

# Safe Operation Theatre and Intensive Care Unit during COVID-19 Pandemic: An Innovative Way to Widen the Safety Net

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Since the onset of the COVID-19 pandemic, lot of guidelines for airway management have been issued by anaesthesia agencies world over.<sup>1,2</sup> The guidelines are comprehensive and extensively cover all major aspects in managing a patient in the operation theater (OT) and intensive care unit (ICU) whether COVID-19 positive, suspect or unconfirmed admitted as emergency. Since the infection is transmitted through droplets (and possibly aerosols), optimal precautions must be taken to prevent the spread of the virus while undertaking any aerosol-generating procedures (AGPs)<sup>3</sup> The safety of the healthcare workers (HCWs) becomes paramount not only to keep the workforce intact during the fight against COVID-19 but also to keep their morale high. Although most of the guidelines cover this aspect completely, it must be well-appreciated that use of any additional methods to prevent aerosol spread can have added value and widen the safety net in airway approach procedures.

We wish to share our experience and modifications based on our work in the COVID-19 scenario. We conducted over 700 emergency cases under general anesthesia, spinal anesthesia or regional anesthesia, over the last 3 months, at a premier tertiary care center in the national capital region. With these added safety measures, we did not encounter even a single case of cross-infection amongst the OT and ICU HCWs. It is again emphasized that our modifications are in addition to the precautions, as per the standard guidelines on wearing personal protective equipment (PPE) and tracheal intubation with endotracheal tube (ETT).

In our setup, we innovatively modified the explained intubation procedure by blocking the ETT with the universal self-sealing rubber stopper instead of clamp (►Fig. 1 A, B). As per the recommended guidelines, after premedication, intubation in COVID-19 patients is done after preoxygenation

for 3 to 5 minutes, full dose of induction agent and complete paralysis (rapid sequence induction). Additionally, lignocaine is given to attenuate the hemodynamic pressor response and cough reflex. Care is taken to swiftly connect the ETT to the circuit (within 5–10 seconds).<sup>4</sup> In spite of above measures, if patient coughs during the ET tube insertion, the presence of stopper widens the safety net by protecting the HCW from the aerosol generated.

Postintubation, a slit surgical mask is slid over the tube to cover the mouth (►Fig. 1C). The surgical mask prevents aerosol spread from patient due to leak around an intact cuff.<sup>5</sup>

Both these simple steps are effective in providing an extra shield against the aerosol spread.

The self-sealing rubber stopper is the injection port of most anesthetic drug vials, which is easily available in all operating rooms. Its universal size (13 mm) fits all airway devices (ETT and laryngeal mask airways [LMAs]) (►Fig. 1D). A stylet can also be used by piercing it through the rubber stopper, and the self-sealing property of stopper helps to maintain the seal once the stylet is taken out postintubation or the entire set of stylet and stopper can be removed before connecting to the circuit. In our case, we prepared stylet with rubber stopper in advance, before undertaking the AGP.

The surgical clamp advised in guidelines, loses its clamping force and obstructs the anesthesiologist's field of vision, which is already compromised due to PPE.<sup>4,6</sup>

We used simple equipment, which is easily available in all OT setups. Because of the cost factor, universal size, ease of availability and disposal, the rubber stoppers and triple layer masks can be an innovative way of reducing exposure to HCW's in any AGP and adds to the safety net in intubation rooms.

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**Fig. 1** (A) Endotracheal tube (ETT) blocked with the universal stopper and stylet in situ; (B) Intubating laryngeal mask airway with Parker-tipped ETT and mask attachment; (C) Intubated patient with mask during surgery; (D) Universal stopper available in different anesthetic drug vials and fits all the airway devices.

#### Conflict of Interest

None declared.

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