

Management of the airway and lung isolation for thoracic surgery during the COVID-19 pandemic

I enjoyed reading the recent clinical recommendations on airway management for thoracic surgical patients during the COVID-19 pandemic [1]. However, as a clinically practising thoracic anaesthetist of 28 years, I would like to make the following comments. It was previously common practice to extubate the patient's trachea while they were still anaesthetised; that is, deep. This minimised coughing due to the tracheal tube, which is common when extubating patients awake. This is useful when it is necessary to avoid rises in blood pressure and inhibition of venous return, such as in thyroid surgery or neurosurgery. It is a technique I still use for thoracic surgery, and as the authors point out, a double-lumen endobronchial tube is much larger than a single-lumen tracheal tube. I find coughing is minimal and in the present climate, to be recommended. The patients spontaneously breathe well in the lateral position and I extubate just before moving or turning the patient back onto their bed. My other comment is that while using a viral filter and double clamps on the operating limb of the

double-lumen tracheal tube, this prevents full deflation of the lung and the surgeon invariably requests the air in the lung be suctioned out, which negates the use of a filter etc. However, I do replace them when immediately possible.

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Reference

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Management of the airway and lung isolation for thoracic surgery during the COVID-19 pandemic: a reply

We welcome the letters from Drs Ponnaiah and Bailey [1], and Dr Greenhalgh [2] and are thankful for their detailed consideration of our paper [3].

We agree with Drs Ponnaiah and Bailey that using two heat and moisture exchange viral filters could provide additional protection from an accidental disconnection of the catheter mount. The paediatric filters described can be accommodated side by side on the catheter mount; unfortunately, this is not true of the adult filters available in our institution. The original technique we describe uses two clamps to isolate the patient and allow safe disconnection of the circuit for insertion of a heat and moisture exchange viral filter without any risk of kinking. The use of closed in-line suction could also be considered with the benefit of reduced aerosol generation. Several systems are available; we recommend assessment before use ensuring sufficient length to reach beyond the bronchial lumen. If too short, then lung collapse will be facilitated but bronchial toilet would be inadequate.

In our institution, we favour bronchoscopy to confirm double-lumen tube position. Even in experienced hands, Drs Ponnaiah and Bailey have quoted a failure rate of 20% using a clinical check for double-lumen tube placement. Each of these patients required bronchoscopy and this underlines the requirement for every institution to practise safe techniques for bronchoscopy. The figures quoted in our manuscript reporting a 39.5% repositioning rate for clinical checking are broadly consistent with the bulk of the published literature [4]. Whereas major misplacements will be readily recognised, there are a range of minor deviations which are much more difficult to identify clinically. As has been well demonstrated historically, clinical confirmation is not recommended as the definitive technique for confirmation of double-lumen tube positioning [5].

Drs Ponnaiah and Bailey describe the use of a double-lumen tube with an embedded camera; we agree this may be useful in experienced hands. We must emphasise,

however, that the embedded camera merely provides a continuous view of the carina, warning against tube movement and aiding troubleshooting. It will not help in viewing the left-sided anatomy (to diagnose lobar intubation), nor will it be able to view the distal right-sided anatomy for troubleshooting or surgical facilitation. The camera has an integrated flushing port through which a process of lavage and aspiration is described to clean the camera if obscured by secretions; this also carries a risk of aerosol generation.

Our intention is for the airway to only be open following release of pressure through a heat and moisture exchange viral filter, and only open as long as is absolutely necessary to complete any intervention. If the described precautions are taken, then the risk will be minimised. Concerns about cardiac oscillations are overstated and timely communication with the surgeon can ensure there is no surgical manipulation during any intervention.

Dr Greenhalgh has suggested deep extubation to minimise coughing and aerosol generation. Deep extubation has previously been described as an advanced technique with the disadvantage of an increased risk of upper airway obstruction, which may in turn require additional interventions and aerosol-generating procedures to correct [6]. It is noteworthy that the Difficult Airway Society does not feature deep extubation as a technique in its guidelines for managing the airway in patients with COVID-19 [7]. In our experience, we have not noticed any difference in the quality or time to achieve lung deflation.

Our recommendations have been reviewed internally, by national societies in the UK, and are broadly in keeping with the recommendations of the European Association of Cardiothoracic Anaesthesiology [8], but there is always scope for fine-tuning of the techniques as experience grows.

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