

Cytomorphological Spectrum of Enlarged Lymph Nodes

¹Dr Sanjay R. Talwelkar, Associate Professor, Department of Pathology, P.D.U. Medical College, Rajkot

²Dr Manisha K. Chaudhary, 3rd year resident doctor, Department of Pathology, P.D.U. Medical College, Rajkot

³Dr Rushang Dave, Senior Resident Doctor, AIIMS, Rajkot

⁴Dr.Gauravi Dhruva, Professor and Head, Department of Pathology, P.D.U. Medical College, Rajkot

Corresponding Author: Dr Manisha K. Chaudhary, 3rd year resident doctor, Department of Pathology, P.D.U. Medical College, Rajkot

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Abstract

Introduction: Fine Needle Aspiration cytology is a simple, cost effective, rapid and reliable technique to diagnose suspected and unsuspected secondary and primary lymph node malignancy.

One of the most common clinical presentations of patients in the outpatient department is enlarging lymph nodes. Lymphadenopathy is a serious clinical condition with a variety of causes ranging from viral diseases to malignant neoplasms.

To determine the diagnosis, any lymph node larger than 1 cm can be aspirated.

Objectives of Study

To study more about the cytomorphology of enlarged lymph nodes and how it can help with diagnosis and treatment.

Materials and Methods: This is a study with 267 cases of lymph node lesions. Clinical data and FNAC of lymph node cytology reports were obtained from the period of January 2021 to till date.

Results:A total of 267 cases were evaluated in this investigation. Patients ranged in age from 4 to 72 years old. Out

of the 267 cases, 95 were diagnosed with Koch's lymphadenitis, followed by 75 cases with Reactive lymphadenitis, 50 cases with Suppurative granulomatous lymphadenitis, 21 cases with Metastatic squamous cell carcinoma, 06 cases with Metastatic adenocarcinoma, 17 cases with Non Hodgkin lymphoma, 3 case with Hodgkin lymphoma.

Conclusion:FNAC Lymph Node focuses on detecting inflammatory curable illnesses as well as malignant neoplastic disorders, allowing patients to receive early treatment.

Keywords: FNAC, FNA, lymphoma,

Introduction

Fine Needle Aspiration Cytometry (FNAC) is a simple, quick, cost-effective, and dependable approach. In a routine outpatient department (OPD), this procedure can be employed as a first-line examination.

Lymphadenopathy is a clinical condition with a variety of causes ranging from viral diseases to malignant neoplasms.

The first line of examination for enlarging lymph nodes is usually fine needle aspiration. Greater than 1 cm to 2 cm in adult lymph nodes is cause for concern unless the cause can be elicited clinically. The lymph nodes that have become engorged should be aspirated. Although FNA is an

acceptable method of diagnosis in children, lymphadenopathy in children and young people is primarily caused by reactive lymphadenitis. As a result, lymph nodes in children and the young are mostly monitored rather than aspirated unless the lymph node is exceedingly large and persistent.

The use of FNAC in the examination of cervical lymph nodes is very beneficial. In most situations, biopsies of cervical lymphadenopathy can be avoided until all other diagnostic options have failed to establish a diagnosis.

Objectives of Study

To study the Cytomorphology of enlarged Lymph Nodes to aid in diagnosis and treatment.

Materials and Methods

This is a study that covered all age groups and both sexes who presented with palpable or deep lymph nodes at our institute's cytology department room number 13.

FNAC was performed with disposable needles of 22-24 gauge linked to 20cc syringes.

Smears were stained with papanicolau stain after being fixed with 95 percent ethyl alcohol.

On air dried smears, Giemsa stain was applied.

Wherever it was necessary, Ziehl-Neelsen (ZN) stain was used to rule out Koch's lymphadenitis.

Place of study: P.D.U. Medical College and hospital, Rajkot.

Sample size: 267 cases.

Inclusion criteria

1. All age group patients with enlarged lymph nodes.
2. Lymph nodes of any sites and any size are included.
- 3.4. Exclusion criteria

1. Inadequate sampling

Statistical analysis: Data obtained were tabulated and expressed as percentages and proportions. Does the study require any investigations or interventions to be conducted on patients or other humans or animals? No.

Results

In this study a total of 267 cases were reported during Jan 2021 to till date. The age of the patients ranged from 4 years to 72 years with median age group of 38 years.

The category of lymph node lesions on cytomorphology are as follows –

1. Koch's lymphadenitis (95 cases)
2. Reactive lymphadenitis (75 cases)
3. Suppurative granulomatous lymphadenitis (50 cases)
4. Metastatic squamous cell carcinoma (21 cases)
5. Metastatic adenocarcinoma (06 cases)
6. Non Hodgkin lymphoma (17 cases)
7. Hodgkin lymphoma (03 case)

Table 1: Distribution of various lymph node lesions on cytology

Lymph Node Lesions	Total Number of Cases	(%)
Granulomatous lymphadenitis		
Koch's lymphadenitis	95	35.58
Suppurative	50	18.72
Reactive lymphadenitis	75	28.08
Lymphomas		
Hodgkin lymphoma	3	1.16
Non Hodgkin lymphoma	17	6.36
Metastatic carcinomas		
Squamous cell carcinoma	21	7.86
Adenocarcinoma	06	2.24
Total number of cases	267	100

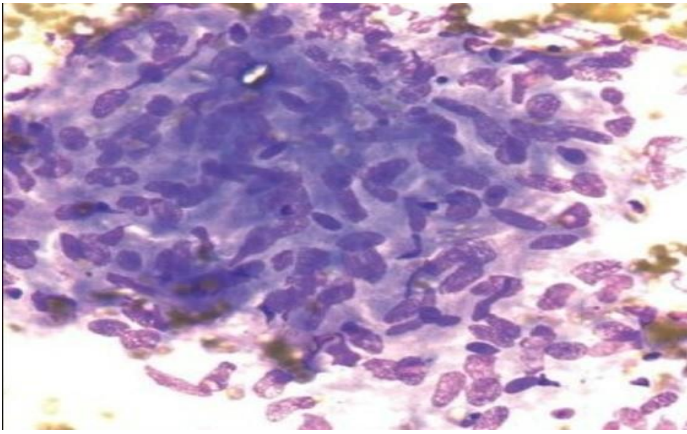


Fig. 1: Photomicrograph showing epithelioid cell granuloma admixed with mature lymphocytes suggestive of Granulomatous lymphadenitis. H&E stain

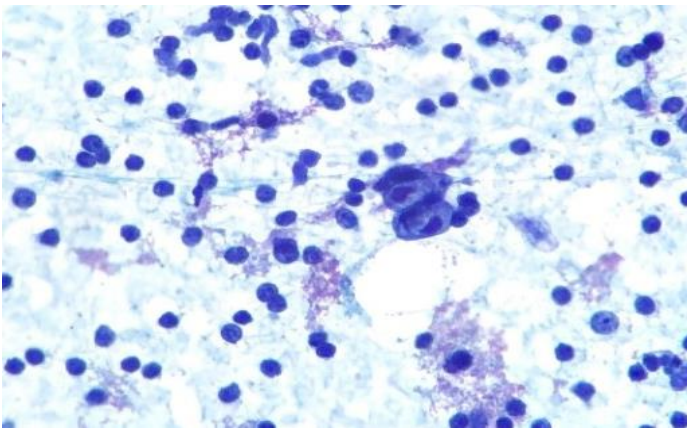


Fig. 2: Photomicrograph showing polymorphous population of lymphoid cells reed sternberg cells suggestive of Hodgkin's lymphoma

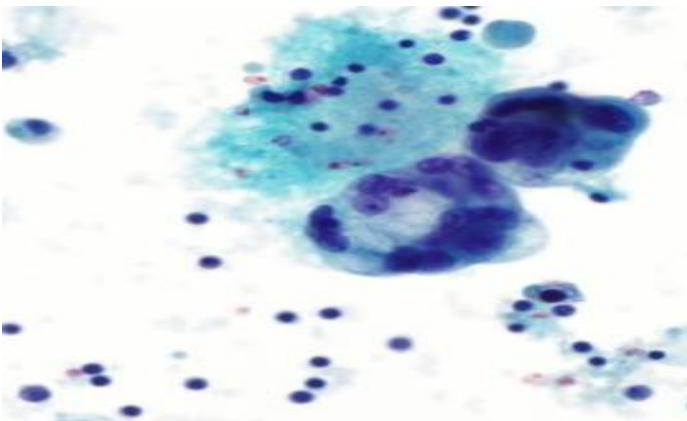


Fig. 3: Photomicrograph showing clusters of large atypical cells arranged in glandular pattern suggestive of metastatic adenocarcinoma. H&E

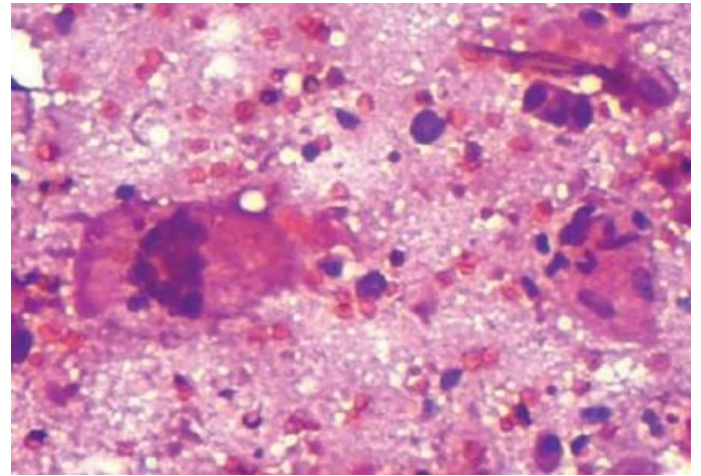


Fig. 4: Squamous cell carcinoma metastasis. Photomicrograph showing dyscohesive clusters of malignant squamous cells showing nuclear atypia. H&E

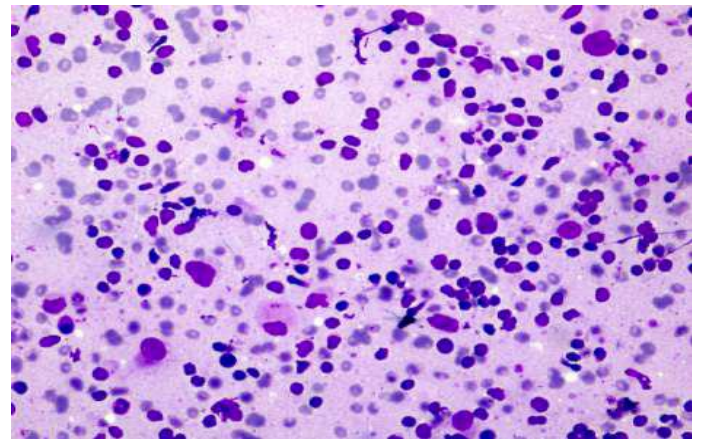


Fig. 5: Photomicrograph showing monomorphous neoplastic small lymphocytes with scant cytoplasm and bare nuclei suggestive of NON-Hodgkin's Lymphoma. Geimsa

Discussion

Tubercular lymphadenitis is one of the most common and serious health problems in underdeveloped countries, requiring an effective treatment programme before it spreads to epidemic proportions.

Both immunocompromised and immunocompetent people can get mycobacterial infections. FNAC is particularly effective for early and accurate diagnosis in places where mycobacterial infection is prevalent, although its accuracy may be reduced in non-endemic locations.

Tubercular lymphadenitis is characterised by granulomas with or without necrosis, or necrosis alone, as well as other cells such as histiocytes, neutrophils, intracellular or extracellular bacilli. Sarcoidosis, granulomatous lymphadenitis caused by other organisms and lymph node infarction should all be ruled out. Reactive lymphadenitis is a non-specific kind of lymphadenopathy that can occur as a result of a variety of factors. Children and young adults are the most typically affected. Small lymphocytes, plasmacytoid lymphocytes, centrocytes, centroblasts, immunoblasts, palpable body macrophages, dendritic cells, and other inflammatory cells make up the cytomorphology of reactive hyperplasia. The typical features of the neoplastic cell cytomorphology collected from aspirates can be used to diagnose metastasis to the lymph node. In rare circumstances, the original tumour may be undetectable. FNAC can be helpful in detecting the main tumour in certain cases.

All cancers, including carcinomas, melanomas, germ cell tumours, and sarcomas, can spread to lymph nodes, with carcinomas being the most prevalent. Large cell carcinomas, nasopharyngeal carcinomas, melanoma, seminoma / germinoma, and sarcomas all have cytological traits.

Caseating granulomatous lymphadenitis was the most common type of lymphadenitis seen in our investigation, followed by reactive lymphadenitis. In a study titled Cytological investigation of lymph node lesions on 187 individuals, reactive lymphadenitis was the most common finding in 33.69 percent of the cases.

Tubercular lymphadenitis was the second most prevalent finding in these individuals, followed by metastatic lesions, acute suppurative lymphadenitis, and lymphomas.

In another study investigated the cytological pattern of lymph node disorders. It was a retrospective descriptive

study that took place over a five-year period. Tubercular lymphadenitis was shown to be the most common type of lymphadenitis, followed by chronic non-specific lymphadenitis, Reactive lymphadenitis, pyogenic abscess, and malignancies.

In the other study in Ahmedabad with a prospective analysis of 310 cases with lymph node FNACs. Tubercular lymphadenitis was the most common cause, followed by Granulomatous lymphadenitis and Reactive hyperplasia, according to this study.

FNAC in the diagnosis of lymph node malignancies: a simple and sensitive method was studied. This was a 50-case cross-sectional research conducted at the B.J. Medical College, Ahmedabad. The majority of metastases to lymph nodes (45/50) and a few lymphoma (5/50) cases were found in this investigation.

Conclusion

FNAC Lymph node focuses on detecting inflammatory curable illnesses as well as malignant neoplastic conditions, allowing patients to receive early treatment.

Lymph node FNAC is capable of accurately diagnosing both inflammatory and neoplastic lesions. FNAC also promotes patient compliance due to its cost effectiveness and convenience of use. 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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