Radiology 401
Case Presentation

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Case: Abdominal Pain

- 30 y/o Female
- RLQ abdominal pain
- Duration: 1 day
- Denies: nausea, vomiting, fevers, change in stool
- No PMH or FH

- Vitals: Mild Tachycardia
- Physical Exam
  - Non toxic appearing
  - RLQ tenderness
  - No rebound tenderness
- Labs Ordered: CBC, BMP, UA, UPT
  - WBC: 11.8
Differential Diagnosis

- Appendicitis
- Gastritis
- Intussusception
- Ovarian torsion
- Diverticulitis
- Renal stone
- Constipation
## Computerized Tomography

### Imaging Ordered

#### American College of Radiology
ACR Appropriateness Criteria

**Right Lower Quadrant Pain-Suspected Appendicitis**

#### Variant 1:
Right lower quadrant pain, fever, leukocytosis. Suspected appendicitis. Initial imaging.

<table>
<thead>
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<tr>
<td>CT abdomen and pelvis with IV contrast</td>
<td>Usually Appropriate</td>
<td>★ ★ ★ ★</td>
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#### Variant 2:
Right lower quadrant pain, fever, leukocytosis. Possible appendicitis. Atypical presentation. Initial imaging.

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Case Imaging: CT axial plane

Normal structures:
- Cecum C
- Small bowel SB
- Common Iliac artery IA
- Psoas muscle PM

Findings:
- Single Node
- Fat stranding
- Possible bowel wall thickening
Case Imaging: CT axial plane

- Inferior to previous section
- Visualize cecum
- Visualize normal appendix
- No signs of inflammation

Normal structures:
- Sacrum S
- External and Internal Iliac Arteries EIA IIA
Case Imaging: CT coronal plane

- Single node inflammation 9mm diameter with adjacent fat stranding
- Non affected appendix
- No ovarian pathology

Normal structures:
- Appendix Ap
- Ovaries/adnexa OA
One Dx!
Mesenteric Adenitis
Patient Outcome

- Pain Control
- Hydration
- One dose abx (concerns for appendicitis)
- Surgery consulted
- Scheduled for exploratory laparoscopy
- Laparoscopy yet to be performed
Mesenteric Adenitis: Clinical manifestations and labs

- Clinical Symptoms
  - Children, adolescents, young adults
  - Uncommon over age of 20
  - +/- Fever
  - +/- Nausea and vomiting
  - Changes in stool consistency
  - RLQ pain (epigastric)
  - Rebound tenderness (present in ¼ of patients)

- Labs
  - CBC - elevated white count
  - CRP - elevated

- Work up other possible pathologies first

- Diagnosis of exclusion

Helbling et al. Biomedical Research International. 2017
Mesenteric Adenitis: More

2 Types
- Primary (no identifiable underlying cause)
- Secondary
  - Systemic Inflammatory Diseases (i.e. Lupus)
  - Malignancy
  - HIV
  - Tuberculosis
  - Infectious (zoonotic: Yersinia enterocolitica)
  - Gastritis

Pathophysiology
- Inflammation of mesenteric lymph nodes
- Not well understood

Management
- Primary
  - Hydration
  - Pain medication
  - Self limiting
    - 2-3 weeks normal duration
    - 10 weeks maximum
- Secondary: address underlying etiology

Helbling et al. Biomedical Research International. 2017
Mesenteric Adenitis: Imaging

- Imaging recommended
  - US best modality
  - Multiple definitions
    - 3 lymph nodes > 5mm at short axis
    - 1 lymph node > 8mm at short axis
    - Bowel wall thickening
  - Same definition for CT
    - Fat stranding
- Few adult studies mention CT
- Majority of studies pediatric based

Mesenteric Adenitis: Ultrasound
Mesenteric Adenitis: CT

Caveat: US in Diagnosis of Mesenteric Adenitis

- Poorly studied imaging efficacy for this disease process
- No tested sensitivities or specificities for mesenteric adenitis

Appendicitis
- Sensitivity: 98%
- Specificity: 92%
- Visualization rates 22-98%

Intussusception
- Sensitivity: ~ 97.9%
- Specificity: ~ 97.8%

Mittal et al. Acad Emerg Med. 2013
García Pena et al. JAMA. 1999
Carroll et al. Acad Radiol. 2017
Radiation Exposure and Cost

- **Radiation Exposure**
  - ~3 mSv for CT
  - No exposure for US

- **Cost**
  - Abdominal CT w/ contrast: ~ $512 - $5055
  - Abdominal US: $436 - $1404

Sources