



Pattern of Lymphadenopathy on Fine Needle Aspiration Cytology- A Retrospective Study

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Abstract

Introduction: Lymph nodes are the most widely distributed collections of lymphoid tissue within the lymphoreticular system. FNA is a simple and rapid diagnostic technique. The value of FNA also lies in giving early direction of appropriate investigation of the lesion.

Aim: To study the non neoplastic and neoplastic lesions of enlarged lymph nodes by FNAC in patients presenting with lymphadenopathy in the postgraduate department of pathology of Government Medical College, Jammu.

Material and Methods: In our study, all clinically diagnosed cases of lymphadenopathies who had come to the cytology section for FNAC over a period of 2 years from jan 2015 to dec 2016 were included. It was a retrospective study.

Result: During a period of 2 years, a total of 5400 cases were reported in the cytology section of GMC Jammu, Out of these 960 (17.8%) were lymph node aspiration cytology cases. Among these 960 Cases, 7(0.7) cases were atypical and excision biopsy was advised whereas 5 cases (0.5%) were inconclusive due to unsatisfactory smears. Out of 960 cases, 830 (86%) were non neoplastic whereas 118 (12%) were neoplastic cases. In the present study the lesion were seen in all the age groups ranging from 1.5 years to 80 years with a mean age of 44 years. The peak incidence was for non neoplastic lesions were seen between 10 to 20 years whereas peak age incidence for neoplastic lesion was seen age more than 60 years. Out of 960 cases, 534 cases(59%) were males and 414 cases were females.(43%)

Conclusion: The knowledge of pattern of lymphadenopathy in a given geographical area is essential for making a confident and definite diagnosis or suspecting a disease.FNA is a simple and rapid diagnostic technique for diagnosing benign as well as malignant lesion.

Keywords: Lymph node, FNAC, Reactive Lymphadenitis, Tuberculous Lymphadenitis.

Introduction

Lymph nodes are the most widely distributed collections of lymphoid tissue within the

lymphoreticular system. Due to their easy accessibility, they are most frequently examined lymphoid tissue. Enlarged lymph nodes are a

prime target for Fine needle aspiration. In adults lymph nodes greater than 1 to 2 cm are an immediate source of concern and unless the cause is evident enlarged lymph node should be aspirated. Although FNA is accepted in children also, lymphadenopathy in children and young adults is common and usually due to reactive hyperplasia; for this reason, it is often watched and not aspirated unless the node is large or persistent⁽¹⁾. FNA is a simple and rapid diagnostic technique. The value of FNA also lies in giving early direction of appropriate investigation of the lesion. Aspirates from lymph nodes are usually very cellular and their interpretation varies from clear diagnosis to firm request for histopathology. The knowledge of pattern of lymphadenopathy in a given geographical area is essential for making a confident and definite diagnosis or suspecting a disease.

Aim

To study the non neoplastic and neoplastic lesions of enlarged lymph nodes by FNAC in patients presenting with lymphadenopathy in the postgraduate department of pathology of Government Medical College, Jammu.

Material and Methods

In our study, all clinically diagnosed cases of lymphadenopathies reported at cytology section over a period of 2 years from Jan 2015 to Dec 2016 were included. It was a retrospective study. Most of the patients were referred from surgery, paediatrics, medicine, dermatology and ENT department. Clinical details and brief history of the patient were retrieved from the cytology request forms. In all these patients FNA had been conducted with the help of 22 gauge disposable needle using 20cc syringe. The aspirated material had been smeared onto 4 slides in each case. Two smears had been immediately fixed in 95% ethyl alcohol and stained with Papanicolaou stain. The remaining air dried smears had been routinely stained by May Grunwald Giemsa (MGG) stain. Special stain like Ziehl Neelson (ZN) stain for

acid fast bacilli had been done wherever required.

Result

During a period of 2 years, a total of 5400 cases were reported in the cytology section of GMC Jammu, Out of these 960 (17.8%) were lymph node aspiration cytology cases. Among these 960 cases, 5 cases (0.5%) were inconclusive due to unsatisfactory smears, 7 cases were atypical and advised excision (0.7%). Out of 960 cases, 830 (86%) were non neoplastic whereas 118 (12%) were neoplastic malignant cases. Thus non neoplastic lesions were more common than neoplastic. Most common lesion on cytology was found to be reactive hyperplasia 530 cases (55.2%). It was followed by tuberculosis 300 cases (31.2%), Metastatic carcinoma was seen in 60 cases (6.25%), 58 Lymphoma cases (6%). Non Hodgkin lymphoma cases (5%) were more than Hodgkin lymphoma cases (1%). 7 cases were atypical and excision was advised in these cases to get a definitive diagnosis (0.7%) whereas 5 cases (0.5%) were found to be inconclusive.

In the present study the lesions were seen in all the age groups ranging from 1.5 years to 80 years with a mean age of 44 years. Maximum no. of cases was seen between 11-20 years. The peak incidence was for non neoplastic lesions were seen between 10 to 20 years whereas peak age incidence for neoplastic lesion was seen age more than 60 years. Reactive hyperplasia was most often seen during the 2nd decade, 180 cases out of 530 (33.9%) cases of reactive hyperplasia. Tuberculosis peak age incidence was seen during 2nd and 3rd decade. Metastatic carcinoma peak age was seen at more than 60 years. Cases of Lymphoma were distributed in all age groups.

Out of 960 cases, 534 cases (55.6%) were males and 414 (43%) cases were females. Males showed preponderance of Reactive hyperplasia, Lymphoma and metastatic carcinoma, while tuberculous lymphadenitis showed a slight preponderance in females.

The cervical lymph node 786 (81%) was the most common node to be involved by all types of lymphadenopathy. particularly in hodgkins lymphoma where 8 out of 10 cases (80%) were found in the cervical node. In Non Hodgkins lymphoma 28 out of 48 cases (58%), 50 out of 60 cases (83%) of metastatic carcinoma, 460 out of 530 cases (86.7%) of reactive lymphadenopathy, 240 out of 300 cases (80 %) tuberculosis were seen to be present in cervical lymph nodes. Harichand et al stowed 74.6% involvement of cervical lymph nodes by various lesion.

The second most common was axillary group of lymph node (6.8%) wherein 26 cases of tuberculosis followed by 24 cases of reactive lymphadenitis, 10 cases of lymphoma were seen. similar to study done by Khajuria R et al. It was followed by supraclavicular lymph node (5.2%) where in 30 cases of tuberculosis followed by 10 cases of metastatic carcinoma were seen. Inguinal lymph node was involved in 5% cases, majority of the cases were of reactive hyperplasia followed by tuberculosis, lymphoma and metastatic carcinoma. Least common was found to be generalized lymphadenopathy (1 %).

Table 1- Cytologic diagnosis of 960 cases of lymphadenopathy

Cytologic Diagnosis	No. of cases	Percentage(%)
Reactive Hyperplasia	530	55.2
Tuberculous lymphadenitis	300	31.2
Metastatic carcinoma	60	6.25
Non Hodgkins lymphoma	48	5
Hodgkins lymphoma	10	1
Atypical	7	0.7
Unsatisfactory	5	0.5
Total	960	100

Table 2 Age and Sex distribution of patients of lymphadenopathy (excluding atypical and unsatisfactory cases)

Age group	Reactive Hyperplasia		Tuberculous lymphadenitis		Metastatic carcinoma		Lymphoma			
	M	F	M	F	M	F	H		NHL	
	M	F	M	F	M	F	M	F	M	F
0-10	70	28	4	4						
11-20	124	56	18	54			2		2	2
21-30	62	50	32	66			2		2	4
31-40	30	36	24	20	6	2	2	1	4	
41-50	16	18	16	18	10	2	2	1	4	
51-60	18	6	16	12	10	2			4	4
>60	10	6	10	6	24	4			10	12
Total	330	200	120	180	50	10	8	2	26	22
M:F ratio	(1.65)		(0.6)		(5)		(4)		(1.1)	

Table 3- Lymph node group involved in various types of Lymphadenopathy

Site	Reactive Hyperplasia	Tuberculous lymphadenitis	Metastatic carcinoma	Lymphoma	
				H	NHL
Cervical	460	240	50	8	28
Axillary	24	26		2	8
Supraclavicular	9	24	10		4
Inguinal	33	8			6
Generalized	4	2			2
Total	530	300	60	10	48

Discussion

FNAC is an important diagnostic tool to aid in the diagnosis of lymph node lesions. In developing

countries where facilities for biopsy are not readily available, It is inexpensive, safe and quick and reduces the need for surgical biopsy. We have presented our experience of 960 cases of lymphadenopathy over a period of 2 years. In this study an attempt has been made to study the cytomorphological spectrum of lymph node lesions.

During a period of 2 years , a total of 5400 cases were reported in the cytology section of GMC Jammu, Out of these 960 (17.8%) were lymph node aspiration cytology cases. Among these 960 Cases, 5 cases (0.5%) were inconclusive due to unsatisfactory smears, 7 cases were atypical and advised excision (0.7%). Out of 960 cases, 830 (86%) were non neoplastic whereas 118(12%) were neoplastic cases. Thus non neoplastic lesions were more common than neoplastic. Most common lesion on cytology was found to be reactive hyperplasia 530 cases (55.2%). The result was comparable to study done by Mohanty et al⁽²⁾, Kochhar K et al⁽³⁾ and Adhikari P et al⁽⁴⁾ wherein reactive lymphadenopathy was the most common lesion found. Whereas Khajuria R et al⁽⁵⁾ did the same study at our institution in 2006 and found tuberculous lymphadenitis to be the most common. This difference may be explained by better awareness among the patients and better treatment availability to patients. The second most common lesion was tuberculosis 300 cases (31.2%). Khajuria R et al⁽⁵⁾, Sharma P et al⁽⁶⁾ reported an incidence of 52.3% and 56.9% in their studies somewhat higher than our study.

Metastatic carcinoma was seen in 60 cases (6.25%) and maximum cases were seen above 60 years of age and predominant deposit were of Squamous cell carcinoma 32 cases (53.3% of all metastatic lymph node).This correlates with findings by Sharma P et al (42.55%)⁽⁶⁾ and Pavithra et al (56.25%)⁽⁷⁾. The high incidence of squamous cell carcinoma may be because of high incidence of smoking and tobacco chewing. It was followed by poorly differentiated carcinoma seen in 16 cases, Adenocarcinoma in 9 cases, 2

cases with metastatic small cell carcinoma and one case of metastatic malignant melanoma

Out of 58 Lymphoma cases (6%) Non Hodgkin lymphoma cases (5 %) were more than Hodgkin lymphoma cases (1%). This was comparable to Patra et al⁽⁸⁾ who reported NHL and HL as 4.8% and 1.01% respectively.7 cases were atypical and excision was advised in these case to get a definitive diagnosis (0.7%) whereas 5 cases (0.5%) were found to be inconclusive .This was due to unsatisfactory smears as there was scant cellular yield or haemodilution of the smears.

In the present study the lesion were seen in all the age groups ranging from 1.5 years to 80 years with a mean age of 44 years. Maximum no.of cases were seen between 11-20 years similar to study done by Sharma P et al⁽⁶⁾ whereas Pavithra et al⁽⁷⁾, Dukare SR et al⁽⁹⁾, Chandanwale S et al⁽¹⁰⁾ reported maximum no.of cases during 21 -30 years. The peak age incidence for non neoplastic lesions were seen between 10 to 20 years whereas peak age incidence for neoplastic lesion was seen age more than 60 years. Reactive hyperplasia was most often seen during the 2nd decade 180 cases out of 530 (33.9%) cases of reactive hyperplasia were recorded; similar to study done by Sharma P et al⁽⁶⁾ whereas Khajuria R et al⁽⁵⁾ and Gyathri MN et al⁽¹¹⁾ reported highest incidence during the first decade.

Tuberculous lymphadenitis peak age incidence was seen during 2nd and 3rd decade similar findings were seen in study done by Khajuria R et al⁽⁵⁾. Metastatic carcinoma peak age was seen more than 60 years .Cases of Lymphoma were distributed in all age groups.

Out of 960 cases, 534 cases (56%) were males and 414(43%) cases were females. Males showed preponderance of Reactive hyperplasia, Lymphoma and metastatic carcinoma, while tuberculous lymphadenitis showed a slight preponderance in females. similar to studies done by Pavithra et al⁽⁷⁾, Fatima et al⁽¹²⁾ and Chand et al⁽¹³⁾. The higher female patients in tuberculosis may be because of malnutrition and overall low living standards among females in this area.

The cervical lymph node 786 (81%) was the most common node to be involved by all types of lymphadenopathy. particularly in hodgkins lymphoma where 8 out of 10 cases (80%) were found in the cervical node. In Non Hodgkins lymphoma 28 out of 48 cases (59%), 50 out of 60 cases (83%) of metastatic carcinoma, 460 out of 530 cases (86.7%) of reactive lymphadenopathy, 240 out of 300 cases (80 %) of granulomatous and tuberculosis were seen to be present in cervical lymph nodes. Khajuria R et al⁽⁵⁾ also found cervical lymph node to be the most commonly involved, the involvement being 100% in case of Hodgkins lymphoma, 25% in NHL, 84% in metastatic carcinoma, 86% in case of reactive hyperplasia and 83.4% in cases of tuberculous lymphadenitis. Harichand et al⁽¹⁴⁾ showed 74.6% involvement of cervical lymph nodes by various lesion.

The second most common was axillary group of lymph node (6.2%) wherein 26 cases of tuberculosis followed by 24 cases of reactive lymphadenitis, 10 cases of lymphoma were seen. similar to study done by Khajuria R et al⁽⁵⁾. It was followed by supraclavicular lymph node (5.2%) wherein 24 cases of tuberculosis followed by 10 cases of metastatic carcinoma were seen. Inguinal lymph node was involved in 5% cases, majority of the cases were of reactive hyperplasia followed by tuberculosis, lymphoma and metastatic carcinoma. Least common was found to be generalized lymphadenopathy (1 %). Similar results were found in study by Khajuria R et al⁽⁵⁾, Paul PC et al⁽¹⁵⁾.

Conclusion- FNA is a simple and rapid diagnostic technique for diagnosing benign as well as malignant lesion. It is safe and inexpensive tool for providing definite diagnosis in lymph node aspirates where biopsies are not commonly done. Also future mode of treatment can be ascertained with in short time which is a boon to anxious patients. The knowledge of cytomorphological pattern of various lesions of lymph node in an area helps in better approach to the diagnosis and this study also highlights the changing trend of

lymph node diagnosis at our institution. Nowadays reactive hyperplasia has surpassed tuberculous lymphadenitis to become the most common cytological diagnosis in contrast to what was seen in previous study done at our institution.

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