



CYTOMORPHOLOGICAL STUDY OF LYMPH NODE LESIONS IN A TERTIARY CARE CENTRE OF SOUTHERN RAJASTHAN

Pathology

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ABSTRACT

Introduction: As components of peripheral or secondary lymphoid organs, lymph nodes are an important part of immune system. Their enlargement is noted in a wide spectrum of diseases, including infections and malignancies, they are a common finding in clinical practice. Therefore, peripheral lymphadenopathy is common in all age groups and management of cases depend on lymph node pathology, which can be studied by collecting material through fine-needle aspiration or excision biopsy. **Objectives:** The study was undertaken to assess the cytomorphological features and incidence of various lymph node diseases on fine-needle aspiration cytology (FNAC) and to analyze the utility and diagnostic importance of FNAC in lymph node diseases. **Materials And Methods:** In the study a total of 150 patients were selected who had presented with lymph node enlargement at the Department of Pathology in our Tertiary Care Centre. **Results:** Reactive lymphoid lesions comprised the majority (44.67%) followed by tubercular lymphadenitis, metastatic malignancies, acute suppurative lymphadenitis, and lymphomas, respectively. **Conclusion:** Reactive lymphoid and tubercular lesions were the most common among the lymph node swelling presentations. FNAC is a simple, safe, reliable, and inexpensive method in early detection of lymph node lesions, which has been proven once again in this study.

KEYWORDS

Fine-needle aspiration cytology, lymph node, Reactive- lymphadenitis

INTRODUCTION

Lymph nodes are an integral component of the immune system and are a common presentation in the clinical practice (9). Lymphadenopathy (LAP) being a common problem in children, for the paediatricians, evaluation of a child with enlarged lymph nodes is a common clinical scenario (15,16). Lymph nodes are the most widely distributed and easily accessible component of lymphoid tissue (17). Aspiration of lymph nodes for diagnostic purpose was first reported in 1904 by Grieg and Gray in the diagnosis of trypanosomiasis (10). LAP is often caused by infectious diseases, but can also be seen in malignancies, autoimmune diseases, and chronic inflammatory processes. Malignancies that present with LAP may be primary or metastasis (5). Tuberculosis is an important and frequent cause of cervical lymphadenopathy and is more prevalent in low-income countries (13).

MATERIALS AND METHODS

This study was carried out in the Department of Pathology at RNT Medical college, MB Hospital, Udaipur. This was a prospective study conducted over a period of one year, and a total of 150 cases of lymphadenopathy of varied etiologies were considered. To study the various cytomorphological features of neoplastic and nonneoplastic lesions of lymph nodes by FNAC in patients presenting with lymphadenopathy and to determine the incidence of various lymph node diseases among them.

A detailed clinical history along with general physical examination was done for each patient. FNAC procedure was performed using a 22-24-gauge needle. Smears were stained with May-Grunwald Giemsa (MGG) stain. All cases revealing granuloma/necrosis were further evaluated with Ziehl-Neelson (ZN) staining to rule out any acid-fast bacilli (AFB).

All cytological smears were evaluated based on adequacy, cellularity, type of cells, arrangement of cells and nuclear as well as cytoplasmic features. The smears, which were hemorrhagic or with scanty cellularity to the extent that diagnosis could not be offered were labelled as inadequate for opinion.

RESULTS

A total of 150 aspirates were obtained, out of which 88 were males and 62 females. Male, female ratio M:F=1.4:1 ratio.

The First table shows Age wise distribution of patients of lymphadenopathy. The age group of the patients was from 1 year to 90 years. The maximum incidences of cases were seen in the age group of first decade 36 (24%) and second decade 27 (18%) cases respectively followed by minimum cases in the eighth decade 8 (5.33%) and sixth decade 10 (6.67%).

Table:1 Age Wise Distribution Of Patients Of Lymphadenopathy

Age group (years)	Number of cases(150)	Percentage(%)
1-10	36	24%
11-20	27	18%
21-30	22	14.67%
31-40	20	13.33%
41-50	12	8%
51-60	10	6.67%
61-70	15	10%
>71	8	5.33%

The second table shows Lymph nodes of varying sizes were subjected to FNAC. The smallest lymph node measured 0.5 cm and the largest one measured 5 cm in maximum dimensions. Maximum cases of lymphadenopathy 90 (60%) ranged from 1-2 cm. minimum cases 10 (6.66%) ranged 0.5-1 cm.

Table:2 Size Of Lymphadenopathy

Size of lymph nodes	Number of cases(150)	Percentage(%)
0.5-1cm	10	6.66
1-2cm	90	60
>2cm	50	33.33

The Third table shows the most common group of lymph nodes aspirated which as follows were cervical (66.67%), followed by submandibular (9.33%), supraclavicular (8%), inguinal (6%), axillary (4.67%), post auricular (3.33%), and submental (2%) respectively.

Table:3 Site Of Lymphadenopathy

Site	Number of cases	Percentage%
Cervical	100	66.67
Submandibular	14	9.33
Supraclavicular	12	8
Inguinal	9	6

Axillary	7	4.67
Post auricular	5	3.33
Submental	3	2

The fourth Table shows cytological diagnosis made in 150 cases. Of the 150 cases, 67 cases (44.67%) were diagnosed as reactive hyperplasia, followed by 45 cases (30%) of tubercular lymphadenitis, Necrosis was seen in 15 cases (33.33%). Granulomas were seen in a total of 25 cases (55.55%) 20 cases (13.33%) were of metastatic malignancy, 15 cases (10%) of acute suppurative lymphadenitis and a minimum of 3 cases (2%) of lymphoma (two cases of NHL and a single case of HL) were also noted. The single case of Hodgkin's disease was an elderly male and showed Reed-Sternberg cells and Hodgkin cells against a background of reactive components such as eosinophils, plasma cells and benign histiocytes.

Tabl:4 Diagnosis On FNAC

S. NO.	Etiology	Total Number	Percentage (%)
1.	Reactive hyperplasia	67	44.67
2.	Tuberculosis	45	30
3.	Metastasis	20	13.33
4.	Abscess or Suppurative lymphadenitis	15	10
5.	Lymphoma	3	2

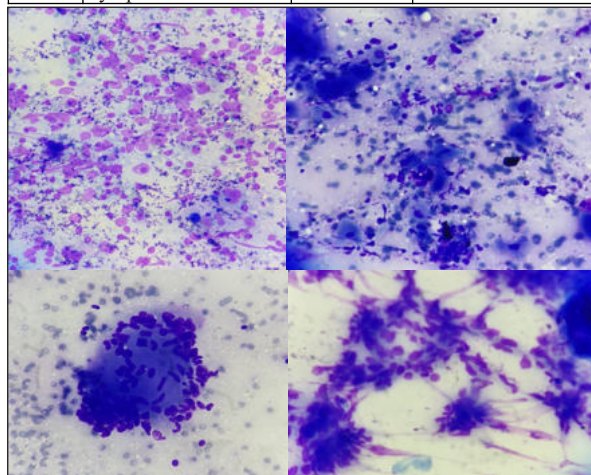


Figure 1. FNAC smear showing Hodgkin lymphoma (MGG 40X)

Figure 2. FNAC smear showing Squamous cell carcinoma (MGG 40X)

Figure 3. FNAC smear showing Epithelioid Granuloma in tuberculosis (MGG 40X)

Figure 4. FNAC smear showing Adenocarcinoma (MGG 40X)

DISCUSSION

FNAC is a simple, safe, reliable, rapid, and inexpensive method of establishing the diagnosis of lesions and masses in various sites and organs. Lymph node aspiration is of great value in diagnosing lymphadenitis, lymphomas, and metastatic carcinomas Vimal et al.

In our study there was a male predominance (M:F= 1.4:1) which is similar to the other studies, Vimal et al, Akhter et al and dissimilar to other studies where there was a female predominance Pradeep kajal et al, das et al. In the present study age of the patient ranged from 1 to >70 years, was similar to study done by Badge S A et al, Rupali bargotra, Maximum cases 63 (42%) in were age group (1-20 year), similar to Akhter et al study and other studies present maximum cases in the age group (21-30 year) Badge S A et al, Chandanwale et al. In our study 78% cases were in the age group (1-50 year) similar to Badge S A et al study. In the present study, the smallest lymph node measured 0.5 cm and the largest one measured 5 cm in maximum dimension. Most of the lymph nodes 90 (60%) ranged between 1 and 2 cm. Similar findings were observed by Vimal et al.

In our study reactive hyperplasia was the most common cytological diagnosis 67 cases (44.67%). A similar finding was observed with vimal S et al, Pradeep kajal et al, Akhter et al, Sharma etc while tubercular lymphadenitis observed most common finding in other studies Pandav et al, Kocher et al and Ruchi et al. followed by tuberculosis 45 cases (30%) in our study and Majority of the patients

were of age <40 years having granulomatous lymphadenitis 45 cases (30%) in our study, similar age distribution was found in Badge S A et al, Hemlata et al and Ng et al, Pradeep Kajal et al, Lakhy et al, Badge S. A. followed by metastasis 20 cases (13.3%) in our study, similar to Patel et al and Ghantinger et al where Metastatic deposits were 27.6% cases, 18% cases. Squamous cell carcinoma, Adenocarcinoma were the most common metastasis in our study, similar to observed by Badge S. A. Suppurative lesion were 15 cases (10%) in our study similar to Vimal et al study. Least common was lymphoma 3 cases (2%) Similar to Khajuria et al, Vimal, Annam, Khan, Badge et al.

Cervical lymph nodes were the most common group 100 cases (66.67%) which was similar to that observed by Akhter et al, Hirachand et al, Khajuria et al, and Chandanwale et al. followed by submandibular site 14 cases (9.3%) and supraclavicular site 12 cases (8%) were similar to that observed by Pradeep Kajal et al, less common involvement was of the submental site 3 cases (2%) In our study.

CONCLUSION

A team work with close cooperation between different specialties is very important for proper speedy diagnosis and management of lymphadenopathy. FNAC has been yet again proved as an inexpensive and reliable diagnostic tool. It is ideal for the clinical set up in developing countries for the first line of investigation for lymphadenopathy at an approachable site. This will help in avoiding unnecessary invasive procedures. FNAC helps in diagnosing neoplastic and metastatic lesions. It not only confirms the presence of metastatic disease but also, in most cases, gives the clue regarding the origin of the primary tumor.

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Conflicts Of Interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

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