Atypical Chest Pain: Acute Chest Syndrome, Pericarditis and Cardiac Tamponade

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Introduction

- Chest pain as a presenting symptom to the emergency room initiates a rapid workup for potentially life-threatening disease.
- Sickle cell disease is a relatively rare condition, with chest pain generally representing vaso-occlusive crisis or acute chest syndrome

Timeline

Presentation to ED	
	Bedside Echo with pericardial effusion
Admit to Medicine	
CXR with RLL consolidation	
	Worsened hypoxia
Transfused RBCs	
	Started on antibiotics
Increased hypoxia tachycardia, chest pain	
	Positive pulsus Paradoxus (18)
Repeat echo with tamponade	
	Pericardiocentesis
Increased hypoxia	
	Exchange transfusion
Discharge	

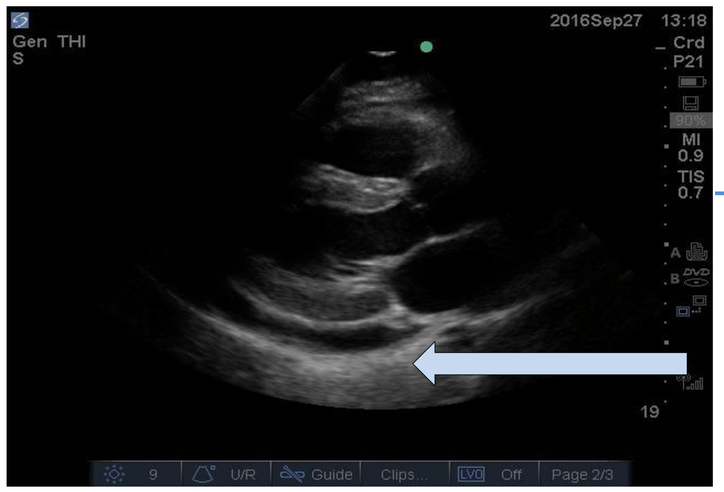
Hospital Course

- A 23 year old male with known Hb-SS disease presented to the emergency room with several hours of new-onset chest pain and dyspnea. He had a history of vaso-occlusive crisis and associated chest pain. He had previously self-medicated with NSAIDS for similar but less intense episodes of chest pain

- Initial Vitals/Exam:
  Afebrile, HR 92, BP 120/82**, O2 saturation 89%**
  CBC **12/8.6/25.8**/ troponin negative
  CXR: with **right basilar consolidation vs atelectasis, large cardiac silhouette**
  EKG notable for slight **PR segment depression**
  Bedside ultrasound showed **small pericardial effusion**

Initial interventions: In the emergency room, the patient was given NSAIDS and opioids for pain management for presumed vaso-occlusive chest pain. He was transferred to the internal medicine service

- On the medicine service
  - Formal echocardiogram showed pericardial effusion with early restrictive features
  - Given colchicine for presumed pericarditis
  - Worsened hypoxia lead to repeat CXR with right lower lobe consolidation prompting **concern for acute chest syndrome**
  - Started on antibiotics, transfused red blood cells to a hemoglobin target of 10
  - Worsened hypoxia, tachycardia and chest pain with hypotension with **pulsus paradoxus of 18** lead to repeat echocardiogram with concern for **tamponade.** This prompted urgent **pericardiocentesis**
  - Despite this, chest pain and hypoxia worsened, and in context of acute chest syndrome, **exchange transfusion** performed with stabilizing vitals and improved chest pain
  - He was subsequently monitored for several days, then discharged home on oral anti-inflammatory medication



Transthoracic echocardiogram

Parasternal long axis

Pericardial effusion along left ventricle

Discussion/Conclusions

- This case describes a complex chest pain presentation in an HbSS positive male. Chest pain in HbSS is generally ascribed to vaso-occlusive disease or acute chest syndrome,
- Pericarditis is an inflammatory condition commonly precipitated by infection, and can result in effusion and subsequent tamponade.[1,2]
- Acute chest syndrome, a disease likely associated with infection or infarct and propagated by subsequent cytokine release is poorly understood and also appears inflammatory in mediation. [3,4]
- While sickle cell disease/Acute chest syndrome and pericarditis/cardiac tamponade do not appear linked in the available medical literature, a similar pathophysiology merits further investigation.
- The bedside ultrasound in the emergency room was a key diagnostic test, and helped avoid both premature closure and anchoring biases
- Anchoring bias and lack of ongoing re-assessment can cloud correct diagnosis, especially when faced with concurrent and rare disease processes
- Providers treating chest pain must maintain an open differential for alternative and concurrent disease states

References

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