

Analysis of FNAC of Palpable Superficial Lymph Nodes: Our Experience over Three -Year Period

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Abstract

Background: Fine needle aspiration cytology as a first line of investigation has assumed importance in diagnosing a variety of disease processes. Several studies in the past have documented the diagnostic efficacy of FNAC in lymphadenopathy. This study was taken up with the aim to investigate the pattern of superficial lymphadenopathy among patients presenting in Narayan Medical College & Hospital, Sasaram and to evaluate the diagnostic efficacy of FNAC, and analyze the diagnostic pitfalls.

Materials and method: A total 126 patients were subjected to FNAC of lymph nodes over a three-year period (May 2012-April 2015), since in 7 patients as either the aspirate was inadequate or the opinion was equivocal, we analyzed the remaining 119 cases.

Result: Overall tuberculous lymphadenitis was the most common finding (38.6 %) followed by reactive hyperplasia of lymph-node (34.4 %) and acute non specific lymphadenitis (15.1 %). Malignant pathology accounted for 10.9 %, most of which was due to lymphoma and metastatic tumour.

Conclusion: FNAC is an excellent first line of investigation in the evaluation of lymphadenopathy due to its low cost, simplicity and minimal invasiveness.

Keywords: Superficial lymph node, FNAC, tubercular lymphadenitis.

I. Introduction

Fine needle aspiration (FNA) cytology enables a simple and rapid diagnostic approach of patients with lymph node enlargement. Several studies¹⁻⁴ in the past have documented the diagnostic efficacy of FNAC in lymphadenopathy. In this study we have attempted to analyze the pattern of presentation of lymphadenopathy and evaluate the diagnostic efficacy of FNA in the assessment of those cases. The first objective in the assessments of smears from an enlarged lymph-node is to distinguish between metastases, infectious diseases, reactive hyperplasia and lymphomas. Furthermore the aspirated samples can be utilized for immunocytochemistry, flowcytometry and gene rearrangement analysis^{5,6}.

II. Materials And Method

This study was a retrospective review of FNAC of palpable superficial lymph-node between May 2012 to April 2015 at our tertiary care institute. A total 126 patients with palpable lymph-node were subjected to FNAC using a 21-G needle and 10-ml disposable syringe. The slides were both air dried and wet fixed for May-Grunwald-Giemsa and Papanicolaou Stains respectively. Clinical details with regard to age, sex, site, size, duration and other investigations performed were recorded. In 7 cases either the needle aspirate was inadequate or the cytological opinion was equivocal; hence the remaining 119 cases were analyzed. The cases were divided into six groups, eg: reactive lymphoid hyperplasia, acute non specific lymphadenitis, tuberculous lymphadenitis, metastatic malignancy, lymphoma and a miscellaneous group showing features that did not conform to any of the earlier mentioned groups¹⁰.

III. Results

A total of 126 patients were subjected to FNAC of lymph nodes. Since in 7 patients as either the aspirate was inadequate or the opinion was equivocal, we analyzed the remaining 119 cases.

The ages of the patients ranged from 1 to 70 years with a male to female ratio of 1.2 : 1. We received maximum number of patients in the 11-20 years age group, followed by those in the 21-30 years age group and the least in the > 60 years age group (Table 1).

The size of lymph node varies from 0.5 to 5 cm. The lymph nodes in tuberculosis were multiple, firm, non tender and matted. Tubercular lymphadenitis accounted for most of the cases, followed by reactive hyperplasia of lymph node. Reactive hyperplasia of lymph node was the most common finding in children aged less than 10 years. Malignant pathology accounted for (10.92%) cases of lymphadenopathy. Hodgkin's

lymphoma was more common while adenocarcinoma constituted majority of cases in metastatic tumour. (Table 2 , Fig. 1)

Table 1 - Distribution of cases according to age group (n=119)

Age group (in years)	No. of Cases	% of total
<10	24	20.17
11-20	33	27.73
21-30	30	25.21
31-40	09	07.56
41-50	11	09.25
51-60	07	05.88
>60	05	04.20

Table 2 – Distribution of cases according to FNAC findings (n = 119)

FNAC findings	No. of cases	% of total
Tubercular lymphadenitis	46	38.66
Reactive hyperplasia	41	34.45
Acute non specific lymphadenitis	18	15.13
Lymphoma(Hodgkin's & non Hodgkin's)	09	7.56
Metastatic tumor	04	3.36
Miscellaneous	01	0.84

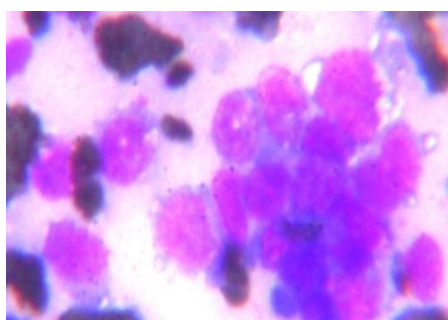


Fig.I: Metastatic adenocarcinoma, FNAC, Giemsa stain, X 400

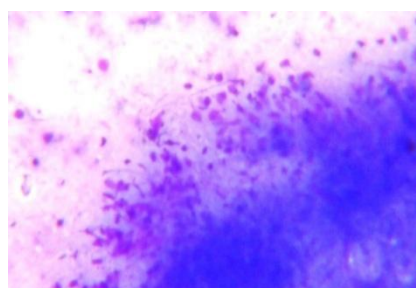


Fig. II: Tubercular lymphadenitis, FNAC, Giemsa stain, X400. Aggregates of epithelioid cells

IV. Discussion

Lymphadenopathy presents an opportunity for a quick and efficient way to reach an early diagnosis through fine needle aspiration cytology (FNAC) of the involved lymph node ⁷. Lymph nodes react to a variety of micro-organism and non specific stimuli by expansion of follicle centres and / or intrafollicular tissue. Since infections from oral cavity, ears, nose and paranasal sinuses drain into the nodes, reactive lymphoid hyperplasia is a common finding. Germinal centres may be very large in some cases of reactive follicular hyperplasia. If the aspirate derives from such a large germinal centre, the proportion of large cells (centroblasts, dendritic reticulum cells) and the number of mitoses may be impressive enough to suggest malignant lymphoma. However, the full range of lymphocyte transformation is still present, including small lymphocytes and the various cell types occur in logical proportions. Small lymphocytes are numerically predominant. A variable number of plasma cells can usually be found. The presence of macrophages with tingible bodies favours reactive hyperplasia.

However, in this study tuberculous lymphadenitis emerged as the commonest cause of lymphadenitis. This may be explained by the fact that in a developing country like ours, all cases of granulomatous lymphadenopathy were considered to be due to tuberculosis ⁴. Granulomata with caseous necrosis is the hall mark of tuberculous lymphadenitis.(Fig.- II). Smears from a tuberculous lymph node may sometimes show only

polymorphs and necrotic debris without histiocytes, particularly in immunocompromised patients. Acid-fast bacilli should, of course, be looked for both in direct smears and in culture from the aspirate^{8,9}.

Clusters of epithelioid cells are sometimes found in cases of malignant lymphoma. One must therefore look carefully for abnormal lymphoid cells. Lymphoid malignancy represents a minority of the tumours (7-13%)¹⁰ in other studies as well as in our study (7.56%). The diagnostic accuracy of FNAC in cases of lymphoma is variable but the accuracy increases in higher grade lesion¹¹⁻¹². FNAC aided by ultrasound with its high sensitivity and specificity is a useful initial investigation to differentiate lymphoma from metastasis. The ultrasonographic features found consistently useful in differentiating non Hodgkin's lymphoma from other metastasis were the distribution of the nodes, distal enhancement and lack of intra nodal necrosis¹³.

V. Conclusion

The FNAC can be used as a first line investigation in the evaluation of lymphadenopathy due to its low cost, simplicity and minimal invasiveness. In addition, it saves the patient from unnecessary biopsies.

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