

AMSER Case of the Month

December 2020

57-year-old male with history of hypertension and hypercholesteremia presents with abdominal and pelvic pain with fever.



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Patient Presentation

- **HPI:** 57 year old male presents to the ED with a 1 day h/o left abdominal pain, suprapubic pressure, fever of 101.5° F, and body aches. Suprapubic pressure increased today.
- **Medical History:** HTN, hypercholesteremia
- **Surgical History:** N/A
- **Medications:** Fluvastatin, lisinopril, sertraline
- **Physical Exam:**

BP 135/69, HR 63, T 99.3 F, RR 26, SpO2 98% RA, BMI 29

GI: Abdomen soft, tender in the suprapubic and LLQ region, no rebound

- **Labs:**

WBC 14.3 ↑; Hgb 16.0; UA blood **large**; UA protein **100**; UA Nitrite Neg; UA Leuk Est Neg

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Clinical Condition: Acute Onset Flank Pain—Suspicion of Stone Disease (Urolithiasis)

Variant 1: Suspicion of stone disease.

Radiologic Procedure	Rating	Comments	RRL*
CT abdomen and pelvis without IV contrast	8	Reduced-dose techniques are preferred.	☼☼☼
CT abdomen and pelvis without and with IV contrast	6	This procedure is indicated if CT without contrast does not explain pain or reveals an abnormality that should be further assessed with contrast (eg, stone versus phleboliths).	☼☼☼☼
US color Doppler kidneys and bladder retroperitoneal	6		0
Radiography intravenous urography	4		☼☼☼
MRI abdomen and pelvis without IV contrast	4	MR urography.	0
MRI abdomen and pelvis without and with IV contrast	4	MR urography.	0
X-ray abdomen and pelvis (KUB)	3	This procedure can be performed with US as an alternative to NCCT.	☼☼
CT abdomen and pelvis with IV contrast	2		☼☼☼

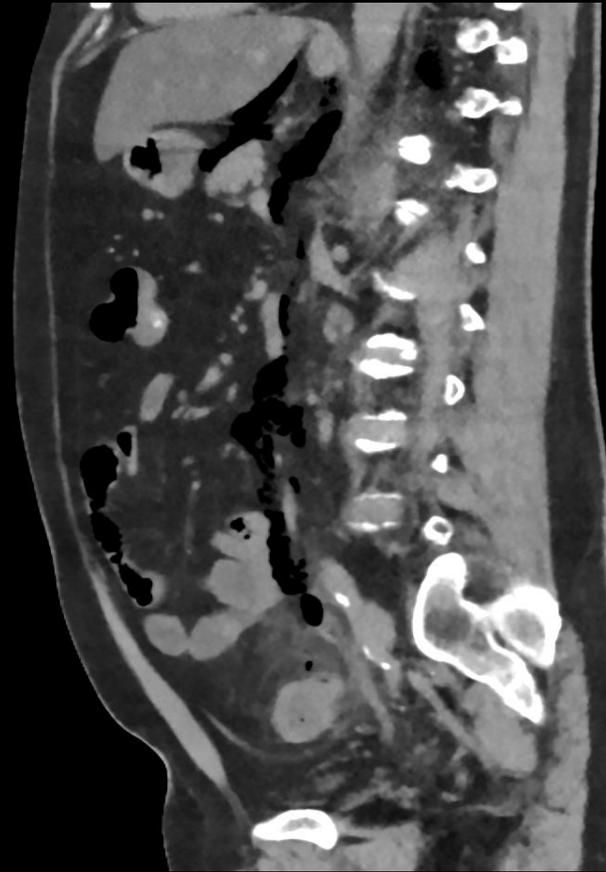
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

*Relative Radiation Level

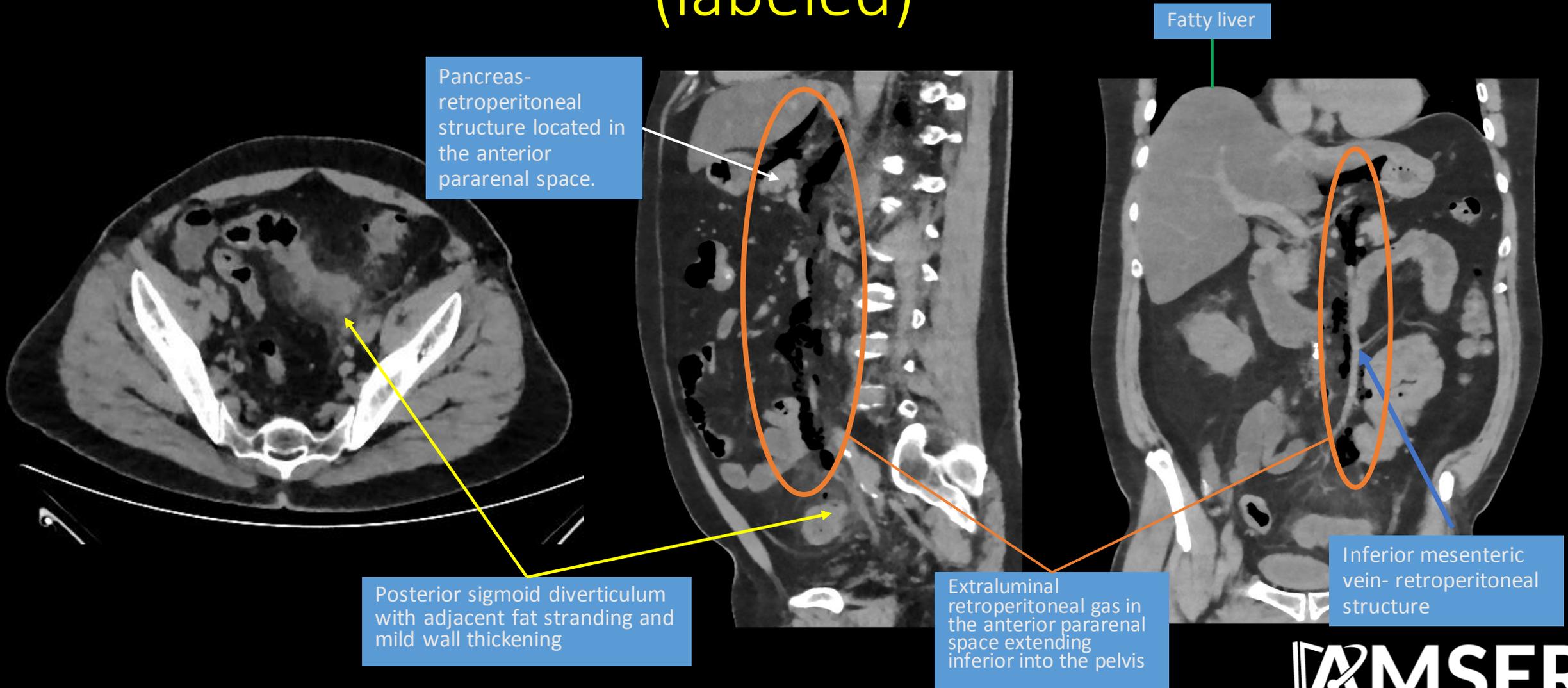
This imaging modality was ordered by the ER physician



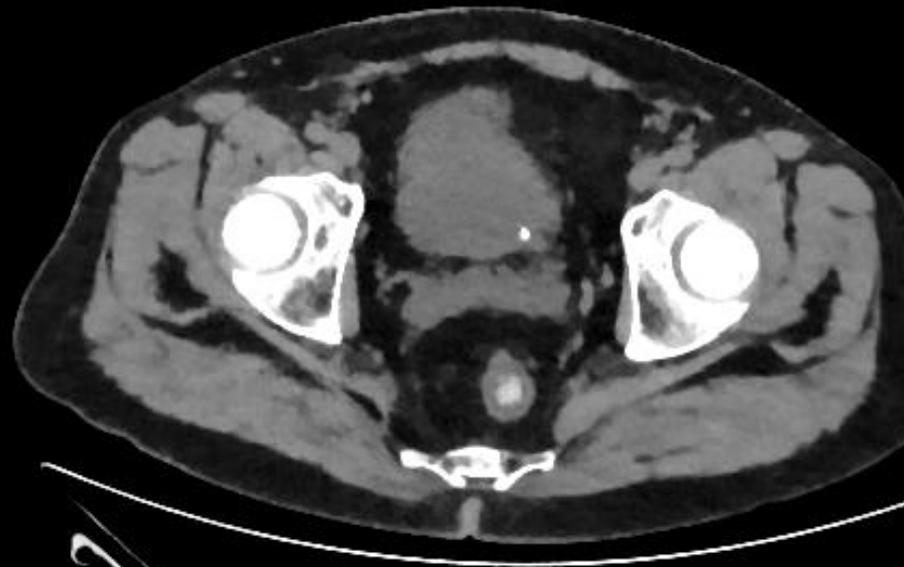
CT Abdomen and Pelvis w/o Contrast Findings (unlabeled)



CT Abdomen and Pelvis w/o Contrast Findings (labeled)



CT Abdomen and Pelvis w/o Contrast Findings (unlabeled)

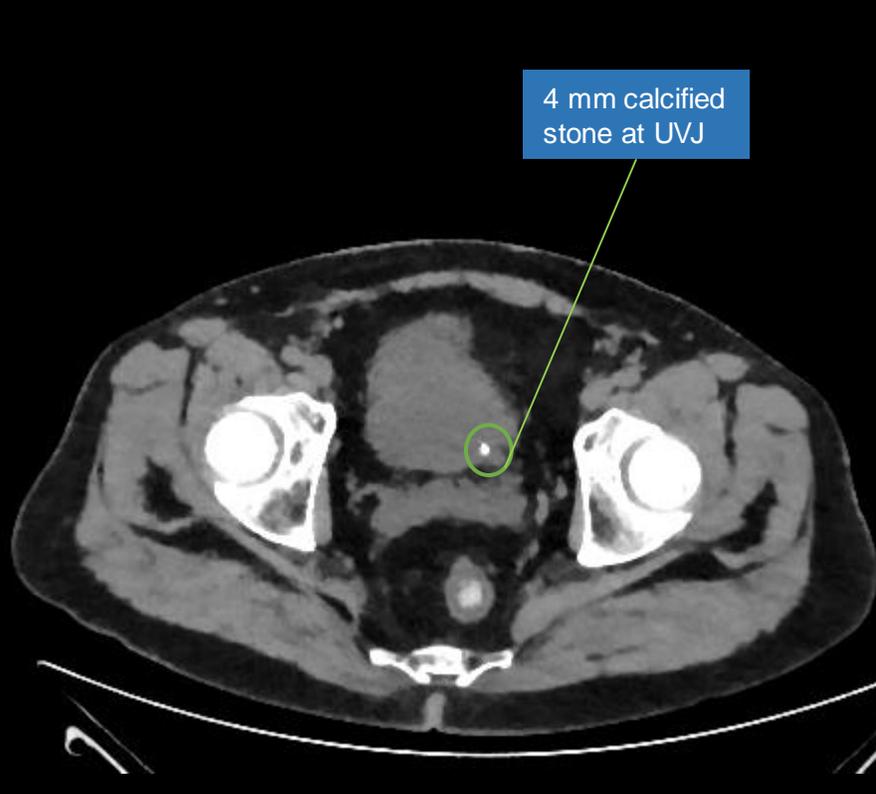
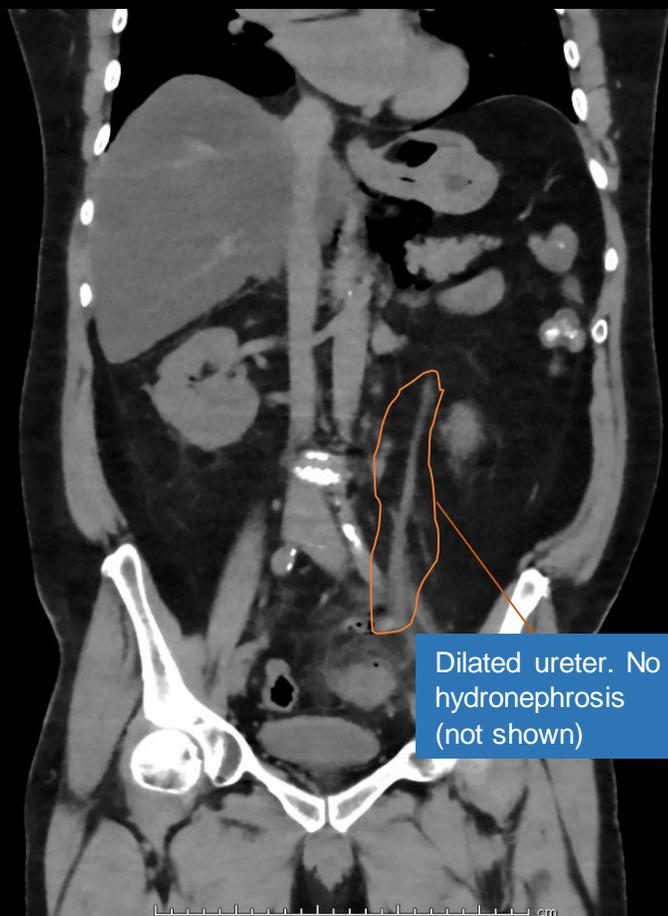


Supine

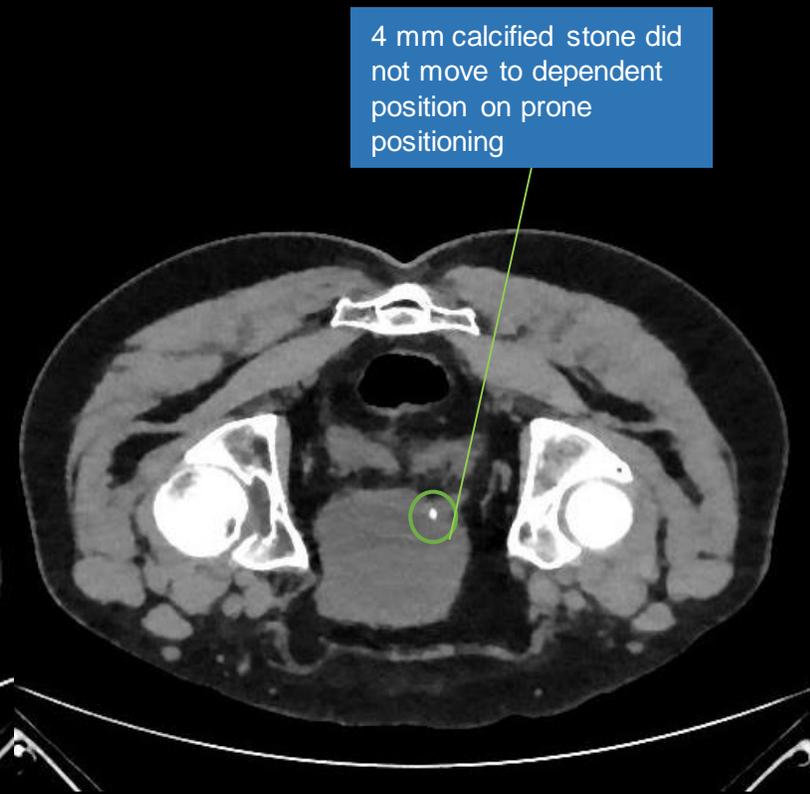


Prone

Findings: (labeled)



Supine



Prone

UVJ = ureterovesical junction

Final Dx:

- 1) Perforated Sigmoid Diverticulitis with gas in the retroperitoneum
- 2) Obstructing calculus in the left ureterovesical junction causing mild left hydroureter

Case Discussion

- Diverticulitis is a complication of diverticulosis thought to be due to micro-perforations of a diverticulum causing an inflammatory reaction.
- A diverticulum is a sac-like protrusion of the colonic wall mucosa herniating through the muscularis layer of the colonic wall.
- Complicated diverticulitis has one of the following complications: **perforation, obstruction, abscess, or fistula**. Up to 12% of acute diverticulitis cases have one or more of these complications.
- Patients typically present with abdominal pain, fever, and leukocytosis.

Case Discussion

Radiographic Features

CT with contrast is the imaging of choice. (See ACR Appropriateness Criteria below)

In this case, CT abdomen/pelvis without contrast was ordered due to suspected urologic stone.

CT findings of acute diverticulitis include localized bowel wall thickening, pericolic stranding disproportionately increased compared to bowel wall thickening, diverticula, colonic wall enhancement, abscess, extraluminal gas, fistula, or bowel obstruction.

Although the sigmoid colon is an intraperitoneal structure, the inflamed diverticulum in this patient may have perforated through the posterior peritoneum accounting for the extraluminal gas in the anterior pararenal space of the retroperitoneum.

**American College of Radiology
ACR Appropriateness Criteria®
Left Lower Quadrant Pain-Suspected Diverticulitis**

Variant 1: Left lower quadrant pain. Suspected diverticulitis. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	☼☼☼
CT abdomen and pelvis without IV contrast	May Be Appropriate	☼☼☼
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate	○
MRI abdomen and pelvis without IV contrast	May Be Appropriate	○
US abdomen transabdominal	May Be Appropriate	○
CT abdomen and pelvis without and with IV contrast	Usually Not Appropriate	☼☼☼☼
Fluoroscopy contrast enema	Usually Not Appropriate	☼☼☼
Radiography abdomen and pelvis	Usually Not Appropriate	☼☼☼
US pelvis transvaginal	Usually Not Appropriate	○



Case Discussion

Key Point

Satisfaction of search is an error occurring when a radiologist fails to look for additional findings after the initial diagnosis.

This is important to keep in mind since the perforated sigmoid diverticulitis could have distracted the radiologist from diagnosing the additional finding of obstructing calculus in the left ureterovesical junction.

Case Discussion

Treatment

Treatment for diverticulitis depends on severity, associated complications, and history.

- For uncomplicated cases: treat nonoperatively with antibiotics in out- or inpatient setting.
- For complicated cases: patient should be treated as an inpatient with IV antibiotics with or without surgery.
- Surgery is reserved for Hinchey class III/IV (classification for acute diverticulitis), prior history of complicated diverticulitis, frank perforation, fistula, failure of medical treatment, and suspected cancer.
- Large abscess (> 4 cm) may benefit from percutaneous drainage.

Our Patient's Course:

Patient underwent a Hartmann's procedure with temporary ureteral stents placement.

References:

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