

## Management of Ureterocele in Adults: A Retrospective Study

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Received: 08-04-2023 / Revised: 24-05-2023 / Accepted: 20-06-2023

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Conflict of interest: Nil

### Abstract:

**Background:** Ureterocele is a cystic dilatation of the distal ureter. It remains a rare urologic condition in non-Caucasians and is even less common in adults.

**Materials and Methods:** A retrospective review of folders of 50 adult patients who were admitted for surgical treatment of ureterocele in Department of Urology at GRMC Gwalior between 2022 and 2023 was done. The information obtained included: age, sex, type and number of ureterocele, associated disease, type of surgical intervention, complications, and follow-up.

**Results:** The age range was 18–50 years, with a mean age of 33 years. Thirty patients had unilateral ureterocele while twenty had bilateral, making a total of 50 ureteroceles. All the males had only unilateral lesions, while all the bilateral lesions occurred in the female patients and the only patient with a duplex system with the ureterocele found in the ureter draining the upper pole was also a female. Treatment of the ureteroceles was mainly by open method (60%). Intraoperatively, all the ureteric orifices were found to be stenosed on one or both sides in unilateral and bilateral cases, respectively, with proximal cystically dilated distal ureter. The specific procedure included excision with ureteric reimplantation, and incision with marsupialization.

**Conclusion:** Urologists practicing in this region need to have a high index of suspicion and be acquainted with the variable clinical presentations, radiographic features, and treatment options in order to be able to effectively manage these occasional cases.

**Keywords:** Ureterocele, Flank Pain, Ureteric Reimplantation, Marsupialization.

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### Introduction

Ureterocele is a congenital abnormality characterized by the dilation of the lower end of the ureter, forming a cyst-like structure. While it is more commonly diagnosed in infants and children, it can also be detected in adults, either as a continuation of a childhood ureterocele or as a new onset condition. Managing ureterocele in adults involves a comprehensive approach aimed at addressing the symptoms, preventing

complications, and improving the patient's quality of life. [1] Proper management begins with an accurate diagnosis. Ureteroceles in adults can be challenging to diagnose, as the symptoms may mimic those of other urinary tract conditions. Imaging studies such as ultrasound, computed tomography (CT) scan, or magnetic resonance imaging (MRI) can help confirm the presence of a ureterocele and determine its size and location.

Endoscopic techniques, such as ureterocele deroofing or incision, are commonly used for symptomatic ureteroceles that are causing obstructive symptoms or recurrent infections. This minimally invasive approach can relieve urinary flow obstruction and reduce the risk of infection. [2]

In certain instances where endoscopic procedures are not feasible or unsuccessful, surgical options may be considered. Open surgical procedures, such as ureterocele excision with ureteral reimplantation or partial nephrectomy, might be necessary to manage complex or large ureteroceles. After treatment, regular follow-up visits are crucial to monitor the patient's condition, assess treatment outcomes, and detect any potential complications early on. It's important to note that the management approach for ureterocele in adults may vary depending on individual cases and the severity of the condition. Therefore, a urologist or a specialized healthcare professional should be consulted to develop a personalized management plan based on the patient's specific needs and circumstances. [3]

To investigate the prevalence of ureterocele in adults and identify potential risk factors that may contribute to the development of

this condition and to evaluate the effectiveness and safety of different endoscopic approaches (deroofing, incision, laser lithotripsy) in the management of ureterocele in adults, particularly in relieving urinary obstruction and preventing recurrent infections.

### Materials and Methods-

A retrospective hospital based review of folders of 50 adult patients admitted for surgical treatment of ureterocele to the Department of Urology, GRMC, Gwalior between 2022 and 2023. The information obtained included age, sex, type and number of ureterocele, associated disease, type of surgical intervention, complications, and follow-up. Only records of diagnosed ureterocele patients were included in the study.

### Statistical Analysis-

Data so obtained were subjected to statistical analysis. Data analysis was done by SPSS software ® version 22.0. Descriptive statistical analysis, which included frequency and percentages, was used to characterize the data. Chi-square test was used for association between factors and  $p < 0.05$  was considered statistically significant.

### Results



**Figure 1: Ureteroceles with impacted stone.**

As per figure 1 The distal ureteric cystic dilatation is diagnostic and is described radiologically as “cobra head” or “spring onion” deformity with peripheral halo within the trigonal area.

**Table 1: Number and Types of Ureterocele**

Site	Type	
	Single	Duplex
Right	15	0
Left	15	0
Bilateral	18	2

As per table 1 the age range was 18–50 years, with a mean age of 33 years. Of these patients, twenty-seven were females and thirteen were males. Thirty patients had unilateral ureterocele while twenty had bilateral, making a total of 50 ureteroceles.

All the males had only unilateral lesions, while all the bilateral lesions occurred in the female patients and the only patient with a duplex system with the ureterocele found in the ureter draining the upper pole was also a female.

**Table 2: Type of Surgical Treatment**

Type of surgery	Frequency (%)
Open incision and marsupialization	15 (30)
Excision and ureteric reimplantation	15 (30)
Endoscopic incision	20 (40)

As per table 2 Treatment of the ureteroceles was mainly by open method (60%). Intraoperatively, all the ureteric orifices were found to be stenosed on one or both sides in unilateral and bilateral cases, respectively, with proximal cystically dilated distal ureter. The specific procedure included excision with ureteric reimplantation, and incision with marsupialization.

**Table 3: Symptoms associated with patients**

Symptoms	Frequency (%)
Flank pain	22 (44)
UTI	15 (30)
Fever	07 (14)
Haematuria	06 (12)

As per table 3 the most common symptom was found to be flank pain in 44% patients followed by Urinary tract infection in 30%.

## Discussion

Ureterocele is the cystic dilatation of the distal ureter. It is a congenital developmental anomaly. Several theories of its origin have been proposed. These include abnormal muscular development of the distal ureter, leading to weakness and dilatation. [2] Another theory is that an abnormal developmental stimulus is responsible for the dilation. [3] However, the most accepted mechanism is the incomplete dissolution of the Chwelle's membrane, which is usually present before the 37th day of gestation as a division between the urogenital sinus and

the developing ureteral bud. It is commonly associated with duplex upper tract and often ectopic. [3] It has varied effects as regards to obstruction, reflux, continence, and renal function.

It is unilateral in 80% of cases and bilateral in 10% of cases. [4] The single system ureteroceles are usually found in adults, and are thus termed "adult" ureterocele. These are usually less prone to obstruction and renal dysplasia associated with duplicated systems. In childhood, diagnosis may be made following a child's presentation with recurrent UTI or urosepsis, incontinence, failure to thrive, urinary tract calculus, abdominal mass, bladder outlet obstruction, and vaginal or urethral prolapse. [5]

“Adult” ureteroceles are less prone to obstruction and dysplasia, [6] and thus are generally asymptomatic. This explains why they are detected in adulthood either incidentally or when a patient presents with recurrent flank pain, calculus, or UTI. In this study, the presenting symptoms were flank pain and painful micturition, each occurring in 60% of the patients.

Ultrasonography can confirm the diagnosis even in utero, as a cystic mass can be seen within the bladder or close to the proximal urethra. [7] Intravenous urography may demonstrate poor function on the affected side with delayed excretion or no excretion at all. It may also demonstrate hydroureteronephrosis, the dilated distal ureter becomes evident, appearing as a “cobra head” or “spring onion” deformity with peripheral halo. [8]

Early surgical intervention is required for cure and prevention of long-term sequelae. The goals of treatment are the preservation of renal function, and elimination of infection, obstruction, or reflux. Surgical treatment can be endoscopic or open. [9] Endoscopic treatment includes transurethral puncture and transurethral incision; these are applicable mainly to the intravesical types and may be curative in up to 90% of cases. [10] The open procedures are often reserved for the more complex types.

### Conclusion

The few instances described in this study demonstrate to the rare but unknown occurrence of ureterocele in this area. Due of its scarcity, doctors who practice in these regions must have a high learn about the variable and the suspicion index clinical signs, radiological characteristics, and the alternatives for therapies that enable successful management these sporadic instances.

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