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### The Peculiar Case of Purulent Pericarditis

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# The Peculiar Case of Purulent Pericarditis

Laura Bennetts, MD; Meera Jain, MD

## Introduction

- Purulent pericarditis is a localized purulent infection in the pericardial space
- Before the era of antibiotics, purulent pericarditis was related to complications of pneumococcal pneumonia. Now more frequently associated with thoracic surgeries, immunocompromised hosts and nosocomial blood infections.<sup>1</sup>
- This case is an unusual presentation of acute methicillin-resistant staphylococcus aureus (MRSA) purulent pericarditis with a course complicated by cardiac tamponade, opiate withdrawal, and a right ventricle (RV) laceration.

## Case Presentation

### History of Present Illness

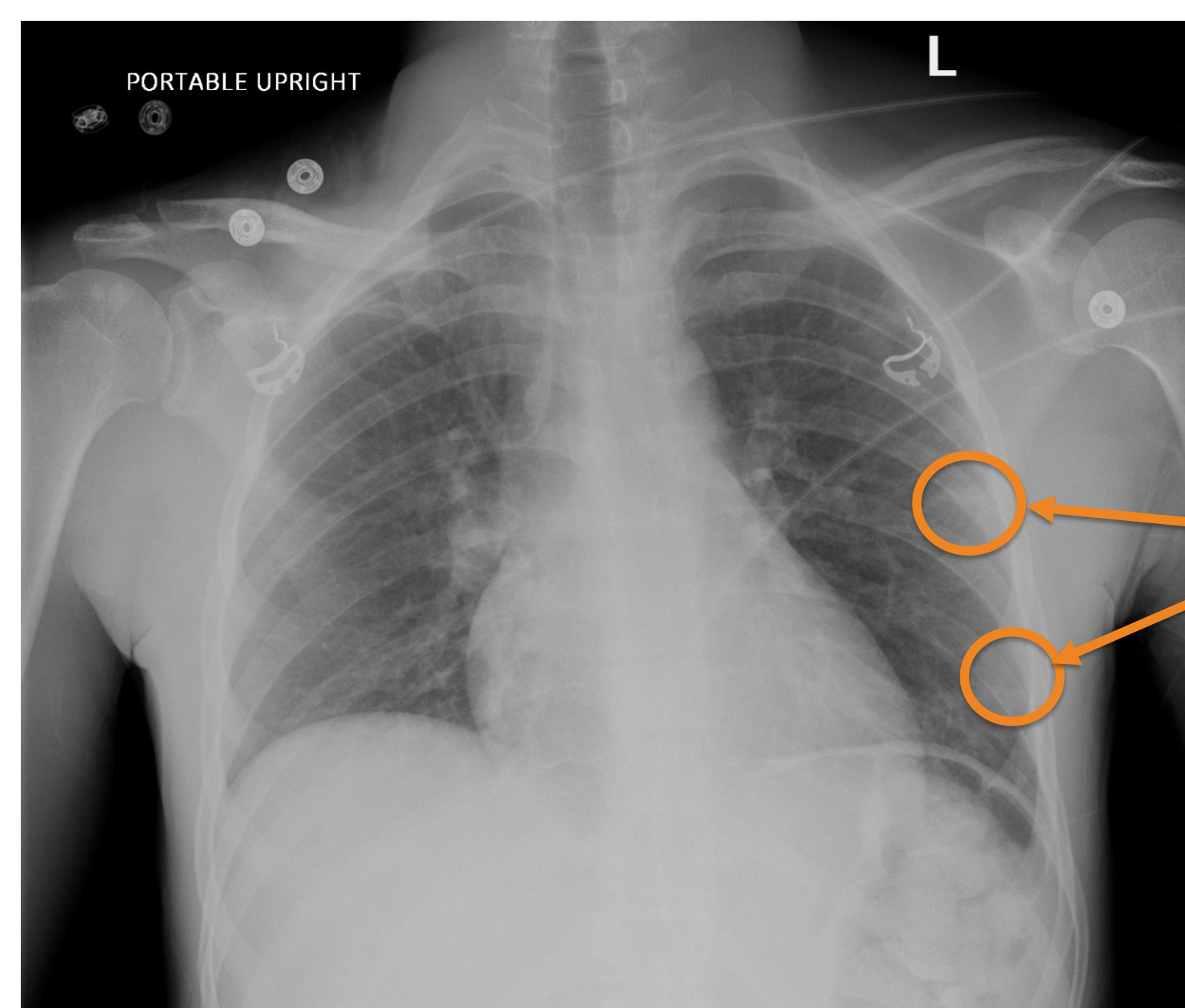
- Patient is a 30-year-old M active intravenous drug use (IDU) with a recent history of MRSA bacteremia, endocarditis, parasternal abscess s/p I&D, and sternal osteomyelitis with inadequate treatment duration presenting to the emergency room with 3 days of worsening pleuritic chest pain and dyspnea.

### Physical Exam

- Physical exam notable for tachycardia, low grade fever, and decreased breath sounds. No peri-sternal tenderness.

### Initial Diagnostic Workup

- Chest radiograph with ground glass concerning for septic emboli
- Computerized tomography (CT) of the chest showed nodules, anterior sternal thickening, but no evidence of osteomyelitis.
- Preliminary blood cultures pending
- IV vancomycin treatment was started for presumptive recurrent tricuspid valve (TV) endocarditis with septic emboli.



Septic pulmonary emboli

Image 1: Chest radiograph on admission

## Hospital Course

- Patient remained tachycardic with pleuritic pain in the setting of active heroin withdrawal.
- Two days after admission, preliminary blood cultures continued to have no growth, he became hypotensive with an uptrending leukocytosis, prompting further evaluation.
- Electrocardiogram (EKG) with marked diffuse ST elevations consistent with pericarditis.
- Transthoracic echocardiogram remarkable for a large fibrinous pericardial effusion.

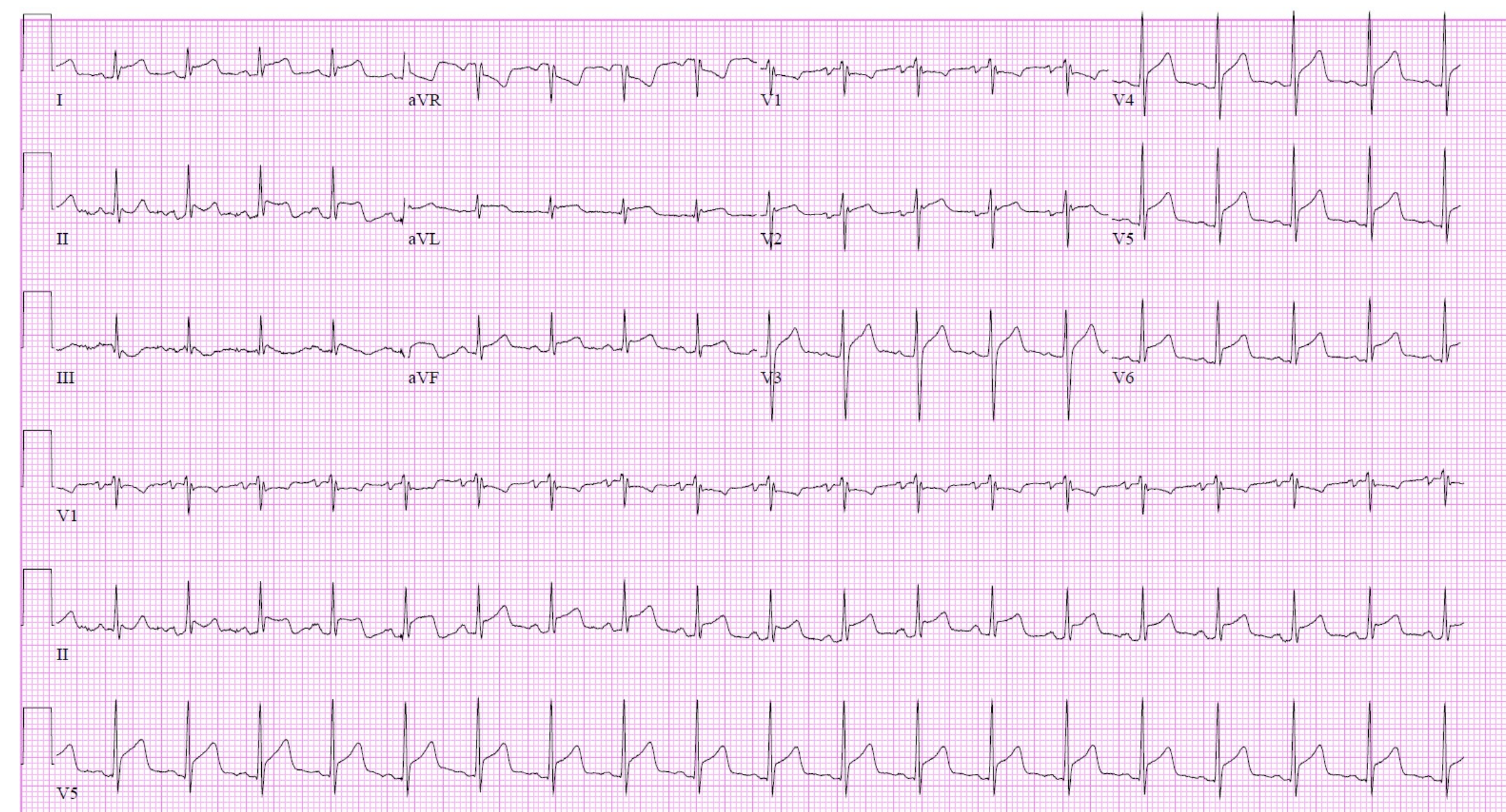


Image 2: EKG with diffuse ST elevations concerning for pericarditis

## Transthoracic echocardiogram

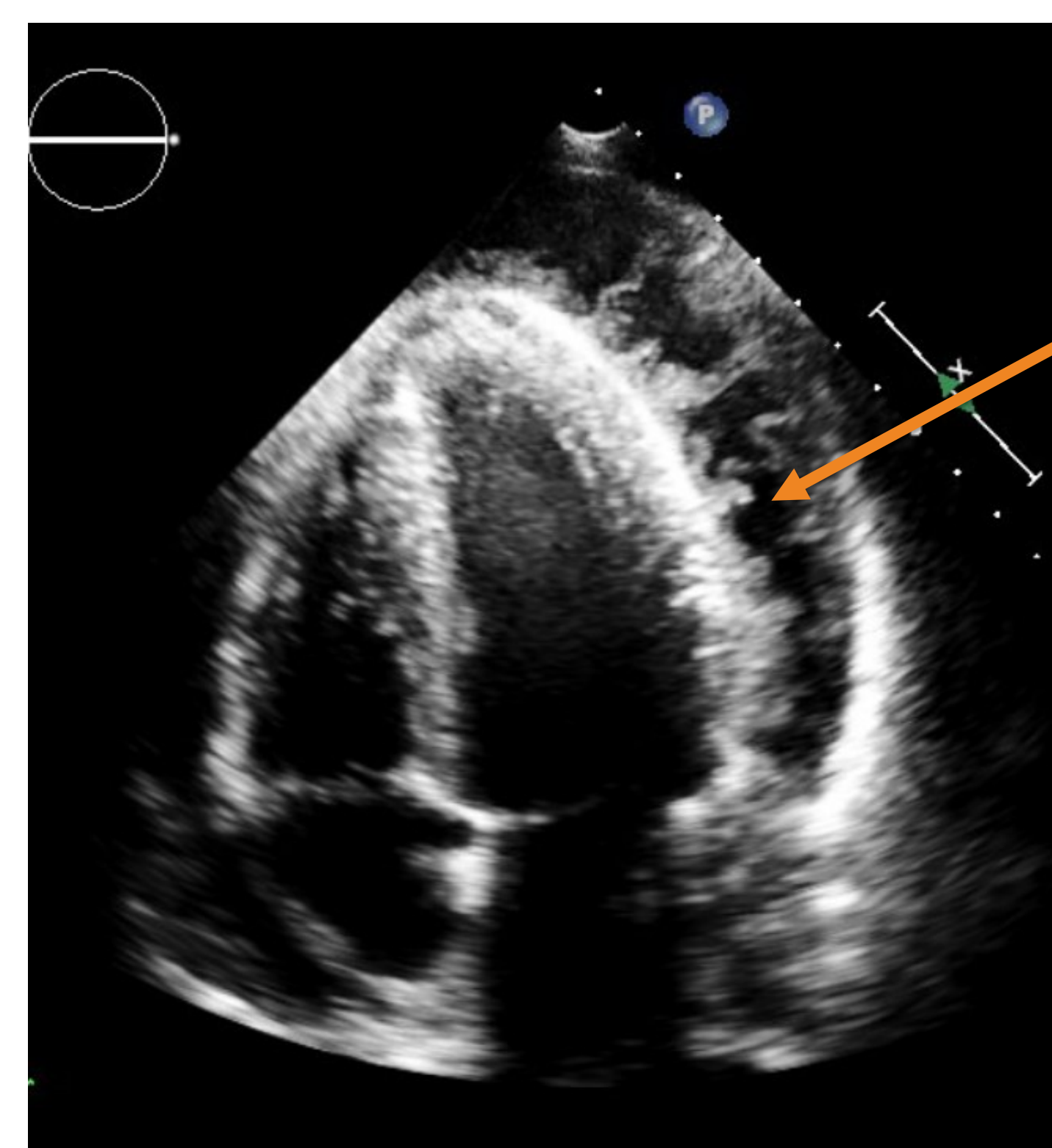


Image 3: Apical four chamber view of fibrinous exudate within the pericardial space

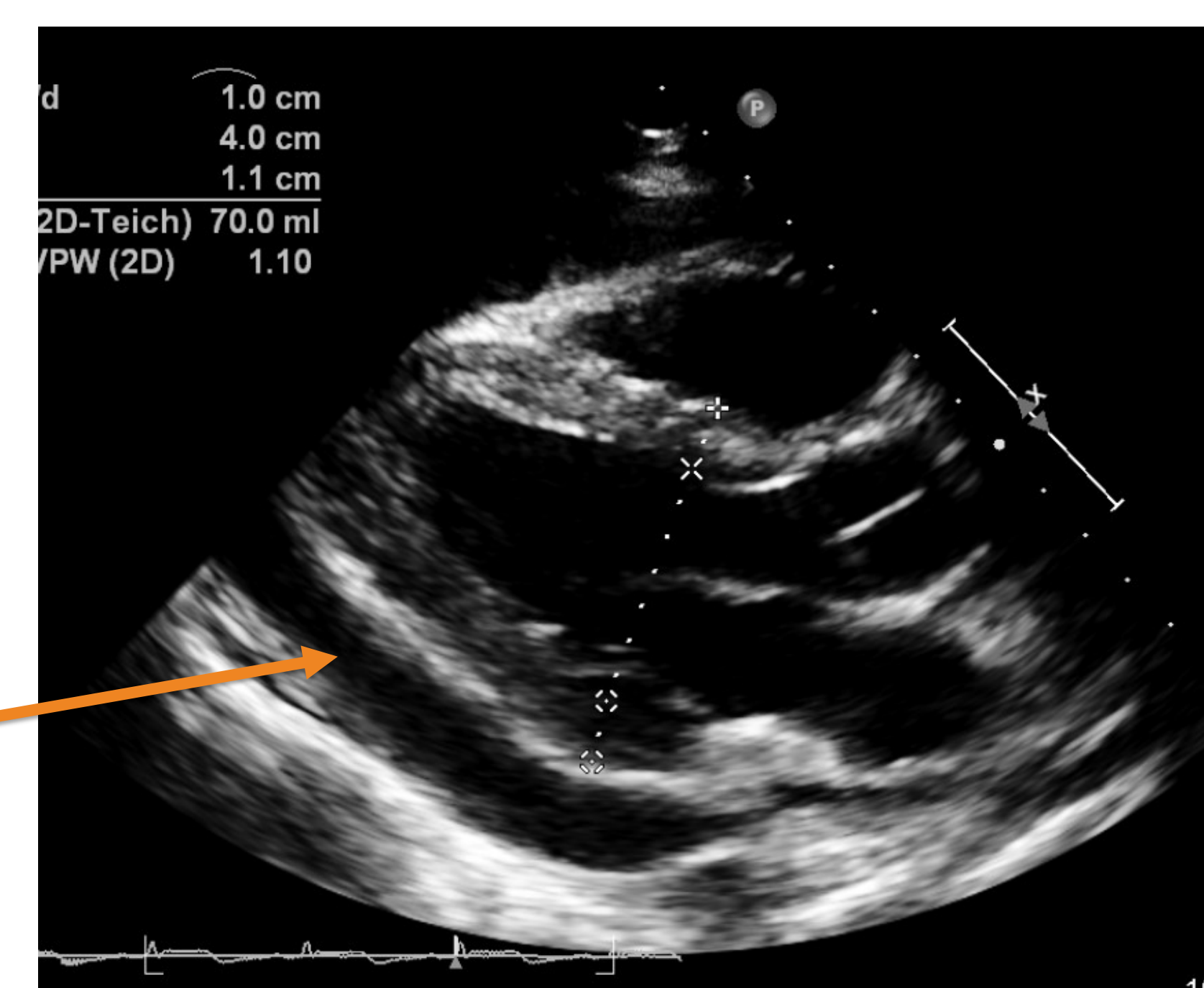


Image 4: Parasternal long view of the pericardial effusion

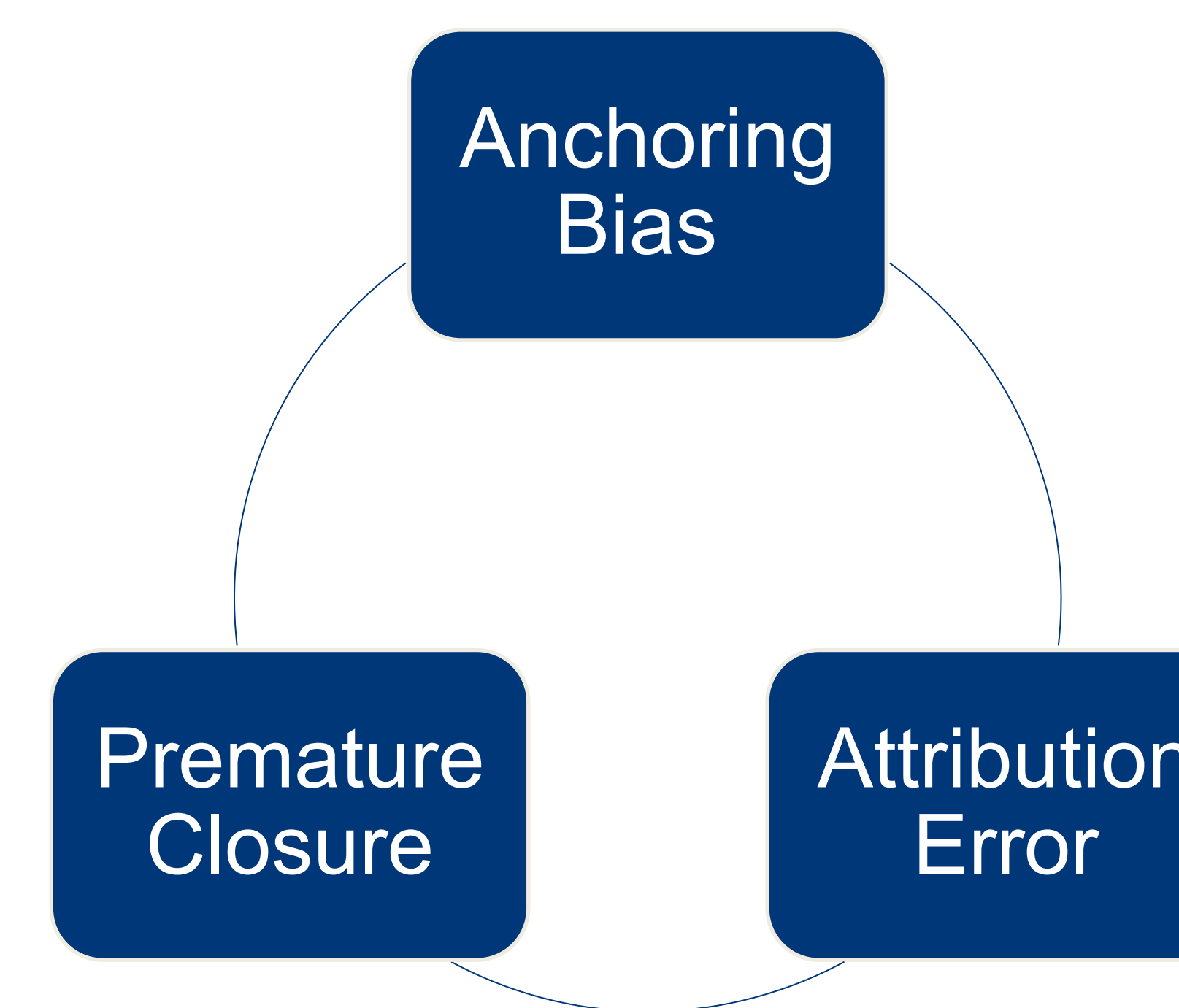
## Further Complications

- Pericardiocentesis was attempted and the catheter was placed in the RV, which led to a RV repair, subtotal phrenic to phrenic pericardiectomy and mediastinal washout.
- During the surgery frank pus was visualized in the pericardial sac.
- Pericardial fluid and tissue cultures were positive for MRSA.
- His blood cultures remained negative. The patient did well in the postoperative setting and his mediastinitis was treated with IV vancomycin for a total of 4 weeks.

## Learning Points

- Patients with purulent pericarditis generally have non-specific symptoms, so diagnosis relies on high clinical suspicion and a pericardiocentesis for pericardial fluid analysis.
- The most common organism responsible for purulent pericarditis is Staphylococcus aureus.<sup>2</sup>
- Mortality rate approaches 20-30%<sup>3</sup> making early treatment with targeted antibiotics and aggressive pericardial drainage paramount in improving patient outcomes.
- Clinicians should be aware of their cognitive biases during clinical decision making, as it can be crucial for diagnosing conditions like purulent pericarditis.

Image 5: Common cognitive biases in medicine



## References

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3. Augustin P, Desmard M, Mordant P, Lasocki S, Maury JM, Heming N, Montravers P. Clinical review: intrapericardial fibrinolysis in management of purulent pericarditis. Crit Care. 2011;15(2):220. Epub 2011 Apr 20.