

Large urethral calculi in females

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Abstract

Urethral calculi are extremely rare in females and usually associated with cystocoele, diverticula, stricture, or foreign body. Such calculi are usually small and pass spontaneously. We present 3 cases of large urethral calculi in females who presented with hematuria/lower urinary tract symptoms. On per vaginal examination, hard masses were palpable along the urethra. No case was associated with any urethral diverticulum, stenosis or cystocoele. In case 1 stone was extracted through anterior vaginal wall approach with reduction urethroplasty, cystolitholapaxy in case 2, insitu lithotripsy in case 3. Patients did well on follow up.

Keywords: Urethra, Stone, Female, Cystoscopy, Cystolitholapaxy

Introduction

Urethral calculi are very rare in females and usually associated with stricture, cystocoele or diverticula in female urethra. Such calculi may be single or multiple but are usually small[1,2]. Such stones usually pass spontaneously owing to short and wide urethra in females. Urethral stones can be categorized into primary or secondary (more common)[3,4]. Primary is usually associated with urethral diverticulum. We present here three cases of large urethral calculi in females.

Case history

Case 1: A 40 years old female presented in outpatient department with complaints of dysuria, difficulty in passing urine and intermittent hematuria since 4 years. There was no history of fever, retention of urine or no prior operative intervention. General

survey and abdominal examination were unremarkable. On per vaginal examination a hard mass was felt on the anterior aspect of vagina along urethra without any discharge at meatus. There was no meatal stenosis. X-ray kidney ureter bladder (KUB) demonstrated a large urethral calculus (Fig. 1).

On ultrasonogram (USG) the calculus was of 6x4 cm in size. Intravenous urography (IVU) cystography revealed that the calculus was completely within the urethra and was not associated with any diverticula in the urethra. IVU revealed normal kidneys, ureters and bladder. Under spinal anaesthesia cystoscopy was normal but for large urethral calculus. Patient was put in jack knife position and urethra was opened through anterior vaginal wall. Calculus was removed intact and reduction urethroplasty was done. Stone analysis was done by

fourier transform infrared spectroscopy. Stone was formed of calcium oxalate monohydrate and calcium phosphate as constituents. Post operatively patient fared well without incontinence at 1 year of follow up.



Fig. 1: Xray KUB showed a giant urethral calculus.

Case 2: A 35-year old female patient presented with complaints of dysuria and interruptedurination, dyspareunia since last 6 months. There was no other positive clinical history. Abdominal examination was unremarkable. On per vaginal examination hard mass felt through anterior vaginal wall suggestive of urethral stone without any discharge at urethral meatus. Urinalysis demonstrated microscopic pyuria (5-9/high power field) and microscopic hematuria (30-35/high power field). The urinary culture was sterile. X-ray pelvis revealed solitary calculus in the bladder of size 4.3×3.2cms and a urethral calculus of size 2.5×2.3cms (Fig. 2). USG confirmed these findings with bilateral normal upper urinary tracts and postvoid residual urine volume was 80cc. IVU cystogram showed no vesicoureteric reflux and because of large bladder stone urethra could not be delineated. Under spinal anesthesia urethroscopy revealed solitary urethral calculus without any urethral diverticulum and urethral stone was pushed into the bladder. Stones were

fragmented with pneumatic lithoclast and fragments were retrieved. Composition of stone was calcium oxalate monohydrate with dihydrate. Postoperative period was uneventful. Urine culture was negative on follow up.

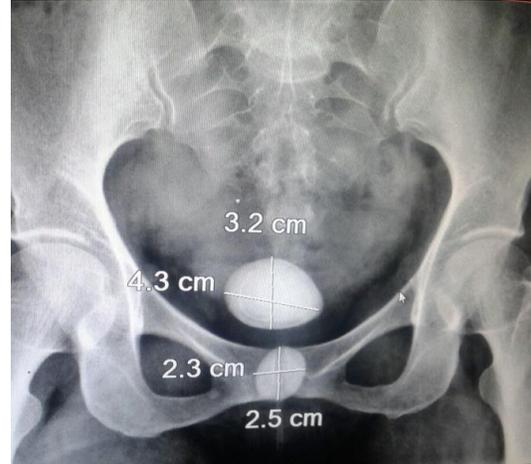


Fig. 2: Plain X-ray pelvis showed vesical and urethral calculi.

Case 3: A 50 year old woman came with a 1 year history of dysuria, difficulty and increased frequency of micturition. She denied any history of dyspareunia. Per vaginal examination revealed stone palpable in the urethra just inside the meatus with gritting sensation without any discharge per urethra. Urine routine microscopy showed 45-50pus cells/high power field and 25-30 red blood cells/high power field. The urinary culture came positive with Escherichia coli, sensitive to nitrofurantoin. USG abdomen had a large echogenic shadow with posterior acoustic shadowing in the posterior urethra of size 4×4cms with postvoid residual urine 100cc. Plain x-ray kub demonstrated a large urethral calculus opposite pubic symphysis (Fig. 3).

On IVU cystogram urethra was not delineated as it was completely occupied by stone. In situ lithotripsy was done; subsequently cystoscopy did not reveal any pathology. Stone were composed of calcium oxalate monohydrate and calcium phosphate. Postoperative period was

uneventful. Urine culture was sterile in follow up.



Fig. 3: X-ray pelvis revealed a large urethral stone.

Discussion

Urethral stones are less common in females compared with males. Most of them pass stones spontaneously because of wider and shorter course of urethra in females[1,2]. Urethral calculi are classified as native or primary (those formed de novo in the urethra) and migratory or secondary (those formed in the bladder or kidney with secondary descent). Secondary calculi are found to be at least 10 times more common than primary calculi[3,4]. Most of primary calculi form as a result of chronic stasis of urine and recurrent urinary tract infections, either within a urethral diverticulum or proximal to a urethral stenosis or stricture. Previous urethral instrumentation, foreign bodies or long term catheterization also predispose patients to stone formation[5,6]. All our cases were secondary calculi as no pathology was detected via thorough urological evaluation. Urethral calculi have a spectrum of clinical presentations like dysuria, hematuria, decreased stream of urine, dyspareunia, urinary tract infections or sometimes as acute retention of urine. Clinical diagnosis may be suspected if a stony hard mass is palpable on the floor of the urethra in per vaginal examination along

with lower tract obstructive symptoms. Plain X-ray film and a retrograde positive pressure urethrogram or micturating cystourethrogram are required for confirmation of final diagnosis and to exclude urethral diverticulum. Urethral calculi are composed of mainly struvite in contradiction to calcium phosphate for vesicalcalculi[7,8]. However, in present case series stones were composed of calcium oxalate monohydrate, dihydrate and calcium phosphate.

The goals of the treatment are stone removal and to treat associated anatomic abnormality. Treatment options include pushing the calculus back into the bladder for subsequent electrohydraulic, ultrasonic, pneumatic or laser lithotripsy, *in situ* lithotripsy and open approach[2,9]. Open approach methods include meatotomy, urethrotomy or urethroplasty, and diverticulectomy. In case1, we used open approach owing to large size and reduction urethroplasty. In case 2 and 3 pneumatic lithoclast was used.

Conclusion

Urethral calculi in female are uncommon because of short and wider urethra. We present here a case series of 3 large secondary urethral calculi. In females with urethral calculi, associated diverticulum should be excluded by cystogram or cystoscopy. Treatment is by either endoscopic or open approach.

Abbreviations

1. KUB- Kidney ureter bladder
2. USG- Ultrasonogram
3. IVU- Intravenous urogram

Conflict of interest: None

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