

Nasopharyngeal Airway - The Dedicated Airway for Lip Haemangioma Excision

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Abstract: Airway management of patients with haemangioma of head and neck can be quite challenging for anesthetist. We are reporting here a case of big haemangioma involving lower lip and tongue with impossible conventional mask ventilation successfully managed by ventilation and inhalational induction via nasopharyngeal airway.

Keywords: Haemangioma, difficult mask ventilation, nasopharyngeal airway,

I. Introduction

Haemangioma is one of the most common benign tumors of vascular origin affecting mainly infants and children. Rarely haemangiomas may persist, warranting systemic or surgical treatment. They are very vascular tumors which are at risk to bleed & hence a challenge for the anaesthetist because of sharing of airway.

II. Case Report

A 65 years old American society of anaesthesiologist scale I (ASA I) woman weighing 50 Kg was scheduled to undergo excision of a haemangioma. She had history of a small slowly growing haemangioma since 20 years which had increased to present size more significantly during the last 4 years to involve a greater part of the lower lip, base of the tongue and other mucosal areas in the oral cavity (fig. 1). She had mallampati grade (MPG) 4 score and normal neck and temporomandibular joint movement.

Her medical history, systemic examination and biochemistry were unremarkable and other routine investigations like Chest X-ray & ECG were within normal limits. She was advised routine pre-medication with tab Alprazolam 0.25mg, tab Ranitidine 150mg and tab Metoclopramide 10mg at night and in the morning of surgery.

On anticipation of the difficult airway, we formulated plan for anaesthetic induction. Plan A- awake nasotracheal intubation. In case it fails then plan B-inhalational induction of anaesthesia via nasopharyngeal airway as conventional mask ventilation was anticipated to be difficult in this patient. Following this direct laryngoscopic examination under deep inhalational anaesthetic for possible successful endotracheal intubation (ETI) was planned. Plan-C: if the above two fail, introduction of the invasive airway. This was explained to the patient in detail and consent for the same was obtained.

After adequate nasal preparation, patient was taken in the operating room, routine monitoring was initiated and i.v line was secured. Her baseline vital parameters were noted to be within normal limits. As she had hypertrophied turbinate in the left nostril, her right nostril was packed with 4% lignocaine with adrenaline and was made to do gargles with lignocaine viscous, thrice in an hour. We did not applied blocks for the fear of extent of tumor deeper inside the oropharynx. Inj Glycopyrrolate 0.2mg and inj. Midazolam 2mg were given iv as premedication.

As per plan A, awake nasotracheal fibreoptic intubation was initiated by spray as you go technique. Although the fibroscope was advanced gently, once it reached the oral cavity, patient had severe gag reflex. Further view was obscured by sudden specs of blood caused by probable trauma. Fiberscope was withdrawn immediately. A nasopharyngeal airway (size 6.5mm) was then introduced in the other nostril and suction done. Preoxygenation was done through this nasopharyngeal airway with 100% oxygen using Bain's circuit. After about 5minutes hemorrhage stopped and fibroscope was reintroduced but view of nasopharynx was not clear and therefore the technique was abandoned.

Then plan B was initiated. Inhalational induction with sevoflurane 4% in 50/50% O₂:N₂O was then given through the nasopharyngeal airway. A suction catheter was kept in the oral cavity for suction of any possible blood. When minimum alveolar concentration (MAC) value reached 1.5, gentle direct laryngoscopy was done with standard Macintosh laryngoscope. A Cormack and Lehane grade II view was observed. Inj.fentanyl 100ug was then administered iv and oral intubation was successfully accomplished with 7mm

cuffed portex ETT (endotracheal tube), in first attempt while inhalational induction continued through the nasopharyngeal airway (fig. 2).

Once airway was secured inj. Propofol 100mg and inj. Atracurium 30mg was given iv. Maintenance of anaesthesia was carried out using 33% oxygen in nitrous oxide and sevoflurane. The operative course was uneventful and the patient was extubated when fully awake after complete reversal of neuromuscular blockade. She was comfortable postoperatively and her further stay in hospital remained uneventful.

III. Discussion

Haemangiomas are tumors of vascular origin which are self involuting by age of five years and rarely persist beyond this age. Usually they are smaller in size but larger haemangiomas may need surgery. Treatment options available are steroid application and surgical removal of tumor. Small sized haemangiomas can be excised under local anaesthesia but larger one may require general anaesthesia.

Haemangiomas of the head and neck are always a challenge for the anaesthetist if general anaesthesia has to be given for surgery. In our case the haemangioma was large sized so surgical removal was planned under general anaesthesia.

The major concerns were anticipated difficult mask ventilation and difficult intubation. In this case, conventional mask ventilation was not possible due to the presence of large haemangioma over the lip [1, 2]. Moreover, pressure of the mask, would itself injure the haemangioma and soil the field [1]. Also patient had large tongue and MPG grade 4. So intubation under direct laryngoscopy could be difficult. We therefore chose the gold standard technique i.e. awake fiberoptic intubation in this patient [3].

The nasopharyngeal airway was put in the other nostril as 'a dedicated airway' for ventilation during the procedure. This has been described several times in literature, for maintenance of airway patency while other major airway interventions are in progress [4]. It also supports the findings of Liang et al, which suggest that nasal ventilation is more effective than combined oral- nasal ventilation during induction of general anaesthesia [5].

During fibroscopy, as the haemangioma was present on the posterior part of the tongue as well as posterior pharyngeal wall, it started bleeding in the second attempt. This obscured the field and fiberoptic intubation had to be abandoned.

Direct laryngoscopy was also anticipated to be difficult and had carried the risk of bleeding the haemangioma, but had to be done after fibroscopy was abandoned. Hence we planned for direct laryngoscopy examination under deep inhalational anaesthetic via nasopharyngeal airway for possible successful endotracheal intubation.

Thus, nasopharyngeal airway not only maintained the ventilation where mask ventilation was not possible, but also provided a dedicated airway throughout induction. Moreover, it could be kept throughout surgery and postoperative period for both suctioning as well as maintaining the airway.

In a similar scenario, Saini et al achieved inhalational induction via randell baker socek mask (RBS) kept over patient nose in a case of massive neurofibroma of face [6]. RBS could be an option for preoxygenation and inhalational induction in our case also. But initially we planned for fibroptic intubation so it was not possible to ventilate through RBS mask during fibroscopy.

The use of the laryngeal mask airway and other supraglottic devices like combitube, laryngeal tube should be encouraged when facemask ventilation is difficult.[7] These options were not possible in our case due to presence of haemangioma on posterior part of tongue and posterior pharyngeal wall. If all other measures fail to establish ventilation, cricothyrotomy or tracheostomy may be life-saving.

Images



fig. 1- Patient with lip haemangioma



fig.2- the nasopharyngeal airway as the dedicated airway

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