

# A Study to Correlate between FNAC and Histopathological Diagnosis of Enlarged Lymph Node.

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## ABSTRACT

**Background:** Aspiration of enlarged lymph node is commonly done. Although open biopsy with histopathological examination of tissue still remains the gold standard yet F.N.A.C. is an integral part of initial diagnosis. Objective: To highlight the role of F.N.A.C. in the diagnosis of etiological profile of lymphadenopathy and to find out the accuracy of F.N.A.C. in comparison to histopathological diagnosis. **Methods:** The prospective study was done for two years. The results of lymph node F.N.A.C. were compared and evaluated taking histopathology as gold standard. **Results:** Cervical lymph node were most commonly involved. Most common cause of lymphadenopathy in children was reactive hyperplasia and tuberculosis in adults. **Conclusion:** The sensitivity and diagnostic accuracy of F.N.A.C. results were high when compared with histopathological findings.

**Keywords:** F.N.A.C, Lymph node, Biopsy.

## INTRODUCTION

Lymphadenopathy is a common clinical presentation. There are around 800 lymph nodes in the body and approximately 300 are present on the neck.<sup>[1]</sup>

Enlargement of lymph node may result from the proliferation of lymphocytes intrinsic to lymph nodes, due to an infection or a lymphoproliferative disorder or from the migration and infiltration of nodal tissue by either intrinsic inflammatory cells or metastatic malignant cells.<sup>[2]</sup>

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In the cervical and axillary regions a lymph node >1 cm and in the inguinal region >1.5 cm in size is considered significant. It is important to differentiate between benign and malignant conditions to decide the further line of management. In India, acute upper respiratory infections, suppurative skin lesions and tuberculosis are the major causes of regional lymphadenopathy.<sup>[3]</sup> Any lymph node enlargement not subsiding or remaining static in size for > 2 cms after conventional antibiotics should be investigated.<sup>[4]</sup>

Aspiration of lymph nodes for diagnostic purpose was reported as early as 1904 by Gueg and Gray who used this procedure in the diagnosis of trypanosomiasis.<sup>[5,6]</sup>

Although, open biopsy with histological examination of excised tissue still remains the gold standard for diagnosis of lymph node enlargement yet FNAC has now become an integral part of the initial diagnosis. This simple technique has gained wide acceptance since it offers high degree of accuracy, leading itself to outpatient diagnosis and thus reducing the cost of hospitalization.<sup>[8,9]</sup>

The results of FNAC compare favorably with those of tissue biopsies and in some situations the aspirate has qualities of a biopsy. Suspicious or doubtful situation should be resolved by surgical biopsy and further by immuno histochemistry and molecular studies wherever needed.<sup>[10]</sup>

The aim of the present study is to highlight the role of FNAC in the diagnosis of etiological profiles of lymphadenopathy and to find out the accuracy of FNAC in comparison to histopathological examination of a biopsy.

## MATERIALS AND METHODS

This prospective study was done in our institute from a period of two years March, 2014 to February, 2016 on a sample size of 68 patients. The inclusion criteria were to include patients of various age,

irrespective of their age having enlarged lymph node. Only those cases for which both FNAC as well as biopsy were done were included.

The FNAC smears were examined under H&E stain (Wet smears) and MGG stain (Dry smears). The histopathological slides were stained by H & E stains.

The results of FNAC findings were compared and evaluated taking histopathology as the gold standard.

## RESULTS

In the present study during histopathological examination commonest cause of lymphadenopathy were tubercular lymphnoditis (29.4%) and metastatic carcinoma (29.4%). Reactive hyperplasia was (20.5%) at second place. Lymphomas constituted 17.6%. Granulomatous inflammatory lesion accounted for 2.94% of lymph node enlargement.

Out of 68 cases, cytological diagnosis was matched with histopathological diagnosis in 64 cases. Four cases, which were reported as reactive hyperplasia by FNAC, were found to be lymphoma on biopsy in two case and other two turned out to be metastatic carcinoma on biopsy.

**Table 1: Distribution of cases according to histopathological diagnosis.**

Histopathological Diagnosis	No of cases	Percentage (%)
Tubercular lymphnoditis	20	29.4%
Metastatic carcinoma	20	29.4 %
Reactive hyperplasia	14	20.5%
Lymphoma	12	17.6 %
Granulomatous Inflammatory lesion	02	2.94 %
<b>Total</b>	<b>68</b>	<b>100</b>

**Table 2: Distribution of cases according to the age group.**

Age group (years)	Tubercular lymphnoditis	Metastatic carcinoma	Reactive hyperplasia	Lymphoma	Granulomatous inflammatory lesion	Total
1-10	-	-	2 (14.2%)	-	-	2
11-20	8 (40%)	2 (10%)	6 (42.8%)	4 (33.3%)	-	20
21-30	8 (40%)	-	4 (28.5%)	4 (33.3%)	2 (100%)	18
31-40	4 (20%)	4 (20%)	-	2 (16.6%)	-	10
41-50	-	4 (20%)	2 (14.2%)	-	-	6
51-60	-	4 (20%)	-	2 (16.6%)	-	6
61-70	-	6 (30%)	-	-	-	6
Total	20	20	14	12	2	68

32.3% cases were in 1-20 years age group, 41.1% cases were between 21-40 year age group and 26.4% cases were in 41-70 years age group. Mean age was 32.67 years. 55.8% cases are male and 44.1% cases were female. Male to female ratio is 1.26:1. Most of the patients (73.5%) had duration of symptoms more than one month but less than 6 months. 87.6% cases had been symptomatic for more than 6 months and only 8.8% of cases had presented with symptoms less than one month duration.

Cervical lymphnodes were involved in 69 % of cases, followed by axillary (8%), inguinal (8%),

supraclavicular (30%), intraabdominal (3%) and postauricular (3%) of cases. Generalized lymphadenopathy was present in 6% of all the cases. Correlation between cytological and clinical diagnosis was noted in 79.41% cases of lymphadenopathy. Out of 20 cases of tubercular lymphnoditis, 18 cases were diagnosed as tuberculosis clinically. In cases of metastatic carcinoma out of 18 cases 16 cases were clinically diagnosed as metastasis. Out of 68 cases, cytological diagnosis was matched with histopathological diagnosis in 64 cases.

**Table 3: Co-relation between cytological diagnosis and final diagnosis.**

Histopathological diagnosis		Cytological diagnosis				
		Tubercular lymphnoditis	Metastatic carcinoma	Reactive hyperplasia	Lymphoma	Granulomatous inflammation lesion
TB	20	20	-	-	-	-
Metastatic Ca	20	-	18	2	-	-
RH	14	-	-	14	-	-
Lymphoma	12	-	-	2	10	-
Granulomatous inflammatory lesion	2	-	-	-	-	2
<b>Total</b>	<b>68</b>	<b>20</b>	<b>18</b>	<b>18</b>	<b>10</b>	<b>2</b>

In the present study, commonest cause of metastasis in lymphnodes was squamous cell carcinoma. Maximum number of patients (50%) with tuberculosis presented with epithelioid granulomas

with caseous necrosis, followed by epithelioid granulomas without necrosis (30%). Only caseous necrosis was found in 10 % of patients.

## DISCUSSION

The present study was conducted to find out the etiological profile of lymphadenopathy as per cytological and histological examination and to evaluate the accuracy of FNAC in correlation to histopathology. Etiological profile of the present study showed tubercular lymphadenitis (29.4%) and metastatic carcinoma (29.4%) as being common causes of lymphadenopathy followed by reactive hyperplasia (20.5%), lymphoma (17.6%) and granulomatous inflammatory lesion (2.94%). The benign and reactive conditions constitute a significant proportion of the findings in aspirate of enlarged lymph nodes studies (56, 3 5.2). The youngest patient was 10 years old and oldest patient was 65 years of age with a mean age of 32.6 years. After lymphadenopathy, the most common presenting sign detected was pallor in 59 % of cases, fever in 29% cases and splenomegaly in 11% of cases. Cervical swelling dominated with 69 % of cases. Unilateral lymph node enlargement was a common presentation (76%) than bilateral (24%).

In 1-10 years age group, reactive hyperplasia was the commonest cause of enlarged lymph node. In 11-40 year age group common causes were tuberculosis, reactive hyperplasia and lymphoma. In 41-70 year of age group metastatic carcinoma was the commonest cause similar to previous studies.<sup>[2]</sup>

In present study overall sensitivity was 94.12%, the predictive value of positive test 94.12% and diagnostic accuracy was 88.8% almost similar to previous studies.<sup>[7,10]</sup> 80 % of the patients diagnosed as tuberculosis were in the age group of 11-30 years compared to previous study.<sup>[10]</sup> Lymph nodes involved by tuberculosis were usually cervical both in children and adults.<sup>[12,13]</sup>

In our study all the 20 cases (100%) diagnosed as tubercular lymphadenitis on FNAC proved to be same on histopathology. So, diagnostic accuracy, specificity, sensitivity and predictive value of positive test of FNAC in the diagnosis of tuberculosis was 100 % similar to other studies.<sup>[15,16]</sup>

In our study metastatic carcinoma was commonly (70%) noted in 41-70 years of age group with an overall frequency of malignancy was found to be higher in males. The cervical lymph nodes were most commonly involved in metastasis similar to previous study results.<sup>[17-20]</sup>

The specificity was 100 %; sensitivity 90% and predictive value of a positive test was 100% in the diagnostic accuracy of cytological diagnosis in cases of metastatic carcinoma as compared to previous study.<sup>[21-25]</sup> Overall clinical diagnosis with final diagnosis after relevant investigations correlated in 82.3% of cases, while the cytological and histopathological diagnosis was same in 94.1% of cases.

## CONCLUSION

The cases of lymphadenopathy showed as wide age range from 10 to 65 years.

Cervical lymph nodes were most commonly involved.

Commonest cases of lymphadenopathy in children was reactive hyperplasia; in adults tubercular lymphadenitis and lymphoma; while metastasis in older age. The commonest cause of metastasis in lymph node was squamous cell carcinoma.

In this study, overall sensitivity of FNAC was 94.12% and diagnostic accuracy was 88.9%. Thus FNAC was well correlated with histopathology.

FNAC is a simple and very accurate technique for the diagnosis of lymphadenopathy and mainly used as a first line of investigation in lymphadenopathy as a screening tool in outpatient clinic.

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