A rare case: Supernumerary right kidney in a child
Sevim Yener *, Zekeriya İlçe
Department of Pediatric Surgery and Pediatric Urology Clinic, University of Health Sciences Umraniye Training and Research Hospital, Istanbul, Turkey

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ABSTRACT
Supernumerary kidney is a one of the rarest congenital renal anomalies with less than 100 cases reported in the literature. This supernumerary kidney has its own collecting system, vascular supply and well-defined capsule. We report a case of 8-year-old boy with a history of patient with incontinence, undescended testicle and supernumerary kidney.

Introduction
The supernumerary kidney is an extremely rare congenital urinary system anomaly in which fewer than 100 cases have been reported in the literature. The first case was described by Martius 350 years ago in 1656. The fact that the incidence in the female, male gender is equal and a fairly rare anomaly presents difficulty in determining the true incidence. When this variant is present in the kidney, it is stated that they have additional kidney parenchyma, their own a collector system and vascular structures. Eight-year-old male patients complained of incontinence during the day and at night. A physical examination revealed a right undescended testicle. The third right kidney patient detected during the examinations for these two symptoms will be evaluated with the literature.

Case presentation
Our patient is an eight-year-old male had urinary incontinence during day and night. A physical examination revealed a right undescended testicle. Blood and urine laboratory examinations were normal. Urinary system ultrasonography performed investigate urinary incontinencies etiology detected rotational anomaly. Two renal images were detected to fusion the right kidney dimensions with a size of 45 × 29 mm and 68 × 39 mm. (supernumerary kidney) (Fig. 1). The thickness of the parenchyma is measured 10 mm. Collector system structures are grade 1 ectasia and the renal pelvis AP diameter is 14 mm. The left kidney was evaluated as normal. (dimensions 98 × 49 mm; parankim thickness measured 11 mm.)

In static renal sintigraphy, a third kidney parenchyma is monitored in the appearance of fusion to the lower right kidney level of 37*35 mm in the lower part of the right kidney, normal size of the right kidney. (supernumerary kidney) (Fig. 2). Fusion shows that the kidneys are a single kidney. The pelvicalyceal system of the kidney is localized to anterolaterale. The scintigraphy valuation (DMSA) uptake of the fusion kidneys is at normal limits and no findings have been found to be compatible with parenchymal damage.

In the MRI Urography performed for the purpose of detailed devaluation of the anatomical structure, a third renal parenchyma is monitored in the appearance of fusion to the lower pol section of the right kidney with pitotic placement (supernumerary kidney) (Fig. 2). Fusion shows that the kidneys are a single kidney. The pelvicalyceal system of the kidney is localized to anterolaterale. The scintigraphy valuation (DMSA) uptake of the fusion kidneys is at normal limits and no findings have been found to be compatible with parenchymal damage.

Discussion
The right supernumerary kidney is a very rare urinary system anomaly. The supernumerary kidney is the kidney, which is located in addition to two kidneys. The rare only a few case reports in the literature. These cases reported in the literature were found to be mostly adult age groups. Our case was eight years old of male patient.
The embryological basis for this anomaly is thought to be the partially or fully ureteral bud and blastems that form two kidneys in relation to abnormal division of the nephrogenic cortex in to two metanephrogenic in the fifth to seventh week of pregnancy.\(^4\)

In the kidney with a double collector system, which we encounter more commonly, there are two pelvicalyceal systems associated with a single ureter and/or double ureter. The supernumerary kidney, on the contrary, is thought to be a separate arterial feed, venous drainage, collector system and an accessory organ with different encapsulated tissue.

It may be completely separator connected from the normal kidney. There are case notifications that the supernumeric kidney is more often seen on the left side.\(^5\) It is usually found in the caudal of the ipsilateral kidney. The supernumeric usually receives arterial feeding of the kidney from the aorta, and venous drainage and cava inferiora occur.

Intra venous urography, ultrasonography, nuclear syntigraphy, computed tomography and magnetic resonance imaging are imaging studies that help diagnosis. Computer tomography or magnetic resonance imaging methods are often used to detect related anomalies, evaluate anatomy and planning surgical interventions.

In the literature, some accompanying anomalies have also been associated with the supernumerary kidney. These anomalies are ureteral atresia, vaginal atresia, horseshoe kidney, urethra duplication, ectopic opening of ureters to vagina or introitusa, imperfore anus, ventricular septal defects, meningomyelocele and aortic coarctation. Although there is no serious life-threatening anomaly in our patient, right undescended testicles have been detected in physical examination, supernumerary kidney and undescended testicular coexistence has not been detected in the literature.

In cases where the ureter is turned on ectopically, these patients may also come during the case with incontinence. Although our patient complained of urinary incontinence, it was determined that this was not caused by anatomical anomaly and that he had urge incontinence and his treatment was arranged.
Symptoms have been reported in about two-thirds of cases. The most commonly associated pathologies are hydronephrosis, pyelonephritis, pyonephrosis, kidney and kidney stone, carcinoma. It is reported that the follow-up and treatment of this anomaly can be done according to the function of the kidney and the presence of symptoms. If the patient is asymptomatic or minimally symptomatic, regular follow-up may be recommended, as in our case. Nephrectomy is generally the preferred option if kidney function is bad or dysfunctional. These pathologies may have been detected because the cases reported in the literature are adult patients. However, since our patient is in the child age group, ultrasoundography follow-up is planned at regular intervals considering that these pathologies may develop.

References

1. Innocenzi M, Canale P, Alfarrone A, et al. Supernumerary kidney: laparoscopically treated. Canadian Urological Association Journal = Journal de l’Association des urologues du Canada. 2013;7(11-12):E772–E774.
2. Carlson Hjalmar E. Supernumerary kidney as a cause of uretero-pelvic obstruction. J Urol. 1946;56(2):179–182.
3. Janda GM, Nepple KG, Cooper CS, Austin JC. The supernumerary kidney in a child with OEIS complex. Urology. 2009;74(2):305–307.
4. Sureka B, Mittal MK, Mittal A, Sinha M, Thukral BB. Supernumerary kidneys—a rare anatomic variant. Surg Radiol Anat: SRA. 2014;36(2):199–202.
5. Tada Y, Kokado Y, Hashinaka Y, et al. Free supernumerary kidney: a case report and review. J Urol. 1981;126(2):231–232.