MAXILLOFACIAL TRAUMA REPAIR AND AIRWAY - A CHALLENGE

Dr Jayashree Sen
M.B.B.S;M.D.
Asstt. Professor, Deptt of Anaesthesiology

Dr Manik Saha
M.D.S.
Asstt. Professor, Deptt of Oral & Maxillofacial Surgery

Dr Srijan Mukherje
F.D.S.R.C.S
Consultant, Deptt Of Oral & Maxillofacial Surgery

Tripura Medical College & Dr. B.R.A.M. Teaching Hospital, Agartala, Tripura

ABSTRACT

In maxillofacial trauma , as there is anatomical distortion, oral or nasal intubation, for securing airway is avoided. Tracheostomy has its complications. So airway maintenance can be challanged with a technique called sub mental intubation practically it is an orosubmental procedure. It gives a safe and the least adverse post operative outcome.

Key words: Maxillofacial trauma,tracheostomy,re-enforced ETT, sub mental

INTRODUCTION

Anaesthesia in maxillofacial trauma repair incorporates unique airway problem which requires experienced, skillful anaesthesiologist, co-operative surgeon & a modification of the standard anaesthetic practice.

In maxillofacial trauma, intubation nasally[1] can interfare with the stabilisation of nasal fracture & orally, with the reduction & maintenance of mid facial fracture .Hernandez Altemir[2],a maxillofacial surgeon,in 1986, avoided tracheostomy and devised an alternative route of endotracheal intubation the submental

Material & method

A 30 yrs old male suffered fracture of Le fort II& III in a road traffic accident & got admitted to our hospital . Immediately after the mishap there was nasal bleeding but no loss of consciousness, no intracranial or cervical spine injury. Emergency management & maxillo-mandibular fixation(MMF) were done in our casualty department. The patient was put for reconstructive surgery the following day.

Pre-Anaesthetic Check Up

Asa- I, average height & weight, thyromental distance >7 cm, neck retraction adequate, because of MMF, mouth opening could not be ascertained . The maxillofacial surgeons promised to dismantle the MMF prior to induction of anaesthesia. All required investigations including ECG were within normal limit.

Anaesthesia as per ususal anaesthetic procedures orotracheal intubation done successfully with a 32fg cuffed flexometalic armoured tube, with an introducer inside the tube which was removed later. Bain's circuit attached, anaesthesia maintained with 30% +70% O_2 & N_2O .In due time atracurium 0.5mgkg^{-1} injected, throat packing put & a temporary draping of the mouth & the submental area done.At the beginning of the procedure, the connector of the tube removed carefully so that it becomes a removable but fitting connector when needed. Now an incision about 2cm long in the submental region parallel & medial to the lower border of the mandible ,made by the maxillofacial surgeon which was extended intraorally through the floor of the mouth (platysma, mylohyoid, genioglossus). Then the endotracheal tube briefly detached from the connector , pilot balloon deflated, tube was held tightly inside the mouth by the anaesthesiologist to prevent it from getting displaced. The pilot balloon, followed by the endotracheal tube then pulled out through the submental incision, and re-attached to the connector & the circuit. Chest auscultated for equal air entry, tube was fixed with 1.0 silk suture with the submental skin. Repair surgery for fracture continued for about seven hrs. At the end of the surgery, tube again disconnected , deflated pilot balloon followed by the ETT pulled back to the mouth & reconnected with the circuit. The ETT became orotracheal again. The submental incision closed with two skin sutures. Reversal of n.m. block done with pyrolate 0.004mg / kg + neostigmine 0.05 mg / kg i.v. , pharyngeal pack removed & orally extubation done once the patient responded to commands. MMF done again & the patient was discharged for the post operative recovery room.

Peroperatively i.v. antibiotic given, postoperatively mouth wash with 0.2% chlorhexidine gluconate solution advised.MMF removed on the 2nd post operative day.

Result

Oral intubation made submental,gave an un-interrupted surgical field. Post extubation - no respiratory depression, healing was adequate, the scar at the floor of the mouth caused some restriction in protruding the tongue for about two post operative months which was but recovered because of his nurse wife who helped him doing the tongue physiotherapy & the patient came round within two months.

Discussion

In surgical repair of the maxillofacial trauma, airway maintenance is normally done by tracheostomy[3] which carries morbidities like haemorrhage, recurrent laryngeal nv damage, subcutaneous emphysema, pneumothorax, stomal & respiratory tract infection, dysphagia, tracheal stenosis & a cosmetically undesirable scar.

Oral or nasal intubation interfares with surgical reconstruction of naso orbital ethmoidal complex fracture[4], potential chances of infection - as meningitis, sepsis, CSF leakage,inadvertant introduction of tube into the cranium[5],obstruction of tube by distorted airway architecture.

The adverse effects which we faced through the submental route following usual oral intubation are (1) difficulty in disconnecting the ETT from the connector ,(2) pulling it & the pilot balloon through the submental incision. Other effects which may be encountered are (a) trauma to submandibular & sublingual glands or duct (wharton's duct), (b) damage to lingual nv., (c) orocutaneous fistula, (d) hypertrophic scar[6]

Contraindication of submental incision infection locally,fracture of symphasis,inability to open the mouth. The published alternatives of tracheostomy in maxillofacial trauma are retromolar[7],submandibular[8].

Conclusion

Submental route is an established procedure in maxillofacial trauma.It is simple & effective for upper airway management, a substitute to tracheostomy, especially where long standing post operative ventilation is not required ,gives optimal operating field and an opportunity to check dental occlusion. In this case,Altemir procedure was evaluated for (1) accidental extubation and (2) postoperative complications . These were found to be totally after the anaesthesiologists'as well as the surgeons' satisfaction,though it was felt that the time utilized was needed to be lessened.

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Afzal A.
Co-Ordinator (Mkt. & Advt)
967/21-C, Housing Board Colony, Faridabad (Haryana)
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E-mail :
article_ht@yahoo.com,
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