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Original Article

Cytopathological Study of Lymph Node Lesions - A 2 Years Retrospective Study

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Abstract

Introduction: Fine-needle aspiration cytology (FNAC) is a well-established and popular diagnostic aid for patients presenting with lymphadenopathies. Frequent involvement of lymph nodes in regional and systemic diseases along with their easy accessibility makes FNAC the first line of investigation in evaluating lymphadenopathies. Lymph node enlargement occurs in a wide spectrum of diseases including reactive conditions, infections such as tuberculosis, fungal, and protozoal as well as primary lymphoid malignancies and secondary metastatic tumors. Most common etiology in our country is tuberculosis. FNAC is a highly acceptable, minimally invasive, cost-effective, and rapid investigation of choice that is feasible in our current scenario.

Aims and Objectives: (1) To evaluate various etiologies in lymph node enlargement and (2) to assess the frequency of lymphadenopathy in different age groups and genders.

Materials and Methods: A 2 years retrospective study was done from August 2015 to July 2017 at SVS Medical College and Hospital, Mahabubnagar, on 459 patients with lymph node enlargement in the department of pathology.

Key words: Fine needle aspiration cytology, Lymphadenopathy, Tubercular lymphadenitis

INTRODUCTION

Lymphadenopathy refers to enlarged lymph nodes. It is the most common clinical presentation of patients attending the outpatient department. Fine-needle aspiration cytology (FNAC) is the first line of investigation in evaluating lymphadenopathy due to frequent involvement of lymph nodes in regional and systemic diseases and easy accessibility. The technique is minimally invasive and gives speedy result.[1] Highly acceptable, simple, rapid, and cost-effective procedure that is feasible in our current scenario.[2] It can be used as safe alternative to excision biopsy.[3] Lymph node enlargement occurs in a wide spectrum of diseases including reactive conditions, infections, and malignancy.[4] One of the most common etiologies is tuberculosis which is very rampant in our country.

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AIMS AND OBJECTIVES

1. To evaluate various etiologies in lymph node enlargement.
2. To assess the frequency of lymphadenopathy in different age groups and genders

MATERIALS AND METHODS

A 2 years retrospective study was undertaken from August 2015 to July 2017 at SVS Medical College and Hospital, Mahabubnagar, on 459 patients with lymphadenopathy. FNAC was done on clinically diagnosed cases of lymphadenopathies in the department of pathology. Cases with inadequate or unsatisfactory material for diagnosis were excluded from the study.

RESULTS

Of 459 cases, 402 were found to be inflammatory and 57 were neoplastic. Tuberculosis was the most common disease found in 165 patients followed by reactive non-specific lymphadenitis in 152, acute suppurative lesions in

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Table 1: Gender wise distribution of patients

Gender	Number of cases (%)
Males	218 (47.4)
Females	241 (52.6)

Table 2: Age wise distribution of patients

Age group in years	Number of cases (%)
0–20	151 (32.8)
21–40	181 (39.4)
41–60	75 (16.3)
61–80	52 (11.3)

Table 3: Cytological diagnosis of lymph node aspirations

Diagnosis	Number of cases (%)
Tubercular lymphadenitis	165 (35.9)
Reactive lymphadenitis	152 (33.1)
Acute suppurative lymphadenitis	50 (10.8)
Granulomatous lymphadenitis	35 (7.6)
Metastatic deposits	48 (10.4)
Non-Hodgkin lymphoma	8 (1.7)
Hodgkin lymphoma	1 (0.2)

50, granulomatous lymphadenitis in 35 cases, metastatic tumors in 48, and lymphomas in 9 patients and most commonly involved are cervical group of lymph nodes. Graph 1 shows distribution of cases of lymphadenopathies according to anatomical location. Table 1 shows genderwise distribution of patients. Table 2 shows Age wise distribution of patients. Table 3 shows cytological diagnosis of lymphnode aspirations.

DISCUSSION

Lymphadenopathy is a commonly encountered clinical condition requiring prompt and accurate diagnosis to provide treatment as early as possible. In the present study, a total number of cases were 459 over a period of 2 years. The pattern of these cases varied from non-neoplastic lesions such as tuberculous lymphadenitis, reactive lymphadenitis, acute suppurative lymphadenitis, and granulomatous lymphadenitis to neoplastic lesions including metastatic lymphadenopathy and lymphoma. FNAC is the first line of investigation in the diagnosis of lymph node lesions. It is safe, inexpensive, and highly acceptable to the patient. In our study, an attempt has been made to study the cytomorphological spectrum and also epidemiological pattern of lymph node lesions. Cervical group of lymph nodes was the most common group involved seen in 67.5% cases which is similar to that observed by Sharma *et al.*,[5] Pavithra and Geetha,[2]

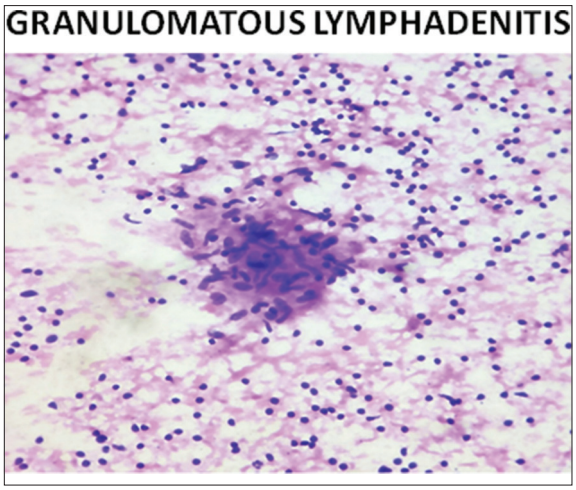


Figure 1: Smear shows epithelioid cell cluster with lymphocytes in the background (H and E ×400)

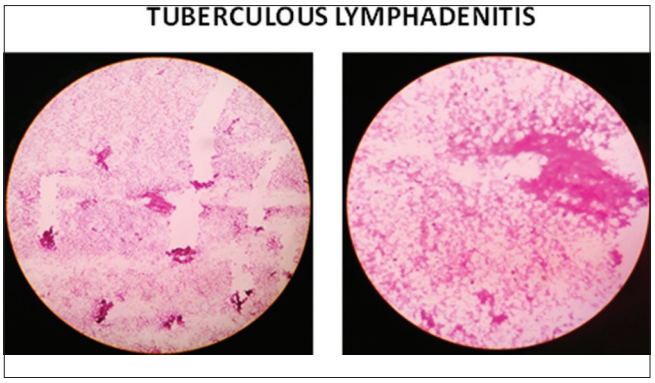


Figure 2: Smear shows caseous necrotic material (H and E ×100 and ×400)

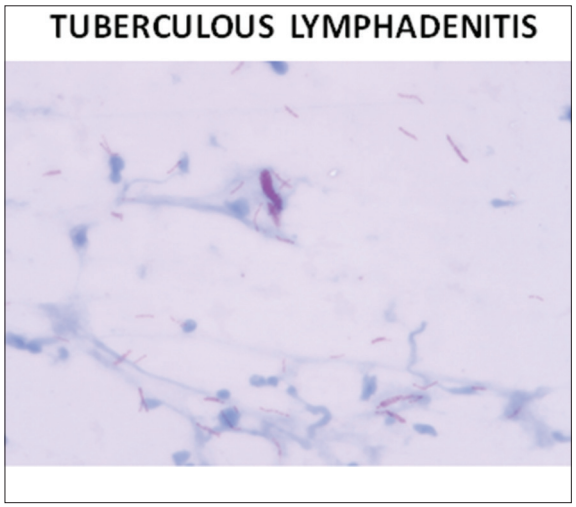


Figure 3: Smear shows acid-fast bacilli in Ziehl–Neelsen stain

and Kochhar *et al.*[6] It was followed by submandibular group of lymph nodes in 10.6% cases and least commonly involved are inguinal lymph nodes seen in only 1.8% cases. Most of the patients in this study were

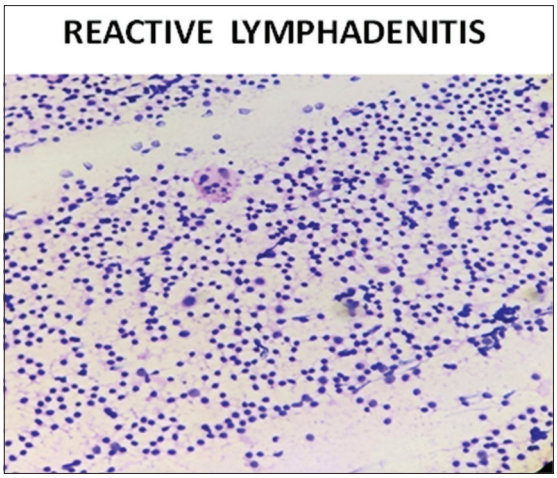


Figure 4: Smear shows lymphocytes in various stages of maturation, tingible body macrophages, and plasma cells (H and E ×400)

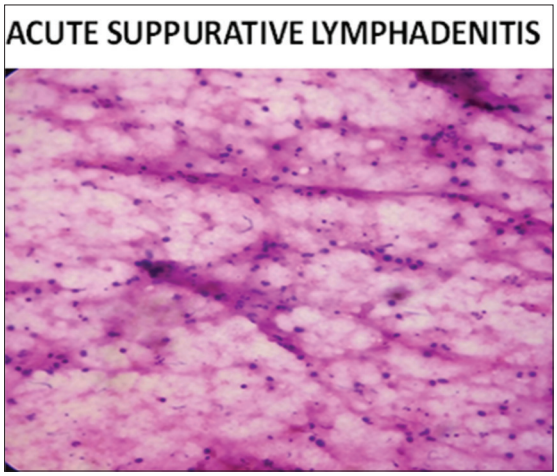


Figure 5: Smear shows neutrophils, lymphocytes in the necrotic background (H and E ×400)

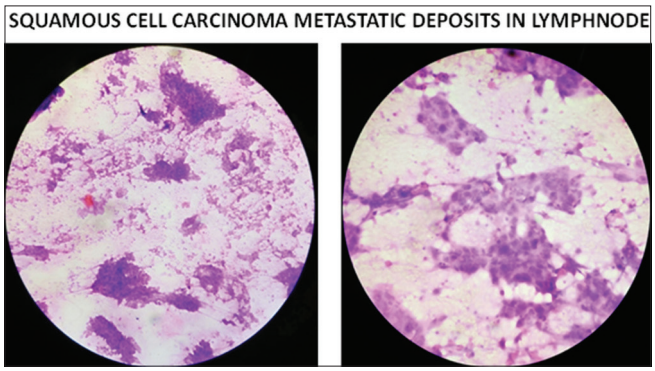


Figure 6: Smear shows clusters of squamoid tumor cells with lymphoid cells in the background (H and E ×100 and ×400)

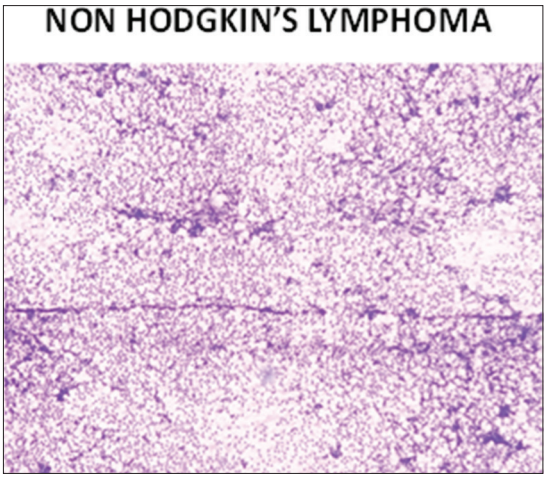


Figure 7: Smear shows monotonous population of slightly enlarged lymphocytes with coarsely granular chromatin (H and E ×10)

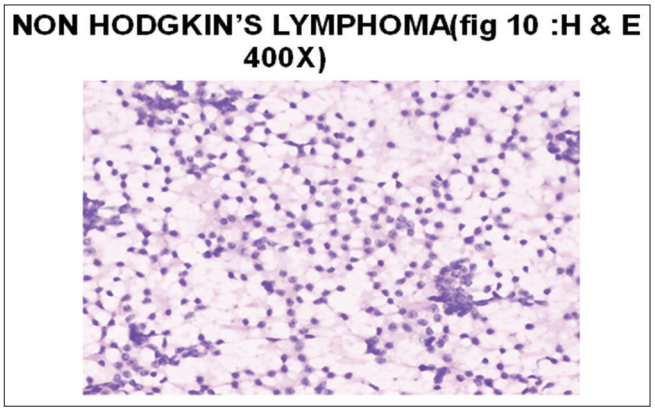


Figure 8: Non-Hodgkin's lymphoma (H and E ×400)

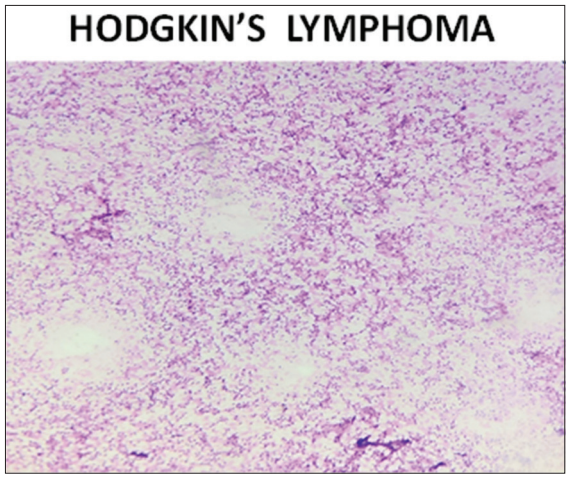


Figure 9: Smear shows polymorphous population of lymphocytes, eosinophils, histiocytes, and Reed-Sternberg cells (H and E ×100)

in the age group of 21–40 years similar to Pandit *et al.*,[7] whereas in the study of Sharma *et al.*,[5] most of them were of 10–19 years and in Gupta *et al.* study,[8] it is 0–20 years. In the present study, females were slightly predominant than males with M: F of 1:1.1 and in Sharma *et al.*[5] study, it is 0.87:1. Tuberculous lymphadenitis [Figure 2] was the

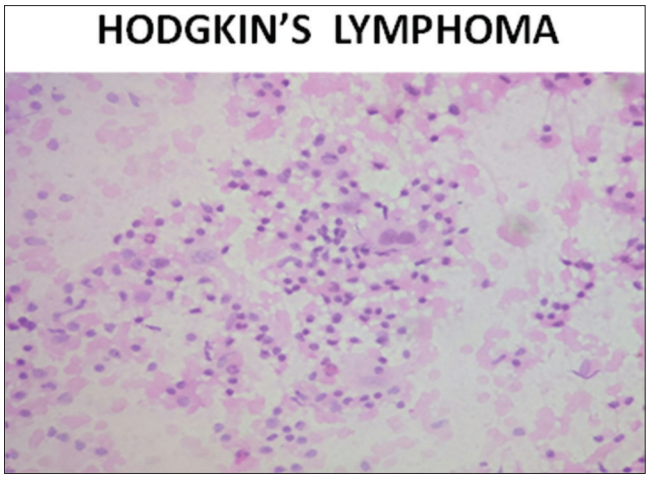
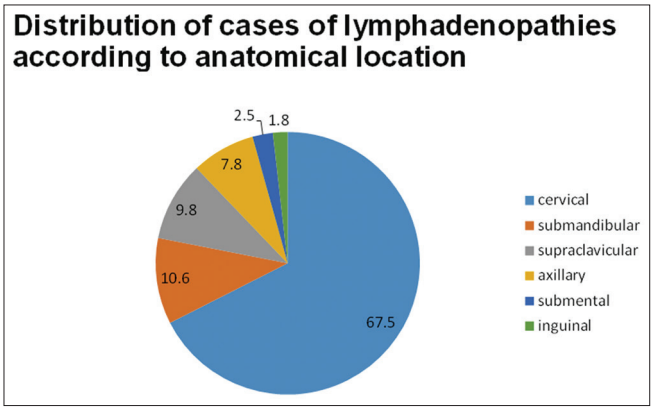


Figure 10: Smear shows binuclear Reed-Sternberg cells with few eosinophils in the background of lymphocytes (H and E ×400)



Graph 1: Distribution of cases of lymphadenopathies according to anatomical location

most common lesion reported in 35.9% cases similar to the study of Sharma *et al.*[5] in which it is about 56.92%. Most of these cases were seen in the age group of 21–40 years with female predominance. Ziehl–Neelsen staining for acid-fast bacilli (AFB) [Figure 3] was seen in 55% cases while Sharma *et al.*[5] reported 22.6% cases. In cases with characteristic caseous necrotic material and scattered epithelioids with or without granulomas or only necrotic material with neutrophilic infiltration were diagnosed as tuberculous lymphadenitis even though AFB were absent in the smears.[9] The second most frequent diagnosis in our study was reactive lymphadenitis [Figure 4] seen in 33.1% cases similar to the study of Sharma *et al.*[5] and Khan *et al.*[10] Acute suppurative lymphadenitis [Figure 5] was observed in 10.8% cases in the present study comparable to other studies of Kocchar *et al.*,[6] Sharma *et al.*,[5] and Patra *et al.*,[11] granulomatous lymphadenitis [Figure 1] was reported in only 7.6% cases in our study. Granulomas can also be seen in a variety of other conditions of lymphadenopathy such as leprosy, fungal infections, sarcoidosis, cat scratch disease, lymphogranuloma venereum, and collagen vascular diseases.[12] Lymph node aspirations in 10.8% cases showed metastatic deposits [Figure 6] with male preponderance and adenocarcinoma being the most common histologic type. Maximum cases of metastatic deposits were seen in the age group of 61–80 years and cervical group of lymph nodes was predominantly involved. A detailed history, clinical examination, radiological investigations, and immunohistochemistry in selected cases may help to locate the primary site of malignancy. The present study also comprised 9 cases, i.e., 1.9% which were diagnosed as lymphoma comparable to observations of Sharma *et al.*,[5] Fatima *et al.*[13] (5.2%), and Hirachand *et al.*[14] (6.1%) among these cases, non-Hodgkins lymphoma (NHL) [Figures 7 and 8] and HL [Figures 9 and 10] constituted 1.7% and 0.2%, respectively. This is also comparable to study by Bhaskaran *et al.*[15] in which NHL and HL constituted 2.23% and 0.74%. These cases were later confirmed by biopsy.

CONCLUSION

FNAC is an excellent first line of investigation to determine the nature of lesion. It is quick, safe, minimally invasive, reliable, and readily acceptable by patient. The present study highlighted the various cytomorphological patterns of lymphadenopathy and revealed a huge burden of tuberculous lymphadenitis.

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