

# AMSER Rad Path Case of the Month:

## Acute Appendicitis

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# Patient Presentation

## Clinical History:

39 yo F presents to ED with 3 days of abdominal pain. Pain is constant, predominantly in the **bilateral lower quadrants**. Endorses nausea, emesis and chills. Unable to tolerate oral intake.

## Pertinent Social History:

Former smoker 1 pack year history and occasional alcohol use.

## Pertinent Physical Exam and Lab Findings:

Abdomen tender in bilateral lower quadrants.

Obese body habitus.

WBC 13.67

What Imaging Should Be Ordered?

# ACR Appropriateness Criteria

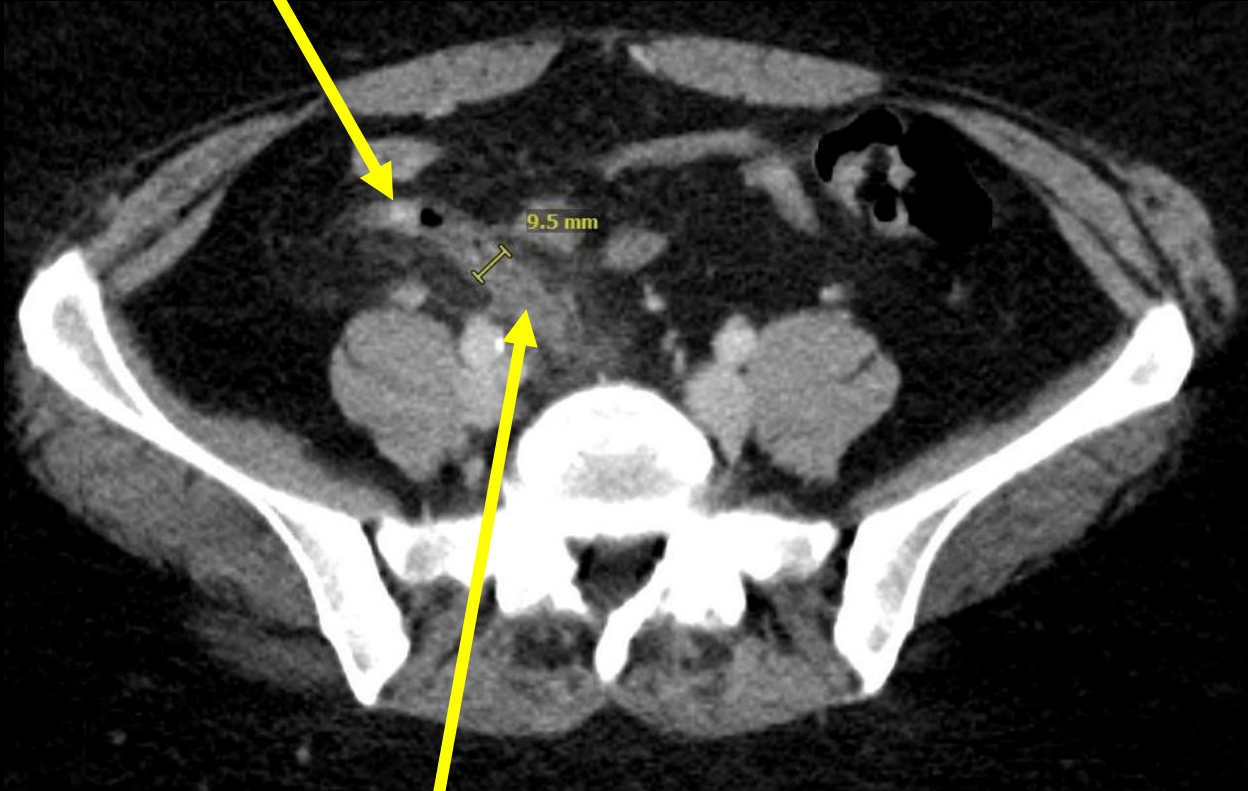
Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Sepsis suspected acute abdominal pain, initial imaging	3196674	● CT abdomen and pelvis with IV contrast	1-10 mSv ☻☻☻	3-10 mSv [ped] ☻☻☻☻	Usually appropriate
		● US abdomen	0 mSv ○	0 mSv [ped] ○	May be appropriate
		● CT abdomen and pelvis without IV contrast	1-10 mSv ☻☻☻	3-10 mSv [ped] ☻☻☻☻	May be appropriate (Disagreement)
		● Radiography abdomen	0.1-1mSv ☻☻	0.03-0.3 mSv [ped] ☻☻	Usually not appropriate
		● Fluoroscopy contrast enema	1-10 mSv ☻☻☻	3-10 mSv [ped] ☻☻☻☻	Usually not appropriate
		● Fluoroscopy upper GI series with small bowel follow-through	1-10 mSv ☻☻☻	3-10 mSv [ped] ☻☻☻☻	Usually not appropriate
		● MRI abdomen and pelvis without and with IV contrast	0 mSv ○	0 mSv [ped] ○	Usually not appropriate

# CT Findings (not labeled)

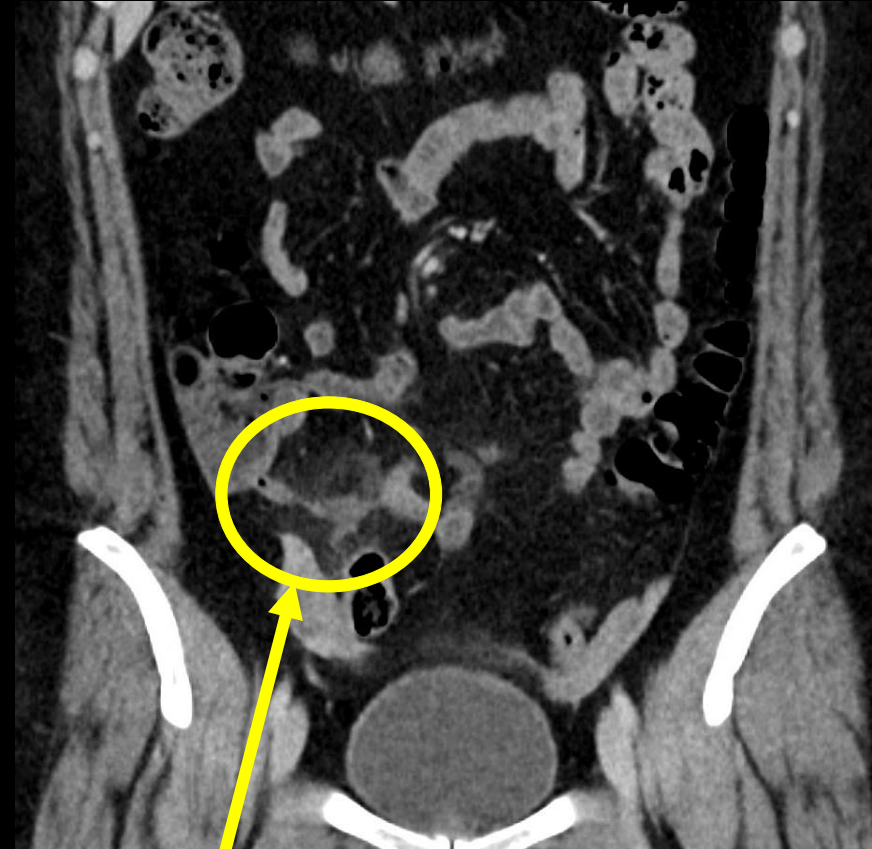


# CT Findings (labeled)

Fecalith



9.5mm dilated appendix with surrounding fat stranding

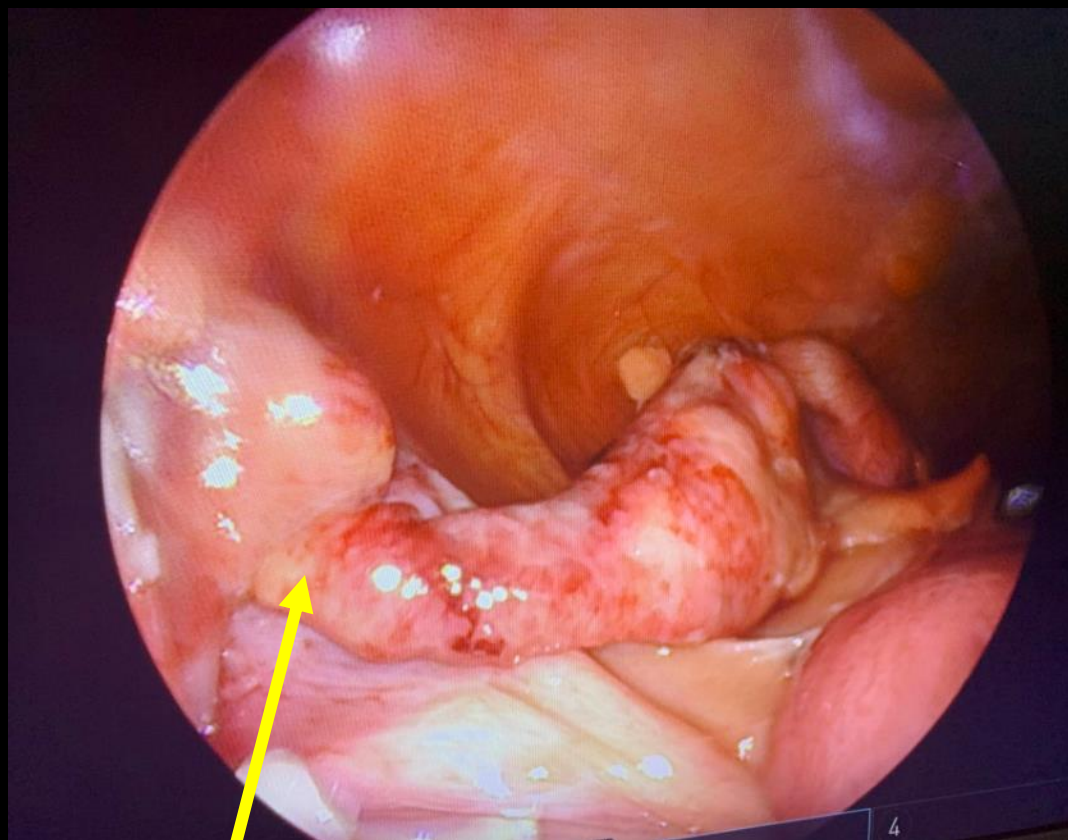


Periappendiceal fat stranding seen arising from the cecum

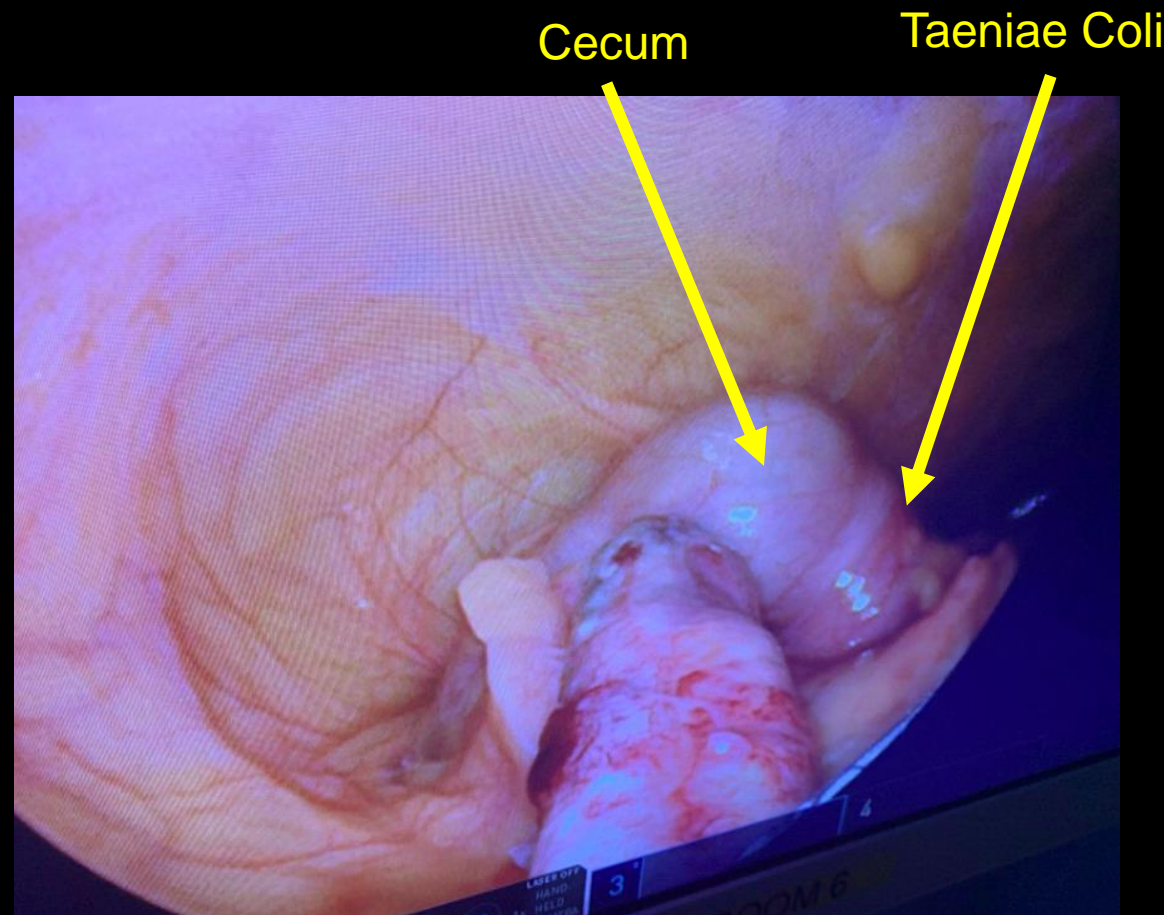
# DDX (based on imaging)

1. Acute Appendicitis
2. Appendiceal Mucocele
3. Appendiceal Diverticulitis
4. Appendiceal Endometriosis
5. Appendiceal Malignancy
6. Enlarged Normal Appendix (50% of asymptomatic patients can have an appendix diameter greater than 6 mm on CT)

# Intra-Operative Path (labeled)



Appendiceal tail

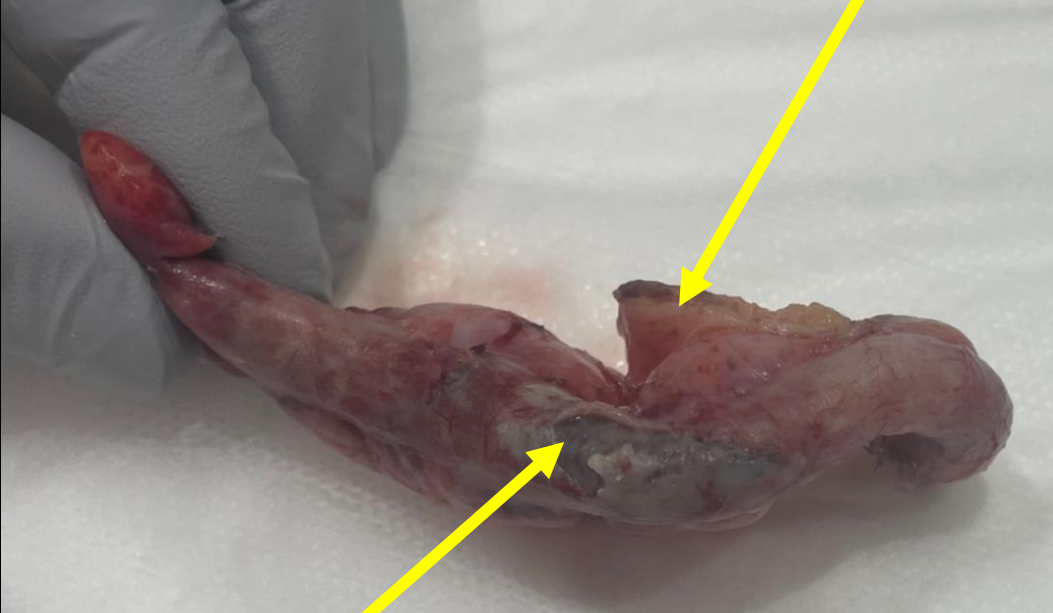


Cecum

Taeniae Coli



# Gross Path (labeled)



Appendiceal tail

Gangrenous portion

Staple line

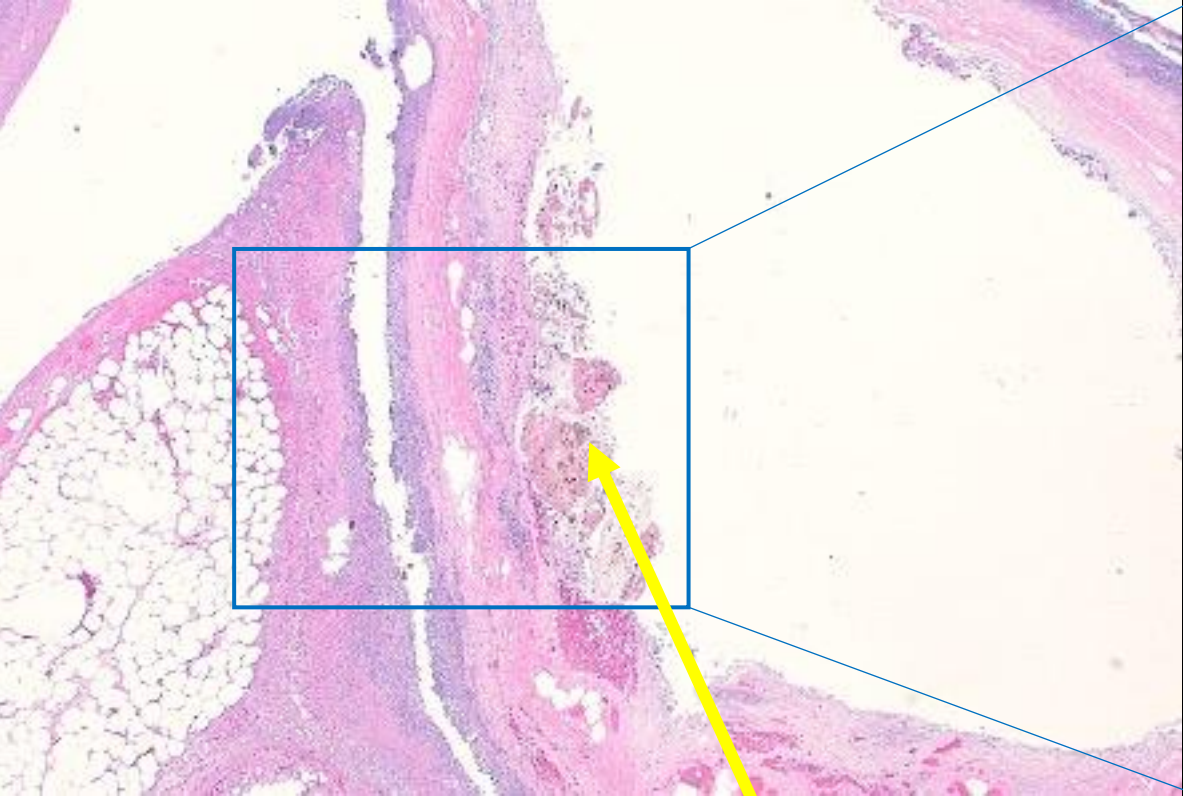
# Gross Path (labeled)



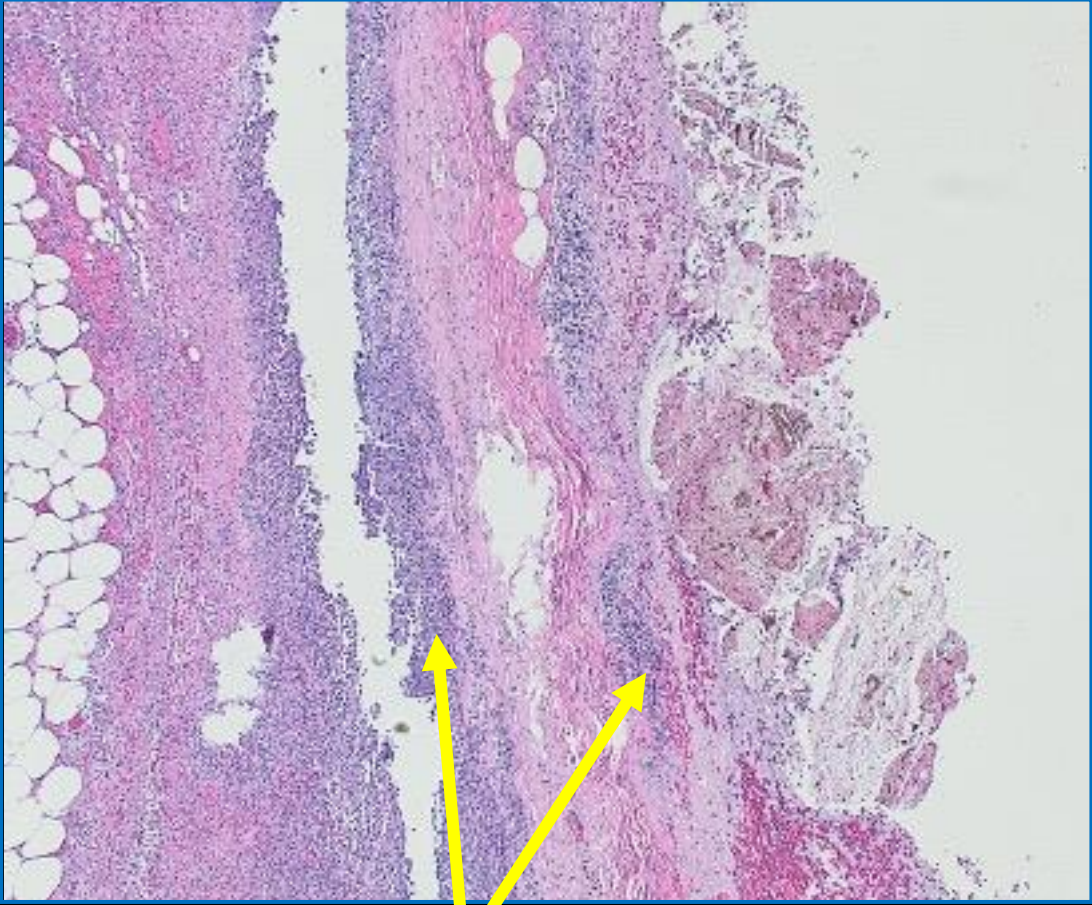
Picture courtesy of Mark Blackburn, AGH Pathology Assistant

# Micro Path (labeled)

(2x)



(4x)



Appendiceal wall with adherent fecal material and extensive underlying neutrophilic infiltrate.

# Micro Path (labeled)

(2x)



Gangrenous appendicitis with mural necrosis and perforation of the wall of the appendix.

Final Dx:

Acute Appendicitis

# Case Discussion

- Acute Appendicitis:
  - Inflammation of the vermiform appendix
  - Commonly due to a fecalith (accumulation of hardened feces)
- Symptoms:
  - Typical: Umbilical pain that radiates to right lower quadrant with McBurney's Sign (rebound tenderness in right lower quadrant), nausea, vomiting, loss of appetite
  - Atypical: Bilateral abdominal pain, dysuria, change in bowel habits
- Demographics:
  - Prevalence peaks in ages 15 to 19 years old in both males and females
- Risk Factors:
  - Male sex, age, diet (low fiber, high carbohydrates), family history

# Case Discussion

- **Diagnosis/Workup:**
  - History and Physical, Laboratory Results with Elevated WBC, and Image findings on CT
    - Normal appendices can measure 13 mm in width and 35 cms in length
    - Radiologic suspicion when greater than 6 mm in diameter, wall thickening over 2 or 3 mm, wall enhancement, and surrounding inflammation evidenced by periappendiceal fat stranding or free fluid
  - Special cases: US for Pediatrics, MRI for pregnant patients
- **Treatment/Management:**
  - Main treatment is surgery = Laparoscopic Appendectomy
- **Complications:**
  - surgical site infections, prolonged ileus, enterocutaneous fistula, and small bowel obstruction

# References:

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