Keep it short and sweet

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Scott B. Johnson, MD (left), and Ian A. Makey, MD (right)

Central Message

Keep the donor bronchi short to minimize ischemia.

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There are numerous risk factors for bronchial dehiscence after lung transplantation, including primary graft dysfunction, acute rejection, infection, technical error, and prolonged ventilation. Ischemia probably contributes to some degree in most—if not all—cases. In 1987, Cooper and colleagues¹ reported on the first successful lung transplants, in which they wrapped the bronchial anastomosis with omentum. One prospective, randomized trial, however, found no benefit from wrapping the bronchial anastomosis with vascularized tissue.² Despite evidence showing little to no benefit, buttressing of many types of anastomoses with vascularized tissue is still commonly performed. Wrapping with a vascularized flap may help to contain air leaks and prevent fistula formation, but it is unlikely to reduce ischemia. One factor most certainly related to ischemia is donor bronchus length—the longer the length, the more likely the presence of ischemia.

The history of lung transplantation illustrates the progressive reduction in length of the donor bronchus. En bloc double-lung transplants are no longer preferred because of the frequency of tracheal anastomotic complications.³ In the early experience with single-lung transplants, dehiscence of the bronchial anastomosis was the cause of most deaths. In the 1990s, the rate of airway anastomotic complications was 10% to 20%.⁴ More recently, 2 single-center studies demonstrated a drop in airway anastomotic complications after shortening the donor bronchus to 1 bronchial ring or less, as opposed to the more traditional 1 to 2 rings.^{5,6} Although one can never be sure of the exact cause of bronchial dehiscence, reducing ischemia certainly has a physiologic rationale. Surgical technique also undoubtedly plays a role, although the “best” type of bronchial anastomosis remains unknown. Bronchial size mismatch might require telescoping, even though end-to-end is preferred.

Krähenbühl and colleagues⁷ are to be commended for a nice “save” from a devastating complication after lung transplantation. In their revisional surgery, Krähenbühl and colleagues⁷ necessarily shortened their donor bronchi by at least 2 mm, which probably aided in healing. The question we will continue to ask is this: How do we prevent this complication from happening in the first place? One answer is clear. Keep it short and sweet.

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