AMSER Case of the Month: March 2019

18 y.o. male with chest pain

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Patient Presentation

- HD is an 18 y/o male with sickle cell disease who presented to the ED with chest pain and tightness in chest that started 1 day ago. Pain is constant, 5/10, reports taking oxycodone and motrin without relief. Denies SOB, cough, fever, n/v.
- PMHx: sickle cell disease, multiple admissions for VOC and ACS
- PSH: cholecystectomy 2 years ago
- SHx: no hx of smoking, alcohol, drug use
- Physical exam: RRR, normal breath sounds, no respiratory distress
- BP 113/56 | Pulse 98 | Temp 98.2 °F (36.8 °C) (Oral) | Resp 20
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

This imaging modality was ordered by the ER physician.

<table>
<thead>
<tr>
<th>Clinical Condition:</th>
<th>Radiologic Procedure</th>
<th>Rating</th>
<th>Comments</th>
<th>RRL*</th>
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</thead>
<tbody>
<tr>
<td>Acute Nonspecific Chest Pain—Low Probability of Coronary Artery Disease</td>
<td>X-ray chest</td>
<td>9</td>
<td>X-ray, CTA, and US are generally nonoverlapping and can be used sequentially.</td>
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<td>CTA coronary arteries with IV contrast</td>
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<td>X-ray, CTA, and US are generally nonoverlapping and can be used sequentially.</td>
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<td>US echocardiography transthoracic resting</td>
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<td>X-ray, CTA, and US are generally nonoverlapping and can be used sequentially.</td>
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<td>Tc-99m SPECT MPI rest and stress</td>
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<td>五颗星</td>
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<td>Tc-99m V/Q scan lung</td>
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<td>四颗星</td>
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<td>X-ray rib views</td>
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<td>四颗星</td>
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<td>MRA chest without and with IV contrast</td>
<td>5</td>
<td>This procedure may be appropriate but there was disagreement among panel</td>
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<td>MRI heart stress perfusion without and</td>
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Findings (unlabeled)
Findings: (labeled)

- Enlarged heart
- Sclerosis in humeral head epiphyses bilaterally compatible with vascular necrosis
- Sharp end plate depressions of spine due to infarction
Final Dx:

Vaso-occlusive crisis
Case Discussion

• Rule out acute chest syndrome

Diagnostic criteria for ACS — ACS is defined as radiographic evidence of consolidation: a new segmental (involving at least one complete segment) radiographic pulmonary infiltrate [3], AND at least one of the following:
  • Temperature ≥38.5°C
  • >2 percent decrease in SpO₂ (O₂ saturation) from a documented steady-state value on room air (FiO₂ = 0.21)
  • PaO₂ <60 mmHg
  • Tachypnea (per age-adjusted normal)
  • Intercostal retractions, nasal flaring, or use of accessory muscles of respiration
  • Chest pain
  • Cough
  • Wheezing
  • Râles
Case Discussion

- Osteonecrosis - Most commonly humeral head, femoral head, vertebral bodies
- H shaped vertebra or Lincoln log vertebra
Case Discussion

Other findings common in SCD patients:

• Enlarged heart
  - Chronic anemia → increased stroke volume and LV contractility → LV hypertrophy
• Cholelithiasis
  - Hemolysis → increased unconjugated bilirubin → pigmented gallstones
• Auto-splenectomy
  - Repeated splenic infarction
• Hepatomegaly
  - Extramedullary hematopoiesis
References:


