New device and technique for lung deflation in bronchial blocker

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Editor,

The double-lumen tube has been called ‘a difficult tube’ for its difficult tracheal intubation and bronchial positioning.1 Therefore, in patients with difficult airways, the safest approach is to place a single-lumen endotracheal tube, and achieve lung isolation in these patients with a bronchial blocker for one-lung ventilation (OLV).2,3 But lung deflation with a bronchial blocker is time-consuming, because adequate suctioning of the operative lung is difficult through the narrow lumen of a bronchial blocker catheter2,4 Thus, in order to accelerate the speed of lung deflation using a bronchial blocker, a number of techniques have been developed, including disconnection (apnoea) and the use of continuous bronchial blocker suction techniques.5 However, the disconnection technique may carry a risk of blood or infected secretions contaminating the dependent lung resulting in hypoxaemia or hypoxia in patients with poor lung function, with the attendant morbidities.5,6

We report a new method to make lung deflation faster with a bronchial blocker by continuous bronchial suction technique using a modified device, an intravenous T-connector extension set (Perfect Medical Ind. Co., Ltd., Pei Dou Zhen, Changhua Hsieh, Taiwan R.O.C., Vietnam) and a handmade oblique-cut tracheobronchial suction catheter (BSUP14; Symphon Medical Technology Co., Ltd., Taiwan). After tracheal intubation with a single-lumen endotracheal tube (I.D. 7.0 mm for women and 7.5 mm for men), a bronchial blocker (Fuji Uniblocker; Fuji Systems, Tokyo, Japan) was introduced to the targeted bronchus. The correct position was confirmed with the fiberoptic bronchoscope and auscultation. After skin sterilisation, the blue balloon of the bronchial blocker was inflated. We then connected the modified device (Fig. 1) and applied continuous suction with pressure of $-30$ cmH$_2$O from the suction port of the bronchial blocker until pleural opening and the operative lung deflation. With this technique, we found OLV with operative lung collapse and pleural opening (Fig. 2) easier. This technique is simple to perform and may
reduce risks of hypoxaemia compared with the more conventional apnoea technique.

However, continuous aspiration via a suction port carries a risk of causing obstruction of the bronchial blocker’s aspiration channel by pulmonary secretions or blood resulting from surgical manipulations, especially during lung re-expansion. Although this device seems effective to quickly achieve lung collapse, it cannot be advocated, in the current state of knowledge, as a technical support for all surgery.

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Comparison of the acromio-axillosuprasternal notch index with five anatomical indices for the prediction of difficult laryngoscopy and intubation

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Editor,

Unexpected difficult intubation leads to hazardous consequences including arrhythmias, hypoxia and cardiac arrest.1 The prediction of difficult visualisation of the larynx (DVL) is very important in airway management. Although the Cormack–Lehane grading system was accepted as a gold standard test to define difficult laryngoscopy, it can be assessed only during intubation.2 Therefore, the establishment of criteria that can predict difficult intubation before laryngoscopy is necessary.

Some previous studies have assessed indices, such as interincisor gap, Mallampati test, modified Mallampati test (MMT), thyromental distance (TMD), sternomental distance, ratio of patient’s height to TMD (RHTMD), BMI, neck circumference, ratio of neck circumference to thyromental height (neck circumference/TMH), upper lip bite test (ULBT) and acromio-axillo-suprasternal notch index (AASI). They found that these indices had different levels of sensitivity and specificity for prediction of difficult intubation.3–9

We compared the predictive values of six anatomical indices (TMH, AASI, MMT, ULBT, RHTMD and neck circumference/TMH in DVL) with respect to difficult intubation and laryngoscopy to find out which test had the highest predictive value.

The current cross-sectional study was approved by the Ethics Committee of Isfahan University of Medical Sciences (IR.MUI.REC.1394.3.046) and conducted in Al Zahra Hospital affiliated with Isfahan University of Medical Sciences in Iran from May 2016 to February 2017 in 600 patients undergoing surgical procedures under general anaesthesia.

Patients were included if they were aged between 18 and 70 years, candidates for surgical procedures (except caesarean section) under general anaesthesia, BMI less than 30 kg m−2, absence of anatomical airway disorders, cervical fractures, upper airway trauma, cervical, mandibular rheumatological diseases, pathological defects in the upper airway, obstructive sleep apnoea and no history of difficult intubation.

Patients who required more than one attempt at tracheal intubation, an additional operator or an alternative intubation technique, a considerable lifting force during laryngoscopy, external pressure on the larynx for improving glottic exposure and vocal fold adduction at intubation were excluded from the study.

All patients were subjected to measurement for the above indices prior to admission to the operating room. According to the laryngoscopic view graded by the Cormack–Lehane grading system, the anaesthesiologist divided the patients into two groups of easy or difficult regarding the intubation process. In this classification system, grades 1 and 2 were considered as easy, whereas grades 3 and 4 were defined as difficult intubation.1,4,8–10

From induction until the end of anaesthesia, standard devices monitored ECG, pulse oximetry and blood pressure.

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