Bladder stones in a herniated bladder: A rare case report and literature review

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ABSTRACT

Introduction: Bladder herniation (BH) into the inguinal canal is an extremely rare condition.

Case presentation: In this case we presented who an eighty-year-old male patient applied to our clinic with right inguinal swelling. The tests performed were found to be compatible with inguinoscrotal bladder hernia and bladder stone in herniated bladder. Then, we performed repair of inguinal hernia, cystolithotomy and transvesical prostatectomy.

Discussion: BH and accompanying herniated bladder stones are a rare pathology. Various strategies can be used in the diagnosis and treatment. With the development of technology, direct urinary system radiography has left its place to non-contrast CT in diagnosis. With the increase of the information in the literature, the diagnosis will be revealed with a clear strategy for follow-up and treatment.

Conclusion: In our knowledge, it was seen that it was the eighth inguinoscrotal bladder hernia and bladder stone in the literature.

1. Introduction

Inguinal hernia is the most common hernia type in the community. However, bladder herniation (BH) into the inguinal canal is an extremely rare condition. It is seen in approximately 1–3 of inguinal hernia cases [1]. BH is frequently observed in older men. It usually presents with scrotal pain, inguinal swelling, or lower urinary tract symptoms (LUTS). Physical examination has an essential role in the diagnosis.

Moreover, ultrasound (USG) and non-contrast computed tomography (CT) can also be used to aid diagnosis. Furthermore, in cases of inguinoscrotal bladder herniation, it is a rare condition to see stones in the bladder inside the hernial sac. Therefore, this paper aimed to present an inguinoscrotal bladder hernia case complicated with a bladder stone in the hernial sac. This paper is the eighth case in the literature to the best of our knowledge.

This case report is compliant with the SCARE 2020 guidelines [2].

2. Case report

An 80-year-old male applied to the general surgery clinic with swelling on the right inguinal region. Physical examination revealed a direct inguinal hernia. Moreover, a right inguinal hernia operation scar was detected on the examination. Therefore, right inguinal USG was performed. On USG, bladder and stones were detected in the right inguinal hernia sac.

Afterward patient consulted to urology clinic regarding bladder hernia and stone. The urological evaluation determined that the patient had LUTS such as difficulty in urination and nocturia for five years. Moreover, the patient had been using tamsulosin and dutasteride for five years. Urinalysis proved the hematuria. Prostate-specific antigen was 1.2 mg/dl, and serum creatinine level was 0.9 ng/dl on the blood tests.

We decided to perform an abdomen CT, inguinoscrotal bladder hernia, and stone. CT detected a right inguinoscrotal bladder hernia and 24 mm accompanying bladder stone in the hernia bladder (Fig. 1). In the
measurements made with CT, the prostate volume was € 100 cc. We planned to perform cystoscopy under the saddle block anesthesia technique. No additional pathology was detected in cystoscopy. Then, right inguinal exploration, the herniated bladder was returned to its anatomical position, a bladder stone removal, transvesical prostatectomy, the defect in the inguinal canal was repaired by the Lichtenstein method using polypropylene mesh (Fig. 2).

3. Discussion

BH was first described by Levine et al. as “scrotal cystocele”. BH is frequently seen in older men. It is more common on the right side than on the left [3]. Older age, obesity, increased intrabdominal pressure, increased perivesical adipose tissue, BPH, surgical history in the inguinal region are predisposing factors for herniation. In our case, a patient with a history of benign prostate hyperplasia and previous right inguinal hernioplasty was consistent with the literature.

The first BH with bladder calculi case was described in 1986 by Postma et al. [4] An 82-year-old male patient was detected on direct radiography while being examined for LUTS two-stage urination. Then, hernioplasty and open cystolithotomy were performed. The second case was reported in 2002 by Ptochos et al. [5]. A 67-year-old male patient presented two-stage urination. BH was detected in urography films taken in the standing and supine position. Manual compression and transvesical prostatectomy were performed after diagnosis. Another case was reported in 2007 by Fai et al. [6]. They detected the BH with stone in a 77-year-old patient who presented with acute urinary retention by direct radiography. Inguinal hernioplasty, cystoscopic cystolithripsy, and transurethral prostate resection were performed. In another case, an 82-year old male was described incidentally by Inage et al. [7]. They also detected the herniated bladder with stone on CT. Then, inguinal hernioplasty, right hemicolectomy and endoscopic cystolithripsy were applied to the patient because a mass was detected in the colon. There is a report of 2 cases in 2019 by Ahmed et al. [8]. First case was a 55-year-old male who presented with LUTS. The second case was an 86-year-old male who presented with hematuria. However, a tumor was detected in the left half of the bladder in addition to the stone. CT detected bladder stone in the hernia sac in both cases. In the first case, inguinal hernioplasty and endoscopic cystolithripsy were performed, while in the second case, transurethral bladder tumor resection was additionally performed. The last case was reported by Duran et al. [9] in 2021, and CT detected a bladder stone in the hernia sac in the patient with LUTS and two-stage urination complaints (Table 1).

With the increase of the information in the literature, the diagnosis will be revealed with a clear strategy for follow-up and treatment. Direct urinary system graphy has left its place to CT in parallel with the development of technology. Moreover, with the increase in experience, the use of minimally invasive techniques will increase in the future.

| Case            | Diagnostic method | Treatment method                                      |
|-----------------|-------------------|-------------------------------------------------------|
| Postma et al.   | Direct radiography| Hernioplasty + open cystolithotomy                     |
| Ptochos et al.  | Direct radiography| Manual compression + open cystolithotomy + transvesical prostatectomy |
| Fai et al. 2007 | Direct radiography| Inguinal hernioplasty + endoscopic cystolithripsy + transurethral resection of prostate |
| Inage et al.    | Computed tomography| Inguinal hernioplasty + right hemicolectomy + endoscopic cystolithripsy + transurethral resection of prostate |
| Ahmed et al.    | Computed tomography| Inguinal hernioplasty + endoscopic cystolithripsy     |
| Duran et al.    | Computed tomography| Transurethral resection of bladder + inguinal hernioplasty + endoscopic cystolithripsy |

Fig. 1. A: CT appearance of bladder stone in herniated bladder, coronal section. B: CT appearance of bladder stone in herniated bladder, axial section.

Fig. 2. Stone extracted in operation.
4. Conclusion

Herniation of the bladder containing stone or stone formation in the herniated bladder is rare. Although both are possible conditions, the etiology is not clear. Although there is no specific examination finding, it should be kept in mind in cases of advanced age, two-stage urination, history of inguinal operation, benign prostatic hyperplasia, and accompanying inguinal hernia. This condition should be managed jointly by a urologist and general surgeons.

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Ethical approval

“They consented in writing to the publication of his case details and images.” University of Health Sciences Sıslı Hamidiye Etfal Training and Research Hospital University Review Board do not issue ethical approvals for case reports. Patient family were informed and consented to the publication of both the case and images.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Registration of research studies

N/A.

Guarantor

Cemil Kutsal is guarantor.