

# ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY IN EARLY DIAGNOSIS OF LYMPHADENOPATHY

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## ABSTRACT

**OBJECTIVE:** To see the role of fine needle aspiration cytology in early diagnosis of lymphadenopathies in our setup.

**DESIGN:** A descriptive study

**SETTING:** Department of Pathology, Chandka Medical College, Larkana, Sindh from January 1998 to December 2001.

**METHODS:** For this study, medical records of 233 patients, 127 males (54.4%) and 106 females (45.5%) were analyzed.

**RESULTS:** Age of the patients ranged from 8 month to 70 years. The majority of lymph nodes aspirated were from cervical region. 117 (50.2%) cases were diagnosed as tuberculosis, 49 (21%) as reactive hyperplasia, 20 (8.5%) as metastatic tumor and 14 (0.6%) Hodgkin's Lymphoma. In 10 cases smears were unsatisfactory either because of inadequate material or excessive blood.

**CONCLUSION:** Our results indicate that infectious and reactive lymphadenopathies constitute a significant proportion of the findings in aspirates of enlarged lymph nodes. Tuberculosis is a major cause of lymphadenopathy followed by malignant tumors.

**KEY WORDS:** *Fine Needle Aspiration Cytology. Tuberculosis. Hodgkin's Lymphoma.*

## INTRODUCTION

Lymphadenopathy occurs as a result of various underlying disorders affecting mononuclear phagocytic system directly or indirectly. An early and definite diagnosis is required for management, treatment and better prognosis<sup>1-2</sup>. Excision of lymph node and histopathological examination has been the final arbiter for many years in the diagnosis of lymphadenopathy<sup>3</sup>. Untimely lymph node biopsy is best avoided as described in the classic teaching of Hayes Martin<sup>4</sup>. If the histologic diagnosis of lymphadenopathy is established earlier by other adjuvant and easier methods, it facilitates further programming of the treatment and patient is saved from the unnecessary surgical procedures. Fine needle aspiration cytology (FNAC) is the method of choice for all such cases<sup>1</sup>. FNAC is a simple, convenient, relatively painless and less expensive method<sup>4-6</sup> by which representative specimen is obtained from the lesion by means of thin bore needle by applying suction and the smears are made for cytopathologic examination<sup>7-9</sup>. This technique can be adopted in bedside laboratories and out patient department. The smears are screened for malignancy or can even be used for cytochemistry, ultra structural examination, immunopathology or culture<sup>10-11</sup>. The method is used most commonly for the preoperative

assessment of breast lumps, but it is also applicable to lymph nodes, thyroid and other superficial lesions<sup>9,12</sup>. Diagnosis of infectious or benign lesions can also be made. This includes specific assessment of micro-organism by direct examination or inoculating the aspirate for culture. Although yield may appear to be lower than desired, then because of minimal trauma and relatively non-invasive nature of the procedure it may be repeated<sup>13</sup>. In this study, role of FNAC is analyzed in early diagnosis of lymphadenopathies in our set up.

## MATERIAL AND METHODS

This study included 233 patients of lymph adenopathies. The patients were referred by Surgical Department of Chandka Medical College Hospital Larkana, Sindh. FNAC was performed at Pathology Department. In all patients general information and brief clinical history was recorded. The enlarged lymph nodes were examined and their site, size, number, consistency, mobility and condition of overlying skin were noted. The patients were counseled regarding the indication and procedure of technique and verbal consent was taken. 10cc disposable syringe (B D) with 21 Gauge needle of 1.25 inch length was used. The site within lymph node

was accurately localized and the area of skin overlying the lymph node to be aspirated was disinfected with methylated spirit. The lymph node to be aspirated was fixed in left hand between thumb and index finger as firm as possible against the underlying structures. The needle was introduced quickly and gently penetrating the skin tangentially and puncturing the capsule of lymph node. Negative pressure was created by withdrawing the piston. The vacuum was maintained and needle was moved back and forth 4-5 times in various directions. As soon as material began to enter into the hub of the needle, the syringe was allowed to normal pressure with slow release of plunger. The material was expressed on 4 slides and smears prepared by laying another slide on the top of dropped aspirate and pulled horizontally. Three smears were immediately fixed in 95% ethyl alcohol and one was air dried. Two of the smears were stained, one each by Papanicolaou method and haematoxylin and eosin stain. One was stained for AFB whenever required.

**RESULTS**

Total 233 patients both male (127=54.4%) and female (106=45.5%) were studied. The ages ranged from 8 months to 70 years. Majority of patients were in first two decades. Only 7 cases were above 60 years of age. Most of the lymph nodes examined were from cervical region followed by axillary and supraclavicular regions. Of these, 117 (50.2%) were diagnosed as tuberculosis on the basis of eosinophilic caseous necrosis, epithelioid cells and Langhan's giant cells and all were confirmed on histological examination. 49 (21.0%) were diagnosed as reactive hyperplasia on FNAC, 44 (89.9%) were proved on histology. While one case was diagnosed as Hodgkins Lymphoma, 3 as tuberculosis and 1 as non-Hodgkins Lymphoma (NHL). 20 (8.5%) cases were diagnosed as metastatic tumor and all proved on histological examination. Of 14 (0.6%) cases diagnosed as Hodgkins Lymphoma on FNAC, 13 were confirmed while 1 turned out to be Reactive.

All the 12 cases diagnosed as NHL were confirmed on histopathology. Out of 11 (4.7%) cases diagnosed as acute suppurative lymphadenitis, 4 turned out as tuberculosis. In 10 (3.4%) patients smears were unsatisfactory either because of inadequate material or excessive blood.

In 117 cases diagnosed as tuberculosis, Kinyoung Staining for AFB was done and 38 (16.4%) showed AFB positive. More findings are presented in tabulated form.

**TABLE SHOWING FINDINGS OF CYTOLOGY AND HISTOPATHOLOGY (n=233)**

Cytology		Histopathology						
		TB	Reactive	Acute	Hod-gkins	NHL	Meta-statis	
Tuber-culosis	117	117	-	-	-	-	-	100%
Reac-tive	49	03	44	-	01	01	-	89.9%
Me-tastatis	20	-	-	-	-	-	20	100%
Hod-gkins	14	-	01	-	13	12	-	92.8%
NHL	12	-	-	-	-	-	-	100%
Acute	11	04	-	07	-	-	-	63.6%
Unsatis-factory	10	02	06	-	-	02	-	60%

**DISCUSSION**

In the present study, 117 cases forming the major group of patients were diagnosed as tuberculosis on both cytology and histology. It indicates that this infectious disease is still a major cause of lymphadenopathy in our set up.

In 46 cases of tumor, both primary and secondary, 45 cases were confirmed with 95% correlation. In 20 cases of metastatic tumor sensitivity was 100%. Out of 49 reactive cases, 3 were confirmed as tuberculosis on histological examination and 1 as Hodgkins lymph node in which mixture of cells was present but no definite Reed Sternberg cell was seen. One case of NHL was missed because of mixed large and small cell type.

Our results in this series indicate that infectious and reactive lymphadenopathies constitute a significant proportion of the findings in aspirates of enlarged lymph nodes. Tuberculosis is a major cause of lymphadenopathy which was diagnosed with 100% specificity and 95% sensitivity. Second major cause of lymphadenopathy is malignant tumor which was further distinguished in primary and metastatic tumors. In cases of metastatic tumor and NHL lymphadenopathy correlation was 100% while in Hodgkin's lymphoma the results were 93%. These results correlate with other authors who have reported success rate of 80-95%.<sup>12-14</sup>

**CONCLUSION**

From above results and discussion, it is observed that FNAC is a valuable, less expensive and simple diagnostic tool for management of superficial lumps. The procedure must be performed in all palpable swellings for diagnosis and assessment prior to surgery.

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