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CLINICAL AND DIAGNOSTIC ASPECTS AND TACTICS OF TREATMENT OF URETEROCELE IN CHILDREN

Z. SH. Turakulov, A.A. Gafurov, SH.T. Bozorov

Andijan State Medical Institute, Uzbekistan

Annotation. Ureterocele (UC) is a cyst – like enlargement of the submucosal part of the ureter caused by congenital stenosis of the mouth, characterized by expansion of its distal part. The introduction of new technologies into pediatric practice has led to significant improvements in the diagnosis and treatment of ureterocele in children. According to various authors, their incidence ranges from 1 to 4% of all urological patients. According to the Cambele data, the prevalence of CC is 1:4000. Ureterocele in 80% of children is detected in children with a doubled ureter and in 60% it is ectopic [2, 4, 10, 13]. Despite the introduction of endourological treatment methods, a number of clinicians point to complications that occur after they are performed.

The aim of our study was to improve the results of surgical treatment of ureterocele in children.

Keywords: *ureterocele, vesicoureteral reflux, geminephrectomy, transurethral dissection, reimplantation of the ureter, ultrasound, children.*

Relevance. Ureterocele is a malformation of the ureter, which is a cyst-like protrusion of the mucous and submucosal layers of the intramural ureter, which is usually caused by obstruction of the mouth and is accompanied by ureterohydronephrosis [1, 3, 6, 7, 12]. The size of a ureterocele can vary from small extensions of the submucosa to "giant" cysts filling the entire lumen of the bladder [5, 8, 9, 11].

Treatment of children with ureterocele, especially with doubling of the ureter, is a difficult problem for pediatric urologists. The indication for surgery is not only the presence of a ureterocele, but also impaired kidney function, urinary incontinence and urinary disorders caused by obstruction of the bladder neck.

The purpose of the study – to improve the results of surgical treatment of ureterocele by studying the clinical course, creating a diagnostic protocol and developing optimal surgical tactics.

Material and methods. The results of the treatment of 67 patients with ureterocele (UC) aged 1 to 18 years, who were treated at the urology department of the Andijan Medical Center for the period from 2015-2025, were analyzed. Of these, there were 25 boys (37.3%) and 42 girls (62.6%).

Ultrasound examination (ultrasound) is a fairly informative method of diagnosing UTS. Ultrasound was performed in all patients with ureterocele. Characteristic of ultrasound in patients with UC is the presence of cystic formation in the lumen of the bladder, the collecting system of the kidneys and the ureters are dilated.

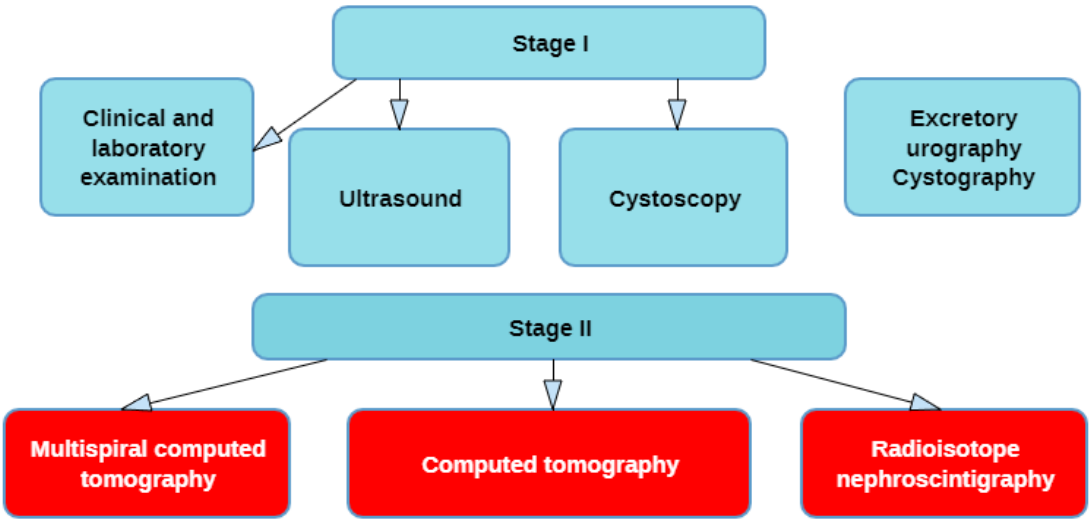
Ultrasound with Dopplerography allows you to determine the size, number, and diameter of the walls, where anechoic formation, UTS, and the presence of vesicoureteral reflux are determined.

Excretory urography occupies a leading place among radiopaque examination methods, which makes it possible to determine a defect in the filling of the bladder due to a ureterocele, as well as a dilated ureter and an enlarged deformed calyx-pelvis system of the affected kidney or its doubled segment.

Table 1. Distribution of patients by gender and age

Age (years)	Gender				Total
	Main group n=38		Control group=29		
	Boys	Girls	Boys	Girls	
up to 1 year	7	11	5	9	32
1–3 years old	4	8	3	5	20
4–7 years old	2	3	2	2	9
8–14 years old	1	1	1	1	4
14–-18 years old	–	1	–	1	2
Total	14	24	11	18	67

The algorithm for diagnosing ureterocele in children



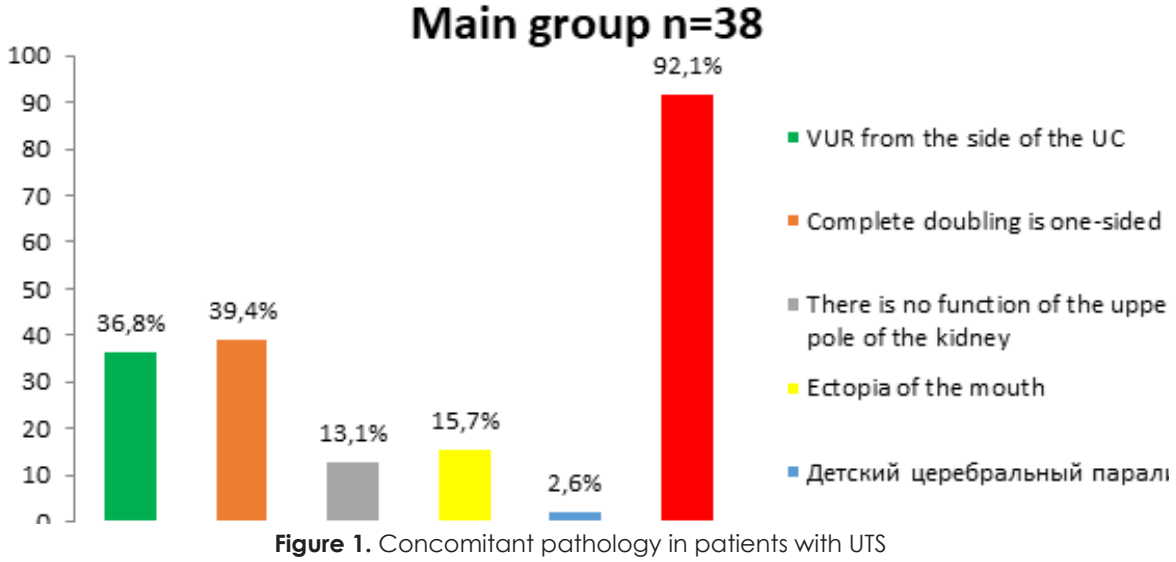


Figure 1. Concomitant pathology in patients with UTS

To determine the informativeness, sensitivity and accuracy of various diagnostic methods in UTS and to improve the diagnosis, as well as to specify the necessary methods, we have proposed a diagnostic algorithm.

Laboratory, ultrasound examination with Dopplerography, as well as X-ray examination were mandatory for all patients.:excretory urography, mycological cystography, computed tomography.

Of the concomitant pathologies, one patient was diagnosed with cerebral palsy, vesicoureteral reflux (PMR), complete doubling of the kidney, ectopia of the mouth, and urinary tract infection.As can be seen from the diagram, the main percentage of concomitant pathologies is urinary tract infection (UTI), a complete doubling of 15%, and PMR on the UC side of 14%.

In the control group, urinary tract infection was detected in 21 (82.7%) patients, and vesicoureteral reflux on the UC side was detected in 12 (41.3%) patients.

In the main clinical group, transurethral dissection of the anterior ureterocele wall was performed. After partial filling of the bladder, the ureterocele was clearly identified. When the ureterocele was obstructed, a vertical incision of its wall was made up to 4–6 mm long. The bladder was drained with a urethral catheter. The day after the operation, patients underwent an ultrasound examination to assess the degree of obstruction elimination. For the prevention and prevention of urinary tract infection, antibiotic therapy and uroantiseptics were prescribed.

Results and discussion. An analysis was conducted on clinical observation data of two groups of patients depending on the type of surgery performed. The main clinical group included children who

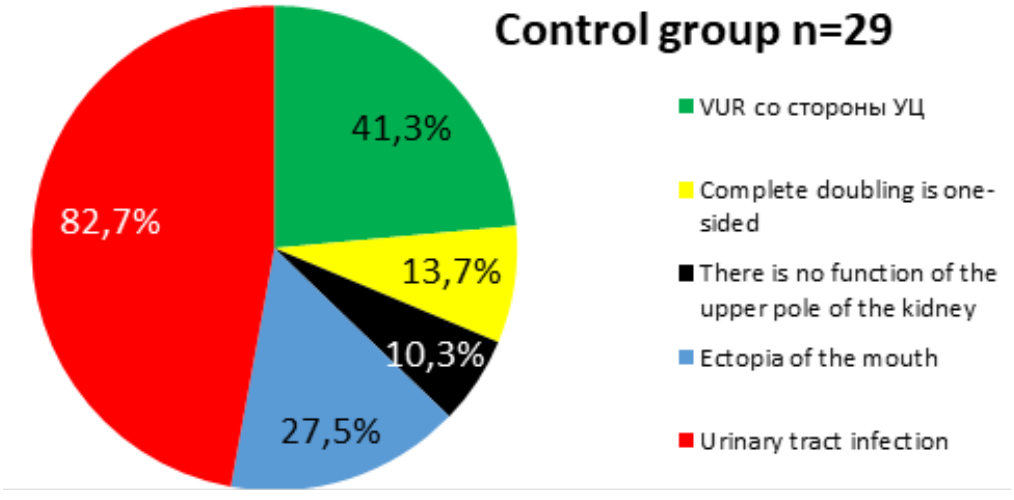


Figure 2

Table 2. By localisation of ureterocele

Localization	Main group n=38	Control group n=29
One-sided	31(81,5%)	23 (79,3%)
Two-way	7 (17,0%)	6 (20,6%)
Intravesical	34 (89.4%)	24 (82,7%)
Extra – bubble	4 (9.7%)	5(17,2%)

underwent transurethral excision of ureterocele (TURU) – 38 patients. All patients underwent extensive endoscopic incision of the ureterocele. The endoscopic intervention was considered successful if there was disappearance of ureteral obstruction, absence of vesicoureteral reflux (VUR), and no urinary tract infection.

The control group consisted of 29 patients who underwent complete removal of the ureterocele. Unilateral ureterocele localization was observed in 31 patients in the main group and in 23 patients in the control group. Intravesical location was found in 34 patients in the main group and in 24 patients in the control group (see Table 2)

In the patients of the control group, a roller was placed under the pelvis in the supine position. The bladder was exposed by a transverse suprapubic incision, and the anterior wall of the bladder was

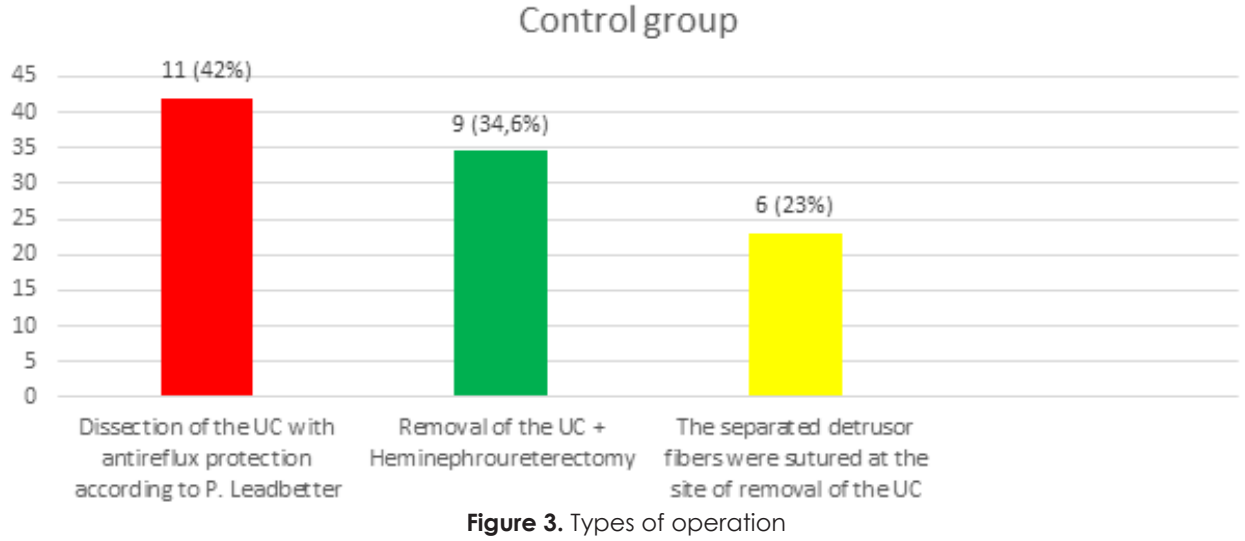


Figure 3. Types of operation

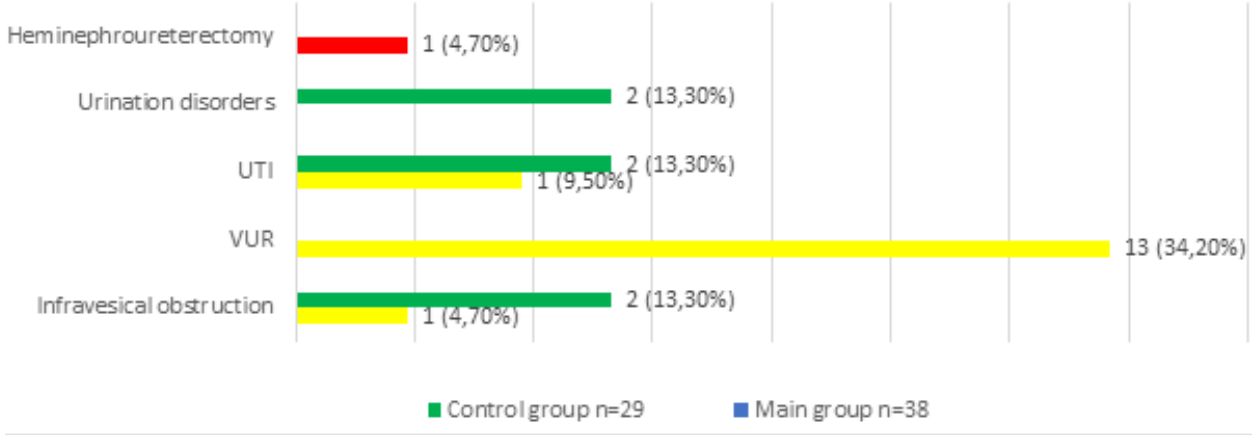


Figure 4

opened. The bladder was emptied with an electric pump. A silk holder was applied to the ureterocele, and the ureterocele was excised.

The parted detrusor fibers in 6 patients were sutured at the site of the removed ureterocele. A submucosal tunnel of the required length was formed in the transverse direction, 4-5 times the diameter of the ureters. The ureters were removed through a tunnel to the opposite side above the mouth of the contralateral ureter and an anastomosis was formed with the mucous membrane of the bladder. The mucous membrane of the bladder was dried at the site of the removed ureterocele. Next, the ureter was intubated. The inserted Foley catheter into the bladder was removed on days 7-8.

Two patients with bilateral ureterocele underwent simultaneous ureterocele dissection (gemi-nephrectomy). With unilateral localization of large cysts in 6 patients after ureterocele dissection with preserved kidney and ureter function, radical intervention with additional antireflux protection according to Polytano-Leadbetter was performed in order to prevent postoperative PMR. In 5 patients, due to the lack of function of the upper segment of the doubled kidney, a year after surgery, a heminephrectomy was performed.

Follow-up ultrasound examination was performed within 1-5 days after the intervention, which showed a 100% reduction in the diameter of the ureterocele, an average decrease in the ureter diameter by 80.1%, and a reduction in the size of the renal pelvis by 45.4%. In the main group, during the early postoperative period after endoscopic incision, among 15 patients, 7 (46.6%) regained function in the duplicated segment of the kidney where it was previously absent.

One complication of bleeding from the incision edges occurred in a single case. After hemostatic therapy, the bleeding was successfully stopped. Three patients developed dysuria following transurethral resection. These patients experienced episodes of febrile temperature. Cystoscopy revealed that the anterior wall of the ureterocele, after transurethral resection and bladder filling, obstructed the urethral lumen, causing obstruction. Endoscopic incision of the ureterocele wall was performed, resulting in restoration of normal urodynamics.

Our study is based on the evaluation of long-term outcomes of surgical treatment 6 months to 14 years after surgery.

Among the 38 children who underwent TURU, indications for repeated surgery included absent function of the upper renal segment, vesicoureteral reflux (VUR), recurrent urinary tract infections (UTIs), and voiding dysfunction caused by obstruction from the ureterocele neck at the bladder.

Follow-up examinations included voiding cystourethrography, ultrasound, laboratory tests, and when indicated, cystoscopy and renal radioisotope studies. A positive outcome was defined by the following criteria: elimination of ureteral obstruction and vesicoureteral reflux (VUR), absence of urinary tract infection (UTI), and no voiding disturbances.

In the long-term follow-up of the main group, 4 patients underwent repeat surgery within 6 months. Heminephroureterectomy was performed in one patient with a non-functioning upper renal pole and persistent recurrent UTIs. Open excision of the ureterocele was performed in one patient with voiding dysfunction due to obstruction. Three patients were diagnosed with grade IV-V VUR during long-term follow-up and underwent anti-reflux surgery according to the Politano-Leadbetter technique.

Seven patients with a confirmed diagnosis of asymptomatic VUR were managed conservatively and remain under dynamic observation. Endoscopic correction with volume-expanding gel DAM+ was performed in 3 patients with grade II-III VUR.

In the control group, 11 patients underwent repeat surgery. One year after surgery, one patient underwent nephroureterectomy due to secondary renal scarring associated with VUR. Heminephroureterectomy was performed in 4 patients with a non-functioning renal segment. Two patients were diagnosed with grade IV-V VUR in the long term and underwent anti-reflux surgery using the Politano-Leadbetter method.

Two patients with asymptomatic VUR received conservative treatment and remain under follow-up. Endoscopic correction with volume-expanding gel DAM+ was performed in two patients with grade II-III VUR.

Our research demonstrated that in cases of complete ureteral duplication, the frequency of recurrent UTIs in the postoperative period was higher, and repeat surgical interventions were more often required. For patients with a non-functioning upper pole, radical heminephroureterectomy is considered the primary stage treatment.

According to several authors [8,9,11], indications for surgery in VUR include UTIs and voiding dysfunction. Early stages of VUR tend to resolve with conservative treatment, which suggests a cautious approach to repeat surgical interventions. Persistent recurrent UTIs, voiding disturbances, and decreased renal function were indications for repeat surgery.

Conclusion. Compliance with the developed algorithm of diagnosis and endoscopic correction makes it possible to increase the effectiveness of treatment and reduce the number of complications in children.

Endoscopic correction of the ureterocele is a highly effective method of decompression and restoration of normal urodynamics of the upper urinary tract.Given the low risk of injury, transurethral resection is the method of choice, regardless of the type, nature and degree of the ureterocele.After correction of the defect, children are subject to mandatory dynamic monitoring and a step-by-step examination in order to timely diagnose and treat concomitant diseases and possible complications.

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