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Case Report

Varied presentation of tuberculosis adenopathy: an immunological and diagnostic contemplation

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ABSTRACT

Tuberculous lymphadenitis is the most common presentation of extra pulmonary tuberculosis EPTB. Clinical and radiological presentation of disease may vary and differential diagnosis includes both benign and malignant conditions such as lymphomas and sarcoidosis. We present two case reports of tuberculous lymphadenitis with varied presentation. In case report I, patient had undergone splenectomy due to traumatic splenic rupture had classical symptoms of tuberculosis, chest X-ray, CT thorax showed mediastinal and cervical lymphadenopathy. FNAC showed a picture of granulomatous lesion. In case report II patient came with complaints of abdominal pain in hypochondriac region. CT and USG abdomen showed multiple enlarged retroperitoneal lymph nodes which led to a provisional diagnosis of lymphoma after which lymph node biopsy showed a granulomatous picture. This case report stresses the importance of early and quick diagnosis of tuberculosis in immunocompromised patients and highlights the risk of misdiagnosis of tuberculous lymphadenitis with other benign and malignant causes of lymphadenopathy and the importance of humoral mediated immunity in tuberculosis.

Keywords: Humoral immunity in tuberculosis, Granulomatous lesions, Diagnostic challenges

INTRODUCTION

Tuberculosis is one of the most prevalent diseases in low socioeconomic countries and is one of the most predominant causes of morbidity and mortality worldwide. According to the World Health Organization (WHO) global tuberculosis report 2020, there were 10.1 million cases worldwide in which 2.2 million people were affected in India which comprised 26% of the total world population affected. Tuberculosis presenting as primary lymphadenitis is rarely seen in adults and is more common in children.[1]

In this case report we present peculiar cases of extra pulmonary tuberculous lymphadenitis with varied presentations.

CASE REPORT

Case 1

A female in her early thirties, post splenectomy status (due to traumatic rupture of spleen) came with complaints of evening rise of temperature for 8 months associated with loss of weight and appetite. Swelling over the right neck for 2 months. On examination, multiple palpable nodes in the right cervical and axillary regions. Blood investigations done for the patient showed elevated Total Leucocyte count of 10600 cells/cu mm (neutrophils 67%, lymphocyte 24.6%, monocytes 7.4%, eosinophil's 0.2%, basophils 0.1%), Absolute neutrophil count 7180 cells/cu mm and elevated ESR 105 mm/hr, Mantoux test done showed induration of 20 mm indicative of tuberculosis. The USG neck showed a conglomerate of enlarged lymph

nodes with the largest in station 4 measuring 1.7×1.1 cm. Chest X-ray showed impression of hilar lymphadenopathy in Figure 1(A). CT neck showed bilateral cervical lymph node enlargement with the largest measuring 1.7×1.5 cm. CT thorax showed multiple mediastinal (Bilateral paratracheal (2×4 cm), paraaortic (5.5×4.5 cm), hilar lymph nodes (1.9×1.5 cm), right axillary and cervical nodes enlarged, necrotic and calcified in Figure 1(C). FNAC of cervical lymph node showed scattered epithelioid histiocytes, neutrophils, macrophages and lymphocytes, areas of amorphous granular eosinophilic material (caseous necrosis) and degenerated cells in background of necrotic debris in Figure 1(D). Patient was started on antitubercular drugs HREZ. After follow-up for a period of 6 months to 9 months, the patient was symptomatically better and the series of X-rays taken showed dramatic improvement, Figure 1(B).

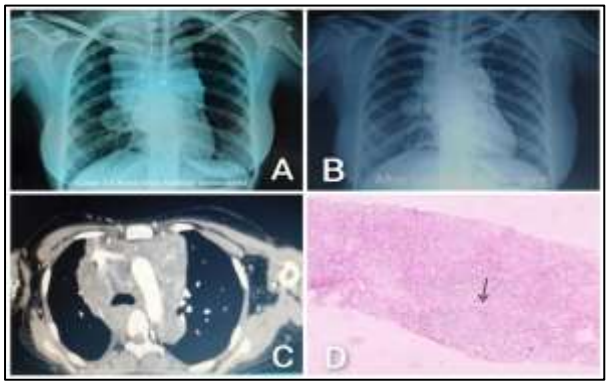

Figure 1: (A) Chest X-ray of case I before treatment showing bilateral hilar lymphadenopathy. (B) Chest X-ray of Case I after completion of treatment (C) CT Thorax of Case I showing multiple nodes enlargement. (D) Histopathology specimen of case I showing caseous necrosis (indicated with an arrow).

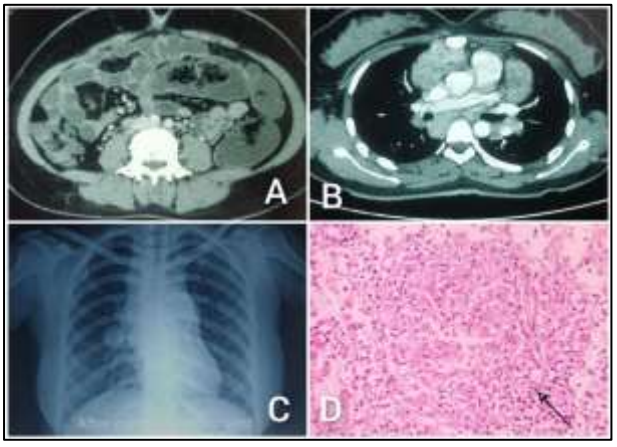

Figure 2: (A) CT Abdomen case 2 showing mesenteric and retroperitoneal nodes enlargement. (B) CT Thorax of case 2showing enlarged lymph nodes. (C) Chest X-ray of Case 2 after completion of treatment. (D) Histopathological image of Case 2 showing granuloma with peripheral lymphocytes.

Case 2

A woman in her early twenties presented with complaints of abdominal pain in the right hypochondrial region for a month. On examination, right hypochondrial tenderness was elicited with no palpable mass. Blood investigations showed a total leukocyte count of 3400 cells/cu mm (64% neutrophils, 27% lymphocytes, 7.8% monocytes, 0.6% eosinophils and 0.6% monocytes), elevated ESR 61mm/hr. Ultrasound abdomen showed multiple enlarged retroperitoneal lymph nodes. The CT abdomen showed enlarged retroperitoneal and mesenteric lymph nodes with the largest measuring 1.8×1.5 cm in Figure 2(A). CT chest showed multiple enlarged mediastinal lymph nodes, bilateral paratracheal (1.5×2 cm), paraaortic (2.5 x 1.5 cm) and hilar lymph nodes (1.2×1 cm) in Figure 2(B). In view of malignancy, Tru cut biopsy of retroperitoneal and mesenteric lymph nodes showed granulomatous lymphadenitis in Figure 2(D). A contact history of tuberculosis from mother who has undergone treatment was found. In view of the positive contact history, Mantoux test showing induration of 15 mm, the patient was started on anti-tubercular drugs HREZ and followed up for a period of 9 months. Patient symptomatically better and post treatment showed improvement Figure 2(C).

DISCUSSION

Extrapulmonary tuberculosis presents predominantly as lymphadenitis. The occurrence of tuberculous mediastinal lymphadenitis is more common in countries of low socioeconomic status.

In case 1, patient underwent splenectomy and presented with classical symptoms of tuberculosis, no other etiology was suspected. CT thorax showed multiple enlarged mediastinal lymph nodes, and the Mantoux test was positive which positioned the diagnosis towards tuberculosis.[2] The differential diagnosis of mediastinal lymphadenitis are tuberculosis, lymphoma, sarcoidosis, histoplasmosis and other neoplasia.[3] In general, post splenectomy patients have a 1.9-fold increase in contracting tuberculosis.[4] Post splenectomy lowers the phagocytic and humoral immunity response. Although the immune response to tuberculosis depends on cell-mediated immunity, recent studies have shown that memory B cell and humoral immunity also plays a predominant role.[5] According to new studies B cells regulate immune response against tuberculous bacilli by: Functioning as antigen presenting cells to T cells mainly in the germinal centre GC (interactions between the GC B cell and Thf cell helps in development of plasma and memory B cells), Production of cytokines that modulate T cell functioning and differentiation, production of antibodies which opsonize, fix complement and engages the FcγR on APC and helps in T cell functioning.[6] Isolation of mycobacterium tuberculosis from FNAC samples is gold standard for diagnosis of EPTB even though histopathology shows caseous necrosis.[7] Emphasis must be given on regular continual treatment of tuberculosis and

sometimes extension of treatment depends upon the response of the patient and defaulting may lead to resistance.

Extra pulmonary tuberculosis lacks specific clinical manifestation and can mimic many diseases. In case II the clinical presentation and radiological imaging suggested a primary picture towards lymphoma or neoplasms of unknown origin. Trucut biopsy of retro peritoneal and mesenteric lymph nodes showed granulomatous lesion. Mantoux test was positive which pointed towards the diagnosis of tuberculosis. Although not pathognomonic of tuberculosis, CT abdomen which shows a picture of central necrosis with rim enhancing lesions is useful in diagnosing tuberculous lymph nodes.[8] A histopathology image of granulomatous lesion doesn't always point towards tuberculosis but other etiology for granulomatous lymphadenitis such as sarcoidosis, atypical mycobacteria, brucellosis, fungal infections (Cryptococcus, histoplasma, coccidiomycosis, and pneumocystis) and lymphomas should be ruled out.[9]

Both case I and case 2, patients with lymphadenopathy in different regions (Cervical, mediastinal and retroperitoneal) tuberculous etiology must also be considered as a primary differential diagnosis.

CONCLUSION

The diagnosis of tuberculosis is clinicopathological or clinicomicrobiological. Tuberculosis mainly involves cell mediated immunity but the importance of humoral mediated immunity must be understood. Even though biopsy shows granulomatous lesion, demonstration of mycobacterium bacilli is the gold standard for EPTB diagnosis. Granulomatous lesions may be due to other causes like sarcoidosis and fungal infections which must be ruled out. To conclude, it is important to understand various presentations of tuberculosis and the importance of imaging, pathological and microbiological reports to arrive at a quick diagnosis.

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