

# C-MAC® video laryngoscope with D-BLADE™ and Frova introducer for awake intubation in a patient with parapharyngeal mass

## ABSTRACT

Parapharyngeal tumors are rare head and neck tumors which can present as an intraoral mass and can pose great challenge to anesthesiologists. The primary concern is the difficult airway due to gross anatomical distortion of the upper airway. Securing the airway in an awake state should be the primary goal of anesthesiologists to avoid catastrophic complications. Herewith, we report the successful use of C-MAC® video laryngoscope with the acute-angle D-BLADE™ in combination with Frova introducer for awake intubation in a patient with parapharyngeal mass after multiple attempts of failed fiber-optic intubation.

**Key words:** Awake intubation; C-MAC® video laryngoscope; D-BLADE™; frova intubating introducer; parapharyngeal mass

## Introduction

Parapharyngeal tumors are rare head and neck tumors which can pose a great challenge to the anesthesiologist. The primary anesthetic concern is difficult airway secondary to anatomical distortion by the mass. A thorough preoperative assessment, careful planning, and selection of appropriate intubation aids are vital for the better management of such cases. We present the successful anesthetic management of a case of parapharyngeal tumor using C-MAC® video laryngoscope with the acute-angle D-BLADE™ in combination with Frova intubating introducer.

## Case Report

A 27-year-old male weighing 78 kg presented with the complaints of difficulty in breathing and snoring for

the past 3 months. There was no history of difficulty in swallowing or stridor. He had no other co-morbidities. Tele-laryngoscopy revealed a bulge on the right posterior pharyngeal wall with nonvisualization of the glottis. Contrast-enhanced computed tomography of the neck showed a well-defined longitudinally oval 6 cm × 4 cm × 3 cm heterogeneously enhancing soft tissue lesion in the right carotid space extending between C1 and C4 [Figure 1a]. Medially the lesion is seen bulging into the hypopharynx and is crossing the midline with a retropharyngeal extension. Glottis and subglottis were normal [Figure 1b]. He was diagnosed as a case of the right parapharyngeal mass and posted for endoscopic transoral excision under general anesthesia.

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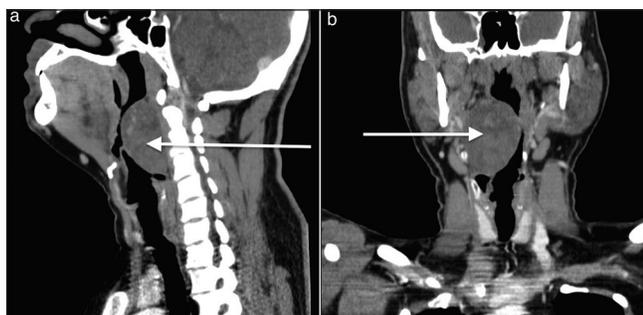
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**Figure 1: Contrast-enhanced computed tomography neck-sagittal (a) and coronal (b) section showing the extent of parapharyngeal mass**

Airway examination was unremarkable with mild restriction in neck movements. Blood investigations were within the normal limits. Preoperatively, tracheostomy consent was taken, and sedative premedications were avoided. Injection glycopyrrolate 0.5 mg IM was given ½ h before shifting to the operating room (OR). In the OR, difficult airway cart was kept ready, and an awake nasal fiberoptic intubation was planned as an initial technique of airway management. After attaching all standard monitors and securing intravenous (IV) access, injection midazolam 1 mg IV and injection fentanyl 80 µg IV were given, and upper airway was anesthetized by nebulization with 4% lignocaine. Despite multiple attempts, fiberoptic bronchoscope could not be negotiated beyond the mass and glottis could not be visualized. As an alternative technique, C-MAC® video laryngoscope (Karl Storz, Tuttlingen, Germany) was considered. Oral cavity was sprayed with 10% lignocaine and C-MAC® D-BLADE™ was introduced without applying undue pressure on the oral structures which gave a Grade 2 view of the glottis. After spraying the glottis with 4% lignocaine, Frova intubating introducer was introduced into the glottis under vision, and the position was confirmed by capnography. A 7.5 size RAE endotracheal (ET) tube was railroaded over the Frova until it crossed the pharyngeal mass and the tip was visualized above the glottis. The patient was induced with injection propofol and injection succinylcholine, and ET tube was railroaded into the glottis under vision. After inflating the cuff, C-MAC® and Frova was removed and bilateral air entry confirmed by auscultation and capnography. Endoscopic guided transoral excision of the tumor was performed and the entire intraoperative period remained uneventful. At the end of the surgery, the patient was extubated when he was fully awake and shifted to postoperative ward.

## Discussion

We were able to accomplish awake tracheal intubation using C-MAC® video laryngoscope with the acute-angle D-BLADE™ in combination with Frova intubating

introducer after multiple failed attempts of awake flexible fiberoptic intubation.

Patients with parapharyngeal mass should be considered as potential difficult airway, and all efforts should be taken to secure the airway in an awake state. Both inhalational and IV induction can lead to the collapse of the upper airway which in turn can lead to a catastrophic “cannot ventilate cannot intubate” situation. Although fiberoptic intubation is considered the gold standard for management of anticipated difficult airway, it may not be of use when there is gross anatomical distortion as in our case where there is a difficulty in negotiating the mass and visualizing the glottis.

Video laryngoscopes are newer generation devices introduced in the difficult airway algorithm by the American society of anesthesiologists in 2013 as an adjuvant device in the nonemergent airway management pathway<sup>[1]</sup> and the difficult airway society also recommends that all anesthetists should be skilled in the use of a videolaryngoscope.<sup>[2]</sup> The presence of a camera at the light source may help in bypassing the mass and magnifying the glottic view for visualization and intubation. Desensitization of the airway using topical local anesthetic plays an important role in successful awake intubation using video laryngoscope. In our case, we used 10% lignocaine spray for oral cavity and 4% lignocaine spray for glottis. There are many reports regarding awake intubation using different video laryngoscopes such as AirTraq,<sup>[3]</sup> Pentax-AWS,<sup>[4]</sup> McGrath,<sup>[5]</sup> and Glidescope<sup>[6]</sup> for patients with various pathologies. In our case, we used C-MAC® video laryngoscope with D-BLADE™ which can be inserted into the oral cavity from the right angle of the mouth to create more room for tracheal tube insertion.<sup>[7]</sup>

Despite the excellent visualization of the glottis with C-MAC® video laryngoscope, there is always a possible of difficulty in the introduction of the ET tube, particularly in patients with distorted anatomy where there is little room for manipulation.<sup>[8]</sup> The main difficulty is the need for an acute-angle to enter the glottis which necessitates the use of an appropriately shaped stylet or other intubation aids like boogie. To overcome this limitation, we used Frova intubating introducer which is routinely used in our hospital along with video laryngoscopes. Its flexible distal tip with a 30° anterior angulation enhances the entry into the glottis.<sup>[9]</sup> Moreover, the device is provided with an adaptor that allows to oxygenate and also to get capnography tracing for confirmation of its position. With video laryngoscopes, there is also a possibility of soft tissue damage and bleeding, as the passage of the ET tube is blind until the tip comes into view. Frova intubating introducer is atraumatic and easy

to handle, which facilitates manipulation to negotiate the mass without causing any trauma and bleeding.<sup>[10]</sup> We also anticipated difficulty in railroading the ET tube over the Frova and preferred to keep the patient awake until the ET tube crossed the mass and tip was visualized above the glottis.

Thus, knowledge of advantages and disadvantages of each device and expertise in clinical use remains fundamental for the management of difficult airway. Awake video laryngoscope in combination with Frova intubating introducer offers a reasonable alternative to fiberoptic bronchoscope in appropriately identified patients.

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#### Conflicts of interest

There are no conflicts of interest.

#### References

1. Apfelbaum JL, Hagberg CA, Caplan RA, Blitt CD, Connis RT, Nickinovich DG, *et al.* 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;118:251-70.
2. Frerk C, Mitchell VS, McNarry AF, Mendonca C, Bhagrath R, Patel A, *et al.* Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults. *Br J Anaesth* 2015;115:827-48.
3. Remon-Izquieta M, Ortiz-Gomez JR. Awake tracheal intubation using the Airtraq laryngoscope in difficult airway. *Anesth Rat* 2010;4:124-5.
4. Suzuki A, Kunisawa T, Takahata O, Iwasaki H, Nozaki K, Henderson JJ. Pentax-AWS (Airway Scope®) for awake tracheal intubation. *J Clin Anesth* 2007;19:642-3.
5. Uslu B, Damgaard Nielsen R, Kristensen BB. McGrath videolaryngoscope for awake tracheal intubation in a patient with severe ankylosing spondylitis. *Br J Anaesth* 2010;104:118-9.
6. Xue FS, Li CW, Zhang GH, Li XY, Sun HT, Liu KP, *et al.* GlideScope-assisted awake fiberoptic intubation: Initial experience in 13 patients. *Anesthesia* 2006;61:1014-5.
7. van Zundert A, Maassen R, Lee R, Willems R, Timmerman M, Siemonsma M, *et al.* A Macintosh laryngoscope blade for videolaryngoscopy reduces stylet use in patients with normal airways. *Anesth Analg* 2009;109:825-31.
8. Cavus E, Kieckhaefer J, Doerges V, Moeller T, Thee C, Wagner K. The C-MAC® videolaryngoscope: First experiences with a new device for videolaryngoscopy-guided intubation. *Anesth Analg* 2010;110:473-7.
9. Sharma R. A new maneuver for endotracheal tube insertion during difficult GlideScope® intubation: A suggestion. *J Emerg Med* 2011;40:443.
10. Xue FS, Cheng Y, Li RP, Liao X. Comparative performance of direct and indirect laryngoscopes for emergency intubation under cervical stabilization. *Resuscitation* 2012;83:e169.

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