

Awake Blind Nasal Intubation as an Alternative to Fiberoptic Intubation

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Abstract: Temporomandibular joint (TMJ) ankylosis is a pathological condition where the mandible is fused to the fossa by bony or fibrotic tissues. This interferes with the mastication, speech, oral hygiene, and normal life activities, and can be potentially life threatening when struggling to acquire an airway in an emergency. Though it is not common, is an anaesthetic challenge, as it is a difficult airway situation with a moderate to a severely limited mouth opening. Fiber optic intubation is a gold standard for such cases, but it may not be readily available at all centers. Blind nasal intubation, Retrograde intubation and tracheostomy are the other alternatives, but they require patient cooperation and are associated with considerable morbidity. We are presenting a case of TMJ ankylosis which is not taken for anaesthesia in many of the corporate and tertiary centers. She was blind nasally Intubated, maintained and extubated successfully.

Keywords: Temporomandibular joint, Ankylosis, blind nasal intubation, fiberoptic

1. Introduction

Airway difficulties during induction of general anesthesia are a concern for anesthesiologists. Even though fiberoptic intubation is the generally accepted method for management of difficult airways, it is not without disadvantages-requires patient cooperation, and cannot be performed on soiled airway or upper airways with pre-existing narrowing pathology¹. Furthermore, fiberoptic bronchoscopy is not available at every medical institution, especially small and medium-sized hospitals. Blind nasal intubation is a readily available technique for management of difficult airways, such as those in patients with a restricted mouth opening or damaged teeth². Here we are presenting a case of restricted mouth opening managed with awake blind nasal intubation.

2. Case Presentation

26 year old female came to the hospital with chief complaint of inability of opening mouth since 8months History of road traffic accident 8Years back. From 8 months predominantly on liquid diet.

No history of upper respiratory tract infection, Asthma, Tuberculosis. The patient went to several hospitals and tertiary care centres prior to Government General Hospital, Vijayawada. Mallampati grade can't be assessed in the patient. Mouth opening is insignificant, with Temporomandibular Distance of 7 cm, Upper lip bite test of class 3. Neck extension is adequate. Patient has Mandibular hypoplasia.

Air entry of right nostril is more than left nostril. Patient is posted for Gap-Arthoplasty of TMJ under general anaesthesia.



Anaesthesia Management

Premedication on the night before surgery: Xylometazoline drops night 9pm, morning 6am & 9am, T.Alprazolam 0.5 mg, T.Ranitidine 150mg given. Patient shifted to operation theater, Emergency crash cart is kept ready. Tracheostomy kit is kept ready with ENT Surgeon on standby. Monitors are attached. IV access secured on left dorsum of hand with 18G intravenous catheter. Inj. Glycopyrrolate 0.2mg given IV, Inj.

Metoclopramide 10mg given slowly IV diluted, Inj. Ranitidine 50mg is given.



Bilateral Superior Laryngeal Nerve Blocks given with 25G needle with 3ml of 1% lignocaine. Translaryngeal (RLN) Block given with 24G needle after confirmation by aspiration of air into the syringe, 2ml of 4% Lignocaine is given. Instillation of Adrenaline with Lignocaine nasal drops done for nasal decongestion.

Patency of both nostrils checked with cotton swab, Right nostril more patent selected for blind nasal intubation. **Procedure** : 6.5 ID red rubber cuffed tube is passed by hearing breath sounds continuously, cuff inflated, position of tube is confirmed with:

- 1) Sustained (End tidal Carbon Dioxide) EtCO₂ trace for >1min
- 2) Absence of phonation
- 3) To and fro movement of reservoir bag with respiration.

Red rubber tube exchanged by 6.5 ID portex EndoTracheal Tube over a bougie. Again ETT position reconfirmed as above and fixed at 23cm at nostril. Inj. Midazolam 1 mg, Inj. Fentanyl 75 micrograms, Inj. Thiopentone sodium 100mg is given. Induced with Sevoflurane 4 Vol%. Inj. Atracurium 20mg given. Procedure completed. Reversed the residual neuromuscular paralysis with Inj. Neostigmine 2.25mg with Inj. Glycopyrrolate 0.4mg.

Observed the patient for 30min in the OT and as all vitals are within normal limits Patient is extubated and shifted to PACU. After 2hours patient is shifted to ward.



3. Discussion

Temporomandibular joint ankylosis results in restricted or nil mouth opening & jaw function get affected. It may be unilateral or bilateral. Facial asymmetry, deviation of mandible & chin on affected side, hypoplastic mandible with receding chin & fullness of face on affected side are the features of unilateral TMJ ankylosis. In bilateral TMJ ankylosis facial symmetry is maintained but micrognathia is present. Birdface deformity, receding chin, narrow maxilla, protruding upper incisors with nil or few millimeters mouth opening are the features of bilateral TMJ ankylosis. Untreated cases may lead to malnutrition, facial asymmetry, and respiratory distress, and poor oral hygiene, carious or impacted teeth. Increased airway resistance & cor pulmonale may occur. Awake nasal intubation is the safest approach of intubation. Awake nasal intubation either blind or fibre-optic guided & retrograde intubation & tracheostomy are the different techniques of securing airway in these patients. If anaesthetic agents are used there is risk of Perioperative apnea, desaturation & dysrhythmia. Due to extreme sensitivity to central depressant drugs benzodiazepines and opioids should be used in titrated dose only.

Blind nasal intubation usually does not require availability of a special device³ or appropriate operator training. Blind nasal intubation is also a viable option for patients who are awake. An additional advantage is that presence of blood and secretions do not increase difficulty in blind nasal intubation. This is a technique frequently used by paramedics in out-of-hospital patient care. The average success rate for paramedics using the blind nasotracheal method is 58.0%-72.2% with conventional endotracheal tubes.^{4,5,6} The endotracheal tube should be lubricated and passed along the floor of the nose beneath the inferior turbinate⁷. Breathing sounds are confirmed and then the tube is advanced into the trachea through the glottis. If unsuccessful, the patient's head is repositioned and the tube is facilitated via optimal external laryngeal manipulation.⁸ Tracheostomy was the last option only in emergency when all other approaches failed. Tracheostomy has its own advantages & disadvantages. Surgical airway should be kept reserved for failed intubation

Blind nasal intubation, fibre optic guided nasal intubation, retrograde intubation & tracheostomy are the different

techniques of securing airway in these patients.

4. Conclusion

Blind nasal intubation technique can be mastered by practice & is useful in managing difficult intubation cases particularly when fibre optic bronchoscope is not available.

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