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DIFFICULT MASK VENTILATION RESCUED BY A PEDIATRIC FACEMASK

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ABSTRACT

Anesthetic challenges arises in securing airway due to difficult mask ventilation because of obstructed nasal passage and unanticipated intraoral extension by a tumour mass leading to difficult intubation also. This sometime lead to the dreaded path of "Cannot Intubate & Cannot Ventilate". We are describing a successfully managed case of ossifying fibroma arising from the maxilla causing difficulty in ventilation with the help of pediatric circular facemask and airway.

Keywords: difficult mask ventilation, pediatric facemask, ossifying fibroma
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INTRODUCTION

Ossifying fibroma of maxilla are rare encapsulated neoplasm, composed of fibrous tissue and variable mixture of mineralized material. Surgical enucleations of the tumour provides good prognosis as recurrence is rare. Anesthetic challenges arises in securing airway due to difficult mask ventilation, obstructed nasal passage and unanticipated intraoral extension leading to difficult intubation also. This sometime lead to the dreaded path of "Cannot Intubate & Cannot Ventilate". Though nowadays a number of alternatives for difficult mask ventilation are available in the form of newer supraglottic airway devices but they are not always available in resource limited centres. A number of case reports have described the successful use of Rendell Baker Facemask (RBF) in ventilation in challenging scenarios by an alternate way other than the standard method of ventilation.[1,2]

CASE REPORT

After taking written informed consent of the patient for possible publication in medical literature, we report a case of a 59-year-old female with a hard, black-greyish erythematous swelling, protruding through the right nasal cavity who was planned for right sided maxillectomy and excision of the mass. [Figure 1] CeCT of PNS showed significant filling of right maxillary antrum, medially extending to the right nasal cavity causing its expansion and remodeling. Superiorly the mass extends into ethmoid air cells and frontal sinus on right side, posteriorly it reaches into nasopharynx and anteriorly outside of nasal cavity.

Preoperative evaluation was normal with difficulty in breathing through the nose. She had no history of any coexisting diseases except for mild hypertension that was diagnosed at the time of pre-anesthetic assessment. Preoperative vital, routine blood investigation, Chest X-ray and ECG were within normal limits. Airway assessment revealed Mallampati Class II, 6 cm thyromental distance, adequate mouth opening of >3 cm, and upper-lip bite test grade III. Large size, vascularity

Figure 1 Ossifying Fibroma protruding from the nasal cavity

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Figure 2 Difficult Mask Ventilation rescued with pediatric facemask

and pedunculated nature of the tumor make it a grade III difficult mask ventilation.[3]

Our first plan was to achieve adequate mask ventilation and laryngoscopy without using muscle relaxant under propofol, and if it fails then Proseal Laryngeal Mask airway of size 4 (due to unavailability of size 3 required in our patient of 40 kg) was kept as an alternative plan of ventilation. In this anticipated difficult airway, awake fiberoptic intubation with local blocks through the oral route was our final rescue plan.

Patient was premedicated with Midazolam 2 mg, fentanyl 40 mcg, and glycopyrrolate 0.2 mg. After administering 40 mg of propofol slowly, Guedel's airway of size 3 was inserted orally to make airway patent and neck extended slightly. A second assistant closed the left nostril by pressure with fingers and supported the tumor mass away from the mask to aid ventilation. Primary physician doing the ventilation and intubation, used a pediatric circular facemask (size 2) to cover and seal the mouth only to achieve adequate ventilation. [Figure 2] Inability to ventilate the patient with standard adult facemask will not be successful in this patient due to the size, location, vascularity, and fragility of the mass. In addition, excessive pressure on the mass by facemask rim to create seal may lead to haemorrhage as engorged vessel can be seen running above the swelling.

Successful intubation was aided with succinylcholine and McCoy laryngoscope blade without any episode of desaturation. Surgery was completed in two hours with excision of mass and patient was extubated while fully awake. There was no episode of postoperative respiratory complication in postanesthesia care unit.

DISCUSSION

Similar to our technique, a case has been described previously where a round cell tumour of the nose makes mask ventilation difficult due to the tumour covering the nose, and compressing the nares. The authors also successfully ventilated the patient with the help of Guedel's airway and small sized pediatric mask covering the mouth only.[4]

Previously RBF was used to ventilate pediatric patients in place of the newer silicone soft cushioned mask. RBF have a low dead space and have been used in a number of case reports in different way other than the conventional way to achieve ventilation. It has been used to provide ventilation by applying directly to tracheostomy stoma,[5] arteriovenous malformation of face[6] and in a patient with massive neurofibroma of face.[7] Nagaro *et al.*[8] used paediatric mouth mask for simultaneously ventilating the anesthetized patient during fiberoptic nasal intubations. In this, a pediatric seal mask applied only over the mouth with the aid of an oral airway while another anaesthetist performs fiberoptic nasal tracheal intubation does ventilation. In RBF, seal can be comfortably achieved even with one-hand by applying foam pad over the rim of the facemask.[9] The author claimed that the dead space of the modified mask was not increased as the major foam pad fell within the cavity of the facemask.

In a case where a mass arising from maxilla occludes one of the nostril and has intraoral extension with inability to cover mouth and nose with large sized adult facemask, ventilation before fiberoptic intubation was achieved by using nasopharyngeal airway connected to the breathing circuit and packing the oral cavity to maintain seal.[10] However in our case, nasopharyngeal airway in other nostril was contraindicated due to the deviated nasal septum, laryngeal mask airway can be a viable option in the absence of intraoral pathology.

CONCLUSION

There are cases of difficult mask ventilation, which can be manage with proper assessment, preparation, and well-organized approach to bring down airway related morbidity and mortality.

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