

Acute Cardiac Tamponade as a result of Purulent Pericarditis and Pleural Effusion with Strep Group B Infection

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Introduction

Purulent bacterial pericarditis is an infection within the pericardial space, commonly seen as an extension of pneumonia. Due to effective antibiotic use, this form of pericarditis is rarely seen. The majority of the patients in the post-antibiotic era had an underlying non-infectious condition such as recent thoracic surgery or chronic kidney disease. (1) While rare, the mortality rate remains high and approaches 100% without treatment and 35% with early treatment. (1,2) Here, we present an extremely rare case of infective pericarditis with acute cardiac tamponade caused by Group B beta-hemolytic *Streptococcus* (GBS) likely an extension of left lower lobe pneumonia to pericardium.

Clinical Case

A 68-year-old morbidly obese male presented after a 6-hour flight with dyspnea and chest pain. His significant past medical history includes diabetes mellitus, chronic kidney disease – on hemodialysis (HD), taking oral potassium supplements, and liver cirrhosis due to non-alcoholic steatohepatitis (NASH).

On physical examination, the patient was afebrile (96°F), normotensive (BP of 142/75 mmHg), tachycardic (HR of 97 bpm), and tachypneic (RR of 33/min) with oxygen saturation of 90% in room air (96% on non-rebreather mask). Bilateral rales and distant heart sounds were heard during chest auscultation. Laboratory findings were significant for severe hyperkalemia (10.6 mEq/L), elevated blood urea nitrogen (60 mg/dL), creatinine (2.6 mg/dl), neutrophilic leukocytosis (29.5 K/uL), high anion gap metabolic acidosis, elevated aspartate transaminase (87 U/L), and alkaline phosphatase (167 U/L). The electrocardiogram showed wide complex sinus rhythm with new left bundle branch block.

While being treated for hyperkalemia, the patient developed respiratory distress and was intubated. Shortly after, he had two episodes of cardiac arrest with pulseless ventricular tachycardia and fibrillation - requiring multiple shocks, amiodarone, and vasopressors. The chest X-ray showed cardiomegaly and widening of mediastinum with possible left lower lobe infiltrate. The patient was started on broad spectrum antibiotics. A bedside echocardiogram showed moderate amount of pericardial effusion, consistent with cardiac tamponade. Emergent pericardiocentesis was performed, which drained 400 cc of serosanguinous fluid. The pericardial fluid culture grew penicillin-sensitive Group B *Streptococcus* and he was started on penicillin. The patient's condition and mental status eventually improved. He was extubated, no longer requiring HD, received a total of 20 days of IV penicillin, and was discharged on levofloxacin for an additional 10 days.

References:

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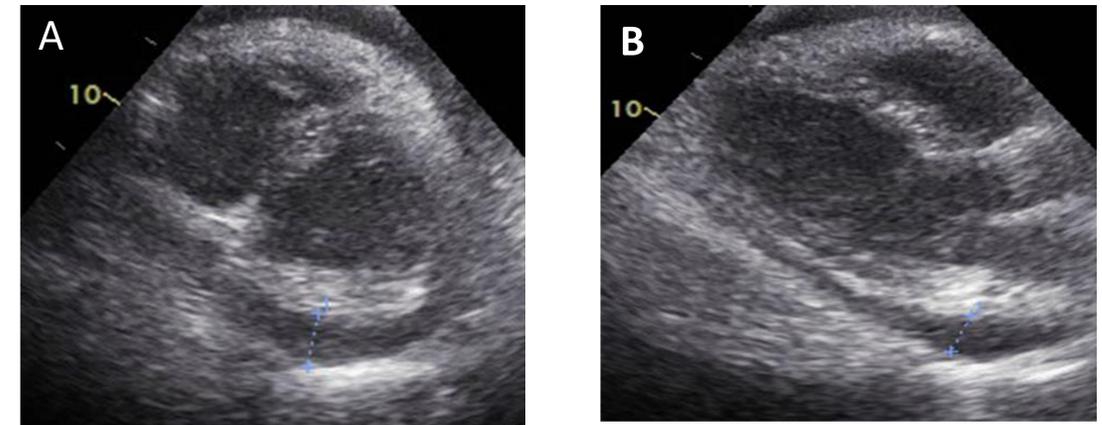


Figure 1: Echocardiogram of the heart (a) parasternal short axis view showing moderate pericardial effusion and (b) left parasternal long-axis view showing pericardial effusion, mild right and left atrial chamber collapse consistent with tamponade.

Discussion

Purulent pericarditis is a rare entity in the developed world. Several bacterial agents have been reported to cause purulent pericarditis which include *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Haemophilus influenzae*, and anaerobic bacteria. (3) GBS infection causing pericarditis is an uncommon manifestation with over incidence of 1.7%. (4) The most common complications include cardiac tamponade and hemodynamic collapse. Group B streptococci are sensitive to penicillin G, ampicillin, and other semisynthetic penicillins. This case exemplifies that with early diagnosis, aggressive treatment with appropriate antibiotics, and drainage of pericardial fluid, favorable results with decreased complications can be achieved.