

Our Experience Of Metastatic Lesion Of Lymph Node Diagnosed By Fine Needle Aspiration Cytology

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Abstract: Background and Objectives: Fine needle aspiration cytology (FNAC) is a useful screening test. Diagnosis of metastatic lesion by FNAC is providing a clue to the clinicians to nature and site of primary. The aim of the present study is to highlight the role of FNAC of lymph nodes in the diagnosis of suspected and unsuspected lymph node malignancies. Methodology: Retrospective study of 80 cases of metastatic lymph nodes out of total 391 lymph nodes aspirated during the period of 1st July, 2013 to 31st June, 2014 was done. This study was carried out in cytology laboratory of Pathology Department of Dhiraj General Hospital, Piparia. FNAC of the enlarged lymph node was performed taking aseptic precautions. Results: Out of total 3070 cases of FNAC, 391 cases (12.93%) were of lymph nodes. Among these, there were a total of 80 nodes reported as “positive for metastasis” accounting for 20.46% of all lymph node FNACs and 2.60% of all FNAC cases. The most common subtype of metastatic malignant tumor was squamous cell carcinoma which includes 72.5% (58 cases) of the study population. Most common site affected by metastasis were cervical lymph nodes (77.5%) followed by supra clavicular lymph nodes (12.5%), axillary lymph nodes (7.5%), abdominal lymph nodes (1.25%), inguinal lymph nodes (1.25%) respectively. Conclusion: FNAC of lymph nodes is a very useful and simple tool in the diagnosis of lymph node malignancies. [Rathod G NJIRM 2015; 6(5):34-37]

Key Words: FNAC, Lymph node, Metastasis

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Introduction: Fine needle aspiration cytology (FNAC) is a useful screening test. An early differentiation of benign from malignant pathology greatly influences the planned treatment.¹ Nowadays FNAC is considered a valuable diagnostic aid because of early availability of results, simplicity, minimal trauma and complications. Lymphadenopathy is a sign of inflammation, infections; primary or metastatic tumors and the frequently affected sites are head, neck and inguinal region.² Clinical history, physical examination, correct performance of FNA and proper handling of the aspirate are the four essential components in the management of patient with lymphadenopathy.³ Diagnosis of metastatic lesion by FNAC is providing a clue to the clinicians to nature and site of primary. Morbidity and mortality are significantly reduced because of early diagnosis by FNAC and starting of the specific therapy in time. The aim of the present study is to highlight the role of FNAC of lymph nodes in the diagnosis of suspected and unsuspected lymph node malignancies.

Material and Methods: Retrospective study of 80 cases of metastatic lymph nodes out of total 391 lymph nodes aspirated during the period of 1st July, 2013 to 31st June, 2014 was done. This study was

carried out in cytology laboratory of Pathology Department of Dhiraj General Hospital, Piparia. FNAC of the enlarged lymph node was performed taking aseptic precautions.

The palpable lymph node was fixed with one hand and the skin was cleansed and 23-25 gauge, 1.5 cm long, needle with 10 ml syringe was inserted into the lymph node and a full suction pressure was applied. The tip of the needle was moved around. The pressure was neutralized and the needle was withdrawn. The aspirated material was placed on the glass slides. The slides were both air dried and wet fixed in alcohol for May-Gruenwald and Giemsa, Papanicolaou stains and Hematoxylin and Eosin stain.⁴ USG (Ultrasonography) guided FNAC was performed in deep seated lesions. Smears were reported by microscopic examinations. The data including basic profile of the patients, detailed history, clinical examination, relevant investigations and site of FNAC were documented. The data was analyzed statistically.

Results:

Out of total 3070 cases of FNAC, 391 cases (12.93%) were of lymph nodes. Among these, there were a total of 80 nodes reported as “positive for metastasis” accounting for 20.46% of all lymph

node FNACs and 2.60% of all FNACcases. Out of the 80 cases studied, 61 were males (76.25%) and 19 were females (23.75%). The age group of the study population varied from 28 to 76 years with a mean of 53.4 years. More than 2/3rd of the study population (80.12%) had history of either chewing tobacco or smoking since last 15 years or more. The size of the lymphnodes involved by metastatic tumors varied from 0.5 to 4.8 cm.

The most common subtype of metastatic malignant tumor was squamous cell carcinoma which includes 72.5% (58 cases) of the study population. (Photo - 1, Photo - 2) The primary sites of these squamous cell carcinoma were tongue, alveolus, buccal mucosa and palate. This was followed by adenocarcinoma and was observed in 12 cases (15%). The metastasis had occurred from primary carcinomas in lung, stomach, colon and rectum. (Photo - 3, Photo - 4) The 6 breast carcinoma cases (7.50%) had already known primary, hence they were kept under breast carcinoma. (Photo - 5) One case of malignant melanoma was noted in inguinal lymph node (Photo - 6, Photo - 7) and one case of neuroendocrine carcinoma was noted in para aortic lymph nodes as per Table - 1. Distribution of number of cases according to sites of lymphadenopathy was as per Table - 2 in which most common site affected by metastasis were cervical lymph nodes (77.5%) followed by supraclavicular lymph nodes (12.5%), axillary lymph nodes (7.5%), abdominal lymph nodes (1.25%), inguinal lymph nodes (1.25%) respectively.

Table 1: Distribution of metastatic tumors on FNAC.

Sr.No.	Metastatic tumors	No. of cases	%
1	Squamous cell carcinoma	58	72.5
2	Adenocarcinoma	12	15.0
3	Mammary carcinoma	06	7.50
4	Papillary thyroid carcinoma	01	1.25
5	Poorly differentiated carcinoma	01	1.25
6	Small cell carcinoma	01	1.25
7	Malignant melanoma	01	1.25

Table 2: Distribution of number of cases according to sites of lymphadenopathy.

Sr.No.	Sites of lymphadenopathy	No. of cases	%
1	Cervical triangle	62	77.50
2	Supraclavicular	10	12.50
3	Axillary	06	7.50
4	Abdominal	01	1.25
5	Inguinal	01	1.25
	Total	80	100

Photo 1: Smear showed clusters of metastatic squamous cell carcinoma. (H&E stain, 20X)

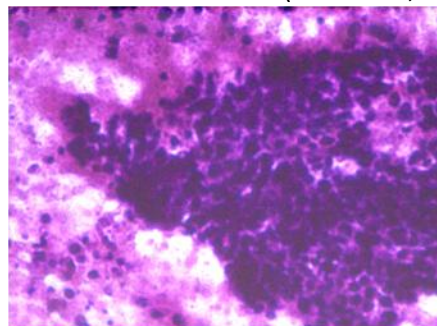


Photo 2: Smear showed malignant squamous cells with dense intracellular keratin formation. (H&E stain, 40X)

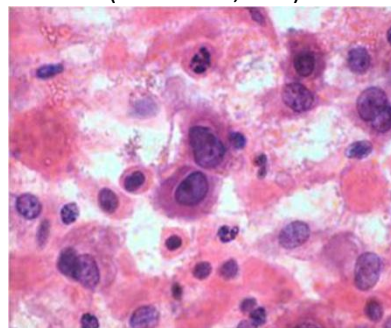


Photo 3: Smear showed clusters as well as scattered malignant cells of metastatic adenocarcinoma. (H&E stain, 4X)

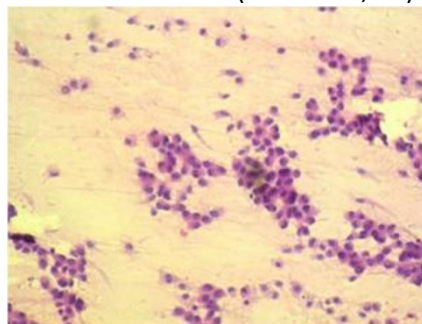


Photo 4: Smear showed large cells of adenocarcinoma with abundant delicate cytoplasm and round to oval eccentric nuclei with large solitary nucleoli.(H&E stain, 40X)

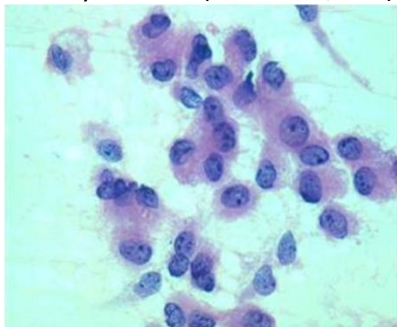


Photo 5: Smear showed malignant ductal cells of breast. (H&E stain, 10X)

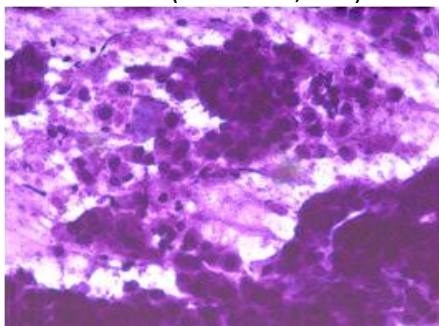


Photo 6: Highly cellular smear with presence of melanin pigment.(H&E stain, 4X)

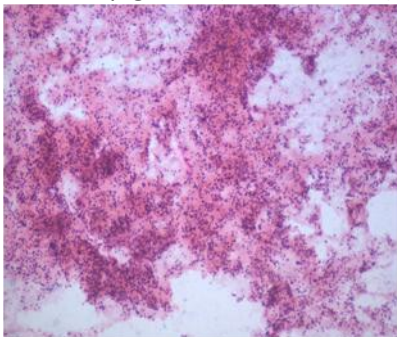
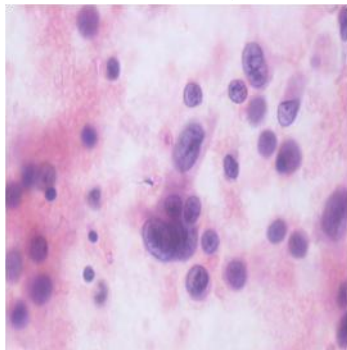


Photo 7: Smear showed cells of metastatic malignant melanoma with bizarre nuclear shapes and nuclear enlargement, open granular chromatin and prominent nucleoli. (H&E stain, 40X)



Discussion: Fine needle aspiration cytology (FNAC) is used routinely as a first-line diagnostic test. 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.^{5, 6, 7}The diagnosis given on the cytological material is often the only diagnosis accepted and sometimes there is no further correlation with histopathology, especially in cases of advanced malignancies. It also provides clues for occult primaries and sometimes also surprises the clinician who does not suspect a malignancy. 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%.^{6,8}

In our study, males(76.25%)had high risk formetastatic squamous cell carcinoma to lymphnode which was comparable with Betsill, et al. ⁹Metastatic squamous cell carcinoma was the most common entity in our study which was comparable with other studies.^{10,11}

Tumor cells are seenmostly in sheets and singly scattered. In well differentiatedsquamous cell carcinoma, the tumor cells show individualcell keratinization.^{10,12}The tumor cells often show necroticmaterial in the background. So in case of scanty cellularitywith abundant necrotic material, a careful search for thetumor cells is required.Thus the cytopathologist plays a vital role in the diagnosis of lymphnode malignancies.

In the present study, adenocarcinoma was the second most common(15%) metastatic tumor. In well differentiated adenocarcinoma,it showed cells with acinar and occasionally papillaryarrangement and also singly scattered. The individual cells areusually large, cuboidal to columnar with moderate amount ofcytoplasm and pleomorphic nuclei with prominent nucleoli. Background may show pinkhomogenous mucoid material if the mucin content of thetumor is high.

In our study, metastatic ductal carcinoma was seen in 6 cases(7.5%)where all the female patients presented with breast lumps. Metastatic small cell carcinoma of supraclavicular lymphnode was seen in 1 case wherethe patient had suspicious mass

lesion in the lung. CECT thorax of the same patient revealed mass lesion in the right lung. Thus clinical and radiological correlation are quite useful in diagnosing metastasis with good degree of certainty.

The cervical group is the most common group of lymph nodes to be involved and the primary is most often from the oral cavity^{8,13} with squamous cell carcinoma being the most common histological type.^{5,6,13} Rates of metastasis in cervical lymph nodes for oral cavity, pharynx, esophagus, larynx are highest in India, probably due to the use of multiple tobacco products.¹⁴

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