

**Cervical lymphadenopathy : Incidence and etiological study****Dr. Herry Patel\***, **Dr. Moin Sheth\*\***, **Dr. Vasant Baranda\*\*\***, **Dr. Bhupendra Shah\*\*\*\***

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**ABSTRACT**

Cervical lymph node enlargement may be an incidental finding during general checkup or may be associated with a patient's complaint. The condition is generally not a disease by itself; rather, it may be a symptom of one of many possible underlying problems. It may be localized, limited or generalized in location and/ or acute, subacute or chronic in duration. The etiologies for cervical lymphadenopathy fall under a wide range of spectrum and usually history and physical examination alone may lead to diagnosis. But, unexplained cervical lymphadenopathy is a cause of concern for the physician as it could be a manifestation of an underlying malignancy. However, a methodological approach to lymphadenopathy can disclose the accurate diagnosis causing minimal discomfort to the patient and also less time consuming for the physician.

**INTRODUCTION**

The human body has about 600 lymph nodes which play the role of filtering the lymph fluid as it circulates throughout the body. The prime function of lymph node is to deal with antigen, whether this is in the form of organisms or other particulate material, or even soluble antigen. The lymph nodes contain T and B cells along with Antigen Presenting Cells which are called the dendritic cells. They form the part of the immune system and function to fight off disease and infections.

Lymphadenopathy (LAP) refers to the lymph nodes that are abnormal in size (usually greater than 1 cm) consistency or number. In general, there are two mechanisms of lymphadenopathy- hyperplasia and infiltration. The former occurs in response to immunologic or infectious stimuli, and the latter is the result of infiltration by various cell types, including cancer cells, lipid cells, or

glycoprotein-laden macrophages. When this occurs, lymph nodes may be detected clinically. Thus, lymphadenopathy is the term used to describe the clinical sign of swelling of the lymph nodes. Lymphadenitis is the pathologic term for inflammation of the lymph nodes.<sup>1</sup>

The lymph nodes are strategically placed along the drainage of tissue and body fluids with neck containing nearly 2/3rd of the total lymph nodes of the body.

Cervical lymphadenopathy is quite significant in that there are numerous etiological agents and is an index of spread of infection and malignancy.<sup>6</sup> When cervical lymphadenopathy is detected, a cause can sometimes be determined by careful medical history, thorough physical examination, judicious selection of laboratory tests and, if necessary, a lymph node biopsy

Various diagnostic modalities like fine needle aspiration cytology, ultrasonography (USG), computerized tomography and

PET CT neck are now available to diagnose underlying disease in cervical lymphadenitis. These investigating tools have high sensitivity and specificity for cervical lymphadenopathy. The standard modality in the workup of a neck mass is fine needle aspiration (FNA). FNA can be used for both cytology and culture (in cases in which a suspected infectious neck mass does not respond to conventional antibiotic therapy). If FNA is unsuccessful or if sufficient information is not obtained from an initial FNA, the FNA should be repeated before open biopsy. Aetiology and clinical presentation of cervical lymphadenopathy is certainly different in different groups of population. Understanding prevalent conditions and presentations of lymphadenopathy in population will make it possible to establish sound clinical protocol in evaluation and diagnosis of this condition preventing delay in treatment.

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### AIM AND OBJECTIVE

- 1) To study about the etiology and various clinical presentations of cervical lymphadenopathy.
- 2) To correlate pathological findings with the clinical diagnosis.

### EPIDEMIOLOGY

In tropical areas, TB is a main benign cause of LAP in adults and children. In patients with TB, the assessment of the human immunodeficiency virus (HIV) is advised because it increases the incidence of extrapulmonary TB to more than 50%. Infectious mononucleosis affects patients of all ages; however, it is more frequent before adolescence. Approximately over 90% of adults all over the world are seropositive for this viral disease, although only 25-30% of them have become clinically ill.

In general practice, less than one percent of patients with LAP have malignant disease, often due to leukemia in younger children and Hodgkin's disease in adolescents. It has been reported that the prevalence of malignancy is 0.4% in patients under 40 years and 4% in those over 40 years of age in the primary care setting. The prevalence rises to 17% in referral centers and soars to 40-60% in highly suspicious patients. Be that as it may, the location of LAP changes the possibility of malignancy. Hodgkin's disease is rare before 10 years old and a small male dominance is present, especially in childhood. The Epstein-Barr virus infection in combination with immune deficiency is a risk factor for increasing Hodgkin's disease, particularly in less-developed countries and low socioeconomic conditions. Non-Hodgkin's lymphoma, the fourth common worldwide malignancy in males with a frequency of 6.1%,<sup>24</sup> is another cause.

### HISTORY TAKING

Neck masses are often seen in clinical practice, and the family physician should be able to determine the etiology of a mass using organized, efficient diagnostic methods. The first goal is to determine if the mass is malignant or benign; malignancies are more common in adult smokers older than 40 years. Etiologies can be grouped according to whether the onset/duration is acute (e.g., infectious), subacute (e.g., squamous cell carcinoma), or chronic (e.g., thyroid), and further narrowed by patient demographics. If the history and physical examination do not find an obvious cause, imaging and surgical tools are helpful. Contrast-enhanced computed tomography is the

initial diagnostic test of choice in adults. Computed tomography angiography is recommended over magnetic resonance angiography for the evaluation of pulsatile neck masses. If imaging rules out involvement of underlying vital structures, a fine-needle aspiration biopsy can be performed, providing diagnostic information via cytology, Gram stain, and bacterial and acid-fast bacilli cultures. The sensitivity and specificity of fine-needle aspiration biopsy in detecting a malignancy range from 77% to 97% and 93% to 100%, respectively.

A history of environmental exposure to tobacco, alcohol, and ultraviolet radiation increases the suspicion of the metastatic carcinoma of the internal organs, head, and neck as well as skin malignancies. Immune deficient patients, like those with AIDS, have wide differential causes of LAP and malignancies like Kaposi's sarcoma; however, non-Hodgkin's lymphoma should always be taken into consideration.

A family history of malignant disorders may raise the physician's suspicion to distinct etiologies of LAP such as breast carcinomas, melanoma, and dysplastic nevus syndrome.

Also, if LAP lasts less than two weeks or over one year without increasing in size, the probability of malignancy is quite low.

### SYMPTOMS AND SIGNS

A recent upper respiratory infection can cause cervical LAP, which is usually self-limited. A triad of moderate to high fever, pharyngitis, and moderately tender lymph node with splenomegaly (>50%) characterizes classic infectious mononucleosis. Cytomegalovirus, toxoplasmosis, HIV, and human herpes virus type 1 can cause mononucleosis-like syndrome. The typical symptoms of toxoplasmosis are flu-like symptoms, with a single swollen cervical lymph node. HIV in the acute phase presents with mononucleosis-like syndrome. Its presentation consists of fever, fatigue, pharyngitis, rash, malaise, arthralgia, and LAP, which appear 2-6 weeks after exposure to the HIV virus.

A recent travel to an endemic area or exposure to an infected patient with TB along with painless, gradually progressive, single or matted lymph nodes can suggest mycobacterium TB involvement. The coexistence of LAP and symptoms like arthralgia, muscle weakness, unusual rash, and anemia may direct the diagnosis of autoimmune

diseases, including rheumatoid arthritis, systemic lupus erythematosus, and dermatomyositis. On the other hand, whenever dermatomyositis is diagnosed, the underlying malignancy should be ruled out.

Significant fever, night sweats, and unexplained weight loss (more than 10% in less than 6 months) are the "B symptoms" of lymphoproliferative disorders, but they may also be seen in TB or collagen vascular diseases.

Petechiae and purpura associated with LAP and splenomegaly may be detected in acute leukemias. Pain may occur in involved nodes with Hodgkin's disease following alcohol consumption. Generalized pruritus is a concerning symptom because it manifests in 30% of patients with Hodgkin's disease and 10% of patients with non-Hodgkin's lymphoma.

### MATERIALS AND METHODS

This study includes 80 patients who attended the OPD in GMERS general hospital himatnagar and few private hospital from himatnagar during Dec 2020 – March 2021.

In this series 80 cases were studied taking detailed clinical history, physical examination and investigations were done. After physical examination and arriving at clinical diagnosis confirmation was done by FNAC and Biopsy. Lymph node biopsy was the most important of these.

#### Inclusion criteria

Only inflammatory and infective cases were taken, cases of other etiology were not included in this study. Name, Age, Sex, Religion, Address, Occupation of the patients were noted. Cases were taken at random and only patients who gave consent for lymph node biopsy was taken up for study.

#### Exclusion criteria

All cases of neck secondary's and lymphomas were excluded.

Criteria for socio-economic status Income

Patients were divided into 3 income groups according to their monthly income

up to Rs 2000 pa- low income group

Rs 2000-6000pa middle income group

Above Rs6000pa higher income group

Nutritional value- Whether he/she belongs to rural or urban area: Living condition

Over crowding

### EXAMINATION AND INVESTIGATIONS

Complete clinical examination was carried out. In local examination, importance was given to the site, size, laterality, number, secondary changes, and level of the cervical lymph nodes. Systemic examination also carried out. An attempt was made to find out the primary tumour in cases of lymph nodes suspicious as secondaries in neck. Those patients with cytological findings of tuberculosis underwent battery of investigations which included chest X-ray and three samples of sputum for AFB to exclude pulmonary tuberculosis. Montoux's test and ESR was carried out in all the patients with positive FNAC findings. Those with FNAC findings suggestive of reactive lymphadenitis were treated with ten days antibiotic therapy and were followed after two weeks to see the size of the node. After making a clinical diagnosis, further investigations were carried out to confirm the diagnosis. Routine investigations included hematological and radiological. FNAC was put in the front line for diagnosis and to get a cytological diagnosis at hand. Lymph node biopsy was carried out meticulously; it was studied grossly, and sent to pathologist for expert opinion. Further tests were carried out on the basis of histopathological diagnosis (for example, secondaries in the neck), contrast radiological investigations, endoscopy carried out in relevant cases. Those patients with cytological or histopathological confirmed tubercular lymphadenitis were referred to DOTS clinic for anti-tubercular therapy (ATT) with four drugs regimen for initial two months and then two drugs continuation for four months. The information were compiled, analyzed and tabulated to get the statically and comprehensive results After clinical diagnosis was made investigations were done to confirm the diagnosis.

Blood examination

Erythrocyte sedimentation rate (ESR) Total white cell count Differential count

Hemoglobin percentage

Montoux test was done by standard method and erythema of more than 12 mm after 48 hours is taken as positive.

Presence of Langhans type of giant cells was taken as the criteria for diagnosing tuberculosis of lymph nodes.

All the specimens were processed by standard procedure like fixing in formalin, slicing by microtome and staining by gram's and zeihl-Neelson stain. All the slides

were examined under 10X, 60X, 100X power using standard microscope. Aspiration material from cold abscess was stained by gram stain and special stain.

### Biopsy Procedure

Lymph node biopsy was infiltrating 1% lignocaine. If multiple lymph nodes are there large lymph node was biopsied. If anterior and posterior groups were involved, posterior group were preferred. Lymph node taken along with capsule. Care was taken in the supraclavicular area regarding homeostasis.



### Treatment

All patients were given antituberculous drugs using DOTS strategy with 2 months intensive therapy and 4 months continuation phase therapy with drugs Isoniazid, Rifampicin, Ethambutol and Pyrazinamide.

### RESULT AND DISCUSSION

The workup of palpable lymph nodes is a common clinical task for the general practitioners. Most of the causes of CLA (Cervical Lymph adenopathy) are benign and may resolve spontaneously. It can be, on the other hand, a sign of malignancy or systemic disease, thus understanding the differential diagnosis is of paramount importance.

Table 1. Specific causes of lymphadenopathy, in this study, could be determined in 75% of patients.

The total number of cases studied was 80 From the above table it can be seen that tuberculous lymphadenopathy is the commonest cause of cervical lymphadenopathy with 75% followed by chronic non-specific lymphadenopathy with 25%.

No of patients	Tuberculous adenopathy	Non specific adenopathy	Fungal infection
80	60(75%)	18(22.5%)	2(2.5%)

Age	Number of patients	Percentage
0-10	2	2.5%
11-20	25	31.2%
21-30	21	26.2%
31-40	18	22.5%
41-50	7	8.7%
51-60	4	5%
>60	3	3.7%

Incidence of age In this series of 80 cases the disease commonly affected the 2nd and 3rd decades with 31% and 26% respectively. Next common age group in which cervical lymph adenopathy presented is 4th and 5th decades. 22% & 8% of cases affected respectively in the present study.

In our country the tuberculous lymphadenopathy commonly affects the younger age group. Commonest age group affected is between 11-20 and 21-30 closely followed by 31-40 years. Non-specific lymphadenopathy commonly affects the age group of 11-20, 21-30 and less commonly 1-10.

But in western countries the pattern is different. Common age group affected is 0 to 10 years. The causative agent in this age group is atypical mycobacterium. In adults the causative agent is most commonly the mycobacterium tuberculosis. Only 5% are due to atypical mycobacterium.

It cannot be assumed that all cervical lymphadenopathy in children are caused by Atypical Mycobacteria. About 5-10% of childhood lymphadenopathy is due to Mycobacterium Tuberculosis.

### History of contact with tuberculosis

In the present study, there was no definite history of contact with tuberculosis in 82.5% of cases. A definite history was obtained in only 17.5% of cases.

Number of patients	Number	Percentage
Number of patient with history of contact with TB group	66	82.5%
Number of patient with no history of contact with TB group	14	17.5%



### Sex incidence

In the present study, there is comparatively an increased incidence of tuberculous cervical lymphadenopathy in females than males.

Sex	Number	Percentage
Male	32	40%
female	48	60%
<b>TOTAL</b>	<b>80</b>	<b>100%</b>

In the present study, though very small, the sex incidence was as follows - Males 40% and females 60%.

Income group	No	Percentage
Low (<1000)	59	73.7%
middle(<2000-6000)	19	23.7%
high(>6000)	2	2.5%

Etiology area	Number and percentage
Tuberculosis	60 (75%)
urban	45(75%)
rural	15(25%)
Chronic non specific	20 (25%)
urban	16(80%)
rural	4(20%)

The increased incidence in females may be because of the wide prevalence of malnourishment in females. The other factors influencing the higher incidence in females are overcrowding, lack of education, early marriage, pregnancy, large families, and poor socioeconomic conditions.

### CONCLUSION

Tuberculosis is a potentially serious infectious disease, one of the commonest disease affecting lymph nodes. It is curable with antitubercular drugs if administered as per the accepted regimen. Clinical symptoms in cervical lymphadenopathy have limited significance and clinical behaviour can be highly variable. Dependence on clinical evidence alone would lead to erroneous diagnosis in a considerable number of cases. FNAC can be deemed as a frontline investigation with further investigations on the basis of FNAC result. However, histopathological examination remains the most dependable diagnostic tool. Most of the diseases are medically curable with

limited role for surgery in non-neoplastic lesions. It is important to have a high index suspicion in head and neck region and an otolaryngologist must aware about the possible pathologies in cervical lymphadenopathy. Then only an early diagnosis can be possible with simple investigation and thus better outcome of cervical lymphadenopathy

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