Ki-1 Large Cell Anaplastic Lymphoma - A Clinicopathological Study

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Abstract

Ki-1 large cell anaplastic lymphoma is a recently described variant of malignant lymphoma. A retrospective study of 1.0 cases of Ki-I lymphoma was carried out at the Armed Forces Institute of Pathology (AFIP) Rawalpindi to document its clinical and morphological features. The morphological features were evaluated by a study of paraffin embedded sections stained with haematoxylin and eosin stains. Immunohistochemical stains for BER-H2 and leucocyte common antigen (LCA) were performed in all cases. The age of the patients ranged from 2 to 60 years and male to female ratio was 2.3:1. Cervical lymphadenopathy was the most common presentation. Histologically, there was a complete effacement of the lymph node architecture in 8 cases. The Reed-Sternberg like cells were seen in 2 and histiocyte like cells in 7 cases. Immunohistochemically all cases were positive for BER-H2. It is suggested that the possibility of Ki-1 lymphoma should be considered in all cases of lymphoma with pleomorphic morphology. (JPMA 44:169,1994).

Introduction

Ki-1 large cell anaplastic Jymphoma was initially described by Stein and colleagues[1] by finding CD 30/Ki-1 antigen. It is composed of pleomorphic neoplastic cells and may be confused with metastatic carcinoma or malignant histiocytosis[2]. Immunohisto chemistry is essential to confirm the diagnosis. There is no documented report of this type of lymphoma in Pakistan. We report ten cases of Ki-1 lymphoma, diagnosed at the Armed Forces Institute of Pathology (AFJP) Rawalpindi.

Patients and Methods

Ten cases of anaplastic large cell lymphoma were identified in the surgical pathology department of AFIP Rawalpindi during three years period (1990-1992). The biopsy material was fixed in 10% buffered formalin and was processed for paraffin embedding. The routine haematoxylin and eosin stain was done in all and Periodic-acid Schiff (PAS) and reticulin stains in some cases where required. Immunohistochemical stains were done on paraffin embedded tissues. The sections of 5 micrometer thickness were used for staining of BER-H2 (a monoclonal antibody equivalent to Ki-1) and leucocyte common antigen (LCA) in all cases. The stains for epithetial membrane antigen (EMA) were done in only two cases due to short supply of antibodies. Monoclonal antibodies were obtained from Biogenix Laboratories.

Results

The clinical features of 10 cases are summarized in Table I.

Table I. Clinical features of large cell anaplastic lymphoma cases

Case No	Age	Sex	Location of biopsy	Presentation and additional features
1.	23	Male	Cervical L.N	Lymph nodes enlarge-ment and breathlessness
2.	25	Male	Skin & C.L.N	Fever, erythmatrum skin lesions and later on lymph adenopathy
3.	18	Male	Cervicl L.N	Lymphadenopathy, weight loss
4.	28	Female	Axillary L.N	Fever, lymphadenopathy
5.	60	Male	Cervical L.N	Lymphadenopathy, weight loss and epistaxis
6.	2	Male	Axillary L.N	Hepatosplenomegaly, fever and lymphadenopathy
7.	6	Female	Cervical L.N	Abdominal mass and lymphadenopathy
8..	26	Male	Inguinal L.N	Lymphadenopathy and dysphagia
9.	53	Male	Cervical L.N	Lymphadenopathy, paraplegia
10.	30	Female	Axillary L.N	Lymphadenopathy, fever, weight loss

There were 7 males and 3 females - Majority of cases were in the second and third decade of life. Lymphadenopathy was the presenting feature in 9, with cervical lymph nodes involvement in majority of the cases (5 out of 9). In one patient a skin rash was the initial presentation followed by cervical lymph adenopathy. These lymph nodes, regressed without any treatment but reappeared within two weeks along with back ache due to vertebral metastases. One case presented with abdominal mass and another with paraplegia. In at two year old child generalized lymphadenopathy with hepatosplenomegaly was seen. An initial histological diagnosis of metastatic carcinoma in lymph nodes was made in 8 cases, whereas one case was diagnosed as Hodgkin's disease and another as malignant histiocytosis. The morphological features on mutine staining are given in Table II.

Table II. The Histological Features on Routine Stains (n=10).

Morphological features	Number of cases
Capsular/parenchymal fibrosis	10
Complete effacement of Architecture	8
Histiocyte like cells	7
Partial effacement of Architecture	2
Reed Sternberg type cells	2

There was complete effacement of the lymph node architecture in 8 cases while 2 showed partial effacement. Two cases showed Reed- Stemberg type cells while histiocyte like cells were detected in 7 cases. A distinctive feature was the striking cellular pleomorphism (Figure 1)

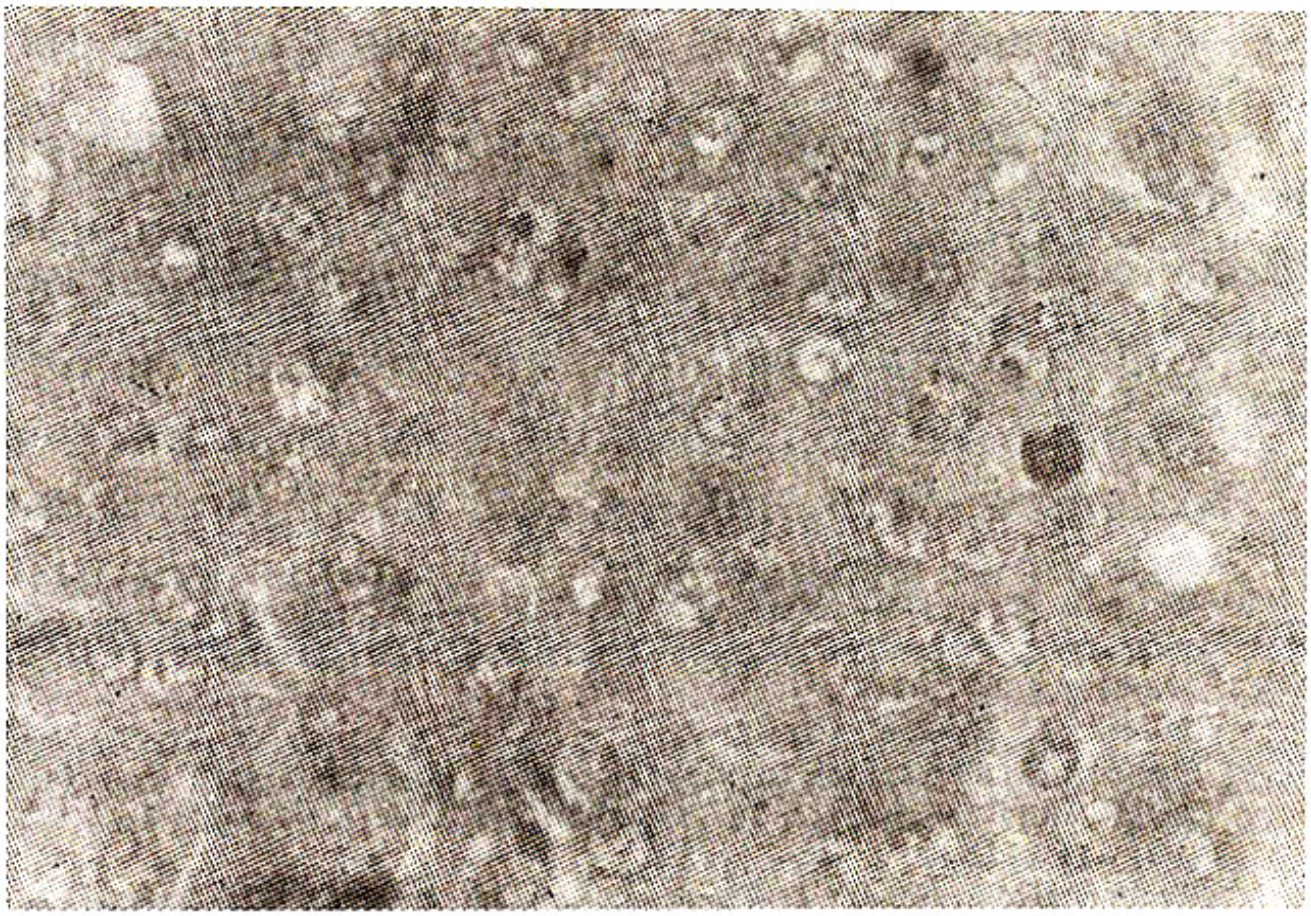

Figure 1.

ranging from bizarre multinucleated cells to cells with rounded nuclei. The mitotic rate ranged from one to 10 per high power fields. Immunohistochemical stains (Table III)

Table III. Results of immunohistochemical staining.

Antibodies	No. of cases	Positive	Negative
BER-H2	10	10	0
LCA	10	8	2
EMA	2	2	0

of lymph nodes showed positive staining for BER-H2 in all ten cases (Figure 2).

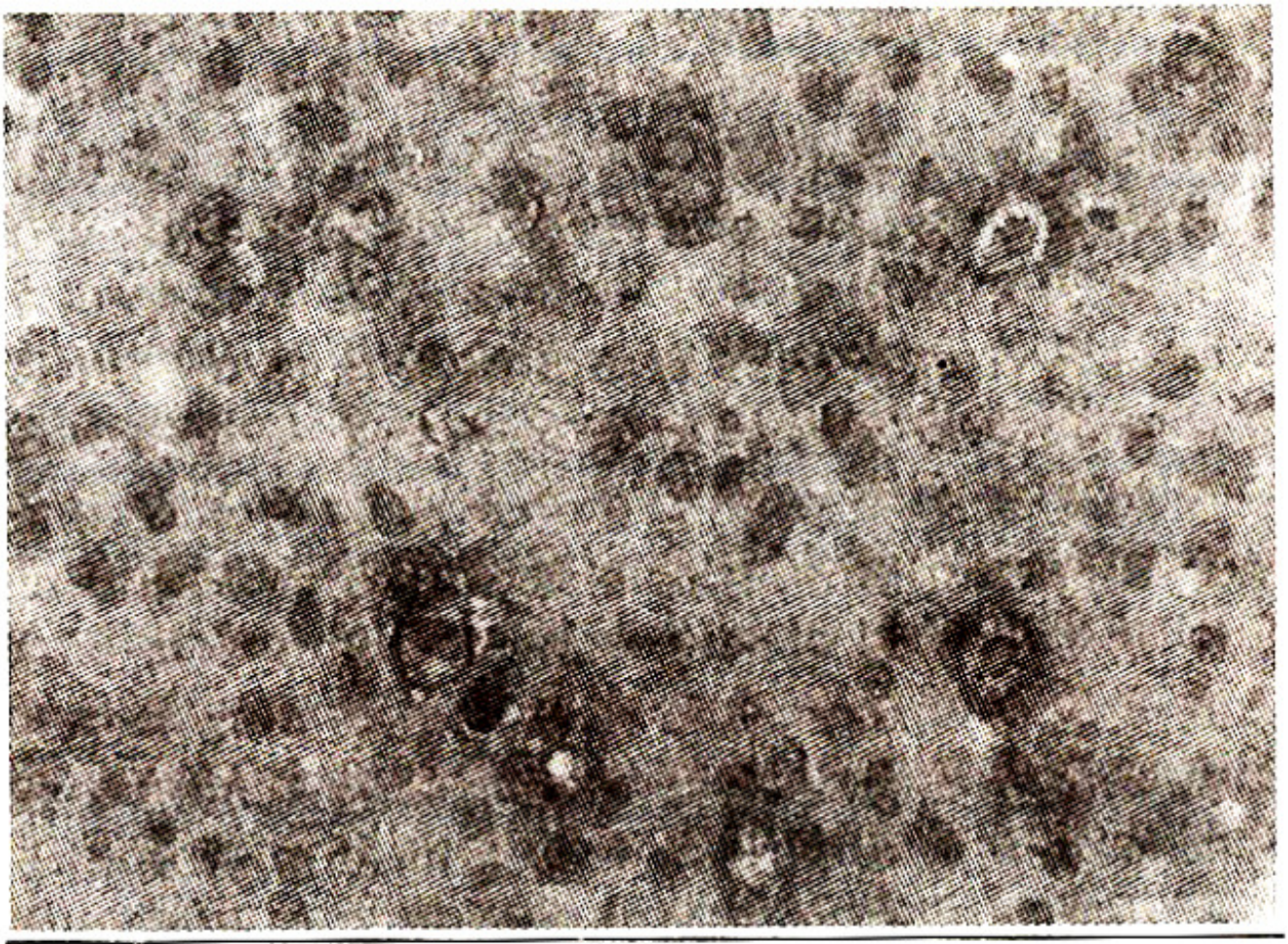

Figure 2.

A strong LCA positivity was observed in 2 cases whereas 6 cases showed weak focal positivity with 2 being negative for LCA. The epithelial membrane antigen (EMA) staining was done in 2 cases and both revealed weak positivity.

Discussion

Ki-1 large cell lymphoma is a recently described variant of malignant lymphoma This is characterized by the presence of an antigen called Ki-l (CD3O) antigen[1]. Stein et al.[3], reported that Ki-l antibody

(CD3O) marked specifically the neoplastic cells of Hodgkin's disease. Some other workers described unusualana plastic large cell lymphoma in which neoplastic cells express the Hodgkin's related antigen Ki-1[1]. It is a rate disease that constitutes about 2-7% of the non-Hodgkin's lymphoma[4]. There is no conclusive data available regarding the geographical/epidemiological distribution of this disease probably because of its recent recognition as a separate entity. The disease is characterized by a bimodal age distribution with peaks in 3rd and 8th decades[4,5]. Majority of our cases were in second and third decade of life. This type of lymphoma is more common in males and this was true incases Clinical presentation is variable and commonly affected sites are lymph nodes, skin, bone and gastrointestinal tract[4]. The bulk of our cases presented with lymphadenopathy and only I case presented with skin rash. The regression of skin lesions and lymphadenopathy is another unusual feature of this lymphoma[6], and such was observed. It is because of its pleomorphic appearance on histology, skin distribution and frequent reactivity with EMA that this lymphoma is often misdiagnosed as metastatic carcinoma in lymph nodes, or as malignant histiocytosis; regressing atypical histiocytosis, nodular sclerosing Hodgkin's disease, sinusoidal large cell lymphoma and lymphomatoid papulosis[2,4]. Majority (80%) of our cases were initially diagnosed as metastatic carcinomatous deposits in lymph nodes. One case was diagnosed as malignant histiocytosis and another as Hodgkin's disease. Immunohistochemistry helps greatly in the differential diagnosis of this disease. The Ki-l lymphomas are always positive for BER- H2 and majority are LCA positive but some may be negative, however, EMA is mostly positive. The tumour cells in Ki-l lymphoma normally stain positively for T-cell markets with some cases having B-cell type markers while others may not show any T- or B-cell differentiation (0-phenotype)[4,7]. All our cases were BER-H2 positive with negative LCA in 2 cases. We could do EMA staining in only 2 cases and both were weakly positive. It can be concluded that a diagnosis of Ki-l large cell lymphoma should be considered in any histologically pleomorphic lymphoma as Ki-l lymphoma can simulate many other disorders. The diagnosis must be confirmed by immunohistochemical studies.

References

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