Primary Chondrosarcoma of the Lung Recognized as a Long-standing Solitary Nodule Prior to Resection

As the use of computed tomography (CT) increases, incidental lung nodules have become a clinical issue that is being addressed more than before. We detected a solitary lung nodule which was smooth-margined, round-shaped, 11 mm in size. Follow-up for 18 months after initial detection by chest CT did not show any interval change. To make a definitive diagnosis, video-assisted thoracic surgery was performed and the lesion was diagnosed as myxoid chondrosarcoma. In the 6-year postoperative follow-up, annual chest CT and bone scintigram did not reveal any abnormality, which excludes the possibility of a latent primary site other than the lung. Therefore, we considered the present case being of pulmonary origin. Accordingly, even though the lesion appeared unremarkable, surgical resection of solitary lung nodule should not be discouraged. (Jpn J Thorac Cardiovasc Surg 2005; 53: 106–108)

Key words: chondrosarcoma, solitary lung nodule, video-assisted thoracic surgery

Hideo Ichimura, MD, Katsuyuki Endo, MD, Shigemi Ishikawa, MD,* Tatsuo Yamamoto, MD,* Masataka Onizuka, MD,* and Yuzuru Sakakibara, MD.*

Recently, the increased use of chest computed tomography (CT) has led to an increase in the findings of incidental lung nodules. How to handle these lesions is a major issue for clinicians. We present herein a case with a long-standing solitary lung nodule, which did not show any findings indicating malignancy on the follow-up CT for 18 months. However, video-assisted thoracic surgery (VATS) finally revealed that the lesion was myxoid chondrosarcoma, hence malignant. Since chondrosarcoma mostly presents as lung metastasis and it is reported that a lung lesion is seen prior to an appearance of the primary extrapulmonary lesion, we followed up the case postoperatively for 6 years, which was unremarkable. Therefore, we considered the case to be of pulmonary origin.

Case

A 35-year-old Japanese man who was a non-smoker underwent a right lobectomy of the thyroid gland for papillary adenocarcinoma of the thyroid in November 1991. Clinical examination after the operation did not demonstrate any abnormality. Chest CT scan was taken the first time four and a half years after the surgery in June 1996 and showed a solitary, round shaped, well-defined nodular lesion with smooth margin in the left lower lobe, 12 mm in size (Fig. 1), while the chest radiograph was unremarkable. The lesion was followed by chest CT for 18 months that showed neither an enlargement of the lesion nor appearance of any new lesions.

We performed video-assisted thoracoscopic partial resection of the left lower lobe to remove the tumor on January 14th, 1998. The postoperative course was uneventful.

The surgical specimen showed a round, well circumscribed, gelatinous, grayish white tumor, and measured 11×10×8 mm in size. Histopathologically, the tumor was composed of chondromatous component intermingled with myxomatous component. With elastica van Gieson's stain, tumor permeation to a
Fig. 1. Chest CT revealed a round shaped, well-margined nodular lesion in the subpleural region of the left lower lobe.

pulmonary artery was found (Fig. 2A). Some cells had multiple nuclei irregular in shape (Fig. 2B). Within the tumor, neither benign nor malignant neoplastic epithelial components were observed. Moreover, other sarcomatous components were absent. On the basis of histopathological findings, the tumor was diagnosed as myxoid chondrosarcoma.

The patient had no history of skeletal or soft tissue tumor. Bone scintigram with $^{99m}$Tc did not show any abnormal accumulation, hence the tumor was considered to be of pulmonary origin. The patient has been checked up annually by physical examination, chest CT and bone scintigraphy and he is alive and well 6 years after surgery without any indication of a relapse and without an appearance of an extrapulmonary lesion.

Discussion

The following two aspects make the present case unique. The first is the discrepancy between the clinical course and pathological findings. Namely, the lesion did not enlarge for 18 months and tumor resection after 18 months follow-up was likely to have cured this patient, while pathologically the lesion showed vessel permeation (Fig. 2A), which implies a more aggressive feature. This discrepancy would raise the possibility that the tumor is metastatic. However, even after 6-years postoperative workup, no extrapulmonary lesions have been apparent. Therefore, we consider that our case is of pulmonary origin, while we will further follow up the case. Moreover, progress of the present case indicates that surgical measures should not be discouraged, even if after sufficient follow-up the lesion was unremarkable.

The second is the pathological rareness, namely primary chondrosarcoma of the lung is extremely rare. We could find another 8 cases in the English and Japanese literature (Table I), in addition to 17 cases summarized by Hayashi et al. in 1993 including their case. We collected only the cases with intrathoracic lesions excluding tracheal and chest wall lesions. Six of nine cases including our case are asymptomatic. Only one case died with brain metastasis and 7 cases are alive without any tumor. There are no chest radiographically occult cases reported, our case is the first to be detected by chest CT. Regarding the surgical procedure, while one case who underwent enucleation had local recurrence, further accumulation of detailed case reports, which are sufficiently followed up, would be required to conclude about the optimal surgical mode for chondrosarcoma of the lung.

Conclusion

We present the case of primary chondrosarcoma of the lung, which was detected as long-standing solitary nodule and was cured by VATS. Furthermore, we