CORRESPONDENCE

Reflective intubation: a simple and effective method to improve intubation conditions by elevating the tip of the tube without additional equipment

Editor—Fortunately, the majority of tracheal intubations by means of direct laryngoscopy is easy and can be successfully managed by ordinary trained anaesthetists without requiring additional instruments or alternative methods. In the broad spectrum of intubation difficulties, from the very simple to the most difficult ones, there is a rather large proportion of cases, where we encounter mild or moderately severe problems to secure the airway. This is typically the case in Cormack and Lehane 2° viewing conditions,[1] which in the hands of less experienced personnel might become challenging. These moderate intubation difficulties are more frequent than the really nasty ones and usually can be overcome by rather simple means, such as altering the head position, neck extension, or both, the insertion of a malleable stylet into the tracheal tube and forming it more conveniently, or by switching to different laryngoscope blades. Other anaesthetists may resort to visually augmented equipment such as video laryngoscopes or other more or less sophisticated devices.[2 3]

A common way to cope with an unexpected moderately difficult laryngeal view (e.g. a Cormack and Lehane 2°) is to interrupt the ongoing intubation attempt and to demand the insertion of a malleable stylet into the tracheal tube by an assisting person.[4] This incident prolongs the whole intubation procedure and leaves more time for the occurrence of additional problems such as aspiration of gastric content, hypoxaemia, and hypercarbia.[5] Repeated attempts of laryngoscopy may have undesired effects on the temporomandibular joint and dentition.[6] Therefore, it is a justifiable concern to limit the duration and number of laryngoscopies and to search for methods how to increase the success rate of the very first intubation trial. Another means to bend the tube to a more convenient shape is the subsequent insertion of a Flex-It™ stylet (FIS, Parker Medical, Highlands Ranch, CO, USA), which can be temporarily locked into a more pronounced curvature.[7 8] If the ability to change the tube shape is *a priori* intended, the choice of an Endotrol™ tracheal tube with an inbuilt bending ability might be preferable.[9] In contrast to these equipment related and to some extent costly alternatives, a purely procedural improvement of the view under ongoing laryngoscopy has been already long ago suggested, as is the case with the laryngeal lift, which is a cephalad displacement of the larynx.[10] A very simple and expedient approach to manually modify the tracheal tube's shape during the ongoing laryngoscopy is described here.

The 'reflective' intubation technique intends to facilitate intubation by adding a specific additional move during its performance without the necessity to interrupt laryngoscopy. It neither needs the application of a bigger force on the laryngoscope to improve the glottis view nor the use of any additional equipment. This technique is based on amplifying the original curved form of the tracheal tube by bending it during its

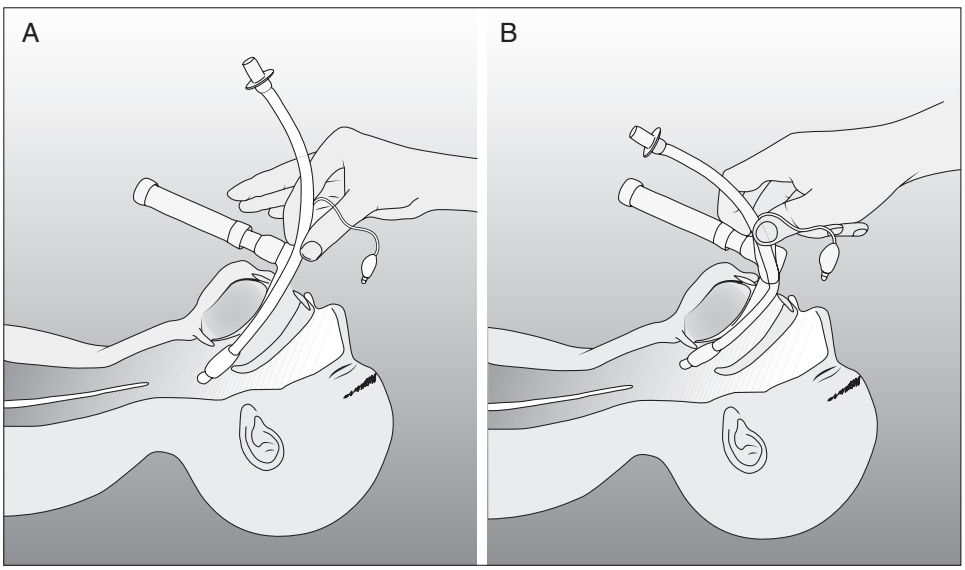

Fig 1 Display of the Reflective Intubation (RI) technique. Original shape and position of the tracheal tube tip before the RI is applied (A), and more curved shape and elevated position of the tracheal tube tip during performance of RI (note the middle finger of the right hand exerting a slight pressure on the tube shaft above the dental row) (B).

passage through the pharynx and by elevating its tip, which in turn gets closer to the glottic opening. The 'trick' is to gently press the tube shaft with the middle finger of the right hand on a point 2 cm above the dental row into its concave side in the direction of the tube's convexity, while using the upper dental row (or the upper gums in edentulous patients) as a hypomochlion (Fig. 1).

This move inevitably causes a more pronounced bending of the entire tube and decreases the curve radius, which is given by its original shape. The resulting forward movement of the proximal tube end reflects the simultaneously occurring symmetrical elevation of the distal tip, thus giving reason to call this move 'reflective'. Consequently, both ends of the tube approach each other; however, the relevant benefit happens in the pharynx, where the resulting upward move of the tube tip can be translated into an approach to the glottis opening, which in turn facilitates intubation. According to direct assessment, the net effect of this manoeuvre is equal to an improvement of the Cormack and Lehane view by one grade. However, this statement is based only on personal observation of the tracheal tube's physical behaviour and still has to be substantiated (or rejected) by future investigations.

This simple and unpretentious move became by time an integral part of the regular intubation technique of the author of this article, and it may have substantially contributed to his overall success rate. However, this change in the technique happened intuitively and developed in a natural way while it has never been consciously noticed when it became a standard habit. Therefore, it remained unknown until colleagues, who watched this approach, wondered about the nature of this specific move. This was the initial trigger to produce and publish this report. Hopefully, this herein presented simple and effective method will gain some attention and productive use. A prospective investigation to assess its influence on the outcome of tracheal intubations in patients will follow soon.

Declaration of interest

The author is Board Member and the Treasurer of the European Airway Management Society (EAMS).

P. Biro
Zurich, Switzerland
E-mail: peter.biro@usz.ch

1 Cormack RS, Lehane J. Difficult tracheal intubation in obstetrics. *Anaesthesia* 1984; **39**: 1105–11
2 Aziz M. Use of video-assisted intubation devices in the management of patients with trauma. *Anesthesiol Clin* 2013; **31**: 157–66
3 Byhahn C, Cavus E. Airway management disasters in the ICU—lessons learned? *Crit care* 2012; **16**: 162
4 Levitan RM, Pisaturo JT, Kinkle WC, Butler K, Everett WW. Stylet bend angles and tracheal tube passage using a straight-to-cuff shape. *Acad Emerg Med* 2006; **13**: 1255–8
5 Sakles JC, Chiu S, Mosier J, Walker C, Stolz U. The importance of first pass success when performing orotracheal intubation in the emergency department. *Acad Emerg Med* 2013; **20**: 71–8
6 Gaudio RM, Barbieri S, Feltracco P, *et al.* Traumatic dental injuries during anaesthesia. Part II: medico-legal evaluation and liability. *Dental Traumatol* 2011; **27**: 40–5
7 Turkstra TP, Jones PM, Ower KM, Gros ML. The Flex-It stylet is less effective than a malleable stylet for orotracheal intubation using the GlideScope. *Anesth Analg* 2009; **109**: 1856–9
8 Kristensen MS. The Parker Flex-Tip tube versus a standard tube for fiberoptic orotracheal intubation: a randomized double-blind study. *Anesthesiology* 2003; **98**: 354–8
9 Cattano D, Artime C, Maddukuri V, *et al.* Endotrol-tracheal tube assisted endotracheal intubation during video laryngoscopy. *Intern Emerg Med* 2012; **7**: 59–63
10 Krantz MA, Poulos JG, Chaouki K, Adamek P. The laryngeal lift: a method to facilitate endotracheal intubation. *J Clin Anesth* 1993; **5**: 297–301

doi:10.1093/bja/aet266

Working conditions, stress, fatigue, and depressive symptoms among Chinese anaesthetists

Editor—Anaesthetists are exposed to fatigue and many stressors at work, such as long working hours, extended duty shifts, high demand of the job, and the burden imposed by working in isolation and lack of respect.[1 2] And mental well-being of anaesthetists needs more attention, since the negative impacts of depression on anaesthetists inducing not only physical problems and the suicide of anaesthetists, but also more medication errors, absenteeism from work, and decreased productivity, all of which may result in patients' safety suffering.[3] However, their mental health status is often neglected by medical management and researchers.[4]

Our study was aimed to investigate working conditions, work-related stress, fatigue, and depressive symptoms among Chinese anaesthetists.

A cross-sectional survey was carried out in 13 randomly selected grade III hospitals of five cities of China, in 2012. The questionnaires evaluated background, working conditions of anaesthetists (including job rank, salary satisfaction, respect at work, anaesthetist–patient relationship, and turnover intention), fatigue assessed by the Chinese version of Multidimensional Fatigue Inventory (MFI), and work-related stress measured by the Chinese version of the Job Content Questionnaire (JCQ), while depressive symptoms were evaluated by the Beck Depression Inventory (BDI). After univariate analysis, the associations between factors and depressive symptoms were analysed using multivariate logistic regression.

Three hundred and thirty-eight questionnaires were returned by 410 anaesthetists, among which 311 were effective (effective rate, 75.9%). The results showed that 62.1% anaesthetists had depressive symptoms (BDI $\geq$5). Regarding working condition, 56.8% participants indicated that their salary did not meet the effort they offered at work, while 27.5% anaesthetists reported they did not get the respect they deserved. Meanwhile, 81.1% participants were bothered