A SHARED OPERATIVE FIELD AND THE DISPUTE – IS THERE A WAY OUT?

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Abstract

Submental intubation is an alternative to tracheostomy in patients requiring surgical access to both oral and nasal cavities. It is relatively safe, simple, and low morbidity procedure and requires only basic surgical equipment to perform. We successfully performed a submental intubation in a young patient with maxillofacial hypoplasia undergoing Le Fort I maxillary advancement without any intra- and post-operative complications.

Keywords: Submental intubation, maxillofacial procedure, facial trauma, and airway.

Introduction

Maxillofacial procedures can create an exhaustive drill for an anesthesiologist to acquire a secure airway, which necessitates a substantial amount of cooperation between the surgeon and the anesthesiologist when the operative field is a constant threat to the airway. Alternative options like tracheostomy, retromolar, and submental intubation are techniques that can be utilized in such scenarios. Of these, submental intubation has shown to be simple, safe, and cost effective with no major post-operative complications^{1,2}. Due to the rapidity of access, submental intubation has also been utilized in establishing airway in patients with maxillofacial trauma^{3,4}. Here we describe our experience in a patient undergoing submental intubation for maxillary advancement who previously had multiple surgeries as a child to correct dysplasia.

Case description

A 22-year-old female patient with severe maxillary hypoplasia and frontonasal dysplasia (Mallampati score, MPII) was scheduled for Le Fort I maxillary advancement. After application of standard monitors and preoxygenation, slow inhalational induction was performed. Initially, we used inhalation induction to keep the patient spontaneously breathing under anesthesia. Bilateral nares were prepared using oxymetazoline nasal spray in anticipation of nasal intubation. A trial of inserting a 14 French catheter through the bilateral nares was unsuccessful. Fiber optic visualization revealed distorted anatomy probably secondary to previous surgical procedures. Alternatively, after controlled intravenous induction, a direct laryngoscopy with a Macintosh laryngoscope size 3 blade was performed and a grade III view, as classified by Cormack and Lehane⁵, was observed. A 6.0mm reinforced endotracheal tube was inserted and secured temporarily. A small

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incision was placed through the skin in the submental region by the surgeon (Fig 1). A curved hemostat was inserted through the skin incision to gain access to the floor of the mouth (Fig 2). Access was established on the lingual surface of the mandible in order to avoid injury to the lingual nerve and artery, and Wharton's Duct. The proximal endotracheal tube connector was removed and the tube was pulled through the skin incision using a hemostat. The proximal connector was then reattached to the endotracheal tube and it was sutured and secured. Once the airway was secure, general anesthesia maintained it by using a sevoflurane inhalation agent along with oxygen and an opioid for pain control with pressure control ventilation. Throughout the procedure, an adequate surgical field was available to the surgeon with no compromise on respiratory parameters. After completion of the procedure, the endotracheal tube was pulled back into the oral cavity and submental incision was sutured. The patient was extubated awake. No complications were noted in post-operative period.

Discussion

Maxillofacial anomalies and trauma has been a challenging scenario for anesthesiologists. Establishing a secure airway and sharing the narrow field with surgeons was not without major complication until 1986 when the submental route of intubation was introduced. It was first described by Hernandez⁶. It not only revolutionized the approach to surgical airway management but also showed prominent advantages over other surgical airway techniques like tracheostomy and retromolar intubation^{2,7,8}. Although tracheostomy is an efficient and time-tested option, it has major post-operative complications like infections, prolonged hospital admission, and tracheostomy care expense⁹⁻¹¹. By decreasing the number of emergent and controlled tracheostomies, considerable decrease in post-operative complications and management cost have been shown¹². On the other hand, retromolar intubation might not be the option in many patients due to inadequate retromolar space.

Submental intubation is a simple and quick technique that can be incorporated with a majority of maxillofacial surgical procedures without a major increase in procedure time. The technique allows easy and unobstructed access to the maxillofacial anatomy and prevents the need for a tracheotomy for airway maintenance during surgery. If there is a contraindication to a nasal tube, this technique allows the work to proceed. Since its introduction, modifications have been described and several institutional reviews have been published demonstrating its safety and efficacy^{1,2,8}. Submental intubation is a surgical airway management technique that has shown to be a better procedure than others, is largely accepted by surgeons and patients, and does not involve substantial morbidity^{1,8}.

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* Train-of-four † Post-tetanic counts

* Second twitch

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