

Extubation difficulty after transphenoidal pituitary surgery in an acromegalic patient

Sir,

Acromegaly is a well-recognized cause of difficulty in airway management both during mask ventilation and tracheal intubation.^[1] But, scarcity of literature regarding extubation difficulty in acromegaly patient encourages us to report this post-operative case of transphenoidal surgery.

An 82 kg, 65 years acromegalic woman was scheduled for transphenoidal hypophysectomy for pituitary adenoma. Relevant history revealed that she was hypertensive and hyperthyroid since 5 years, but well-controlled on regular oral medications. She had no history of obstructive sleep apnea (OSA). On airway examination, she was edentulous with adequate mouth-opening with Mallampatti Grade II and having very large tongue with a multi-nodular

goiter [Figure 1a] with normal neck movement and positive jaw protrusion. In indirect laryngoscopy endolaryngeal structures appeared normal with large overhanging epiglottis (field was partially obstructed by it). Except bi-ventricular hypertrophy on trans-thoracic echocardiography, rests of the pre-anesthetic evaluations were unremarkable. The patient was clinically and biochemically euthyroid. Anesthesia was induced with fentanyl (100 mcg), propofol (150 mg), and rocuronium (50 mg). Difficult airway cart (including crithyroidotomy set) was kept ready. Direct laryngoscopy revealed Cormack-Lehane Grade III with liftable epiglottis and deviation of larynx to left side. We intubated the patient with 7 mm internal diameter endotracheal tube uneventfully in the first attempt. Besides routine monitoring, invasive blood pressure, end tidal carbon-di-oxide (ETCO₂), train-of-four stimulation and bispectral index (BIS) monitoring were used. Anesthesia was maintained with sevoflurane in oxygen (Minimum alveolar concentration 1-1.4) with nitrous oxide (N₂O) (50:50) keeping fresh gas flow 2 L/min. BIS value was kept between 40 and 60 while and ETCO₂ in normocapnia range. Following an uneventful surgery (lasted for 90 min), sevoflurane was switched off after nasal pack. N₂O was stopped after she responded to verbal commands. Residual neuromuscular blockade was reversed with onset of spontaneous respiration and four twitch response with BIS value of 96. Her trachea was extubated after leak test with assessment of adequate consciousness, respiratory efforts and muscle power. She became restless within 5 min after extubation with difficulty in breathing. Consciousness level was decreased and desaturation started. Immediately mask ventilation with 100% oxygen was done with an appropriate size oropharyngeal airway after oral suctioning. But there was minimal improvement in saturation. Arterial blood gas was showing hypoxemia with normal electrolytes (serum sodium (136-140 mEq/L), potassium (3.8-4.5 mEq/L) and ionic calcium

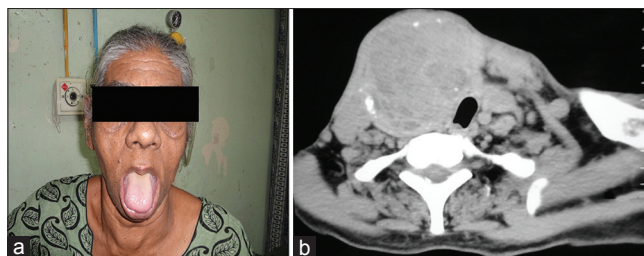


Figure 1: (a) Patient showing large tongue with goiter; (b) Soft-tissue neck computed tomography showing tracheal compression at thyroid level

(1.01-1.23 mmol/L)). Consequently reintubation was done under fentanyl and propofol. The patient was ventilated overnight and extubation was carried out under fiber-optic bronchoscope guidance next morning. Bronchoscopy revealed glottic edema and right vocal cord paresis. Post-extubation in supine position patient had mild respiratory distress with noisy respiration. Computed tomography scan of neck showed tracheal compression at thyroid gland level [Figure 1b]. However, in right lateral position, she was able to maintain oxygen saturation and communicate adequately. She was given steam inhalation, adrenaline nebulization and intravenous dexamethasone followed by oral deflazacort and seratiopeptidase. Within 48 h, she was comfortable and later discharged from hospital on sixth postoperative day.

In the postoperative period of transphenoidal pituitary surgery, presence of nasal packing, blood trickling in the pharynx and glottic edema due to endotracheal tube increase the airway difficulties.^[2] Additionally, acromegalic patient was predisposed to some upper airway related problems like thickening of the laryngeal and pharyngeal soft tissues, hypertrophy of the periepiglottic folds, calcinosis of the larynx and recurrent laryngeal nerve injury.^[2] All can complicate extubation due to airway obstruction and hypoxia. Indirect laryngoscopy, soft-tissue X-rays of the neck, and flow volume studies may help for early detection.^[3] Importantly, normal indirect laryngoscopy in a sitting patient does not rule out tracheal compression in post-operative supine patient. Acromegaly complicated by OSA is a documented high-risk for perioperative airway compromise and increases susceptibility to anesthetic agents.^[4] Despite large tongue and presence of goiter, our patient did not have history of OSA or any symptoms related to airway compression. It may probably be due to long standing multi modular goiter caused deviation of trachea without significant compression (<25%) or may be mild symptoms that commonly avoided or ignored by patients from low socio-economic and education status.

For emergence and extubation management in this patient, our options are firstly, to use short acting anaesthetics and opioids and to give extubation trial with all backup of reintubation with the use of fiberoptic bronchoscope to observe upper airway problems. This procedure cuts down the possibility of losing airway. Secondly, patient can be extubated after leak test with airway exchange catheter in trachea which allows gas exchange either by jet ventilation

or oxygen insufflations.^[5] Thirdly, extubation can be done with nasopharyngeal airway in one of the nostril. However, it is neither helpful for tracheal compression by thyroid (as in our case) nor prevent blood trickling into oropharynx. And lastly, tracheostomy can be done pre-operatively as this case was graded as Southwick and Katz Classification Grade 4.^[6] Again, there is a challenge in performing a tracheostomy in presence of a multi-nodular thyroid mass.

So to conclude, upper airway compromise is a particular concern while extubating an acromegalic patient with goiter. There are no evidences to prove the superiority of individual technique we have just proposed. So management of airway while extubation in acromegalic patients with goiter have to be individualised and a clear planning should be done.

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