Unilateral triplicate ureter with ipsilateral ureterocele a case report

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A B S T R A C T

INTRODUCTION: Triplicate ureter is a rare congenital anomaly of the upper urinary tract.

PRESENTATION OF CASE: In this case we present a triplicate ureter with ipsilateral ureterocele in a 9 years old boy. After literature review we found out this presentation very rare.

DISCUSSION: Ureteral triplication classified by Smith into 4 subtypes, and usually associated with other congenital abnormality, most common one is contralateral ureteric duplication. Usually this anomaly is asymptomatic.

We present a type 3 ureteral triplication.

CONCLUSION: Although triplicate ureter is a rare congenital anomaly, we must keep it in our differential diagnosis of unexplained urinary symptoms.

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excise the ureterocele. After the operation, the patient did well and was discharged home after 15 days without any complications. Histopathology came back as left ureter excision with chronic inflammation and left partial nephrectomy with acute and chronic pyelonephritis changes.

A Follow-up IVU one-month post operation showed normal nephrogram bilaterally with incomplete duplication of left kidney without obstruction (Fig. 4).

Written and oral consent for use of the data and photos for research project and educational purposes was obtained from the parents.

Fig. 1. A: Urinary tract ultrasound showing left kidney hydrenephrosis (blue arrow) B: urinary tract ultrasound showing left sided large urinary bladder ureterocele (blue arrow).

Fig. 2. MCUG (micturating cystourethrogram) showing normal bladder shape with no reflux bilaterally.

3. Discussion

Ureteral triplication is a rare congenital anomaly of upper urinary tract [4]. Ureteral triplication is more common in females and is commonly located at the left side, as in our case [5].

Triple ureters may be responsible for recurrent urinary tract infections, incontinence, enuresis or pain caused by ureterocele but most of the time this anomaly is asymptomatic and detected incidentally during the investigation of other conditions, and this can explain its late presentation [4]. In childhood UTI, the use of renal ultrasound and a focused ‘top down’ investigation accordingly (MCUG, MAG3, DMSA (dimercaptosuccinic acid) and other investigations) approach is likely to identify the vast majority of children who require intervention [6]. Ureteral triplication comes with other congenital abnormality; the most common abnormality is ureteral duplication in the contralateral ureter (37%), ureteral ectopia (28%) and renal dysplasia (8%) [5]. Occasionally ureterocele, vesicoureteric reflux, and angiomas, are other associations [7]. Ureteric duplication and triplication have been explained by multiple ureteric buds arising independently from the Wolffian duct, and/or early fusion of one or more ureteral buds [8].

Most cases of ureteral duplication conform to the Weigert-Meyer law [9], which states that the ureter from the upper pole of the kidney is incorporated into the bladder more caudally and medially than the lower pole ureter. However, the Weigert-Meyer principle does not apply to all patients with ureteral triplication [10]. Urinary tract ultrasound and computed tomography are useful in the diagnosis of triplicate ureters, but intravenous urography may be more useful in completely defining the anatomy [4].

4. Conclusion

Ureteral triplication is a very rare congenital anomaly, and because of the paucity of presenting symptoms, this can delay its diagnosis. Our recommendation is to keep this anomaly in the differential diagnosis of recurrent UTI, incontinence and recurrent urolithiasis.
Fig. 3. A: IVU (intravenous urogram) showing normal right kidney with 3 moieties in the left kidney (red arrows) draining into urinary bladder as one ureter (blue arrow). B: Intravenous urogram showing dilated upper moiety (blue arrow) compared to the mid and lower moieties (red arrows) on left kidney.

Fig. 4. Post operative follow up intravenous urogram showing normal excretory function for the upper and lower moieties (blue arrows) in the left kidney.

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Ethical approval

This research did not need ethical approval.

Consent

Fully informed written consent was signed from the parents of the patient.

Author contribution

MOHAMMAD. AL-ZUBI: study design, data collection, data analysis and writing the paper.
ANAS AL FAQIEH: data collection, and writing the paper.
OROUB ALTAMIMI: data analysis and writing the paper.
SOHA ALBEITAWI: study design, data collection.

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Declaration of Competing Interest

No conflicts of interest.
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