Author’s response to reviews

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

Authors:

Linnus I Okeke (liokeke@yahoo.com)
Augustine O Takure (aotakure@yahoo.com)
Sikiru A Adebayo (sikobay@yahoo.com)
Olukayode Y Oluyemi (oluyemioy@yahoo.com)
Abimbola A.A Oyelekan (bimbooyelekan@yahoo.com)

Version: 2 Date: 20 November 2011

Author’s response to reviews: see over
Cover Letter: Copyedit corrections BMCUrol 20.11.2011

Note: word(s) and statements in red are the changes made.

Changes Made

1. Title  Pan-urethral stones arising from bladder diverticulum and its management: case report

2. Sub-title: authors’ names

3. Full first names of author with abbreviations of middle names. ‘OO Oluyemi’ should read ‘Olukayode Y Oluyemi’

4. Emails of all the authors is included:

   LI Okeke, liokeke@yahoo.com; AO Takure, aotakure@yahoo.com; SA Adebayo, sikobay@yahoo.com; OY Oluyemi, oluyemioy@yahoo.com; AAA Oyelekan, bimbooyelekan@yahoo.com;

5. Abstract

   1st, 2nd, and 3rd statements rearranged to: ‘We present a 69 year old male with clinical and radiological features of acute urinary retention, benign prostate enlargement and bladder diverticulum. He had a transurethral resection of the prostate (TURP) and was lost to follow up. He re-presented 4 years later with retained urethral catheter.’

6. Background

   In Nigeria, urolithiasis is increasing in the northern Nigeria with majority of the patients having upper urinary tract stones [1]. The urinary stone distribution in Lagos is renal stones 22.2%, ureteric 35.5%, vesical 35.5% while urethral stones constitute 2.2% [2]. This percentage of urethral stone is similar to what obtains in the developed countries [3]. Urethral stones frequently originate from the upper urinary tract or the urinary bladder [4] and are commonly found either in the anterior or posterior urethra and often present with acute urinary retention. Primary urethral stone is rare, though can occur in patient with urethral stricture [5] and is commonly found either in the anterior or posterior urethra. We present this patient with pan urethral stones arising from a bladder diverticulum and its management.

7. Case presentation
A 69 year old male was seen with a 4 year history of storage and voiding lower urinary tract symptoms. At the initial presentation, he had an episode of acute urinary retention for which a urethral catheter was passed. Thereafter, he had a failed trial without catheter. The 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 transurethral resection of the prostate in an outside facility and was lost to follow up. Four years later, he represented with another episode of acute urinary retention and retained catheter. After the 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 revealed impacted urethral stone at the tip of his external urethral meatus and completely granular anterior urethra. Plain radiograph of the penis showed radio-opaque shadows in the bladder, bladder diverticulum, anterior and posterior urethra (figure 1). The clinical diagnosis was pan-urethral stones from bladder diverticulum.

Under caudal anaesthesia (2% plain xylocaine solution) and sedation with intramuscular pentazocine 30mg, we attempted to push the stones endoscopically into the bladder but this failed. Therefore, he had meatotomy and antegrade manual stone extraction with sinus forceps and intermittent lubrication of the urethra with 2% xylocaine jelly (figure 2). All the stones were completely removed and a check cystoscopy confirmed the wide neck urethral diverticulum (figure 3).

8. Discussion

Primary urethral stones are a rare cause of acute urinary retention [1, 4]. 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 [5], posterior urethral valves, benign prostate enlargement, or urethra stricture [5] could be complicated by bladder or urethral stones but in this case, he developed bladder diverticular stones. These patients 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 totally extracted. Most of the stones looked like flakes of calcification around the catheter balloon. After the TURP, the patient was lost to follow up during which 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 followed by TURP. Alternatively, he could have had simultaneous suprapubic cystolithotripsy and TURP where there is facility for endoscopic stone treatment. Alternatively in a developing country with inadequate endoscopic equipments, an 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 in the posterior urethra [5, 6, 7, 8] or anterior urethra [1]. At times computed tomography may not be able to identify impacted urethral stone [4]. 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, 6, 8] This was not our experience, as we could not push back the impacted pan-urethral stones, hence meatotomy, antegrade manual extraction, with generous urethral lubrication using 2% xylocaine jelly was performed. After the urethral stones are pushed into the urinary bladder the stones could be removed by cystolithotomy in the tropics where facilities for endoscopic retrieval/laser ablation or extracorporeal shockwave lithotripsy are not available [1,4,6]. Electrohydraulic endourethral lithotripsy is also quite good for accessible urethral stones and is the least traumatic [5].

Urethro-cystoscopy confirmed complete stone removal with no urethral injury.

9. Conclusions
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 and difficult catheterization. For impacted pan urethral stones, antegrade manual stone extraction under caudal anesthesia is safe and cheap. It is hoped that appropriate modern facilities would become available in the tropical countries so that our patients with urinary tract stone would be properly treated

10. Consent
Written informed consent was obtained from the patient for publication of this case report.

11. Competing interests
None

12. Authors’ contributions
LIO; concept, critical review of all drafts, and the final write up
AOT; participated in the concept, design, initial drafts and critical review of all the drafts, literature review and updates of literature, and the final write up
SAA; participated in the review of drafts and the final write up
OYO; patient investigations, preparation for procedure, photography and initial drafts
AAA0; administration of caudal anaesthesia, and initial drafts

13. Acknowledgement
We thank the patient for allowing us to report his medical record as a case report

14. References


**Correspondence:**
Augustine O. Takure, e-mail: aotakure@yahoo.com;
Division of Urology, Department of Surgery,
University College Hospital and College of Medicine, University of Ibadan, Ibadan, Nigeria