

## Case Series

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# Vesical calculus: A harbinger for posterior urethral valve?

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### Abstract

Bladder stones are of two varieties, primary which are not associated with Urinary Tract Infection (UTI), Bladder Outlet Obstruction (BOO) or foreign bodies and secondary bladder stones which are associated with either or all of the above-mentioned entities. We report three cases of male patients with bladder calculi without any specific history suggestive of BOO since birth. In one of them, posterior urethral valve was found to be the cause of urinary leak on post-operative day 6th after cystolithotomy. In the other two, we had performed cystoscopy before planned cystolithotomy. We recommend through this article that all boys with bladder stones should have diagnostic cystoscopy, especially where endo-urology is available, before proceeding for cystolithotomy.

**Keywords:** Posterior urethral valve; Vesical calculi; Bladder outlet obstruction; Cystoscopy.

### Introduction

Posterior urethral valves are one of the most common causes of Bladder Outlet Obstruction (BOO) in male infants [1]. Bladder stones are common among young children in rural and underprivileged areas. There are very few cases of Posterior Urethral Valve (PUV) associated with vesical calculi. We present here three cases of urinary bladder calculi without any significant history of BOO since birth but ultimately were diagnosed to have PUV.

### Case reports

#### Case 1

A 9-Year-old boy presented with complaints of dribbling of urine and burning micturition for 1 month. The patient had no past history of similar complaints. USG KUB was performed which showed a single, 22 mm stone in the bladder and diagnosis of vesical calculus was made. Patient underwent cystolithotomy and post-operatively the patient presented with urine leak from the surgical site on day 6. The patient was taken for

emergency surgery and USG guided Suprapubic Catheterization (SPC) was done. The patient was kept on SPC and was planned for cystoscopy. During cystoscopy, the meatus was found to be stenosed which was calibrated and the scope of size 6.8F was introduced. There was presence of valves corresponding to type 1 Young's classification [1]. There were mild trabeculations in the bladder and bilateral ureteric openings were normal. The posterior urethral valves were fulgurated at 5,7 and 12 clock position. An 8Fr Foley catheter was placed for 5 days and then removed. Postoperatively the SPC was clamped, and the boy was passing urine per urethra.

#### Case 2

A six-year-old male presented with pain during micturition and burning micturition since 5 months. There was history of passing stones per urethra at the age of 3 years of age, with no other significant antenatal history. On sonography, there was mild fullness of pelvicalyceal system in right kidney whereas left kidney was normal. Urinary bladder showed a wall thickness of 18 mm and a calculus of size 2.4 cm. Child had a UTI and was treated with antibiotics as per the culture sensitivity of the

urine. Subsequent to the resolution of the UTI, the child was planned for cystoscopy followed by cystolithotomy. Cystoscopy revealed type 1 valves which were first fulgurated at 5,7 and 12 clock, followed by cystolithotomy. The bladder was drained post-operatively by a urethral catheter which was removed on the fifth post-operative day and the boy was asymptomatic at 6 months of follow up.

### Case 3

Another 7-year-old boy presented with increased frequency of micturition and burning micturition since 2 months. There was no past history of urinary obstructive symptoms since birth. On sonography, the urinary bladder was trabeculated and there was increased bladder wall thickness with urinary bladder stone of size 3.1 cm. A cystoscopy followed by cystolithotomy was planned for this child also. On cystoscopy, valves corresponding to type 1 Young's classification were seen. Mild trabeculations in the bladder were present. The posterior urethral valves were fulgurated at 5,7 and 12 clock position. Subsequently cystolithotomy was performed and stone was extracted. The bladder was drained post-operatively by a urethral catheter for 5 days and removed thereafter.

All the three children were started on post fulguration regimen and are being closely followed up in the outpatient department and the follow up so far is uneventful.

### Discussion

Posterior Urethral Valves (PUV) are congenital malformations and one of the most common causes of Bladder Outlet Obstruction (BOO) in the pediatric population. Most children with PUV are diagnosed early in neonatal age, even prenatally with widespread use of antenatal USG. They rarely may be diagnosed during later childhood, adolescence or even adulthood [2,3]. Urinary incontinence, dribbling, difficulty in voiding and urinary infections are most common symptoms in older children [4]. The children presenting late may progress to chronic renal failure and other complications leading to a high morbidity and mortality and therefore it is crucial to make a diagnosis at the earliest and treat the patient [2,5]. Although the PUV is a well-known and important entity in pediatric surgery, its association with bladder calculi is not well documented in literature [4].

Bladder calculus usually presents with increased frequency of micturition and hematuria and is a common problem seen in children of developing world, primarily due to the differences in dietary intake as compared to the developed nations. Vitamin deficiencies, low fluid intake, high carbohydrates and high fiber products are the major etiological factors contributing to the formation of bladder calculi [4,6]. In children, most common stone types are calcium oxalate, calcium phosphate and possibly ammonium acid urate. Because of symptoms of vesical calculi, PUV may be missed leading to a delay in its diagnosis [7]. Cystoscopy preceding cystolithotomy in boys, especially where endourology is available should be the message from this case report [8].

### Conclusion

Bladder calculi in boys may be secondary to PUV and from our experience there may be absence lower urinary tract symptoms in the past. Hence, every boy with bladder stone should undergo cystoscopy and if the institute does not have the facility, the boy should be referred to a pediatric surgery center.

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