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Case Report

Low-Grade Malignant B-Cell Lymphoma of MALT type of the Lung

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Summary

A case of low-grade malignant B-cell lymphoma of MALT type arising in the lung is described. The patient was 64-year-old man, and had middle lobe syndrome of the right lung because of the tumor infiltration to the right middle bronchus. The histologic features of the tumor was diffuse, centrocyte-like lymphoma, and the immunohistochemical studies and gene analysis confirmed this tumor of B-cell orign. The patient is alive with local recurrence of the lymphoma in the right lung for 33 month now.

Key word: malignant lymphoma, MALT, lung

Introduction

Primary pulmonary lymphomas are rare. The concepts of malignant lymphoma of mucosa-associated lymphoid tissue (MALT) for the extranodal lymphoma were proposed by Isaacson & Wright[1)]. The MALT indicated various organs including stomach, lung, intestine, salivary glands, breast, etc[2)]. This entity of malignant lymphoma of MALT type has been reported to be different from other nodal malignant lymphoma in the cytological, immunohistochemical and clinical points of view. We described here a case of pulmonary malignant lymphoma of MALT type.

Case report

A 64-year-old man complained of dyspnea and cough with sputum in September 1990. Antibiotics were medicated, but he admitted to the hospital in March 1991 because of the deterioration of the symptoms. There were physiologically no lymphadenopathy, skin rash, and hepatosplenomegaly. Chest roentgenogram showed the right middle lobe syndrome (Fig. 1). Computed tomography revealed homogenous isodensity mass with airbronchogram from the right pulmonary hilus to periphery (Fig. 2). He was diagnosed as malignant lymphoma by the stamp of the pleural effusion. Middle lobectomy of the right lung was performed on March 25th 1991. He received 4 times chemotherapy after the operation, including Cyclophosphamide, Adriamycin, Vincristin, Prednisolone. Regardless of these chemotherapy, solid mass lesions had been detected in the right lung from about one year later after the operation, but no other organs have not been involved until now. The laboratory findings on admission were as following: the leukocyte count was 7200/μl, with 71% neutrophils, 22% lymphocytes, 6% eosinophils, and 1% monocytes. There was no atypical lymphocytes in the peripheral blood. The red blood count was $431\times10^4/\mu$l, hemoglobin 12.8g/dl, and the hematocrit was 38%. The platelet count was 45.1×10^4/dl, and the hematocrit was 38%. The platelet count was $45.1\times10^4/\mu$l. Serum lactate dehydrogenase was 403 unit/l(normal, 50-400 unit/l). The immunoglobulin levels are increased, IgG 1624 mg/dl (normal 980-1500 mg/dl), IgM 438 mg/dl (normal 70-270 mg/dl), but their monoclonalities were not examined.

Histologically, the tumor cells infiltrated diffusely and formed vague nodularity, and focally monocytoid B-cell foci are present (Fig. 3). The lymphoma cells were small to medium in size and have round or cleaved nuclei, distinct or indistinct nuclei and amphophilic cytoplasm (Fig. 4), some of which have plasmacytoid differentiation. The lymphoma cells were infiltrating to the bronchial ducts and represented so-called lymphoepithelial lesion (Fig. 5).

The results of immunostainings were shown in Table 1.

Immunostainings were performed by avidin-biotin complex method (Vectastain). The lymphoma cells were positive reaction for PanB, CD19, CD20, sIgM,

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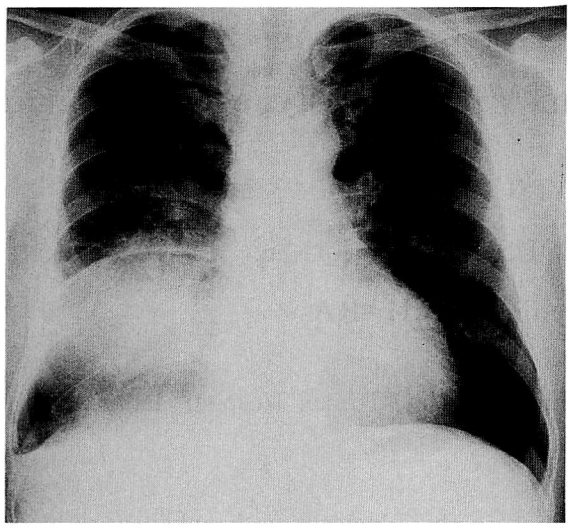

Fig. 1. Chest roentgenogram, March 1991

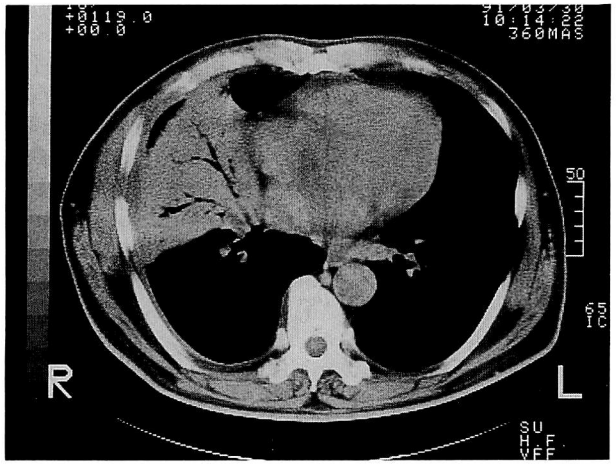

Fig. 2. Computed tomography, March 1991

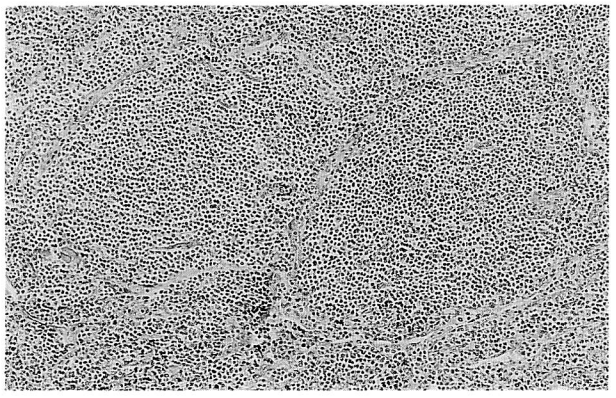

Fig. 3. The lymphoma cells show diffuse proliferation and form vague nodularity. (H-E staining X40)

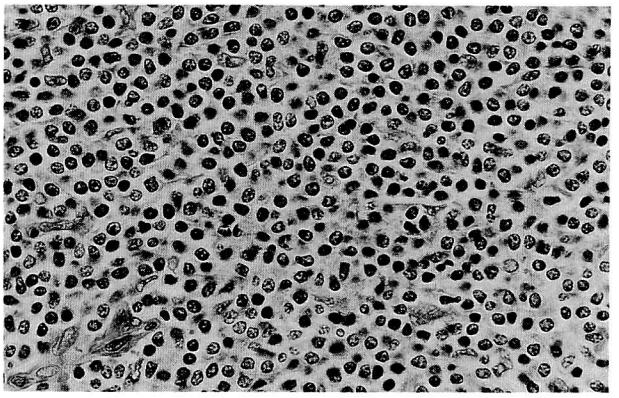

Fig. 4. Small to medium-sized lymphoma cells have round or indented nuclei, distinct or indistinct nucleoli, and amphophilic cytoplasm. (H-E staining X400)

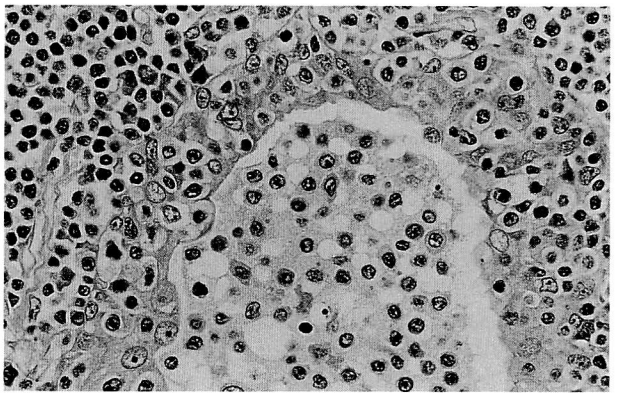

Fig. 5. The lymphoma cells are infiltrating to the bronchial ducts and represent so-called lymphoepithelial lesion. (H-E staining X400)

Table 1. Results of Immunohistochemical Study

Monoclonal antibody	CD number	Source	Reactivity
L26 (PanB)	CD20	Dakopatts	+
UCHL-1	CD45RO	Dakopatts	−
B1	CD20	Coulter Immunology	+
B4	CD19	Coulter Immunology	+
CALLA	CD10	Becton Dickinson	−
clgM	−	Dakopatts	−
slgM	−	Dakopatts	+
KiMip	−	Kiel	−
KiB3	−	Kiel	−

and lambda, but negative for KiM1p. The genotypic analysis of the lymphoma cells was shown in Fig. 6. Gene rearrangement of T-cell receptor (TcRs) and immunoglobulin heavy chain genes (JHs) were analyzed by the Southern blot methods as previously described[3]. The lymphoma cells demonstrated the rearrangement of JHs, but no TcRs bands. From these

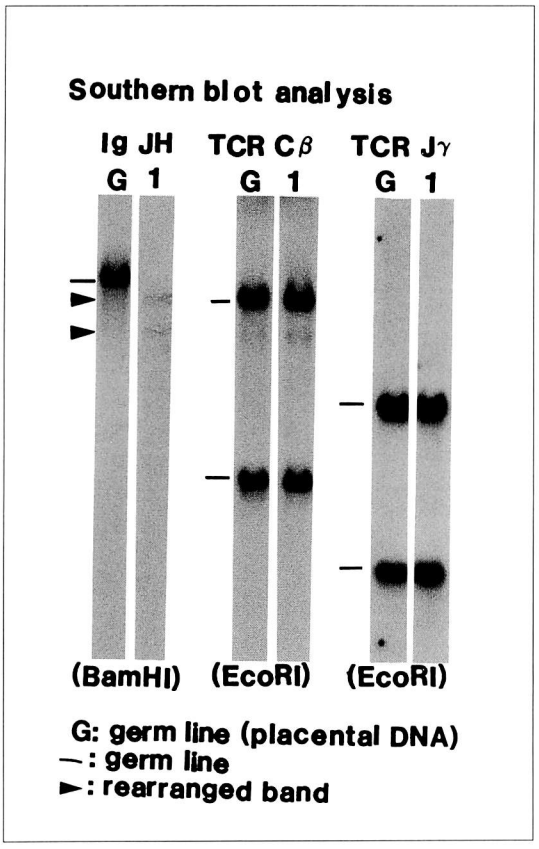

Fig. 6. Southern blot analysis. The rearranged bands of immunoglobulin heavy chain genes are detected, but T-cell receptors are not rearranged.

findings, we diagnosed this case as low grade malignant lymphoma of MALT type, centrocyte-like, B-cell, IgM, lambda type.

Discussion

Li et al. reported sixty-two cases of the primary lymphoma of the lung[4]. Phenotypically, fifty four cases (93%) were B-cell phenotype, and only two cases(3%) were T-cell phenotype, and two cases were categorized unclassified high grade lymphoma. Histologically, the majority of the bronchus-associated lymphoid tissue (BALT) type including immunocytoma. The new concepts of extranodal lymphoma of MALT type establised by Isaacson et al. showed the distinct cytological, immunohistochemical and clinical features from the nodal malignant lymphoma[1], that is, the lymphoma arize in the several organs in associated with the mucosal epithelium, and so-called lymphoepithelial lesions are frequently encountered. Cytologically, the lymphoma cells are heterogenous ranging from those mainly composed of small lymphocytes with round nuclei and occasionally lymphoplasmacytoid or lymphocytic differentiation to those mainly composed of centorcytes-like cells (described by Isaacson), intermingled with a few blasts. According to the Updated Kiel classification, low-grade malignant B-cell lymphoma of MALT type, centrocyte-like subtype, lambda. However, monocytoid B-cell foci were focally present in part, and we had to differentiate this type. In immunostainigs on paraffin section, the majority of the lymphoma cells were negative for KiM1p and KiB3. These results were not consistent with monocytoid B-cell type. Further examination is necessary to clarify this question.

References

1) Issacson P & Wright DH Extranodal malignant lymphoma arising from mucosa associated lymphoid tissue. Cancer 1984 53: 2515-24
2) Lennert K & Feller AC Histopathology of Non-Hodgkin's lymphomas (Based on the updated Kiel classification). 1992: 111-4
3) Ohshima K, Kikuchi M, Masuda Y, Yoshida T, Mohtai G, Eguchi F. Genotypic and immunophenotypic analysis of anaplastic large cell lymphoma (Ki-1 lymphoma). Pathol Res Pract 1990 186: 582-8.
4) Li G, Hansmann M L, Zwingers T, Lennert K. Promary lymphoma of lung: morphological, immunohistochemical and clinical features. Histopathology 1990 16: 519-31.