Composite Peripheral T-cell Lymphoma, Not Otherwise Specified and B-cell Small Lymphocytic Lymphoma Presenting with Hemophagocytic Lymphohistiocytosis

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ABSTRACT

We report a case of a 68 year old female patient who developed hemophagocytic lymphohistiocytosis (HLH) secondary to Peripheral T-cell Lymphoma (PTCL) Not Otherwise Specified (NOS) that developed in the setting of treatment resistant B-cell Small Lymphocytic Lymphoma/Chronic Lymphocytic Leukemia (SLL/CLL). The patient’s B-cell lymphoma had a good initial response to chemotherapy for 4 years, after which it became less responsive and was thought to have undergone transition to a higher grade lymphoma. Different regimens of chemo-radiotherapy were then tried with modest response until she was found to have developed PTCL, NOS in a lymph node. Bone marrow examination showed hemophagocytosis. This report highlights the importance of searching for a possible underlying T-cell lymphoma in light of HLH. Different theories have been proposed to explain the rare occurrence of concurrent B- and T-cell lymphomas, but the development of HLH in this patient highlights the importance of immune dysregulation as a proposed mechanism to explain some cases of composite lymphomas.

BACKGROUND

The incidence of composite lymphoma varies between 1 and 4.7%. Immune dysregulation as a mechanism underlying the simultaneous occurrence of 2 lymphoid malignancies has been proposed, and the chronic stimulation of T-cells by the neoplastic B-LL, clone represents wallendorf phenomenon in the literature. HLH is a syndrome of pathologic immune activation characterized by severe inflammation and cytokinemia. The association between T-cell neoplasia and secondary HLH is a well-recognized in the literature. In this article, we report an unusual case of a patient with known low-grade B-cell lymphoma who succumbed to HLH and was found, postmortem, to have developed PTCL, NOS in a lymph node partially involved by the low-grade B-cell lymphoma.

CASE PRESENTATION

Our patient was a 68 year old woman who was diagnosed with Small lymphocytic lymphoma/chronic lymphocytic leukemia (SLL/CLL) in a right axillary lymph node. The patient received 2 regimens of chemotherapy with excellent initial response until she was found to have residual right axillary mass. An excisional biopsy was performed and showed persistent lymphoma with slightly elevated prolymphocytes. The Ki-67 showed a proliferation index of 40-50%. In situ hybridization for EBV encoded RNA (EBER) was negative. Though the predominant population was still composed of small cells, the Ki-67 was made of the suspicion for SLL/CLL in progression. The patient subsequently received radiotherapy and a second course of chemotherapy. She had a suboptimal response and developed bulky para-aortic lymphadenopathy. Shortly thereafter, the patient presented with neoplastic fever, pancytopenia and mental status changes. She was found to have hypertriglyceridemia, high ferritin, elevated liver enzymes, hyperbilirubinemia and IL-2 Receptor. A bone marrow aspirate and biopsy performed at an outside hospital showed findings consistent with HLH. Despite aggressive treatment, she did not improve and died of sepsis secondary to respiratory acidosis and hepatic encephalopathy one month after her initial diagnosis with HLH.

RESULTS

Upon reviewing the existing literature, we found very rare cases of composite mature T and Small B-cell lymphocytic lymphomas (lymphoma-lymphoma) (See Table 1). A few of these show precedence by the SLL/CLL and make note of the possibility of an etiologic evolution of the pre-existing B-cell lymphoma. The first studies to suggest the composite of CLL/LL with a subsequent T-cell lymphoma make use of the term Richter's transformation, typically applied to the transformation into a higher grade non-Hodgkin lymphoma. Less commonly, such patients have been demonstrated subsequent Hodgkin lymphoma, described as Hodgkin variant of Richter's transformation. It has been postulated that the occurrence of the subsequent T-cell lymphoma may be supported by the finding that T-cells in CLL patients demonstrate greater resistance to apoptosis than T-Cell populations in healthy donors [1]. In the largest series to date, Jaffe et al [2] report six cases of PTCL arising subsequent to an initial diagnosis of CLL. While all of these cases showed concurrent involvement by both lymphomas, in peripheral blood and bone marrow, only 2 demonstrated lymph node involvement typical for composite tumors. These, like ours, also reveal sharp segregation of the two tumors within the same specimen.

To the best of our knowledge this is the first report of HLH developing in the setting of composite lymphoma.

REFERENCES