

# Research Journal of Pharmaceutical, Biological and Chemical Sciences

## Clinicopathological Profile of Patients with Lymphadenopathy

Archana Shivamurthy\*, Alagappan Suppiah\*\*, Kishor Kumar Mahandran\*\*, and Yong Eunice\*\*.

\*Assistant professor, Department of Pathology, Melaka Manipal Medical College, Manipal Campus, Manipal University, Manipal, Karnataka, India.

\*\* Undergraduate students, Melaka Manipal Medical College, Manipal Campus, Manipal University, Manipal, Karnataka, India.

### ABSTRACT

Lymphadenopathy is a common clinical finding and may be due to a variety of causes ranging from inflammatory lesions to malignancies. Correlation between clinical findings, fine needle aspiration cytology and biopsy are essential in arriving at a definitive diagnosis. Clinical features, cytology and histopathology findings of 100 patients presenting with lymphadenopathy were obtained retrospectively from the medical records department. All clinical features and histopathological features were identified and results were tabulated. Fine needle aspiration cytology findings (FNAC) were noted where ever available. The age group ranged between 16-79yrs with a mean age of 47.5yrs and a male predominance. Fever was noted in 28%, associated pain in 44% and cough in 33% of cases. Weight loss, vomiting and fatigue were noted in a few cases. Majority of the cases presented with cervical lymphadenopathy followed by the axillary and inguinal node involvement. All findings of cytology correlated with the histopathological diagnosis in 36 cases where FNAC was available. Among the 100 cases with histopathological biopsy, metastatic carcinoma was the predominant cause of lymphadenopathy. Patients with lymphadenopathy can present with various symptom like fever, cough, fatigue and weight loss. Metastatic carcinoma is the predominant cause of lymphadenopathy in our study. Correlating clinical features with the cytology and histopathological findings would help in understanding the causes of lymphadenopathy.

**Keywords:** lymphadenopathy, tuberculosis, lymphoma

*\*Corresponding author*

## INTRODUCTION

Lymph nodes function as filters of tissues and tissue fluids and are sites of origin and production of lymphocytes for normal physiological functions. They react to both endogenous and exogenous substances with a variety of specific morphological and functional responses. [1] Lymphadenopathy is defined as abnormal size or structure of lymph node. It is a common problem in all age groups. It is mostly caused by transient responses to the local or general infections but sometimes it is due to malignant disorders. [2,3] Because the normal immune response leads to proliferation and expansion of one or more of the cellular components of lymph nodes, it leads to significant lymph node enlargement. [1, 2]

Lymphadenopathy is a rather common clinical finding in a primary healthcare setting, and may be due to inflammatory lesions and tumours. Correlation between clinical findings, fine needle aspiration cytology and biopsy are essential in arriving at a definitive diagnosis. There are various classifications of lymphadenopathy, but a simple and clinically useful system is to classify lymphadenopathy as “generalized” if the lymph nodes are enlarged in two or more noncontiguous areas, or “localized”, if only one area is involved. The clinical features in these patients depends on the underlying cause. [3] Some studies have shown that the most common cause of generalized lymphadenopathy was granulomatous lymphadenitis, followed by reactive lymphadenitis. In developing countries, such as India, tuberculosis is the leading cause of generalized lymphadenopathy. Among the neoplastic lesions, metastatic malignancy accounted for most cases in many studies. Research studies have also shown that the highest frequency group of lymph node biopsy was cervical followed by axillary, abdominal and inguinal. [4, 5] The histological differential diagnosis of lymph node enlargement depends upon a proper appreciation of the normal structure of a lymph node and of the various changes which are common to several or peculiar to certain specific types of pathological processes. [6, 8]

### Objectives

- To study on the clinical features of lymphadenopathy.
- To investigate importance of lymph node biopsy in determining the etiology of underlying disease.
- To determine the different causes of lymphadenopathy.

## MATERIALS AND METHODS

A retrospective study was conducted at our institute from January 2014 to July 2014 after obtaining permission from the college ethical committee. One hundred patients presenting with lymphadenopathy & undergoing FNAC (fine needle aspiration cytology) / Biopsy were included in the study. Clinical features, cytology and histopathology biopsy findings of 100 patients were obtained using a proforma

## RESULTS

One hundred patients presenting with lymphadenopathy were included in our studied. Histopathological biopsy was present in all 100 cases. Whereas FNAC was done for only 36 of cases. The age group in the present study ranged from 16-79yrs with a mean age of 47.5yrs. A male predominance was noted, with the M:F ratio being 1.6:1. Among the clinical features, fever was noted in 28% and there was associated pain noted in 44% of cases. Other symptoms included cough in 33% of cases, weight loss in 3%, vomiting in 6% and fatigue in 9%. Majority of the cases presented with cervical lymphadenopathy(71%) followed by the axillary(10%) and inguinal node(10%) involvement. Other sites included the mesenteric (5%), retro-peritoneal(2%) and mediastinal nodes(2%).

FNAC findings were available in 36 of 100 cases. All findings of cytology correlated with the histopathological diagnosis in all 36 cases. Metastatic carcinoma accounted for the predominant cause affecting 18 cases (50%) followed by tuberculous lymphadenitis (19.4%), non Hodgkins lymphoma (16.7%), granulomatous lymphadenitis (8.3%), Hodgkin's lymphoma (2.7%) and reactive lymphadenitis (2.7%).

All 100 cases had a histopathological diagnosis. Based on this, metastatic carcinoma was the main cause of lymphadenopathy noted in the present study, accounting for 38%, followed by Non-Hodgkin lymphoma (22%), tuberculous lymphadenitis (16%), reactive lymphadenitis (15%) and granulomatous

lymphadenitis (5%). 2 cases were diagnosed with Hodgkin’s lymphoma and 1 each of Castleman’s lymphadenitis and retroviral lymphadenitis.[Table 1]

**Table 1: The cytological and histopathological diagnosis in 100 cases**

	FNAC		Histopathology	
	No of cases	%	No of cases	%
Reactive lymphadenitis	1	2.7	15	15
Granulomatous lymphadenitis	3	8.3	5	5
Tuberculous lymphadenitis	7	19.4	16	16
Non-Hodgkin lymphoma	6	16.7	22	22
Hodgkin's lymphoma	1	2.7	2	2
Metastasis (carcinoma)	18	50	38	38
Castleman’s lymphadenitis	0	0	1	1
Retroviral lymphadenitis	0	0	1	1
Total	36	100	100	100

**Table 2: Comparison of the findings of the present study with various other studies**

Pathological diagnosis	Reactive lymphadenitis	Tuberculous lymphadenitis	Granulomatous lymphadenitis	Hodgkins lymphoma	Non Hodgkins lymphoma	Metastatic carcinoma
Kamat GC <sup>1</sup> (n=244)	30.75%	-	58.19%	0.40%	3.27%	7.37%
Vachhani A et al <sup>2</sup> (n=100)	51%	-	24%	2%		23%
Saraswat et al <sup>3</sup> (n = 573)	6.4%	63.3%	-	5.7%		3.07%
<b>Present study (n=100)</b>	<b>15%</b>	<b>16%</b>	<b>5%</b>	<b>2%</b>	<b>22%</b>	<b>38%</b>

**DISCUSSION**

The term lymphadenopathy comes from the word lymph and a combination of the Greek words "gland" and pathoia "act of suffering" or "disease". Lymphadenopathy in children and young adults is most commonly due to reactive conditions; in contrast to adults where prevalence of malignant etiologies increases. A few studies reveal that the prevalence of malignant lymphadenopathy in biopsy specimens is about 40%. [1, 2] Generally in primary health care we can say that patients older than 40 years with lymphadenopathy without obvious causes have the chance of malignancy about 4% and in patients under age 40 years this chance is about 0.4%. [3, 4]

One hundred cases of lymphadenopathy were assessed in the present study. A male predominance was noted in the present study, however in a study by Kamat GC [1] a female predominance was noted. A slight male predominance was observed by Vachhani et al [2]. The present study also showed a male predominance with a M:F ratio of 1.6:1 in concordance with an another study by Saraswat A et al [3]

Among the clinical features, fever was noted in 28% and there was associated pain at the site of lymphadenopathy were noted in 44% of cases. Other symptoms included cough in 33% of cases, weight loss in 3%, vomiting in 6% and fatigue in 9% of cases in the present study. The clinical features in cases of

lymphadenopathy depend on the etiology as observed in the present study. Common signs of lymphadenopathy include signs of anemia like tachycardia, pale conjunctiva, may be associated with malignancy; jaundice, dermatological abnormalities like bruising, petechiae, bleeding; poor growth and presence of hepatomegaly depending on the underlying cause. [4, 5]

Al Maghrabi J et al [7]. who conducted a study on 2500 lymph node biopsy specimens, found 15 cases with Kikuchi- Fujimoto disease (0.6%), with F/M ratio = 2.7/ 1, mean age was 29 years and most common location being the cervical area. Zahir ST et al [10]. from Pakistan reported 498 patients with cervical lymphadenopathy out of which 40 patients (8%) had Hodgkin's lymphoma.

Another study done by Freidig E et al [5]. in 1986 on 419 lymph node biopsy specimens, revealed that in 113 cases, the cause of lymphadenopathy was unknown, 92 cases had sarcoidosis, 86 cases had lymphoma, 17 cases were metastatic cancer, histoplasmosis was seen in 18 cases and tuberculosis in 13 cases. From 66 cases of infectious lymphadenopathy 48 cases had granulomatous or acute inflammatory lesions.

Burns B, et al [12] from their study in 1985, which included 69 patients with lymphadenopathy showed that the most common pattern of lymphadenopathy was reactive follicular hyperplasia (62%), 8 patients with Hodgkin's lymphoma and 2 had non Hodgkin's lymphoma.

Vachhani et al [2], the researcher found that lymphadenopathy was found to an extent of 50% in cervical, 25% in axillary, 18% in the abdominal and 7% in the inguinal regional. In comparison to our study, lymphadenopathy was found predominantly in the cervical region (86%), followed by 5% in axillary region, 5% in inguinal region, 2% affecting mesenteric lymph nodes, 1% retroperitoneal and 1% affecting mediastinal lymph nodes. Majority of patients in our study were affected with lymphadenopathy in cervical region similar to the study of Vachhani et al [2] [Table 2]

Based on the findings of Kamat GC [1], the researcher reported that out of the 244 lymph node biopsies analysed, 75 cases (30.73%) were reactive lymphadenitis, 142 cases (58.19%) showed granulomatous lymphadenitis, one case (0.40%) was Hodgkin's lymphoma, eight cases (3.27%) were non-Hodgkin's lymphoma, and 18 cases (7.37%) were metastatic malignancy. The study reviewed that the most common cause for the high incidence of granulomatous lymphadenitis was due to tubercular lymphadenitis in developing countries like India. In the present study tuberculous lymphadenitis was noted in 16%. Saraswat et al [3] also reported of 63.3% tubercular lymphadenitis.

In contrast to both studies, the results of our research indicated that out of the 100 lymph node biopsies analyzed in this study, 15 cases (15%) showed reactive lymphadenitis, 5 cases (5%) showed granulomatous lymphadenitis, 16 cases (16%) showed tuberculosis, 22 cases(22%) showed non-Hodgkin's lymphoma, 38 cases(38%) showed metastasis (metastatic carcinoma), 1 case(1%) showed Castleman lymphadenitis, and 1 case (1%) showed retroviral lymphadenitis. Metastatic carcinoma was the commonest diagnosis followed by non-Hodgkin's lymphoma followed by tubercular lymphadenitis probably owing to the older age of patients.

A study by Saraswat A et al [3] showed that their overall biopsies revealed tuberculosis in 63.3% followed by chronic non specific lymphadenitis (13.4%), reactive hyperplasia (6.4%) & lymphoproliferative disorder (2%). 76 patients were suspected to have a metastatic lesion clinically, but it was found in 29(5.06%) on histological evaluation. Tubercular lymphadenitis was the commonest diagnosis in all age groups. However in the present study 38% showed metastatic carcinoma and tuberculosis was found in 16% of cases.

### CONCLUSION

The various clinical features of lymphadenopathy depend on the underlying etiology. Most patients were presented with an enlarged cervical lymph nodes. We were able to investigate the importance of lymph node biopsy in finding etiology of the underlying disease. The biopsy findings correlated with the FNAC findings in all 36 cases. Both FNAC and hisopathology provided a diagnosis in all cases.



Figure 1: Figure shows lymph node with granulomas composed of epithelioid cells [H&E x100]

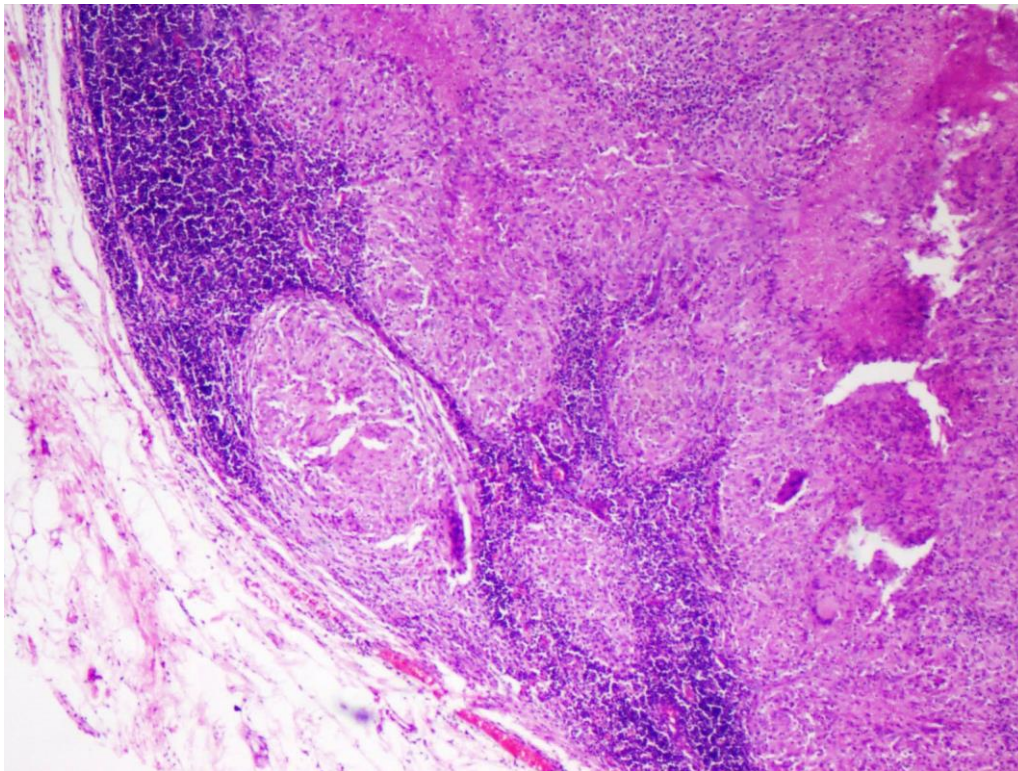


Figure 2: Figure shows lymph node with clusters of malignant squamous cells [H & Ex100]

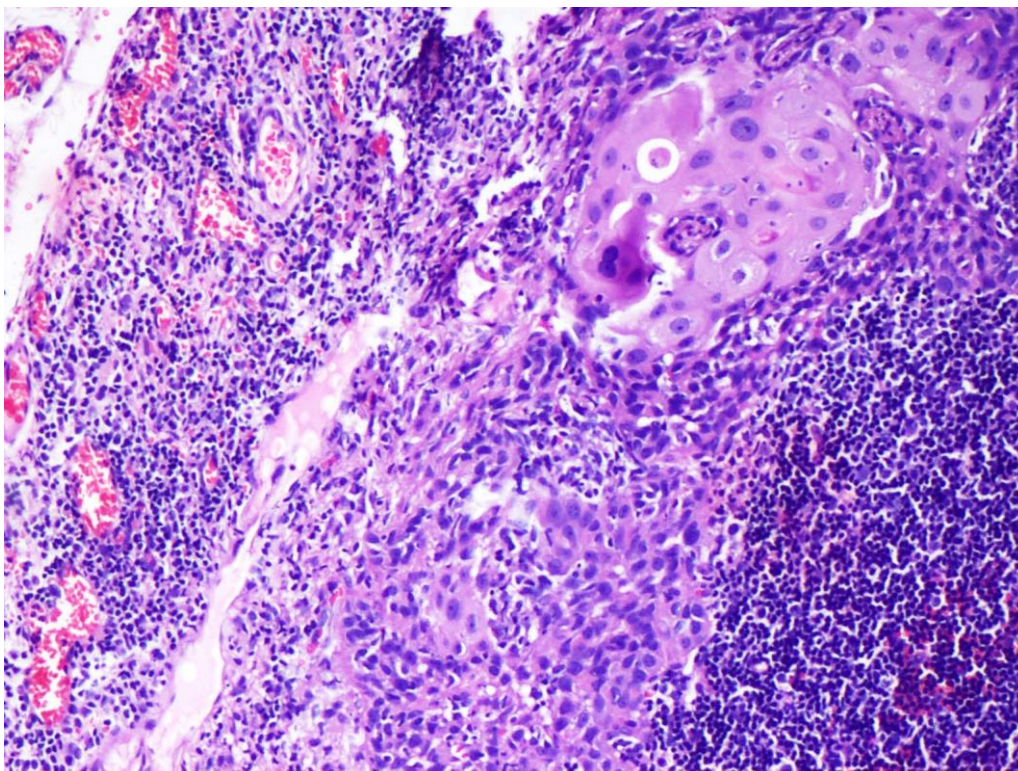




Figure 3: Figure shows Reed Sternberg cell in a case of Hodgkin's lymphoma [H & Ex200]

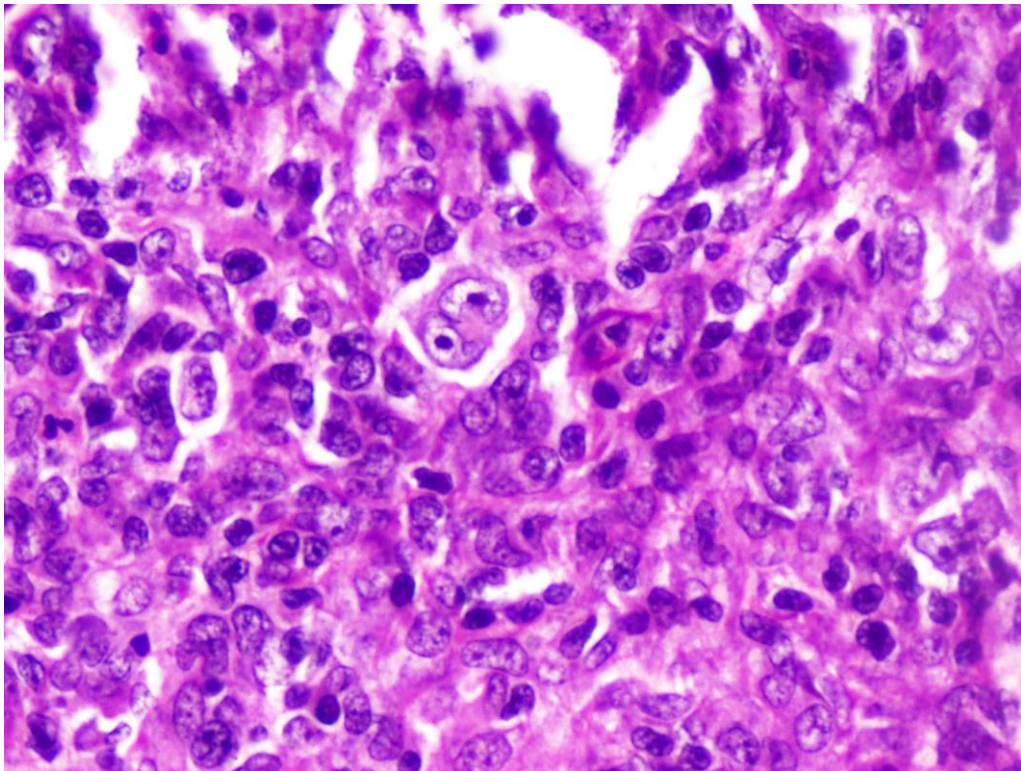
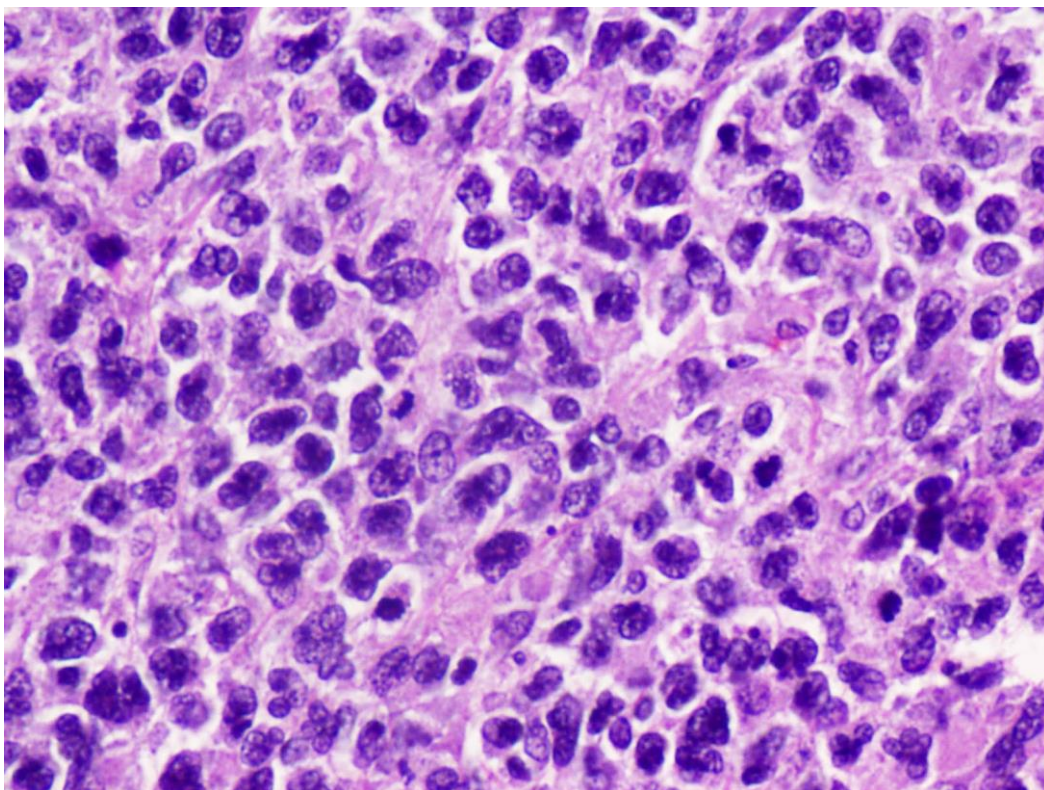


Figure 4: Diffuse large B cell lymphoma involving lymph node [H&E x200]



We were also able to determine the different causes of lymphadenopathy. The present study points out that metastatic carcinoma is also an important cause of lymphadenopathy. Hence correlation with clinical features, FNAC and histopathology are required to establish an accurate diagnosis



**REFERENCES**

- [1] Kamath KG. S Afr Fam Pract 2011;53(3):267-270
- [2] Vachhani A, Bhuvra K, Jasani J, Patel D, Savjiani N, Patel K et al. IJBAR 2013;04 (11).
- [3] Saraswat A, Rajender A, Purohit K, Jaiswal RM, Sharma R, Dubey D. Journal of Evolution of Medical and Dental Sciences 2015; 4(06):1008-1014.
- [4] Rao MN, Raju YS, Prasad AK, et al. JAPI 2002;50:1488-1489
- [5] Freidig EE, McClure SP, Wilson WR, et al. Rev Infect Dis 1986;8(3):322-328.
- [6] Chumakov FI, Khmeleva RI. Vestn Otorino Laringol. 2002;6:27-29.
- [7] Al Maghrabi J, Kanaan H. Ann Saudi Med 2005;25(4):319-323
- [8] Moore S, Schneider J, Schaaf H. Pediatr Surg Int 2003;19:240–244.
- [9] Chau I, Kelleher MT, Cunningham D. Br J Cancer 2003;88:354-36.
- [10] Zahir ST, Azimi A. Pak J Med Sci 2009;25(5):728-733.
- [11] Burns, B. F., Colby, T. V., Dorfman, R. F. The American journal of surgical pathology, 1984;8(4), 253-262.