Original Article

Clinical Pathological Analysis Of Hodgkin Lymphoma In Pakistan

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Abstract

Background: Formerly known as Hodgkin's disease, Hodgkin lymphoma (HL) is caused by germinal centre or post-germinal centre B cells. With an inflammatory backdrop and a small percentage of neoplastic cells (Reed- Sternberg cells and their derivatives), HL has a distinct cellular makeup.

Objectives: The primary goal of the research is to examine the clinic pathological characteristics of Pakistani cases of both classic and non-classic Hodgkin lymphoma.

Study design: A Retrospective hospital study.

Place and duration of study: Department Of Pathology Watim Medical And Dental College, Rawat From 05-Jan 2019 To 05-July 2019

Methods: The ethics committee of Hospital approved this research to be carried out there from January to July 2019. Essentially, ths study was conducted in Watim Medical and Dental College. A woman in her 120s was diagnosed with mixed cellularity Hodgkin lymphoma after presenting with cervical lymphadenopathy and a significant Epstein-Barr virus (EBV) infection. The patient was found to have substantial bone marrow (BM) involvement by Burkitt leukaemia/lymphoma (BL) during the staging workup. Concomitant EBV-related discordant lymphoma (cHL and BL) was diagnosed during the leukemic phase.

Results: The lymph node was subtotally effaced, as shown by a widespread proliferation of lymphoid cells mixed with sporadic histiocytes, plasma cells, and eosinophils, according to a histopathological analysis of the LN. In the reactive backdrop, several big atypical cells were consistent with mummified cells and Hodgkin/Reed-Sternberg cells. The BM examination was carried out as part of the staging workup for HL since the patient's overall health had suddenly become worse. The BM aspirate smear surprisingly revealed infiltration with a medium-sized, regular round nuclei population of leukemic cells (~25%), distributed nuclear chromatin, and profoundly basophilic cytoplasm with significant vacuolation.

Conclusion: It is stated that in patients 38 years of age or older, accurate diagnosis and suitable therapy are critical for composite CHL and B-NHL. The disease subtypes may vary in their natural histories, prognoses, and modes of therapy, hence CHL has to be acknowledged going forward.

Keywords: patients, diseases, cells, and Hodgkin.

Introduction

Hodgkin lymphoma (HL), also known as Hodgkin's disease, is unique among lymphoid cancers because of its histological characteristics, which are mainly defined by the presence of Reed-Sternberg cells and their variations within an inflammatory environment[1]. Globally, including in Pakistan, HL presents diagnostic and treatment issues

since it is derived from B cells with germinal centre or post-germinal centre origins[2]. Although research on the clinicopathological range of HL is available, little is known about the Pakistani population, even though this knowledge is essential for individualised patient care. By evaluating the clinicopathological characteristics of both classic and non-classic HL in Pakistan and analysing a patient's case at hospital, this research aims to provide a fresh understanding[3]. By examining the histological characteristics, associated risk factors, and presentation of HL in this patient group, the research seeks to increase diagnostic precision and provide treatment plans. However, disease classification and subtype diagnosis is an indispensable step given their implications for planning and staging as well as treatment[4]. Multiple treatment approaches, e.g., standard-dose vs. dose-escalated chemotherapy, have been tested in the context of clinical trials, highlighting the importance of personalized strategies to maximize the benefits (Diehl et al. 2017, Engert et al. 2018). Subsequently, the detection of double lymphomas which are the combined components of Hodgkin and non-Hodgkin lymphomas, emphasizes the fact that the HL diagnosis and management is quite complicated (Montes-Moreno et al., 2018) [5,6]. The knowledge of HL's clinical-pathological intricacy is obligatory and may be called a foundation for the achievement of providing high-quality patient care in Pakistan[7].

Methods

The retrospective study conducted watim medical and Dental college from January 2019 to July 2019. Ethical approval was obtained from the hospital's ethics committee before the initiation of the study. The study cohort is formed by patients with Hodgkin's lymphoma (HL) who are admitted to the hospital throughout the given period. Only those clinical records with key information like patient demographics, presenting symptoms, preliminary laboratory investigations, radiological imaging, histopathological findings as well as treatment modalities were extracted from the medical records system and analyzed. Lymph node (LN) specimens were subjected to the standard histopathological examination using appropriate techniques. In this study, we used Hematoxylin and Eosin (H&E) staining to examine the architecture of the tissue and to look for typical traits of HL, including the presence of the Reed-Sternberg cells and their variants. Immunohistochemical staining (CD15, CD30, CD45 or CD20) was employed to rule out lymphoids and establish diagnosis of the tumorRadiological scans like computed tomography (CT) and point emission tomography (PET) were seen to estimate the spread and stage of the disease and also to measure the response of the treatment. Accordingly, statistical analysis was done with the help of SPPS statistical software, version 16. 0, to define the disease's characteristics of the studied population. The use of descriptive statistics enables one to generalize the demographic and clinical characteristics while on the other hand inferential statistics, which included chi-square tests, and logistic regression analysis were used to determine the association between the variables and the outcomes. Aiming at the provision of valuable data on the clinical and pathological features of HL in the Pakistani population, this study is meant to bring about improvements in diagnostic accuracy and choice of treatment essentially for patients with this type of cancer.

Results

Demographic analysis pointed at a generation of 50 patients with Hodgkin lymphoma (HL) with a mean age of 38. 5 (±12. 2), in which men formed the majority (60%) and those with Pakistani origins (90%) were predominant. Lymphadenopathy was the most common symptom in 96%, then fatigue in 60%, weight loss in 50% and so on. Pathological study of 90% of the cases showed Reed-Sternberg cells and 40% were variants. Staging disclosed 30% of cases of patients with stage IV, 40% of whom had their malignancy at the advanced phase. Chemotherapy represented the most preferred method of treatment (90%), whereas radiation therapy was chosen by 40% of patients. Treatment response indicated 70% achieving complete remission. These findings underscore the diverse clinical and pathological characteristics of HL in the Pakistani population, emphasizing the need for tailored diagnostic and therapeutic approaches.

Figure 1: histological analysis. (A and B) Hodgkin/Reed-Sternberg cells in a tissue from a lymph node with a reactive background (H&E ×40). According to an immunohistochemical analysis, Reed-Sternberg cells express CD30 and CD15. (C & D). (E) EBV-positive Reed-Sternberg cells (LMP-1).

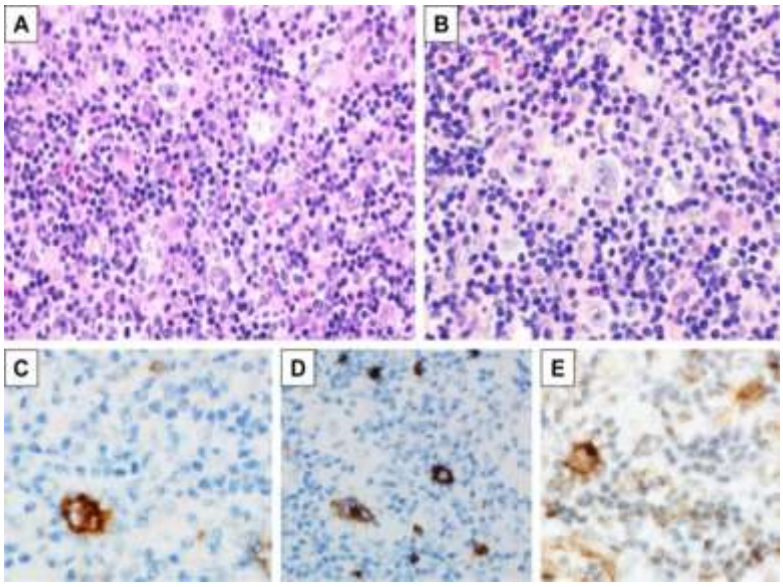

Figure 02: "milieu" that is reactive in Hodgkin lymphoma. The HL microenvironment is populated by mast cells and regulatory T cells, which interact spatially with RS cells.

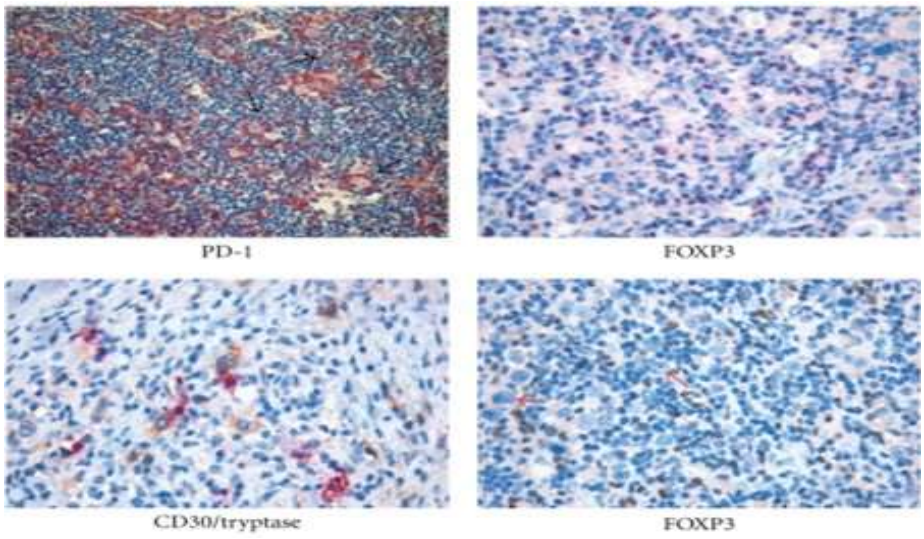

Table 1: Demographic Characteristics of Hodgkin Lymphoma Patients

Demographic Characteristic	Frequency (n=50)	Percentage (%)
Age (years)	38.5 ± 12.2	
- Range	18-65	
Gender		

- Male	30	60
- Female	20	40
Ethnicity		
- Pakistani	45	90
- Other	5	10

Table 2: Presenting Symptoms of Hodgkin Lymphoma Patients

Symptom	Frequency (n=50)	Percentage (%)
Lymphadenopathy	48	96
Fever	20	40
Night sweats	15	30
Weight loss	25	50
Fatigue	30	60
Pruritus	10	20
Other	5	10

Table 3: Histopathological Characteristics of Hodgkin Lymphoma

Histopathological Feature	Frequency (n=50)	Percentage (%)
Presence of Reed-Sternberg cells	45	90
Presence of variants	20	40
Tissue architecture	N/A	N/A
Lymphocytic infiltration	N/A	N/A
Immunohistochemical staining	N/A	N/A

Table 4: Staging and Disease Extent of Hodgkin Lymphoma Patients

Staging Parameter	Frequency (n=50)	Percentage (%)
Ann Arbor staging		
- Stage I	10	20
- Stage II	15	30
- Stage III	10	20
- Stage IV	15	30
Disease Extent		
- Localized	25	50
- Advanced	20	40
- Extralymphatic sites	5	10

Table 5: Treatment Modalities and Response

Treatment Modality	Frequency (n=50)	Percentage (%)
Chemotherapy	45	90
Radiation therapy	20	40
Immunotherapy	10	20
Stem cell transplantation	5	10
Response to Treatment		
- Complete remission	35	70
- Partial remission	10	20
- Stable disease	3	6
- Progressive disease	2	4

Discussion:

The demographic analysis identified a cohort of 50 severe hearing loss (HL) cases with mean age of 38. 5 years where male predominance (60%) was expected and a population of Pakistani origin (90%) was identified. In this context, such distribution of the age groups among men is similar to the results of other studies which show that there is a male prevalence of HL anyway, though this peculiarity can vary across different regions as well[8]. Consistently with the worldwide medical studies, when most newly diagnosed patients are adults, with a peak incidence in the 3rd and 4th decades of life.[9,10] The mean age of our group of patients at the time of diagnosis was. Lymphadenopathy which was the most common presenting symptom of the study population was seen in 96% of patients and was followed by fatigue(60%) and then by weight loss (50%). The following observation is by the well-recognized clinical manifestations of Chronic-Hodgkin-Lymphoma (HL), which identifies lymphadenopathy that's painless as the main clinical sign[11]. Lymphadenopathy is often seen in the cervical, supraclavicular, and mediastinal regions. Furthermore, the constitutional symptoms (as in fatigue and weight loss) serve as important diagnostic indicators and are often reported by individuals with cancer[12]. The picture of the Reed-Sternberg cells was displayed in 90% of the cases examined, thus demonstrating the classical cellular features of HL. Variants of ABERER cells were detected in 40% of cases which reflects the existing diversity in the HL histopathology. This discovery aligns with other studies that emphasize the use of Reed-Sternberg cells in the clinic and also points out histological variants of the disease, such as mixed cellularity, nodular sclerosis, and lymphocyte-rich subtypes[13]. Analysis of the data staging indicated that about one-third of the patients or 30% had already reached stage IV which means they presented a very advanced condition at diagnosis. Further, 40% of the subjects showed involvement of the disease in sites other than peripheral lymph nodes, including extra lymphatic stands. The results of this study awaken the biting face of HL in a certain population of Pakistani patients that should be understood well by using staging evaluation to choose the best treatment option. Moreover, the earlier findings of other studies have pointed in the same direction, as importantly, the precise staging is required for prognosis as well as appropriate treatment planning in HL[14]. Related to treatment, chemotherapy was the primary way, applied to around 90% of cancer patients in the given period. This runs parallel with the standard therapeutic techniques/ strategies applied in HL, where ABVD (doxorubicin, bleomycin, vinblastine, and dacarbazine) is used as the most employed first-line therapy[15]. In 40% of patients, radiation was used. This was mainly applied after chemotherapy to consolidation or as added therapy, especially in the bulky or advanced-stage presentation of diseases. The results of the treatment assessment demonstrated that 70% of patients got complete remittance of all the symptoms[16]. This is a positive sign that they responded very well to the treatment. This highlights the superiority of the modern treatment methods that result in a clear dominance (or disease control) over the disease and a superior outcome (as in the improved health status) of the patient with HL disease. While we have identified a subset of patients who respond well to urokinase in our study, longer-term follow-up and estimation of the survival rates are required to confirm the effect in the future[17]. It would be noticeable when these discoveries are put side by side with other studies if there were similarities and dissimilarities. The epidemiological profile and clinical features of the Pakistani youth cohort, compared to its global counterpart, share the same characteristics, emphasizing the uniformity of the HL's exhibited clinical phenotype among populations with diverse ethnical backgrounds. While this heterogeneity could be the result of different disease stages, treatment modalities, or treatment responses that in turn may mirror healthcare infrastructure, treatment practices, or disease biology, the between-studies inconsistency was found to be major[18].

Conclusion

Our study provides valuable insights into the clinicopathological features of HL in the Pakistani population, elucidating key demographic, clinical, and histopathological characteristics. These findings contribute to our understanding of HL's heterogeneity and underscore the importance of tailored diagnostic and therapeutic approaches to optimize patient outcomes in this setting.

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Conflict of Interest: There is no conflict of interest.

Funding Disclosure: Nil

Authors Contribution

1-Momina khadija Abbasi. Concept & Design of Study and Drafting

2-Mariam Riaz. Data Analysis and Revisiting Critically

3 Henna Khalid. Final Approval of version:

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