AMSER Case of the Month April 2026

70-year-old female with left sided flank pain radiating to the lower back

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Patient Presentation

- The patient is a 70-year-old female with a PMHx of DM2, HTN, and COPD presenting to the ED with a one-day history of left sided flank pain and red urine.
- Reports a previous history of nephrolithiasis with similar symptoms.
- The flank pain is described as positional (supine > sitting).
- She has experienced several episodes of nausea and vomiting.
- No past surgical history
- Physical Exam: Abdominal tenderness in RUQ and Left CVA tenderness

Pertinent Labs

- BMI: 35.1

CMP

- Sodium: 136
- Potassium: 4.2
- BUN: 24
- CR: 1.0
- GFR: >60

Urinalysis

- Color: Orange
- Appearance: cloudy
- Protein: 1+
- Blood: 3+
- Leukocyte Esterase: 2+
- Glucose: negative
- Ketones: negative
- Nitrites: negative

What Imaging Should We Order?

ACR Appropriateness Criteria

Variants

1. **Acute onset flank pain. Suspicion of stone disease. No history or remote history of stone disease. Initial imaging.**

Procedure	Adult RRL	Peds RRL	Appropriateness Category
CT abdomen and pelvis without IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually appropriate
US color Doppler kidneys and bladder retroperitoneal	0 mSv O	0 mSv [ped] O	May be appropriate (Disagreement)
US kidneys and bladder retroperitoneal	0 mSv O	0 mSv [ped] O	May be appropriate (Disagreement)
Radiography abdomen and pelvis	1-10 mSv ☢☢☢	0.3-3 mSv [ped] ☢☢☢	May be appropriate
Radiography intravenous urography	1-10 mSv ☢☢☢	0.3-3 mSv [ped] ☢☢☢	Usually not appropriate
MRI abdomen and pelvis without and with IV contrast	0 mSv O	0 mSv [ped] O	Usually not appropriate
MRI abdomen and pelvis without IV contrast	0 mSv O	0 mSv [ped] O	Usually not appropriate
MRU without and with IV contrast	0 mSv O	0 mSv [ped] O	Usually not appropriate
MRU without IV contrast	0 mSv O	0 mSv [ped] O	Usually not appropriate
CT abdomen and pelvis with IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
CT abdomen and pelvis without and with IV contrast	10-30 mSv ☢☢☢☢	10-30 mSv [ped] ☢☢☢☢☢	Usually not appropriate
CTU without and with IV contrast	10-30 mSv ☢☢☢☢	10-30 mSv [ped] ☢☢☢☢☢	Usually not appropriate

Imaging modalities ordered by ER Physician

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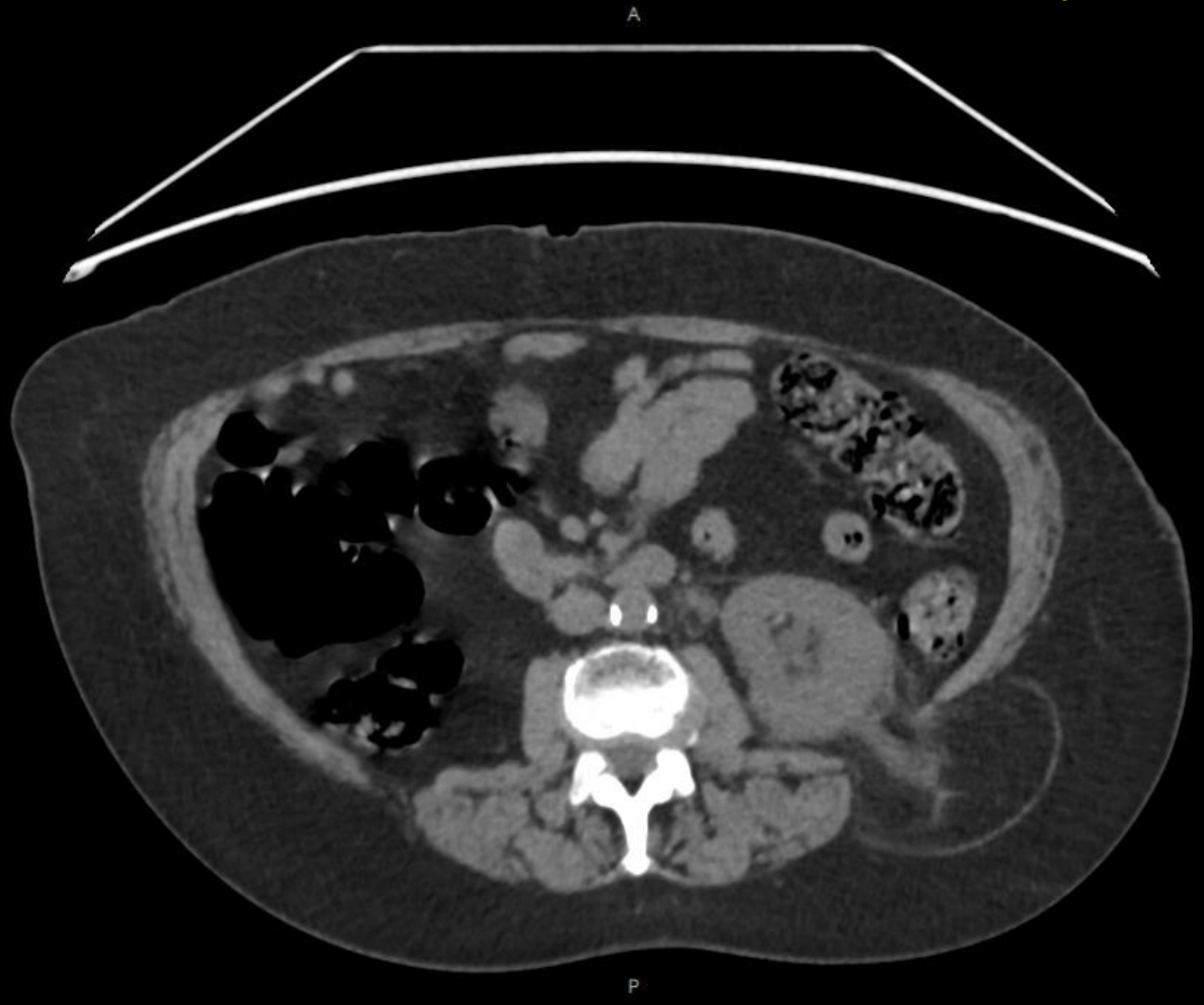
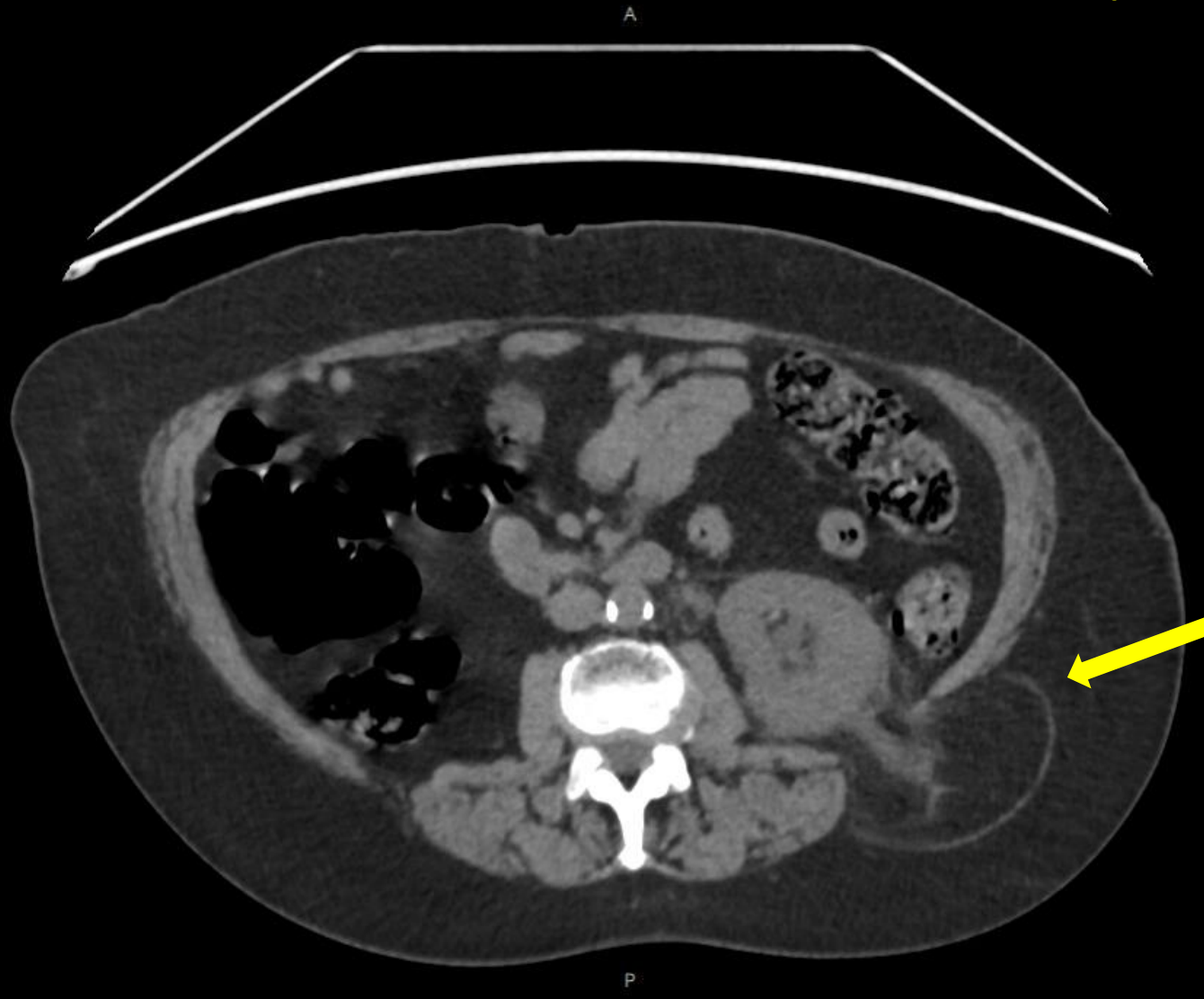
CT Abdomen Without Contrast (unlabeled)



CT Abdomen Without Contrast (labeled)

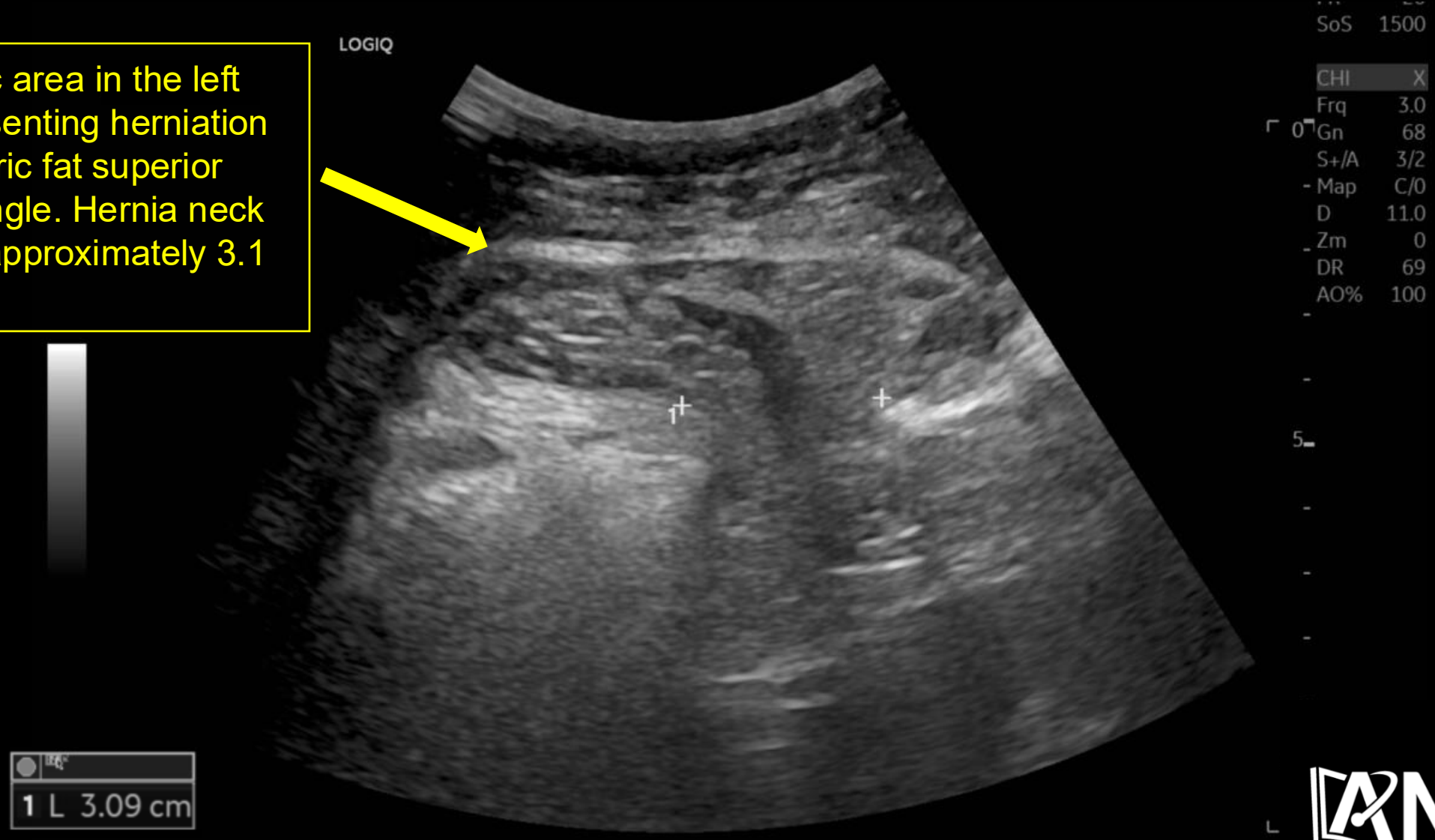


Herniation of perinephric fat between the internal oblique (lateral) and the quadratus lumborum (medial). Fat stranding at the hernia neck.

US Abdomen and Pelvis (unlabeled)

US Abdomen and Pelvis (labeled)

Hypoechoic area in the left back representing herniation of perinephric fat superior lumbar triangle. Hernia neck measures approximately 3.1 cm.



Final Dx:

Left Grynfeltt-Lesshaft Lumbar Hernia

Case Discussion

- Surgery was consulted for acute surgical intervention
- Repeat physical examination:
  - L. flank swelling
  - Defect not initially palpable due to body habitus
  - Bulge revealed with Valsalva maneuver and reducible in nature
- Flank pain resolved after two days in the hospital.
- Surgery recommended outpatient follow-up for hernia repair.

Case Discussion

- Abdominal wall hernias have a global incidence of approximately 4-5%.[3]
- Lumbar hernias account for 1.5% of abdominal hernias and can pass through the Grynfeltt-Lesshaft triangle (superior) or the Petit triangle (inferior).[6]
  - The Grynfeltt-Lesshaft triangle is comprised of the quadratus lumborum muscle medially, the 12th rib superiorly, the internal oblique muscle laterally, and the erector spinae muscle posteriorly.
  - The floor is derived from the transversalis fascia and the aponeurosis of the transversalis muscle.[2]

- Causes:
  - Lumbar herniations are classified as either congenital (20%) or acquired (80%).[4]
  - Surgeries and inflammation account for 25% of acquired lumbar hernias.[6]
  - Blunt abdominal trauma is a rare cause of lumbar herniation caused by increased intraabdominal pressures. Clinical diagnosis is rare due to poor visualization of the hernia and the severity of other symptoms.[6]

- Symptoms: Most cases asymptomatic. Others may present with a painful mass that is typically reducible.[1,6]

- Complications: Lumbar hernias are prone to becoming incarcerated. Untreated incarcerated hernia may lead to necrosis, infection, and bowel obstruction.[6]

Case Discussion

- Diagnostic methods:
  - CT is the most effective imaging modality for diagnosis of lumbar herniation.
  - Benefits of CT Imaging in diagnosis:
    - Visualization of anatomic defects and hernia contents
    - Surgical repair planning
  - Lumbar hernias are often missed clinically in obese patients and are incidentally visualized on CT for the workup of other conditions.[2,3]
  - US has utility in diagnosis under specific circumstances but limited by adiposity and artifacts, particularly from prior surgeries.[5]

- Treatment: Surgical Intervention:
  - Optimal treatment - Extraperitoneal mesh placement[6]
  - Methods - laparoscopic, robotic, and articulating laparoscopic surgery[7]

References:

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