



Surgical treatment of bladder diverticulum with radical prostatectomy. A case report and literature review

Radikal prostatektomi ile birlikte mesane divertikülü cerrahisi: Bir olgu sunumu ve literatür derlemesi

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Abstract

Bladder diverticulum is an important health problem and can cause urinary system dysfunctions and recurrent urinary infections in patients as complications of incomplete bladder emptying. Diverticulas are often accompanied by bladder outlet obstructions and are less likely to be seen with the prostate cancer. This rare condition necessitates advanced surgical planning.

In this report, we wanted to show that radical prostatectomy can be successfully performed with diverticulectomy.

Keywords: Bladder diverticulum, prostate cancer, radical prostatectomy, surgery

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Öz

Mesane divertikülleri önemli bir sorun olup, idrarın tam boşalmaması nedeniyle üriner sistem işlev bozukluklarına ve tekrar eden üriner enfeksiyonlara neden olabilir. Divertiküllere çoğu zaman mesane çıkım obstrüksiyonları eşlik etmekte olup, prostat kanseri ile birlikte görülme ihtimali daha düşüktür. Nadir olan bu durum önemli bir cerrahi planlama gerektirir.

Sunduğumuz bu vakada, divertikülektomi ile birlikte radikal prostatektominin başarılı bir şekilde uygulanabileceğini göstermek istedik.

Anahtar Kelimeler: Mesane divertikülü, prostat kanseri, radikal prostatektomi, cerrahi

Introduction

Urinary bladder diverticulum (UBD) may be congenital or acquired. Genetic disorders such as Ehlers Danlos or Williams Beuren syndrome have been associated with UBD [1]. They are mostly acquired and secondary to bladder outlet obstructions in adults. UBD occur in adults with a male to female ratio of 9:1 [2]. It is called as Hutch diverticula if it is located in peri ureteral orifice. The first bladder diverticulectomy was performed by Czerny in 1897 [3].

Treatment of acquired UBD consists of diverticulectomy and relief of the bladder outlet obstruction with open, endoscopic, laparoscopic and robotic approach.

Adult bladder diverticulum with the presence of prostatic adenocarcinoma represents a rare clinical finding. In this paper, we aimed to report a rare association of the bladder diverticulum with prostatic adenocarcinoma in an adult patient.

Case report

A 70-year-old male admitted to our clinic with the complaint of incomplete emptying and decreased urinary flow. The patient had lower urinary tract symptoms for the last three years but his symptoms increased for the last several days. Only hypertension was present in his medical history. No previous surgery was done. International prostate symptoms score (IPSS) score was 25 and international index of erectile function (IIEF) score 18. Prostate specific antigen (PSA) was 5.4 ng/ml. A hard prostate nodule was felt in the left lobe during digital rectal examination. Transrectal ultrasound guided tru-cut prostatic biopsy was performed. Prostatic adenocarcinoma Gleason 7 (4+3), 9 out of 12 core was detected. Computed tomography (CT) scan of the abdomen and the pelvis revealed bilateral grade two hydronephrosis and the well-distended bladder, with a significantly thickened and irregular wall with the presence of two diverticula with the presence of a 12 cm diverticulum at its left wall and 9 cm on base and also detected almost 600 cc residual urine (Figure 1, 2). Maximum flow rate (Qmax) in uroflowmetry was 6.4 ml/s. Prostatic enlargement of the median and the lateral lobes was detected in diagnostic cystoscopy. The bladder had trabeculations and a big diverticulum on the posterior wall. The other diverticulum on the right side of the bladder wall is smaller. There was no abnormal appearance in both diverticula. Urodynamic evaluation was not performed.

Open radical prostatectomy with diverticulectomy was performed due to pre-operative obstructive findings. Via the lower infra-umbilical median incision, the bladder was dissected from its neighborhood tissues and opened. Bilateral ureteral catheters inserted and both diverticula was removed with intra and extravesical approach. Openings of the diverticula was closed with double layer technique. Afterward, external oblique fascia was opened, puboprostatic ligaments were cut. The venous plexus was sutured and cut. Urethra was cut at the apex level and the bladder neck was opened. Seminal vesiculates were dissected. Urethrovesical anastomosis was done. The operation time was approximately 215 minutes. Total blood loss was 150 cc. The patient was discharged on 5th day with urethral catheter. The catheter was removed at the postoperative 18th day.

Pathology report revealed adenocarcinoma of Gleason 7 (4+3) and negative surgical margin. Postoperative 1st month follow up revealed no hydronephrosis with minimal residual urine seen on ultrasonography. Q-max on uroflowmetry increased from 6.4 to 11ml/s. Postoperative PSA was 0.039 ng/ml.

Postoperative 3rd month follow up revealed continence with the use of duloxetine (Nexetin®, Nobel Pharmacy, Turkey)

40 mg twice a day IPSS score was 4 and IIEF score 8. Tadalafil 5mg (Cialis®, Lilly, Turkey) was given daily once.

Written consent was taken from the patient.

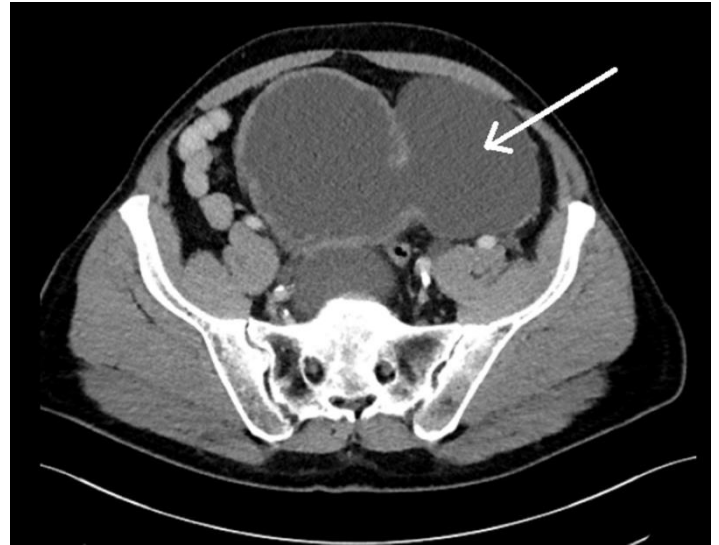


Figure 1. An axial computed tomography scan showing the diverticulum located at the left wall of the urinary bladder (white arrow).



Figure 2. An axial computed tomography scan showing bladder diverticulum located at the base of the urinary bladder (white arrow).

Discussion

Bladder diverticula generally can be described as herniation of bladder mucosa through the weak parts of the detrusor muscle. It was reported first in 1700 by Bartholin, who found the bladder diverticulum in a large scrotal hernia during an autopsy session. In 1730, Morgagni suggested that the bladder diverticulum could result from bladder neck obstruction due to prostate enlargement [4]. Bladder diverticula can cause irritative voiding symptoms and recurrent urinary infections in patients as results of incomplete bladder emptying. Among the treatment modalities, open, endoscopic, laparoscopic and robot assisted surgical techniques can be used. In this report we mention also that these techniques are applicable in the presence of small number of additional surgical pathologies referring to literature. Laparoscopic diverticulectomy was first reported by Parra et al. [5] in 1992 and the first robot assisted technique by Myer et al. [6] in 2007. Since pneumoperitoneum flattens diverticula in these approaches which makes diverticula impossible to recognize, various techniques have been applied to dissect it safely. Moore et al. [7] used methylene blue to identify abdominally the diverticular neck. Myer and Wagner [6] inserted angiographic occlusion balloon catheter into the diverticulum

and inflated the balloon. Parra et al. [5] inserted a flexible cystoscope into the diverticulum and performed transillumination with light source.

In the literature, few examples of combined surgery for bladder outlet obstruction were reported. The first cases of bladder diverticula operation with retropubic prostatectomy were reported by Couvelaire in 1948 and Findlay in 1954 [4]. Propglia et al. [8] and Abdel-Hakim et al. [9] does not recommend the use of transurethral resection of prostate (TURP) and diverticulectomy at the same session. These authors claimed that postoperative continuous bladder irrigation would damage bladder sutures. In 2008, Magera et al. [10] performed simple prostatectomy with robot assisted diverticulectomy having postoperative two days hospital stay and fourteen days catheterization time. Tufek et al. [11] in 2016, studied 9 patients undergoing surgery, combination of TURP and photo selective vaporization of prostate for bladder outlet obstruction with robot assisted diverticulectomy. According to the authors, postoperative continuous bladder irrigation was not needed after operation due to combination of TURP and PVP. Their complication rate was generally lower than patients who received two different surgeries at two separate times and that it was more favorable in terms of cost and duration of hospital stay.

Skolarikos et al. [12] reported 11 cases of radical prostatectomy with diverticulectomy in 2007 as a safe and effective procedure. According to their results, all patients was continent and had improved Qmax value. Similarly Loran et al.[13] and Plomidis et al. [14] reported radical prostatectomy with diverticulectomy as a safe procedure with good oncologic and functional results. We planned radical prostatectomy with diverticulectomy after informing the patient. Operation time was 215 minutes and blood loss was 150 ml approximately. Myer et al. [6] reported operation time as 178 min in five patients in robot assisted diverticulectomy series. Similarly, Altunrende et al. [15] reported operation time as 232 minutes, average blood loss as 100 ml and hospital stay as 3 days in robot assisted diverticulectomy series. In terms of operation time, blood loss and hospital stay, radical prostatectomy with diverticulectomy operation can be applied.

More detailed information may be acquired with prospective series study, not case-report; this is may be lack of paper. Deficiency of urodynamic evaluation may be lack of this case. In this case, we wanted to show that radical prostatectomy can be successfully performed with diverticulectomy. Applying the same seen to appropriate patients will result in satisfactory results both in terms of cost and length of hospital stay, as both are a major surgical procedure and when applied separately will require longer hospitalization and longer recovery times.

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