Crossed Fused Pelvic Renal Ectopia With Severely Reduced Left Renal Function: A Case Report

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Abstract

A 2-year-old child was evaluated for failure to thrive and recurrent pyelonephritis. Ultrasonography showed a right pelvic kidney and did not visualize the left kidney. Technetium-99m DMSA renal scintigraphy identified two pelvic renal structures, with the left component inferior to and fused with the right. The right component accounted for 96% of the reported relative renal function. CT showed external rotation of both kidneys and a left ureter crossing the midline before entering the bladder on the left. The combined findings supported crossed fused pelvic renal ectopia with severely reduced relative function of the left component. This case illustrates the complementary roles of cortical scintigraphy and anatomical imaging in characterizing a renal fusion anomaly.

Keywords: Crossed fused renal ectopia, congenital renal anomaly, pelvic kidney, ^{99m}Tc-DMSA scintigraphy

Introduction

Crossed fused renal ectopia is a congenital anomaly in which a kidney crosses the midline and fuses with the contralateral kidney. The crossing ureter enters the bladder on its side of origin [1,2,3,5]. This case illustrates the contribution of cortical scintigraphy and CT when initial ultrasonography does not depict both renal components.

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Case Report

A 2-year-old child was evaluated for failure to thrive and recurrent pyelonephritis requiring multiple hospitalizations during the first two years of life. The parents were reported to be consanguineous. They reported no other significant medical, surgical or congenital history. Initial abdominopelvic ultrasonography showed a right pelvic kidney and did not visualize the left kidney. Cortical scintigraphy was obtained to characterize the suspected anomaly and assess relative function and possible cortical sequelae.

Examination Protocol

Static renal scintigraphy was performed four hours after intravenous administration of 0.5 mCi of ^{99m}Tc-DMSA. A Siemens Symbia Intevo dual-head gamma camera with low-energy high-resolution collimation and low-dose CT capability was used. The child was positioned supine, with a 128 × 128 matrix and zoom 1. Posterior, anterior and both posterior oblique views were acquired for approximately 5–10 minutes each.

Scintigraphic Findings

Two renal structures were identified in the pelvis. Posterior oblique views delineated the left component inferior to the right and showed fusion with the right kidney at its midportion and upper pole. The right component accounted for 96% of the reported relative function. The left component showed mild homogeneous tracer uptake, with no obvious focal cortical defect suggestive of scarring or dysplasia.

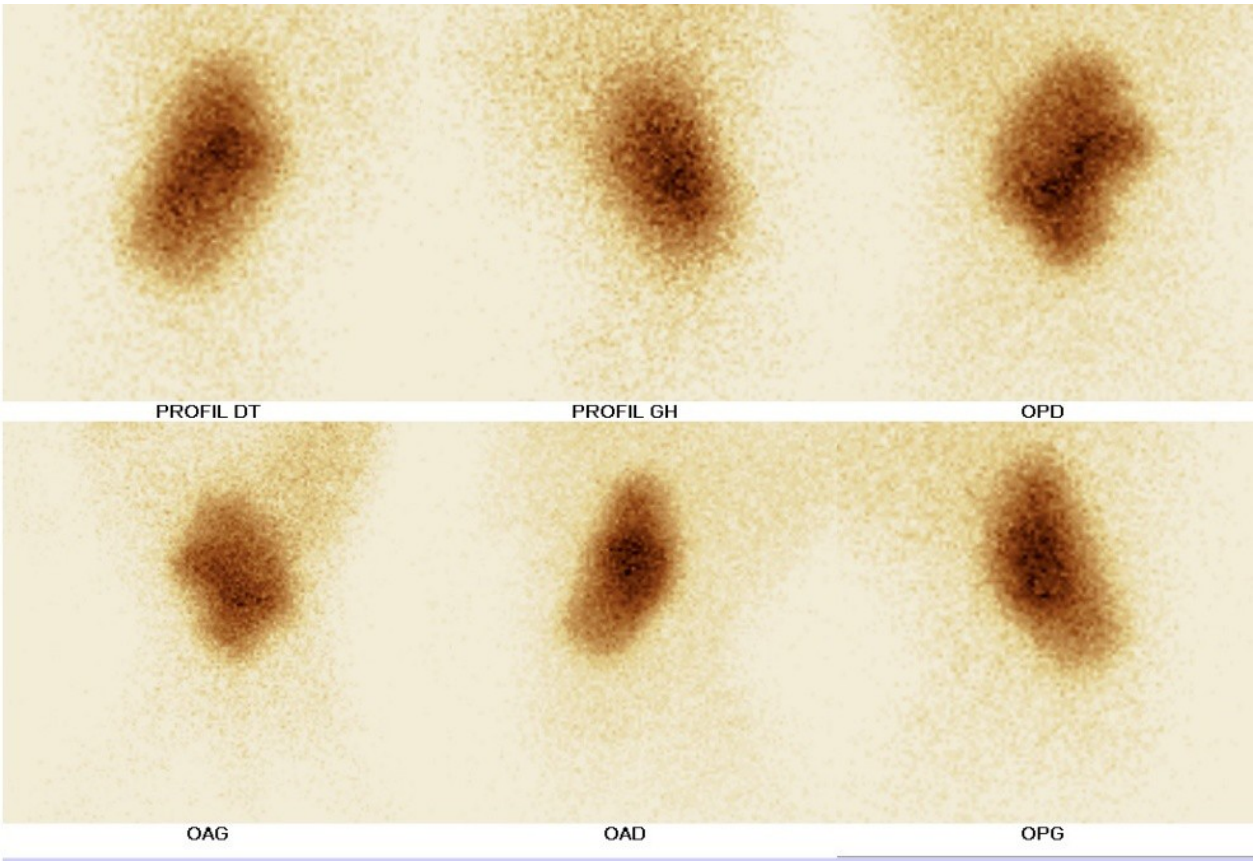


Figure 1. Published planar ^{99m}Tc-DMSA views of the pelvic renal components.

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Computed Tomography

Complementary CT showed external rotation of both kidneys. The left ureter crossed the midline before entering the bladder on the left.



Figure 2. Published thoracoabdominal CT views.

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Discussion

The imaging findings supported crossed fused pelvic renal ectopia. Ultrasonography provided the initial anatomical assessment. DMSA scintigraphy helped distinguish the two cortical components and characterize their relative function. CT supplied complementary anatomical detail, including the course of the crossing ureter [4,5,6,7,8]. The 96% contribution of the right component describes the distribution of relative function in this examination.

Conclusion

In this case, DMSA scintigraphy documented markedly asymmetric relative renal function, while CT clarified the anatomy of the fused pelvic kidneys and the course of the crossing ureter.

Declarations

The authors report written informed consent for publication, preservation of patient anonymity and conduct in accordance with the Declaration of Helsinki and applicable standards. No competing interests or funding were reported. Ethical approval, data availability and acknowledgements: not applicable.

Author Contributions

Zakaria Ouassafrar: conceptualization, investigation, data curation and original draft. Abdel Amide Gbadamassi: methodology, supervision, review and editing. Halima Batani and Hafsa Bensimimoun: formal analysis and visualization. Amal Guensi: supervision, project administration and validation.

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