



SECTION E – NEURO & SEPSIS

Chapter 21: A 50-year-old woman with flank pain

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**"HONEY, YOU SEEM CONFUSED.
I'LL BET IT'S FROM THE PAIN PILLS."**

SECTION E / CHAPTER 21

A 50-year-old woman with flank pain

Flank pain in adults is common with 1.3 million ED visits per year;¹ this is not surprising as "kidney stones" occur in up to 8.8% of the population.² The differential diagnosis for acute flank pain ranges from benign etiologies such as a muscular strain or zoster to more serious pathology including malignancy or a ruptured abdominal aortic aneurysm (AAA).³

The evaluation is easy, right? Just order a CT scan which will "automatically" exclude the bad stuff, including AAA, cancer, small bowel obstruction (SBO), perforated viscus, retrocecal appendix, pancreatitis... and, if we are lucky, it will "rule-in" a ureteral stone, giving us a quick diagnosis and disposition. Well, not so fast! There are a few questions remaining:

1. Can we avoid CT imaging by clinically diagnosing ureteral colic?
2. When imaging for a stone, how often are we surprised by a life-threatening etiology?
3. Does size and location of ureteral stone predict the chance of spontaneous expulsion?
4. Does medical expulsion therapy work?
5. Are labs helpful for uncomplicated ureterolithiasis?
6. The nightmare scenario: How do patients with seemingly uncomplicated ureteral stones go bad... and how are they managed if this occurs?

Buckle your seatbelt as we put *you* in the footsteps of the EM provider at the initial visit and keep you there until the bounceback. Spoiler alert: Our patient returns 2 days later, crashing soon after hitting the emergency department double-bay doors.

INITIAL ED VISIT

HPI: The patient is a 51-year-old woman with no significant past medical history who presents with right flank pain. She reports that she woke up 2½ hours ago, with sudden onset right flank pain. She had some mild nausea but after attempting to drink water she had an episode of vomiting, nonbloody, nonbilious. She denies chest pain or pressure, shortness of breath, abdominal pain, diarrhea or bloody stools, dysuria, increased urinary frequency, or hematuria. She has no history of kidney stones or pyelonephritis.

Allergies: PCN

Social history: No smoking or alcohol

Family history: See HPI

ROS: All other systems reviewed and are negative except as noted. Nursing triage notes were reviewed

PMH: Migraine headaches

PSH: Knee, breast biopsy

PE:

Vitals:

Temp (F)	Pulse	Resp	Syst	Diast	Sat	Pain
98.2	70	16	132	86	99% (RA)	9/10

GA: A&OX3, appears very uncomfortable

EYES: PERRL

CV: RRR without m/r/g. Normal heart sounds. Good capillary refill. No peripheral edema

RESP: CTAB, no wheezes, rales, rhonchi. Good chest excursion

ABD: Soft and NT throughout, Murphy's sign negative, without r/r/g [rigidity/rebound/guarding]

BACK: No CVAT

SKIN: Normal without petechiae, vesicles, erythema

Urinalysis:

Appearance: Cloudy

Specific gravity 1.011

pH: 7.0

Glucose: Neg

Ketones: 5mg/dl

Blood: 100/ul

Leukocyte esterase: 100/ul

Nitrite: Neg

Protein: 15mg/dl

WBC: 0–5

RBC: 25–50

Squam epi: Occasional

Bacteria: Few

TESTING: Noncontrast helical CT scan abdomen/pelvis: 6mm obstructing right ureteral stone at the mid aspect of the ureter.

MDM: She received morphine and ondansetron. Her records have been reviewed. There is no evidence of associated urinary infection with only 0–5 white blood cells, however I have sent urine for culture since she has leukocyte esterase. I suspect this is related to inflammation from the stone. Will discharge to home with Flomax, Naprosyn, Norco, Phenergan, and MiraLAX. Repeat exam benign, she is much more comfortable after morphine, but still having some discomfort, so will order Norco PO prior to discharge.

IMPRESSION: Ureteral calculus, left

PLAN: Urine strainer, f/u with urology in 3–4 days

Seems straightforward. The management is seemingly open and shut and quite well done—most of us would correctly also send this patient right home. But there is a “game changer” question which was not asked... a question that if answered in the affirmative, would have completely changed the disposition and likely the outcome.

Documentation and patient safety issues:

1. It may seem nit-picky, but how do you wake up with a "sudden onset" of flank pain? Did the pain wake her from sleep or did the pain start suddenly after she woke up, as is typical with a ureteral stone? When deciding whether a patient has pyelonephritis, a ureteral stone, or another etiology, a well-defined onset may be helpful.
2. Medical decision-making (MDM): Part 1 – The provider did a nice job of addressing an abnormality in the lab results: the WBCs found in the urine. This is an important risk management/patient safety technique; specifically addressing unexpected findings discovered during the evaluation. The explanation (ureteral inflammation) sounds reasonable (though may have been a guess and not literature-based), but the provider was left with some concern, so a urine culture was ordered.
3. Medical decision-making (MDM): Part 2 – When deciding on a disposition, we employ an age-old technique; risk stratification. Are we comfortable sending home a patient where we are 95% certain of the diagnosis, or do we strive for 99%? Much of this depends on the diagnosis we are considering. We may be comfortable with a 1% risk of missing an Achilles tendon rupture, but not a 1% risk of missing a ruptured AAA or a subarachnoid hemorrhage. When life-threatening entities are possible, we need to have a fail-safe strategy to catch the atypical presentation; the patient must know when and why to return. It is clear this provider considered infection, and while it may have been reasonable to discharge the patient without antibiotics, why not engage the patient/family with a discussion of unlikely but possible diagnoses remaining... and document the discussion in the "medical decision making" section? This is better for patient safety and more legally protective than simply printing the pre-scripted "aftercare instructions."^{4,5}
4. The "game changer" question: “Have you had a fever?” Arguably the most important question in a patient with a confirmed ureteral stone; if this question had been answered in the affirmative, without other explanation for the increased temperature, the possibility of an "infected stone" would have been increased and the management would have likely been different. There was a notation made that the few urine WBCs seen could have been from ureteral irritation due to the stone, indicating the provider considered the possibility of infection. There was good documentation as to other symptoms including a detailed review of symptoms (ROS) stating: “She denies chest pain or pressure, shortness of breath, abdominal pain, diarrhea or bloody stools, dysuria, increased urinary frequency, or hematuria.” Infection was considered, but the provider did not inquire about an age-old hallmark of infection—fever.

Section editor comments (Osborn):

Agree that this is a good question to ask. There are various possible responses from “no” to “I felt hot” to “it was 102 degrees at home” [and I took acetaminophen just prior to arrival]. Though our patient was afebrile in the ED, with concern for infection, would a second set of vital signs have been helpful?