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Fatal contralateral pneumothorax in a patient with pneumonectomy

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To the Editor,

A man in his 40s was transported to our hospital by ambulance with cardiopulmonary arrest. He was found unconscious at home at midnight. The patient had a monthly visit, but had no cough, sputum, or shortness of breath at the last visit. The patient was a never-smoker and had undergone a left pneumonectomy due to lung adenocarcinoma 6 years ago. Lung adenocarcinoma was stage IIIA pathologically, so the patient received postoperative chemotherapy. Since then, the patient has undergone chest CT scans several times, but no recurrence of lung adenocarcinoma was found. At this time, the patient was in cardiopulmonary arrest. The patient underwent endotracheal intubation and resuscitation. However, the patient did not respond and was confirmed dead. Autopsy was not permitted. Chest CT performed after death revealed a complete collapse of the right lung but no bullae was found (Figure 1-A). There was no pleural fluid or mediastinal lymphadenopathy. Since there was no recurrence of lung adenocarcinoma, it was evaluated that there was no association between pneumothorax and lung adenocarcinoma. Chest CT at 3 years and 4 years after resection of lung cancer showed a compensatory increase in the right lung over time (Figure 1-B and C), but no bullae was found in the right lung during the clinical course.

A frequent cause of pneumothorax is the rupture of bullae (1). It is also known that secondary pneumothorax occurs when there are underlying diseases in the lung, such as lung cancer and pulmonary

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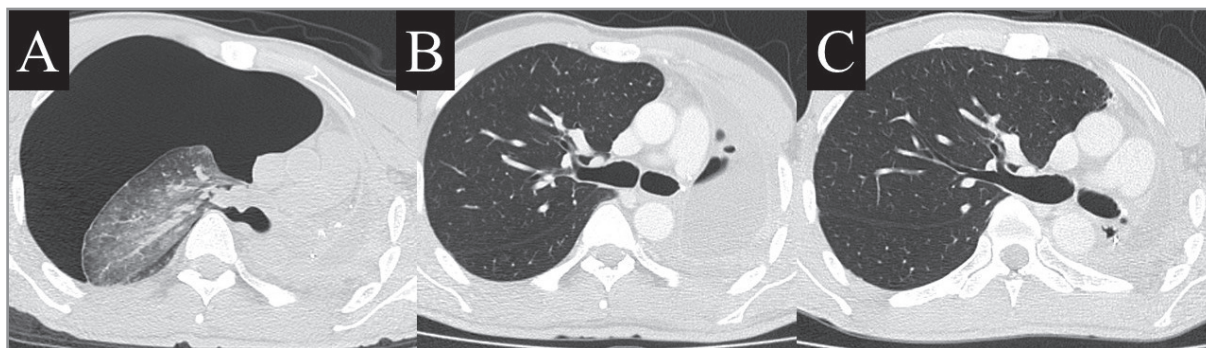


Figure 1. Chest CT performed after death revealed a complete collapse of the right lung but no bullae was found **A**. Chest CT taken at 3 years and 4 years after resection of lung cancer showed a compensatory increase in the right lung over time (**B** and **C**).

fibrosis (2). The adequacy of surgical resection of contralateral lung bullae in patients with pneumonectomy, especially those with uncontrolled lung cancer, is controversial (3,4). It is also unclear whether tension in the lungs due to compensatory enlargement is associated with pneumothorax. A review of CT images in this patient did not reveal the presence of bullae or recurrence of lung adenocarcinoma. However, over time the right lung increased compensatory and the mediastinum was deviated to the left.

This patient had a fatal pneumothorax 6 years after contralateral pneumonectomy. Pneumothorax in these patients may develop even several years after pneumonectomy without bullae or recurrence of lung cancer. It is possible that compensatory enlargement of the lung may be involved in the development of pneumothorax. In patients with pneumonectomy, although very rare, chest physicians and thoracic surgeon should recognize not only recurrence of lung cancer

but also risk of developing contralateral fatal pneumothorax.

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