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Classic Laryngeal Mask Airway : 180 Degree Rotation Technique for Airway Management of Post Burn Contracture of Face and Neck in Paediatric Patient

Dr Santosh Kumar Sharma	Lecturer, Dept. Of Anaesthesiology & CCM, BRD Medical College, Gorakhpur
Dr Shahbaz Ahmad	Assistant professor,Dept. Of Anaesthesiology & CCM, BRD Medical College, Gorakhpur
Dr Virendra	Senior Resident, Dept. Of Anaesthesiology & CCM, BRD Medical College, Gorakhpur

ABSTRACT

Airway management of post burn contracture face and neck in paediatric patients is an anaesthetic challenge posing unique technical difficulties. Flexible fibre optic bronchoscope guided awake intubation is not possible in paediatric age group as they have to be deeply sedated or anaesthetised. We present the successful management of a 12 year old boy with post burn contracture of face and neck with fixed flexion deformity and microstomia planned for contracture release and a right supraclavicular pedicle flap repair. The patient was induced with halothane and 100% oxygen and a Classic Laryngeal mask airway (LMA) of size 2.5 was inserted by the 180 degree rotational technique.

INTRODUCTION

Post burn contracture of face and neck in paediatric patients is an anaesthetic challenge due to fixed flexion deformity, limited mouth opening and the added risk for age group itself [1]. In adults flexible fibre optic bronchoscope guided awake intubation is the standard management technique in an anticipated difficult airway, but this is not possible in paediatric age group as they have to be deeply sedated or anaesthetised [2]. We are reporting the successful management of a post burn contracture release and pedicle flap in a 12 year boy with post burn contracture face and neck leading to fixed flexion deformity and microstomia due to cicatrised angles of mouth. Classic LMA insertion by the 180 degree rotational technique was used successfully in this case to maintain the airway and continue general anaesthesia during the whole surgery.

CASE REPORT

A 12 year boy weighing 25 kg was admitted to our hospital with post burn contracture face and neck with cicatrised angles of mouth and everted lower lips due to kerosene domestic stove burn 4 months back (figure 1). He was planned for contracture release and a right supraclavicular pedicle flap repair under general anaesthesia. His general, systemic examinations and investigations were within normal limits. Airway examination revealed a Mallampatti score of grade IV, an interincisor gap of 25 mm, and no neck extension. The thyromental distance, and sternomental distance could not be assessed because of distorted facial anatomy.

Figure 1

PREOPERATIVE PREPARATION AND ANAESTHETIC MANAGEMENT

A difficult airway trolley and preparations for emergency tracheostomy were kept ready. The anaesthetic plan was to do a paediatric flexible fiber optic bronchoscope (PFFB) guided nasal intubation under general anaesthesia while maintaining spontaneous ventilation. Unfortunately the light assembly of the PFFB malfunctioned. As an alternate plan, the decision to insert an LMA Classic of size 2.5 was made. After application of standard monitors to the child intravenous access was secured. He was premedicated with atropine 0.4 mg IV and was induced with fentanyl 50 µg plus sevoflurane (titrated between 2 – 8%) with 100% oxygen, using Mapleson A breathing system and size 2 face mask. Our first attempt to introduce the LMA failed. We then successfully used the 180 degree rotation technique on our second attempt. The cuff was inflated and ventilation checked by connecting to EtCO2 monitor (figure 2). The patient was maintained on spontaneous ventilation with isoflurane, oxygen and nitrous oxide. No muscle relaxants were given. The surgery consisted of contracture release and a right supraclavicular pedicle flap, and lasted for 2 hours. On completion of surgery the LMA was removed after the patient was fully conscious. The intra and postoperative vitals remained stable. Rest of the postoperative recovery was uneventful and patient was discharged on 7th postoperative day.

Figure 2

DISCUSSION

Orofacial and neck post burn contracture causes limited mouth opening and neck extension, hence considered an anticipated difficult intubation. Awake fiberoptic intubation is the gold standard technique in such cases [3], but in paediatric cases they need deep sedation or general anaesthesia with spontaneous ventilation to perform the procedure. FFB is complex, time consuming and needs an experienced and skilled hand especially in paediatric cases. Paediatric FFB are too thin and repeated attempts may become impossible due to smaller airways and due to inability of Endotacheal tube to negotiate the acute bend at the junction of laryngopharynx and glottis opening owing to acute neck flexion as in our case. A lot of devices are available as alternatives to FFB. LMA is one such device and its role in difficult airway in children is firmly established [4,5,6,7]. It is easy

to insert as compared to FFB, provides secure ventilation and can be used as a conduit for tracheal intubation. Classic LMA offers further advantage of easy availability in all sizes, while ILMA and Igel are not easily available and ILMA below size 3 is unavailable. Our first attempt to insert LMA by conventional technique failed because of reduced space between mouth and chest and impingement of machine end of LMA. By positioning the LMA upside down or 180 degree rotation technique the insertion becomes easier in such patients.

CONCLUSION

Post burn contracture of neck and face presents as a difficult airway for ET intubation. LMA classic is a very useful alternative for ventilation in patients with limited mouth opening. The 180 degree rotation technique offers easy insertion in case we fail with the conventional approach and can be used as the primary means for insertion as well. FFB though a gold standard for such cases, it's easy availability and expertise to use it needs a long way to go. Till then LMA and other supraglottic devices will continue to be handy and rescue equipment for difficult airway in all age groups.

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