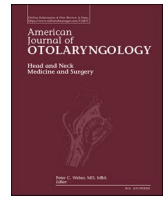


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## Endoscopic L-stent for suprastomal tracheal stenosis

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### 1. Background

Tracheal stenosis is a challenging issue requiring surgeons to balance tracheal patency, voice, and patient's quality of life [1,2]. Patients with recurrent suprastomal tracheal stenosis who are not candidates for open resection or a T-tube have few options [3]. We sought to describe an operative approach to the management of suprastomal tracheal stenosis using a modified T-tube (L-stent) and document the course of a patient who benefited from this approach.

### 2. Methods

The surgical procedure involves laryngoscopy to widen the suprastomal airway, including various interventions such as radial incisions/excisions, balloon dilation, steroid injection, and/or mitomycin C. The final step is design and placement of the suprastomal L-stent, which is constructed using a T-tube by dividing the stomal limb in half along the transverse plane, preserving a bevel for the distal limb. A suture is placed through the proximal limb of the L-stent and introduced into the stoma. The suture is grasped through the laryngoscope under telescopic guidance and pulled proximally to seat the L-stent into position. Before the patient awakens from anesthesia, the tracheostomy tube is replaced, being careful not to disrupt the L-stent. The patient returns to the operating room for L-stent removal and airway evaluation at different intervals depending on the clinical situation.

### 3. Case discussion & results

A 56-year-old male with tracheal stenosis following prolonged intubation for COVID pneumonia underwent tracheal resection with reanastomosis at an outside institution. Four weeks later he developed stridor and an anastomotic stricture requiring tracheostomy. His care was transitioned to the local safety net hospital. He underwent multiple endoscopic dilations by thoracic with development of severe stenosis shortly after each procedure. Due to his failure after open surgery and difficulty managing tracheostomy care, he was considered an ideal candidate for endoscopic L-stent. Following a series of endoscopic airway interventions and L-stents, the patient's original pinpoint airway was restructured to sufficient caliber allowing him to be decannulated. Although he developed mild stenosis following decannulation, he has remained asymptomatic from a respiratory standpoint for over six months.

### 4. Conclusion

The endoscopic L-stent is a tool that airway surgeons can employ in the correct clinical situation for patients with severe or recurrent suprastomal tracheal stenosis. Our case highlights three situations when a surgeon may consider the L-stent: 1) home or self-care concerns, 2) contraindications to open airway surgery, and 3) low-resource settings. The L-stent can provide long-term airway patency even after removal in

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benign airway stenosis.

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### Declaration of competing interest

The authors have no conflicts of interest to disclose relevant to this work.

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### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amjoto.2023.103949>.