

Laboratory Findings of Histopathologically Confirmed Tuberculous Lymphadenitis

*Huda MM,¹ Kamal M,² Sultana AT,³ Yusuf MA,⁴ Taufiq M,⁵ Begum F⁶

Laboratory findings are important for the tuberculous lymphadenitis patients for diagnosis and treatment. The purpose of the present study was to see the laboratory findings of tuberculous lymphadenitis patients. This cross-sectional study was done at the Department of Pathology, Banghabandhu Sheikh Mujib Medical University (BSMMU), Dhaka from January 2009 to March 2011 for a period of nearly two (2) years. All the patients irrespective of age and sex with the clinical features of tuberculous lymphadenitis and later confirmed by histopathological examination were selected for the study purposively. Relevant information was recorded in a prescribed data sheet and histomorphological findings were recorded accordingly. In cases where fresh specimen was available, caseous portion of lymph node was sent for culture. Fite Faraco staining was done on lymph node sections in all cases. A total of 50 cases tuberculous lymphadenitis patients were recruited for this study. Raised ESR was found in 42 (84.0%) cases. Mantoux (MT) test was positive in 37 (74.0%) patients. Out of 50 patients 34 (68.0%) cases had well-formed granuloma and 8 (16.0%) cases had both well-formed and ill-defined granuloma. Growth of *Mycobacterium* culture in Lowenstein-Jensen media was seen in 12 (60%) cases. In conclusion, majority of the tubercular lymphadenitis patients presented with raised ESR with positivity of Mantoux test (MT) and well defined granuloma.

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Introduction

Lymph nodes are usually involved in the early stages of the pulmonary disease or as secondary tuberculosis by hematogenous spread.¹ However, tuberculous lymphadenitis may arise without a detectable preceding pulmonary involvement.² Tuberculous lymphadenitis affects mainly the cervical lymph node group

and is an important cause of lymphadenopathy worldwide.³ The clinical as well as the demographic characteristics are varied. To confirm the diagnosis histopathological examination or FNAC is needed. These investigations help to arrive at an early diagnosis of tubercular lymphadenitis and institution of treatment before a final diagnosis is made by culture.⁴

1. *Dr. Mohammad Mahmudul Huda, Assistant Professor, Department of Pathology, Dhaka National Medical College, Dhaka, Bangladesh. mmhuda.himel@gmail.com
2. Dr. Mohammed Kamal, Professor, Department of Pathology, Banghabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.
3. Dr. Akhand Tanzih Sultana, Assistant Professor, Department of Respiratory Medicine, Bangladesh Institute of Child Health & Dhaka Shishu Hospital, Dhaka, Bangladesh.
4. Dr. Md. Abdullah Yusuf, Assistant Professor, Department of Microbiology, National Institute of Neurosciences & Hospital, Dhaka, Bangladesh.
5. Dr. Mohammad Taufiq, Associate Consultant (Pathology), Square Hospital, Dhaka, Bangladesh.
6. Dr. Ferdousy Begum, Associate Professor, Department of Pathology, Banghabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.

*For correspondence

Histopathological examination is suggestive of tuberculous lymphadenitis where Langhans' giant cells, caseation necrosis, coalescing granuloma are present.⁵ The physicians treat these cases with anti-tubercular chemotherapy. In cases which are reported as suggestive of tuberculosis, the physician needs additional laboratory findings such as positive Mantoux test and other laboratory tests to start anti-tubercular chemotherapy.⁶ Therefore this present study was to see the laboratory findings of tuberculous lymphadenitis patients.

Methods

This cross-sectional study was done at the Department of Pathology, Banghabandhu Sheikh Mujib Medical University (BSMMU), Dhaka from January 2009 to March 2011 for a period of nearly two (2) years. All the patients irrespective of age and sex with the clinical features of tuberculous lymphadenitis and later on proved to be the same histologically were selected for the study purposively. The patients without having history of anti-tubercular drugs, malignancy and symptoms other than TB were excluded from this study. Relevant information was recorded in a prescribed data sheet and histomorphological findings were recorded accordingly. In cases where fresh specimen was available, caseous portion of lymph node was sent to ICDDRDB for culture in conventional egg based Lowenstein- Jensen medium⁷. This part was done maintaining high level of sterility. Ziehl-Neelsen stain was done in smear prepared from 20 fresh cases. Fite Faraco staining was also done on lymph node sections in all cases. Computer based statistical analysis was carried out with appropriate techniques and systems. All data were recorded systematically in preformed data collection form (questionnaire) and quantitative data were expressed as mean and standard deviation and qualitative data were

expressed as frequency distribution and percentage. Statistical analysis was performed by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-22.0) (SPSS Inc, Chicago, IL, USA).

Results

A total of 50 patients were recruited for this study. Raised ESR was found in 42 (84.0%) cases. Mantoux (MT) test was positive in 37 (74.0%) patients. Two (4.0%) patients had chest X-ray (CXR) suggestive of pulmonary TB; however, no case was positive for AFB on sputum (Table I).

Table I: Laboratory and radiological findings

Investigations	Frequency	Percentage
Raised ESR	42	84.0
Mantoux test	37	74.0
X-ray chest	2	4.0
Sputum for AFB	0	0.0

In this study, out of 50 patients 34 (68.0%) cases had well-formed granuloma and 8 (16.0%) cases had both well-formed and ill-defined granuloma, and the remaining 8 (16.0%) cases had ill-defined granuloma (Table II).

Table II: Distribution of study population according to types of granuloma

Types of granuloma	Frequency	Percentage
Well formed	34	68.0
Coalescing	06	17.6
Discrete	06	17.6
Both coalescing & discrete	22	64.7
Ill defined	8	16
Both well formed and ill defined	8	16

Culture was done in 20 fresh cases in Lowenstein-Jensen media. Caseous portion of the lymph node was taken for culture. Growth

of *Mycobacterium* was seen in 12 (60%) cases (Table III).

Table II: Culture of lymph node material in Lowenstein-Jensen media (n=20)

Culture	Frequency	Percentage
Growth present	12	60.0
Growth absent	8	40.0
Total	20	100.0

Discussion

Tuberculosis is a major cause of unpleasant health and mortality worldwide.¹ The risk of infection however is a lot larger in midst of communities of inferior socioeconomic groups.² Yearly 2.2 million individuals acquire TB in India of which approximately 0.87 million are infectious cases and responsible for about more than 330,000 per annum.³ TB is considered as the most usual opportunistic infection in belts where HIV infection is rampant. Someone in the world is newly infected with TB bacilli every second. Overall, one-third of the world's population is currently infected with the TB bacillus.⁵ Among the various diagnostic tools of tubercular lymphadenitis, histological diagnosis is an important one. As the morphological features are variable, this descriptive study was performed in 50 cases of tubercular lymphadenitis to find out histomorphological features and correlate with clinical profile and treatment outcome.

In this present study histomorphological examination shows a well formed granuloma in majority of the study population (68.0%). Among the well formed granuloma 64.7% had both coalescing and discrete granuloma, 17.6% had only coalescing granuloma and 17.6% had only discrete granuloma. Pahwa et al⁶ found well formed granuloma in 89.0% cases, which is higher than the percentage found in this present study. Extent of caseous necrosis was also observed in present study. Of 50 patients, 18% patient had focal area of

caseous necrosis, 54.0% had moderate caseous necrosis and 28.0% had extensive caseous necrosis. This present study showed variation in percentage of caseous necrosis in individual cases.

Out of 50 cases caseous material of 20 fresh cases were cultured on Lowenstein-Jensen medium for *Mycobacterium tuberculosis*. In this study culture positivity was 60.0%. Similar to the present study result Iqbal et al⁷ found 62.0% culture positive cases in their study. However, Sathekge et al⁸ found 45.0% culture positive cases in their study. Fite Faraco stain was performed on lymph node sections in all 50 cases. No case was positive for AFB. Jayalakshmi et al⁹ found 49.2% AFB positive cases in tissue section. They have performed Fite Faraco stain in several sections. Further analysis of the cases through several sections might have revealed positive cases. Five culture positive cases (41.7%) out of 12 needed treatment for nine months. Bacterial load in culture positive cases might play a role in requiring long duration of treatment.

Conclusion

In conclusion majority of the histologically confirmed tubercular lymphadenitis patients presents with raised ESR. Furthermore, maximum shows positivity of Mantoux test (MT). Such laboratory findings with lymphadenitis should lead to histological confirmation of tubercular lymphadenitis.

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