Comparision Between Nasotracheal Intubation and Submental Intubation in Pan Facial Trauma

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ABSTRACT

Submental orotracheal intubation is a simple, quick and effective alternative to oral and nasal tracheal intubation or tracheostomy in the surgical management of selected patients with cranio-maxillofacial injuries. It has a low morbidity and it does not impede the surgical field, allowing for temporary maxillo-mandibular fixation intra-operatively and nasal assessment, manipulation and bone grafting, either simultaneously or as an independent procedure. It is a gold standard procedure in pan-facial fracture where nasotracheal intubation cannot be done.

Key words: Craniomaxillary trauma, Anaesthesia equipment, Endotracheal tube, Intubation tracheal, submental.

INTRODUCTION

Oral & Maxillofacial surgical patients is difficult to intubate because of the complication associated. All the procedures move around dealing with the airway, so The surgeon and the anaesthetist have to operate using good teamwork so that maximum safety can be provided to the patients with no interruption during surgery and to reduce post-op morbidity.

Anatomy of submandibular and nasal area

The submandibular triangle (or submaxillary or digastric triangle) corresponds to the region of the neck immediately beneath the body of the mandible.

Boundaries and coverings

Above

By the lower border of the body of the mandible, and a line drawn from its angle to the mastoid process;

Below

By the posterior belly of the Digastricus; in front, by the anterior belly of the Digastricus. It is
covered by the integument, superficial fascia, Platysma, and deep fascia, ramifying in which are branches of the facial nerve and ascending filaments of the cutaneous cervical nerve. Its floor is formed by the Mylohyoideus anteriorly, and by the hyoglossus posteriorly.

Submandibular Anatomy

Nasotracheal intubation

The first method of nasotracheal intubation was described by Kuhn in the year 1902[1], according to Kuhn it was a more physiologic approach to intubate the trachea. Magill in 1920 popularised this method as he preferred this technique for intra-oral surgery[2]. It was popular as a technique for prolonged intubation of patients in the intensive care setting[2], but risk of sinusitis[3] has reduced this use. The use of this method for routine intubation gradually decreased, owing to a misconception[4] that this method is more traumatic and it causes more post-operative morbidity. Although nasotracheal intubation provides easy access to intra-oral structures, more over it helps in easy instrumentation in complex surgeries such as BSSO, isolated mandibular fractures, etc.

Indications for nasotracheal intubation

**Head and neck surgery**

1. Intra-oral and oropharyngeal surgery
2. Complex intra-oral procedures involving segmental mandibulectomy or mandibular osteotomy and mandibular reconstructive procedures
3. Rigid laryngoscopy and microlaryngeal surgery
4. Dental surgery.
Contraindications for nasotracheal intubation
1. Nasoethmoidal fractures.
2. Pan-facial fractures where the altered anatomy prevents the entry of the endotracheal tube.
3. Base of the skull fractures.
4. Severe deviated nasal septum.
5. Nasal polyps.

Indication for submental intubation
1. Nasoethmoidal fractures.
2. Pan-facial fractures where the altered anatomy prevents the entry of the endotracheal tube.
3. Base of the skull fractures.
4. Severe deviated nasal septum.
5. Nasal polyps.

Submental intubation
The method of intubation cannot be used in Pan-facial trauma because the de-arranged skeleton does not allow the passage of the tube into the trachea, similarly in base of the skull fracture the tube may get introduced into the meninges. Surgical reconstruction of nasoethmoidal fractures also forms a contraindication to the use of endotracheal intubation. Although tracheostomy is a gold standard procedure for such cases but it is associated with many post op morbidity. An alternative for tracheostomy was first described by Hernandez Altemir in 1986. The submental route for endotracheal intubation consists of pulling the free end of an endotracheal tube (universal connector removed) through a submental incision, after a usual orotracheal intubation has been performed. The use of submental intubation with Altemir's technique and its modifications has been used in a large number of patients with maxillofacial injuries. The term transmylohyoid intubation was given by Gadre and Kushte. Since the path of exit of the endotracheal tube is across the mylohyoid muscle and not restricted to the submental triangle.

Contraindication of submental intubation
1. IMF to be done intra-operatively
2. Patients refusal for post-op scarring.

Complication of submental intubation
1) Infection
2) Endotracheal tube damage
3) Orocutaneous Fistula
4) Right mainstem intubation/obstruction
5) Hypertrophic scarring
6) Extubation (Paediatric)
7) Venous bleeding
8) Excessive bronchial flexion
9) Transient lingual nerve paresthesia
10) Mucocele formation

REFERENCES