

# ROLE OF FNAC IN DIAGNOSIS OF CERVICAL LYMPHADENOPATHY

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## ABSTRACT

**Background:** Fine Needle Aspiration Cytology (FNAC) is simple, quick, inexpensive and minimally invasive OPD technique used to diagnose different types of swellings located in the neck.

**Aims & Objective:** (1) To assess the distribution of various cytomorphological patterns of cervical lymphadenopathy; (2) To assess the age specific distribution of various cytomorphological patterns of cervical lymphadenopathy.

**Materials and Methods:** This study was carried out at GMERS Medical College and Hospital, Valsad, on 196 clinically diagnosed cases of cervical lymphadenopathy over a period of two years from January 2010 to December 2011. FNAC was carried out in all these patients. Fine Needle Aspiration Diagnosis was correlated with details of relevant clinical findings and investigation.

**Results:** Total 196 cases were studied, out of these 173 (88.26%) were found inflammatory and 23 (11.73%) were neoplastic. Tuberculosis was the most common disease found in 109 (55.61%) patient followed by chronic nonspecific lymphadenitis 49 (25.00%), Metastatic tumours 21 (10.71%), acute lymphadenitis 15 (7.65%), Lymphoma 2 (1.02%). Highest incidence of cervical lymphadenopathy was found in patients of 11 to 30 years age group.

**Conclusion:** Fine Needle Aspiration Cytology is easy, simple, safe, reliable and non-invasive procedure for diagnosis of cervical lymphadenopathy and easy way for surgeon to decide whether to go for surgery or not.

**Key Words:** Cervical Lymphadenopathy; Fine Needle Aspiration Cytology (FNAC); Cytomorphological Pattern

## Introduction

Lymphadenopathy is the most common cause of swelling in the neck and is one of the commonest presentations in inflammatory and neoplastic disorders.<sup>[1]</sup> FNAC has been successfully adopted as a routine technique to diagnose the cause of lymphadenopathy in our centre. FNAC is a simple, quick, and inexpensive and is equally reliable procedure which can be used as a routine OPD procedure for diagnosis of lymphadenopathy.<sup>[2]</sup> FNAC does not give same architectural detail as histology but it can provide cells from the entire lesion as many passes through the lesion can be made while aspirating.<sup>[3]</sup>

## Materials and Methods

This study was carried out at GMERS Medical College and Hospital, Valsad, on 196 clinically diagnosed cases of cervical lymphadenopathy over a period of two years from January 2010 to December 2011. In each case detailed history, clinical presentation of cervical lymph nodes and clinical examination were carried out. Aspiration was done as outdoor procedure using 23 gauge needles. Three to four smears were prepared from aspirated material. Smears were dipped immediately in the ether alcohol solution for minimum of 30 minutes and H & E staining carried out. The diagnoses were classified according to various cytomorphological patterns<sup>[4]</sup> and correlated with patient's age.

## Results

A total of 196 cases were included in this study. Maximum number of cases 93 (53.27%) were in age group of 11-30 years. The various causes of cervical lymphadenopathy were classified according to cytomorphological patterns<sup>[4]</sup> and their frequency of occurrence in relation with different age groups is shown in Table 1.

**Table-1: Age wise distribution of cytomorphological patterns**

Cytomorphological Diagnosis	Age Groups (Years)						
	0-10	11-20	21-30	31-40	41-50	51-60	>60
Acute lymphadenitis	0	3	3	4	3	1	1
Chronic non-specific lymphadenitis	9	13	12	8	4	1	2
Tuberculosis	4	29	28	22	16	6	4
Hodgkin's lymphoma	0	1	0	0	0	0	0
Non-Hodgkin's lymphoma	0	0	0	0	0	1	0
Metastasis	0	0	2	1	9	6	3
<b>Total</b>	<b>13</b>	<b>46</b>	<b>45</b>	<b>35</b>	<b>32</b>	<b>15</b>	<b>10</b>
<b>%</b>	6.63	22.95	22.95	17.85	16.32	7.65	5.10

**Table-2: Relative distribution of cytomorphological pattern of diagnosis and distribution with respect to gender**

Cytological Diagnosis	No. of case			%
	M	F	Total	
Acute lymphadenitis	9	6	15	7.65
Chronic non-specific lymphadenitis	19	30	49	25.00
Tuberculosis	46	63	109	55.61
Hodgkin's lymphoma	0	1	1	0.51
Non-Hodgkin's lymphoma	1	0	1	0.51
Metastasis	16	5	21	10.71
<b>Total</b>	<b>91</b>	<b>105</b>	<b>196</b>	<b>100</b>
<b>%</b>	46.42	53.57		

**Table-3: Pathological Distribution of various cervical lymph nodes lesions as diagnosed on FNAC**

Cytological Diagnosis	No. Of Cases	Percentage
Inflammatory lymphadenopathy		
1) Acute lymphadenitis		
2) Chronic non-specific lymphadenitis	173	88.26
3) Tuberculous lymphadenitis		
Neoplastic		
1) Primary	23	11.73
2) Secondary		
Total	196	100

## Discussion

The present study of 196 patients clinically diagnosed with cervical lymphadenopathy cytologically showed tuberculous lymphadenitis as a most frequent 109 (55.61%) cause of lymphadenopathy followed by chronic non-specific lymphadenitis 49 (25.00%), metastatic carcinoma 21 (10.71%), acute lymphadenitis 15 (7.65%), and lymphoma 2 (1.02%). Inflammatory lesion (88.26%) predominated as compared to malignancy (11.76%). Majority patients with cervical lymphadenopathy were in the age group of 11 to 30 years (45-90%) which is comparable with studies by P Bhargav et al.<sup>[1]</sup> and S Rajeshkaran et al.<sup>[5]</sup> Tuberculosis is most frequent below the age of 40 whereas malignancy predominated after the age of 40, which is comparable with those of other studies by Amitkumar Bapuso Pandav, Pramila Prakash Patil.<sup>[6]</sup>

FNAC is an outpatient procedure that is cost effective and results are obtained quickly.<sup>[7]</sup> FNAC has revolutionized the diagnosis of cervical lymphadenopathy, decreasing the morbidity of excision or incision biopsy of lymph node.<sup>[8]</sup> Cervical lymphadenopathy is a common problem faced by health care professionals.<sup>[9]</sup>

Lymph node cytology is useful for the clinicians to know whether the lymphadenopathy is due to infection, metastatic malignancy or lymphoma.<sup>[10]</sup>

The expansion of FNAC in primary diagnosis of lymphoma has been enormous and successful with aids of recent advances like Immunohistochemistry and flow cytometry.<sup>[11,12]</sup>

## Conclusion

The present study confirmed that FNAC of lymph node is an excellent first line method for investigating the nature of the lesion. Due to poor preservation of architecture by

improper fixation and being a cellular organ, histopathology of lymph node may cause diagnostic problem to pathologist. In these situations, fine needle aspiration cytology definitely has upper hand over biopsy in making diagnosis. Commonest diseases causing Cervical Lymphadenopathy are Tuberculosis, Metastatic Malignancies and chronic non-specific lymphadenitis. We feel that though FNAC is considered complimentary to biopsy, in proper clinical setting and in certain situation it alone can help in establishing diagnosis.

Fine Needle Aspiration Cytology is a simple, safe, rapid, cost effective and reasonably accurate method of establishing the diagnosis of cervical lymphadenopathy. Its use is strongly recommended in early diagnosis and in case of tuberculosis it obviates excision biopsy and treatment can directly be started in patient.

## References

- Bhargava P, Jain AK. Chronic cervical lymphadenopathy a study of 100 cases. *Ind J Surg* 2002;64:344-6.
- Kanhere S, Seurange S, Khan SS, Jain GD, RanganekarGV, Kanhere MH. Evaluation of FNAC in lymphadenopathy. *Ind J Surg* 1994;56:169-74.
- Kirk RM, Ribbans WS. *Clinical surgery in general*. 4th ed. Edinburg:Elsevier; 2004.
- Koss LG, Woyke S, Oslewski W. *Aspiration biopsy-cytologic interpretation and histologic bases*. 5th ed. New York: Igaku-Shoin; 2006. p. 1186-1228.
- Rajshkaran S, Gunasekaran M, Jayakumar DD, Jeyaganesh D, Bhanumathi V. Tuberculous cervical lymphadenitis in HIV positive and negative patients. *Ind J Tubercul* 2001;48:201-4.
- Pandav AB, Patil PP, Lanjewar DN. Cervical lymphadenopathy – diagnosis by F.N.A.C., a study of 219 cases. *Asian J Med Res* 2012;1:79-83.
- Koo V, Lioe TF, Spence RAJ. Fine needle aspiration cytology in diagnosis of cervical lymphadenopathy. *Ulster Med J* 2006;75:59-64.
- AL-Mulhim AS, AL-Ghaundi AMA, AL- Marzooq YM, Hashish HM, Mohammad HA, Ali AM, et al. The role of fine needle aspiration cytology and imprint cytology in the cervical lymphadenopathy. *Saudi med J* 2004;25:862-5.
- Mansoor I, Abdul-Aziz S. Cervical lymphadenopathy biopsy: clinical and histological significance. *Saudi Med J* 2002;23:1291-2.
- Hirachand S, Lakhey M, Akhter J, Thapa B. Evaluation of fine needle aspiration cytology of lymph nodes in Kathmandu Medical College, Teaching hospital. *Kathmandu Univ Med J (KUMJ)* 2009;7:139-42.
- Keith VE, Harsharan SK, Jerald GZ. Fine needle aspiration biopsy of lymph nodes in the modern era: reactive lymphadenopathies. *Pathol Case Rev* 2007;12:27-35.
- Howlett DC1, Harper B, Quante M, Berresford A, Morley M, Grant J, et al. Diagnostic adequacy and accuracy of fine needle aspiration cytology in neck lump assessment: results from a regional cancer network over a one year period. *J Laryngol Otol* 2007;121:571-9.

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