Case Report

PYOPERICARDIUM DUE TO INFECTION WITH MYCOBACTERIUM TUBERCULOSIS - A RARE CASE REPORT

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Summary: Pyopericardium or purulent pericarditis is a rare entity but usually associated with a high mortality. We report a case of 30-year-old male presenting with pyopericardium due to Mycobacterium tuberculosis. The patient was treated with Anti-tubercular therapy (ATT) alongside pericardiocentesis and pericardiectomy. The patient responded well to treatment and recovered completely in due course of time. [Indian J Tuberc 2013; 60: 118 - 120]

INTRODUCTION

In the present antibiotic era, pyopericardium is uncommon. In many cases, it leads to constrictive pericarditis with a fatal outcome. A literature search found fewer than 40 cases of pyopericardium in adults.1 Several aetiological agents like Staphylococcus aureus, Streptococcus spp., Hemophilus influenzae, Pseudomonas spp., coliforms and anaerobic bacteria have been implicated. Tuberculosis is responsible for more than 50% of cases of pericarditis in developing countries where tuberculosis remains a major public health problem.2 Historically, purulent pericarditis was seen most commonly as a complication of pneumonia in children and young adults.3

CASE REPORT

A 30-year-old male daily wage labourer by profession was admitted to our hospital with complaints of breathlessness, fever and mild retro sternal chest pain. On examination, the patient had raised JVP, muffled heart sounds, bilateral vesicular breath sounds, basal crepitations and rhonchi. The patient’s vitals were stable. He had mild pallor, but was non-icteric.

The patient was non-diabetic, non-hypertensive but was addicted to alcohol for the past few years. No significant previous history of illness was reported including tuberculosis. Prior to this episode, the patient informed of respiratory tract infection one month back for which he received local treatment and the treatment details were not available.

Per abdominal examination revealed tender firm hepatomegaly, 2cm below the right coastal margin. Hemogram showed a TLC of 10,200 cells/cu.mm with neutrophils 80% and lymphocytes 20%. Hemoglobin was 10 gm/dl and Fasting blood sugar was 92 mg/dL. Serological tests including HIV and HBsAg were negative. Other tests including liver function tests were within normal limits.

Chest X ray showed enlarged cardiac silhouette with bottle shaped heart and right middle lobe consolidation (Figure-1). Echocardiography showed a large pericardial effusion with echogenic material without cardiac tamponade. The financial condition of the patient did not permit for a CT scan to be performed.

Pericardiocentesis was done and about 350 ml of fluid was aspirated. Pyopericardium was diagnosed at this stage based on the clinical findings, radiological investigations and the aspirated purulent pus. The pus was sent to Microbiology Department for examination. The pus was thick, purulent and...
creamy on gross appearance. Gram stain of the pus revealed plenty of lymphocytes with no microorganisms seen. Ziehl Neelsen (ZN) and Auramine-rhodamine stain showed plenty of acid fast bacilli (Figure-2).

Pus samples were inoculated into Sheep blood agar, Mac Conkey agar (for aerobic and anaerobic culture), LJ (Lowenstein Jensen) medium in duplicate one covered with black paper and SDA (Sabouraud dextrose agar) slants and incubated. There was no growth on the routine bacteriological media after 48 hours of both aerobic and anaerobic incubations.

A preliminary report based on gram stain, ZN stain, Auramine-rhodamine stain and absent growth on routine bacteriological culture was given basing upon which ATT was initiated in the patient. As per the National guidelines, the ATT regimen consisted of two month intensive therapy with four drugs (isoniazid, rifampicin, pyrazinamide, and ethambutol) followed by two drugs (isoniazid, rifampicin) in the maintenance phase for four months. The patient underwent a pericardectomy and epicardectomy without cardio pulmonary bypass and about 750 ml of pus was drained out.

The drained out pus was also processed in similar manner as the first aspirated pus and showed similar microbiological results. No fungal growth on SDA slants was observed even after four weeks of incubation.

The patient showed marked improvement and was discharged after 15 days of treatment with advice of continuation of ATT and regular follow up. The L-J medium was examined at frequent intervals and growth was observed on 25th day of incubation. This growth on L-J media was confirmed as Mycobacterium tuberculosis based on its growth pattern, duration of growth, staining and biochemical characteristics.

The clinician was intimated about Mycobacterium tuberculosis isolation and he informed that the patient was responding well to ATT treatment and had shown marked improvement with regard to the cardiological status on follow up.

**DISCUSSION**

Pericarditis is a common disorder that has multiple causes and presents in various clinical settings. Purulent pericarditis or pyopericardium is diagnosed when pus is drained from the pericardial space or when bacteria are cultured from the pericardial fluid.4
Pyopericardium due to **Mycobacterium tuberculosis**

Direct extension from pneumonia or empyema accounts for majority of cases but haematogenous spread during bacteremia, thoracic surgery and trauma can also cause pyopericardium. In our case, the patient had an episode of respiratory tract infection one month prior to this episode which might have resulted in pyopericardium as evidenced by the right middle lobe consolidation features.

Pyopericardium cases have been reported worldwide due to different aetiologic agents. A study by Krassas et al from Greece and Farhat et al from France have reported *Corynebacterium diphtheriae* and *Staphylococcus aureus* as the causative agents of pyopericardium from their cases respectively. *Mycobacterium tuberculosis* was identified in three of the cases of pyopericardium from a study conducted in Tanzania.

The treatment is based on definitive surgical drainage (pericardiocentesis), pericardiectionmy and epicardiectomy. The resection of pathological epicardium is usually performed to free the myocardium and prevent fibrosis. Usually, pericardiectomy without epicardiectomy should not be undertaken. Medical treatment of pyopericardium involves mainly ATT and antibiotic therapy based on the causative organism isolated.

The low socio-economic status, professional exposure, nutritional status, alcoholism, previous episode of chest infection and increased prevalence of tuberculosis in this region may have contributed to the tuberculous pericarditis. To the best of our knowledge, this is the first case of Pyopericardium due to *Mycobacterium tuberculosis* reported from south Odisha.

There is a strong association between HIV infection and tuberculous pericarditis in endemic region where 40-75% of patients with large pericardial effusion (suspected to be of tuberculosis) are infected with HIV. A clinical study conducted in Africa also found cases of tuberculous pericarditis in HIV negative patients similar to our case which was HIV negative.

In many cases, empirical treatment with ATT is initiated, especially in cases of large purulent peicarditis in developing countries like India without basing on the report of *ZN* stain. Despite the low isolation rates, *Mycobacterium tuberculosis* isolation from culture samples helps in diagnosis and treatment.

Purulent pericarditis or pyopericardium is an emergency condition which, when untreated, progresses to constrictive pericarditis or cardiac tamponade where the prognosis is usually fatal. This rare disease is often diagnosed late, when severe hemodynamic compromise develops due to pericardial tamponade.

Timely judgement and diagnosis of the clinicians along with accurate microbiological diagnosis will definitely determine the prognosis. The case is reported for its rarity and possible clinical outcome.

**REFERENCES**