

## CASE REPORT

# Robotic Management of Localized Adenocarcinoma Prostate with Large Vesical Calculus: A Report of Two Cases

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## ABSTRACT

**Introduction:** Bladder outlet obstruction (BOO) accounts for more than 75% of cases of vesical calculi in patients aged above 50 years. There are special group of patients who have large vesical calculus with localized adenocarcinoma prostate requiring treatment for both bladder calculi and malignancy. We are sharing our technique of extraperitoneal robot-assisted radical prostatectomy (RRP) and removal of vesical calculus in two patients of localized adenocarcinoma prostate with large vesical calculus (>4 cm). Two patients with localized prostate cancer with large vesical stone underwent simultaneous cystolithotomy and extraperitoneal radical prostatectomy. Their perioperative period was uneventful. Large vesical stones with localized prostate cancer can be easily managed simultaneously by an experienced robotic surgeon.

**Keywords:** Bladder outlet obstruction, Robot-assisted radical prostatectomy, Vesical stone.

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## INTRODUCTION

Bladder outlet obstruction (BOO) accounts for more than 75% of cases of vesical calculi in patients aged above 50 years.<sup>1</sup> These vesical calculi should be treated along with the BOO either simultaneously or in a staged manner. Initially, vesical calculi were managed either by cystolitholapaxy for small stones or open cystolithotomy for large stones. With the advancements in endourology, vesical calculi are usually managed by percutaneous cystolithotomy or transurethral cystolithotripsy using holmium laser/pneumatic energy sources.

Latest approaches like combined percutaneous cystolithotomy and transurethral resection of prostate or laparoscopic cystolithotomy with combined direct visual lithotripsy have evolved for large bladder stones with benign prostatic hyperplasia (BPH).<sup>2,3</sup> There are special group of patients who have large vesical calculus with localized adenocarcinoma prostate requiring treatment for both bladder calculi and malignancy. However, there is a paucity of data regarding management of these complex cases. In this report, we are sharing our technique of extraperitoneal robot-assisted radical prostatectomy (RRP) and removal of vesical calculus in two patients of localized adenocarcinoma prostate with large bladder calculus (>4 cm).

## CASE DESCRIPTION

*Case 1:* A 68-year-old male presented with both voiding and storage symptoms. His prostate specific antigen (PSA) was 9.12 ng/ml with clinical stage of T2a. Prostate biopsy revealed adenocarcinoma with Gleason score of 7 (3 + 4). His KUB X-ray showed a single large (4.1 cm) vesical calculus (Fig. 1A).

*Case 2:* A 65-year-old male presented with voiding symptoms predominantly with PSA of 7.4 ng/ml. His clinical stage was T1c. Prostate biopsy was adenocarcinoma with Gleason score of 6 (3 + 3). KUB X-ray showed vesical stone of 4.3 cm.

In both the cases, magnetic resonance imaging (MRI) pelvis was performed for staging.

## TECHNIQUE DESCRIPTION

Initially, cystoscopy was done in both the patients for the confirmation of number of stones, status of bladder mucosa and identification of both ureteric orifices after placing the patients in lithotomy position. Oral phenazopyridine was given to both the patients preoperatively to confirm ureteric orifices intraoperatively. Preperitoneal space was created using spherical balloon (PDB, Autosuture) and 5 ports including one camera port 12 mm blunt tip trocar (BTT, Autosuture), 2 robotic 8 mm ports, one 12 mm assistant port on right-side and one 5 mm left-side port were placed. Patient was placed in 20° trendelenburg position and robot was docked. Radical prostatectomy was performed first, followed by retrieval of stones. Initially, the endopelvic fascia opened bilaterally followed

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by ligation and division of deep venous complex with 2-0-monocryl suture. Anterior bladder neck at prostates-vesical junction was incised followed by posterior bladder neck incision. Bilateral vas and seminal vesicles were dissected. Posterior dissection was completed by incising denonvilliers fascia and identifying prerectal fat. Incising urethra at apex completed radical prostatectomy and vesical stones were retrieved subsequently. In both the cases, stone remained at base of the bladder and did not migrate to dome area because of 20° Trendelenburg position. Robotic ProGrasp forceps on right-side and Robotic Cadere forceps on left-side were used for better grip of stones (Fig. 1B). Assistant helped in retraction of the anterior wall of bladder neck with the help of suction tip. Both robotic instruments were used to push the stone towards the bladder neck by applying pressure on the lateral walls. In the first case, anterior cystotomy was done for easy retrieval of stone. We reconstructed the cystotomy using 3-0 vicryl in racquet handle fashion. In second case, there was wide bladder neck during division of prostatovesical junction required bladder neck reconstruction. In both the patients, stone was placed

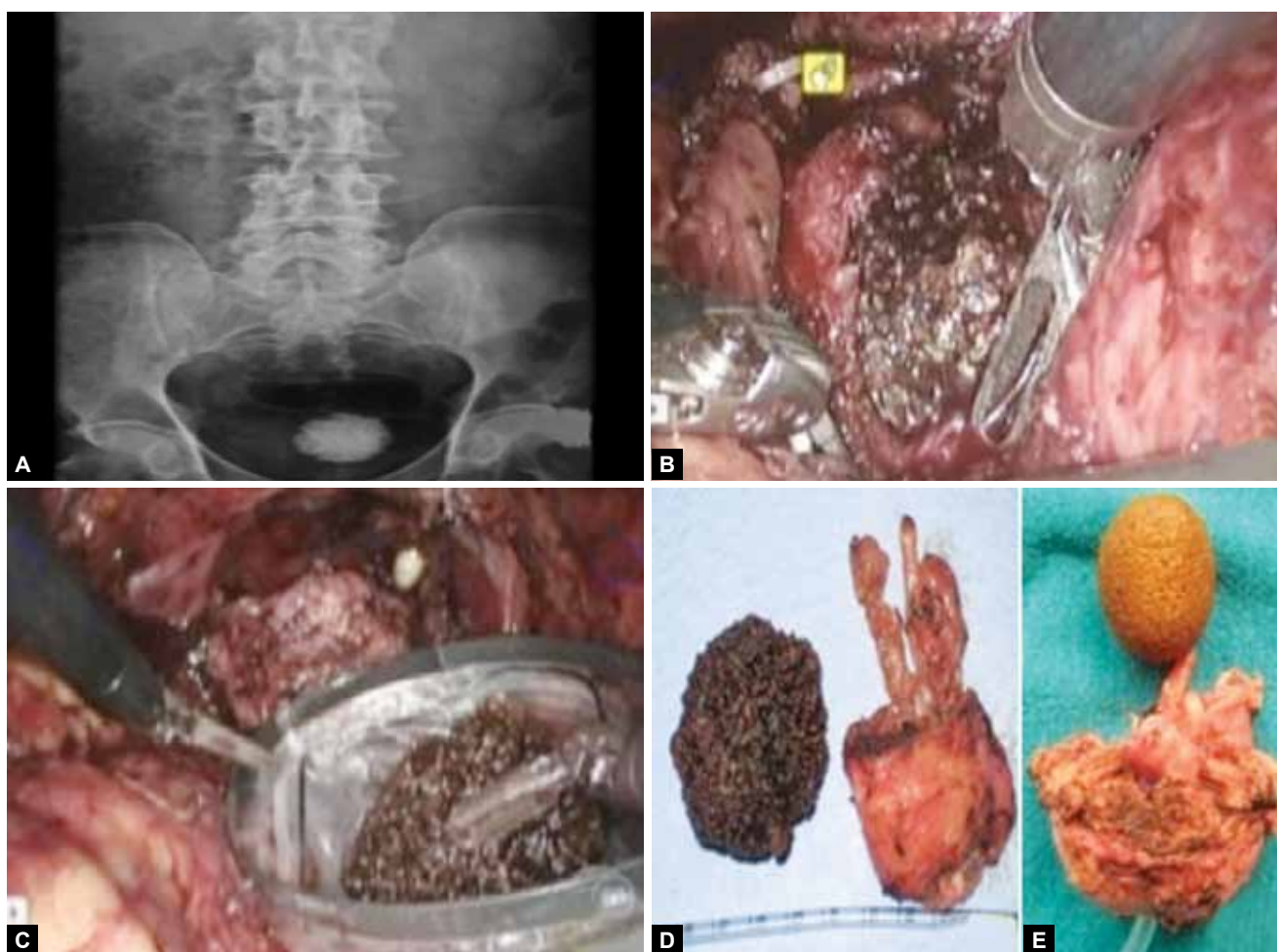
in same endocatch bag as for radical prostatectomy specimen (Fig. 1C). Both were retrieved through 12 mm assistant port incision (Figs 1D and E).

## RESULTS

Mean surgeon console time was 150 minutes. Patients were allowed orally in the evening. Drain was removed on postoperative day 1. Both the patients were discharged on third postoperative day. Final histopathology of radical prostatectomy specimen showed adenocarcinoma with Gleason score 7 (4 + 3) in 1st patient and Gleason score 6 (3 + 3) in 2nd patient. All margins and seminal vesicles were free of tumor in both the patients. Mean follow-up of both the patients is 26 weeks and both the patients are continent and their PSA is undetectable.

## DISCUSSION

Treatment options for large bladder calculi in patients due to benign prostatic hyperplasia are transurethral lithotripsy, percutaneous cystolithotripsy and open surgery. These procedures are associated with certain difficulties, like poor visual field due to bleeding and stone dust,



**Figs 1A to E:** (A) KUB X-ray of patient 1 showing large vesical stone, (B) vesical stone with ProGrasp forceps on right-side and Cadere forceps on left-side, (C) vesical stone in endocatch bag, and (D and E) vesical stone and radical prostatectomy specimen of patients 1 and 2

problems with stone fixation and complications, such as bladder and urethral trauma, urinary tract infection (lithotripsy in infected stones).<sup>4</sup> It should be followed by either transurethral resection of prostate or open prostatectomy in the same sitting. In literature, there is scarcity of data regarding the management of large vesical stone with localized prostate cancer.

Radical prostatectomy is an effective treatment option for men with prostate cancer and offers the best long-term cancer control in patients with localized disease.<sup>5,6</sup> With adequate learning curve, now RRP gives outcomes similar to open surgery.<sup>7,8</sup> Patients with carcinoma prostate and large stones can be managed in a staged manner. In the first stage, stone can be managed transurethrally or percutaneously and radical prostatectomy can be done in the second stage. But it requires two sittings of anesthesia and possible complications of transurethral surgery including bladder mucosal injury and urethral injury leading to stricture urethra and difficult anterior bladder dissection following percutaneous surgery. With better maneuverability, increased degree of freedom due to robotic arms and experience, simultaneous RRP with retrieval of stones can be easily performed. It avoids trauma to bladder and urethra and ensures complete stone clearance.

Tan GY et al<sup>9</sup> reported similar approach for patient with prostate cancer and bladder stone. But their case was different from our patient because their patient had multiple stones. They did not require bladder neck reconstruction. Larger stones can easily be removed by incision at the bladder neck. Stones can be trapped in an entrapment bag so that they can be taken out through a small working incision. There is always an apprehension that stone clearance should be complete. For that, we did the cystoscopy before RRP to confirm the number of stones. Otherwise, intraoperative flexible cystoscopy can be done to confirm complete clearance. We used the extraperitoneal approach with 20° Trendelenburg position, which helped us for stone retrieval because stones remained at bladder base, and didn't migrate to dome, which usually happens in transperitoneal approach requiring steep Trendelenburg position. We used ProGrasps and cadiere forceps; both have serrated blades, which helped in retracting the bladder wall as well as retrieval of stone. These patients usually have inflamed bladder

neck area and trigonal area due to stone. There may be difficulty in identifying ureteric orifices intraoperatively in these patients making them prone to injury during cystotomy. Cystoscopy before surgery with oral phenazopyridine preoperatively helped us to identify both the orifices intraoperatively.

## CONCLUSION

Large vesical stones with localized prostate cancer can be easily managed simultaneously by an experienced robotic surgeon.

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