

STUDY OF FINE NEEDLE ASPIRATION CYTOLOGY IN LYMPHADENOPATHY WITH SPECIAL REFERENCE TO ACID FAST STAINING IN CASES OF TUBERCULOUS LYMPHADENITIS

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Abstract-Background and objectives: Fine needle aspiration cytology (FNAC) is a simple, safe, reliable rapid and inexpensive method of establishing the diagnosis in lymph node lesions. The value of FNAC, besides making a diagnosis lies in early detection, direction of appropriate investigations and treatment options. The present study is undertaken to study the usefulness of FNAC in diagnosing various lymph node lesions in patients presenting with lymphadenopathy. Also to determine the pattern of diseases affecting lymph nodes and to study the spectrum of lesions with respect to age, sex and site of occurrence. To study the distribution of Acid fast bacilli in tuberculous lymphadenitis using Ziehl Neelsen stain.

Methods : The present study included 300 patients with lymphadenopathies from various departments of ASRAMS hospital and other hospitals referred to Department of Pathology, ASRAM Medical College, Eluru for FNAC during the period ranging from June 2011 to May 2013 were taken up for the study. FNAC was done on all patients and multiple smears were made from aspirated material one or more smears were fixed immediately in 95% isopropyl alcohol and stained with Hematoxylin and eosin and Papanicolaou stain (if required). Two smears were air-dried followed by staining with MGG stain (if required) and ZN stain, in cases of tuberculous lymphadenitis.

Results: Out of the 300 cases, 110 cases were diagnosed as reactive, 91 cases as tuberculous and the rest were diagnosed as metastatic carcinoma and lymphoma. The maximum number of cases was seen in the age group of 21 – 30 years. In the present study, a slight female preponderance was seen. Reactive hyperplasia was seen most often in 2nd and 3rd decades of life, tubercular lymphadenitis in 3rd and 4th decades, while metastatic carcinoma seen most often in 6th and 7th decades of life. The cervical group of lymph nodes was involved the most in tubercular, reactive lymphadenitis and metastatic carcinoma. Females showed preponderance of tubercular, reactive lymphadenitis while males had a higher incidence in malignant lesions. AFB positivity was seen in 27.47% of tuberculous lymphadenitis cases.

The initial cytological diagnosis was compared with the gold standard histopathological diagnosis in 19 cases with an overall diagnostic accuracy of 89%.

Interpretation and conclusion

FNAC is a safe, inexpensive, easy and rapid outpatient diagnostic procedure with a high diagnostic accuracy. It is a reliable and useful diagnostic tool thus averting hospital admission.

Key Words: FNAC, lymphadenopathy, ZN stain

INTRODUCTION

Fine needle aspiration biopsy is a clinical technique used to obtain cells, tissue, and/or fluid through a thin needle for the purpose of diagnosis and management of masses, both palpable and nonpalpable. The most common anatomic sites investigated by FNAB include breast, thyroid gland, salivary glands, lymph nodes, soft-tissue lesions,

liver, and pancreas.¹ Since this technique lends itself to outpatient diagnosis, it is eminently suited for use in peripheral medical centres.²

Superficial lymphadenopathy is a common clinical finding; it may be a sign of inflammation, metastatic malignancy or malignant lymphoma. Fine needle aspiration cytology (FNAC) is a simple and rapid diagnostic technique. The cytomorphological

features obtained in needle aspiration, frequently correlate very well with histologic appearance of the same lesion and in some situations has qualities of a micro-biopsy. In conjunction with radiologic studies, it provides ease in following patients with known malignancy and ready identification of metastasis or recurrence.³ In malignant conditions of lymph nodes, FNAC enjoys a high sensitivity and specificity, the average being 95 %.²

In developing countries such as India, tuberculous lymphadenitis continues to be one of the most common causes of lymphadenitis. Clinical diagnosis has pit falls and hence a morphological diagnosis is required before starting anti tuberculous therapy.⁴ The yield of FNAC of tuberculous lymphadenitis is directly proportional to purulent material in sample. The presence of AFB are commonly seen in purulent samples which may not contain granuloma, caseous necrosis or epithelioid cells, in absence of ZN stain of sample can be diagnosed as acute suppurative lymphadenitis.⁵

Many ancillary techniques are available to the FNAB practitioner. Such studies include microbial tests (culture, organism stains, and molecular microbial tests), flow cytometry, immunocytochemistry, cytogenetics, and fluorescent in-situ hybridization (FISH).¹

AIMS AND OBJECTIVES

A.To study the usefulness of fine needle aspiration cytology in diagnosing various lymph node lesions.B.To study the morphological patterns of various lymph node lesions.C.To study the spectrum of lesions with respect to age, sex and site of occurrence.D.To study the distribution of Acid fast bacilli in tuberculous lymphadenitis using Ziehl Neelsen stain.

MATERIALS AND METHODS

The present study was done from June 2011 to July 2013 in the department of pathology, ASRAMS, Eluru.300 cases of Lymph node FNACs were studied from a total of 1850 FNACs obtained at our department during the above study period. A prospective study was taken up.All the cases were carefully analyzed, FNAC done and compared with histopathology in possible cases. The age and sex incidence for all inflammatory, infectious, benign and malignant cases were analyzed. The smears prepared after FNAC procedures were stained with H&E,

May-Grunewald-Giemsa, Pap and Z-N stains wherever necessary.

RESULTS

The present study comprises of Fine needle aspiration cytology study of 300 lymph node lesions for a period of two years from June 2011 to May 2013 conducted in the department of Pathology, Alluri Sitarama Raju Institute of Medical Sciences, Eluru. The cases were referred from various clinical departments of ASRAMS hospital and from other peripheral health centers, private hospitals in and around Eluru. The following observations were made.

The age of the patients ranged from 1.5 months to 95 years, with a median age of 32 years and mean age being 35.05 ± 18.37 years. The maximum number of cases were seen in the age group of 21 – 30 years (23%), followed by 31 – 40 years (21%) and 11 – 20 years (14.7%). The least number of cases were in the age

Age group	No of cases	Percentage
0 – 10	27	9%
11 – 20	44	14.7%
21 – 30	69	23%
31 – 40	63	21%
41 – 50	40	13.3%
51 – 60	32	10.7%
61 – 70	15	5%
71 – 80	07	2.3%
81 – 90	02	0.7%
91 – 100	01	0.3%
Total	300	100 %

In the present study, a slight female preponderance was seen. It was observed that 153 (51%) cases were females and 147 (49%) were males. The male to female ratio was 0.96:1

The cervical region was the most common site involved in the present study constituting 152 cases (50.7%). Involvement of two or more groups of lymph node was considered to be generalized (33 cases) 11%. The other common groups of lymph nodes involved are submandibular (10.7%), supraclavicular (10%), and inguinal (8.7%) in the decreasing order of frequency.

All patients presented with swelling of lymph nodes as the chief complaint and of which 50% had fever, loss of weight in 20%, loss appetite in 18%, and cough in 14%. Pain was seen in 6% as associated symptoms, alone or in combination with other symptoms.

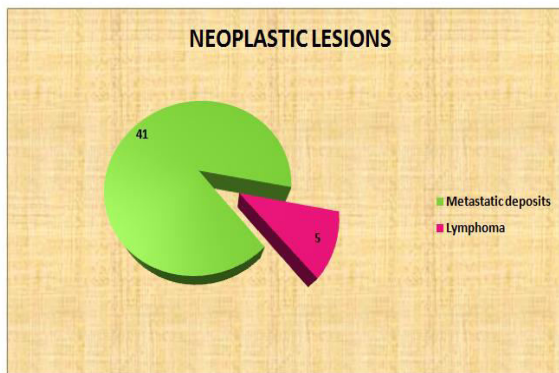
Of the total number of 300 lymphadenopathy cases, 242 cases (80.7%) were non neoplastic, 46 cases (15.3%) were neoplastic and remaining 12 cases (4%) were reported to be inadequate.

S.No	Cytological category	No of cases	Percentage
1.	Non neoplastic lymphadenopathy	242	80.7 %
2.	Neoplastic lesions	46	15.3 %
3.	Inadequate	12	4 %
	Total	300	100 %

The 242 non neoplastic lesions were divided into three groups; the most common entity was chronic non specific reactive lymphadenitis constituting about 110 cases (45.5%), followed by tuberculous lymphadenitis (37.6%) and acute suppurative lymphadenitis(16.9%).

S.No	FNAC Diagnosis	No of cases	Percentage
1.	Reactive/chronic non specific lymphadenitis	110	45.5 %
2.	Tuberculous lymphadenopathy	91	37.6 %
3.	Acute suppurative lymphadenitis	41	16.9 %
	Total	242	100 %

In the present study, metastatic lesions constitute 89% and lymphomas constitute 11% of the total 46 neoplastic cases..



Metastatic lesions constituted 13.67% of all cases of lymphadenopathy. They constituted 89% of all neoplastic lesions. Poorly differentiated carcinomas (41.5%) were the most common metastatic tumours in the present study followed by squamous cell carcinoma (36.6%), adenocarcinomas (7.3%), papillary carcinoma of thyroid (7.3%) and duct cell carcinoma breast (4.9%). There was one

case of papillary variant of epithelial mesothelioma.

S.No	Metastasis (n = 41)	No of cases	Percentage
1.	Squamous cell carcinoma	15	36.6 %
2.	Adenocarcinoma	03	7.3 %
3.	Duct cell carcinoma	02	4.9 %
4.	Papillary carcinoma thyroid	03	7.3 %
5.	Papillary variant of epithelial Mesothelioma	01	2.4 %
6.	Poorly differentiated carcinoma	17	41.5 %
	Total	41	100 %

Five cases of lymphoma were diagnosed constituting 1.67% of all cases and constituted 11% of all neoplastic lesions of which 4 were categorized as Non Hodgkin's Lymphoma and 1 case as Hodgkin's Lymphoma.

Reactive hyperplasia was most common in the 2nd and 3rd decades; whereas tuberculous lymphadenitis and acute suppurative lymphadenitis were seen most often in 3rd and 4th decades of life, while metastatic carcinomas were most often seen between 6th and 7th decades.

Metastatic carcinomas and Hodgkin's lymphoma showed a male preponderance, while female preponderance was noticed in reactive lymphadenitis, tuberculous lymphadenitis and suppurative lymphadenitis.

FNAC Diagnosis	Total cases	Male	Female	M:F ratio
Reactive lymphadenitis	110	54	56	0.96 : 1
Tuberculous lymphadenitis	91	40	51	0.78 : 1
Acute suppurative lymphadenitis	41	18	23	0.78 : 1
Hodgkin's lymphoma	01	01	-	-
Non Hodgkin's Lymphoma	04	02	02	1 : 1
Metastasis	41	25	16	1.56 : 1

In the present study, cytomorphologically tuberculous lymphadenitis was divided into 3 groups. 1- Epitheloid cells and caseous necrosis with or without langhan's giant cells (49.5%), 2- Epitheloid cells with or without giant cells (42.8%), 3 - caseous necrosis with or without neutrophils (7.7%)

In the present study, aspirated smears from cytologically diagnosed tuberculous lymphadenitis and suspected cases of tuberculosis were subjected to

ZN staining for AFB. 25 aspirates showed positivity for AFB with an overall accuracy rate of 27.47%, which also include 2 cases of acute suppurative lymphadenitis. AFB positivity was highest in aspirates with necrosis with or without neutrophils (71.4%). AFB positivity was low in aspirates with only epitheloid cells (10.3%).

S. No	Cytological features	No. of cases	AFB +ve	Percentage
1.	Epitheloid cells + caseous necrosis ± langhan's giant cells	45	16	35.6%
2.	Epitheloid cells ± langhan's giant cells	39	4	10.3%
3.	Caseous necrosis ± neutrophils	07	5	71.4%
Total		91	25	27.47%

Children (1-14yrs) had higher AFB positivity (44.44%) when compared to adults. In the present study AFB positivity was higher in females when compared to males.

	Present study (total TB cases = 91)		
	Male n (%)	Female n (%)	Total n (%)
<15 years			
AFB Positive	02(22.22)	02(22.22)	04(44.44)
AFB Negative	03(33.33)	02(22.22)	05(55.55)
Sub total	05(55.55)	04(44.44)	09(100)
15-45 years			
AFB Positive	08(11.6)	13(18.84)	21(30.4)
AFB Negative	21(30.43)	27(39.13)	48(69.6)
Sub total	29(42)	40(58)	69(100)
>45 years			
AFB Positive	0	0	0(0)
AFB Negative	06(46.16)	07(53.84)	13(100)
Sub total	06(46.16)	07(53.84)	13(100)
Total AFB positive	10(11)	15(16.47)	25(27.47)
Total AFB negative	30(33)	36(39.5)	66(72.53)
Total TB cases	40(44)	51(56)	91(100)

The most common symptom in addition to swelling is fever (66%), next common being cough. Of the 91 cases, multiple swellings were seen in 50% and unilateral swellings in 58.7% cases. Most of the swellings are discrete, only 15.4% are matted. Most common aspirate is grey white in color (42.8%) and most common cytomorphological category being epitheloid cells with necrosis ± giant cells (49.5%). AFB positivity was observed in 27.47% and smears with only necrosis ± neutrophils had high AFB positivity(71.4%)

The cervical groups of lymph nodes were involved the most in tubercular, reactive lymphadenopathies and metastatic lesions. Generalized lymphadenopathy was seen in 60% cases of Lymphoma.

In the minor group lymph nodes, mediastinal and mesenteric group of lymph nodes had shown metastatic carcinomas one in each group. The 2nd most common involvement in tuberculosis was generalized lymphadenopathy and inguinal group of lymph nodes in reactive lymphadenopathy. Supraclavicular lymph nodes are the 2nd most common group of lymph nodes in metastasis.

A total 300 cases were cytologically diagnosed in the present study, of which only 19 (6.3%) cases have been histopathologically correlated.

S. No	Cytological Diagnosis	No of cases	Histopathological diagnosis					
			Reactive lymphadenitis	Rosal Dorfman disease	Tuberculous lymphadenitis	Metastatic deposits	Non Hodgkin's Lymphoma	Hodgkin's Lymphoma
1.	Reactive lymphadenitis	05	04					01
2.	Tuberculous Lymphadenitis	07			06	01		
3.	Metastatic deposits	02				02		
4.	Non Hodgkin's Lymphoma	03				01	01	01
5.	Acute suppurative Lymphadenitis	01			01			
6.	Inadequate	01		01				
Total no of cases		19	04	01	07	04	01	02

Lymph node FNAC results were compared to the results of final histological study of excised specimen in order to calculate the values of the test.

Diagnostic accuracy (DA): Proportion of patients diagnosed correctly by the diagnostic test.

$$DA = (TP+TN) / (FP+FN+TP+TN).$$

The present study shows an overall sensitivity of 71.4% and specificity of 100% in diagnosing benign and malignant lesions of lymph node. The diagnostic accuracy is about 89.5% in the present study.

In the present study 19 cytologically diagnosed cases (6.3%) were studied in comparison with histopathology, of which only 14 cases have

correlated with the cytological diagnoses. In the present study, the diagnostic accuracy of various lymph node lesions was between 84% and 95% respectively.

Statistical parameter	Percentage
Sensitivity	71.4
Specificity	100
Positive predictive value	100
Negative predictive value	85.7
Diagnostic accuracy	89.5

DISCUSSION

FNAC of lymph nodes is the prime and routinely used investigation for the diagnosis of patients presenting with lymphadenopathy.

Lymph node aspiration is of great value for the diagnosis of lymphadenitis, lymphomas and metastatic carcinoma. The value of FNAC, besides making a diagnosis, also lies in early direction of appropriate investigations and treatment.⁶

Aspirates from lymph nodes are usually very cellular and their interpretation varies from clear diagnosis to a firm request for histopathology. However, limitations and pitfalls of the procedure should be recognized.⁶

The knowledge of the pattern of lymphadenopathy in a given geographical region is essential for making a confident diagnosis or suspecting a disease.⁶

The present study deals with the FNAC of 300 patients for a period of 2 years with clinical presentation of lymphadenopathy, of which 19 cases have been histopathologically correlated.

The results of the patients were compared wherever possible to determine the diagnostic accuracy of FNAC in lymph node lesions.

The age range in the present study was from 1 ½ months to 95 years, with a mean age of 35 years.

The maximum numbers of cases were seen in patients of the age group of 21 – 30 years (23%), which correlated with R.K. Narang et al⁷, and Shakya G et al⁸. The mean age of incidence correlated with Mohammad Rakhshan et al⁹ study.

A female preponderance was observed in the present study with female incidence accounting to about 51%. The male to female ratio was 0.96: 1. A similar female predilection was observed in the studies of R.K Narang et al⁷, Saira Fatima et al¹⁰ and N.H Hafez et al¹¹.

An adequately cellular aspirate is indispensable for an accurate diagnosis. An accurate diagnosis may not be possible even in hands of experts on a sparsely cellular aspirate. Aspiration was done in 300 cases, of which 12 aspirates (4%) were inadequate which was correlated with Naeem Ahmed et al study.¹² This may be due improper technique of FNA, small size of lymph node (<1 cm), scanty cellularity, necrosis and obscurity of cells by blood.

One case of inadequate sample was subsequently diagnosed as Sinus histiocytosis with massive lymphadenopathy (Rosai Dorfman disease) on histopathology.

DISTRIBUTION OF CYTOLOGICAL PATTERNS OF VARIOUS LYMPH NODE LESIONS

In the present study, 80.7% cases are non neoplastic, 15.3% cases are neoplastic and 4% cases are inadequate. In distribution of cytological patterns, the present study was well correlated with Hirachand S et al study.¹³

Reactive lymphadenopathy was diagnosed in 110 cases constituting 45.5% of all non malignant lesions and 36.6% of all lymph nodal lesions. This was in comparison with Ruchi Khajuria et al⁶ study. Out of 6 cases of reactive lymphadenopathy, one case was subsequently diagnosed as Hodgkin's lymphoma on histopathology.

Reactive lymphadenopathy was more common in 2nd and 3rd decades with a female preponderance. The male to female ratio is 0.96: 1, other studies showed a male preponderance and 1st decade as the most common age of incidence.

Cervical group of lymph nodes are the most common group of lymph nodes involved in reactive lymphadenitis, these findings are similar to Ruchi Khajuria et al⁶, Singh A et al¹⁴ studies. In Ali K Ageep¹⁵ study, the most common group of lymph nodes involved was inguinal group.

Tuberculosis is the commonest cause of lymphadenopathy in developing countries like India

and should be considered in every case of granulomatous lymphadenopathy unless proved otherwise.

In the present study, tuberculous lymphadenitis was second most common cause of lymphadenopathy and was diagnosed in 91 cases (30.3%) of all lymph node aspirates. This finding correlated with J Balaji et al¹⁶ and Hirachand et al¹³ studies.

In the present study, out of 91 cases of tuberculous lymphadenitis, 7 cases with cytological diagnoses as tuberculous lymphadenitis came to histopathology, of which one case was diagnosed as metastatic deposits of poorly differentiated carcinoma. This may be due to development of granulomatous reaction secondary to metastasis or due to inadequate sampling of the lymph node.

Tuberculous lymphadenitis can be seen in patients ranging from early to advanced age. In our study the youngest was a four year old female and the oldest was 82 years' old female. These findings were similar to Ruchi Khajuria et al⁶ study.

The present study had shown a female preponderance which was similar to Ruchi Khajuria et al⁶, Paliwal Nidhi et al¹⁷ and Pandey P et al¹⁸ and with a peak incidence of tuberculous lymphadenitis in the 3rd and 4th decades, which was similar to Paliwal Nidhi et al¹⁷ study.

The most common site for TB lymphadenitis was cervical group of lymph nodes which was correlating with Sumit Giri et al¹⁹.

Out of the 91 cases of tuberculous lymphadenitis, 45 cases (49.5%) showed epitheloid cells with necrosis ± giant cells; this finding correlated with Goswami H.M et al²⁰. 39 cases (42.8%) showed epitheloid cells ± giant cells. Only 7 cases (7.7%) showed caseous necrosis ± neutrophils.

In the present study, AFB positivity was seen in 27.47% cases of cytologically diagnosed tuberculous lymphadenitis which was similar to Yogesh Mistry et al (30%) and higher than Sanjay Surase et al⁴ study which showed only 13% AFB in TB lymphadenitis.

The yield of AFB positivity on FNAC of tuberculous lymphadenitis is directly proportional to purulent material in sample⁵. Maximum AFB positivity was seen in cytological smears with

necrosis with or without neutrophils (71.4%), this finding correlated with S Shamshad Ahmed et al³ and Yogesh Mistry et al²¹ studies.

35.6% positivity was seen in smears with epitheloid cells, caseous necrosis ± giant cells, and 10% positivity in smears with epitheloid cells ± giant cells, which are comparable with S Shamshad Ahmed et al³. The distribution of AFB positivity in the cytomorphological groups of TB lymphadenitis had well correlated with Sanjay Surase et al⁴ and S Shamshad et al³ studies.

In the present study, the percentage of AFB positivity was higher in children (44.44%) when compared to total AFB positivity (27.47%).

J Balaji et al¹⁶ reported a AFB positivity of 32.5% in children with tuberculous lymphadenitis.

Unlike pulmonary TB, where males show more AFB positivity than females due to smoking habit, exposure to external environment, the present study shows more females with AFB positivity. Similar kind of study was done by Abdurehman Eshete et al²² in biopsy specimens of lymph nodes; the present study had shown similar findings of AFB positivity in children and females.

Acute suppurative lymphadenitis was diagnosed in 41 cases constituting 16.9% of all benign cases. The distribution of cases is in comparison with Abdul Haque Khan et al²³ study.

Two cases of suppurative lymphadenitis had shown AFB positivity, similar finding was observed in Sulaiman Ahmed et al³ study because when tubercle bacilli are numerous causing consequent necroses, neutrophils migrate at the site and cytomorphologically this may resemble suppurative lymphadenitis.

The presence of AFB are commonly seen in purulent samples which may not contain granuloma, caseous necrosis or epitheloid cells, in absence of AFB bacilli on ZN stain the sample can be diagnosed as acute suppurative lymphadenitis⁵.

FNAC not only confirms the presence of metastatic disease, but also gives the clue regarding the nature and origin of primary malignancy. FNAC is useful for the detection of recurrences and new metastasis.²⁴

In the present study a total of 41 cases of lymphadenopathy showed metastatic deposits constituted 13.67% of all lymph node lesions and 89.1% of all malignant lesions which was comparable with Nesreen.H. Hafez et al¹¹ and Ghartimagar D et al²⁴ studies.

The present study had shown a higher male preponderance in metastatic carcinomas (60%) which was similar to Pandey P et al¹⁸, Singh A et al¹⁴, Ruchi Khajuria et al⁶, Adesuwa N. Olu-Eddo et al²⁵ and Abdul Haque Khan et al²³ studies. The male to female ratio of distribution of metastasis correlated with Singh A et al study¹⁴.

90% cases of metastatic carcinomas were diagnosed in patients with age above 40 years and they constituted the commonest cause of lymphadenopathy above 40 years and similar observations were made by Pandey P et al¹⁸, Singh A et al¹⁴, Ruchi Khajuria et al⁶ and Adesuwa N. Olu-Eddo et al²⁵. Only 10% cases of metastatic carcinomas were diagnosed in 3rd and 4th decades.

In the present study, cervical group of lymph nodes were the most common group of lymph nodes to be involved by metastasis which is comparable with other studies^{24,26,14}.

Poorly differentiated carcinoma was the most common metastatic carcinoma diagnosed (41.6%) in the present study which was higher compared to other studies. Squamous cell carcinoma is the 2nd most common metastatic carcinoma with 36.6% which correlated with Adhikari RC et al study²⁷.

Adenocarcinomas and papillary carcinoma thyroid deposits constituted 7.3% each which correlated with Anne Wilkinson et al²⁶ study. Duct cell carcinoma breast deposits constituted 4.9% which correlated with Adhikari RC et al study²⁷. There was a single rare case of metastatic deposits of papillary variant of epithelial mesothelioma.

Histopathological examination was available in 2 cases of metastatic carcinoma. The 2 cases had well correlated with cytological diagnosis, one case being a poorly differentiated carcinoma and other being a squamous cell carcinoma with granulomatous inflammation.

Application of FNAC to lymphoma diagnosis was viewed historically as problematic because of the central importance given to the

evaluation of lymph node architecture. However some cytological criteria, such as cellular monomorphism, presence of Reed Sternberg cells, have been considered useful for helping to distinguish malignant lymphoid aspirates from benign infiltrates.²⁸

Lymphomas constituted 1.67% of all lymph node lesions in the present study, similar observations were made by Ruchi Khajuria et al⁶ and Abdul Haque Khan et al²³

In the present study, all the cases of lymphoma have been reported in age group above 40 years which is similar to Pandey P et al¹⁸ study where 80% cases were reported above 40 age group. There is a male preponderance in the present study which is similar to other studies^{18, 14, and 6}. The male to female ratio is 1.5: 1 which was comparable with Singh A et al¹⁴ study.

In the present study, 60% of the lymphoma cases presented with generalized lymphadenopathy, while remaining 40% cases of lymphomas showed a predilection for inguinal group of lymph nodes. These findings were higher when compared with other studies; this may be due to less number of cases in the present study.

The age of the patient, polymorphous population of cells, atypical cells and Reed Sternberg cells should raise the suspicion of Hodgkin's lymphoma. One case of Hodgkin's lymphoma was diagnosed in a 45 year old male patient constituting 20% of all cases of lymphoma, which was correlated with Hirachand S et al¹³ study

In the present study, a total of 4 cases of non Hodgkin's lymphoma were diagnosed on FNA of lymph nodes which constituted 80% of all cases of lymphomas and is in comparison with Hirachand S et al¹³ study.

Histopathological examination was available for 3 cases of NHL diagnosed on cytology. One case correlated with histopathology, while other 2 cases turned out to be a case of metastatic deposits and other to be a case of Hodgkin's lymphoma – nodular sclerosing variant. These cases were diagnosed as suspicious of primary lymphoid malignancies on cytology and were suggested biopsy and immunophenotyping, due to presence of large anaplastic cells in an uncharacteristic background.

In the current study, we considered suggestive or suspicious cases as positive for malignancy as all these cases were investigated and managed seriously and these findings were correlated with the Sani Abubakar Malami et al²⁹ and Anne R Wilkinson et al²⁶ studies.

In the present study, the sensitivity is 71.4%, specificity is 100% and diagnostic accuracy is 89.5% which are comparable with Mohammad Rakshan et al⁹ study.

In the present study the sensitivity, specificity of tuberculous lymphadenitis was 85.7% and 91.6% with a diagnostic accuracy of 94% which are comparable with Fazal-I-Wahid et al³⁰ study. Shakya G et al⁸ reported a sensitivity of 77% in tuberculous lymphadenitis.

In the present study, the sensitivity of metastatic lesions is 50%, specificity was 100% and diagnostic accuracy was 89.5%. Rajiv Jain et al³¹ study reported a sensitivity of 42% and a specificity of 99% and a diagnostic accuracy of 88.5% in malignant lymph node lesions. The low sensitivity of metastatic lesions was due to less number of cases that have correlated with histopathology and equal number of false negative and true positive cases.

Sean T Hehn et al³² had reported a sensitivity of 12% in lymphomas on FNAC of lymph nodes. In the present study the sensitivity of lymphomas is 66.66% and specificity was 93.7% with a diagnostic accuracy of 84%.

CONCLUSION :FNAC is a safe, simple, feasible and dependable method for rapid cytodiagnosis during the initial assessment of a patient who presents with lymphadenopathy. It is useful as an outpatient and also as an outdoor diagnostic procedure thus obviating the need for open biopsy and hospital admission. FNAC not only helps in ascertaining the future mode of treatment but also alleviates the anxiety of the patient and due to lack of complications with excellent results; it forms a useful prime investigation in the management of patient. The procedure can be performed at any age and at different sites in a particular lesion without causing much discomfort to the patient. FNAC can be used as a useful adjunct tool in the management of patients with a known primary or unknown primary with metastases.

FNAC is a useful tool in diagnosing not only malignant lesions but also in diagnosis of tuberculous

lymphadenitis, thus helping in early diagnosis and treatment. Ziehl Neelsen (Z-N) staining in tuberculous lymphadenitis for demonstrating acid fast bacilli (AFB) not only acts as an adjunct but can also be used for confirmation of the diagnosis thus avoiding unnecessary excisional biopsy. Demonstration of AFB in smears with features of suppurative lymphadenitis by Z-N stain confirms the diagnosis of tuberculous lymphadenitis even in the absence of granulomas. This special staining technique was found to be significant in the present study, because those smears which showed no specific cytological features of tuberculosis but only necrosis and neutrophils revealed highest AFB positivity.

Images :

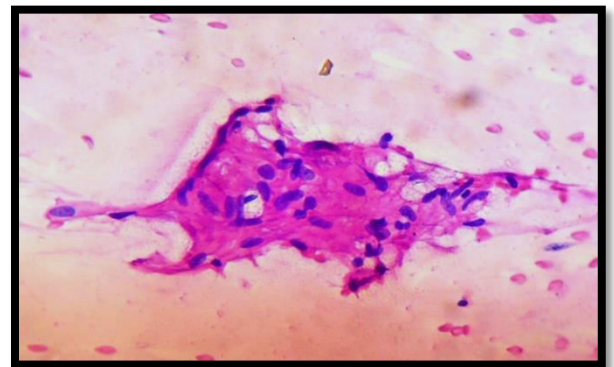


Image 1: Tuberculous lymphadenitis showing epithelioid cell granuloma in a background of hemorrhage (H&E 10x10)

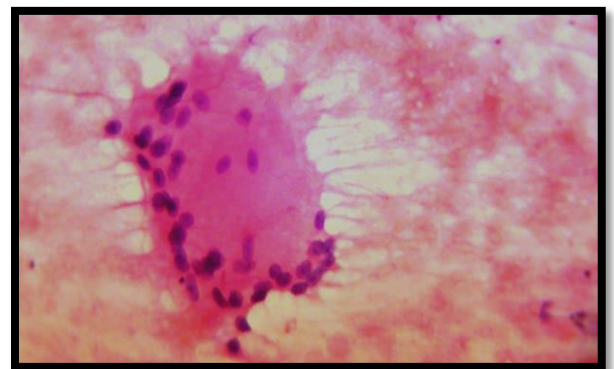


Image 2: Langhan's giant cell in tuberculous lymphadenitis with horse shoe shape arrangement of nuclei (Papanicolaou stain 10x40)

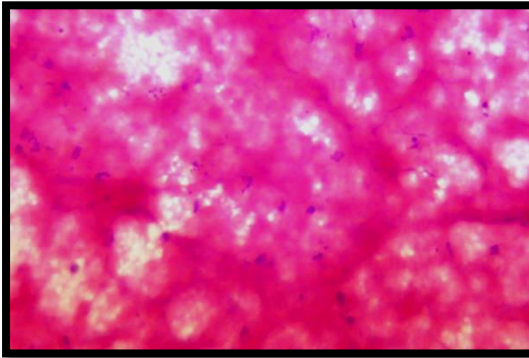


Image 3: Eosinophilic granular caseous necrosis in caseating tuberculous lymphadenitis(H&E 10x10)

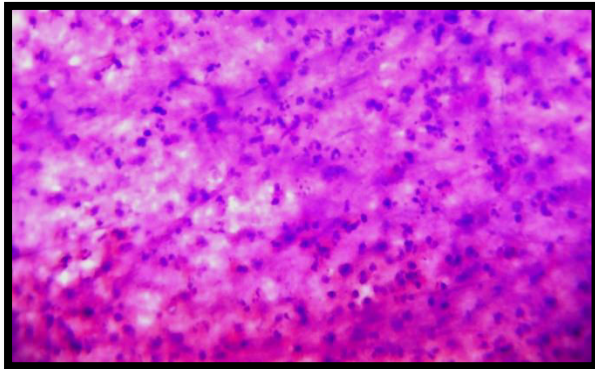


Image 4: Acute suppurative lymphadenitis showing plenty of neutrophils in a necrotic background (H&E 10x10)

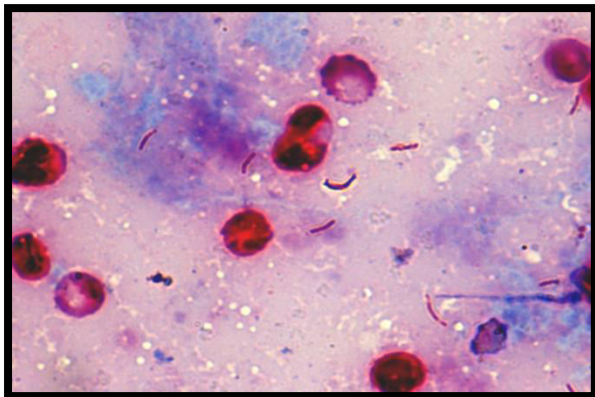


Image 5 :Acid fast bacilli in lymph node aspirate (Z-N stain 10x100)

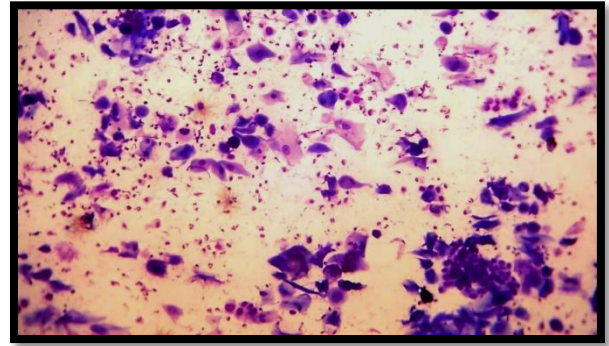


Image 6 :Metastatic deposits of a well differentiated squamous cell carcinoma in a lymph node (MGG 10x10)

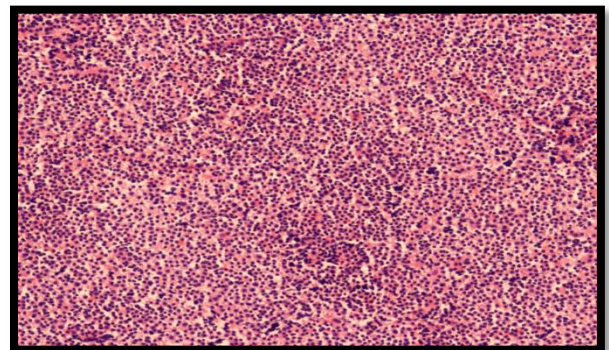


Image 7: Monomorphous population of lymphocytes in a Non Hodgkin's Lymphoma (H&E 10x4)

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