

Videolaryngoscopy Intubation in Patients with COVID-19

How to Minimize Risk of Aerosolization?

To the Editor:

The highest viral load of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is found in the sputum and upper airway secretions.¹ Therefore, endotracheal intubation, extubation, connection, and disconnection of the ventilatory circuit in patients infected with coronavirus disease 2019 (COVID-19) may cause aerosolization that may contaminate the personal protective equipment, exposed body parts, or even the airway of the person handling the airway.^{2,3} Direct contact and droplet spread

of respiratory secretions remain the predominant mode of spread, yet airborne transmission may occur, and taking precautions in aerosol-generating procedures should be done.³

Videolaryngoscopy is ideally recommended in patients infected with COVID-19 to increase the distance between the operator's face and the patient's face to minimize the risk of contamination.³ In addition, videolaryngoscopy offers a better view of the glottic entrance and can facilitate a quick-pass first-attempt tracheal instrumentation.⁴ However, the performance of different videolaryngoscope models in patients infected with COVID-19 remains unknown because no comparative data have been validated. It is well known that some manufacturers of videolaryngoscopy equipment advocate the use of stylets in the endotracheal tube (ETT) to facilitate easy insertion into the trachea, especially in suspected difficult airway.⁴ However, two concerns exist during videolaryngoscopy intubation with a preloaded tube on an introducer^{5,6}: (1) A patient may cough during tracheal instrumentation and expel a virus-containing cloud of particles *via* reverse outflow across an unsealed endotracheal tube facing the operators; (2) Stylet removal after endotracheal intubation may increase the risk of contamination.

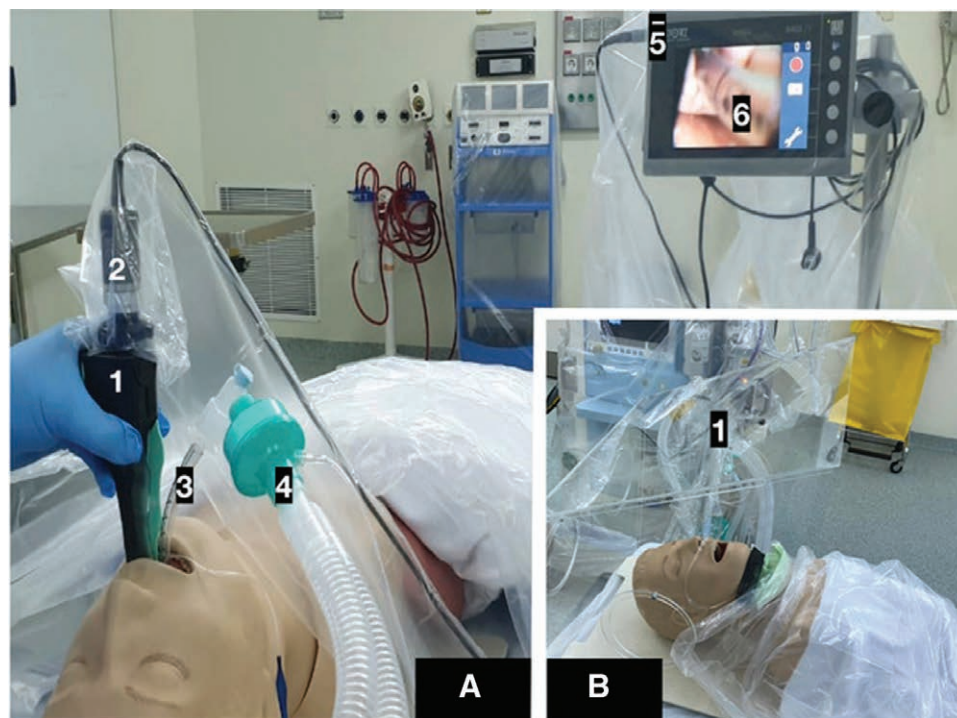


Fig. 1. Simulated case. (A) The plastic box was removed to enable a better view of the airway. 1: Airtraq; 2: connected camera; 3: endotracheal tube (ETT) loaded into Airtraq channel; 4: closed connection of ETT-ventilatory circuit; 5: C-MAC display; 6: ETT inside the trachea. (B) 1: The transparent plastic box, with holes, used in our described case.

We describe using a channeled videolaryngoscope to manage a difficult airway in a 31-yr-old female suspected to be infected with COVID-19 undergoing emergency laparotomy with unstable vital signs. All involved staff wore appropriate personal protective equipment.²

With full monitoring in place and after 5-min preoxygenation with low-flow oxygen at 3 l/min using nasal cannula with surgical mask *in situ* covering the patient's mouth and nose, rapid sequence induction was started using intravenous xylocaine 1 mg/kg, fentanyl 1.5 mcg/kg, propofol 2mg/kg, and rocuronium 1 mg/kg subsequently. The ETT was lubricated and loaded inside the channel of the Airtraq and directly connected to the circuit before induction (fig. 1A). A minute later, with the patient head shielded away from the anesthesiologist by a closed plastic box (fig. 1B), the surgical mask was removed and the channeled-type Airtraq videolaryngoscope with camera-connected C-MAC videolaryngoscopy screen was introduced into the mouth. The glottic opening was visualized and the trachea was successfully intubated from the first attempt with a closed circuit without the need for a stylet, or any maneuver. While removing the videolaryngoscope the ETT cuff was inflated immediately and the second pair of gloves of the operator was used to seal the used Airtraq, which was disposed of into the plastic bag, then volume ventilation mode was initiated (Supplemental Digital Content video, <http://links.lww.com/ALN/C398>). However, dislodging the ETT from the side channel of the videolaryngoscope can sometimes be challenging, especially inside the box, and careful manipulation is needed to minimize contact with the mouth and potential viral transmission. This approach of airway management is used in our anesthesia department for all indicated cases and variations in the sequence could be made based on local preferences. In conclusion, we believe that endotracheal intubation techniques must protect healthcare workers and reduce the risk of viral transmission *via* an unsealed airway. The use of stylet-free channeled videolaryngoscope with closed circuit ventilation would be recommended to minimize risk of aerosolization in suspected or confirmed COVID-19 cases.

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Competing Interests

The authors declare no competing interests.

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