Available Online at http://www.journalajst.com

ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

ISSN: 0976-3376

Asian Journal of Science and Technology
Vol. 09, Issue, 03, pp.7752-7754, March, 2018

CASE REPORT

A CASE REPORT OF TUBERCULOUS PERICARDIAL EFFUSION

***Dr. Shweta P. Bijwe and Dr. Mithil B. Ghushe**

M.D. Pathology, IGGMC, Nagpur, Maharashtra, India

ARTICLE INFO

Article History:
Received 04th December, 2017
Received in revised form
26th January, 2018
Accepted 16th February, 2018
Published online 30th March, 2018

Key words:
Pericardial fluid examination,
Pericardial tuberculosis,
Pericardial fluid Cytology.

ABSTRACT

Pericardial tuberculosis is a rare form of Mycobacterium tuberculosis infection seen commonly in endemic areas for TB, like Asia and Africa .Tuberculosis accounts for up to 4% of acute pericarditis and 7% cases of cardiac tamponade. It is common with background of immunodeficiency. It is a lethal condition but accurate diagnosis and prompt treatment can be life saving. We report a case of 30-year-old immunocompetent male who presented with sudden onset of breathlessness along with history of weight loss, low grade fever, chills and dry nonproductive cough since one month without any prior history of tuberculosis or history of exposure to tuberculosis. Initial workup for tuberculosis was negative in the case, only finding supporting diagnosis was pericardial fluid cytology findings.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.

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. (Murray, 2004) We report a case of 30 year old immunocompetent male, 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.

Case Report

A 30-year-old male patient presented with sudden onset of breathlessness associated with history of weight loss, low grade fever associated with chills and a dry, nonproductive cough since one 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.

Laboratory investigation performed included

Blood -CBC revealed elevated WBC count of 18,000/mm ^{3} with polymorphs 62%, lymphocytes 35%, eosinophils 2% and monocytes 1%.

Corresponding author: **Dr. Shweta P. Bijwe,**
M.D. Pathology, IGGMC, Nagpur, Maharashtra, India.

Increased ESR of 45 mm seen. Other parameters were within normal range. Hepatic and renal function tests were within normal limits. He was seronegative for HIV.

ECG- showed low voltage complexes with sinus tachycardia. Chest X-ray showed pericardial effusion along with cardiomegaly. Pericardial fluid analysis- An ultrasound guided pigtail catheter was inserted and around 1000 ml of straw-colored pericardial fluid was drained and sent for examination.

- Microbiological examination- The Ziehl-Neelsen (ZN) stained smear did not reveal any acid fast bacilli (AFB). PCR was not done due to unavailability in the region.
- Biochemical examination- It revealed elevated protein and ADA level was within normal range.
- Pericardial fluid cytology –It showed moderate to highly cellular smears with predominance of lymphocytes. Epithelioid cell granulomas and rare Langhans giant cell was also seen along with occasional cluster of mesothelial cells.

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

DISCUSSION

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. (Murray, 2004) Effective treatment requires a rapid and accurate diagnosis, which can

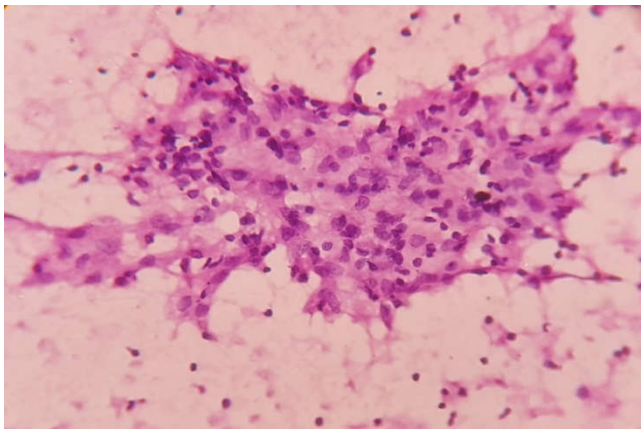

Figure 1. Pericardial fluid cytology shows epitheliod granuloma

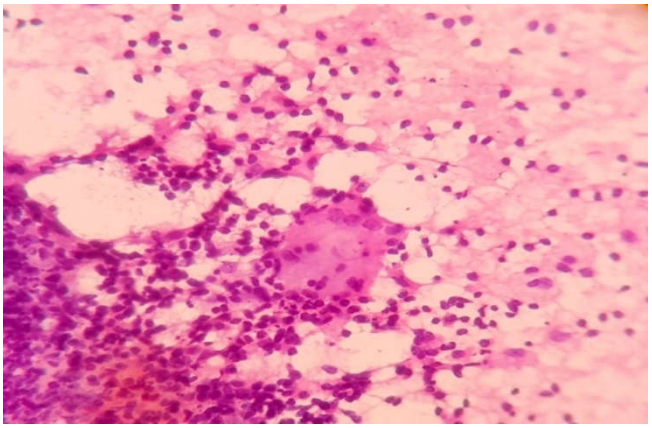

Figure 2. Pericardial fluid cytology showing giant cell and large lymphocytic infiltrate

be life saving, but is often difficult. (Reuter *et al*., 2006) Here, we report a case of tuberculous pericarditis with effusion in a 30-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 tuberculosis patients. Tuberculous pericarditis is rare manifestation of *M.tuberculosis*, seen commonly in endemic areas like Asia, Africa (Lorell and Braunwald, 1992). The incidence of tuberculous pericarditis is increasing with more AIDS cases and in patients undergoing immunosuppressive therapy (Murray, 2004). Tuberculosis accounts for up to 4% of acute pericarditis and 7% of cardiac tamponade. Tuberculous pericarditis is a potentially lethal condition (Agrawal *et al*., 1990) .The mortality rate of tuberculosis ranges from 14-40%. The organism spreads to pericardium 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 (Mayosi *et al*., 2005). The pericardial effusion is mainly due to hypersensitivity to tubercular protein (Agrawal *et al*., 1990).

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. (5) 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. (Mayosi *et al*., 2005) Cardiac tamponade may present as a complication of pericardial effusion. (Mayosi *et al*., 2005) Effective treatment requires a rapid and accurate diagnosis, which can be life saving, but is often difficult. (Reuter *et al*., 2006) Enlarged cardiac shadow is seen in more than 90% cases on chest radiograph ,and features of active pulmonary disease seen in 30% cases. (Mayosi *et al*., 2005) The ECG is abnormal in virtually all cases of tuberculous pericarditis (5) as observed in the present case. In present case Acid-fast bacilli were absent in pericardial fluid. Acid-fast bacilli is seen in only of 40–60% of the pericardial fluid smear. (Strang *et al*., 1988), (Reuter *et al*., 2006). It may be due to presence of fibrin and hemoglobin which acts as bacillus inhibitors and also pericardial liquid has only few bacilli (Petcu *et al*., 2009). Elevation of ADA activity ≥40U/L is diagnostic with 87% sensitivity and 89% specificity (Reuter *et al*., 2006).in present case ADA level was within normal limits. Proteins were raised in pericardial fluid in present case suggestive finding for 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 (Petcu *et al*., 2009). similar findings were seen in present case. The positive results from the cultures of pericardial effusion are seen in only 55–93% of the patients with pericardial TB (Komsuog *et al*., 1995). Pericardial fluid was sent was sent for culture, but antitubercular treatment was started before the results of culture was available; because patient was in critical condition and culture takes weeks for result. However, culture also came negative in this case. In such cases pericardial biopsy is done for confirmation of diagnosis of tuberculosis, but as patient was critical biopsy was not performed. Also, the sensitivity of pericardial biopsy ranges from 10% to 64%. (Heller *et al*., 2010) 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 (Houston, 2014). 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 (Mayosi *et al*., 2005).

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 areas possibility of tuberculosis should be kept in mind for prompt diagnosis in immunocompetent patients. In present case clinical findings, radiological findings and pericardial fluid cytology findings and elevated proteins pointed towards diagnosis of tuberculosis. Thus in endemic areas, empirical treatment can be started without waiting for culture reports or performing traumatic pericardial biopsy; if high index of suspicion is there; which may prove life saving for patient.

REFERENCES

Agrawal, S., Radhakrishnan, S. and Sinha, N. 1990. Echocardiographic demonstration of resolving

intrapericardial mass in tuberculous pericardial disease. *Int J Cardiol,* 26:240-1.

Heller, T. Lessells, R.J. Wallrauch, C. *et al*., 2010. Tuberculosis pericarditis with cardiac tamponade: management in the resource-limited setting, *Am. J. Trop. Med. Hyg*, 83 1311.1314.

Houston, A.M. and Macallan, D.C. 2014. Extrapulmonary tuberculosis, Medicine (Baltimore) 42. 18.22.

Komsuog, B., lu, O., Gonldel, N., Kulan, K., *et al*., 1995. The diagnostic and prognostic value of adenosine deaminase in tuberculous pericarditis, *Eur. Heart J,* 16 1126.1130.

Lorell BH, Braunwald E. In: Heart disease. 4 th ed. Philadelphia: Saunders WB; 1992. p. 1456-507.

Mayosi, BM., Burgess, LJ. and Doubell, AF. Tuberculous pericarditis: Heart disease in Africa. Circulation 2005;112:3608-16.

Murray, JF. 2004. A century of tuberculosis. *Am J Respir Crit Care Med*, 169:1181-6

Petcu, D.P., Petcu, C., Carmen Florina Popescu, C. Bataiosu, Alexandru, D. 2009. sClinical and cytological correlations in pericardial effusions with cardiac tamponade, *Romanian Journal of Morphology and Embryology*, 2009, 50(2):251–256

Reuter, H., Burgess, L., van Vuuren, W. and Donbell, A. 2006. Diagnosing tuberculous pericarditis. *Q J Med,* 99:827-39.

Strang, J.I., Kakaza, H.H., Gibson., D.G. *et al*., 1988. Controlled clinical trial of complete open surgical drainage and of prednisolone in treatment of tuberculous pericardial effusion in Transkei, Lancet 2 759.764.

****