

Case Report

Fulminant Legionella Myocarditis – A Rare Treatable Cause of Acute Heart Failure – Case Report and Review of Literature.

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Abstract

Myocarditis is an inflammatory disease of cardiac muscle with necrosis of cardiac myocytes. The commonest etiology is viral infection followed by autoimmune disease. Rarely, bacterial infection can lead to myocardial involvement. Diagnosing a bacterial cause is extremely important as prompt treatment with anti-microbial agents can lead to high cure rates. We present a rare case of Legionella Myocarditis presenting with refractory heart failure but early diagnosis and prompt treatment with appropriate antibiotic therapy saved the patient's life.

Keywords: Legionella, Myocarditis, Heart Failure

Introduction:

Myocarditis is an inflammatory disease of cardiac muscle with necrosis of cardiac myocytes (1). A recent study using International Classification of Diseases codes estimated the global prevalence of myocarditis to be approximately 22 of 100,000 patients annually (2). More than 50% of cases are idiopathic, while the remaining have an identifiable cause. Among the infectious etiologies, viruses are the most frequent pathogens; bacteria, fungi, protozoa, and helminths have also been implicated (3). Diagnosis of a bacterial cause is

extremely important as prompt treatment with anti-microbial agents can lead to a high cure rate. We describe a case of fulminant legionella myocarditis which presented with refractory heart failure; early diagnosis and prompt antibiotic therapy saved the patient's life.

Case presentation:

A 37-year-old male who was previously healthy, presented with high grade fever, and a productive cough for 10 days and class IV dyspnoea for two days. Cardiovascular system examination revealed tachycardia, hypotension (blood pressure 80/60

mmHg), raised jugular venous pressure, S3 gallop rhythm and bilateral extensive lung crepitations. Cardiac biomarkers (Troponin and CPK-MB) were significantly increased. ECG showed diffuse ST segment depression with sinus tachycardia (Figure 1). Chest X-ray showed lung infiltrates with small bilateral pleural effusions. Transthoracic Echocardiography revealed severe Left ventricular systolic dysfunction with global hypokinesia (Figure 2, Video 1). Selective coronary angiography was normal with no evidence of coronary artery disease. Endomyocardial Biopsy was not available. Due to the presence of lung infiltrates, urine was sent for Legionella Pneumophila antigen and the result was positive. Appropriate antibiotic and heart failure therapy was administered. The patient improved dramatically and was discharged after a 7-day hospital stay. Follow up transthoracic echocardiography showed significant improvement in Left ventricular systolic function at 3 months.

Discussion:

Legionella Myocarditis is an extremely rare cause of fulminant myocarditis, with only a few cases reported in the literature (5). The clinical

presentation of myocarditis ranges in severity from asymptomatic to signs of myocardial infarction to cardiogenic shock. Chest pain, cardiac arrhythmias, and acute or chronic heart failure (HF) can occur during the course of the disease (4). The diagnosis is suspected on clinical presentation and non-invasive diagnostic methods. Endomyocardial biopsy remains the gold standard for in vivo diagnosis of myocarditis. However, it can be reliably made by a combination of increased cardiac biomarkers, signs and symptoms of heart failure, cardiac imaging and after excluding other causes of heart failure. In spite of the lack of availability of Endomyocardial Biopsy, we were able to suspect the diagnosis & confirm it with Urinary Antigen testing for Legionella Pneumophila.

Conclusion:

Diagnosis of a bacterial cause of myocarditis, although rare, is important as prompt treatment leads to a high cure rate.

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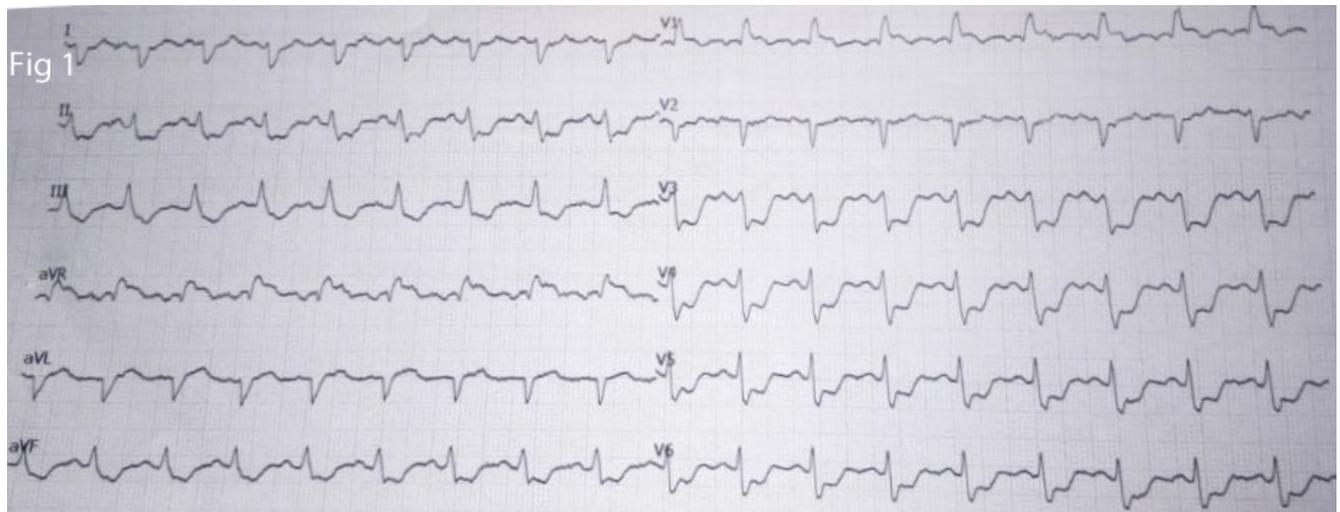


Figure 1. ECG showing sinus tachycardia and diffuse ST depression

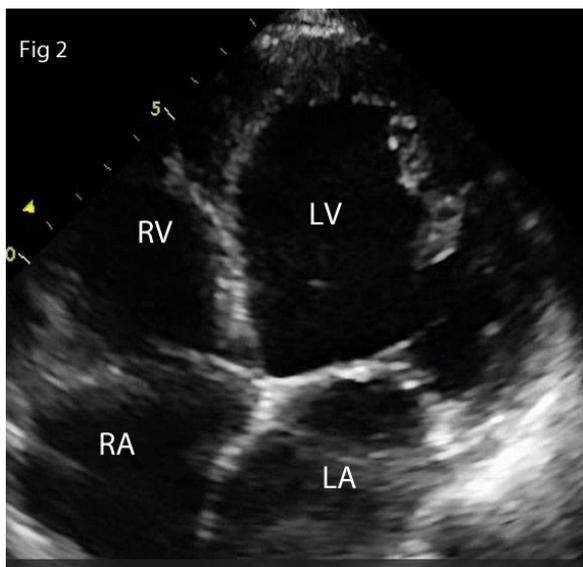
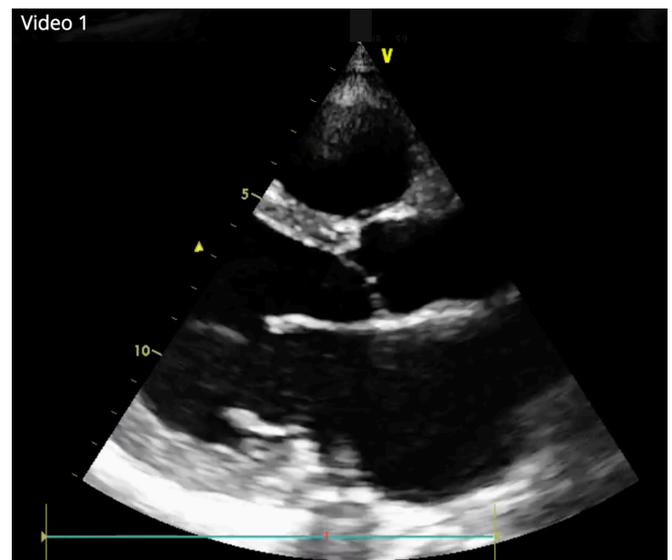


Figure 2. Apical 4 Chamber View demonstrating 4 chamber dilatation. RV: Right Ventricle, LV: Left Ventricle, RA: Right Atrium, LA: Left Atrium



Video 1. Parasternal Long axis View demonstrating a dilated left ventricular cavity with severely reduced Left Ventricular Systolic Function. Visit <https://streamable.com/0bzbb> to view the video.