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Cytomorphological Spectrum of Lymphnode Lesions

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Abstract

Introduction: 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 [1,2]. 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. Enlarged lymphnodes are always not neoplastic which require surgical intervention. Non neoplastic lymphnodes are easily treated by conservative means.

FNAC evaluation may prevent a patient to undergo unnecessary surgery and treating patients with conservative therapy [3,4,5]. Moreover, FNAC is more cost effective, relatively noninvasive, simple procedure This study was done to identify the causes of lymphadenopathy amongst patients referred for FNAC evaluation of enlarged lymph nodes to the laboratory of our hospital. The purpose of our study was assessment of various peripheral lymphadenopathy through FNAC. The study highlights the cytomorphological spectrum of lymph node lesion.

Keywords: Cytomorphological, Lymphadenopathy, FNA technique, Hematoxylin

Aims and Objectives

1. To study cytomorphological pattern of lymphnode lesions.
2. To categorize lymphnodes into neoplastic and non-neoplastic
3. To study age and sex predilection of various lymphnode lesions.

Materials and Methods

Type of study: This was a retrospective study using existing patient's data obtained from the records of the Department of Pathology, SSG Hospital.

Duration: During the period 01 August 2023 to 31 march 2024, a total of 149-patients were referred to the cytopathology department of the SSG hospital for FNAC evaluation of superficial enlarged lymph nodes, which were either single or multiple.

Inclusion criteria: The aspirate from the patients having lymphadenopathy were included in study.

Exclusion Criteria: The smears which are scantily cellular where no opinion can be given were excluded.

Data collection procedure: After taking clinical history& patients consent with all aseptic and antiseptic precautions, FNAC of enlarged lymph node(s), using a 22 or 23-gauge needle & 10 cc disposable syringe was done. Smears were prepared on clean glass slides and the smears either wet fixed by immersing the slides in 95% methanol or air dried. Where aspirate was scanty, all slides were wet - fixed only. Wet fixed smears were stained by Hematoxylin and Eosin (H and E) and Papanicolaou's (Pap) stains. Air dried smears were stained by Giemsa stain. All slides after staining were mounted using standard coverslips and then are analyzed by standard microscopy.

Result

Table 1:

Site of lymphnode	number of patients	% of cases
Cervical	106	71.14
Axillary	14	9.41
Submandibular	11	7.38
Submental	5	3.35
Supraclavicular	3	2.01
Inguinal	10	6.71

Age and sex wise distribution of cases

Table 2:

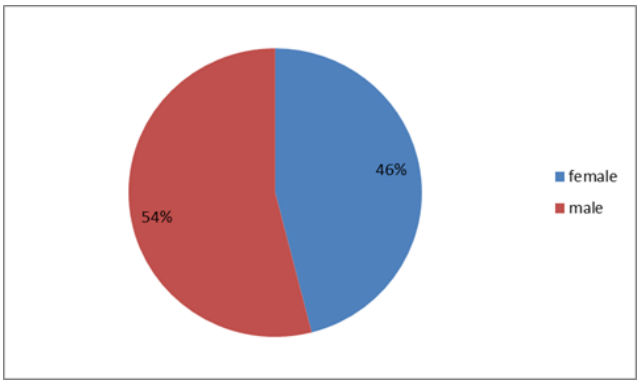
Age group	Male	Female	No of cases	percentage
0-10 yrs	8	7	15	10.07 %
10-20 yrs	5	19	24	16.1%
20-30 yrs	12	25	37	24.85%
30-40 yrs	12	17	29	19.46%
40-50 yrs	8	7	15	10.07%
50-60 yrs	9	6	15	10.06%
60-70 yrs	9	1	10	6.71%
70-80 yrs	4	-	4	2.68%

Age wise distribution of lymphnode lesions

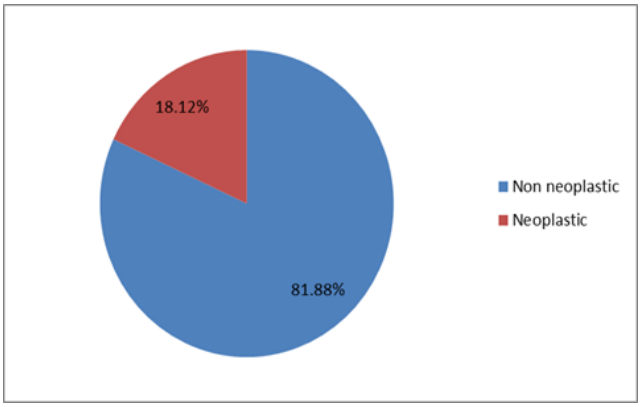
Table 3:

Age group	Non neoplastic	Neoplastic	Total	Percentage
0-10 yrs	14	1	15	10.07 %
10-20 yrs	23	1	24	16.1%
20-30 yrs	36	1	37	24.85%
30-40 yrs	27	2	29	19.46%
40-50 yrs	11	4	15	10.07%
50-60 yrs	6	9	15	10.06%
60-70 yrs	3	7	10	6.71%
70-80 yrs	2	2	4	2.68%
Total	122	27	149	100 %

During this study period, A total of 149 aspirates were obtained from the patient with lymphadenopathy. The maximum incidence of cases occurs in age group of 20-30 years. Among 149 cases, 82 cases (55%) were females and 67 cases (45%) were males (table 2). A female preponderance were noted with a male to female ratio of 0.8:1.The female preponderance was high in 3rd decade whereas male preponderance were noted in 5th and 6th decade. The most common group of lymphnode involved in our study was cervical 71.14% followed by axillary group of lymphnode in 9.41% cases (table 1) Among 149 cases, 122 cases(81.8%) were Non-Neoplastic lesions and 27 cases(18.1%) were Neoplastic lesions(Table-3).Non-Neoplastic lesions were commonly seen in 3rd decade and Neoplastic lesions were seen in 4th and 6th decade(Table-3).



Graph 1:



Graph 2:

Cytomorphological Pattern of Non neoplastic lesions

Table 4:

Non neoplastic lesions	Total cases	Percentage
Tuberculous lymphadenitis	48	39.34 %
Reactive lymphadenitis	26	21.31 %
Granulomatous lymphadenitis	19	15.57%
Supurative lymphadenitis	12	9.85 %
Non Specific lymphadenitis	15	12.29 %
Others 1) Rosai dorfman	1	0.82%
2) kikuchi lymphadenitis	1	0.82%
3) Benign spindle cell lesion	2	1.64%

Table 5:

Neoplastic lesions	No of cases	percentage
Hodgkin's lymphoma	1	3.7%
Non hodgkins lymphoma	2	7.4 %
Epithelial malignancy	3	11.1 %
Metastatic epithelial malignancy	19	70.4%
Malignant Spindle cell tumor	2	7.4%

Among 122 cases non neoplastic lesions Tuberculous lymphadenitis was the most common occurance (39.34 %) followed by reactive lymphadenitis (21.31%) and granulomatous lymphadenitis (15.57%) (Table 4). Among neoplastic lesions metastatic epithelial malignancy is the commonest occurance being 12.75%, Non hodgkin's lymphoma and malignant spindle cell tumor to be of 7.4% and hodgkins lymphoma being 3.7% (table 5)

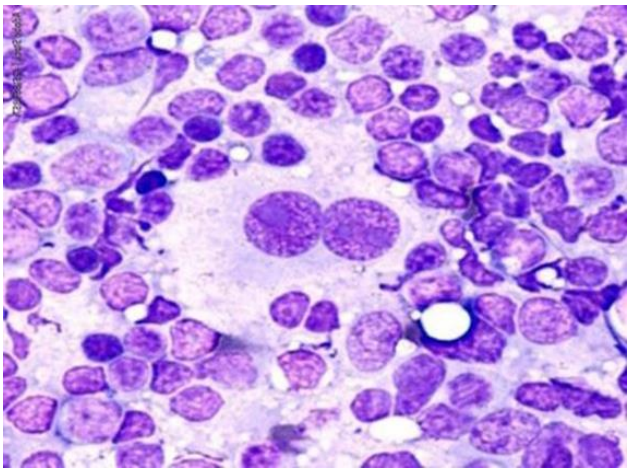


Figure 1: Hodgkin's Lymphoma showing node Reed Sterberg cell (Geimsa, ×40).

Squamous cell carcinoma

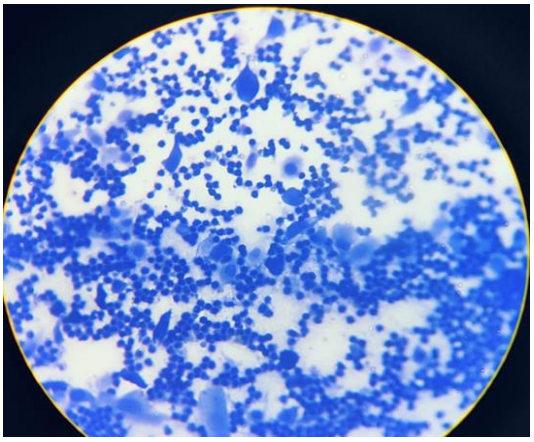


Figure 2: Metastatic epithelial malignancy showing squamous cell carcinoma (Giemsax40)

Small Cell Carcinoma

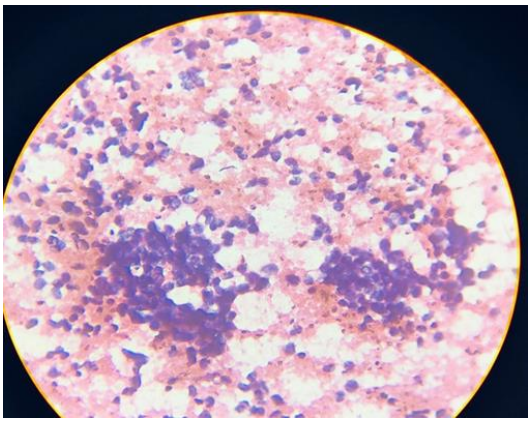


Figure 3: Metastatic epithelial malignancy showing Small cell carcinoma (Hematoxylin & eosin, x40)

NHL

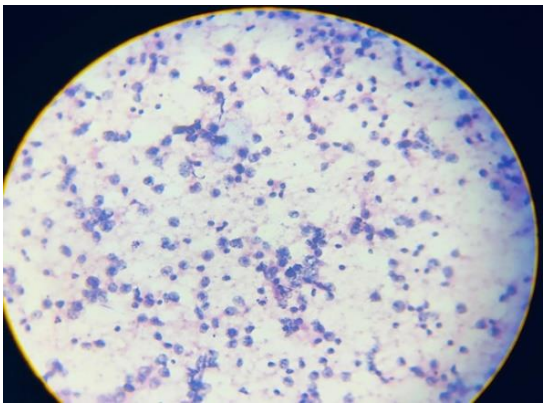


Figure 4: Non Hodgkin lymphoma (Hematoxylin & eosin, x40)

TB Lymphadenitis

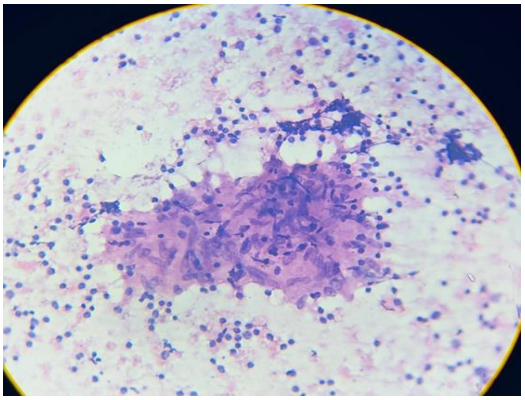


Figure 5: Granuloma in tuberculous lymphadenitis (Hematoxylin & eosin, x40)

Reactive Lymphadenitis

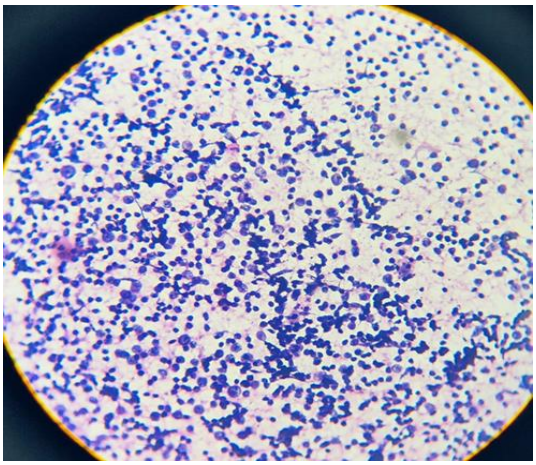


Figure 6: Reactive lymphadenitis (Hematoxylin & eosin, x40) Cytopathology section SSG Hospital Baroda Medical College

Discussion

The causes for lymphadenopathy is broadly classified as inflammatory, infectious, autoimmune and malignancy. Among the different group of lymphnode, cervical lymphnode is easily accessed by FNAC and therefore it plays a role in obtaining diagnosis. The surgical excision of lymphnode is simple but the procedure requires anesthesia exposure, sterile instruments and operation theatre. FNAC is simple, safe, reliable, inexpensive method and plays a major role in diagnosis the etiology of lymphnode

enlargement due to early availability of results, better patient compliance with minimal trauma.

Cytomorphological patterns obtained in this study were predominantly non neoplastic. In developing countries like India, the most common cause of lymphadenopathy usually is tuberculosis. In present study also we found tuberculosis is the most common cause of lymphadenopathy (32.2%) which is in concordance with study of priya et al (29.8%)[24], vimal et al (28.09 %)[18], patil et al (40.06%)[22].

The 2nd most common cause of lymphadenopathy was reactive lymphadenitis (17.4%) which is in concordance with priya et al (19%)[24], patel A.S et al (20.8%)[26], Gayathri et al (26.22 %)[19], Sharma et al (27.4%)[21]. The third common cause among non neoplastic lymphadenopathy was granulomatous lymphadenitis (12.75%). Close findings were seen in study by gayathri et al (14.7%)[19] and priya et al (16%)[24].

Among neoplastic lesions metastatic epithelial malignancy has the commonest occurance in our study (12.75%) which is in concordance with the study by priya et al (18.1%)[24],patil et al (16.4%)[22], patel A. S et al (8.8 %)[26], we found 1 case of hodgkins lymphoma out of total 149 cases (0.67 %) and 2 cases of non hodgkins lymphoma (1.34 %) in our study. This was similar with other studies i.e khajuria et al (0.8 %) and (1.2%) [25], patil et al (0.4%) and (1.6%)[22], priya et al (1.7%) and (1.5%)[24] for Hodgkin's lymphoma and Non hodgkin's lymphoma respectively.

Conclusion

FNAC is a convenient, relatively non – traumatic, safe, simple, cost effective and speedy method of diagnosing the underlying pathology in cases of superficial enlarged lymph nodes where biopsies are not needed routinely. We found that the majority of patients had tuberculous lymphadenitis, Reactive lymphadenitis is the second most common cause for lymphadenopathy. Cervical group of lymph nodes are most commonly involved followed by axillary lymphnodes.

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