Clinico-pathologic profile of Hodgkin's lymphoma in a rural medical college

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Abstract

Purpose of study A prospective study was done at North Bengal Medical College and Hospital (NBMCH), Darjeeling, West Bengal, which caters predominantly to the rural and hilly population. All patients diagnosed as Hodgkin's lymphoma (HL) were analyzed for clinical presentation, histological classified and staging.

Results Total of 48 cases reported for HL were studied (n=48). A lower median age of onset (28.1year) and higher male to female ratio (3.8:1) as compared to western countries were observed. We found neck swelling was the commonest presenting symptom (58.28%) and peripheral lymphadenopathy was the commonest sign (83.33%). "B symptoms" was noted in 79.17% cases. Cervical lymph nodes were commonly involved (79.17%), followed by inguinal (45.83%) and axillary (29.17%). Thoracic lymph nodes and abdominal lymph nodes were enlarged in 29.17% of the cases and 25% of the cases respectively. Eosinophilia was noted in 29.17% of cases. Marrow involvement by neoplastic process was observed in 8.33% of cases and reactive changes in the marrow were observed in 12.5% of cases.

We found mixed cellularity subtypes was the commonest (45.83%) followed by nodular sclerosis subtypes (33.33%). At presentation 54.17% of cases were of advanced stage of disease (stage III and IV).

Conclusion We noticed a distinct geographical pattern of HL in respect of age, sex, presentation, histological typing and staging of the disease, which is comparable to some other Indian studies but is noticeably different from patterns noted in Western countries.

Keywords Hodgkin lymphoma · Clinical presentation · grade · Stage · Rural medical college.

Introduction

Among the Indian population lympho-hemopoietic malignancies constitute 9.5% of cancers in men and 5.5% in women [1]. HL have been classified separately from other lymphomas because of its specific identifying cell, limited morphological range together with its distinctive clinical features, and difference in classification, staging and outcome. Even among the patients of HL, geographic variation in respect of histologic subtypes, extent of disease at the time of diagnosis, and consequent variations in the treatment responses are well-documented [2, 3]. Only a few studies have been undertaken in India that describes the clinico-pathologic profile of lymphomas among the rural population [4].

A prospective study was conducted at our institute, which caters to the six northern rural and hilly districts of West Bengal. In this study, cases of HL presented to our hospital during January 2001 to December 2003 were ana-

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lyzed for age, sex distribution, clinical presentation, classification and staging. The aim of the present study was to assess the demographic pattern of the disease in this tertiary health care center and to compare with records available from different studies in India and abroad.

Materials and methods

All cases of HL diagnosed within the specified period constituted the study group. A detail clinical history was recorded and a systematic clinical examination was done in all cases. The pathological investigations included routine hematological (estimation of hemoglobin, total and differential leukocyte count, platelet count, peripheral smear study for abnormal cells and platelet count) and biochemical (liver function tests, urea, creatinine, uric acid) investigations. The diagnosis of HL was established by biopsy from lymph nodes or involved tissues. The patients were classified on the basis of histopathologic diagnosis according to WHO classification [5]. Bone marrow aspiration and biopsy were done in all cases. The radiological studies included chest X-ray (CXR), ultrasonography (USG) of abdomen, computer axial tomography (CT) of thorax. The staging of the patients were done by Ann Arbor staging system [5].

Results

During the study, 48 cases of HL were diagnosed. Male and female accounted for 38 and 10 cases respectively (male to female ratio was 3.8:1). The mean age of onset was 28.1 years. A bimodal pattern of age of onset was noted (Table 1). Twenty case (41.67%) occurred in the age range of 1 to 20, and 22 cases (45.84) noted in the between age 31 to 50 years. Nodular swelling was the dominant complain (28 cases, 58.33%) for which medical attention was sought. Other notable clinical symptoms were weight loss (found in 34 cases, 70.83%), fever (found in 28 cases, 58.33%), anorexia (complained by 32 cases, 66.67%). Occurrence of “B” symptoms (unexplained, persistent or recurrent fever $>38^{\circ}\text{C}$ for one month, recurrent drenching night sweats, or weight loss $>10\%$ of body weight in the last 6 months, or a combination of these) was noted in 38 cases (79.17%). History of addiction was noted from 10 cases (tobacco in 8, alcohol in 2). Compressive symptoms were noted in 6 (12.50%) patients. We observed dyspnoea in 12 (25.00%) cases, abdominal and /or chest pain in 10 (20.83%) cases, night sweat in 4 (8.33%) cases and pruritus in 12 (25.00%) cases and bleeding in one case (Table 2).

Peripheral lymphadenopathy was the commonest sign, detected in 40 (83.33%) cases and followed by anaemia in 34 (70.83%) cases. Hepatomegaly was found in 10 (20.83%) cases and splenomegaly in 6 (12.50%) cases.

Table 1 Age and sex distribution of the study population

Sex	Age range in years							Sex distribution (M/F)
	1–10	11–20	21–30	31–40	41–50	51–60	>60	
Male (M)	9	6	4	11	7	1	0	38
Female (F)	3	2	0	1	3	1	0	10
M:F	3:1	3:1	–	11:1	2.3:1	1:1	–	3.8:1
Total	12	8	4	12	10	2	0	48

Table 2. Frequency symptoms at presentation

Symptoms	No. of patients	Percent
Neck swelling	28	58.33
Weight loss	34	70.83
Fatigue	26	54.17
Anorexia	32	66.67
Fever	28	58.33
Dyspnea	12	25.00
Compressive symptoms due to lymph nodal swelling	6	12.50
Abdominal and /or chest pain	10	20.83
Pruritus	12	25.00
Night sweats	3	6.25
Bleeding manifestation	2	4.17

Thoracic lymphadenopathy (detected by CXR and CT thorax) was found in 14 (29.17%) cases and abdominal lymphadenopathy in 12 (25.00%) cases (Table 3). Major lymph node groups involved were cervical in 38 (79.17%) cases, inguinal in 22 (45.83%) cases, axillary in 14 (29.17%) cases and epi-trochlear in 4 (8.33%) cases. The diameter of lymph node ranges from 2 to 8 cm. Involvement of stomach was observed in 1 case.

Hemoglobin value was below normal level in 34 (70.83%) cases. We noticed high eosinophil count in 14 (29.17%) cases and lymphocytosis in 4 (8.33%) cases. Leukopenia was noted in 3 cases while thrombocytopenia was observed in 1 case at the time of diagnosis. .

Bone marrow involvement by the neoplastic process was detected in 4 (8.33%) cases. There were also a range of reactive changes like myelofibrosis and myeloid hyperplasia in 4 cases (8.33%) and 2 (4.17%) cases respectively. Increase in plasma cells and hypocellularity was noted in 1 case each. In 38 cases (79.17%) the bone marrow revealed no significant abnormalities. Minor abnormalities of liver function tests were noted in 22 cases (45.83%), while no patient had abnormal renal function. CXR showed mediastinal lymphadenopathy along with unilateral hilar lymphadenopathy in 8 cases (16.67%) and bilateral hilar lymphadenopathy in 4 (8.33%) cases. Pleural effusion was noted in 4 cases (8.33%). Abdominal lymphadenopathy was observed in 12 (25%) cases

In our study mixed cellularity was the commonest (22 cases, 45.83%) histological type followed by nodular sclerosis (16 cases, 33.33%) and lymphocyte predominant

subtype (7 case, 14.58%). The least common types were lymphocyte depleted (2 cases, 4.17%) and lymphocyte rich (1 case, 2.08%).

We observed that at the time of presentation, most of the cases were in advanced stages of the disease (26 cases, 54.17%); of them 22 (45.83%) cases were in stage III and 4 (8.33%) cases were in stage IV. Fourteen cases (29.17%) were detected in stage I and 8 (16.67%) cases in stage II (Table 4).

“B” symptoms was noted in 9 out of 14 cases (64.29%) of stage I, 5 cases (62.5%) of stage II, 20 (90.9%) cases of stage III and 4 cases (100%) of stage IV patients.

Discussion

NBMCH is the sole tertiary care center for six northern districts West Bengal which include mostly rural and hilly areas. Cases detected here mostly represent all HL cases in this typical geographic area. We conducted this study to identify clinic-pathological profile of HL in this region and to compare it with other studies.

We found that the mean age of onset of HL was 28.1 years in the present study, and 41.67% cases occurred in the age group between 1–20 years. Worldwide, HL occurs commonly in the age group 15–34 years [5]. In India, the mean age of presentation is 34 years [4]. The male to female ratio in the present study was 3.8:1 whereas the ratio was 6.75:1 in the study of Ramani et al [4]. In Indian studies the observed male-to-female ratio is higher compared to the West. This may be the result of the higher preponderance of mixed cellularity HL in Indian population [6]. We observed a higher occurrence of “B” symptoms (79.17%). Similar high frequency of B symptoms (73%) was reported by Chandi et al [7].

In our study, peripheral lymphadenopathy was noted in 83.33% cases whereas mediastinal lymphadenopathy was noted in 29.17% cases and abdominal lymph node in 25% cases. These findings were in contrast to the observation of Ramani et al [4] where mediastinal lymph node involvement was found to be more common. The most common subtype of HL noted in our study was mixed cellularity followed by

Table 3. Frequency of physical signs at presentation

Signs	No. of patients	Percent
Peripheral lymphadenopathy	40	83.33
Anaemia	34	70.83
Splenomegaly	6	12.50
Hepatomegaly	10	20.83
Mediastinal lymphadenopathy	14	29.17
Abdominal lymphadenopathy	12	25.00

Table 4. Histological classification and staging of cases at presentation

Histopathological diagnosis	Stage (percent)				Total (Percent)
	I	II	III	IV	
Nodular Lymphocyte predominance	3	2	2	0	7 (14.58%)
Lymphocyte rich	0	1	0	0	1 (2.08%)
Mixed cellularity	3	2	15	2	22 (45.83%)
Nodular sclerosis	8	3	4	1	16 (33.33%)
Lymphocyte depleted	0	0	1	1	2 (4.17%)
Total (%)	14 (29.17%)	8 (16.67%)	22 (45.83%)	4 (8.33%)	48 (100%)

nodular sclerosis. Similar observation was noted by other studies done in India [3, 4, 7]. In contrast nodular sclerosis variant is the most common subtype (51%) followed by mixed cellularity (23.8%) in a large western registry [8].

Among the organ showing extranodal involvement liver is the commonest site followed by spleen. Bone marrow was involved in 8.33% of our cases which is similar to studies of Ramani et al. [4] (9.68%) and Chandi et al. [7] (9.4%), conducted in India. In the western studies it has been noted that marrow involvement was found in 10% of all patients with HL [8]. However such involvement was rare in clinical stages I and II (1% and 2%), but the incidence rose to 25% and 45% in stages III and IV [9]. In a recent Indian study, bone marrow involvement was seen in 18% cases [10]. We observed 54.17% cases were in advanced stage at the time of diagnosis which is lower compared to 70% reported by Chandi et al [7]. The unfavorable factors of decreased overall survival noted in a large Indian study are age more than 40 years, presence of 'B' symptoms, lymphocyte depletion histological subtype and stage IV disease [7].

Conclusion

We observed lower age of onset, higher male female ratio, predominance of mixed cellularity histological pattern, higher occurrence of B symptoms, advanced grade and stage of disease in the study group based on predominantly rural and hilly population in the northern districts of West Bengal. This distinct geographic pattern was consistent with some other Indian studies but was significantly different from western studies.

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