Abstract

Nontuberculous mycobacteria (NTM) or environmental mycobacteria were observed soon after Koch’s discovery of *Mycobacterium tuberculosis*, though their clinical significance was not appreciated until 1950s when they were classified as “atypical mycobacteria”. NTM comprises of over 95 species and are naturally seen as saprophytes. However, the distribution of the various NTM is not uniform and appears to be geographically or environmentally dependent, but this remains poorly defined.

There are many reports of NTM being associated with human infection involving lungs, lymph nodes, skin and disseminated infections in immunocompromised individuals. Infection with the human immunodeficiency virus (HIV) is associated with an increasing frequency of mycobacterial infections in general and lymph node infections in particular. There are some reports of association between NTM and pulmonary tuberculosis in immunodeficient persons and sporadically in immunocompetent persons.

Commonest clinical presentation of tuberculosis is pulmonary tuberculosis. The incidence of extra pulmonary tuberculosis is also alarming. The commonest site for extra pulmonary tuberculosis in India is the lymph node system. Commonest etiologic agent is
*Mycobacterium tuberculosis* while *M. avium, M. scrofulaceum, M. chelonei* have also been documented. Environmental mycobacteria pose additional problems in the treatment. Geographic variation in etiology, and drug resistance is widely observed. The diagnosis of lymph node tuberculosis is based on the clinical and cytological and histopathological evaluation of lymph node. Demonstration of mycobacteria by either Ziehl Neelsen stained smear or by culture a more sensitive diagnostic test is the method of confirmation of the etiology.

Hence the present study is aimed at identification and characterization of mycobacterial isolates obtained from lymph nodes, and assess the diagnostic role of FNA culture and cytology and to know the drug susceptibility pattern of *Mycobacterium tuberculosis* causing lymph node tuberculosis.

Patients (n=200), with enlarged lymph nodes and clinically suspected as tuberculosis were studied. Fine needle aspirates (n=200) from all these patients were subjected to cytological examination by Hematoxylin and Eosin staining, bacteriological examination by Ziehl-Neelsen acid fast staining and cultivated on Lowenstein Jensen medium, for the diagnosis of tuberculosis.
A total of 76 isolates of mycobacteria were obtained from 200 lymph node aspirates suspected of tuberculosis, of which 74 were *Mycobacterium tuberculosis*, one was *Mycobacterium kansasii* and other *Mycobacterium fortuitum*. The fact that NTM isolates were obtained from HIV negative patient’s aspirates indicates NTM as potential lymph node pathogens in this part of the country. Further studies on a larger scale are needed to delineate the association between NTM infections in HIV positive and negative subjects.

One the aim of this prospective study was to evaluate the diagnostic utility of mycobacterial culture of fine needle aspirate (FNA), in comparison with the cytological examination and acid fast staining. One hundred and seventy eight (86%) aspirates were diagnosed as tuberculous by one or either of the laboratory test. Cytology by Hematoxylin & Eosin (H&E) staining was positive in 161 (80%) aspirates while 107 (53.5%) were proven positive by bacteriological tests. Fourteen aspirates, which are negative by cytological features yielded positive mycobacterial cultures; four out of these were from HIV positive patients. Our observations suggest that supplementing mycobacterial culture with FNA cytology would increase the sensitivity of diagnosing LNTB.
All the 74 \textit{M. tuberculosis} isolates from lymph node aspirates from clinically diagnosed patients were studied for the drug susceptibility pattern by 1% proportion method as one of the objective of this prospective study. Based on the history of tuberculosis treatment, patients were divided into two groups. Group-A comprises of 64 patients without any history of treatment for tuberculosis and group-B comprises 10 patients with a history of previous anti TB treatment.

Over all 53 isolates were susceptible to all the first line anti tuberculous drugs (i.e isoniazid, Rifampicin, Streptomycin, Ethambutol) [group A= 48(75%), group B=5(50%)]; followed by 12 mono resistant to isoniazid and one mono resistant rifampicin [group A=11(17%), group B=2(20%)]; 03 were resistant to Isoniazid & streptomycin [group A= 3(4.6%), group B=0]; 03 were resistant to Isoniazid, Rifampicin [group A= 2, group B=1], and 02 resistant to isoniazid, rifampicin and streptomycin [group A =0, group B=1].

Drug resistance in LNTB may not have serious public health implications, but for each affected person, the swollen lymph node would certainly be both a medical as well as a cosmetic problem that needs an immediate intervention. Owing to the serious nature of MDR, and its reported implications in treatment failure and relapses in
pulmonary TB patients, attempts should therefore be made to study prevalence of drug resistant LNTB in the programme conditions. Our findings suggest that, multi drug resistance is present in LNTB cases in this part of the country. This justifies the need for mycobacterial culture of fine needle aspirates and drug susceptibility tests, wherever the resources permit. Collection of data on drug sensitivity pattern and knowledge about the MDR from large number of isolates would be helpful in formulating the treatment policies for LNTB patients.