



## Malignancy Encountered in Cervical Lymphadenopathy in A Tertiary Care Hospital

### KEYWORDS

lymphadenopathy, malignancy, FNAC

### Dr. Bobby Duarah

Associate Professor, Department of Pathology, Assam Medical College and Hospital, Dibrugarh

### Dr. Rashmi Deori

Assistant Professor, Department of Pathology, Assam Medical College and Hospital, Dibrugarh

**ABSTRACT** *Cervical lymphadenopathy is a common manifestation in our country where the prevalence of oral cancer is high, so an early diagnosis of lymphadenopathy is important for early and effective treatment. The present study was undertaken with a view to find out the malignancies encountered in cervical lymphadenopathy and to correlate the cytological diagnosis with histopathology. There were more number of males than females. Malignant conditions were common in age group 41 to 50 years. Majority of the cases were metastatic malignancies followed by lymphoma. The accuracy rate of cytology for malignant group was 95% against 100% accuracy by histopathology. The diagnostic error in fine needle aspiration cytology, can be minimized to a negligible degree, by acquiring skill and experience in performing the technique with thorough clinical knowledge and judgment.*

### Introduction :

The cervical region is rich in lymph nodes and out of a total of about 800 lymph nodes in the body no fewer than 300 of them lie in the neck. They are involved in various pathological conditions occurring in the nodes themselves as well as in their area of drainage.

Lymphadenopathy is a reflection of a regional or systemic disorder. Apart from being involved in specific and non specific local inflammatory and systemic diseases, the cervical lymph nodes can be affected in primary malignant lesions and malignant lesions occurring in various remote sites (Farquharson RE, 1935)<sup>1</sup>.

Hence the study of cervical lymph nodes is an intriguing and interesting subject in medical science. Fine needle aspiration cytology has effectively bridged the gap between clinical diagnosis and tissue diagnosis. FNAC has an immense potential which is cheap, less traumatic, simple, quick and easy procedure.

According to Morrison et al (1952), cytological picture of Hodgkin's disease are (1) Dorothy Reed Sternberg cell, (2) increase in monocytoïd cells, (3) eosinophils, (4) polymorphonuclear neutrophils, (5) increase in large lymphoid cells, (6) reticulum cell and cytological findings of NHL are (1) large lymphoid cell with large nucleoli and scanty cytoplasm, (2) prominent mitotic figures, (3) occasional haemocytoblast. According to Orell et al, (2005)<sup>2</sup> criteria for diagnosis of Hodgkin's disease are Reed-Sternberg cells, atypical mononuclear cells ('Hodgkin cells'), a variable number of eosinophils, plasma cells and histiocytes, a background population of lymphocytes. Cytology of Metastatic Carcinoma: according to Orell et al (2005) are abnormal non lymphoid cells amongst normal/reactive lymphoid cells and cytological criteria of malignancy. Cervical glands are involved in variety of malignant conditions of the body either by lymphatic permeation or embolism. The rate of incidence of cervical malignancies also varies according to its geographical distribution. The oral and oropharyngeal carcinoma is more common in north India, ( Whai et al 1965, Trotter HA 1930 3).

The incidence of lymphatic spread from cancer have been

reported upto 80 percent (Friend, Powers and Ogura, McComb and Fletcher 1967; Sheda et al 1968, Daly 1969).

A secondary malignant node is usually indurated in the earlier stages but is fixed and hard in later stages. Most of authors agree that nasopharyngeal cancer tends to metastasize early while the primary is still small and occult (Trotter 1911; Martin & Blandy 1940).

Bloch et al (1971) in their study of 47 cases of thyroid carcinoma, found 15 cases with only lymphadenopathy. Bailey and Love stated that an enlarged supraclavicular node of left side may be the only presenting sign of a testicular neoplasm or gastric neoplasm.

If no primary lesion is found even after a thorough search, Biopsy of the node should be taken to know the cause.

### Materials and Methods :

The present study was undertaken in the department of Pathology, Assam Medical college and hospital for a period of two years to find the malignancy encountered in cervical lymphadenopathy and to correlate the cytological diagnosis with histopathology. A Series of 150 cases, with clinical presentation of palpable lymph node at any part of the Cervical region, irrespective of age and sex attending the different out patients Departments of this institution during the aforesaid period were considered. Every case taken up for the study was thoroughly examined including detailed history and clinical features and then they were subjected to various routine as well as special investigations, prior to lymph node biopsy procedure. The cytological laboratory work was done in the cytology section and was analysed later in the histopathological section .

FNAC was done as an initial step for diagnosis. The result were confirmed by incisional / excisional biopsy afterwards. The material aspirated by needle was made into smears. Some smears were dried and others fixed in alcohol ether mixtures. The smears were then stained by conventional May-Grunwald-Giemsa stain and Papanicolaou stain. The cytological examinations were carried out in the stained smears.

Incisional / Excisional biopsy specimens were collected

from operation theatre in 10% formalin solution. Slides were stained by Hematoxylin and Eosin stain.

#### Result and Observation :

Out of 150 case there were 40 cases of malignant lesions (26.7%) proven histopathologically

In the present study of malignant lesions males were 30 (75%) and females were 10 (25%).

In the malignant lesions the peak incidence occurred in the age group of 41-50 years (46.15%)

Out of a total of 150 cases Metastasis were 24 (16%) and Lymphoma were 16 (10.7%).

Of the 24 malignant lesions, primary sites were detected in 18 cases (75%) and in 6 cases (25%) the primary site could not be detected even after thorough investigation.

Out of a total of 40 histologically proved malignant cases, cytology could diagnose 38 cases (95%). [Table – I]

Out of 40 malignant cases, secondary metastasis of Squamous cell carcinoma show the highest number of cases i.e. 18 cases (45%) [Fig. I & II] followed by Non Hodgkin's Lymphoma 12 cases (30%), [Fig. III & Fig. IV] Adenocarcinoma 6 cases (15%), Hodgkin's Lymphoma 4 cases (10%). [Table - II]

It was seen that the cytological diagnosis could be obtained in 38 out of 40 cases with malignant lesions, when correlated with histopathology. The percentage of accuracy was 95%. [Table – III]

#### Discussion :

Cervical lymphadenopathy is a commonly encountered condition in clinical practice which needs prompt and accurate diagnosis for better prognosis. Cytology has a favourable status in the diagnosis, treatment and prognosis of such cases.

For the present study 150 cases irrespective of age and sex were selected randomly. After thorough clinical examination and investigation fine needle aspiration cytology and incision / excision biopsy were done.

Out of 150 cases studied metastasis were 24 cases (16%), lymphoma were in 16 cases (10.7%). The incidence of metastatic malignancy is lower, due to increased public awareness and early treatment

Faisal Ghani Siddique et al (2002)<sup>4</sup> carried out studies on 85 patients with cervical lymphadenopathy found metastatic carcinoma (16%), Hodgkin's Lymphoma (8%), Non Hodgkin's lymphoma (5%).

Mirat Bajwa et al (2004)<sup>5</sup> performed the comparative study of FNAC with excision biopsy of 50 cases of cervical lymphadenopathy found malignancies of which lymphoma are predominant but metastasis also has a share.

S Shamshad Ahmad et al (2005)<sup>6</sup> in their study found malignant lymphadenopathy (13.6%) of which primary malignancies i.e. lymphoma (4.5%) and metastasis to lymph nodes (9.1%). The results are comparable to previous studies.

In the present study ,malignant lesions were common in

the age group 41- 50 years (46.2%).

Engell and Zejicek (1970) stated that the range in cancer group was 16 to 86 years, only one patient below it. This was a 16 year old boy in whom the primary tumour was in the tongue.

In the present study the peak incidence of age group in malignant lesions coincides with the results of the previous workers.

Sex distribution in the present study shows male preponderance over malignant lesions.

In malignant lesions male and female percentage was 30 (75%) and 10 (25%) respectively.

Max Bloch (1967)<sup>7</sup> in his study of 45 cases of lymphadenopathy showed 29 cases (64.4%) as male against 16 female cases (35.6%).

Faisal Ghani Siddique et al (2002) reported 52.9 % male and 47.1% female cases with cervical lymphadenopathy.

So the present study of male preponderance in malignant lesions coincides with the other workers.

In the present study of 150 cases, 16 cases were diagnosed as lymphoma. Out of 16 cases 4 cases were diagnosed as Hodgkin's lymphoma and 12 cases as Non Hodgkin's lymphoma .

In Hodgkins lymphoma, the youngest patient was 14 year old male and oldest was 45 year old female. The nodes of the posterior triangle was commonly involved. The most common presenting symptom was painless neck swelling. These findings were similar to the previous workers.

Of the 4 histologically proved Hodgkin's Lymphoma aspiration cytology could diagnose both of them with an accuracy of 100%. Accuracy rate of other workers are Morrison et al (1952) 83%, Max Bloch (1967) 80%, Friedman et al (1980) 90.1%. 100% accuracy in FNAC in this study is perhaps due to less number of patients with Hodgkin's lymphoma ( only 4 cases), improvement in staining technique and better interpretation.

Lymph node biopsy helped in histological typing in addition to confirmation of diagnosis. Two cases were lymphocyte depleted type of Hodgkin's Lymphoma, one case was lymphocyte rich and one case was mixed cellularity type of Hodgkins Lymphoma.

In Non Hodgkins Lymphoma the youngest case was 3 ½ year old male and oldest case was 55 year old male. The nodes of the posterior triangle were commonly involved. Most common presenting symptom was painless neck swelling. These findings were similar to those of previous workers.

Of the 12 histologically proved non Hodgkins lymphoma cases aspiration cytology diagnosed only 10 cases with percentage being 83.3%. Two cases were shown to be as reactive lymphadenitis by FNAC. The accuracy rate of other workers are Morrison et al (1952) 80%, Max Bloch (1967) 80%. The accuracy rate of present study is similar as compared to other workers studies.

Histological examination showed 3 cases of small cell type of NHL, 7 cases of small and large cell type of NHL and 2 case of follicular lymphoma.

In the present study metastatic malignancy was found in 24 cases.

Of the 24 cases 18 were metastatic squamous cell carcinomas and 6 were metastatic adenocarcinomas. Of the metastatic adenocarcinoma cases, 3 cases were from the thyroid, 2 from stomach, 1 from gall bladder. Of the 18 metastatic squamous carcinoma, in 13 cases primary lesions were found in Nasopharynx, Oropharynx, Hypopharynx and Larynx. In the rest 5 cases primary lesions were not found even after thorough investigation.

Secondary metastasis were commonly involved in the older age group 41 to 50 years. Males were more commonly affected. Most common nodes to be involved were jugulo diagastric nodes. These findings were similar to the previous workers.

Presenting clinical features varied according to site of primary lesions like difficulty in swallowing, change of voice, respiratory distress, neck pain, loss of weight, loss of appetite etc. Of the 24 histologically proved metastatic lesions aspiration cytology diagnosed 24 cases (100%)

The accuracy rate of FNAC was 100%. The accuracy rate of other workers were Morrison(1952) 100%, Max Bloch (1967) 87%, Frable and Frable (1974) 96.8%<sup>8</sup>, Kline et al(1983) 95%<sup>9</sup>.

Cytology in the present study offered a high rate of success Cathie(1938), Bloch (1967), Frable and Frable (1974), Nazar Hussain et al (2002)<sup>10</sup>.

Accuracy of diagnosis by aspiration cytology depends on several factors like adequate material, good staining and experienced cytologist.

**Conclusion:**

By going back to the present study it can be rightly that Fine Needle Aspiration Cytology is rapid simple, safe, painless and cost effective procedure of diagnosis with minimal deleterious effects. Hospitalization of the patient is not necessary and can be performed in an out patient department or bedside procedure in a busy hospital.

It is hoped that the diagnostic error in fine needle aspiration cytology, can be minimized to a negligible degree, by acquiring skill and experience in performing the technique with thorough clinical knowledge and judgment

Considering the merits and demerits of fine needle aspiration cytology as compared to the excision biopsy it can be said that the former has a definite edge over the latter. However, excision biopsy gives the final definite diagnosis in most of the cases. Overall accuracy rate of FNAC was 95% against 100% accuracy by histology.

**Table - I**  
Cytological results obtained in malignant group using Pap. And MGG

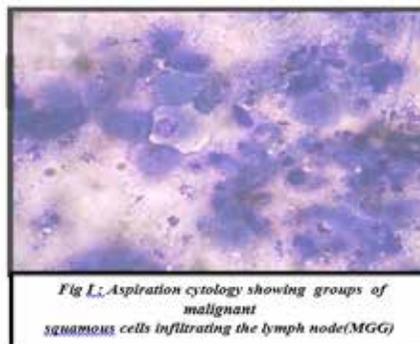
Disease	Histological Diagnosis		MGG		Pap	
	No.	%	No.	%	No.	%
Lymphoma						
Hodgkin's	4	10	4	10	4	10
Non Hodgkin's	12	30	10	25	10	25
Metastasis						
Squamous cell Carcinoma	18	45	18	45	18	45
Adenocarcinoma	6	15	6	15	6	15
Total	40	100	38	95	38	95

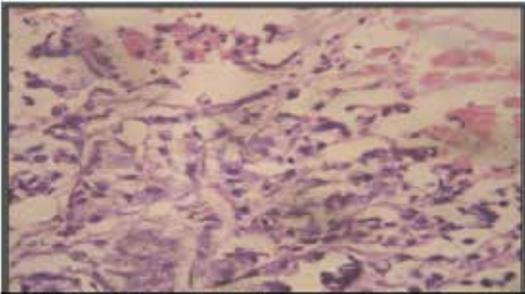
**Table - II**  
Histopathological diagnosis of malignant lymphadenopathy

Disease	No	%
Lymphoma		
Hodgkin's	4	10
Non Hodgkin's	12	30
Metastasis		
Squamous cell Carcinoma	18	45
Adenocarcinoma	6	15
Total	40	100

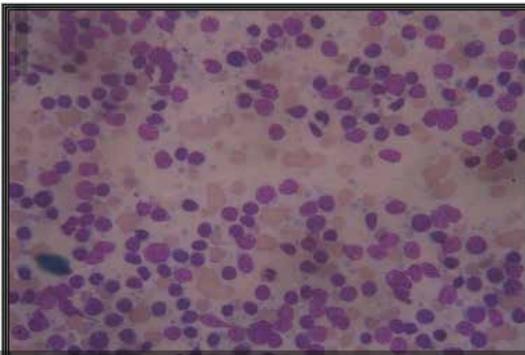
**Table - III**  
Accurate Cytological diagnosis correlating Histopathology in Malignant Lymphadenopathy

Diagnosis	Histology		Cytology	
	No.	%	No	%
Lymphoma		100		100
Hodgkin's	4	100	4	83.3
Non Hodgkin's	12		10	
Metastasis				
Squamous cell Carcinoma	18	100	18	100
Adenocarcinoma	6	100	6	100
Total	40	100	38	95

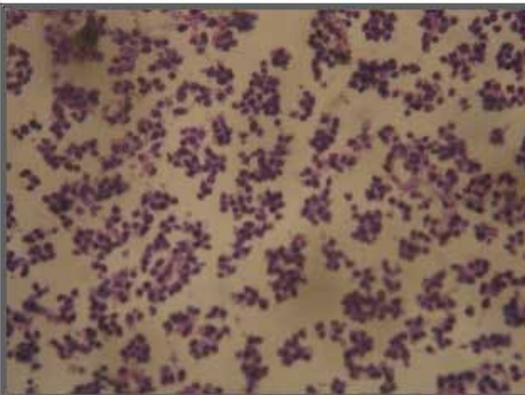




**Fig II :** *Histological picture showing infiltration of squamous cell carcinoma*



**Fig III :** *Aspiration cytology showing Non Hodgkin's Lymphoma*



**Fig IV :** *Histological picture showing Non Hodgkin's Lymphoma*

needle aspiration cytology in lymphadenopathy with special reference to acid fast staining in cases of tuberculosis. J K Science 2005;7:1.

7. Bloch M. Comparative study of Lymph Node Cytology by Puncture and Histology . Acta Cytol 1967; 11(2): 139-144.
8. Frable WJ and Frable MA. The Laryngoscope . Thin needle aspiration biopsy in the diagnosis of head and neck tumours 1974; Vol 84(7):1069-1077.
9. Kline TA, Neal HS, Holroyde CP. Needle aspiration biopsy diagnosis of subcutaneous nodule and lymphnodes. JAMA 1976; 235(26):2848-2850.
10. Hussain N, Sheikh AS, Bokhari MH, Naveed IA. The value of fine needle aspiration cytology in the diagnosis of lymphadenopathy . Biomedica 2002; 18: 38-40.

#### References :

1. Farquharson RE. Differential diagnosis of enlargement of lymph gland of the neck. Ann Oto Rhino Laryng 1935; 1 44:662.
2. Orell SR, Sterel GF, Walters MN, Whitaker. Manual and atlas of fine needle aspiration cytology Churchill Livingstone, Edinburg 2005; 4<sup>th</sup> Edn:96-99,115-117.
3. Trotter HA. The surgical Anatomy of the Lymphatics of the Head and Neck. Ann Oto Rhino & Laryngol 1930; Vol 39:384.
4. Siddiqui FG, Ahmed Q. Cervical Lymphadenopathy. J Surg Pakistan Sep 2002; 7 (3): 23-5
5. Bajwa M. Cervical Lymphadenopathy PIMS experience. J Rawal Med Coll Dec 2004;8(2):78-82
6. Ahmad SS, Akhtar S, Akhtar K, Naseem S, Mansoor T. Study of Fine