Pan-urethral stones from bladder Diverticulum and its management: case report

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Abstract
We present a 69 year old male with clinical and radiological feature of benign prostate enlargement and bladder diverticulum. He had earlier presented with acute urinary retention for which he was catheterized per urethram and subsequently had a transurethral resection of the prostate (TURP). He disappeared from follow and re-presented 4 years later with retained urethral catheter. The catheter was removed but attempt at re-passing the catheter failed and a suprapubic cystostomy was performed. Clinical examination and plain radiograph of the penis confirmed pan urethral stones. He had meatotomy and antegrade manual stone extraction with no urethra injury.

Background
Urethral stones are rare and are commonly found either in the anterior or posterior urethra and often present with acute urinary retention. We present this pan urethral stones from bladder diverticulum and its management.

Case presentation
A 69 year old male was seen with a 4 year history of storage and empying lower urinary tract symptoms. At the initial presentation, he had an episode of acute urinary retention and was catheterized with failed trial without catheter. Digital rectal examination revealed benign prostate enlargement. The abdomino-pelvic ultrasound showed a 64gm prostate and a posterior bladder Diverticulum that measured 8x8x7cm³. The serum prostate specific antigen was 7.5ng/dl and serum electrolytes, urea and creatinine were normal.

He had TURP in an out facility and was lost to follow up. Four years later, he represented with another episode of acute urinary retention and retained catheter. After removal of his urethral catheter, he could not be re-catheterized and he subsequently had a suprapubic cystostomy performed. Four weeks later, he presented with severe urethral pain and examination showed urethral stone at the tip of his external urethral meatus and completely granular anterior urethra. Plain radiograph of the penis confirmed radio-opaque shadows in the bladder, bladder diverticulum, the whole of the proximal and distal urethra (figure 1). Clinical diagnosis was pan-urethral stones from bladder diverticulum. Under caudal anaesthesia (2% plain xylocaine) and sedation, attempts to push the stones endoscopically into the bladder failed. Therefore, he had meatotomy and antegrade manual stone extraction with intermittent lubrication of the urethral with 2% xylocaine jel (figure 2). All the stones were completely removed and check Cystoscopy confirmed the wide neck urethral Diverticulum (figure 3).
Discussion

Primary urethral stones are a rare cause of acute urinary retention [1, 2]. In this patient, long standing benign prostate enlargement predisposed him to the development of the bladder diverticulum. It is known that any cause of bladder outlet obstruction such as neurogenic bladder [3], posterior urethral valves, benign prostate enlargement, or urethra stricture [3] could be complicated by bladder or urethral stones but in this case, he developed bladder diverticular stones. This patient commonly present with acute urinary retention as in our patient who in addition had difficult urethral re-catheterization. It is possible that he developed these encrustations and stones around the urethra catheter balloon and also in the bladder diverticulum prior to the TURP. The sudden bladder decompression following the catheter removal could be responsible for the stones being driven down the urethra.

This patient had a transurethral resection of the prostate (TURP) done during which the opening to the diverticulum was widened but the diverticulum stones could not be extracted. Most of the stones looked like flakes of calcification around the catheter balloon. After the TURP, the patient was lost to follow up when he was re-catheterized in an outside facility and did not change his catheter for 4 months. This patient would have benefitted from supra pubic cystolithotripsy then followed by TURP. Alternatively, he could have had simultaneous suprapubic cystolithotripsy and TURP where there is facility for endoscopic stone treatment. In the developing country with inadequate endoscopic equipments, open retropubic or transvesical prostatectomy, diverticulectomy and stone removal would ensure complete treatment of this patient. This would save this patient the agony he went through.

Imaging studies often localize these stones commonly in the posterior urethra [3,4,5,6 7] or anterior urethra [1]. In our patient the plain radiograph of the pelvis and male external genitalia confirmed a pan urethral stones (steinstrasse).

Other reports and studies have demonstrated that urethral stones could be easily pushed back either manually with a catheter or endoscopically into the urinary bladder [1, 4, 6 7]. This was not our experience, we could not push back the impacted pan-urethral stones, hence meatotomy, antegrade manual extraction, generous urethral lubrication with 2% xylocaine jelly was performed. In the bladder the stones could be removed by open cystolithotomy in the tropics [1]. While cystolithotripsy [6] or extra corporeal shock wave lithotripsy [4] are preferred options of treatment where facility is available. Tunable dye laser would have been the least traumatic [3].

A post removal urethro-cystoscopy confirmed about 95% stone removal and no urethral injury.

Conclusion

In adequate treatment of patient with benign prostate enlargement and bladder diverticular stones would predispose to pan urethral stone presenting as urethral pain, acute urinary retention difficult catheterization. It is high time appropriate modern facilities are provided in the tropics to the benefit of the patient.

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Authors’ contributions
OLI; concept, critical review of all drafts, and final write up
TAO; participated in the concept, design, initial drafts and critical review of all the drafts, literature review, and final write up
ASA participated in the review of drafts and final write up
OO; patient investigations, preparation for procedure, photography and initial drafts
OAAA; administration of caudal anaesthesia, and initial drafts

References


Figures

Figure 1: Plain radiograph showing pan-urethral, bladder and Diverticulum stones.

Figure 2: Manual antegrade removal of urethra stones.

Figure 3: Bladder mucosa bridge separating bladder cavity and posterior urethra diverticulum below.
Figure 2: manual antegrade removal of the pan urethral stones
Figure 3: bladder mucosa bridge separating bladder cavity above and posterior bladder diverticulum below
Figure 1: Plain radiograph showing pan-urethral, bladder and diverticular stones