

## FNAC as A Diagnostic Tool in Diagnosing Lymph Node Lesions with Special Emphasis on Tubercular Lymphadenitis: A Prospective One Year Study at a Tertiary Care Centre

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### Abstract:

**Introduction:** Lymph node lesions a common clinical problem often presents a diagnostic dilemma to the clinician. Fine needle aspiration cytology is valuable in solving the above problem. Common causes of neck lymphadenopathy are inflammation, reactive hyperplasia, lymphoproliferative disorder and metastatic disease.

**Material and methods:** This study was a prospective cross sectional study over period of one year [January 2018-December 2018] conducted in the pathology department of J.K hospital attached to L.N. Medical college and Research center, Bhopal .A total of 100 patients referred from various departments were included in our study. **Result:** Female were more common than males. Most common age group was third decade, most common site was cervical lymph node and most common nonneoplastic lesion being reactive lymphadenitis followed by tubercular and most common neoplastic was metastatic. **Conclusion:** Our result clearly demonstrate the use of FNAC on enlarged lymph node lesions and offers many advantages to clinician and pathologist, as it is an easy and reliable method and study of our own and others' long term studies, demonstrate its safety.

**Keywords:** Lymphadenopathy, Metastatic, Tubercular, Neoplastic.

Date of Submission: 19-01-2019

Date of acceptance: 04-02-2019

### I. Introduction

Lymph node lesions a common clinical problem often presents a diagnostic dilemma to the clinician. Fine needle aspiration cytology is valuable in solving the above problem. It is safe, rapid, reliable and cost effective procedure which avoids the physical and psychological trauma. In view of all published facts, an attempt is made to diagnose lymph node lesions by fine needle aspiration<sup>1</sup>. Swelling in the neck could be due to disease involving salivary glands, lymph nodes, thyroid or skin. Lymphadenopathy is one of the most common problems encountered in neck.. Fine needle aspiration cytology (FNAC) helps solving the cause of enlarged lymph nodes. Superficial swellings are approached directly however deep swellings require ultrasound guidance. Common causes of neck lymphadenopathy are inflammation, reactive hyperplasia, lymphoproliferative disorder and metastatic disease. The sensitivity of FNAC for the diagnosis of lymphadenopathy averages 90% with a specificity 95%<sup>3</sup>. The present study was done with the objective to validate the importance of FNAC as a first line screening procedure in cases of lymphadenopathies by studying the different cytomorphological patterns associated with various lymphadenopathies.

### II. Material And Methods

This study was a prospective cross sectional study over period of one year [January 2018-December 2018] conducted in the pathology department of J.K HOSPITAL attached to L.N. MEDICAL COLLEGE AND RESEARCH CENTER, BHOPAL .A total of 100 patients referred from various departments were included in our study

#### Inclusion criteria:

- All cases of lymph node lesions where FNAC was done.

#### Exclusion criteria:

- All cases of lymph node lesions where adequate aspirate are not obtained even after repeated aspiration are excluded from the study.

**III. Result**

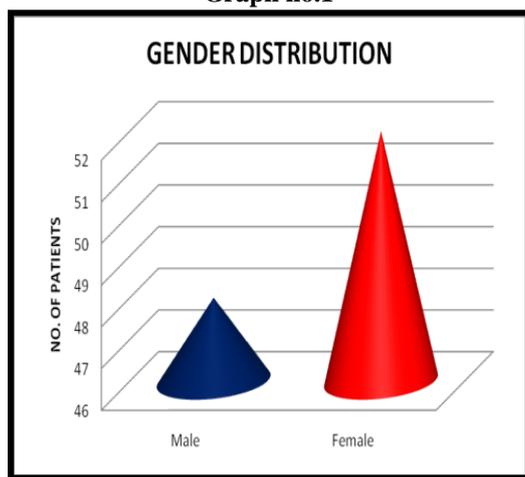
1. In The present study 100 lymph nodes were aspirated from different sites during the period of study.

**TABLE NO. 1:** Showing age and gender wise distribution of patients

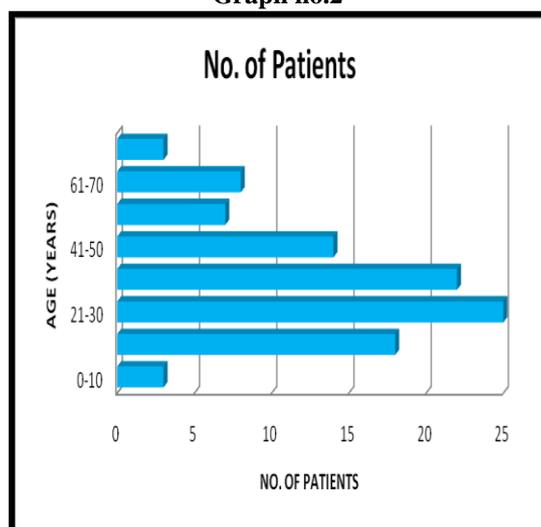
Age	Male	Female	No. of patients	Percentage
0-10	3	0	3	3
11-20	10	08	18	18
21-30	08	17	25	25
31-40	08	14	22	22
41-50	07	07	14	14
51-60	04	03	07	07
61-70	05	03	08	08
>70	03	00	03	03
Total			100	100

Out of 100 patients the most common age group was third decade {21-30} , with male to female ratio of 0.92:1.

**Graph no.1**



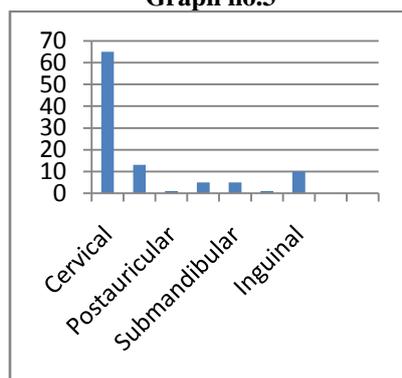
**Graph no.2**



**TABLE NO. 2:** Table showing anatomical distribution of enlarged lymphnodes.

Anatomical Site	Number of cases	%
Cervical	65	65
Axillary	13	13
Post auricular	01	01
Supraclavicular	05	05
Submandibular	05	05
Submental	01	01
Inguinal	10	10
Total	100	100

**Graph no.3**



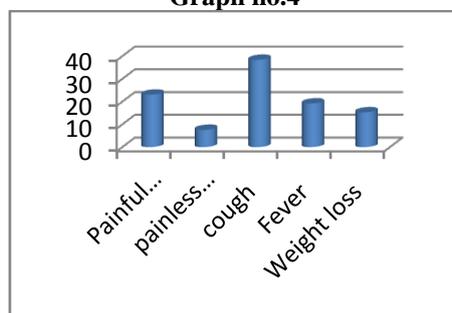
**TABLE NO. 3:** table showing cytological diagnosis of lymphnode lesions according to site distribution.

Serial No.	Diseases	Site				No.of cases	%
		Cervical	Axillary	Inguinal	Others		
1	Nonneoplastic						
	Reactive lymphadenitis	21	5	3	1	30	30
	Tubercular lymphadenitis	18	02	02	04	26	26
	Granulomatous lymphadenitis	06	01	01	03	11	11
	Acute Suppurative lymphadenitis	03	01	01	00	05	5
	Others	05	01	01	02	09	9
	Total					81	81
2	Neoplastic						
	Lymphoma	04	00	00	00	04	4
	Metastatic lesions	08	03	02	02	15	15
	Total					19	19

**TABLE NO. 4:** Table showing clinical features of patients cytologically diagnosed as tubercular lymphadenitis.

Clinical Features	No. of cases	%
Painful swelling	06	23.07
Painless swelling	02	7.6
Cough	10	38.4
Fever	05	19.2
Weight Loss	04	15.3

**Graph no.4**

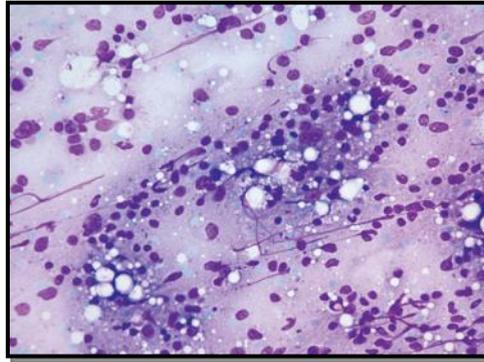


**TABLE NO. 5:** Table showing anatomical distribution of enlarged lymphnode in tubercular lymphadenitis.

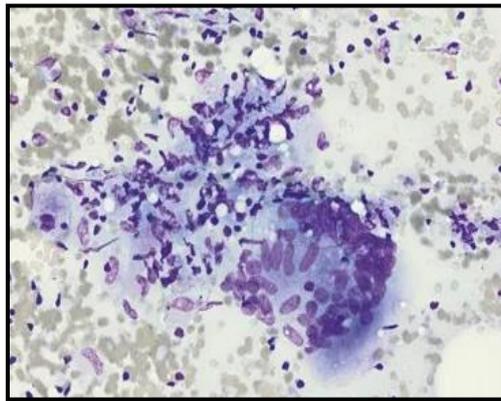
Serial No.	Anatomical Site	No.of cases	%
1	Cervical lymph node	18	69.2
2	Axillary	02	7.6
3	Inguinal	02	7.6
4	Others	04	15.3

**TABLE NO.6:** Table showing afb in patients with tubercular lymphadenitis.

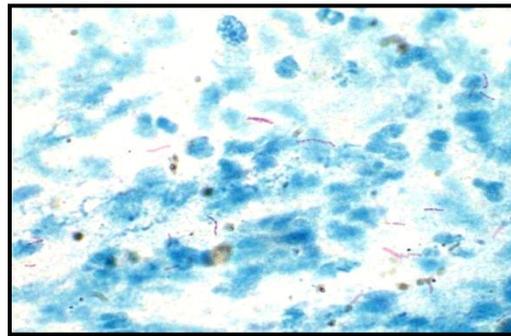
Serial No.	Zeil Nelson Stain	No.of cases	%
1	AFB Positive	20	77
2	AFB Negative	06	23



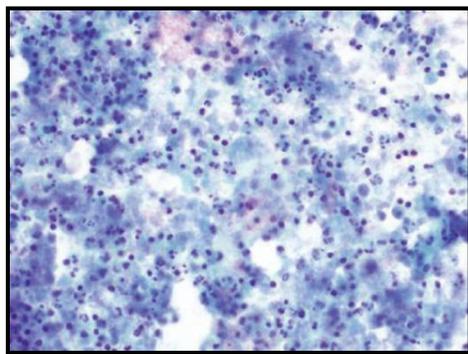
**IMAGE 1: REACTIVE LYMPHADENITIS** : Aspirate showing mixed lymphoid cells, Plasma cells and tingible body macrophages (MGG)



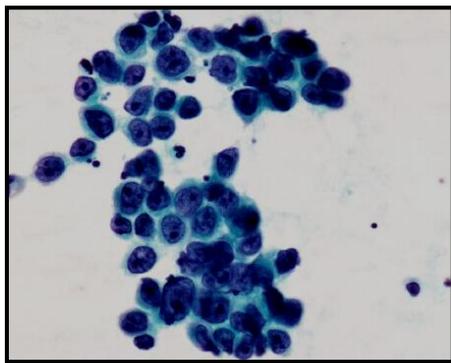
**IMAGE 2: TUBERCULOSIS LYMPHADENITIS**: Aspirate showing granuloma composed of epithelioid cells with necrotic background. (MGG)



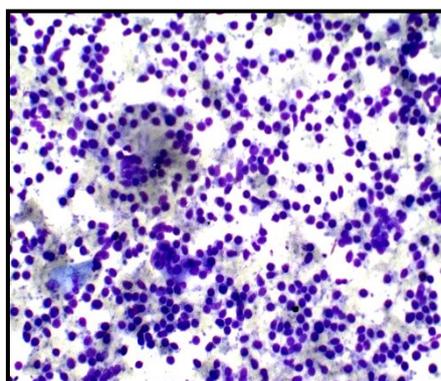
**IMAGE 3 : ZEIHL NEELSON STAIN** : Showing Acid fast Bacilli positivity.



**IMAGE 4: ACUTE SUPPURATIVE LYMPHADENITIS** : Aspirate showing mixed inflammatory cells including polymorphonuclear cells & lymphocytes.



**IMAGE 05: ADENOCARCINOMA:** Aspirate showing tumor cell arranged in glandular pattern.



**IMAGE 5: LYMPHOMA:** Aspirate shows RS giant cells classical mononuclear cell.

#### IV. Discussion

During the present study 100 cases were referred for fine needle aspiration of lymph nodes. Lymph node aspiration was done for all age groups and in both sexes.

**TABLE 7:** showing age distribution in comparison with other studies.

Age	Amit A et al <sup>78</sup>	Pandit AA et al <sup>79</sup>	Our study
0-20	17(5.67%)	63(22.03%)	21(21%)
21-40	217(72.33%)	146(51.05%)	47(47%)
41-60	63(21%)	53(18.53%)	21(21%)
>60	3(1%)	21(7.34%)	11(11%)

As shown in Table 7. In the present study majority of the patient referred were in the age group of 21-40 years. Similar to the observation of Pandit AA et al<sup>78</sup> 51.04% and Amit A et al<sup>79</sup> {72.33%}

**TABLE 8:** showing comparison of male and female ratio in the present study and other studies.

Serial No.	Study	Male	Female	Ratio
1	Chau et al <sup>25</sup>	205	347	1:1.7
2	Hirachand et al <sup>36</sup>	68	62	1.09:1
3	Khan et al <sup>34</sup>	40	49	1:1.2
4	Smita P et al <sup>51</sup>	72	79	1:1.09
5	Present study	48	52	0.9:1

As shown in table 8 in the present study majority of the patients 52 were females and 48 were males , with male to female ratio of 0.9:1. Similar observation were seen in the study of Chau et al<sup>25</sup> , Khan et al<sup>34</sup> and Smita P Bhide et al<sup>51</sup> where females were more common than males .

**TABLE 9:** showing comparison of anatomical distribution of enlarged lymph node in the present study and other studies.

Serial No.	Site	Hirachand et al <sup>36</sup>	Smita P et al <sup>51</sup>	Present study
1	Cervical	66(50.76%)	91(60.26%)	65(65%)
2	Axillary	20(15.38%)	30(19.87%)	13(13%)
3	Submandibular	18(13.85%)	-	5 (5%)
4	Supraclavicular	14(10.77%)	-	5(5%)
5	Inguinal	12(9.23%)	-	10(10%)
6	Submental	-	-	1(1%)
7	Others	-	-	1(1%)

As shown in Table 9 Maximum number of aspiration were performed from cervical region 65(65%). The anatomical distribution is very similar to the study of Hirachand et al<sup>36</sup> 66 (50.76%), and Smita P et al<sup>51</sup>91 (60.26%).

**TABLE NO.10** showing comparison of fnac of non neoplastic and neoplastic lymphadenopathies with various other studies.

Serial no.	Study	Non neoplastic	Neoplastic	Ratio
1	Bharati DT et al <sup>49</sup>	86%	12%	7.03:1
2	Hirachand et al <sup>36</sup>	81.7%	18.3%	4.42:1
3	Smita P et al <sup>51</sup>	74.3%	15.90%	4.7:1
4	Shamshad et al <sup>29</sup>	86.4%	13.6%	6.35:1
5	Present Study	81%	19%	4.2:1

As shown in Table 10 in the present study the ratio of Non Neoplastic to Neoplastic lesions was 4.2:1 which is very near to the findings of Hirachand et al<sup>36</sup> 4.42:1 and Smita P et al<sup>51</sup> 4.7:1 , But differs from Bharti DT et al<sup>49</sup> 7.03:1 and Shamshad et al<sup>29</sup> 6.35:1.

### V. Conclusion

Fine needle aspiration cytology is a primary diagnostic tool in the evaluation of lymph node lesions. The present study was undertaken to know the spectrum of lesions found in the enlarged lymph nodes in 100 patients. Cervical group of lymph nodes is the most common presentation in both benign and malignant condition. Non-specific Reactive lymphadenitis is the most common benign pathology associated with enlarged lymph nodes whereas metastasis is the most common malignant condition. Cases of tubercular lymphadenitis should always be confirmed by special stains like Ziehl Neelsen stain

Our result clearly demonstrate the use of FNAC on enlarged lymph node lesions and offers many advantages to clinician and pathologist, as it is an easy and reliable method and study of our own and others' long term studies, demonstrate its safety.

### References

- [1]. Svante.R.Orell, Sterrett G F, Walter M N,Whitaker D, Manual and atlas of fine needle aspiration Cytology. 4th edition. Churchill Livingstone , 2005. Lymph node: 64-94.
- [2]. Russel RCG, William NS, Bulstrode CJK (2004). Bailey and Love's short practice of surgery. 24th ed. London: Arnold.
- [3]. Chau et al .:Rapid access multidisciplinary lymph node diagnostic clinic: analysis of 550 patients. Published online 2003 Feb10. doi: 10.1038/sj.bjc.6600738PMCID: PMC2747551
- [4]. Shamshad RK, Naran S, Lallu S, Fauck R. Diagnostic value of needle aspiration cytology in the assessment of palpable axillary lymph nodes. A study of 336 cases..Cytology Unit, Department of Laboratory Services, Wellington Hospital, School of Medicine, Wellington, New Zealand. 2000 Nov-Dec;44(6):960-6.
- [5]. Rizwan A. Khan et al;Children with significant cervical lymphadenopathy: clinicopathological analysis and role of fine-needle aspiration in Indian setup; J. Pediatr. (Rio J.) vol.84 no.5 Porto Alegre Sept./Oct. 2008
- [6]. Hirachand S, Lakhey M, Akhter J, Thapa BEvaluation of fine needle aspiration cytology of lymph nodes in Kathmandu Medical College, Teaching hospital. I Kathmandu Univ Med J (KUMJ). 2009 Apr-Jun;7(26):139-42
- [7]. Bharti Devi Thaker, Arti Devi, Kailash Singh : Pattern of Lymphadenopathy on Fine Needle Aspiration Cytology- A Retrospective Study JMSCR Vol 05 Issue 05 Page 22088-22093May
- [8]. Smita P.Bhide , Rupali Y.Katre , Sneha R.Joshi : Cytological Evaluation of Fine Needle Aspiration Cytology in Lymph Node Lesions : JMSCR Volume 05 Issue 08 August 2017
- [9]. Amit A: Fine needle aspiration cytology study of lymph node in HIV patients and CD4 count. Indian Journal of respiratory medicine 2013 :2(2) 16-19
- [10]. Pandit AAet al : Fine nneedle aspiration cytology in lymph nodes. Journal of postgraduate medicine 1987: 33 (3)

Dr.Pragya Saxena. "FNAC as A Diagnostic Tool in Diagnosing Lymph Node Lesions with Special Emphasis on Tubercular Lymphadenitis: A Prospective One Year Study at a Tertiary Care Centre." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 1, 2019, pp 49-54.