resection of SGS with buccal mucosal grafts, termed the Maddern procedure by one of its proponents, is an example of advanced endoscopic management.³ A report describing patient selection and early outcomes with this specific technique is anticipated. In the meantime, the North American Airway Collaborative group recently published a multi-institution cohort study suggesting that endoscopic resection is more durable than dilation alone, with the advantage of less morbidity and effect on the voice compared with cricotracheal resection.⁴ Otolaryngologists have performed endoscopic posterior cricoid splits; it is natural to wonder whether they will attempt a completely endoscopic approach to GSGS.⁵ Careful, objective, and fair comparisons of patients undergoing endoscopic and open surgery for SGS will guide patients and surgeons alike.

Airway surgery continues to evolve. Thoracic surgeons and their many partners in otolaryngology, anesthesiology,

and speech therapy continue to refine techniques and collaborate in innovative ways. Their scholarship articulates the artistry of tracheal surgery.

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Commentary: Size matters, at least when it pertains to the trachea and ventilation

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Over the past year, the novel Coronavirus Disease 2019 pandemic has hospitalized people worldwide because of the severe acute respiratory syndrome and interstitial pneumonia that it causes. Intensive care unit (ICU) admissions were found to be as high as 32% in one meta-analysis.¹ The mortality rate of ICU admissions was not 100%; anecdotally, many patients who did leave the ICU were

CENTRAL MESSAGE

Sound patient selection and surgical technique combined with grafting as an adjunct to reconstruction for tracheal stenosis are powerful tools for today's surgeons, and tomorrow's patients will benefit starting today.

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The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Nov 20, 2020; revisions received Nov 20, 2020; accepted for publication Nov 23, 2020; available ahead of print Dec 3, 2020.

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J Thorac Cardiovasc Surg 2022;163:324-5

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2020.11.127>

intubated for prolonged periods of time or had tracheostomies placed. Benign tracheal stenosis has long been described as a complication of prolonged intubation or tracheostomy, and it is no different in the patients who were intubated for extended periods because of Coronavirus Disease 2019.

Because of the nature of the injury, the stenosis can be located more proximally in the trachea and even be glottic or subglottic.² The assessment and surgical treatment of stenosis in the glottic and subglottic area are difficult and complex. The complexity of this operation comes from the relationship of the recurrent laryngeal nerve to the larynx and the structure of the larynx itself. They provide essential human functions: breathing, voice, and swallowing. The subsequent treatment, laryngotracheal resection and reconstruction, is rare, but because of the many intubated patients throughout the pandemic, thoracic surgeons will likely be confronted with this problem more often than before. The article by Schweiger and colleagues³ comes at an opportune time because of this pandemic and the associated complications. The power of this article comes in its educational value for clinicians and surgeons, as they may soon be presented with this complex problem, and excellent functional outcomes are attainable.

Schweiger and colleagues³ provide a figure and table with 2 key pieces of information for surgeons. First, Figure 1 in their article clearly depicts which patients are candidates for this procedure on the basis of anatomic location. The endoscopic documentation confirms eligibility. This piece of information is the first point in the decision tree: to where does this patient need to be referred for a laryngotracheal resection and reconstruction? It may take a specialty center to obtain the outcomes that were obtained in this cohort. It requires technical excellence on the part of the surgeon, communication among the operating room team throughout the surgery, and appropriate postoperative care to rescue patients from complications if they happen, which was uncommon in Schweiger and colleagues' cohort.³ This procedure cannot be performed at just any hospital, and it is important for us to recognize which patients may need this higher level of care.

For the surgeon preparing these patients for resection and reconstruction, Schweiger and colleagues³ provided key messages and technical pearls. They discuss 4 major goals

of the operation to protect the 3 major functions of the larynx mentioned: (1) removal of all cicatricial tissue in the subglottic area; (2) interposition of a rib cartilage graft posteriorly and tracheal wedge anteriorly; (3) circumferential coverage of the cartilage graft with healthy mucosa; and (4) no postoperative stenting.³ Points 1 and 2 reflect physical principles consistent with Poiseuille's law, whereby flow increases proportional to increases in radial diameter to the fourth power. Points 3 and 4 may be the most important to avoid restenosis, but points 1 and 2 may be the more technically challenging aspects. To achieve points 1 and 2, an advanced knowledge of the anatomy must be known because these operations are similar to resection and reconstruction in a reoperative field and the tissue planes and structures will not be as well defined. Regarding points 3 and 4, preventing restenosis should be a top priority because there is one opportunity for the patient to perform a resection and repair such as this one.

This article is an important contribution to the literature during this time, and it is important to restore patients with normal function after a complex operation. Sound patient selection and surgical technique combined with grafting as an adjunct to reconstruction for tracheal stenosis are powerful tools for today's surgeons, and tomorrow's patients will benefit starting today. Consistent with Poiseuille's law, increases in flow correspond to increases in radial diameter to the fourth power. Go big; size matters.

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