Editorial

The key to successful long-segment tracheal resections

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I read with great interest the manuscript published by Liu *et al.* (1) titled 'Video-assisted thoracoscopic hilar and pericardial release for long segment tracheal resections'. In this article the authors detail the surgical resection of 50% of the trachea in a 32-year-old with adenoid cystic carcinoma that initially presented as an obstructive tracheal lesion. Biopsy and laser recanalization was performed followed by operative intervention. The procedure itself involved general anesthesia with a double lumen endotracheal tube, bilateral video-assisted thoracoscopic surgery (VATS) with bilateral hilar and pericardial release maneuvers, infrahyoid release via a cervical collar incision and subsequently a median sternotomy to perform the extensive tracheal resection and reconstruction. The patient recovered well with a very good post-operative result.

The authors are to be commended on using thoracoscopy to perform the hilar and pericardial release maneuvers. VATS provides very good visualization of the hilar structures and allows for a 360-degree view of the hilum. Traditionally these maneuvers have been performed via a thoracotomy, requiring a large incision, rib spreading and more post-operative pain and longer recovery time. Use of thoracoscopy to perform this is innovative and can be easily performed by an experienced thoracic surgeon. These release maneuvers can also be performed via a median sternotomy (as the authors performed a sternotomy for the tracheal resection), however, there is limited posterior hilar visualization via this approach. Additionally, the cardiac structures make this very hard especially on the left side. The authors additionally performed a cervical collar incision for the infrahyoid release. Most surgeons would prefer to extend the upper sternotomy incision to allow for this maneuver to minimize an additional incision.

There are multiple ways to 'skin a cat'. One could argue that an alternative technique to perform this operation would have been to perform a infrahyoid release via a cervical collar incision, left VATS and hilar release, right thoracotomy hilar release, tracheal resection and reconstruction along with mediastinal lymph node dissection. This approach would have avoided a median sternotomy completely and all complications associated with it like sternal wound infections, sternal dehiscence and mediastinitis.

The main take away point from the entire case must not be missed with all the discussions about what approach and incisions must have been used or is better. The fact that so much of the trachea was resected and reconstructed in a tension free manner with no healing complications is remarkable. The 'Achilles heel' of tracheal resection is tracheal dehiscence. This can be a nightmare to deal with and can be fatal. The key to preventing this complication is also the key to performing successful reconstructions and this being the ability to achieve a tension free anastomosis. This can be a challenge with long segment resections and the release maneuvers are the surgeons 'best friend'. One must not shy away from performing these and often use multiple such maneuvers simultaneously as elegantly depicted in this case. Performing these maneuvers thoracoscopically is 'the cherry on the cake'!

The coronavirus disease 2019 (COVID-19) pandemic has resulted in many patients requiring prolonged intubation and mechanical ventilation. I predict there will

be a slew of patients with benign post-intubation tracheal stenosis that will require resections and reconstructions. The thoracoscopic hilar release technique could become widely adopted soon.

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References

1. Liu X, Dai J, Li J, et al. Video-assisted thoracoscopic hilar and pericardial release for long-segment tracheal resections. J Thorac Dis 2022;14:3061-5.