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Commentary: Time heals all wounds

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Membranous airway injury can be a treacherous clinical finding, never more so than during lung transplantation. In particular, access to the posterior membrane is all but impossible from the anterior approach commonly used during the procedure, and wound healing is compromised by the immunosuppression regimen used in the post-transplantation patient. In the February 2021 issue of *JTCVS Techniques*, Hwalek and colleagues¹ describe their experience treating a tracheal injury in a patient following lung transplantation with the aid of extracorporeal membrane oxygenation (ECMO). The authors successfully managed an iatrogenic 3-cm injury of the membranous trachea discovered on immediate postoperative bronchoscopy after bilateral lung transplantation with no evidence of esophageal injury, ongoing air leak, or massive pneumomediastinum. The subsequent development of primary graft dysfunction presented the clinical conundrum of reintubation to support oxygenation, with the risk of positive-pressure ventilation and potential propagation of the injury. Venovenous ECMO via the right internal jugular vein provided a solution to avoid positive-pressure ventilation while subsequently allowing for ambulation and the avoidance of 2 weeks of bedrest and its associated physical deconditioning. After 2 weeks, bronchoscopy demonstrated almost-complete healing of the tracheal injury, and the patient was successfully weaned and decannulated from ECMO.

Management options for membranous tracheal injuries range from conservative to operative intervention. Nonoperative management can be successful in highly selected patients—typically patients with spontaneous respiration, or intubation where the cuff can be placed distal to the

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CENTRAL MESSAGE

Membranous tracheobronchial injury after lung transplantation may heal with nonoperative management.

injury, and extubation is felt to be imminent.^{2,3} Surgical intervention is warranted in tears with concomitant injury to other structures (such as the esophagus), inability to ventilate, or complications such as mediastinitis. More recently, bronchoscopic intervention with silicone Y stents⁴ or covered expandable stents have emerged as less-traumatic alternatives to surgical repair.⁵

The authors should be applauded for their successful management of this challenging complication. By using a graded treatment algorithm that appropriately minimized positive-pressure intervention and using a cannulation strategy that allowed for ambulation, their group has demonstrated that even in the immunosuppressed patient, noninvasive intervention is a treatment option that can be considered. In a complex arena like lung transplantation, such reports of rare complications and successful treatment strategies are valuable experiences to note for those providing multidisciplinary care for the post-transplant patient.

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