Ureteral Triplication with Contralateral Duplication

D.N.		Srivastava ^a
S.		Mukhopadhyay ^a
S.K.		Agarwal ^b

Departments of ^aRadiodiagnosis and ^bNephrology, All-India Institute of Medical Sciences, New Delhi, India

Dr. Sima Mukhopadhyay, Department of Radiodiagnosis, All-India Institute of Medical Sciences, Ansari Nagar, New Delhi 110029 (India)

Dear Sir,

We report a case of triplicate ureter on one side with duplicate ureter on the contra-lateral side in a healthy prospective renal transplant donor. A 43-year-old female was being evaluated as an elective renal donor for transplant. She had no symptoms regarding urinary tract pathology. Intravenous urography showed the right kidney with three pelvicalyceal systems and three ureters seen up to L5 with only one ureter seen in the pelvis. On the left side there were two pelvicalyceal systems with two ureters seen up to the urinary bladder (fig. 1 a, b). The patient had chance finding of five ureters. However, due to technical difficulties during transplant surgery, she was not accepted as a donor.

Triple ureter is one of the rarest anomalies of the upper urinary tract. It is reported to be associated with an increased incidence of congenital anomalies as well as a predisposition to infection and calculus formation. However, it may be an incidental finding causing no functional disturbance. Most investigators use the classification of Smith [1], who classified four varieties of triplicate ureter: (1) complete triplication – three ureters from the kidney with three draining orifices to the urinary bladder or ectopically; incomplete triplication – a bifid ureter with a single ureter, with three ureters from the kidney and two orifices draining below; trifid ureter – all three ureters unite and drain through a single orifice, and (4) two ureters from the kidney, one because of in-

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Fig. 1. Excretory urograms at (a) 10 minutes and (b) 20 minutes showing three ureters, one on the right and two on the left side.

formation [3]. The embryologic basis of ureteric duplication has been explained by multiple ureteric buds independently arising from the Wolffian duct and/or early fission of one or more ureteric buds [4]. The case herein reported probably represents Smith's second type of triplication.

In the majority of cases, diagnosis of triplication of the ureter is made when patients verse Y bifurcation, resulting in three draining orifices below. A unique case of ureteral triplication – a typical bifid system with a third, lateral ureter that appeared to communicate with the lower pole calyx has also been reported [2]. Ureteral triplication has been reported to

be associated with an increased incidence of congenital anomalies as well as a predisposition to infection and calculus

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present with some urinary complaints. In a review of 60 cases of ureteral triplication, Perkins et al. [3] reported flank pain, urinary incontinence and urinary tract infection as a presenting feature in 33, 30 and 18% of the cases, respectively. In only 8.3% of the cases was the diagnosis made in asymptomatic patients. In our patient also, ureteral triplication was accidentally diagnosed in a prospective renal transplant donor. The presence of this abnormality in a renal transplant donor

makes it more important. Not only that many associated renal abnormalities are to be screened like ectopic ureter, renal dysplasia, hypertension, vesicoureteric reflux etc., but many transplant units due to technical difficulties do not accept these donors for kidney transplantation. However, there are reports of successful renal transplantation using these kidneys [5, 6]. At the time, we decided against accepting this donor for renal transplantation.

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Srivastava/Mukhopadhyay/Agarwal