

Endoscopic Cystolithotripsy for a Giant Stone in The Orthotopic Neobladder: A Case Report

Mustafa Erkok¹, Alper Otunctemur², Erkan Merder², Huseyin Besiroglu³



ABSTRACT

Radical cystectomy and urinary diversion is an excellent treatment option for invasive bladder cancer. Ileal conduit and orthotopic neobladder have been applied as the most frequent urinary diversion methods for many years. Stone formation is a rare complication in the orthotopic neobladder. In the case presented, a 67-year-old-man who had undergone radical cystectomy and orthotopic neobladder reconstruction ten years ago with no complaints in the following five years presented with fever, dysuria, and urinary frequency. We detected a 10.8 cm stone in the neobladder, and the giant stone was fragmented by endoscopic cystolithotripsy via transurethral approach. Complete stone clearance was achieved.

Keywords: bladder stone, invasive bladder cancer, orthotopic neobladder

ÖZET

Ortotopik mesaneli bir hastada dev taş için endoskopik litotripsi deneyimi: Vaka sunumu

İnvaziv mesane kanseri tedavisinde radikal sistektomi ve üriner diversiyon tedavi seçenekleri arasında en iyisidir. İleal kondüt ve ortotopik mesane yıllardan beri en sık uygulanan üriner diversiyon yöntemidir. Ortotopik mesaneli hastada taş nadir görülen bir komplikasyondur. Bu olgu sunumunda 67 yaşında 10 sene önce radikal sistektomi ve ortotopik mesane yapılmış ve 5 yıl şikayetsiz takipten sonra ateş, dizüri ve sık idrar çıkma şikayetiyle başvuran bir vaka sunuldu. Mesanesinde 10.8 cm'lik dev bir taş tespit edildi ve taş transüretal yaklaşımla endoskopik sistolitotripsi ile fragmente edildi. Taşın tamamı temizlendi.

Anahtar kelimeler: invaziv mesane kanseri, mesane taşı, ortotopik mesane

¹Kanuni Sultan Suleyman Training and Research Hospital, Istanbul-Turkey

²Okmeydani Training and Research Hospital, Istanbul-Turkey

³Catalca Ilyas Cokay State Hospital, Istanbul-Turkey

Corresponding author:

Mustafa Erkok,

Kanuni Sultan Suleyman Training and Research Hospital, Istanbul-Turkey

E-mail address: drmustafa.erkoc@gmail.com

Date of submission: September 07, 2017

Date of acceptance: September 18, 2017

Introduction

Radical cystectomy and urinary diversion is an excellent treatment option for invasive bladder cancer that provides long-term disease-free survival rates with a low risk of pelvic recurrence. Thus aggressive radical cystectomy and pelvic lymphadenectomy is the standard treatment in muscle-invasive bladder cancer (1). Ileal conduit and orthotopic neobladder have been applied as the most frequent urinary diversion methods for many years. The orthotopic ileal neobladder has more advantages compared to an ileal conduit. It provides excellent cosmetic appearance, a simple effective alternative for urine storage, upper tract preservation, and efficient voiding (2). Despite these advantages, different early and late complications have been described. In this article, we report a case of a giant stone occurring after radical cystectomy

and orthotopic neobladder procedure. This giant stone is a rare and interesting complication in orthotopic neobladder.

Case Report

A 67-year-old-man had undergone radical cystectomy and orthotopic neobladder reconstruction ten years ago. He had no complaints in the following five years but the patient stopped his regular hospital visits in the subsequent five years.

After ten years, he presented with fever, dysuria, and urinary frequency. The physical examination did not reveal any abnormalities. His renal function tests and urine analysis were within normal limits, and the urine culture was sterile. A KUB (kidney-ureter-bladder) scan revealed multiple shadows in the neobladder (Figure 1). The ultrasonography detected a stone in the pelvic area with a size of 10.8 cm in the largest diameter. Non-Contrast CT confirmed this finding (Figure 2). The



Figure 1: KUB (kidney-ureter-bladder) scan showing multiple shadows in the neobladder.



Figure 2: Non-contrast CT scan showing multiple shadows in the neobladder.

patient's bilateral kidney ultrasonography was normal.

The giant stone was fragmented by endoscopic cystolithotripsy via a transurethral approach (Figure 3). Complete stone clearance was achieved. The urine catheter was removed postoperatively on the first day. The patient stayed in hospital for three days. He did not have any complications after surgery. The patient was informed about this report and consented.



Figure 3: Fragmented stone.

Discussion

Stone formation is a leading complication of the orthotopic neobladder diversion method. Deliveliotis et al. (3) reported a stone rate of 5.7% in patients with modified S-shaped ileal neobladder while Abol-Enein and Ghoneim (4) reported a stone rate of 2.9% in patients with orthotopic W-shaped ileal neobladder. Studer et al. (5) did not report any case of neobladder stone in their Studer orthotopic neobladder experience in 482 patients. Wyczolkowski et al. (6) did not report any cases in 61 patients.

Neobladder stone formation depends on many reasons including idiopathic, infectious, metabolic, and structural causes. The leading metabolic reason for stone formation is chronic metabolic acidosis. This situation leads to hypercalciuria and hypocitraturia and possibly hyperoxaluria, hyperphosphaturia, hypermagnesiuria, and supersaturation of the urine due to chronic dehydration. All these metabolic complications predispose to stone formation as well as colonization with urea-splitting bacteria (*Proteus*, *Pseudomonas*, *Klebsiella*) do.

Patients with a neobladder stone may present with dysuria, hematuria, suprapubic pain, infection, urinary frequency; however, the condition can also be asymptomatic. Patients

with these complaints should be evaluated with the suspicion of having neobladder calculi. After routine biochemical profile, serum electrolytes, urine analysis, and urine culture, size, number and location of the stones can be determined by bladder X-ray. Abdominal CT can be used if X-ray is not sufficient. Finally, the stone formation should be verified with cystoscopic examination.

Various treatment modalities have been described, including percutaneous cystolithotripsy, endoscopic cystolithotripsy, and open cystolithotomy. Patel and Bellman (7) recommended percutaneous approach for the management of calculi in continent urinary pouches. In our patient, we used endoscopic cystolithotripsy with a

pneumatic cystolithotripter. After fragmentation of the giant calculus, control tomography revealed that there were no calculi left.

Contribution Categories	Name of Author
Follow up of the case	A.O., M.E., H.B., E.M.
Literature review	A.O., M.E.
Manuscript writing	H.B., E.M., M.E.
Manuscript review and revision	A.O., H.B.

Conflict of Interest: The authors declared no conflict of interest.

Financial Disclosure: The authors declared no financial support.

References

1. Stein JP, Lieskovsky G, Cote R, Groshen S, Feng AC, Boyd S, et al. Radical cystectomy in the treatment of invasive bladder cancer: long term results in 1,054 patients. *J Clin Oncol* 2001;19(3):666-675. [\[CrossRef\]](#)
2. Hobisch A, Tosun K, Kinzl J, Kemmler G, Bartsch G, Hörtl L, et al. Life after cystectomy and orthotopic neobladder versus ileal conduit urinary diversion. *Semin Urol Oncol* 2001;19(1):18-23.
3. Deliveliotis C, Alargoff E, Skolarikos A, Varkarakis I, Argyropoulos V, Dimopoulos C. Modified ileal neobladder for continent urinary diversion: experience and results. *Urology* 2001;58(5):712-716. [\[CrossRef\]](#)
4. Abol-Enein H, Ghoneim MA. Functional results of orthotopic ileal neobladder with serous-lined extramural ureteral reimplantation: experience with 450 patients. *J Urol* 2001;165(5):1427-1432. [\[CrossRef\]](#)
5. Studer UE, Burkhard FC, Schumacher M, Kessler TM, Thoeny H, Fleischmann A, et al. Twenty years experience with an ileal orthotopic low pressure bladder substitute – lessons to be learned. *J Urol* 2006;176(1):666-675. [\[CrossRef\]](#)
6. Wyczolkowski M, Juszcak K, Rzepecki M, Drewniak T, Klima W. Studer orthotopic ileal bladder substitute construction – surgical technique and complication management: one-center and 12-year experience. *Adv Med Sci* 2010;55(2):146-152. [\[CrossRef\]](#)
7. Patel H, Bellman GC. Special considerations in the endourologic management of stones in continent urinary reservoirs. *J Endourol* 1995;9(3):249-254. [\[CrossRef\]](#)