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A Study of Fine Needle Aspiration Cytology of Lymphadenopathy in Tertiary Care Centre of Gandhinagar, Gujarat

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ABSTRACT

INTRODUCTION: Lymph node enlargement is a common symptom in patients of all ages with a wide range of illnesses, from infections to malignancy. The common sites of distribution are cervical, axillary, mediastinal, retroperitoneal, iliac, and inguinal regions. The aim of present study is to evaluate various pattern of lymph node lesion in various age group and gender.

MATERIALS AND METHOD: This is retrospective study of 151 patients from January 2021 to October 2022 with complain of lymph node swelling of all age group and gender. FNAC was done at cytology department in all cases after maintaining aseptic precaution using 22-24 G needle attached to 5-10cc syringe. Slides were stained with H&E stain and every slide of all the cases of lymphadenopathies were examined.

RESULT: Out of 151 cases most common etiology of lymphadenopathy was found to be Tuberculous Lymphadenitis (49.6%) followed by reactive lymphadenitis (21.1%), more common in female of middle age group.

CONCLUSION: FNAC has high accuracy rate to differentiate infective, non neoplastic conditions from neoplastic conditions. FNAC is a simple, safe, reliable, and inexpensive method in early detection of lymph node lesions.

KEYWORD: FNAC, Lymphadenopathy, TB Lymphadenitis.

I. INTRODUCTION

Fine needle aspiration cytology is a quick, easy, safe and cheap technique and has been a well accepted procedure for diagnosing various swelling.[1] FNAC has high accuracy rate to differentiate infective, non neoplastic conditions from neoplastic conditions. FNAC is a simple, safe, reliable, and inexpensive method in early detection of lymph node lesions. Lymph node enlargement is a common symptom in patients of all ages with a wide range of illnesses, from infections to malignancy. The common sites of distribution are cervical, axillary, mediastinal, retroperitoneal, iliac, and inguinal regions. The technique is minimally invasive and gives a speedy result. Lymph node aspiration is of great value for the diagnosis of lymphadenitis, lymphomas and metastatic carcinoma.[2,3]

AIM AND OBJECTIVES

- To assess the cytomorphological features and distribution of various lymph node diseases on fine - needle aspiration cytology (FNAC).
- To study gender wise distribution of peripheral lymphadenitis.
- To study occurrence of various lymphadenoapthy in different age-group.

II. MATERIALS AND METHODS

All the cases referred in our cytology laboratory, GMERS medical college and hospital, Gandhinagar for palpable Lymphnode swelling FNAC from January 2021 to October 2022 were included in this retrospective study. Relevant brief clinical history was taken and examination done of every patients. Aspirations were carried out by the cytopathologist doctors and stained with Hematoxylene and Eosin as well as Giemsa after aspiration from 22 and 24 Gauge needle having 2.5 cm length and 10 cc syringe.

III. RESULT

In the retrospective study which was carried out at GMERS Medical College, Gandhinagar, Gujarat during the period from January 2021 to October 2022, total of 151 patients of all age groups were underwent FNAC for enlarged Lymph nodes.

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Table 1: Incidence of neoplastic and non neoplastic lesions of lymphadenopathy (n=151)

CYTOLOGICAL DIAGNOSIS	NO. OF CASES	TOTAL (%)
Non neoplastic	124	82.1
Neoplastic	27	17.8

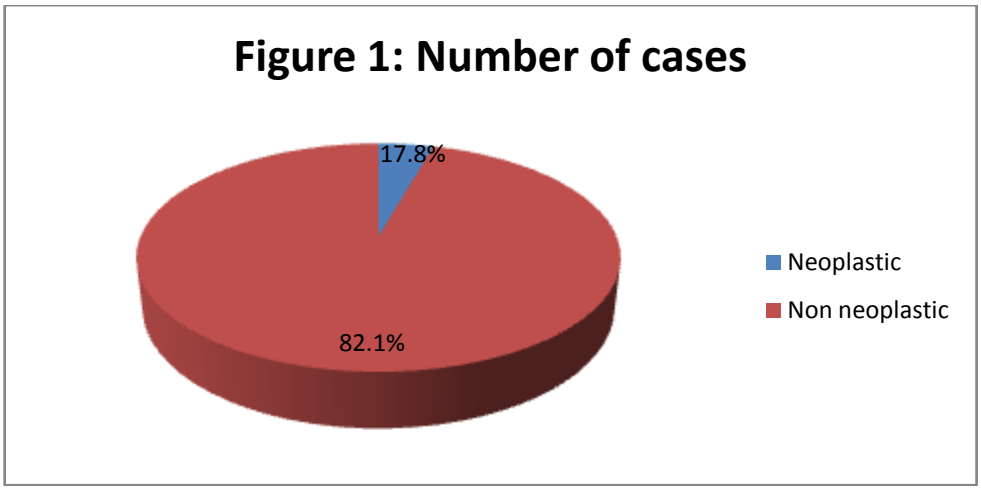

Figure 1: Incidence of neoplastic and non neoplastic lesions of lymphadenopathy (n=151)

The cytomorphological diagnosis in 151 patients with lymphadenopathy shows Non neoplastic lesions were 82.1% and Neoplastic lesions were 17.8%

Table 2: Distribution of various lesions of lymphadenopathy of FNAC (n=151)

CYTOLOGICAL DIAGNOSIS	NO. OF CASES	TOTAL (%)
TB lymphadenitis	75	49.6%
Reactive lymphadenitis	32	21.1%
Granulomatous lymphadenitis	10	6.6%
TB Abscess	07	4.6%
Metastatic carcinoma	24	15.8%
Hodgkin's lymphoma	01	0.6%
Non Hodgkin's lymphoma	02	1.3%

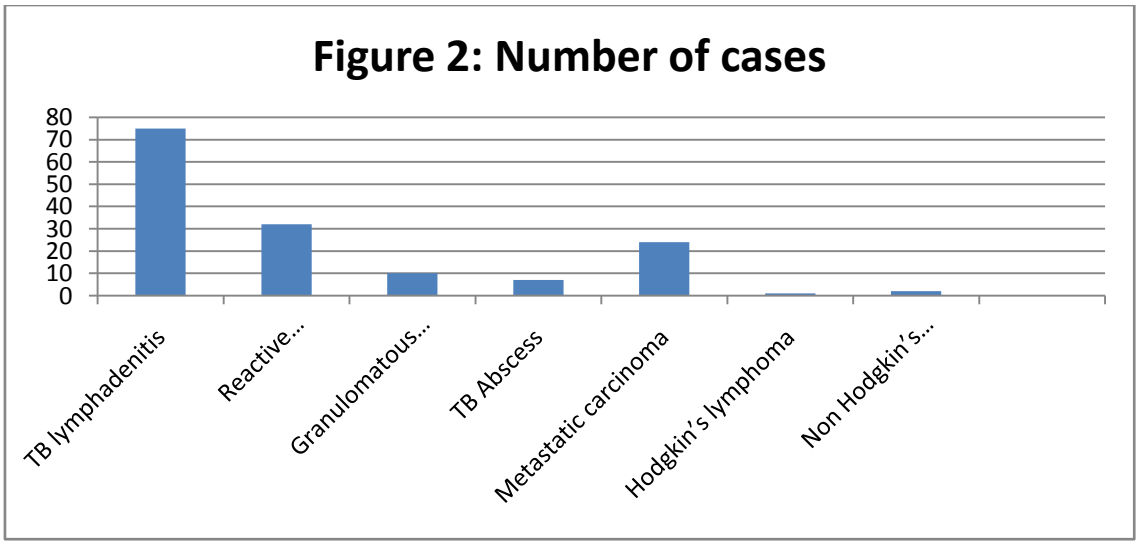

Figure 2: Distribution of various lesions of lymphadenopathy of FNAC (n=151)

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Among 124 cases of non neoplastic lesions of lymphadenopathy, shows Tuberculous lymphadenitis 75 cases (49.6%) was the most common lesion, followed by reactive lymphadenitis 32 cases (21.1%) while in neoplastic lesions (27 cases) of lymphadenopathy, metastatic carcinoma in 24 cases (15.8%) was most common.

Table 3: Age wise distribution of lymphadenopathy (n=151)

	CYTOLOGICAL DIAGNOSIS							
Age	**Tuber-Culous**	**React-ive**	**Granu-Lomatous**	**Tb Absces s**	**Metas - Tatic**	**Hodg-Kin's**	**Non hodg-Kin's**	**Total (n= 151)**
1-10	7	10	2	0	0	0	0	19
11-20	13	5	2	1	1	0	1	23
21-30	26	8	4	4	2	0	0	44
31-40	15	4	2	1	1	0	0	23
41-50	10	3	0	0	6	0	0	19
51-60	3	2	0	1	9	0	1	16
61-70	1	0	0	0	5	1	0	7

Majority of Non neoplastic lesions of lymphadenopathy, Tuberculous lymphadenitis was most often (49.6%) seen in the age group of 21-30years. Majority of Neoplastic lesions occur in the age group of 41-70 years.

Table 4: Gender wise distribution of lymphadenopathy

	MALE(N=69)		**FEMALE**(N=82)	
	Number of cases	**Percentage**	**Number of cases**	**Percentage**
TB lymphadenitis	29	42%	46	56%
Reactive lymphadenitis	14	20.2%	18	21.9%
Granulomatous lymphadenitis	03	4.3%	07	8.5%
Tb Abscess	04	5.7%	03	3.6%
Metastatic carcinoma	18	26%	06	7.3%
Hodgkin's lymphoma	01	1.4%	00	0%
Non Hodgkin's lymphoma	00	0%	02	2.4%

In this study of 151 cases, Female showed preponderance of Tuberculous lymphadenitis, lymphoma and reactive lymphadenitis, while metastatic carcinoma showed male preponderance.

Table 5: Site is distribution of lymphadenopathy (n=151)

SITE OF INVOLVEMENT	**NUMBER OF CASES**	**PERCENTAGE (%)**
Cervical	97	64.2%
Supraclavivular	16	10.5%
Submental	06	3.9%
Axillary	14	9.2%
Submandibular	14	9.2%
Inguinal	04	2.6%

Most of the lymph node swelling was found on cervical region, followed by supraclavicular, axillary and least common site was inguinal region.

IV. DISCUSSION

Fine Needle aspiration (FNAC) is inexpensive, completely safe and quick method for diagnosis of lymphadenopathy and it reduces the need for surgical biopsy. We have presented our experience with 151 cases of lymphadenopathy over a period of twenty two months. In the present study, diagnosis was based on definite cytomorphological findings with clinicocytological co-relation. Our primary aim was to help the clinician in arriving at an early diagnosis in cases presenting with lymphadenopathy. The pattern of lesions consisted of tuberculous lymphadenitis, reactive lymphadenopathy, granulomatous lymphadenitis, lymphoma, chronic non specific lymphadenitis, TB abscess and metastatic lymphadenopathy seen in our study is more or less is same as reported in other studies.[4,5,6]

In this study, Non neoplastic lesions were 82.1% and Neoplastic lesions were 17.8% which was correlated with Sharma et al[8] and Kochher et al[2].

In our study, the majority of the patients were in the age group of 21–30 years. This was correlated with the study by Budge SA et al[12] and Sharma R.I et al[8], where maximum numbers of cases were seen in the age group of 21–30 years. In the present study Tuberculous lymphadenitis was most often (49.6%) seen in the third and fourth decades, while (10.5%) of reactive lymphadenitis cases were seen in first two decades of life which was correlated with Patel MM et al[7], Sharma RI et al[8], Shah PC et al[9], Pratik RK et al[10]and Shilpa et al[11] studies

Most of the lymph node swelling was found on cervical region, followed by supraclavicular, axillary and least common site was inguinal region. This correlated with the study by Gayathri MN et al[13], Vimal S et al[14], Nikethan B et al[15] and Shrivastav A et al[16].

Female showed preponderance of tuberculous lymphadenitis which is comparable to the study done by Sharma RI[8] et al while metastatic squamous cell carcinoma and metastatic epithelial lesion showed male preponderance which is also comparable to the study done by Shilpa et al[11] and Kochhar et a1[2].

Lymph node aspirates in 24 cases (15.8%) showed metastatic lesions. This is in correlation with the studies by Patel et al[8] and Sharma RI et al[7] where metastatic lesions were seen in 27.06%, and 10.4% respectively. Most of the metastatic deposits were from squamous cell carcinoma arising commonly in the tongue, alveolus, buccal mucosa, palate and from lung followed by adenocarcinoma. This high percentage of squamous cell carcinoma was probably because of very high number of people have a bad habit of tobacco chewing [17]. Similar to most of the recently published studies, our eries also noted that SCC was most common metastasis in the cervical lymph nodes followed by adenocarcinoma [16,18].

In this study, a total of three cases (1.9%) of lymphoma were diagnosed out of which two cases (1.3%) were of Non Hodgkin's lymphoma and one case (0.6%) were of Hodgkin's lymphoma. Similar results were found by Vimal S et al [14](2.67%) and Bhavani et al[18](1.2%) .

FNAC aspirates was collected in Falcon tube and sent tube for CBNAAT in all cases of lymphadenopathy. CBNAAT can be added with FNAC to get more specific results. CBNAAT is less sensitive for blood stained samples than purulent samples and hence FNA still remains as the cheapest and first line test to diagnose in cases suspected of tubercular lymphadenopathy.

V. CONCLUSION

FNAC of lymph nodes is an excellent first line investigation to determine the nature of lesion. FNAC is a simple, inexpensive, relatively painless, rapid, repeatable and reliable method of investigation for lymphadenopathy. In the current study, tuberculous lymphadenitis was the commonest presentation of lymphadenopathy. This study also explains the usefulness of FNAC as are liable method of investigation for lymphadenopathy. Most common causes of lymphadenopathy in 11-40 years age group was tubercular lymphadenitis and metastatic carcinoma in patients above 50 years of age with female preponderance. In the study, the most commonly involved group in various types of lymphadenopathy was the cervical group.

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