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ORIGINAL ARTICLE

Disease Spectrum of Cervical Lymphadenopathy in adults

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ABSTRACT

Aim: To determine the frequency of different diseases resulting in cervical lymphadenopathy in specimens of patients presenting in tertiary care hospital.

Methodology: It was a cross sectional study conducted at the histopathology section of the pathology department of Services Institute of Medical Sciences/Services Hospital Lahore. The study was approved by the ethical committee of the institution. The study was completed in six months.100 cases fulfilling the inclusion criteria were registered. Inclusion criteria included patients above 16 years of age, patients from both sexes, unilateral or bilateral irrespective of duration. Lymph nodes less than 1cm were not included in the study. Informed consent was taken. Both FNAC and Biopsy were used as diagnostic tools. All the data was analysed with SPSS version 11.

Results: During a period of six months, a total of 100 cases of cervical lymphadenopathy were studied. These included 75 benign and 25 malignant cases. Out of benign cases 53% were diagnosed as tuberculous lymphadenitis. About 81.3% were in the age range of 16-25 years and 18.7% were in the age range of 26-35 years. 22% cases were diagnosed as reactive lymphadenitis. About 54.54% of these patients were in the age range of 16-25 years and 45.46% were in the age range of 26-35 years. The highest frequency among malignant lesions consisted of Non-Hodgkin lymphoma 16% followed by Hodgkin lymphoma 5% and metastatic disease 4%.The age range of malignant lesions was in the range of 36-78 years.

Conclusion: Our study concludes that cervical lymphadenopathy is the common clinical presentation in our setup and tuberculosis is the commonest cause.

Keywords: Hodgkin lymphoma, Non-Hodgkin lymphoma, Fine needle aspiration cytology

INTRODUCTION

Lymph nodes form an important part of body's immune mechanism 1. Several Studies in various countries have shown that cervical lymph nodes are the most frequently enlarged and biopsied of all peripheral lymph nodes[2].

Lymphadenopathy is defined as an abnormality in the size or character of lymph node caused by the invasion and propagation of inflammatory or neoplastic cells. Lymph nodes can be detected by palpation if they are more than 1cm in size3. Lymphadenopathy is of great clinical significance as underlying diseases may range from a treatable infectious etiology to malignant neoplasms, which cannot be ascertained clinically[4].

The wide range of benign lesions which can be diagnosed on cervical lymphadenopathy include inflammatory, infectious or reactive causes. The common causes include tuberculosis, reactive lymphadenitis, cat-scratch disease, tularemia, toxoplasmosis, rosai dorfman disease, kikuchi's lymphadenitis, Kimura's disease, langerhan cell histiocytosis and many other uncommon causes. Tuberculosis remains the problem throughout the world and is still a common cause of cervical lymphadenopathy in developing countries[5]. In Pakistan the estimated incidence of tuberculosis is 181/100000[6]. WHO ranks Pakistan 8th among the 22 high-burden countries[7].

On the other hand the malignant lesions could be native to the lymph nodes comprising of lymphomas or could be metastatic. The lymphomas are broadly categorized into Hodgkin and Non-Hodgkin Lymphoma. These are further sub-categorized based on morphology and immunohistochemical markers. Non-Hodgkin lymphomas are diverse group of neoplasm. In Northern Pakistan NHL is the most common cancer in males while it is the sixth most common cancer in females.8.Hodgkin's Lymphoma had a worldwide incidence of 67,887 cases in 2008,with an age-standardized rate per 100,000 (both genders) of 1.0[9].

WHO classified HL into Classic Hodgkin lymphoma and Nodular lymphocyte predominant lymphoma. Cervical lymphadenopathy can be the first manifestation of malignancy. Pathologic assessment of lymph node metastasis is important in staging, distinction from lymphoma and determination of primary site. The diagnostic techniques include FNAC and biopsy. FNAC is practically helpful in the workup of cervical masses and nodules because biopsy of cervical adenopathy should be avoided until all diagnostic modalities have failed to establish the diagnosis[10].

The sensitivity of FNAC for the diagnosis of lymphadenopathy averages 90% with the specificity of 95%[11]. However biopsy still remains the gold standard for definite diagnosis and further subcategorisation in case of malignant lesions. Despite the high frequency of cervical lymphadenopathy in the outpatient clinics, there was no published data on the disease spectrum of cervical lymphadenopathy among adult outpatient[12].

These types of studies are rare in our country and we need more statistical information about prevalence of reactive, infectious and malignant causes.

The objective of the study is to determine the frequency of different diseases resulting in cervical lymphadenopathy in specimens of patients presenting in tertiary care hospital.

MATERIALS AND METHODS

This cross-Sectional Survey was conducted in Histopathology Department, Services Institute of Medical Sciences/Services Hospital Lahore within six months after approval of synopsis by Ethical Committee. Sample size of 100 cases is calculated with 95% confidence level,5% margin of error and taking expected percentage of Non-Hodgkin's lymphoma i.e. 6.8% in patients of cervical lymphadenopathy. Non-probability purposive sampling technique was used. Patients of both genders above 16 years of age, whose specimens are either unilateral or bilateral cervical lymphadenopathy irrespective of duration are included in the study. Patients having cervical lymph nodes less than 1 cm are excluded from the study.

Data collection procedure: Hundred cases fulfilling the inclusion criteria will be registered from the outpatient department, surgical and medical wards of Services Hospital Lahore. Informed consent will be taken. Relevant clinical data regarding age, history and clinical examination will be recorded on a designed proforma. To control confounding variables i.e. children and swellings less than

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1cm (which are among the exclusion criteria), will be strictly followed. Specimen consisting of FNAC and biopsy will be included. The prepared smear will be stained with Haematoxylin and Eosin, Giemsa, PAS and Pap Stain. After recording gross features of biopsy specimen representative sections will be taken and stained with Haematoxylin and Eosin. The cytology smears and histopathology slides will be examined by Consultant Pathologists and their diagnosis will be taken as confirmatory. The outcome variables which include Tuberculosis, Reactive hyperplasia, Hodgkin's lymphoma, Non-Hodgkin's lymphoma, metastatic and others will be recorded on the proforma.

Data analysis procedure: All the data will be analyzed with SPSS version 11. The quantitative variables including age will be analysed through their mean and standard deviation. The qualitative variables including sex and diseases which includes Tuberculosis, Reactive hyperplasia, Hodgkin's lymphoma, Non-Hodgkin's lymphoma, metastatic and others will be evaluated through their frequencies and percentages.

OPERATIONAL DEFINITION

Cervical Lymphadenopathy: Enlarge single or multiple lymph nodes in neck unilateral or bilateral and >than 1 cm in size.

Adults: Patients above 16 years of age.

Tuberculosis: Caseous necrotic background, epithelioid granulomas with or without giant cells.

Histopathology: Epithelioid granulomas surrounded by Langhan's giant cells, epitheloid cells and lymphocytes.

Reactive hyperplasia: Polymorphous population of lymphoid cells in various stages of maturation, scattered plasma cells, histocytes and tingible body macrophages.

Histopathology: Preservation of nodal architecture. Prominent follicles in cortical portion and marked variation in shape and size of follicles.

Hodgkin's lymphoma: Identification of typical Reed- Sternberg cell and its variants. Background comprises of mature lymphocytes, eosinophils, neutrophils and plasma cells.

Histopathology: Effacement of lymph node architecture. Predominance of reactive cells and paucity of Reed-Sternberg cells or variants.

Non-Hodgkin's lymphoma: Monotonous population of atypical lymphoid cells and background frequently shows lymphoglandular bodies.

Histopathology: According to WHO classification.

Metastatic: Non-lymphoid population of cells with malignant cytological features.

Histopathology: Malignant cells not native to lymph node.

RESULTS

A total of 100 cases were included in the study.75 cases were diagnosed as benign and 25cases were diagnosed as malignant (Table I). In our study tuberculosis constituted the single largest group of diagnosis 53%.The second most common diagnosis was reactive lymphadenitis 22%.(Table II)Non-Hodgkin lymphoma 16% and Hodgkin lymphoma 5% (Table III). Metastatic carcinoma 4%. Specimens from patients of age 16 years and above were included in the study. The mean age was 30.14 ±1.4 years. Total age range was from 16 to 78 years. (Table IV) The patients with tuberculosis and reactive lymphadenitis were in the age range of 16-35 years. The malignant lesions were found in age ranges between 38 to 78 years. Male population comprised of 37 % and female population comprised 63%.(Table V)

Table I Distribution of Benign and Malignant Lesions

No of Cases	Benign	Malignant
100	75	25
Percentage	75%	25%

Table II Frequency distribution of diseases

Diagnosis	n	%age
Tuberculosis	53	53
Reactive lymphadenitis	22	22
NHL	16	16
HL	5	5
Metastatic	4	4
Total	100	100

Table III Frequencies and percentages of types of Lymphoma

Type of Lymphoma	n	%age
Non-Hodgkin Lymphoma	16	79.19%
Hodgkin Lymphoma	5	23.81%
Total	21	100%

Table IV No of cases distributed by decades of life

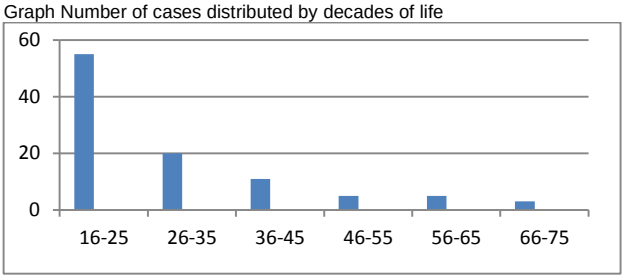
Age in years	n	%age
16-25	55	55
26-35	20	20
36-45	11	11
46-55	5	5
56-65	5	5
66-75	3	3
76-85	1	1
Total	100	100

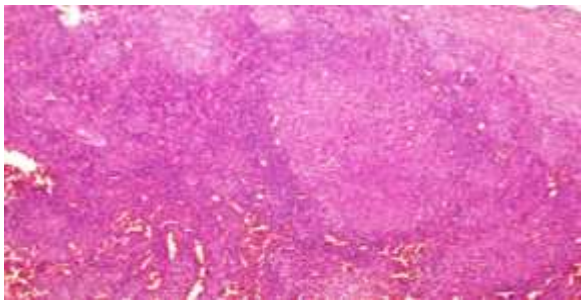
Mean plus Standard Deviation : 30.14 ± 15.24

Table V Frequencies and percentages of cervical lymphadenopathy on the basis of gender

Sex	Frequency	Percentage%
Male	37	37%
Female	63	63%
Total	100	100%

Graph Number of cases distributed by decades of life





DISCUSSION

The results of this study show that among the cervical lymphadenopathy, in our setup, tuberculosis is the commonest disease affecting young males and females in the age range 16-35 years. When we trace the distribution of lesions of these patients, benign lesions were more prevalent as compared to malignant lesions. Mahar Jan M and co-workers also had similar results. In our study the male to female ratio was 1:2.

In our study out of lymphomas (n=21) NHL 16(76%) was more common than Hodgkin Lymphoma 5(24%). These findings are well supported by Sher Muhammad Shaikh's study in which NHL was 8% metastatic 7% and HD was 5%.Out of Hodgkin Lymphoma mixed cellularity was commonest 3(60%) followed by nodular sclerosis 2(40%). A study carried out at Shaukat Khanum Hospital by Siddiqi N is similar to ours and shows mixed cellularity Hodgkin lymphoma is the commonest (63.8%) followed by nodular sclerosis (19.9%).

We found only 4% of them had metastatic disease with the primary site being carcinoma larynx (50%), nasopharyngeal carcinoma (25%) and thyroid carcinoma (25%). However, in contrast to this, Muhammad Saleem and the co-workers found nasopharyngeal carcinoma is commonest among primary growth[6].

Forty seven cases had right sided swelling, 40 cases had left sided swelling and the remaining 13 cases had bilateral swelling. A similar study by Gul Mohammad Sheikh & Abdul Samad showed right sided swelling 72 cases (47.7%), left sided swelling 63 cases (41.7%) and 16 cases (10.6%) had bilateral swelling.

CONCLUSION

Cervical lymphadenopathy constitutes a significant pathological condition with considerable morbidity and mortality.TB is the commonest presentation of cervical lymphadenopathy in our setup and lymphomas are the commonest malignancy. This pattern is not much different from that reported internationally.

In this era when majority of the patients are detected at a very early stage worldwide, our patients present with advance stages. We lack the early diagnosis of cervical lymphadenopathy. So, the mortality rate of TB and lymphoma patients is still very high in our country. I emphasize, the early diagnosis, as the stage I patients of Hodgkin's lymphoma and TB are treatable as compared to advanced disease which has poor prognosis.

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REFERENCE

1. Diseases of White Blood Cells, Lymph Nodes, Spleen, and Thymus. In: Kumar V, Abbas KA, Fausto N, Aster JC. editors. Robbins and Cotran Pathologic Basis of Disease.8 Edi.India: Elsevier; 2010:595.
2. Zahir ST, Azmi A. Histopathologic findings of lymph node biopsy cases in comparison with clinical features.Pak J Med Sci 2009; 25 (5):728-733.
3. Matsumoto F, Itoh S, Ohba SI, Yokoi H, Furukawa M, Ikeda K.Biopsy of cervical lymph node.Auris Nasus Larynx 2009;36:71-74.
4. Song JY, Cheong HJ, Kee SY, Lee J, Sohn JW, Kim MJ et al.Disease spectrum of cervical lymphadenitis:analysis based on ultrasound-guided core-needle gun biopsy.J Infect 2007;55(4):310-6.
5. Jamal A, Khatoon S, Junejo A, Rasool B.Frequency of Hodgkin's Lymphoma in Patient with Cervical Lymphadenopathy Presenting in a Public Hospital in Pakistan.J Liaquat Uni Med Health Sci 2008:173-76.
6. 6)Maharjan M, Hirachan S, Kafle PK, Bista M, Shrestha S, Toran KC et al.Incidence of tuberculosis in enlarged neck nodes,our experience.Kathmandu Univ Med J 2009;7(25):54-8.
   Hirachand S, Lakhey M, Akhter J, Thapa B.Evaluation of fine needle aspiration cytology of lymph nodes in Kathmandu Medical College,Teaching Hospital.Kathmandu Univ Med J 2009;7(26):139-4.