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IMAGES IN EMERGENCY MEDICINE

Imaging

Woman with lower abdomen and flank pain

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1 | PATIENT PRESENTATION

A 58-year-old female presented to the emergency department (ED) with lower abdominal pain for 1 month. Two days prior to presentation, she developed left flank discomfort, fevers, and chills. Physical examination was performed that showed a temperature of 101.3°F, heart rate of 118 beats/min, and lower abdomen and left flank tenderness. The patient's urine was turbid with large leukocyte esterase, large blood, elevated White Blood Cells (WBC), and many bacteria. Ultrasonography of the left kidney showed a "bear paw" sign (Figures 1 and 2), and computed tomography (CT) showed a diffusely enlarged upper pole with multiple fluid locules and a large stone in the infundibulum (Figures 3 and 4).

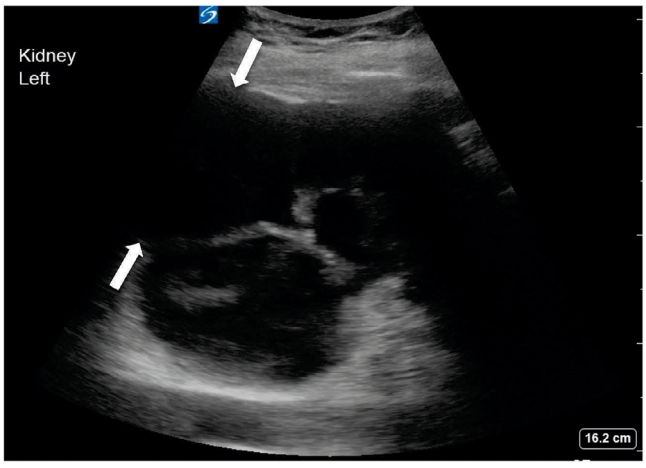

FIGURE 1 Ultrasound of the left kidney shows an enlarged fluid filled locule (white arrows) extending out of view.

2 | DIAGNOSIS: XANTHOGRANULOMATOUS PYELONEPHRITIS

Xanthogranulomatous pyelonephritis (XGP) is a rare and aggressive variant of chronic pyelonephritis, most commonly due to chronic nephrolithiasis and infection.[1] Characteristic ultrasound findings include an enlarged kidney with grossly distorted architecture including dilated and multiloculated calyces indicating pyelitis, staghorn calculi seen as large amorphous echogenicities with posterior acoustic shadowing, and a "bear paw" sign similar to the CT finding created by multiple adjacent anechoic/hypoechoic masses that are xanthomatous conglomerates.[2] Imaging characteristics can mimic malignancy creating a diagnostic dilemma. Urinary cytology and presence of staghorn calculi with perirenal inflammatory changes help differentiate from

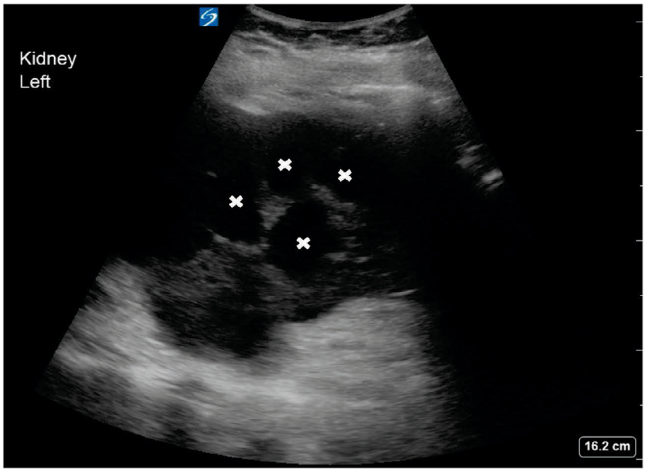

FIGURE 2 Ultrasound of the left kidney demonstrating multiple fluid filled locules (white x's) in the classic "bear paw" pattern.

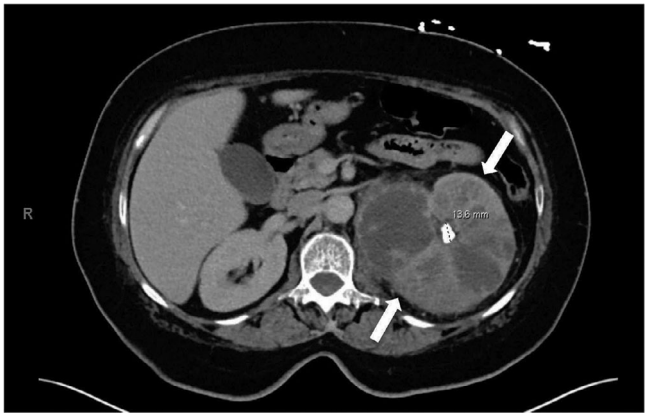

FIGURE 3 Axial computed tomography (CT) of the abdomen showing large fluid filled locules in the left kidney (white arrows) with thick septations and a stone in the infundibulum.

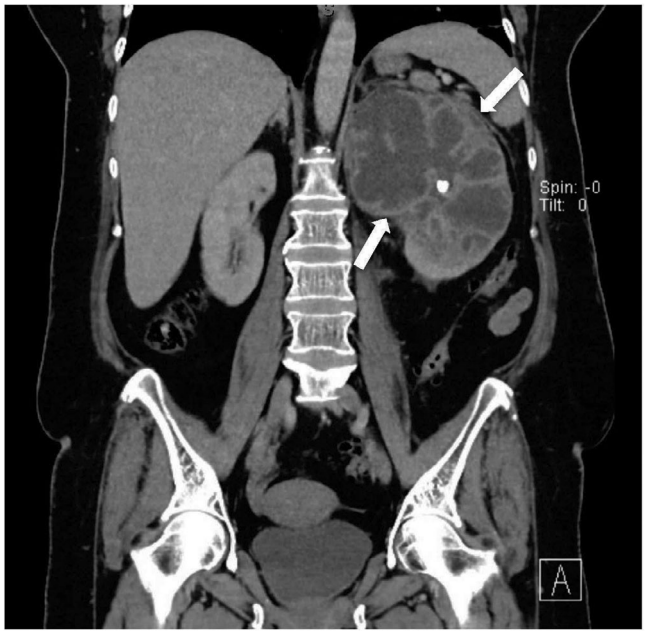

FIGURE 4 Coronal computed tomography(CT) of the abdomen and pelvis again displaying a left kidney (white arrows) with multiple fluid filled locules and thick septations, most notably involving the mid and upper portions with the stone again seen in the infundibulum.

urothelial cell carcinoma.[3] Diffusion weighted imaging helps differentiate from renal cell carcinoma (RCC) showing marked restricted diffusion in the cystic infiltrate of XGP compared to RCC.[3] Acute infections are treated with antibiotics; however, definitive management is nephrectomy.[1]

The patient was admitted and treated with IV ceftriaxone for acute sepsis. Urine cultures grew *Proteus mirabilis*. She was discharged on oral cefpodoxime and underwent a left total nephrectomy 6 weeks later.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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