



## CYTOLOGICAL STUDY OF LYMPHADENOPATHIES – A TERTIARY CARE HOSPITAL EXPERIENCE

**Sumalatha Kasturi\***

M.D (Pathology) Associate Professor, Department of Pathology, Chalmeda AnandRao Institute of Medical Sciences, Karimnagar. \*Corresponding Author

**Rajanikar Myadarapu**

Post Graduate, Department of Pathology, Chalmeda AnandRao Institute of Medical Sciences, Karimnagar.

### ABSTRACT

**INTRODUCTION:** Cervical lymph node enlargement is the most common clinical finding in all age groups. FNAC is useful investigative procedure to avoid unnecessary surgeries in many cases of lymphadenopathies.

**AIMS & OBJECTIVES:** To study and classify various lymphadenopathies using FNAC and to know the incidence of various causes of lymphadenopathies in and around Karimnagar.

**METHODS:** A Total of 222 cases were studied. FNAC was done on patients presenting with lymph node enlargement to the department of pathology over a period of one year from June 2016 to May 2017 at a tertiary care hospital and cytological smears were studied.

**RESULTS:** Incidence of lymphadenopathies was commonly seen in the second decade of life followed by fourth decade of life. Reactive lymphoid hyperplasia was the most common diagnosis followed by granulomatous lymphadenitis.

**CONCLUSION:** Lymphadenopathies should be evaluated by FNAC as a first line of investigation. It avoids unnecessary surgery in many cases.

**KEYWORDS :** Fine Needle aspiration cytology, Reactive lymphoid hyperplasia , Granulomatous lymphadenitis.

**INTRODUCTION :** Greig and Grey first introduced the technique of FNAC in the year 1904<sup>1,5</sup>. In the year 1921 Guthrie correlated lymph node aspiration cytology to study various diseases. The Haque and Talukdar stated that FNAC is helpful in the diagnosis of both neoplastic and nonneoplastic lesions before the surgical intervention<sup>(1)</sup>.

Cervical lymph node enlargement is the most common clinical finding in all age groups that ranges in etiology from inflammatory to malignancy. To evaluate lymphadenopathies, FNAC is the first line standard procedure of investigations<sup>(2)</sup>

Fine needle aspiration cytology (FNAC) is useful to avoid unnecessary excision biopsy and also surgical complications in many cases. Based on FNAC report surgeon can plan the treatment in patients who require surgeries<sup>(3)</sup>.

**MATERIAL AND METHODS:** A prospective one year study from June 2016 to May 2017 was done on patients who presented with lymph node enlargement. In all cases detailed history was taken and clinical examination conducted. FNAC was performed after taking informed consent. Smears were prepared. Alcohol fixed smears were stained with H&E, air dried smears were stained with Leishman stain. Ziehl-neelsen stain for acid fast bacilli was done in tuberculosis suspected cases and morphological evaluation done.

**RESULTS –** A Total of 222 cases were studied. The age of the patients ranged from 4 years to 83 years with a female to male ratio of 1.1:1. Incidence of lymphadenopathy was seen commonly in second decade of life followed by fourth decade of life. Cervical region was reported as the most common site of lymphadenopathies. Reactive lymphoid hyperplasia is the most common cytological diagnosis followed by granulomatous lymphadenitis in our study.

**Table: 1 Age incidence of various causes of lymphadenopathy.**

Age	Reactive lymphoid hyperplasia	Acute suppurative lymphadenitis	Granulomatous lymphadenitis	Metastatic malignancy	NHL	HL
0-1	15	04	01	00	00	01
11-20	26	01	25	00	00	02
21-30	12	02	17	02	00	00
31-40	15	01	21	04	00	00
41-50	08	02	06	00	06	00
51-60	06	01	08	12	01	00
60 & above	05	00	03	10	05	00
Total	87	11	81	28	12	03

In the first decade of life, reactive lymphoid hyperplasia was most commonly seen followed by acute suppurative lymphadenitis whereas in older children reactive lymphoid hyperplasia was common that is closely followed by granulomatous lymphadenitis. In 3<sup>rd</sup> and 4<sup>th</sup> decades of life granulomatous lymphadenitis were most commonly seen followed by reactive lymphoid hyperplasia. In sixth decade and above metastatic malignancies were seen followed by Non-Hodgkins lymphoma.

Reactive lymphoid hyperplasia was commonly observed in 2<sup>nd</sup> decade. Acute suppurative lymphadenitis was common in 1<sup>st</sup> decade. Granulomatous lymphadenitis was seen in 2<sup>nd</sup> to 4<sup>th</sup> decade. Metastatic malignancies were seen in 6<sup>th</sup> decade. Non-Hodgkin's lymphoma was seen in 5<sup>th</sup> decade, Hodgkins lymphoma was seen in 1<sup>st</sup> and 2<sup>nd</sup> decades of life. Youngest age of patient with Hodgkins lymphoma was 6 years.

Reactive lymphoid hyperplasia and granulomatous lymphadenitis were most commonly seen in second decade of life followed by fourth decade. Metastatic neoplasms were most commonly seen in fifth and sixth decades of life. Hodgkins lymphoma was seen in second decade and Non Hodgkins lymphoma was seen in fourth decade of life.

In females reactive lymphoid hyperplasia and granulomatous lymphadenitis shows preponderance, whereas for metastatic neoplasms and lymphomas male preponderance was noted.

**Table 2 - Cytological diagnosis of metastatic neoplasms.**

Cytological diagnosis	No. of patients	Percentage
Metastatic squamous cell carcinoma	12	42.8%
Metastatic small cell carcinoma	03	10.7%
Metastatic infiltrating duct carcinoma	08	28.5%
Metastatic malignant melanoma	04	14.5%
Metastatic papillary carcinoma of thyroid	01	3.5%
Total	28	100%

Metastatic neoplastic lesions were common in the older age group, and it is more commonly observed in males.

Metastatic squamous cell carcinoma was most common followed by metastatic infiltrating duct carcinoma.

Metastatic squamous cell carcinoma was commonly seen in cervical lymph node, the most common primary site being oropharynx.

Metastatic infiltrating duct cell carcinoma was commonly seen in axillary lymph nodes of females.

Metastatic small cell carcinoma was seen in three male patients who presented with cervical lymph node enlargement. All were chronic smokers.

Metastatic malignant melanoma was commonly seen in inguinal lymph nodes with the primary lesion on foot, showed similar gender distribution.

#### DISCUSSION :

Cytological evaluation of lymph node enlargement was done on 222 cases in a tertiary care hospital. Age of the patients ranged from 4 years to 83 years. Out of 222 cases, females were 123 and males were 99 in number. We classified various causes of lymphadenopathies into infective, reactive, lymphoproliferative and metastatic malignancies.

In present study, a slight female preponderance was noted with a female to male ratio of 1.1:1 which correlated with the studies of Nirmal amit K et.al.<sup>(1)</sup>, kamal et.al.<sup>(3)</sup> Duraiswami R et.al.<sup>(5)</sup> In few other studies like those of Qadri et.al.<sup>(2)</sup> Jadhav R et.al.<sup>(4)</sup> Gayathri MN et.al.<sup>(9)</sup> male preponderance was noted.

In the present study patients were in the age group of 4 to 83 years. Similar to the observations of Nirmal Amit et.al.<sup>(1)</sup>, kamal et.al.<sup>(3)</sup> in which patients age ranged from 2 to 80 years.

In the present study, Incidence of lymphadenopathy was seen commonly in 11-40 years which correlated with the studies of Jadhav R et.al.<sup>(4)</sup>. Peak incidence was seen in 2<sup>nd</sup> decade of life, which correlated with Nirmal amit et.al.<sup>(1)</sup>, which is 3<sup>rd</sup> decade in Qadri et.al.<sup>(2)</sup>

In the present study cervical region was reported as most common site of lymphadenopathies, Jadhav R et.al.<sup>(4)</sup> Mitra SK et.al.<sup>(6)</sup> Tandon P et.al.<sup>(7)</sup> have also reported cervical region as the most common site of involvement in their studies.

In studies of Malhotra AS et.al.<sup>(8)</sup>, Gayathri MN et.al.<sup>(9)</sup> Qadri et.al.<sup>(2)</sup> Reactive lymphoid hyperplasia followed by metastasis is the most common cause of lymphadenopathies.

In our study reactive lymphoid hyperplasia followed by granulomatous lymphadenitis was most common cause of lymphadenopathies which is correlated with the study by Duraiswami R et.al.<sup>(5)</sup>

There is high endemicity of tuberculosis in India. We found 81 cases of granulomatous lymphadenitis but only 6 cases showed AFB positivity. Nirmalamit et.al.<sup>(1)</sup> observed 54% cases are positive, and in Mitra SK et.al.<sup>(6)</sup> studies showed 51% positivity.

In kamal et.al.<sup>(3)</sup> Tandon P et.al.<sup>(7)</sup> Jadhav R et.al.<sup>(4)</sup> reported metastatic neoplastic lesions are common in older age group with male predominance and metastatic squamous cell carcinoma was the most common. Our study also showed similar observations. In the study of Duraiswami R et.al.<sup>(5)</sup> reported adenocarcinomas the most common type of metastatic malignancy.

In our study 50 and above age group showed metastatic neoplasm whereas studies of Nirmal amit et.al. observed in the age group 40 and above.

Lymphomas showed the incidence of 5.6% in our study, in which Hodgkins lymphoma showed 25% and Non Hodgkins lymphoma showed 75%. This is correlated with the studies of Malhotra AS et.al.<sup>(8)</sup> where as the studies of Bargoetra R et.al. reported incidence of lymphomas is 5.7% in which Hodgkins lymphoma was 75% and Non Hodgkins lymphoma was 25%.

**Conclusions :** From this study we would like to conclude that reactive lymphoid hyperplasia followed by granulomatous lymphadenitis are

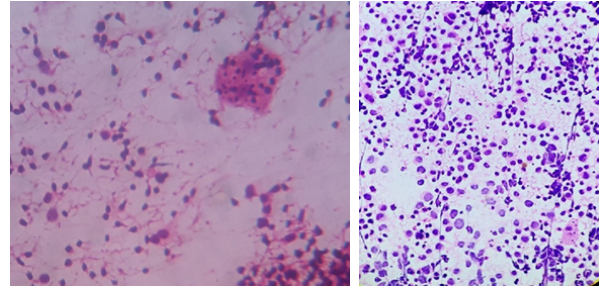
the most common cause of lymphadenopathies in all age groups in our region.

Metastatic malignancy in lymph nodes common in older age group.

FNAC should be considered as first line investigation in all cases of lymphadenopathy as it avoids unnecessary biopsy and surgery in many cases.

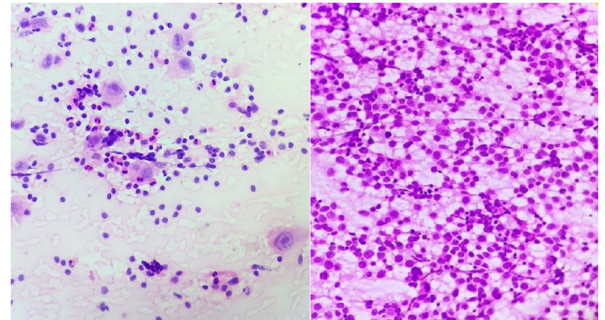
**Financial support : Nil**

**Conflicts of interest : Nil**



**Figure 1 - H&E 40X : Reactive lymphoid hyperplasia**

**Fig 2: H&E 40X: Metastatic small cell carcinoma**



**Fig 3 – H&E 40X: Hodgkins lymphoma**

**Fig 4: Non Hodgkin's Lymphoma**

#### REFERENCES

1. Nirmal amit k et.al.Role of fine needle aspiration cytology in assessment of cervical lymphadenopathy in variable age groups: a retrospective study,international journal of medical research and health sciences,2016,5,11:306-310.
2. Qadri et.al.Cytological study of cervical lymphadenopathy in a tertiary care institution from Kashmir valley,india.j cytol histol 7:418.
3. Kamal et.al. cytologic evaluation of lymphadenopathy in a tertiary care hospital of central india, Indian journal of basic and applied medical research;December 2015:vol-5,issue-1.671-681.
4. Jadhav R et.al. Cytological profile of lymphadenopathies at tertiary health care institute,Nashik,India.2016. Vol 3[2]Mvp journal of medical sciences,,96-100.
5. Duraiswami R et.al.Spectrum of pathologies on FNAC evaluation of peripheral lymphnodes at a tertiary care center in Hyderabad: a retrospective study,international journal of advances in medicine:2017;vol-4,issue 1.27.
6. Mitra sk et.al.Cytomorphological patterns of tubercular lymphadenitis and its comparison with ziehl-neelsen staining and culture in eastern up.[Gorakhpur region]:cytological study of 400 cases. J cytol 2017;34:139-43.
7. Tandon P et.al. Utility of fine needle aspiration cytology in lymphadenopathy – a study of 638 cases in a primary care setting,national journal of laboratory medicine.2016 jul.vol-5(3):11-15.
8. Malhotra AS et.al.Profile of lymphadenopathy: an institutional based cytomorphological study.int j app basic med res2017;7:100-3.
9. Gayathri MN et.al.Pattern of lymphadenopathy in fine needle aspiration cytology: a retrospective study. Int j res med sci.2015 jun;3(6):1416-1419.
10. Bargoetra R et.al. A cytological study of cervical lymph nodes in tertiary care centre.Jk science.2015.vol.17:1.