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Anaesthetic Management of a Large Sublingual Dermoid Cyst Excision in a 2 Year Old Child

KEYWORDS: Sublingual Dermoid cyst , Blind Nasal Intubation

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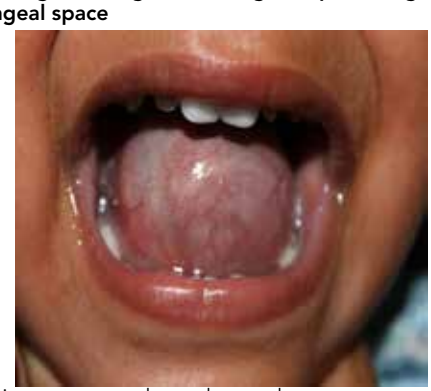
ABSTRACT *Airway management of a child with Large Sublingual Swelling has always been a challenge for the anaesthesiologists. We report a case in which the technique of blind nasal intubation was used to intubate a two year old female child posted for excision of a large sublingual dermoid cyst compromising the anterior pharyngeal space thus making oral intubation difficult. We faced two episodes of intra-operative de-saturation during handling of the swelling. Also, after removal of the swelling, the nasal endotracheal tube was changed to oral position because of intermittent difficulty in ventilation intra-operatively due to frequent movement of the tube.*

INTRODUCTION

Midline sublingual swelling in a child could mean a plunging ranula, dermoid cyst or a epidermoid cyst. Sublingual epidermoid and dermoid cysts are benign lesions, with 7% occurring in the head and neck area and 1.6% within the oral cavity [1–5]. They represent less than 0.01% of all oral cavity cysts [6–9]. The most common location for dermoid cysts in the head and neck is the external third of the eyebrow [1–9]. The treatment of dermoid cysts of the floor of the mouth is surgical; the approach can be either intraoral or extraoral, depending on the localization and size of the mass. Cysts are classified into three types by localization: (1) sublingual, (2) submental, and (3) submandibular cysts. Oral approach is usually applied for small sublingual cyst. The extraoral incision is preferred in submental and large sublingual cysts. Such a swelling on the floor of the mouth can occasionally cause serious problems with swallowing and speaking [1–9].

A two year old female child weighing 10 kg was brought by mother with history of swelling at the base of tongue since birth gradually increasing to present size with no history of obstruction during sleep.

Fig 1. Large sublingual swelling compromising anterior pharyngeal space



Systemic assessment showed normal temperature, pulse and blood pressure. Her respiratory and cardiovascular systems showed normal features. Mouth opening was Mallampatti's classification Grade III.

Local examination revealed swelling approximately 5*3*3 cm arising from base of tongue, with tongue pushed back posteriorly and compromising anterior pharyngeal space. Her Haemogram, Blood sugar level, PT INR and X-ray chest were normal. CT scan revealed a thin walled, well defined cystic lesion of 5*3.1*3cm at the floor of the mouth in the submandibular region with a small locule extending posteriorly and compromising anterior pharyngeal space, F/S/O mucocele of floor of mouth. Not connected to thyroid gland.

A provisional diagnosis of plunging ranula was made. The maxillofacial surgeons decided to remove the swelling under general anesthesia.

ANAESTHESIA

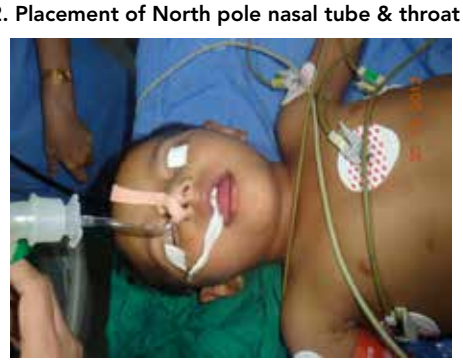
After checking all anesthetic equipments, drugs and monitors IV access of the child was secured. Multipara monitor attached including NIBP, SPO2 and ECG. Pre-medicated with Inj. Glycopyrolate 0.05mg i.v. prior to induction of anesthesia. Surface anesthesia of the airway is achieved by nebulisation with 1ml of 4% lignocaine using a nebulizer of an oxygen flow of 6lit/min.

Induction done with spontaneous ventilation with 100% oxygen and incremental increase in Sevoflurane(0 to 6%) via an Ayer T piece and a silicon face mask.

Nasopharyngeal airway inserted to avoid the airway obstruction.,by Child was positioned by lifting the head to 45 degree by putting towel drapes below her shoulder. When adequate depth of anesthesia was achieved and manual ventilation was possible, blind nasal intubation attempted by using north pole tube no 4.0. After three attempts successful blind nasal intubation was possible.

Correct placement of tube was confirmed by capnography. Then Inj. Vecuronium 2mg, and prophylactic Inj. Dexamethasone 1 mg, with Inj. Hydrocortisone 20mg.Throat packed and surgery started.

Fig 2. Placement of North pole nasal tube & throat pack



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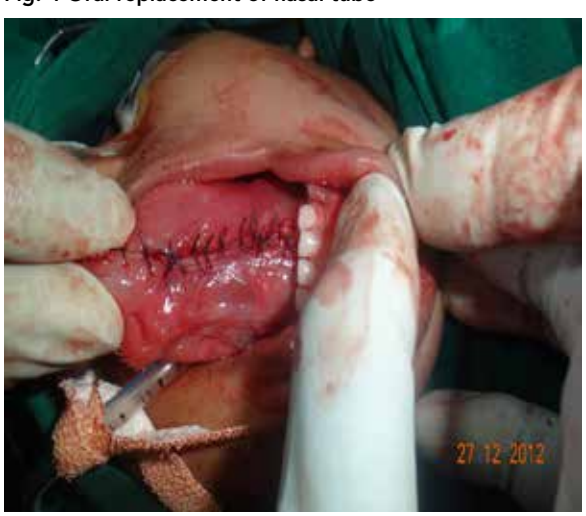
There were two episodes of desaturation upto 86-87% post induction when the neck was flexed during handling of swelling. SPO2 improved on extending the neck by anaesthetist.

Anesthesia was maintained with oxygen, nitrous oxide(60:40) and sevoflurane with dial setting of 1.5to 2%. The patient remained haemodynamically stable and well oxygenated throughout the procedure.

Fig 3. Swelling after dissection

After removal of the swelling, the decision of changing to oral intubation with plain portex tube no 4.0 was made because of frequent in and out movement of the tube during surgery leading to intermittent difficulty in ventilation.

Fig. 4 Oral replacement of nasal tube



At the end of surgery N-M block reversed with neostigmine and glycopyrrolate. Patient extubated when fully awake and fulfilled the reversal criteria.

DISCUSSION

The child with big mass occupying oral cavity and protruding through mouth often prove to be difficult candidates for airway management.

Awake intubation would be the safest method of securing the airway; however due to child non-co-operation and adequate mouth opening and no history of obstruction in sleep, inhalational induction was decided.

Use of muscle relaxant is best avoided as airway obstruction is more likely to occur when soft tissues are relaxed. With the child breathing spontaneously, breath sounds could be useful guide for intubation.

Nasal intubation along with throat pack was decided.

Prior to induction of anesthesia use of 4% nebulised lignocaine to provide surface anesthesia of the airway could be beneficial in preventing breath holding and laryngeal spasm in response to intubation.

Vuckovic(10)et al have described the technique of the aerosol anesthesia of the airway by using a small disposable nebulizer and have advocated use of this technique for providing topical anesthesia of the airway for awake endotracheal intubation prior to general anesthesia. This technique is simple, non invasive and provides pre-oxygenation simultaneous with nebulisation.

Superior laryngeal nerve block and Transtracheal block with 2% lignocaine can be given to decrease the reflexes during awake intubation, but was not possible in this child due to small age.

In this patient the mass was occupying oral cavity and protruding out pushing the tongue back, hence oral intubation was difficult. Similarly a new generation of ultra thin flexible bronchoscope that allows direct fiberoptic intubation in children is not available at our institute at present.

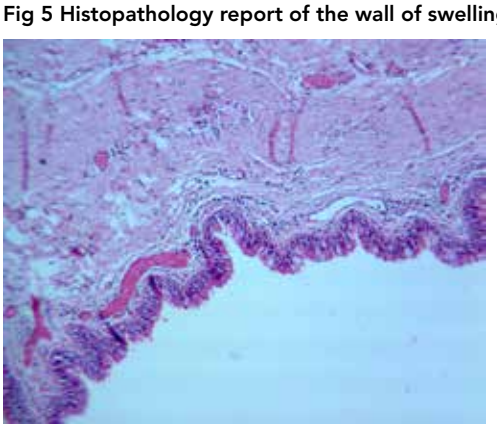
Hence option left was blind nasal intubation which was achieved with north pole portex tube no 4.0.

The handling of the swelling by surgeons lead to flexion of the neck and pressure on the tube subsequently kinking the endotracheal tube which led to two episodes of desaturation. It was corrected by extending the neck and asking the surgeons to release pressure on the swelling intermittently.

North pole nasal endotracheal tube being pre-shaped, manipulation becomes difficult at the nose. Hence, though initially put to facilitate the surgeon, after removal of the swelling and before closure it was decided to change north pole tube with oral plain portex tube.

Histopathology report revealed a dermoid cyst

Fig 5 Histopathology report of the wall of swelling



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