

CYTOMORPHOLOGICAL SPECTRUM OF LYMPHNODE LESIONS AT A RURAL TERTIARY CARE HOSPITAL

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Abstract-

Introduction: Lymph nodes (LNs) are an integral component of immune system and are affected by many pathological conditions manifesting most commonly as lymphadenopathy. Fine Needle Aspiration Cytology (FNAC) is a safe alternative to excision biopsy, carried out as an out-patient procedure without anaesthesia. **Materials and Methods:** This is a retrospective study of 263 patients of all age groups and both sexes presenting with palpable or deep lymph nodes in FNAC clinic of our institute over a period of 4 years to determine the pattern of disease affecting lymph nodes in our region. Study participants were subjected to standard FNA procedure after taking due consent. After studying the clinical data, Papanicolau (PAP) and Giemsa (MGG) stained smears were examined under the microscope.

Results: Total 263 cases were examined. The age group of patients ranged from 7 months to 88 years with majority in the age group of 41 to 60 years (34.2%). 34.6% (91) cases were reported Reactive lymphadenitis, followed by 30.8% (81) cases of Metastasis, 27.4% (72) cases of Tuberculous lymphadenitis, 4.6% (12) cases of Lymphoma and 2.6% (7) cases of Suppurative lymphadenitis.

Conclusion: FNAC is a simple, safe and inexpensive diagnostic procedure, especially in lymph node aspirates for establishing diagnosis and deciding appropriate management. Malignant lesions of lymph nodes with a primary metastatic tumor can be diagnosed easily by FNAC and can give a clue to the diagnosis of the primary tumor of origin.

Index Terms: Lymphadenopathy, FNAC, Tuberculous lymphadenitis, Metastasis.

INTRODUCTION

Lymph nodes are an integral component of the immune system and are affected by many pathological conditions which manifest most commonly as lymphadenopathy in clinical practice.⁽¹⁾ Fine Needle Aspiration Cytology (FNAC) is a safe alternative to excision biopsy, carried out as an out-patient procedure without anaesthesia. Enlarged lymph nodes usually undergo fine needle aspiration as a first line of investigation. In adult, lymphnodes greater than 1cm to 2 cm are source of concern, unless clinically the cause can be elicited.⁽²⁾

AIM

To analyse FNAC of lymph node lesions; received in the Department of Pathology at a rural tertiary care hospital.

OBJECTIVES

- 1.To analyze various etiologies and cytomorphological features of lymph node lesions.
- 2.To analyze the frequency of causes of lymphadenopathy in different age groups and genders.

MATERIALS AND METHODS

Type of study: Retrospective study.

Inclusion criterion: FNAC cases of enlarged lymph node received in Department of Pathology during January 2019 to December 2022.

Exclusion criterion: FNAC cases with inadequate material.

RESULTS

After studying the clinical data, Papanicolau (PAP) and Giemsa (MGG) stained smears were examined under the microscope.

Total 263 cases were examined. The age group of patients ranged from 7 months to 88 years with majority in the age group of 41 to 60 years (34.2%).

Figure 1: SEX WISE DISTRIBUTION OF CASES (Total 263 cases)

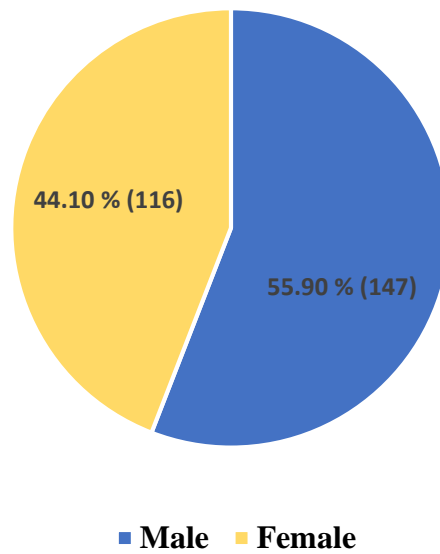


Figure 2: AGE WISE DISTRIBUTION OF CASES (Total 263 cases)

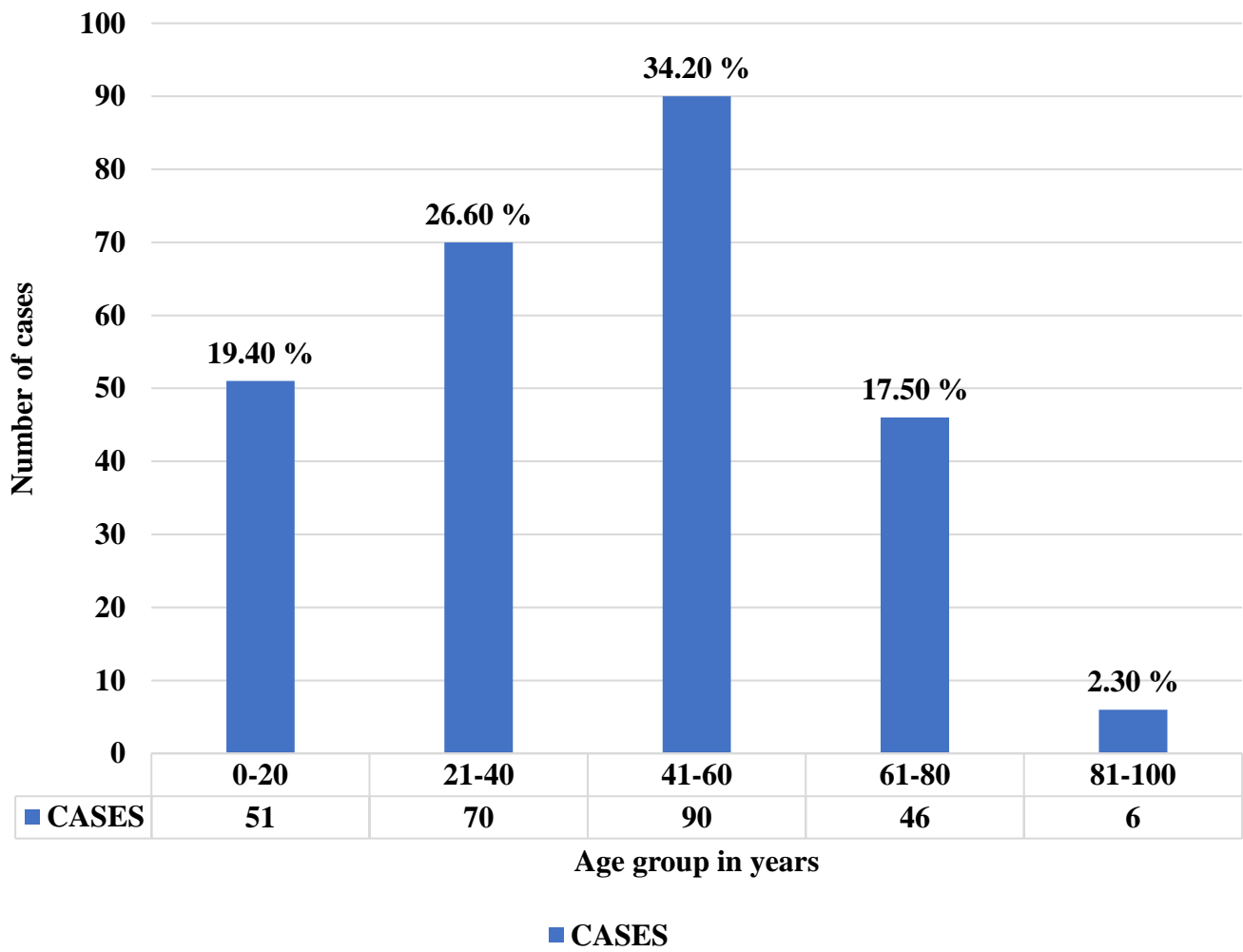


TABLE 1: CYTOLOGICAL DIAGNOSES OF LYMPHNODE ASPIRATIONS

DIAGNOSIS	NUMBER OF CASES	PERCENTAGE (%)
REACTIVE LYMPHADENITIS	91	34.60 %
METASTASIS	81	30.80 %
TUBERCULOUS LYMPHADENITIS	72	27.40 %
LYMPHOMA	12	4.60 %
ACUTE SUPPURATIVE LYMPHADENITIS	7	2.60 %
TOTAL	263	100 %

Table 2: SEX WISE DISTRIBUTION OF CASES

Gender	Reactive Lymphadenitis	Metastasis	Tuberculous Lymphadenitis	Lymphoma	Suppurative Lymphadenitis	Total
Male	45	50	38	09	05	147
Female	46	31	34	03	02	116

Table 3: DISTRIBUTION OF CASES ACCORDING TO AGE GROUPS

Age Group (In Years)	Reactive Lymphadenitis	Metastasis	Tuberculous Lymphadenitis	Lymphoma	Suppurative Lymphadenitis	Total
0-20	25	00	23	02	01	51
21-40	31	09	28	00	02	70

41-60	27	40	18	01	04	90
61-80	08	29	03	06	00	46
81-100	00	03	00	03	00	6

Table 4: SITE WISE DISTRIBUTION OF CASES

Site	Number Of Cases	Percentage
Cervical	187	71.10 %
Axillary	29	11.00 %
Inguinal	29	11.00 %
Other	18	6.90 %
Total	263	100 %

Figure 3: Distribution Of Lymphnodes Involved by Metastasis (Total 81 Cases)

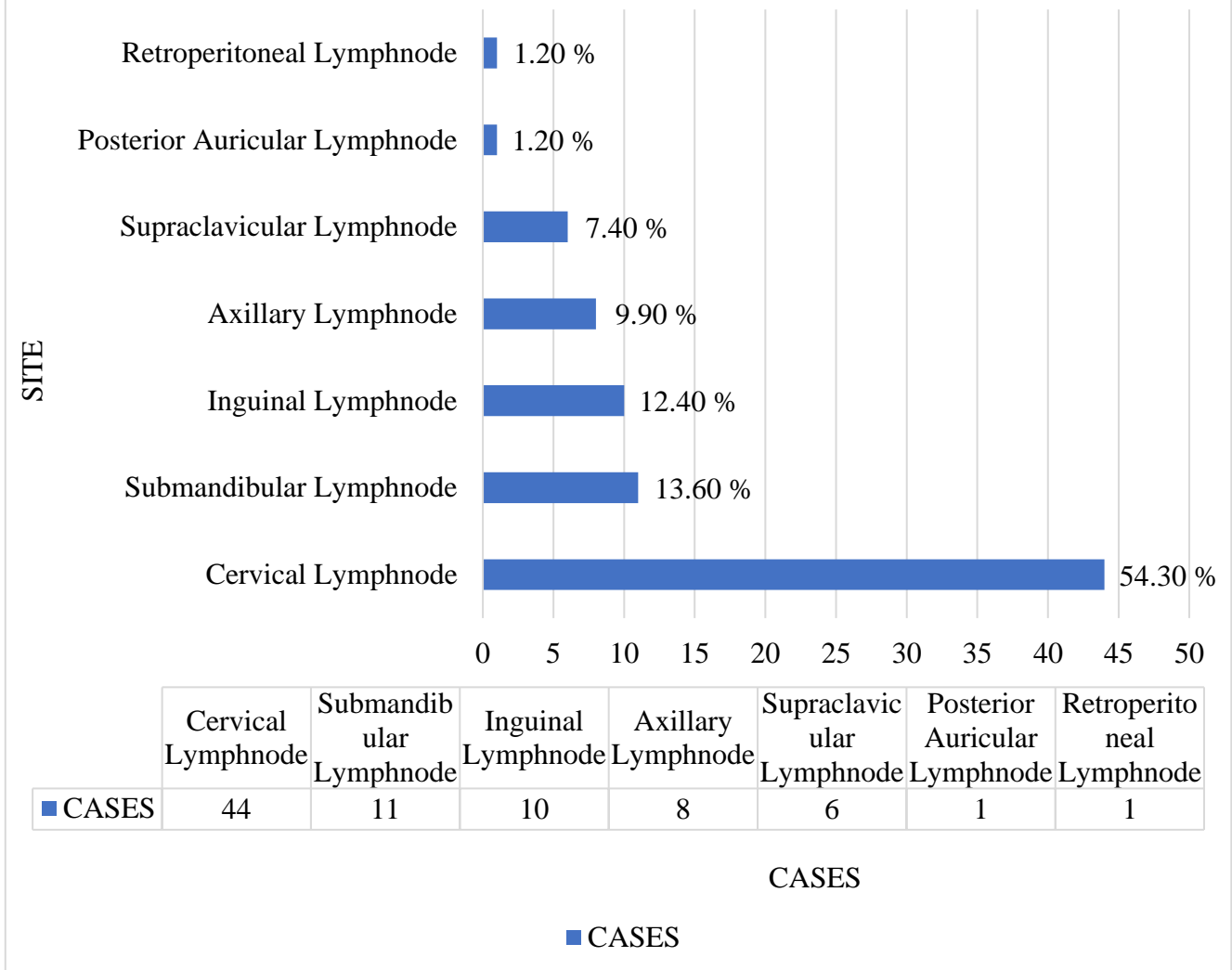


Table 5: DISTRIBUTION BASED ON TYPE OF MALIGNANCY METASTASIZING TO LYMPH NODE

Metastasis From	Number Of Cases	Percentage (%)
Squamous Cell Carcinoma	53	65.50 %
Adenocarcinoma	12	14.80 %
Poorly Differentiated Carcinoma	9	11.20 %
Infiltrating Ductal Carcinoma	4	4.90 %
Malignant Melanoma	2	2.40 %
Neuroblastoma	1	1.20 %
Total	81	100 %

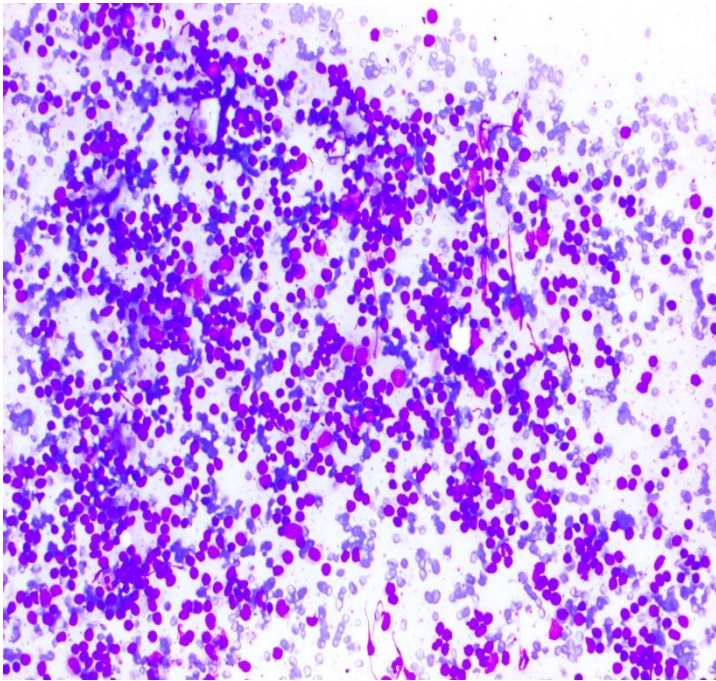


Figure 1: Reactive Hyperplasia
(MGG Stain ; 200x) (MGG Stain ; 200x)

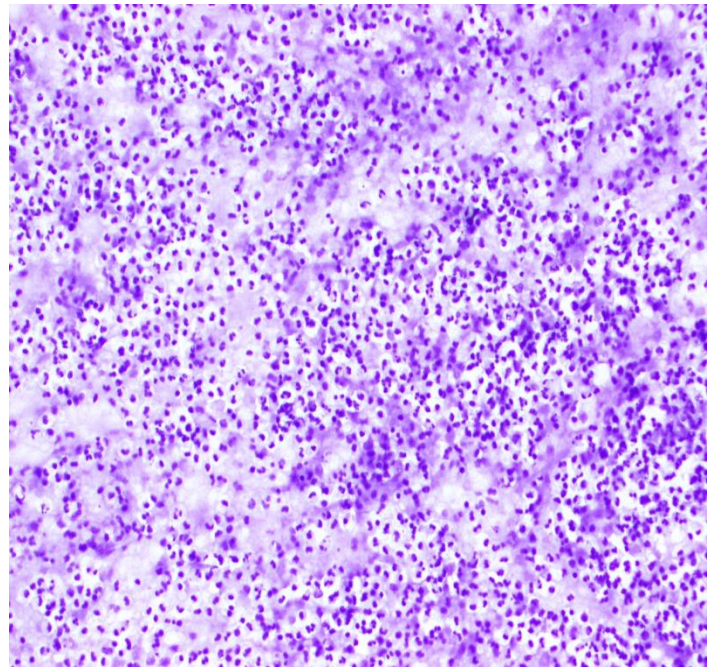


Figure 2: Acute Suppurative Lymphadenitis

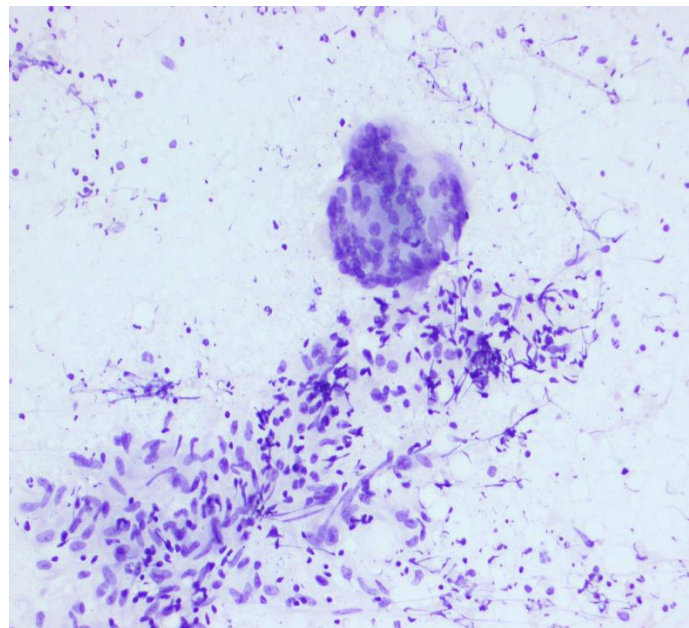


Figure 3a: Smear shows epithelioid cell granuloma
(MGG Stain ; 200x)

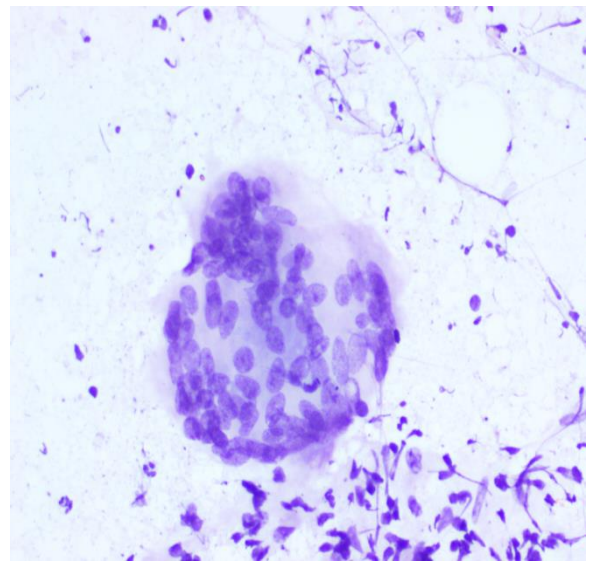
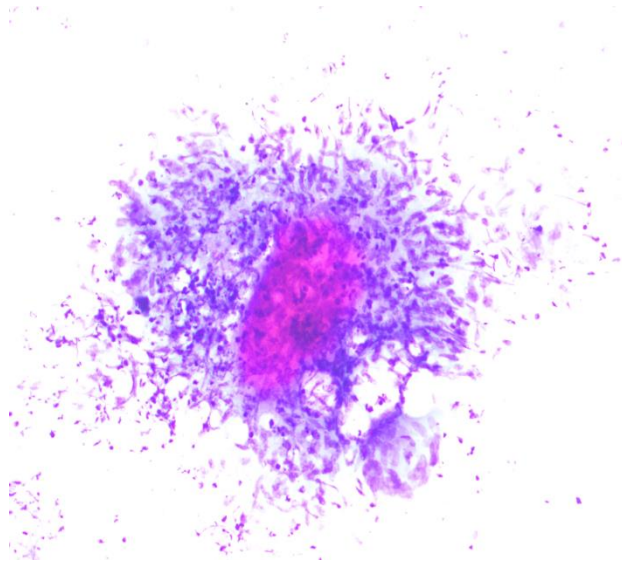


Figure 3b: Smear shows epithelioid cell granuloma and necrosis in the background (MGG Stain ; 200x)

Figure 3c: Smear shows epithelioid cell granuloma (MGG Stain ; 400x)

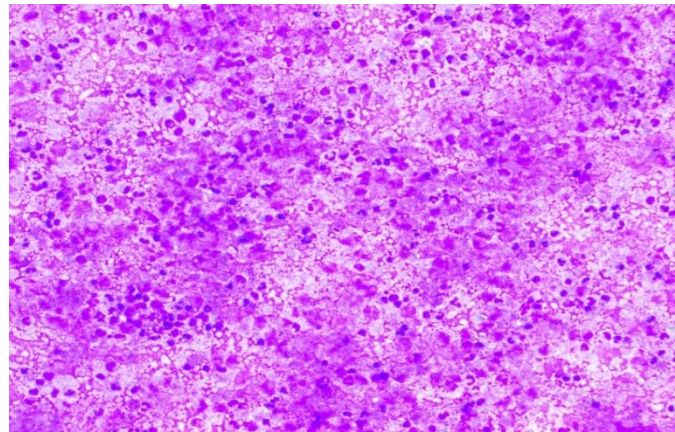


Figure 3d: Smear shows caseous necrosis (MGG Stain ; 200x)

Caseous Necrotizing Granulomatous Lymphadenitis

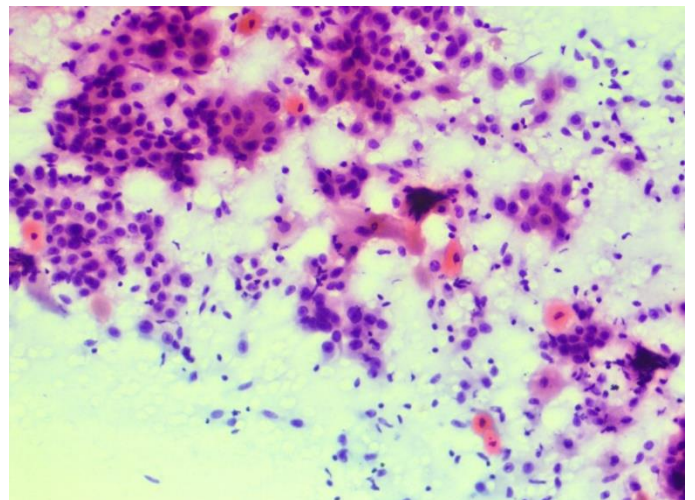
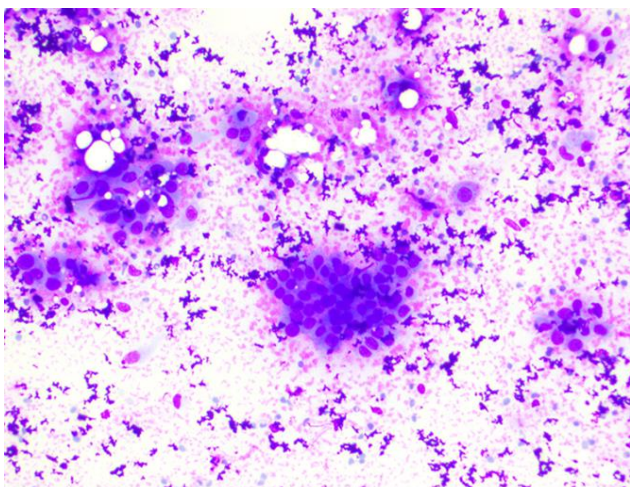


Figure 4a: Metastasis of Keratinizing Squamous Cell Carcinoma (MGG Stain ; 200x)

Figure 4b: Metastasis of Keratinizing Squamous Cell Carcinoma (PAP Stain ; 200x)

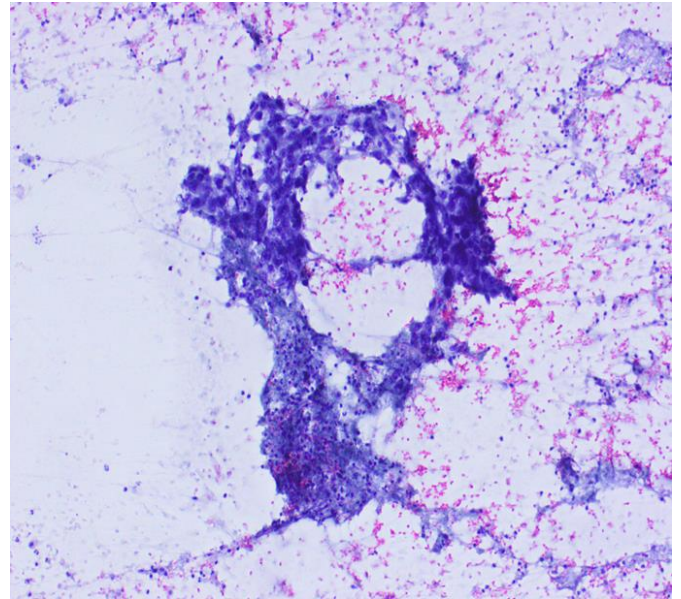
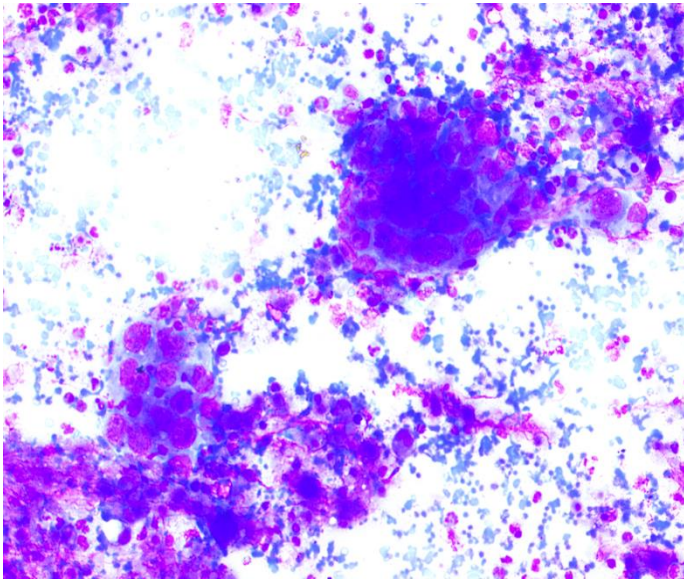


Figure 5: Metastasis of Adenocarcinoma (MGG Stain ; 200x)

Figure 6: Metastasis of Nasopharyngeal carcinoma (PAP Stain ; 100x)

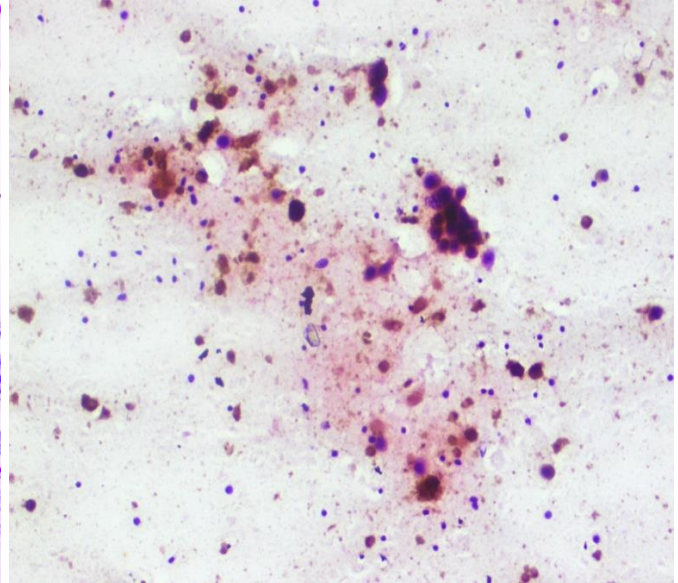
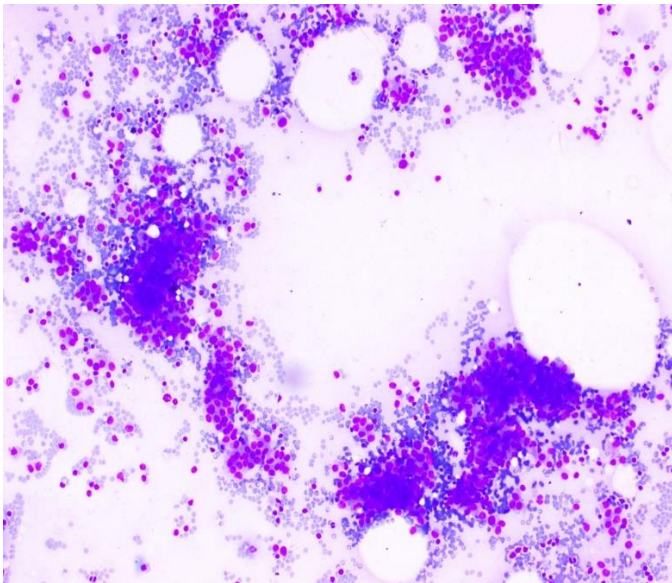


Figure 7: Metastasis of Malignant Melanoma (PAP Stain ; 200x)

Figure 8: Metastasis of Ductal carcinoma of Breast to Axillary lymphnode (MGG Stain ; 100x)

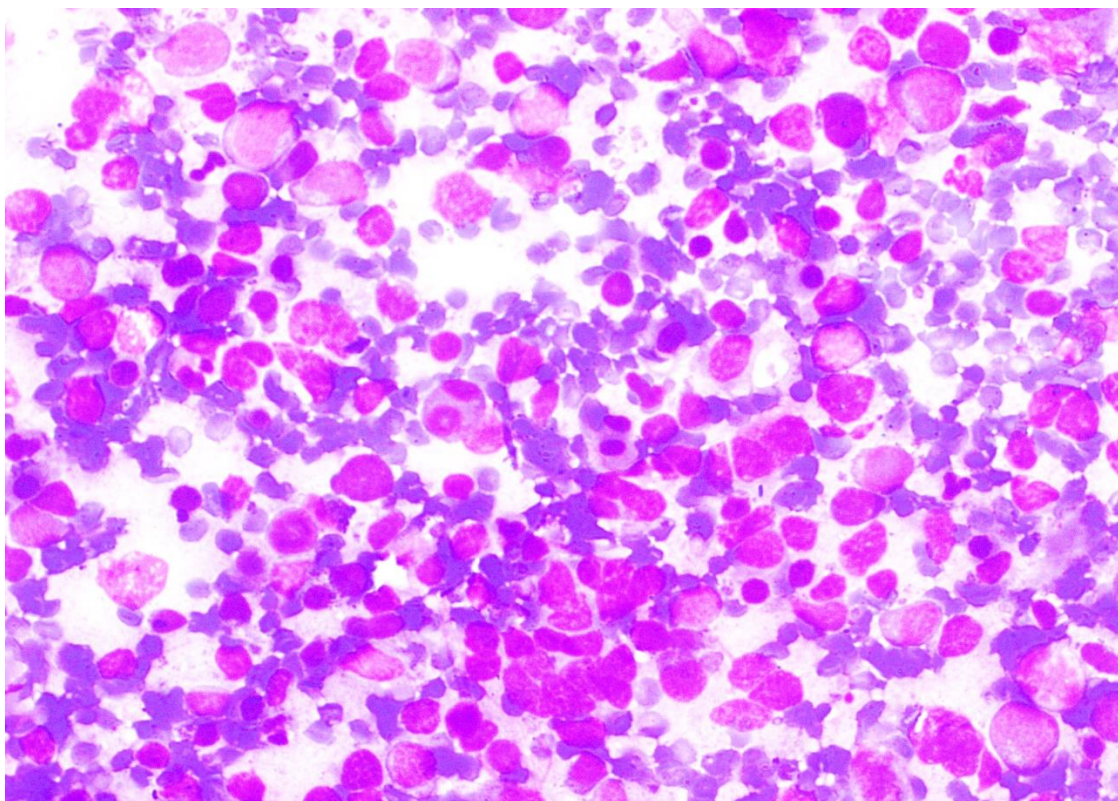


Figure 9: Lymphoma (MGG Stain ; 400x)

DISCUSSION

In this study, maximum number of cases were recorded in the age group of 41-60 years. The overall lesions were slightly common in males compared to females, which was similar to that observed by Patil R et al.⁽³⁾ Cervical lymph nodes were the most common group of lymph nodes involved (71.10%) followed by axillary region (11.0%); similar findings were also observed by Patro P et al (74.24%)⁽¹⁾, Patil R et al (69.0%)⁽³⁾ Malhotra A et al (71.79%)⁽⁴⁾ and Vimal S et al (75.40%)⁽⁵⁾. Reactive lymphadenitis was the most common lesion reported in 91(34.60%) cases and maximum numbers of these cases (31) were in age group 21-40 years with slight female preponderance (Male: female ratio of 1:1.02), followed by 41-60 years (27 cases) and 0-20 years (25 cases).

Metastases in the lymph nodes was the second most common finding (30.80%) in the present study; owing to the long study period and that the study was conducted in a rural tertiary care hospital and a regional referral center for cancer patients. Tuberculous lymphadenitis was the third most common finding (27.40 %) which is comparable to Vimal S et al⁽⁵⁾(28.88 %), Hafsa S et al⁽⁶⁾(31.1 %), Patro P et al⁽¹⁾(32.12 %). Only a small percentage (4.60%) were the cases diagnosed as lymphomas; histopathological / flow cytometry diagnosis of which was not available. Incidence of suppurative lymphadenitis (2.60%) in present study was lower than that in other studies.

Table 6: Comparison Of Present Study With Other Studies

Author	Reactive Lymphadenitis	Metastasis	Tuberculous Lymphadenitis	Lymphoma	Suppurative Lymphadenitis	Sample Size	Study period
Present Study	91 (34.60%)	81 (30.80%)	72 (27.40%)	12 (4.60%)	7 (2.60%)	263	Jan 2019 to Dec 2022
Patro P et al⁽¹⁾	84 (25.45%)	11 (3.33%)	106 (32.12%)	1 (0.33%)	12 (3.36%)	330	Jan 2017 to Dec 2017
Ashwini H et al⁽²⁾	99 (37.90%)	6 (2.26%)	116 (44.00%)	3 (1.06%)	15 (5.70%)	261	Jan 2019 to

							Dec 2019
Malhotra A et al⁽⁴⁾	98 (42.64%)	22 (9.40%)	103 (44.02%)	11 (4.70%)		238	Jan 2015 to Dec 2015
Vimal S et al⁽⁵⁾	63 (33.69%)	33 (17.65%)	54 (28.88%)	5 (2.67%)	12 (6.42%)	187	Jan 2013 to Dec 2014
Hafsa S et al⁽⁶⁾	40 (24.8%)	15 (9.3%)	50 (31.1%)	7 (4.3%)	15 (9.3%)	161	Jun 2018 to Dec 2020

CONCLUSION

FNAC is a simple, safe and inexpensive diagnostic procedure, especially in lymph node aspirates for establishing diagnosis and deciding appropriate management. Malignant lesions of lymph nodes with a primary metastatic tumor can be diagnosed easily by FNAC and can give a clue to the diagnosis of the primary tumor of origin. From the results of this study and those from the literature, FNAC is recommended as the initial reliable diagnostic tool in peripheral lymphadenopathy.

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