

CT Scan Surprise in a Potential Kidney Donor

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Clinical Images in Nephrology and Dialysis

Case Answer

A 53-year-old woman presented for evaluation as a potential living donor to her cousin. She did not have any prior medical history. Serum chemistry was unremarkable with serum creatinine of 0.75 and an iothalamate clearance of 110 ml/min. Urine microscopy was normal with no proteinuria or hematuria. As part of donor evaluation, she underwent computed tomography angiogram of abdomen/pelvis (Figure 1), which revealed a normally positioned right kidney with the left kidney attached to the inferior pole of the right kidney and midline in lower abdomen. There were four renal arteries and three renal veins. Collecting system showed medullary sponge kidney in appearance. Given the increased surgical risk of procedure due to complex anatomy, she was not allowed to proceed with kidney donation.

Crossed fused ectopia of the kidneys is the most frequent fusion anomaly of the urinary tract after horseshoe kidney (1). In this condition, both kidneys are located on the same side and have two separate ureters (2). It has been speculated to result from abnormal development of ureteric bud and metanephric blastema during early gestation (1). There is a 3:2 men-women preponderance ratio (3). The prevalence of crossed ectopia in general population is estimated at 1 in 10,000 (4). Left to right crossover is commonly seen as was seen in our patient (5). Most cases are asymptomatic, but some cases may present with obstructive uropathy, nephrolithiasis, or acute pyelonephritis due to poor urinary drainage in the affected kidney (3).

The case represents a rare condition of crossed renal ectopia, which was discovered incidentally during donor evaluation. The subject presented with normal kidney function without any proteinuria or hematuria. She also had two successful pregnancies in the past despite the presence of pelvic kidney. Long-term follow-up is advised given increased predisposition to urinary obstruction, infection, or urolithiasis.

Teaching Points

- Crossed renal fusion is a rare anomaly resulting from abnormal development of ureteric bud during 4–8 weeks of gestation.
- Renal ectopia is usually asymptomatic and often discovered incidentally.
- Patients with fusion anomalies have significantly higher risk of developing urinary stasis, stones, and infection; hence, long-term follow-up is advised for these patients.

Author Contributions

S.B. Erickson conceptualized the study; A. Bentall provided supervision; P. Singh wrote the original draft; and A. Bentall and S.B. Erickson reviewed and edited the manuscript.

Disclosures

All authors have nothing to disclose.

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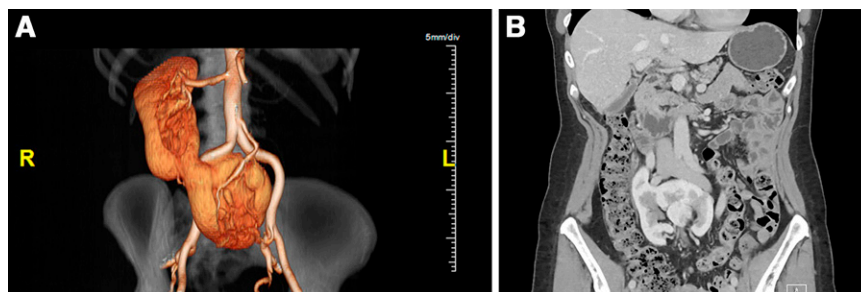


Figure 1. | CT angiogram images. (A) Computed tomography abdomen pelvis angiogram showing ectopic left kidney attached to the inferior pole of right kidney. (B) Coronal section showing crossed fused ectopic kidney in midline position.

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