



Visual Case Discussion

Renal colic in autosomal polycystic disease: Is it a stone?

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ARTICLE INFO

Keywords:

Polycystic kidney disease
Renal cyst

1. Discussion

Distinguishing nephrolithiasis versus flank pain from other causes may be challenging in these patients as the rate of kidney stones in this population is twice that of the general population, with uric acid as the more common stone type, best identified on CT.¹ Ultrasound may demonstrate the presence of nephroliths though it has limited ability to detect dilation in the collecting system due to mass compression from peripelvic cysts.² However, cyst hemorrhage and calcification or mass effect may cause renal colic without other complicating factors.³ Cyst calcifications can be mistaken for renal calculi, occurring more commonly in older patients with advanced disease; contrasted studies can aid in differentiating calcification versus calculus.¹ Additionally, concomitant gram negative urinary tract infections are more common in this population, and in the setting of stones, portends increased morbidity and mortality.¹

2. Visual case discussion

A 48-year-old woman with autosomal dominant polycystic kidney disease (ADPKD) presented to the emergency department (ED) with 3 days of right-sided flank, back, and lower quadrant pain, dissimilar from symptoms of kidney stones 19 years prior. Renal function tests returned at baseline with a creatinine of 2.63 mg/dL and glomerular filtration rate of 20.7 mL/min. Bedside ultrasound demonstrated numerous bilateral renal and hepatic cysts (Figs. 1 and 2). Computed tomography of the abdomen demonstrated non-obstructing stones in the inferior pole of the right kidney as well as the cysts seen on ultrasound (Fig. 3). The patient was discharged home with oral analgesics and antiemetics with follow-up to her nephrologist.

Questions and answers with a brief rationale true & false and / or multiple-choice questions

- **Tips:** The questions may address issues of etiology, clinical presentation, differential diagnosis, diagnostic testing, natural history of disease, risk factors, management / treatment, potential complications, patient disposition, or other subjects pertinent to pre-hospital and hospital-based emergency medicine healthcare providers. Additional question writing guidelines can be found here.
- **Note:** You will have an opportunity to review the questions and answers before submitting your completed article. The questions and answers will not be a part of the final author proof. The questions will appear alongside your article in a test format.

Questions

1. Which of the following may cause flank pain in patients presenting to the emergency department with autosomal dominant kidney disease?
 - a. Nephroliths
 - b. Cyst calcifications
 - c. Cyst rupture
 - d. Mass effect
 - e. All of the above
2. Ultrasound is a definitive imaging strategy for nephroliths in autosomal dominant kidney disease?
 - a. True
 - b. False

Answers

1. All of the above. Explanation: All of these etiologies may account for flank pain in the patient with ADPKD presenting to the emergency

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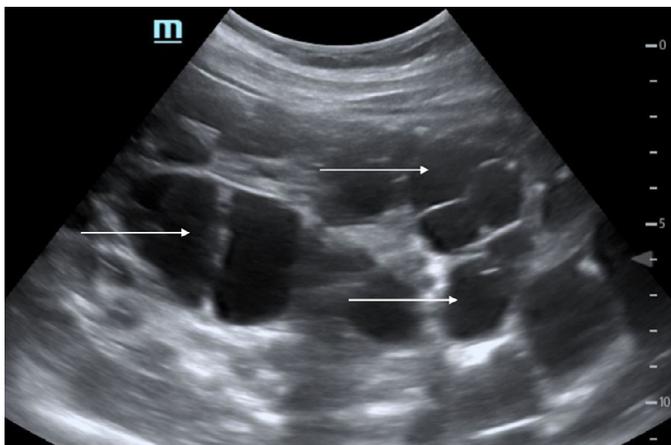


Fig. 1. Transverse view on ultrasound of the right kidney demonstrating numerous renal cysts (white arrows).

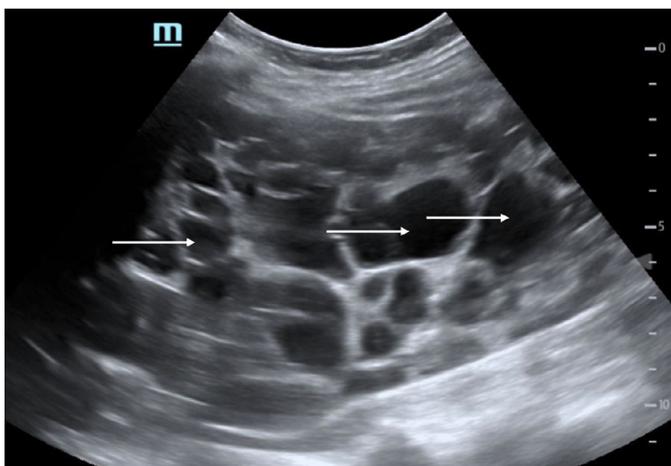


Fig. 2. Transverse view on ultrasound of the left kidney demonstrating numerous renal cysts (white arrows).

department.

2. False. Explanation: As demonstrated in this case, computed tomography is the ideal imaging choice for nephroliths in ADPKD. US may show a stone in the renal collecting system but because of renal mass effect secondary to disease process, it is unable to show collecting system dilation.

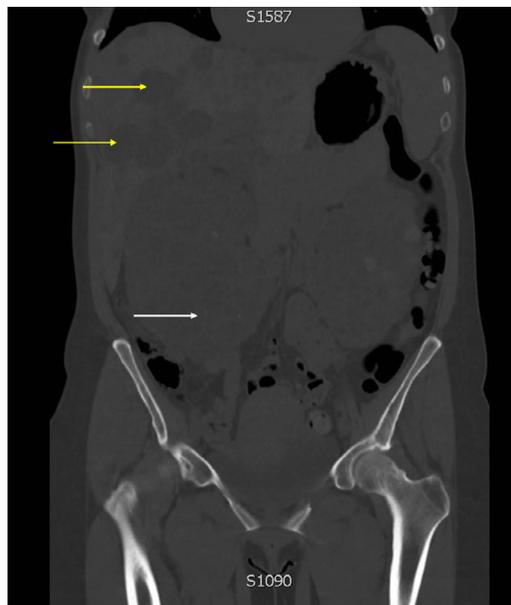


Fig. 3. Coronal cut of a computed tomography without contrast demonstrating bilateral enlarged kidneys secondary with numerous renal cysts and non-obstructing nephroliths in the inferior pole of the right kidney (white arrow) as well as hepatic cysts (yellow arrows). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

Declaration of Competing Interest

None.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.visj.2019.100663](https://doi.org/10.1016/j.visj.2019.100663).

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