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Case Report

A Case of Lymphoproliferative Disease of the Lung

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Abstract

We present a case of lymphoproliferative lesion of the lung. The lesion was well demarcated, grossly and located in the periphery of the right upper lobe. Regional lymph nodes were not involved. The tumor consisted of small non-cleaved lymphocytes proliferating in the lung tissue with many various sized lymphoid follicles. Germinal centers were observed with tingible body macrophages. Immunohistochemical examination at that time revealed lymphoplasmactoid cells positive for both kappa and lambda light chains and heavy chains in part. We diagnosed as pseudolymphoma wich was first described by Saltzstein[1].

However in situ hybridization for the immunglobulin light chain gene indicated monoclonal lymphoplasmacytic cells infiltrating beneath the bronchial epithelium, focally. Low grade malignant lymphoma arizing in mucosa associating lymphoid tissue (MALToma) was considered.

Key words: Pseudolyphoma, Malignant lymphoma, Lung, In situ hybridization

Introduction

Pulmonary lymphoproliferative diseases composed of small lymphocytes are classified 1)Lymphocytic intertitial pneumonia, 2)Psudolymphoma and 3)Malignant lymphoma. Saltzstein[1] initially described pseudolymphoma which was discrete nodular mass composed of a mixture of small lymphocytes and plasma cells. Current immunological techniques indicate many lymphoid lung lesions accepted as inflammatory processes for years are of malignant lymphomas[2]. Some of the lymphomas are regarded as malignant lymphomas arizing in mucosa-associated lymphoid tissue (MALToma).

We present a case of lymphoproliferative disease of the lung which was previously reported as pseudolymphoma[3].

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Case Report

The patient was 65-year-old female on operation (Jan. 1988). On Aug. 1987, medical check-up pointed out a mass shadow in her right middle lung field by the chest roentgenogram. She had no respiratory symptom. Follow-up chest roentgenogram (Photo 1) revealed enlargement of its shadow on Dec. 1987. She admitted our hospital. She comlained no symptom, and routine clinical examination clarified no abnormality. Tomography and computerized tomography (Photo 2) revealed well demarcated homogenous mass shadow in the right upper lobe. Transbronchial lung biopsy was performed on Dec. 25, 1987. Any lung tumor including the pulmonary carcinoma was suspected and on Jan. 21, 1988, the lobectomy of her right upper lung lobe was performed with dissection of the regional lymph nodes. A Well demarcated whitish tumor was noticed, grossly. Histological examination of the paraffin sections revealed proliferation of small sized round lymphocytes in the lung parenchyma. Many various sized germinal centers were observed with tingible body macrophages. Thin mantle zones composed of small lymphocytes were associated around the germinal centers. Photo 3 showed dense proliferation of lymphocytes beneath the bronchial ciliated epithelium forming lymphoepithelial lesion (LEL). Plasmacytoid cells were intermingled.

Immunohistochemical staining for L-26 revealed intensely positive reaction of the germinal centers and the mantle zones. And the diffusely proliferating lymphocytes were weakly positive. But the lymphocytes infiltrating in the lining epithelium (LEL) were negative for L-26. UCHL-1 positive T-lymphocytes were noticed in the germinal centers and the subepithelial lymphoid cells. Some of the lymphocytes were positive for both kappa and lambda light chains and

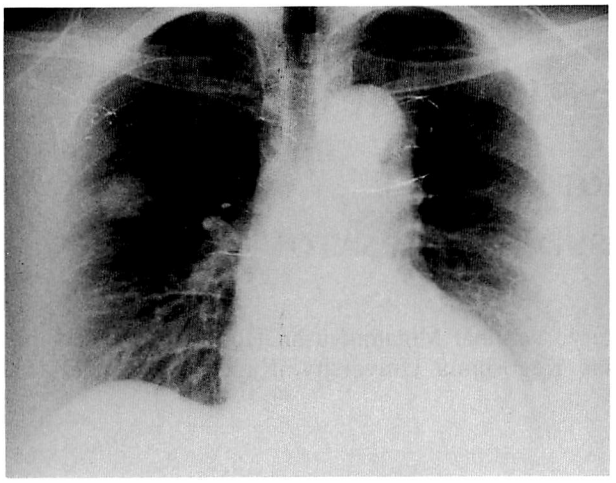

Photo 1. Chest roentgenogram on admission shows a well demarcated tumor shadow in the middle lung field.

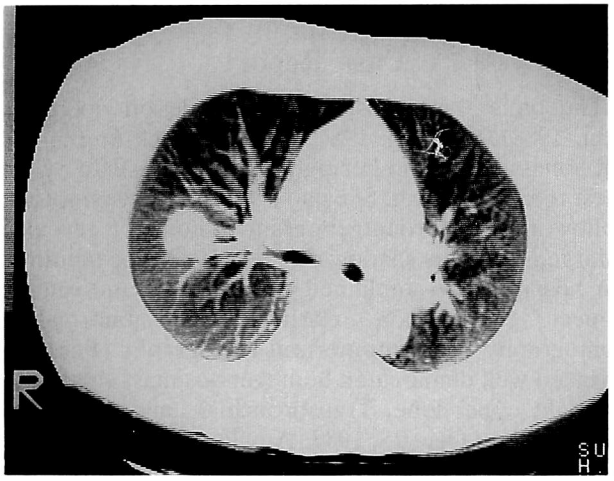

Photo 2. Chest CT reveals a homogenous tumor in S^3a, 2.5cm in diameter

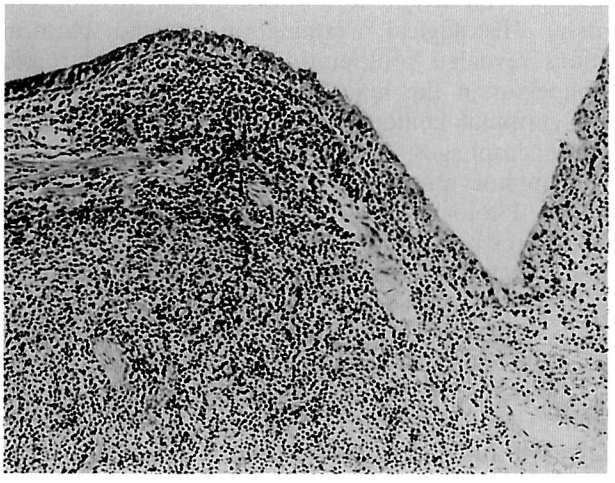

Photo 3. Histopathologial findings of the resected specimen. Diffuse and dense infiltrate of small lymphoid cells are observed beneath the bronchial epithelium. H-E stain; ×75

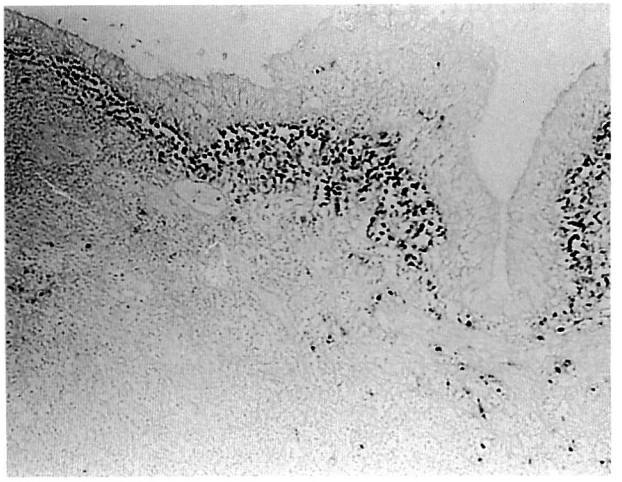

Photo 4. In situ hybridization for kappa light chain gene. Positive lymphocytes proliferate beneath the bronchial epithelium. Almost of the tumor cells are negative including the lymphocytes in the epithelia. ×75

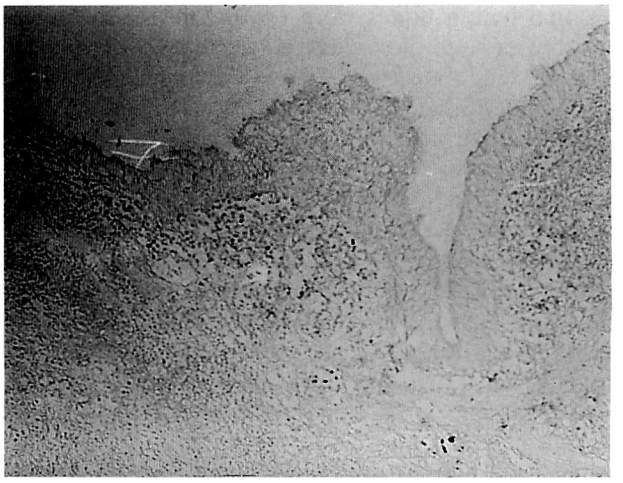

Photo 5. In situ hybridization for lambda light chain gene. The lymphocytes positive for kappa chain are negative for lambda chain. ×75

heavy chains such as IgG, IgM and IgA on the paraffine sections.

In situ hybridization for the immunoglobulin light chain gene revealed positive cells of kappa chain beneath the bronchial lining epithelium (Photo 4), in part. These lymphocytes were negative for lambda chain by in situ hybridization method (Photo 5). Either kappa or lambda chain positive lymphoid cells were scattered in the dense collagenous septa in the tumor and surrounding alveolar septa. The lymphocytes infiltrating in the lining epithelia were negative for either kappa or lambda chain.

Immunohistochemical examination showed possible polyclonality of the lymphoid cells. But intermingling of the pre-existing reactive lymphocytes were also considered. In situ hybridization of immunoglobulin

light chain gene revealed monoclonal expression in part and indicated the lesion was malignant lymphoma mimicking pseudolymphoma.

Discussion

We have seven cases of malignant lymphoma of the lung. In almost of the cases the monoclonality of the majority of the tumor cells was clarified by immunohistochemical examination. We presented a typical case of MALToma of the lung with monoclonal B-cell lymphoma in this seminar. However immunohistochemical examination is not always successful for demonstrating the monoclonality of the tumor cells. In the present case, in situ hybridization method revealed positive cells for kappa type light chain beneath the epithelium (Photo 4). These lymphoid cells were negative for lambda type light chain. These findings may suggest monoclonality of the tumor cells in part. But UCHL-1 positive T lymphocytes were observed in these area indicating the presence of pre-existing non-neoplastic cells.

Lymphoepithelial lesion (LEL) was observed, microscopically. But infiltrating lymphocytes in the bronchial and alveolar lining cells were negative for either L-26, UCHL-1, kappa or lambda chain. Monoclonality of the lymphoid cells forming LEL was not demonstrated.

In this case, we failed to clarify the nature of the proliferating lymphoid cells, immunohistochemically. But Dr. K. Lennert mentioned that the infiltrating cells beneath the epithelia were monoclonal and these cells were positive for CD-5. He diagnosed this case as MALToma type malignant lymphoma of the lung. He mentioned that lymphoepithelial lesion was not absolute landmark for MALToma.

References

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