This report describes a sclerosing hemangioma of the lung evaluated by MRI. The mass demonstrated hyperintense signal on T1-weighted, proton density, and T2-weighted spin-echo images. Contrast-enhanced T1-weighted images showed marked, homogeneous enhancement of the mass. The MR appearance is not specific for sclerosing hemangioma of the lung, as other benign tumors can appear similarly. However, the appearance of homogeneous enhancement within the mass on Gd-DTPA enhanced MR may suggest the diagnosis.

Index Words: Lung neoplasms, MR
Lung, nodule

Sclerosing hemangioma is a rare benign tumor of the lung and consists of four major histological components—solid, papillary, sclerotic, and hemangiomatous—in varying proportions(1-3). The CT findings of the tumor are well known, appearing as a homogeneous or low density mass on precontrast scans or as an enhancing nodule on postcontrast scans(4). We report MR findings in a patient with sclerosing hemangioma.

CASE REPORT

A 41-year-old woman presented with incidentally found nodule on screening chest radiograph. A round mass was seen in right hilar area on chest PA. Chest CT revealed a well-circumscribed, round hypodense mass with marked contrast enhancement in the lateral segment of the right middle lobe. There was no evidence of cavitation or calcification. The pulmonary arteriogram did not show feeding vessels. Magnetic resonance imaging demonstrated a 1.5 cm mass in the right hilar area. The lesion had a hyperintense signal compared with the thoracic muscle on T1-weighted[530/15/1 : repetition time/echo time/excitations](Fig. 1a) spin-echo and proton density images. On T2-weighted (2,000/80/2) spin-echo images (Fig. 1b), the lesion was markedly hyperintense and showed marked enhancement after intravenous administration of Gd-DTPA(Fig. 1c).

The patient underwent video-assisted thoracoscopic surgery and mass enucleation was performed. The mass was located at subpleural area in the lateral segment of right middle lobe. Grossly, the excised specimen was a well-circumscribed mass, measuring about 1.5 cm in diameter. On cut section, the tumor was tan, smooth, and contained focal hemorrhagic areas. Microscopically, the tumor consisted of solid (50% of total area), papillary (20% of total area), sclerotic (15% of total area) and angiomatous or hemorrhagic areas (15% of total area). The tumor cells showed a compact growth of polygonal cells with relatively abundant eosinophilic or pale cytoplasm. In the periphery of the tumor, sclerotic areas had central calcification. The neoplastic cells showed positive reaction for EMA(epithelial membrane antigen) and cytokeratin on immunohistochemical study. But, immunostain for factor VIII-related antigen was negative. The pathological diagnosis of sclerosing hemangioma of the lung was made.

DISCUSSION

Sclerosing hemangioma of the lung is a rare benign tumor of the lung, but sclerosing hemangioma is considered as a distinct disease entity by the presence of vascular proliferation with a marked tendency for sclerosis(2). Sclerosing hemangioma is noted to have some demographic characteristics, such as female
preponderance and occurrence mostly in the fifth decade(2).

Liebow and Hubbell(1) first described sclerosing hemangioma and suggested this tumor was an endothelial proliferation. Some investigators have supported an endothelial origin by electron microscopic studies(3-4). Other studies have shown evidence of a mesothelial origin(5). However, based on ultrastructural studies and recent immunohistochemical analysis, several investigators now consider this tumor to be primarily a proliferation of epithelial cells, probably type II pneumocytes(6). In spite of these studies, the exact histogenesis of sclerosing hemangioma remains uncertain.

Although we were unable to find previous reports of MR studies of sclerosing hemangioma of the lung, a pattern of homogeneous signal intensity relatively higher than that of back muscle on T1-weighted spin-echo images and hyperintensity on T2-weighted spin-echo images has been described in hepatic cavernous hemangiomas(7).

In our case, T1-weighted spin-echo image showed a relatively high signal intensity mass compared to thoracic muscles, but showed low signal intensity compared to that of subcutaneous fat. Proton and T2-weighted spin-echo images showed high signal intensity with some small low intensity foci.

But, the enhancement after intravenous administration of Gd-DTPA showed marked homogeneous enhancing mass. Im et al(8) reported CT-pathological correlation of sclerosing hemangioma of the lung that angiomatous areas enhanced greater than solid or sclerotic areas, which suggested that contrast enhancement effect is due to the presence of the angiomatous component. In our case, the tumor had about 50% solid zones, 20% papillary zones, 15% sclerotic zones and 15% angiomatous zones, respectively.

The enhancement of sclerosing hemangioma of the lung in the hilar areas on the MR imaging after Gd-DTPA injection was similar to CT findings, but the enhancement was more homogeneous than that on CT.

The enhancing sclerosing hemangioma of the lung in the hilar areas on the MR imaging after Gd-DTPA injection can not be differentiated from other benign masses such as carcinoid tumors and Castleman disease, but MR images can facilitate their distinction from pulmonary vasculature(9). Doppman et al reported MR findings of bronchial carcinoid tumors which were simi-

Fig. 1. a. Axial T1-weighted[530/15/1:TR/TE/excitations] spin-echo image shows a round mass at the level of hilum which is hyperintense compared with the thoracic muscle.
b. Axial T2-weighted (2,000/80/2) spin-echo image shows high signal intensity mass.
c. Axial T1-weighted spin-echo image(530/15/2) after the intravenous injection of Gd-DTPA demonstrates homogeneous and marked enhancement of the mass.
lar to muscle in signal intensity on T1-weighted spin-echo images, moderately bright on the T2-weighted sequences, and extremely bright on the STIR sequences.

The MR appearance is not specific for sclerosing hemangioma of the lung, as other benign tumor can appear similarly. However, the appearance of homogeneous enhancement of the mass on Gd-DTPA enhanced MR may suggest sclerosing hemangioma as one of the possible diagnosis.

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肺경화성혈관종의 자기공명영상 소견: 1예 보고

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41세 여자환자에서 폐 경화성혈관종의 자기공명영상의 소견을 문헌고찰과 함께 보고하고자 한다. 소견예코의 T1 강조영상과 양자밀도 및 T2 강조영상에서 흉곽근육 조직에 비해 고신호강도를 보였으며, Gd-DTPA 조영증강후 균일하면서 현저한 조영증강의 소견을 보였다. 폐 경화성혈관종의 자기공명영상의 소견은 다른 양성종괴와 비슷한 소견을 보이는 비특이적인 소견이다. 그러나 Gd-DTPA 조영증강후 균일하면서 현저한 조영증강의 소견은 아마도 진단적인 가치가 있을 것으로 사료된다.
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