International Surgery Journal
Gorle VK et al. Int Surg J. 2018 Aug;5(8):2841-2845
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20183201

Original Research Article

A clinicopathological study on cervical lymphadenopathy: an institutional experience

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Received: 24 May 2018
Accepted: 27 June 2018

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ABSTRACT

Background: Despite advances in modern technology accurate diagnosis of cause of cervical lymphadenopathy remains a challenge. It leads to substantial morbidity to patients and sometimes even mortality. Uncertainty in diagnosis can lead to wrong diagnosis and increases cost of treatment. The objective of the study was to conduct a detailed evaluation of cervical lymphadenopathy in tertiary care set up and to enumerate the causes so that appropriate and adequate treatment can be initiated to reduce the morbidity.
Methods: A prospective study was carried out on 100 patients of cervical lymphadenopathy and were evaluated clinically. Detailed history was taken of every patient followed by physical examination and appropriate investigations. This was followed by disease specific treatment and surgical intervention wherever necessary. Patient data was collected and evaluated to draw conclusions.
Results: Most patients were young (between 12-40 years). Most common cause for cervical lymphadenopathy is due to non-neoplastic (82%) and less commonly from neoplastic (18 %). In non-neoplastic causes most, common cause is due to tuberculosis (51 %). In neoplastic causes, most common cause is due to lymphoma (10 %). In tubercular lymphadenitis the posterior triangle group was the most commonly involved group of cervical lymph nodes (31.3%), followed by upper jugular group (21.5%). FNAC by virtue of it being inexpensive, quick in getting the results and easy to perform, is one of the important and essential diagnostic procedure. Surgery should be to diagnostic biopsy, for treatment of abscess/sinuses and for a lymph node that do not resolve with chemotherapy and as an adjuvant to chemotherapy.
Conclusions: Cervical lymphadenopathy can have varied manifestation from non-neoplastic to neoplastic condition. Proper history examination and relevant investigations and disease specific treatment can only cure the patient and improve the prognosis.

Keywords: Cervical lymphadenopathy, Lymph node biopsy, Lymphoma, Tuberculosis

INTRODUCTION

The prime function of lymph node is to deal with antigen, whether it's in the form of organisms or particulate material, or even soluble antigen. They respond to antigen by enlargement in size, shape, number and consistency.[1] Lymph nodes are strategically placed along the drainage of tissue and body fluids. Neck consists nearly 1/3rd of the total lymph nodes of the body. The enlargement of these lymph nodes is a worrisome sign as there are multiple etiological agents and are a common portal for spread of infection and malignancy. Etiology could be specific, nonspecific or even immune deficiency states.[2] The analysis of lymph node enlargement in the

neck is tricky due to similar presentations of many diseases. In developing country like India etiology still appears to be infective where as in western world malignancy is the most common cause.[3] It can be manifestation of pulmonary tuberculosis in the form of extra pulmonary tuberculosis or a rare manifestation of metastasis with unknown primary which accounts for 3% to 5% of head neck cancers.[4,5] Improper diagnosis and the treatment may convert a potentially curable disease into an incurable one. Hence, authors often need the aid of pathologists, bacteriologists and sometimes the biochemists.

A swelling in the cervical region can be a diagnostic challenge. Aim of present study was to know about the various clinical presentations of cervical lymphadenopathy, to correlate pathological findings with the clinical diagnosis, to study the diagnostic accuracy of FNAC by correlating with confirmed biopsy report. The present study intends to find out systematically the various pathological conditions presenting with enlarged lymph nodes in the neck, also the various modes of clinical presentation and behavior of these conditions. Authors also intend to find the role of FNAC in diagnosing these conditions compared to lymph node biopsy confirmation.

METHODS

The study has been conducted in Department of General Surgery, Mamata Medical college Khammam for a period of 2 years from October 2014 to September 2016. A prospective observational study was conducted on 100 consecutive patients presenting with neck lymphadenopathy.

Inclusion criteria

It included patients more than 12 years of age and patients presenting with cervical lymph node enlargement.

Exclusion criteria

These were patients less than 12 years of age and patients where FNAC and/or Biopsy of the node could not be carried out were excluded.

The study was conducted after taking approval from the hospital ethical committee. A total of 100 cases of cervical lymphadenopathy were studied after taking written informed consent and data was collected regarding age, sex, duration of symptoms, constitutional symptoms and history of contact with tuberculosis patient. A detailed local and complete general physical examination was carried out followed by work up investigations including FNAC, lymph node biopsy, ENT opinion, contrast radiological investigations, endoscopy in relevant cases. Having come to conclusion of diagnosis, treatment was instituted appropriately. Medical treatment was employed predominantly for conditions like tubercular adenitis, infective lymph node swellings. For radiotherapy, chemotherapy and expert oncologic surgeries, oncologist opinion was taken. In the present study, all cases proved as tubercular were treated with regimens as per the standard WHO guidelines. The patients presenting with abscess were drained surgically and those presented with sinus underwent excision of sinus followed by appropriate medical management.

RESULTS

In the present study 100 cases of cervical lymph node enlargement were evaluated systematically. Majority of patents were young (73%) were between 12-40 years age group and the male to female ratio was 1.22:1. Maximum number of cases were in the age group of 21-30 years (36 cases, 36%). The second and third decade constituting 59 of the 100 cases (59%). Constitutional symptoms were present in 42% of patients with cervical lymphadenopathy (Table 1).

Table 1: Presence/ absence of constitutional symptoms.

Histopathological diagnosis	Constitutional symptoms		Total	Presence of symptoms (%)
	Present	Absent		
Tubercular lymphadenitis	16	35	51	31.4
Chronic non-specific and reactive lymphadenitis	19	12	31	61.3
Secondaries	2	6	8	25
Lymphoma	5	5	10	50
Total	42	58	100	42

All cases were subjected for Fine Needle Aspiration Cytology (FNAC) inconclusive FNAC in 6 cases. Excisional biopsy was performed in all 100 cases and finally these cases were analyzed in detail.

Out of these 100 cases, 51 cases (51%) were tubercular in etiology, 16 cases (16%) as reactive lymphadenitis, 15 cases (15%) as chronic non-specific lymphadenitis, 8 cases (8%) as secondaries and 10 cases (10%) as

lymphomas (Figure 1). Majority of cases of tubercular lymphadenitis (31.4%) and malignant secondaries (25%) in neck did not have constitutional symptoms.

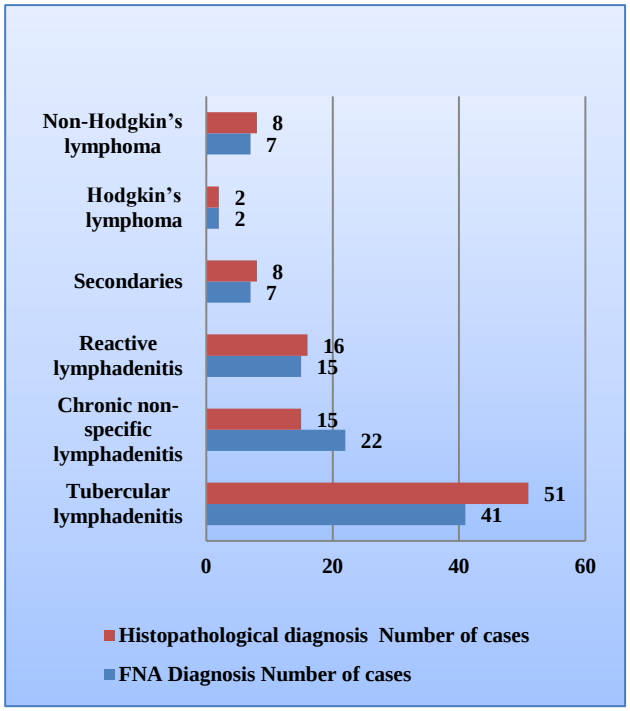

Figure 1: FNA diagnosis as compared to histopathological diagnosis (N=100).

Most of the cases of cervical lymphadenopathy were non-neoplastic (82%). Posterior triangle group of cervical lymph node was the commonest to get involved in tuberculosis (31.3%) followed by upper deep jugular group (21.5%). About 30% cases had more than one site involvement. Tuberculous lymphadenitis presented more commonly as discrete lymph nodes which was present in 37 of the 51 cases (72.6%). Matting of lymph nodes was observed in 14 of the 51 cases (27.4%). It was observed that 1 (2%) case had axillary lymph node involvement, 9 (17.6%) cases had inguinal lymph node involvement in addition to cervical lymph node enlargement and 2 (4%) cases had generalized lymph node involvement. In total 12 (23.5%) cases of tubercular cervical lymphadenitis had lymph nodes elsewhere in the body. Caseation was observed in 24 (47%) cases of tuberculous cervical lymph nodes.

In comparison 90% cases of lymphomas had more than one site involvement with only 10% cases afflicting the posterior triangle group. Half (50%) of the patients of lymphomas were positive for symptoms. 2 cases (2%) of lymphomas presented with axillary lymph nodes enlargement while 1 (1%) case presented with inguinal lymph node enlargement in addition to cervical lymphadenopathy. 3 cases (30%) had generalized nodal involvement.

In 10 cases of histopathologically confirmed lymphomas, 8 (80%) were Non-Hodgkin's variety and 2 (20%) were Hodgkin's. Unilateral involvement of lymph nodes was observed to be more common. It was seen in 41 cases out of total 51 cases (80.3%). The remaining (19.7%) cases had bilateral involvement.

In comparison 19 cases, out of 31 cases (61.3%) of reactive/chronic non-specific lymphadenitis showed presence of symptoms. Among the reactive/chronic non-specific lymphadenitis combined, 1 (3.2%) case had axillary, 5 (16.1%) cases had inguinal lymph nodes involved in addition to cervical lymphadenopathy but no generalized lymphadenopathy. Among Malignant secondaries, primary was found in larynx (2), thyroid (2) and parotid (1) (Table 2). The remaining 3 cases were categorized carcinoma of unknown primary after all the diagnostic tests proved to be negative.

Table 2: Distribution of primary in malignant secondaries in neck (N=8).

Primary site of malignancy	Histopathological diagnosis	No. of cases
Larynx	Squamous cell carcinoma	2
Thyroid	Papillary carcinoma	2
Parotid	Mucoepidermoid carcinoma	1
Unknown	Adenocarcinoma Squamous cell carcinoma	1 2
Total		8

FNAC was fairly accurate in diagnosing cases of cervical lymphadenopathy (Figure 2). The present study reported a sensitivity of 80.4% and specificity of 100% in diagnosing tubercular lymphadenitis.

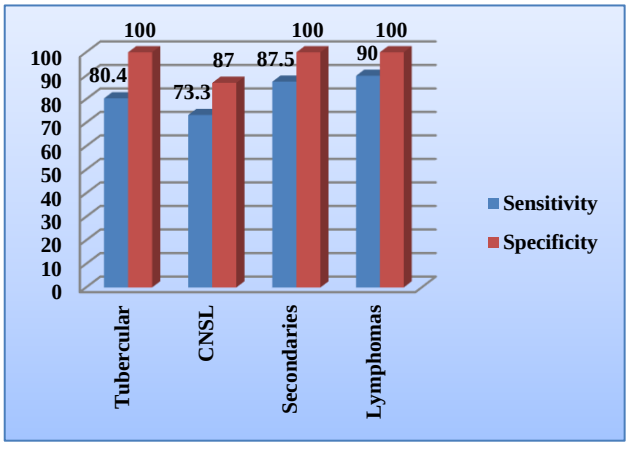

Figure 2: Sensitivity and specificity of FNAC.

Sensitivity of 87.5 % and specificity of 100 % for malignant secondary deposits. Sensitivity of 90 % and specificity of 100 % for lymphoma.

FNAC was able to diagnose tuberculosis only in 41 out of 51 patents of tuberculosis with other cases diagnosed as chronic non-specific lymphadenitis. There were no false positive cases on FNAC with 49 cases were true negative for tuberculosis. The sensitivity and specificity of FNAC for diagnosing tuberculous lymphadenitis is therefore 80.4% and 100% respectively. Out of the 51 cases, 6 cases did not come for regular follow-up. Of the 45 cases who came for follow-up, 35 cases (77.8%), the nodes resolved uneventfully. In the remaining 10 cases, 4 cases developed fresh nodes which later resolved on continuing the treatment. 2 cases developed abscess which was drained. At the end of therapy, 4 cases (8.9%) had residual lymph nodes. The initial treatment for the 31 cases diagnosed as reactive and chronic non-specific lymphadenitis commenced with antibiotics active against gram- positive bacteria. After two-week course of penicillin group or macrolide group of antibiotics the clinical response was observed. Those presenting with suppurative lymphadenitis underwent incision and drainage (3 cases). The two cases which showed squamous cell carcinoma with unknown primary underwent modified radical neck dissection and post-operative radiotherapy.

DISCUSSION

Cervical lymphadenopathy is a commonly observed entity by clinicians throughout the world. It could be secondary to most trivial cause like scalp infection to most serious entity like malignancy. One should be vigilant and correlate clinical radiological and pathological diagnosis to arrive at proper diagnosis. In present study the cervical lymphadenopathy was most commonly due to non-neoplastic (82%) causes and less commonly from neoplastic causes (18 %). There is a male predilection with a male to female ratio of 1.22:1. Constitutional symptoms were most commonly seen in cases of chronic nonspecific lymphadenitis (61.3 %) and lymphomas (50 %) and less commonly seen in cases of TB (31.4 %) and malignant secondaries (25 %). Presence of clinical symptoms has limited significance in clinical diagnosis. It is the pathological diagnosis which guides the clinician. One of the objective of the present study was to compare the Validity of results of FNAC with that of results of HPE which the gold standard tool in is diagnosing cervical lymphadenopathy. Authors used FNAC in every patient followed by biopsy and the results are similar to studies done by Prasad RR et al, Qadri SK et al.[6,7]

In non-neoplastic causes most, common cause is due to tuberculosis (51 %) in India. Among neoplastic patients the most common cause is due to lymphoma (10%). Majority of the patients (73%) were between 12-40 years age group. Distribution of lesions was similar to studies published by Khan AH et al, Jha BC et al, Sreenidhi M, Adhikari P et al, Fazal-i-wahid et al.[8-12]

Table 3: Comparison of distribution of different lesions of present study with various studies.

Studies	Tuberculosis	Chronic non-specific lymphadenitis	Reactive	Secondaries	Hodgkin's lesion	Non-Hodgkin's lesion
Khan AH et al	52%	28%		6%	2%	
Jha BC et al	63.8%	5.9%	9.6%	20.7%		
Sreenidhi GM et al	72.22%	-	21.11%	6.66%		
Adhikari P et al	45.45%	41.81%		12.72%	-	
Fazal-i-wahid et al	75. 24%	10.89%		8.91%	0.99%	1.98%
Present study	51%	15%	16%	8%	2%	8%

Table 4: Sensitivity and specificity of FNAC compared to other studies.

	Prasad et al		Qadri SK et al		Present study	
	Sensitivity	Specificity	Sensitivity	Specificity	Sensitivity	Specificity
Tubercular lymphadenitis	83.3	94.3	91.1	98.7	80.4	100
Malignant secondaries	97	98.9	97.9	99.1	87.5	100
Hodgkin's lymphoma	80	98.6	89.0	96.2	90	100
Non-Hodgkin's lymphomas	80.3	95.4				

In tubercular lymphadenitis the posterior triangle group was the most commonly involved group of cervical lymph nodes (31.3%), followed by upper jugular group (21.5%). About 30% cases had more than one site involvement. In lymphomas, 90% cases had more than one site involvement. Lymphoma FNAC by virtue of it

being inexpensive, quick in getting the results and easy to perform, is one of the important and essential diagnostic procedure. Besides, it can be deemed as a first line invasive investigation for cervical lymphadenopathy.

Histopathological examination remains the most dependable diagnostic tool. Short course chemotherapy for tubercular lymphadenitis is highly satisfactory with a cure rate of over 90%. Surgery should be restricted as an adjuvant to chemotherapy, as diagnostic biopsy, for treatment of abscess/sinuses and for a lymph node that do not resolve with chemotherapy. Non-tuberculous non-neoplastic lesions are best managed conservatively with surgery reserved for complications, or sometimes for confirming diagnosis on biopsy. The neoplastic lesions of lymph nodes require biopsy followed by adherence to site specific oncology protocols.

CONCLUSION

Cervical lymphadenopathy is an important clinical entity which clinicians commonly come across, and always calls for meticulous attention, analysis and treatment. Clinical symptoms in cervical lymphadenopathy has limited significance and clinical behavior 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 based on 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. Tuberculosis is still the most common cause in our country and is curable with anti-tuberculous drugs if administered as per the accepted regimen. Clinicians need to approach these patients cautiously and investigate meticulously and treat appropriately to reduce the morbidity of patients.

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: Gorle VK, Inamdar P. A clinicopathological study on cervical lymphadenopathy: an institutional experience. Int Surg J 2018;5:2841-5.