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Original Research Article

An Observational Retrospective Study to Assess the Cytomorphology of Enlarged Lymph Nodes to Aid in Diagnosis and Treatment

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Abstract

Aim: The aim of the present study was to assess the cytomorphology of enlarged lymph nodes to aid in diagnosis and treatment.

Methods: This was a retrospective study conducted in the Department of Pathology, Nalanda Medical College and Hospital, Patna, Bihar, India and a total of 200 patients including all age groups and both sexes presenting with palpable or deep lymph nodes in FNAC clinic of our institute over a period of 1 year are included in our study.

Results: The age of patient's ranges from 1 year to 80 years among 200 cases maximum cases were recorded in the age group of less than 20 years i.e. 80 (40%) cases followed by 21-40 years of age i.e. 68 (34%) cases. In the present prospective study total, no of 200 patients with palpable lymph nodes were studied among them 104 (52%) were females & 96 (48%) were males. The category of lymph node lesions on cytomorphology are as follows - Caseating granulomatous lymphadenitis (90 cases), Reactive lymphadenitis (70 cases), Suppurative granulomatous lymphadenitis (18 cases), Suppurative lymphadenitis (12 cases), Metastatic squamous cell carcinoma (3 cases), Metastatic adenocarcinoma (2 cases), Non Hodgkin lymphoma (2 cases), Hodgkin lymphoma (1 case), Kikuchi lymphadenitis (1 case), BCG lymphadenitis (1 case).

Conclusion: FNAC Lymph node emphasizes on diagnosing inflammatory treatable conditions and malignant neoplastic conditions, there by guiding the patients for early intervention. Diagnosis of both Inflammatory and Neoplastic lesions can be done by Lymph node FNAC effectively. Also cost effectiveness and ease of the procedure makes FNAC increases patient compliance. A larger sample and longer period of study are required for better representation of community. FNAC is the most suitable diagnostic method for early diagnosis, better management.

Keywords: cytomorphology, enlarged lymph nodes, diagnosis, treatment

Introduction

Enlargement of the lymph node known as lymphadenopathy and inflammation of the lymph node known as lymphadenitis. [1]

Lymphadenopathy is one of the commonest clinical presentations of all age groups attending out-patient departments (OPD). The etiology can vary from an inflammatory process to a malignant condition. Most common tool used in the present day is Fine needle aspiration cytology. FNAC is used routinely as a first line of investigation in the evaluation of patients with lymphadenopathy. [2] It is a simple, safe, reliable, rapid and inexpensive method of establishing the diagnosis of lesions and masses in various sites and organs. [3] Lymph node aspiration is of great value for the diagnosis of lymphadenitis, lymphomas and metastatic carcinoma. Lymph nodes aspirates are usually cellular and interpretation from them varies from clear diagnosis to a firm request for histopathology. [4]

FNAC is cost effective, relatively less traumatic, and helps the pathologist to provide the clinician with a diagnosis in a short time, and hence is ideal especially for OPD patients.[5] Lymphadenopathy is a common clinical entity. The diagnosis of the cause underlying the enlarged lymph nodes enables the clinician to plan appropriate management for each patient. [5,6] Enlarged superficial lymph nodes are easily evaluated by FNA technique and hence FNAC forms an important diagnostic tool. While histopathological evaluation of surgically excised

lymph nodes is a more specific and accurate diagnostic parameter, it is relatively more costly, time consuming and discomforting to the patient, and may not be indicated in every patient. FNAC is more cost effective and relatively non - invasive. FNAC evaluation may prevent a patient to undergo unnecessary surgery and treating patients with conservative therapy. [7-9]

Increased lymph flow causes swelling of LNs in response to debris, neutrophils, or macrophages to clear them. [10] Lymphadenopathy (LA) is a clinical condition where the LNs can be enlarged, common in life-threatening malignancies or severe infections. [11] Size of LN can be the common criteria to be considered along with age, gender, organomegaly and so on. These can give a clue to the pathologists for the differential diagnosis of benign and malignancy. [11] Fine Needle Aspiration Cytology (FNAC) is a simple, inexpensive and rapid diagnostic technique. This is usually practiced in the outpatient ward to find the cause for the superficial LA. [12]

The aim of the present study was to assess the cytomorphology of enlarged lymph nodes to aid in diagnosis and treatment.

Materials and Methods

This was a retrospective study conducted in the Department of Pathology, Nalanda Medical College and Hospital, Patna, Bihar, India and a total of 200 patients including all age groups and both sexes presenting with palpable or deep lymph nodes in FNAC clinic of our institute over a period of 1 year are included in our study. FNAC was conducted with 22-24 Gauge disposable needles attached to 20c.c syringes. Smears were fixed in 95% ethyl alcohol and stained with papanicolau stain. Giemsa stain was done on air dried smears. Ziehl-Neelsen(ZN) staining was done wherever required.

Inclusion Criteria

1. All age group patients with enlarged lymph nodes.

2. Lymph nodes of any sites and any size are included.

Exclusion Criteria

1. Inadequate sampling

Statistical Analysis

Data obtained were tabulated and expressed as percentages and proportions.

Results

Table 1: Age wise and gender wise distribution

Age groups in years	N	%
0-20	80	40
21-40	68	34
41-60	30	15
61-80	22	11
Gender		
Male	96	48
Female	104	52

The age of patients ranges from 1 year to 80 years among 200 cases maximum cases were recorded in the age group of less than 20 years i.e. 80 (40%) cases followed by 21-40 years of age i.e. 68 (34%) cases. In the present prospective study total, no of 200 patients with palpable lymph nodes were studied among them 104 (52%) were females & 96 (48%) were males.

Table 2: Distribution of various lymph node lesions on cytology smears

Lymph node lesions Granulomatous lymphadenitis	Total number of cases	Percentages
Caseating	90	45
Suppurative	18	9
Suppurative lymphadenitis	12	6
Reactive lymphadenitis	70	35
Lymphomas Hodgkin lymphoma	1	0.5
Non Hodgkin lymphoma	2	1
Metastatic carcinomas Squamous cell carcinoma	3	1.5
Adenocarcinoma	2	1
Kikuchis disease	1	0.5

BCG lymphadenitis	1	0.5
Total number of cases	200	100

The category of lymph node lesions on cytomorphology are as follows - Caseating granulomatous lymphadenitis (90 cases), Reactive lymphadenitis (70 cases), Suppurative granulomatous lymphadenitis (18 cases), Suppurative lymphadenitis (12 cases), Metastatic squamous cell carcinoma (3 cases), Metastatic adenocarcinoma (2 cases), Non Hodgkin lymphoma (2 cases), Hodgkin lymphoma (1 case), Kikuchi lymphadenitis (1 case), BCG lymphadenitis (1 case).

Discussion

Lymph nodes (LNs) are small oval-shaped organs in the lymphatic system, distributed throughout the body. [12-14] These can form secondary lymphoid tissue, releasing B and T lymphocytes, the most important defence system in our body. LNs collect and destroy various foreign materials and microbial populations from the lymph. [12] Increased lymph flow causes swelling of LNs in response to debris, neutrophils, or macrophages to clear them. [11]

The age of patient's ranges from 1 year to 80 years among 200 cases maximum cases were recorded in the age group of less than 20 years, i.e. 80 (40%) cases followed by 21-40 years of age i.e. 68 (34%) cases similar to the observation of Gupta et al (52.26%). [15] The lesions of lymph nodes were seen to be indifferent age group i.e. in our study the youngest patient was 1 year old with the oldest one of 78 years of age which is at par with the study carried out by Tilak V et al. [16] The overall lesion was slightly common in females 108(52.68%) in comparison to males 97(47.32%) showing a female predominance a finding compared with the study conducted by Patro et al [17] and Smitha P Bhide et al. [18] In the present prospective study total, no of 200 patients with palpable lymph nodes were studied among them 104 (52%) were females & 96 (48%) were males. The category of lymph node lesions on cytomorphology are as follows - Caseating granulomatous lymphadenitis (90 cases), Reactive lymphadenitis (70 cases), Suppurative granulomatous lymphadenitis (18 cases), Suppurative lymphadenitis (12 cases), Metastatic squamous cell carcinoma (3 cases), Metastatic adenocarcinoma (2 cases), Non Hodgkin lymphoma (2 cases), Hodgkin lymphoma (1 case), Kikuchi lymphadenitis (1 case), BCG lymphadenitis (1 case). In our study, predominantly caseating granulomatous lymphadenitis followed by reactive lymphadenitis seen. The similar results were seen in other studies like Ameya Gamechu et al [19] and Sachin A badge et al. [20] Vimal S et al [21] conducted a study titled Cytomorphological study of lymph nodes lesions on 187 patients: Reactive lymphadenitis was the most frequent observation in 33.69%. The second most common finding seen in these patients included was tubercular lymphadenitis followed by metastatic lesions, acute suppurative lymphadenitis and lymphomas.

A study by Sadia Siddiqa Nasser et al., showed that out of 110 cases study showed 110 cases, majority were tubercular (53.6%), followed by reactive (27.1%), suppurative (6.4%) lymphadenitis, lymphoma (4.5%), cystic lymphoid hyperplasia (2.8%), metastases (1.9%), cryptococcal lymphade nitis (0.9%). The age ranged from 6 to 70 years, majority falling in 4th and 5th decade, male preponderance was found (male-to-female ratio was 1.75: 1) and cervical lymphnodes were most commonly affected. In our study inflammatory lesions were more common in males <40years of age. Metastatic lesions and primary lymphomas were seen in females more than 48 years. Among the various screening tests for tuberculosis like CBNAAT, FNAC and radiodiagnosis, FNAC is cost effective, efficient in arriving at early diagnosis. [22]

conclusion

FNAC Lymph node emphasizes on diagnosing inflammatory treatable conditions and malignant neoplastic conditions, there by guiding the patients for early intervention. Diagnosis of both Inflammatory and Neoplastic lesions can be done by Lymph node FNAC effectively. Also cost effectiveness and ease of the procedure makes FNAC increases patient compliance. A larger sample and longer period of study are required for better representation of community. FNAC is the most suitable diagnostic method for early diagnosis, better management.

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