Optimal venous drainage for the pulmonary allograft: The search goes on

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Since the original description of successful human lung transplantation by the Toronto group in 1983,¹ multiple revisions to the surgical technique have been described. The cumbersome method of telescoping the bronchial anastomosis and wrapping it with omentum has been replaced by a single-layer anastomosis of running or interrupted polyester, poly (p-dioxanone) (PDS, Ethicon, Somerville, NJ) suture at the Washington University in St Louis and most other institutions.^{2,3} However, the venous drainage of the lung graft continues to remain an area of controversy and technical difficulty. Although the classically described method of atrial to atrial anastomosis, with control of the recipient atrium by a proximally placed clamp, is still the preferred method, technical issues prevent this option at times. Trouble can occur as the result of an extremely posterior inferior vein or a common recipient or donor venous trunk, a situation described by Chen-Yoshikawa and colleagues⁴ in this issue of the *Journal*.

Several techniques have been described to facilitate the difficult venous anastomosis. Arango Tomás and colleagues⁵ recently described a case series of complete venous drainage solely through the superior pulmonary vein. Although this technique was feasible in only select patients with a dilated superior vein, it allows avoidance of extensive cardiac manipulation for atrial exposure. Despite technical success and adequate drainage, high mortality was evident in this series, most likely due to the illness of the patients requiring a single venous anastomosis.⁵ Casula and colleagues⁶ describe a technique of augmenting the donor venous cuff with autologous pericardium to facilitate drainage. Although described as a technique to ease the anastomosis of a short donor venous cuff, it also can easily be repurposed to deal with anatomic difficulties in the recipient. Other techniques for difficult venous exposure and avoidance of cardiopulmonary bypass, such as retraction of the beating heart via the Medtronic Urchin (Medtronic Inc, Minneapolis, Minn) heart positioner device, have been described.⁷

In this issue of the *Journal*, the lung transplant group from Kyoto University describes a successful technique of

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Central Message

When technical difficulties associated with drainage of the lung allograft through the traditional atrial to atrial anastomosis arise, alternative drainage options are feasible.

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separate venous anastomoses of the inferior pulmonary vein to the common venous trunk and superior pulmonary vein to the left atrial appendage. Their case report adds to the series of similar techniques described in 2 reports by Massad and colleagues⁸ and Khasati and colleagues⁹ for complete left allograft drainage through the left atrial appendage in a donor with a single pulmonary vein. Because pulmonary venous anastomotic problems significantly contribute to patient morbidity and mortality,¹⁰ the knowledge that several variations in the technique can be safely and successfully used provides a level of reassurance to the lung transplant surgeon.

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