

## Clinical Profile of Cervical Lymphadenopathy: A Study in a Tertiary Care Hospital, Dhaka, Bangladesh

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### Abstract

### Original Research Article

This is a hospital based cross sectional observational study carried out in the Department of Medicine, Dhaka Medical College and Hospital (DMCH) during the period from March 2014 to November 2014. Our aim was to see Clinical profile of cervical lymphadenopathy. A total of 115 consecutive patients having cervical lymphadenopathy in the above mentioned hospitals were enrolled in this study. Almost one third (29.6%) patients belonged to age 21-30 years and the mean age was found  $42.1 \pm 15.6$  years. It was observed that lymphoma was found 27.6% in patients belonged to age 41-50 years, tuberculosis 14(43.8%) patients belonged to age 21-30 years, metastatic carcinoma was 10(41.7%) patients belonged to age 51-60 years, nonspecific lymphadenopathy 11(45.8%) patients belonged to age 21-30 years. Male to female ratio was 2.6:1. More than one fourth, patients were laborer, one third were businessman, and others were housewives, student, and unemployed. More than half of the patients came from lower class and others from middle class family. Regarding the clinical feature of the study patients, it was observed that majority patients had nonspecific symptom like generalized weakness, loss of appetite and weight loss, other features like fever, cough and headache also present in less number. Examination cervical lymph node observed that most of the lymph node was non tender, discreet in character, firm in consistency and mobile. On the other hand lymph nodes fixed in metastatic carcinoma and matted in tuberculosis. On systemic examination, it was observed that splenomegaly and hepatomegaly were the common finding followed by ascites. More than three fourth of the patients had normal findings in CXR P/A view followed by features of consolidation, features of effusion, bilateral hilar shadow and features of fibrosis. Hemoglobin level showed most patients were anaemic. Erythrocyte sedimentation rate were also high in most of the patients. Total count of WBC of the study patients were within normal limit. Clinical profile may help general practitioners to treat the patients having above problem properly.

**Keywords:** Clinical profile, cervical lymphadenopathy, histological findings.

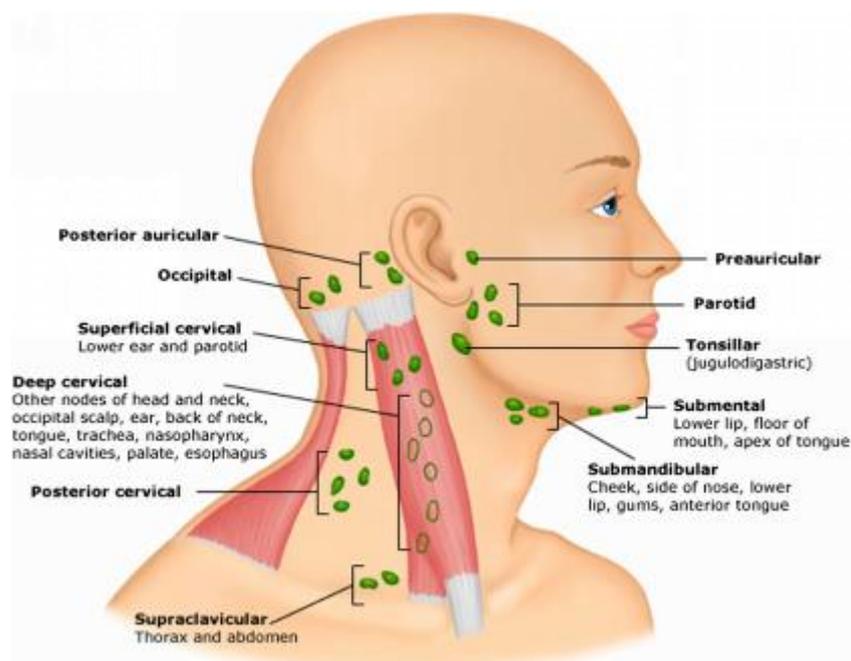
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## INTRODUCTION

Cervical lymph node enlargement is common clinical finding in medical practice<sup>1</sup>. Enlargement of lymph node may result from proliferation of lymphocytes intrinsic to the lymph node either due to infection or due to lymphoproliferative disorder or from the migration & infiltration of nodal tissue by either extrinsic inflammatory cells or metastatic malignant cells [1]. Cervical lymphadenopathy may be due to Infections, Malignancy, Autoimmune diseases, Miscellaneous/unusual conditions, and iatrogenic causes [2]. Any failure to decrease in size of lymph node within 10-14 days of treatment, a need for further evaluation is indicated [3, 4]. The most common cause of cervical lymphadenopathy is reactive hyperplasia resulting from an infectious process, most commonly a viral upper respiratory tract infection [5]. Upper

respiratory tract infection might be caused by rhinovirus, Parainfluenza virus, influenza virus, respiratory syncytial virus, coronavirus, adenovirus, or reovirus. Other viruses associated with cervical lymphadenopathy include Epstein-Barr virus (EBV), cytomegalovirus, rubella, rubeola, varicella-zoster virus, herpes simplex virus (HSV), coxsackievirus, and human immunodeficiency virus (HIV). Bacterial cervical lymphadenitis is usually caused by group A  $\beta$ -hemolytic streptococci or Staphylococcus aureus. Anaerobic bacteria can cause cervical lymphadenitis, usually in association with dental caries and periodontal disease. Group B streptococci and Haemophilus influenzae type b are less frequent causal organisms. Diphtheria is a rare cause. Bartonella henselae (cat scratch disease), atypical mycobacteria, and

mycobacteria are important causes of subacute or chronic cervical lymphadenopathy [6].



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Chronic posterior cervical lymphadenitis is the most common form of acquired toxoplasmosis and is the sole presenting symptom in 50% of cases [7]. More than 25% of malignant tumors in children occur in the head and neck, and the cervical lymph nodes are the most common site [7]. During the first 6 years of life, neuroblastoma and leukemia are the most common tumors associated with cervical lymphadenopathy, followed by rhabdomyosarcoma and non-Hodgkin's lymphoma [7]. After 6 years, Hodgkin's lymphoma is the most common tumor associated with cervical lymphadenopathy, followed by non-Hodgkin's lymphoma and rhabdomyosarcoma. Pandav *et al.*, [8] conducted a study to determine demographic profile of cervical lymphadenopathy among Indian population and found that 83/219 (38%) cases were of tubercular lymphadenitis, 52/219 (24%) cases show Metastatic tumours, 49/219(22%) hyperplasic lymph nodes, 24/219 (11%) acute lymphadenitis, 8/219 (3.7%) Lymphoma and 3/219 (1.4%) were Leukemic Lymphadenopathy. Tubercular lymphadenopathy was found with increasing frequency through adolescence (43.30%) to young adulthood (54.75%) & (48.18%) in adulthood. 67/219 (30.59%) cases of tuberculosis were in age group of 11-40 yrs. 39/219 (17.8%) cases of metastatic tumors were in the age group of 31- 60 yrs. Highest incidence of metastatic malignancy was seen in the fifth decade (35%). In 2006 Yaris *et al.* performed a retrospective review of 126 patients in USA. Of the 126 patients 22.2% were found to have disease other than lymphadenopathy. Of those with lymphadenopathy, 76.6% had benign disease mostly belonging to acute lymphadenitis and 23.4% had malignancies. In a study performed by Ellison *et al.*, [9] in 1999 of 309

clavicular fine needle aspirations, they found that 55% of nodes sampled were malignant. Zeharia *et al.*, [10] performed retrospectively on 92 children diagnosed with atypical mycobacterial lymphadenopathy. The parents of all 92 children in this study opted for non-surgical and non-medical conservative management, and patients were followed for a minimum of 2 years. Clinical profile includes 80% of patients were less than 4 years old, 80% of patients had lymphadenopathy greater than 3cm in size, 90% of patients had unifocal lymphadenopathy, Lymphadenopathy was most commonly found in Submandibular (50%), Cervical (25%), Pre-auricular (10%) regions, 85% of patients had a positive PPD (>10mm), 90% of cases were due to *M. avium-intracellulare* and *M. haemophilum*, 97.4% of patients had a dominant node with purulent drainage for 3-8 weeks.

Cervical lymphadenopathy is a common presentation of tuberculosis in our country. With this existing load new deadly infections like HIV is gradually becoming a concern for us. Considering the versatile possibility of cervical lymphadenopathy ranging from no pathological etiology to malignancy, it is an utmost necessity to determine the pattern of etiologies in our population that is histologically proven and also to reveal the clinical presentation of cervical lymphadenopathy.

## OBJECTIVES

### General Objective

- To observe the clinical profile of cervical lymphadenopathy in adults in Bangladesh

### Specific Objectives

- To describe the types of variations in clinical presentation of cervical lymphadenopathy.
- To describe the demographic characteristics of patient having cervical lymphadenopathy.

### METHODOLOGY

This is a hospital based cross sectional observational study carried out in the Department of Medicine, Dhaka Medical College and Hospital (DMCH) during the period from March 2014 to November 2014. The patients having cervical lymphadenopathy both inpatient and outpatient department of Medicine, Dhaka Medical College Hospital, Dhaka. The patient presented with cervical lymphadenopathy in inpatient or outpatient department of Medicine of Dhaka Medical College Hospital was screened on by duty physicians. Immediate Contact was done with mobile phone to study physician. The study physician immediately counseled the patient for enrollment after considering the inclusion and exclusion criteria. After enrollment in case of outpatient department detail history and physical examination was done to find out possible etiology. Routine blood test such as complete blood count, hemoglobin, erythrocyte sedimentation rate (ESR), Peripheral blood film, chest X-ray posterior anterior view, routine urine examination, random blood sugar was done. Most of the

routine examination was done in Pathology, Haematology and Radiology and Imaging department of Dhaka Medical College Hospital. Patients' information was obtained using information sheet which includes questionnaire, clinical findings. Statistical analyses were carried and were expressed as mean, standard deviation, and categorical variables as frequencies and percentages with 95% CI. Chi-Square test was used to analyze the categorical variables, shown with cross tabulation. P values <0.05 was considered as statistically significant. Prior to the commencement of this study, the research protocol was approved by the Dhaka Medical College ethical review committee.

### Inclusion Criteria

Patients aged 18 years and above, Patients having cervical lymphadenopathy >1.0 cm in diameter, Patients presented in outdoor and indoor, department of medicine, Dhaka Medical College and Hospital, Duration of cervical lymphadenopathy  $\geq$ 14 days (subjective and objective).

### Exclusion Criteria

Patient with insignificant lymph node enlargement, e.g. <1.0 cm in cervical regions, the patients who refuse to give consent.

**Table-1: Distribution of study population by age (n=115)**

Characteristics	Number of patients	Percentage
Age (Years)		
<20	7	6.1
21-30	34	29.6
31-40	14	12.2
41-50	24	20.9
51-60	23	20.0
61-70	11	9.6
>70	2	1.7
Mean $\pm$ SD	42.1 $\pm$ 15.6	
Range	19-80	
Sex		
Male	83	65
Female	32	24
Total	115	89
Occupation		
Laborer	31	27.0
Business	27	23.5
Housewife	20	17.4
Student	17	14.8
Service	11	9.6
Unemployed	9	7.8
Socio-economic Class		
Low Socioeconomic status	57	49.6
Middle Class	56	48.7
Higher Class	2	1.7

## OBSERVATIONS AND RESULTS

This cross sectional observational study was carried out with an aim to describe clinical profile and histological findings of patient having cervical lymphadenopathy. A total of 115 patients presented with cervical lymphadenopathy both inpatient and outpatient department of Medicine in Dhaka Medical College Hospital, during March 2014 to December 2014, were included in this study. Patients aged  $\geq 18$  years, presented with cervical lymphadenopathy  $>1.0$  cm in diameter, duration of cervical lymphadenopathy

more than 14 days (subjective and objective) was enrolled in this study. Patients aged less than 18 years, extremely debilitated patient, patient with insignificant lymph node enlargement, e.g.  $<1.0$  cm in cervical regions, patients who refuse to give consent, known case of lymphadenopathy and patients suggestive of haematologic malignancy were excluded from the study. The present study findings were discussed and compared with previously published relevant studies. The result of present study is shown in tables.

**Table-2: Distribution of study population by clinical presentation (n=115).**

Clinical feature	Number of patients	Percentage	95% CI	
			Lower	Upper
Generalized weakness	105	91.3	86.15	96.5
Weight loss	102	88.7	82.91	94.5
Loss of Appetite	98	85.2	78.71	91.69
Fever	90	78.3	70.77	85.83
Headache	38	33.3	24.69	41.9
Cough	37	32.2	23.66	40.74
Sputum production	26	22.60	14.96	30.2
Alteration of bowel habit	11	9.6	4.22	15.0
Haemoptysis	5	4.3	0.59	8.0
Joint pain	4	3.5	0.14	6.9
Jaundice	2	1.8	-0.63	4.2

**Table-3: Distribution of positive clinical symptoms by histopathological findings (n=115)**

Positive clinical symptoms	Histopathological findings										P value
	Lymphoma (n=29)		Tuberculosis (n=32)		Metastatic carcinoma (n=24)		Nonspecific lymphadenopathy (n=24)		*Other (n=6)		
	n	%	n	%	n	%	n	%	n	%	
Generalized weakness											
Present	28	96.6	31	96.9	23	95.8	21	87.5	2	33.3	0.001s
Absent	1	3.4	1	3.1	1	4.2	3	12.5	4	66.7	
Appetite											
Present	1	3.4	0	0.0	0	0.0	15	62.5	1	16.7	0.001s
Lost	28	96.6	32	100.0	24	100.0	9	37.5	5	83.3	
Weight loss											
Present	29	100.0	30	93.8	22	91.7	19	79.2	2	33.3	0.001s
Absent	0	0.0	2	6.3	2	8.3	5	20.8	4	66.7	
Cough											
Present	8	27.6	14	43.8	9	37.5	5	20.8	1	16.7	0.327ns
Absent	21	72.4	18	56.3	15	62.5	19	79.2	5	83.3	
Sputum											
Present	3	37.5	13	92.9	6	66.7	4	80.0	0	0.0	0.037s
Absent	5	62.5	1	7.1	3	33.3	1	20.0	1	100.0	
Alteration of bowel habit											
Present	0	0.0	0	0.0	9	37.5	2	8.3	0	0.0	0.001s
Absent	29	100.0	32	100.0	15	62.5	22	91.7	6	100.0	
Haemoptysis											
Present	0	0.0	3	9.4	2	8.3	0	0.0	0	0.0	0.235ns
Absent	29	100.0	29	90.6	22	91.7	24	100.0	6	100.0	

**Table-4: Distribution of study population by investigations (n=115)**

<b>CXR P/A view</b>	<b>Number of patients</b>	<b>Percentage</b>
Normal Study	88	76.5
Features of Consolidation	8	7.0
Features of effusion	4	3.5
Collapse of lung	4	3.5
Bilateral hilar shadow	4	3.5
Features of Fibrosis	4	3.5
Features of Cardiomegaly	2	1.7
Patchy opacity	1	0.9
<b>Hb% (gm/dl)</b>		
<7	3	2.6
7-11	100	87.0
12-16 (normal)	12	10.4
Mean±SD	9.8	±1.6
Range (Min, max)	4.7	,15
<b>ESR (mm in 1st hour)</b>		
<15	1	0.9
15-100	98	85.2
>100	16	13.9
Mean±SD	73.5	±27.4
Range (Min, max)	10	,150
		<b>Cont.</b>
<b>Total count (/mm<sup>3</sup>)of WBC</b>		
<4000	1	0.9
4000-11000 (Normal)	89	77.4
>11000	25	21.7
Mean±SD	9126.4	±3761.9
Range (Min, max)	4000	,20000

## DISCUSSION

Regarding the clinical findings of cervical lymph node it was observed that lymph node were significantly non tender in all groups except group that include other etiologies. Tender lymphadenopathy was due to the etiology of acute necrotizing lymphadenitis which was grouped as others and in metastatic cases which may be due to rapid enlargement of lymph node. Lymph nodes were usually matted in case of Tuberculosis then other groups, which is also significant. It is supported by study done by Ismail & Muhammad [11] and Jha *et al.*, [12]. In our study it shows that Metastatic lymph nodes were usually fixed to underlying structure and consistency was hard than others. But most of the other group's consistency of the lymph node was firm. Similarly, in our country a study done by Miah [13] observed 50 cases and found that 92.0% lymph nodes were firm. Another study done by Galib *et al.*, [14] showed lymph nodes were firm in consistency in 80.0% cases. In this present series it was observed that in systemic examination splenomegaly and hepatomegaly was significantly higher in case of lymphoma than other groups. Ascites was significantly higher in case of Metastatic carcinoma. This finding indicates that lymphoma patients usually presented in advanced stage with hepatosplenomegally. Similarly Miah [13] mentioned in his study about presence of hepatomegaly and splenomegaly in lymphoma patient. Study done by Miah [13] showed metastatic carcinoma

were 20% which is similar to our study, in another study by Olu-Eddo & Ohanaka [15] observed 26.5% patients had metastatic carcinoma but in Bangladesh the study done by Rahman *et al.*, [16] observed only 11.2% cases were metastatic neoplasm; this disparity may be due to difference in inclusion of patients as both our study and the previous two studies were done on referral hospital and the Rahman's study was done on outpatient basis. One of the rare diseases like Kikuchi-Fujimoto was diagnosed in 3(4.3%) patients in our setting. Similar findings were observed in a study in India by Mohan *et al.*, [17], which was 2.1%. The final Diagnosis of study patients were observed as follows 29.6% patients had tuberculosis, 25.2% lymphoma, 20.9% metastatic carcinoma, 12.2% nonspecific lymphadenopathy, and others (3.5% Systemic lupus erythematosus, 2.6% Kikuchie's disease, 1.7% Reactive Lymphadenopathy, 1.7% Sarcoidosis, 0.9% Sinus histiocytosis, 0.9% Inflammatory lesion and 0.9% Papillary carcinoma of thyroid). In this series it was observed that almost one third (29.6%) patients with cervical lymphadenopathy were in 3<sup>rd</sup> decade, followed by 20.9% in 5<sup>th</sup>, 20.0% in 6<sup>th</sup>. The mean age was 42.1±15.6 years varied from 19 to 80 years. Similarly, in our country, Rahman *et al.*, [16] obtained in their study that the age of the patients varied from 2 to 85 years and most of the patients were in the 3<sup>rd</sup> decade (17.8%) followed by 4<sup>th</sup> decade (19.6%) and 2<sup>nd</sup> decade (17.8%) of life. Majority of the patients (61.7%)

were between 11-40 years of age. In other studies; Khan *et al.*, [18] observed almost similar age range in their study where they found age range varied from 10 to 75 years with mean age  $36.52 \pm 17.37$  years; Umer *et al.*, [19] reported maximum patients were in the age group of 21-30 years; Pandav *et al.*, [8] mentioned that maximum numbers (21.0%) of cases were in age grouping of 21-30 years; Naeimi *et al.*, [20] found that mean age was 47.07 years with a range of 8-81 years; Ellison *et al.*, [9] showed the average was 46.7 years, with a range from 3 to 93 years and a median of 49 years - which is closely resembled with the present study.

In this series it was found that metastatic carcinoma were 41.7% in 6<sup>th</sup> decade, Rahman *et al.*, [16] mentioned that malignant lesions were common in the older age. In other studies; Shakya *et al.*, [21] found that Highest incidence of Cancer was seen in 5th decades (50.0%); Ageep [22] shows 90% of the malignant cases were in age group of 50 to 70 years; Pandav *et al.*, [8] also showed Highest (35.0%) incidence of metastatic malignancy was seen in the 5th decade; Khajuria *et al.*, [23] reported in their study that 88% of metastasis lymph nodes were found over 40 years of age; Biswas *et al.*, [24] showed secondary cancers were 72.5% and among them 86.2% were in more than 40 years of age whereas primary carcinoma of lymph node involved all age – which show similarity with our study. Tuberculosis was predominant in 3<sup>rd</sup> decade 43.8%, in this series, similarly in our country Miah [13] showed that tuberculosis predominate in younger age group (75%). In another study Pandav *et al.*, [8] obtained that Tubercular lymphadenopathy increasing frequency through adolescence 43.30% to young adulthood 54.75% and 48.18% in adulthood. Shakya *et al.*, [21] found that tubercular lymphadenopathy increasing frequency through childhood 10.5% and adolescence 21.7% to young adulthood 30.4%. Khajuria *et al.*, [23] showed tuberculosis of lymph nodes in 2nd and 3rd decades were (58.9%). Biswas *et al.*, [24] observed median age for the patients having tubercular lymphadenitis was 20 years with a range of 4-55 years. Nonspecific lymphadenopathy was found 45.8% in 3<sup>rd</sup> decade in this series. Biswas *et al.*, [24] study had similar findings. In this present series it was observed that more than three fourth (77.4%) of the patients were married. Almost three fourth (72.2%) of the patients were male. Male female ratio was 2.6:1, which indicates that sex distribution revealed male predominance.

Regarding the CXR P/A view it was observed in this current series that more than three fourth (76.5%) of the patients had normal findings 7.0% had features of consolidation, 4.4% features of effusion, 4.4% bilateral hilar shadow and 4.4% had features of fibrosis. These findings indicate the importance of chest x ray for differential diagnosis of patients presented with cervical lymphadenopathy. In this present study it was observed

that most (87.0%) of the patients were anaemic (Hemoglobin level belonged to 7-11 gm/dl) and severe anaemia (<7 mg/dl Hg) were present 3(2.6%) cases. Among the 3 cases two were metastatic carcinoma and one was tuberculosis. It was also observed that 85.2% of the patients had high Erythrocyte sedimentation rate (15-100 mm in 1st hour), and 13.9% had shown very high (>100 mm). Total count of the WBC in more than three fourth (77.4%) of the patients were within normal limit.

#### Limitations of the study

The study population was selected from one selected hospital in Dhaka city, so that the results of the study may not be reflect the exact picture of the country. The present study was conducted at short period of time. Small sample size was also a limitation of the present study.

#### CONCLUSION AND RECOMMENDATIONS

From this study, it is concluded that cervical lymphadenopathy is a common clinical problem and the commonest cause was tuberculosis followed by lymphoma and metastatic carcinoma. Clinical profile can help the care giver doctor, especially at primary care level, to treat the patients properly. Further studies can be undertaken by including large number of patients.

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