

## Disseminated Tuberculosis with Myocardial Involvement: A Rare Case Entity

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### ABSTRACT

A disease like tuberculosis, which is quite common in India, there is still a delay in diagnosing cardiac involvement by tuberculosis. Here we reported an autopsy case report of a middle-aged man who presented with sudden death. On histopathological examination we found that the deceased is involved of myocardium by Tuberculosis along with lungs. It is important to diagnose the condition earlier to treat the patient accordingly.

**Keywords:** Tuberculosis, Myocarditis, Autopsy

### Introduction

Although tuberculosis is a prevalent health disease, tubercular myocarditis is a very uncommon ailment. The first case of cardiac TB was reported in 1664, and the second, 97 years later, was identified in 1761. There are just a few occurrences of the same, therefore it is crucial to know what you are looking for.<sup>(1)</sup>

Infections, autoimmune illnesses, and toxic chemicals can all cause myocarditis, which is an inflammatory condition of the heart muscle. It is a leading cause of untimely mortality among young adults. Granulomatous myocarditis is a very uncommon heart condition.<sup>(2)</sup>

Tuberculosis, sarcoidosis, fungal infections, syphilis, tularemia, brucellosis, systemic lupus erythematosus, drug hypersensitivity, thyrotoxicosis, thymoma, and inflammatory bowel disease have all been linked to granulomatous myocarditis. Endomyocardial biopsy and cardiac MRI would help in arriving the diagnosis if suspected antemortem.<sup>(2)</sup>

### Case Report

A 40-year-old male was brought dead to the hospital with history of chest pain. History of fall leading to external injuries was also noted. History of Chronic alcohol consumption was noted as well. However, the deceased dint has any co-morbidities like hypertension, DM, cardiac illness, etc. No radiological investigation found.

Following medico-legal autopsy, specimen of whole heart, pieces of lungs, kidneys, liver, spleen, and brain was sent for histopathological examination from the Forensic and Toxicology department.

On gross examination of heart, it weighed 244 grams. Right ventricle and auricle showed blood clot. There were

no visible tubercles/cheesy yellow necrotic areas. Cut surface of the lungs showed greyish white tiny nodules. Gross examination of kidneys, liver, spleen, and liver showed no abnormalities. Heart was dissected according to in flow outflow method and relevant sections were given from the ventricles, coronary arteries, and major vessels.

On microscopic examination, myocardium of the ventricular wall showed confluent epithelioid granulomas (Figure 1). Lungs showed caseating granulomas (Figure 2). AFB stained positive for Mycobacterium Tuberculosis (Figure 3). Other organs were of normal histology. The final diagnosis was given as Disseminated tuberculosis to myocardium and lungs.

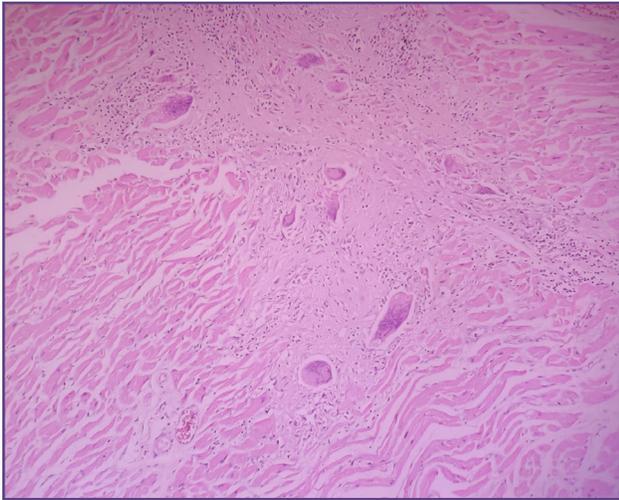
### Discussion

Around eight million people develop active tuberculosis each year, according to the World Health Organization, and 2 million people die from the disease. Lung is the most effected organ (3)

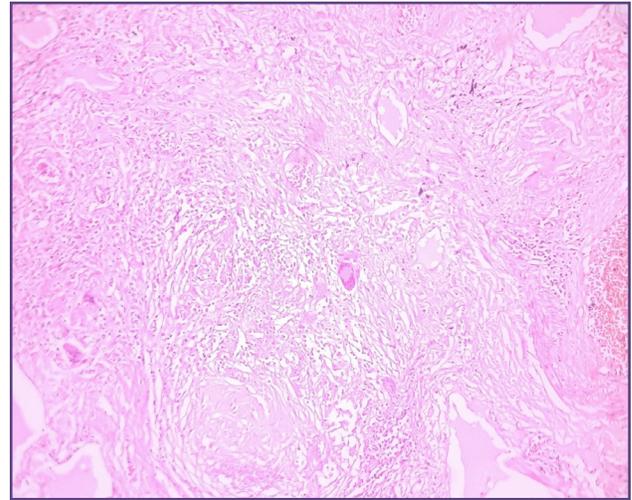
Pericardial involvement is most common tuberculous lesion of heart. Tuberculous myocarditis is caused by Mycobacterium tuberculosis bacilli spreading to the myocardium by the hematogenous route, direct extension from the pericardium, or retrograde lymphatic dissemination from bronchial and mediastinal lymph nodes related to pulmonary tuberculosis. (4)

Granulomatous myocarditis is a uncommon cardiac disease marked by epithelioid granulomas and variable degrees of persistent inflammation. (2)

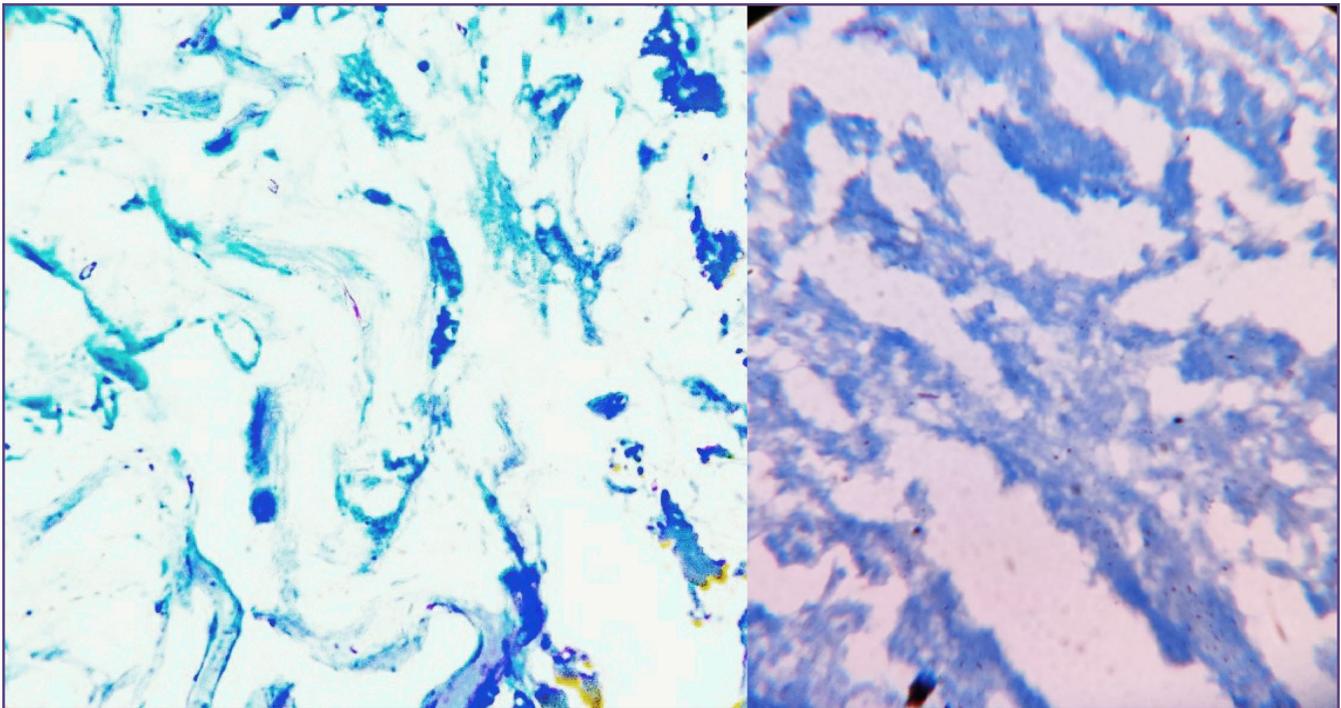
Tubercular myocarditis can be asymptomatic (diagnosed at postmortem), or it can cause sudden cardiac death, persistent ventricular arrhythmias, long QT syndrome,



**Fig. 1:** (40x magnification, H&E): Ventricular wall: granulomas composed of epithelioid cells, lymphocytes, and multinucleated giant cells.



**Fig. 2:** (40X, H&E): Sections from lung shows Large caseating granulomas. Congested alveolar septa And Intraalveolar eosinophilic material.



**Fig. 3:** AFB staining positive for *Mycobacterium tuberculosis*.

high-grade heart block, or congestive heart failure. One percent of all tuberculosis cases, primarily affecting the pericardium, is thought to have cardiac involvement. Endocardial, myocardial, valvular, and coronary artery involvement are all uncommon. (5)

Although tubercular involvement of myocardium is rare, due to the involvement of lungs in our case, and demonstration of Myocardium Tuberculosis bacilli,

diagnosis of Disseminated tuberculosis to myocardium and lungs was made.

There are three pathological forms of involvement: (i) miliary tuberculosis, in which the heart is merely one of several organs affected; (ii) diffuse infiltrating interstitial disease; and (iii) caseating nodular disease (tuberculoma). Miliary tuberculomas are significantly more prevalent than tuberculomas. (6)

The heart, thyroid, pancreas, and skeletal muscle are considered tuberculosis-resistant organs. It has been postulated that the continual mobility of the myocardium prevents tubercle bacilli from becoming lodged. (7)

Because of the organism's systemic involvement, it is critical to assess the patient for any signs or symptoms that point to cardiac involvement.

### Conclusion

Tuberculosis being such a common disease in India, antemortem identification of cardiac involvement is still a long way off. Most of the cases that have been recorded are postmortem. As a result, detecting the involvement using endomyocardial biopsy and cardiac MRI would be extremely helpful in lowering mortality.

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