Endobronchial Granulocytic Sarcoma Presenting as Bronchial Submucosal Tumor in Acute Myelogenous Leukaemia

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In a recent issue, it was stated that adhesion molecules on the surface of myeloid leukaemic cells have played an important role in leukostasis in the lung [1]. VCAM-1 or ICAM-1 adhesion molecules are very important in the attachment of leukaemic cells to vascular endothelial cells in the lung; however, the responsible molecule has not yet been identified. Recently, we have seen a case of acute myelogenous leukaemia (AML) with formation of endobronchial tumour in the lung.

Infiltration by leukaemic cells may occur in many organs. However, the formation of a tumour mass (granulocytic sarcoma) is uncommon [2]. In a large series of patients with leukaemia of all types [3], only 4 of 109 had involvement of the bronchial submucosa. We report here a very rare case of AML with endobronchial granulocytic sarcoma, presenting as a bronchial submucosal tumour.

A 32-year-old male was admitted to our department suffering from anaemia in June 1991. He was diagnosed as having AML(M2) from a bone marrow specimen and treated with daunorubicin, cytosine arabinoside, 6-mercaptopurine and prednisolone; he achieved complete remission. In June

1992, he suffered a relapse. The physical examination at that time revealed no lymphadenopathy and normal lung sounds. His laboratory data showed the following: haemoglobin 9.0 g/dl, platelet count $37 \times 10^9/l$, whiteblood cell count $2.5 \times 10^9/l$ with 7% neutrophils, 60% lymphocytes and 33% blast cells. A bone marrow biopsy revealed hypocellular marrow with 60% blast cells. Surface marker analysis (using a fluorescence-activated cell sorter, FACScan, Beckton-Dickinson, Calif., USA) showed that the blast cells were CD2+, CD7+, HLA-DR+, CD33+, CD10-, CD34-, CD19-, CD41-, CD42- CD11b+, VLA4+, VLA5+, CD44+, VLA2-, CD54-, and CD62-. The patient received chemotherapy with mitoxantrone, cytosine arabinoside, and etoposide, but did not respond. In October 1992 he started complaining of a productive cough and a chest radiograph and computed tomography scan revealed a right upper lobe atelectasis and lung infiltration. Bronchoscopy revealed a bronchial submucosal tumour between B2 and B3. He received 475 mg/day of carboplatin for 5

days; although he gained a temporary respite from coughing, he died of respiratory failure after 5 weeks.

A bronchial submucosal leukaemic infiltration was found on necropsy. We did not observe leukaemic thrombi in the arterioles or leukostasis in the alveolar capillaries of the lung. Although granulocytic sarcoma can be present in a wide variety of organs, bone (with lytic lesions), lymph nodes, and skin are the most common sites of involvement. It is still unknown whether location of the tumour is related to the surface marker of the blast cells. Several adhesion molecules have been reported to be associated with some types of tumour dissemination. Among the adhesion molecules, CD44 antigen is known to be bound to hyaluronate [4], and its expression plays an important role in the dissemination of non-Hodgkin's lymphoma [5]. Hyaluronate is a prominent component of the interstitial connective tissue, which is present in a large proportion of the lung tissue. In this case, the strong expression of CD44 antigen might be related to bronchial submucosal tumour formation. CD44 is thought to be one of the lymphocyte-homing molecules; however, it might also play a role in adhesion between bronchial submucosal tissue and myelogenous leukaemic cells.

References

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