

The Difficult Route to Glottis in Cleft Patients Simplified

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Abstract

Introduction Cleft lip with or without palate is one of the most common craniofacial anomalies worldwide. Airway problems in children with cleft lip and palate were well recognized since very early times.

Objective The aim of this technical note is to describe a unique method of performing direct laryngoscopy in children with cleft lip and palate by using a palatal obturator to cover the alveolar and palatal defect in these patients.

Methods The palatal obturator was fabricated using cold cure acrylic after making an impression of the defect using putty-type impression material.

Results The use of the palatal obturator facilitated the placement of the laryngoscope's blade by providing adequate leverage to it during the process of direct laryngoscopy prior to intubating children with cleft lip and palate defect.

Conclusion A discontinuous alveolar arch and palatal defect contribute to lack of effective leverage of the laryngoscope blade while attempting visualization of the glottis. This difficulty can be overcome by use of an obturator to cover the alveolar and palatal defect in order to

provide adequate leverage while using a laryngoscope for visualizing the glottis.

Keywords Laryngoscopy · Glottis · Intubation

Cleft lip with or without palate remains one of the most common craniofacial anomalies worldwide with an incidence of 1 in every 700 live births [1]. Successful management of these patients requires an early surgical intervention with cleft lip repair being performed in the neonatal period at many centres. In view of the early stage of surgical intervention, general anaesthesia is imperative for almost all primary surgical procedures. Apart from this, the anaesthesiologist may also be involved for airway management in some cases before surgery [2].

Airway problems in children with cleft lip and palate were well recognized since very early times, and since then, many methods have been described to manage the difficult airway in such patients [3]. During the surgical management of all cleft patients, it is important that intubation be performed, not only to maintain the airway, but also to prevent aspiration. However, securing the airway through laryngoscopy and intubation may be troublesome to the anaesthesiologist due to the anatomical variations of the oral cavity encountered in these patients [4]. Among these difficult situations, one such difficulty arises owing to a discontinuous alveolar arch and palatal defect contributing to lack of effective leverage of the laryngoscope blade while attempting visualization of the glottis. We hereby report a simple indigenous technique to overcome the aforementioned difficulty while securing the airway using a laryngoscope.

We use an acrylic obturator/plate that covers the palatal and the alveolar defect while the anaesthesiologist uses a

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Fig. 1 Impression made in heavy-bodied putty material

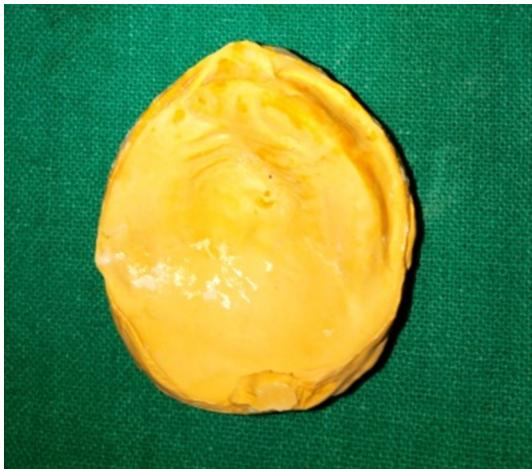


Fig. 2 Cast obtained in dental stone



Fig. 3 Palatal obturator fabricated in self-cure acrylic



Fig. 4 Acrylic obturator covering the palatal and alveolar defect during laryngoscopy

laryngoscope for visualizing the glottis prior to securing the airway with an endotracheal tube. For fabrication of the palatal obturator, a maxillary arch impression is first made in a non-cleft child of appropriate age using elastomeric impression material (heavy-bodied putty) (Fig. 1). The impression is then poured to obtain a cast of dental stone (Fig. 2). A stent is then constructed on the cast using self-cure acrylic material (Fig. 3). Alternatively, heat cure acrylic material can be utilized. Three to four different-sized plates obtained from different sizes of alveolus from non-cleft babies can be obtained. For patients undergoing nasoalveolar moulding, their previous NAM appliance can be altered to be used for similar purpose. The stent covers the whole palate including the maxillary alveolus as well, thus occluding the cleft palatal defect while the anaesthesiologist uses a laryngoscope for effective leverage allowing the laryngoscope blade to rest against the plate facilitating visualization of the glottis during intubation of the patient (Fig. 4).

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Compliance with Ethical Standards

Conflict of interest The author Dr Shyam Bose declares that he has no conflict of interest. The co-author Dr Gunjan Dube declares that he has no conflicts of interest. The co-author Dr. Radhika Shrivastava declares that she has no conflicts of interest. The co-author Dr. Anukool Choube declares that she has no conflicts of interest.

Ethical Approval All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964

Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study prior to anaesthetizing and operating them.

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