



Extraperitoneal laparoscopic repair of huge inguinoscrotal bladder hernia: A case report and literature review

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ABSTRACT

Inguinal herniation of urinary bladder is a rare condition which might associated with significant complication. Exact pre-operative diagnosis is extremely important. We reported a case of huge inguinoscrotal bladder hernia, associated with bilateral hydronephrosis and kidney injuries, managed by laparoscopy technique.

Introduction

Despite approaching the inguinal region, the bladder rarely sinks into the inguinal canal to cause bladder herniation. Although bladder herniation only accounts for 1%–3% of all inguinal herniations,¹ its incidence can be as high as 10% among patients aged over 50 years with obesity. Patients with bladder herniation are generally asymptomatic; however, those with advanced cases require two-stage urination by manual compression of the scrotal bladder. Because most hernias are diagnosed through physical examination without preoperative radiological examination, only 7% of inguinal bladder hernias are diagnosed before herniorrhaphy. Moreover, 16% of these conditions are discovered after intraoperative or postoperative complications such as bladder injury or bladder leakage. Here, we report a bladder herniation diagnosed prior to operation and repaired by laparoscopic totally extraperitoneal (TEP) herniorrhaphy.

Case presentation

An 82-year-old man with chronic urinary frequency and incomplete voiding presented fever and chills for 3 days. Physical examination revealed a large, right-side scrotal mass that had been present for more than 10 years, according to the patient's statement. The size of the mass reduced slightly after voiding. Kidney imaging revealed bilateral hydronephrosis and hydroureter. Urinary tract infection and acute kidney injuries were diagnosed on the basis of a blood exam and urine

analysis. A Foley catheter was placed to relieve his voiding symptoms. Computed tomography (CT) revealed a right inguinoscrotal hernia containing a substantial portion of the patient's bladder [Fig. 1]. The bilateral ureterovesical junction had also lodged inside the scrotum, resulting in bilateral hydronephrosis and hydroureter. After a course of levofloxacin, we arranged TEP laparoscopic inguinal hernia repair. During operation, a right-side direct inguinoscrotal bladder hernia was discovered [Fig. 2]. A left-side direct inguinal hernia was also noted. After gently pulling the hernial sac up from the bladder, we placed anatomical mesh on each side to repair the defect. The patient was discharged on postoperative day 1, and his urinary complaint decreased markedly after surgery. During subsequent follow-up, kidney hydronephrosis was no longer observed, and his renal function improved.

Discussion

Bladder hernia is a rare condition, accounting for 1%–3% of inguinal hernias.² Bladder herniation principally occurs on the right side and is direct.¹ The pathophysiology of inguinal bladder herniation is similar to that of a direct inguinal hernia because the peritoneum sheaths traverse through weak points in the abdominal fascia.² Numerous risk factors are associated with this condition, including obesity, weakness of the abdominal musculature, chronic urinary obstruction, male sex, advanced age, and benign prostatic hypertrophy.² Patients are typically asymptomatic; however, some suffer from lower urinary tract symptoms. Patients with advanced cases of bladder herniation may express

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Fig. 1. Bladder and bilateral ureter herniation associated with bilateral hydronephrosis (A) Arrows indicate the herniated bladder (B) Bilateral hydronephrosis.

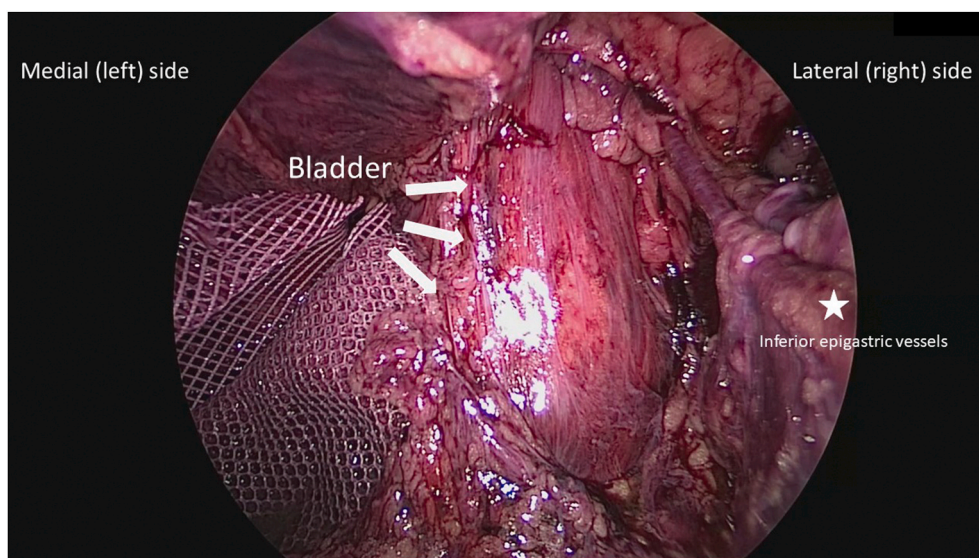


Fig. 2. Intraoperative image, showing bladder herniation and surrounding structures.

that they require two-stage voiding by compressing the scrotal bladder manually.³ Consistent with our patient's experience, studies have shown that patients with bladder herniation might develop bilateral hydronephrosis, acute kidney injury, and ureteral obstruction resulting from bladder compression.³

Several examinations are used for diagnosing bladder herniation. Apart from physical examination, sonography provides a noninvasive, radiation-free method that may reveal a hypoechoic mass inside the scrotum. The size of the mass may decrease after voiding or Foley catheter indwelling. Sonography can also be used to screen for hydronephrosis and hydroureter. Voiding cystourethrography may reveal a dog-eared shape representing the protrusion of the bladder inside the scrotum, thereby providing adequate evidence for diagnosis.¹ CT provides potentially the most detailed information for diagnostic and surgical planning purposes, including whether contralateral herniation or other organ herniation is also present.

Radiological imaging is not routinely performed in inguinal hernia workups; only 7% of inguinal bladder hernias are diagnosed before operation. Furthermore, complications such as bladder injury or bladder

leakage occur during surgery on 16%–23.5% of all bladder hernias. Thus, identifying bladder hernia prior to operation is crucial.

The most frequently reported surgical treatment for bladder hernia is open repair, yet our patient underwent a laparoscopic TEP hernia repair. Laparoscopic surgery provides several advantages including improved visibility of the bladder and surrounding structures, rapid recovery, less pain, and improved cosmesis.⁴ Another interesting finding of this case is that hydronephrosis caused by ureteral herniation could also be solved with the operation. A disadvantage of TEP is that during the procedure, the hernial sac is not routinely removed or sent for microscopic examination. Though the incidence is low, malignancies including colorectal carcinoma or prostate adenocarcinoma may be found.⁵ Several previous studies have reported laparoscopic repair of a herniated bladder, however, to the best of our knowledge, none have provided clear intraoperative imaging.

Conclusion

Herniation of the bladder is a rare clinical condition involving a

potentially dangerous complication—it is difficult to distinguish from a more common inguinal herniation. Detailed history taking and examination are essential in providing a correct diagnosis. Although previous reports have suggested an open approach to be the optimal means of surgical repair, we demonstrated that a laparoscopic TEP approach provides a safe method for hernial repair. Compared with an open approach, the laparoscopic approach offers a comparable surgical outcome as well as better intraoperative visibility and improved post-operative cosmesis.

References

1. Hamidi Madani A, Mohammadi Nikouei H, Baghani Aval H, Enshaei A, Asadollahzade A, Esmaeili S. Scrotal herniation of bladder: a case report. *Iran J Med Sci.* 2013;38:62–64.
2. Elkbuli A, Narvel RI, McKenney M, Boneva D. Inguinal bladder hernia: a case report and literature review. *Int J Surg Case Rep.* 2019;58:208–211.
3. Wagner AA, Arcand P, Bamberger MH. Acute renal failure resulting from huge inguinal bladder hernia. *Urology.* 2004;64:156–157.
4. Tseng SILH, Chueh KS, Tsai CC, et al. Retrospective comparison of open- versus single-incision laparoscopic extraperitoneal repair of inguinal hernia procedures: a single-institution experience. *Urol Sci.* 2020;31:77–81, 2020.
5. Zhong SRLY, Wu YY. Accidentally found metastatic adenocarcinoma of prostate in an incised inguinal hernia sac. *Urol Sci.* 2020;31:136–138, 2020.