

## Awake fibreoptic intubation with a wire-guide to reduce the impingement of endotracheal tube onto airway soft tissue

Sir,

Awake fibreoptic intubation remains the gold standard treatment for a patient with anticipated difficult airway according to guidelines.<sup>[1]</sup> Nevertheless several limitations have been described to this technique, particularly regarding patient collaboration and tracheal tube progression through the larynx and vocal cords.<sup>[2]</sup> Passage of the endo-tracheal tube (ETT) on the first attempt is blocked between 40–66% times.<sup>[3]</sup> Recently, an author described the sites and mechanisms that inhibit the passing of ETT into the trachea.<sup>[4]</sup> The arytenoid and the inter arytenoid soft tissue are the main resistance points to ETT advancement and the tracheal tube impingement could result in a soft tissue injury with a possible challenging scenario. We describe an alternative technique to reduce multiple attempts and to avoid a repeated bronchoscopy, using a flexible guidewire inserted through the fibreoptic bronchoscope as a rescue. An 84-year-old man (BMI 30.1) was candidate for endoscopic trans-urethral bladder resection, with a history of a cannot ventilate-cannot intubate scenario that was resolved with emergency tracheostomy

without any physical sequels. The patient had difficult airway as described in Figure 1. After premedication with ranitidine (50 mg intravenous), we administered to the patient an aerosol of 1% lidocaine (100 mg) and instilled further 5 mL of 1% lidocaine into the oral cavity for the suppression of the gag reflex and the control of cough. We proceeded with remifentanyl infusion with incremental steps from 0.06 to 0.1  $\mu\text{g}/\text{kg}/\text{min}$  to achieve a Ramsay scale sedation of 2–3. Using the flexible fibreoptic bronchoscope (Olympus MAF-GM Airway Mobilescope®Tokyo Japan), we visualised the glottis and we additionally instilled 3 ml of 1% lignocaine. The anaesthesiologist noted oedema of soft tissue with hypomobility of the right arytenoid. After several attempts owing to anatomical challenges, the fibrescope entered into the trachea. We advanced the ETT (Shiley™ Hi-Contour Oral/Nasal Tracheal Tube Cuffed 7.0 mm I.D. ® Minneapolis, USA) into the trachea, but there was an impingement of the tracheal tube onto soft tissue structures. For this reason, we inserted a guidewire (Cook Staged Extubation set G24073 ®, length 145 cm, diameter 0.035 inch Limerick Ireland) through the operative fibreoptic channel and then we withdrew the flexible fibrescope. We inserted an exchange tube (Cook Staged Extubation set G24073 ®/C-CAE-14.0-83-EXTU, length 83 cm, 14.0 Fr Limerick Ireland), and over the exchange tube, we placed a smaller ETT (Shiley™ Hi-Contour Oral/Nasal Tracheal Tube Cuffed 6.5 mm I.D. Minneapolis, USA). Further, we advanced the ETT without any resistance. We removed the exchange tube and we administered, intravenous,



**Figure 1:** Anthropometric airway data of the patient: a: Mouth opening 3 cm; b: Thyromental distance 6 cm; c: Mallampati class IV; d: Ability to prognath  $< 1\text{ cm}$ ; e: Neck circumference 46 cm; f: Neck movement-maximum flexion and maximum extension  $< 80^\circ$

propofol 160 mg and rocuronium 40 mg to proceed with surgery. After the surgical procedure, we extubated the patient with an exchange tube maintaining adequate postoperative monitoring into post anaesthesia care unit. The postoperative otolaryngologist assessment revealed posterior glottic oedema involving arytenoid and inter arytenoid, owing to recent intubation, and hypomobility of right hemilarynx. The patient was discharged, according to our clinical practice.

Although laryngeal anatomy and technical skills are the main determinants to achieve an intubation success, during awake intubation the anaesthesiologists cannot visualise the distal part of ETT that is advanced blindly over the guide. The ETT pushing over soft tissue could generate laryngeal or pharyngeal damage deteriorating airway patency.<sup>[5]</sup> Pulling the bronchoscope out of the trachea and repeating the fiberoptic intubation with a smaller tracheal tube could generate a challenging scenario because of multiple attempts. Maintaining the fibrescope in a central position in the larynx and proceeding with a tube rotation could simplify the passage inhibition of the tube, but the possibility to maintain a guide into the trachea makes this technique more effective. Furthermore, we railroaded the ETT not on the wire but on a tube exchanger, to reduce possible dislodgement of the wire that is flexible and thin. Previously, a similar technique was used during nasal intubation by other authors, and they highlighted the possibility to use an airway exchanger to improve the success of this technique.<sup>[6]</sup>

The development of airway devices and the anaesthesiologist's skill are the pillars of difficult intubation, but in spite these concepts, currently, there are no solutions to the problem of ETT size during awake intubation. The technique described here could overcome this problem simplifying the ETT replacement in case of difficult progression during awake intubation.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

There are no conflicts of interest.

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