



Pulmonary Medicine

THE DIAGNOSTIC UTILITY OF FNA CYTOLOGY FOR TB, FNAC FOR CBNAAT, IN PATIENTS WITH TUBERCULOUS LYMPHADENOPATHY.

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KEYWORDS :

INTRODUCTION

Lymphadenopathy is a common clinical manifestation in our day to day practice. Enlarged lymphnodes could be due to infection, metastatic malignancy or lymphoma (1) Tuberculous lymphadenitis is the most common extra pulmonary TB (EPTB) manifestation of TB and the majority of the cases have no active lung involvement. (2)(3) TB is an important health problem in developing and under developed countries. The diagnosis of tuberculous Lymphadenitis remains challenging, inspite of the availability of several diagnostic modalities. FNAC offers a simple and safe option for specimen collection. Fine needle aspiration cytology (FNAC) is an economical and reliable minimally invasive investigation. (18)

Cartridge based nucleic acid amplification test (CBNAAT), is an automated DNA test that detects Mycobacterium tuberculosis and rifampicin resistance (10) (an indicator of MDR-TB) with a turn around time of two hours for the investigation of patients with suspected TB. (5)

AIMS AND OBJECTIVES

To compare the diagnostic utility of FNA cytology for TB, FNAC for CBNAAT.

MATERIAL AND METHODS :

Study design : prospective, observational

Duration of Study :-

From December 2017 to March 2022.

Sample Size :

101

Inclusion Criteria :

1. Pts with enlarged lymphnodes of size $\geq 1 \times 1$ cm above 12 years of age and given consent for study.
2. Pts with enlarged Lymphnodes of size $\geq 1 \times 1$ with presumptive TB.

Exclusion Criteria :

1. Pts who did not give consent for the study.
2. Pts with proven malignancy else where in the body.

101 patients with presumptive TB lymphadenitis attending GHCCD, Visakhapatnam were selected. After taking consent, pts were subjected for FNA. Material drawn from FNA was made in two parts

One part was subjected for smear preparation, sent for cytological examination to the department of pathology, Andhra medical College, Visakhapatnam.

Second part was utilized for Gene expert (CBNAAT) Tests reports were collected and tabulated and analyzed. All FNAC which are Cytopathologically suggestive of TB were kept on ATT, irrespective of CBNAAT results and clinical resolution of lymphnodes is taken as proof of tuberculous disease.

RESULTS

Out of 101 patients taken for study (71.28%) 72 patients were females and 29 (28.71%) male patients. Female predominance present.

Sex distribution

Males : 29 28.71%
Females: 72 71.28%
Total: 101

Age Distribution

Age	Male	Female	%
10-20	8	27	34.65%
21-30	10	22	31.68%
31-40	5	16	20.79%
41-50	4	3	6.93%
51-60	2	2	3.96%
61-	0	2	1.98%
total	29	72	101

Most common age group involved in this study was in between 10-40 year about (87.12%) 88 patients present in this group.

In our study, right side of neck lymphnodes were involved more frequently. 53 (52.47%) pts were presented with RT sided lymphnode enlargement nodes on left side were noted in 30 (29.70%). In 8 (7.92%) patients, bilateral neck nodes were involved.

Side of CLN

	Male	Female	Total	%
RT Side	12	41	53	52.47
Lt Side	9	21	30	29.70
Bil	4	4	8	7.92

Other Groups

Submental	3	3	6	5.94
submandibular	1	0	0	10.99
supraclavicular	0	2	2	1.98
axillary	0	1	1	0.90

Most commonly cervically lymphnodes were involved – 53+30+8 = 91 pts (90.09%). other groups of lymphnodes involved were – submental lymphnodes 6 pts (5.94%), submandibular – 1 (0.99%), supraclavicular – 2 (1.98%) pts and axillary lymphnodes 1 pt (0.99%).

Symptoms in these patients were, fever, LOA (loss of appetite), LOW (loss of weight), weakness. Cough expectoration and other symptoms like change of voice. Among all symptoms Fever was the most common in 66 (65.34%) patients, then LOA & LOW were observed in 63 pts (62.37%), asthenia in 8 pts (7.90%), cough and expectoration in 16 pts (15.84%)

Chest X-ray positive for TB

Males	6	5.94%
Females	9	8.91%
	15	14.85%

Chest X-ray is suggestive of TB in 15 (14.85%)

Mantoux test

30 pts (29.70%) developed diagnostically significant reaction to mantoux test out of whom 26 were females (86.66%).

Mantoux test +ve

Males	4	3.96
Females	26	25.74
	30	29.76

Out of 101 cases tested with PPD:

83 FNA cytology positive for TB (showing granuloma, giant cells) out of 101 cases

- i. In males : 23 (23.78%)
- ii. In females : 60 (59.40%)
- Total : 83 (82.17%)

Clinical response and Resolution of lymphadenopathy after ATT } - 83 out of 83 FNAC Cytology +ve cases.

Out of 101 cases

FNA for cytology for TB –ve are

- i. In males : 6 (5.94%)
- ii. In Females : 12 (11.88%)
- Total cases of FNA cytology for TB –ve: 18 (17.82%)

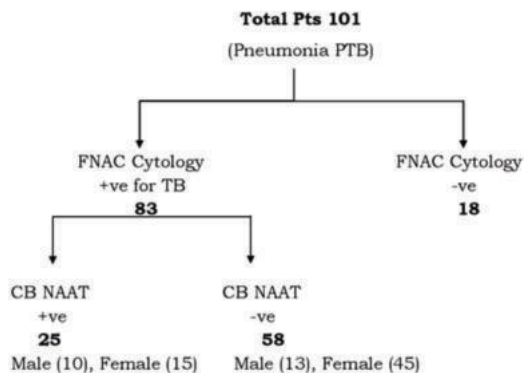
Out of 83

Out of FNA cytology +ve for TB (83), FNAC for CBNAAT +ve are :

- i. In males : 10 (12.04%)
- ii. In females : 15 (18.07%)
- Total : 25 (30.12%)

Out of FNA cytology +ve for TB cases (83), FNAC for CBNAAT –ve are

- I. In males : 13 (15.66%)
- ii. In females : 45 (54.21%)
- CBNAAT –ve cases are : 58 (69.87%)



DISCUSSION

The annual global incidence of extrapulmonary TB has been increasing due to HIV and population growth. The diagnosis of EPTB poses a challenge for clinicians because of atypical presentations and non availability of sputum samples. (10)

In the present study, majority of the patients were in 10-40 years age group comprising of 88 pts (87.12%). Study done by Dr. Jayanthi et al the maximum age group involved was in between 21-40. (3)

In the present study Male : Female ratio was 1:2.5 Where as Male, Female ration in the study done by Dr. Jayanthi et al was 1:1.2. In the study done by Manju et al Male : Female ratio is 2:1, where as in the study done by Mulualem tadesse et al Male : Female 1:1.13

In the present study most commonly involved lymphnode group was cervical lymphnode 91 patients (90.09%) Other groups of lymphnodes involved were submental 6 patients (5.94%), Sub mandibular 1 patients (0.99%), Supraclavicular 2 patients (1.98%) and axillary lymphnodes 1 patient (0.99%). In the study done by Thitta Mohanthi et al.

- Cervical Group: 52%
- Axillary: 16%
- Inguinal: 3%

Sub Mandibular: 3%

In the study done by Manju et al most commonly involved group was cervical region 86.67% followed by inguinal group 3.33%. so the fact that cervical lymphnodes are the commonest group involved was established in all studies including our study.

In the present study among all symptoms most common symptom was fever 65.34% then LOA (Loss of Appetite) and Loss of Weight in 62.37%. Where as in the study done by Thitta Mohanthi et al, fever was the most common symptom 47%, Loss of weight 25%, Loss of Appetite 24%.

In the present study:- Out of 101 cases, 83 (82.17%) cases positive for FNAC cytology for TB, 25 cases positive for FNAC for CBNAAT. Where as study done by Dr. Jayanthi et al cytology +ve in 52%, and in the study done by Manju et al cytology +ve 56.67%. In the study done by Mulualem tadesse cytology +ve in 67.1% cases. Hence in clinically diagnosed cases of TB lymphadenitis, Variable % of cases are only positive in FNAC cytology.

In the present study out of 83 FNA Cytology positive for TB, FNAC for CBNAAT positive were : 25 cases (24.75%), sensitivity - 26.51%, (17.42% to 37.34%), specificity -83.33%, (58.58% to 96.42%), positive predictive value-88%, (71.08% to 95.63%). Negative predictive value-19.74%, (16.16% to 23.88%), Accuracy-36.63%, (27.27% to 46.81%), where as in the study done by Dr. Jayanthi et al FNAC for CBNAAT +ve were 46.25%, in the study done by Manju et al CBNAAT +ve was 51.67% cases, in Mulualem Tadesse study – CBNAAT +ve in 60.1% cases. In the present study, CBNAAT is positive in a very less number of cases i.e., 25 cases (24.75%). There is a lot of clinico, patho, microbiological diagnostic variation.

CBNAAT * CYTOLOGY				
Count		CYTOLOGY		Total
		-Ve	+Ve	
CBNAAT	-Ve	15	61	76
	+Ve	3	22	25
Total		18	83	101

Statistic	Value	95% CI
Sensitivity	26.51%	17.42% to 37.34%
Specificity	83.33%	58.58% to 96.42%
Positive Predictive Value (*)	88.00%	71.08% to 95.63%
Negative Predictive Value (*)	19.74%	16.16% to 23.88%
Accuracy (*)	36.63%	27.27% to 46.81%

CONCLUSION

FNAC is a simple procedure which can be performed in an out patient setting and is ideal in resource limited settings specimen collection is simple.

Gene X-Pert MTB/RIF assay take two hours to provide final results, in addition to MTB, also provides rifampicin resistance pattern too. High clinical suspicion and special diagnostic procedures are required for diagnosis of EPTB especially TB cervical lymphadenitis. FNAC, cytopathology and ZN microscopy is the first line investigation and is also simple and safe procedure. Culture is gold standard but is time consuming. CBNAAT being the latest technique with rapid turn around time, can detect TB even if bacilli are less in number and also provides information about rifampicin resistance.

Inview of lot of clinico, patho, microbiological, discordance, ultimate diagnosis in case of tuberculous cervical lymphadenitis. More research is needed in this direction.

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