



UNILATERAL BIFID URETER –A CASE STUDY

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ABSTRACT **Introduction:** There are many congenital anomalies of excretory organs have been discussed in many cases. Case report: We found this case of unilateral bifid ureter in the upper part of right ureter and then fused before opening into the urinary bladder during a routine cadaveric dissection for undergraduate students in our institution. Discussion and conclusion: Knowledge of developmental anomalies of ureter is of great importance as it can affect the interventional methods and also helpful and interesting for radiologists and urologists as it describes the anomalies.

KEYWORDS : ureter, bifid ureter, duplicated ureter, ureteric bud

INTRODUCTION

Ureters are a pair of narrow, thick-walled muscular tubes which convey urine from the corresponding kidneys to the urinary bladder, around 10 inches in length, upper half 5 inches lies in the abdomen, and lower half 5 inches in the pelvis.¹

The ureter is derived from the part of ureteric bud that lies between the pelvis of the kidney, and vesico-urethral canal. The ureter may be partially or completely duplicated. This condition may or may not be associated with duplication of kidney. Very rarely, there may be more than two ureters on one, or both, sides.²

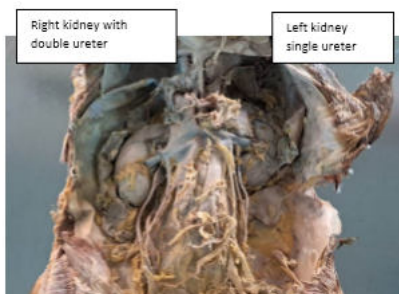
Most of the cases reported have other associated variations. But here we have not observed any other anomalies beyond incomplete unilateral bifid ureter. Such cases may remain asymptomatic throughout life, unless produce some complications like frequent urinary tract infection, calculi, uretero-ureteric reflex, ureteric stenosis, pyelonephritis.³

Clinically, patients with a double ureter may be asymptomatic or may present with hematuria or abdominal or flank pain and predisposed to ureteral obstruction, uretero-ureteric reflux, and recurrent urinary infections.^{4,5}

This study would help in determining the renal anatomical variants which would improve the surgical and radiological interventions. Moreover, it would further help in furnishing better insights on urinary tract diseases and congenital anomalies.

CASE STUDY

During the routine dissection in a female cadaver for undergraduate students in our college BGS, GIMS, Bangalore, we observed an unusual variation. The renal pelvis and ureter was partially split into two. The split ureter had two parts at the pelvi-uretric junction one part was coming from the upper pole of the right kidney and another part was coming from the lower pole of the right kidney. The renal pelvis and the ureter was double up to the pelvic brim and fused at the level of the pelvic brim to form single ureter which opened into the right lateral trigonal angle by single opening in the urinary bladder. The shape and position of the right and left kidney was normal and also no any variations in renal vessels observed in both the sides.

**DISCUSSION:**

Each ureter is developed from the stalk of ureteric diverticulum which grows headwards from the caudal part of mesonephric duct, before the latter opens into the ventral part of the cloaca. The portion of the mesonephric duct between the ureteric bud and the cloaca is known as the common excretory duct. Subsequently the common excretory duct is incorporated to form the vesical trigone, and the ureter directly opens into the urinary bladder.

Duplication of ureter is seen very frequently. It may be an accidental radiological finding in a patient or may be detected during autopsy. When symptoms of duplicated ureter are present they may be variable.⁶

Presence of such anomaly usually goes unnoticed with minor complaints of patient. In such situation it is better for clinicians to suspect this kind of anomaly. This information is also very useful to radiologists for early detection. This may decrease future complications of the collecting system and decreases the morbidity and mortality significantly.⁷

Patients with double ureters may be accompanied by other ureteral anomalies such as ectopic ureter, and have an increased risk of developing urinary tract infection, pain, hydronephrosis and stone formation.⁸

Developmental anomaly of the kidney, ureter, and urinary bladder should be kept in clinician's mind while treating as most of these ureteric abnormality cases are asymptomatic.⁹

Duplication in the ureter occurs in an incidence of 0.5% and ranges from 0.5% to 3.0% and it is two five times more common in female.¹⁰ Prevalence of partial duplication of the ureter was three times common than complete duplication of the ureters.¹¹

The uretero-ureteral junction occurs at various level: pelvis, lumbar, iliac, pelvic, or intramural. In cases of bifid ureters with a blind-ending branch, the latter detaches itself from the distal or middle portion of the orthotopic ureter.¹²

CONCLUSIONS

The double ureter is a developmental anomaly affecting the urinary

system. Union of incomplete double ureter usually goes unnoticed with minor complications such as uretero-ureteric reflex. This condition may cause ureteral injury during surgery and misinterpretation of radiological images. In such situation it is better for clinicians to support this kind of anomaly. Hence, radiologists and surgeons must be familiar with the double ureter and its subtypes.

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