Awake Fiberoptic Intubation in a Patient with Lingual Hematoma

Saqib Hussain Khan, MBBS, FCPS* Priti Narayan, MBBS, MD, EDAIC, FCAI**
Vishal Shah, MBBS, MD, EDAIC***

Lingual hematoma is a known complication of uncontrolled seizures. The tongue, being an extremely vascular structure, sometimes enlarges to such an extent that it may occupy the entire oral cavity resulting in airway obstruction.

We present a case of lingual hematoma in a fifty-eight-year-old patient due to a tongue bite. Due to the concern that subsequent bite might lead to further lingual enlargement which might compromise the airway, it was decided to secure the airway prophylactically. Awake nasal fiberoptic intubation was performed after adequate topical anesthesia as there was no oral access due to the enlarged tongue. Sedatives were avoided due to risk of possible airway loss. We believe that awake nasal fiberoptic intubation with only topical anesthesia and avoiding sedatives is a useful technique in patients with a high-risk of airway loss.

Bahrain Med Bull 2020; 42 (1): 64 - 66

Patients with limited oral access can present with unique challenges to anesthesiologists. These could be due to tumors in the oral cavity, temporomandibular fibrosis, mandibular trauma, etc. Anesthesiologists should adopt nasal fiberoptic intubation to secure the airway[1,2].

In addition to the anatomical challenges of an altered airway, some patients might have other comorbidities, especially a limited cardiorespiratory reserve. Such patients are uniquely sensitive to sedatives which are often used to facilitate awake nasal tracheal intubation. Therefore, extreme caution must be exercised when administering sedatives to avoid sudden loss of airway[3].

The ideal sedation technique should allow the patient to maintain spontaneous ventilation, be cooperative and tolerate passage of a fiberscope. It is also important that patients have decreased anxiety, less discomfort, and no hemodynamic disturbances during the procedure.

Awake intubation can trigger coughing and laryngospasm. To prevent this, it is essential that effective topical anesthesia is employed to desensitize the nasal passage, posterior pharyngeal wall, epiglottis, vocal cords and trachea. Good preparation with topical anesthesia will reduce the requirement of sedatives, make the patient comfortable and maintain a patent airway[4,5,6].

The aim of this report is to present a case of awake fiberoptic nasotracheal intubation with topical lidocaine alone.

THE CASE

A fifty-eight-year-old female patient, known case of diabetes, hypertension, chronic kidney disease on dialysis, history of stroke and congestive heart failure (EF 35%, global hypokinesia) had an attack of tonic-clonic seizure at home. She had no prior history of seizures. At presentation, she had another episode of tonic-clonic seizures.

The patient bit her tongue during the seizure resulting in the development of a lingual hematoma. The tongue was so swollen that it almost obliterated the whole oral cavity, see figure 1. Anesthesia team was contacted to review the patient for possible intubation.

Figure 1: Severe Lingual Hematoma Obliterating Almost Entire Oral Cavity, Post Tonic-Clonic Seizures

The patient was transferred to the operating theatre after complete pre-anesthesia assessment. The patient and relatives were counseled and reassured. Consent for emergency surgical tracheostomy in the event of complete airway obstruction was secured.

Injection glycopyrrolate 200mcg IV was given as an

* Registrar
** Consultant
*** Senior Registrar
Department of Anesthesia and Pain Management
King Hamad University Hospital
Kingdom of Bahrain
E-mail: saqib.khan@khuh.org.bh

antisialogogue. Oxygen was given via nasal cannula via the left nostril. Nasal oxymetazoline drops were inserted in the right nostril because it appeared to be more patent than the left. Three squirts of 10% xylocaine spray were instilled in the right nostril. The patient's right nostril was then dilated with number 7 nasal airway after coating it with 2% xylocaine jelly. Further 4 squirts of 10% xylocaine spray were inserted through the nasal airway to anesthetize the posterior pharyngeal wall. The nasal airway was then removed and size 6.5 cuffed, lubricated endotracheal tube was inserted through the right nostril into the oropharynx. Number 18G epidural catheter was threaded through the side port of the fiberscope and its tip positioned just beyond the tip of the fiberscope. The fiberoptic bronchoscope was inserted via the endotracheal tube and advanced beyond the tube tip, see figure 2. Two percent xylocaine was sprayed via the epidural catheter as required to anesthetize the epiglottis, vocal cords and trachea. The flexible scope was passed through the cords and advanced to just above the carina, see figure 3. The endotracheal tube was then advanced over the scope and the scope was removed. After confirmation with end-tidal capnography, the endotracheal tube was secured and the patient was administered propofol and cisatracurium.

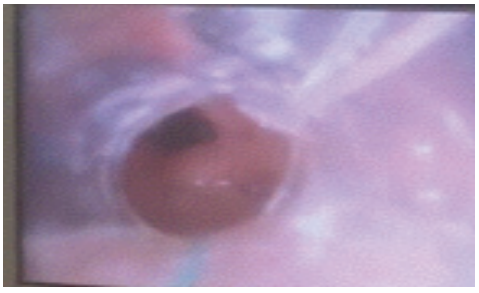

Figure 2: Laryngeal Inlet and Tip of Endotracheal Tube Visible as Flexible Scope is Advanced through the Endotracheal Tube

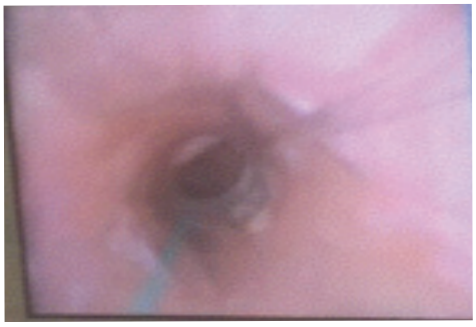

Figure 3: Flexible Scope Advanced through the Vocal Cords into the Tracheal Lumen

The patient was transferred back to the ICU with portable ventilator on remifentanil and propofol sedation.

CT scan and MRI brain revealed no new infarction or hematoma. She was started on levetiracetam and sodium valproate for seizure control. She was also started on continuous renal replacement therapy (CRRT) for her chronic kidney disease. The maxillofacial department followed up the patient for tongue swelling and advised conservative management. She was started on intravenous dexamethasone, which improved the swelling over the course of the next few days.

The patient was successfully extubated on day-four after intubation and subsequently transferred to the ward. She started tolerating oral feeds, had an uneventful course and was subsequently discharged on her regular medications plus anti-epileptics.

DISCUSSION

Anesthesiologists encounter challenging airways in their daily practice. Failure to manage difficult airways could lead to mortality. The incidence of difficult airway has been reported to be 1–18%[5]. Appropriate levels of sedation for safe awake intubation are very difficult to standardize because the required combination of anxiolysis and analgesia varies widely from case to case[6-10].

Awake intubation can be painful and extremely uncomfortable for the patient. It can also result in extreme anxiety and intense sympathetic stimulation which could be detrimental in patients with ischemic heart disease[7,8]. Traditionally, opioids have been employed to provide analgesia in combination with benzodiazepines for anxiolysis to facilitate awake intubation. Fentanyl has been the time-tested opioid used for this purpose as it offers excellent hemodynamic stability and has a short duration of action. However, it has the risk of respiratory depression[7,8].

Midazolam is a popular benzodiazepine that has been used to provide anxiolysis for awake intubation. However, like fentanyl, it has the risk of respiratory depression[6,7,8]. Midazolam, propofol may also be used in combination with fentanyl to provide conscious sedation[8]. Remifentanil, dexmedetomidine, and sufentanil have also been used as sole agents to provide conscious sedation for awake fiberoptic intubation[5,6,9].

In our patient, we anticipated difficult ventilation and intubation because of potential airway obstruction due to a large swollen tongue. We therefore decided that sedatives and opioids should be avoided to prevent complete airway obstruction.

Lidocaine is one of the best choices of topical anesthesia[4,6]. It has a large therapeutic window and wide margin of safety. The maximum topical dose of lidocaine used for awake fiberoptic intubation is 9mg/kg. In expert hands, this high dose is rarely required[10].

In our case, we successfully achieved adequate airway anesthesia with a total dose of topical lidocaine of 90 mg. We were thus able to perform awake nasotracheal intubation without the use of any sedatives.

Woodall et al revealed that awake fiberoptic intubation could be performed in 200 volunteers in a training course without sedation. However, 23% of volunteers had systolic blood pressure (SBP) rise of >20%, and 58% of volunteers had an increased heart rate of >20%. In the presence of hypertension or ischemic heart disease, sedation during awake fiberoptic intubation could minimize adverse cardiovascular events[11]. However, there exists a subset of patients in whom we risk a complete airway obstruction with even minimal sedation, such as patients with partially obstructed airway.

Murphy et al found that there are no guidelines to indicate who will benefit from complete avoidance of sedation for awake intubation. Therefore, guidelines about the use/avoidance of sedation need to be established through further studies[12].

Finally, good preoperative counseling is the key to ensuring a cooperative patient for such procedures.

CONCLUSION

Awake fiberoptic intubation without sedation can be considered in a patient with potential airway obstruction, especially if sedation may result in complete loss of airway.

Author Contribution: All authors share equal effort contribution towards (1) substantial contributions to conception and design, acquisition, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of the manuscript version to be published. Yes.

Potential Conflicts of Interest: None.

Competing Interest: None.

Sponsorship: None.

Acceptance Date: 16 September 2019.

Ethical Approval: Approved by the Research and Ethics Committee, King Hamad University Hospital, Bahrain.

REFERENCES

1. Dhasmana S, Singh V, Pal US. Awake Blind Nasotracheal Intubation in Temporomandibular Joint Ankylosis Patients under Conscious Sedation Using Fentanyl and Midazolam. J Maxillofac Oral Surg 2010; 9:377–381.
2. El-Boghdadly K, Onwochei DN, Cuddihy J, et al. A Prospective Cohort Study of Awake Fibreoptic Intubation Practice at a Tertiary Centre. Anaesthesia 2017; 72:694–703.
3. Prasanna D, Bhat S. Nasotracheal Intubation: An Overview. J Maxillofac Oral Surg 2014; 13:366–372.
4. Xue FS, Liu HP, He N, et al. Spray-as-You-Go Airway Topical Anesthesia in Patients with a Difficult Airway: A Randomized, Double-Blind Comparison of 2% and 4% Lidocaine. Anesth Analg 2009; 108:536–543.
5. Shen SL, Xie YH, Wang WY, et al. Comparison of Dexmedetomidine and Sufentanil for Conscious Sedation in Patients Undergoing Awake Fibreoptic Nasotracheal Intubation: A Prospective, Randomised and Controlled Clinical Trial. Clin Respir J 2014; 8:100–107.
6. Johnston KD, Rai MR. Conscious Sedation for Awake Fibreoptic Intubation: A Review of the Literature. Can J Anaesth 2013; 60:584–599.
7. Tsukamoto M, Hirokawa J, Yokoyama T. Airway Spray Efficacy of Local Anesthetic with Fiberscope. J Anesth 2017; 31:639.
8. Kumar P, Kaur T, Atwal GK, et al. Comparison of Intubating Conditions using Fentanyl Plus Propofol Versus Fentanyl Plus Midazolam during Fiberoptic Laryngoscopy. J Clin Diagn Res 2017; 11:21–24
9. Barends CR, Absalom A, van Minnen B, et al. Dexmedetomidine versus Midazolam in Procedural Sedation. A Systematic Review of Efficacy and Safety. PLoS One 2017; 12:e0169525.
10. Williams K, Barker G, Harwood R, et al. Plasma Lidocaine Levels during Local Anaesthesia of the Airway. Anaesthesia 2003; 58: 508– 9
11. Woodall NM, Harwood RJ, Barker GL. Complications of Awake Fibreoptic Intubation without Sedation in 200 Healthy Anaesthetists Attending a Training Course. British Journal of Anaesthesia 2008; 100(6): 850–855.
12. Murphy T, Howes B. Current Practice for Awake Fibreoptic Intubation - Some Unanswered Questions. Anaesthesia 2017; 72(6): 678-681.