

## Original Research Article

# Clinicopathological study of cervical lymphadenopathy at rural tertiary health care centre

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## ABSTRACT

**Background:** The term lymphadenopathy refers to nodes that are abnormal in size, consistency or number. Cervical lymphadenopathy is one of the common and important presentations of the underlying pathology of the head and neck region which has large number of differential diagnosis like neoplasms, infections (specific and non-specific) and in immune deficiency disorders and also, the rare disorders like Inflammatory pseudotumour (Plasma cell granuloma) and Kikuchi-Fujimoto diseases. Etiological profile of cervical Lymphadenopathy varies from region to region, in developing countries like India, acute respiratory infection, suppurative skin infection and tuberculosis are the main causes for cervical lymphadenopathy while in developed countries secondary carcinoma are the most frequent causes for cervical lymphadenopathy.

**Methods:** This hospital based cross sectional study was carried out in the Department of Otorhinolaryngology in Rural Tertiary Health Care Centre. The period of the study was from January 2014 to June 2016.

**Results:** In our study of 176 patients the youngest patient was 13 year of age and oldest patient was 68 years old. The majority of patients affected were in the age group of 21 to 30 years (30.68%) followed by 13 to 20 years (23.86%). The least affected age group was 60 to 70 years (5.8%). There were 80 men and 96 women. The male to female ratio in present study was 1:1.2. The frequently affected age group was 21 to 30 years in men (26.25%) as well as women (34.38%). In our study Neck swelling was present in all cases (100%). fever was the second most common symptom in 54 cases (30.68%) followed by cough in 45 cases (25.56%). In our study most frequently involved lymph node group was posterior cervical in 68 cases (38.39%), followed by upper deep cervical in 66 cases (37.50%).

**Conclusions:** In the present study it was found that tuberculosis was the most frequent cause of cervical Lymphadenopathy in 48.29% of patients, followed by reactive Lymphadenopathy in 17.34%, metastatic lymphadenopathy in 15.34% chronic nonspecific Lymphadenopathy in 14.77% and primary lymphoreticular malignancy in 4.35%. In our study out of 176 cases of cervical lymphadenopathy 141 cases (80.11%) were non neoplastic and 35 cases (19.88 %) were neoplastic.

**Keywords:** Cervical lymphadenopathy, Head and neck cancers, Kikuchi disease, Reactive lymphadenopathy, TB

## INTRODUCTION

The term lymphadenopathy refers to nodes that are abnormal in size, consistency or number.<sup>1</sup> Cervical lymphadenopathy is one of the common and important presentations of the underlying pathology of the head and neck region which has large number of differential

diagnosis like neoplasms, infections (specific and non-specific) and in immune deficiency disorders and also the rare disorders like Inflammatory pseudotumour (Plasma cell granuloma) and Kikuchi-Fujimoto diseases.<sup>2</sup>

Etiological profile of cervical lymphadenopathy varies from region to region, in developing countries like India,

acute respiratory infection, suppurative skin infection and tuberculosis are main causes for cervical lymphadenopathy while in developed countries secondary carcinoma are the most frequent causes for cervical lymphadenopathy.<sup>3</sup>

Cervical lymph node metastases as a first symptom of cancer is a well-known fact. Carcinoma metastatic to the neck with an unknown primary tumor site accounts for approximately 3% to 5% of all head and neck cancers.<sup>4</sup> Peripheral tuberculous lymphadenopathy is the commonest form of extra pulmonary tuberculosis not only in the Indian subcontinent but also in most countries of Asia and Africa with varying frequency of 43-56% and cervical lymph node glands are the commonest to be involved.<sup>5</sup>

Accurate diagnosis of cervical lymphadenopathy is very important. It is often diagnostic challenge to medical profession. Various diagnostic modalities like fine needle aspiration cytology, ultrasonography and computerized tomography neck are now available to diagnose underlying disease in cervical lymphadenitis. Diagnostic importance and applicability of these investigations also varies with demographic profile of patient such as age, sex, and socioeconomic condition in rural area. It is necessary to have firm clinical plan while investigating and managing cervical lymphadenopathy.

Understanding prevalent conditions and presentations of lymphadenopathy in rural population will make it possible to establish sound clinical protocol in evaluation and diagnosis of this condition preventing delay in diagnosis and treatment. The aim of the study is to understand demographic and clinicopathological parameters in patients presenting with cervical lymphadenopathy in otorhinolaryngology outpatient department in rural tertiary health care centre.

## **METHODS**

This hospital based cross sectional study was carried out in the Department of Otorhinolaryngology in a rural tertiary health care centre. This study was Approved from the institutional ethical committee. The period of the study was from January 2014 to June 2016

### **Sample size**

Randomly 176 patients were selected for the study.

### **Inclusion criteria**

All the patients presenting to ENT OPD with cervical lymphadenopathy more than 1cm in longest diameter of any duration were assessed.

- Patients with Acute cervical lymphadenitis in whom the Lymph Node did not regress after adequate antibiotic trial.

- All patients with chronic cervical lymphadenopathy were included in the study.
- Age more than 12 years of age

### **Exclusion criteria**

- Patients with non-lymphoid cervical masses were excluded from the study.
- Patients with age less than or equal to 12years were excluded.

A detailed clinical history was elicited. Age, sex, duration of symptoms, constitutional symptoms, history of contact with tuberculosis patient and other relevant aspects were noted.

Detailed local examination, general examination and Systemic examination was performed in all patients. All parameters regarding lymph node like site, size, number, location, consistency, laterality, matting or discreteness, mobility, secondary changes, level of lymph node and involvement of other lymph node (Inguinal/axillary) groups were carefully noted.

Detailed ENT examination was carried out to find out any dental infection, tonsillar pathology or head and neck malignancy. An attempt was made to find out the primary site in case of cervical lymph node suspicious of malignant deposits.

After establishing a provisional clinical diagnosis, further investigations were carried out to confirm the diagnosis, these included routine hematological investigations like hemoglobin estimation, total and differential leukocyte count, ESR, liver function test, renal function test and blood sugar level were established as preoperative investigations. All patients underwent ELISA for HIV infection. Mantoux test was done in patients suspected of tuberculosis.

ECG, X-ray Chest, USG neck and FNAC were done in all patients, Barium swallow examination and CT scan of neck were performed in patients with suspicion of malignancy.

In patients with secondaries in neck attempt was made to find site of primary tumour by performing triple endoscopy and all the patients except those with secondaries in neck underwent open biopsy and histopathology.

All the findings were noted in pretested proforma and the data obtained were analysed using SPSS version 21.0 software. Results were expressed in frequencies and percentages.

## **RESULTS**

In our study the youngest patient was 13years of age and oldest patient was 68years old. The majority of patients

affected were in the age group of 21 to 30years (30.68%) followed by 13 to 20years (23.86%). The least affected age group was 60 to 70years (5.8%). There were 80 males and 96 females. The male to female ratio in present study was 1:1.2, The frequently affected age group was 21 to 30years in male (26.25%) as well as females (34.38%).

Neck swelling was present in all cases (100%), fever was the second most common symptom in 54 cases (30.68%) followed by cough in 45 cases 25.56%, loss of appetite in 23 patients (13.06%), difficulty in swallowing in 22

patients (12.56%), loss of weight in 21 patients (11.93%). Malaise and Change in voice was present in 18 (10.23%) and 15 cases (8.52%) patients respectively. In our study most frequently, involved lymph node group was posterior cervical in 68 cases (38.39%), followed by upper deep cervical in 66 cases (37.50%) and Submandibular lymph node in 66 cases (37.50%). The less commonly involved lymph nodes were Jugulodigastric lymph nodes in 30 cases (17.04%), supraclavicular in 2 cases (1.13%), occipital in 4 cases (2.27%) and post auricular lymph node group in 6 cases (3.40 %).

**Table 1: Age and sex distribution of cervical lymphadenopathy.**

Age groups (years)	Males		Females		Total	
	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage
13-20	18	22.50	24	25.00	42	23.86
21-30	21	26.25	33	34.38	54	30.68
31-40	10	12.50	26	27.08	36	20.45
41-50	12	15.00	06	06.25	18	10.23
51-60	10	12.50	06	06.25	16	9.09
60-70	9	11.25	1	1.04	10	5.68
Total	80	100	96	100.00	176	100%

Table 1 shows that, in our study the youngest patient was 13year of age and oldest patient was 68years old. The majority of patients affected were in the age group of 21 to 30years (30.68%) followed by 13 to 20years (23.86%). The least affected age group was 60 to 70years (5.8%). There were 80 males and 96 females. The male to female ratio in present study was 1:1.2. The frequently affected age group was 21 to 30years in male (26.25%) as well as females (34.38%).

**Table 2: Distribution of cases according to presenting complaints.**

Presenting complaint	No. of cases	Percentage
Neck swelling	176	100
Fever	54	30.68
Cough	45	25.56
Loss of apetite	23	13.07
Difficulty in swallowing	22	12.50
Loss of weight	21	11.93
Malaise	18	10.23
Change in voice	15	8.52

Table 2 shows that neck swelling was present in all cases (100%).fever was the second most common symptom in 54 cases (30.68%) followed by, cough in 45 cases (25.56%), loss of appetite in 23 patients (13.07%), difficulty in swallowing in 22 patients (12.50%), loss of weight in 21 patients (11.93%). Malaise and Change in

voice was present in 18 (10.23%) and 15 cases (8.52%) patients respectively.

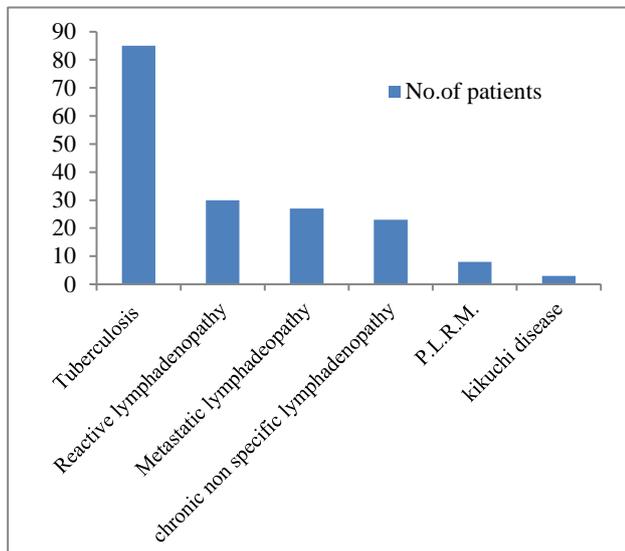
**Table3: Distribution of cases according to site of cervical lymphadenopathy.**

Sites	No. of cases	Percentage
Posterior cervical	68	38.63
Upper deep cervical	66	37.50
Submandibular	30	17.04
Lower deep cervical	4	2.27
Occipital	4	2.27
Supraclavicular	2	1.13
Postauricular	2	1.13

Table 3 shows that most frequently involved lymph node group was posterior cervical in 68 cases (38.63%), followed by upper deep cervical in 66 cases (37.50%) and Submandibular lymph node in 66 cases (37.50%). The less commonly involved lymph nodes were Jugulodigastric lymph nodes in 30 cases (17.04%), supraclavicular in 2 cases (1.13%), occipital in 4 cases (2.27%) and post auricular lymph node group in 6 cases (3.40 %).

The below figure shows that Tuberculosis was found to be the most common cause of cervical lymphadenopathy in 85 cases (48.29%) followed by reactive lymphadenitis in 30 cases (17.04%), Metastatic lymphadenopathy in 27 cases (15.34%), and chronic nonspecific lymphadenitis in 23 (13.06%) case. Other causes were primary

lymphoreticular malignancy in 8 cases (4.54%) and Kikuchi disease in 3 cases (1.70%). From the above figure, out of 176 cases of cervical lymphadenopathy 141 cases (80.11%) were non neoplastic and 35 cases (19.88%) were neoplastic.



**Figure 1: Etiology of cervical lymphadenopathy in present study.**

Tuberculosis was found to be the most common cause of cervical lymphadenopathy in 85 cases (48.29%) followed by reactive lymphadenitis in 30 cases (17.04%), Metastatic lymphadenopathy in 27 cases (15.34%), and chronic non specific lymphadenitis in 23 (13.06%) cases. Other causes were primary lymphoreticular malignancy in 8 cases (4.54%) and Kikuchi disease in 3 cases (1.70%).

## DISCUSSION

Peripheral tuberculous lymphadenopathy is the commonest form of extra pulmonary tuberculosis not only in the Indian subcontinent but also in most countries of Asia and Africa with varying frequency of 43-56% and cervical lymph nodes are the commonest to be involved.<sup>5</sup> In the present study out of 176 cases of cervical lymphadenopathy 45.45% were men and 55.55% were women. There was female predominance with male to female ratio of 1:1.2. However, this difference is statistically significant. Findings in present study are in concurrence with the studies like Mutiullah et al (1;1.4), Umer et al (1;2.8), and Sayyad et al (1;1.2) where female predominance was reported.<sup>3-5</sup>

In the present study commonest age group affected in was 21-30years i.e. 30.68% followed by 13-20years i.e.23.89%. Nearly 54% patients were in age group 11-30yrs. The commonest age group for cervical lymphadenopathy has been reported by various authors was age group of 11-30years. Jha et al reported that 53% of their patients presented in between 11-30yrs of age.<sup>6</sup>

Similar figures were reported by Bedi et al (62.3%) and Shafiullah (71.9%).<sup>7,8</sup>

Cervical lymphadenopathy usually presents with slowly enlarging lymph nodes and may otherwise be asymptomatic. All the patients in present study had cervical lymphadenopathy as chief complaint. Jalal A et al (100 cases), and Wahid et al (101 cases) in their studies had reported neck swelling was the commonest complaint.<sup>9,10</sup> Among the patients with cervical lymphadenopathy fever and cough were other main complaints in 30.6% and 25.5% cases respectively. Jalal et al in their study reported that fever (71.3%) and cough (25.5%) were most common presenting complaints and similar study conducted by Wahid et al reported that fever (42%) and cough (15%) as a chief complaint in patients with cervical lymphadenopathy.<sup>9,10</sup>

In the Present study it was observed that, posterior triangle was affected most commonly in 38.63%, followed by upper cervical in 37.50%, submandibular in 17.04% cases. These figures are similar with studies like Maharajan et al, Ismail et al. Baskota et al where posterior triangle involvement was seen in 42%, 50% and 51% cases respectively.<sup>11-13</sup> The distribution of involvement of various group of lymph nodes in patients with cervical lymphadenopathy as reported by various authors is given below. Most of the studies report the posterior triangle lymph nodes are most frequently affected followed by upper deep cervical and submandibular. The findings in present study correlate well with above mentioned studies. The aetiology of cervical lymphadenopathy was assessed based on clinical examination, FNAC and histopathology. The histopathological diagnosis was grouped in to six groups.

- Tuberculous lymphadenopathy,
- Reactive lymphadenopathy,
- chronic non specific lymphadenopathy,
- metastatic lymphadenopathy,
- primary lymphoreticular malignancy and
- kikuchi disease.

In the present study it was found that tuberculosis was the most frequent cause of cervical lymphadenopathy in 48.29% of patients, followed by reactive lymphadenopathy in 17.34%, metastatic lymphadenopathy in 15.34%, chronic nonspecific lymphadenopathy in 14.77% and primary lymphoreticular malignancy in 4.35%. distribution of cervical lymphadenopathy according to aetiology as reported by various authors is given below. Findings in the present study correlate well with available studies like, Wahid et al (75.24%), Shaikh et al (49.5%), Iqbal et al (70.45%) etc.<sup>10,14,15</sup> Tuberculous lymphadenitis is most common cause of cervical lymphadenopathy.

## CONCLUSION

Tuberculosis is one of the most common diseases of peripheral lymph node enlargement. Despite of

improvement in the living standard in general, significant reduction in the incidence of tuberculosis in Asian population has not occurred correspondingly. However, in western countries tuberculosis ranks third as a cause of cervical lymphadenopathy this might indicate difference in living standards and socioeconomic conditions. Reactive changes commonly occur in lymph nodes in many acute non specific inflammatory conditions like streptococcal and *staphylococcal* infections. These changes are classified in to follicular and nodular, these changes resolve on antibiotic treatment. In present study reactive lymphadenitis was second commonest cause of cervical lymphadenitis.

Chronic non specific lymphadenitis is defined as lymphadenopathy of more than 6 weeks duration. Histopathologically it is characterised by follicular hyperplasia, paracortical hyperplasia or sinus histiocytosis. In present study Chronic non specific lymphadenitis was found in 13.06% of patients. Kikuchi disease (Kikuchi Fugimoto disease) is a type of cervical sub-acute necrotising lymphadenopathy, it is characterised by extensive areas of necrosis bounded by broad zones of histiocytes and activated lymphoid cells. It is one of the important Diagnosis because it is often misdiagnosed as lymphoma. Cervical lymphadenopathy is common clinical condition and in most cases histopathologic examination is enough to diagnose the etiology of cervical lymphadenopathy. Preventive measures like good hygiene, education of patient and family that can prompt early diagnosis.

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