

Case Report

# The management of the congenital anterior urethral diverticula with calculi which is the cause of acute urinary retention (*Globe vesicale*): A case report

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**Abstract.** Congenital urethral diverticula with calculi has a low incidence as reported in the literature. Congenital diverticula have been seen % 10-20 in all urethral diverticula. The etiology of urethral stones are urethra and bladder stones, urethral diverticula, foreign matters, urethral stenosis and urethral trauma. Management of treatment urethral stones is surgery and endoscopy. Our case was a three years old boy who referred to our clinic due to globe vesicale. Diagnosis was performed with cystoscopy and the presence of a stone in the urethral diverticula.

Key words: Child, congenital urethral diverticula, endoscopic treatment, urethral stone

## 1. Introduction

Congenital urethral diverticula with calculi is a rare condition. Anterior urethral diverticula with calculi is one cause of infravesical obstruction which can be seen in children with anterior urethral diverticula with calculi. The condition may be congenital or acquired. Congenital diverticulum are scarcely seen conditions and compose approximately 10-20% of entire urethral diverticula cases (1-3). The etiology of urethral stones are urethra and bladder stones, urethral diverticula, foreign matters, urethral stenosis and urethral trauma (4, 5). In our article we intended to emphasize the importance of diagnosis and treatment of urethral diverticula with calculi in a case which is the rare reason of infravesical obstruction.

## 2. Case report

A 3-year-old boy referred to our clinic due to globe complaint. A 8F Foley catheter was inserted. 150 cc urine was discharged. Medical history revealed the fact that the patient experienced urinary tract infection for three times and was treated at the outpatient clinic. History of the patients showed no any signs of a familial disease.

Physical and systemic examinations were natural. During genital examination, a 1.5 cm solid object was palpated at 2 cm at the proximal of the penis while other genital organs were natural. Laboratory analysis such as whole blood count and blood biochemical testing were normal. Total urinary analysis showed several 15-20 leucocytes and 50-60 erythrocytes located in all areas. E. Coli was reproduced in urinary culture. A 15 x 9 mm opacity was observed at the lower edge of the symphysis pubis in the direct urinary system graph during radiological studies. Bilateral grade 1 hydronephrosis was also detected in urinary ultrasonography. The patient was diagnosed with urethral calculi and urinary tract infection according to medical history, laboratory and radiological studies. Antibiotic

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Fig. 1. a). Urethral stone in the diveticula, b). A saccular type of anterior urethra diverticula

therapy was initiated due to urinary tract infection. Cystoscopy and necessary interventions were planned after infection therapy was completed. A 2 x 1 cm diverticula and a 1.5 cm stone in the diveticula, located at the 1 cm distal of the external sphincter at the anterior urethra was determined in cystoscopy. Following this procedure entrance was performed by means of urethrososcopy. The calculi inside the diverticula were broken by pneumatic. Pieces were extracted by a forceps. Urodynamic and retrograde urethrography were obtained from the patient at the post-operation period. Urodynamic status was found normal. A saccular type of anterior urethra diverticula, 2 x 1 cm in dimension was noticed in retrograde urography (Fig. 1). Patient was planned for follow-up visits regarding diverticula management after the stone treatment was completed.

### 3. Discussion

Urethral stones of the urinary tract systems are encountered less than 1% among entire urinary tract calculi. In developing countries, bladder stones are frequently seen in children and therefore urethral stones are also frequently encountered in this age group of patients (6). Factors that are related with the occurrence of urethral stones may include certain circumstances such as an urethral or bladder stone that falls into the urethra, presence of an urethral diverticula, a foreign object and urethral stenosis and urethral traumas (4,5). The stone may become tripped while it passage through the prostrate urethra, the anterior segment of the penile urethra, the fossa navicularis and the external meatus. Primary

urethral stone is a rare condition and generally develops inside the congenital urethral diverticulum. On the other hand, congenital urethral diverticulum develops as a result of congenital dilatation or the periurethral cystic canals (7). Acquired diverticula may occur as a result of hypospadias, infection, trauma and long-term urethral catheterization (1,2). Primary urethral stones usually recognized as infection stones and commonly are formed as single stones.

In our case, we failed to find acquired reasons related with the conditions while obstructive variations of the bladder and normal urodynamic parameters supported the approach that the condition was congenital. Unfortunately, there are inadequate information related with the embryology of congenital urethral diverticulum (8,9). Corpus spongiosus, which may occur as a result of insufficient transformation of the periurethral mesenchyma is considered as the main reason of the condition (3,8).

Clinical findings may vary according to the age of the patient and the degree of obstruction. In neonates and infants a mass may develop at the ventral zone of the diverticule penis which can be easily palpated, and lead to an obstruction in the urinary system (10,11). There was no any swelling in our case, but the calculi were palpable. Symptoms may be mild in older children and are related with urinary incontinence, such as enuresis, frequent urination, dysuria, hematuria, reduced urinary flow and dripping urine after urinating can be seen (10). Our patient referred to our clinic due to globe complaints. However, many patients may live without any symptoms for years (10,12). Findings

of physical examination and retrograde urethrography may be useful for diagnosis. Retrograde urethrography may show a formation of a pouch towards the exterior at the ventral surface of the urethra (8,9). In our case we diagnosed the patient by cystoscopy and then obtained a retrograde urethrography. Saccular typed diverticula was monitored in urethrography. Endoscopic or open surgical methods are employed in the management of urethral calculus, due to the location and size of the calculi (13). The stones located at the posterior urethra are frequently pushed towards the bladder and then are fractured. However, if the stone is large and fixated, then the stone is extracted by an open surgery at perineal or suprapubic routes. In our case, the dimension of the calculi was 1.5 cm, and the opening of the diverticula was narrowed, therefore we failed to push the stone into the bladder. Accordingly, we entered through the urethra by ureteronoscopy and lithotripsy is performed and the stone is extracted by the aid of a forceps. a conclusion, endoscopic surgical methods can be used as an alternative route of treatment against open surgery in the management of urethral diverticulum calculus. This will also reduce the period of hospitalization of the patient and eventually, the costs are likely to decrease.

## References

1. Kaplan GW, Scherz HC. Anterior urethral diverticula. In: Kelalis PP, King LR, Belman AB, editors. *Clinical Pediatric Urology*. 1 st ed. Philadelphia: Saunders; 1992, p.851.
2. Mann CM, Ellis DG. Abnormalities of the urethra, penis and scrotum. In: O'Neil JA, Rowe MI, Grossfeld JL, Fonkalsrud EW, Coran AG, editors. *Pediatric Surgery*. 1 st ed. St Louis, Missouri: Mosby; 1998, p.1787.
3. Murphy JP, Ashcraft KW. Anterior urethral diverticula and megalourethra. In: Ashcraft KW, Holder TM, editors. *Pediatric Surgery*. 1 st ed. Philadelphia: Saunders; 1993, p.643.
4. Hegele A, Olbert P, Wille S, Heidenreich A, Hofmann R. Giant calculus of the posterior urethra following recurrent penile urethral stricture. *Urol Int* 2002; 69: 160-161.
5. Bölükbaşı A, Gümü B. Giant posterior urethral calculus: Br J Urol 1990; 65: 301-302.
6. Hemal AK, Sharma SK. Male urethral calculi. *Urol Int* 1991; 46: 334-372.
7. Gonzalvo Perez V, Botella Almodovar R, Canto Faubel E, et al. Urethral diverticulum complicated with lithiasis. *Actas Urol Esp* 1998; 22: 250-252.
8. Gupta DK, Srinivas M. Congenital anterior urethral diverticulum in children. *Pediatr Surg Int* 2000; 16: 565-568.
9. Zia-ul-Miraj M. Congenital anterior urethral diverticula in children. *Pediatr Surg Int* 1999; 15: 567-569.
10. Bhatnagar V, Lal R, Mitra DK. Primary reconstruction of a congenital anterior urethral diverticulum. *Pediatr Surg Int* 1999; 15: 294-295.
11. Glazier DB, Underberg-Davis SJ, Cummings KB, Barone JG. Neonatal bladder rupture due to anterior urethral valves. *Br J Urol* 1997; 80: 819-820.
12. Karnak I, Senocak ME, Büyükpamukçu N, Hiçsönmez A. Rare congenital abnormalities of the anterior urethra. *Pediatr Surg Int* 1997; 12: 407-409.
13. Prieto Ugidos N, Albisu Tristan A, Moratalla Basante JA, Pertusa Pena C. Giant urethral lithiasis. *Arch Esp Urol* 1992; 45: 561-563.