

## Histopathological Spectrum of Lymph Node Biopsies: A One Year Retrospective Study

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### Abstract

**Introduction:** Lymph node enlargement results due to proliferation of one or more components of the lymph node as a natural immune response to different antigens. Lymphadenopathy, whether localized or generalized, superficial or visceral, is a common finding in patients. Excision biopsy is the procedure of choice because histological diagnosis depends upon the change in the lymph node architectural pattern as well as the morphological details of the individual cells. **Objective:** The purpose of the present study was to evaluate the etiology of lymphadenopathy in relation to age and sex and the pattern of histological diagnosis in lymph node biopsy specimens in the department of histopathology in our centre. **Materials and Methods:** The present retrospective study of lymph node biopsies was conducted in the department of histopathology over a period of one year from January to December 2016. A total of 49 lymph node biopsies were taken into consideration. All biopsies were fixed in 10% formalin for 24 hours and later 3-4 micron thick sections were made from the blocks and stained with Hand E stain. Wherever necessary, AFB staining and immunohistochemistry was performed to aid in the diagnosis. **Results:** A total of 49 lymph node specimens were received from January 2016 to December 2016. There were 17 (34.7%) males and 32 (65.3%) females. Cervical lymph nodes were the most commonly biopsied group (65.3%), non-neoplastic lesions were more common comprising 47 out of 49 (95.9%). TB was the most common cause of lymphadenopathy and accounts for 59.18% of all lesions. **Conclusion:** Biopsy of the enlarged lymph nodes plays a major role in arriving at a correct etiological diagnosis of lymphadenopathy. Non neoplastic causes like Tuberculosis with a female preponderance and cervical region was the commonest site affected in our study.

**Keywords:** Lymphadenopathy; Tuberculosis; Reactive Hyperplasia.

### Introduction

Lymph nodes constitute a major component of the immune system [1]. Lymph node enlargement results due to proliferation of one or more components of the lymph node as a natural immune response to different antigens [2]. Lymphadenopathy, whether localized or generalized, Superficial or visceral, is a common finding in patients and a careful physical examination along with the clinical findings, often paves the way for a definite diagnosis. Lymphadenopathy may be

due to non neoplastic or neoplastic causes [3]. It indicates either a benign condition such as reactive hyperplasia due to acute or chronic inflammation, a primary lymphoid neoplasm such as Hodgkin's or non Hodgkin's lymphoma or a metastatic tumour [4,5].

Fine needle aspiration cytology remains the mainstay in primary assessment of a lymphadenopathy as it is simple, easy to perform, cheap and rapid and can reliably diagnose many conditions. But it carries the disadvantage of inconclusive or incorrect diagnosis if not performed by an experienced pathologist [6]. In suspected lymphomas, excision biopsy is the procedure of choice because histological diagnosis depends upon the change in the lymph node architectural pattern as well as the morphological details of the individual cells. So, histological examination of lymph node is the gold

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standard for diagnosis [7,8,9].

Peripheral nodes like cervical, supraclavicular and axillary nodes are subject to biopsies more often than the lower limb nodes like popliteal, femoral and inguinal nodes as the latter are mostly nonspecific reactive nodes [10,11]. Infections and tuberculosis account for major causes of nonneoplastic lymph node enlargement in developing countries while malignancies are a common cause in developed world [12,13].

Metastatic deposits are common in adults whereas reactive hyperplasia is more common in children [14,15,16].

The purpose of the present study was to evaluate the etiology of lymphadenopathy in relation to age and sex and the pattern of histological diagnosis in lymph node biopsy specimens in the department of histopathology in our centre.

## Materials and Methods

The present retrospective study of lymph node biopsies was conducted in the department of histopathology over a period of one year from January to December 2016. A total of 49 lymph node biopsies were taken into consideration. The demographic data of patients along with the anatomical site and relevant clinical data of patients was collected from the archives. Apart from that, the size, consistency, shape, colour, presence of necrosis, matting etc was also noted along with the cut section appearance of the nodes.

The lymph nodes received as a part of major surgeries like breast, colon, gall bladder and others were excluded from the study.

All biopsies were fixed in 10% formalin for 24 hours and later 3-4 micron thick sections were made from the blocks and stained with Hand E stain. Wherever necessary, AFB staining and immunohistochemistry was performed to aid in the diagnosis.

## Results

A total of 49 lymph node specimens were received from January 2016 to December 2016. There were 17 (34.7%) males and 32 (65.3%) females. Females were more frequently affected compared to males with a female to male ratio of 1.88:1 (Table 1). The age of the patients ranged from 3 to 68 years. Most of the patients were in the 2nd decade (30.6%) followed by 4th decade (20.4%) of life (Table 2).

Cervical lymph nodes were the most commonly biopsied group (65.3%), followed by axillary (12.24%), submandibular (8.16%) and post auricular (4.08%) group of lymph nodes (Table 3). Among the different spectrum of lesions, 19 out of 49 (38.8%) cases of TB, 10 out of 49 (20.4%) of reactive lesions, other lesions 03 out of 49 (6.1%) were found in the cervical group of lymph nodes. (Table 3).

In this study, non-neoplastic lesions were more common comprising 47 out of 49 (95.9%). TB was the most common cause of lymphadenopathy and accounts for 59.18% of all lesions. Reactive

**Table 1:** Showing sex wise distribution of lymph node biopsies

	Total Number	Percent	Male	Female
Reactive	15	30.61	7	18
TB	29	59.18	8	21
Other Lesion	3	6.12	2	1
HL	0	0	0	0
NHL	1	2.04	0	1
Metastatic	1	2.04	0	1
Total	49	100	17	42
Percentage	100%		34.6%	65.4%

**Table 2:** Showing age wise distribution of lymph node biopsies

S. No	AGE in years	Total	Reactive	TB	NON Caseating	Other Lesion	HL	NHL	Metastatic	percent
1.	01 TO 10	3	1	2	0	3				65.30%
2.	11 TO 20	7	3	4	0			1		2.04%
3.	21 TO 30	15	4	10	0	0	0	0	0	8.26%
4.	31 TO 40	9	3	5	0					2.04%
5.	41 TO 50	10	1	7	0		0			12.24%
6.	51 TO 60	3	1	1	0	0		0	0	4.08%
7.	> 60	2	2	0	0		1		1	6.12
	TOTAL	15	15	29	0	3	1	1	1	100%

**Table 3:** Showing lymphnode biopsies according to site

LN Location	Reactive	TB	HL	NHL	Metastatic	Other Lesion	Total No.	Percentage
Cervical	10	19	-	0	-	3	32	65.3
Submental	0	0	-	1	-	-	1	2.04
Submandibular	2	2	-	-	-	-	4	8.26
Supraclavicular	0	1	-	-	-	-	1	2.04
Axillary	1	5	-	-	-	-	6	12.24
Post auricular	1	1	-	-	-	-	2	4.08
Inguinal	0	0	-	-	-	-	0	-
Mesenteric	1	1	-	-	1	-	3	6.12
TOTAL	15	29		1	1	3	49	100

lymphadenitis was the second most common cause of lymphadenopathy and accounts for 30.61% of all lesions. Malignancies were seen in 1 out of 49 cases of enlarged lymph node with non-Hodgkin lymphomas (NHLs) of diffuse small cell type. Metastatic neoplasm was seen in 1 out of 49 cases which was of adenocarcinoma (Table 1).

### Discussion

Non neoplastic lesions were most common finding in our study (95.9%) with a female preponderance. Cervical lymph nodes were the most commonly affected nodes (65.3%) and tuberculosis was the most frequent finding (59.18%). Our study correlates with the study conducted by Henry et al, Kamal et al and Yeu Tsu et al who found non neoplastic lesions to be more common [17,18,19].

In the study by Rao MN et al, the cause of lymphadenopathy due to malignancy was higher (44%) as compared to non malignant causes [20]. Among the non neoplastic causes, tuberculosis was the commonest cause (59.18%) followed by reactive hyperplasia (30.16%) in our study. It correlates with the study by Vacchani et al who found 51% cases of reactive hyperplasia [21].

Among the neoplastic lesions we observed one case each of Small cell variant of Non Hodgkin's lymphoma and metastatic adenocarcinoma. However, due to small sample size of only 49 cases as well as exclusion of lymph nodes from major surgeries, we observed only one case of metastatic lymphadenopathy. Rahman et al in their study observed 5.76% of Hodgkin's lymphoma 11.52% non Hodgkin's lymphoma and 12.57% metastatic nodes which does not correlate with our study [22].

### Conclusion

Biopsy of the enlarged lymph nodes plays a major

role in arriving at a correct etiological diagnosis of lymphadenopathy and its categorization into neoplastic and non neoplastic causes. Non neoplastic causes like Tuberculosis with a female preponderance and cervical region as the commonest site affected was noted in our study. A proper and thorough clinical examination, history and histopathological examination can help in reaching at a correct etiology of lymphadenopathy and can help the patient in receiving correct and timely treatment.

*Conflict of Interest:* None

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