

Clinicopathological Profile of Hodgkin Lymphoma in Tertiary Care Hospital

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Abstract: Hodgkin lymphoma is one of the most enigmatic diseases known. Our aim is to study the epidemiology of Hodgkin lymphoma including age and sex incidence and to highlight the differences in the clinical and pathological profile of Indian Hodgkin lymphoma from its western counterparts.

Materials and methods: A total of 142 cases were studied. The case records were reviewed for clinical presentation. The H&E slides were studied to assess the morphology, presence of Reed Sternberg cells and its variants and background infiltrate.

Results: There was a bimodal age distribution noted. The age range was 9-77 years. The Male: female ratio was 1.77:1. Classical Hodgkin Lymphoma is the most common type (93%) with mixed cellularity be the predominant subtype. Stage II disease was predominantly seen.

Conclusion: Our study highlights the differences in the clinical and pathological profile of Indian Hodgkin lymphoma from its western counterparts. Mixed cellularity was the most common subtype in contrast to western population in which nodular sclerosis is common. Distinct pattern of expression of Hodgkin lymphoma was noticed which is comparable to some of the Indian studies and different from other western studies.

Keywords: epidemiology, Hodgkin lymphoma, staging,

I. Introduction

Hodgkin lymphoma is a lymphoproliferative disorder, accounting for about 1% of all tumours occurring throughout the year worldwide[1]. It constitutes about 30% of all lymphomas. There is a wide international variation in the incidence of Hodgkin lymphoma. The greatest incidence rates are seen in Southern Europe and Northern America. In countries like Asia and Africa, incidence rates for Hodgkin lymphoma are 1 per 100,000 population, with the world average being around 1.2 per 100,000 for males and 0.8 per 100,000 for females.

Epstein Barr Virus infection has been considered as one of the most important etiological factor for Hodgkin lymphoma and the association depends on the age, subtype and the immune status of the individual. Hodgkin lymphoma can be diagnosed by the presence of typical neoplastic giant cells called Reed Sternberg cell in a background containing prominent non neoplastic inflammatory infiltrate.

Hodgkin lymphoma can be broadly classified into Classical (CHL) and Nodular lymphocyte predominant type (NLPHL). The CHL is the most common type which includes Nodular sclerosis (NS), Mixed cellularity (MC), Lymphocyte rich (LR) and Lymphocyte depleted (LD).

II. Aims And Objectives

To study the epidemiology including age and sex incidence and distribution of Hodgkin lymphoma in a tertiary care hospital and to study the clinicopathological profile, histo-morphological features and various subtypes of Hodgkin lymphoma.

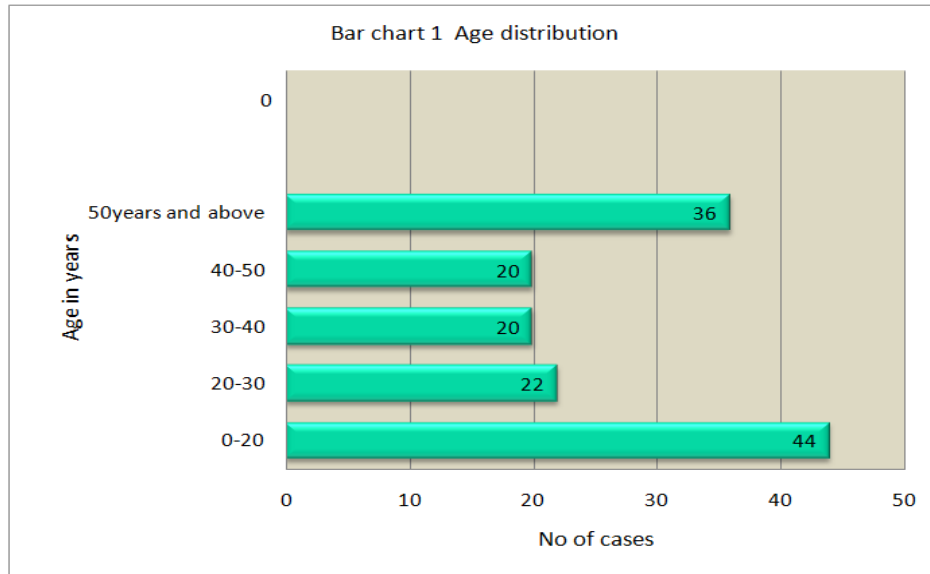
III. Material And Methods

A total number of 142 cases were studied from tertiary care hospital, Chennai. Detailed history of the cases regarding age, sex, history, type of procedure, site, size, stage, HIV status, previous biopsy and FNAC including treatment history in a case of relapse were obtained for all the 142 lymph node cases reported during the period of study from surgical pathology records. Hematoxylin and Eosin stained 4 μ thick sections of the paraffin tissue blocks of specimens were reviewed. The following clinical and pathological parameters were evaluated, Age, gender, clinical features, hepatomegaly, splenomegaly and histological subtype. The staging was done by Ann Arbor staging system.

IV. Observation And Results

Out of 1273 cases of lymph node malignancies, 142 were Hodgkin lymphoma cases. The youngest age reported in this study was 9 years and the oldest age of presentation was 77 years. There was a bimodal age

distribution seen, the first peak occurring in the age group of 11-20 years and the second peak in the older age group more than 50 years. Overall males were predominantly involved with the percentage of 63% and females constitute 37%. B symptoms were present in 38 cases which constitutes 27%. Hepatomegaly was seen in 14 cases. Splenomegaly was seen in 17 cases (11.97%) of patients. Bone marrow infiltration was seen in 12 cases which accounts for 8.45%.



Mixed cellularity was the most common subtype which accounts for 69% followed by Nodular sclerosis. Lymphocyte depleted was the least common subtype. The majority of cases of mixed cellularity subtype occurred in the age group of 15 – 35 years followed by 35- 55 years. Mixed cellularity was most common in males and Nodular sclerosis was predominantly seen in females.

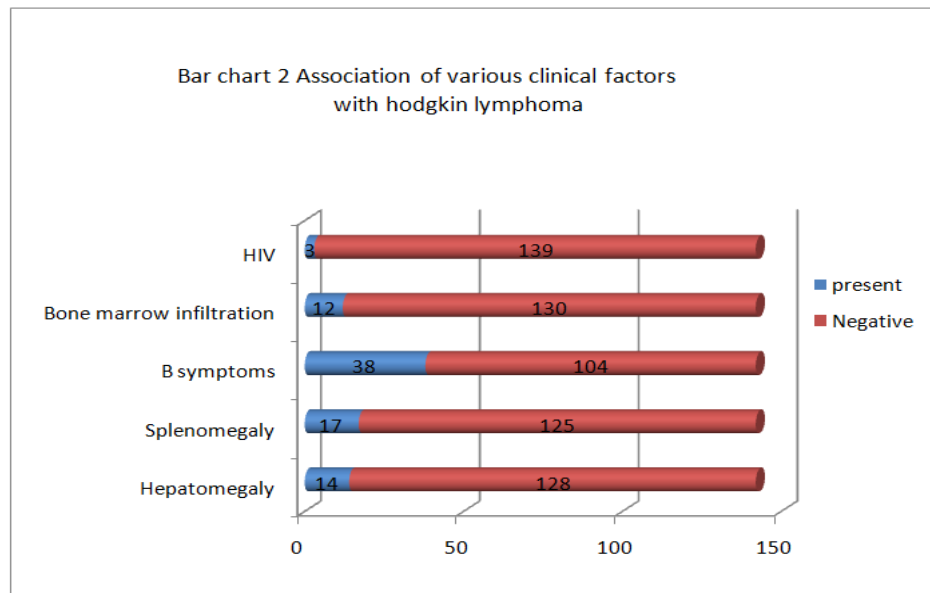


Table 1 Distribution of histological subtype in Hodgkin lymphoma

SUBTYPE	NUMBER OF CASES	PERCENTAGE
Mixed cellularity	98	69.01%
Nodular sclerosis	22	15.49%
Lymphocyte rich	6	4.23%
Lymphocyte depleted	2	1.41%
Nodular lymphocyte predominant	10	7.04%
Unclassified	4	2.82%
Total	142	100%

The most common presentation was Stage II disease followed by Stage III disease. B symptoms were predominantly seen in stage III and Stage IV. In this study, most of the cases with bone marrow infiltration presented with B symptoms.

Table 2 Distribution of disease stage in hodgkin lymphoma

Stage	Number of cases	Percentage
I	23	16.20%
II	80	56.34%
III	27	19.01%
IV	12	8.45%
TOTAL	142	100%

V. Discussion

Hodgkin lymphoma showed a peak incidence in the age group of 11 to 20 years. The oldest age of presentation was 77 years and the youngest age of presentation was 9 years. Median age at presentation is 32 years. This is in concurrence with the study conducted by Ramani et al[2], who observed the median age of 34 years and the study conducted by Abu Hassan et al[3], who observed the median age to be 30 years in the patients of Hodgkin lymphoma.

In this study there was a bimodal age distribution, with first peak in the 11-30 years and the second peak in older adults more than 55 years. This is in concurrence with the study by Sudipta Chakrabarti et al[4], Jarrett et al[5] and Bidyut Krishna et al[6]. This study is discordance with the study conducted by Neelam Siddiqui et al[7], which showed unimodal distribution. In this study males were most commonly affected than females with the percentage of 64% and 36%, which is concurrence with the study by L.K.Tumwine et al[8], which showed 66% and 34%. The study by Tanya Siddiqui et al[9],Chandi et al^[10] and Neelam Siddiqui et al, also showed male predominance.

In this study, mixed cellularity was the most common subtype which accounts for 69% followed by nodular sclerosis accounting for 15%. Lymphocyte depleted was the least common subtype with 1.4%. This is similar to the study by Neelam Siddique et al. In this study, most commonly patients presented with Stage 2 disease followed by Stage 3 disease. This is similar to the study by Neelam et al.

In the present study, B symptoms were seen in 26.76% which is comparatively less than the study conducted by Al Diab et al[11] which showed 49.3% and also by various other studies.

Table 3 Comparison of histological subtype of hodgkin lymphoma

Studies	NLPHL	Nodular sclerosis	Mixed cellularity	Lymphocyte depleted
Medeiros LJ et al	6.7	51	23.8	3.7
Georgii et al	2.7	57.9	13.9	0.7
Neelam et al	7.3	19.9	63.8	1.2
Ramadas et al	13.5	22	50.3	6.3
Abu e Hassan et al	25.7	9.5	14.9	22
Al Diab et al	14.8	59.2	22.5	2.8
Sudipta Chakrabarti et al	14.6	33.3	45.8	4.2
Waseem Memon et al	8	38	50	5
Present study	7.04	15.49	69.01	1.41

Bone marrow infiltration was seen in 8.45% in this study which is similar to the study by Sudipta Chakrabarti et al which showed 8.33% and Chandi et al which showed 9.4%. This is very much less than the study by Ayozyone et al[12] and Hamid et al[13] which showed 30% and 38% respectively.

In the current study, nodular sclerosis was more common in females accounting for 59% which is concurrence with the study conducted by Al Diab et al which showed 67.9%. In the present study, mixed cellularity and nodular sclerosis predominantly presented with stage II disease which is similar to the study by Al Diab et al.

VI. Conclusion

Bimodal age distribution was noted. Males are more commonly affected. Mixed cellularity is the most common subtype. Staging and typing of Hodgkin lymphomas has therapeutic and prognostic significance. A general awareness regarding the clinical presentation of lymphomas, along with usage of advanced investigations may lead to early precise diagnosis and proper management of this potentially curable disease.



Fig 1 Nodular sclerosis – homogenous grey white with nodular cut surface.

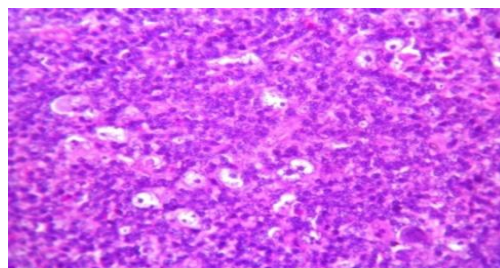


Fig 2 Mixed cellularity type showing binucleate & mononuclear R-S cells. (H&E 10X)

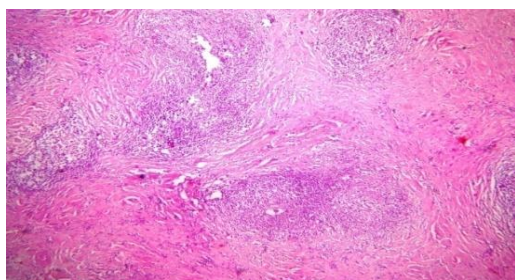


Fig 3 Nodular sclerosis showing nodules separated by fibrous bands. (H&E 10X)

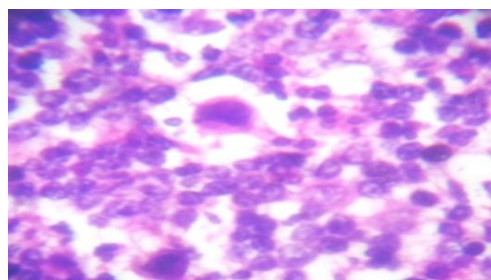


Fig 4 Nodular sclerosis showing lacunar variant of R-S cells. (H&E 40X)

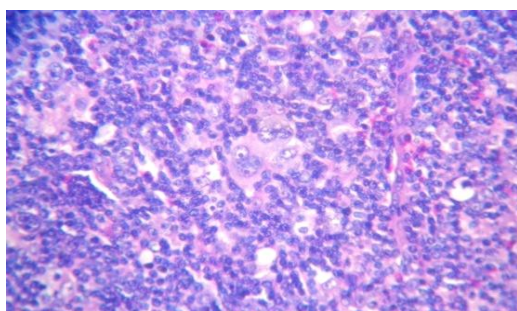


Fig 5 Nodular Lymphocyte predominant type showing popcorn cells (H&E 10X)

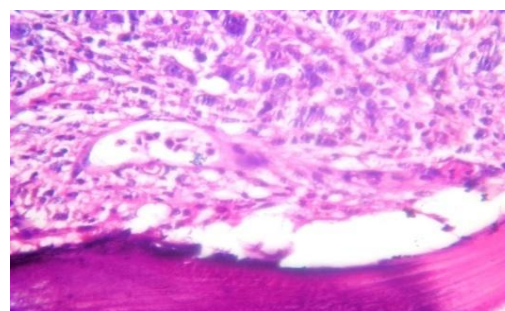


Fig 6 Shows bone marrow infiltration by Hodgkin lymphoma (H&E 10X)

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