



Case Series

Case series of Tuberculous pericarditis treated at Central Chest Clinic, Borella.

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Abstract

Tuberculous pericarditis is one of the rare manifestation of Tuberculosis. We analyzed patients with Pericardial tuberculosis treated at the Central chest clinic Borella between 2016 January / 2018 August. To establish the diagnosis of Tuberculous Pericarditis 2DECHO cardiogram and pericardial fluid aspiration should be performed in all suspicious patients. Early treatment is required in order to prevent complications.

Introduction

Tuberculous pericarditis is one of the rare manifestations of tuberculosis which is caused by *Mycobacterium tuberculosis* complex. 20% of patients with tuberculosis have extrapulmonary tuberculosis. Tuberculous pericarditis (TBP) accounts for 1- 8 % of them. Furthermore it is found in 1% of all autopsied cases of tuberculosis and in 1-2% of pulmonary tuberculosis cases ⁽²⁾.

Diagnosis of tuberculous pericarditis is challenging. Early diagnosis and treatment is very important in order to prevent complications such as constrictive pericarditis. We analyzed patients with pericardial tuberculosis treated at Central chest clinic Borella, over a three year period.

Case series analysis

We found ten patients with pericardial tuberculosis among patients with tuberculosis treated at Central chest clinic Borella between 2016 January / 2018 August.

Diagnosis was made by three main methods. Two patients were diagnosed bacteriologically with Positive culture of *Mycobacterium tuberculosis* in pericardial fluid. Five were diagnosed by the presence of pericardial effusion with significantly positive Mantoux test. Remaining three were diagnosed on clinical judgement.

Age of these patients ranged from 8 to 76. Majority were in the 6th and 7th decade. Seven of them were male. Fever was the most frequent presenting symptom (6 patients). Shortness of breath was the second most common presenting symptom (5patients).Majority of them had significant constitutional symptoms (6 patients).

Seven patients had positive Mantoux test of induration more than 5mm. ESR ranged from 10mm to 110mm. Only four patients had significantly elevated ESR of more than 100.

A pericardial effusion was detected in 7 patients ranging from mild to large effusions. One patient had shown features of impending cardiac tamponade. Aspiration was done on 7 patients. However full reports were available in only 3 patients. Lymphocyte predominant effusion was noted in two of them. Pericardial fluid proteins were high in two patients, more than 4000mg.dl.

Adenosine deaminase assay (ADA) was performed in one patient which showed a value of 34.IU/L.

Two patients had bacteriologically confirmed TB pericarditis with one positive direct smear and one with a positive culture. TB PCR was positive in one patient. Retroviral screening was negative in all.

One patient had associated left side mild pleural effusion which was not aspirated.

All these patients had been started on anti-tuberculosis therapy (ATT). One patient died due to an unrelated cause. Two of them are still on treatment. Others have fully recovered.

Discussion

Despite recent advances in medical technology, tuberculosis is still a major threat to global public health. Tuberculous pericarditis usually occurs due to extension of the organism from the lung, tracheobronchial tree and mediastinal or hilar lymph nodes .Rarely it could be due to millitary tuberculosis ⁽³⁾.

TB pericarditis has a wide variety of presentation.



Therefore it should be considered when evaluating all cases of pericarditis without self-limited rapid recovery⁽⁴⁾.

Fever, weight loss, and night sweats are the most commonly identified symptoms in most of these patients. Cough, dyspnea, pleuritic type chest pain and orthopnea were also documented. Raised jugular venous pressure, tachycardia, hepatomegaly, ascites, and peripheral edema were noted on physical examination.^(3, 4, 5)

Establishing diagnosis of TB pericarditis is difficult. Echo cardiogram is the most important noninvasive investigation which is helpful in detecting pericardial effusion. Fibrinous strands on the visceral pericardium is characteristic of TB pericarditis but not specific⁽⁵⁾. ECG may show nonspecific ST changes. 9% to 11% of cases will demonstrate characteristic ECG changes of acute pericarditis including PR-segment deviation and ST-segment elevation.

Chest radiograph shows an enlarged cardiac shadow in more than 90% of cases, which is helpful in detecting pericardial effusion. Furthermore it is important in the assessment of coexistent or past pulmonary tuberculosis which is observed in 30% of patients and also in diagnosis pleural effusions in 40% of them. Performing CT chest and MRI scan are helpful in detecting pericardial thickening as well as mediastinal lymph node enlargement which is found in almost 100% of cases. Enlarged mediastinal nodes with matting and hypodense centers and sparing of hilar lymph nodes are noted in most of them⁽⁶⁾.

For definitive diagnosis of TB pericarditis pericardiocentesis is essential in all patients. Pericardial fluid is blood stained in 80% of cases. It is an exudative effusion characterized by a high protein and increased leukocyte count with predominant lymphocytes and monocytes. The percentage of lymphocytes in the pericardial fluid is characteristically lower in patients with HIV infection⁽⁸⁾.

To decide whether it is exudative or transudative Light's criteria for pleural effusions could be used.

Hence pericardial fluid full report, protein and LDH levels along with serum protein and LDH should be performed in all patients.

Pericardial fluid ADA level is another important investigation⁽¹⁾. ADA Level of 35 U/L has shown sensitivity and specificity of 90% and 74%, respectively. Lower levels are noted in patients with retroviral infection and with low CD4 counts.

Fluid should be sent for detection of tubercle bacilli in the direct smear which carry sensitivity of 0-42%.

Furthermore, mycobacterial culture should be performed in conventional culture media as well as double-strength liquid Kirchner culture which carries a higher yield. In the situations where pericardial fluid aspiration is not possible right scalene lymph node biopsy is recommended⁽⁵⁾.

Limited data is available with regard to Polymerase chain reaction (PCR) for mycobacterial DNA and Gene xpert.

Diagnostic pericardial biopsy is not recommended in the areas in which TB is endemic⁽⁵⁾. It could be performed when there is diagnostic uncertainty in patients from a nonendemic area. Tissue histology may be helpful in cases without pericardial effusion.

At the same time patients should be investigated for presence of tuberculosis in other organs. Samples including sputum, gastric aspirate or urine should be sent for TB direct smear and culture and any enlarged peripheral lymph nodes should be biopsied.

Mantoux test is of little value in the areas where tuberculosis is endemic due to BCG vaccination and primary tuberculosis, even though it is still performed in the majority.

While performing investigations for TB pericarditis, other relevant investigations should be planned to exclude other differential diagnoses which include infectious etiologies as well as noninfectious etiologies such as sarcoidosis, malignancies especially lymphoma and Paraneoplastic neurologic syndrome.

Six-month course of ATT is recommended with a 2 month intensive phase and 4 months continuation phase. There is controversy with regard to commencement of steroids. Some recommend only for those who have constrictive pericarditis or high risk of developing pericarditis.

Identified risk factors are large effusions, presence of high levels of inflammatory cells in the pericardial fluid and early signs of constriction. However, Sri Lankan National Manual for Tuberculosis Control recommends steroids for all patients with TB pericarditis. Benefit is doubtful in patents with HIV.



Analysis of these cases emphasize the need of a more systematic evaluation of pericardial effusions and the importance of performing pericardiocentesis while paying more attention to sending diagnostically helpful investigations.

Conclusion

Tuberculous pericarditis is a rare disease which needs high index of suspicion. Timely planned proper evaluation is necessary to make the diagnosis. In order to prevent complications early treatment should always be considered.

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