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Genitourinary

Tripparametric ultrasound in differentiating multicystic renal masses: a rare presentation of unilateral focal renal lymphangioma

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ABSTRACT

We describe a rare case of renal lymphangioma presenting as a focal unilateral multicystic renal mass and document the first reported use of triparametric ultrasound (B-mode, Doppler, and contrast-enhanced ultrasound) in its diagnosis and discrimination from other focal multicystic lesions. Renal lymphangiomas are rare, benign, typically developmental lesions composed of cystic dilatation of the lymphatic ducts, usually occurring bilaterally as perinephric collections or parapelvic cysts mimicking hydronephrosis. Radiologists have an important role in suggesting the diagnosis, as clinical presentation can be nonspecific. Management is usually conservative; however, nephron-sparing surgery may be recommended in symptomatic individuals.

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Case report

A 30-year-old man presented with a 3-month history of left abdominal pain. On examination, the man had a mild discomfort in his left flank, but his observations (heart rate, blood pressure, oxygen saturations, and temperature) were unremarkable. Full blood counts, urea and electrolytes, liver function tests, and C-reactive protein levels were all within normal range.

The patient underwent an ultrasound scan of the abdomen using B-mode and power Doppler on a General Electric Logiq

E9 ultrasound machine, which showed multiple, variable-sized anechoic foci within the upper pole of the left kidney, with posterior acoustic enhancement and no evidence of internal echogenicity, appearances in keeping with a focal multilocular cystic lesion. Power Doppler showed evidence of hypervascularity (Fig. 1).

A subsequent computed tomography (CT) was acquired in the precontrast, corticomedullary, and nephrographic phases (3mm slices, General Electric). CT revealed a multiloculated cystic structure with no calcification or lipid density. The nephrographic phase showed an enhancement of the septations

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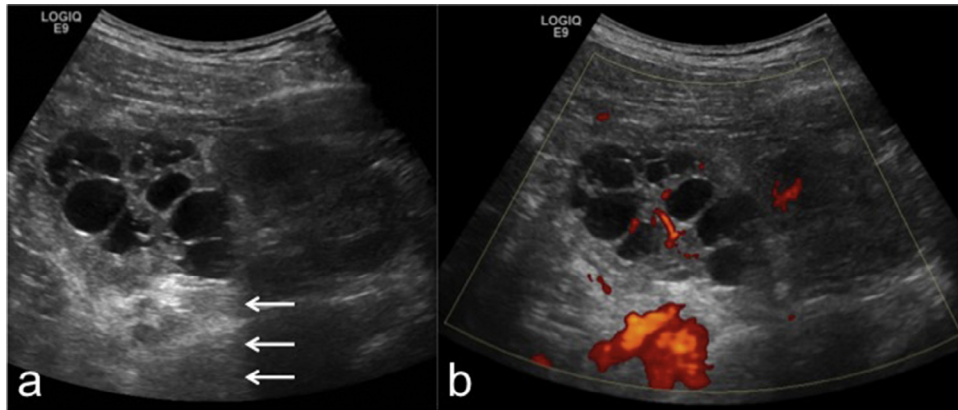


Fig. 1 – B-mode ultrasound (A) and power Doppler (B) of the left kidney showing a multilocular cystic lesion in the upper pole. A normal-appearing lower pole renal parenchyma is seen. The cysts are anechoic, and there is a posterior acoustic enhancement (arrows). The renal parenchyma between the cysts is hyperechoic with evidence of vascularity on Doppler.

between the cysts with thickened walls but no intracystic mural nodule (Fig. 2).

In addition, there was a cystic lesion (Fig. 3) in the retroperitoneal space (this was retrospectively interpreted as a dilated retroperitoneal lymphatic duct after the diagnosis was made histologically). The contralateral kidney showed no abnormality (Fig. 4). The rest of the abdomen and chest showed no abnormality.

Further imaging was performed using a contrast-enhanced ultrasound (CEUS) examination with Sonovue microbubbles. A time-intensity curve (TIC) with quantitative analysis was generated using in-built software with the region of interest placed over the normal cortical renal

parenchyma and the enhancing wall of the lesion for comparison. Postcontrast images following injection of 2.2 mL Sonovue showed an enhancement of the septations and walls to a similar extent to the adjacent normal renal parenchyma in both the arterial and portal venous phases (Fig. 5).

A TIC was generated, which showed a similar time-to-peak enhancement and enhancement intensity between the normal parenchyma and lesion septations (Fig. 6).

The patient proceeded to a laparoscopic radical nephrectomy 2 months after initial imaging as a multicystic renal cell carcinoma (RCC) could not be excluded. The renal specimen was sent for histopathology analysis.

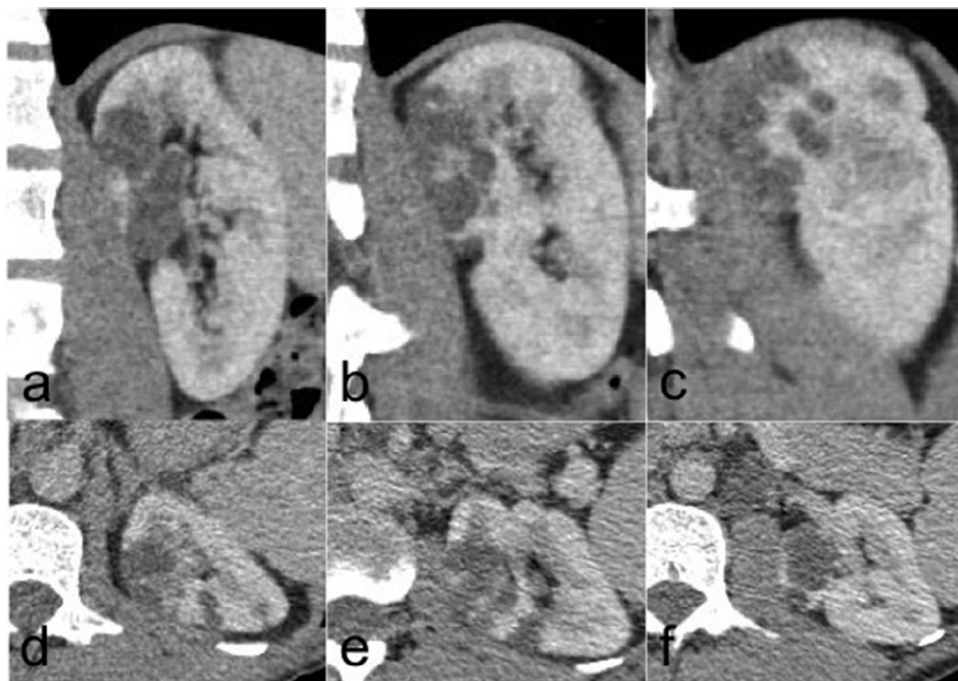


Fig. 2 – Sagittal (A-C) anterior to posterior and axial (D-F) upper pole to interpolar regions of the left kidney in the nephrographic phase of a triple-phase renal protocol computed tomography. Pre- and corticomedullary phases are not shown. This shows a focal intrarenal multiloculated cystic lesion in the anteromedial upper pole cortex.

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