

Unilateral double kidney with contralateral supernumerary kidney which found incidentally

Rastlantısal olarak saptanmış unilaterale double böbrek ile kontralateral supernumerary böbrek

Mutlubas F¹

Mir S¹

Sevinc E²

Türker Ö³

Ege University Medical School, Departments of Pediatric Nephrology¹, Radiology² and Nuclear Medicine³, Izmir, TURKEY

Summary

A supernumerary kidney is one of the rarest congenital anomalies of urinary tract, approximately 70 cases have been reported. Supernumerary kidneys may be asymptomatic and associated with genital-urinary tract anomalies.

A 6-year old girl was found to have supernumerary kidney with contralateral double kidney from recurrent urinary tract infections (UTI) in her past history while she had hospitalized for bronchopneumonia.

Ultrasonography (USG), pyelography and scintigraphy had demonstrated an extra kidney in the left side with contralateral double kidney. USG is the most valuable method of early diagnosis this anomalie of urinary tract, especially after UTI.

Herein, this rare urinary anomaly was discussed with literature.

Key words: *Supernumerary kidney, contralateral double kidney, children*

Özet

Supernumerary böbrek, literatürde yaklaşık 70 vakada bildirilmiş nadir üriner sistem anomalilerindedir. Supernumerary böbrekler genellikle asemptomatik olup başta genito-üriner sistemi ilgilendiren anomalilerle birliktelik gösterebilirler.

Bronkopnömoni nedeniyle hospitalize edilmiş 6 yaşında kız olguda, özgeçmişindeki tekrarlayan idrar yolu enfeksiyonlarından (İYE) solda 'supernumerary böbrek' ve kontralateral 'double böbrek' anomalilerine ulaşılmıştır.

Ultrasonografi (USG), intravenöz pyelografi ve sintigrafi bulguları sol tarafta ekstra bir böbreği ve kontralateral double böbreği desteklemiştir. Özellikle İYE'den sonra yapılması gereken USG bu tür genitoüriner sistem anomalilerinin tanısında oldukça değerlidir. Bu yazıda, son derece nadir görülen bu anomali literatür eşliğinde tartışılmak istenmiştir.

Anahtar kelimeler: *Supernumerary böbrek, kontralateral double böbrek, çocuk*

Introduction

A supernumerary kidney is one of the rarest congenital anomalies of urinary tract, approximately 70 cases have been reported (1). The diagnosis of supernumerary kidney which mostly defined incidentally in the literature is confined to a mass of renal tissue that has no parenchymatous connection with the definitive kidney (2).

Because of the scarcity of published cases and atypical presenting symptomatology this entity frequently causes a diagnostic as well as therapeutic dilemma (3).

Genetic etiology depends primarily on a reduplication of the renal outbud from the caudal end of the Wolffian duct (2). We present a case who was diagnosed incidentally by history and radiologically to have supernumerary kidney with contralateral double kidney.

Yazışma adresi: Fatma MUTLUBAS, Ege Üniversitesi Tıp Fakültesi, Çocuk Sağlığı ve Hastalıkları Anabilim Dalı, Bornova, 35100, Izmir, TURKEY,

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Case

A 6 - year old girl was admitted pediatrics complaining of cough, fever and respiratory distress for the last week. Past medical history revealed two times urinary tract infections. She was borned 2200 gr with intrauterin growth retardation and then she caught up growth. There was nobody in her family with renal diseases. Physical examination revealed 20 kg weight (50p), 119 cm height (75- 90p), blood pressure 100/ 60 mmHg (90p), pulse rate 92/min, respiratory rate 36/ min and body temperature 38.7°C. Pulmonary examination showed long expirium and bibasilar crepitating ralles, no cyanosis was observed.

In the laboratory findings hemoglobin: 13.6 g/ dl, hematocrit: 46.1%, white blood cell: 16.000/ mm³, platelet: 302.000/mm³, erythrocyte sedimentation rate: 26 mm/ h, C- reactive protein: 3 mg/ dl. Liver, renal functions and electrolytes were in normal ranges. In urine analysis pH: 5.5 gravity: 1020, urine osmolarity: 728 mosm/l. Urine culture was sterile. Chest X ray showed bilaterally paracardiac infiltrations.



Fig 1. USG and IVP findings: a. Renal USG: two kidneys fused by the upper pole on the left flank. b. IVP confirmed the right double kidney and supernumerary kidney with two ureters at the left.

Since past- medical history revealed recurrent urinary tract infections, abdominal USG was performed. Ultrasonography showed a big right kidney with size of 85x25 mm (95 p is 73x 21mm) and fused kidneys from the upper poles with sizes of 56x 20 mm and 57x 23 mm at the left side, respectively (Fig 1a). Pyelography (IVP) was performed after renal ultrasonography and revealed double ureter at the left side and right kidney was defined as a complete additional double big kidney and double pelvis but single ureter (Fig 1b). Since double collecting system may be associated with VUR, a voiding cystourethrography was planned. Vesicourethral reflux was excluded.

Routine planar images of Tc-99m DMSA showed an extra kidney which was located just behind the other at the left flank. They were the mirror images of each other

(Fig 2). The contralateral kidney was elongated. Tc-99m DMSA uptake was uniform in all kidneys (Fig 2).

The patient was diagnosed as bronchopneumonia, supernumerary left kidney and contralateral double right kidney. After bronchopneumonia treatment, she had began to follow-up in pediatric nephrology outpatient clinic.

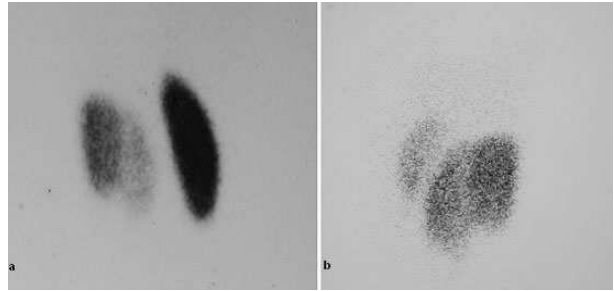


Fig 2. Composite of scintigraphy: a. Tc- 99m DMSA: On the right posterior oblique image, three separate kidneys are seen obviously b. Tc- 99m DMSA: On the left posterior oblique image, three separate kidneys are seen obviously (with the same camera and collimator)

Discussion

Although there are many hypotheses about embryological processes which lead to supernumerary kidneys, no single theory has been proved. Some theories propose premature division of ureteric buds or coming off of two buds from Wolffian duct (4). Supernumerary kidney is one of the rarest congenital anomaly of the urinary tract. About 70 such cases have been reported in the international literature (1, 5).

Supernumerary kidneys function normally, have a normal shape and capsule and are either not attached to or loosely attached to the normal kidney. Although commonly smaller than the usual kidney and in an abnormal location, a supernumerary kidney may be the same size or larger. It may be located in front of, below, above or behind the usual kidney (6- 7). In this case, supernumerary kidney was located just behind the other kidney approximately with the same size (56x 20 mm, 57x 23 mm) and was attached from the upper pole to the normal kidney in the left flank.

Supernumerary kidneys have either a separate ureter or bifid ureters. It is more common with bifid ureters (% 53)(4- 6). In our case, IVP showed us that ureters are separate.

Supernumerary kidneys are mostly defined incidentally in the literature (7). When they occur, they mostly remain asymptomatic. They may cause fever, abdominal pain or mass (3, 8). Management depends on the patient's symptoms. Asymptomatic cases must followed-up

regularly. If the supernumerary kidney is unfunctional or associated with hydronephrosis, carcinoma, calculi or pyelonephritis, then nephrectomy may be the appropriate procedure (9,10). It has been reported that in case of infection of pelvic supernumerary kidney may create clinical symptoms of acute abdomen (11).

In this case, we defined in the left flank two kidneys which fused from the upper poles with a non-paranchimal, probably a fibrous bant, and contralateral double kidney while searching the etiology of recurrent urinary tract infections.

Supernumerary kidneys may be associated with some congenital anomalies like horseshoe kidney, ectopic

ureteral opening, vaginal atresia, double collecting system, aort coarctation and nipple anomalies (1,12-14). In our case, the associated congenital anomaly was contralateral double right kidney. In the literature, there have been published more than 100 cases with supernumerary kidneys, but this case is interesting since supernumerary kidney with contralaterally double kidney was diagnosed by USG due to clinical suspicion of underlying pathology of recurrent urinary tract infections in the past medical history. As seen in this case, an experienced renal ultrasonography can give information about renal structure, easily, rapidly and cheaply. Furthermore, USG is the most valuable method of early diagnosis anomalies of urinary tract, especially after UTI.

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