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## Case Report

# Tuberculous pericardial abscess with Impending Pericardial Effusion and Cardiac Tamponade

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### Abstract

The case of a 59 year male with acute tuberculous pericardial abscess who presented with cough, dyspnoea, haemoptysis, signs of Tamponade and a large Pleural Effusion is reported. Performing Pericardiocentesis did not improve his symptoms hence he was subjected to surgery. Acute tuberculous pericardial abscess was the diagnosis made after histopathology which was successfully managed with sternotomy along with drainage of pus.

**Keywords:** Tuberculous pericardial abscess, Cardiac tamponade.

### Introduction

Tuberculosis is a common cause of pericardial effusion especially in the developing countries. Despite the decline in mortality due to tuberculosis and an overall decrease in the incidence, tuberculosis and its complications remain a serious health problem. However, tuberculous pericardial effusion leading to pericardial abscess is a rare presentation. Large pericardial effusions are uncommon and their manifestation as cardiac tamponade is rare.<sup>1</sup> It is known that the most common cause of pericardial effusion is malignancy followed by tuberculosis. Previously it was known that the most efficient and safe way to treat pericardial effusion was pericardiocentesis.<sup>2</sup> We however, have reported an unusual case of tuberculous pericardial effusion which was not alleviated with the former but was successfully treated with sternotomy, thus proving it an effective way of treatment.

### Case Presentation

A 59-year-old male with no known co-morbidities presented in the Emergency Room with a 2-day history of fever and cough. General physical and systemic examination was unremarkable and he was vitally stable. Chest x-ray was normal. Four days later he returned with a persisting fever, cough, dyspnoea and haemoptysis. Clinical examination revealed displaced apex beat, increased Anterior Posterior (AP) diameter (bilateral harsh vesicular breathing), reduced air entry, dull to percussion and tender right hypochondrium / epigastrium. Echocardiogram showed reduced left ventricular function with a mild circumferential pericardial effusion. Moreover, signs of

tamponade, right atrial collapse with significant variation and large Pericardial Effusion - 52 mm were seen.

His symptoms amplified to worsening of dyspnoea, rise in jugular venous pressure and left ventricular dystrophy with occult magnetic resonance. Pericardiocentesis was attempted in cardiac care unit, with evacuation of 1500cc of blood. During pericardiocentesis, the patient became severely hypotensive and arrested. After performing CPR for 2 minutes, he was successfully resuscitated. However, due to his serious condition, he was taken to the Operation Room (OR) for median sternotomy. The patient was intubated prior to taking him to the OR.

A standard median sternotomy was performed. As the chest was opened, pericardium was found bulging and thick in nature. Approximately 1 Liter of pus was evacuated. The pericardium from the anterior portion of heart i.e. from the right ventricle and right atrium was completely resected and sent for cultures for tuberculosis, bacterial, fungal growth and histopathology. The previously placed pericardiocentesis catheter was found going into the right ventricle from the inferior side and the chest was closed with 4 chest tubes in place. Post operatively, the patient's recovery remained uneventful.

He was discharged after four days with clean wound and stable condition. Acid fast bacilli (AFB) culture concluded Mycobacterium tuberculosis. Gross and micro-medium biopsy exhibited dense acute and chronic inflammation with evidence of abscess formation. Hence, a diagnosis of 'Acute pyogenic non-specific inflammation of pericardial tissue and pericardial fat with abscess formation and granulation tissue' was made.

### Discussion

Tuberculosis is a disease that plagues much of the developing and underdeveloped world, including Pakistan. It is estimated to occur in 1% to 2% of cases of pulmonary tuberculosis. A subtype, tuberculous pericarditis usually presents as an insidious progressive chronic disease which can lead to haemodynamic disturbances.

Previous studies show that tuberculosis is responsible for around 4% of cases of acute pericarditis, 7% cases of cardiac tamponade, and, approximately 6% of

occurrences of constrictive pericarditis in the industrialized world.<sup>1</sup> However, in developing countries, where most of the world's population live, tuberculosis is responsible for approximately 70% cases of large pericardial effusion and for a good number of constrictive pericarditis cases. Being a hazardous disease tuberculous pericarditis has a mortality of 17% to 40%; constriction occurs in a comparable percentage of cases after tuberculous pericardial effusion.<sup>9</sup>

Despite sufficient remedy, a subset of patients may sooner or later entail to pericardiectomy. Incomplete pericardial resections are also coupled with an amplified incidence of late complications.<sup>2</sup> Therefore, early diagnosis and establishment of appropriate therapy are vital to avert mortality. A definite or verified diagnosis depends on demonstration of tubercle bacilli in pericardial fluid or on histologic section of the pericardium. A probable or presumed diagnosis is based on proof of tuberculosis elsewhere in a patient with otherwise inexplicable pericarditis, a lymphocytic pericardial exudate with elevated biomarkers of tuberculous infection, and/or appropriate response to a trial of antituberculosis chemotherapy.<sup>9</sup>

This particular case in reference is a classic instance of how a subtype of this condition changed into a life-threatening condition. A large abscess developed in just about a week, without any past history and a previously normal chest X-ray and AFB culture.

An Indian case study reflects on similar circumstances. It elucidated the fact that the retrograde spread from mediastinal or hilar lymph nodes may be responsible for extra pulmonary TB. It is further clarified that even with anti-TB treatment, 30% to 50% of patients will progress to effusive or constrictive pericarditis, myocarditis or tamponade.<sup>6</sup>

Echocardiogram was done on our patient as it has previously been considered as a pertinent tool. A study done in Pakistan at Aga Khan University Hospital (AKUH) shows that Transthoracic echocardiography is the gold standard for rapid and confirmatory diagnosis of pericardial effusion and cardiac tamponade.<sup>5</sup> Other studies have shown efficacy of Computed Tomography and Magnetic Resonance Imaging as well.<sup>3</sup> For this particular case, the operative procedure planned was sternotomy along with drainage of pus which proved successful and the patient recovered without any complications. Surgical resection of the pericardium is indicated for cases with calcific

constrictive pericarditis or with persistent signs of constriction after a 6 to 8 week trial of antituberculosis treatment in patients with noncalcific constrictive pericarditis.<sup>9</sup> Further indications include recurrent or life-threatening tamponade, or when there is persistent elevation of systemic venous pressure unrelieved by pericardiocentesis which was the situation pertaining to the case reported.<sup>1</sup> Other studies have however shown additional methods such as video-assisted thoracoscopic pericardial fenestration (VATSPF) which was performed for the diagnosis and treatment in one instance.<sup>7</sup> VATSPF was found to be useful procedure not only for diagnosis but also for release of tuberculous pericarditis with cardiac tamponade and for prophylaxis of constrictive pericarditis.<sup>8</sup>

## Conclusions

Despite the decline in mortality due to tuberculosis and an overall decrease in the annual new case rate, tuberculosis remains a serious health problem. Thus complications like pericarditis, tamponade and abscess are imminent and despite adequate drug therapy, one third to one half of the patients eventually require Pericardiectomy. Hence we conclude that pericardial abscess with pericardial effusion is an uncommon complication of tuberculous pericarditis, which should be considered while treating patients of PE, and recommended surgical option is median sternotomy with drainage of pericardial abscess.

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