

Combining Videolaryngoscopy With Fiber-Optic Orotracheal Intubation for Inclusion in the Nonemergency Pathway of the Difficult Airway Algorithm

Ann-Kathrin Riegel, MD,* and Michael Winterhalter, MD†

As technology progresses, our clinical treatment options rise steadily. We are comfortable now with the handling of ready-to-use high-quality videolaryngoscopes and fiber optics, and there is increasing knowledge and practice that the combination of these 2 techniques has a high “rescue rate” in situations when fiber-optic intubation or videolaryngoscopic intubation fails. Therefore, we would recommend to specifically include this technique in the “difficult airway algorithm—nonemergency pathway,” so it comes routinely into mind when faced with a “can ventilate, but cannot intubate” situation that warrants intubation for the surgical operation. (A&A Practice. 2019;12:28–9.)

Generally “can ventilate, cannot intubate” situations are often solved through laryngeal mask ventilation. Intermittent mask ventilation or temporary laryngeal mask ventilation enables us to try different techniques under adequate oxygenation to achieve intubation in difficult airways. For these cases, the Task-Force on Management of the Difficult Airway of the American Society of Anesthesiologists suggests that we have “alternative approaches that can be used if the primary approach fails or is not feasible.”¹ Fiber-optic intubation, despite being gold standard, does not provide a 100% success rate, or as Maticc says: “No single airway device or technique will be successful in every clinical situation.”² We would like to highlight the combination technique of videolaryngoscopy-assisted fiber-optic orotracheal intubation for consideration to be included in the difficult airway algorithm in the nonemergency pathway (Figure). We use this technique for difficult airway situations in small children/infants in our department.

As reported by others, there are several advantages of the combined technique. One of the main problems with fiber-optic intubation, the narrow pharynx, can be solved through simultaneous direct or videolaryngoscopy with elevation of the oropharynx. This is also helpful in case of tongue swelling or presentation with a large epiglottis. The high flexibility of the fiberscope tip in comparison to an endotracheal tube stylet makes it possible to advance the fiberscope and endotracheal tube even when the trachea is severely distorted. Furthermore, control of the fiberscope tip through the videolaryngoscope reduces the risk of lateral deviation of the bronchoscope. If videolaryngoscope and bronchoscope are connected to monitors, both can be placed next

to each other and a simultaneous laryngeal “microview” through the bronchoscope can be combined with a “macroview” through the videolaryngoscope. The use of monitors to guide the process is also good for teaching purposes. It is presumed that the combination of fiberscope and videolaryngoscope will reduce trauma to the tissues, and it is assumed that the intubation time can be reduced in patients with Cormack-Lehane airways grade IIb and greater.³

In elective cases, known possible mask ventilation and known possible difficult intubation permit us to choose an alternative to awake fiber-optic intubation, which may be uncomfortable, especially for children and infants. Compliance in infants and children is rarely achieved without sedation or anesthesia. It is necessary that the anesthesia team in this situation be prepared with several readily available intubation options. Furthermore, because a difficult airway can present in any patient in any hospital at any time, every anesthesiologist



Figure. The process of videolaryngoscope-assisted fiber-optic intubation.

From the *Department of Anesthesia, University Clinic Hamburg Eppendorf, Hamburg, Germany; and †Department of Anesthesia, Klinikum Bremen-Mitte, Bremen Hospital group, Bremen, Germany.

Accepted for publication May 25, 2018.

Funding: None.

The authors declare no conflicts of interest.

Address correspondence to Ann-Kathrin Riegel, MD, Department of Anesthesia, University Clinic Hamburg Eppendorf, Martinistr 52, Hamburg, Germany. Address e-mail to AnnKathrin.Riegel@gmail.com.

Copyright © 2018 International Anesthesia Research Society
DOI: 10.1213/XAA.0000000000000849

should be aware of rescue options. We believe the combination of videolaryngoscopy with fiber-optic intubation is an approach worthy of consideration and inclusion in the non-emergency pathway of the difficult airway algorithm. ■■

DISCLOSURES

Name: Ann-Kathrin Riegel, MD.

Contribution: This author helped write the manuscript and research the literature.

Name: Michael Winterhalter, MD.

Contribution: This author helped edit and revise the manuscript.

This manuscript was handled by: Raymond C. Roy, MD.

REFERENCES

1. Apfelbaum JL, Hagberg CA, Caplan RA, et al; American Society of Anesthesiologists Task Force on Management of the Difficult Airway. Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. *Anesthesiology*. 2013;118:251–270.
2. Matic AA. Use of the Airtraq with a fibreoptic bronchoscope in a difficult intubation outside the operating room. *Can J Anaesth*. 2008;55:561–562.
3. Sgalambro F, Sanfilippo F, Santonocito C, Caltavuturo C, Grillo C. Virtual laryngoscopy and combined laryngoscopic-bronchoscopic approach for safe management of obstructive upper airways lesions. *Br J Anaesth*. 2014;113:304–306.