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A Case of RSV Induced Pericarditis in a Healthy Adult Woman

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Abstract

Viral infections are a known cause of pericarditis in adults. While respiratory syncytial virus (RSV) infections have traditionally affected children, their incidence has recently increased in older adults and can be associated with significant morbidity. Following the recent COVID-19 pandemic, there has been an increased interest and recognition of respiratory viral infections and their complications. Reported here is a case of RSV-associated pericarditis successfully treated with anti-inflammatories and colchicine in an immunocompetent adult.

Keywords: Respiratory syncytial virus (RSV); Pericarditis; Immunocompetent adult; Colchicine

Introduction

While traditionally associated with pediatric cases, RSV infections have recently surged in older patients, resulting in an increasing number of respiratory infections, as well as associated complications [1]. Presented is a case of a healthy adult with RSV associated pericarditis, a rare cause of pericardial disease in this population.

Pericarditis in healthy adults is classically attributed to viral syndromes, most commonly Coxsackievirus, Echovirus, and Adenovirus [2]. While pericarditis due to RSV infection is common in the pediatric population, it is rare in healthy adults [3]. In our case, the initial presentation was consistent with pericarditis given the lack of cardiac troponin elevation and normal wall motion on the echocardiogram [4]. As a result, cardiac catheterization was deferred. Based on the current guidelines for the treatment of acute pericarditis, our patient was treated with anti-inflammatory therapy and colchicine, as well as supportive measures for the respiratory infection [5]. Her symptomatic improvement with the given anti-inflammatory therapy and colchicine further supported the diagnosis of pericarditis. While Coxsackie B virus, echovirus, and adenovirus are the most frequent pathogens associated with pericardial disease, there have been reports of influenza, EBV, and SARS-CoV-2 being implicated as inciting agents in some cases [6-8]. RSV associated pericarditis and myocarditis have been reported in immunocompromised adults [9], but are uncommon in immunocompetent adults. Given the recent surge in RSV cases in adults, clinicians should remain vigilant to RSV and other uncommon viral causes of pericardial disease [10].

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Case Presentation

A 73-year-old Caucasian woman, who reported no past medical history, presented to the emergency [10], room endorsing a few hours of chest pain. Her pain was pleuritic in nature, worse when lying flat and with deep inspiration, and improved with leaning forward. It was non-exertional. Review of systems was significant for runny nose, non-productive cough and fevers of up to 101°F. On presentation, her electrocardiogram showed diffuse ST segment elevations with PR depressions (Figure 1). A chest radiograph performed was normal (Figure 2). Because the presentation was more consistent with viral pericarditis, coronary angiography was deferred. During her hospital stay two troponin levels were negative. The erythrocyte sedimentation rate was 90 mm/hour, and the C-Reactive Protein was 195 mg/L. Her nasal swab PCR was positive for the respiratory syncytial virus (RSV) and negative for SARS-CoV-2, influenza A and B. A transthoracic echocardiography revealed a normal global left ventricular systolic function and a small pericardial effusion without evidence of tamponade or wall motion abnormalities (Figure 3). The patient was admitted to the hospital with a diagnosis of acute [10], pericarditis secondary to RSV infection.

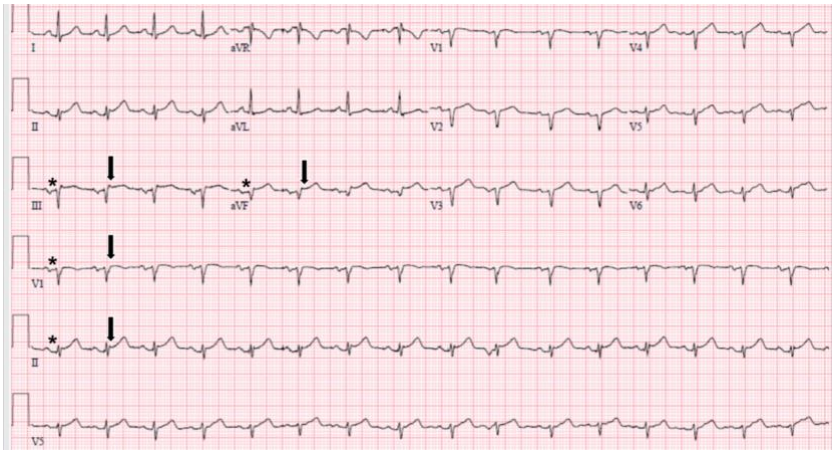

Figure 1: ECG on Presentation: ECG on presentation showing a normal sinus rhythm with ST segment elevations (arrows) of leads I, II, III, aVF and V1 associated with PR segment depression in the same leads (asterisk).

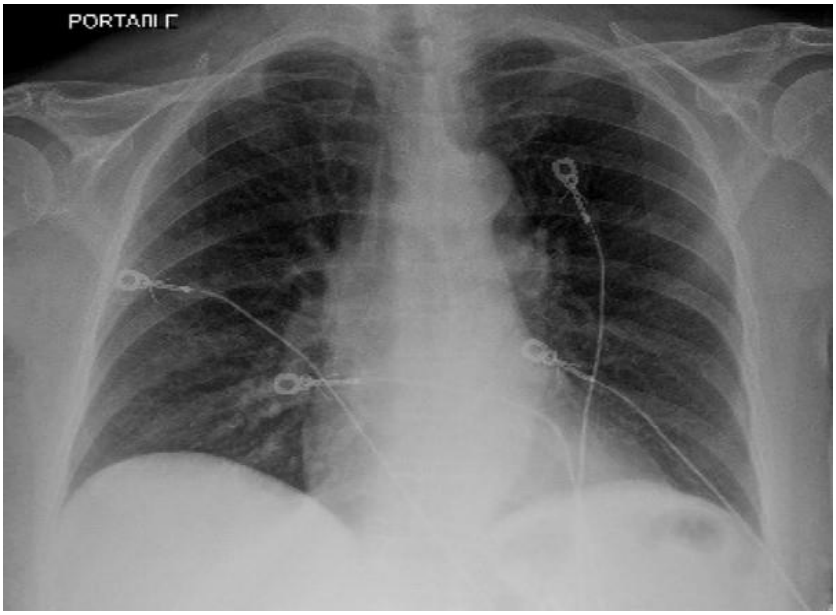

Figure 2: Chest radiograph revealing no acute pulmonary abnormalities.

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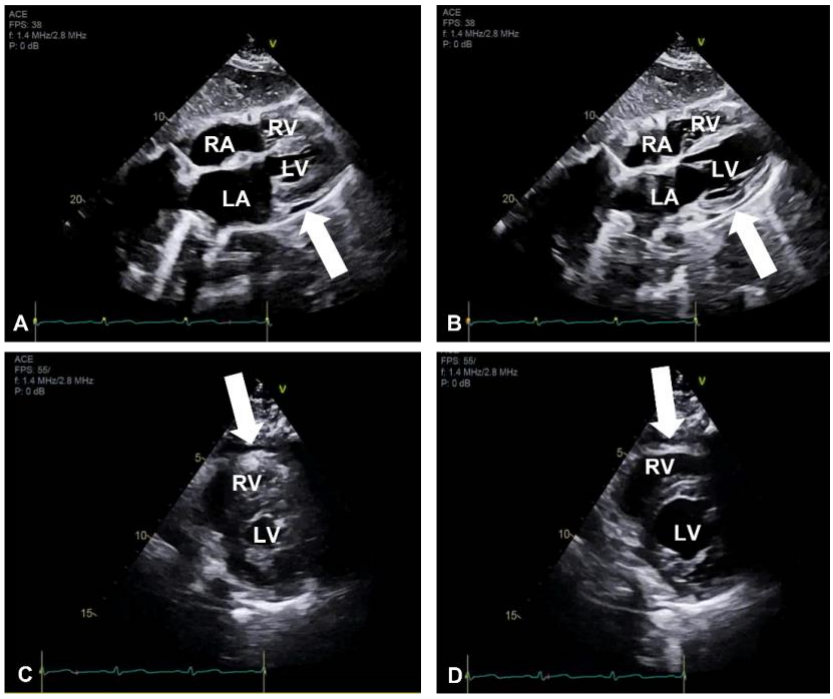

Figure 3: Transthoracic Echocardiogram Images.

The transthoracic echocardiogram revealed a normal left ventricular function with a small circumferential pericardial effusion without evidence of tamponade.

Sub-xiphoid views in end-systole **(A)** and end-diastole **(B)** showing the small pericardial effusion (arrow).

Short axis view in end-systole **(C)** and end-diastole **(D)** showing the small pericardial effusion (arrow).

Her hospital stay was complicated by new onset atrial fibrillation [14]. Though commonly associated with risk factors, such as hypertension, obesity, sleep apnea, or alcohol abuse, the patient did not present with any of these traditional indicators. A rate control strategy was adopted. Anticoagulation was deferred due to a CHADSVASC score of 2 (sex and age).

The pericarditis was treated with a 6-week taper of Ibuprofen (600mg every 8 hours for 2 weeks then 400 mg every 8 hours for 2 weeks then 200 mg every 8 hours for 2 weeks), colchicine 0.6 mg every 12 hours for 3 months [13]. The atrial fibrillation was treated with metoprolol 50 mg every 8 hours. On discharge, she had been afebrile for two days. She ambulated without symptoms. She was seen in the office one week later. She was endorsing mild fatigue. No chest pain or shortness of breath [10]. There was no evidence of side effects from her medications. An ECG showed normal sinus rhythm with improved ST segment changes and a heart rate of 60 beats per minute (Figure 4).

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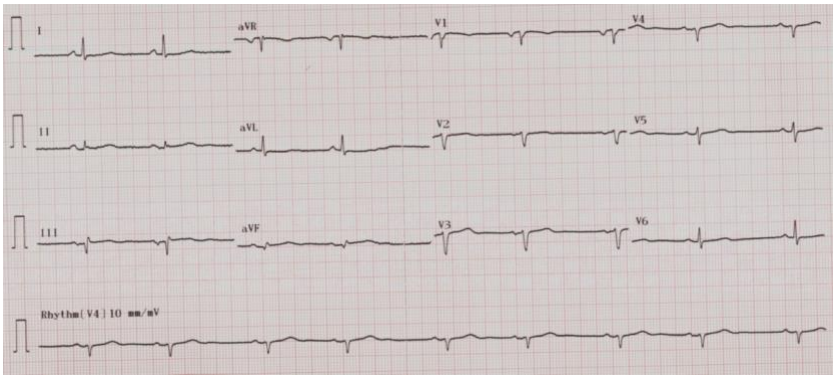

Figure 4: ECG at 1 week follow up in the office.

ECG in the office 1 week after discharge shows normal sinus rhythm at a rate of 60 beats per minute with improvement of the ST segment changes seen at presentation.

Discussion

This case highlights the new paradigm in evaluating and treating complications of viral illnesses. As viral infections shift across traditional populations and present with atypical symptoms and complications, clinicians must be aware of various presentations of these infections and be able to recognize and treat them. Respiratory syncytial virus (RSV), which is most commonly associated with pediatric populations, has recently emerged as an important pathogen in adult and geriatric patients [11]. Although RSV is not a typical pathogen to result in acute pericarditis, as wider populations are affected, complications such as the one reported here become more apparent. Recognizing and managing cardiac complications of viral infections in the elderly is becoming increasingly important for cardiology and internal medicine specialists as the prevalence of these conditions increases [12].

Conclusions

RSV is an uncommon pathogen to cause pericarditis in an immunocompetent adult. Reported here is a case of an RSV-associated pericarditis in an otherwise healthy adult successfully treated with an anti-inflammatory therapy and colchicine. Given the increasing prevalence of RSV infections in older adults, clinicians should be able to recognize this potential complication and treat it with appropriate anti-inflammatory therapies.

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