



POCUS on the move in internal medicine!

Diagnosis of infected thrombus-in-transit

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Introduction

- Point of care ultrasound (POCUS) is a powerful tool that can augment the physical exam
- The American College of Physicians has formally acknowledged the role of POCUS in internal medicine

Case Description

A 57-year-old female with scleroderma complicated by esophageal dysmotility requiring total parenteral nutrition presented with fevers and chills

- Exam was notable for fever, tachycardia, and tachypnea
- Cardiac auscultation revealed no murmur and her exam was otherwise unremarkable
- Broad spectrum antibiotics, IV vancomycin and piperacillin-tazobactam, were initiated with clinical improvement
- Initial blood cultures on presentation were positive for coagulase-negative *Staphylococcus* species
- Diagnosis of catheter-related bloodstream infection (CRBSI) was made, and central line was removed
- Blood cultures on hospital day #3 were negative for bacteria
- Antibiotics were appropriately narrowed and a 7-day antibiotic course was planned
- On hospital day #5, the patient agreed to POCUS performed by internal medicine residents and attending physician for educational purposes

Imaging



Figure 1: Normal parasternal long axis echocardiographic view

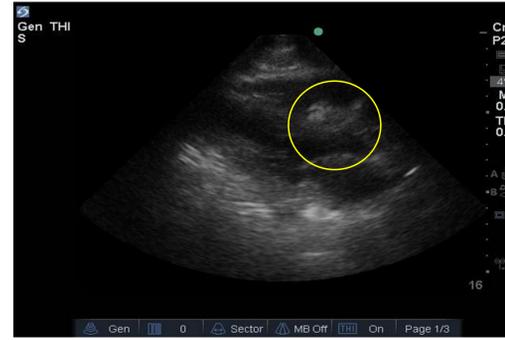


Figure 2: Parasternal long axis image identifies opacity in right ventricle



Figure 3: Parasternal long view demonstrates mobile opacity during diastole

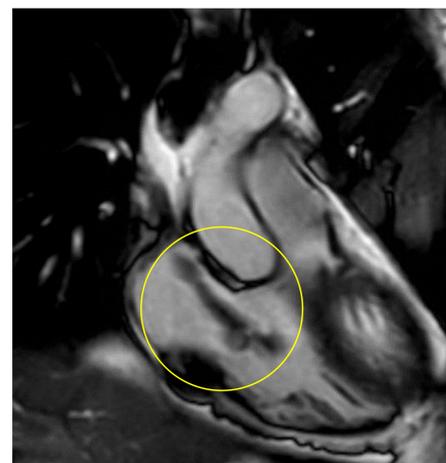


Figure 4: POCUS prompts cardiac MRI, which identifies intracardiac thrombus in the right ventricle

Hospital Course

- POCUS demonstrated a large, mobile, hyperechoic mass in the right ventricle concerning for valvular vegetation vs. thrombus
- Formal transthoracic echocardiogram showed 6.3 x 1.4 cm mobile mass, highly suspicious for thrombus-in-transit, and cardiac MRI confirmed intraventricular thrombus
- Heparin drip was initiated, and antibiotic course was extended to 4 weeks due to concern for thrombus superinfection
- Repeat transthoracic echocardiogram after 3 days of anticoagulation demonstrated stable thrombus
- Patient was discharged on warfarin with plans for repeat echocardiography in 3 months and continued anticoagulation until thrombus resolution

Discussion

- IDSA guidelines do not recommend formal echocardiography for cases of uncomplicated CRBSI due to coagulase-negative *Staphylococcus* species
- This patient met only 2 minor Duke criteria for endocarditis, making infective endocarditis unlikely, and argued against initial formal echocardiographic evaluation
- In this case, POCUS identified a superinfected thrombus-in-transit, drastically altering management and averting a potentially devastating medical outcome in a previously undiagnosed intracardiac thrombus

Teaching Points

- POCUS in the hands of internists can extend the physical exam to play a powerful role in “ruling in” diagnoses and targeting appropriate confirmatory studies
- While guidelines for CRBSI exist, there are no guideline-based recommendations for catheter-related thromboses (CRTs); further research is needed
- Further studies evaluating the sensitivity of POCUS for cardiac pathology may help identify innovative, cost-reducing diagnostic strategies in patients at low or intermediate risk for cardiac infections

References

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