

CASE REPORT

Myocardial tuberculosis: A rare case report

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Received: August 18, 2022

Accepted: January 9, 2023

Online Published: March 6, 2023

DOI: 10.5430/dcc.v9n2p13

URL: <https://doi.org/10.5430/dcc.v9n2p13>

ABSTRACT

Tuberculosis (TB) is one of the most common causes of mortality and morbidity globally, with Indian subcontinent having quite a large number of TB cases. TB can involve any organ system in humans; however, the disease affecting the cardiovascular system is rare. On the other hand, myocardial tuberculosis is a serious entity and can, unfortunately, be fatal if the diagnosis is missed or delayed. Therefore, the possibility of TB involving the myocardium should always be considered in areas with a high prevalence of TB, like the Indian subcontinent. Anti-TB therapy (with corticosteroids in some cases), along with early detection and suspicion, is proven to be quite effective in management and cure in most cases. We describe a case of sputum AFB (acid-fast bacilli) positive pulmonary TB with dilated cardiomyopathy, and impaired/decreased left ventricular systolic function, which gradually improved after anti-tubercular decongestive therapy.

Key Words: Cardiomyopathy, Myocarditis, Tuberculosis

1. INTRODUCTION

Tuberculosis (TB) is one of the most prevalent causes and, in many cases, fatal (if untreated) infection present worldwide. In most TB cases, the causative agent is *Mycobacterium tuberculosis* (*M. tuberculosis* or *M. TB*), a non-spore-forming, rod-shaped, small-size, strictly aerobic acid-fast bacillus, with humans being the only known reservoir for the bacteria.^[1,2]

Tubercular involvement of the cardiovascular system is rare (only 0.1%-2%), with tubercular pericarditis reported in most cases.^[3] TB affecting the myocardium is extremely rare, with several studies showing a prevalence between 0.14% and 0.2%.^[4,5] Tuberculous myocarditis is believed to occur by hematogenous or lymphatic spread, or in a few cases, it directly spreads from the surrounding contagious tissues.^[3] We reported a case of dilated cardiomyopathy with severe

left ventricular dysfunction diagnosed as positive sputum tuberculosis and showed significant improvement with anti-tubercular and decongestive therapy.

2. CASE REPORT

An 85-year Indian lady presented to the Emergency Department of Max super specialty hospital with one week's history of low-grade fever, cough with minimal whitish expectoration, and progressive shortness of breath, more in the lying down position (orthopnea). She did not have any chest pain, hemoptysis, or diaphoresis. She had a history of seasonal bronchial asthma and diabetes mellitus (under control with diet and lifestyle modification). There was no history of hypertension, chronic liver, or renal disease. In addition, the patient denied any history of pulmonary tuberculosis or any close contact with chronic coughing.

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She was conscious, oriented, afebrile, and dyspnea on examination, with a respiratory rate of 30/minute, blood oxygen saturation of 90% on oxygen support of 5 liters/minute, pulse rate of 120/minute, blood pressure of 140/88 mmHg, and bilateral ankle edema with bilateral coarse crepitations on chest auscultation. Her ECG showed sinus tachycardia, and an echocardiogram revealed severe global left ventricular hypokinesia with a left ventricular ejection fraction (LVEF) of 20% and mild mitral valve regurgitation. Laboratory workup was routine except for elevated cardiac biomarkers with creatine phosphokinase-MB (CPK-MB) 6.0 ng/ml, troponin I 0.97 ng/ml, and N-terminal-pro-brain natriuretic peptide (NT-proBNP) 4,180 pg/ml. Her chest X-ray showed bilateral reticulonodular infiltrates (see Figure 1).

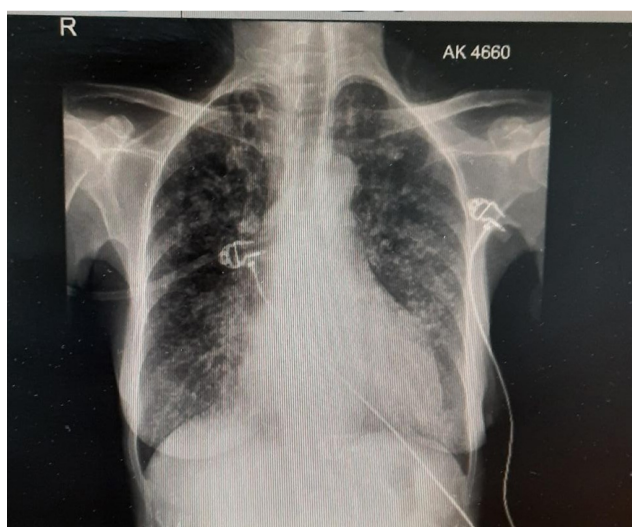


Figure 1. Chest X-ray showing diffuse reticulonodular infiltrates

The patient was admitted to the cardiac intensive care unit and commenced on broad-spectrum antibiotics, diuretics, and supportive care, including intermittent non-invasive positive pressure ventilation. In addition, her coronary angiogram (CAG) was done, which showed normal coronaries, and her CT chest revealed small nodular infiltrates with cavitation lesions in the right lung (see Figure 2).

The patient’s sputum was positive for AFB Ziehl–Neelsen stain and was started on the standard four anti-TB drugs (Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol). She showed gradual improvement in her clinical condition, and her repeat echocardiogram on the ninth day of admission showed improvement in left ventricular function with LVEF of 40%-45% and was subsequently discharged with stable vitals after ten days of access.

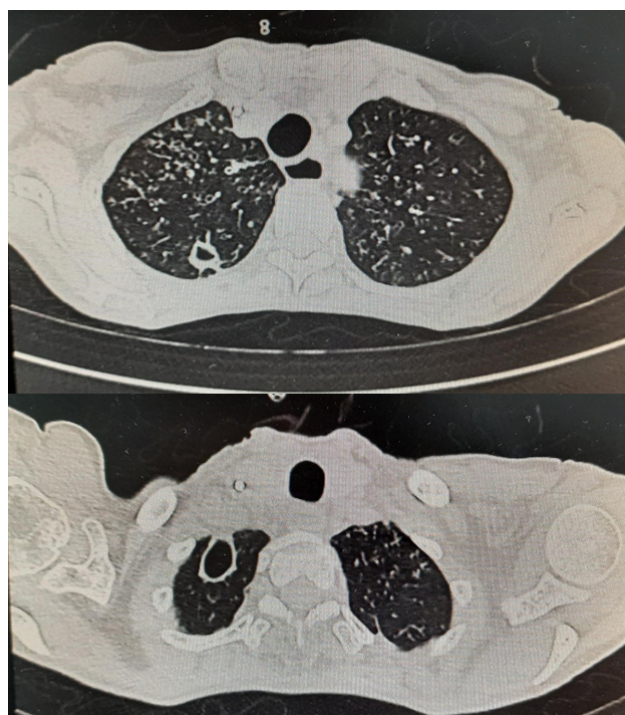


Figure 2. CT chest - small nodular infiltrates in both lungs with cavitation lesions in the right lung

3. DISCUSSION

Tuberculosis remains a challenging disease prevalent worldwide, with a high morbidity and mortality rate. India accounts for almost one-fourth (24%) of the global TB case burden.^[6] It is a treatable disease, but its diagnosis remains a challenge to physicians despite the advances in the medical field over the past decades.

It is a known fact that any organ system of the body can be affected by TB, but the involvement of the four organs, namely: the heart, skeletal muscle, and pancreas, and Tuberculosis remains a challenging disease prevalent worldwide with a high rate of morbidity and mortality. India accounts for almost one-fourth (24%) of the global TB case burden.^[6] It is a treatable disease, but its diagnosis remains a challenge to physicians despite the advances in the medical field over the past decades.

It is a known fact that any organ system of the body can be affected by TB, but the involvement of the four organs, namely: the heart, skeletal muscle, pancreas, and thyroid, is rare.^[6] Pericardial involvement (TB pericarditis) is the typical manifestation of cardiovascular involvement. On the other hand, TB affecting the myocardium (tuberculous myocarditis) is a rare entity and often occurs using a hematogenous spread of TB bacilli.

Tuberculous myocarditis is usually asymptomatic, but in a few cases, it can cause congestive heart failure, dilated cardiomyopathy, and cardiac arrhythmias such as ventricular arrhythmia/fibrillation and LQTS (prolonged QT syndrome), which can lead to sudden cardiac arrest.^[4,6,7]

Myocardial TB can be divided into three types based on histopathology: 1) nodular lesions with central caseation, 2) myocardium with diffuse miliary tubercles, and 3) diffuse infiltration of the myocardium.^[8]

In our case, the patient came with features suggestive of acute congestive cardiac failure along with elevated markers of myocardial injury and severe left ventricular dysfunction (low LVEF), mimicking acute coronary syndrome or myocardial infarction. The normal CAG with positive sputum AFB stain and subsequent improvement in the patient's con-

dition improved cardiac function (improved LVEF) on repeat echocardiogram, and post-anti-TB treatment led to the conformation of tubercular myocarditis.

4. CONCLUSION

Although rare, pulmonary TB with tubercular myocarditis and associated left ventricular failure or dysfunction carries a high mortality rate in case of delayed diagnosis. Therefore, TB myocarditis should be suspected early in patients presenting with unexplained left ventricular systolic dysfunction with normal coronaries in areas where TB is an endemic disease. Early diagnosis and management can increase the favorable outcome of the patient.^[9]

CONFLICTS OF INTEREST DISCLOSURE

The authors declare they have no conflicts of interest.

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