

EXPERIENCE WITH THE MANAGEMENT OF URETHRAL STONES PRESENTING WITH URINARY RETENTION AT GUSAU

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ABSTRACT

Background: Urinary tract stones are increasing in our societies. Similar to the finding in developed countries, majority of our patients have upper urinary tract stones. Urethral stone is an uncommon cause of acute urinary retention. It presents with an emergency management scenario which is compounded by lack of endoscopic facilities in our hospitals. We present the management of urethral stones presenting as acute urinary retention in our centre.

Patients And Method: This prospective study was conducted between January 1998 and June 2006. All patients who presented with urethral stones were included. Following the diagnosis, 2% xylocaine jelly was instilled into the urethra after which a Foley catheter was gently inserted to dislodge the stone back into the bladder. Thereafter, the stone was removed by cystolithotomy after complete evaluation of the patient.

Result: There were 7 patients. Their ages ranged between 8 and 45 years. All patients presented with acute urinary retention and pain at the glans. One patient had a history of previous passage of stone in urine. Five stones were located in anterior urethra. All stones were easily pushed back into the bladder. The stones sizes ranged between 0.6x1.5cm and 3.0 x 3.5cm. There was no urethral injury in any patient.

Conclusion: Urethral stone is a rare cause of acute urinary retention. In the absence of urethral pathology, urethral stone can be easily and safely pushed back into the bladder from where they can be removed by cystolithotomy.

Key Words: Urethra, Stone, Management, Cystolithotomy.

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INTRODUCTION

Acute retention of urine occurs when there is sudden inability to pass urine although the bladder is distended with urine. In the adult male, mechanical obstruction resulting from urethral stricture (US) or benign prostatic hyperplasia are the most common causes. Urethral stones (UST) are very uncommon and represent less than 1% of all urinary tract stones.¹ Urethral stone can arise primarily behind US or infected urethral diverticular. However only 6% of patients with UST have urethral anatomic pathology². More commonly the stone is formed in the upper urinary tract or the bladder. In the bladder, the stone can move freely and it gravitates to the lowest part of the bladder which is the outflow when the patient is erect or sitting. This may lead to bladder outflow obstruction which may culminate in acute urinary retention. Acute retention of urine is the most common presentation of urethral stones³. Although urethral stone is an uncommon cause of acute retention of urine we saw seven such patients in about eight years. The issues in this rare clinical problem are its emergency management scenario, small urethral caliber and long-term risk of urethral stricture formation. In developing countries the issues are compounded by lack of urologic endoscopic facilities in most of our hospitals.

Previous reports from our sub-region have indicated that urinary stone disease is rare⁴. However, this and other recent reports have shown that urinary stone disease is increasing^{5,6,7}. Majority of the stones in our patients are located in the upper urinary tract which account for 71 to 79% of urinary tract stones^{7,8,9}. A report from Ghana also revealed that upper urinary tract stones predominate¹⁰. In this communication, we present seven patients who presented with acute urinary retention due to urethral stones. Their clinical, radiological and therapeutic aspects are discussed.

PATIENTS AND METHOD

This prospective study was conducted in the department of surgery Federal Medical Centre Gusau between January 1998 and June 2006. All patients seen and managed for urethral stones were included. Informed consent was obtained from each patient. Their demographic characteristics, clinical presentation and management were recorded. Investigations performed included pelvic x-ray, abdominal x-ray exposing the kidneys, ureters and bladder (KUB), abdomino-pelvic ultrasound and retrograde-urethrogram (RUG). Serum urea, electrolytes and creatinine and urine analysis were also done. All patients presented with acute urinary retention.

Following the diagnosis of acute urinary retention

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due to urethral stone the patient was reassured in the emergency department. 2% xylocaine jelly was gently instilled into the urethra under aseptic conditions. The xylocaine jelly was retained in the urethra for 5 minutes. Thereafter a size 12 or 16 Foley catheter was gently passed into the urethra and pushed the stone back into the bladder. The catheter was left indwelling. This was immediately followed by cystolithotomy in the first two patients. In the subsequent five patients cystolithotomy was delayed by 2 to 5 days in order to complete preoperative evaluation of the patients. Urethral catheter was removed a week after operation. Patients were followed up in the surgical out patient clinic with emphasis on detection of recurrent urinary tract infection (UTI), urinary stone disease or urethral stricture.

RESULT

In all, 7 patients were seen. Their ages ranged between 8 and 45 years. Two patients were below 14 years. The patients presented with sudden cessation of micturation of variable duration. Five patients had urinary frequency and dysuria while one had nocturia. Other clinical features are shown in table 1. Serum urea and electrolytes were normal. Pelvic X-ray showed stone in the anterior urethra. In one patient RUG was performed (Figure 1) because urethral catheterization failed after instillation of 2% xylocaine jelly. This patient required two attempts at catheterization before the stone was pushed back into the bladder. In five patients the stones were located in the anterior urethra. There was no urethral injury in any patient. The stones size ranged between 0.6× 1.1× 1.5cm and 3.0× 3.2× 3.5cm. Six patients had cystolithotomy under local anaesthetic. One patient had wound infection which was easily controlled by local wound care. Hospital stay ranged between 5 and 19 days. At a follow up of 2 weeks to 7 years no patient developed another urinary tract stone or urethral pathology.

Table 1: Clinical Features in 7 Patients with Urethral Stone

| Clinical feature | Number (%) |
|-----------------------------|------------|
| Pain at | |
| Loin | 1 (14.3) |
| Suprapubic | 3 (42.9) |
| Perineum | 4 (57.1) |
| Glans | 7 (100) |
| Clutching/ Pulling on Penis | 5 (71.4) |
| Previous Urinary Retention | 2 (28.6) |
| Passed Stone in Urine | 1 (14.3) |
| Haematuria | 2 (28.6) |
| Palpable Urethral Stone | 5 (71.4) |

Figure 1: Retrograde Urethrogram Showing Impacted Anterior Urethral Stone



DISCUSSION

In developed countries most urethral stones are formed in the upper urinary tract from where they are expelled via the urinary bladder². Impaction of the stone in the posterior or anterior urethra depends on the site of formation, size and shape of the stone and presence of urethral pathology. The incidence of posterior urethral stone range between 37% and 88%³. This is because the stones formed in the upper urinary tract or bladder attained a large size before they are expelled into the urethra. However majority of our patients had anterior urethral stones probably because of late diagnosis which favours localization of the stone in the anterior urethra³. Unlike in other reports none of our patients had associated urethral pathology^{2,12}. Small stones may successfully be voided spontaneously but larger ones may become impacted because of increase in frictional resistance caused by spasms of the external urethral sphincter or oedema of the urethral urethelium surrounding the stone.

All our patients presented with acute urinary retention. This agrees with 78% to 100% reported by others^{2,3,13}. A few patients with small posterior urethral stones may present with dribbling or extreme difficulty in voiding and pain in the perineum or tip of the penis¹³. As seen in our patients, it is sometimes possible to feel the stone as a hard lump along the course of the urethra. However, the diagnosis can be confirmed by retrograde urethrography or sonourethrography. These investigations can detect stones not visible on urethroscopy¹⁴. Evaluation of the upper urinary tract is mandatory in patients with UST because associated upper tract stones are seen in about 45%³. Beside the great discomfort caused by the urinary retention, these patients also suffer severe penile or perineal pain. Therefore, prompt and methodical

approach to dislodge the stone and relieve the urinary retention is necessary. The current standard treatment of UST is retrograde manipulation of the stone into the urinary bladder followed by endoscopic cystolithotripsy^{2,13}. Retrograde manipulation of the stone may fail because of spasm of the external urethral sphincter or peri-urethral muscles surrounding the stone¹. This can be prevented by intra-urethral instillation of 2% xylocaine jelly. This also reduces the frictional resistance to the moving stone and abolishes the reflex contraction of perineal muscles during insertion of urethral catheter. The use of urethral catheter to dislodge the stone relieves the pain and discomfort of urinary retention and also exclude urethral stricture. Some authors warned that retrograde manipulation of stone should not be carried out because of high incidence of urethral injuries¹⁵. Others recommend that the manipulations be performed endoscopically under direct vision¹⁶. In our patients as in others UST were pushed back into the bladder with no difficulty or complications^{3, 13}. The stones having been pushed back into the bladder were removed by cystolithotomy because endoscopic facilities were not available in our centre. Other reports have emphasized the role of open surgical technique in the management of urolithiasis in developing countries^{6,17}. Our choice of cytolithotomy was based on safety and ease of accomplishment. Urethrolithotomy is often associated with complications including urethral stricture and fistula⁵.

In conclusion, urethral stone is a rare cause of acute urinary retention. However, such diagnosis should be considered in a patient who present with sudden cessation of micturation with associated penile or perineal pain and can be confirmed with a RUG. In the absence of urethral stricture, urethral stones can be easily and safely push back into the bladder from where they can be removed by cytolithotomy. The simplicity, safety and efficacy of this procedure significantly reduced morbidity and cost of treatment. Long-term follow up would be required to see if the benefits would be sustained.

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