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CARDIAC TUBERCULOSIS: A RARE FINDING ON AUTOPSY

Pathology

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ABSTRACT

Tuberculosis in heart is extremely rare and not many cases are reported. It infects heart by haematogenous spread from other organs. Diagnosis is generally made on autopsy as there are no direct investigations to diagnose ante partum. A case of 20 year old female with history of assault, post mortem viscera were sent for histopathological examination. On histopathology numerous organs showed caseous necrosis. Heart sections showed granulomatous lesions and diagnosis of tuberculosis was rendered. We present this case due to its rarity and to differentiate it from other granulomatous pathology of heart.

KEYWORDS

Heart, Tuberculosis, Post Mortem

INTRODUCTION:

Tuberculosis was detected as far back as 10,000 BC still remains a major health problem worldwide.[1] Mycobacterium tuberculosis infects one third of the world's population.[2] It infects one percent of the world's population each year.[3] Tuberculosis affects almost every organ in the body but the usual site of the disease is the lungs, accounting for more than 80 percent of the tuberculosis cases.[4] The involvement of extra pulmonary sites is usually associated with increased morbidity and mortality, and with the advent of HIV, the disease patterns have changed with a higher incidence of disseminated and extrapulmonary diseases now occurring.[5] Cardiovascular involvement in tuberculosis occurs in 1-2% of the patients with TB and it mainly affects the pericardium.[6] It mainly affects the pericardium, but very rarely are the myocardium and the valves involved.[1] Involvement of heart is not directly but by hematogenous spread from other infected organs, mostly from lungs.[7]

CASE REPORT:

Post mortem was conducted of a 20 year old married female and the viscera including heart, piece of brain, liver, kidneys, spleen and lungs were sent for histopathology. She was assaulted by her husband and sustained blunt injuries over the body. Police suspected death from some other cause as the trauma she sustained by assault was not grievous.

Gross examination:

On gross examination heart measured 12x7x4cm and weight was 290g. No other gross abnormality was noted. Piece of brain measured 5x4 cm and weighed 80g with no gross abnormality, spleen measured 6x5cm and weighed 50g, both kidneys were 5x4 cm and weighed 60 and 70g with no gross abnormality. One lung measured 8x7cm weighed 110g, other lung measured 8x8 cm and weighed 130g. Both lungs showed white patches on cut section indicating miliary tuberculosis.

Microscopy:

Multiple sections from lungs, liver, kidney and spleen showed presence of caseous necrosis and epitheloid cell granulomas (Figure1&2). Sections from left ventricular wall, apex and interventricular septum (Figure 3&4) showed clusters of epitheloid like histiocytes along with occasional multinucleated giant cells. However, multiple attempts of demonstrating acid fast bacilli (AFB) from several sites of myocardium by 20%Ziehl-Neelson (ZN) staining were unsuccessful.

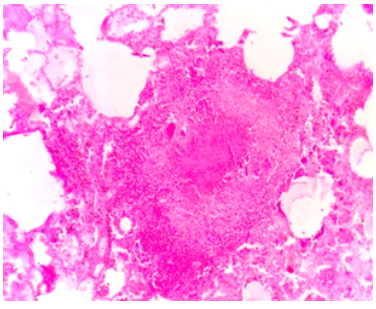

Figure-1 Showing section of lung with focus of caseous necrosis (H&E, 100X).

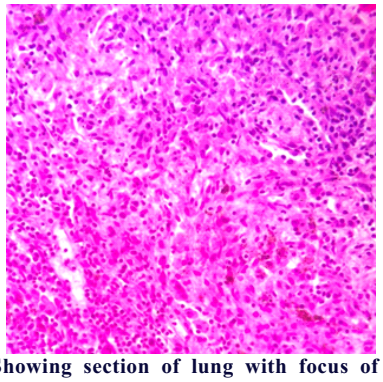

Figure-2 Showing section of lung with focus of epitheloid granuloma (H&E, 400X).

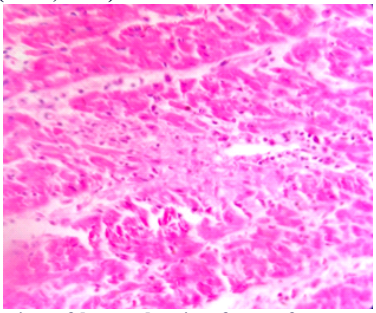

Figure-3 Section of heart showing focus of scattered epitheloid cells with small focus of necrosis in myocardium (H&E, 400X).

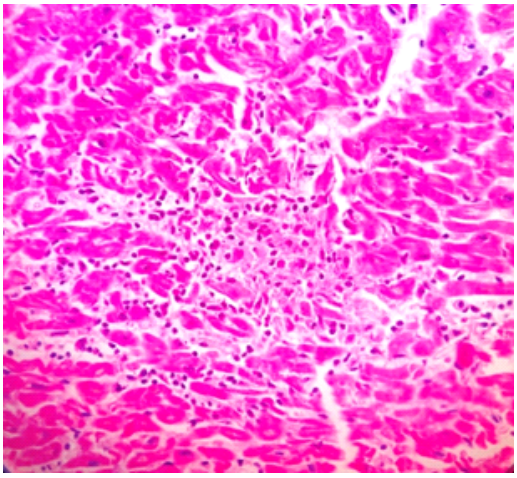

Figure-4 Section of heart showing focus of epitheloid like histiocytes admixed with lymphocytes (H&E, 400X).

ZN staining of both lungs, liver, spleen and both kidneys were also negative. Despite the negative outcome of ZN staining, based on gross and microscopic findings in multiple visceral organs the final diagnosis of tuberculosis was given.

DISCUSSION:

Recently tuberculosis is again becoming a major health issue due to emergence of drug resistant strains and with association to other immunodeficiency diseases (HIV). Many a times diagnosis of tuberculosis is made upon autopsy as it is missed during life. The reasons can be attributed to patient for not telling symptoms or to clinician for not investigating properly. Lungs are still the main organ involved. But due to haematogenous spread tuberculosis can reach almost every organ.

Heart involvement by tuberculosis is either by extension from pericardium which gets infected by adjacent lung tissue/ trachea bronchial tree or by haematogenous spread by lungs. Cardiac tuberculosis manifestations are seen in many different ways like pericardial effusion, left ventricle systolic dysfunction, diastolic dysfunction or right ventricular hypertrophy or dilation.[1] Pericardial involvement in tuberculosis may result in acute pericarditis, chronic pericardial effusion, cardiac tamponade or pericardial constriction. In India, TB accounts for nearly two thirds of the cases of constrictive pericarditis.[8]

Infection of mycobacterium tuberculosis of myocardium is a rare event, which is always found in association with pericardial disease. Isolated myocardial tuberculosis is an unusual finding; the prevalence has been reported as 0.14%, 0.2% and 2% in various series.[9]

Differential diagnosis: There are many granulomatous diseases of heart (rheumatic heart disease, sarcoidosis, dysfunctional histiocytic disorders, and metabolic disorders) which needs to be differentiated from tuberculosis. Rheumatic heart disease produces aschoff's nodules formed by aschoff's cells and anitschkow's cell; also there is a history of rheumatic fever and mitral valve dysfunction. Sarcoid granulomas are non-caseating and involve other organs like skin, lymph nodes, and eyes as well. Metabolic disorder producing granulomas is seen in increased levels of Calcium and vitamin-D but they are very rare and can be diagnosed by investigating their levels in blood. Histiocytic disorders like langerhans cell histiocytosis produce granulomas, but bones are involved in all cases and heart involvement is very rare.

During life cardiac tuberculosis must be suspected when a patient with a history of pulmonary tuberculosis presents with recent cardiac symptoms. At present there is no investigation to confirm cardiac tuberculosis during life, but if suspected then radiological investigations can help. Chest radiograph can catch pleural effusion, cardiomegaly, perihilar edema. CT scan of thorax may pickup pleural effusion, pericardial effusion and pericardial thickening.

CONCLUSION:

We present this case due to its rarity and to emphasize that death of the deceased was due to tuberculosis and heart can be one of the sites of disseminated tuberculosis. Cardiac tuberculosis should be suspected in all patients diagnosed with tuberculosis with appearance of new cardiovascular symptoms.

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