



## FNAC AS A DIAGNOSTIC TOOL IN CASES OF METASTATIC LESION OF LYMPH NODE - A Tertiary hospital experience

### Pathology

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### ABSTRACT

**Background:** Fine needle aspiration cytology (FNAC) of the lymph node is a simple diagnostic tool to diagnose suspected and unsuspected secondary and primary lymph node malignancy

**Aim:** To determine the frequency of metastatic lesions of lymph nodes and study the utility of FNAC in the diagnosis of clinically suspected and unsuspected lymph node malignancy.

**Methods:** This retrospective study was done of all metastatic lymph node lesions reported on FNAC, in the department of pathology, Rajendra Institute Of Medical Sciences (RIMS), Ranchi from January 2017 to December 2017 (One Year).

**Results:** Total 112 cases of metastatic lesions of the lymph node between January 2017 to December 2017 were studied by FNAC in RIMS, Ranchi. Squamous cell carcinoma is the most common metastatic lesion of the lymph node and comprised about 42.85%. Metastatic lesion except carcinoma of breast is more common in males than females.

**Conclusion:** FNAC of lymph nodes is a very useful, simple and sometimes the only tool in the diagnosis of lymph node malignancies.

### KEYWORDS

Fine Needle Aspiration Cytology, Lymphadenopathy, Metastasis, Squamous Cell Carcinoma

### INTRODUCTION

FNAC is an easy and suitable tool for the assessment of patients with neck swellings in the outpatient clinics. Although its diagnostic accuracy is limited as compared to tissue biopsy but it is a good test for both screening and follow-up. Fine Needle Aspiration Cytology (FNAC) is a simple, quick and inexpensive method that is used to sample superficial masses like those found in the neck and is usually performed in the outpatient clinic. The FNAC has numerous benefits, apart from being fast and accurate, it is safe. Enlarged lymph nodes are easily accessible for fine needle aspiration and hence fine needle aspiration cytology (FNAC) is a very simple and important diagnostic tool for lymph node lesions. Although histopathological examination is considered to be gold standard in diagnosis especially in lymphomas, FNAC may be the only tool for diagnosis and further management of the patients in some cases of metastatic malignancy.

Compared to other more invasive diagnostic technique such as core needle biopsy (CNB) and surgical excision FNAC has many advantages. Fine needle aspiration cytology (FNAC) of lymph nodes can be used routinely as a first-line diagnostic test.

### MATERIAL AND METHODS

This was a retrospective study done of all metastatic lymph node lesions diagnosed on FNAC, in the department of pathology, Rajendra Institute Of Medical Sciences, Ranchi from January 2017 to December 2017 (One Year).

A detailed history, clinical examination and relevant investigations were done. Patients were explained about the procedure and all sterile precautions were taken.

FNAC was performed by using 10 ml disposable syringe with 22 G or 24 G needles. Patency of needle and syringe was checked. Lesion was fixed with one hand and other hand was used to pierce the lesion with needle tip. In case of deep seated lesions, ultrasonography (USG) guided FNAC was performed. Negative pressure was applied by pulling plunger and needle was moved back and forward.

Once material was inside hub, negative pressure released. Slides were prepared from aspirated material. Some of the slides stained with May Grunwald Giemsa (MGG) stain and Papanicolaou (PAP) stain respectively. Additional stains i.e. Ziehl-Neelsen (ZN) stain, Periodic acid Schiff (PAS) were performed wherever necessary.

Cytomorphological features like the overall cell population; predominant pattern was assessed by examination under low power. Then the individual cell morphology was studied under high power. Cytological findings were noted in all the cases. In some of the cases where the biopsy was done, their histopathology was correlated with the cytological diagnosis.

### OBSERVATION

Total 112 cases of metastatic lesions of the lymph node from January 2017 to December 2017 were studied by FNAC in RIMS, Ranchi. Squamous cell carcinoma is the most common metastatic lesion of the lymph node and comprised about 42.85%. Metastatic lesion except carcinoma of breast is more common in males than females.

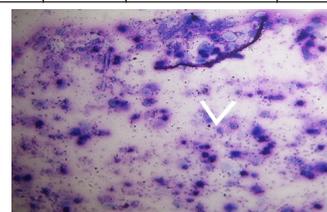
Cervical lymph nodes are common sites for metastasis for squamous cell carcinoma and axillary lymph nodes are common sites for metastasis from breast carcinoma.

**TABLE 1** showing various metastatic carcinoma incidences and their sex distribution.

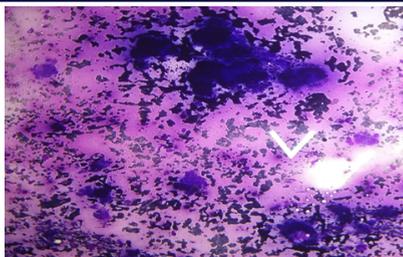
Lesion	Cases (%)	Male	female
Squamous cell carcinoma	48 (42.85%)	44	04
Breast carcinoma	42 (37.5%)	00	42
adenocarcinoma	12 (10.71%)	10	02
Germ cell tumour	02 (1.78%)	02	00
Thyroid carcinoma	02 (1.78%)	01	01
Unclassified malignancy	06 (5.35%)	04	02
<b>Total</b>	<b>112(100%)</b>	<b>61</b>	<b>51</b>

**TABLE 2** showing site and incidence of metastatic lesion.

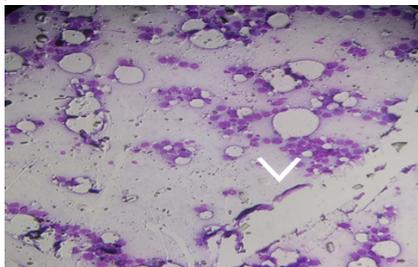
Metastatic lesion Site of lymphnode	Site of lymphnode			
	Cervical	Supraclavicular	Axillary	Inguinal
Squamous cell carcinoma	39	6	1	2
Breast carcinoma	-	-	42	-
adenocarcinoma	2	8	-	2
Germ cell tumour	-	1	-	1
Thyroid carcinoma	2	-	-	-
Unclassified malignancy	1	4	-	1
<b>Total</b>	<b>44</b>	<b>19</b>	<b>43</b>	<b>6</b>



**FIG 1** showing metastatic squamous cell carcinoma of cervical lymph node (200x)



**FIG 2** showing metastatic adeno carcinoma of supra clavicular lymph node (200x)



**FIG 3** showing metastatic breast carcinoma of axillary lymph node (200x)

## DISCUSSION

Enlarged lymph nodes are accessible for FNAC and are of importance specially to diagnose secondary or primary malignancies. Enlarged lymph nodes are accessible for FNAC and are of importance specially to diagnose secondary or primary malignancies. It plays a significant role in developing countries like India, as it is a cheap procedure, simple to perform and has almost no complications [1].

The metastatic lymph nodes were located in anterior and posterior cervical triangles, supraclavicular area, axilla, and inguinal region. In our study, maximum no. of cases was found in cervical region (44) and metastatic squamous cell carcinoma (48 cases) was the most frequent subtype. Similar findings were observed by Khajuria et al and Wilkinson et al. [1-2]. The diagnostic accuracy of FNAC in metastatic disease varies from 87% to 97.9% [1,3]. The sensitivity of FNAC for metastatic lesions to lymph nodes has varied from 97.9% to 100%, whereas the specificity has been found to be 100% [3, 4].

A full history, radiological investigations and immune-histochemistry in difficult cases may help to arrive at a definitive diagnosis. [5] Specialized investigations such as the combination of lymphoscintigraphy and ultrasonography-guided FNAC's of sentinel lymph nodes in the head and neck area have been found to be good in picking up metastases in clinically undetectable lymph nodes [6].

The cervical group is the most common group of lymph nodes to be involved and the primary is most often from the oral cavity [4,6] with squamous cell carcinoma being the most common histological type. [3,6,7] Rates for oral cavity/ pharynx, oesophagus, male larynx are highest in India, probably due to the use of multiple tobacco products. [8]

The improved diagnostic ability of FNAC in the diagnosis of malignant lesions of the lymph nodes is probably due to a combination of factors such as the increased use of the technique, better and easier availability of reference material of similar studies, and increased experience of the trained observers over the years.

## CONCLUSION

The evaluation of FNAC in patients with no previously diagnosed malignancy should be interpreted by an experienced cytopathologist in the context of clinical, radiological, and laboratory findings. FNAC should not be limited to palpable nodes. FNAC of normal-sized nodes and/or lymph nodes with abnormal ultrasound findings can be used to identify early metastatic disease. It may be the only tool in the diagnosis of metastatic lesions in the lymph nodes and can help to detect occult primary malignancies.

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