Facilitating combined use of an Airtraq[®] optical laryngoscope and a fiberoptic bronchoscope in patients with a difficult airway

Yu J. Yuan, MD · Fu S. Xue, MD ·
Xu Liao, MD · Jian H. Liu, MD · Qiang Wang, MD

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To the Editor,

We congratulate Drs. Gómez-Ríos and Nieto Serradilla on their successful tracheal intubation using a combination of an Airtraq[®] optical laryngoscope (Airtraq), Airtraq video camera, Airtraq wireless monitor (Prodol Meditec S.A., Vizcaya, Spain), and a fiberoptic bronchoscope (FOB) after failed intubation in a patient with a grossly distorted airway due to compression by a cervical tumour.¹ We too have employed this combined technique in both adult and pediatric patients with difficult airways.^{2,3} In our experience, an important advantage of this approach is the ease and precision of FOB-guided intubation using the Airtraq; inserting the Airtraq to lift the patient's tongue and jaw can achieve a clear airway for fibroscopy. Furthermore, by providing a clear view of the airway, the external monitor allows the FOB and Airtraq operators to observe simultaneously each step during the procedure. This approach is especially suitable in situations where the glottis cannot be visualized adequately by the Airtraq, either with or without the epiglottis, i.e., in a Cormack-Lehane grade 3 or grade 4 view.⁴

In their report, the authors do not specify the type and manufacturer of the FOB used in this case. From Panel C of the Figure, we speculate that an adult FOB with an outer diameter of at least 4 mm was inserted through a 7.0-mm polyvinyl chloride endotracheal tube (ETT) mounted in the guiding channel. Also, the ETT tip was placed within the vicinity of the glottis during fibroscopy. Our experience suggests that inserting a large FOB via the ETT and placing

the ETT tip close to the glottis can cause difficulties in performing fibroscopy and in directing the FOB tip into the glottis. Maneuverability of the anterior bending section of the FOB is decreased by limiting the spaces between the inner wall of the ETT and the outer wall of the FOB and between the glottis and the ETT tip.

In our practice, when tracheal intubation with an Airtraq fails, we prefer to use two approaches to facilitate FOB-guided intubation using the Airtraq: 1) If the operator plans to insert a FOB through the ETT mounted in the guiding channel, the ETT tip should be placed just at the distal end of the guiding channel to obtain an adequate space for the fibroscope.² A small FOB is recommended to improve maneuverability of the fibroscope (Figure).³ 2) If a small FOB is not available, we suggest to withdraw the ETT from the guiding channel and to thread the ETT over a large FOB. The FOB loaded with the ETT can then be passed through the guiding channel toward the larynx. After the larynx is exposed by fibroscopy, the FOB can be advanced into the trachea through the glottis, and subsequently, the ETT can be railroaded over the FOB within the guiding channel into the trachea. With this approach, it is relatively easy to perform fibroscopy with the FOB and to insert the FOB and the ETT into the trachea.

Competing interests None declared.

References

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Y. J. Yuan, MD · F. S. Xue, MD (✉) · X. Liao, MD ·
J. H. Liu, MD · Q. Wang, MD
Plastic Surgery Hospital, Chinese Academy of Medical Sciences
and Peking Union Medical College, Beijing, China
e-mail: fruitxue@yahoo.com.cn

Figure The two approaches to facilitate the fibreoptic bronchoscope (FOB)-guided intubation using the Airtraq[®] optical laryngoscope (Airtraq). In the first approach, a small FOB with an outer diameter of 3.1 mm is inserted through the endotracheal tube (ETT) mounted in the guiding channel and then directed into the glottis (a). Noted: The ETT tip is placed at the distal end of the guiding channel rather than at

a site close to the glottis. In the second approach, a large FOB with an outer diameter of 4.8 mm is inserted through the guiding channel and directed into the glottis (b). After the FOB is directed into the trachea, the ETT is railroaded over the FOB within the guiding channel into the trachea (c)

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Reply

We appreciate the interest shown by Dr. Xue *et al.* regarding our recently published case report.¹ In response to their speculation regarding the type and manufacturer of fibreoptic bronchoscope (FOB) used in our case, we used the Pentax FI-10BS (Pentax Corporation, Tokyo, Japan) with an distal tip diameter of 3.4 mm. This is different from the FOB shown in the Figure, i.e., the Machida FBS-6TL with an outer diameter of 6 mm, used only for teaching purposes in our hospital. In our experience, it is important to consider the relationship between the endotracheal tube (ETT) tip and the glottis in the initial attempts at tracheal intubation with the Airtraq[®] whenever Cormack-Lehane grade 2 views are established and the glottis is located off-centre in the viewfinder. In the event of a failed initial attempt at tracheal intubation, it can be beneficial to have the ETT mounted within the guiding channel independently of the outer diameter of the FOB if the ETT tip is placed in proximity to the glottis. This is especially

important in the presence of laryngeal deviation due to a mass effect, as in our case. If a large ETT and a small FOB are used, one should also bear in mind that the different diameters can cause difficulties when advancing the ETT over the FOB into the glottis.² On the other hand, if a smaller diameter ETT and larger size Airtraq are used, it is possible that the tracheal intubation angle will increase,³ thereby generating difficulties in performing fibroscopy. In our view, it is beneficial to assess the relationship between the guiding channel of the Airtraq, the ETT, the FOB, and the glottis whenever these devices are used in combination for anticipated difficult tracheal intubation.

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Manuel Ángel Gómez-Ríos MD

Complejo Hospitalario Universitario A Coruña, Spain

Laura Nieto Serradilla MD

Complejo Hospitalario Universitario de Vigo, Spain