

Retrospective Observational Assessment of the Histopathological Findings of Lymph Node Biopsies

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Conflict of interest: Nil

Abstract

Aim: The objective of the study was to conduct histopathological analysis of lymph node biopsies at a tertiary care centre.

Material & methods: This was a retrospective observational study of all the patients with lymph node biopsies seen in department of General Surgery, NMCH, Patna, Bihar, India from Jan 2022 to December 2022. As the study was retrospective duration-based design, patients for whom the biopsy samples were available in one year were included in the study. Ethical approval from the Institutional Ethics Committee was obtained for this study. Histopathology reports of lymph node biopsies of patients required at NMCH, Patna, Bihar, India were included in the study. The total number of cases of lymph node biopsies available was 100 over the period of one year.

Results: Out of the total 100 cases, females account for 60 (60%) cases which are in majority as compared to males which account for 40 (40%) cases. Tuberculous lymphadenitis was most commonly observed in 40 females as compared to 28 males. Cancer cases which accounted for 18 (18%) cases formed the second most common diagnosis in which 12 females accounted for most cases as compared to 6 males. Out of the total 100 cases of lymph node biopsies, 56 cases were reported at the cervical location. Tuberculous lymphadenitis at cervical were found to be most at cervical location. This was followed by 15 cases of cancer. Based on age grouping, the age group of 21-30 contained 33 cases of lymph node biopsies. Overall, in every age group, the maximum number of cases was of tuberculous lymphadenitis.

Conclusion: Enlarged lymph nodes should undergo fine needle aspiration cytology (FNAC), truecut biopsy and/or excisional biopsy for correct diagnosis. The diagnostic spectrum ranges from benign reactive to TB and also malignancies.

Keywords: Lymph node biopsy, Histopathology, Tuberculous lymphadenitis, Malignancy.

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Introduction

Lymphadenopathy is the condition in which lymph nodes are abnormal in size, consistency or number, caused by the invasion or propagation of either inflammatory cells or neoplastic cells into the nodes. [1] It is a common symptom seen in outpatient department of any hospital. It can be peripheral or visceral.

Peripheral lymphadenopathies are easily detectable by palpation and are often biopsied. [2] Clinical examination, laboratory investigations and imaging help in diagnosis. Lymph node biopsy is a gold standard method. [3]

Lymph nodes are spread throughout the body and are routinely checked for

abnormalities. The type of changes or abnormalities usually depend upon the intensity and type of the response. [4] The body of an adult contains around 800 lymph nodes, usually found at different sites like in the axilla, abdomen, neck, thorax, and groin. These lymph nodes have the potential to become infected or malignant. [5] Enlargement of lymph nodes is a common clinical condition encountered by clinicians. A normal sized lymph node is <1 cm in diameter. Lymphadenopathy is the term used to describe the conditions in which lymph nodes become abnormal in size, consistency, or number, caused by the invasion or propagation of either inflammatory cells or neoplastic cells into the nodes. Lymphadenopathy is the condition in which lymph nodes are abnormal in size, consistency or number, caused by the invasion or propagation of either inflammatory cells or neoplastic cells into the nodes. Lymphadenopathy is usually classified as generalised lymphadenopathy or localised lymphadenopathy, where more than half of the patients will present with localised lymphadenopathy and the rest will present with general lymphadenopathy. [6]

Enlargement of lymph nodes is a common clinical condition encountered by clinicians. A normal sized lymph node is <1 cm in diameter. Lymphadenopathy is the term used to describe the conditions in which lymph nodes become abnormal in size, consistency, or number, caused by the invasion or propagation of either inflammatory cells or neoplastic cells into the nodes. [7] Persistent enlargement of lymph nodes necessitates detailed investigations to reveal an underlying pathology. Although a reasonably accurate diagnosis can be made clinically, histopathological examinations are mandatory to establish and confirm the diagnosis. [8] It is important to take careful history to consider a variety of diseases, which may be a clue to the underlying

pathology. The cervical region is the most frequent site involved in peripheral lymphadenopathy at any age. Lymphadenopathy is generally due to infections, but most often the supraclavicular lymphadenopathies are associated with malignancy. [9]

The objective of the study was to conduct histopathological analysis of lymph node biopsies at a tertiary care centre.

Material & Methods

This was a retrospective descriptive observational study of all the patients with lymph node biopsies seen in department of General Surgery, NMCH, Patna, Bihar, India from Jan 2022 to December 2022. As the study was retrospective duration-based design, patients for whom the biopsy samples were available in one year were included in the study.

Ethical approval from the Institutional Ethics Committee was obtained for this study. Histopathology reports of lymph node biopsies of patients required at NMCH, Patna, Bihar, India were included in the study. The total number of cases of lymph node biopsies available was 100 over the period of one year.

Methodology

Patients who underwent any other biopsy except lymph node biopsy were not included in the study. The specimen when taken from the patient's body is stored in a container with 10% neutral buffered formalin (NBF). The specimen collected is sent to the pathology lab for histopathological analysis and diagnosis. The container containing the specimen is labelled and sent to the lab. The sample is processed in multiple steps. Firstly, sample acceptance and numbering are done in the lab after which grossing of the sample is done. Tissue processing and embedding is then carried out after which block cutting of the samples is done. The samples then undergo hematoxylin and eosin staining. The sample will then be mounted, labelled

and arranged in trays. The final report is submitted to the pathologist for analysing the samples. The histopathological data will be obtained from the histopathology registers containing the reports from the pathology lab of NMCH, Patna, Bihar, India. Demographic data will also be obtained from the same. Statistical tests will be applied to analyse the histopathological data.

Statistical Analysis

All the collected data were entered in Microsoft Excel sheet and then transferred to Statistical Package for Social Sciences (SPSS) software version 17.0 for analysis. Qualitative data was presented as frequency and percentages.

Results

Table 1: Diagnosis of lymph node biopsies

Diagnosis	Count	%	Male	Female
Tuberculous lymphadenitis	68	68	28	40
Cancer	18	18	6	12
Reactive	6	6	2	4
Bacterial infection	2	2	2	0
Histiocytic necrotizing lymphadenitis	5	5	1	4
Cat scratch	1	1	1	0
Total	100		40 (40)	60 (60)

Out of the total 100 cases, females account for 60 (60%) cases which are in majority as compared to males which account for 40 (40%) cases. Tuberculous lymphadenitis was most commonly observed in 40 females as compared to 28

males. Cancer cases which accounted for 18 (18%) cases formed the second most common diagnosis in which 12 females accounted for most cases as compared to 6 males.

Table 2: Diagnosis of lymph node biopsies based on location

Location	Count (%)	Tuberculous lymphadenitis (%)	Cancer (%)	Reactive (%)	Bacterial infection (%)	Histiocytic necrotizing lymphadenitis (%)	Cat scratch (%)
Cervical	56	40	8	2	1	5	0
Axillary	15	8	4	1	1	0	1
Neck	11	7	2	2	0	0	0
Inguinal/ groin	9	6	3	0	0	0	0
Abdomen	6	4	1	1	0	0	0
Chest thorax	3	3	0	0	0	0	0
Total	100	68	18	6	2	5	1

Out of the total 100 cases of lymph node biopsies, 56 cases were reported at the cervical location. Tuberculous lymphadenitis at cervical were found to be most at cervical location. This was followed by 15 cases of cancer.

Table 3: Diagnosis of lymph node biopsies based on age groups

Age groups	Count (%)	Tuberculous lymphadenitis (%)	Cancer (%)	Reactive (%)	Bacterialinfection (%)	Histiocytic necrotizing Lymphadenitis (%)	Cat scratch (%)
≤10	15	10	2	2	1	0	0
11-20	23	15	3	1	0	3	1
21-30	33	25	4	1	1	2	0
31-40	8	7	1	0	0	0	0
41-50	6	5	1	0	0	0	0
51-60	5	1	3	1	0	0	0
61-70	5	2	2	1	0	0	0
71-80	3	2	1	0	0	0	0
≥81	2	1	1	0	0	0	0
Total	100	68	18	6	2	5	1

Based on age grouping, the age group of 21-30 contained 33 cases of lymph node biopsies. Overall, in every age group, the maximum number of cases was of tuberculous lymphadenitis.

Discussion

Patients with enlarged lymph nodes are very commonly seen in routine practice. [10] With the help of excisional biopsy and histopathological analysis, early diagnosis can be made which is essential for management of the enlarged lymph nodes. [11] Almost 68% of the total lymph node biopsies were of tuberculous lymphadenitis which was the most common finding reported. Similar findings have been obtained from some tropical and developing countries. [12-15] However, in a study by Damle et al conducted at a site in Maharashtra, the cases of tuberculous were not the most common finding reported. [1] The high prevalence of TB can be due to poor living conditions in underdeveloped and developing countries. [6] Tuberculous lymphadenitis was found more commonly in females as compared to males. Similar findings were observed in multiple populations. [16]

In our study the second most common finding after TB was cancer followed by reactive with 18% and 10% cases respectively. However, in many studies reported by Kamat et al, and Rahman et al, reactive lymphadenitis was found to be the second most common finding reported after TB. [6,7] In several other studies, reactive change was found to be most common and was followed by TB. Such findings were reported in some African regions by Moore et al, Oluwole et al, and Sibanda et al. [17-19] Cancer was found to be the fourth common cause of lymphadenopathy according to findings reported by Rahman et al and Shrestha et al whereas in our study it was the second most prevalent cause of lymphadenopathy. [7,14]

In our study the most common location of lymphadenopathy was found to be cervical lymph nodes. This result was consistent with findings reported by other studies conducted in various parts of India. [20,21] Similar findings were also obtained in other countries apart from India. [14,22] Axillary was found to be the second most common location after cervical lymph nodes. This result was similar with the

findings reported by studies across the world.²⁰⁻²² Of all the cervical lymph node biopsies, the most common histopathological finding was tuberculous lymphadenitis followed by reactive disease in our study whereas in a study conducted by Al-Tawfiq et al in Saudi Arabia reported reactive disease to be the most common histopathological finding. [23] Maximum number of cases of lymphadenopathies were found to be under the age group of 21-30 years. Most cases of TB lymphadenitis affected the 21-30 years age group. This finding was consistent with other studies as well. [7,12,22,24,25]

Conclusion

It was concluded from the present study that lymph node biopsy is useful in arriving at accurate diagnosis. It is less expensive than other tests when investigating the cause of enlarged lymph nodes. Enlarged lymph nodes should undergo FNAC, true cut biopsy and/or excisional biopsy for correct diagnosis. The diagnostic spectrum ranges from benign reactive to TB and also malignancies.

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