Adult T-Cell Leukemia with a Solitary Lung Mass

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A 49-year-old woman was admitted to the hospital with supraclavicular lymph node swelling. On a chest x-ray film, a 4 x 4-cm nodular shadow was observed in the right middle lung field. The white blood cell count was 10,100/cu mm, showing 44 percent abnormal lymphocytes with lobulated nuclei. Since HTLV-I antibodies were markedly positive, she was diagnosed as having ATL. Transbronchial tumor biopsy revealed accumulation of ATL cells. Our patient is the first case with only a large nodular accumulation of ATL cells without diffuse infiltration of the cells in the lung.

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ATL = adult T-cell leukemia; HTLV-I = human T-cell leukemia virus-I; CD = cluster determination

Adult T-cell leukemia initially reported by Takatsuki et al in 1976 has a high incidence in the southwest district in Japan. This leukemia is characterized by leukemic cells with lobulated nuclei in the blood, skin involvement, hypercalcemia and pulmonary complications. Diffuse pulmonary infiltration of leukemic cells is the most frequently observed pulmonary complication. We describe a case of ATL presenting with a nodular infiltration of leukemic cells in the lung.

Case Report

A 49-year-old woman was admitted to our hospital because of supraclavicular lymph node swelling. Physical examination revealed the right supraclavicular and the left axillary lymph nodes to be swollen to 1.5 to 3.0 cm in diameter. Auscultation of the lung revealed no rales. She showed neither skin rash nor hepatosplenomegaly. Laboratory findings were summarized as follows: white blood cell count, 10,100 cu mm, showing 41 percent abnormal lymphocytes with lobulated nuclei; hemoglobin level, 11.5 g/dl; platelet count, 19.3 x 10^9 cu mm; total serum protein level, 5.9 g/dl; glutamic oxaloacetic transaminase value, 18 IU/L; lactic dehydrogenase, 486 IU/L; and serum calcium, 4.5 mg/dl. Abnormal lymphocytes were revealed to be 8 percent of the total cells in the bone marrow aspiration fluid. Flow cytometric analysis of lymphocyte surface antigens revealed expression of CD3 by 76.7 percent; CD4 by 72.0 percent; and CD8 by 11.0 percent. The HTLV-I antibodies were positive. A chest x-ray film revealed a 4 x 4-cm solitary nodular tumor shadow in the right middle lung field (Fig 1). Computed tomography of the chest showed a mass with air bronchogram in segment 4 of the right lung. Biopsied specimens of the left axillary lymph node showed diffuse infiltration of medium-sized lymphocytes with convoluted nuclei. Pathologic diagnosis was malignant lymphoma, diffuse medium-size cell type according to the Leukemia Study Group Classifications. Although tumor cell infiltration could not be observed in the bronchial mucosa by a bronchoscopic examination, biopsied specimens of the tumor mass showed diffuse infiltration of leukemic cells in the lung parenchyma (Fig 2). After three cycles of the chemotherapy using a combination of adriamycin, cyclophosphamide, vincristine, prednisolone and etoposide, the number of leukemic cells in the peripheral blood was markedly decreased. In addition, lymph node swelling and tumor shadow on chest x-ray film disappeared. She died, however, of a pulmonary infection nine months later. Autopsy showed a diffuse infiltration of leukemic cells and infection of Aspergillus in both lungs. Liver, spleen and retroperitoneal lymph nodes also were affected with leukemic cells.

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DISCUSSION

Adult T-cell leukemia patients usually have a high frequency of respiratory complications which consist of infiltration of leukemic cells, pulmonary hemorrhage and opportunistic infections such as Pneumocystis carinii, cytomegalovirus, Aspergillus and Candida. In these complications, infiltration of leukemic cells is most frequent. Sato et al reported that leukemic cell infiltration in the lung was present in 54 percent of autopsy studies of ATL patients. Infiltration of leukemic cells in the lung is usually characterized by diffuse infiltration in both lungs and reveals diffuse infiltrating shadows on chest x-ray film. Makino et al analyzed 48 ATL patients with pulmonary complications. In their studies, only seven patients showed localized tumor-like shadows on chest x-ray film. Localized tumor-like shadows for these patients were not caused by infiltration of ATL cells but pulmonary abscess and pulmonary bleeding.

To our knowledge, our patient is the first case revealing only a nodular infiltration of ATL cells in the pulmonary parenchyma.

REFERENCES