

Large sliding inguino-scrotal hernia of the urinary bladder

A case report and literature review

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Abstract

Rationale: Sliding inguinal hernias of the urinary bladder are protrusions of the bladder through the internal inguinal ring, most of which are insignificant and diagnosed intra-operatively. Large inguino-scrotal bladder hernias commonly present with lower urinary tract symptoms and may cause severe complications, including bladder incarceration or necrosis, bladder hemorrhage, obstructive or neurogenic bladder dysfunction, and even renal failure.

Patient concerns: We describe and discuss the clinical findings and management of a 59-year-old man who complained of a decrease in scrotal size after voiding and 2-stage voiding requiring pressure to the scrotum.

Diagnoses: The patient was diagnosed preoperatively as massive, bilateral, inguinoscrotal hernias, and a large, left-sided, sliding bladder hernia.

Interventions: The patient underwent a timely open re-peritoneal inguinal herniorrhaphy using a mesh.

Outcomes: The surgical outcomes were good, and no surgical site infection, chronic postoperative inguinal pain or recurrence were recorded during the follow-up.

Lessons: Better knowledge of this rare condition of large inguino-scrotal sliding bladder hernia could help in making a correct diagnosis preoperatively and provide proper surgical management timely, so as to reduce delay in treatment and avoid potential complications.

Abbreviations: BMI = body mass index, CT = computed tomography, MRI = magnetic resonance imaging.

Keywords: inguinal hernia, scrotum, sliding hernia, urinary bladder

1. Background

A sliding hernia is a type of hernia in which the contents one portion of a body cavity extends with the hernia sac into another body cavity. In this way, a sliding inguinal hernia of the urinary bladder involves the urinary bladder herniating with the inguinal hernia sac itself. Most of these cases are insignificant and diagnosed intra-operatively. They primarily present with signs of an irreducible mass in the inguinal area, accompanied by symptoms of urinary frequency, difficulty with urination, urinary retention, and intermittent staging of urination. Large inguino-scrotal bladder hernias are rare and commonly present with lower urinary tract symptoms, as well as a decrease in scrotal size after voiding and 2-stage voiding. They may cause severe complications, including bladder incarceration or necrosis, bladder hemorrhage, obstructive or neurogenic bladder dysfunction, and even renal

failure. We describe and discuss the clinical findings and management of a patient with massive bilateral inguino-scrotal hernias, and a large, left-sided, sliding bladder hernia.

2. Case report

A 59-year-old man with a body mass index (BMI) of 30.2 presented with frequent urination and difficulty in emptying his bladder. He was subsequently admitted to the urology department. He had a medical history of type-2 diabetes mellitus and hypertension, and he had no surgical history or other abnormalities. He complained of a decrease in scrotal size after voiding and 2-stage voiding requiring pressure to the scrotum. Physical examination revealed bilateral inguinal hernias that extended into both scrotal sacs, and the left side was non-reducible (Fig. 1). Ultrasonography of the urinary system showed dilatation of the upper and middle sections of the left ureter, and slight hydronephrosis of the left kidney. Urinary flow rate testing showed reduced bladder capacity and adaptability, and severe bladder outlet obstruction, evidenced by a residual urine volume of 260 mL. Preoperative cystography, a computed tomography (CT) scan, and magnetic resonance imaging (MRI) of the urinary system showed protrusion of the urinary bladder through the left internal inguinal ring and extending into the scrotum (Fig. 2). The patient underwent an open pre-peritoneal inguinal herniorrhaphy using the Ultrapro Hernia System mesh. The bladder was successfully reduced without injury to the bladder wall or ureters. Bladder resection was not performed. The postoperative recovery was uneventful and without complications of infection or chronic postoperative pain. The patient's lower urinary symptoms disappeared and he experienced a return in smooth urination.

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Figure 1. Front and lateral view of the bilateral inguino-scrotal hernia.

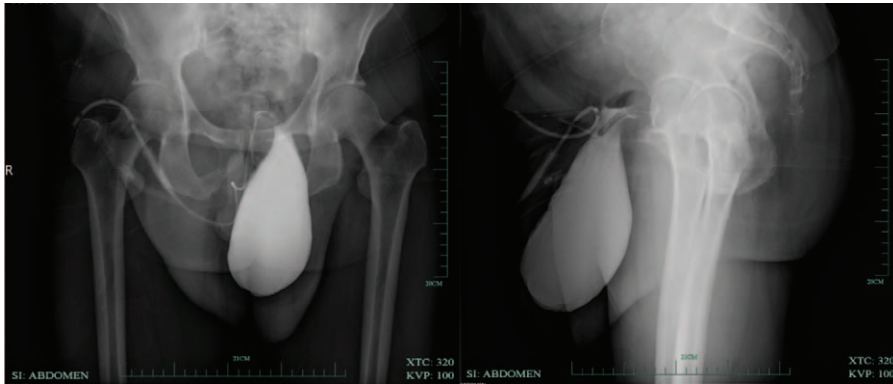


Figure 2. Front and lateral view of the preoperative cystogram.

Postoperative cystography confirmed that the bladder was again in the pelvic cavity (Fig. 3). There was no recurrence of the hernia 24 months after surgery. The patient provided written informed consent for the publication of this report.

3. Discussion

Early literature reports have documented that the morbidity associated with sliding hernias through the inguinal ring in adults

is approximately 6% to 8%.^[1] In recent years, reports indicate that the rate has decreased slightly. Andrzej et al^[2] reported 16 cases of sliding hernias among 464 cases of inguinal hernias (3.4%) and Nirmal et al^[3] reported 4.7% of cases identified as sliding hernias. The hernia sac contents in cases of a sliding hernia can include the sigmoid colon, appendix, cecum, or other intra-abdominal structures. The urinary bladder is rarely involved in herniation, but is associated with a morbidity of 1% to 4%, reaching as high as 10% in men with inguinal hernias over the age

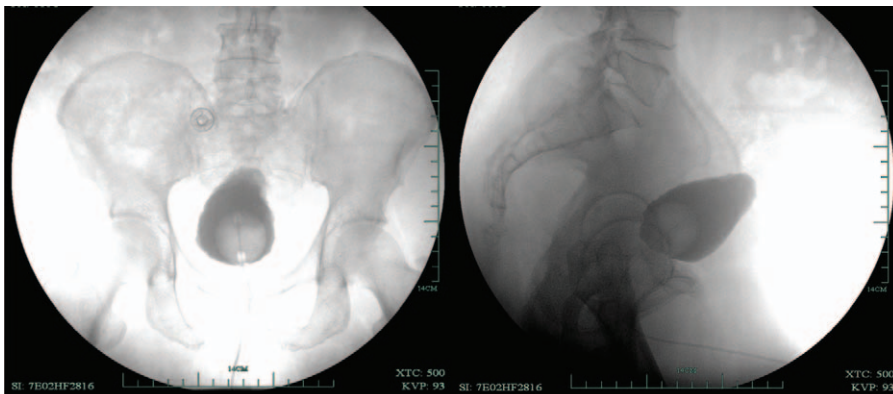


Figure 3. Front and lateral view of the postoperative cystogram.

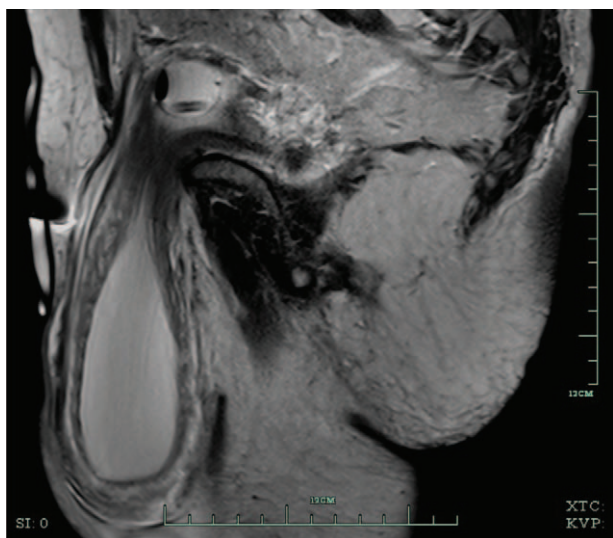


Figure 4. Magnetic resonance imaging (MRI) of the left-sided inguino-scrotal bladder hernia.

of 50 years.^[4–6] Hisamatsu et al^[7] from Japan reported 24 cases of sliding hernias of the urinary bladder. However, the morbidity rate was not reported in their report.

Most sliding bladder hernias that are not diagnosed preoperatively can be identified intra-operatively, mainly when a bladder injury is identified. However, identification of a bladder injury during surgery allows for prompt, proper repair and catheterization, potentially remedying the condition completely. There are several methods to diagnose a sliding bladder hernia. B-type ultrasonography, cystography, enhanced CT, and MRI are available and effective imaging methods for diagnosis.^[8–11] In this case, the sliding bladder hernia was diagnosed preoperatively on MRI (Fig. 4). According to both ultrasonography and CT imaging, this patient had dilatation of the ureter and ureterohydronephrosis on the left side, indicating that there could also be a protrusion and an obstruction of the ureter. These findings facilitated the diagnosis of a ureteral hernia. Bertolaccini^[12] reviewed 139 cases of ureteral hernias that were reported prior to June 2004, and reported one case of bilateral ureteral hernias. As a general rule, surgeons should pay particular attention during surgery to avoid injuring or ligating the ureter, and should confirm that the ureter has not been twisted after bladder reduction. Ultimately, a lack of care when reducing the ureter can have serious consequences postoperatively.

Sliding bladder hernias can lead to bladder dysfunction, vesico-ureteric reflux, hematuria, cystolithiasis, hydronephrosis, and renal failure. Additionally, strangulation can occur, which could result in ischemia and infarction of the bladder.^[13] There are 2 types of bladder dysfunction: obstructive and neurogenic. Obstructive bladder dysfunction may be caused by a protrusion of the bladder neck or triangular area. There have been reports of sliding hernias combined with bladder diverticula that led to neurogenic bladder dysfunction. Procedures like radical rectal resection and radical hysterectomy may cause a neurogenic bladder, but to our knowledge, there have been no previous reports identifying surgical repairs of sliding bladder herniation. In these cases, reduction or resection of the bladder carries the same risk. In our case, the patient had no symptoms of neurogenic bladder.

The surgical technique for sliding bladder hernia repair is similar to that for a standard inguinal hernia repair, most of which are performed by employing either a Lichtenstein tension-free repair, or an open extraperitoneal repair. Laparoscopic repairs have also been reported. Nirmal reported 54 patients with sliding bladder hernias, of whom 46 underwent laparoscopic surgery for treatment. The surgical and follow-up outcomes were quite good, except that there was a 10.8% rate of conversion to an open procedure.^[3] As for the treatment of the hernia sac, the Bevan or modified Bevan technique is useful for the management of massive bladder hernias, which is similar to the method used for normal sliding hernias.^[14] Most experts agree that the protruding section of the bladder could be managed by either reduction or resection. However, resection is usually limited to cases with proper indications, such as incarceration or necrosis of the bladder, a perforation that is difficult to repair, or when the hernia occurs in combination with a bladder diverticulum or tumor. Volume capacity preservation should be taken into consideration when performing the resection.

4. Conclusions

Awareness of this rare condition of a large inguino-scrotal sliding bladder hernia facilitates achieving a correct diagnosis preoperatively. Additionally, proper surgical management will help in reducing preoperative misdiagnosis, a delay in treatment, and potential complications.

Author contributions

Conceptualization: P. Wang, Y. Huang.
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Supervision: P. Wang, J. Ye, G. Gao.
Validation: P. Wang.
Writing – original draft: Y. Huang.
Writing – review & editing: Y. Huang.

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