

AMSER Case of the Month: March 2019

18 y.o. male with chest pain

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AMSER

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 2years 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

American College of Radiology ACR Appropriateness Criteria®

Clinical Condition:

Acute Nonspecific Chest Pain—Low Probability of Coronary Artery Disease

Radiologic Procedure	Rating	Comments	RRL*
X-ray chest	9	X-ray, CTA, and US are generally nonoverlapping and can be used sequentially.	⊕
CTA coronary arteries with IV contrast	7	X-ray, CTA, and US are generally nonoverlapping and can be used sequentially.	⊕⊕⊕
CTA chest with IV contrast	7	X-ray, CTA, and US are generally nonoverlapping and can be used sequentially.	⊕⊕⊕
US echocardiography transthoracic resting	7	X-ray, CTA, and US are generally nonoverlapping and can be used sequentially.	○
Tc-99m SPECT MPI rest and stress	6		⊕⊕⊕⊕
Tc-99m V/Q scan lung	5		⊕⊕⊕
X-ray rib views	5		⊕⊕⊕
MRA chest without and with IV contrast	5		○
MRI heart stress perfusion without and	5	This procedure may be appropriate but there was disagreement among panel	○

This imaging modality was ordered by the ER physician

Findings (unlabeled)

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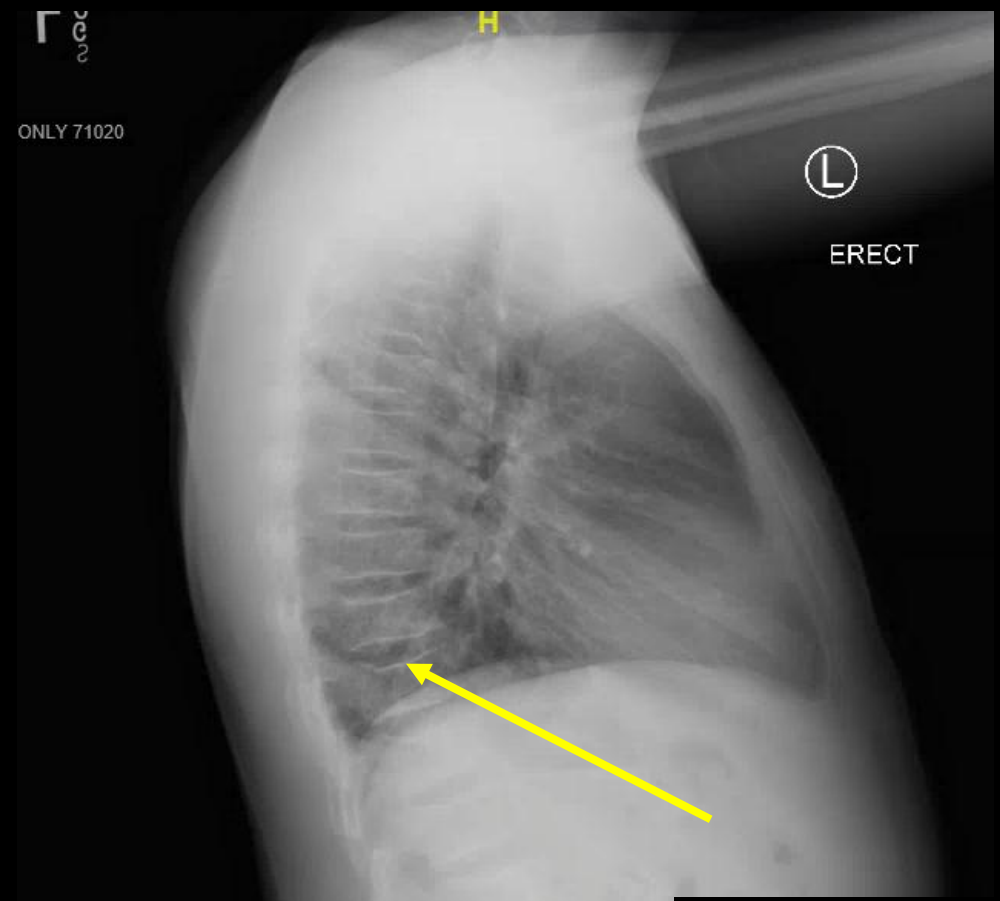
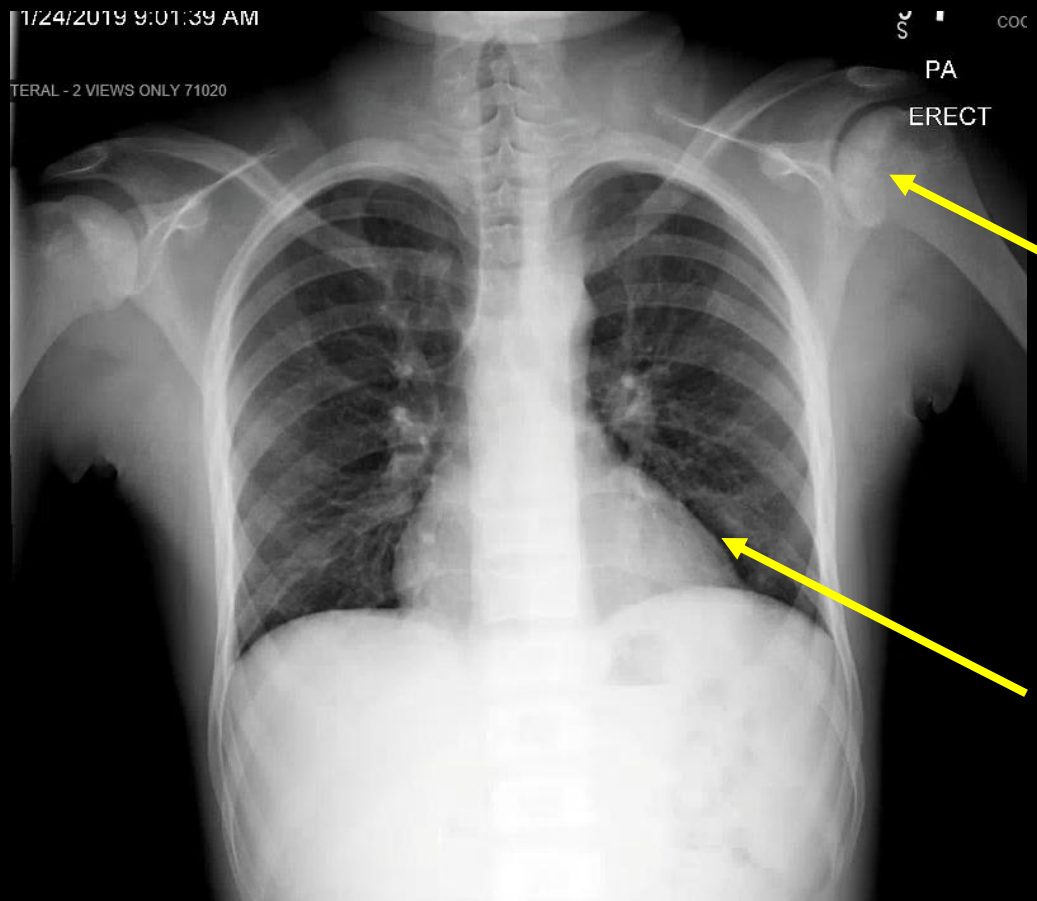
TERAL - 2 VIEWS ONLY 71020



ONLY 71020



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

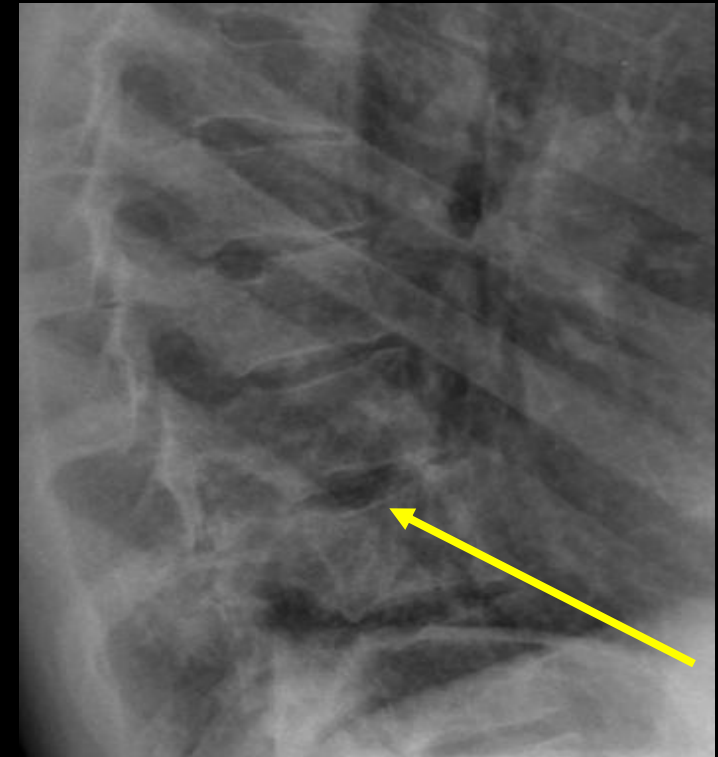
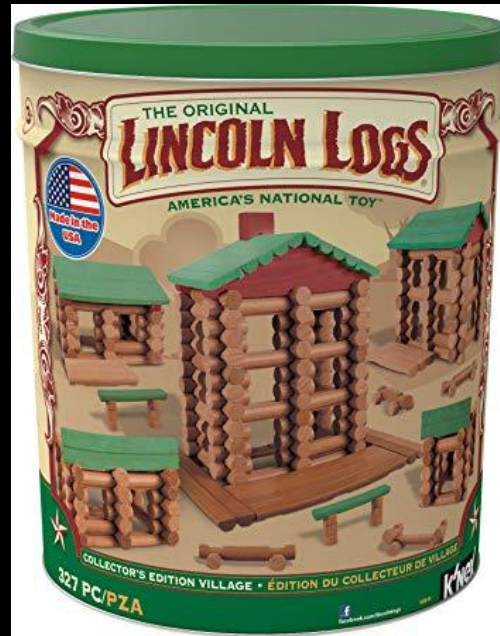
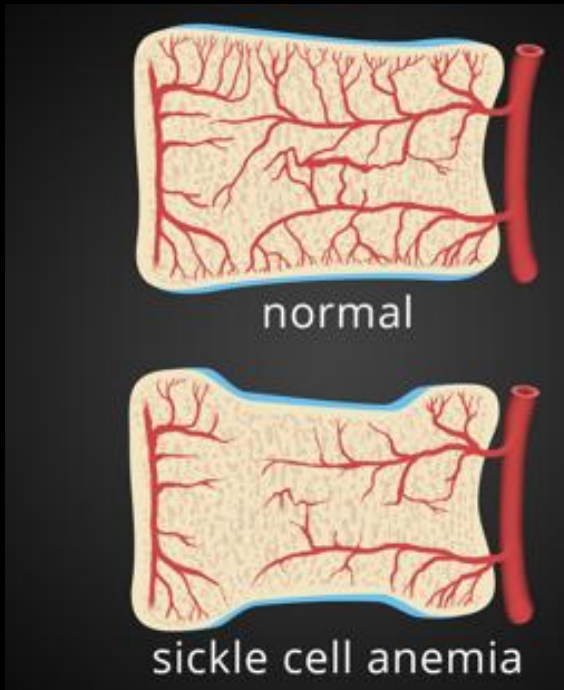
- Rule out acute chest syndrome

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 $\geq 38.5^{\circ}\text{C}$
- >2 percent decrease in SpO_2 (O_2 saturation) from a documented steady-state value on room air ($\text{FiO}_2 = 0.21$)
- $\text{PaO}_2 < 60$ 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:

American College of Radiology. ACR Appropriateness Criteria®. Available at <https://acsearch.acr.org/list>. Accessed January 15, 2019.

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