A 48-year-old patient with bronchial cancer of the right upper pulmonary lobe confirmed by bronchoscopy and biopsy underwent extended pneumonectomy with partial pericardial resection and intrapericardial severing of the pulmonary vessels. On the third postoperative day, surgical revision was required for extensive thoracic bleeding. A sudden deterioration of the patient’s condition occurred a few hours after the second intervention. Clinically, there was a dramatic drop in arterial blood pressure along with tachycardia. The patient developed a superior vena cava syndrome with an increase in central venous pressure associated with cyanosis of the upper part of the body. Chest X-ray demonstrated displacement of the heart into the pneumonectomy cavity combined with a rightward rotation of the heart axis (Figure 2A). On the way to the operating room for emergency rethoracotomy, a contrast-enhanced multidetector computed tomography (CT) was performed, which confirmed displacement of the heart (Figure 1). The heart was dislocated from the residual pericardial sac and rotated rightwards by approximately 150° about the axis of the superior and inferior vena cava, resulting in nearly complete occlusion of venous reflux into the right atrium (Figure 2B). The patient died despite immediate surgical repositioning of the heart.

Displacement of the heart from the pericardium is a rare but dramatic complication occurring after a congenital, traumatic, or iatrogenic pericardial defect. This complication is associated with a mortality rate of 40% to 60%. Herniation of the heart, often combined with rotation about the axis, most commonly occurs after extended pneumonectomy with partial pericardial resection or intrapericardial severing of pulmonary vessels. It is triggered by suction on the chest drain, hyperexpansion of the remaining lung, and repositioning of the patient. Once the diagnosis has been made, immediate rethoracotomy is required for repositioning of the heart and repair of the pericardial defect.
Figure 1. Multislice CT showing displacement of the heart. A, Displacement of the heart into the pneumonectomy cavity and axial rotation. B, Torsion of the inferior vena cava with partial occlusion (arrow). C, View of the empty pericardium (arrow).

Figure 2. Postoperative displacement of the heart toward the right. A, Demonstration by radiography. B, Three-dimensional volume-rendered reconstruction of the multislice CT source data.
Postoperative Dislocation of the Heart After Pneumonectomy
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