

FINE NEEDLE ASPIRATION CYTOLOGY: A TOOL FOR EARLY DIAGNOSIS OF CERVICAL LYMPH NODE LESIONS

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ABSTRACT

INTRODUCTION: Fine needle aspiration cytology (FNAC) is reliable and safe test used as a first line for evaluation of cervical lymphadenopathy (CL). It could differentiate the infective process from neoplastic one and avoids unnecessary surgeries. The aim of this prospective study was to evaluate on the role of FNAC in the diagnosis of CL.

MATERIAL AND METHODS: This study was conducted at the Department of Pathology, Lumbini Medical College, from May 2013 to October 2013. Fifty seven patients with enlarged cervical lymph nodes were selected. All patients were evaluated through detailed history and general physical examination. All FNAC procedures and the specimens were examined in the department of pathology. SPSS Version 16 was used for data analysis.

RESULTS: Out of fifty seven cases, 37 were males and 20 were females, among the diagnostic outcome, 38.6% were having Reactive Hyperplasia (RH), while 36.8% were having tubercular (TB) lesions and 17.6% were having secondary metastasis.

CONCLUSION: FNAC is a very simple yet accurate technique for early diagnosis of CL.

KEY WORDS: Cervical Lymphadenopathy, Fine Needle Aspiration Cytology, Tuberculosis

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INTRODUCTION

Nodular enlargement in cervical region is one of the most common features of CL. It is one of the worrying presentations in all age groups without any exception to male and female. This may be caused by benign conditions like RH, specific inflammation, Lymphoma and metastatic malignancy.¹ There are approximately 800 lymph nodes in the body and no fewer than 300 of them lie in the neck. It is a clinical manifestation of the regional or systemic disease and serves as an excellent clue to the underlying disease.^{2,3}

A TB lymphadenitis is an important differential diagnosis in the developing countries. FNAC of the lymph nodes is one of the simplest methods for an early diagnosis of lymphadenopathy. Its sensitivity and specificity have been documented by several studies in the past.⁴⁻⁶ Use of aspiration cytology is accepted as a primary method of diagnosis in reactive, infective and metastatic lymphadenopathy.⁷ Location of the cervical lymph nodes can be divided into different levels. The level of the lymph nodes can be predictive as to the source of problem. In addition, patients with carcinomas at the various sites would be expected to have different patterns of nodal involvement. Level I include submandibular and submental nodes. Levels II, III, and IV encompass lymph nodes along with internal jugular vein, deep to the sternocleidomastoid muscle in the upper neck, middle and lower thirds of the neck respectively. Level V contains nodes in the posterior triangle.⁸

MATERIAL AND METHODS

A retrospective study of CL at different levels was carried out from May 2013 to October 2013 in the department of pathology, Lumbini Medical College and Teaching Hospital. Enlargement of cervical lymph nodes were assessed for different levels and under aseptic condition FNAC was performed by 22G needle. The FNAC of cervical lymph node was performed when the lymph node size was 1.5 cm and more than 2 weeks of duration after treatment. The slide was dried and stained by Wright and Papanicolaou stain as per standard protocol. Microscopically lesions were grouped as RH, TB, Primary nodal malignancy and Metastatic nodes.

RESULTS

Total 57 cases of enlarged cervical lymph nodes were included in the study. Out of fifty seven cases, 37 were males and 20 were females, among the diagnostic outcome, 38.6% were having RH, while 36.8% were having TB lesions. Secondary

metastatics were seen in 17.6%. The most common age group involved in our study is 11-20 years (28.1%). Level V cervical lymph node is commonly involved 24 cases (42.1%) followed by involvement of level II cervical lymph node 11 cases (19.3%).

Table 1: Showing frequency and sex distribution of various diagnoses found in FNAC

Diagnosis	Sex		Total (%)
	Male	Female	
Tuberculosis	9	12	21 (36.8%)
Reactive Hyperplasia	18	4	22 (38.6%)
Non-Hodgkin Lymphoma	3	0	3 (5.3%)
Metastatic Adenocarcinoma	3	2	5 (8.8%)
Metastatic Neuroendocrine Ca	1	2	3 (5.3%)
Metastatic SCC	2	0	2 (3.5%)
Hodgkin Lymphoma	1	0	1 (1.8%)
Total	37	20	57 (100%)

Table 2: Showing cross tabulation between diagnosis and different level of cervical lymph nodes.

Diagnosis	Level of Lymph Node					Total
	Level I	Level II	Level III	Level IV	Level V	
Tuberculosis	0	3	4	4	10	21
Reactive Hyperplasia	1	4	5	2	10	22
Non-Hodgkin Lymphoma	0	1	0	2	0	3
Metastatic Adenocarcinoma	0	1	0	2	2	5
Metastatic Neuroendocrine Ca	0	1	0	1	1	3
Metastatic SCC	0	1	0	1	0	2
Hodgkin Lymphoma	0	0	0	0	1	1
Total	1	11	9	12	24	57

DISCUSSION

Fine needle aspiration cytology is a simple and rapid diagnostic technique for evaluation of lymphadenopathy. In our study, out of total 57 cases, most common age group was 11-20 years of age (28.1%), thirty seven cases were males (64.9%) and 20 cases were females (35.1%). Tuberculosis of cervical lymph nodes was most important differential diagnosis in our cases. Early diagnosis is particularly important in TB lymphadenopathy due to its curability. Most common lesion in our study on FNAC was RH in 22 cases (38.6%) and TB lesion was found in 21 cases (36.8%). There was not much difference in the incidence of RH and TB

lymphadenitis. Metastatic tumors were found in 10 cases (17.6%). Lymphomas were found in 4 cases (7.1%), Non-Hodgkin's (5.3%) and Hodgkin's lymphoma of 1 case (1.8%). TB was commonly found in female (60%) whereas RH was common in male (48.6%). Common age group for TB lymphadenitis was mostly between 11-20 years. There are few studies to analyze pathological lesions of CL. Bhattacharya et al. noticed that FNAC is very useful adjuvant in the diagnosis of TB which can be made by demonstration of epithelioid granuloma with or without caseous necrosis even in the absence of AFB.⁹ TB of the lymphatic system is largely confined to the cervical lymph nodes, mostly because the tonsils and adenoids provide an easy portal of entry for inhaled mycobacterium. Appling D et al. in their study found that TB Lymphadenitis is usually seen in the supraclavicular area or the posterior triangle of the neck.¹⁰ Our study also shows the similar findings. Out of 24 involved level V cervical nodes, 10 cases were diagnosed as TB origin. Naeem et al. found that TB was the most common disease found (68%) followed by metastatic carcinoma in 12%.¹¹

Similarly, Shakya G *et al.* in the study of 508 cervical lymph nodes FNAC cases, 50.4% were reactive non-specific, 22.4% were TB, 48% were malignant, 10% were chronic granulomatous and the remaining were acute suppurative 12.4%.¹² Our study also shows similar findings with RH (38.6%) as a common lesion in CL. In another study by Javed M *et al.* FNAC findings were 42% of metastatic, 26.19% TB lymphadenitis; 16.66% RH and lymphoproliferative disorders 14.28%.¹³ In our study, the incidence of metastasis is only 17.6%.

The relation between node levels was also analyzed. Total of 57 cases, 24 cases (42.1%) involved was level V lymph nodes followed by level IV (21.1%) and level II (19.3%) nodes. Most of the metastatic carcinoma diagnosed in our study shows either level IV or Level V involvement. Metastatic squamous cell carcinoma was found in 2 cases (3.5%) involving level II and level IV cervical lymph node. Jones AS et al. in their study of metastatic lymph node found the involvement of 37% for level II nodes, 32% level III cervical nodes and 25% for level V cervical nodes. Level II was the most commonly involved cervical lymph nodes.⁸ Our study differs from the study of Jones AS *et al.* in terms of level of nodal involvement. Sometimes TB lymphadenitis can mimic metastatic lymph nodes.¹⁴ Metastatic neck mass almost always arises from the squamous cell carcinoma of the upper aero digestive tract. Level IV/V nodes should alert one to the possibility of primary tumors below the clavicle, e.g. lung and esophagus. The

presence of a metastatic lymphnode mass in the neck necessitates the search for the primary cancer.¹⁵

CONCLUSION

FNAC is easy, early and time saving method for diagnosis of cervical lymphadenopathy. The diagnosis of extra pulmonary TB in the lymphnode is earliest by FNAC. It governs the outcome of the disease by proper treatment. It is an excellent first line method for investigating the nature of the lesions ranging from benign to malignant. Moreover, it is an economical and convenient alternative to open biopsy of lymphnodes. In malignant metastatic nodes, if properly evaluated by the level of cervical lymph node involved, it is easy to search for the primary origin.

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