Case Report Olgu Sunumu

A case of trifid pelvis with ureteropelvic junction obstruction

Üreteropelvik bileşke obstrüksiyonuyla birlikteliği olan trifid pelvis olgusu

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Abstract

Trifid pelvis is one of the most rare congenital malformations of the upper urinary tract. Ureteropelvic junction obstruction (UPJO) is the most common congenital abnormality of the ureter. Coexistence of these conditions is extremely rare. A 54-year-old man was admitted to the Department of Urology with left flank pain and frequent urinary infection. Urinary system radiography revealed a few radio-opacities of 4-5 mm in diameter on the left side of the L3 vertebra. Delayed intravenous urography showed probable left UPJO and dilated left pelvic system. On the scintigraphy, atrophic left kidney with low-level of perfusion and concentration functions and with long extraction time was observed. Computed tomography urography revealed left UPJO and a severely dilated left pelvic system; the right kidney was completely normal. During surgical exploration, three renal pelvises joined to a common pelvis with UPJO.

Key words: Hydronephrosis; trifid pelvis; ureteropelvic junction obstruction.

Özet

Trifid pelvis üst üriner sistemin en nadir gözlenen konjenital malformasyonlarından biridir. Üreteropelvik bileşke obstrüksiyonu (ÜPBO) ise üreterin en sık karşılaşılan konjenital anomalisidir. İkisinin birlikteliği daha da nadir gözlenmektedir. Ellibeş yaşında erkek hasta sol flank ağrı ve sık tekrarlayan üriner infeksiyon ile üroloji kliniğine başvurdu. Üriner sistem radyografisinde L3 vertebranın sol tarafında 4-5 mm çapında birkaç radyoopasite gözlendi. Geç intravenöz ürografide muhtemel ÜPBO ve dilate sol pelvik sistem görüldü. Sintigrafide düşük perfüzyon ve konsantrasyon ile uzun ekstraksiyon zamanı olan atrofik sol böbrek gözlendi. Bilgisayarlı tomografi ürografide, sol ÜPBO, ciddi derecede dilate sol pelvik sistem ve tamamen normal sağ böbrek izlendi. Cerrahi eksplorasyon sırasında sol ÜPBO ile müşterek bir pelvisle birleşmiş üç pelvis görüldü.

Anahtar sözcükler: Hidronefroz; trifid pelvis; üreteropelvik bileşke obstrüksiyonu.

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Trifid pelvis is one of the most rare congenital malformations of the upper urinary tract. Ureteropelvic junction obstruction (UPJO) is the most common congenital abnormality of the ureter, with a reported incidence of 5/100,000 annually.[1] A significant number of these dilated systems will require intervention eventually; some patients may not present with functional obstruction until adulthood. The male-to-female predominance is greater than 2:1, and the left kidney is affected approximately twice as often as the right.[2] The coexistence of trifid pelvis and UPJO is rare.

Case report

A 54-year-old man was admitted to the Department of Urology with left flank pain for 6 months and frequent urinary infection. Urine analysis revealed an infection due to *E. coli*. A complete urological evaluation was performed. Laboratory data were as follows: hematocrit 38.2%, white blood cell count 14,400 K/uL, urea 39 mg/dL, and creatinine 1.41 mg/dL. Urinary system radiography showed a few radio-opacities of 4-5 mm diameter on the left side of the L3 vertebra. Delayed intravenous urography (IVU) revealed probable left UPJO and a dilated left pelvic system (Fig. 1). Computed tomography (CT) urography revealed left UPJO and a severely dilated left pelvic system; the right kidney was completely normal (Fig. 2). Scintigraphy revealed 63% renal fixation at the right kidney and a moderate reaction to treatment with a diuretic. Low-level perfusion and concentration functions of the left kidney were observed with 37% renal fixation, prolonged extraction time and

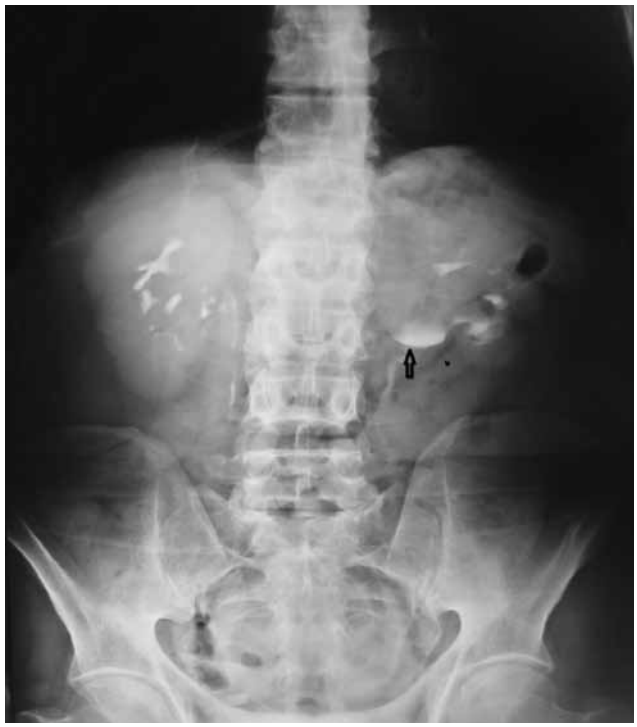

Figure 1 Probable left UPJO (arrow) on IVU.

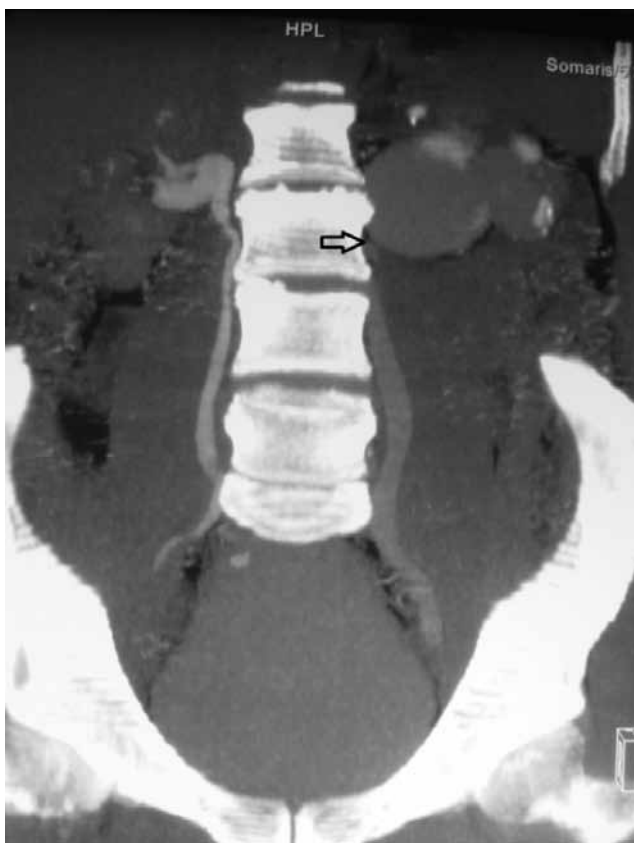

Figure 2 Left UPJO (arrow) on CT urography.

atrophic left kidney (Fig. 3). Due to the radiologic left UPJO, open left pyeloplasty was scheduled. The left kidney and pelvis were explored through a left-flank incision, and three renal pelvises joined to a common pelvis form with UPJO were observed. The condition was denoted as trifid pelvis and intraoperative ureteropelvic junction obstruction (Fig. 4). The left ureter, atrophic left kidney, thin parenchyma, markedly dilated left renal pelvis and a 0.4-cm segment of left ureter was narrow at the level of ureteropelvic junction. After excising the narrow segment, open Anderson-Hynes dismembered pyeloplasty was performed. Left nephrectomy was not considered because renal fixation characterized 37% of the left kidney. The postoperative course was uneventful.

Discussion

Trifid pelvis is a rare congenital anomaly of the kidney. The embryologic genesis of multiple pelvises is best described by one ureteral bud arising at the 5th week of embryological life from the mesonephric duct. This structure then divides to two or three before reaching the metanephrogenic blastema.[3-5] In such cases, it may be difficult to decide whether the left kidney represents a trifid pelvis, purely a peduncular arrangement or elongation of the major calyces in association with a rudimentary pelvis. In our case, the appearance of three major draining systems resembles renal pelvises rather than elongated major calyces, although they share a common dilated renal pelvis with a ureteropelvic junction obstruction. This entity was found and denoted as an operative finding. We have not found a similar case of UPJO in the urologic literature.

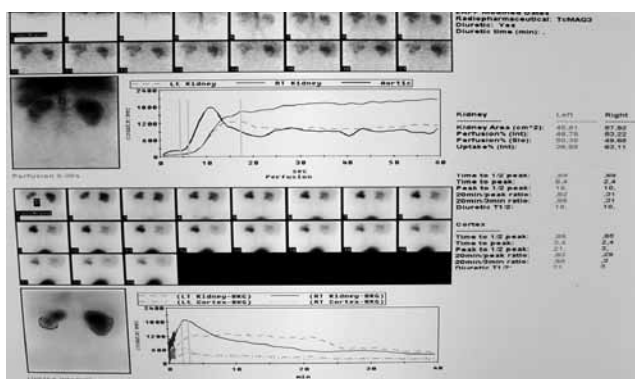

Figure 3 The renal scintigraphy images.

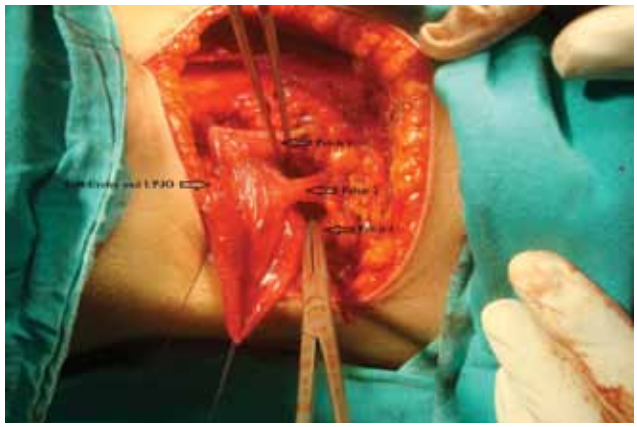

Figure 4 Trifid pelvis and UPJO on the left atrophic kidney.

To our knowledge, such a trifid pelvis anomaly with UPJO has been described only once previously. Our case represents the second such description with some minor differences.

Conflict of interest

No conflict of interest was declared by the authors.

References

1. Eden CG. Minimally invasive treatment of ureteropelvic junction obstruction: a critical analysis of result. Eur Urol 2007;52:983-9. **[CrossRef]**
2. Grasso M, Caruso RP, Phillips CK. Ureteropelvic junction obstruction in the adult population: Are crossing vessels significant? Rev Urol 2001;3:42-51.
3. Sapin E, Kurzenne JY, Bargy F, Mayer M, Bienaymé J. Trifid pelvis and controlateral bifid ureter with bilateral ureteropelvic junction obstruction. Eur Urol 1988;15:144-5.
4. Marc J, Drouillard J, Bruneton N, Tavernier J. Triple ureter. One case. Diagnostic problem and review of the literature (author's transl). J Radiol Electrol Med Nucl 1977;58:427-39.
5. Cromie WJ, Engelstein MS, Duckett JW. Nodular renal blastema, renal dysplasia and duplicated collecting systems. J Urol 1980;123:100-2.

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