



## Posterior Urethral Valve with a Bladder Stone: A Case Report

*Khalid Mahmood, Atul Kumar Khandelwal, Ahsan Ahmad, Mahendra Singh, Rajesh Tiwari, Vijoy Kumar*

*Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India*

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### ABSTRACT

A posterior urethral (PU) valve and a bladder stone both may cause obstructive voiding symptoms. There are very few patients of a PU valve associated with bladder stones. We are presenting this case because of the rarity of its occurrence and for its unique way of management.

### INTRODUCTION

A posterior urethral (PU) valve and a bladder stone both may cause obstructive voiding symptoms. There are very few patients of a PU valve associated with bladder stones. We are presenting this case because of the rarity of its occurrence and for its unique way of management.

### CASE REPORT

A 4-year-old child presented with complaints of difficulties in voiding, interrupted urinary stream, severe dysuria, straining to pass urine, and hematuria off and on for the last 2 years. The antenatal and postnatal period of the child was uneventful. Developmental milestones were normal. Physical examination revealed no abnormalities. The patient was worked up with routine examinations of blood and urine, serum creatinine, plain abdominal X-ray, ultrasonography of the whole abdomen, uroflowmetry, and retrograde urethrography and micturating cystourethrography. Blood examination showed mild anemia with normal serum creatinine. Urinalysis showed 5 to 10 WBC/HPF, plain abdominal X-ray showed bladder stones, and uroflowmetry revealed obstructed voiding. Ultrasonography showed a normal upper tract with bladder stones and dilated posterior urethra. Retrograde urethrography and micturating cystourethrography showed a posterior urethral valve with bladder stones. Cystoscopy revealed a type I posterior urethral valve with bladder stone.

Under general anesthesia, with full cardiac monitoring, the pediatric cystoscope introduced into the urethra in the lithotomy position. The posterior urethral valve fulgurated. A 10 Fr Nelaton catheter was introduced via the urethra and fixed to the prepuce. The bladder was distended with continuous instillation of normal saline with a Toomy syringe through the Nelaton catheter. A suprapubic cystostomy was done. A nephroscope was introduced through the cannula of the suprapubic trocar and cannula set. The bladder stone was grasped longitudinally and extracted. The suprapubic catheter clamped on the eighth day and the urethral catheter removed. The patient voided with a good stream. On the tenth day, a suprapubic cystostomy catheter was removed. Suprapubic leakage seized after 2 days. Six months of follow-up with uroflowmetry, serum creatinine, and routine examination of urine revealed no abnormalities.

### DISCUSSION

A posterior urethral valve is a common congenital anomaly in infants. The patient is usually present as neonates with bladder outflow obstruction, poor urinary stream, and urinary tract infection [1]. Stones in the bladder are an uncommon presentation in the tropics, especially in children. Its rarity makes the index of suspicion low. The patient's presentation may be mistaken for urinary tract infection because of the presence of frequency and dysuria [2]. A posterior urethral valve may rarely be diagnosed during a later phase of childhood, adolescence, and even adulthood [3]. Posterior

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**CORRESPONDENCE:** Atul Kumar Khandelwal, MBBS, MS, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India (atulkhandelwal288@gmail.com)

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urethral valves and vesical calculi are, individually, among the most common causes of obstructive lower urinary complaints in children. Posterior urethral valves lead to stasis of the urine and bladder dysfunction, which can lead to calculi formation [4]. The patient is usually presenting with bed-wetting, urinary frequency, dribbling, hematuria, and acute urinary retention [1]. The presentation of vesical calculi is frequency and hematuria, and in the developing world it is a common problem seen in children. Congenital anomalies of the urinary tract can be associated with vesical calculi [5].

In the last decade, most of the children with posterior urethral valves are diagnosed early in life, even prenatally, due to an increased use of ultrasound imaging. This may well be the reason why bladder stones in this group of children are so rarely encountered. A plain X-ray of the abdomen can easily diagnose it but 10% of calculi are missed on radiology due to radiolucency. In some cases, sonography may miss calculi. There are very few reports of an association between a posterior urethral valve and calculi. Although bladder outflow obstruction is predisposed to calculi formation, there is only one report in English literature of vesicolithiasis associated with a posterior urethral valve [1,6]. And recent textbooks do not include vesical stones as a presentation or as complications of a posterior urethral valve [7].

Because of symptoms due to vesical calculi, posterior urethral valves may be missed. Therefore, clinical symptoms are varied and overlapping [8]. Routinely, patients presenting with poor flow and dysuria undergo a plain abdominal X-ray, ultrasound, and cystoscopy. We used a nephroscope and suprapubic cystostomy with a trocar cannula to manage the vesical stone in a minimally invasive way. Cannula of the trocar maintained the suprapubic cystostomy tract, and continuous bladder filling by putting normal saline through the Nelaton catheter with a Toomy syringe under pressure prevented the bladder from collapsing. Grasping the stone longitudinally made it possible to extract the stone from the tract easily. Cystoscopic treatment was avoided to prevent urethral injury and subsequent stricture, as the stone was large.

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