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Right atrial tuberculoma presenting as right atrial mass: A case report

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Abstract

Intracardiac involvement in Tuberculosis (TB) is rare, although myocardial and pericardial manifestations are more common. We report a case of a 12-year-old female who presented with progressive dyspnea, palpitations, bilateral pedal edema, and generalized weakness for two years. She had a history of treated tuberculous pericardial effusion. Transthoracic echocardiography (TTE) revealed a large echogenic mass in the right atrium. The patient underwent surgical excision of the right atrial mass along with pericardectomy. Histopathological Examination (HPE) revealed a right atrial tuberculoma associated with tuberculous pericarditis. This case highlights the importance of considering tuberculoma in the differential diagnosis of intracardiac masses, particularly in patients with a history of TB.

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Introduction

Approximately 60% of patients with TB have a cardiovascular involvement, the most common associated pathological entities being pericarditis, myocarditis [1]. Apart from the pericardium and myocardium, the intramyocardium is an extremely rare site of involvement. Myocardial tuberculosis was first reported in 1761 by Morgagni [2]. Myocarditis and aortitis are relatively rare cardiac manifestations of tuberculosis (<2% in different series) [3]. Cardiac tuberculomas are exceedingly rare, with only few cases reported in the literature. Most cases were historically been diagnosed at autopsy, and post-mortem studies have demonstrated cardiac involvement in less than 0.3% of patients with tuberculosis [4]. The clinical presentation of right atrial tuberculoma is highly variable, ranging from incidental asymptomatic mass to severe life-threatening complications such as arrhythmias, intracardiac obstruction, embolic events or valvular regurgitation. We report a case of a right atrial mass in a patient with treated tuberculous pericardial effusion, who was successfully managed with surgical excision and pericardiectomy. HPE confirmed the diagnosis as atrial tuberculoma with tubercular pericarditis.

Case report

A 12-year-old female presented with progressive dyspnea, palpitations, bilateral pedal edema, and generalized weakness for the past two years. She had a history of treated tuberculous pericardial effusion. On clinical examination, heart sounds were normal, while respiratory examination revealed bilateral

crepitus. There was no history of deep vein thrombosis or thromboembolic event. C-reactive protein, erythrocyte sedimentation rate, and total leukocyte count were elevated, with lymphocytic predominance (40%). Electrocardiography showed T-wave inversion in leads V1, V2, V3, and V6 (Figure 1). Chest radiography revealed no evidence of pleural effusion, pericardial effusion, pleuritis, or focal pulmonary lesions (Figure 2). TTE demonstrated a well-defined, non-mobile mass arising from the right atrial free wall, associated with dilatation of the right atrium and right ventricle. The estimated right ventricular systolic pressure was 52 mmHg, while left ventricular systolic function was preserved. Computed tomography pulmonary angiography was normal.

Intraoperative transesophageal echocardiography reconfirmed a well-defined, non-mobile right atrial mass measuring around 3 × 4 cm with mild tricuspid regurgitation (Figure 3). Standard aortic and bicaval cannulation was established, and cardiopulmonary bypass was initiated. Through a longitudinal right atriotomy, a broad-based mass arising from the right atrial free wall near the superior vena cava–right atrial junction was identified (Figure 4). Complete excision of the involved right atrial wall with free margin was performed. Excised mass and pericardium were sent for HPE, culture and sensitivity testing, acid-fast bacilli staining, and nucleic acid amplification test analysis. The right atrial wall was primarily closed with a continuous 5-0 polypropylene suture. HPE was suggestive of tubercular pericarditis with atrial tuberculoma (Figure 5).

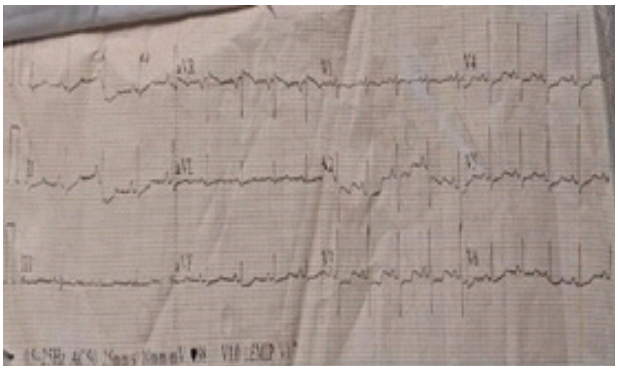

Figure 1: ECG shows T wave inversion in V1, V2, V3 and V6.

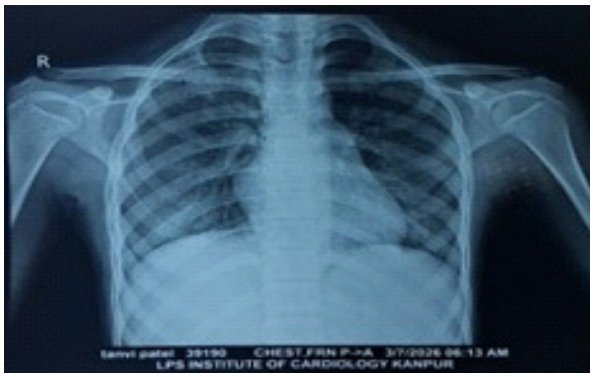

Figure 2: Chest x-ray does not show any finding suggestive of TB.

Discussion

Approximately 60% of patients with TB have a cardiovascular disease, the most common associated pathological entities being pericarditis, myocarditis [4]. Endocardial tuberculoma is an exceptionally rare manifestation of tuberculosis, with only a few cases reported in the literature, most diagnosed at autopsy,

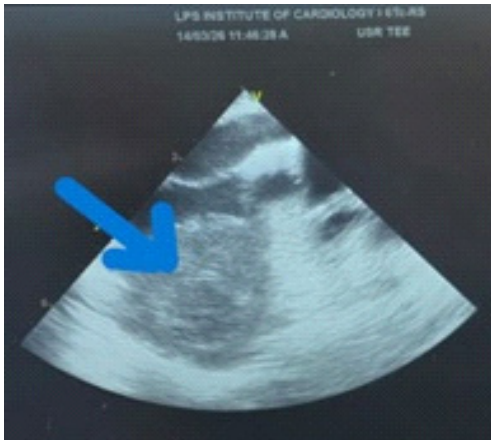

Figure 3: TEE showing intra operative, non-mobile, right atrial mass around 3×4cm.

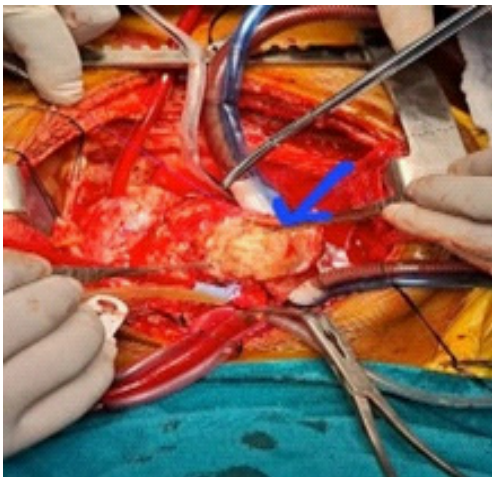

Figure 4: Right atrial mass arising from right atrial free wall near Superior vena cava and right atrial junction.

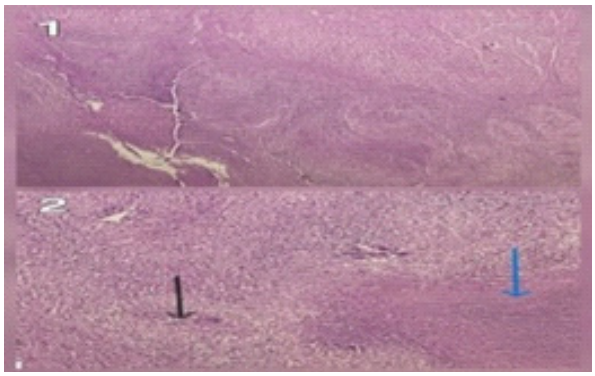

Figure 5: **(1)** HPE shows Atrial tuberculoma showing coalescing granulomas comprising large irregular areas of caseous necrosis. No atypical T cells. **(2)** HPE shows tubercular pericarditis. Central areas of caseous necrosis (Blue arrow) with large coalescing granulomas with giant cells (black arrow). No atypical cells seen.

and endocardial involvement identified in just 19 of 13,658 cases (0.14%) [5]. Right atrial masses are a diagnostic challenge with 3 major possibilities including tumors, thrombus, or vegetations. Although early imaging, such as MRI and echocardiography, is crucial, surgical excision remains the gold standard treatment procedure and is often curative [6]. Complications of atrial tuberculoma are obstruction of superior or inferior vena cava, valve's erosion and consequent tricuspid regurgitation, intra-myocardial abscess formation, systemic or pulmonary emboli. Systemic spread of TB to all organ bodies have rarely been reported [7].

In this case, a right atrial mass was diagnosed on TTE. Imaging identified the intracardiac lesion, while definitive diagnosis was established by excisional biopsy. This case highlights the importance of considering tuberculoma in the differential diagnosis of intracardiac masses in patients with a previous history of TB. Early recognition and timely surgical intervention can be both diagnostic and therapeutic, leading to favorable outcomes.

Conclusion

The present case reinforces several key points. First, intracardiac tuberculoma should be considered in the differential diagnosis of right atrial masses, particularly in patients with a history of tuberculosis. Second, definitive diagnosis is often established only after surgical excision. Finally, long-term follow-up is necessary to ensure complete resolution and to monitor for recurrence.

Declarations

Author contributions: Dr RKV: Main operating surgeon, idea, critical review; Dr NK: Content review, review of article; Dr SG: Assistant surgeon, providing the study material; Dr PB: Verification of articles; Dr LB: Writing of the initial draft; Dr AM: Creation of the published work from original research articles; Dr SR: Supervising the work; Dr SA: Histopathological study.

Patient consent: Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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Conflict of interest: The authors declare no conflicts of interest.

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