

Original Research Article

## **Lymph Node Cytological Evaluation-A Prime Tool of Investigation in Today's Era with Special Emphasis on Metastatic Malignancies**

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**Abstract:** As a primary investigation in any lymph node swelling, FNAC has proven its efficacy in resolving the clinicians dilemma. With the added advantage of being a minimally invasive technique, it provides a quick and less painful method of diagnosing a vast array of diseases. A total of 100 lymphadenopathy cases were taken, coming to pathology department with cytological evaluation request from various clinical departments. These patients details were noted regarding age, gender, clinical details and suspected diagnosis. FNAC was carried out using 22G needle and 10 ml disposable syringe. The slides were air dried and MGG stained. The cytological interpretation was done. Out of 100 cases, 12 out of 100 cases were diagnosed to be metastatic deposits, 4 cases were of lymphoma, 32 cases diagnosed as granulomatous, rest 52 were reactive lymphadenitis. With such advancements done in the diagnostic field, it has become the duty of the pathologists to not only help in the diagnosis of a lesion but to also direct the clinicians at finding the hidden root cause of the disease. Cytological evaluation with help of preparation of cell blocks, immunocytochemistry can definitely aid in the diagnosis.

**Keywords:** cytology, metastatic deposits, lymph node.

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### **INTRODUCTION**

FNAC also called as Fine needle aspiration cytology has become the primary investigation in any swelling along with any palpable lymph node. This dependence on FNAC is primarily due to the added advantages of being rapid, less painful, affordable and also approachable due to the available USG or CT guidance [1]. Lymph node cytology can be broadly categorised into 4 categories: Reactive, granulomatous, metastatic deposits and lymphomas [2]. Detailed evaluation of granulomas is necessary as it can be present in a number of diseases including infections, foreign bodies, malignancies, lymphomas both Hodgkins and Non Hodgkins lymphoma [3]. FNAC has been advised as screening method of suspected

malignancy and should be followed by biopsy confirmation [4].

### **MATERIALS AND METHODS**

A total of 100 lymphadenopathy cases were taken coming to pathology department with cytological evaluation request from various clinical departments. These patients' details were noted regarding age, gender, clinical details and suspected diagnosis. FNAC was carried out using 22G needle and 10 ml disposable syringe. The slides were air dried and MGG stained. The cytological interpretation was done. The suspected cases were asked to undergo biopsy confirmation. These biopsies were received in 10% formalin and subjected to H&E.

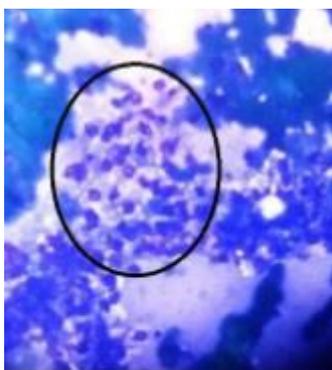
**RESULTS**

**Table 1: Cytological diagnosis of cases**

Cytological diagnosis	% of cases out of 100
Metastatic deposits	12
Granulomatous pathology	32
Lymphomas	04
Reactive Lymphadenitis	52

The Metastatic deposits were seen in 12 cases. Out of 12 cases 7 cases were metastatic deposits of epithelial origin. 3 cases were diagnosed probably of squamous cell carcinoma and 4 cases of adenocarcinoma. On histopathological diagnosis, these were confirmed to be the same thus with associated 100% correlation between cytology and histopathology. 2 cases were of metastatic malignant melanoma with

characteristic prominent nucleoli, melanin pigment .2 cases of metastasis of Rhabdomyosarcoma seen .On histopathology 1 case was confirmed to be alveolar rhabdomyosarcoma, the other was diagnosed as NHL confirmed later by IHC marker CD45/LCA.1 case was diagnosed as malignant fibrosarcoma but later proven to be of intermediate malignant proliferation of DFSP or Dermatofibrosarcoma protuberans.



**Fig-1: Diagnosed as a case of metastatic deposits of adenocarcinoma probably RCC. MGG stained smear shows malignant cells with abundant clear cytoplasm**

**Table 2: Cytological diagnosis of malignancy**

Cytological diagnosis of malignancy	Histopathological diagnosis
4 cases of Squamous cell carcinoma	4 cases confirmed to be squamous cell carcinoma
3 cases of Adenocarcinoma	3 cases confirmed to be adenocarcinoma 1 case proved to be mets of Renal cell carcinoma
2 cases of Malignant Melanoma	2 cases confirmed to be malignant melanoma
2 cases of RMS	1 case of alveolar RMS 1 case found to be NHL
1 case of fibrosarcoma	1 case proved to be DFSP

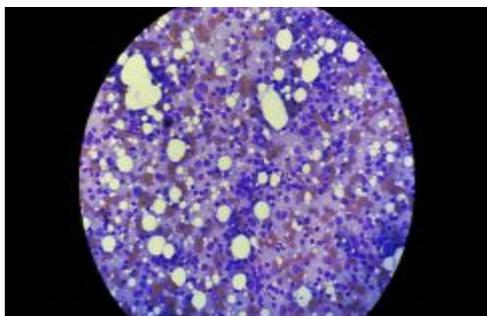
The Granulomatous pathology was seen in 32 cases with various differential diagnosis such as infections most commonly Tuberculosis, fungal infections. Granulomas can also be seen in metastasis commonly of squamous cell type, Hogkins lymphoma, Non Hodgkins lymphoma most commonly T cell type, foreign bodies. AFB was applied on suspected TB cases

and 12 cases were AFB positive indicating high incidence of Tuberculosis in our country.

4 cases diagnosed as one case of Hodgkins lymphoma confirmed on histopathology, the other 3 cases of NHL, one case diagnosed as Anaplastic

lymphoma of T cell type was found to be metastatic

deposits of Synovial cell carcinoma on histopathology.



**Fig-2: Diagnosed as a case of DLBCL. MGG stained smear shows immunoblasts few binucleated with characteristic nucleoli**

## DISCUSSION

According to our study most cases were diagnosed to be reactive and granulomatous pathology, whereas in most of the studies conducted primarily in the western countries for example in a study conducted by Steel *et al.*, the diagnosis of lymph node cytology was malignant [5]. Reactive lymphadenitis can be cytologically diagnosed as abundant tingible body macrophages with small mature lymphocyte proliferation. This can be attributed to the fact that our study is carried out in India which has a very high incidence of infections primarily Tuberculosis responsible for the characteristic cytology of caseous necrosis and epithelioid granulomas with lymphocytes

According to study conducted by Saluja *et al.* the chances of malignancy in elderly with massive lymphadenopathy was higher as old age patient's respond with only mild lymph node enlargement in case of reactive or infectious causes [6]. The characteristic metastasis can be diagnosed on cytology by population of malignant foreign looking cells admixed with reactive lymphoid series of cells. Even though metastasis can be easily diagnosed on cytopathology, but few cases can be misdiagnosed due to overlapping features and focal deposits which can be missed. Reactive lymphadenitis can be cytologically diagnosed as abundant tingible body macrophages with small mature lymphocyte proliferation [7]. This confusion can be resolved with help of various ancillary techniques such as immunocytochemistry, cell block, and flow cytometry [8].

One interesting case of metastatic deposits of Renal cell carcinoma was diagnosed on cytology with characteristic feature of malignant looking cells with

abundant clear cytoplasm and vascularity arranged in clusters, acini as well as singly. This was later confirmed to be a case of RCC on CT scan abdomen; Radiotherapy caused the disappearance of the pulsatile swelling. This case makes us realize the importance and advantage of such minimally invasive techniques for diagnosis and timely done treatment.

Lymphomas can be misdiagnosed due to few highly undifferentiated cells; Hodgkins lymphoma can be missed especially in cases where only a few RS cells seen, also RS like cells can be seen in conditions such as Infectious mononucleosis, ALCL, metastatic deposits [9]. This can be solved with help of immunocytochemistry/LCA [10]. Atypical lymphoid cells with size varying from two to three times of lymphocytes with irregular contour, prominent nucleoli, scant thin rim of cytoplasm. The sampling error is a particular hazard in Hodgkin lymphoma nodular sclerosis subtype possibly because of the fibrosis that interferes with the cell yield [11].

## CONCLUSION

Lymph node cytology has become the prime screening tool in the diagnosis of lymphadenopathy, with radiological help of USG and CT, even small minimally palpable lymph nodes can be subjected to cytological evaluation. With high positive correlation between cytological and histopathological diagnosis, cytology promises to be a dependable technique for evaluation of lymphadenopathy. Also with ancillary techniques such as immunocytochemistry and recent increasing use of cell blocks, the importance of rapid, less painful diagnostic cytopathological technique can be well appreciated.

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