

## Evaluation of Clinically Significant Cervical Lymph Node Using Fine Needle Aspiration Cytology Approach

Dr. Brajkishore Pandey

Department of Pathology, MGM Medical College and Hospital, Jamshedpur  
Kolhan University, Jharkhand, India

### ABSTRACT

The evaluation of the clinically significant cervical lymph node study through fine needle aspiration cytology aims to investigate and determine the value of fine-needle aspiration cytology (FNAC) in different age groups of patients with persistent or suspicious peripheral lymphadenopathy and also to examine that the past history of illness influenced the accuracy of FNAC. The findings of the investigation suggest that the higher incidence of the lymphadenopathy is found in age group between 18-30 years and the reactive lymphadenopathy is comparable in incidence to granulomatous lymphadenopathy (47.6:47). This study also helpful for the medical practitioner to follow a healthy structured algorithm in their diagnostic steps and therapeutic strategies to invalidate unneeded holds in further diagnosis and safeguard against overhasty, and possibly too invasive, diagnosis and therapy.

**Keywords:** *Lymph Node, Lymphadenitis, Lymphadenopathy, Fine-Needle Aspiration Cytology, Peripheral Lymphadenopathy.*

### INTRODUCTION

The swelling of the lymph nodes (the bean shaped organ) usually occurred in the groin, neck, chest, abdomen, underarm that perform as the filters for the fluids of lymph as it circulates through the body is termed as lymphadenopathy. The occurrence of the lymphadenopathy in one area of the body likewise as in the neck, or it may be generalized with the enlargement in several areas. The most common site of the lymphadenopathy is cervical lymph nodes found in the neck. The common finding in paediatric practice is the presence of abnormal lymph nodes i.e.,

Lymphadenopathy and can be a clue to a serious underlying systemic disease. The underlying aetiological reasons are legion and diverse, but can generically be conceived to be reactive, infective or malignant in nature. Through detailed radiological imaging and biopsy investigation of these children ranges could lead by apposite history taking and examination.<sup>[1]</sup> The major challenge for the general pediatrician is to differentiate lymphadenopathy, pathological from nonpathologic lymph nodes and to formulate a rational methods and techniques for its evaluation. Due to its association with malignancy, lymphadenopathy can be a major origin of parental anxiety. Hence, it is important to know when to render support and to realize when concern is sufficient to warrant referral to a subspecialist.<sup>[2]</sup> The history and the physical examination are the most important parts of the evaluation of neck masses; biopsy may be requirement to demonstrate the diagnosis.<sup>[3]</sup> In case of the malignancy or if a child does not answer to an empirical antibiotics trial, and the persistence of lymphadenopathy found than a morphological investigation of the lymph node is inevitable.<sup>[4-9]</sup>

The fine-needle aspiration cytology (FNAC) is extensively utilized as an initial diagnostic tool. FNAC seems to be performed more reluctantly despite the growing body of literature in the pediatric age group. This approach has upper hand advantages compare to a surgical biopsy and it's proven to be a reliable, fast, minimal invasive, cost-effective diagnostic tool with low morbidity and does not require general anesthesia.<sup>[10-22]</sup> We describe our experience

with FNAC in the evaluation of persistent or suspicious lymphadenopathy in patients with different age groups and also documented the efficacy of FNAC in different age group.

## II. METHODOLOGY

The study of the lymphadenopathy was carried out in total 43 patients attending ENT (Ear, Nose & Throat) OPD in MGM medical college and hospital in Jamshedpur with common complain of lymph nodes swelling. All patients diagnosed with lymphadenopathy during period from March 2017- November 2018 were included. The criteria for selection of cases were mainly based on history and clinical examination. Before investigation the detailed history were recorded considering the patient's common complaints of fever, swollen, enlarged lumps in the neck, back of the head, or other locations of lymph nodes, tenderness of the nodes, warmth or redness of the skin over the lymph nodes. The

required appropriate radiological and clinco-pathological investigation were performed as per demand and accuracy of the result. To confirm the diagnosis of histopathological investigation biopsy were taken from all cases. The investigation also included haemoglobin estimation, total and differential count of W.B.C, total platelet count, urine examination, X-ray. The HIV status in patients is also tested and ZN (Ziehl-Neelsen) stains on the smear were performed to confirm AFB (Acid Fast Bacilli) in patients to confirm the tuberculosis in lymphadenopathy suffering individuals. The special investigation i.e. biopsy is performed. Subsequently all the analyzed data were examined and recorded.

## III. RESULTS AND INTERPRETATIONS

Evaluation of clinically significant cervical lymph node using fine needle aspiration cytology were performed

**Table:1- Age-wise incidence of cervical lymph node using fine needle aspiration cytology approach.**

Ages wise incidence:												
Ages Range	0-5	6-11	12-17	18-23	24-29	30-35	36-41	42-47	48-53	54-59	60-65	66-71
Number of the male & Female Patients	Nil	M:1; F:3	M:2; F:2	M:10; F:7	M:4; F:3	M:1; F:1	M:3; F:0	M:0; F:0	M:1; F:2	M:2; F:0	M:0; F:0	M:0; F:1

Stratification of age group and gender of illness are presented in table-1 to observe occurrence of cervical lymphnode (lymphadenopathy). The total number of the patients taken for this study is 43 with the different age groups as described in the table-1. The lymphadenopathy is found nil in both (M:F) and the ratio is nil between age group of 0 to 5 years, in age group of 6-11 years the ratio was 1:3 ( M: F), in age group of 12-17 years the ratio was 2:2 ( M: F), in age group of 18-23years the ratio was 10:7 ( M: F), in 24-29 age group the ratio was 4:3(M:F), in age group of 30-35 years the ratio was 1:1 (M:F), in 36-41years the ratio was 3:0 ( M: F), in 42-47years the ratio was 0:0 ( M: F), in 48-53years age group the ratio was 1:2 ( M: F), in case of 54-59years age group the ratio was 2:0 ( M: F), in age group of 60-65years the ratio was 0:0 ( M: F), and in case of 66-71 years age group the

ratio was 0:1 ( M: F). The above following results indicates that the higher age wise incidence of the lymphadenopathy is found in age group between 18-30 years. The reactive lymphadenopathy is the common presentation in comparison to granulomatous lymphadenopathy and the granulomas was found as 47.6:47. The malignancy lymphoproliferative disease was noted in one case in lymphnode and metastatic in another and the case of malignancy was observed as 2.38%. In 99.36% of cases , the granuloma is found as 46.7%, non-specific lymphadenopathy was 47%, 2.38 % of cases are malignancy, 2.38% of metastatic lymphnodes and 0.64% is with unknown cause was determined i.e. idiopathic.

#### IV. DISCUSSION

The study of the important metastatic illness is the most frequent clinical impetus for Fine needle aspiration of a cervical node. [23] The reported sensitivities range from 76% to 97%, the diagnostic accuracy and efficiency of FNAB metastatic illness is variable. [23, 24] The cervical adenopathy detection possibility due to a malignant process gains higher with patient age and it was indentified that the diagnosis of reactive lymph nodes is most precise in patients less than 50 year of age. [23] The study conducted by Leboulleux et al. identified a very rich specificity (100%) and poor sensitivity (46% and 11%, respectively) for cystic appearance and hyperechoic punctuations. [25] According to Schafernak et al.'s series study the patients with malignancy history were more than double as likely to show malignancy on lymph node by fine needle aspiration study compared to those without the history (87% vs. 41%). [26] In our study the reactive lymphadenopathy is the common presentation in comparison to granulomatous lymphadenopathy and the granulomas was found as 47.6:47 ratios. The malignancy lymphoproliferative disease was detected in lymphnode (one case) and metastatic in another. The malignancy case was also identified (2.38%), granuloma (46.7%), non-specific lymphadenopathy (47%), metastatic lymphnodes (2.38%) and an unknown cause was determined i.e. idiopathic (0.64%). In decision, the lymph node condition is the most significant predictors of cervical lymph nodes [27] and fine needle aspiration technique is most useful technique with high accuracy level.

#### V. CONCLUSION

In the process of identification of cervical lymphnode using fine needle aspiration cytology the few points are taken into the consideration like patient's age, gender, anamnesis, physical examination, history, laboratory test results findings. The swelling of the cervical lymph node of uncertain origin can present a special

challenge to the attending ENT and pediatric physicians. Confronted with the range of possible differential diagnoses and malignant diseases, the medical practitioner must follow a healthy structured algorithm in their diagnostic steps and therapeutic strategies to invalidate unneeded holds in further diagnosis and safeguard against overhasty, and possibly too invasive, diagnosis and therapy.

#### Conflicts of Interest

The authors declare no conflict of interest.

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