

# A Cytopathological Evaluation of Lymphadenopathy in Tertiary Care Hospital

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**Abstract:** Background: The lymphatic system includes lymph nodes. Viruses, bacteria, cancer cells and other undesired substances are carefully filtered out of the body by lymph nodes. Lymphadenopathy is a prevalent clinical issue that commonly causes diagnostic conundrums. A frequent issue that is diagnosed as lymphadenopathy is lymph node enlargement. Lymphadenopathy is a term used to describe an anomaly in the size and function of lymph nodes; it is also used to describe abnormally enlarged lymph nodes that are more than 10 mm in diameter. Lymphadenopathy is a prevalent clinical issue that commonly causes diagnostic conundrums. Due to its early results, ease of use, and low risk to the patient, fine needle aspiration cytology (FNAC) has emerged as a key technique for the initial diagnosis and therapy of patients with cervical lymphadenopathy. This study's primary goal is to correlate clinical and pathological conditions that manifest as cervical lymphadenopathy. Node biopsy and open lymph will also be used to assess the role of FNAC in diagnosis. Aims & Objectives: 1. Age wise and sex wise distribution of lymphadenopathy 2. Clinicopathological correlation of lymphadenopathy. Materials & Methods: This retrospective study was carried out over a period of One year in the department of pathology at Santhiram medical college & General hospital, Nandyal from Jan 2024 to Dec.2024 The study involved 70 patients in total. Fine needle aspiration cytology (FNAC) was performed on each of the 70 patients. Excision biopsy was performed wherever required. In all cases, a pathological diagnosis was made. As needed baseline investigations, fine needle aspiration cytology, excision biopsy, throat, ear, and nose examinations were performed. Result: This study involved 70 patients in total. 30 of the 70 patients had IPD, and the others had OPD. In this investigation, FNAC and biopsy were performed on all patients and required patients respectively. The majority of observers in this study had tubercular lymphadenitis. 70 patients were treated, of which 40 (57.2%) were male and 30 (42.8%) were female. There were the most patients in the age groups of 20 to 30 years (35.7%) and 30 to 40 years (25.7 %), followed by 10 to 20 years (20%). Out of 70 patients, 45 (64.3%) had Tubercular Lymphadenitis, and 10 (14.3%) had Chronic Non - Specific Lymphadenitis, Nine individuals (12.9%) were found to have reactive lymphadenitis, while three (4.3%) were found to have malignant secondary tumors, two (2.8%) to have lymphomas, and one (1.4%) to have non - Hodgkin's lymphoma. Conclusion: Following a clinical assessment of the lymphadenopathy, most common age group affected were 20 to 30 years (35.7%). Males (57.2%) are most commonly affected than females (42.8%) with Tuberculous lymphadenitis (64.3%) as most common diagnosis. The essential prerequisite for this is expert input. In lymphoma cases where a biopsy is used as a diagnostic technique, it is also beneficial. When the FNAC report is suspicious; a biopsy is highly beneficial for an accurate diagnosis and course of treatment in nonspecific lymphadenitis.

**Keywords:** cervical lymphadenopathy, fine needle aspiration cytology, biopsy, tubercular lymphadenitis, clinical diagnosis

## 1. Introduction

Lymphadenopathy is a prevalent clinical issue that commonly causes diagnostic conundrums. The lymphatic system includes lymph nodes. Cancer cells, viruses, and other undesirable things are carefully filtered out by lymph nodes and expelled from the body. This could be a primary or subsequent feature of many diseases. [1]

A frequent issue that is diagnosed as lymphadenopathy is lymph node enlargement. Lymphadenopathy is a term used to describe an anomaly in the size and function of lymph nodes; it is also used to describe abnormally enlarged lymph nodes that are more than 10 mm in diameter. Supraclavicular nodes that can be felt are considered abnormal and to have lymphadenopathy. These are due to the condition being self-limiting, with bacterial and viral infections being common causes. [2] Lymphadenopathy can afflict people of any age, however it is most frequent in children and young adults, while it may be caused by secondary metastasis in later age groups. Cervical node swelling is a primary symptom of malignancies like leukaemia and lymphoma. There are

numerous alternative diagnoses for lymphadenopathy, as well as examination and treatment options.

Due to its early results, ease of use, and low risk to the patient, fine needle aspiration cytology (FNAC) has emerged as a key technique for the initial diagnosis and therapy of patients with lymphadenopathy. This test is suitable for regular diagnosis since it is rapid, dependable, affordable, and safe. In particular in cases of occult primary, the identification of lymph node - metastatic cancer would be the sole criterion for diagnosing primary tumour. [3]

Analysis of cervical lymphadenopathy is never simple and challenging in differential diagnoses because it shares symptoms with a number of illnesses, including inflammatory and neoplastic conditions. [4, 5, 6, 7] Lymphadenopathy can be diagnosed via aspiration cytology, open biopsy, and clinical assessment, among other techniques. Every technique has pros and cons of its own. The current gold standard for diagnosing lymphadenopathy is histopathology testing. [8, 9] This study primary goal is to correlate clinical and pathological conditions that manifest as lymphadenopathy. Node biopsy and open lymph will also be used to assess the

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role of FNAC in diagnosis.

## 2. Material and Methods

From January 2024 to December 2024, the study was carried out in the pathology department of Santhiram Medical College, Nandyal. This study comprised of individuals with severe lymphadenopathy who were attending OPD and IPD patients. The study involved 70 patients in total. Fine needle aspiration cytology (FNAC) was performed on each of the 70 patients. Excision biopsy was performed in 50 instances. In each case, a pathological diagnosis was made. As needed baseline investigations, fine needle aspiration cytology, excision biopsy, throat, ear, and nose examinations were performed.

## 3. Result

This study involved 70 patients in total. 25 of the 70 patients had IPD, and the others had OPD. In this investigation, FNAC and biopsy were performed on all patients. The majority of observers in this study had tubercular lymphadenitis. According to Table 1, of the 70 patients, 40 (57.2%) were male and 30 (42.8%) were female.

**Table 1: Sex distribution of patients**

Sex	No. of patients	Percentage
Male	30	57.2%
Female	40	42.8%
Total	70	100.0%

The most patients in this study were found to be in the age groups of 20–30 years, with 25 (35.7%), followed by 30–40 years 18 (25.7%), and 10–20 years 14 (20.0%), as indicated in table no.2. There were more instances of tuberculosis detected in the age categories of 20 to 30 and 30 to 40 years than in any other age range. Patients over 50 years old tended to have clusters of malignant secondary tumors.

**Table 4: Age and Sex wise distribution of histopathological diagnosis**

Age group	Tuberculous lymphadenitis		Reactive lymphadenitis		Chronic lymphadenitis		Secondaries		Lymphomas	
	M	F	M	F	M	F	M	F	M	F
10 - 20	2	3	1	3	2	3	0	0	0	0
20 - 30	8	13	1	1	1	1	0	0	0	0
30 - 40	6	9	1	1	0	1	0	0	0	0
40 - 50	2	2	1	0	1	1	1	0	1	0
50 - 60	0	0	0	0	0	0	1	1	1	1
Total	18	27	4	5	4	6	2	1	2	1

Neck swelling was the most frequent presenting complaint in this study, as demonstrated in table no.5 of the incidence of presenting symptoms. Out of 70 cases, 32 (45.7%) had neck swelling as their primary symptom, followed by fever in 14 instances (20%), weight loss in Eight cases (11.4%), and malaise and appetite loss in Six cases (8.6%), respectively.

**Table 2: Age distribution of patients**

Age group	No. of patients	Percentage
10 - 20	14	20.0%
20 - 30	25	35.7%
30 - 40	18	25.7%
40 - 50	9	12.8%
50 - 60	4	5.8%
Total	70	100.0%

The more typical kind of lymphadenitis in this investigation is tubercular. Out of 70 patients, 45 (64.3%) had Tubercular Lymphadenitis as their diagnosis. Ten (14.3%) of the patients had a diagnosis of chronic non - specific lymphadenitis. Nine patients (12.9%) had reactive lymphadenitis identified. Three patients (4.3%) had malignant secondary tumours identified, compared to two patients (2.8%) with lymphomas and one patient (1.4%) with non - Hodgkin's lymphoma. Consequently, tuberculosis was the most prevalent cause of lymphadenopathy among the numerous causes, as shown in table no.3.

**Table 3: Histopathological diagnosis of patients**

Cytology	No. of patients	Percentage
Tubercular Lymphadenitis	45	64.3%
Reactive lymphadenitis	9	12.9%
Secondaries	3	4.3%
Chronic Non - specific Lymphadenitis	10	14.3%
Hodgkin's Lymphoma	2	2.8%
Non - Hodgkin's Lymphoma	1	1.4%
Total	70	100.0%

Females, 13 cases of total 21 cases under the age group of 20 - 30 yrs are most commonly diagnosed as Tuberculosis followed by 15 cases under 30 - 40 yrs age group, where females are 9 cases as demonstrated in table no.4. Out of 70 cases, 27 female (38.5%) were diagnosed as Tuberculosis on examination of lymphadenopathy, followed by males in 18 cases (25.7%).

**Table 5: Incidence of presenting symptoms**

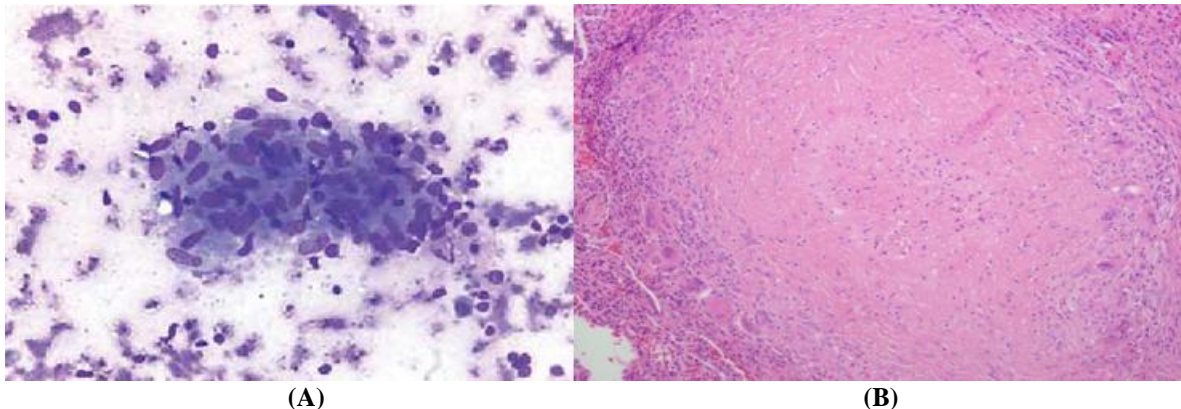
Presenting symptoms	No. of patients	Percentage
Neck swelling	32	45.7%
Fever	14	20.0%
Cough	08	11.4%
Change of voice	02	2.9%
Malaise	03	4.3%
Loss of appetite	03	4.3%
Loss of weight	08	11.4%
Total	70	100.0%

## 4. Discussion

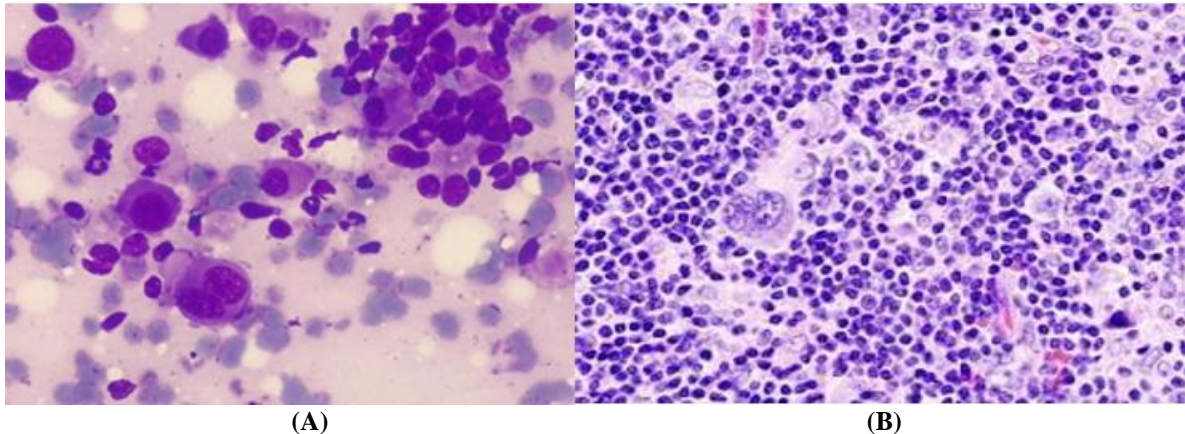
Age, sex, clinical findings, symptoms, presenting complaints, and results of FNAC and biopsy have all been taken into

account when analysing the data in this study. In this study, out of 70, 45 patients (64.3%) had lymphadenitis due to tuberculosis, compared to 10 (14.3%) who have chronic non-specific lymphadenitis. Nine patients (12.9%) had reactive lymphadenitis identified. Three patients (4.3%) had malignant secondary tumours found, compared to two patients (2.8%) with lymphomas and one patient (1.4%) with non-Hodgkin's lymphoma in prior investigations by Dandapat et al., [10]. Das Gupta and others, [11] Prasad RR et al., [13] and Mondal A et al., [12] The most typical manifestation of neck swelling is cervical lymphadenitis. According to research by Gupta et al., [14] 74% of patients had tuberculous aetiology diagnoses.

In the current study, out of the 70 patients, 45 patients had tuberculosis, and 35.7% or 25 instances, were in the 20–30 age range, which was comparable to Panditetal's study [15], in which the mean age of presentation was in the 20–30 year range. The mean age of presentation was 25 years in the study by Narang et. al. [17] and 26 years in the study by Rakshanet al. [16]. Our study's results match very nicely with those from this research. In the current investigation, it was shown that the most frequent presenting complaint was neck edema. Neck edema was seen in 32 (45.7%) of the individuals, followed by fever 14 (20.0%), weight loss 8 (11.4%), and malaise and appetite loss 6 (8.6%), which was nearly comparable to other research. Desai et al., [19] and Khan et al., [18]



**Figure 1:** **A** - Cytosmear shows epithelioid cell clusters admixed with mature lymphocytes against haemorrhagic background. **B** - Sections show caseous necrosis, epithelioid cell clusters, Langhans giant cells surrounded by mature lymphocytes in lymphoid follicle.



**Figure 2:** **A** – Cytosmear shows Reed-Sternberg cells along with mature lymphocytes in haemorrhagic background **B** - Section shows Reed-Sternberg cells in lymphocyte rich type of Hodgkin's lymphoma in true cut biopsy

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Studies by Ahmed et al. [20] and Hirachand et al. [21] found a 12% incidence rate for secondary cases and 12% for primary cases. Based on the uniformity, immobility, and fixedness of the lymph nodes, a clinical diagnosis was made. As a result, the FNAC diagnosis represented roughly 90% of the clinical diagnosis in this investigation. Comparable to the current study, the overall clinical diagnosis rate in Chamyal and Sabargirish's study was 88.3%. [22]

The findings of Siddiqui et al., [24] where male predominance was quite more than this study, are consistent with the findings of Ramani et al. study, [23] which shows that Hodgkin's lymphoma 25% found the median age of presentation of Hodgkin's lymphoma in India as 34 years,



which is lower than that seen in the west.

The gold standard for diagnosis is an open biopsy and histological investigation. B. C. Jha et al. [4] revealed that tuberculous lymphadenitis was 92.8% sensitive. According to Dandapat M. C., et al. [10], TB has an 83% sensitivity rate. In a study that is quite comparable to this one, Mondal A., et al. [12] demonstrated 100% sensitivity in tuberculous and phylogenic lymphadenitis, Hodgkin's disease, 98% for metastatic deposits, 97% for chronic non - specific lymphadenitis, and 92% for non - Hodgkin's lymphomas.

## 5. Conclusion

In FNAC is one of the most crucial diagnostic tools for accurately diagnosing lymphadenopathy. It can be done quickly and safely. A protocol diagnosis of Lymphadenopathy cases can be made for evaluation based on all the a forementioned observations.

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