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## Split nasopharyngeal airway as a conduit for oral fiber-optic intubation in a case of difficult airway

Sir,

Difficult airway tools have been updated from time to time to overcome difficult situations. We want to highlight nasopharyngeal airway as a conduit for oral fiber-optic bronchoscopy in a case presenting with difficult airway.

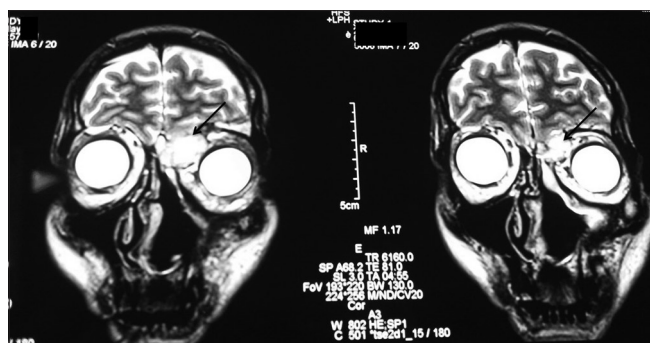
A 30-year-old male presenting with recurrent chondrosarcoma of left frontal and ethmoid sinus was planned for left lateral rhinotomy and transbasal excision of the mass. The patient belonged to American Society of Anesthesiologist grade 1 with no other significant comorbidities. There was a history of multiple surgeries in the past for the same problem.

Airway examination revealed mouth opening of less than one finger breadth, thyromental distance of 6 cm, and adequate neck movements. He had missing upper central incisors. He also had externally distorted nose along with

the presence of scar mark on the root of the nose and on both sides over the eyebrows due to previous multiple surgeries. There was a grossly deviated nasal septum on the right side of the nose, which created a roomy cavity on the left side. Magnetic resonance imaging of the face showed a 3.5 cm × 3 cm × 2.5 cm mass in the left frontal and ethmoid sinus [Figure 1].

Adequate premedication was given to the patient as per our institutional protocol on the night, before, and morning of the surgery. The patient was nebulized with 2% xylocaine before shifting to the operating room as a part of airway preparation.

Once the patient was taken inside the operating room, all standard monitors (electrocardiogram, noninvasive blood pressure, and SPO<sub>2</sub>) were attached. An intravenous



**Figure 1: Magnetic resonance imaging of the face showing a mass in the left frontal and ethmoid sinus (arrow)**

access (16-gauge) was secured in the upper limb. The upper airway was anesthetized by gargling with 2% lignocaine viscous, 10% lignocaine spray, and intratracheal instillation of 2% lignocaine. Bilateral superior laryngeal nerve block was administered with 1.5 ml of 2% lignocaine. Tips of two Guedel's airway (number 2) were inserted on either side between the teeth to prevent the patient biting the fiberscope [Figure 2]. After this fiberscope was inserted into the oral cavity through limited mouth opening created due to missing upper central incisors but glottic opening was not visualized even after standard maneuvers.

Due to limited oral cavity access, we planned to use a nasopharyngeal airway as a conduit to guide the fiberscope to visualize the glottis. For this, a nasopharyngeal airway of size 8 was taken and cut to shorten its length and a longitudinal slit was made in it for its removal once the glottis was visualized. The fiberscope was guided orally through nasopharyngeal airway. Once the glottis was visualized, the nasopharyngeal airway was removed and endotracheal tube was railroaded over the fiberscope into the trachea, bilateral air entry was checked and fixed at 20 cm. The patient was then induced with fentanyl ( $\mu\text{g}/\text{m}/\text{kg}$  and  $\mu\text{g}/\text{m}/\text{kg}/\text{h}$ ), propofol (2 mg/kg), and muscle relaxant (atracurium) was given. Anesthesia was maintained with oxygen, nitrous oxide (50:50), and isoflurane titrated to maintain an adequate depth along with monitoring of monitored anesthesia care and adequate analgesia as per surgical requirement. Intraoperative analgesia was provided with fentanyl infusion at the rate of 0.5  $\mu\text{g}/\text{m}/\text{kg}$  and  $\mu\text{g}/\text{m}/\text{kg}/\text{h}$  and titrated to the desired effect. Adequate antibiotic and steroid coverage was provided. The surgeons did lateral rhinotomy, extensive dissection, and excision of mass. The surgery went uneventful with stable hemodynamic throughout. The total duration of surgery was 3 h with a blood loss of 400 ml. After surgery, it was decided to electively ventilate the patient for 24 h and the patient was shifted to surgical high-dependency unit with endotracheal tube *in situ*. Postoperative analgesia was maintained with fentanyl infusion at the rate of 0.5  $\mu\text{g}/\text{m}/\text{kg}$  and  $\mu\text{g}/\text{m}/\text{kg}/\text{h}$ .



**Figure 2: Tips of two Guedel's airway (number 2) were inserted on either side between the teeth to prevent the patient biting the fiberscope**

Trachea was extubated on the next day and the patient was shifted to ward. The patient was hemodynamically stable during peri-operative period.

Limited mouth opening in our scenario made airway management options such as conventional laryngoscopy and videolaryngoscopy difficult. Blind nasal intubation is also not devoid of complications such as increase in failure rate at the first attempt and high possibility of airway trauma with subsequent attempts leaving in a situation of complete airway obstruction.<sup>[1,2]</sup> Retrograde intubation and tracheostomy are associated with increased risk of failure and complications. It was also not possible in this case to insert a laryngeal mask airway (LMA) and subsequently put endotracheal tube through LMA using standard technique as his mouth opening was narrower than the diameter of the largest region of LMA.<sup>[3]</sup> Moreover, nasal fiber-optic bronchoscopy was not possible due to tumor extension in one side of nostril and deviated septum.<sup>[4]</sup> That is why we opted for oral approach and his missing upper incisors proved to be a boon which created the space for nasopharyngeal airway insertion so that it could be used as an aid for fiber-optic bronchoscopy. Hence, we want to conclude this simple technique of nasal airway as a conduit for fiberoptic may be very useful in difficult airway scenario with restricted mouth opening and in the presence of contraindication for nasal route as it bypasses the soft tissue.

#### **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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