International Journal of Otorhinolaryngology and Head and Neck Surgery
Motiwala MA et al. Int J Otorhinolaryngol Head Neck Surg. 2017 Apr;3(2):210-215
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

Original Research Article

DOI: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20171176

Cervical lymphadenopathy: a clinicopathological study

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Received: 24 November 2016
Accepted: 19 December 2016

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ABSTRACT

Background: Cervical lymphadenopathy is one of the commonest presentations of underlying pathology of the head and neck region which has large number of differential diagnosis like neoplasms, infections (specific and non-specific), immune deficiency disorders and rare disorders like Inflammation. Pseudotumour (plasma cell granuloma) and Kikuchi-Fujimoto disease.
Methods: The present study is a prospective study conducted in our institution Dr B.A.M. Central Railway Hospital, Mumbai. Our study included 115 patients with cervical lymphadenopathy presenting with swelling of more than 1.5 cm size in longest diameter. All the patients included in our study are more than 12 years of age, in whom the lymph node did not regress after adequate antibiotic therapy in acute cases (i.e. Conservative management for at least 2 week), and all the chronic cervical lymphadenopathy patients.
Results: Tuberculosis was found to be the most common cause of cervical Lymphadenopathy in 54.78% cases followed by reactive lymphadenitis in 22.61% cases, chronic nonspecific lymphadenitis in 12.17% cases and metastatic lymphadenopathy in 7.83% cases. Other causes were unknown primary in 1.74% cases and non-Hodgkin's lymphoma in 0.87% cases. Sensitivity and specificity of FNAC was 79.36% and 100% respectively.
Conclusions: Tuberculosis, reactive lymphadenitis and malignancy are the most important cause of cervical Lymphadenopathy. They present in different age groups with different clinical feature. Fine Needle Aspiration Cytology (FNAC) is extremely sensitive and highly specific investigation for early diagnosis.

Keywords: Cervical lymphadenopathy, FNAC, Tubercular lymphadenitis, Reactive lymphadenitis, Malignant lymphadenitis

INTRODUCTION

The term lymphadenopathy refers to nodes that are abnormal in size, shape, consistency or number.[1] Cervical lymphadenopathy is one of the commonest presentations of underlying pathology of the head and neck region which has large number of differential diagnosis like neoplasms, infections (specific and non-specific), in immune deficiency disorders and also in rare disorders like inflammatory pseudotumour (plasma cell granuloma) and Kikuchi-Fujimoto disease. 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.[2] 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.

METHODS

This hospital based prospective study was carried out in the out-patient and in-patient department of Dr. Babasaheb Ambedkar Memorial Hospital, Central Railway, Byculla, Mumbai in one year (October 2014 to September 2015) in the Patients attending the opd of ENT. All the patients presenting with cervical lymphadenopathy more than 1.5 cm in longest diameter with following criteria were included in study. Patients with age more than 12 years having sub-acute cervical lymphadenitis in whom the lymph node did not regress after adequate antibiotic trial (i.e. Conservative management for at least 2 week), and all the patients with chronic cervical lymphadenopathy are included in our study. Patients with Thyroid swelling, parotid swelling, submandibular gland swelling, thyroglossal cyst swelling and other swellings in cervical region (i.e. non lymphoid cervical masses) are excluded from the study, patients with Acute infective lymphadenitis cases and children below 12 years of age are excluded from our study. The number of subjects recruited in the study is 115. An informed consent was taken from all the patients. 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.

Generalized systemic examination was performed, followed by detailed local examination. All parameters regarding lymph node like size, site, 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 on clinical examination.

After establishing a provisional clinical diagnosis, further investigations were carried out to confirm the diagnosis. These included Routine haematological investigations like Haemoglobin estimation, total and differential leukocyte count, ESR, Liver function test and blood sugar level were established as preoperative investigation. All patients underwent ELISA for HIV infection.

X ray Chest, USG neck and FNAC were done in all patients. CT scan and PET CT of neck were performed for searching primary in cases of occult primary.

All the patients, except those with secondary metastasis in neck underwent open biopsy and histopathology. In patients with secondaries in neck attempt was made to find site of primary tumor by performing triple endoscopy and biopsy from primary site was taken. If primary site could not be identified even after thorough search the patient was diagnosed as having secondaries in neck with unknown primary.

All the findings were noted in pretested proforma and proper statistical analysis were performed.

Method of measurement

Based on duration lymphadenopathy was classified as:

1. Acute lymphadenopathy: 2 weeks duration
2. Chronic lymphadenopathy: Any cervical lymphadenopathy that does not resolves by 6 weeks.
3. Adequate antibiotic trial: A broad spectrum antibiotic was given and reassessment in 2 weeks was done.

Treatment and follow up

Having come to conclusion of diagnosis, treatment was instituted appropriately. Medical treatment was employed predominantly for condition like tubercular cervical lymphadenopathy, infective, suppurative cervical lymphadenopathy, management and follow up was done in ENT OPD.

For treatment of Head and neck malignancy, case was discussed with medical oncologists and treatment done accordingly.

All patients were asked to attend the ENT Department for follow up. Necessary advices were given to patient. However treatment part was not analysed as it was beyond the scope of present study.

RESULTS

The present study comprises 115 cases of Cervical Lymphadenopathy. Different clinic demographical variable studied. The observations and results of present study are as below.

In the present study, the youngest patient was 13 year of age and oldest patient was 74 years old. The majority of patients affected were in the age group of 13 to 20 years (39.13%) followed by 21 to 30 years (28.70%). The least affected age group was 61 to 70 years (1.74%). There were 71 males and 44 females. The male to female ratio in present study was 1.61:1. The frequently affected age group was 21 to 30 years in male (19.13%) and 13 to 20 years in females (23.48%).The mean age in this series was 28.84 ± 5.5 years. This difference was statistically significant ($p<0.001$; $z = -5.302$ Z test of proportion).

In the present study, neck swelling was present in all cases (100%). Fever was the second most common symptom in 69 cases (60%), followed by loss of weight in 54 patient (46.96 %), malaise in 42 patients (36.52%), loss of appetite in 27 patient (23.48%), cough in 21 cases (18.26%) difficulty in swallowing in 8 patient (6.96%), and Change in voice was present in 8 (6.96%) respectively (Table 1).

Table 1: Distribution of cases of cervical lymphadenopathy according to presenting complaints.

Sr. No.	Presenting Complaint	No. of Cases	Percentage
1	Neck Swelling	115	100.00%
2	Fever	69	60.00%
3	Cough	21	18.26%
4	Loss of appetite	27	23.48%
5	Difficulty in Swallowing	8	6.96%
6	Loss of Weight	54	46.96%
7	Malaise	42	36.52%
8	Change in Voice	8	6.96%

Table 2: Distribution of cases of cervical lymphadenopathy according to etiology.

Sr.No	Etiology	No. of Cases	Percentage
1	Tuberculosis	63	54.78%
2	Reactive Lymphadenitis	26	22.61%
3	Metastatic	9	7.83%
4	Chronic Non Specific Lymphadenitis	14	12.17%
5	Unknown Primary	2	1.74%
6	Non Hodgkins Lymphoma	1	0.87%
	Total	115	100%

Table 3: Distribution of cases of cervical lymphadenopathy in different etiologies according to gender.

Sr. No.	Gender	TBCL		RL		MET		CNSL		UP		NHL	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Male	40	34.7%	9	7.83%	8	6.96%	12	10.43%	1	0.87%	1	0.87%
2	Female	23	20.0%	17	14.78%	1	0.87%	2	1.74%	1	0.87%	0	0.00%
	Total	63	55.7%	26	22.61%	9	7.83%	14	12.17%	2	1.74%	1	0.87%

Table 4: Distribution of cases of tuberculous cervical lymphadenopathy according to characteristics of lymph nodes.

Sr.No.	Characteristics	No .of cases (N=115)	Percentage (%)
1	Unilateral	106	92.17%
2	Bilateral	9	7.83%
3	Matted	55	47.83%
4	Discrete	43	37.39%
5	Abscess	7	6.09%
6	Fixed	10	8.70%

Table 5: Sensitivity and specificity of FNAC in diagnosis of tuberculous lymphadenitis.

Sr No	FNAC	Tuberculous cervical LNP		Total
		Positive	Negative	
1	Positive	50	0	50
2	Negative	13	52	65
	Total	63	52	115

In the present study out of 115 cases of cervical lymphadenopathy 103 cases (89.56%) were non neoplastic and 12 cases (10.43%) were neoplastic. Tuberculosis was found to be the most common cause of cervical lymphadenopathy in 63 cases (54.78%) followed by reactive lymphadenitis in 26 cases (22.61%), chronic nonspecific lymphadenitis in 14 (12.17%) case and metastatic lymphadenopathy in 9 cases (7.83%), Other causes were unknown primary in 2 cases (1.74%) and non-Hodgkin's lymphoma in 1 cases (0.87%) (Table 2).

Tuberculous lymphadenitis, metastasis, chronic lymphadenitis and Non-Hodgkin's lymphoma are more common in male then female. Unknown primary have equal incidence in male and female while reactive lymphadenitis is more common in female than male.

The difference between sex and etiological factors for lymphadenopathy was statistically significant (Chi-square = 13.96, df = 3, P=0.002) (Table 3).

Detailed study of physical characteristics of tuberculous lymphadenitis revealed that (92.17%) patients had unilateral lymph node involvement as against (7.83%). In 47.83% cases the lymph nodes were matted while (37.39%) had discrete lymph nodes. Tubercular abscess was seen in (6.09%) cases and fixed node is seen in 8.70 % of cases.

In present study more than 90% patients had (92.17%) had unilateral cervical lymph node involvement while only 7.8% patients had bilateral involvement. Majority of the patients (49.57%) with tuberculous lymphadenopathy presented with unilateral involvement and only 5.22 % had bilateral involvement. Similarly number of patients with unilateral involvement in chronic nonspecific lymphadenitis and reactive lymphadenopathy was 9.57% and 22.67% respectively. All the cases of reactive lymphadenitis, metastatic, unknown primary and non-Hodgkin's lymphoma disease had unilateral involvement. Amongst patients with tuberculous cervical lymphadenopathy 49.57% had unilateral involvement and 5.22% had bilateral involvement.

The difference between involvement of lymph node site and etiology of lymphadenopathy was found statistically significant (Fisher's exact test =0.509, df = 2, P=0.025) (Table 4).

Submental nodes/ Submandibular Nodes involved in 51 cases (44.35%), upper deep cervical nodes were involved in 48 cases (41.74%), middle deep cervical 39 cases (33.91%), lower deep cervical Node involved in 9 cases (7.83%), and posterior group of nodes in 15 cases (13.04%)

In our study, 106 cases i.e. 92.17% are benign cases while only 7.83% are malignant.

Sensitivity of FNAC in diagnosis of tuberculosis was found to be 79.36% whereas specificity was found to be 100% (Table 5).

DISCUSSION

In present study 115 patients with cervical lymphadenopathy were evaluated to assess Clinicopathological profile and identify various aetiologies causing cervical lymphadenopathy. The study group comprised of 61.74% males and 38.27% females. There was male predominance with male to female ratio of 1.61:1. However this difference was statistically significant.

The frequently affected age group was 21 to 30 years in male (19.13%) and 13 to 20 years in females (23.48%). The mean age in this series was 28.84 ± 5.5 years. Overall the most common age group affected was 13 to 20 years (39.13%).[3-9]

The assessment of site of lymph node involved revealed that posterior triangle was the most frequent site of involvement in 44.35%, followed by upper deep cervical group in 41.74%. Submandibular lymph node group involved in 33.91%.[10-13]

In the present study, Neck swelling was present in all cases (100%). Fever was the second most common symptom in 60%, followed by loss of weight in 46.96 %, malaise in 36.52%, loss of appetite in 23.48%, cough in 18.26%, difficulty in swallowing in 6.96%, and change in voice was present in 6.96% respectively.[3,8,14]

In the present study out of 115 cases of cervical lymphadenopathy 89.56% were non neoplastic and 10.43% were neoplastic. Tuberculosis was found to be the most common cause of cervical Lymphadenopathy in 54.78% followed by reactive lymphadenitis in 22.61%, chronic nonspecific lymphadenitis in 12.17% case and

metastatic lymphadenopathy in 7.83%. Other causes were unknown primary in 1.74% and non-Hodgkin's lymphoma in 0.87% of cases.[3,7,8,12,15,16]

Age distribution according to aetiology showed that non-malignant cervical lymphadenopathy was common in age less than 40 years, while malignant cervical lymphadenopathy was common after 40 years of age. This difference was not significant statistically.[3,6,17-19]

Majority cases (92.17%) had unilateral lymph node involvement while only 7.83% had bilateral involvement. This difference was significant statistically.[15,20,21]

Tuberculosis, chronic non-specific lymphadenitis, metastatic cervical Lymphadenopathy was more common in males. This difference was statistically significant. While reactive cervical lymphadenopathy was more common in females.[3,6,22]

Tuberculous cervical lymphadenopathy was mostly unilateral (90.47%). It was also observed that in majority of these patients, lymph nodes were matted. Thus matting was important feature of tuberculous lymph node and discrete lymph node were present in only 37.39%. Tubercular abscess was seen in 6.09% cases.[3,6,12]

Tuberculous cervical lymphadenopathy is a frequent disease in India. Therefore it is important that a high index of suspicion for tubercular lymphadenopathy is required. Early diagnosis & treatment will cure the disease and also it prevents complications like cold abscess & sinus formation.

It was observed that metastatic cervical lymphadenopathy constituted 7.83%, unknown primary constituted about 1.74% and non-Hodgkin lymphoma constituted only 0.87% of total cervical lymphadenopathy cases.

In the present study, sensitivity and specificity of FNAC in diagnosing tuberculosis was assessed and it was found that sensitivity and specificity of FNAC was 79.36% and 100% respectively.[3,22,23]

CONCLUSION

In our study tuberculosis, reactive lymphadenitis and malignancy are the most important cause of cervical Lymphadenopathy in our population under study. They present in different age groups with strikingly different clinical feature. Careful clinical examination should be able to reveal the diagnosis. Fine Needle Aspiration Cytology is extremely sensitive and highly specific investigation for early diagnosis.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Motiwala MA, Dalmia D, Behara SK. Cervical lymphadenopathy: a clinicopathological study. Int J Otorhinolaryngol Head Neck Surg 2017;3:210-5.