

Research Article

Study of incidence of tuberculosis in fine needle aspiration cytology of cervical lymph node: a city based study

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ABSTRACT

Background: Tuberculous cervical lymphadenitis is commonly encountered in clinical practice. Fine Needle Aspiration Cytology (FNAC) being a simple out-patient diagnostic procedure is well accepted by patients and has practically no complications.

Methods: The present study involved 80 patients of cervical lymphadenopathy, who attended the pathology department of the L N medical college and JK hospital, Bhopal from June 2013 to May 2014. After a detailed history and clinical examination, fine needle aspiration cytology of involved nodes was performed in all these patients.

Results: Out of 80 cases 32 (40%) cases were of tubercular lymphadenitis, 24 (30%) cases were of reactive hyperplasia of lymph node, 12 (15%) cases were of metastatic deposit of squamous cell carcinoma of lymph node, 10 (12.5) cases were of non-specific lymphadenitis, one case (1.25) was of acute on chronic lymphadenitis and one (1.25) case was of non-Hodgkin's lymphoma, so out of 80 cases maximum number of cases (32) were of tuberculous lymph node.

Conclusion: FNAC has emerged as a first-line diagnostic technique in tuberculosis lymph node. In cervical lymphadenopathy tuberculosis remains a common cause.

Keywords: FNAC, Tuberculous lymphadenitis, Epitheloid granulomas

INTRODUCTION

Tuberculous lymphadenitis continues to be a major health problem in our country. In patients with cervical lump, tuberculosis remains a common cause. Tuberculous cervical lymphadenitis is commonly encountered in clinical practice. It is one of the commonest manifestation of extra pulmonary tuberculosis.¹ Tuberculous lymphadenitis is the most common form of extra pulmonary tuberculosis and cervical lymph nodes are most common affected groups of nodes.² Tuberculosis, "Captain of all these men of death", as referred to by John Bunyan in the 18th century is still the biggest health challenge of the world. It is known that 1.5% of India's population is affected with tuberculosis.³ Fine needle

aspiration cytology is a well-established diagnostic tool in assessment of cervical masses. In the developing countries where tuberculous infection is common and other granulomatous diseases are rare, the presence of granulomatous features on fine needle aspiration cytology is highly suggestive of tuberculosis.⁴ In our study we found it a very useful diagnostic tool to identify the patients of tuberculous lymphadenopathy positively. It obviates the need for excisional biopsy in most of the patients. Similar views were expressed by others.⁵ The Mantoux test and ESR were useful adjunct in helping to make the diagnosis. Fine Needle Aspiration Cytology (FNAC) being a simple out-patient diagnostic procedure is well accepted by patients and has practically no complications.⁶ The efficacy of FNAC as a diagnostic

procedure is already established and it has been found to be as efficient as biopsy, particularly in cases of tubercular lymphadenitis.⁷

METHODS

The present study involved 80 patients of cervical lymphadenopathy, who attended the pathology department of the L N medical college and JK hospital, Bhopal from June 2013 to May 2014. After a detailed history and clinical examination, fine needle aspiration cytology of involved nodes was performed in all these patients. Routine tests including Erythrocyte Sedimentation Rate (ESR), Mantoux test, chest radiography, and sputum examination for acid-fast bacilli were also done in all the patients. The lymph nodes were subjected to fine needle aspiration, and aspirates were stained by Giemsa stain and haematoxylin & eosin stain for cytology and Ziehl Neelsen’s stain for acid fast bacilli. The criteria for diagnosis of tuberculosis were taken as: (i) presence of epithelioid cell granuloma with caseous necrosis. (ii) presence of AFB in necrotic smears stained positive for AFB by Ziehl Neelsen’s stain.

RESULTS

We studied fine needle aspiration cytology of cervical lymph nodes of 80 cases. Out of 80 cases 32 (40%) cases were of tubercular lymphadenitis, 24 (30%) cases were of reactive hyperplasia of lymph node, 12 (15%) cases were of metastatic deposit of squamous cell carcinoma of lymph node, 10 (12.5) cases were of non-specific lymphadenitis, one case (1.25) was of acute on chronic lymphadenitis and one (1.25) case was of non-Hodgkin’s lymphoma i.e. out of 80 cases maximum number of cases (32) were of tuberculous lymph node.

Table 1: Distribution of cases of FNAC of cervical lymph nodes.

Lymph node lesion	Cases	Percentage
Tuberculosis	32	40%
Reactive lymphadenitis	24	30%
Metastatic deposit	12	15%
Non-specific lymphadenitis	10	12.5%
Acute lymphadenitis	1	1.25%
Non-Hodgkin’s lymphoma	1	1.25%
Total cases	80	100%

Table 2: Sex distribution of tuberculosis lymph node cases.

Tuberculosis cases in sex distribution	
Tuberculosis cases in female	20 (62.5%)
Tuberculosis cases in male	12 (37.5%)

Out of 32 cases, 20 cases were female and 12 cases were male i.e. incidence of tuberculosis is more in female in our study.

Table 3: Age distribution of tuberculous lymph node cases.

Age distribution	Cases	Percentage
10-20 years	8	25%
20-30 years	7	21.8%
30-40 years	4	12.5%
40-50 years	4	12.5%
50-60 years	6	18.75
60-70 years	3	9.3%

Out of 32 cases maximum number of cases were present in between age group of 10-20 year (8 cases) and least number of cases (3 cases) were present in 60-70 years of age group.

Table 4: Distribution of site of tuberculous lymph nodes.

Involved lymph node site	Cases	Percentage
Posterior triangle group	18	56.25%
Jugulo digastric	10	31.25%
Jugulo omohyoid	3	9.3%
Submandibular	1	3.1%

In our study posterior triangle group of lymph node were most commonly involved followed by jugulo digastric, jugulo omohyoid and least involved were submandibular group of lymph node.

Table 5: Distribution of cases according to cytology findings.

Cytology findings	Cases	Percentage
Epithelioid granuloma with caseation necrosis	22	68.75%
Caseation necrosis positive with Zeil-Neilson staining	10	31.25%

In our study maximum cases (68.75%) shows classical features of tuberculosis like epithelioid granuloma with caseation necrosis.

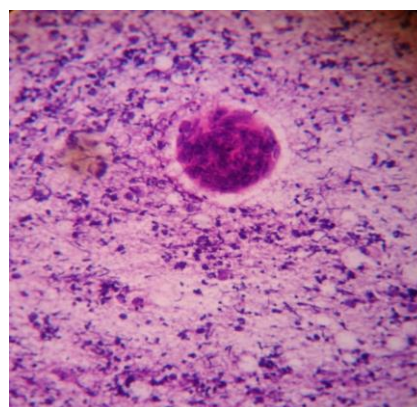


Figure 1: Epithelioid cell granuloma in FNAC cervical lymph node (40x).

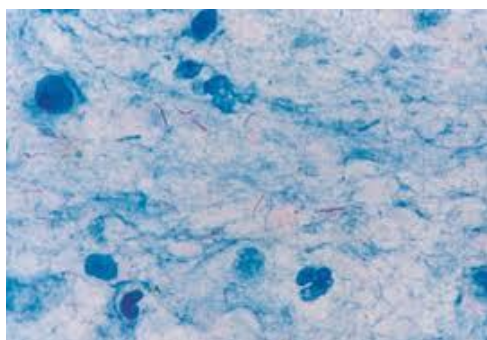


Figure 2: Acid fast bacilli in FNAC smear of cervical lymph node (100x).

DISCUSSION

Mycobacterium tuberculosis is responsible for most cases of tuberculosis; the reservoir of infection is human with active tuberculosis. Tuberculosis flourishes wherever there is poverty, crowding and chronic debilitating illness. The pathogenesis of tuberculosis in a previously unexposed immune competent person depend on development of anti-mycobacterial cell mediated immunity, which confers resistance to the bacteria and result in development of hypersensitivity to tubercular antigens. The pathological manifestation of tuberculosis such as caseating granulomas and cavitation, are the result of the hypersensitivity that is part and parcel of the host immune response.⁸ Although histopathology is most rewarding for diagnosis of cervical lymphadenitis, its feasibility is limited due to lack of facilities and non-acceptability, being an invasive procedure. Previously, biopsy was used for diagnosis of tubercular lymphadenitis; now it has been greatly replaced by FNAC.⁹ Tuberculosis continues to be the biggest health problem in developing countries with enormous social and economic implications. Even in the developed countries, where the disease was controlled to a large extent, it is again posing a new health challenge. This is due to the migration of people from developing areas with a high prevalence of tuberculosis and the increasing high incidence of HIV infection in these countries. This has resulted in a worldwide resurgence of tuberculosis. During the past decade the clinical pattern and presentation of tuberculosis has changed dramatically. Much of the traditional learning about this disease is no longer true and tuberculosis has become a new entity.¹⁰ Tuberculosis is the commonest cause of cervical lymphadenopathy in our study 32 cases (40%) out of 80 cases. This correlate with study by Dandapat et al.¹¹ although this disease accounted for 43% of such cases, this was still the commonest diagnosis for lymph node enlargement. The criteria of diagnosis of tuberculosis in our study was epitheloid granulomas with caseation necrosis or acid fast bacilli positivity of smears and maximum number of cases were showed epitheloid granuloma with caseation necrosis. Age of patient varies from 1 year to 70 year in our study. Examination of cervical lymph nodes revealed multiple matted nodes in 6

cases, a single discrete node was present in 10 cases, and multiple discrete nodes were seen in 14 cases. Cervical abscesses and discharging sinuses were seen in one patient each. The commonest age group affected in our study was 10 to 20 year (8 cases) then followed by 20 to 30 (7 cases). This was also noted in the study by Subrahmanyam.¹² But no age is a bar as we have seen cases in infants as well as in those aged more than 60 years. In the USA and the UK, the highest incidence of tuberculous lymphadenitis occurs between 25 and 50 years of age.^{13,14} The ratio of males to females in this study was 1:1.6 that showed incidence of tuberculosis is more common in female, which is similar to that found by Dandapat et al. (1:1.2) and Subrahmanyam (1:1.3).^{11,12} Dandapat et al. thought that this may be because females are more conscious of their appearance and in the male dominated society they have a low nutritional status. In our study posterior triangle lymph node (56.25%) were most commonly affected similar study presented by Prasad et al.¹⁵ Baskota et al.,¹⁶ we have also observed that all the cases of tubercular lymphadenitis show increased level of ESR.

CONCLUSION

FNAC has emerged as a first-line diagnostic technique, in tuberculosis lymph node. In cervical lymphadenopathy tuberculosis remains a common cause. FNA is safer, less invasive, and more practical than biopsy, especially in resource-limited settings. Tuberculous lymphadenitis represents 40% of cases of tuberculosis in our study and is frequently the sole manifestation of extra pulmonary tuberculosis. Disease rates are highest among patients aged 10-20 years, and disease is more common among women. FNAC is a highly specific tool in diagnosis of tuberculous lymphadenitis. Surgical excision may be avoided if the FNAC results show characteristic epitheloid granulomas and caseation necrosis.

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Conflict of interest: None declared

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