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Commentary: Keepin' it real—the future is now

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Dunne and colleagues¹ discuss the presentation and management of a patient with progressive symptomatic Mounier-Kuhn Syndrome. The patient's symptoms were attributed to large airway disease, including severe tracheo-bronchomalacia (TBM) that was treated with open tracheo-bronchoplasty (TBP). Follow-up revealed progression of parenchymal disease with clinical and radiographic correction of TBM that was managed with bilateral lung transplantation 51 months later. Operative findings at the time of transplant revealed tracheal mesh erosion. Both previous TBP and mesh erosion present unique challenges for future lung transplantation. However, the authors chose to proceed because “lung transplantation remains the only durable long-term therapy for individuals with end-stage lung disease.”² Four thousand four hundred fifty-two lung transplants were performed in 2017³ with a 5-year survival rate of 55%.⁴

TBM is underdiagnosed and symptoms attributed to concomitant conditions may limit the search for and reporting of TBM: “It appears that either TBM or excessive dynamic airway collapse is present in approximately 4% to 23% of patients undergoing bronchoscopy for various indications.”⁵ Additional studies “in the general population suggest that the overall incidence of TBM is 5% to 10%.”⁶ In a retrospective review of patients admitted to a community hospital with a diagnosis of asthma or chronic obstructive pulmonary disease, who underwent computed



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CENTRAL MESSAGE

As TBP is more widely adopted, re-operative scenarios will be reported and result in experiences leading to modifications of TBP techniques, mesh, and airway reconstruction after mesh implantation.

tomography scan of the chest, Patel and colleagues⁷ noted that 8.8% of these patients met the criteria for a radiologic diagnosis of TBM, which was reported by radiology in only 1.8%. When patients present with central airway collapse, TBM, and lower airway disease “it can be very problematic and challenging to sort out which disease is driving the patient's symptoms.”⁸ Our institutional experience also notes that “TBM is a vastly underdiagnosed condition that has remained virtually untreated for decades and a robotic assisted approach to TBP can be performed with low morbidity and mortality.”⁹

The authors present a difficult clinical challenge: Mesh at the bronchial anastomosis and tracheal mesh erosion with the concern of a continuous source of infection. This case raises several important issues regarding future clinical status and its consideration at the time of initial surgical intervention. Patients with TBM may be at risk for not only lung failure but also lung and esophageal malignancies. Surgeons must weigh these risks against the severity of the TBM. Heavy smokers with lung nodules, previous lung cancer, or worsening pulmonary function tests should be carefully assessed before proceeding with TBP. However, as Dunne and colleagues demonstrate,¹ complex thoracic procedures are still achievable afterward.

Optimal management should be directed toward treating the current, symptomatic TBM along with a multidisciplinary assessment of other, future complicating conditions.

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Undoubtedly, as TBP receives wider adoption, additional complex re-operative scenarios will be reported. This collective experience will guide us in future modifications of TBP techniques, mesh material, and bronchial/tracheal reconstruction after mesh implantation. Despite our best efforts to avoid these challenges, as Yogi Berra once said, “It’s tough to make predictions, especially about the future.”

References

1. Dunne B, Lemaître P, de Perrot M, Chaparro C, Keshavjee S. Tracheobronchoplasty followed by bilateral lung transplantation for Mounier-Kuhn Syndrome. *J Thorac Cardiovasc Surg Tech.* 2020;3:400-2.
2. Balsara KB, Krupnick AS, Bell JM, Khiabani A, Scavuzzo M, Hachem R, et al. A single-center experience of 1500 lung transplant patients. *J Thorac Cardiovasc Surg.* 2018;156:894-905.
3. Chambers DC, Cherikh WS, Harhay MO, Hayes D Jr, Hsich E, Khush KK, et al. The international thoracic organ transplant registry of the International Society for Heart and Lung Transplantation: thirty-sixth adult lung and heart–lung transplantation report—2019; focus theme: donor and recipient size match. *J Heart Lung Transplant.* 2019;38:1042-55.
4. Chan EG, Bianco V III, Richards T, Hayanga JW, Morrell M, Shigemura N, et al. The ripple effect of a complication in lung transplantation: evidence for increased long-term survival risk. *J Thorac Cardiovasc Surg.* 2016;151:1171-80.
5. Murgu SD, Colt HG. Tracheobronchomalacia and excessive dynamic airway collapse. *Respirology.* 2006;11:388-406.
6. Dal Negro RW, Tognella S, Guerriero M, Micheletto C. Prevalence of tracheobronchomalacia and excessive dynamic airway collapse in bronchial asthma of different severity. *Multidiscip Respir Med.* 2013;8:32.
7. Patel R, Irugulapati L, Patel V, Esan A, Lapidus C, Weingarten J, et al. The prevalence of tracheobronchomalacia in patients with asthma or chronic obstructive pulmonary disease. *Internet J Pulmon Med.* 2009;12(1).
8. Wright CD, Mathisen DJ. Tracheobronchoplasty for tracheomalacia. *Ann Cardiothorac Surg.* 2018;7:261-5.
9. Lazzaro RS, Patton B, Lee P, Karp J, Mihelis E, Vatsia S, et al. First series of minimally invasive, robot-assisted tracheobronchoplasty with mesh for severe tracheobronchomalacia. *J Thorac Cardiovasc Surg.* 2019; 157:791-800.