**Original Article**

# A STUDY OF METASTATIC LESION OF LYMPH NODE BY FINE NEEDLE ASPIRATION CYTOLOGY

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## ABSTRACT

**Purpose:** Purpose of the study is to study the pattern of presentation of metastatic lesions of the peripheral lymph nodes for various malignant tumors and for confirmation of metastatic lesions in cases of a known or an occult primary.
**Methods:** Total 140 cases of metastatic lesions of the lymph node were studied from January 2003 to December 2004 by Fine Needle Aspiration Cytology in cytology department of B.J.Medical college, Ahmedabad.
**Results:** Squamous cell carcinoma was the most common metastatic lesions of the lymph node and comprised about 80%. Metastatic lesions of lymph node occur more commonly after age of 40 years and more common in male than female except metastatic lesion form carcinoma of breast .Cervical lymph nodes were common site for metastasis for squamous cell carcinoma and axillary lymph nodes were common site for metastasis from breast malignancy.
**Conclusion:** FNAC is cost-effective, reliable, rapid and inexpensive procedure in diagnosis of lymphadenopathy. Metastatic lesions confirmed by FNAC also give a clue to the nature and site of primary.

**Keywords**: Metastatic lesions, squamous cell carcinoma, Fine needle aspiration cytology.

## INTRODUCTION

Lymphadenopathy is a sign of inflammation, infections, primary or metastatic tumours. This is commonly seen involving the head, neck and inguinal region.[1] Lymph node aspiration has become an important diagnostic procedure for lymphadenopathies.[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]

Carcinoma metastatic from the head and neck area is the most important of these and must remain prominent in the mind of the clinician. [4] Even though the cause of cervical lymphadenopathy may vary, enlarged cervical nodes in an elderly patient must be considered as metastatic until proved otherwise.[5] Knowledge of the status of the pelvic lymph nodes is vital for accurate staging and adequate treatment of patient with urology cancer.[6]

The search for a primary in patient presenting with disseminated or metastatic carcinoma may represent a diagnostic challenge. The lung, which can easily be explored radiologically are infrequent source of unknown primary.[7] When primary cancer is known the differential cytological diagnosis of lymph node metastasis is simplified by the possibility of comparing the nature of the aspiration cell with the primary tumour. If primary tumour is unknown, the

information, contained in the smears may assist in tracing the origin of the metastasis.[8]

Cytological criteria for diagnosis of Metastatic lesions are foreign cells amongst normal or reactive lymphoid cells and cytological criteria of malignancy. The causes of metastatic lesions of lymph node are carcinomas includes squamous cell carcinoma, adenocarcinoma, anaplastic carcinoma and carcinoma from specific site such as kidney, thyroid, breast, liver, and testis as well as malignant melanoma, soft tissue and bone tumours and germ cell tumours.[9]

FNAC is cost-effective, high diagnostic accuracy, reliable, rapid and inexpensive procedure in diagnosis of lymphadenopathy. Metastatic lesions confirmed by FNAC also give a clue to the nature and site of primary. [10]

A correct diagnosis helps in starting the specific therapy in time thus reducing mortality and morbidity.

## MATERIALS AND METHODS

The study was conducted over a period of 24 months, for January 2003 to December 2004. All patient with complained of lymphedenopathy sent for FNAC include in this study. FNAC of all patients were performed in cytology department of B.J.Medical college, Ahmedabad. The complete clinical history were noted and correlated.Patients were explained about the procedure & 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.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. The smears were fixed in alcohol which is followed by staining with Papanicolaou's or hematoxylin and eosin stain. Air dried smears were stained with May-Granwald-Giemsa (MGG) stain.

For staining of slides with hematoxyline and eosin method, slides were immersed first in absolute alcohol then in hematoxyline for 15 minute.After washing with tap water,slides were immersed in acid alcohol(3% HCL in 70% ethanol). After this slides were again washed under running tap water & stained with 1% aquesous eosin for 3 minute and again slides were washed under tap water and taken through 3 changes of absolute alcohol. Alcohol was then removed by dipping slides in xylene bath till it became clear. Then slides were mounted with a cover slip applying DPX.

For giemsa stain, smears were removed from methanol fixative and followed to air dry. Working staining solution was prepared by mixing of giemsa solution 1 ml in to 9 ml of working buffer solution. Smears were covered for 10 minute with stain. Stain was then poured off and washed well in running tap water. Smears were air dried and mounted in DPX.

For papanicolaous stain, the slides were fixed by absolute alcohol and kept under running a tap water for 20 minute.For nuclear stain,slides were immersed in Hematoxyline for 1 to 1.5 minute. After this slides were kept under running tap water for 20 minutes and then immersed in absolute alcohol and stained with orange B6 for 2-4 minute for cytoplasmic keratin staining.Then again slides were immersed 1-2 times in absolute alcohol for dehydration and then into eosin alcohol (36%) for 3-4 minute for cytoplasmic staining and again 1-2 times in absolute alcohol and lastly immersed in xylene for clearing.Smears were air dried and mounted in DPX.

## OBSERVATIONS

Total 140 cases of metastatic lesions of the lymph node between January 2003 to December 2004 were studied by Fine Needle Aspiration Cytology in BJMC, Ahmedabad. Squamous cell carcinoma is the most common metastatic lesions of the lymph node and comprised about 80% (Table 1). Metastatic lesions of lymph node occur more commonly after age of 40 years and more common in male than female except metastatic lesion form carcinoma of breast (Table 2). Cervical lymph nodes are common site for metastasis for squamous cell carcinoma and axillary lymph nodes are common site for metastasis from breast malignancy (Table 3).

**Table 1: Incidence and distribution of cases (n=140)**

| Lesion | Cases (%) |
|---|---|
| Squamous cell carcinoma | 112 (80.00) |
| Adenocarcinoma | 06 (4.28) |
| Breast carcinoma | 15 (10.72) |
| Germ cell tumour | 02 (1.42) |
| Unclassified malignancy | 05 (3.57) |

**Table 2: Incidence of metastatic lesions according to age and sex**

| Metastatic lesion | Age distribution | | | | | | | Sex | |
|---|---|---|---|---|---|---|---|---|---|
| | <10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 60 onward | Male | Female |
| Squamous cell carcinoma | – | 01 | 03 | 12 | 22 | 37 | 37 | 96 | 12 |
| Adenocarcinoma | – | 01 | – | 01 | 03 | – | 01 | 08 | 02 |
| Breast carcinoma | – | – | 01 | 02 | 07 | 05 | – | 02 | 13 |
| Germ cell tumours | – | – | 01 | – | – | – | 01 | 02 | 00 |
| Unclassified | – | 01 | – | 01 | – | – | 03 | 04 | 01 |

**Table 3: Site and incidence of metastatic lesion**

| Metastatic lesions | Site of lymph node | | | |
|---|---|---|---|---|
| | Cervical | Supraclavicular | Axillary | Inguinal |
| Squamous cell carcinoma | 96 | 09 | 02 | 05 |
| Adenocarcinoma | 02 | 03 | - | 01 |
| Breast carcinoma | - | - | 15 | - |
| Germ cell tumours | 01 | 01 | - | - |
| Unclassified | - | 03 | - | 02 |
| Total no of case | 99 | 16 | 17 | 08 |

## DISCUSSION

The present study was an attempt to study the pattern of presentation of metastatic lesions of the peripheral lymph nodes for various malignant tumors and for confirmation of metastatic lesions in cases of a known or an occult primary. Male have high risk for metastatic squamous cell carcinoma to lymph node which was comparable with betsill & Hagdu.[11] In present study males have high risk for other metastatic lymph node lesions. Squamous cell carcinoma and miscellaneous malignancies were more common in present study which is comparable with arora B.[1] The observation of betsill ans hajdu results were 62% of cervical lymph node, 16% supracalvicular, 11% axillary and 11% inguinal lymph node involvement were comparable to present study.

## CONCLUSION

Most common site for metastasis was from cervical lymph node. Lymph node metastases were more common after age of 40 years with male predominance. In Females, axillary group of lymph nodes were common site for metastasis from carcinoma of breast. FNAC offers many advantages it is an easy, safe and reliable diagnostic method. It causes minimum discomfort to the patient and cost effective. To conclude it can be said that fine needle aspiration cytology is safe, atraumatic and convenient method of diagnosis for metastatic lesion of lymph node.

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