

# AMSER Case of the Month

## February 2023

54-year-old woman with nausea, diarrhea & abdominal pain

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# Patient Presentation

- **HPI:** 54-year-old woman with metastatic breast cancer admitted for hyponatremia. 2 days later, patient develops nausea, diarrhea & abdominal pain
- **PMHx:** Metastatic breast cancer with spinal involvement
- **Medications:** Recent administration of azithromycin & ceftriaxone
- **PSHx:** Laminectomy due to spinal metastases complicated by cord compression (1/2 year prior)
- **FHx:** Non-contributory
- **PE:** Febrile, diaphoretic, & lethargic; diffuse abdominal pain, most significant (w/o rebound or guarding) on palpation of LLQ

# Pertinent Labs

- $K^+ = 2.8$
- $Na^+ = 129$
- $Cl^- = 92$
- WBC wnl with granulocytosis (82.1%)

Given the onset of fever, nausea, diarrhea, and abdominal pain in a critically ill patient, what imaging should we order at this time?

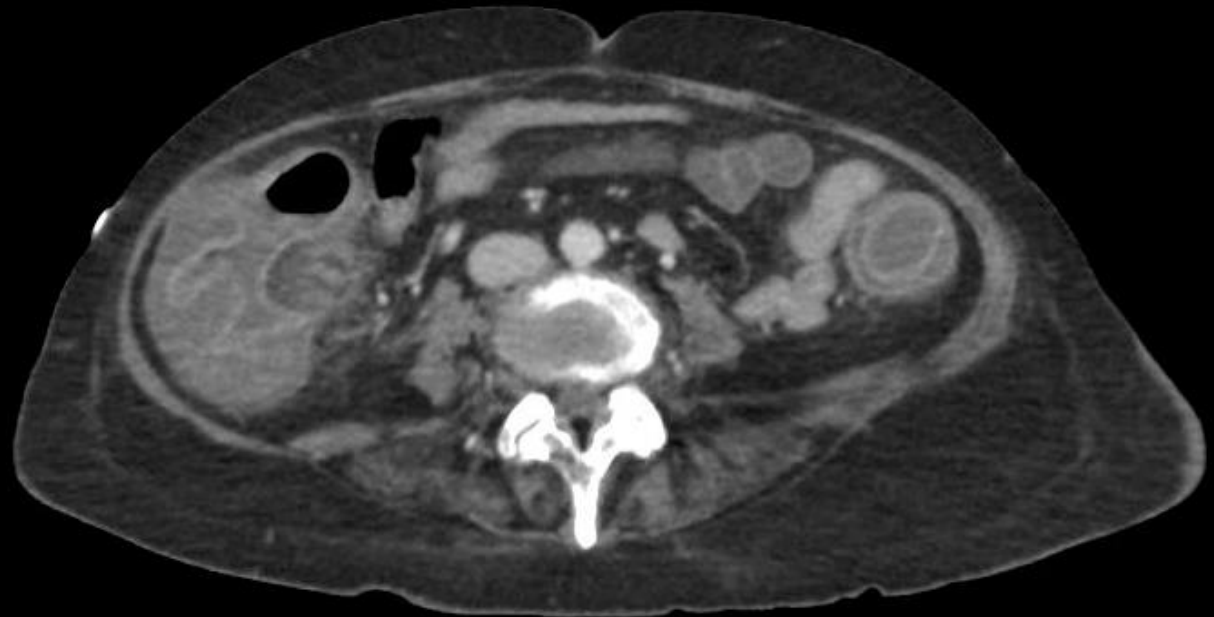
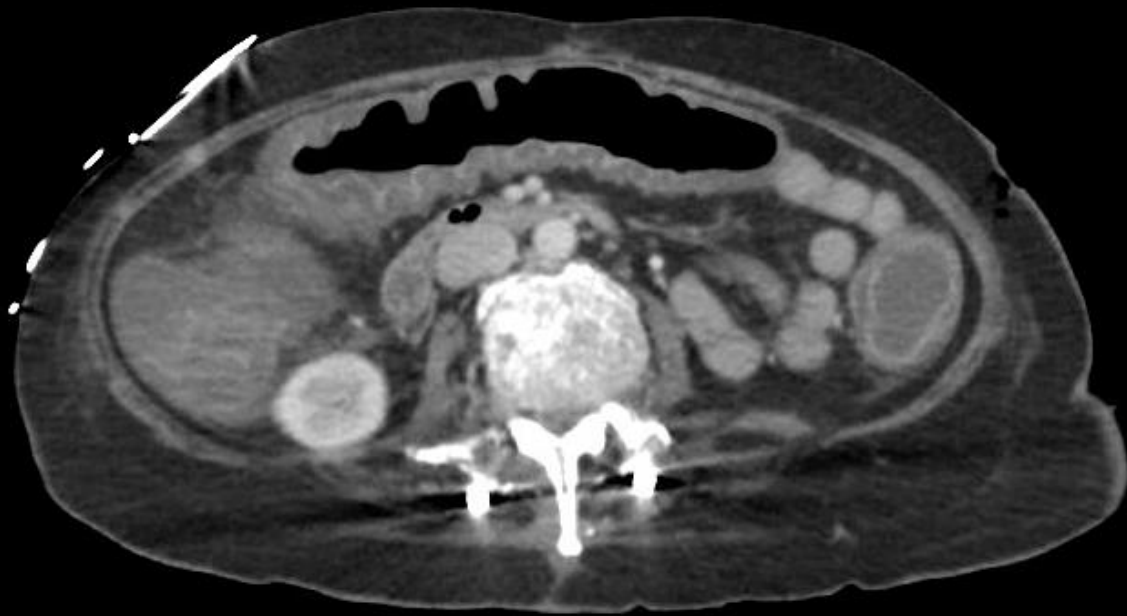
# Applicable ACR Appropriateness Criteria

Scenario	Procedure	Adult RRL	Peds RRL	Appropriateness Category	
Abd pain, acute, nonlocalized, fever, initial exam	CT abdomen and pelvis with IV contrast	1-10 mSv ☼☼☼	3-10 mSv [ped] ☼☼☼☼	Usually appropriate	●
	US abdomen	0 mSv ○	0 mSv [ped] ○	May be appropriate	●
	MRI abdomen and pelvis without and with IV contrast	0 mSv ○	0 mSv [ped] ○	May be appropriate	●
	MRI abdomen and pelvis without IV contrast	0 mSv ○	0 mSv [ped] ○	May be appropriate	●
	CT abdomen and pelvis without IV contrast	1-10 mSv ☼☼☼	3-10 mSv [ped] ☼☼☼☼	May be appropriate	●
	Radiography abdomen	0.1-1mSv ☼☼	0.03-0.3 mSv [ped].. [ped]..	May be appropriate	●
	CT abdomen and pelvis without and with IV contrast	10-30 mSv ☼☼☼☼	10-30 mSv [ped] ☼☼☼☼☼	May be appropriate	●
	Nuclear medicine scan gallbladder	0.1-1mSv ☼☼	Null	Usually not appropriate	●
	FDG-PET/CT skull base to mid-thigh	10-30 mSv ☼☼☼☼	3-10 mSv [ped] ☼☼☼☼	Usually not appropriate	●
	WBC scan abdomen and pelvis	10-30 mSv ☼☼☼☼	Null	Usually not appropriate	●
Fluoroscopy contrast enema	1-10 mSv ☼☼☼	3-10 mSv [ped] ☼☼☼☼	Usually not appropriate	●	

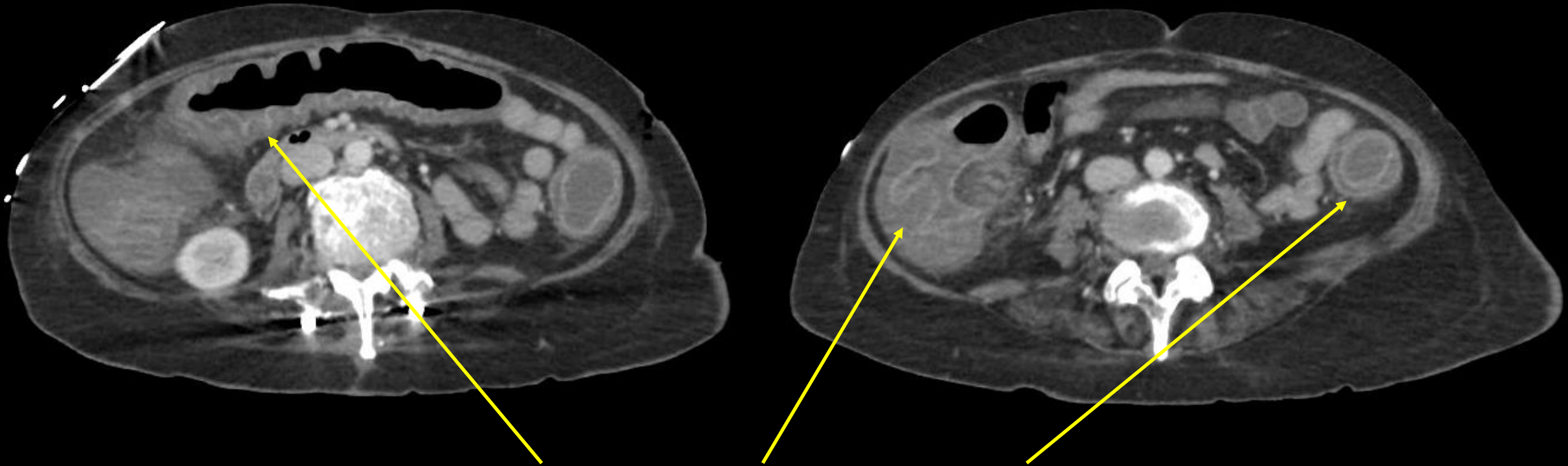
This imaging modality was ordered by the IM physician



# Findings (unlabeled)



# Findings: (labeled)



Arrows demonstrate diffuse (ascending, transverse, & descending colon) bowel wall thickening & target sign due to wall edema and mucosal hyperenhancement

Final Dx:

Pseudomembranous colitis



# Pseudomembranous Colitis

- Definition

- Pseudomembranous colitis is a condition characterized by severe inflammation of the mucosal layer of the large intestine, often manifesting as an antibiotic-associated colonic inflammatory complication

- Etiology

- Most commonly results from a serious *Clostridium difficile* infection, a common nosocomial issue

- Epidemiology

- 500,000 episodes & 29,000 associated deaths reported annually in the United States

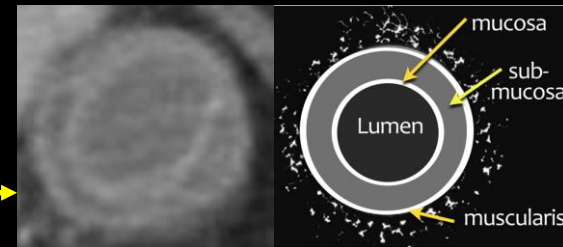
# Evaluation and Management

- Labs

- Diagnosis is established via either positive nucleic acid amplification test (NAAT) for *C. difficile* toxin B gene, or a positive stool test for *C. difficile* toxins

- Imaging

- Pancolitis (diffuse bowel wall thickening) & target sign with water density (pictured at side)



- Target sign is caused by enhancing mucosa and muscularis propria with the edematous submucosa in between

- DDX: Infection, portal hypertension, IBD, typhlitis, AIDS, ischemia

- Treatment / Management

- Oral fidaxomicin & vancomycin
- Metronidazole has remained a first-line agent for decades despite lack of FDA approval

# References:

1. Salen P, Stankewicz HA. Pseudomembranous Colitis. [Updated 2022 Aug 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK470319/>
2. Kelly CP, Pothoulakis C, LaMont JT. Clostridium difficile colitis. N Engl J Med. 1994 Jan 27;330(4):257-62. doi: 10.1056/NEJM199401273300406. PMID: 8043060.
3. Gore R. CT-pattern of bowel wall thickening. <https://radiologyassistant.nl/abdomen/bowel/bowel-wall-thickening-ct-pattern>. Published May 21, 2014.