Original Research Article

# Study of fine needle aspiration cytology of lymph nodes at Medical College Hospital

Anil Vare[1], Reena Vare[2*], Jivrag[3], Shradha Karkamkar[4]

[1,3]Department of Pathology, [2,4]Department of ENT, Mahatma Gandhi Mission's Medical College and Hospital, Aurangabad, Maharashtra.
**Email:** reenavare@gmail.com

**Abstract**

The present prospective study was conducted in MGM, Medical College Aurangabad to study the spectrum of lymph node disease with relation to FNAC as a daignostic tool, to study and record the various cytomorphological features of lymph node lesions, to correlate the findings of fine niddle aspiration cytology with histopathology wherever possible, to detect sensitivity and specificity of cyto- technique where there was histopathological correlation and utility of FNAC in our setup.

**Key Words:** Lymphadenopathy, Histopathology, Tuberculosis, FNAC.

***Address for Correspondence:**
Dr. Reena Vare, Department of ENT, Mahatma Gandhi Mission's Medical College and Hospital, Aurangabad, Maharashtra, INDIA.
**Email:** reenavare@gmail.com
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## INTRODUCTION

Lymph Nodes are part of peripheral immune system located along the course of lymphatics. They act as a mirror of underlying disease process.[1] Lymphadenopathy refers to nodes that are abnormal in size, consistency or number. Lymphadenopathy is Classified as "generalized" if lymph nodes are enlarged in two or more noncontiguous areas or "localized" if only one area is involved. Lymphadenopathy may be due to infections, autoimmune diseases, metabolic disorder, malignancies etc. Very often lymphadenopathy may be the only manifestation of underlying occult Malignancy. [2,3] Lymph node lesions is a common clinical presentations attending both outpatient and inpatient departments. It is imperative to establish a definitive diagnosis as early as possible in the course of evaluation, to institute meaningful treatment. [4,5] Before the advent of fine needle aspiration cytology definite diagnosis of lymphadenopathies were done after surgical excision followed by histopathological examination.[4] Fine needle aspiration cytology is safe, rapid, reliable and cost effective procedure which avoids the physical and psychological trauma. It is an extremely useful as an outdoor diagnostic tool for diagnosing lymph node lesions of various etiologies. Since lymph nodes are a common site for metastases, a good clinical recognition and rapid diagnosis of the diseased lymph nodes through FNAC is the need of the hour.[5]

## MATERIAL AND METHODS

This Study was carried out in the Department of Pathology and Department of ENT, M.G.M Medical College and Hospital, Aurangabad, a tertiary care centre, from the period of November 2015 to September 2017. Selection of cases was done as all patients with clinically palpable lymph nodes. A detailed history, thorough clinical examination and relevant investigations and results of the patients were documented. Procedure: The patient was explained about the procedure, its complications and an informed consent was taken from the patient before subjecting FNAC. The procedure was carried out with patient lying supine on examination bed. Aspiration was done using 23-24 gauge needle with 5-10 ml disposable syringes. The needle was inserted in the target lesion with maintained negative pressure and multiple passes were made. The aspirate was blown onto the slide (Specimen slide). The smears thus made were

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fixed. Wet smears were fixed with alcohol followed by Papanicolaou and/or fields stain, while air dried smears were followed by Geimsa stain. Lymph node biopsies were received in 38 patients and the biopsy specimens were subjected to histopathological examination. Histopathological examination was done and the results were correlated with the cytological reports to evaluate efficacy of the procedure.

## OBSERVATIONS AND RESULTS

**Table 3:** Age distribution

| Age group (years) | No. of Patients | Percentage |
|---|---|---|
| 0-20 | 59 | 24.38 |
| 21-40 | 107 | 44.22 |
| 41-60 | 57 | 23.55 |
| >60 | 19 | 07.85 |
| **Total** | **242** | **100** |

The above table shows distribution of patients according to age. It was observed that majority of patients were in age group 21-40 years (44.22%) followed by 0-20 years (24.38%)

**Table 5:** Distribution of Cases by Clinical Findings

| Clinical findings | No. of Patients (N=242) | Percentage |
|---|---|---|
| Swelling | 239 | 98.76 |
| Cough | 48 | 19.83 |
| Fever | 109 | 45.04 |
| Night sweat | 32 | 13.22 |
| Weight loss/Loss of Appetite | 87 | 35.95 |
| Localized pain | 43 | 17.77 |
| Splenomegaly | 08 | 03.31 |

(* Multiple response Present)

**Table 6:** Distribution of Cases according to Cytological Diagnosis

| Diagnosis | No. of Patients (n=242) | Percentage |
|---|---|---|
| Reactive lymphadenitis | 124 | 51.24 |
| Acute suppurative lymphadenitis | 11 | 04.55 |
| Granulomatous/ Necrotizing lymphadenitis | 16 | 06.61 |
| Tuberculosis | 28 | 11.57 |
| Chronic non-specific lymphadenitis | 15 | 06.19 |
| Non- Hodgkin lymphoma | 03 | 01.24 |
| Lymphoproliferative Disease | 01 | 0.41 |
| Malignant | 23 | 9.50 |
| Unsatisfactory | 21 | 08.68 |
| **Total** | **242** | **100** |

Majority of patients were having reactive lymphadenitis (51.24%) followed by tuberculosis (11.57%). The malignant lymphadenopathy was observed in 23 (9.5%) patients while unsatisfactory results among 21 (8.68%) patients.

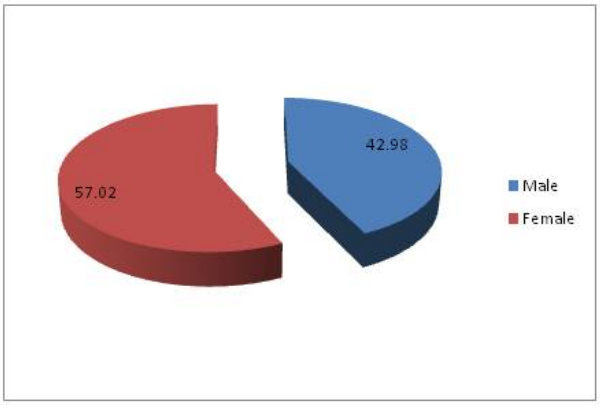
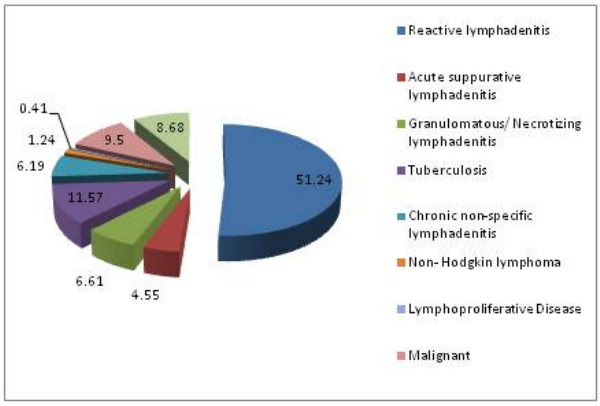



Figure 1

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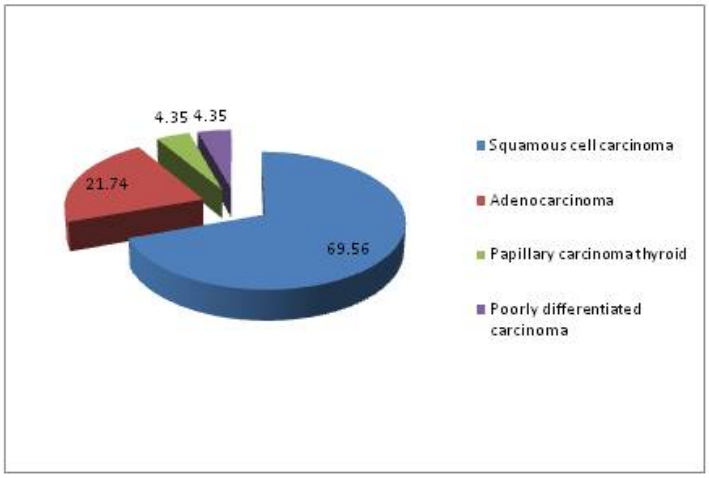


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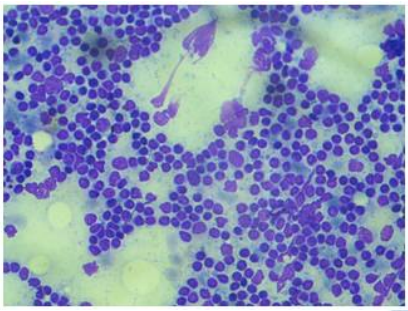

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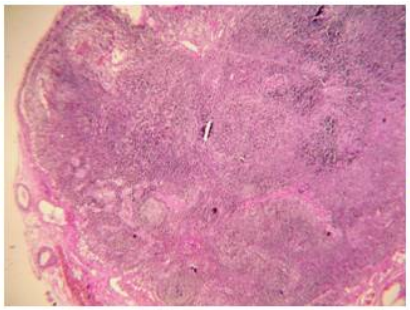

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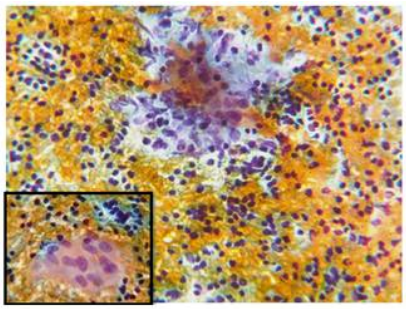

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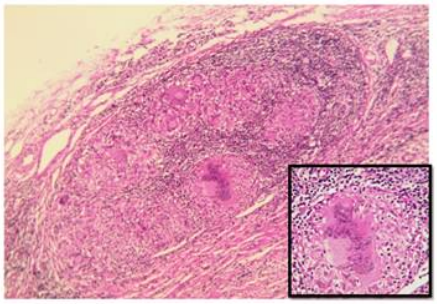

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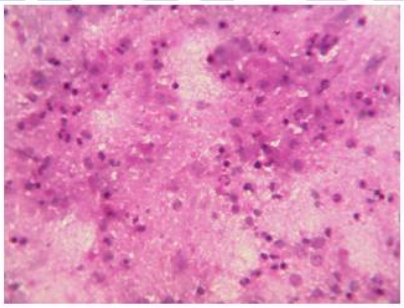

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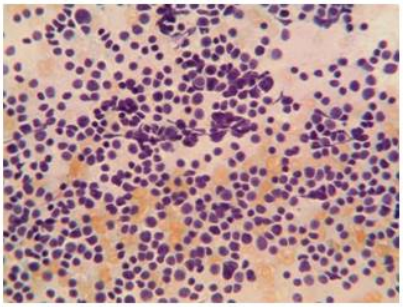

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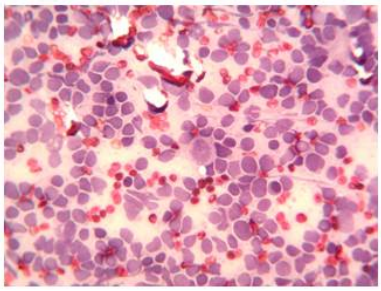

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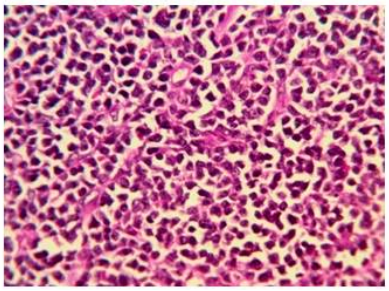

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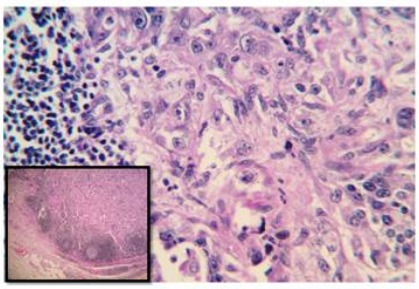

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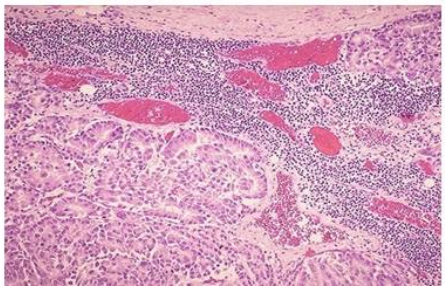

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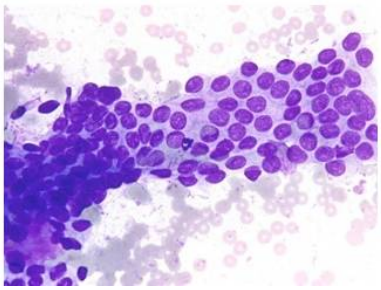

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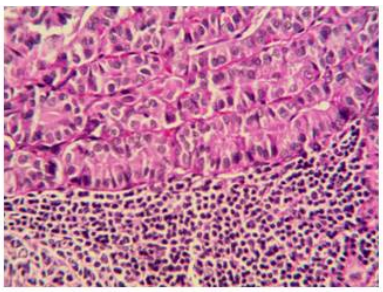

Figure 15

**Figure 1:** Gender distribution; **Figure 2:** Distribution of Cases according to Cytological Diagnosis; **Figure 3:** Distribution of Metastatic Lymph node tumors; **Figure 4:** (Fields 40X) Photomicrograph showing Reactive Lymphadenitis on FNAC; **Figure 5:** (HandE 4X) Photomicrograph showing Reactive Lymphadenitis on Histopathology; **Figure 6:** (PAP stain 40X)Photomicrograph showing Tuberculous Lymphadenitis on FNAC. Inset(100X) showing clump of epitheloid cells; **Figure 7:** (HandE 4X) Photomicrograph showing Tuberculous Lymphadenitis on Histopathology. Inset(40X) showing Giant cell; **Figure 8:** (PAP stain 40X) Photomicrograph showing Kimura's Lymphadenitis on FNAC; **Figure 9:** (PAP stain 40X)Photomicrograph showing FNAC image in Lymphoproliferative disease; **Figure 10:** (PAP stain 40X) Photomicrograph showing Non-Hodgkins Lymphoma on FNAC; **Figure 11:** (HandE stain 40X)Photomicrograph showing Non-Hodgkins Lymphoma on Histopathology; **Figure 12:** (HandE 40X)Photomicrograph showing metastasis from squamous cell carcinoma on Histopathology. Inset (10X) showing scanner view; **Figure 13:** (PAP stain 40X) Photomicrograph showing metastatic adenocarcinoma on FNAC; **Figure 14:** (HandE stain 10X) Photomicrograph showing metastatic adenocarcinoma on Histopathology; **Figure 15:** (PAP stain stain 40X) Photomicrograph showing metastatic Papillary Carcinoma on FNAC

## DISCUSSION

Lymphadenopathy is one of the most common clinical problems posing diagnostic difficulties and tuberculous lymphadenopathy is the commonest manifestation of extra-pulmonary tuberculosis where cervical groups of lymph nodes are most frequently involved. The disease has been found relatively more prevalent in young individuals and runs a protracted course with period of remissions and exacerbations. In context of granulomatous disorders, the possible etiology is wide and the use of FNAC with other ancillary tests is useful to obtain definitive diagnosis. The present observational study was conducted to the spectrum of cytomorphological features of lymph node lesions, to detect sensitivity and specificity of cytotechnique where there was histopathological correlation and the role of fine needle aspiration cytology (FNAC) in the evaluation of lymphadenopathy All patients with clinically palpable lymph nodes referred to the Department of Pathology M.G.M Medical College and Hospital, Aurangabad, during the study period of November 2015 to September 2017were included in the study. A total sample size of 242 cases with clinical palpable lymph nodes referred to the Department of Pathology in all age group during study period was enrolled in the study. A written informed consent was obtained from the participant patient or his/her relatives. The study was approved by the ethical committee of the institute. All the patients were investigated for FNAC. In the present study, distribution of patients according to age showed that majority of patients were in age group 21-40 years (44.22%) followed by 0-20 years (24.38%). The mean age of patients was 34.09 ±17.74 years. The distribution of patients according to cytological diagnosis of lymphadenopathy showed that Majority of the patients were having reactive lymphadenitis (51.24% ) followed by tuberculosis (11.57%). The malignant (metastatic) lymphadenopathy was observed in 23 (9.5%) patients while unsatisfactory result among 21 (8.68%) patients. Although histopathological examination is considered to be gold standard in diagnosis especially in lymphoma, FNAC may be the tool for diagnosis and further management of the patient in cases of lymphoma. FNAC enjoys popularity among clinicians worldwide, as a first line of investigation in all patients with lymphadenopathy.

## SUMMARY AND CONCLUSIONS

FNAC is a simple, rapid, cost effective, minimally invasive and fairly reliable procedure in the initial evaluation of enlarged lymph nodes, even in the outpatient setup. FNAC report is more reliable in the hands of experienced and expert cyto-pathologists. It not only helps clinician in early detection of lesion but also helps in early plan of treatment especially in metastasis and lymphoma. In cases of inconclusive or negative results of FNAC, histopathological diagnosis of the affected node is necessary before initiating treatment. In patients without previous diagnosis of malignancy, FNAC not only confirms metastatic deposit, but in most conditions gives a clue regarding site of primary.

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