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## Spectrum of lesions of superficial lymphnodes on FNAC: A simple, effective tool for diagnosis

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### Abstract

Lymphadenopathy is the commonest clinical presentation. FNAC helps to diagnose multiple lesions avoiding biopsy. Human body has about 600 lymph nodes. A normal size of lymph node is usually less than 1 cm in diameter. Of course, there are exceptional in lymph nodes in different regions and different ages have different sizes. Lymphadenitis is the commonest extra pulmonary manifestation of tuberculosis. It is a simple and rapid diagnostic test, economic, primary investigation with minimal trauma easily carried out in OPD.

**Aim:** To study the utility of FNAC of superficially enlarged lymph nodes and spectrum of diseases presented.

**Material and Methods:** The retrospective study was conducted for a duration of one year from June 2017 to May 2018. All the cytopathology records of superficially enlarged Lymph nodes were retrieved, data collected and analysed. Total 500 cases of FNAC were analysed during the above period. FNAC was done with 22-24 gauge disposable needle using 20 ml. syringe. The smears were dried and stained with MGG.

**Results:** Total 500 cases of superficial lymphadenopathy were studied. Maximum number of cases were reported in 21-30 years age groups. Cervical Lymph nodes were most commonly involved. Males were more than the females. Maximum cases reported were of Tubercular lymphadenitis followed by Reactive Lymphadenitis. Squamous cell carcinoma was the commonest metastasis. 06 cases were discarded due to hypo cellularity and non-availability of clinical details.

**Conclusion:** FNAC is first line diagnostic, cost effective, easy, OPD procedure yielding quick and mostly definite results. It can be easily repeated too. Biopsy now follows FNAC especially in Lymphomas.

**Keywords:** Fine needle aspiration cytology, lymph nodes, cervical lymphadenopathy

### Introduction

Lymph nodes are most widely distributed and easily accessible component of lymphoid tissue [2, 3]. Aspiration of lymph nodes for diagnostic purposes was first done by Griey and Gray in 1904 in patients with Sleeping sickness [2]. Enlarged palpable Cervical Lymph nodes are common and worrying presentation in adults as well as children [6, 7].

Cervical Lymphadenopathy is defined as cervical lymph nodal tissue measuring more than 1 cm. in diameter [8]. Cervical lymph nodes are involved most often in all types of lymphadenopathy [4, 6]. Lymph nodes are among the commonest aspirated organ for diagnostic purpose [5, 9, 10].

FNAC is a reliable and least expensive method for developing countries for the investigation of lymphadenopathy [4-5, 8-10].

FNAC has become an acceptable and widely practised minimally invasive technique which is safe, simple, rapid and relatively pain free [5, 8, 10].

FNAC is highly cost effective and accurate as a first line investigate technique [4, 5, 8, 10, 11]. The few cells that are obtained from the lesion are often found sufficient [11] and offer immediate preliminary diagnosis in the investigation of lymphadenopathy with minimal trauma to the patient [4, 7, 11, 12].

The main benefit of FNAC is to avoid the need for surgical biopsy, which requires local or general anesthesia, increased hospital stay and costs [5].

The study done by Haque and Talukder concludes that before resorting to surgical intervention FNAC is a helpful procedure in the diagnosis of both neoplastic and non-neoplastic lesions<sup>[10, 13]</sup>.

There is no evidence that the tumor spreads through the skin tract created by the fine hypodermic needle used in the technique. FNAC can be both diagnostic and therapeutic in cystic swellings.

### Aims and Objectives

The present baseline retrospective study was undertaken to study the role of FNAC in evaluation and cytomorphological patterns of Lymphadenopathy in Cytopathology section of Department of Pathology, Gajra Raja Medical College, Gwalior.

### Duration of Study

June 2017 to May 2018 (1 year)

### Objectives of the study were to know the:

- Incidence of lymphadenopathy.
- Age range.
- Male: female ratio.
- Mobility, Painful or painless and Site of Lymph node
- Common disease and their frequency in various lymph node.

### Material and Methods

This retrospective study was conducted from the records of Cytopathology section of Department of Pathology, G.R. Medical College and J.A. Group of Hospitals, Gwalior (M.P.) from June 2017 to May 2018 (1 year). All patients presenting with enlarged lymph nodes were included in the study. Brief History including age, sex, site, side and thorough clinical examination was carried out. The FNAC records of 500 consecutive patients with clinically significant lymphadenopathy conducted by trained and experienced faculty using 20-24 G needle without local anaesthesia were studied. Review of all cytological reports were done according to standard guidelines and the diagnosis was classified and correlated with patient age and sex to explore the pattern and association.

### Results

Total 3700 cytology cases were reported in 1 year duration. Of these 13.51% cases constituted Lymph node aspiration using fine needle. These 500 cases were of superficial lymphadenopathies (cervical, axillary and inguinal). In this study, total males were 255 & females were 245. The male: female ratio was 1.04:1. The youngest patient of the study was 2.5 month old female reported as reactive lymphadenitis and the oldest patient was 81 years old, which was a case of tubercular lymphadenitis. Maximum patients were of the age group 21-30 years (total 126 cases or 25.2% cases). 412 cases reported mobile nodes, whereas in 88 cases lymph nodes were fixed, so 82.4% cases were mobile. Almost all fixed nodes were stony hard and malignant. 430 cases (86%) were painless, 70 patients presented with painful lymph nodes. 02 cases were inconclusive where the smears were diluted with blood or showed scant cellularity. Most cases were of cervical lymphadenopathy (463 out of 500 i.e. 92.6%)

Of all these, maximum cases reported were Tubercular Lymphadenitis i.e. 36.4% of all cases, followed by Reactive

lymphadenitis i.e. 32%, Metastatic Lymphadenitis 17%, Chronic non-specific lymphadenitis cases were 164 i.e. 32.8%, Acute suppurative lymphadenitis 6.4%, Lymphomas 1% and 0.16% cases where no opinion was possible. Amongst the 85 metastatic cases, 80 cases, 9.53% cases were squamous cell carcinoma cell carcinomas, 05 cases (0.83%) were adenocarcinoma. Total 05 cases of Lymphoma were reported. 04 cases (0.8%) were NHLs and 01 case, (0.2%) was reported as Hodgkins Lymphoma amongst all nodes that were studied. Lymphoma constituted 1% of all cases.

### Discussion: FNAC

Is defined as using a fine needle to remove sample of cells from suspicious masses for diagnostic purposes. Fine needle aspiration cytology has revolutionized the diagnosis of lymphadenopathy, decreasing the morbidity of excisional or incisional biopsy of lymph node<sup>[1, 4]</sup> especially in developing countries like INDIA with limited financial & health care resources. Majority of enlarged lymph nodes represent benign, reactive or inflammatory process. A major proportion of lymphadenopathies in this study were also due to benign conditions (82.6% cases). This is in accordance with the studies by Ahmad S *et al.* in which 86.4% lesions were benign<sup>[14]</sup>. Slight Male preponderance was noted similar to other studies<sup>[8, 15]</sup>. In this study, the main cause of lymphadenopathy had been tuberculosis, (36.4%) and the second commonest cause being chronic non specific lymphadenitis 164 cases (32.8%). The results are consistent with similar studies done by Sharma M<sup>[8, 10]</sup>, and others<sup>[12, 16, 17]</sup>

Tuberculosis is a widely prevalent disease in our country. Bailey *et al.* and Al Nousairy showed that T.B. is most common in developing countries affecting cervical lymph nodes<sup>[4]</sup>. There were no biopsies done as the cytological results were convincing and correlating with the clinical diagnosis. In this study 36.4% cases of T.B. were seen. Other previous studies showed this condition varying from 28% to 52%. The predominance of cervical nodal involvement in tuberculosis has been established by many studies<sup>[1, 2, 3, 12, 18]</sup> which could be attributed to infection of the tonsils and adenoids providing portal of entry. Tuberculosis was reported in 62% male patients in this study. 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<sup>[12]</sup>.

Total 164 cases (32%) were of chronic nonspecific lymphadenitis. Stain and Nasuti *et al.* and Nada had 23%, 32% and 54.2% cases diagnosed as reactive hyperplasia respectively<sup>[1, 4]</sup>. Shakya G *et al.* reported 50.4% of reactive non-specific lymphadenitis<sup>[6]</sup>.

In our institute 18% of lymph node FNAC's yielded malignant diagnosis. 17% cases were metastatic and 1.0% Lymphomas. Amongst Lymphomas 3 cases were of NHL and 1 case of Hodgkins Lymphoma. Other studies have found the incidence to vary from 5.8 to 25.03%. Wilkinson AR *et al.* reported the incidence to be 15.4%<sup>[11, 15]</sup>. Amongst metastatic cases, cervical group is most commonly involved and Squamous cell carcinoma is the commonest type reported<sup>[4, 10]</sup>. Our study showed 78 cases (91%) of metastatic squamous cell carcinoma, followed by adenocarcinoma.

In 02 cases (0.4%) no diagnosis was made due to inadequate sampling, incomplete clinical details and haemorrhage obscuring the cell morphology. This is within acceptable range of less than 10-15%<sup>[19]</sup>.

### Conclusion

This study was undertaken with a view to evaluate the role of FNAC in diagnosis of Lymphadenopathies in superficial palpable Lymph nodes. Cervical Lymphadenopathy is the commonest clinical presentation with varied aetiology. We can conclude from the present study that FNAC is a simple, rapid, economical and well tolerated O.P.D. procedure for the diagnosis of superficial lymphadenopathy. It is useful and reliable in early diagnosis of neoplastic and non-neoplastic lesions avoiding the need of biopsy and helps planning surgery for malignant cases, where definitive operative intervention can be performed in one session. It can be repeated conveniently if required.

It is most accurate where there is a close cooperation and correlation between clinician, cytopathologist and radiologist.

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