

## **Case Report**

### **Experience of awake Fiberoptic Nasotracheal Intubation in an elderly Patient with Tonsil Cancer**

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**Abstract:** Awake intubation with fiberoptic bronchoscopy (FOB) is a popular technique in patients with difficult intubation criteria. Preservation of spontaneous respiration by nasotracheal intubation with FOB accompanied by sedation was performed in a case assessed as difficult intubation due to a high Mallampati score at preoperative evaluation and the presence of a mass extending to the oral cavity. Following surgery, extubation criteria were achieved, and the patient was extubated without complications. This report describes a patient diagnosed with tonsil cancer and assessed as difficult intubation due to the location of the mass and in whom endotracheal tube placement with direct laryngoscopy was not possible, and eventually undergoing awake fiberoptic intubation by the nasal route.

**Keywords:** Tonsil cancer, awake fiberoptic intubation, difficult airway

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#### **INTRODUCTION**

Head-neck surgery involves difficulties in establishing an airway. Mask ventilation and tracheal intubation is difficult in these patients, particularly after induction of anesthesia. In addition to various accompanying problems, a different pre-, peri- and postoperative anesthesia approach using a high level of advanced technology is needed in patients with cancer of the head and neck. Difficult airway guidelines were described by the American Society of Anesthesiologists (ASA) in 2003, the Difficult Airway Society (DAS) in 2001 and the Turkish Anesthesiology and Reanimation Association (TARA) in 2005. Components constituting a difficult airway include difficult mask ventilation, difficult laryngoscopy, difficult tracheal intubation and unsuccessful intubation [1]. The Mallampati classification, interincisor (mouth aperture) distance, thyromental and sternomental distance and assessment of neck movements are useful in predicting difficult airway [2]. Intubation with fiberoptic bronchoscopy (FOB) is the most commonly used method for establishing airway when intubation with direct laryngoscopy is unsuccessful [3]. The main indications for intubation with FOB are suspicion of upper airway obstruction, a short and thick neck, and oropharyngeal tumors, congenital or acquired maxillofacial deformities, a history of difficult intubation and head-face traumas. Anatomical status and intubation indication determine the use of intubation with FOB by the nasal or oral route [3,4]. This case report describes our experience with awake nasotracheal intubation with

FOB in a case assessed as difficult intubation at preoperative anesthetic evaluation.

#### **CASE REPORT**

An 80-year-old female patient was assessed by the Ear, Nose and Throat Department due to difficulty in swallowing and voice restriction. She was diagnosed with tonsil cancer and scheduled for surgery. The patient had no additional disease other than hypertension. All systems were normal at physical examination and no findings of infection were encountered. Complete blood count and liver and kidney function tests were normal. No abnormalities were observed at electrocardiography (EEG) and pulmonary radiography, other than age-related changes. The patient was evaluated as ASA II. She was assessed as Mallampati Grade 4 due to mass location in the oropharynx. Preoperative preparations were made in the expectation of difficult intubation and a high possibility of intubation-related complications. Awake nasotracheal intubation with FOB was planned. The patient's family was informed about the procedure and gave informed consent. Premedication with intravenous administration of 2 mg midazolam was performed 30 min before surgery, and the patient was taken to the operating room. ECG, non-invasive arterial blood pressure (ABP) and oxygen saturation (SpO<sub>2</sub>) monitoring was performed. These were measured at 5-min intervals. Preoperative ABP was 138/76 mmHg, heart rate (HR) 89 beats/min and SpO<sub>2</sub> 94%. Following intravenous administration of 0.5 mg atropine 30 min

before the procedure, 5-min preoxygenation was performed. A No. 7 spiral-embedded endotracheal tube (ET) was lubricated with 2% lidocaine. A fiberoptic bronchoscope was then passed through the tube, and other technical equipment (light source, aspiration channel) was checked. Ten percent lidocaine was sprayed twice into the appropriate nostril and the hypopharynx for topical anesthesia and vasoconstriction. The fiberoptic bronchoscope was passed through the nasal mucosa, pharynx and vocal cords, with the patient sedated, until the tracheal rings were visualized. Topical anesthesia was applied to the pharynx, larynx and trachea with the aspiration of 1-2 ml 1% lidocaine

through the bronchoscope. The ET was then placed inside the trachea via the bronchoscope. The position and level of the ET were adjusted, and the bronchoscope was withdrawn by inflating the cuff. At induction of anesthesia the patient was given intravenous 75 µg fentanyl, 70 mg propofol and 0.6 mg/kg atracurium. Maintenance anesthesia was established with sevoflurane with 50% O<sub>2</sub> and 50% N<sub>2</sub>O. The mass was extracted, with no problems occurring throughout the operation (Figures 1-2). The patient was extubated at the end of surgery with adequate spontaneous respiration and able to respond to instructions.



Fig-1



Fig-2

## DISCUSSION

The anesthetic approach in surgical patients with head and neck cancer consists of achieving a safe airway using appropriate principles and techniques in

difficult airway and preventing potential airway problems that might be caused by surgery. One study reported an incidence of difficult intubation due anatomical congenital and acquired causes of between

1.5% and 20.2% [5]. A 9 cm mass deriving from the tonsils and also involving the inside of the mouth was present in our case. Our patient's Mallampati score was Grade 4. Options such as blind nasal intubation, retrograde intubation, flexible fiberoptic intubation with the assistance of a laryngeal mask and awake intubation with local anesthesia are available in patients regarded as difficult airway. Although awake intubation is a more reliable technique, it is also more difficult. It is important for the anesthetist to maintain cooperation with the patient during intubation. We sedated our patient with midazolam and were easily able to establish cooperation with her. The most common method for establishing airway when intubation with direct laryngoscopy is unsuccessful is intubation with FOB. The success rate of intubation with FOB exceeds 90 % in some studies [3, 6]. If sufficient sedation and local anesthesia are not also established in this technique, problems such as sympathetic activation mediated by protective reflexes, laryngospasm and increased intraocular and intracranial pressure may be encountered [7]. Midazolam was used in our case, and a sufficient level of sedation was comfortably established by maintaining spontaneous respiration. Intubation with FOB can be performed with the patient awake or under anesthesia. However, in cases of known difficult intubation and ventilation it is important in terms of airway safety for the patient to be awake and for spontaneous respiration to be maintained. When difficult airway is suspected it is important in terms of establishing cooperation to communicate with the patient and to inform the subject about the procedure if awake intubation is planned. Our patient was informed about the procedure. Awake FOB was planned since the patient was an individual with whom cooperation could be established. Consent was obtained from the patient, and we successfully performed nasotracheal intubation with FOB. An anticholinergic agent must be employed before initiating anesthesia in order to dry secretions. Our patient received 0.5 mg atropine for that purpose.

Sufficient airway local anesthesia assists with better communication with the patient and easier toleration of the tracheal tube to be inserted with fiberoptic intubation. Since nasal intubation was planned in our case, local anesthesia was applied to the appropriate nostril and the hypo pharynx.

Management of difficult airway is not limited to insertion of the intubation tube. Techniques such as FOB, rigid endotracheal guides, retrograde intubation, and exchange catheters are used in difficult airway extubation in clinics. If these methods are unsuccessful, the only solution is emergency crico thyroidectomy or tracheotomy [8]. Considering the possibility of reintubation after extubation in our case, the requisite equipment and a tracheotomy set were kept in readiness. The patient was extubated once wake-up and

extubation criteria were met and spontaneous respiration and tidal volumes were at sufficient levels.

## CONCLUSION

In conclusion, the anesthetist must select an appropriate airway technique suited to the patient such as to permit the surgical procedure. Appropriate preoperative preparations regarding the selected method must be made and precautions needed for potential postoperative complications must be taken. Awake fiberoptic intubation is an alternative technique with high extubation success that should be considered in cases when cooperation with the patient can be easily established and patient collaboration can be achieved.

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