

FAST FACTS AND CONCEPTS #281 CARE OF THE POST-LARYNGECTOMY STOMA

Shweta Garg PA-C, Elliott Kozin MD, Daniel Deschler MD

Background Many patients with laryngeal cancer require a laryngectomy. While laryngectomies are typically done as a curative cancer surgery, some patients will have recurrences and be seen in palliative care and hospice settings. Laryngectomy stomas differ from tracheostomies (see *Fast Fact #250*) in important ways, which can profoundly impact a patient's well being. A working knowledge of the basic management and equipment used in patients with a stoma after laryngectomy can avoid complications and improve a patient's comfort and safety (1).

Laryngectomy Stoma versus Tracheostomy There are a few key differences between a post-laryngectomy stoma and tracheostomy. At the most basic level, a post-laryngectomy stoma is created after a patient undergoes a total laryngectomy, which involves the removal of the larynx, including vocal cords and associated structures. A *permanent*, direct connection between the trachea and the skin of the neck is made sewing the open end of the trachea to the neck skin forming an opening through which the patient breathes. After a laryngectomy, the patient no longer has a communication between the lungs and oral cavity or nose. These patients are casually referred to as "neck breathers" (2). In contrast, a tracheostomy, also referred to as a tracheotomy, is surgical opening into the trachea to bypass the upper airway, which is not necessarily permanent. A tracheostomy tube is inserted and stents the tracheostomy open, thereby facilitating air exchange. In patients with tracheostomies, the larynx remains present and there is still a connection between the oral cavity and nose to the lungs.

One can differentiate a post-laryngectomy stoma from a tracheostomy based on physical exam (Reference 6 has helpful illustrations available online). A post-laryngectomy stoma does not typically require any stenting and appears as a circular opening above the clavicles directly midline in the neck. Although similar in position to a tracheostomy, a post-laryngectomy stoma will only track inferiorly into the chest and have no connection superiorly to the throat and mouth as a tracheotomy will. Post-laryngectomy stomas, however, may have a moisture exchange device (see below) and may be confused for a tracheostomy. In contrast, tracheostomies have a tracheostomy tube in place and will readily close without a supportive stenting mechanism. If there is any question about a patient's airway anatomy, consultation with an otolaryngologist is warranted.

Routine / Preventive Care The basic equipment for a laryngectomy stoma includes 1) a suction device, 2) a humidified air device, 3) a personal mirror and, in some cases, 4) a soft laryngectomy tube. Although most post-laryngectomy stomas do not require a tube to keep them patent, some patients use a laryngectomy tube to assist with hygiene and minimize stenosis. Suctioning is performed to remove excess mucus or crusting near the opening of the stoma and to facilitate clearance of mucus from the lungs. Stomas require warm humidification to prevent buildup of thick mucus, and humidification can be achieved with saline nebulizers or a portable heat and moisture exchange (HME) device. The HME is a disposable small, round filter device, which inserts into the opening of the laryngectomy tube. Patients generally replace the HME every 24 hours (2). Patients with post-laryngectomy stomas will often use a small personal mirror to assist with crust removal at the stoma site. Other patients may have a tracheoesophageal puncture (TEP) prosthesis, which is a small circular device that is placed at the back wall of the stoma to allow for speech (3, illustrations in Reference 6).

Approach to Complications and Emergencies As with all clinical situations, decision-making at the time of emergency will depend on a patient's overall health status, goals of care, and code status.

- **Acute Dyspnea.** If a patient with a post-laryngectomy stoma becomes acutely dyspneic this may be due to a partial or complete blockage of the trachea by retained secretions, such as a mucus plug. Ask the patient to cough, instill 3 mL normal saline, and then attempt to suction the stoma in place with a flexible suction catheter.
- **Resuscitation via laryngectomy stoma.** In a patient with a post-laryngectomy stoma, there is no connection to the airway from the oral or nasal cavity to the trachea. Bag mask, oral, and nasal intubation should *never* be attempted. Instead, a cuffed endotracheal tube (ETT) should be directly

inserted into the stoma. Ventilate by using a manual resuscitation bag attached to the ETT tube. The ETT should be placed such that the balloon is nearly visible under the skin. If an ETT is not available then an anesthesia facemask can be placed over the stoma, creating a seal.

- *Pharyngocutaneous fistula*. In the first few weeks after a laryngectomy it is relatively common for there to be breakdown of the mucosal lining resulting in salivary leakage to surrounding tissue. Initial clinical signs include neck erythema, facial and neck edema, and tenderness. Recognition is important to prevent wound complications and potential breakdown of nearby vessels (2,4).
- *Bleeding*. Bleeding from a laryngeal stoma is an airway emergency. While it may be due to dry air irritating the lining of the trachea, it could also be due to a fistula formation. Bleeding may result in airway compromise. An otolaryngologist should evaluate the patient urgently (5).

References

1. Darr A, Dhanji K, Doshi J. Tracheostomy and laryngectomy survey: do front-line emergency staff appreciate the difference? *J Laryngol Otol*. 2012; 126(6):605-8.
2. Townsley RB, Baring DE, et al. Emergency department care of a patient after a total laryngectomy. *Eur J Emerg Med*. 2013 Feb 17.
3. Deschler DG, Bunting GW, Lin DT, et al. Evaluation of voice prosthesis placement at the time of primary tracheoesophageal puncture with total laryngectomy. *Laryngoscope*. 2009;119(7):1353-7.
4. White HN, Golden B, Sweeny L, et al. Assessment and incidence of salivary leak following laryngectomy. *Laryngoscope*. 2012;122(8):1796-9.
5. St. John RE, Malen JF. Contemporary issues in adult tracheostomy management. *Crit Care Nurs Clin N Am*. 2004;16:413-430.
6. Blom ED. Current status of voice restoration following total laryngectomy. *Oncology*. 2000; 14:915-922. Available at: <http://www.cancernetwork.com/head-neck-cancer/current-status-voice-restoration-following-total-laryngectomy/>. Accessed Sept 25, 2015.

Authors' Affiliations: Division of Head and Neck Surgery, Department of Otolaryngology, Massachusetts Eye and Ear Infirmary, Boston, MA.

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