



## Letter to the Editor regarding “Long-term intubation and high rate of tracheostomy in COVID-19 patients might determine an unprecedented increase of airway stenoses: a call to action from the European Laryngological Society” by Piazza et al.

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Dear Editor,

We read the article by Piazza et al. [1] with great interest and we deeply appreciate their effort to alert not only the ENT community but also the General Practitioners, the Pneumologists, the Anesthesiologists and the Thoracic Surgeons about the possible onset of laryngotracheal complications after prolonged intubation in COVID-19 patients. As these authors predicted, we and other groups have started to see an increasing number of laryngotracheal complications in patients who had COVID-19 and underwent intubation and/or tracheostomy [2, 3]. In this Letter to the Editor, we would like to focus on the possible causes that have determined the onset of these complications.

According to our data [2], prolonged invasive mechanical ventilation with orotracheal intubation or tracheostomy cannulas per se does not appear to be a risk factor in the development of this type of lesions. Piazza et al. identified the possible use of large caliber tubes and high cuff pressure as the main causes of laryngotracheal damage. The latter seems more likely. In fact, while the use of large caliber tubes would not be justified by the daily clinical practice, a

high cuff pressure might be used in COVID-19 patients to avoid aerosolization of the virus. Furthermore, the authors questioned whether prolonged invasive mechanical ventilation in the prone position may have a role due to the fact that nobody knows what happens to the laryngotracheal junction in this situation. We strongly support this hypothesis, because we had the same clinical impression, especially using standard (non-armored) endotracheal tubes. The current literature presents contradictory data [4, 5] and further studies are needed.

In addition to these mentioned mechanisms, we propose other potential causes of laryngotracheal lesions in mechanically ventilated COVID-19 patients, including microvascular injury and necrosis of the laryngotracheal mucosa caused by the prothrombotic and antifibrinolytic state, high viral replication within the epithelial cells, the chronic use of systemic steroids, and emotional and physical exhaustion of healthcare professionals during the pandemic outbreak of COVID-19 [2].

In conclusion, we support the authors' invitation to carefully monitor patients with a history of COVID-19 infection and invasive mechanical ventilation and we highlight the need for further mechanistic studies. Patients who report the onset of an initial dyspnoea should be referred first to an otolaryngologist and subsequently to the “airway team” of a tertiary hospital with specific expertise in managing laryngotracheal complications.

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