

Nasotracheal intubation using the Airtraq[®] optical laryngoscope in patients with a difficult airway

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To the Editor,

We were interested in a recently published case report¹ describing application of the Airtraq[®] optical laryngoscope (Airtraq) for nasotracheal intubation (NTI) in a patient with a predicted difficult airway who was undergoing oral surgery. The authors are to be congratulated on their successful airway management in this challenging case. However, topical anesthesia was performed on only the naris and nasopharynx. In our experience, topical anesthesia of the trachea is also important for successful tracheal intubation and to ensure comfort of the awake patient. Moreover, insertion of a MADgic[®] laryngotracheal atomizer (MAD-LTA) (Wolfe Tory Medical Inc., Salt Lake City, UT, USA) through the oral and nasal cavities for topical anesthesia of the supraglottic, glottic, and infraglottic areas can be performed quite easily under the visual field of the airway provided by the Airtraq. This technique is well tolerated by the awake sedated patient, possibly due to less stimulation of the oropharyngolaryngeal structures during laryngeal exposure using the Airtraq, as it does not require a “line of sight” to visualize the airway anatomy.²

In cases where there was difficulty in directing the nasotracheal tube tip into the glottis under direct vision with the Airtraq, the authors used a flexible nasotracheal tube rather than a preformed tube to insert the fiberoptic bronchoscope (FOB).¹ Preformed nasotracheal tubes are

very useful for patients undergoing head and neck surgery because they are easy to secure, they provide convenient surgical access, and they may reduce pressure on the nares. We previously reported methods to improve use of preformed nasotracheal tubes during FOB-guided NTI.³

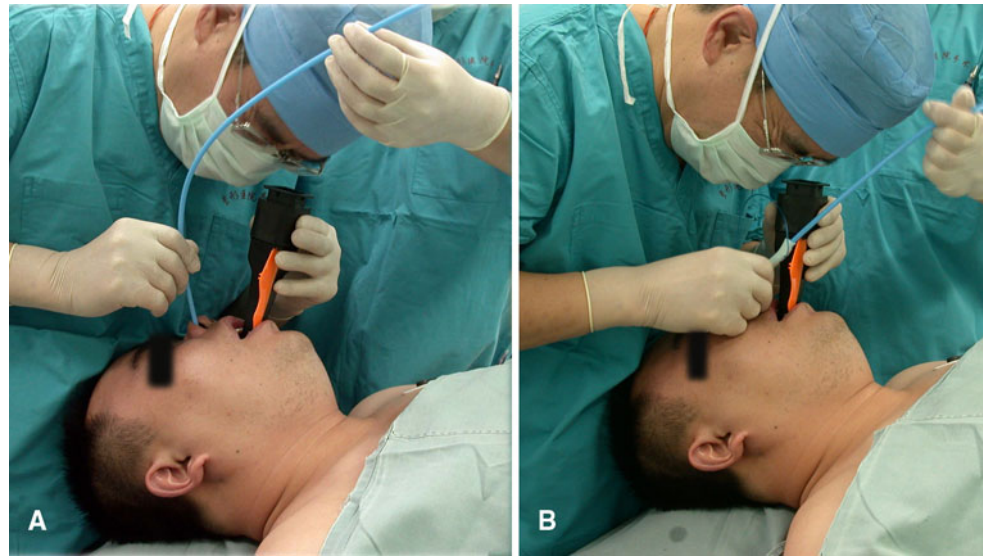
Our experience suggests that difficulty in directing the tube tip into the visualized glottis can be challenging when NTI is performed with the Airtraq, especially for pediatric patients.⁴ To address this problem, we have used all the techniques described in the recent case report.¹ In some cases, we have found external laryngeal manipulation to be useful in locating the lateral tube tip. Although the nasal version Airtraq provides additional space to facilitate passage of Magill forceps in the absence of a posterior tube-guiding channel, the greater distal angulation of its blade may render their use very awkward. Furthermore, use of Magill forceps can occasionally result in cuff damage. Combined use of the Airtraq and a FOB can enable successful NTI in patients with difficult airways, but disadvantages of this method include the need of two experienced anesthesiologists during tracheal intubation and complex cleaning and sterilization procedures after tracheal intubation. In our practice, the Airtraq and a FOB are used in combination in any situation where the operator is unable to visualize the glottis by the viewfinder, either with or without the epiglottis, i.e., either a Cormack-Lehane grade 3 or grade 4 view via the Airtraq. If only the nasotracheal tube tip is excessively posterior or lateral to the glottis under the Airtraq visualization, we prefer to use a cuff inflation technique to align the tube tip with the glottis.⁴

When only a Cormack-Lehane grade 2 view is obtained using the Airtraq or when the glottis is off-centre of the viewfinder, we have recently combined use of the Airtraq and the Eschmann Tracheal Tube Introducer (gum elastic

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Figure Use of a combination of the Airtraq optical laryngoscope (Airtraq) and an Eschmann Tracheal Tube Introducer (gum elastic bougie) to overcome the uncorrected tube tip location during nasotracheal intubation. Under direct vision using the Airtraq, a gum elastic bougie is inserted into the trachea via the nostril (A), and the nasotracheal tube is then railroaded over the gum elastic bougie (B)



bougie) to resolve these limitations using two approaches. First, a gum elastic bougie is inserted into the patient's nasopharynx through the nostril. By adjusting the position of the bougie tip, it is directed towards the glottis and advanced into the trachea in a downwards direction (Figure, Panel A). The nasotracheal tube is then railroaded over the gum elastic bougie (Figure, Panel B). Second, after the nasotracheal tube is inserted into the nasopharynx, if difficulty occurs when directing the tube tip into the glottis, a gum elastic bougie is advanced through the nasotracheal tube into the trachea, and the nasotracheal tube is then railroaded over the gum elastic bougie. This technique has also been used to overcome the problem during NTI using other videolaryngoscopes.⁵ The two methods require an experienced anesthesiologist and a trained assistant. The added advantage to this technique is the fact that a gum elastic bougie is available in every operating room, and the single-use gum elastic bougies do not require cleaning and sterilization.

Competing interests All authors state that the Airtraq® laryngoscope used in this manuscript was purchased from the manufacturer, and no author has any financial support or potential conflicts of interest related to this work.

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Reply

Thank you for the opportunity to address the comments of Drs. Xue et al. regarding our recently published case.¹ We agree with them about the importance of providing topical anesthesia of the trachea, which indeed is our routine practice for awake tracheal intubations. We intentionally omitted this point in our case report so as not to prolong the case description. When using the Airtraq® optical laryngoscope (Airtraq), we usually apply additional topical anesthesia through a tracheal spray tube inserted through the endotracheal tube. If this maneuver is not possible, we use a transtracheal cricothyroid puncture with 2 mL of 2% lidocaine. Regarding our choice of endotracheal tube, we commonly use a flexible tube, as we prefer not to manipulate the original design of the preformed nasotracheal tube.² In our experience, the combination of the Airtraq and a fiberoptic bronchoscope is necessary whenever Cormack-Lehane grade 3 or grade 4 views are established with the Airtraq and whenever a grade 2 view is established where there is an important pharyngolaryngeal compression and deviation of the larynx by a mass effect. In these cases, the glottis is typically located off-centre of the viewfinder, and it is often impossible to negotiate the sharp

angle of the tip of the endotracheal tube and the glottis, which necessitates additional maneuvers.

Competing interests None declared.

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