the lymphadenectomy sample (ypT2a N2 M0, stage IIIA non-small cell lung carcinoma, squamous cell carcinoma). All margins were uninvolved by tumor (R0 resection). He subsequently completed adjuvant chemotherapy and radiotherapy.

Comment
Secondary spontaneous pneumothorax has been previously described as an initial presentation of lung cancer [1, 2] and is, unfortunately, associated with poor survival [3]. Current treatment options for persistent air leaks often involve prolonged tube thoracostomy drainage, pleurodesis, and surgical repair; however, these may preclude or complicate subsequent potentially curative surgical resection [4, 5] as well as significantly delay initiation of oncologic care. We present the first reported use of endobronchial valves in the setting of pneumothorax related to primary lung carcinoma used as a means to avoid pleurodesis and prolonged hospitalization.

Endobronchial valves are currently approved by the United States Food and Drug Administration as a humanitarian use device in the setting of persistent air leak after pulmonary resection. In addition, numerous case reports exist for their use in etiologies of persistent air leak, including bronchopleural fistula causing empyema [6], spontaneous pneumothorax [7], and as a bridge for lung transplantation [8].

Our multidisciplinary thoracic oncology team pursued endobronchial valve placement in this patient with secondary spontaneous pneumothorax from stage IIIA non-small cell lung carcinoma and a prolonged air leak. This strategy allowed for a minimally invasive method to expedite resolution of his air leak, permit earlier hospital discharge, and preserve the integrity of the pleural space in anticipation of providing a safer surgical resection after neoadjuvant therapy.

References

Right Lower Lobectomy With Middle Lobe Preservation After Right Upper Lobectomy in Lung Cancer of the Right Lower Lobe
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A 73-year-old woman who underwent right upper lobectomy for tuberculosis 40 years earlier was diagnosed with adenocarcinoma, clinical stage IIA (T2bN0M0), in the right lower lobe of her lung. A lower lobectomy with preservation of the middle lobe was performed. The patient had an uneventful recovery. She is alive without signs of recurrence or requirement for additional oxygen support 6 years after the operation.

Accepted for publication Jan 28, 2013.
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Reports of right upper and lower lobectomy with preservation of the middle lobe are rare because of the risk of middle lobe torsion or emphysematous change. We describe a good outcome in a case of...
lobectomy with preservation of the middle lobe for lung adenocarcinoma in the right lower lobe after initial right upper lobectomy.

A 73-year-old woman who underwent right upper lobectomy for lung tuberculosis 40 years earlier was referred to our hospital for an abnormal shadow on chest imaging.

Fig 1. (A) Roentgenogram shows an abnormal shadow in right lower lobe. (B) Chest computed tomographic scan shows solid mass in right lower lobe with no significant mediastinal lymphadenopathy.

Fig 2. Preserved forced vital capacity (FVC), forced expiratory volume in 1 second (FEV₁), and percent vital capacity (VC) after right upper and lower lobectomy were 1770 mL, 1390 mL, and 89%, respectively. They were more than quantitative predictions of the preoperative respiratory function. Perfusion scintigraphy of preserved middle lobe showed 12.1% of residual respiratory function.
roentgenography (Fig 1A). Contrast media–enhanced computed tomography revealed an 80–72-mm mass in the right lower lobe with no significant mediastinal lymphadenopathy (Fig 1B). Adenocarcinoma was diagnosed by transbronchial lung biopsy results. The clinical stage was determined as stage IIA T2bN0M0.

Preoperative forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV1) were 2620 mL and 1980 mL, respectively. We evaluated predicted respiratory function after completion pneumonectomy by using perfusion scintigraphy. Predicted FVC and FEV1 after completion pneumonectomy were 1640 mL and 950 mL, respectively. We planned the operation (pneumonectomy or lower lobectomy) based on intraoperative findings. Intraoperatively, adhesion of the lower lobe to the chest wall was easily detached. The compensatory hypertrophy of the middle lobe was seen, and it was also adherent to the chest wall and served to prevent middle lobe torsion. Therefore, lower lobectomy with preservation of the middle lobe was performed. There were no intraoperative problems, and the patient had an uneventful recovery. The final staging of the tumor was stage IIA T2bN0M0. Postoperative FVC and FEV1 were 1770 mL and 1390 mL, respectively. Perfusion scintigraphy showed 12.1% for the preserved middle lobe (Fig 2) and no ventilation-perfusion mismatch. Respiratory function after right upper and lower lobectomies was preserved more than we predicted. Chest roentgenography and chest computed tomographic imaging after the preservation of the middle lobe showed adequate volume without emphysematous change (Fig 3).

The patient is alive uneventfully without signs of recurrence or requirement for additional oxygen support 6 years after the operation.

Comment

When an operable lung cancer in the right lower lobe is identified in a patient who has undergone previous right upper lobectomy, the operative method consists of 2 options: pneumonectomy or lobectomy with middle lobe preservation. Pneumonectomy is associated with a number of potential complications that involve the respiratory and cardiovascular systems. Gugginoa and colleagues [1] described postoperative respiratory insufficiency after completion pneumonectomy in 26.3% of patients with lung cancer and reported operative mortality rates of 0% to 17.6% for cancer from several institutions. On the other hand, preservation of the middle lobe in the absence of the upper and lower lobes may produce torsion [2]. Also, emphysematous changes in the residual middle lobe may be induced because of volume mismatch in the middle lobe and thoracic cavity during follow-up. However, preserving the middle lobe contributes to postoperative lung function [3, 4]. Therefore, the treatment of choice depends on the intraoperative findings. In our patient, the middle lobe adhesions to the chest wall were not removed to prevent torsion. Furthermore, the postoperative shift of the mediastinum to the right occurred because fortunately there was sufficient elasticity of the chest wall and mobility within the mediastinum to allow for the shift to the right after right upper lobectomy for tuberculosis. This eliminated a persistent pleural space and sequelae such as empyema. We believe that this led to the good outcome of our case. In conclusion, right lower lobectomy after right upper lobectomy with preservation of the middle lobe is possible. It is worth preserving the middle lobe.

References

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Unilateral absence of a proximal pulmonary artery (UAPA) is rare and occurs in an isolated form or in the presence of other cardiovascular anomalies. There is a paucity of literature describing surgical correction of this anomaly. Most commonly, a primary anastomosis between the main and proximal right pulmonary arteries has been described. However, in cases of long-gap discontinuity, this can be difficult and may result in excess tension on the anastomosis, predisposing to decreased patency. We present a novel technique by which discontinuity in the right pulmonary artery (RPA) is surgically corrected in a semiautologous fashion using a main pulmonary artery (MPA) flap.


Comment

Congenital discontinuity of the RPA results from early involution of the sixth proximal aortic arch [2]. Consequently, the RPA is supplied by a ductal connection to the innominate artery but also receives contributions from bronchial arteries and systemic collaterals [2, 4]. Right-sided UAPA is more common, whereas left-sided UAPA is frequently associated with life-threatening cardiovascular malformations [1, 2]. By contrast, right-sided UAPA may remain asymptomatic until adulthood, with many diagnoses made from incidental findings. It is estimated that the prevalence of UAPA is 1 in 200,000, with only 12% being diagnosed in infancy [1].

Clinical features of right-sided UAPA are variable and may include pulmonary hypertension, recurrent pulmonary infections, congestive heart failure, and hemoptysis. Surgical intervention aims to restore physiologic circulation. Although early intervention has been advocated because of a concern for regression and hypoplasia of