Case Report

BACTERIOLOGICAL TECHNIQUES COMPLIMENT THE CLINICAL AND CYTOLOGICAL DIAGNOSIS OF TUBERCULOSIS IN HUMAN IMMUNODEFICIENCY VIRUS INFECTED PERSONS

*A Srikantam, KVK Moorthy, S Gokhale

Abstract

Human immunodeficiency virus (HIV) and *M. tuberculosis* are two intracellular pathogens that interact with each other at both clinical and cellular levels. A known HIV positive case, presenting with vague pulmonary symptoms followed by bilateral cervical lymphadenopathy, is reported here. The condition was treated as asthma, based on lung symptoms. Cytology revealed acute purulent lymphadenitis. Only Z. N. staining and culture of sputum and lymphnode aspirate could diagnose tuberculosis. Patient responded well to the standard anti tuberculosis treatment.

Key words: FNAC, HIV, pulmonary tuberculosis, extrapulmonary tuberculosis, Z N staining

Human immunodeficiency virus (HIV) and *M. tuberculosis* are two intracellular pathogens that interact with each other at both clinical and cellular levels. In HIV positive patients, clinical as well as the pathological presentation of tuberculosis (TB), is often non specific, challenging the diagnostic skill. In patients with marked immunodeficiency, simultaneous pulmonary and extrapulmonary involvement is more frequent requiring special attention for rapid and specific diagnosis. Pulmonary tuberculosis presents with non specific lung symptoms, where as tuberculous lymphadenitis in such patients often resembles pyogenic lymphadenitis. Diagnosis of TB can be missed, in these patients if only clinical findings or cytological examination is taken into consideration. Demonstration of acid-fast bacilli either by Z.N staining or by culture therefore is the most appropriate test for the diagnosis of tuberculosis in HIV positive persons especially in those who are severely immunocompromised.

Case Report

A 32-year-old male presented with fever and bilateral neck swellings with a history of similar swellings leading to sinuses since seven months. There was a history of dyspnoea and weight loss for which he was treated at a private hospital as a case of asthma. Three months later patient developed neck swellings with continued fever and weight loss. There were no specific symptoms like cough or haemoptysis. Patient was detected to be HIV sero positive in January 2005, three months after the onset of neck swellings. CD4+ T lymphocyte (CD4+) count was 69/ mm$^3$. Neither pulmonary nor lymphnode tuberculosis was suspected. Patient was advised antiretroviral treatment (ART) with nevirpine, stamivudine and lamivudine. However, the patient discontinued ART after one month.

Patient had consulted another hospital in March 2005 and was investigated for the persistent lymphadenitis and fever. Fine needle aspiration (FNAC) of lymphnode was performed. Cytological examination revealed acute purulent lymphadenitis. A course of broad spectrum antibiotic treatment did not improve his condition. Lymph node aspiration was repeated but neither ZN staining, nor culture for mycobacteria was done on both the occasions. CD4+ count had risen to 152/mm$^3$. Pulmonary tuberculosis was not suspected. ART was reintroduced. Patient consulted this centre in May 2005 for the unresolved bilateral neck swellings and fever.

Examination revealed thin built man with bilateral swellings of 3×3 cm size in posterior cervical triangles, suggestive of cervical lymphadenopathy (Fig. 1a). Both the swellings were soft, fluctuant and non tender. Healed sinuses were seen on both sides of the neck. On clinical examination, no specific findings suggestive of pulmonary disease were found.

Cytological examination of the lymph node aspirate revealed plenty of neutrophils with very few lymphocytes and histiocytes in a necrotic back ground. Epithelioid cells and giant cells were absent (Fig. 2a). ZN stain of the aspirate and sputum smears had shown a large number of acid-fast bacilli (Fig. 2b) that were identified as *M. tuberculosis* by culture. Chest X ray findings were normal except for a small healed calcified speck in the right CP angle. Based on these investigations patient was diagnosed as having pulmonary and lymphnode tuberculosis and was treated with antituberculosis treatment.

Discussion

This case presented with non specific lung symptoms of...
dyspnoea, weight loss and was treated as a case of bronchial asthma. Perhaps that was the onset of pulmonary tuberculosis, which progressed to acute lymphadenitis. However, neither pulmonary tuberculosis nor lymphadenitis was diagnosed due to lack of clinical suspicion and inadequate attention to specimen processing. The diagnosis of pulmonary tuberculosis perhaps was missed due to the presence of generalised non-specific symptoms like weight loss, fever and anorexia which are common in HIV positive patients, due to conditions other than tuberculosis. Acid-fast bacilli in sputum sample confirmed tuberculosis despite the absence of clinical and radiological findings. Tuberculous lymphadenitis was not diagnosed earlier, because the cytological picture was of acute purulent lymphadenitis and Ziehl Neelson staining was not carried out. Mere cytological examination evades the real infection, as tuberculous lymphadenopathy resembles acute pyogenic lymphadenopathy in immunosuppressed conditions. This correlates with low CD4 + count (69/mm$^3$) of the patient. It is therefore emphasised that all lymph node aspirations should be subjected to ZN Stain and culture for mycobacteria to rule out tuberculosis. In our experience (unpublished), ZN stain for acid fast bacilli and culture of fine needle aspirate as adjunct to H&E and Giemsa stains significantly improves the diagnosis of lymph node tuberculosis. In HIV positive patients, especially in those with low CD4+ counts, tuberculosis should be excluded before treating lymphadenopathy. This is highlighted in this case by a striking clinical response and shrinkage of neck swellings within a month of standard antituberculosis treatment (Fig. 1b).

The present case emphasises the significance of ZN staining and culture in the diagnosis of pulmonary as well as extra pulmonary tuberculosis. Diagnosis of tuberculosis may be missed, if clinical or cytological findings alone are considered because tuberculosis presents with non specific features in HIV positive persons especially in those with marked immunodeficiency. Bacteriological techniques should always be considered along with the clinical and cytological findings. As, tuberculosis by it self causes further immunosuppression in HIV positive individuals, appropriate diagnosis and treatment should therefore be of prime concern when dealing HIV-TB co infection.

References


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