

Changing the Laryngoscope Blade and Its Effect on Laryngeal Visualization

To the Editor:

Amour and colleagues compared single-use with reusable metal laryngoscope blades and found better laryngeal exposure and more successful intubation with the former.¹ Laryngeal visualization and subsequent tracheal intubation are dependent, however, on many other factors besides the blade type. Upper airway anatomy, experience of the laryngoscopist, adequate relaxation, patient's head and neck position, external laryngeal manipulation, blade size, and the laryngoscope lifting force are all factors that can dramatically affect the ability to visualize the larynx.² Therefore, to separate out the effect of one factor on laryngeal visualization, all of the other factors will have to be standardized. The authors should be applauded for trying to control most of the factors. Two important factors, however, were not addressed: the use of external laryngeal manipulation and the laryngoscope lifting force. There was no mention in the study of whether external laryngeal manipulation was used in some patients, all patients, or none; whether it was used during the first attempt, second attempt, both, or neither; and most importantly, whether the documented laryngoscopic grade was the one before or after its application, if it was applied. The use of external laryngeal manipulation can improve visualization by a whole grade and, in some patients, can be the factor that makes the difference between intubation failure and success.³ Similarly, there was no mention of whether any attempt was made to standardize the laryngoscope lifting force. Increasing the force can be accompanied by a change in the resultant view, and this increase can occur in response to a poor view without the laryngoscopist even being aware of it.⁴ The forces applied during laryngoscopy can be measured, and thus controlled, by a device that can be used for both clinical research and patient care purposes.⁵ There is no doubt that the metal single-use blade provided better illumination, but was the difference in the results solely caused by the light factor or also influenced by the effect of the other factors that were not addressed? The results could have been more informative if these two factors were also standardized, especially because, as the authors themselves mentioned, it is extremely difficult to keep such a study blinded.

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In Reply:

We thank Dr. El-Orbany and colleagues for providing us the opportunity to clarify several points from our study.¹ As we clearly explained, "After muscle fasciculations had been observed to ensure adequate muscle relaxation, tracheal intubation was performed using an endotracheal tube systematically associated with an internal stylet and cricoid pressure (Sellick's maneuver)."^{1,2} Therefore, in all patients during the intubation procedure (both first and second attempts), cricoid pressure was applied and maintained. However, a recent randomized study using a reusable metal blade demonstrated that the Sellick maneuver does not significantly increase the rate of failed intubations.³ In addition, as described in our study,^{1,2} the Cormack and Lehane score was obviously evaluated during cricoid pressure in both first and second attempts.

Because two recent studies demonstrated that peak force was not significantly different between single-use and reusable metal blades for tracheal intubation,^{4,5} and because force assessment markedly increases the complexity of the procedure and may influence the efficiency of an anesthesiologist in the specific case of patients undergoing general anesthesia requiring rapid sequence induction, the lifting force was not measured in our study. Moreover, Rassam *et al.*⁵ observed that the grade of anesthetists (trainee or consultant) did not significantly affect the mean peak force applied during laryngoscopy. We confirmed these findings because intubation performances were similar between senior anesthesiologists, junior anesthesiologists, and nurse anesthetists recruited to participate in this multicenter randomized study. Finally, as reported in Hastings' study,⁶ lifting force is not significantly different among repeated laryngoscopies performed by the same anesthesiologist. In our study, first and second attempts were performed by the same operator. For all these reasons, we do not think that lifting force may have contributed to bias the results obtained in our study.