

A COMPARATIVE STUDY BETWEEN LYMPH NODE ASPIRATE CBNAAT AND CYTOLOGY FOR DIAGNOSIS OF TUBERCULOUS LYMPHADENITIS

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INTRODUCTION: Tuberculosis is a common in many cases lethal, infectious disease caused by various strains of mycobacteria, usually Mycobacterium tuberculosis. Tuberculosis is thought to be one of the oldest human diseases, the history of TB is at least as old as the mankind. Globally in 2019, an estimated 10.0million (range,8.9-11.0million) people fell ill with TB ⁽¹⁾. Tuberculosis mainly involves the lungs can cause infection in almost all other

organs and tissues in the body. Extra pulmonary tuberculosis (EPTB) is defined according to WHO classification criteria as an infection by *M. tuberculosis* which affects tissues and organs outside the pulmonary parenchyma⁽¹⁾. TB bacilli enter the lymphatic system and blood stream to reach extra pulmonary organs. Extra pulmonary Tuberculosis account for 10-15% of all cases of Tuberculosis. LNTB is the most common form of EPTB in India, accounting for 35% of EPTB cases. Total estimated incidence of LNTB was 30.8 per 100000 populations in India in 2013⁽²⁾. TB lymphadenitis almost affects all age groups. Index TB guidelines has recommended CBNAAT to be used as additional test to cytology in patients of EPTB⁽²⁾.

AIM AND OBJECTIVES:

Aim:

To do comparison of lymph node aspirate CBNAAT and Cytology via FNAC for diagnosis of tuberculous lymphadenitis.

Objectives:

To compare between CBNAAT and Cytology for diagnosis of tuberculous lymphadenitis.

To assess Rifampicin Resistance cases in extra pulmonary lymphadenitis.

MATERIALS AND METHODS:

- Study design: Prospective study.
- Study Site: Respiratory Medicine Department, Government Medical College Bhavnagar.
- Study Duration: One year
- Sample size: patients of Lymphadenitis attending Out Patient Department of Respiratory Medicine between 1st august 2020 to 31st July 2021.
- . Prior approval from local ethics committee was taken.
- Inclusion criteria:
 1. Patient's age between 18-65 years.
 2. Patient has complained of swelling along with any one of the following: cough with expectoration, weight loss, night sweats.
 3. Well palpable and enlarged swelling.
- Exclusion criteria:
 1. Patient who give negative consent for FNAC.

2. Known case of malignancy, allergic or skin disorders, local trauma.
3. Diabetes mellitus, HIV, Protein energy malnutrition.

Interpretation of cytology: It was done by the pathologist. The cytomorphological criteria considered for diagnosis;

- 1) FNA cytology showing epithelioid cell granulomas with or without multinucleated giant cells and caseation necrosis.
- 2) In case of cytology showing necrosis only/non-caseation granulomas / acute suppurative lymphadenitis without demonstration of AFB were considered as suspicious of tuberculosis.

Interpretation of CBNAAT:

M.TB: Detected OR M. TB Not Detected

Rif Resistance: Detected OR Not Detected OR Indeterminate

- Rifampicin resistance result types, when MTB is detected:
 - Rifampicin resistance DETECTED: a mutation in the rpoB gene has been detected.
 - Rifampicin resistance NOT DETECTED: no mutation in the rpoB has been detected.
 - Rifampicin resistance INDETERMINATE: the MTB concentration was very low and resistance could not be detected.

OBSERVATION AND RESULTS:

Total 35 patients were enrolled in these study. Out of 35, 33 patients presented with cervical lymphadenopathy of variable duration with loss of weight and fever, night sweats and remaining 2 patients of the study group presented with swelling in the Axilla and fever and swelling in Parotid region and fever. Lymph node FNAC was done for all patients. Sample was sent for CBNAAT and Cytology evaluation for all patients. Out of 35, 2 samples were blood stained therefore processed by culture and 2 samples were inadequate in quantity so were processed by culture.

TABLE 1: GENDER WISE DISTRIBUTION OF THE PATIENTS:

Gender	No of patients
Male	17 (48.57%)

Female	18 (51.42%)
Total	35 (100%)

(Out of 35 patients 18 (51.42%) were Female participants and 17(48.57%) were male participant.)

TABLE 2: CLINICAL SYMPTOMS ASSOCIATED WITH SWELLING

Symptoms	No of Patients having symptoms
Fever	35(100%)
Cough	17(48.57%)
Weight loss	23(65.71%)
Anorexia	15(42.85%)
Dyspnoea	1(2.86%)
Other	2(5.71%)

(Among 35 patients of study 1 patient (2.8%) was having complain of Dyspnea. All patients were having history of fever and 23 patients (65.71%) were having Weight loss.)

TABLE 3: DISTRIBUTION ACCORDING TO PAST HISTORY OF ATT

Past history of AKT	No. of Patients
Present	5(14.28%)
Absent	30(85.71%)

Total	35
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(Among 35 study participants 5(14.28%) patients were having history of Past History of ATT.)

TABLE 4: DISTRIBUTION ACCORDING TO CYTOLOGY RESULTS

Nature of smear	No of patients
epithelioid cell granulomas with or without multinucleated giant cells and caseation necrosis	25
necrosis only/non-caseating granulomas / acute suppurative lymphadenitis	7
Smear shows blood mixed fluid, scanty fibrous stroma , necrotic debris.	2
Lipoma	1
Total	35

(Out of 35 samples, Tubercular cytomorphological features obtained in 25 samples, where reactive lymphadenitis obtained in 7 samples and scanty fibrous stroma, necrotic debris in 2 samples & Lipoma in 1 sample.)

TABLE 5: DISTRIBUTION ACCORDING TO CBNAAT RESULTS

Total no of patient	35
CBNAAT done in	31

M tb Detected	M tb not Detected
8	25
Rif Sensitive	Rif Resistant
8	0

(Out of 35 patients 31 samples were sent for CBNAAT testing and 4 samples were processed with culture testing by Designated Microscopy Centre out of 31 samples 8 came positive of M tb and all samples were Rif sensitive.)

TABLE 6: COMPARISION BETWEEN CYTOLOGY AND CBNAAT

	CBNAAT POSITIVE	CBNAAT NEGATIVE	TOTAL
CYTOLOGY POSITIVE	6 (17.14%)	17 (48.57%)	23
CYTOLOGY NEGATIVE	2 (5.71%)	6 (17.14%)	8
TOTAL	8	23	31

Out of 8 CBNAAT positives, Cytology showed 6 positives and out of 23 Cytology positive CBNAAT showed 17 negatives.

DISCUSSION:

In this study of suspected Tubercular lymphadenitis patients, sex distribution in this study showed that there was a female preponderance. This study is similar to the study conducted by Sunil Kumar Komanapalli et al ⁽³⁾, in Andhra Medical College, Visakhapatnam, Andhra Pradesh, India having 149 female patients out of 289 patients.

In this study Cervical lymph adenopathy was found in 22 (62.85%) patients. Sunil Kumar Komanapalli et al ⁽³⁾, found 272 (94.11%) cervical lymphadenopathy cases. Similarly, in other study done by M S Siddegowda et al ⁽⁷⁾ had 84 patients (84%) of cervical lymphadenopathy out of 100 patients in Mandya Institute of Medical Sciences, Mandya, Karnataka, India. Most common site for lymphadenopathy was cervical region, which would be due to pathogenesis of Lymph Node Tuberculosis by spread of Tuberculosis through Lymphematogenous route from lungs and cervical nodes drains major parts of lungs.

There were 5 (14.28%) patients having past history of Tuberculosis out of 35. Manju M D et al ⁽⁸⁾ study had 16 (26.67%) patients with past history of Tuberculosis out of 60 patients.

In the present study 25 (71.42%) patients were found to have Tubercular cytomorphological feature. Manju M D et al⁽⁸⁾ study had 39 (65%) patients. In similar study M S Siddegowda et al⁽⁷⁾ had 47 (47%) patients.

In these study 35 FNA aspirates were sent for CBNAAT testing. Among them 4 aspirates were processed by Culture testing instead of CBNAAT by the Designated Microscopy Centre. So, out of 31 CBNAAT samples 8 (25.80%) aspirates showed Mtb Detected and all of them were Rifampicin sensitive. In M S Siddegowda et al⁽⁷⁾ study 30 (30%) aspirates were CBNAAT positive.

Considering 31 patients in our comparison of Cytology with CBNAAT showed 6 (19.35%) True Positive patients and 6 (19.35%) True Negative patients. There were 2 (5.71%) patients who had Mtb Detected result in CBNAAT and No Tubercular Cytology findings.

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