

A CASE REPORT OF TUBERCULOUS PERICARDIAL EFFUSION IN IMMUNOCOMPETENT PATIENT

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Abstract: Tuberculosis accounts for up to 4% of acute pericarditis and 7% cases of cardiac tamponade. It is seen in endemic regions like Asia and common with background of immunodeficiency. Prompt treatment can be life saving but requires accurate diagnosis. We report a case of 36-year-old immunocompetent male who presented with sudden breathlessness along with history of weight loss, fever, chills and dry nonproductive cough since one and half month without any prior history of tuberculosis or history of exposure to tuberculosis. The case was diagnosed with pericardial tuberculosis by correlating clinico- radiological findings and pericardial fluid examination. The patient was started on antitubercular treatment and showed improvement.

IndexTerms - Pericardial fluid examination, Pericardial tuberculosis, Pericardial fluid Cytology, Lab investigations

I. INTRODUCTION

Pericardial tuberculosis is a rare form of Mycobacterium tuberculosis infection seen commonly in endemic areas for TB, like Asia and Africa. The incidence of tuberculous pericarditis is increasing with the advent of the AIDS pandemic and in patients undergoing immunosuppressive therapy. ^[1]

We report a case of 36 year old man, who was immunocompetent, with no history of TB or contact with Mycobacterium tuberculosis. The case was diagnosed with pericardial tuberculosis by correlating clinico- radiological findings and pericardial fluid examination findings. He responded rapidly to the empiric antitubercular therapy and showed improvement.

II. CASE REPORT

A 36-year-old male patient presented with sudden onset of breathlessness associated with history of weight loss, fever associated with chills and a dry, nonproductive cough since one and half month. There was no history of tuberculosis, diabetes, or immunosuppression.

On examination, he was febrile, pulse rate of 88/min, blood pressure of 100/80 mm Hg, and respiratory rate of 16/min. Jugular venous pulse was raised. On auscultation, heart sounds were muffled and associated with a pericardial rub. There was no peripheral edema, cyanosis, pallor, icterus or hepatosplenomegaly.

Following Laboratory investigations were performed in case-

CBC- Elevated WBC count of 17,000/mm³ with polymorphs 57%, lymphocytes 40%, eosinophils 2% and monocytes 1% and an increased ESR of 40 mm seen. Other parameters were within normal range.

HIV status- He was seronegative for HIV.

Hepatic and renal function tests were within normal limits.

ECG- showed low voltage complexes with sinus tachycardia.

Chest X-ray showed effusion along with cardiomegaly.

Pericardial fluid analysis- An ultrasound guided pigtail catheter was inserted and around 700 ml of straw-colored pericardial fluid was drained and sent for examination.

a] Microbiological examination- The Ziehl-Neelsen (ZN) stained smear did not reveal any acid fast bacilli (AFB). PCR done on pericardial fluid for M. tuberculosis came positive.

b] Biochemical examination- It revealed elevated protein and ADA levels

c] Pericardial fluid cytology –It showed moderate to highly cellular smears with predominance of lymphocytes. Occasional cluster of mesothelial cells were seen.

Pericardial fluid drainage led to relief from dyspnea. Patient was started on antitubercular treatment and responded well.

III. DISCUSSION

Although there has been a significant decline in tuberculosis in wealthy industrialized countries over last decades, Africa, Asia, and Latin America with 86% of the world's population, are home to 95% of all cases of active tuberculosis and 98% of nearly two million deaths resulting from tuberculosis each year.^[1] Effective treatment requires a rapid and accurate diagnosis, which can be life saving, but is often difficult.^[2] Here, we report a case of tuberculous pericarditis with effusion in a 36-year-old immunocompetent male, diagnosed by correlating clinical and radiological findings and aspirated pericardial fluid examination findings, and he was treated promptly with antitubercular drugs.

Extrapulmonary tuberculosis occurs in 20% of patients with tuberculosis. Tuberculous pericarditis is rare manifestation of M. tuberculosis, seen commonly in endemic areas like Asia, Africa.^[3] The incidence of tuberculous pericarditis is increasing with the advent of the AIDS pandemic and in patients undergoing immunosuppressive therapy.^[4] Tuberculosis accounts for up to 4% of acute pericarditis and 7% of cardiac tamponade. The mortality rate of tuberculosis ranges from 14-40%. Tuberculous pericarditis is a potentially lethal condition.^[4]

The route of spread of the organisms to pericardium is usually from mediastinal or hilar lymph nodes or from lungs or rarely as a part of miliary tuberculosis. Typically, the process begins as effusive constrictive pericarditis. In later stages, AFB are usually not detected but caseating granulomas involving the pericardium and epicardium may be present.^[5] The pericardial effusion is mainly due to hypersensitivity to tubercular protein.^[4]

Tuberculous pericarditis has a variable clinical presentation and should be considered in the evaluation of all cases of pericarditis without a rapidly self-limiting course.^[6] Tuberculous pericardial effusion develops insidiously, presenting with symptoms such as fever, night sweats, fatigue, weight loss, chest pain, cough, breathlessness, although severe pericardial pain of acute onset of idiopathic pericarditis is unusual. In some cases, evidence of chronic cardiac compression mimicking heart failure is common presentation.^[6] Cardiac tamponade may present as a complication of pericardial effusion.^[6] Effective treatment requires a rapid and accurate diagnosis, which can be life saving, but is often difficult.^[2]

Chest radiograph which shows an enlarged cardiac shadow in more than 90% cases, demonstrates features of active pulmonary disease in 30% cases.^[6] The ECG is abnormal in virtually all cases of tuberculous pericarditis^[6] as observed in the present case.

In present case Acid-fast bacilli were absent in pericardial fluid. Acid-fast bacilli is seen in the pericardial fluid smear of 40–60% of the pericardial TB cases^{[6],[2]}. It may be due to presence of fibrin and hemoglobin which acts as bacillus inhibitors and also pericardial liquid has only few bacilli^[7].

Elevation of ADA activity ≥ 40 U/L is diagnostic with 87% sensitivity and 89% specificity^[2]. The positive results from the cultures of pericardial effusion are seen in only 55–93% of the patients with pericardial TB^[8]. In present case ADA and proteins were raised in pericardial fluid these findings indicate towards diagnosis of tuberculosis.

The cytological analysis of tuberculosis effusions showed numerous lymphocytes, isolated and in small clusters of mesothelial cells, some of them having reactive nuclear modifications, as well as a variable number of polymorph nuclear lymphocytes^[7]. Similar findings were seen in present case.

For a diagnosis of pericardial TB, the sensitivity of pericardial biopsy ranges from 10% to 64%.^[9] Therefore, pericardial TB cannot be ruled out with a normal pericardial biopsy specimen; in some cases, the examination of the full pericardium is required to establish the diagnosis^[10]. For patients in areas where TB is endemic and who are highly suspicious of pericardial TB, pericardial biopsy is not required before the initiation of empiric anti-TB therapy^[5].

IV. Conclusion

Pericardial TB is a rare presentation of TB which may be life-threatening, so early diagnosis is very important. Even though it is more common with immunocompromised patients, in endemic possibility of tuberculosis should be kept in mind for prompt diagnosis in immunocompetent patients by correlating clinical findings, radiological findings and pericardial fluid examination findings. In endemic areas, treatment can be started on empirical basis, if high index of suspicion is there and other investigations are in favor of pericardial tuberculosis, without waiting for culture reports which takes long duration or performing traumatic pericardial biopsy; if high index of suspicion is there and other investigations are in favor of pericardial tuberculosis, which may prove to be life saving for patient.

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