(^7\) as were utilized in our case. We identified multiple papillary tumors on cystoscopy and performed TURBT. Resection of the tumor in a herniated bladder via endoscopic surgery is challenging. Therefore, we applied manual compression over the right inguinal swelling to fully access and completely resect the tumor. This was followed by a repair of the inguinal hernia by the general surgery team.

Conclusion
Inguinal bladder hernia is rare and occurs more commonly in obese male patients above 50 years of age. An inguinal hernia that reduces after voiding should raise the suspicion of an inguinal bladder hernia,
and associated hematuria should necessitate evaluation for the presence of a genitourinary tumor. CT scan is the radiological modality choice to confirm the diagnosis prior intervention to avoid intraoperative complications such as bladder injury.

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**Declaration of competing interest**

The authors have no conflicts of interest to declare.

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