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Original Research Article

A RETROSPECTIVE AND PROSPECTIVE CLINICOPATHOLOGIC STUDY OF EXTRANODAL LYMPHOMA

Dr Guman Singh[1], Dr Sunita Kulhari[2]

[1]Assistant Professor, Department of Radiotherapy, MGUMST (Mahatma Gandhi University of Medical Sciences & Technology), Jaipur
[2]Associate Professor, Department of Pathology, SPMC. Bikaner Rajasthan

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Corresponding author: Dr Sunita Kulhari
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Abstract

Background: Lymphomas are malignant neoplasms characterized by the proliferation of cells native to the lymphoid tissues, that is, lymphocytes, histiocytes, and their precursors and derivatives.

Methods: We performed a retrospective study on previously diagnosed cases of extranodal lymphoma in the department of pathology, JLN medical college, Ajmer, and prospective study on the fresh obtained samples once the study was started. The study period extended from January 2007 to November 2011. Patients who presented with Extra-nodal lymphoma, irrespective of age & sex were included in this study. Patients with primary lymph node involvement were excluded.

Result: Out of the ninety-six histopathologically-proven lymphoma cases, the number of extranodal lymphoma was 30; the incidence being 31.25 %. The highest number of cases was recorded in 6th decade (7; 23.33%) followed by 6 cases (20.00%) in 4th decade and 5 cases (16. 66. %) in 5th decade of life. So the peak incidence of extranodal lymphoma was observed in 6th decade. The youngest patient was a 4½-year-old male child, and the oldest one was 80-year-old female. The average age at the time of diagnosis was 40.71 years. 20 (66.66%) were males and 10 (33.33%) females. Male to female ratio was 2:1.

Conclusion: In conclusion, this study yielded some useful information and suggested that distribution of extranodal lymphoma slightly differs by geographic variation. Early diagnosis of lymphoma is essential for adequate treatment. Clinical symptoms are vague and varied. Application of immunohistochemistry greatly aids in differentiating extranodal lymphoma from undifferentiated carcinoma with which it can easily be confused.

Keywords: Lymphoma, Extranodal, Prevalence

Introduction

Lymphomas are malignant neoplasms characterized by the proliferation of cells native to the lymphoid tissues, that is, lymphocytes, histiocytes, and their precursors and derivatives. They are broadly classified into Hodgkin's lymphoma (HL) and Non-Hodgkin's lymphoma (NHL). [1]

Extranodal lymphoma means that primary area of presentation of lymphoma is not the lymphnode. Hodgkin`s disease, because it so rarely arises outside the lymph-nodes, is not customarily included. Therefore the term 'extranodal lymphoma' refers only to non-Hodgkin`s lymphomas. Lymphomas have, however, been reported from almost every site in the body. The most common site is the gastrointestinal tract.[2] Signs and symptoms of lymphomas vary depending on the location of the tumors. The clinical presentation could be abdominal mass, sub-acute intestinal obstruction, bleeding per rectum, itching, nodules on the skin, testicular swelling, etc.It is important to recognize that malignant lymphomas can involve almost any organ or tissue and have, therefore, to be taken into account in the differential diagnosis of those tumors of which the identity is not immediately apparent. Malignant lymphomas can exhibit astonishing morphological diversity and can readily be mistaken for other neoplasm. The correct diagnosis of the lymphomas is important since specific form of treatment may be applicable and effective in controlling the disease.[3] For histologic diagnosis an adequate wedge-type biopsy is necessary. According to literature, chemotherapy is suggested as the successful treatment for lymphoma cases.[4] Therefore the role of pathologist in management of lymphoma is of paramount importance. In order to get preliminary knowledge of the incidence and clinical pattern of extranodal lymphomas at our institute, and to develop better understanding of this rarer entity, we conducted a study entitled "A retrospective and prospective clinico-pathologic study of extranodal lymphoma" at Pathology department of J. L. N. Medical college, Ajmer (Rajasthan).

Materials & Methods

We performed a retrospective study on previously diagnosed cases of extranodal lymphoma in the department of pathology, JLN medical college, Ajmer, and prospective study on the fresh obtained samples once the study was started. The study period extended from January 2007 to November 2011. Patients who presented with Extra-nodal lymphoma, irrespective of age & sex were included in this study. Patients with primary lymph node involvement were excluded.

Histopathological examination of surgical specimens and biopsies were carried out. A properly completed surgical pathology requisition form containing the patient's

identification, age, sex, essential clinical data and tissue submitted was checked. The tissue was then processed by means of paraffin-wax processing which consists of following steps.

1. Paraffin processing
2. Section cutting
3. H & E staining
4. RS staining
5. PAS staining
6. IHC in some of the cases

Observations

The present study entitled "A retrospective and prospective clinico-pathologic study of extranodal lymphoma" was carried out in the Department of Pathology, J.L.N. Medical College and Associated Group of Hospitals, Ajmer (Rajasthan), between 1st January 2007 and 30 November, 2011. This study was performed on 30 consecutive cases of extranodal lymphoma, retrospectively and prospectively.

Table1: Incidence of extranodal lymphoma

Total cases of lymphoma	96
Cases of extranodal lymphoma	30
Percentage of extranodal lymphoma	31.25%

Out of the ninety-six histopathologically-proven lymphoma cases, the number of extranodal lymphoma was 30; the incidence being 31.25 %. The highest number of cases was recorded in 6th decade (7; 23.33%) followed by 6 cases (20.00%) in 4th decade and 5 cases (16. 66. %) in 5th decade of life. So the peak incidence of extranodal lymphoma was observed in 6th decade. The youngest patient was a 4½-year-old male child, and the oldest one was 80-year-old female. The average age at the time of diagnosis was 40.71 years. 20 (66.66%) were males and 10 (33.33%) females. Male to female ratio was 2:1.The average age for male and female subjects was 38.37 years and 45.40 years respectively. Although the male patients outnumbered female patients, such difference was not evident with respect to different age groups. GIT, which included cases from stomach and intestine, was the most common organ system involved in extranodal lymphomas with a total of 12 cases (40%). Of these 12 cases, ten were males. Next in order were Waldeyer's ring (tonsil, nasopharynx) and bone & joint with 3 cases (10%) each. The other organs involved were skin, brain, lung, testis, gallbladder, nasal cavity & sinuses.

Table 2: Duration of the symptoms

Duration of symptoms	No. of cases	%age
15 days-1 month	4	13.33
>1 month-6 months	12	40
>6 months-1 year	6	20
>1 year-2 years	5	16.66
>2 years-3 years	3	10
Total	30	100

The highest number of patients (12; 40%) reported between 1-6 months after appearance of symptoms. All the patients reported within 3 years.

Table 3: Clinical presentation of the patients of Extranodal lymphoma

symptoms	No.of cases
Pain abdomen	14
vomiting	6
Headache	2
Epistaxis	2
Dysphagia	2
Breathlessness	2
Testicular swelling	2
Skin nodule	2
Altered bowel habit	1
Subacute Intestinal obstruction	1
Pathological fracture &pain	1
Swelling elbow	1
Growth nasopharynx	1
Swelling mandible	1

Majority of patients (14; 46.6%) presented with symptom of abdominal pain and all these cases coincided with the extranodal lymphoma of GIT and gallbladder. Other presenting symptoms were vomiting, headache, epistaxis, dysphagia, breathlessness, skin nodule, altered bowel habits, subacute intestinal obstruction, pathological fracture, swelling- elbow, mandible & testis, and growth nasopharynx.

Table 4: Showing Architectural pattern of Extranodal lymphoma

Architectural pattern	No. of cases
Diffuse	30
Follicular	0
Total	30

All the cases displayed diffuse pattern.

Table 5: Categorization of extranodal lymphoma using T- & B-cell marker (n=10)

Site of lesion where IHC was carried out	No. of cases	T- cell (CD3)	B-cell (CD20)
Gastrointestinal tract	7	nil	7
Testes	2	nil	2
Brain	1	nil	1
Total	10	nil	10

All the diagnostically difficult cases (10), where IHC was carried out, were positive for B-cell marker.

Table 6: Histologic subclassification of lymphoma

Working formulation of non-Hodgkin's lymphoma	No. of patients
Low grade	7
Intermediate grade	14
High grade	9

Most of the cases (14; 46.67%) of extranodal lymphoma belonged to intermediate grade, followed by high grade and low grade.

Discussion

The index study comprised of an analysis of thirty cases of extranodal lymphoma. All these cases were reviewed as regards to incidence, age, sex distribution, nature and pattern. The results observed have been compared with similar studies done in India and abroad.

The percentage of all Non-Hodgkin's lymphomas coded as being of extranodal origin is between 25% and 35% in most countries. The proportion coded as being of extranodal origin shows much less variation ranging from 22-25% of all lymphomas in USA to 33% in Denmark and 34% in Israel. Only France (42%) and Kuwait (52%) have particularly high relative frequencies.[5]

Out of a total of ninety-six cases of lymphomas diagnosed between 1st January 2007 and 30th November 2011, the number of extranodal lymphoma cases was 30, showing an incidence of 31.25% in this study which was correlated well with other studies. An incidence between 25% and 35% was noted by Newton et al[5] (1997).

Maximum number 7 out of 30 cases (23.33%) were from the age group of 51-60 years in present study. Age range of 31-60 years comprised of 60% of the cases. So, the peak incidence of extra-nodal lymphoma was present in 6th decade. The average age for total cases was 40.71 years and age range was 4.5 to 80 years. Our study, however, included all age groups. The highest number of cases seen in 6th decade of life but could occur in all age group patients.

The gastrointestinal tract was the most frequently involved organ by extranodal lymphoma, comprising of 40% of the total cases. Similar to our study, a high frequency of gastrointestinal extranodal lymphoma has been reported in various other studies.[6,7]

In our study extranodal lymphomas of Waldeyer's ring were second common presentation (2 cases of tonsillar lymphoma and 1case arising from nasopharynx) comprising 10% of the total cases. Waldeyer's ring includes tonsil, palate, nasopharynx, pharynx and base of tongue. The incidence was similar to study of Krol et al[8] (2003, The Netherlands) that found 9% cases of extranodal lymphomas involving Waldeyer's ring. However, Yang et al in 2011 in Southeast China recorded as high incidence 23.7%.

The frequency of bone and joint involvement by extranodal lymphoma in present study was 10% of the cases and followed by skin (6.66%) which were higher than study done by Krol et al[8] (in 2003, Netherlands) found equal incidence of 3% for both bone and skin lymphomas. The incidence of cutaneous lymphomas was comparable to study of Newton et al (1997) 7% and 6% in USA and in France respectively. However, more frequency was noted in the study of Yang et al[9] in Southwest China which was 11.3%.

Conclusion

In conclusion, this study yielded some useful information and suggested that distribution of extranodal lymphoma slightly differs by geographic variation. Early diagnosis of lymphoma is essential for adequate treatment. Clinical symptoms are vague and varied. Application of immunohistochemistry greatly aids in differentiating extranodal lymphoma from undifferentiated carcinoma with which it can easily be confused.

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