Indian Journal of Medical Case Reports ISSN: 2319–3832
Online, International Journal, Available at http://www.cibtech.org/jcr.htm
2021 Vol.10, pp. 17-20/Nerli et al.
Case Report (Open Access)

COMPLETE URETERAL DUPLICATION WITH URINARY CALCULI IN BOTH THE SYSTEMS MANAGED IN A SINGLE SETTING: A CASE REPORT

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ABSTRACT
Complete duplex ureter's opening separately into the urinary bladder is an extremely rare congenital anomaly. Patients with an anomalous urinary tract are prone to develop urinary stones, infections and obstruction. We report a case of complete duplication of the ureter with upper moiety ureteric stone and lower moiety renal calculi managed by endourological procedures in a single setting.

***Keywords**: Calculi, Duplication, Obstruction, Ureter, Ureteroscopy, Percutaneous Nephrolithotomy*

INTRODUCTION
Duplication of the ureter is a common condition, described in approximately 1 in 125 people (0.8%) based on autopsy series, which tend to be less selective (Peters and Mendelsohn, 2016). The incidence is slightly higher in females, estimated to be approximately 1.6: 1 (Peters and Mendelsohn, 2016). It is unilateral six times more frequently than bilateral; however, it is important to carefully look for contralateral duplication when unilateral duplication is documented. This may be critical in the setting of non-hydronephrotic upper poles and ureteral ectopy causing incontinence. Right and left sides appear to be affected similarly with unilateral duplication (Peters and Mendelsohn, 2016).

Complete duplex ureters opening separately into the urinary bladder, is an extremely rare condition and occur as a result of development of two ureteral buds separately from a single mesonephric duct (Kawahara *et al.,* 2012; Karakose *et al.,* 2013). Patients with ureteral duplication may potentially be prone to develop urinary stones. We report a case of complete duplication of the ureter with upper moiety ureteric stone and lower moiety renal calculi managed by endourological procedures in a single setting.

CASE
A 59-year-old male presented to the Urological services of the hospital with history of pain on the right side of abdomen. Computed tomography (CT) showed a right sided duplex collecting system with minimal hydronephrosis in upper moiety due to a vesicoureteric calculi of the size 6×5 mm (1000 Hounsfield units) and a partial staghorn calculus in the lower moiety of the size 16×25×15 mm (960 Hounsfield units) (Figure 1a, b). Secondary calculi were noted in the lower calyx 9×6 mm.

Patient was taken up for combined right lower ureteroscopy and right percutaneous nephrolithotomy (PCNL) under spinal anaesthesia. Initial cystoscopy revealed two ureteric orifices on the right side, one above the other separated by a distance of 2 mm (Figure 2 a). A 0.035-inch guidewire was passed into the upper moiety ureteric orifice which was placed lower and medial. The ureteric orifice was dilated using Teflon dilators upto 8 Fr. A 6/7.5 Fr Wolf ureteroscope was passed into the upper moiety ureter, the

ureteric stone identified and fragmented using a Wolf lithoclast. A 5 Fr double J ureteric stent was placed into the upper moiety orifice.

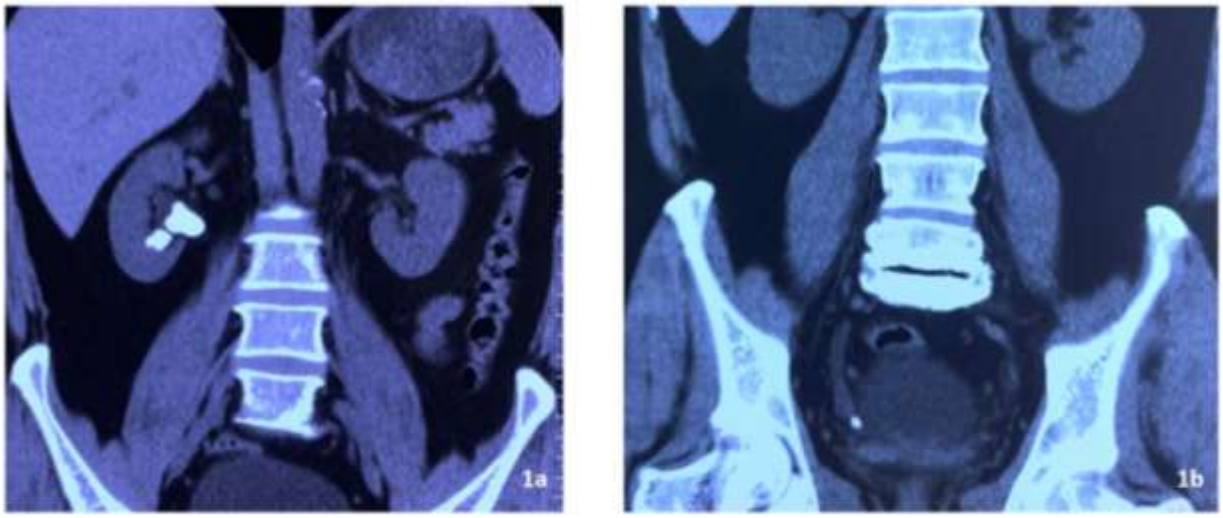

Figure 1a: CT Scan shows Lower moiety partial staghorn calculus.
1b: CT Scan shows Upper moiety hydronephrosis with calculus in the lower ureter.

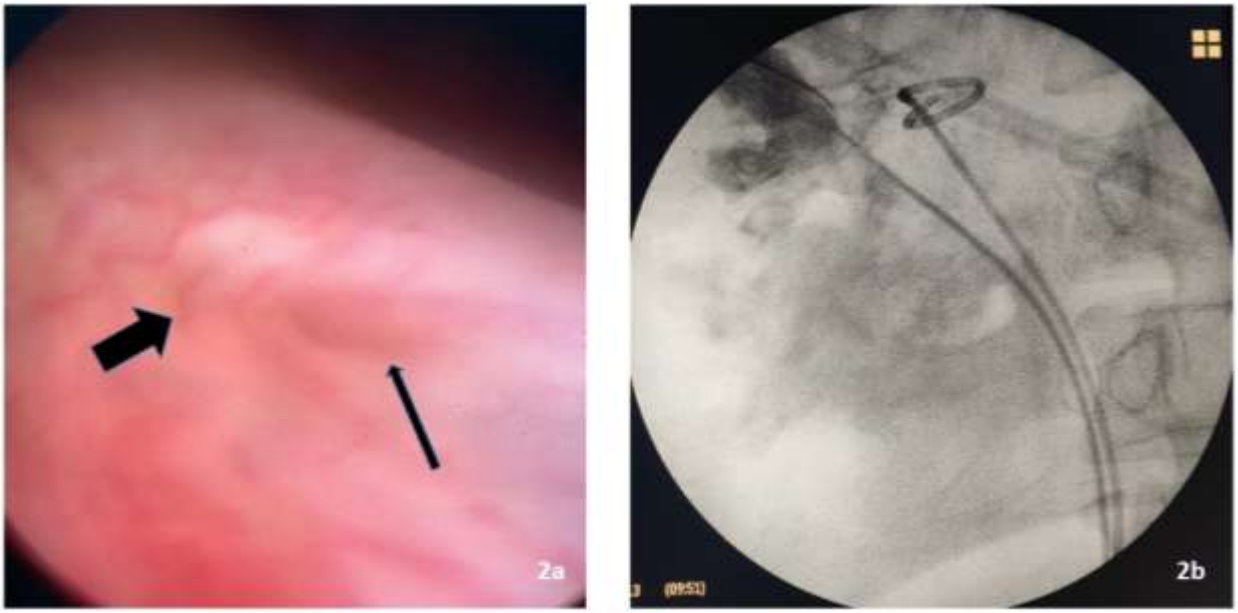

Figure 2a: Cystoscopy shows Upper moiety ureteric orifice – marked with thin arrow head & Lower moiety ureteric orifice – marked with thick arrow head.
2b: RGP shows a DJ Stent in the upper moiety ureter and partial staghorn calculus in the lower moiety calyceal system.

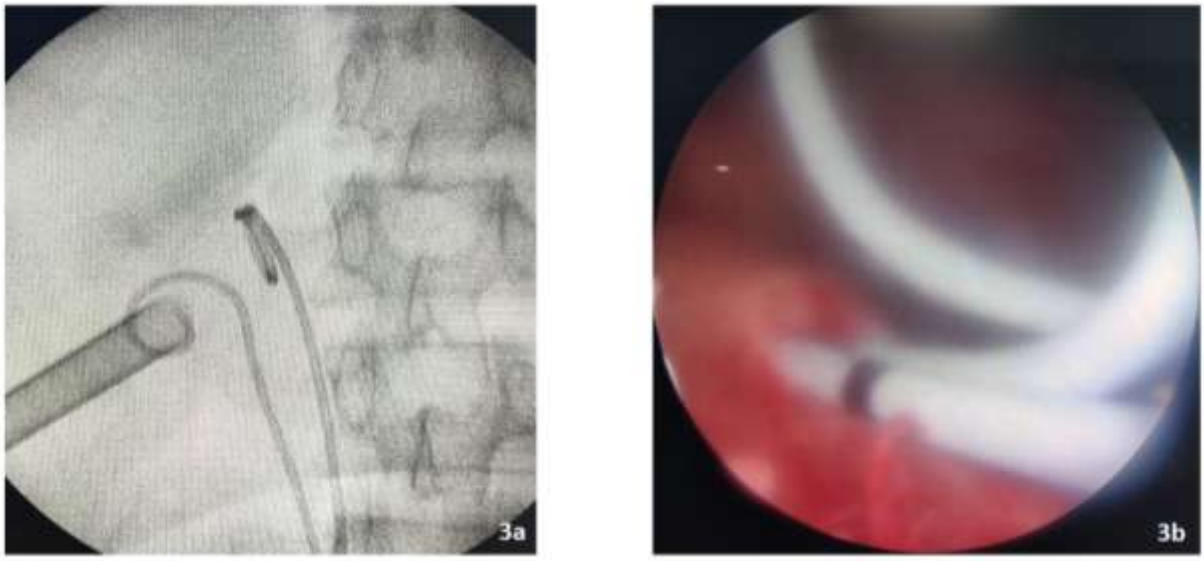

Figure 3a: RGP shows upper ends of DJ Stents in upper and lower moiety
3b: Cystoscopy shows lower ends of DJ Stents in upper and lower moiety ureteric orifices.

The lower moiety orifice was catheterized using a 5 Fr ureteric catheter. A retrograde pyelogram was done (Figure 2b). The patient was positioned for a prone PCNL procedure. The lower calyx was punctured under fluoroscopic guidance. A guide wire was passed into the pelvicalyceal system and the tract dilated upto 30 Fr. A 30 Fr Amplatz sheath was passed, through which the 28 Fr nephroscope was introduced. PCNL was performed and all the calculi and fragments extracted. A 5 Fr double J ureteric stent was placed into the lower moiety ureter though antegrade route (Figure 3a, b). A 20 Fr nephrostomy tube was placed. Post-operative period was uneventful.

DISCUSSION

The management of patients with urolithiasis has evolved dramatically with multiple treatment options that include ureteroscopy and percutaneous renal surgery for the management of urinary calculi. The treatment decision must take into account technical aspects as well as patient's choice. However, at times congenital urinary tract abnormalities may make the procedures difficult or act as hindrance.

Unilateral complete ureteral duplication with a single renal parenchyma drained by 2 pyelocaliceal systems is a very rare condition (Karakose *et al.,* 2013). Ureteral duplication is often asymptomatic but may be associated with urinary tract infections, urolithiasis and obstruction. Urinary calculi occur due to relative stasis of urine but may also occur due to factors unrelated to the duplication. Ureteric stones occurring in unilateral complete duplication are very rare (Karakose *et al.,* 2013). Karakose *et al.,* (2013) claim to have reported the first case of unilateral complete ureteral duplication and ureteral stone without coexisting comorbidities including VUR, ureterocele and obstructive uropathy. Our patient too was a case of unilateral ureteral duplication with a ureteric calculus in the upper moiety ureter and a partial staghorn in the lower moiety system.

CONCLUSION

To conclude, patients with ureteral duplication may potentially be complicated with urinary stones. Clinicians should be aware of the several congenital anomalies so as to plan the surgical management of urinary stones, as coexisting anomalies, including complete ureteral duplication, may increase the morbidity of affected individuals.

REFERENCES

Kawahara T, Ito H, Terao H, *et al.*, (**2012).** Ureteroscopy assisted retrograde nephrostomy (UARN) for an incomplete double ureter. *Urological Research*, **40 781**-2.

Karakose A, Aydogdu O, Atesci YZ (2013). Unilateral complete ureteral duplication with distal ureteral stone: A rare entity. *Canadian Urological Association Journal*, **7**(7-8) e511-2.

Peters CA and Mendelsohn C (2016). Ectopic Ureter, Ureterocele, and Ureteral Anomalies. In Wein AJ, Kavoussi LR, Partin AW and Peters CA. Eds. Campbell-Walsh Urology, 11th ed, Elsevier, Philadelphia, 3098.