

An Extremely Rare Case: A “Hanging” Bladder Stone Concurrent with Bladder Cancer

Çok Nadir Bir Olgu: Mesane Kanseri ile Eş Zamanlı “Asılı” Bir Mesane Taşı

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Abstract

A hanging bladder calculus on the dome of the bladder is rarely seen, and a hanging bladder stone concurrent with bladder cancer is observed even rarer. Herein, we report a 76-year-old male patient presenting with lower urinary tract symptoms and recurrent urinary tract infection. A hanging stone on the dome of the bladder was seen and treated endoscopically. We also coincidentally found and resected a suspicious lesion which was diagnosed as low-grade papillary urothelial carcinoma.

Keywords: hanging bladder stone, bladder cancer, nonabsorbable suture, foreign body

Öz

Mesane kubbesinde asılı bir mesane taşı nadir görülür ve eşzamanlı mesane kanseri ile birlikte asılı bir mesane taşı daha da nadir görülür. Burada alt üriner sistem semptomları ve tekrarlayan üriner sistem enfeksiyonu ile başvuran 76 yaşında bir erkek hastayı sunuyoruz. Mesane kubbesinde asılı bir taş saptandı ve endoskopik olarak tedavi edildi. Ayrıca tesadüfen saptanan şüpheli lezyonu rezeke ettik ve düşük dereceli papiller ürotelyal karsinom teşhisi kondu.

Anahtar kelimeler: asılı mesane taşı, mesane kanseri, emilemeyen suture, yabancı cisim

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Introduction

Bladder calculi occur most commonly as a result of either migration from the upper urinary tract or in the presence of predisposing conditions such as bladder outlet obstruction, neurogenic bladder dysfunction, intravesical foreign body, bladder augmentation, and urinary diversion [1]. Although stone formation around a foreign body in the bladder is common, the presence of a bladder stone around a foreign body with a bladder tumor is a very rare condition. We report the case of a patient who was admitted to our clinic with lower urinary tract symptoms (LUTS), recurrent urinary tract infection (UTI), and a hanging bladder stone formed around a nonabsorbable suture material and concurrent bladder tumor.

Case

A 76-year-old male patient applied to our urology outpatient clinic with complaints of persistent dysuria, urinary frequency, urgency and recurrent UTI persisted for a year. Despite adequate antibiotic and analgesic therapy, the complaints of the patient had continued. Physical examination was unremarkable, and digital rectal examination revealed normal prostate. The patient had a history of open prostatectomy for benign prostatic hyperplasia 16 years ago. There was no history of cancer in the

family. Anamnesis also revealed the diagnosis of hypertension which was under control with medical treatment. The patient was smoking 20 cigarettes a day for 30 years. Urinalysis showed 40-50 erythrocytes per high power field. Blood test results demonstrated no apparent abnormality. Urinary system ultrasonography (USG) findings were suggestive of a fixed hyperechoic intraluminal lesion in the bladder. Non-contrast abdominopelvic computed tomography (CT) confirmed the presence of a 10-mm bladder stone located on the anterior wall of the bladder (**Figure 1**). Cystoscopy was performed under spinal anesthesia and revealed a hanging stone on the anterior wall of the bladder dome. The bladder stone was visualized as attached to the bladder dome by a blue-colored nonabsorbable suture material. Furthermore, we coincidentally found a velvet-like, reddish suspicious lesion, indistinguishable from inflammation right behind the stone (**Figure 2**). The suture material and stone were completely removed through transurethral route using cystoscopic scissors (**Figure 3A**). Then, a 25 mL urine sample was taken for cytologic evaluation, and the suspicious lesion was resected completely (**Figure 3B**). The histopathologic examination identified low-grade papillary urothelial carcinoma without submucosal invasion (TaG1) (**Figure 4**). The patient was discharged on the 1st postoperative day and the urethral catheter was removed on the 2nd postoperative day. The patient is well and under follow-up for bladder cancer.

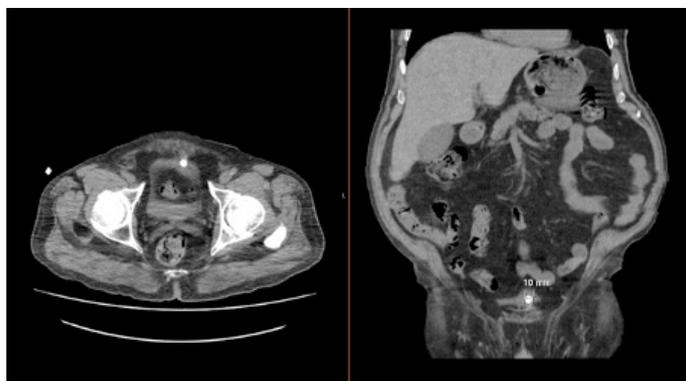


Figure 1. 10 mm bladder stone in horizontal and sagittal sections on computer tomography



Figure 3. A: Removed hanging bladder stone B: Appearance at the end of the surgery



Figure 2. A hanging bladder stone and suspicious lesion (blue circle) at the dome of bladder

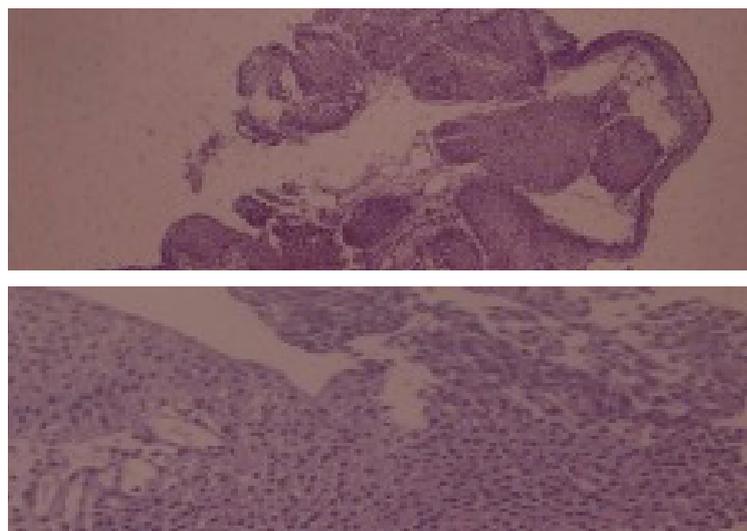


Figure 4. The papillary structure with vascular cores is lined by pleomorphic oval-round urothelial epithelium with hyperchromatic nuclei with marked loss of polarity

Discussion

Bladder stones constitute 5% of all urinary tract stones and males are more frequently affected [2]. Bladder stones are traditionally classified as primary, secondary, and migrant. Secondary stones occur as a result of predisposing conditions such as bladder outlet obstruction, neurogenic bladder dysfunction, foreign bodies, renal transplantation, bladder augmentation, and urinary diversion. Foreign bodies, such as suture materials, and a migrated intrauterine device, may serve as niduses for stone formation [3,4]. This complication may develop in cases where the nonabsorbable suture had penetrated through the bladder wall after previous surgery performed in close proximity to the bladder.

A hanging bladder calculus on the dome of the bladder is rarely seen, and very few such cases of a hanging bladder stone have been reported after gynecological surgeries, emergency laparotomy, renal transplantation, and herniorrhaphy [3,5-10]. In all cases a hanging bladder stone formed around a nonabsorbable suture penetrated into the bladder lumen have been observed. Nonabsorbable sutures in the bladder cavity act as niduses and facilitate stone formation. The symptoms associated with bladder stones were urinary frequency, dysuria, hematuria, and recurrent UTI. Similarly, our patient presented with LUTS and recurrent UTI. Diagnostic tools used to confirm the presence of a hanging or classic bladder stone are USG, abdominal radiography, or CT scan. Although X-ray film is important for primary evaluation of a bladder stone, it fails to detect radiolucent stones. Bladder stones are usually mobile inside the bladder cavity and accumulate at the bottom of the bladder. Conversely, hanging bladder stones are seen as non-mobile and fixed onto the bladder wall. CT is a very valuable diagnostic tool for confirmation of a hanging bladder stone.

Minimally invasive successful techniques for the treatment of hanging bladder stones have been reported as in our case [3,5,7]. Endoscopy is an effective and safe method to reduce the risk of complications and shorten hospital stays. However, dense fibrous tissue may form around the suture in the bladder wall and endoscopic removal of the stone and suture may not be possible, and in this case, open surgery becomes the only treatment alternative. Nonetheless, treatment of hanging stone has a high success rate and recurrence after stone removal surgery has not been reported so far.

Limited number of studies in the literature have investigated the concomitancy between bladder stones and bladder cancer. Inflammation is likely to have a key role in malignant

transformation [11]. The bladder stones may cause chronic mucosal injury, inflammation and consequently trigger the tumor development and growth. Chronic bladder irritation is a known predominant risk factor for squamous cell carcinoma of the bladder. A recent meta-analysis has demonstrated a statistically significantly increased risk of bladder cancer in patients with bladder stones [12]. However, the histopathological type of bladder cancer was not specified in this study. There is a paucity of knowledge about bladder cancer diagnosed with concomitant bladder stone due to the rarity of this condition.

To the best of our knowledge, this case is the first report of a hanging bladder stone presenting with a concurrent bladder tumor. Considering that the patient had been smoking for 30 years, in this case, it could be wrong to say that bladder stone was a predisposing factor for bladder cancer. However, it is a fact that bladder stones increase the risk of bladder cancer. Therefore, cystoscopy should be performed carefully during stone treatment, especially in patients with a smoking history. Additionally, urine cytology test should be performed.

In conclusion, inadvertent penetration of nonabsorbable suture material into the bladder lumen should be avoided during surgical interventions performed in close proximity to bladder in order to prevent bladder stone formation around the suture material. A detailed patient's medical history is essential to prompt the correct diagnosis. Finally, in patients with a bladder stone and smoking history, we suggest performing urine cytology tests to detect the presence of any metaplasia, dysplasia, or malignancy.

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