



## A STUDY ON CYTOLOGY OF VARIOUS LYMPHADENOPATHIES PRESENTING IN PATHOLOGY DEPARTMENT OF A TEACHING HOSPITAL

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### ABSTRACT

**Introduction:** Lymphadenopathy is one of the most common clinical presentations of patients attending the outdoor department of a hospital. Lymph node aspiration is of great value for the diagnosis of lymphadenitis, lymphomas, and metastatic carcinoma.

**Methods:** Sample size was 200 , In this study, we have reported the pattern of cytological diagnosis on fine-needle aspiration cytology (FNAC) of lymphadenopathy cases . The most common site of lymphadenopathy was cervical region (72%) followed by axillary region (11%). Cases were taken from all the sections , Departments , Health Centres of the Medical College

**Results:** Reactive lymphadenitis (44%), was the single most common cause of lymphadenopathy followed by Tubercular lymphadenitis (40%) , metastatic lesions (9.40%) The sensitivity of 94.49%, positive predictive value of 96.26%, and diagnostic accuracy of 91.15% was achieved in our study.

**Conclusion:** This study highlights the role of FNAC as a simple, inexpensive, relatively painless, rapid, repeatable, and reliable method of investigation for lymphadenopathy, especially in outpatient departments, peripheral hospitals, and dispensaries.

**KEYWORDS :** Lymphadenopathy , FNAC , Reactive lymphadenitis

### INTRODUCTION

Lymphadenopathy is one of the most common clinical presentations of patients attending the outdoor department of a hospital. Lymph nodes comprise an important part of the defense system of the human body. They are small, rounded, or kidney-shaped nodules of lymphoid tissue that perform nonspecific filtration of particulate matter and micro-organisms from lymph. They become secondarily involved in virtually all infectious diseases and in many neoplastic disorders, lipid storage diseases, endocrine disorders and in many miscellaneous conditions . Lymph node aspiration is of great value for the diagnosis of lymphadenitis, lymphomas, and metastatic carcinoma. Fine-needle aspiration cytology (FNAC) is a safe, reliable, rapid, and inexpensive method of establishing the diagnosis of a lesion and also helps in indicating the pattern of the investigation.<sup>1</sup> The knowledge of the pattern of lymphadenopathy in a given geographical region is essential for making a confident diagnosis or suspecting a disease. Tuberculosis is the most common cause of lymphadenopathy in developing countries like India and should be considered in every case of granulomatous lymphadenopathy unless proved otherwise.<sup>2</sup> In children and young adults, lymphadenopathy is generally due to viral or bacterial infections whereas malignant disorders form the major cause of lymphadenopathy in those aged above 50 years. Localized or regional lymphadenopathy is frequently associated with viral infections, toxoplasmosis, connective tissue disorders, systemic lupus erythematosus, acute lymphoblastic leukemia, chronic lymphocytic leukemia, and lymphomas.

The present randomized study of enlarged lymph nodes by FNAC along with the study of their morphological patterns in patients presenting with lymphadenopathy in the Department of Pathology Cases were taken from all the sections , Departments , Health Centres of the RIMS Medical College , Raipur

### METHODOLOGY

The study was conducted in the Department of Pathology, RIMS Medical College, After local ethical committee approval . Patients coming to outpatient department or admitted in the hospital satisfying the criteria were included in the study. This study comprises 200 patients of all ages presenting with enlarged lymph nodes who were referred to our Department of Pathology . In each instance, a brief clinical history and physical examination along with an evaluation of relevant

investigations, if available, was carried out. The FNAC procedure was performed under strict asepsis using a Franzen's aspiration handle using 23/24-gauge needles attached to a 20 ml syringe. Multiple sites were aspirated. The aspirated material was smeared onto four slides in each case. Two slides were immediately immersed in 95% ethanol and remaining air-dried. The air-dried smears were routinely stained by May-Grunwald-Giemsa stain and alcohol fixed smears stained by hematoxylin and eosin stain and Papanicolaou stain. Special stains like Ziehl-Neelsen stain (ZN) stain for acid-fast bacilli (AFB) and periodic acid-Schiff for mucin were done whenever required. The diagnosis was classified according to various morphological patterns and correlated clinically. In 47.2 % cases cytology and histopathology correlation were available. Standard guidelines for cytological diagnosis were followed as far as practicable. Data were analyzed using a computer software Epi Info version 6.2 (Atlanta, Georgia, USA) and Microsoft Excel for Windows.

### RESULTS

A total of 200 cases were subjected to FNAC of which 97.18 % yielded adequate material for interpretation and four cases yielded inadequate material. Of these 48.29 % were followed by histopathological examination. In 93.16 % patients, aspiration was done from palpable superficial lymph nodes while 6.83% were deep-seated.

The age of the patients ranged from 12 months to 70 years. 56.40% of patients with benign lesions were below 20 years of age, whereas 50.78% of cases with FNA diagnosis of malignancy were above 50 years of age. In general, a male-to-female ratio of 1.2:1 was observed, with males contributing 54.7% and females 45.2%.

39.7 % patients had solitary lymphadenopathy and 62.2% patients had multiple enlarged lymph nodes. Cervical region was found to be the most common site of lymphadenopathy 71.7% followed by axillary region 11.%, inguinal region 6.1%, abdominal region 4.7% and mediastinal region 1.8%. Deep-seated lesions were aspirated under image guidance (ultrasonography). Of the patients with cervical lymphadenopathy, 26.1% had sub-mandibular lymph nodes, 9.5% had supraclavicular, and 3.5% had submental lymph nodes.

**Diagnosis**

Reactive lymphadenitis (44%), was the single most common cause of lymphadenopathy followed by Tubercular lymphadenitis (40%) , metastatic lesions (9.40%) and malignant lymphoma 4.70%.

**DISCUSSION**

Lymphadenopathy as a clinical manifestation of the regional or systemic disease serves as an excellent clue to the underlying disease. It can arise either from benign or malignant causes depending on the geographical condition and socioeconomic setup.<sup>3</sup> Cytology of lymph nodes has become a window for diagnosis of many diseases due to early availability of results, simplicity, and minimal trauma with less complication. FNAC has also been advocated as a useful method in comparison with more expensive surgical excision biopsies, especially in developing countries with limited financial and health care resources. Optimal material and experience, when combined, make cytological diagnosis of equal significance as histopathology. In many clinical settings, it is very difficult to decide which patient is more likely to have a reactive or neoplastic lymphadenopathy. Here, knowledge about the pattern of lymphadenopathy is helpful to the clinician for solving the dilemma.<sup>4</sup>

Lymph node lesions can be seen in patients ranging from very early to advanced age. In our study, the youngest patient with lymphadenopathy was a 12 months male infant and the oldest one was 70-year-old . In our study, a male preponderance was noted with a male-to-female ratio of 1.2:1 which correlated with others.<sup>5,6,7</sup> In contrast, some other studies found a slight female predominance with a male to female ratio of 1:1.2.<sup>8,9</sup>

Cervical region was the most frequent site of lymphadenopathy in our study followed by axillary and inguinal . Cervical region was also seen as the most common site of involvement in other studies.<sup>8,10,11</sup> Collectively, benign disorders were more common than malignant disorders in the present study. This correlates well with other studies from India and other developing countries.<sup>12,13,14</sup>

Reactive lymphadenitis (44%), was the single most common cause of lymphadenopathy followed by Tubercular lymphadenitis (40%) , metastatic lesions (9.40%) and malignant lymphoma 4.70%.

Overall, the sensitivity of 94.49%, positive predictive value of 96.26% and diagnostic accuracy of 91.15% was achieved in our study. In malignant conditions of lymph nodes, FNAC enjoys a high sensitivity and specificity, the average being 95%. The sensitivity and specificity of FNAC in metastatic tumors were reported to be 100% by many studies.<sup>7,12</sup>

**CONCLUSION**

To conclude, this study highlights the usefulness of FNAC as a simple, inexpensive, relatively painless, rapid, repeatable, and reliable method of investigation for lymphadenopathy, especially in OPDs, peripheral hospitals, and dispensaries, thus reducing the incidence of surgery and therefore, bed occupancy.<sup>3</sup> However, it is not a substitute for conventional surgical pathology but is complementary to it.

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**REFERENCES**

1. Wilkinson AR, Mahore SD, Maimoon SA. FNAC in the diagnosis of lymph node malignancies: A simple and sensitive tool. *Indian J Med Paediatr Oncol* 2012;33:21-4. [Full text]
2. Bhuyan MA, Fakir MA, Hossain AB, Huq AH, Gupta S. Role of fine needle aspiration cytology in the diagnosis of cervical lymphadenopathy. *Bangladesh J Otorhinolaryngol* 2008;14:63-5.
3. Qadri SK, Hamdani NH, Shah P, Lone MI, Baba KM. Profile of lymphadenopathy in Kashmir valley: A cytological study. *Asian Pac J Cancer Prev* 2012;13:3621-5.
4. Das DK, Gupta SK. Fine needle aspiration cytodiagnosis of Hodgkin's disease and its subtypes. II. Subtyping by differential cell counts. *Acta Cytol* 1990;34:337-41.
5. Dhingra V, Misra V, Mishra R, Bhatia R, Singhal M. Fine needle aspiration cytology (FNAC) as a diagnostic tool in paediatric lymphadenopathy. *J Clin Diagn Res* 2010;4:2452-7.
6. Patra AK, Nanda BK, Mohapatra BK, Panda AK. Diagnosis of lymphadenopathy by fine needle aspiration cytology. *Indian J Pathol Microbiol* 1983;26:273-8.
7. Hirachand S, Lakhey M, Akhter J, Thapa B. Evaluation of fine needle aspiration cytology of lymph nodes in Kathmandu Medical College, Teaching hospital. *Kathmandu Univ Med J (KUMJ)* 2009;7:139-42.
8. Nidhi P, Sapna T, Shalini M, Kumud G. FNAC in tuberculous lymphadenitis: Experience from a tertiary level referral centre. *Indian J Tuberc* 2011;58:102-7.
9. Ageep AK. Assessment of adult peripheral lymphadenopathy in Red Sea State, Sudan. *Internet J Trop Dis Health* 2011;2:24-32.
10. Pandit AA, Candes FP, Khubchandani SR. Fine needle aspiration cytology of lymph nodes. *J Postgrad Med* 1987;33:134-6. [PUBMED] [Full text]
11. Ahmed N, Israr S, Ashraf MS. Comparison of fine needle aspiration cytology (FNAC) and excision biopsy in the diagnosis of cervical lymphadenopathy. *Pak J Surg* 2009;25:72-5.
12. Ahmad SS, Akhtar S, Akhtar K, Naseem S, Mansoor T. Study of fine needle aspiration cytology in lymphadenopathy with special reference to Acid-fast staining in cases of tuberculosis. *JK Sci* 2005;7:1-4.
13. Khan AH, Hayat AS, Baloch GH, Jaffery MH, Soomro MA, Siddiqui S. Study on the Role of Fine Needle Aspiration Cytology in Cervical Lymphadenopathy. *World Applied Sciences Journal* 2011;12:1951-4.
14. Fatima S, Arshad S, Ahmed Z, Hasan SH. Spectrum of cytological findings in patients with neck lymphadenopathy – Experience in a tertiary care hospital in Pakistan. *Asian Pac J Cancer Prev* 2011;12:1873-5.