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CLINICAL IMAGE

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Point-of-care renal ultrasound: Interpret with care

Abhilash Koratala | **Deepti Bhattacharya** | **Gajapathiraju Chamarthi**

Division of Nephrology, Hypertension and Renal Transplantation, University of Florida, Gainesville, Florida

Correspondence
Abhilash Koratala, Division of Nephrology, Hypertension and Renal Transplantation, University of Florida, Gainesville, FL.
Email: akoratsla@ufl.edu

Key Clinical Message

Renal vascular malformations may mimic hydronephrosis on gray-scale ultrasound and can be easily differentiated using color doppler imaging. Non-radiology physicians performing point-of-care renal ultrasound should be aware of this finding to avoid mismanagement.

KEYWORDS

angiography, hydronephrosis, ultrasound, vascular malformation

1 | QUIZ QUESTION: DOES THIS ULTRASOUND IMAGE DEMONSTRATE HYDRONEPHROSIS?

In the recent years, there has been growing interest in point-of-care renal ultrasonography performed by non-radiology clinicians, particularly nephrologists. With improved portability and image quality, it is not surprising that some physicians consider it to be stethoscope of the 21st century.[1,2] Exclusion of obstructive uropathy is one of the most common indications for renal ultrasonography and therefore, it is important for clinicians to be aware of the conditions that can mimic hydronephrosis including but not limited to parapelvic cysts and extrarenal pelvis.[3,4]

A 38-year-old woman underwent renal sonography for microscopic hematuria, which demonstrated anechoic lesion in the right renal pelvis area (Figure 1, top panel). Depending on the site and gray-scale sonographic appearance, it was interpreted as hydronephrosis by the nephrology trainee. There was no obvious nephrolithiasis and her serum creatinine was within normal limits. However, doppler imaging of the anechoic area demonstrated prominent arteriovenous flow suggestive of vascular malformation (Figure 1, bottom panel). Magnetic resonance angiogram confirmed the presence of malformation which measured approximately 3.8×1.7 cm (Figure 2A). The patient underwent right renal angiogram and successful coil embolization (Figure 2B,C). Her renal function remained stable and microscopic hematuria resolved at 1-month follow-up.

INFORMED CONSENT

Obtained for the publication of this clinical image.

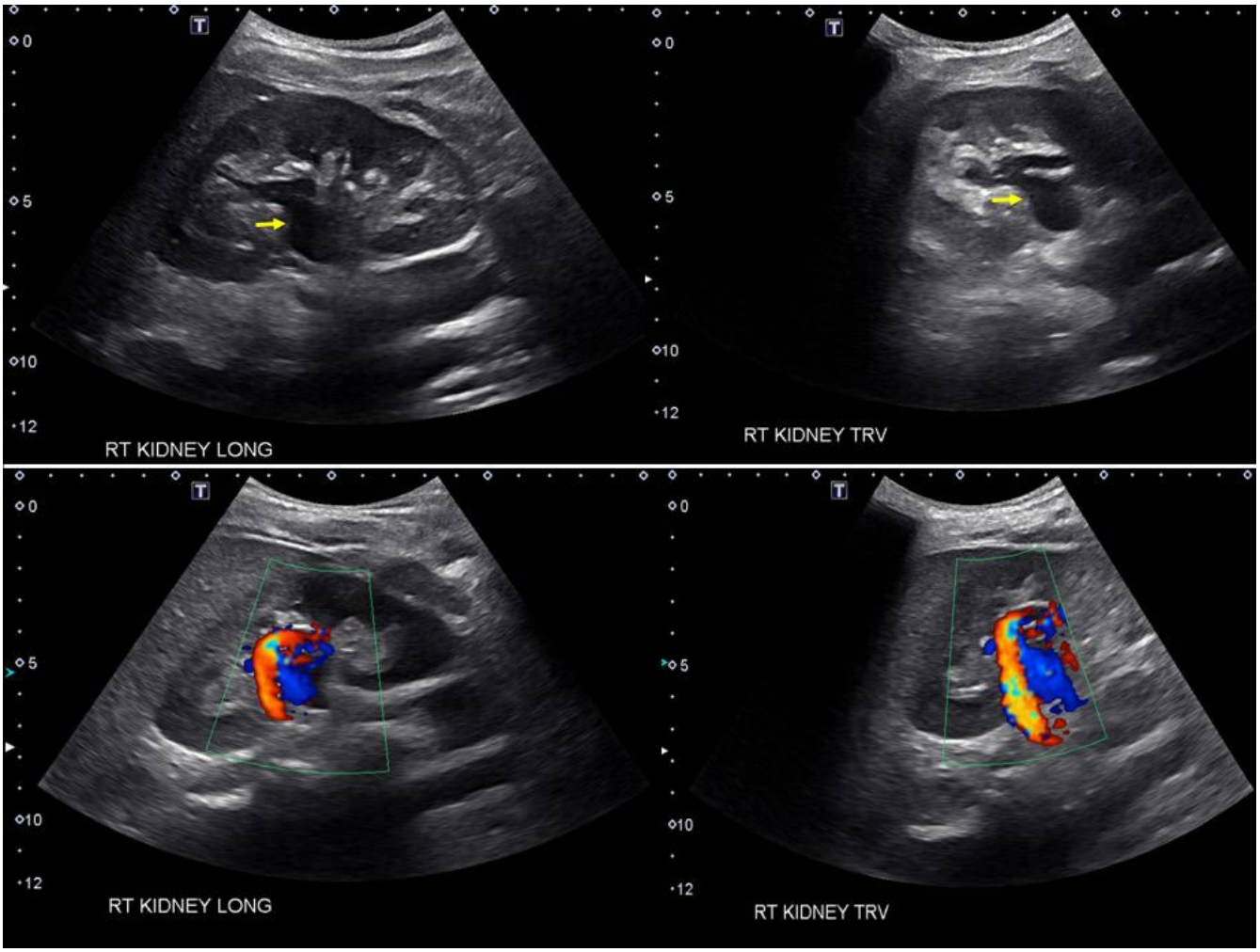

FIGURE 1 [Top Panel] Longitudinal and transverse gray-scale renal ultrasound images demonstrating anechoic region in the mid-kidney suggestive of hydronephrosis. [Bottom panel] Doppler images demonstrating prominent arteriovenous flow suggestive of vascular malformation [Colour figure can be viewed at wileyonlinelibrary.com]

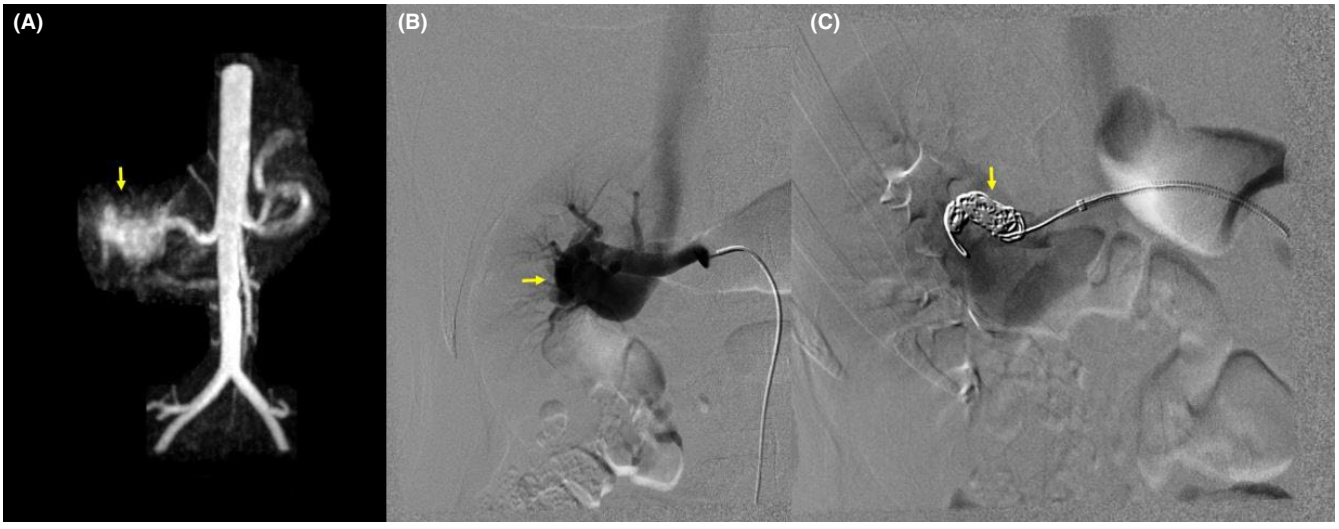

FIGURE 2 A, Magnetic resonance angiogram demonstrating the right renal arteriovenous malformation. B and C, Right renal angiogram images showing the lesion and coil embolization [Colour figure can be viewed at wileyonlinelibrary.com]

CONFLICT OF INTEREST

The authors have declared that no conflict of interest exists.

AUTHOR CONTRIBUTION

All the authors have made substantial contribution to the preparation of this manuscript. AK: drafted the manuscript, attending nephrologist on the case. DB: performed literature search and reviewed the manuscript. RC: participated in patient care and reviewed the manuscript.

ORCID

Abhilash Koratala https://orcid.org/0000-0001-5801-3574

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