Case Report

Combination of urolithiasis and anomaly: Bifid ureter with fusion in the intramural part

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Abstract

Kidney and upper urinary tract anomalies account for 23% of all birth defects. Partial duplication is slightly more prevalent than complete, 70% and 30%, respectively. A very low fusion of ureters, i.e., in the intramural part, is a rarer case. As a result, the joint section is very short (<1 cm) and may be invisible for radiological diagnosis. This case shows a rare variation of incomplete bifid ureter coupled with urolithiasis, which should be taken into account by the physician when determining urolithiasis treatment.

Keywords: Bifid ureter, intramural part, ureter fissus, urolithiasis

INTRODUCTION

Urolithiasis affects 7%–13% in North America, 5%–9% in Europe, and 1%–5% in Asia with a tendency for an increase in incidence.[1] Kidney and upper urinary tract anomalies account for 23% of all birth defects, occupying the first place among development anomalies of organs and systems of organs; meanwhile, urolithiasis is often combined with urinary system development anomalies (16%–35%).[2,3] The incidence of renal and upper tract duplication is 0.3%–6.0%. Incomplete duplication is slightly more prevalent than complete, 70% and 30%, respectively.[4] However, a very low fusion of ureters, i.e., in the intramural part, is a rarer case. As a result, the joint section is very short (<1 cm) and may be invisible for radiological diagnosis.

CASE REPORT

This was a known case of patient G., 71 years old.

According to a history, the patient had urolithiasis since 1990, has neither been examined nor treated. He noticed a periodic independent withdrawal of stones with urine. A week before the treatment, he began to notice frequent, painful urination and periodic pain in the left lumbar region.

The International Prostate Symptom Score was 29, and the quality of life score was 5. Urinalysis showed leukocytes (5–7 in the visual field) and red blood cells (2–3 in the visual field). A computed tomography (CT) scan with contrast showed ureteral duplication to the left merging at the level of the pelvic segment with the formation of a single ureter [Figure 1]. Hydronephrosis was noted on the upper half of the left kidney, Grade 1 with ureteral dilatation (8 mm). A single X-ray contrast calculus, not intramural calcification, with the density of up to +1200 HU and dimensions of 9 mm × 10 mm was visualized in the pelvis section of the left ureter. On

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examination of the bladder with a 70° lens cystoscope, one ureteral opening was found on the right and one on the left, both in a typical spot and of a slit shape.

Based on the history and laboratory tests, the patient was diagnosed with urolithiasis, calculus in the pelvic segment of the left ureter, and bifid ureter on the left.

Due to the conservative therapy failure, it was decided to perform a contact lithotripsy of the lower third of the left ureter. During ureteroscopy with an 8.5 Ch. ureteroscope, the calculus was not visualized on examination of the ureter up to the middle third; however, during X-ray, the distal end of the ureteroscope was above the shadow of the stone. When the ureter was displaced with a ureteroscope, the calculus was also moved, again indicating it is not intramural calcification, but a calculus in the ureter. Then, it was decided to perform transurethral resection anterior wall of the orifice left ureter with the cutting of the loop electrode 26 Ch. resectoscope under endoscopic and X-ray control.\[5\] On dissection of the intramural part of the left ureter, a spiny irregularly shaped dark brown stone was captured with basket forceps and was then extracted. Two internal 6 Ch. ureteral stents (one for each part of the left duplicated ureter) were installed under visual and X-ray control. The postoperative period proceeded without any complications; signs of vesicoureteral reflux were not observed [Figure 2].

**DISCUSSION**

Multislice computed tomography (MSCT) allows you to obtain high-resolution images, which makes it possible to identify almost all known abnormalities of the kidneys and upper urinary tract. However, the most difficult diagnostic task is the differentiation of ureter fissus with ureter duplex, especially the determination of the low level of ureteral fusion in the intramural section. Eisner et al. reported that the overall sensitivity for detecting duplex ureters in their study with contrast enhanced axial MSCT was 96%.\[6\]

Initially, according to the CT, it was assumed that the ureters merge in the pelvic segment, with calculus. However, the diagnosis was specified intraoperatively.

The prestenting of the ureter is performed to allow for passive dilation and ureteroscopy relief.\[7\] However, in our case, intraoperatively, the connection of the ureters cannot be visualized. In this regard, the installation of the stent is not possible.

In our case, the patient had a bifid ureter with both ureters connecting in the intramural part and with a single left ureteral orifice. Despite the fact that it was not possible to visualize the join of the ureters, we chose a successful operational tactic. Transurethral resection of the ureter orifice is an accurate and safe procedure, which is associated with a minimum percentage of complications when carefully done.\[8\]

To the best of our knowledge, this is the first report of such an observation.

**CONCLUSION**

This case shows a rare variation of incomplete bifid ureter coupled with urolithiasis, which should be taken into account by the physician when determining urolithiasis treatment.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given...
his consent for his images and other clinical information to be reported in the journal. The patient understands that his names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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