Left Flank Pain in a 42-Year-Old Male: Point-of-Care Ultrasound Guides Management

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Keywords: renal colic, hydronephrosis, hematuria, flank pain, point-of-care ultrasound, POCUS, bedside ultrasound, kidney stone, ureterolithiasis

Introduction

This case report describes the management of a 42-year-old male presenting with an acute onset of left flank pain, highlighting the utility of point-of-care ultrasound (POCUS) to help make the diagnosis and avoid unnecessary imaging and referrals.

Patient Information

A 42-year-old man with no significant past medical history presented with intermittent left flank pain for two days and one episode of non-bloody, non-bilious emesis. He denied dysuria, hematuria, testicular pain, fever, trauma or prior kidney stones. Family and social histories were non-contributory; he takes no medications.

Clinical Findings

Vital signs were normal (BP 128/78 mm Hg, HR 74 bpm, T 36.8 °C, RR 14, SpO_2 99 % RA). The patient appeared visibly uncomfortable, frequently shifting and rocking on the bed due to pain. Physical exam revealed mild left costo-vertebral angle tenderness. There was no abdominal tenderness or guarding. Genitourinary exam was unremarkable.

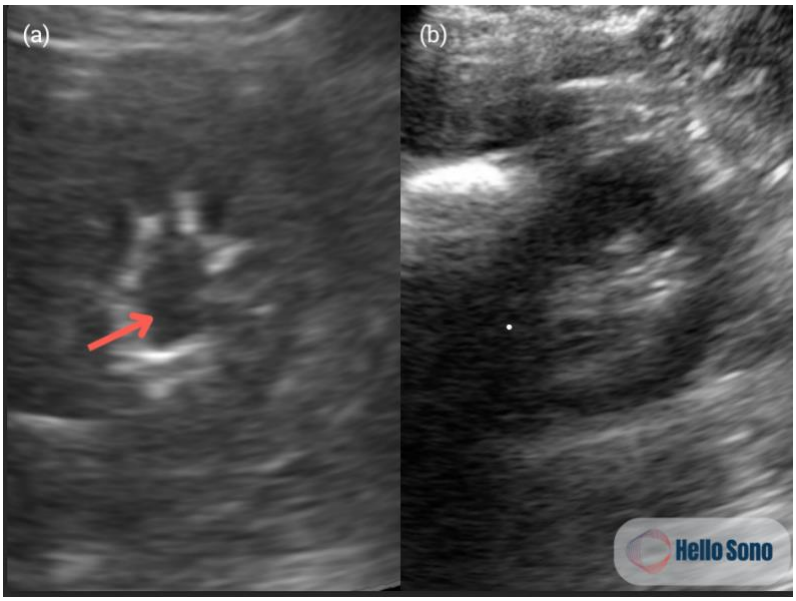
Timeline

Day 0: Onset of intermittent left flank pain

Day 2: Presented to Urgent Care, POCUS was performed and the patient was discharged to home.

Day 4: Telephone follow-up.

Diagnostic Assessment



Urinalysis revealed microscopic hematuria (7–10 RBCs/HPF) without leukocyte esterase or nitrites to suggest infection. Bedside renal POCUS demonstrated mild left hydronephrosis without perinephric fluid (**Figure 1**), normal bladder volume, and normal right kidney. Collectively, these findings supported a working diagnosis of uncomplicated ureterolithiasis causing mild obstruction.

Figure 1

Therapeutic Interventions

Treatment administered onsite included ketorolac 30 mg IM for analgesia and metoclopramide 10 mg IM for nausea. The patient was instructed to maintain liberal oral hydration, use NSAIDs as needed, and return for care if fever persisted or he experienced worsening pain or vomiting, or an inability to urinate developed.

Follow-Up & Outcomes

At the 48-hour telephone follow-up the patient reported complete resolution of pain, normal urinary output and no adverse events. A non-emergent outpatient urology follow-up was arranged within two weeks.

Discussion

Evidence

Bedside ultrasound offers a rapid, radiation-free pathway to evaluate suspected nephrolithiasis in low-risk patients. Studies report a pooled sensitivity of 84% (range 73–92 %) and specificity of 79% (range 55–83%) for detecting hydronephrosis with POCUS.[1-2] While POCUS is less sensitive for detecting mild hydronephrosis, it is highly specific (94.4%) for moderate to severe hydronephrosis which can guide management decisions in the emergency setting. [3] Taken together with strong safety data, these numbers make ultrasound a preferred first-line imaging choice in Urgent Care settings. The landmark randomized trial by Smith-Bindmanet al. showed that patients initially imaged with either emergency-physician-performed POCUS or formal radiology ultrasound experienced comparable serious-adverse-event rates, a two-thirds reduction in cumulative radiation and no increase in missed high-risk diagnoses compared with immediate CT. [4]

Who Should Get POCUS First?
The 2019 multispecialty consensus review by Moore,et al. recommends an ultrasound-first strategy—either clinician-performed POCUS or radiology ultrasound—for most uncomplicated flank-pain presentations. Key features include:

- *Age ≤ 50 years or pregnancy*
- *Classic unilateral flank pain with/without nausea or vomiting*
- *Microscopic hematuria on dipstick*
- *No fever, peritonitis or significant abdominal tenderness*
- *Pain adequately relieved with initial analgesia*
- *No solitary kidney, severe comorbidities or prior complicated stones*
- *Symptom onset < 48 hours*

In these scenarios, ultrasonography was preferred over CT in ≥ 80 % of panel votes, offering rapid diagnosis without radiation or transfer for advanced imaging. [5]POCUS-Guided Disposition

Ultrasound findings help stratify disposition. Mild hydronephrosis in an otherwise healthy patient strongly supports a ureterolithiasis diagnosis and permits discharge with analgesia and outpatient follow-up. No hydronephrosis should prompt consideration of alternative pathology or early obstruction. If uncertainty remains, repeat the ultrasound after hydration and reassess the patient. [4]

In contrast, moderate or severe hydronephrosis typically warrants a CT to delineate stone size and the location, and generally necessitates emergency department evaluation and timely urologic consultation for possible intervention.

Limitations of Renal POCUS for Flank Pain

- *Missed etiologies (e.g., aortic pathology): Focused renal scans do not visualize the abdominal aorta or other abdominal/pelvic structures; obtain dedicated imaging when presentation is atypical or suspicion for an alternate diagnosis persists.*
- *False negatives: Dehydration can hide hydronephrosis—repeat POCUS after fluids if uncertainty persists.*
- *Lack of stone visualization: Ultrasound shows obstruction, but often not the stone, especially if it's small; CT may still be needed for size and location.*
- *Operator & patient factors: Image quality varies with operator experience and patient body habitus; patients who fail outpatient analgesia or develop red-flag symptoms (fever, anuria, uncontrolled pain) should undergo definitive imaging.*

Taken together, renal POCUS is a valuable first-line tool that complements clinical assessment and shared decision-making in Urgent Care, provided its limitations are recognized and acted upon.

Impact

Avoiding a standard CT abdomen/pelvis without contrast in this otherwise healthy 42-year-old spared approximately 11 mSv of ionizing radiation, an equivalent of 560 chest X-rays [6-7].

Beyond radiation reduction, an abdominal/pelvic CT in the United States costs $500–$3,000, whereas bedside renal POCUS carries a global fee of $59 based on the nationwide Centers for Medicare & Medicaid Services physician fee schedule. [8-9] A focused bedside ultrasound takes about five minutes, while arranging CT from an Urgent Care setting typically requires transfer to an emergency department or imaging center, adding hours to the visit.

An ultrasound-first approach therefore lowers radiation exposure, reduces direct imaging costs, shortens length of stay, and keeps patients out of the ED. These benefits compound for patients with recurrent stones who might otherwise undergo multiple CT scans over their lifetime.

Patient Perspective

The patient appreciated the prompt assessment, rapid pain relief, and the ability to avoid an emergency department visit and CT imaging. The encounter with POCUS allowed him to return to work within two days.

Key Takeaway

Low-risk flank pain? Start with POCUS. In otherwise healthy patients with typical unilateral pain and microscopic hematuria, bedside ultrasound should guide further management and disposition.

About the Author

Dr. Tatiana Havryliuk is an emergency physician with over 15 years of clinical POCUS experience, the former Emergency Ultrasound Director at The Brooklyn Hospital Center in New York, and the founder of Hello Sono. Her mission is to streamline POCUS adoption in Urgent Care so clinicians can deliver faster, higher-quality care to their patients.

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