



## Lymph Node Aspirations: A Study of Pattern in 300 Cases, Esic Modal Hospital, Gurgaon

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### ABSTRACT

**Introduction:** *Fine needle aspiration cytology (FNAC) is most popular diagnostic aid in patients with lymphadenopathy. This paper proves it to be highly sensitive.*

**Materials and Methods:** *The present study was undertaken to study non-neoplastic and neoplastic lesions of enlarged lymph nodes by FNAC in 300 patients who presented with lymphadenopathy. Done at ESIC Modal Hospital, Gurgaon during a period of two years from January 2014 to December 2015.*

**Results:** *In the present study, 300 cases of lymph node enlargement were recorded from first decade to ninth decade of life. Majority of patients belonged to age group of 21-30 years. Males were more affected with M:F ratio of 1.8:1. Out of 300, total of 269 cases (89.67%) were diagnosed as benign lesions and 17 cases (5.67%) were diagnosed as malignant lesions. Maximum number of patients were observed in 2nd and 3rd decade of life in benign group and 5th decade of life in the malignant group. Maximum number of cervical lymphadenopathy were belonged to tubercular lymphadenitis.*

**Conclusion:** *FNAC proved to be a safe, inexpensive, repeatable and rapid procedure in which no hospitalization or anaesthesia is required.*

**Keywords:** *FNAC; lymphadenopathy; North India*

### INTRODUCTION

FNAC is most popular diagnostic aid all over the world for the patients presenting with lymphadenopathies. Lymphadenopathy is one of the most common clinical presentations with variable etiologies and is one of the major cause of morbidity.<sup>1</sup>

Diagnosis of lymphadenopathy depends mainly on excision and histopathological examination. For this, general anaesthesia and hospitalisation are

required. Fine needle aspiration cytology, on the other hand, is free from these disadvantages and can safely be used as an alternative or complementary investigative technique. Its diagnostic efficacy, particularly in tubercular lymphadenitis, has been reported to be as high as histopathological studies (Editorial I.J.T. 1985).<sup>2</sup>

The present study highlights FNAC, which proves to be the wonderful and sensitive diagnostic aid in lymph node disorders.<sup>1</sup>

## MATERIALS AND METHODS

The study comprises aspirate from lymph nodes done at ESIC Modal Hospital, Gurgaon during a period of two years from January 2014 to December 2015. It consists of 300 lymph node aspirates from different patients. A provisional clinical diagnosis was made in each case at the outset. Routine investigations like DLC, TLC, ESR and special investigations like Mantoux test, Plain X-ray chest and sputum for AFB were done. FNAC was performed in each case using a 23G needle. An average of 2-3 passes were made and 4 slides were prepared. One slide was air dried and was stained by May-Grunwald Giemsa stain whereas other was stained by Papanicolaou stain.

One slide was left unstained for performing special stains like Ziehl- Neelson stain and Periodic Acid Schiff (PAS) stain wherever necessary.

## OBSERVATIONS

In this study total 300 cases of lymphadenopathy were received, out of which 14 cases were excluded from the study due to inadequate aspirate.

Out of 300 cases, FNAC was unsatisfactory in 4.7% (n=14) cases whereas diagnosis was offered in 95.3% (n=286) cases leading to a high sensitivity of the technique.

**TABLE 1** Distribution of patients according to age

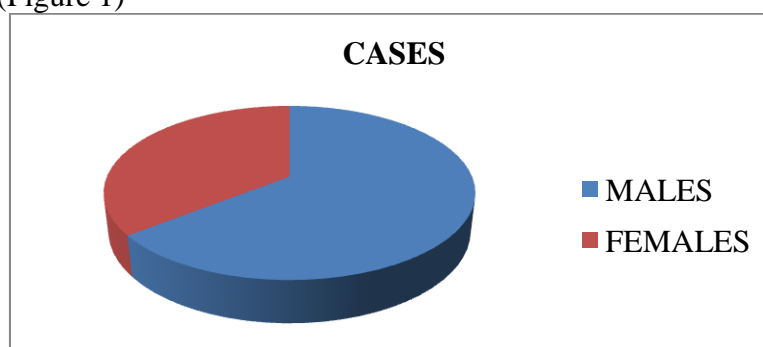
Sr.no	Age group( years)	No. of patients	Percentage(%)
1	0-10	51	17
2	11-20	49	16.33
3	21-30	104	34.67
4	31-40	57	19
5	41-50	18	6
6	51-60	12	4
7	61-70	06	2
8	71-80	00	00
9	81-90	01	0.33
10	91-100	02	0.67
	<b>TOTAL</b>	<b>300</b>	<b>100</b>

Maximum number of cases, i.e., 34.6% (n=104) were reported in age group of 21-30 years, whereas second highest number of cases were seen in age group of 31-40 years ( 19% ).The least number of cases, i.e., 0.33% (n=1) were seen in eighth decade of life (Table1).

**TABLE 2** Distribution of patients according to sex

Total	Males	Females
300	193	107

Out of the 300 patients, 64.3% (n=193) patients were males with 35.7% (n=107) cases being females leading to a M: F ratio of 1.8:1 (Figure 1)



**Figure 1**

**TABLE 3** Distribution of lymphadenopathy according to site

Sr no.	Sites of involvement	No. of patients	Percentage(%)
1	Cervical	235	78.33
2	Axilla	26	8.67
3	Inguinal	11	3.67
4	Submandibular	19	6.33
5	Supraclavicular	06	2
6	Submental	03	1
	<b>TOTAL</b>	<b>300</b>	<b>100</b>

According to various sites of distribution of enlarged lymph nodes, cervical region is the most common site (78.3%), followed by Axilla (8.67%), submandibular (6.3% ), supraclavicular (02%) and submental (01%) respectively, observed in our study. (Table 3)

**TABLE 4** Distribution of benign and malignant lesions according to age group

Sr. no.	Age group	Benign		Inadequate		Malignant	
		Number	Percentage	Number	Percentage	Number	Percentage
1	0-10	50	16.67	01	0.33	00	00
2	11-20	46	15.33	01	03.33	02	0.67
3	21-30	99	33	05	1.67	00	00
4	31-40	51	17	03	1	03	1
5	41-50	12	4	01	0.33	05	1.67
6	51-60	06	2	01	0.33	05	1.67
7	>60	05	1.67	02	0.67	02	0.67
	<b>TOTAL</b>	<b>269</b>	<b>89.67</b>	<b>14</b>	<b>4.67</b>	<b>17</b>	<b>5.67</b>

In our study total number of benign cases observed were 269 (89.67%), much higher than malignant cases, 17 (5.67% ) after excluding 14 cases of inadequate aspirate. Benign lesion of lymph nodes were most frequently seen in second decade of life, 99 cases ( 33% ), followed by first decade of life, 50 cases ( 16.67% ). Malignant lesions of lymph nodes were most frequently seen in fifth and sixth decade of life (1.67%).

**TABLE 5** Distribution of benign and malignant lesions in male and female

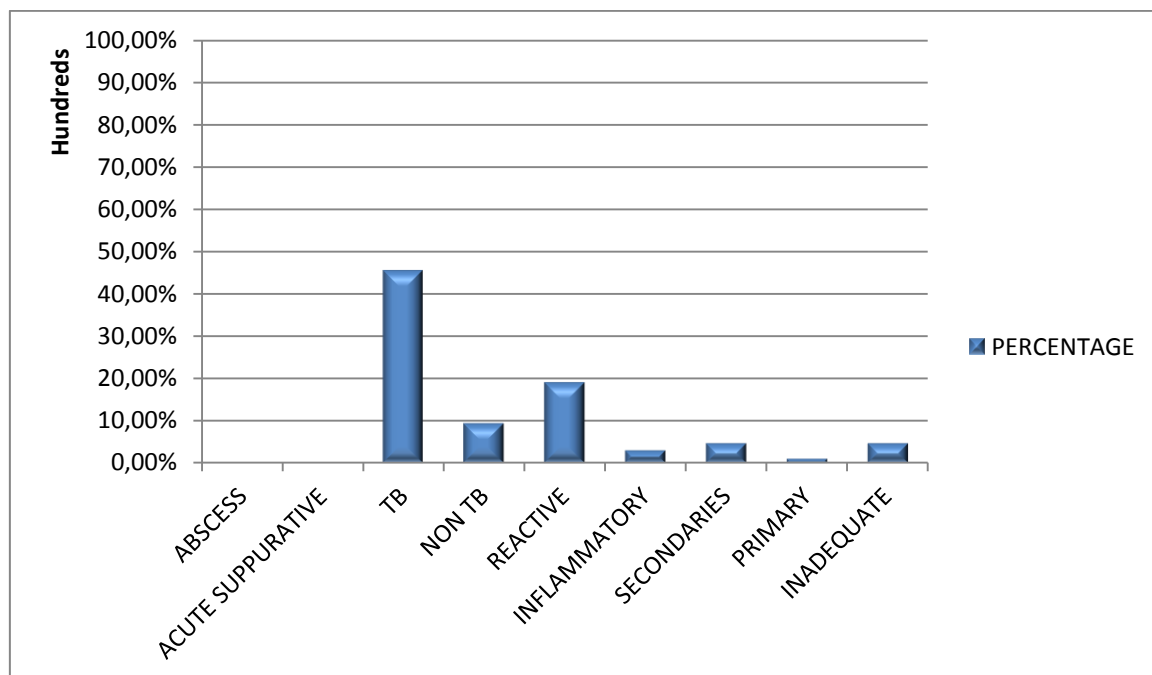
Nature of lesion	Male		Female		Ratio Male:Female
	Number	Percentage	Number	Percentage	
Benign	169	62.82	100	37.17	1.69 : 1
Malignant	2	11.76	15	88.23	0.13 : 1
<b>TOTAL</b>	<b>171</b>		<b>115</b>		<b>1.49 : 1</b>

The number of benign lesions in males was higher than females i.e. Male: Female (1.69:1), whereas the ratio was reversed in malignant lesions i.e. 0.13:1. (Table 5)

**TABLE 6** Diagnostic patterns of lymphadenopathy on Fine Needle Aspiration Cytology

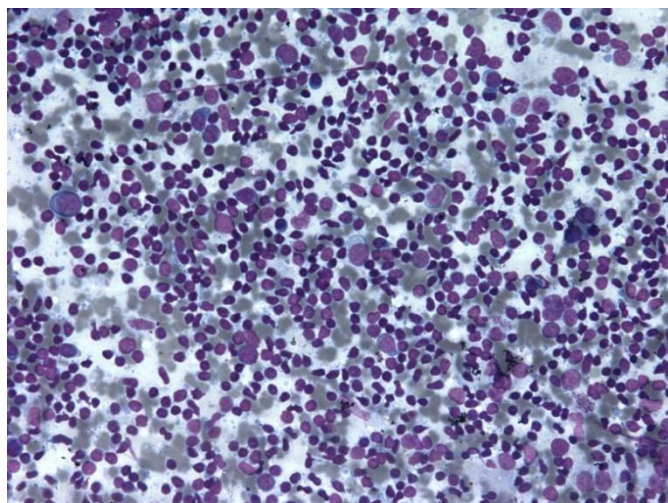
Diagnosis	No. of cases	Percentage (%)
<b>A.Benign</b>	<b>269</b>	<b>89.67</b>
1.Abscess	36	12
2.Acute suppurative	03	01
3.Granulomatous ( tubercular )	136	45.33
4.Granulomatous (non tubercular)	28	9.33
5.Reactive	57	19
6. Inflammatory	09	03
<b>B.Malignant</b>	<b>17</b>	<b>5.67</b>
<b>Secondary</b>	<b>14</b>	<b>4.66</b>
1.Mets of adenocarcinoma	02	0.67
2.Mets of squamous cell carcinoma	07	2.33
3.Mets of unknown origin/ poorly differentiated carcinoma	04	1.33
4.Thyroid mets	01	0.33
<b>Primary</b>	<b>03</b>	<b>01</b>
1.Non Hodgkin lymphoma	02	0.67
2.Hodgkin lymphoma	01	0.33
<b>C.Inadequate</b>	<b>14</b>	<b>4.67</b>
<b>TOTAL</b>	<b>300</b>	<b>100</b>

Out of total 300 cases studied by fine needle aspiration cytology, 269 cases (89.67% ) were diagnosed as benign lesions and 17 cases ( 5.67% ) were diagnosed as malignant lesions. Among benign lesions the most significant lesions encountered were tubercular lymphadenitis, 136 cases (45.33% ). The second most common benign lesion encountered was reactive lymphadenitis, 57 cases (19% ). Out of 14 malignant lesions secondaries (n= 14) were more common than primaries (n=3). (Table 6)

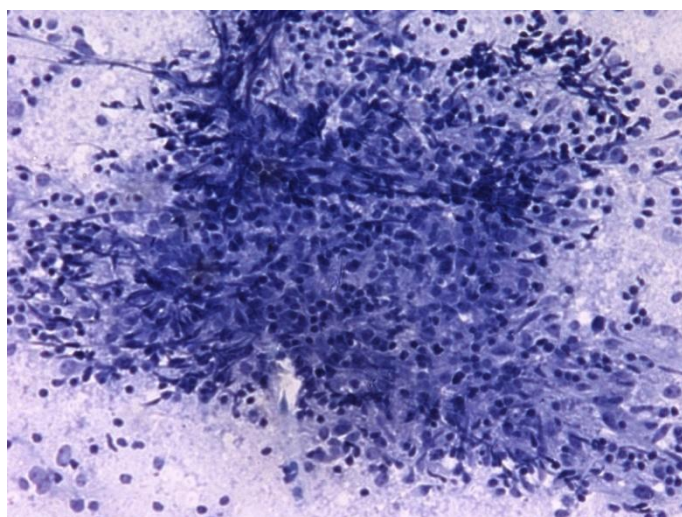


**Figure 2** Overall cases commonly encountered on Fine Needle Aspiration Cytology of lymph node. (Figure 2)

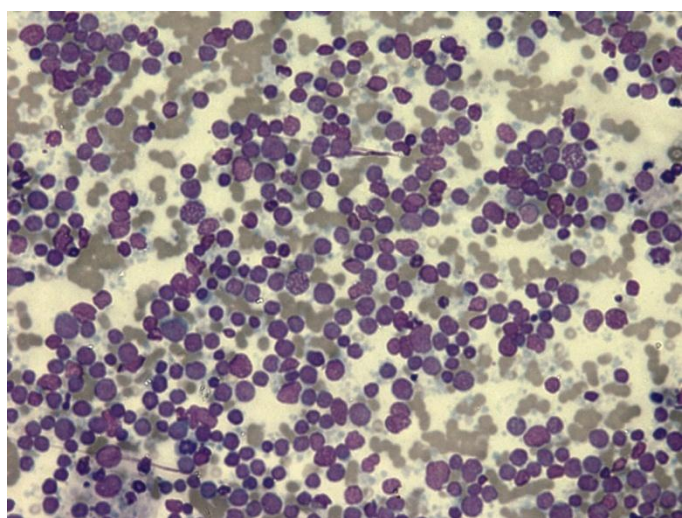




**FIG 1:** FNA smear showing reactive lymphadenitis (200x)



**FIG 2:** FNA smear showing granulomatous lymphadenitis (400x)



**FIG 3:** FNA smear showing non Hodgkin lymphoma (200x)

## DISCUSSION

In the present study, 300 cases of lymph node enlargement were recorded from first decade to ninth decade of life. Majority of patients (n=104) belonged to age group of 21-30 years (34.67%). Males were more affected (64.3%) than females (35.7%) with M: F ratio of 1.8:1. Similar male predominance was also observed by Rani et al.

Out of total 300 cases studied by fine needle aspiration cytology, 269 cases (89.67%) were diagnosed as benign lesions and 17 cases (5.67%) were diagnosed as malignant lesions. In general practice, less than 1% of patients with peripheral lymphadenopathy have a malignant process.<sup>3</sup>

In our study male: female ratio in benign lesions were 1.69:1 but in malignant lesions it was reversed i.e 0.13:1. Maximum number of patients were observed in 2<sup>nd</sup> and 3<sup>rd</sup> decade of life in benign group and 5<sup>th</sup> decade of life in the malignant group. The likelihood of malignant disease as a cause of peripheral lymphadenopathy increases over the age of 40 years.<sup>4</sup> These findings correlated with that of Ahmad et al and Sarada et al.<sup>5,6</sup>

Sauja and Ajinyka<sup>7</sup> attributed the cause of the presence of more malignancy in older age to the fact that adult patients often react to the infections with only slight to moderate lymph node enlargement.

The most common site of lymph node enlargement was seen in cervical region, 235 cases (78.33%) followed by submandibular region, 19 cases (6.33%). Maximum number of cervical lymphadenopathy were belonged to tubercular lymphadenitis. Similar findings had been observed by Sheikh et al (1981)<sup>8</sup> and Patra et al (1983).<sup>9</sup> Reactive lymphadenitis was the next one to be encountered, 57 cases (19%). Most of the patients coming to our institute belonged to low socio-economic status and living in overcrowded places, which might be the reason for higher incidence of tuberculosis in our study.

Among 17 malignant cases, metastatic squamous cell carcinoma was the commonest (7 cases) followed by metastatic poorly differentiated

carcinoma (4 cases). Similar findings were also offered by Anderson (1966).<sup>10</sup> Squamous cell carcinoma is the most common type of primary carcinoma of head and neck leading to secondaries (Orell,2012).<sup>11</sup>

Our study gave us the opportunity to review the clinical application of FNAC on benign and malignant lesions of lymph node. Out of 300 cases, FNAC was unsatisfactory in 4.7% (n=14) cases whereas diagnosis was offered in 95.3% (n=286) cases leading to a high sensitivity of the technique. The reasons for this inadequacy in our study could be inadequate aspirate, uncooperative patient, improper technique, deep seated swellings in which USG guided FNAC is advised.

The high sensitivity, specificity and diagnostic accuracy are evidences of the usefulness of FNAC prior to follow up biopsy. Regarding the atypical and suspicious cases, biopsy had confirmed the malignant nature of the lesion, thus initial FNAC had a strong indication to follow up the patients. FNAC may be of limited value in diagnosing deep seated and small lesions, but various imaging techniques like ultrasound, computed tomography (CT) scans and magnetic resonance imaging (MRI) can reduce sampling error. Thus accuracy of FNAC depends on precision of aspiration procedure.

Moreover, maximum cervical lymphadenopathy resulted from tuberculosis. India is the country with the highest burden of TB. The World Health Organisation (WHO) statistics for 2014 give an estimated incidence figure of 2.2 million cases of TB for India out of a global incidence of 9 million. It is estimated that about 40% of the Indian population is infected with TB bacteria, the vast majority of whom have latent rather than active TB. In developing countries, like India, poor economic conditions, overcrowding, poor immune system etc. are the major risk factors.

In conclusion, the usefulness of FNAC for lymphadenopathy offers many advantages and it is a useful as an outdoor diagnostic procedure because of early diagnosis in comparison to

histopathological diagnosis of TB, Malignancies etc.

**CONFLICT OF INTEREST:** No conflict of interest

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