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Original Research Article

Role of FNAC in Diagnosis of Cervical Lymph Nodes in PMCH, Patna, Bihar

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Abstract

Background: Cervical lymphadenopathy is one of the commonest presentations in inflammatory and neoplastic disorders. Fine Needle Aspiration Cytology (FNAC) is simple, quick, inexpensive and minimally invasive OPD technique used for establishing the etiology of cervical lymphadenopathy. In this study we describe cytomorphological patterns of FNAC of cervical lymph nodes and it's utility in establishing diagnosis. The aim of the study is to establish the role of FNAC in the Diagnosis of Cervical Lymph Nodes in PMCH, Patna, and Bihar.

Methods: The present study was a prospective and cross-sectional study. This Study was carried out over a period of 6 months from March 2025 to August 2025 at department of Pathology, Patna Medical College and Hospital, Patna, Bihar. A total of 100 patients with cervical lymph nodes were subjected to FNAC using 22 gauge needle and a 10 ml syringe. The slides were dry fixed and studied using May-Grunwald Giemsa stain.

Results: Out of 100 cervical lymph node FNAC cases, reactive non-specific was the most common finding (52%) followed by tubercular (28%).

Conclusion: This study highlights the usefulness of FNAC as a reliable diagnosis of cervical lymphadenopathy.

Keywords: Cervical Lymphadenopathy, Fine Needle Aspiration Cytology, Metastatic Malignancy.

Introduction

Lymphadenopathy is one of the commonest clinical manifestations of many diseases. It is defined as an abnormality in the size and character of the lymph nodes caused by the invasion or propagation of either inflammatory cells or neoplastic cells into the lymph node.[1] Enlarged lymph nodes are easily accessible for fine needle aspiration and hence fine needle aspiration cytology (FNAC) is a very simple and important diagnostic tool for lymph node lesions.[2]

Cervical lymphadenopathy is relatively common clinical observation. Cervical lymphadenopathy is a diagnostic dilemma to the surgeon. The various avenues available for the analysis of cervical node enlargement are clinical evaluation, aspiration cytology, and open biopsy.[3] each method of diagnosis has its own merits and demerits.

Traditionally, open biopsy and its histopathological study are the main stay for diagnosis of cervical lymphadenopathy. FNAC is a simple and safe procedure, which can be employed on outpatient basis. Surgical biopsy needs anaesthesia and it is time consuming to get the report.[4] Fine needle aspiration cytology (FNAC) of lymph node has become an integral part of the initial diagnosis and management of patients with lymphadenopathy due to early availability of results, simplicity, and, minimal trauma with less complication.

Material and Methods

This prospective and cross-sectional study was conducted in the Department of Pathology, Patna Medial College, Patna, and Bihar from March 2025 to August 2025. Total 100 patients with cervical lymphadenopathy selected attending ENT, Surgery, Medicine and Pediatric OPD. Cervical lymphadenopathy of all age groups and both sexes were included. Cases in which diagnosis was equivocal and patient particulars were inadequate, were excluded from the study.

Results

Total number of patients included in the study was 100, who had undergone FNAC for enlarged cervical lymph node. The male: female ratio in the

study was 1.6:1.We received the maximum number of patients (21 %) in the age group of 11-20 and the least 4 % in the > 60 years of age category. The half of lymphadenopathy (52%) was reactive non-specific with unknown cause. This is followed in frequency by tubercular (27%), chronic granulomatous [nontubercular] (8%) and acute suppurative varieties (6%). Malignancy was diagnosed in 5 cases out of 100. Of these, metastatic cases were 2 in number and non-Hodgkin's lymphomas were 03. 02 cases of Hodgkin's lymphomas were found.

Table 1: Demographic profile of patients undergoing FNAC of cervical lymph nodes on the basis of Gender

Particulars	No. of cases	Percentage
Male	62	62%
Female	38	38%
Total	100	100%

Table 2: Demographic profile of patients undergoing FNAC of cervical lymph nodes on basis of age group

Age group in years	<10	8	8%
	11 to 20	21	21%
	21 to 30	11	11%
	31 to 40	19	19%
	41 to 50	17	17%
	51 to 60	20	20%
	>60	4	4%

Table 3: Pattern of Lymphadenopathy on FNAC of cervical lymph nodes

Cytological diagnosis		No. of cases	Percentage
Reactive non-specific		52	52%
Acute suppurative		6	6%
Chronic granulomatous (non-tubercular)		8	8%
Tubercular		27	27%
Non-Hodgkin		3	3%
Hodgkin		2	2%
Metastatic Carcinoma	Adenocarcinoma	1	1%
	Squamous Cell Carcinoma	1	1%
Total		100	100%

Table 4: Pattern of Lymphadenopathy on FNAC by gender

Cytological diagnosis		Male	Female
Reactive non-specific		32	20
Acute suppurative		4	3
Chronic granulomatous (non-tubercular)		5	3
Tubercular		17	10
Non-Hodgkin		2	1
Hodgkin		1	1
Metastatic Carcinoma	Adenocarcinoma	1	0
	Squamous Cell Carcinoma	0	1
Total		62	38

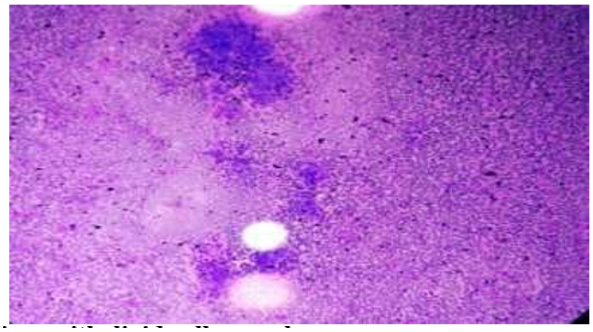

Figure 1: FNAC smear showing epithelioid cell granuloma

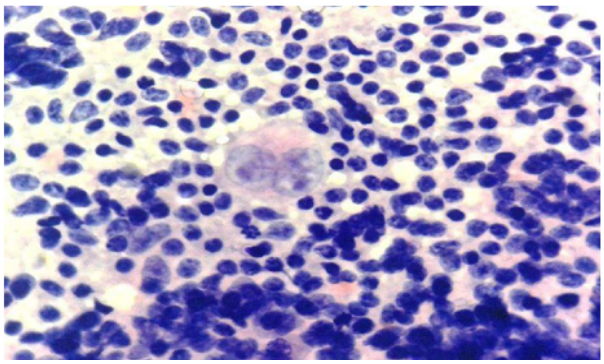

Figure 2: Reed-Sternberg (R-S) cell in Hodgkin's lymphoma

Discussion

FNAC of cervical lymph nodes provides a great opportunity to explore the myriad lesions that involve these lymph nodes. Cytology of lymph nodes has become a window for diagnosis of many diseases. Optimal material and experience, when combined, make cytological diagnosis of equal significance as histopathology.[5] In many clinical settings it is very difficult to decide which patient is more likely to have a reactive or neoplastic lymphadenopathy. Here, knowledge about the pattern of lymphadenopathy is helpful to the clinician for solving the dilemma. In the present series, half the cases (52.0%) were reactive non-specific.

This is because in the cervical region most cases may be of acute lymphadenitis, due to infections of the oral cavity, nose and ears. Acute suppurative (6.0%) and chronic granulomatous (non-tubercular) (8%) were other cytological patterns of reactive lymphadenopathy.

Tuberculosis (27.0%) was another important differential diagnostic pattern. FNAC was reported to have 77% sensitivity in the detection of tubercular lymphadenopathy.[6] Sensitivity, specificity and diagnostic accuracy was reported to be 97%, 97.5% and 97.4% respectively in yet another study in which, cytomorphological features of epithelioid and giant cells with caseous necrosis was associated with higher percentage of AFB positivity.[7]

Shrivastava JP et al[8] examined that cervical Lymphadenopathy is one of the commonest clinical presentation in all ages. Maximum number of cases were 11-20 years age group. Males were more than the females. Our study showed that, out of 100 patients, male population was [62 (62.0%)] higher than female population.

Male: Female Ratio was = 1.6:1.Baji SN et al[9] found that cervical lymphadenopathy is a common clinical presentation across patients of all age group. The aetiology may range from a benign nonspecific inflammation to lymphoproliferative disorders and metastatic malignancy. Kadam SA et al[10] examined that Lymphadenopathy is one of the commonest clinical presentations of the patients. Maximum numbers of cases were below 30 years age group with male preponderance.

In our study, higher number of the patients were 11 to 20 years of age [21 (21.0%)]. which was statistically significant (p=.00028), (z=3.6348). Shakya G et al[11] showed that the pattern of cervical lymphadenopathy is Half of the lymphadenopathy (50.4%) was reactive non-specific with unknown cause. We showed that, most of the patients had Reactive non-specific [52 (52.0%)]. However, Tubercular [27 (27.0%)] followed by Chronic granulomatous [8(8.0%)] which was statistically significant (p<.00001), (z=8.1713).

Conclusion

The study highlights the usefulness of FNAC as a reliable method that help the clinician to evaluate an early diagnosis in cases presenting with enlarged cervical lymph node. The most numbers of cervical lymphadenopathy are reactive lymphadenitis, tuberculosis, lymphoma also metastatic malignancies. Exert early diagnosis can save the patients from early morbidity and mortality. FNAC is highly helpful for diagnosis in proper clinical setting.

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