Endourology

Giant prostatic and bladder calculi: Endoscopic management and review of the literature

Jaisukh Kalathia *, Kaushal Patel, Santosh Agrawal

Department of Urology and Kidney Transplantation, Fortune Urology Clinic, India

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ABSTRACT

Giant prostatic and bladder calculi is extremely rare entity with incidence increasing with age. These large stones can be concurrently managed via transurethrally, open retro-pubic surgery, radical prostatectomy and endoscopically depending on site and size. A 55-male presented with severe lower urinary tract symptoms mainly incontinence of urine for 8–10 years. On workup, he was diagnosed to have giant prostatic and bladder calculi. We report this rare case as such giant stones are managed with open surgery but we succeeded in removing them endoscopically with favorable outcome.

Introduction

Giant prostatic urethral calculus is infrequent with fewer than 20 cases reported in literature.1 And, simultaneous presence of giant prostatic and bladder calculus is extremely rare. We report complete clearance of both the stones endoscopically via percutaneous route with brief review of literature.

Case report

A 55-year old man presented with irritative lower urinary tract symptoms (LUTS) especially continuous dribbling of urine for the past 8–10 years. The patient had been priorly operated for pelvic trauma 10 years with no documents available at present. On per rectal examination, prostate appeared stony hard with uneven surface. External genitalia were normal.

The plain X-ray of the kidney, ureter and bladder (KUB) showed a giant radio-opacity of approximate size 6.2 cm and 4.1 cm in the prostatic and bladder region without any other opacity in the upper urinary tract [Fig. 1]. The routine blood investigations including serum biochemistry were within normal range. Ultrasonography of the KUB confirmed prostatic and bladder calculi with bilateral moderate hydroureteronephrosis.

A 30 Fr Amplatz sheath was inserted midway between umbilicus and pubic symphysis into the bladder for Percutaneous Cystolithotripsy (PCCLT) to simultaneously deal with both the stones. First, the bladder stone was fragmented with the help of pneumatic lithotripter and the fragments were removed using 22 Fr semi-rigid wolf nephroscope. An antegrade bladder neck incision was given at 5 and 7' o clock to retrieve the giant stone into bladder in an attempt to avoid further sphincteric trauma but in vain [Fig. 2]. Eventually, the stone was fragmented via Holmium laser with 550-μm fiber and completely removed. The operating time was 130 minutes. Intraoperatively, contrast was injected into the suprapubic tract which showed bilateral ureteric reflux probably due to high voiding pressure which would be confirmed by urodynmic study [Fig. 3]. The post-operative period was uneventful with improvement in incontinence. On stone analysis, it was found to be composed of calcium phosphate.

Discussion

Prostatic urethral stones are basically classified as endogenous or primary and exogenous or secondary. The primary stones are de novo and are usually small and multiple. They may be formed due to precipitations of constituents in prostatic secretions resulting from stasis. These stasis of secretions in prostatic ducts arise from obstruction, inflammation and chronic infection. Whereas, the secondary stones are formed in upper tract and migrate downward and are usually larger. These migratory stones gradually enlarge to form giant prostatic calculi. They may occur due to urethral stricture, stasis with urinary infection, bladder neck obstruction, lithogenic diathesis, and schistosomiasis.2 Giant prostatic calculi are seldomly seen in middle aged population with incidence increasing with age. They are usually composed of magnesium ammonium phosphate, calcium phosphate or...
calcium oxalate.

The clinical presentation varies from being asymptomatic to burning sensation in perineum, severe lower urinary tract symptoms (LUTS) and even acute urinary retention. Infrequently, patient may have haematuria, dribbling and incontinence as was seen in our patient. These giant calculi are palpated as hard nodular prostate simulating prostatic cancer on digital rectal examination (DRE). Prostatic calculi can be easily diagnosed with standard radiographs and ultrasound preferably transrectal ultrasound (TRUS) with superior sensitivity.

Prostatic calculi are often found associated with urethral stricture disease or urethral obstruction with literature reporting around 60% of patients with long standing urethral stricture disease. Gradually, these calculi enlarge into giant ones with further deposition of calcium phosphates in the prostatic urethra. If left untreated, they can further give rise to bladder stone formation as a result of stasis of urine. In some cases, bladder stone could be as large as prostatic ones as was seen in our case.

Management of giant prostatic calculi differ according to the site, size and associated secondary stones. The different methods to deal with giant calculus include radical prostatectomy, open retro-pubic prostatolithotomy and endoscopic lithotripsy. Retrograde manipulation of large calculus is difficult because of the size and the narrow bladder neck as was seen in our case. We incised bladder neck at 5 and 7 o’clock in antegrade fashion but failed to retrieve the stone. This vesicle incision would relieve the obstruction and improve local drainage of infection.

Giant calculi in prostatic urethra is rare but simultaneous giant prostatic and bladder calculi in same patient is extremely rare phenomenon.

In literature, Kim et al. transurethrally removed concurrently both
giant prostatic and bladder stone. In our case, we successfully managed both the stones endoscopically through a small percutaneous tract of size 30 Fr using both the source of energy Holmium laser and pneumatic lithotripsy. In this era of minimal invasive surgery, we succeeded to remove these stones endoscopically sans complication where open surgery would be an ideal indication.

Conclusion

Concurrent giant prostatic and bladder calculi is a rare situation and can be managed endoscopically with a satisfactory outcome obviating the need of open surgery in this minimally invasive era.

Author's contribution

Kalathia Jaisukh: Manuscript writing, Project development.
Patel Kaushal: Data collection, Manuscript writing.
Santosh Agrawal: Project development.

Research involving Human Participants and/or animals

Human Participants.

Informed consent

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Declaration of competing interest

None.

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Fig. 3. Intraoperatively, contrast injected through the suprapubic tract showing bilateral ureteric reflux.