

# Self-BURP maneuver in laryngoscopy in paediatric patients

Tomohiro Yamamoto<sup>1</sup>, Ehrenfried Schindler<sup>2</sup>

<sup>1</sup>Division of Anaesthesiology, Niigata University Graduate School of Medical and Dental Sciences, Niigata, Japan

<sup>2</sup>Department of Paediatric Anaesthesiology, University Hospital Bonn, Bonn, Germany

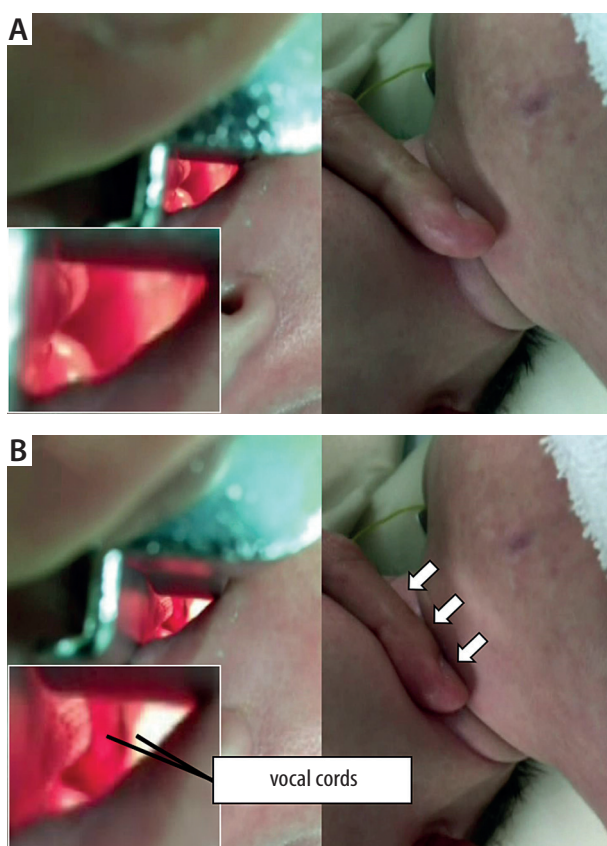
Dear Editor,

The BURP (backward, upward, rightward pressure) maneuver to the thyroid cartilage is performed to dislocate the larynx of the patient in three directions: posteriorly, superiorly, and laterally to the right [1]. Pressure can be put on the thyroid cartilage only posteriorly to displace the larynx of the patient backward (Back maneuver) [2].

The BURP maneuver is reported as an advanced technique of the Back maneuver [1]. These are well-known techniques in laryngoscopy and are

reportedly efficient in improving the visualization of the larynx for tracheal intubation [3]. However, it has also been reported that the BURP maneuver performed on the cricoid cartilage [4] or cricoid pressure (Sellick's maneuver) [5–7] increases difficulty with ventilation and worsens the glottic view in laryngoscopy in some patients. In addition, the application of the BURP maneuver to the cricoid cartilage instead of the original site at the thyroid cartilage during rapid sequence anaesthesia induction has no protective benefit for patients [8].

Anestezjologia Intensywna Terapii  
2020; 52, 1: 75–76



**FIGURE 1.** Self-BURP maneuver with the size 1 Macintosh laryngoscope blade. **A)** The vocal cords of the patient are not fully visible before the self-BURP maneuver was performed. **B)** The vocal cords become visible when the patient's thyroid cartilage is pushed by the intubating anaesthesiologist's little finger (↑) ("self-BURP maneuver")

#### ADRES DO KORESPONDENCJI:

Tomohiro Yamamoto MD, PhD, Division of Anaesthesiology, Niigata University Graduate School of Medical and Dental Sciences, 1-757, Asahimachi-dori, Chuo ward, Niigata, 951-8510, Japan, e-mail: yamatomo270@hotmail.com; yamatomo@med.niigata-u.ac.jp



**FIGURE 2.** Laryngoscope held with three digits. The laryngoscope should be held with three digits – the thumb, index finger, and middle finger – to allow the little finger to be used freely for the self-BURP maneuver

In recent decades, instruments such as video laryngoscopes have been developed and their efficacy for difficult airways has been reported in paediatric patients [9] as well as in adults. However, even though small-sized blades for video laryngoscopy of paediatric patients have been developed, they are still too big to be applied to newborns or pre-term babies. Therefore, conventional direct Macintosh or Miller laryngoscopes are the only devices that can be used in such cases. A study of cadavers reported that bimanual laryngoscopy is more effective in improving the glottic view as compared to Sellick's maneuver, BURP maneuver, and no manipulation [10]. In practice, physicians inadvertently use this bimanual technique, as they push the throat of the patient with the right hand to find the best possible glottic view before taking the endotracheal tube in their right hand to intubate the patient. However, in this technique, an assistant needs to provide the intubating physician with a similar glottic view during the tracheal intubation procedure, because the intubating physician is required to release the throat pressure to hold the endotracheal tube in his/her right hand.

Since instructing the assistant regarding the optimal direction and strength of pressure is not easy, the physician can push the thyroid cartilage of the patient with his/her own

little finger, using the "self-BURP maneuver", to get the best view of the vocal cord for intubation (Figure 1). The laryngoscope should be held with three digits – the thumb, index finger, and middle finger (Figure 2) – to allow the little finger to be used freely for the self-BURP maneuver [11]. This self-BURP maneuver is applicable not only in children but also in patients of all ages, as long as the little finger of the intubating physician reaches the throat of the patients.

## ACKNOWLEDGEMENTS

1. Financial support and sponsorship: none.
2. Conflicts of interest: none.

## REFERENCES

1. Knill RL. Difficult laryngoscopy made easy with a "BURP". *Can J Anaesth* 1993; 40: 279-282. doi: 10.1007/BF03037041.
2. Wilson ME, Spiegelhalter D, Robertson JA, Lesser P. Predicting difficult intubation. *Br J Anaesth* 1988; 61: 211-216. doi: 10.1093/bja/61.2.211.
3. Takahata O, Kubota M, Mamiya K, et al. The efficacy of the "BURP" maneuver during a difficult laryngoscopy. *Anesth Analg* 1997; 84: 419-421. doi: 10.1097/0000539-199702000-00033.
4. Ellis DY, Harris T, Zideman D. Cricoid pressure in emergency department rapid sequence tracheal intubations: a risk-benefit analysis. *Ann Emerg Med* 2007; 50: 653-665. doi: 10.1016/j.annemergmed.2007.05.006.
5. Bhatia N, Bhagat H, Sen I. Cricoid pressure: Where do we stand? *J Anaesthesiol Clin Pharmacol* 2014; 30: 3-6. doi: 10.4103/0970-9185.125683.
6. Haslam N, Parker L, Duggan JE. Effect of cricoid pressure on the view at laryngoscopy. *Anaesthesia* 2005; 60: 41-47. doi: 10.1111/j.1365-2044.2004.04010.x.
7. Ovassapian A, Salem MR. Sellick's maneuver: to do or not do. *Anesth Analg* 2009; 109: 1360-1362. doi: 10.1213/ANE.0b013e3181b763c0.
8. Snider DD, Clarke D, Finucane BT. The "BURP" maneuver worsens the glottic view when applied in combination with cricoid pressure. *Can J Anaesth* 2005; 52: 100-104. doi: 10.1007/BF03018589.
9. Lee JH, Park YH, Byon HJ, et al. A comparative trial of the GlideScope(R) video laryngoscope to direct laryngoscopy in children with difficult direct laryngoscopy and an evaluation of the effect of blade size. *Anesth Analg* 2013; 117: 176-181. doi: 10.1213/ANE.0b013e318292f0bf.
10. Levitan RM, Kinkle WC, Levin WJ, Everett WW. Laryngeal view during laryngoscopy: a randomized trial comparing cricoid pressure, backward-upward-rightward pressure, and bimanual laryngoscopy. *Ann Emerg Med* 2006; 47: 548-555. doi: 10.1016/j.annemergmed.2006.01.013.
11. Holm-Knudsen RJ, Rasmussen LS. Paediatric airway management: basic aspects. *Acta Anaesthesiol Scand* 2009; 53: 1-9. doi: 10.1111/j.1399-6576.2008.01794.x.