Case Report

Indian Journal of Anesthesia and Analgesia
January – February 2020; 7(1) (Part - I): 187-190
DOI: http://dx.doi.org/10.21088/ijaa.2349.8471.7120.26

Use of Truview Laryngoscope in Patients of Limited Mouth Opening Associated with Panfacial Trauma

Rajashri Sonwane Virshid[1], Akhila L Arakkal[2], Sayyed M Omar[3]

[1]Associate Professor, [2]Junior Resident, [3]Lecturer, Department of Anaesthesiology, Government Medical College, Aurangabad, Maharashtra 431001, India.

Abstract

Introduction: Panfacial fractures are the biggest challenge for anesthesiologist because of its difficulty in airway management. Different airway securing devices have been used. *Case Report:* A 28 Years old male patient with pan facial fracture posted for open reduction and internal fixation of mandible and left zygomatic arch with a closed reduction of nasal bone fracture. Airway examination showed decreased mouth opening of 1 finger indicating difficulty in mask ventilation and intubation. He was successfully intubated with the help of truview laryngoscope. *Conclusion:* Careful evaluation of fracture, difficult airway predictors are useful in intubating patient with decreased mouth opening in panfacial trauma with the help of truview laryngoscope.

Keyword: Panfacial fracture; Limited mouth opening; Difficult mask ventilation; Difficult intubation; Truview laryngoscope.

How to cite this article:
Rajashri Sonwane Virshid, Akhila L Arakkal, Sayyed M Omar. Use of Truview Laryngoscope in Patients of Limited Mouth Opening Associated with Panfacial Trauma. Indian J Anesth Analg. 2020;7(1 Part -I):187–190.

Introduction

Maxillofacial injuries are on the rise due to increase in vehicular trauma. These injuries do not pose an immediate threat to life unless they compromise airway. Anesthetic management of maxillofacial injuries is a challenge requiring expertise in airway management.[1] Truview has proved to be better device than Macintosh laryngoscope in anticipated difficult intubation.[2] Truview offers a better view of glottis by 1, 2 Cormack lehane grade as compared with conventional Macintosh laryngoscope in anticipated difficult airway. Here we report successful airway management in a case of pan facial trauma with restricted mouth opening whose airway was secured with truview laryngoscope.

Case Report

A 28 years male patient of weight 58 kgs sustained pan facial injuries in a road traffic accident under the influence of alcohol followed by loss of consciousness. General examination was within normal limits. Airway examination revealed a restricted mouth opening of 1 finger (15 mm). Extension & flexion of neck within normal limit. Thyromental & hyomental distance within normal limits. There was a depression in the fronto-nasal

Corresponding Author: Akhila L Arakkal, Junior Resident, Government Medical College, Aurangabad , Maharashtra 431001, India.
E-mail: akhila.l.arakkal@gmail.com
Received on 15.10.2019, **Accepted on** 28.11.2019

region with deviation of the nose to the right. Routine preoperative biochemical hematological investigations were done and found to be within normal limits. A CT head and neck revealed pneumocephalus, fractures of the left frontal bone, bilateral nasal bone as shown in (Fig. 1), lateral walls of the orbits, anterior wall of the left maxillary sinus, left zygomatic arch (Fig. 2) and the alveolar process of the mandible with mandibular condyles intact (Fig. 3). The patient was posted here for an open reduction, internal fixation of the mandible and zygomatic arch with a closed reduction of nasal bone fracture.

Fig. 1: Showing bilateral nasal bone fracture.

Fig. 2: Showing anterior wall of the left maxillary sinus, left zygomatic arch.

Fig. 3: 3D RECON CT showing fracture of mandible.

We anticipated difficult in mask ventilation as the patient had facial deformity and anticipated difficult laryngoscopy and difficult intubation due to restricted mouth opening. Our plan for intubation was awake oral Fiberoptic Intubation (FOI). Alternative plans for airway management included Truview laryngoscope, retrograde intubation and tracheostomy. The patient was premedicated with injection (inj.) Glycopyrrolate 0.2 mg IV, inj. Midazolam 1 mg IV, inj. Ondensetron 4 mg IV. Airway preparation was done with nebulization by 4% lignocaine 4 ml, gargles 5 ml of 2% Lignocaine viscous and a transtracheal block (2% lignocaine 2 ml) was given. The patient was sedated with inj Nalbuphine 5 mg intravenously and inj. Propofol 30 mg IV Initially fiberoptic laryngoscopy was attempted but due to difficulty in visualization due to defect in lens of fiberoptic bronchoscope we switched to the Truview laryngoscope as an alternative. Laryngoscopy was done using the Truview laryngoscope and vocal cords were visualized as Cormack Lehane Grade II (visualization of posterior part of laryngeal aperture). Intubation was done under vision using a flexo-metallic tube (7.5 Fr) with the help of a stylet. Tube placement was confirmed by capnography and bilateral air entry was confirmed by auscultation. The patient was then given inj. Propofol 2 mg/kg IV and inj. Atracurium 0.5 mg/kg IV.

To facilitate surgical access, a submandibular incision was taken by the surgeon and blunt dissection was done. Using an artery forceps tube was taken out through the submandibular route.

During the procedure, anesthesia was maintained with intermittent positive pressure ventilation using Oxygen, Nitrous oxide, Isoflurane, and inj. Atracurium was given intermittently. The procedure was completed uneventfully, and the patient was reversed with inj. Neostigmine and inj. Glycopyrrolate, extubated *via* the submandibular route. No complications were encountered in the postoperative period.

Discussion

Mouth opening measured as the interincisor distance, that is distance between the upper and lower incisors, is used as a predictor of difficult intubation. Normally it is 46 mm or more, while less than 38 mm predicts a difficult intubation.[3] The Macintosh laryngoscopy blade is one of the most popular blades used for intubation. Generally, Macintosh blades no. 3, 4 are used for intubation in adults.

We measured and found that minimum interincisor distance needed for insertion of a Macintosh blades are 22 mm and 25 mm respectively. A reduction in mouth opening may occur due to microstomia or due reduction in mandibular motility. Acute mandibular hypomobility is most often due to mandibular or facial trauma. Chronic mandibular hypomobility may occur due to temporo-mandibular joint pathology, trauma, surgery or neoplastic disease.

Various techniques have been described for securing airway in case of patients with limited mouth opening. These include blind nasal intubation, fiberoptic intubation, video intubating stylets, glidescope, retrograde intubation and surgical airway (tracheostomy). The use of fiberoptic nasotracheal intubation is a safe & better alternate to classical blind awake nasal intubation technique & tracheostomy.[4] Trochway (video intubating stylet) assisted nasotracheal intubation is also found to be an efficient method compared to FOB in patients with limited mouth opening. Also, the Levitar FPS optical stylet can be used in patients with < 15 mm mouth opening & is advantageous compared to other optical stylets due to its malleable tip. One study found that in patients with < 14 mm mouth opening tracheal intubation was performed significantly faster with a better view & a higher success rate with a glidescope laryngoscope compared to Macintosh. Bonfil fibroscope can be helpful for an awake fiberoptic intubation in very limited mouth opening. Retero graden asotracheal intubation is an effective & useful technique for airway control in patients with limited mouth opening of less than 20 mm & with only a small risk potential. In a retrospective audit of 20 patients with restricted mouth opening, where retrograde intubation was performed, the intubation was easy to perform & had a high success rate & low incidence of complications.

The truview laryngoscopy blade has an optical assembly based on the prism principle to provide image of an object situated at an angle of 45 degree to a straight line of vision and has found to provide a better view of the glottis as compared with Macintosh laryngoscope.[2] It was designed to allow for intubation with the minimal use of force.[5] Due to the anterior refraction it is possible to obtain a better view of the glottis with minimal manipulations of the head and neck.[6] Movements at the cervical spine are also found to be less and this is advantageous in clinical situations where cervical movements are to be avoided.[7] The truview blade also has an integrated oxygen port which prevents misting and provides continuous oxygen insufflation during laryngoscopy which may be beneficial in patients with poor pulmonary reserve.[8]

The truview laryngoscope has a slim 12.8 mm blade[9] and thus, can be used in patients with reduced mouth opening. The use of Truview system has been described for intubation in patient with limited mouth opening under 15 mm. However, some authors suggest that the addition of the optical port increases the overall size of the blade, which may make it more difficult to insert in patients with limited mouth opening.[10]

In our case it was an anticipated difficult intubation due to reduced interincisor distance. Therefore, decision was to go ahead with local preparation of airway & oral or nasal fiberoptic intubation. Due to technical error of fiberoptic laryngoscope (defect in lens), we switched to true view laryngoscope intubation and were successful in securing airway. The tube was brought outside through submandibular route so as to facilitate access to surgeon for carrying out the surgery.

The Glycopyrrolate will decrease secretion, Midazolam will decrease anxiety, ondensetron will decrease postoperative nausea vomiting, airway preparation with lignocaine in the form of nebulization, gargle, spray, transtracheal block provides surface anesthesia to airway, prevent breath holding & prevents breath holding & laryngospasm in response to intubation for smooth induction Propofol can be used. Maintenance of anesthesia is done with isoflurane though sevoflurane can also be used. For muscle relaxant Atracurium and vecuronium. The study of the fracture, counselling of patient, detailed airway assessment, premedication, proper airway preparation helped in formulating the plan of Truview. Though there were multiple fractures, the fracture which contributed to decrease mouth opening was most likely unilateral zygomatic arch fracture.

Conclusion

Proper history regarding mechanism of injury, the details of fracture line and proper airway assessment should all be considered in deciding the plan for intubation. The truview laryngoscope due to slim blade and angled view helps provide a better view of the larynx, and it may be beneficial in patients with decreased mouth opening. It can thus serve as a means of intubation in patients with limited mouth opening.

Acknowledgment

All the authors are extremely grateful to the Department of Oromaxillofacial surgery & the entire staff of Department of Anesthesiology for their active help in this work. We would like to express our gratitude to our patient & his relatives for their consent & cooperation.

References

1. Jayshree S. Maxillofacial and upper airway injuries Anesthetic impact. IJA 2008;52(5 suppl):688–98.
2. Singh I. Evaluation of Truview EVO2 laryngoscope is anticipated difficult intubation: A comparison to Macintosh laryngoscope. IJA 2009;52(2)164–68.
3. Gupta S, Sharma KR, Jain D. Airway assessment: Predictors of difficult airway. Indian J Anesht 2005;49(4)257–62.
4. Salman B. Fiberoptic intubation in limited mouth opening surgeries. World Journal of Dentistry 2011 Oct–Dec;2(11):350–52.
5. Truview EVO2 optical view laryngoscope. Truphatek International Ltd. Available from: http://www.truphatek.com
6. Rai E, Ramamani, Jacob R. Truview EVO2 Laryngoscope. J Anesth Clin Pharmacol 2009;25: 199–202.
7. Bhardwaj N, J Kajal, Rao Madhusudan, et al. Assessement of cervical spine movement during laryngoscopy with Macintosh and Truview laryngoscopes. J Anesthesiol Clin Pharmacol 2013 Jul–Sep;29(3):308–312. DOI: 10.4103/0970-9185.117053.
8. Li JB, Xiong YC, Wang XL, et al. An evaluation of the Truview EVO2 laryngoscope. Anesthesia 2007;62:940–43.
9. Barak M, Philipchuck P, Abecassis P, et al. A comparison of the Truview blade with the Macintosh blade in adult patients. Anesthesia 2007;62:827–31. DOI :10.1111/j.1365-2044.2007.05143.
10. B Bruno Bissonnette, Luginbuehl Igor, Marciniak Bruno, et al., 1st Edition. Rapid recognition and preoperative implication. McGraw-Hill Professional; Education 2006 July 20.p.900. http://www.accessanesthesiology.com