Pelviureteric Junction Obstruction in Partial Duplex System Involving Both Moieties: A Case Report

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Abstract
The most common congenital abnormality of the urinary tract is a duplex kidney. Pelviureteric junction obstruction (PUJO) is a rare association that can affect the lower moiety of incomplete duplex kidneys. We report a case of PUJO of both upper and lower moiety in a partial duplex kidney. We describe the imaging appearances of this rare association and the operative procedure we used to reconstruct this rare anomaly.

Introduction
The most common congenital abnormality of the urinary tract is a duplex kidney. Pelviureteric junction obstruction (PUJO) is a rare association that can affect the lower moiety of incomplete duplex kidneys. This is usually due to extrinsic compression by a crossing vessel. A PUJ obstruction in the upper moiety of a duplex kidney is unusual. The incidence of PUJO in duplicated systems was 2% to 7% out of total cases of primary hydronephrosis. Treatment should be individualized and requires a careful preoperative evaluation. This anomaly appears to be more common in boys and in completely duplicated systems. Lower: upper moiety ratio is 8:3.

The case report
One year old female presented with recurrent urinary tract infection since birth with frequent attacks of high grade fever and screaming. Urinalysis shows alkaline urine and heavy pyuria with multiple RBCs.

Abdominal ultrasound shows normal right kidney left sided hydronephrosis. Intravenous pyelogram shows left sided partially duplicated kidney with both upper and lower moiety hydronephrosis (figure 1 A). Voiding cytourethrogram shows no evidence of reflux. We perform pyelo-pyelostomy for upper and lower moiety and dismembered pyeloplasty for the lower PUJO with nephrostomy and ureteric stenting (figure 1 B-E).

Discussion
Pelviureteric junction obstruction and duplex kidney are common radiological findings. However, pelviureteric junction obstruction in a duplex kidney is a rare finding. We present the case of a patient who presented with septic complications secondary to this combination. Pelviureteric junction obstruction (PUJO) is a relatively common finding during urological investigation, as is duplex kidney. PUJO is the most common cause of fetal and/or neonatal hydronephrosis. Duplex kidney is the most common congenital abnormality of the urinary tract, with an incidence of around 2%. However, PUJO in a duplex kidney is a rare finding. This anomaly appears to be more common in boys and in completely duplicated systems.

PUG obstruction in duplex moieties is commonly seen in the lower moiety ureter and is usually due to extrinsic compression by a crossing vessel. An unusual case of a PUJ obstruction in the upper moiety of a duplex kidney is presented. PUG obstruction in duplex moieties is commonly seen in the lower moiety ureter and is usually due to extrinsic compression by a crossing vessel.

Upper and lower pole obstructions were found in both complete and incomplete duplicated systems. Late presentation of lower moiety PUJO with pyonephrosis.

Careful preoperative evaluation of patients with ureteropelvic junction obstruction will usually identify segmental obstruction in a duplicated system. Investigations included renal ultrasonography, renal scintigraphy, micturating cystography, cystoscopy and retrograde pyelography. But it is now necessary to use modern isotopic technics such as DMSA and DTPA.
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diuretic DTPA to quantify obstruction with accuracy and follow long-term evolution after treatment. (7)

Treatment should be individualized based on site of obstruction and degree of function remaining in the affected segment. (6)

Associated abnormalities included contralateral duplication, vesicoureteral reflux, and a case of ipsilateral upper pole ectopic ureter with a dysplastic upper pole moiety. Surgical management included dismembered pyeloplasty, ureteral reimplantation, end-to-side pyeloureterostomy to the upper-pole ureter, and upper-pole heminephrectomy with lower-pole dismembered pyeloplasty. UPJ obstructions occurring in duplicated systems often are associated with other anomalies. (8)

Figure (1): A- IVP findings; B- Operative findings; C- Diagrammatic illustration of A and B; D- Final results of operation; E- Diagrammatic illustration of operation
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