

Improving staff safety during tracheostomy in COVID-19 patients

Maria Vargas MD  | **Giuseppe Servillo MD**

Department of Neurosciences, Reproductive and Odontostomatological Sciences, University of Naples "Federico II", Naples, Italy

Correspondence

Maria Vargas, MD, Department of Neurosciences, Reproductive and Odontostomatological Sciences, University of Naples "Federico II", Via Pansini, 80100 Naples Italy.
Email: vargas.maria82@gmail.com

On February 29, the World Health Organization (WHO) reported 85 403 confirmed globally confirmed cases of COVID-19.¹ COVID-19 is dramatically increasing in Italy, the last report from the ministry of health on March 9, reported the presence of 9172 confirmed cases and 733 patients in an intensive care unit (ICU).² We agree with Chan et al that physicians managing airway procedures are at particularly high risk to contract the COVID-19 infection.³ We support the authors that claimed for a full protective wearing including N95 respirator, gown, cap, eye protection, and gloves, during aerosol-generating procedures (AGP).³ However, we would like to focus the attention on the tracheostomy procedures in COVID-19 patients since otolaryngologists, anesthesiologists, and intensive care physicians are at high risk of contracting the infection during tracheostomy.³ Tracheostomy is required in case of prolonged mechanical ventilation and ICU stay.⁴ Surgical tracheostomy is an AGP associated with an increased risk of severe acute respiratory distress (SARS) infection.⁵ Strict adherence to infection control guidelines in SARS is mandatory in performing tracheostomy in ICU or operating room.⁶

A few years ago, we proposed the double lumen endotracheal tube (DLET) for percutaneous tracheostomy in critically ill patients.⁷ DLET was equipped with an upper channel that allows passage of a bronchoscope during the percutaneous tracheostomy and with a lower channel exclusively dedicated to patient ventilation.⁷ The lower channel is equipped with a distal cuff positioned just above the carina that may allow a safe mechanical ventilation by keeping stable gas-exchange and limiting the spread of aerosol during the procedure.⁷ During the percutaneous procedure, the puncture of the anterior

tracheal wall, Seldinger insertion, dilatation, and cannula positioning were all performed with the DLET correctly placed in the trachea. The DLET was removed at the end of the tracheostomy when the cannula is inserted and correctly positioned with the FFB.⁷

Surgical tracheostomy in COVID-19 patients should be done with a close collaboration between otolaryngologists, performing the surgical procedure, and anesthesiologists or intensive care physicians managing the general anesthesia and the airway.

When a surgical tracheostomy is done under general anesthesia, just before the surgeon makes the tracheal stoma, the endotracheal tube is withdrawn, so that the cuff of the tube is not in the surgical field.⁸ However, when the surgeon makes the tracheal incision, ventilation is lost and the surgeon has to be quick enough to create the stoma and insert the tracheostomy tube in a short time.⁸ During this procedure, a large spread of aerosol may occur. To avoid the aerosol, we suggest to push down the endotracheal tube beyond the site chosen for the tracheal stoma at the beginning of the procedure. The endotracheal tube should reach the tracheal carina so the cuff is surely distal to the tracheostomy site. By checking the airway pressure and the end-tidal CO₂, on the mechanical ventilator, we can realize if the endotracheal tube is still in the lower tract of the trachea or the endobronchial tract. Our previous experience with the DLET demonstrated that the endotracheal tube and the tracheal cannula could be simultaneously inserted inside the trachea.⁷ According to this, pushing down the endotracheal tube and cuffed it at the level of the carina may avoid the spread of aerosol and, then, may add extra security for the medical staff during a procedure at high risk of generating aerosol.

CONFLICT OF INTEREST

The authors have no conflict of interest.

ORCID

Maria Vargas  <https://orcid.org/0000-0001-7652-970X>

REFERENCES

1. Coronavirus disease 2019 (COVID-19) Situation Report – 40. <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200229-sitrep-40-covid-19.pdf>. Accessed February 29, 2020.
2. Italian Minister of Health. COVID-19 Italian cases. <http://www.salute.gov.it/portale/nuovocoronavirus/dettaglioContenutiNuovoCoronavirus.jsp?lingua=italiano&id=5351&area=nuovoCoronavirus&menu=vuoto>. Accessed February 29, 2020.
3. Chan YJK, Wong EWY, Lam W. Practical aspects of otolaryngologic clinical services during the 2019 novel coronavirus epidemic: An experience in Hong Kong. *JAMA Otolaryngol Head Neck Surg*. 2020. <https://doi.org/10.1001/jamaoto.2020.0488>
4. Vargas M, Sutherasan Y, Antonelli M, et al. Tracheostomy procedures in the intensive care unit: an international survey. *Crit Care*. 2015;19:291-301.
5. Tran K, Cimon K, Severn M, Pessoa-Silva CL, Conly J. Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review. *PLoS ONE*. 2012;7(4):e35797. <https://doi.org/10.1371/journal.pone.0035797>
6. Chun-Wing A, Yin-Chun L, Kit-Ying L. Management of critically ill patients with severe acute respiratory syndrome (SARS). *Int J Med Sci*. 2004;1(1):1-10.
7. Vargas M, Servillo G, Tessitore G, et al. Percutaneous dilational tracheostomy with a double-lumen endotracheal tube. A comparison of feasibility, gas exchange, and airway pressures. *Chest*. 2015;147:1267-1274.
8. Walts PA, Sudish CM, DeCamp MM. Techniques of surgical tracheostomy. *Clin Chest Med*. 2003;24:413-422.

How to cite this article: Vargas M, Servillo G. Improving staff safety during tracheostomy in COVID-19 patients. *Head & Neck*. 2020;42:1278–1279. <https://doi.org/10.1002/hed.26163>