How I Do It: The Reversible Tracheostomy Stitch

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Abstract

Elective tracheostomy is routinely performed in conjunction with major head and neck surgery, notably during transoral robotic base of tongue resection and oral cavity/oropharyngeal resection with free flap reconstruction, due to concern for potential post-operative airway compromise. In these circumstances, the tracheostomy is typically intended to be temporary with reversal during the post-operative stay. In order to expedite tracheostomy site closure and preclude development of a tracheocutaneous fistula, we utilize a reversible tracheostomy stitch.

Methods

After institutional review board approval from our institution, a retrospective review was performed of all TORS BOT resections and oral cavity/oropharyngeal resection with free flap reconstruction from April 04, 2018 through June 15, 2019, the time period at which we began performing reversible tracheostomy stitches. The reversible tracheostomy stitch is performed as follows. The trachea is exposed via the traditional surgical approach. The tracheotomy is performed via a horizontal incision between the first and second, or second and third, tracheal rings. Prior to placement of the tracheostomy, a 0 Prolene® (Ethicon, Somerville NJ) is used to suture a subperichondrial tracheal flap in a horizontal mattress fashion from superior to inferior on one side of the tracheotomy and then inferior to superior on the other side. The loose suture ends are left untied and draped out of the tracheostoma, secured to the chest by Steri-Strips™ (3M, Maplewood MN), for as long as the tracheostomy is required. When the patient is decannulated intra- or post-operatively the reversible tracheostomy stitch is tied down and the suture is cut, closing the horizontal tracheotomy (Figure 1). The tracheostoma site was then loosely closed using 4-0 Vicryl® (Ethicon, Somerville NJ) in the deep dermal layer and covered with an adhesive bandage. A gauze dressing...
be useful in association with oral cavity or oropharyngeal resections with free flap reconstruction, for which the tracheostomy is expected to be necessary only for a few days peri- and post-operatively.

In terms of patient selection, we have found that this technique is best accomplished during cases with good exposure of the trachea intra-operatively and in patients with adequate pulmonary reserve, allowing for placement of the reversible tracheostomy sutures during temporary pauses in ventilation.

Overall, the reversible tracheostomy stitch represents a novel method of potentially expedited tracheostomy site closure in a selected patient population.

Key Points

- Tracheostomy is routinely performed to secure the airway during the intra-operative and immediate post-operative period for TORS BOT resection and oral cavity resection with free flap reconstruction.
- The reversible tracheostomy stitch is a novel method of performing tracheostomy that may help expedite tracheostoma site closure and prevent formation of persistent tracheocutaneous fistula in this population.
- We have found that this technique is best suited during cases with good exposure of the trachea and in patients with adequate pulmonary reserve, allowing for temporary pauses in ventilation so that the reversible tracheostomy stitches can be placed.

Authors Declaration

There are no financial disclosures or conflicts of interest.
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