

CLINICAL VIGNETTE

Manual Mobilization and Displacement of a Soft Palate Mass by Patient Facilitates Awake Nasal Fiberoptic Intubation

Mark Goh, MD and Peter Lee, MD

Introduction

Airway management in patients with large, obstructing introral masses can be extremely challenging. No established guidelines exist, and most recommendations come from anecdotal reports. If pedunculated and readily accessible, some authors have attempted mass excision under sedation with immediate laryngoscopy and intubation thereafter.¹ Others have reported manually displacing the mass from the oropharynx, either before or after induction, followed by a nasal or oral intubation attempt.^{2,3} Awake fiberoptic intubation around the mass is probably the preferred method for most providers,^{4,5} but may ultimately prove difficult depending on the size and location of the mass. When such methods fail, a surgical airway remains the option of last resort.

Case Description

A 25-year-old male with no significant past medical history except occasional tobacco and cocaine use presented to the emergency department with 8 months of a progressively enlarging soft palate mass. He was fearful of seeking care and therefore did not present earlier. In the weeks prior to presentation he noticed progressive difficulty with phonation and swallowing. Breathing was also increasingly difficult and optimized by turning his head to the left.

On exam his vital signs were normal including normal oxygen saturation on room air. There was no drooling, stridor, or accessory muscle use. His voice was extremely nasal and muffled, described by head and neck surgery as a “hot potato” voice characteristically seen in severe tonsillitis or peritonsillar abscess. The tongue and trachea were midline. No cervical swelling or lymphadenopathy was noted. There were frothy secretions in the oropharynx and a large mass that appeared to originate from the soft palate and uvula, occupying the entire posterior oropharynx behind the tongue. Flexible endoscopy by the surgeons visualized the glottis briefly with swallowing but the view was largely obscured by secretions and soft tissue.

CT scan of the neck showed a lobulated homogeneously hypodense mass measuring 41 mm AP x 42 mm TR x 73 mm arising from the tip of the uvula and spanning the oropharynx and supraglottic larynx, query epidermoid cyst or less likely neoplasm given lack of enhancement (Figures 1, 2).

He was taken to the operating room for urgent mass excision. Nasal intubation was requested as surgery was planned via the transoral approach. The anesthetic plan was to attempt awake nasal fiberoptic intubation around the mass and prepare for awake tracheostomy if unsuccessful.

After placement of standard ASA monitors, his airway was topicalized with 4% lidocaine via aerosolized spray and nebulized inhaler to the bilateral nares and posterior oropharynx. A transtracheal injection of 4cc of 4% lidocaine was also administered through the cricothyroid ligament. He was sedated minimally with 2mg of IV midazolam and 50 mcg of fentanyl. His nares were topicalized further with 2% lidocaine jelly and 0.25% phenylephrine spray and were dilated serially with nasal trumpets. A 7.0 nasal RAE tube was introduced into the nares until its tip was estimated to be just above the oropharynx and mass.

The fiberoptic scope was passed through the nasal RAE tube. Attempts to maneuver around the mass were unsuccessful. Soft tissue was repeatedly encountered. The patient remained cooperative and conversant, and without prompting, reached his hand into the oropharynx, retched, and mobilized the mass himself, displacing it into the anterior oropharynx (Figures 3,4). The fiberoptic view of the larynx improved considerably, the scope was advanced into the trachea, and the tube advanced over the scope easily. End tidal CO₂ was confirmed, and the patient was induced with propofol, sevoflurane, and rocuronium. Surgery proceeded uneventfully, the patient was extubated and taken to the recovery room stable. Pathology of the mass showed benign spindle cell lesion, favor myofibroma (Figure 5). He was discharged on POD1 in stable condition with his voice, breathing and swallowing considerably improved.

Discussion

Awake fiberoptic intubation remains a mainstay for airway management in cases of anticipated difficult airway,⁶ but the technique still poses challenges to providers. In addition to achieving adequate topicalization of the airway, providers must also maximize patency of the upper, supraglottic airway so that the laryngeal aperture can be visualized and traversed during endoscopy.⁷

Techniques vary, but most advocate use of some maneuvers to ensure that the tongue and epiglottis stay unopposed from the soft palate and posterior pharyngeal wall.⁸ These include jaw thrust, manual lingual traction using gauze, forceps, or tongue stitch, and even suction applied to the tip of the tongue.⁹ While effective, these maneuvers probably contribute to patient discomfort and anxiety in an already stressful situation, and may cause direct trauma if applied with excessive force. When significant airway pathology obscures normal anatomy, these maneuvers may also prove ineffective altogether.

Patency maneuvers are typically done by an assistant with little direct patient involvement. Patient participation probably represents an underutilized technique to optimize airway patency. Patients may be able to protrude the tongue themselves to keep it off the posterior pharyngeal wall. Some may comply with instructions to suppress coughing and gagging, to inhale deeply for wide vocal cord abduction, or to swallow and clear secretions. Those with obstructing lesions may favor certain positions which can be replicated during intubation to maximize airway patency. Some, like our patient, may be able to displace masses themselves in comfortable and atraumatic ways.

Dynamic maneuvers should always be considered during awake intubation, some of which are best carried out by patients themselves. Patient participation may reduce the need for uncomfortable or traumatic applied maneuvers. It may also compel providers to keep patients fully awake, thereby avoiding further airway deterioration that accompanies over-sedation. Self-directed maneuvers may ultimately help spare patients from a surgical airway, and may even prove to be life-saving in cases of complete airway obstruction.

Figures

Figure 1: CT scan sagittal section of soft palate mass



Figure 2: CT scan coronal section of soft palate mass



Figure 3: Soft palate mass after displacement out of the oropharynx

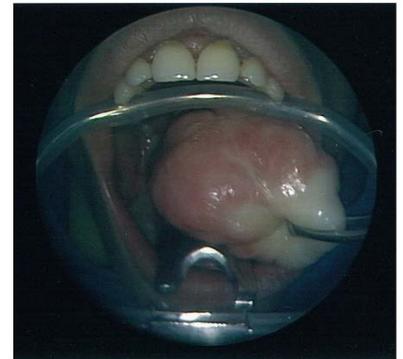
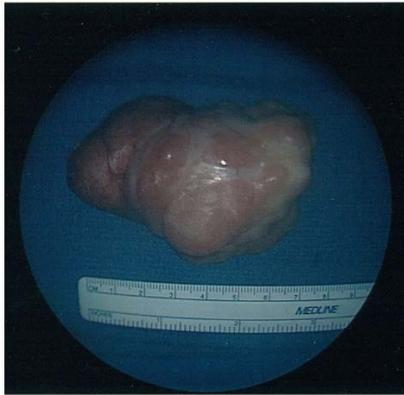


Figure 4: Mass originating from soft palate and uvula



Figure 5:
Soft palate
mass
specimen
after
resection



7. **Heidegger T.** Videos in clinical medicine. Fiberoptic intubation. *N Engl J Med.* 2011 May 19;364(20):e42. doi: 10.1056/NEJMc0906443. PubMed PMID: 21591939.
8. **Durga VK, Millns JP, Smith JE.** Manoeuvres used to clear the airway during fibreoptic intubation. *Br J Anaesth.* 2001 Aug;87(2):207-11. PubMed PMID: 11493491.
9. **Haastrup AA, Mendez P, Cote CJ.** Suction the tongue: a new adjunct for improving the laryngeal view for fiberoptic intubation. *Anesth Analg.* 2011 Jun;112(6):1512-3. doi: 10.1213/ANE.0b013e318215c905. PubMed PMID: 21613205.

REFERENCES

1. **Markandeya M, Gore R, Andurkar U, Sapate M.** A large obstructive hard palate teratoma in a baby: Challenges to the anesthesiologist. *Saudi J Anaesth.* 2014 Apr;8(2):307-8. doi: 10.4103/1658-354X.130765. Pub Med PMID: 24843358; PubMed Central PMCID: PMC4024702.
2. **Sharma SB, Nath MP, Pasari C, Chakrabarty A, Choudhury D.** Hard palate tumour - a nightmare for the anaesthesiologists: Role of modified molar approach. *Indian J Anaesth.* 2013 Jan;57(1):83-4. doi: 10.4103/0019-5049.108581. PubMed PMID: 23716777; PubMed Central PMCID: PMC3658348.
3. **Sachidananda R, Shaikh S, Mahesh S.** Intubation in a patient with a large pedunculated oral lipoma: a unique experience. *Anaesth Pain & Intensive Care.* 2014;18(2): 195-197.
4. **Batra UB, Usha G, Gogia AR.** Anesthetic management of schwannoma of the base of the tongue. *J Anaesthesiol Clin Pharmacol.* 2011 Apr;27(2):241-3. doi: 10.4103/0970-9185.81830. PubMed PMID: 21772689; PubMed Central PMCID: PMC3127308.
5. **Tatsuno A, Katoh H, Taniguchi F, Shibasaki M, Kato Y, Sawa T, Nakajima Y.** Awake fiberoptic nasal intubation in an infant with a malignant rhabdoid tumor occupying the oral cavity: a case report. *J Anesth Clinical Sci.* 2015;4(3).
6. **Apfelbaum JL, Hagberg CA, Caplan RA, Blitt CD, Connis RT, Nickinovich DG, Hagberg CA, Caplan RA, Benumof JL, Berry FA, Blitt CD, Bode RH, Cheney FW, Connis RT, Guidry OF, Nickinovich DG, Ovasapian A; American Society of Anesthesiologists Task Force on Management of the Difficult Airway.** Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. *Anesthesiology.* 2013 Feb;118(2):251-70. doi: 10.1097/ALN.0b013e31827773b2. PubMed PMID: 23364566.