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Original Article

A Clinicopathological Study of Cervical Lymphadenopathy

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Abstract:

Lymphadenopathy is a very common clinical manifestation of many diseases. It is a disease of the lymph nodes, in which they are abnormal in size or consistency. The study intends to find out systematically the various pathological conditions presenting with enlarged lymph nodes in the neck, also the various nodes of clinical presentations and behavior of these conditions. This study consisted of 200 consecutive cases and diagnosis was made on the basis of clinical, fine needle aspiration cytology and histopathological findings. Out of 200 cases in the study 30.0% were non-specific lymphadenopathy, 47% were tuberculosis, 15% were secondary metastatic lymphadenopathy due to primary malignant lesion in head-neck region, 5% were primary malignant lesion that is lymphoma (Hodgkins and non-Hodgkins lymphoma), rest 3% were due to other lesions like Kikuchi's disease, histiocytosis. After swelling in the neck, pain and fever were the most common presentations. Some patients presented with suppurative lymphadenopathy. In this study, fine needle aspiration cytology was found to be so reliable.

Key words: Cervical lymph nodes, Lymphadenopathy, Tuberculosis, Fine needle aspiration cytology, Biopsy.

Introduction:

Cervical lymphadenopathy is a common type of peripheral lymphadenopathy. Lymph node enlargement may be due to malignancy, infections, autoimmune diseases, other unusual and iatrogenic conditions[1]. The prime function of lymph node is to deal with antigen, whether this will be in the form of organisms or other particulate material, or even soluble antigen. Lymph nodes are most numerous in those areas which are in direct contact with the exterior of the individual. Enlargement of these nodes is significant because of many etiologic factors[2].

Various lesions are found in the neck region which may be benign and malignant involving thyroid lesion, lymphadenopathy, salivary glands lesion, skin, soft tissues, etc. In the neck region, malignant lesions can present as primary as well as metastasis from various organs of the body. The following rule should apply:an adult with a lump in the lateral neck has cancer until proven otherwise. So for this type of swellings, efforts should be aimed at diagnosis of malignancy[3]. Nearly 1/3rd of the total lymph nodes of the body are in the neck. 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[4].

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. 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, and to study the diagnostic accuracy of FNAC by correlating with confirmed biopsy report.

Materials and Methods:

The study was conducted during the period of January 2016 to December 2020 on patients attending my

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private chamber. This study consisted of 200 consecutive cases and diagnosis was made on the basis of clinical, fine needle aspiration cytology and histopathological findings. Patients of all age groups with or without previous history of medical or surgical treatment were included. Patients not willing for follow up or treatment at my private center or not under going FNAC/biopsy were excluded. Selected patients were subjected to a detailed history elicitation followed by thorough evaluation of risk factors and clinical features. Routine investigations were done. FNAC and biopsy was performed next. Descriptive statistics were computed for required outcome variables. Statistical analysis was done using SPSS software version 23.

Results:

Table I shows that out of 200 patients, majority 64(32.0%) patients belonged to age group 21-30 years and mean age was 44.5±12.7 years. Male was found 116(58.0%) and female was 84(42.0%).

Table I: Demographic characteristics of the study patients (n=200)

Variables	Frequency	Percentage
Age group (years)		
20	25	12.5
21-30	64	32.0
31-40	49	24.5
41-50	27	13.5
>50	35	17.5
Mean±SD		44.5±12.7
Sex		
Male	116	58.0
Female	84	42.0

Table II shows that all patients had swelling of the neck, followed by 115(57.5%) had fever, 62(31.0%) had pain, 39(19.5%) had loss of appetite, 34(17.0%) had cough and 12(6.0%) had difficulty in swallowing. Regarding histopathological diagnosis, majority 94(47.0%) patients had tuberculosis, 60(30.0%) had non-specific lymphadenopathy, 30(15.0%) had secondary metastatic lymphadenopathy, 6(3.0%) had Hodgkin's lymphoma, 6(3.0%) had Kikuchi's disease and 4(2.0%) had non-Hodgkin's lymphoma (Table-III).

Table II: Distribution of cases of cervical lymphadenopathy according to presenting complaints (n=200)

Presenting complaints	Frequency	Percentage
Swelling of the neck	200	100.0
Pain	62	31.0
Fever	115	57.5
Cough	34	17.0
Loss of appetite	39	19.5
Difficulty in swallowing	12	6.0

Table III: Distribution of the study patients by histopathological diagnosis (n=200)

Histopathological diagnosis	Frequency	Percentage
Non-specific lymphadenopathy	60	30.0
Tuberculosis	94	47.0
Secondary metastatic lymphadenopathy	30	15.0
Hodgkin's lymphoma	6	3.0
Non-Hodgkin's lymphoma	4	2.0
Kikuchi's disease	6	3.0

Table IV shows that histopathology evaluation found 60 patients with non-specific lymphadenopathy, out of which 45 were positive non-specific lymphadenopathy when evaluated by FNAC. Table V shows that 94 patients had tuberculous cervical LNP evaluated by histopathology, out of which 73 were positive tuberculous cervical LNP when evaluated by FNAC.

Table IV: Sensitivity and specificity of FNAC in diagnosis of non-specific lymphadenopathy

FNAC	Total Number	Non-specific lymphadenopathy	
		Positive	Negative
Positive	53	45	8
Negative	147	15	132
Total	200	60	140

Table V: Sensitivity and specificity of FNAC in diagnosis of tuberculous lymphadenitis

FNAC	Total Number	Tuberculous cervical LNP	
		Positive	Negative
Positive	73	73	0
Negative	127	21	106
Total	200	94	106

Table VI shows that 30 patients had secondary metastatic lymphadenopathy evaluated by histopathology, out of which 26 were positive when evaluated by FNAC. FNAC was fairly accurate in diagnosing cases of cervical lymphadenopathy. The present study reported a sensitivity of 75.0% and specificity of 94.3% in diagnosing non-specific lymphadenopathy whereas sensitivity of 77.7% and specificity of 100% in diagnosing tubercular lymphadenitis and sensitivity of 86.7% & specificity of 100% for malignant secondary metastatic lymphadenopathy (Figure-I).

Table VI: Sensitivity and specificity of FNAC in diagnosis of secondary metastatic lymphadenopathy

FNAC	Total Number	Secondary metastatic lymphadenopathy	
		Positive	Negative
Positive	26	26	0
Negative	174	4	170
Total	200	30	170

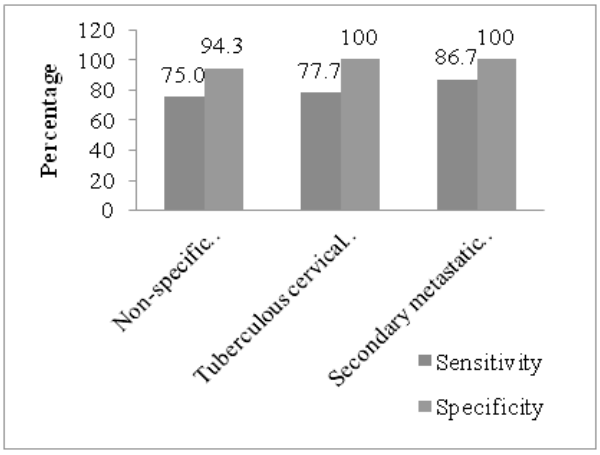

Figure 1: Sensitivity and specificity of FNAC

Discussion:

In this study, out of 200 patients, majority 64(32.0%) patients belonged to age group 21-30 years and mean age was 44.5±12.7 years. Next common age group was between 31 and 40 years (49 cases, 24.5%). Thus the third and fourth decade constituted 113 cases (56.5%). Seven cases (14%) were in the age group of 12 to 20 years and 6 cases were in the age group of 41-50 years and six cases were between 51 and 60 years. Only 4 cases were documented above the age of 60 years. In Mukherjee and Vikram study, the observation was that the maximum number of cases were in the age group of 21-30 years (16 cases, 32%). Next common age group was between 31 and 40 years (11 cases, 22%). Thus the third and fourth decade constituted 27 to 50 cases (54%). Seven cases (14%) were in the age group of 12 to 20 years and 6 cases were in the age group of 41-50 years and six cases were between 51 and 60 years. Only 4 cases were documented above the age of 60 years[2]. Motiwala et al[5] reported that 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%). Over all the most common age group affected was 13 to 20 years (39.13%). Gorle at al[6] also observed majority of patients were young (73%), 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%)[6]. Batni et al[7] showed majority 18(28.1%) patients belonged to age group 21-30 years.

In this study it was observed that male was 116(58.0%) and female was 84(42.0%). Similar observation was found in Gorle and Inamdar study where male predilection with a male to female ratio was 1.22:1. Mukherjee and Vikram also reported the male to female ratio 1.38:12. Batni et al[7] also agree our study as they showed the majority 34(53.1%) patients were male and 30(46.9%) were female.

In this study, all patients had swallowing of the neck, followed by 115(57.5%) had fever, 62(31.0%) had pain, 39(19.5%) had loss of appetite, 34(17.0%) had cough and 12(6.0%) had difficulty in swallowing. Mukherjee and Vikram study reported 18% of patients presented with pain, 18% with fever, 12% with cough, 12% with loss of appetite, 16% with loss of weight, 2 patients presented with dysphagia and 1 with change in voice[2]. Motiwala et al[5] study revealed neck swelling in all cases (100%). Fever was the second most common symptom in 69 cases (60%), followed by loss of weight in 54 patients (46.96 %), malaise in 42 patients (36.52%), loss of appetite in 27 patients (23.48%), cough in 21 cases (18.26%), difficulty in swallowing in 8 patients (6.96%), and change in voice was present in 8 (6.96%) cases.

Regarding histopathological diagnosis, majority 94(47.0%) patients had tuberculosis, 60(30.0%) had non-specific lymphadenopathy, 30(15.0%) had secondary metastatic lymphadenopathy, 6(3.0%) had Hodgkin's lymphoma, 6(3.0%) had Kikuchi's disease and 4(2.0%) had non-Hodgkin's lymphoma. Motiwala et al[5] observed tuberculosis as 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%) cases 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 case (0.87%). Gorle et al[6] study showed 51 cases (51%) as 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. Majority of cases of tubercular lymphadenitis (31.4%) and malignant secondaries (25%) in neck did not have constitutional symptoms. In 10 cases of histopathologically confirmed lymphomas, 8 (80%) were Non-Hodgkin's variety and 2 (20%) were Hodgkin's[6]. Mukherjee and Vikram[2] observed out of 4 lymphoma cases 3 (75%) were non-Hodgkin's type and 1 (25%) was Hodgkin's type. In the present study, non-neoplastic accounted for 76% of cases, 44% turned out to be tuberculosis and 30% reactive lymphadenitis. Among the neoplastic lesions, malignant secondaries accounted for 16% while non-Hodgkin's lymphoma and Hodgkin's lymphoma accounted for 6% and 2% respectively. The observation made by Jha et al[8], who studied 94 cases, of which tuberculosis was confirmed in 63.8% cases. Batni et al[7] reported more than half (51.56 %) cases of cervical lymphadenopathy are reactive non-specific, (28.12%) cases are due to tuberculosis, and (17.18%) are metastatic carcinoma. Study done by Shakyaet al[9] shows 50.4 % cases as non-specific and 22.4 % cases to be tuberculosis.

In this study, 60 patients had non-specific lymphadenopathy evaluated by histopathology, out of which 45 were positive non-specific lymphadenopathy evaluated by FNAC. Ninety four patients had tuberculous cervical LNP evaluated by histopathology, out of which 73 were positive tuberculous cervical LNP when evaluated by FNAC. Gorle et al[6] observed FNAC was able to diagnose tuberculosis only in 41 out of 51 patients of tuberculosis with other cases diagnosed as chronic non-specific lymphadenitis. There were no false positive cases on FNAC.

FNAC was fairly accurate in diagnosing cases of cervical lymphadenopathy. The present study reported a sensitivity of 75.0% and specificity of 94.3% in diagnosing non-specific lymphadenopathy whereas sensitivity of 77.7% and specificity of 100% in diagnosing tubercular lymphadenitis and sensitivity of 86.7 % & specificity of 100% for malignant secondary metastatic lymphadenopathy. Rehman et al[10] reported sensitivity and specificity of FNAC in diagnosing tuberculosis was 79.36% and 100% respectively10. Gorle et al[6] study reported a sensitivity of 75.8% and specificity 100% in diagnosing tubercular lymphadenitis whereas sensitivity of 92.8% and specificity 100% in diagnosing malignant secondaries[6].

Conclusion:

Lymphadenopathy is a clinical manifestation of regional as well as systemic disease, which serves as an excellent clue to diagnosis. It can arise either from benign or malignant causes. In my study tuberculosis was found to be the most common cause of lymphadenopathy, followed by chronic non-specific lymphadenitis. Benign lesions are more common than malignant lesions in lymph nodes. Tuberculosis affects younger age group whereas, malignancy affect older age groups. The common groups of lymph nodes affected in tuberculosis was posterior triangle nodes, followed by jugulodigastric nodes and fine needle aspiration cytology has higher accuracy for diagnosing tuberculosis lymphadenitis.

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