



MULTIPLE CALCULI IN AN URETEROCELE: A RARE PRESENTATION IN THE PEDIATRIC AGE GROUP

Paediatric Surgery

Dr Ameya S Muzumdar

Senior Resident, Department of Pediatric Surgery, Topiwala National Medical College & B.Y.L. Nair Hospital, Mumbai.

Dr. Kshitij A Mane

Senior Resident, Department of Pediatric Surgery, Topiwala National Medical College & B.Y.L. Nair Hospital, Mumbai.

Dr. Hemanshi S Shah*

MBBS, MS (General Surgery), MCh (Paediatric Surgery). Professor & HOD, Department of Pediatric Surgery, Topiwala National Medical College & B.Y.L. Nair Hospital, Mumbai. *Corresponding Author

ABSTRACT

Background: An Ureterocele is a congenital cystic dilatation of the intravesical portion of the ureter. In pediatric patients, multiple calculi within the ureterocele are uncommon. **Case Presentation:** We discuss the case of a symptomatic 5-year-old boy with multiple small calculi in an ureterocele. Patient underwent transurethral ureterocele incision followed by ureteric reimplantation. **Conclusions:** Management of ureterocele and its sequelae should be on an individualized basis.

KEYWORDS

Single System Ureterocele, Ureterocele Calculi.

INTRODUCTION

An Ureterocele is defined as the cystic dilatation of the intravesical ureter. This congenital anomaly occurs in approximately 1 in 4000 live births^[1]. It is 4-6 times more common in females. It is commonly associated with the upper moiety of a duplex urinary system but may present in a single urinary system. Delay in diagnosis can lead to severe complications from recurrent urinary tract infections (UTI) to renal failure.

Case Report

A 5-year-old boy complained of multiple episodes of urinary tract infection, managed conservatively by his local doctor with no relief of symptoms. After presentation to our institute, X- ray of the kidney and urinary bladder showed no abnormality. Renal chemistry was normal. Ultrasound examination showed a 3x3 cm left ureterocele, a dilated tortuous left ureter, left gross hydronephrosis with 3-4 renal calculi largest of size 6 mm within the mid and lower pole of the renal pelvis. A voiding cystourethrogram (VCUG) showed a filling defect (Fig.1) in the bladder in the micturating film corresponding to a left ureterocele.



Figure 1: VCUG Demonstrating Left Ureterocele

Tc 99 m EC Renogram showed left sided obstructive drainage with a left poorly functioning kidney. Diagnostic cystoscopy showed a thick

walled 4x3 cm left ureterocele, which was incised for effective drainage. Postoperatively, the patient had severe flank pain, persistent hematuria and fever. A repeat ultrasound showed multiple small calculi within the ureterocele. Patient underwent excision of left ureterocele with calculi evacuation and ureteric reimplantation (Fig 2).

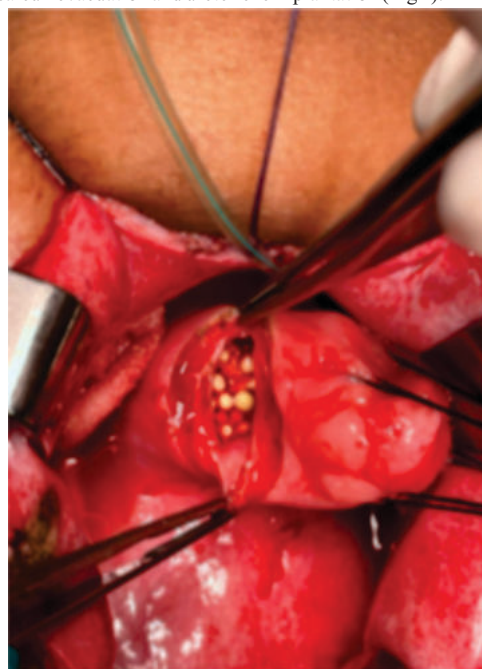


Figure 2: Multiple Tiny Calculi Within Ureterocele

The patient had an uneventful postoperative course. The patient is on biannual follow up with decreasing hydronephroureterosis, preserved renal function and no evidence of vesicoureteral reflux (VUR) on VCUG.

DISCUSSION

An Ureterocele is described as a congenital saccular dilatation of the distal ureter. Persistence of Chwalla's membrane, abnormal muscular development of the terminal ureter, abnormal widening of the mesonephric duct and defective ureteral maturation are some of the theories proposed for development of ureterocele.^[2-4] Ureterocele within the bladder is called intravesical and an ureterocele that has a portion permanently outside the bladder is called ectopic.^[1]

The incidence of ureteroceles is approximately 0.02% with 80%

occurring in females. Approximately 80% are associated with duplicated collecting systems with single system ureterocele being more common in males.^[1,3]

Ureterocele presentation may vary from an incidental finding on investigation to emergency presentation as an acute urinary retention. Ureteroceles are associated with obstruction and VUR. Ureterocele can be complicated in adults by calcified stone in 15-40% of the cases.^[4] It is however a rare complication during infancy and childhood. Factors associated with genesis of stones in the ureterocele are obstruction, stasis and infection.

Aim of management is to relieve the obstruction, prevent vesicoureteral reflux and loss of renal function. Endoscopic incision is a safe, minimally invasive, effective and the treatment of choice for an ureterocele.^[2-4]

The type, size and number of ureterocele calculi, determines management of ureterocele calculi.

In a case report, presented by Gupta et al.^[2] a 9-year-old patient presented with acute retention of urine, managed with a suprapubic catheterization followed by cystoscopy, showing bilateral ureterocele with calculi. Endoscopic extraction of stone into bladder undertaken with grasping forceps and further extraction, through SPC tract after serial dilatation using a 26Fr nephroscope.

In a 7-year-old patient presenting with large calculus in ureterocele, Scuderi et al.^[4] demonstrated efficient stone clearance using combined minimally invasive techniques of cystoureteroscopy and percutaneous cystolithotomy, enabling accurate ureterocele incision and access to calculi in single, minimally invasive manner. In their study on a 3-year-old child, Turkylmaz^[5] concluded that patients with small stones within ureterocele, be managed with laser (Holmium YAG laser) for ureterocele excision and lithotripsy with clearance of small stones by spontaneous passage. Sarsu et al.^[3] made report on a 6-year-old patient initially suspected of bladder calculi presenting as acute urinary retention and diagnosed to have ureterocele calculi intraoperatively, patient underwent open ureterocele excision with stone extraction.

Ureterocele resection results in reflux that can potentiate urinary infection, and therefore, requires reimplantation. Ureteral reimplantation is recommended in cases of persistent vesicoureteral reflux.^[1]

CONCLUSION

Long-standing ureterocele present with complications like ureterocele calculi and definitive management for the same at the earliest prevents deterioration of renal function. The size, type of ureterocele, unilateral or bilateral ureterocele, the number of ureterocele calculi are important determinants in surgical strategy of patients with ureterocele calculi. Management plan needs individualization and close follow-up.

List of Abbreviations

UTI: Urinary Tract Infections
VCUG: Voiding cystourethrogram
VUR: Vesicoureteral Reflux

DECLARATIONS

Ethics Approval and Consent to Participate: The study was ethically approved and consent from patient taken for participation.

Consent for Publication: Consent for publication taken.

Availability of Data and Material: Not applicable

Competing Interests: The authors declare that they have no competing interests

Funding: Not applicable

Authors' Contributions: All authors read and approved the final manuscript.

Acknowledgments: Not applicable

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