

Bilateral Supernumerary Kidney

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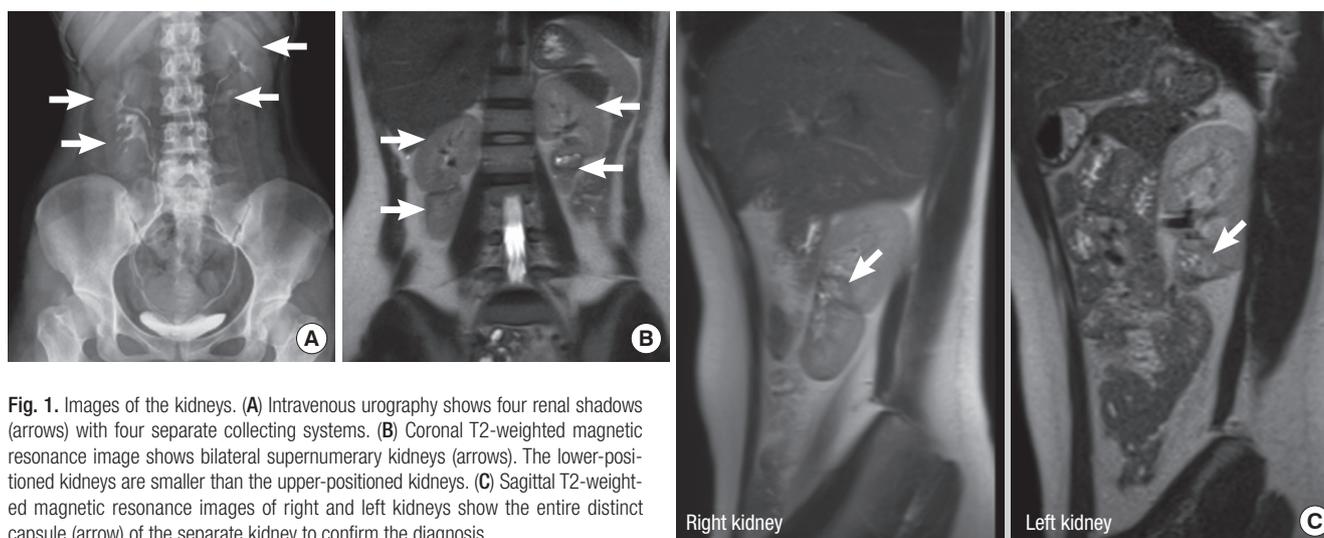


Fig. 1. Images of the kidneys. (A) Intravenous urography shows four renal shadows (arrows) with four separate collecting systems. (B) Coronal T2-weighted magnetic resonance image shows bilateral supernumerary kidneys (arrows). The lower-positioned kidneys are smaller than the upper-positioned kidneys. (C) Sagittal T2-weighted magnetic resonance images of right and left kidneys show the entire distinct capsule (arrow) of the separate kidney to confirm the diagnosis.

A 28-year-old woman suffered from bilateral flank pain recently. She had a history of repeat urinary tract infection for more than 5 years. Physical examination revealed no abnormalities and laboratory workup showed urine leukocytosis. Intravenous urography demonstrated four collecting systems and four renal shadows (Fig. 1A). Voiding cystourethrography showed no vesicoureteric reflux. MRI confirmed four separate kidneys (Fig. 1B) with four collecting systems and individual renal capsules (Fig. 1C), indicating supernumerary kidneys rather than duplication. Bilateral hydronephrosis at lower positioned kidneys were noted. Under the diagnosis of bilateral supernumerary kidney with repeat infection, the patient received antibiotic treatment (250 mg b.i.d, ciprofloxacin tablet) for seven days. The symptoms subsided and close follow up was provided at the outpatient department.

Bilateral cases are extremely rare, with only seven reported in the English literature to our knowledge (1), and only one report, a unilateral case, has presented magnetic resonance imaging (MRI) (2). Bilateral supernumerary kidney is formed by aberrant embryologic division of the nephrogenic cord into two meta-

nephric blastemas. The treatment depends on symptoms and the function of the supernumerary kidney. A high incidence of hydronephrosis, stones, pyelonephritis, and malignant changes has been reported (3,4). This abnormality requires close follow-up, and nephrectomy is an option when complications occur.

The renal capsule has linear low signal intensity on T2-weighted MRI image and we can trace the entire capsule in the three plane images, so in this way it is much better than CT imaging. MR urography with T2-weighted images can also correctly demonstrate the collecting system, regardless of the renal function, and is also superior to CT. Capsules and collecting systems are key findings for differentiating supernumerary kidneys from renal duplication. If a patient is being considered for nephrectomy, gadolinium-enhanced MR angiography is suggested.

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