

Difficult Airway in a Patient with Jaw Fracture: A Case Report

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Abstract

Introduction

Major trauma cases with jaw fracture are a significant airway management challenge for anesthesiologist. Awake intubation while preserving spontaneous ventilation is a very stressful situation, especially cases with preexisting psychosis.

Presentation of the Case

This motor vehicle collision case was unable to open mouth due to fractures and dislocation of jaw. Case was positive for personal history of psychosis. Anesthetic plan was to incubate nasally. Due to agitation, it appears to be difficult to perform an awake nasal incubation and to anesthetize the upper airway. Decision was made to perform awake oral intubation nerve blocks to obtund the gag reflex; and three major nerves which supply airway were blocked. The tube was advanced slowly until it was certain that the tube was successfully placed in the trachea as the sound of the whistle became louder.

Conclusion

The use of whistle to localize trachea is a lost art. An old trick of intubation which is being lost by technological devices could still work in a skill full hand.

Introduction

It is important to optimize patient's comfort during awake intubation, which increase patient's compliance and maximize the chance of successful intubation in spontaneous breathing patient [1]. Despite providing comfort with local airway anesthesia, patient with closed mouth is always challenging for anesthesiologist. In the situation of the blinded awake intubation, using patient's spontaneous breathing is a historical method. Therefore, the difficult airway cases which required awake intubation is always interesting for anesthesiologist.

Case Description

In this report, we detailed a novel airway management experience for the patient with motor vehicle collision. At a trauma center, 34 years old male is brought after motor vehicle collision. He has a fracture and dislocation of jaw and is unable to open his mouth. Patient was agitated and very anxious. Patient has a past medical history of psychosis.

Anesthetic plan is to incubate nasally. Due to agitation it appears to be difficult to perform an awake nasal incubation and to anesthetize the upper airway. Decision was made to perform awake oral intubation with nerve blocks to obtund the gag reflex.

5 ml of 2% lidocaine was instilled at the caudal aspect of the

posterior tonsillar pillars to block Glossopharyngeal nerve. Sensory innervation of the trachea and vocal folds was blocked by injecting 4% lidocaine. A 10 ml syringe with 20gauge needle was advanced until air was aspirated and Lidocaine injected, inducing coughs that dispersed the local anesthetic. Topical nasal vasoconstriction was obtained by spraying each nostril with 0.25% neosynephrine. Glycopyrrolate was used as an Antisialagogue to dry secretions to easy visualization & for effective penetration of local anesthetic into mucous membrane.

Patient was sedated with 1 mg of versed & 25mcg of Fentanyl. Fiber optic scope was used through the nose. As soon as the scope past the nasal cavity, Patient started bleeding from the nose making visualization of upper airway impossible. Patient due to a psychiatric history was agitated & difficult to manage. At this time it was determined to sedate the patient & to keep him breathing spontaneously.

Patient was induced with 100 mgs of propofol with spontaneous breathing and placed on Sevoflurane. Sevoflurane was titrated according to patient's respiration with the face mask. Nasal rae tube was slowly advanced & a Bam whistle was connected on the end of the tube. As the patient was breathing spontaneously the proximity of the tip of the tube to the vocal cords would make the whistle blow louder and the whistle fade, if the tip of the tube

was away from the vocal cords. Cricoid pressure helped to align the tip of the tube with the vocal cords. The tube was advanced slowly until it was certain that the tube was successfully placed in the trachea as the sound of the whistle became louder. The correct placement was confirmed by end tidal CO₂.

After successful intubation surgery was started which went uneventful. Patient was successfully extubated after meeting all extubation criteria.

Discussion

In the case of our patient, awake intubation with nerve block and minimal sedation provides a condition in which patient had a good level of sedation with spontaneous breathing.

There are three major nerves which supply airway and need to be blocked for awake intubation.

- Terminal branches of ophthalmic and maxillary division of trigeminal nerve. These nerves supply nasal cavity and turbinates.
- The oropharynx and posterior third of the tongue are supplied by glossopharyngeal nerve. Glossopharyngeal nerve can be blocked by topical spray application, direct mucosal contact of soaked pledgets or infiltration of local anesthetic. In this case 5cc of 2% lidocaine was instilled at the caudal aspect of the posterior tonsillar pillars.
- Branches of the Vagus nerve innervate the epiglottis and distal airway like pharynx and larynx. Superior laryngeal and recurrent laryngeal nerve elicit glottis closure reflex.
- Internal branch of the superior laryngeal nerve innervates the base of the tongue, posterior surface of epiglottis, aryepiglottic fold and the arytenoids. The nerve passes 2-4 mm inferior to the greater cornu of the hyoid bone where 3 cc of 2% lidocaine was infiltrated to block this nerve.

Recurrent laryngeal nerve provides sensory innervation to the trachea and vocal folds & in this case was blocked by injecting 4% lidocaine. A 10 ml syringe with 20 gauge needle was advanced until air was aspirated and Lidocaine injected, inducing coughs that dispersed the local anesthetic.

Topical nasal vasoconstriction was obtained by spraying each nostril with 0.25% neosynephrine. Other nasal vasoconstrictors like Oxymetazoline, or Xylometazoline could also be used.

The guidance with whistle help us to localize trachea and able to intubate case. An old trick of intubation which is being lost by technological devices could still work in a skill full hand.

Summary

34 years old male with jaw fracture came for open reduction internal fixation. During Nasal intubation with fiberoptic patient started having epistaxis.

Intubation was performed with the help of BAAM whistle while pt. was spontaneously breathing. BAAM whistle was attached at the end of nasal rae which was inserted in the prepared nostril. Pt. was in sniffing position appropriately sedated and preoxygenated. Patients breathing activated the whistle which was heard during inspiration and expiration, the intensity of the whistle sound increased as the tip of the rae tube got closer to the vocal cords.

The correct placement of the tube was confirmed by the end tidal CO₂.



References

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