



Difficult Airway Management in Panfacial Trauma

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Abstract

Management of patient with lefort 2 with symphysis fracture of mandible is challenging for anaesthesiologist. This case report describes the anaesthetic management of lefort 2 with symphysis fracture of mandible. Patient planned for open reduction and internal fixation under general anaesthesia and awake fibre optic nasal intubation.

Keywords: *ventilation difficulty, intubation & extubation.*

Introduction

Airway management in patients with lefort 2 with symphysis fracture of mandible is an ever challenging situation in spite of a much focused effort for more than a century. Throughout its course of development the technique has evolved from blind nasal intubation, retrograde intubation using a guide wire, intubating with the help of a fiberoptic laryngoscope and the time tested tracheostomy. Difficulty intubation encountered in such situations.

A lefort fracture of the skull is classic transfacial fracture of the midface, involving the maxillary bone and surrounding structures in either a horizontal, pyramidal or transverse direction. The hallmark of lefort fracture is traumatic

pterygomaxillary separation, which signifies fractures between the pterygoid plates, horseshoe shaped bony protuberances which extend from the inferior margin of the maxilla, and the maxillary sinuses. Continuity of this structure is a keystone for stability of mid face, involvement of which impacts surgical management of trauma victims, as it requires fixation to a horizontal bar of the frontal bone.

Signs and Symptoms

Lefort II – Gross edema of soft tissue over the middle third of the face, bilateral circumorbital ecchymosis, bilateral subconjunctival hemorrhage, epistaxis, CSF rhinorrhea, dish face deformity, diplopia, enophthalmos, cracked pot sound, step

deformity at infraorbital margin, mobile mid face, anesthesia or paresthesia of cheek.

Case Report

This is a case of 32 years old female, diagnosed with panfacial trauma with lefort 2 and symphysis fracture of mandible and mallampatti grade 4 and ASA grade 1. posted for open reduction and internal fixation .

No previous history of difficult intubation or anaesthesia related complications.

General Examination: weight 50 kgs, thin built, hydration –good, no pallor, icterus, clubbing, and lymphadenopathy.

Vitals -70 BPM, RR-14/min, B.P:110/70 mm Hg , temperature normal.

On systemic examination: CVS- S1 S2 are normal, no murmurs, RS – BAE –equal, no added sounds. On abdominal examination – soft, on auscultation bowel movements are normal, CNS – no history of epilepsy.

Airway examination –

Restricted mouth opening, mallampatti grade 4, mouth opening 2 fingers, thyromental distance was <6 cms, neck movements were adequate.

Anaesthetic Management

We decided to perform a 1flexible fibreoptic guided awake nasal intubation. Informed consent was obtained for awake intubation and postoperative ventilatory support. Standby tracheostomy and jet ventilation were kept ready. An I.V. line was secured and infusion of DNS was started and antibiotic prophylaxis administered. The patient was shifted to the OT table with great care. After attaching monitors, such as, pulse oximeter, and non-invasive blood pressure (large size cuff) monitor, 3 lead ECG, Foley’s catheter for intraop urine output. Two drops of xylometazoline were instilled into the more patent right nostril. The upper airway was anesthetized using right nasal packing with freshly prepared adrenalized 4% lignocaine, 2% viscous gargles and bilateral superior laryngeal nerve block with 2 ml of 2% adrenalized lignocaine on each side.

Patient was preoxygenated with 100% oxygen for 5 minutes and premedicated with fentanyl 1 µg/kg i.v., midazolam 0.03 mg/kg i.v., ondansetron 4mg iv, ranitidine 50mg i.v. and glycopyrrolate 0.2 mg i.v. The ability to ventilate the lungs by mask was confirmed. A 8.0 mm ET tube was threaded over the flexible fiberoptic bronchoscope, the scope was carefully introduced through the right nostril and maneuvered through the vocal cords. The distal end of the fiberscope was advanced into the larynx and ETT was advanced into the trachea. Fiberscope was then removed while structures of carina, trachea and tracheal tube were observed and ETT secured in position. The endotracheal position of the tube was confirmed by capnography and bilateral chest auscultation. The eyes were taped shut and padded. The patient was given xylocard 1.5 mg/kg iv and induced with propofol 2 mg/kg i.v. fentanyl 1 µg/kg/hr, isoflurane 1MAC., and vecuronium 0.01 mg/kg/h i.v. A intraoral pack was placed to prevent aspiration by using direct laryngoscope. The patient was ventilated with volume control mode with a tidal volume of 550 mL at 16 breaths per min. Initial reading of ETCO₂ was 36 – 38 mmHg, which was constantly monitored. Open reduction and internal fixation was done for lefort 2 fracture with symphysis fracture of mandible. Total operating time was 4.5 hours and blood loss was around 200ml. Intraoperative I.V fluids were maintained. At the end of surgery a direct laryngoscopy was done, intra oral pack was removed and epiglottis was visualized. Intraoperative course was uneventful. At the end of the surgery, N₂O was stopped 10 min prior and xylocard 1mg/kg IV was given. Neuromuscular blockade was reversed with neostigmine 2.5mg and glycopyrrolate 0.5 mg and patient was extubated under direct laryngoscope after thorough suctioning after, when patient was fully awake and obeying commands. After extubation patient was observed on the OT table 15 minutes for any untoward event, Her vitals remained stable and saturation was normal. she was transferred to the ICU for monitoring and was

kept in propped up position, she maintained oxygen saturation between 98-100% and was hemodynamically stable. Post op analgesia was maintained with diclofenac 75mg iv bd. After 2days he was transferred back to the ward and further postop period was uneventful and he was discharged on 7th postop day.



Discussion

Pan facial trauma where lefort and mandible fractures make restricted mouth opening that making it difficult to obtain an adequate view of the vocal cords with direct laryngoscopy. The proportionately large tongue is also a hindrance during direct laryngoscopy because there is no room to sweep the tongue when attempting to align the axes of the head and neck. The key to success in these patients is effective preparation, presence of personnel with expertise in difficult airway management, regular training and familiarity with the difficult intubation equipment, teamwork, and following simple algorithms for difficult airway management.

There are few methods that ensure a safe, uneventful intubation in a lefort fracture patient with a difficult airway. The technique of retrograde intubation was originally described in 1960.² There has been several modifications in this technique throughout these years.^{3,4} Fluoroscopy was used to assist in placing the guide wire in retrograde technique especially in patients

with difficult mouth opening.⁵ Use of flexible fibreoptic laryngoscope may be the method of choice in difficult airway. In the presence of bleeding this may also end up in failure.⁶ In many centers the fiberoptic scope may not be available. Alternative options will be necessary in such situations. In lefort fracture the technique of blind nasal intubation was traditionally recommended. It can fail and repeated attempts may injure the involved structures resulting in complications like bleeding airway obstruction etc. In our patient blind nasal intubation was not possible as patient was not co-operative. In addition, repeated unsuccessful attempts could cause soft tissue trauma. Keeping this in mind, we decided to perform a flexible fibreoptic guided intubation rather than a blind nasal intubation. Sedative premedication was withheld till the airway was secured. Since clinical tests to identify the more patent nostril can be erroneous,⁵ it is our practice to routinely perform a flexible fibreoptic nasal endoscopy for all patients requiring nasal intubation. Inadvertent intubation of nostrils with septal or other deformities may be associated with an increased risk of complications like mucosal tearing or avulsions of inferior and middle turbinate. Our patient had a more patent right nostril so we decided to perform a right nasal intubation. A variety of techniques for the management of lefort fracture⁶ have been described.

Conclusion

Difficult intubation is anticipated in patients with pan facial trauma, therefore awake nasal endotracheal intubation with fiberoptic bronchoscope is preferred.

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