

Letter to Editor

Endoscopy mask for safe extubation in patients with COVID-19

Dear Editor,

The risk of spreading coronavirus disease 2019 (COVID-19) virus through aerosol generating procedures (AGPs) is well documented.^[1] Intubation and extubation are high AGPs, which are of major concern for an anesthesiologist and intensivists due to proximity to the patient. Recently various recommendations for anesthetic management of COVID-19 patients has been published.^[1,2] These recommendations mainly focus towards safe tracheal intubation with less emphasis on safe extubation

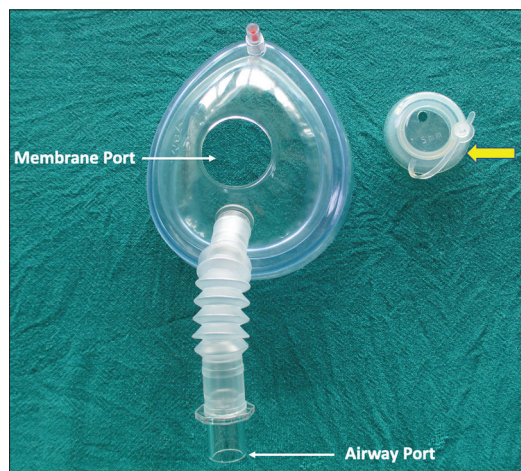


Figure 1: Endoscopy mask with the silicon membrane and a small self-sealing hole with a cap (yellow arrow)

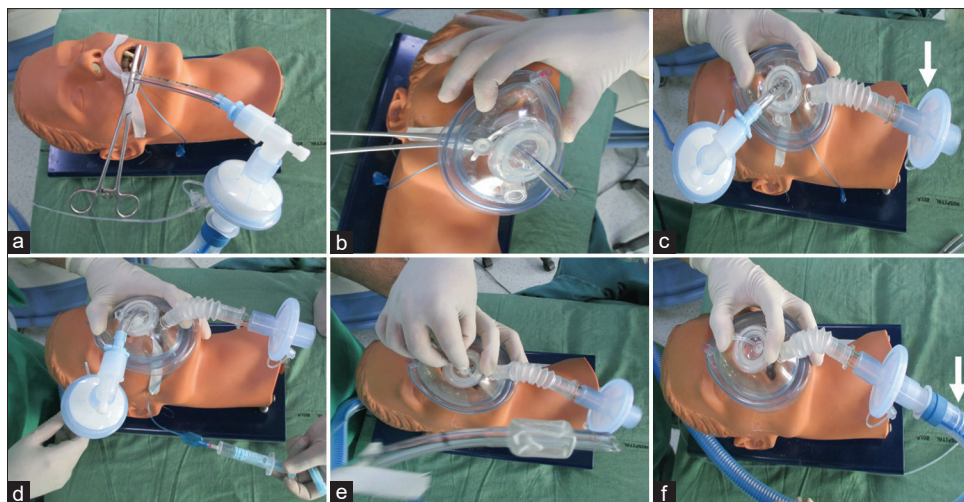


Figure 2: Extubation with endoscopy mask. (a) ETT clamped at the angle of mouth, (b) The ETT is passed through the small hole of the silicon membrane of endoscopy mask, after detaching the connector, (c) Clamp removed, circuit reattached to the ETT and a viral filter is attached to the airway port of the endoscopy mask (white arrow), (d) Cuff of the ETT deflated while maintaining a proper seal with the mask, (e) ETT removed and the hole in the silicon membrane is closed by its cap by the assistant, (f) The circuit is reattached to the filter attached with airway port of the mask (white arrow)

techniques. We believe that adequate dose muscle relaxants during laryngoscopy and intubation prevents coughing thus limiting aerosol generation. In contrast, the aerosol generation is much more during extubation than that of intubation due to the high incidence of coughing and bucking.

Strategies like avoiding extubation inside the OR or extubation in a negative pressure room may prevent contamination but are not always feasible. Use of portable barrier hood devices^[3] mask over the endotracheal tube (ETT) technique^[4] and passing the ETT through the port, of a standard face mask,^[5] have been described to minimize exposure during extubation, however, these techniques have limitations and are not full-proof. Hence, we describe a technique of extubation using endoscope mask (VBM Medizintechnik GmbH, Germany) [Figure 1], which further minimizes aerosol exposure despite proximity to the patient.

Extubation Technique

All providers managing extubation in COVID-19 patients should wear full personal protective equipment (PPE). Assessment for the readiness of extubation is crucial as rescue strategies are associated with increased risk of exposure.

Before extubation, an adequate size endoscopy mask is placed over the patient's face by inserting the ETT through the membrane port of the endoscopy mask, after clamping the ETT at the angle of mouth [Figure 2a and b]. The membrane port of the endoscopy mask has a silicon membrane and a small self-sealing hole with a cap [Figure 1], which ensures

a proper seal around the ETT. A viral filter is attached to the airway port of the endoscopy mask [Figure 2c]. At the time of extubation, a proper seal with the endoscopy mask is ensured before the deflation of the ETT cuff [Figure 2d]. The ETT is removed through the hole in the silicon membrane of the endoscopy mask. The hole in the silicon membrane is capped by the assistant and the close circuit is detached from the ETT distal to viral filter [Figure 2e]. The circuit is reattached to the viral filter, which is attached to the airway port of the endoscopy mask [Figure 2f].

Advantages of using endoscopy mask during extubation in COVID-19 patients are: the small self-sealing hole in the silicon membrane of the mask ensures adequate seal around the ETT and the flexible corrugated airway port of the mask can be diverted away from the person standing at the head-end, during extubation. We found this technique simple and effective and did not find any difficulty in testing this technique in a mannequin and non-COVID patients. The only limitation of this technique is that an additional viral filter is required to ensure adequate protection.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Wax RS, Christian MD. Practical recommendations for critical care and anesthesiology teams caring for novel coronavirus (2019-nCoV) patients. *Can J Anaesth* 2020;12:1e9.
2. Cook TM, El-Boghdady K, McGuire B, McNarry AF, Patel A, Higgs A. Consensus guidelines for managing the airway in patients with COVID-19: Guidelines from the Difficult Airway Society, the Association of Anaesthetists the Intensive Care Society, the Faculty of Intensive Care Medicine and the Royal College of Anaesthetists. *Anaesthesia* 2020;75:785-99.
3. Kangas-Dick AW, Swearingen B, Wan E, Chawla K, Wiesel O. Safe extubation during the COVID-19 pandemic [published online ahead of print, 2020 May 23]. *Respir Med* 2020;170:106038.
4. D'Silva DF, McCulloch TJ, Lim JS, Smith SS, Carayannis D. Extubation of patients with COVID-19. *Br J Anaesth* 2020;125:e192-95.
5. Asenjo JF. Safer intubation and extubation of patients with COVID-19 [published online ahead of print, 2020 Apr 22]. *Can J Anaesth* 2020;1-3. doi: 10.1007/s12630-020-01666-9.

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