

Original Article

Pattern of Lymphadenopathy on Fine Needle Aspiration Cytology in a Tertiary Level Hospital in Kathmandu

Amar Narayan Shrestha¹, Shova Kunwar¹, Barun Babu Aryal², Anurag Adhikari², Ayusha Poudel²

¹Department of Pathology, Shree Birendra Hospital, Chhauni, Kathmandu, Nepal.

²Intern, Shree Birendra Hospital, Chhauni, Kathmandu, Nepal.

ABSTRACT

Introduction: Fine Needle Aspiration Cytology is a relatively simple, inexpensive and rapid diagnostic procedure for identifying cause of lymphadenopathy without need for surgical procedures. This study aims to explain the pattern of lymphadenopathy seen on fine needle aspiration cytology in a tertiary level hospital in Kathmandu.

Materials and Methods: This study was conducted at Shree Birendra Hospital Nepal. Cases of lymph node FNAC done in the years 2073 and 2074 BS were included in the study. The cases were classified into reactive lymphadenitis, granulomatous lymphadenitis, tubercular lymphadenitis, lymphomas, leukemias, and metastases.

Results: A total of 215 patients were included in the study, ranging in age from 2 to 84 years, out of which 98 were female and 117 were male. Reactive lymphadenitis was the most common diagnosis (n=126, 58.6%), followed by granulomatous lymphadenitis (n=34, 15.8%) and tubercular lymphadenitis (n=18, 8.4%). There were 18 cases of metastatic malignancies, 15 cases of suppurative lymphadenitis, and 2 cases of Hodgkin lymphoma and 2 cases of non-Hodgkin lymphoma.

Conclusions: Reactive lymphadenitis is the most common type of lymphadenopathy encountered in FNAC, while in the elderly, metastases are more common.

Key words: FNAC; Lymph nodes; Lymphadenopathy; Reactive, Tubercular

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Correspondence:

Dr. Amar Narayan Shrestha, MBBS, MD
Assistant Professor, Department of Pathology
Shree Birendra Hospital, Chhauni, Kathmandu, Nepal.
ORCID ID: 0000-0003-4300-4223
Email: shresthaamar@gmail.com

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INTRODUCTION

Lymph nodes are nodular aggregates of lymphoid tissues located along lymphatic channels throughout the body.¹ Since lymph nodes drain antigens of microbes from the epithelia and tissues, and since lymph nodes are easily accessible, lymph node examination is an important and common investigation. Fine Needle Aspiration Cytology (FNAC) is a relatively simple,

inexpensive and rapid diagnostic procedure.^{2,3} It is a primary method for identifying reactive, metastatic or infective causes of lymphadenopathy without need for surgical procedures like excision biopsy, also allowing for early initiation of treatment.^{3,4} It is thus an important diagnostic tool for centers in the developing part of the world with limited financial and human resources, in

comparison to the more expensive surgical excision biopsies.^{5,6} Its efficacy and reliability has been well-documented by various studies in the past.⁵⁻⁹ In combination with immunocytochemistry, it has improved diagnostic accuracy in cases of lymphomas.^{10,11} Knowledge on the types of lymphadenopathies that are commonly encountered in a geographical region is useful in establishing a definite diagnosis. This study thus aims to explain the pattern of lymphadenopathy seen on fine needle aspiration cytology in a tertiary level hospital in Kathmandu.

MATERIALS AND METHODS

This retrospective study was conducted at Shree Birendra Hospital Nepal. Using the records from the Pathology Department, all cases of lymph nodes FNAC from the calendar years 2073 and 2074 were included in the study. Permission was obtained from institutional review committee. Cases with incomplete records were excluded. Cases where the sample was deemed insufficient or where unequivocal cytological diagnosis could not be made were also excluded from the study. The ages were grouped into age groups of ten. The cases were classified into reactive lymphadenitis, granulomatous lymphadenitis, tubercular lymphadenitis, lymphomas, leukemias, and metastases.

Standard guidelines for cytological diagnosis were followed as far as practicable. Aspirates showing epitheloid cell granuloma and caseating necrosis with or without Langhan's type giant cells in a background of lymphoid cells were classified as tubercular lymphadenitis. Aspirates showing epitheloid cell granuloma with absence of necrosis with or without giant cells were classified as granulomatous lymphadenitis. Aspirates showing predominantly polymorphonuclear leucocytes, necrotic debris and other lymphoid cells were grouped as Suppurative lymphadenitis. The results were analyzed using SPSS v25.

RESULTS

A total of 215 patients were included in the study, out of which 98 were female and 117 were male. The ages of patients ranged from 2 years to 84 years, with the most common age group being 30-39 years (25.2%), followed by 10-19 years (18.2%) and 0-10 years (14.0%). No significant statistical significance was observed between the diagnosis and sex of the patient.

Reactive lymphadenitis was the most common diagnosis (n=126, 58.6%), followed by granulomatous lymphadenitis (n=34, 15.8%) and tubercular lymphadenitis (n=18, 8.4%). In addition, there were 18 cases of metastatic malignancies, 15 cases of suppurative lymphadenitis, and 4 cases of lymphomas. (Table 1) Among the cases of lymphoma, 2 were cases of Hodgkin lymphoma and 2 were cases of Non-Hodgkin lymphoma.

DISCUSSION

Fine Needle Aspiration Cytology is a common and useful investigation. Our study spanning 2 years included 215 cases

Table 1: Sex-wise distribution of various disease conditions

Diagnosis	Female	Male	Total
Reactive lymphadenitis	59	67	126 (58.6%)
Granulomatous lymphadenitis	16	18	34 (15.8%)
Metastasis	8	10	18 (8.4%)
Tubercular lymphadenitis	8	10	18 (8.4%)
Suppurative lymphadenitis	6	9	15 (7.0%)
Lymphomas	1	3	4 (1.8%)
Total	98	117	215 (100%)

in which definite histological diagnosis could be made from FNAC. Non-specific reactive lymphadenitis was the most common diagnosis, comprising of over 50% of cases, followed by granulomatous lymphadenitis, tubercular lymphadenitis and metastatic lymph node deposits. A study conducted in another center in Kathmandu showed similar results, with half the cases (50.4%) being non-specific lymphadenitis, followed by tubercular (22.4%), acute suppurative (12.4%) and chronic granulomatous lymphadenitis (10.0%). However, the proportion of metastatic carcinoma (2.8%) was lower than in our study.¹² Another study conducted in the Terai region of Nepal found that reactive hyperplasia (38.6%) was the most common FNAC diagnosis, followed by tubercular lymphadenitis (36.8%) and metastatic carcinomas (17.6%).¹³ Studies in India analyzing FNAC of cervical lymph nodes have found similar results, with the proportion of reactive lymphadenitis being the highest.^{14,15,16} The incidence of tubercular lymphadenitis, however varies from study to study, ranging from 10.2% to 28.1 percent.

In the present study, reactive lymphadenitis was most common among the younger age groups (<40 years), whereas metastatic lesions were more common in older patients (>60 years). This can be because children can present with massive lymphadenopathy even after mild infections. Adult or elderly patients, however, often react to infections with only slight or modest lymph node enlargement¹⁷, and thus distinct lymphadenopathy is more likely to be of metastatic origin in the elderly. In our study, granulomatous lymphadenitis showed a peak in age groups 20-29 years and 30-39 years, whereas tubercular lymphadenitis was also more common in the 30-39 years age group. Similar patterns are shown in other studies.^{12,14,16}

The major limitation of our study was selection bias owing to it being based in a tertiary care hospital. Also, clinical correlation and follow-up for the cases could not be done because of limited record keeping. Despite these limitations, we feel that the study provides useful information regarding the patterns of lymphadenopathy that present in this part of the country.

CONCLUSIONS

Reactive lymphadenitis is the most common type of lymphadenopathy encountered in FNAC, while in the elderly, metastases are more common.

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