



Case Report

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ONE OF THE CAUSES OF RECURRENT URINARY TRACT INFECTION: BIFID COLLECTING SYSTEM- A CASE REPORT

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Abstract

Although genitourinary system anomalies are frequently diagnosed in childhood, they are also clinically important in the adult population. Patients with these anomalies are at risk for recurrent urinary tract infections and also obstructions. Urinary system anomalies should be considered in the patients who come with recurrent urinary tract infection complaints to the family medicine outpatient clinic. In this article, a case with recurrent urinary tract infections, which were later diagnosed with a double collecting system, is presented.

Keywords: Ureter, urogenital abnormalities, cystitis.

Introduction

Bifid collecting systems are one of the most common anomalies of the urinary system.¹ The incidence of duplication of the renal collecting system and ureter ranges from 0.5% to 3%.^{1,2} Detection rate of such renal anomalies in childhood has increased thanks to advanced fetal imaging facilities markedly; however, a significant number of undiagnosed adults still exist.¹ Although duplication of the ureter may remain asymptomatic in adults, it can cause recurrent urinary tract infections (UTIs) or stones and also can result in injury during pelvic surgeries.^{1,3} In this article, we present an adult female patient with recurrent UTIs who was diagnosed with a bifid collecting system after imaging, and she was referred to the urology department

Case Report

A 31-year-old female patient with no known history of internal disease visited our family medicine outpatient clinic with a complaint of a change in urine odor for a week. The patient stated that she did not measure her temperature but also sweating enough to change underwear at night. It was learned from the patient's history that she got married two months ago and visited an outpatient clinic with the complaint of a burning sensation while urinating one month ago. Urinary tract infection was detected, and she received fosfomycin and ciprofloxacin treatment. In her medical history, there was no history of urology visits or recurrent UTIs in childhood. On physical examination, vital signs were normal (fever: 36.6 °C, blood pressure: 125/82 mmHg, pulse: 76 bpm, spo2: 96%). Abdominal examination revealed no tenderness, defense, or organomegaly. She had no costovertebral angle tenderness. Other system examinations were normal. No pathological finding was detected. Urinalysis revealed pyuria and bacteriuria (Full urine analysis pH: 5.0 Density: 1.014 Leukocyte: 60 HPF Nitrite: ++). The patient was treated with a single dose of fosfomycin 3 g/day. In the control examination, the patient stated that there was no regression in her complaint. Thus, urine culture, whole blood, sedimentation and C-Reactive Protein (CRP) were requested from the patient. No leukocytosis, sedimentation and CRP increase was observed in blood tests. (leukocyte: $5.0 \times 10^3/\mu\text{L}$ ($4.1-11.2 \times 10^3/\mu\text{L}$), lymphocyte count: $1.8 \times 10^3/\mu\text{L}$ ($1.2-3.6 \times 10^3/\mu\text{L}$), neutrophil count: $2.5 \times 10^3/\mu\text{L}$ ($1.8-6.4 \times 10^3/\mu\text{L}$), lymphocyte%: 35.3% (18.8-50, 8%), neutrophil %: 50.4% (39.9-73%), CRP: 0.531 mg/dL, (0-0.8 mg/dL) sedimentation (ESR): 10 mm/hour (0-25 mm/hour). 100,000 cfu/mL Escherichia coli isolated in urine aerobic culture.

Nitrofurantoin 200 mg/day was given to the patient according to the antibiogram analysis. In addition, due to the presence of recurrent urinary tract infections in the last three months, urinary system ultrasound imaging was planned to investigate the etiology and for renal system control.

Ultrasound examination revealed a right extrarenal pelvis and duplicated left renal collecting system. The patient was consulted by the urology department based on the current ultrasound finding. Computed tomography (CT) urography was requested by the urologist in terms of other accompanying urinary system complications. CT urography showed that both kidneys were normal in terms of size, localization, parenchymal thickness and filtration functions; hydroureteronephrosis, urolithiasis, solid or cystic mass and no ureteral filling defect were reported (Figure 1). It was learned that annual urology control in the outpatient clinic was recommended to the patient.

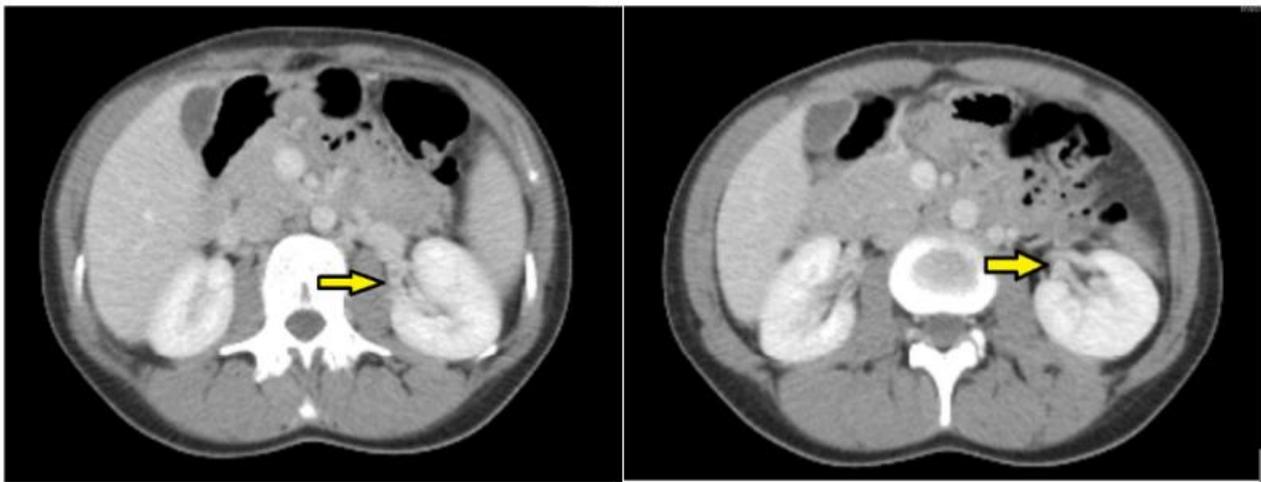


Figure 1. A bifid collecting system emerging from the left kidney is seen in CT urography transverse sections.

Discussion

A recurrent UTI is typically defined as three or more UTIs in the last 12 months or two or more infections in the last six months.⁴ Sexual intercourse three or more times a week, use of spermicide, new or multiple sexual partners, and having a UTI before the age of 15 have been shown to be independent risk factors for recurrent UTI in premenopausal women.⁴ In addition to these factors, it is also important to confirm whether there is an anomaly of the genitourinary system as a facilitating factor.⁴

The ureters form as a bud from the mesonephric duct during the 4th to 5th weeks of pregnancy. Ureteral duplication occurs when suppression of ectopic ureteral bud development fails during metanephros development.¹ The most common congenital anomaly of the genitourinary system is the bifid collecting system and is slightly more common in women, with an approximate ratio of 1.6:1.⁵ The incidence of unilateral

duplications is six times higher than bilateral duplications³ Unilateral duplications are seen equally on the right and left sides.⁵

While the detection of such kidney anomalies in childhood is gradually increasing due to the developments in fetal imaging methods, unlike the literature, it was detected in our case at the age of 31. Although frequent sexual intercourse is a risk factor for urinary system infections in women, the recurrence of infection after treatment in our case suggested that we should also question other underlying factors. Duplex systems may predispose to complications such as obstructive uropathy, stone formation, ureterocele and vesicoureteral reflux.¹ Early detection of this anomaly helps to prevent comorbidities and complications. In all cases, imaging is essential to confirm the diagnosis. Urinary system ultrasound should be performed as an initial diagnostic test. CT urography is important in visualizing the course of the duplex collecting system, visualizing the distal opening, and detecting ectopic kidney, infection, or other associated genitourinary malformations.

Conclusion

Undiagnosed genitourinary system anomalies should also be considered in the approach to adult patients presenting with recurrent urinary system complaints in primary care, and necessary tests should be requested.

Ethical Considerations: Informed consent has been obtained from the patient.

Conflict of Interest: The authors declare no conflict of interest.

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