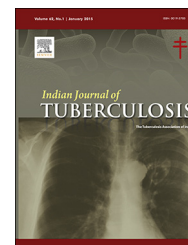


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Original Article

Clinical and cytological features in diagnosis of peripheral tubercular lymphadenitis – A hospital-based study from central India

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ABSTRACT

Background: Tuberculosis lymphadenitis is difficult to diagnose clinically, and often the laboratory confirmation is not available in resource-poor countries. We describe here the symptoms, clinical characteristics, and results of cytological analysis in peripheral tuberculous lymphadenitis patients.

Methods: One hundred and fifty-six patients with peripheral lymph node for cytological evaluation presenting to Department of Pathology, Acharya Vinoba Bhave Rural Hospital, Wardha, India were included in this study.

Results: Sixty-nine cases were tuberculous lymphadenitis, with female to male ratio of 1.3:1. One or more constitutional symptoms were present in 59.4% of patients, with 89.9% of lymph nodes $\geq 2 \times 2$ cm and the most common site of involvement was cervical lymph node (70.3%). The lymph nodes were multiple (85.5%), either discrete or matted. Cytomorphologically, hemorrhagic aspirate was observed in 29 cases, well-formed epithelioid cell granuloma with caseous necrosis was seen in 34 cases, and Zeihl Neelsen staining was positive in 45 cases. Correlation between character of aspirate and cytomorphological pattern was found highly significant.

Conclusion: These data suggest that constitutional symptoms and clinical and cytological features help in diagnosing cases of peripheral tubercular lymphadenitis and also open new frontiers to further research that affects the cytological features of these cases.

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1. Introduction

The incidence of extrapulmonary tuberculosis (EPTB) is on rise over the last few years. Peripheral tuberculous lymphaden-

nopathy is the most common form of extrapulmonary tuberculosis¹⁻³ and accounts for 25–60% of all EPTB cases, in regions where mycobacterial infection is highly prevalent and presents commonly in lymphnodes draining the head and neck.

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Abbreviations: EPTB, extrapulmonary tuberculosis; TBLN, tuberculous lymphadenitis; FNAC, fine needle aspiration cytology; ZN, Ziehl Neelsen; SPSS, software package for statistical analysis; AFB, acid fast bacilli.

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In India, 43% of tuberculous lymphadenitis (TBLN) cases are diagnosed on clinical grounds alone without laboratory confirmation, as these facilities are often not available. The conventional methods of diagnosis for tuberculosis like sputum examination of acid-fast bacilli and chest X-ray are fairly accurate in detecting the active pulmonary component of the disease. However, they are not useful for detecting extrapulmonary components.

Fine needle aspiration cytology (FNAC) is usually the first line of investigation in the diagnosis of tuberculous lymphadenitis and has a high diagnostic yield (97%)⁴⁻⁶; however, laboratory facilities are not available at all centers in developing countries. We were interested in reviewing the clinical parameters of TBLN lymphadenitis and the morphological changes observed on cytology.

The aim of the present study was to describe the symptoms, clinical characteristics, and results of cytology analysis in tuberculous lymphadenitis patients to assess their diagnostic value in cohort of patients attending Acharya Vinoba Bhave Rural Hospital.

2. Materials and methods

2.1. Study site

The study is a retrospective descriptive study which reviewed all the peripheral lymph node FNAC samples during the period of April 2014–July 2015. The present study was conducted in Acharya Vinoba Bhave Rural Hospital attached to Jawaharlal Nehru Medical College, Sawangi, Wardha. Acharya Vinoba Bhave Rural Hospital is a 1206-bedded referral and teaching hospital in Wardha in central India which receives patients from the district of Wardha and provides care of approximately over 1,000,000 patients annually with inflow of patients from many deprived villages in the periphery.

2.2. Patients

All the patients underwent FNAC on an Out-Patient Department basis or were admitted to wards. The patients who presented with persistent peripheral lymph node persisting for ≥ 2 weeks despite a course of oral antibiotics were referred to the pathology department for cytological evaluation. The patients were included both as clinically suspected and unsuspected lymphadenopathy for tuberculosis.

2.3. Fine needle aspirates

FNAC was done with 23 gauge needle, under aseptic condition and the material was aspirated using 20 ml disposable syringe attached to Franzen handle. Nature of aspirate was characterized as sticky, purulent, hemorrhagic, and cheesy white. The aspirate taken from each case for cytological examination and was smeared on slides, 2 air dried and 1 wet fixed. The smears were stained with May Grunwald Giemsa, Ziehl Neelsen (ZN) stain on air-dried smear and papanicolaou stain on alcohol fixed smears. Cytomorphological typing was done on smears

stained with Papanicolaou and grouped into three categories⁷: Type 1 as epithelioid granuloma with caseous necrosis. In addition to epithelioid cells, the smear contained clumps of amorphous debris or caseous necrotic material. Lymphocytes, Langhans giant cells, and neutrophils may be found; Type 2 as epithelioid granuloma without caseous necrosis having groups of epithelioid cells along with a variable number of lymphoid cells. Foreign body or Langhans giant cells may or may not be present; and Type 3 as necrotic materials with marked degeneration and variable polymorphonuclear infiltration without epithelioid granuloma and described as tubercular abscess.

2.4. Ethical considerations

Ethical clearance was obtained from Institutional Ethical committee of Datta Meghe Institute of Medical Science (Deemed University) as per reference letter number: DMIMS (DU)/IEC/2014-15/863, to carry out the research work in Jawaharlal Nehru Medical College and Acharya Vinoba Bhave Rural Hospital, Sawangi, Wardha. The decision to do aspiration cytology was based on clinical demand and not for the sake of participation in the study. Written informed consent was obtained from each patient.

2.5. Statistical analysis

Data entry and analysis were done using SPSS 11.5 for Windows. Analysis using cross-tabulation was performed to assess relationships among variables. The Pearson Chi-square test was used to compare differences in the different morphological categories and nature of aspirate. Differences were considered statistically significant if $p \leq 0.05$.

3. Results

A total of 156 patients with peripheral lymphadenopathy suspected to be of tubercular origin were studied and FNAC was performed. Out of 156 cases, 70 cases were diagnosed as reactive lymphadenitis, 5 cases with other diagnosis, and 69 cases were of TBLN. The remaining 12 cases were inadequate for opinion. Among the 69 cases, female to male ratio was 1.3:1. The mean age of females was 29.9 ± 15.18 years with 75% of the patients being aged between 18 and 42 years. The mean age of males was 30.5 ± 12.57 with 75% of the patients being aged between 19 and 39 years. The mean age of female and male was not statistically significant.

The most common site for FNAC was cervical in 70.3%, supraclavicular 11%, submandibular 10%, axillary 7.4%, and inguinal 1.3%. Table 1 summarizes the clinical characteristics of 69 patients with tubercular lymphadenopathy. Of the lymph nodes diagnosed, 62 (89.9%) were of size $\geq 2 \times 2$ cm and most of them presented as multiple, either discrete or matted (59, 85.5%) and solid (55, 79.7%) lymph nodes. Constitutional symptoms were present in 41 (59.4%) patients.

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