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Original Research Article.

Evaluation of Histological Pattern in Patients Suffering From Tuberculosis with Enlarged Lymph Node: A Hospital Based Study

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ABSTRACT

Background: Tuberculosis is a major public health problem worldwide. Mycobacterium tuberculosis is the culprit responsible for tuberculosis. Ziehl-Neelsen and fluorescent methods are generally used in identification of *Mycobacterium tuberculosis*. It is transmitted through air and person to person thus knowledge regarding transmission, diagnosis and cure holds an important role in prevention of disease.

Aim: The aim of this study is to evaluate public awareness and attitude towards pulmonary tuberculosis.

Materials and Methods: Fifty lymph nodes tissue biopsies which were diagnosed by conventional histopathology as having tuberculous lymphadenitis were reinvestigated. Sections were obtained from formalin-fixed paraffin wax processed tissues. Haematoxylin and eosin, ZN, and fluorescent methods were used for staining.

Result: All specimens showed Histological pattern of tuberculosis lymphadenitis. All of the 100 specimens were proved as having histopathological pattern of tuberculosis lymphadenitis. The most major histological features were giant cell 85%, caseation 81%, epithelioid cells 80%. Only 5% cases showed positive for ZN and 11% showed positive result for fluorescent methods.

Conclusion: ZN and fluorescent methods are not very useful. Physician should not completely rely on single diagnostic aids. Histopathology remains the best method for diagnosis.

Key words: Tuberculosis, Lymphadenitis, ZN Stain, Fluorescent Method.

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INTRODUCTION

Tuberculosis is a major public health concern in both developing and developed countries. According to the World Health Organization 2012, approx 8.6 million cases of tuberculosis were estimated to have occurred, out of which approximately 2.9 of whom were in women.[1] some studies have suggested that tuberculosis is a poverty related disease and poor environmental condition, illiteracy, lack of knowledge, unavailability of food are some of the determinants of tuberculosis.[2,3] A decline in prevalence of tuberculosis is noticed in past years, however elimination of disease still remains major concern.

Tuberculosis lymphadenitis is one of the most frequent causes of lymphadenopathy approx 30 to 35% cases.[4]Every year 2 to 3 million death are reported due to tuberculosis. According to the data available at present 30% of population are infected from the disease.[5]

Diagnosis of tuberculous lymphadenitis remains a herculean task for the physicians especially extra pulmonary TB. Ziehl-Neelsen stain and mycobacterium culture are generally used for clinical diagnosis.[6] However some studies have reported that Fluorescent stain are more superior to the Ziehl-Neelsen stain, especially in paucibacillary cases.[7]

So we aimed to study the common histopathological changes of lymph nodal tuberculosis and to identify M. tuberculosis in histological section using ZN and fluorescence techniques.

MATERIALS AND METHODS

A descriptive study was planned. Patients with enlarged lymph node were screened for Mycobacterium tuberculosis. The study was conducted for a period of one year. Fifty lymph node biopsies were obtained. The biopsies' sites were axillary, cervical, inguinal, mediastinal, mesenteric. A written informed consent was obtained from patients and detailed description regarding the procedure to be performed was explained. Specimens were processed with formalin-fixed paraffin wax. A detailed case history Information regarding each patient was obtained from each patient's file. 10% formalin was used to fix specimen and then processed by tissue processing machine using the following schedule adopting 24-hour scheduling. haematoxylin and eosin, ZN, or fluorescence method was used for staining.

Inclusion Criteria

1. Patients suffering from tuberculosis
2. Patients aged above 10 years of age

Exclusion Criteria

1. Patients not willing to participate
2. Patients with mental disorders

Data Analysis

Data was collected safely. Data so collected was subjected to analysis using Statistical Package for Social Sciences (SPSS) Version 15.0. Non parametric data has been represented as frequencies and percentages.

RESULTS

Of the 100 patients selected for the study 50 i.e. 50% were males and 50 were females i.e. 50%. In present study 39/100 were aged between 10 to 24 years i.e. 39%, 35/100 were aged between 25 to 40 years of age i.e. 35%. 18/100 patients were aged between 41-55 years i.e. 18% and 8/100 i.e. 8% were aged above 55 years. In our study majority of patients were aged between 10 to 24 years of age (Table 1).

Site selected for biopsy were axillary, cervical, mediastinal, inguinal, Submandibular and mesenteric. In present study majority of specimen were obtained from cervical, 12% from axillary, 7% from mesenteric, 5% mediastinal and 3% both inguinal and Submandibular (Table 2).

Of the 100 cases 70% showed positive evidence and 30% showed negative for tuberculosis (Graph 1). Of the 100 patients 5 patients i.e. 5% reported positive for ZN stain and 11% reported positive for fluorescent stain (Graph 2). Histopathological reports showed following result giant cell 85%, caseation 81%, epitheliod cell 80%, lymphocyte 30% and histiocytes 5% (Table 3).

Table 1: Demographic characteristics of patients

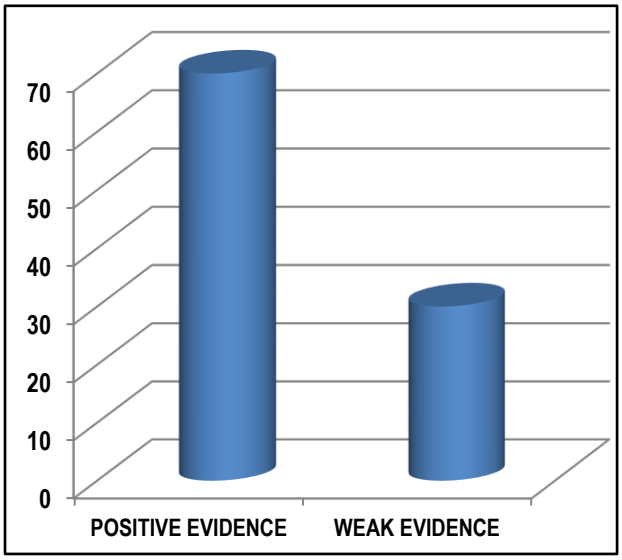
Variables		Patients	Percentage
Gender	**Male**	50	50%
	Female	50	50%
Age	**10-24**	39	39%
	25-40	35	35%
	41-55	18	18%
	>55	8	8%

Table 2: Distribution of Lymph Node

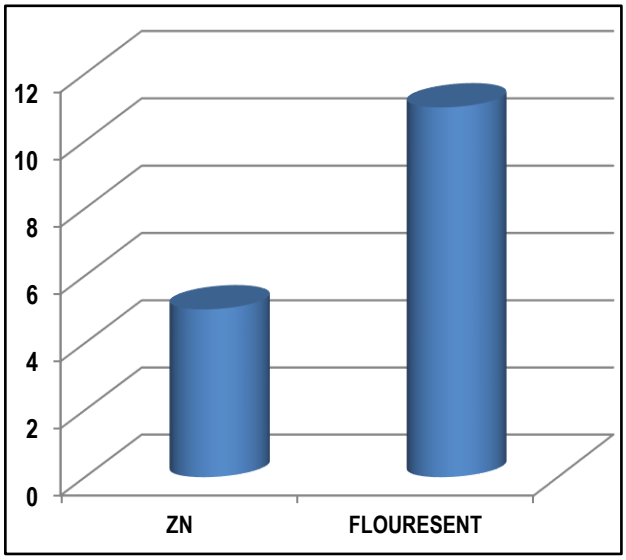
Lymph Node Site	Number	Percentage
Axillary	12	12%
Cervical	70	70%
Mediastinal	5	5%
Inguinal	3	3%
Sunmandibular	3	3%
Mesenteric	7	7%
Total	**100**	**100%**

Table 3: Histopathological features evident

Histopathological features	Percentage
Giant Cells	85%
Caseation	81%
Epitheliod Cell	80%
Lymphocyte	30%
Hitiocytes	5%



Graph 1: Histological Pattern Evidence for TB



Graph 2: Different Methods of Staining Used

DISCUSSION

Tuberculosis its clinical features, diagnostic aids and treatment strategy is studied for long. Studies have shown that Ziehl-Neelsen stain method is positive in one-third of cases with confirmed TB infection.[8] In present study 50% patients were male and 50% were females. In our study majority of patients were aged between 10 to 24 years of age i.e. 39%. Acid fast bacilli are the most common conventional method used for diagnosis of tuberculosis. Studies have reported that Acid fast bacilli positivity in smears and histological specimens depends on the bacillary load of the specimen. In our study most common lymph node site was cervical i.e. 70%. Other studies have shown that in 90% cases cervical lymph nodes was involved.[10] In present study 5% cases reported positive for ZN stain while 11% reported positive for florescent stain. Pahwa R et al suggested that Fluorescent stain was found to be the most sensitive but showed poor specificity, sensitivity up to 81% and specificity of 28.2%. [11] Logani et al in their study recommended that Ziehl-Neelsen staining has low sensitivity and requires the presence of intact bacilli.[12]

CONCLUSION

Tuberculosis lymphadenitis represents is a major health problem and should not be ignored. Conventional ZN and fluoresces methods for tuberculosis are not very useful in diagnosis of lymph node tuberculosis due to several limitations. Histopathology remains the gold standard method of diagnosis. More specific diagnostic aids should be considered. Future studies are warranted for the same.

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