

## Case Report

# Ureterocele in Combination with Urolithiasis in a Pregnant Woman

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### Abstract

This article is devoted to the description of the clinical picture, methods of laboratory and instrumental diagnostics, the choice of surgical treatment and postoperative rehabilitation of a patient with a rare urological pathology - ureterocele in combination with urolithiasis in a pregnant woman.

**Keywords:** ureterocele, urolithiasis, pregnancy, excision of ureterocele

## 1. Introduction

A ureterocele is a malformation of the walls of the distal ureter in the form of an expansion of the intravesical area, cystically protruding into the cavity of the bladder and preventing the passage of urine [1]. Ureterocele is a rare malformation that predominantly occurs in women [2]. According to modern concepts, several factors contribute to the occurrence of ureterocele: the steep angle of the ureter entering the bladder, shortening of the submucosal tunnel, stenosis of the ureteric orifice, and a decrease in the thickness of the detrusor [1]. In this article, we will consider a rare clinical case of ureterocele in a woman with a gestational age of 6–7 weeks.

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## 2. Description of a Clinical Case

Upon admission, the patient complained of pain in the lumbar region on the right, radiating to the right iliac region, and general weakness.

### Target

Description of a clinical case of a successful surgical operation is as follows: cystoscopy on the right, excision of ureterocele on the right, ureterolithoextraction on the right, and stenting of the right ureter.

### Basic methods of surgical treatment of ureterocele

1. Nephrectomy
2. Resection of part of the kidney and ureter
3. Endoscopic dissection of the ureterocele wall
4. Installation of a ureteral stent
5. Performing ureteral or ureteropelvic anastomosis
6. Laparoscopic ureterocystoneostomy – ureteral transplantation

## 3. Surgery

The goal of surgical correction is to restore the normal passage of urine from the upper parts of the urinary system to the lower parts, eliminate associated complications and preserve the function of the involved kidney. The choice of the volume and technique of surgery for ureterocele depends on several factors: the intensity of clinical manifestations, the functional state of the kidneys, the presence of a significant obstacle to the outflow of urine, the type of defect (orthotopic or heterotopic), and the size of the cystic expansion. In most cases, operations are performed endoscopically.

The following types of surgical intervention are possible:

1. endoscopic electrical dissection of pathological protrusion of the ureteral wall: this is carried out for small orthotopic or heterotopic defects, leading to minor functional disorders;
2. excision of the cyst membranes and transplantation of the ureter with reconstruction of the correct anatomy of the uretero-vesical segment: the operation is possible with an orthotopic option, incl. bilateral;

3. removal of the kidney with aspiration of the contents of the ureterocele: this is performed in case of critical damage to the parenchyma, when functional death of the organ has occurred.

The greatest difficulties in surgical correction are observed with heterotopic ureterocele. The volume and technique of the operation are as personalized as possible (thought out in detail for each patient). In most cases, heterotopic ureteral cysts are large, so endoscopic surgery is impossible. To treat this form of the disease, classical interventions are performed through an incision that provides sufficient visualization of the pathological process.

#### 4. Clinical Case

A 27-year-old patient was urgently admitted to the urology department of the Multidisciplinary Regional Hospital No. 2 with a diagnosis of urolithiasis. Stones in the lower third of the right ureter. Pregnancy for 7 weeks was there.

Upon admission, there were complaints of pain in the lumbar region on the right with radiation to the right iliac region, and general weakness.

From the anamnesis, it was found that she had been ill for 2 days. She was examined at the emergency room level. The conclusion was as follows: pregnancy 6–7 weeks, left ovarian cyst, and ureteropyelocalicoectosis of the right kidney. Signs of ureterocele on the right.

In the urology department “MOB No. 2”, general clinical laboratory tests (biochemical blood tests were within normal limits) and instrumental research methods were carried out. The results of a general urine test showed signs of inflammation as: squamous epithelium in the urine - 14 in the urine; red blood cells in the urine - 150 in the urine; leukocytes in the urine - 45 in the urine. The patient received a preoperative course of antibacterial anti-inflammatory therapy. According to the instrumental studies, the conclusion of kidney ultrasound is as follows: at the time of examination, there were echo signs, pyeloectasia of the right kidney, and microlithiasis of the left kidney. Bladder ultrasound concludes that the volume of residual urine was 50 mL and the ureterocele on the right.

Considering the persistent pain syndrome and the risk of developing purulent-septic complications from the upper urinary tract, the decision of the council recommended surgical intervention in the scope of cystoureteroscopy, ureterolithoextraction on the right, excision of the ureterocele on the right, and stenting of the right ureter.

#### 4.1. Progress of the operation

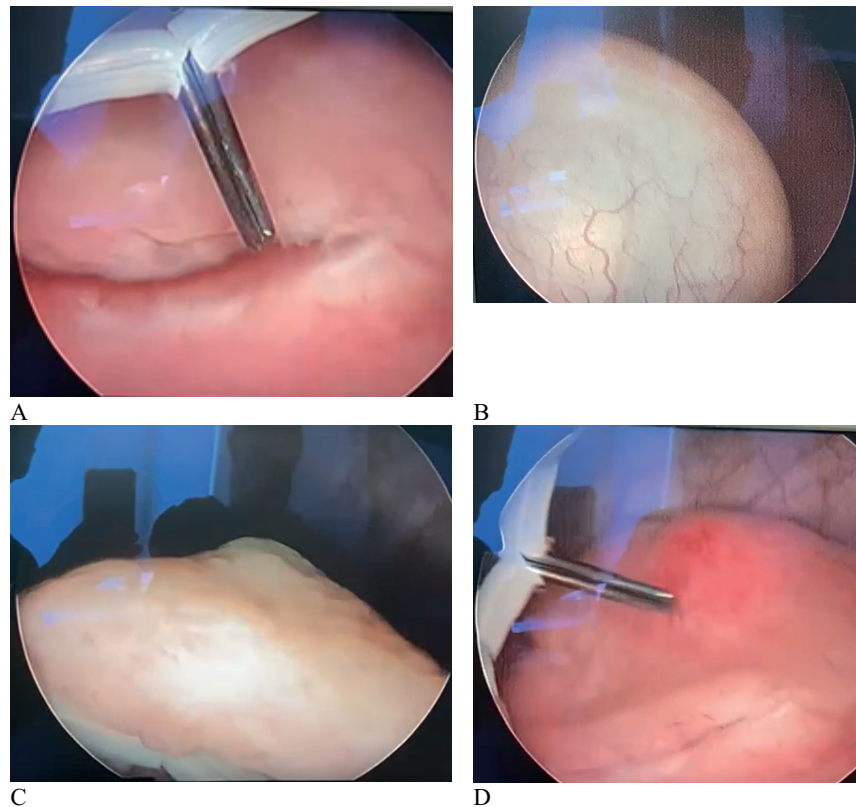
Under spinal anesthesia in the lithotomy position, the surgical field was treated three times with povidone. Under visual control, a cystoscope was inserted into the bladder. The mucous membrane of the bladder is pale pink, the vascular pattern is not pronounced, and the neck of the bladder is not changed. The orifice of the left ureter is slit-shaped, typically located at 7 o'clock on the dial. Upon further inspection, at 5 o'clock on the conventional dial, the expansion of the distal ureter is determined in the form of a round formation measuring 4x3 cm, behind which is the orifice of the right ureter (Figure 1A).

The cystoscope was removed, a resectoscope was inserted, and the ureterocele was excised using a laser loop (Figure 1B). Behind which the further course of the ureter is determined. The result is cloudy urine mixed with sand and flakes (Figure 1C). During ureteroscopy, five stones measuring 0.2 x 0.3 cm are identified in the lower third of the ureter and removed using forceps (Figure 1D). An inspection was carried out to the middle third of the ureter, it was dilated, and there were no stones. Under control, the closed end of a ureteral stent catheter No. 4.8 Ch was passed through a guide wire to the abdominal system. X-ray control. A urethral catheter No. 18 Ch. is installed in the bladder cavity.

The early postoperative period proceeded smoothly. The pain syndrome was relieved. The urethral catheter was removed on the third day after surgical treatment. According to the results of control postoperative laboratory and instrumental studies, positive dynamics are noted.

## 5. Discussion

The gold standard for diagnosing ureterocele is survey and excretory urography [3]. These diagnostic methods make it possible to obtain information not only about the presence of the defect itself and topical diagnosis of urolithiasis, but also indirect data about the anatomical and functional state of the kidney and upper urinary tract [4]. The effectiveness of urography in diagnosing ureterocele reaches more than 95% [5]. Difficulties arise in the case of a non-functioning kidney or one of the duplicated segments. The widespread introduction of echotomography has increased the level of diagnosis verification to almost 100%. In our practice, we have not abandoned cystoscopy as an independent research method, regardless of the form of combination



**Figure 1:** Progress of the operation of ureterocele in combination with urolithiasis in a pregnant woman.

of urolithiasis and ureterocele, considering endoscopic examination of the bladder as the first stage.

The question of choosing tactics for surgical treatment of ureterocele in combination with urolithiasis still does not have a clear answer, which is largely due to the presence of various forms of this pathology in combination with different options for localization, size, and duration of presence of stones [5]. Factors such as age, the severity of urodynamic disorders of the upper urinary tract and the anatomical and functional state of the kidneys are of no small importance [6].

Electrical dissection of the ureterocele wall and subsequent ureterolithoextraction are permissible for relatively small stones that do not exceed the size of the incision [7]. In other cases, after incision, it is preferable to perform ureteroscopy and contact ultrasound or ureterolithotripsy using a holmium laser [8]. The issue of drainage of the upper urinary tract after stone extraction from an ureterocele does not have a clear solution. On the one hand, catheterization prevents obstructive complications after endoscopic intervention on the ureter. On the other hand, internal drainage of

the kidney can serve as an entry point for infection and contribute to the formation of vesicoureteral reflux.

## 6. Conclusions

This clinical case showed that when ureterocele is diagnosed in time, after endoscopic surgery, the prognosis is quite favorable. If a ureterocele is detected late, the outflow of urine may be severely impaired. This leads to the formation of large stones, frequent exacerbations of infection in the urinary tract, and subsequently to the death of almost all or part of it with the development of chronic renal failure. There is no way to prevent ureterocele. In this patient, during follow-up examinations, positive dynamics are noted.

## Authors' Contributions

Conceptualization: I.O.A., S.A.F., A.R.Z., U.Zh.

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