Alternate technique of exchanging nasotracheal tube in a case of temporomandibular joint ankylosis

Madam,

A 58-year-old female patient, with temporomandibular joint (TMJ) ankylosis presented for arthroplasty. Airway assessment revealed 2mm mouth opening with no TMJ movement. Mallampatti could not be assessed. Neck movements were unrestricted. Both nostrils were equally patent.

Awake fiberoptic nasal intubation for a secured airway was planned. A 7-mm ID, flexometallic cuffed endotracheal tube (ETT) was guided into the trachea with a fiberoptic bronchoscope using spray as you go (SAGO) technique. On confirming correct positioning of the tube, anesthesia was induced and relaxant was given. Expiratory Tidal volume was noted to be very low (150–168 ml), which improved on inflating the cuff repeatedly. Auscultation over the neck confirmed the leak. Despite high flow rates, persistent leak affected effective alveolar ventilation, making the nasal tube change necessary. This was hazardous due to the restricted mouth opening of the paralyzed patient. A Portex no. 7 cuffed ETT was loaded on fiberoptic scope and introduced into the other nostril. The scope was advanced through the glottis by the side of in-situ flexometallic ETT while manually ventilating through it. On confirming tracheal position of the bronchoscope, the leaking flexometallic tube was removed and the loaded portex tube was advanced over it into trachea; its position was confirmed and connected to ventilator. The expiratory TV was normal. Thereafter, surgery proceeded uneventfully with successful extubation and mouth opening of three finger breadth.

Possible options to change nasal tube are:
1. Tube exchangers\(^1,\)\(^2\) and jet ventilation can help replacing the leaking tube. Albeit being a simple procedure, the technique is blind. Two cases of accidental esophageal intubation in intensive care unit have been reported.\(^3\) Barotrauma with jet ventilation and tracheobronchial trauma by tube exchanger have also been reported.\(^4,\)\(^5\) High failure rate is dependent on the type of exchangers and operator’s expertise. Airway exchange in morbidly obese patients also entails extreme caution due to poor respiratory mechanics and increased oxygen consumption.
causing rapid desaturation[6]

2. As surgery (3–4 hours) required an alert, awake patient at the end, we opted against maintenance of anesthesia with the same tube with high flow and inhalational agent

3. A reattempt of awake nasal intubation, after awakening the patient, was also kept at low priority due to difficulty in maintaining ventilation till such time

4. Tracheostomy, an invasive technique, was considered after exhausting all noninvasive techniques

5. The option to introduce a loaded fibroscope into the existing leaking tube while simultaneously tearing it apart and advancing the new tube over the fibroscope (classical teaching) was not possible as our tube was flexometallic

6. Our option of fibroscopic intubation through the other nostril while ventilating the patient with high flows was the safest method which maintained the ventilation, depth of anesthesia, and vital parameters. Second, both nostrils were equally patent. With no. 7 flexometallic tube in situ, we still had space to advance the fiberoptic scope into the trachea without compressing it.

Airway challenge in the perioperative period can present even after a seemingly successful intubation of a difficult airway. Eternal vigilance, alertness, presence of mind, expertise, calm approach, and readiness to use unconventional methods is the key to success in such risky situations.

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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References
1. Cooper RM. The use of an endotracheal ventilation catheter in the management of difficult extubation. Can J Anaesth 1996;43:90-3.
2. Mort TC, Meisterling EM, Waberski WM. Exchanging a tracheal tube in the ICU patient: a comparison of two exchangers with direct laryngoscopy [abstract]. Anesthesiology 1997;89:240A.
3. Moyers G. Use of Cook's airway exchange catheters in bridging the potentially difficult extubation: A Case report. AANA Journal 2002;70:275-8.
4. Benumof J. Airway exchange catheters for safe extubation. The clinical and scientific details that make the concept work. Chest 1997;111:1483-86.
5. Nates J, Berner D. Mishaps with endotracheal tube exchangers in ICU: Two case reports and review of literature-The internet. J Anaesthesiology 1999;5:1-5.
6. Shaikh N, Mehmood K, Wafa A, Kokash O. Endotracheal tube exchange in pneumothorax: A case report. Case Rep Clin Med 2013;2:183-5. doi: 10.4236/crcm.2013.22050.

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