

Management of Obstructive Urethral Stone Patients

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ABSTRACT

Aim: To find out clinical presentation, site of obstruction and outcome of surgical intervention of obstructive urethral stone patients.

Study design: Retrospective study.

Place and Duration: Department of Urology Khairpur Medical College Hospital Khairpur Mir's Sindh from 1st December 2014 to 31st December 2016.

Methods: Sixty two obstructive urethral stones patients were treated in the department of urology Khairpur Medical College Hospital (KMCH) Khairpur Mir's Sindh. The patient's age was between 2 to 35 years. Surgical procedures like removal of stone from external urethral meatus (stone retrieval) with or without meatotomy, retrograde manipulation (push back) and then cystolithoclast or cystolitholapaxy according to site and size of obstructive of urethral stone were used.

Results: The mean age was 17±12.56 years with 60 (96.7%) were males while 2 (3.3%) females. Ten male children had stone at external urethral meatus and 15 boys had stone in proximal urethra (prostatic and membranous) and bulbar urethral. Fifteen adult patients had stone at external urethral meatus.

Conclusion: Endoscopic treatment is currently best option for management of obstructive urethral stones but some cases require additional simple procedure like meatotomy.

Keywords: Obstructive urethral stones, Management, Outcome, Surgical intervention

INTRODUCTION

Urethral stones are uncommon type of urolithiasis and they account for approximately 1% of all urinary tract stones and incidence of lower than 0.3%¹. Obstructive urethral stone causes acute urinary retention is an acute emergency in urology because of severe pain so it requires emergency treatment. Urethral stones are common in male while rarely seen in female due to short urethra. Urethral stones usually originate in the upper tract or in urinary bladder and migrate, into urethra where they causes urinary obstruction^{2,3}.

The urethral stone can obstruct at posterior urethra, it includes prostatic or membranous or anterior urethra it includes bulbar urethra and penile urethra.¹⁰ The primary urolithiasis, that originates in the kidney and then travel down upto urethra in population is dependent upon geographic area, race, economic, social status and dietary habits including intake of water.⁴ The etiology of urolithiasis in paediatric population is anatomical abnormality 12%, metabolic defects 25%, urinary tract infections 7% and idiopathic 55%⁵. The diagnosis of obstruction urethral stones is simple because patient usually present's with dysuria or acute urinary retention with palpable stone in external meatus or in penile part of urethra, and by radiographic study is simple method to diagnose urethral stone⁶. If untreated urethral calculus then it can cause urethral diverticulum, urethral abscess and urethrocutaneous fistula⁷. The treatment option for obstructive urethral stone is straight forward i.e., retrieval of stone with or without meatotomy, lithoclast and cystolitholapaxy after push back.

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MATERIALS AND METHODS

This retrospective study was carried out at Department of Urology Khairpur Medical College Hospital Khairpur Mir's Sindh from 1st December 2014 to 31st December 2016. Sixty two obstructive urethral stone patients selected. All patients were simply diagnosed on detailed history, careful clinical examination and radiological investigations like U/S KUB and X-Ray pelvis, CT scan or MRI pelvis including urethra. All patients were treated by surgical procedures like extraction of stone from external meatus, with or without metotomy retrograde manipulation for proximal urethral stone, lithoclast or litholapaxy done accordingly to site of impaction and size of urethral stones. Patients with age range of 2-35 yrs having proximal or distal penile urethral stone of more than 5mm size were included. All patients with external urethral stenosis, urethral stricture or neurogenic urinary bladder vesical calculus, ureteric stone or renal stone beside urethral stone, sepsis (urosepsis) having fever (temp more than 100), WBC more than 18000cmm, BP systolic less than 90mmHg and bleeding disorder were excluded. The data was entered and analyzed through SPSS-20.

RESULTS

The mean age was 17±12.56 years Sixty (96.7%) were males while 2(3.3%) females. 25(40.32%) patients had external urethral meatus and 37(59.68%) had proximal stones (Table 1). In 25(40.32%) children patients 10 patients had stones were obstructive at external urethral meatus among them five retrieved by artery forceps directly while 5 patients required meatotomy and then retrieval. Fifteen children out of 25 child patients required retrograde

manipulation due to stones at bulbar area, prostatic urethra. 14 out of 15 was successfully pushed back into urinary bladder and then cystolithoclast done and one child had large proximal urethral stone so unable to push back and in situ lithoclast done and then stone fragments were push back into urinary bladder and further broken down into small pieces and removed with help of Ellik evacuator and finally treated by lithoclast (Table 2)

In 35 (56.45%) adults patients there was 15 patients had stones at external meatus among them 7 required meatotomy while other stones extracted by artery forceps directly. Twenty patients had proximal (prostatic or membranous) urethral stones or bulbar urethral stone, which were manipulated retrogradely into urinary bladder and then cystolitholapaxy done (Table 3). Two (3.3%) middle age female patients have stones in external meatus that were removed by artery forceps. All patients were completely free of their stones after the definitive procedure.

Table 1: Baseline details of all the patients

Variable	No.	%
Mean age (years)	17±12.56	
Gender		
Male	60	96.7
Female	2	3.3
Site of stone		
External urethral	25	40.32
Proximal	37	59.68

Table 2: Management of urethral stone among male children (n=25)

Management	No.	%
Artery forcep	5	20
Meatotomy	5	20
Retrograde manipulation	15	60

Table 3: Management of urethral stone among male adult patients (n=35)

Management	No.	%
Artery forcep	8	22.86
Meatotomy	7	20.0
Retrograde manipulation	20	57.14

DISCUSSION

Historically the 1st survey in the subcontinent of Asia was by Col. M Corrison, employee of the Indian Medical Service in 1931, where he found highest incidence of urolithiasis in the Sindh and Punjab which is now major part of Pakistan⁸. Obstructive urethral stone which mostly originate in the upper tract or in urinary bladder and migrate into urethra where they become obstructed specially at prostatic urethra, bulbar urethra and external meatus^{6,9}.

The mean age of patients in our study was 17±12.56 years and 60 (96.7%) were male while 2(3.3%) were female which is comparable Jamsheed et al study². 56.45% presented with dysuria while 43.54% presenting with retention of urine. Koga et al³ also stated same presentation. All patients were in our study diagnosed on detailed history, careful clinical examination and radiological investigations like U/S KUB and X-Ray pelvis which is also stated by the Sharfi.¹⁰ CT scan pelvis with urethra and MRI pelvis with urethra can be used for

diagnosis of urethra stone like Bielawska et al⁸. All patients were treated with surgical procedure like retrograde manipulation extract of stone from external meatus with meatotomy or without meatotomy directly with artery forceps, lithoclast and litholapaxy done accordingly to site and size of obstruction of urethral stone and age of patient as well. In 25(40.32%) children 10 stones were obstructive and at external urethral meatus among them five retrieved by artery forceps while 5 patients required meatotomy and then extraction of stone while 14 patients required retrograde manipulation due to stone at bulbar area or prostatic urethra and finally treated by lithoclast. One child had large stone in bulbar urethra that didn't go back into urinary bladder so in situ lithoclast done and then pieces of stone were pushed back into urinary bladder those fragments further broken down into very small pieces and removed from urinary bladder with help of Ellik evacuator, which is also comparable to Selli et al¹¹ study which also recommended auxiliary procedure before lithoclast.

The energy used for lithoclast was pneumatic. In 35(56.45%) adults patients there was 15 stones at external urethral meatus among them 7 required meatotomy while other 8 patients who had stone at external urethral meatus or distal penile urethra (stone was milked and brought to external urethral meatus) stone removed by artery forceps directly (without meatotomy) while 20 patients who had stones at bulbar area or posterior urethra (prostatic urethra or membranous urethra) their stone was manipulated retrogradely into urinary bladder and cystolitholapaxy done. Ahmad and Saeed¹² also suggested additional procedure before cystolitholapaxy. Though obstructive urethral stones in females is very rare we had 2(3.3%) middle age female patients which have stones in external urethral meatus which were removed by artery forceps which is also compare able to various studies.¹²⁻¹⁵ Rizvi et al¹⁶ also used the different minimally surgical techniques for distal urethra like perurethral cystolithotripsy, percutaneous cystolithotripsy (cystolithoclast) or cystolitholepexay.

Single dose of aminoglycoside antibiotic dose was given at the time of induction of anaesthesia or start of any procedure. The dose of aminoglycoside was according to weight of patient. We removed all stone successfully after the definitive procedure. Those patients who had meatotomy done for extraction of external urethral meatal stones, the additional procedure meatoplasty was done after extraction of stone. Transurethral Foleys catheter was passed in all patients, those patients who had not meatotomy done their Foleys catheter was placed for one day and the patients who had meatotomy done there Foley's catheter remained for 5 days.

CONCLUSION

Endoscopic treatment is currently best option for management of obstructive urethral stones but some cases require additional simple procedure like retrograde manipulation or meatotomy. All patients were stone free

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