

# Ureteral Triplication: A Rare Congenital Anomaly

## Abstract

Ureteral triplication remains a very rare congenital malformation of the urinary tract with a wide spectrum of presentation. The sporadic nature of this condition and its association with other anomalies makes evidence-based management difficult.

**Keywords:** Urogenital anomaly; Ureteral triplication

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## Introduction

Ureteric triplication, whilst rare compared to duplication, shares a similar female preponderance.<sup>1</sup> Since the first description of ureteral triplication by Wrany in 1870, only about 100 cases have been reported in the literature. It was classified into four types by Smith in his review of 11 cases in 1946.<sup>2</sup> Bilateral ureteral triplication is rare than bilateral ureteral duplication. Only 5 cases of bilateral ureteral triplication have been reported so far in medical literature.<sup>3</sup> Furthermore, ureteral triplication is occasionally an isolated anomaly. It has been reported that ureteral triplication may be complicated with contralateral ureter duplication, vesicoureteral reflux, ureterocele, crossed ectopic fused kidneys, ureteropelvic obstruction and duplication of the bladder. It may also occur as a part of VACTERL syndrome or inherited as a component of autosomal dominant condition with amastia<sup>4,5</sup> In addition, ureteral quadruplication has been described and it is an extremely unusual developmental abnormality.

## Case Report

We report a case of 48 year old gentleman who presented with right sided flank pain with recurrent haematuria of 6 months duration. He was evaluated with ultrasound abdomen and CT Urogram. Radiological evaluation revealed Right Duplex collecting system with three separate ureters. Right upper and mid moiety were dilated with suspicious union in the lower third (Type II ureteral triplication according to Smith's Classification). DTPA renogram showed poorly functioning upper 2/3<sup>rd</sup> of Right kidney. The patient underwent elective open right upper polar nephrectomy with excision of upper and middle moiety ureters. His recovery was uneventful.

## Discussion

The embryological event resulting in ureteral triplication derives from multiple ureteral buds arising from the mesonephric duct with fissuring of one or more of them. Triplication may remain asymptomatic (8% of cases) or present with recurrent UTIs, urinary incontinence or renal colic. In triplication with associated persistent UTIs, heminephrectomy with removal of the supernumerary ureters has been shown to be effective.<sup>6</sup> Although ureteroureterostomy

may be beneficial, when incontinence has been the presenting complaint, the ectopic ureter should be removed<sup>7</sup> In the differential diagnosis of congenital anomalies of the urinary tract, especially when recurrent urinary tract infection, reflux, hydronephrosis or urinary incontinence is present, ureteral triplication should be considered along with the other anomalies. Ureteral triplication is a rare congenital anomaly that requires high index of suspicion in order to diagnose. Due to lack of specific clinical signs, radiological examination remains the mainstay of diagnosis and can direct the best treatment strategy.

## Conflicts of Interest

None.

## Acknowledgements

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