

Original Research Article**A Study on Cytological and Histopathological Features of Lymph Nodal Swellings in a Teaching Hospital in Telangana****M. Kanya Kumari¹, K. Pushpalatha²**

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Abstract

Introduction: Lymphadenopathy is a common clinical problem. Fine needle aspiration cytology is minimally invasive procedure and helpful in the diagnosis of various swellings especially superficial palpable swellings like lymph nodes.

Aim of the study: To study the spectrum of cytological and histopathological findings of lymph nodes.

Materials and Methods: This was a prospective study where 220 patients underwent FNAC procedure of lymph nodes and out of which 80 patients subsequently underwent biopsy procedure. The patient demographics, clinical presentation, site and consistency of lymph nodes, the cytology and histopathology findings were studied.

Results: There were total 220 patients with 120 males and 100 females and the patient age ranged from 1 to 80 years. Non-neoplastic lesions were more common (95%) than neoplastic lesions (5%). Cervical nodes were the most commonly affected nodes. Granulomatous inflammation of tuberculous etiology was the most common diagnosis (50% cases) on FNAC and also on biopsy. Metastatic malignancy was more common than primary lymphomas.

Conclusion: Lymphadenopathy due to non-neoplastic causes is more common than neoplastic causes. Attention to clinical details is important for evaluation of all cases of lymphadenopathy. Tuberculosis is one of the most common causes giving rise to lymphadenopathy. Metastatic involvement of lymph nodes is more common than primary lymphomas.

Keywords: Lymph Nodes; Cervical; FNAC; Lymph Node Biopsy.

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Introduction

Aspiration of lymph nodes for diagnostic purposes was first done by Griey and Gray in 1904, in patients with sleeping sickness [1]. The procedure of fine needle aspiration (FNA) developed gradually, until 1921, when Guthrie tried to correlate FNA results with various disease processes [2]. Fine needle aspiration cytology with its

minimally invasive procedure has been helpful in the diagnosis of various swellings [3]. Since its introduction in 1930 by Martin, the procedure has become increasingly popular in the evaluation of various palpable lumps [4]. FNAC is of relevance as it is safe, inexpensive procedure with a quick result and an excellent patient compliance [5]. Therefore lymphadenopathy requires further evaluation. FNAC has been a suitable investigation to rule out malignancies and to confirm reactive or infective

pathology [6,7]. Subsequent Histopathological examination of excised biopsy is necessary to correlate cytodiagnosis obtained by FNAC procedure [8].

Aim of the Study

To study the spectrum of cytological and histopathological findings of lymphnodes.

Material and Methods

Ethical institutional permission was taken. Informed consent was taken from all patients included in the study. This was a prospective study done in the department of Pathology at Maheshwara Medical College and Hospital, Patancheru over a period of one year from beginning of October 2016 till end of September 2017.

A total of 220 cases with history of cervical lymphadenopathy were included in the study.

The out patients and also a few admitted patients from departments of General Surgery and ENT who were referred for fine needle aspiration cytology (FNAC) procedure comprised the study group. FNAC procedure was done in all 220 cases. FNAC was done under all aseptic precautions using 22-23 gauge needle and 5 ml to 10 ml syringe. The smears were made and fixed in alcohol and stained with Hematoxylin - Eosin stain. Special stains like ZiehlNeelsen and PAS were done wherever required.

Histopathological examination was carried out in 80 cases.

Results of cytological diagnosis were correlated with the final histopathological diagnosis.

Lymph nodes were fixed in 10% formalin, grossing was done and the tissue was subjected to routine histopathological processing. Sections were cut on a microtome at 3 to 6 microns thickness. The sections were stained with H and E, mounted and examined under a light microscope.

Inclusion Criteria

All age groups

Both genders

All cases with lymph node swelling where FNAC was done

All cases that underwent histopathological examination of the lymph nodes

Exclusion Criteria

Inadequate aspirate even after repeated attempts

Review slides of FNAC material from lymph nodes

Review slides or paraffin blocks from lymph nodes

Results and Observation

In the present study a total of 220 cases of lymphadenopathy underwent FNAC procedure. Out of 220 cases, histopathological examination was available in 80 cases.

Table 1: Age-wise distribution of cases for FNAC of enlarged lymphnode

Age distribution (in years)	No. of cases	Percentage (%)
1-10	15	6.8%
11-20	20	9.09%
31-40	90	40.9%
41-50	11	5.0%
51-60	35	15.9%
61-70	40	18.1%
70 -80	09	4.1%
Total	220	100%

Table 2: Clinical features in the cases referred for FNAC of lymph nodes

Clinical features	No. of cases	Percentage (%)
Lymphadenopathy	220	100%
Fever	150	68.1%
Cough	60	27.2%
Pain	50	22.7%
Loss of weight	120	54.5%
Loss of appetite	120	54.5%
Known case of pulmonary tuberculosis	20	9.0%
Known case of malignancy	03	1.3%

In the present study age distribution varied from 1 to 80 years.

Majority cases were in the 31- 40 years age group ie, 90 /220 (40.9%).

Gender Distribution of Cases of Enlarged Lymph Node: In the present study males 120/220 (54.5 %) outnumbered

females 100/220 (45.4%) and the male to female ratio was 1.2:1

In the present study all the cases (100%) presented with lymphnode enlargement.

In the present study the most commonly involved group of lymph nodes were cervical lymph nodes ie, (78.6%) followed by submandibular lymphnodes ie, (13.6 %).

Table 3: Distribution of lymphnodes in different sites

Distribution of lymphnodes	No. of cases	Percentage (%)
Cervical region	173	78.6%
Axillary region	10	4.5%
Inguinal region	05	2.2%
Submental region	02	0.9%
Submandibular region	30	13.6%
Total	220	100%

Distribution of Consistency of Lymphnodes: In the present study, majority of lymph nodes were soft in consistency, 185 cases (84%). Nodes firm in consistency were 25 cases (11.3 %) and hard nodes were seen in 10 cases (4.5 %).

Distribution of Cases based on FNAC Findings: In the present study 208 cases (94.5 %) were benign in nature, 10 cases (4.5%) were reported as Metastasis and 02cases (0.9%) were reported as Lymphomas.

Distribution of Different Types of Aspirates: In the present study, most common aspirate from lymphnode was blood mixed ie, 100 cases (45.4%). Caseous necrotic material was aspirated in 50 cases (22.7%). Pus was seen in 40 cases (18.1 %) and the material was greyish white in remaining 30 cases (13.6%).

Table 4: Distribution of cases on FNAC and Histopathology findings

Diagnosis	FNAC		Histopathology	
	No. of cases	Percentage (%)	No. of cases	Percentage (%)
Reactive lymphadenitis	41	18.6%	20	25%
Chronic non-specific lymphadenitis	37	16.8%	16	20%
Granulomatous lymphadenitis	90	40.9%	40	50%
Abscess	40	18.1%	-	-
NHL	02	0.9%	1	1.2%
Metastasis	10	4.5%	3	3.7%
Total	220	100%	80	100%

Both on FNAC and histopathology, granulomatous lymphadenitis was the most common finding and was reported in 90 (40.9%) and 40 (50%) cases respectively. Based on histopathology findings 76 (95%) cases were of non-neoplastic etiology.

Discussion

In the present study a total of 220 cases were studied over a period of one year for FNAC findings out of which histopathological correlation was available in 80 (36%) cases. In a study by Gupta et. al. [9] a total of 200 patients were included who underwent FNAC of lymph nodes in one year out of which follow up biopsy was done in only 80 (40%) patients.

FNAC of lymph nodes is more common than biopsy as not all patients with lymphadenopathy require biopsy study due to the fact that many cases are reactive in nature and subside on antibiotic therapy. Nasar et. al. studied [10] a total of 300 patients of lymphadenopathy

Age Distribution

In the present study most affected age group was 31 to 40 years group. Bhalekar et. al. [11] observed the 11-20 year group to be most commonly affected. Balkishan et. al. [12] also observed most cases of lymphadenopathy in the 11 to 30 years age group followed by the 31 to 50 year age group. As the age advances primary or metastatic malignancies in the nodes become more common. In younger people the nodal enlargement is frequently due to reactive or infectious conditions.

Gender Distribution

In our study there was a slight male predominance with the male to female ratio being 1.2:1. In the study by Bhalekar et. al. [11] the male to female ratio was 1.5. Balkishan et. al. [12] and Nasar et. al. [10] observed a slight female predominance with the male to female ratio as 1:1.4 and 1:1.05.

Site-Wise Distribution of Lymphadenopathy

In our study most cases (78.6%) of enlarged lymph nodes were of cervical origin. Bhalekar et. al. [11] observed 47.8% of their cases to be of cervical origin. Balkishan et. al. [12] also observed the cervical site to be most common with 45% cases in jugulodiagastric nodes and 17% in posterior triangle area. Nasar et. al. [10] observed 64% of their cases to be from cervical lymph nodes. Gupta et. al. [9] studied 80 patients out of which 50 patients (62.5%) presented with cervical lymph node enlargement, 12 patients (15%) presented with submandibular swelling, 8 patients (10%) with inguinal lymph node enlargement, 6 patients (7.5%) with axillary and 4 patients (5%) with infra auricular lymph node enlargement. Our findings compare well with the above authors.

Consistency of Nodes

In the present study, majority of lymph nodes were soft in consistency, 185 cases (84%). Nodes firm in consistency were 25 cases (11.3%) and hard nodes were seen in 10 cases (4.5%). All the ten cases of hard nodes were biopsied out of which four proved to be malignant. There were three cases of metastatic carcinoma and one case was of Non-Hodgkin lymphoma. Remaining six cases showed chronic non-specific lymphadenitis features. Balkishan et. al. [12] in their study observed the consistency of the swelling to be firm in 84%, hard in 11% of patients and variable consistency in 6% of cases. Matting was seen in 64% of their cases. In the study by Nasar et. al. [10] nodes were firm in consistency in 194 cases ie 64.7%. Hard nodes constituted 28 cases (9.3%) and soft nodes were 78 (26%).

Clinical Features

In our study, the presenting complaint of the patient was swelling in the neck and other sites in all (100%) of patients. Other complaints were of fever (58%), cough and pain in the enlarged nodes. Balkishan et. al. [12] also observed pain and fever in 46% and 38% patients respectively. Khan et. al. [13] and Desai et. al. [14] in their studies observed that all their patients primarily complained of swelling in the neck with or without other associated symptoms.

Etiology

Non-neoplastic causes of lymphadenopathy are more common than neoplastic causes. In the present study, based

on histopathology 95% cases of lymphadenopathy were due to non-neoplastic lesions of various etiologies. Faici et. al. [15] and Bhalekar et. al. [11] reported the non-neoplastic causes to be 84% and 80% respectively in their studies.

Al-Alwan et. al. [16] reported benign lymphadenopathy in 55.3%, while malignant involvement was observed in the remaining 44.7% of their cases.

In our study granulomatous inflammation of tuberculous etiology was the most common cause of lymphadenopathy accounting for 50% cases both on FNAC and also on biopsy.

In the study by Nasar et. al. [10] Bhalekar et. al. [11] and Balkishan et. al. [12] tuberculosis contributed to 24%, 32%, and 74% cases of all lymphadenopathies respectively.

In our study the primary lymphomas were 1.2% and secondary malignancies were 3.7%. In the study by Bhalekar et. al. [11] lymphomas contributed to 11% cases and secondary deposits contributed to 9%. Balkishan et. al. [12] observed an incidence of metastatic deposits to be 10%, including occult primary. Ahmed et. al. [17] in their study observed secondaries in lymph nodes in around 12% cases. Balkishan et. al. [11] reported Hodgkins lymphoma in 4% of their cases. In our study there was no case of Hodgkins lymphoma.

Conclusion

Lymphadenopathy due to non-neoplastic causes is more common than neoplastic causes. Tuberculosis is one of the most common causes giving rise to lymphadenopathy. Metastatic involvement of lymph nodes is more common than primary lymphomas. Attention to clinical details is important for evaluation of all cases of lymphadenopathy.

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