Large Bronchopleural Fistula After Surgical Resection: Secret to Success

Isabelle Delanote, MD,[a] Werner Budts, MD, PhD,[b] Paul De Leyn, MD, PhD,[c] Christophe Dooms, MD, PhD[a,*]

[a]*Department of Respiratory Diseases, University Hospitals, Katholieke Universiteit, Leuven, 3000 Leuven, Belgium*
[b]*Department of Cardiology, University Hospital, Katholieke Universiteit, Leuven, 3000 Leuven, Belgium*
[c]*Department of Thoracic Surgery, University Hospitals, Katholieke Universiteit, Leuven, 3000 Leuven, Belgium*

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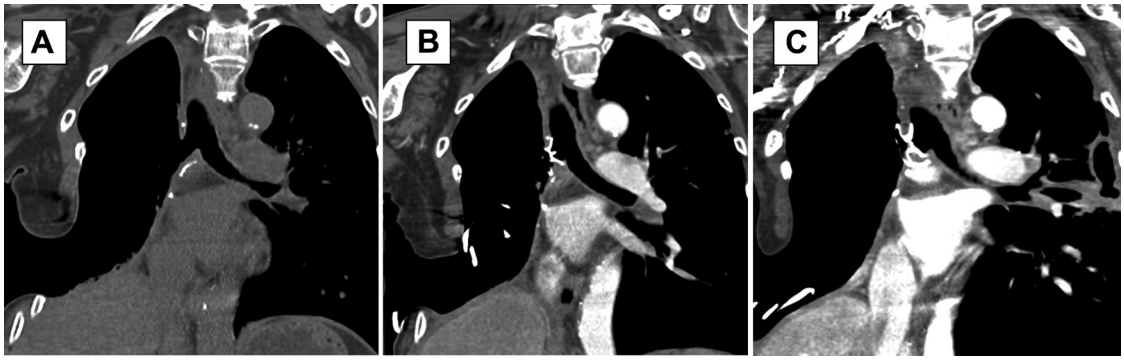

Figure 1. Chest computed tomography showing large bronchopleural fistula and open window thoracostomy (*A*), Amplatzer septal occluder shortly after its placement (St. Jude Medical, Minneapolis, MN) (*B*), and Amplatzer septal occluder at 16-month follow-up (*C*).

A 55-year-old man was treated with induction chemoradiotherapy followed by right-sided pneumonectomy with lymphadenectomy for a centrally located squamous cell carcinoma of the right upper lobe that was staged ypT3N1. His postoperative course was complicated by an empyema with methicillin-resistant *Staphylococcus aureus* requiring intravenous antibiotics and an open window thoracostomy on day 15. In the weeks thereafter, dyspnea developed, the patient became unable to speak more than five words in one breath, and a large bronchopleural fistula was discovered at the pneumonectomy stump (Figs. 1*A* and 2*A*).

A 14-mm Amplatzer septal occluder (St. Jude Medical, Minneapolis, MN), which is commonly used to close an atrial septal defect in the heart, was considered the best solution for endoscopic closure of the fistula (Figs. 1*B* and 2*B*). This device is made from a braided metal alloy of nickel and titanium (Nitinol, Nitinol Devices and Components, Inc., Fremont, CA) and has shape memory characteristics. Through a rigid bronchoscope, a sheath containing the Amplatzer occluder was introduced. Once the sheath had passed the opening of the fistula, the distal disc was released and pulled against the defect. The second disc was placed on the proximal side of the defect. Neither epithelialization of the device at the pleural side as seen from open thoracostomy nor endobronchial complications related to the Amplatzer occluder occurred during the 16-month follow-up period (Figs. 1*C* and 2*C*).

*Corresponding author.

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Address for correspondence: Christophe Dooms, MD, PhD, Department of Respiratory Diseases, University Hospitals, Katholieke Universiteit, Leuven, B-3000 Leuven, Belgium. E-mail: christophe.dooms@uzleuven.be

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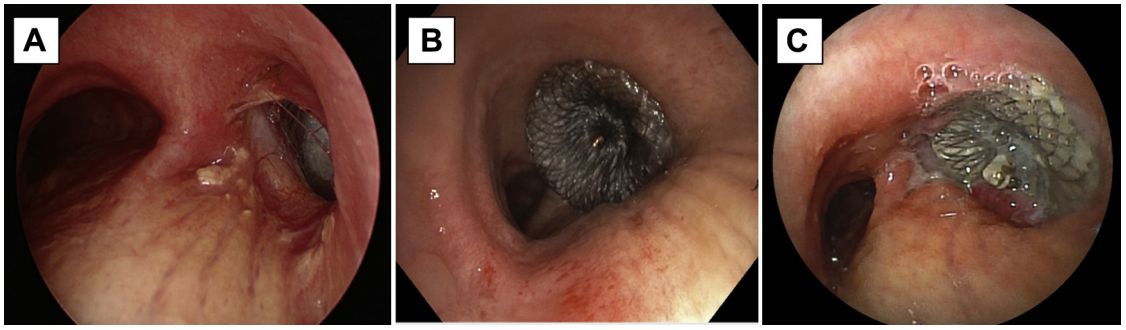

Figure 2. Videobronchoscopy showing large bronchopleural fistula at the right bronchial stump (*A*), Amplatzer septal occluder shortly after its placement (St. Jude Medical, MN, USA) (*B*), and Amplatzer septal occluder with minimal granulation tissue reaction at 16-month follow-up (*C*).

Bronchopleural fistulas after pneumonectomy are associated with high morbidity and mortality.[1] Surgical and endobronchial techniques for treatment have apparently been challenging, with variable success. The extravascular use of an Amplatzer septal occluder has proved safe and feasible, with an immediate success rate greater than 90%.[2,3] The device is suitable for patients with a large fistula and a tract communicating between the airway system and pleural cavity, as seen on the coronal computed tomography scan in Figure 1*A*.

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