Case Report

A Modified Submento-Submandibular Technique for Oral Endotracheal Intubation

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Abstract:
Complex Panfacial injuries, mainly base of skull fracture or naso-ethmoid complex fracture, often require tracheostomy to keep the field free during operation. Altemir's submental intubation technique is an attractive option for such patients. We used this technique in a patient having naso-ethmoid, zygomatic complex, le fort 1 and mandibular parasymphysis fracture with little modification.

Keywords: Panfacial trauma, Submento-submandibular intubation, Endotracheal Intubation, Anaesthesia technique.

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Introduction:

Complex midfacial or panfacial fractures are a challenge because of the need to maintain the teeth in occlusion and at the same time to keep the endotracheal tube out of the operating field.[1,2] These complex situations preclude the conventional orotracheal and nasal intubation which may lead to complications such as brain damage, leakage of CSF and meningitis, when there are also fractures of the base of the skull.[3] Tracheostomy (a well known procedure for such situations) is also associated with complications such as haemorrhage, pneumothorax, pneumomediastinum, tracheal stenosis or injury to recurrent laryngeal nerve.[4] Here an alternative method, First published by ALTEMIR FH in 1986,[5] to manage airway intra operatively is submento- submandibular endotracheal intubation.

We present a case of submento – submandibular intubation with little modification i.e. through the same incision given for treatment of mandibular fracture.

Surgical Technique:

The patient is anaesthetised using routine anaesthetic technique and intubated orally with No. 7 tube. Under aseptic conditions, incision and layer by layer dissection is done to reach the mandibular parasymphysis fracture. A blunt dissection, through the same incision, is done with large curved haemostat to reach the floor of the mouth on left side. The haemostat is kept close to the medial surface of mandible to avoid injury to the wharton's duct and

lingual nerve. Using a palpating finger in the floor of the mouth as a guide , the mylohyoid muscle and mucosa is bluntly breached. Spreading the haemostat enlarges the mylohyoid opening.

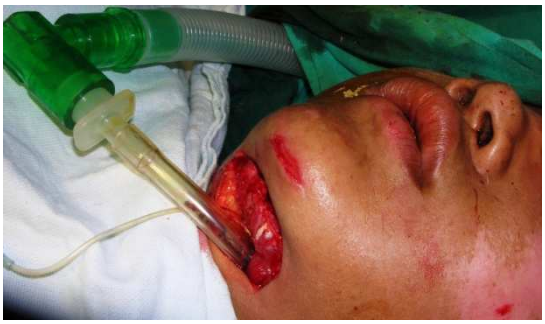

Figure 1: Photograph showing endotracheal tube through the submental route.

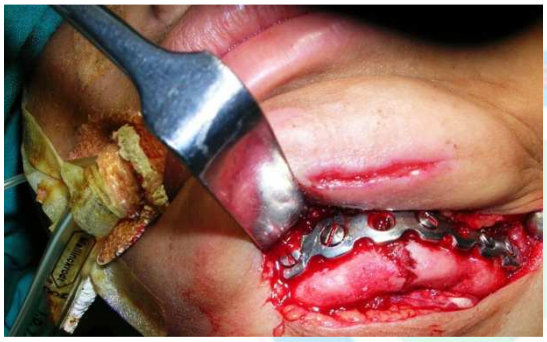

Figure 2: Photograph showing intra oral endotracheal tube after completion of treatment

At this point of time, connector is removed from the tube and end of the endotracheal tube is grasped by the haemostat and taken out through the same incision. The anaesthetist reattaches the connector and the anaesthetic machine to the tube.(Fig 1) The planned surgical procedure is done unhindered after achieving occlusion and intermaxillary fixation. At the termination of the surgical procedure, inter maxillary fixation is removed and the endotracheal tube is passed back in the oral cavity.(Fig 2) Deep layers are closed by 3-0 vicryl and skin closure is done by 5-0 nylon.

Discussion

The Submento-Submandibular intubation is quick, safe, simple and preferable alternative to tracheostomy for the short term airway management of complex craniofacial surgeries such as panfacial injuries, orthognathic surgeries with rhinoplasty, nasopharyngeal surgeries which require both nasal and oral orifices free and allow easy reduction and fixation of the bones.[6] The Indications and Contraindications for submento-submandibular intubation are (Table 1).[7]

Table 1: Indications and Contraindications for Submental Intubation

Indications	Contraindications
Patients with minimal neurological deficit	Patients with severe neurological deficit
Craniomaxillofacial traumatic injuries	Patients with multi-system trauma
When short term intra operative IMF is required to establish reduction and rigid fixation of fracture	Long term Airway support and maintenance required
Patients with large pharyngeal flaps	Known severe keloid formers
Combined craniomaxillofacial surgery and rhinoplasty required	

Complications associated with this technique are rare and are due to an error in surgical technique. Mucocele as a complication of submandibular intubation reported by Stranc & Skoracki[8] is more likely due to an incorrect surgical technique.[9] Altemir's theory is to prepare the surgical route from the skin to the oral cavity to avoid inclusion of the mucosal fragments in the floor that can form a mucocele.[10]

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