ORIGINAL ARTICLE

# Morphological Spectrum of Diseases in Patients Presenting with Enlarged Cervical lymph Nodes, Diagnosed on FNAC

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**ABSTRACT**

**Objective:** Purpose of the study was to know the relative frequencies of different morphological disease patterns in patients of cervical lymphadenopathy by FNAC.

**Study Design:** A descriptive cross sectional study.

**Place and Duration of Study:** Surgery and Pathology department of Pakistan Railway teaching Hospital Rawalpindi from January 2005 to October 2011.

**Materials and Methods:** Results of fine needle aspiration cytology of patients with enlarged cervical lymphnodes was recorded.

**Results:** Total number of patients was 150. The male to female ratio was 1.3:1 (86 males and 64 females). The maximum patients were in 11-20 years (40%), followed by 21-30 years (20%). The youngest patient was 4 Years and the oldest was 67 years. The FNAC showed chronic granulomatous inflammation suggestive of tuberculosis (43%) as the commonest pathology, followed by reactive hyperplasia (39%), nonspecific lymphadenitis (9%), lymphoma, (5%), and metastatic carcinoma (4%).

**Conclusion:** All patients with enlarged cervical lymph nodes should be thoroughly investigated. FNAC is a reliable diagnostic tool in evaluation of lymphadenopathy. Chronic granulomatous inflammation suggesting tuberculosisis one of the major causes of enlarged cervical lymphnodes in our country.

**Key Words:** *Cervical lymphadenopathy, Tuberculosis, FNAC.*

## Introduction

Cervical lymph node enlargement is a common presenting feature in all age groups.[1,2] There are numerous lymph nodes in the neck and knowledge of their drainage area is important to reach to a diagnosis. Persistent lymph node enlargement is frequently a diagnostic dilemma requiring a complete clinical workup and a battery of investigations. There is a wide range of differential diagnoses for cervical lymphadenopathy ranging from relatively trivial and benign to malignant conditions.[1,3] The main causes are infections, reactive conditions, primary malignancies and metastatic tumors. Despite these varied causes, in regions where tuberculosis is rampant, there should be a strong suspicion of tuberculosis. The presence of granulomas with relevant background features in lymph node aspirates in this setting is highly suggestive of tuberculosis. In this regard FNAC is a reliable first line investigation for evaluation of cervical lymphadenopathy. It offers a relatively simple, fast and accurate way of diagnosis.[3,4] It can differentiate inflammatory and infective processes from neoplastic ones and avoids unnecessary surgeries. FNAC is indicated in persistent cervical lymphadenopathy as a diagnostic aid. Tender lymph node enlargement of a week or two in duration suggests acute lymphadenitis secondary to an infection in its drainage area, and is not an indication for FNAC. It should be treated with a course of antibiotics followed by reappraisal in 2 to 4 weeks. If, on re-examination, the lymph nodes are unchanged or larger, further workup is indicated. FNAC of cervical lymph nodes carries a high diagnostic accuracy and provides guidance for subsequent clinical management.[5,6] However, whenever equivocal results are produced and for detailed subtyping of certain disease entities such as lymphoma, surgical biopsy for histological and immunohistochemical studies is recommended.[3,5,6]

As enlarged cervical lymph glands are a common presentation in our outpatient departments, this study was carried out to find out the relative frequencies of various pathologies identified in the FNAC aspirates from these patients.

## Materials and Methods

This study was conducted at Surgery and Pathology department of Pakistan Railways Hospital, Riphah international University, from January 2005 to

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December 2011. The study design is non-interventional descriptive.A total of 150patients presenting with enlarged lymph nodes in the neck wereincluded in this study.

**Inclusion criterion** waspatients with enlarged neck nodes of more thanone-month duration with no definite response to conservative medical treatment. Both sexes of all age groups wereincluded.

**Exclusion criteria** were patients with enlarged neck nodes of less than 1 month duration and those having acute inflammation or infection in the drainage area of lymph nodes. FNAC of palpable lymphnodes were performed by a pathologist according to a standard procedure. A 23-gauge needle was used for aspiration.The aspirated material was smeared onto glass slides which were immediately fixed in 95% alcohol. Routine Haematoxylin & Eosin (H&E) staining was done. Slides were reviewed by two pathologists. Main variables studied were the morphologic pattern of disease, age and sex of the patients. To collect data, the pathology data registers were used. The data was entered in SPSS16 and the results were compiled. As this was a non-interventional study, no statistical tests were done. However percentages, ratios and measures of central tendency (mean, mode and median) were calculated.

## Results

In our study, the mean age of the patients was 24 years. The age range was from 4 years to 67 years. The maximum patients were in the age group 11-20 years (40%) and then in the age group 21-30 years (20%). 86(57%) patients were female, 64 (43%) patients were male. The ratio of male to female patient was 1.3:1. Chronic granulomatous inflammation suggestive of tuberculosis was the most frequent finding, followed by reactive hyperplasia, nonspecific lymphadenitis, lymphoproliferative disorder and metastatic carcinoma. The eight patients diagnosed with lympho-proliferative disorders were subjected to biopsy for further histopathology and immunohistochemical diagnosis. The results achieved in the present study were compared with different national and international studies.

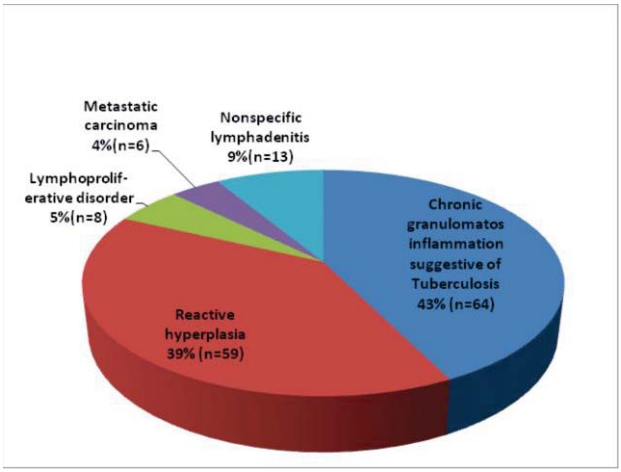


**Fig 1: Pattern of cytological findings and their relative frequencies (N= 150)**

## Discussion

In our study of 150 cases of cervical lymphadenopathy the ratio of female to male patients was 1.3:1. This is inaccordance with most local and foreign studies.[3,7-9] Maximum number of patients was in the age group 11-20 years (40%). The mean age of presentation was 24 years. This is comparable with most of the local studies.[4,7,8] In most of the local studies the commonest age group was 30- 36yrs[2,10,11] whereas mean age was the 5th decade in foreign studies.[3] Chronic granulomatous inflammation suggestive of tuberculosis was the most frequent morphologic pattern of inflammation identified (43%) in our study as well as almost all other local studies.[10,12,14] It is in contrast to very low frequency of 1.6% in international studies.[4,5] Tuberculosis is seen as the most common cause of granulomatous inflammation seen in South East Asia and in developing countries.[2] This may be because of poor nutrition and overall health in developing countries.[2] Initial western studies did not report tuberculosis in their studies. But after the world wide increasing incidence of HIV infection, tuberculosis is being reported from western population as a significant cause of cervical lymphadenopathy. Reactive hyperplasia constituted the second largest group in the present study (39 %), seen in first 2 decades of lifefollowed by nonspecific lymphadenitis in 9%, lymphoma in5% and metastatic carcinoma in 4% patients. This is also in accordance with many local studies.[1-4] FNAC has been used extensivelyfor diagnosis of malignant lymphadenopathy.In the

diagnosis of metastatic malignancy, the lymph node puncture is as rewarding as the surgical biopsy. Among causes of malignant lymphadenopathy, lymphoma was found to be commonest.There were 8 cases of malignant lymphoma (5%). Metastatic malignancy was diagnosed in 6 patients (4%), predominant tumor being squamous cell carcinoma.[2,4,15] Our study showed concordance with most local studies for the frequency of lymphoma cases.[2,10] Somewhat lesser number of metastasis were observed than that reported by other local researchers.[14] Most of the western studiesand one from Iran demonstrated a higher incidence of malignant lymphadenopathy.[16-18] However the number of cases in present study was too small to draw any conclusions.

## Conclusion

FNAC is a reliable diagnostic tool in evaluation of lymphadenopathy and can be performed as outpatientprocedure. It is evident that tuberculosis is still the commonest cause of cervical lymph node enlargement in developing countries. FNAC is an efficient way to detect cervical tuberculous lymphadenopathy.

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