

Case Report

## Anesthetic and Airway Management of Microstomia after Lip Reconstruction Surgery

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### ABSTRACT

A 50 year old female presented with microstomia following radial artery forearm free flap for lip reconstruction. She was planned for defatting of flap. Airway management in such patients presents the most serious array of intubation and airway hazards imaginable. They may pose risk of difficult mask ventilation and difficult intubation. Such patients are usually managed along the awake limb of difficult airway algorithm. Use of awake fiberoptic intubation is the gold standard technique to secure a definitive airway in such cases.

**Keywords:** microstomia, difficult intubation, fiberoptic bronchoscope.

### INTRODUCTION

The difficult airway has been defined as “the clinical situation in which a conventionally trained Anesthesiologist experiences difficulty with either mask ventilation or tracheal intubation, or both.” Difficult Tracheal Intubation accounts for 17% of respiratory related injuries and results in significant morbidity and mortality. In fact, up to 28% of all deaths associated with anesthesia are due to the inability to mask ventilate or intubate. [1]

### CASE REPORT

A 50 year old female presented with complain of inability to open mouth for 4 months. The patient sustained an electric burn 1 year back following which she had necrosis of whole upper and lower lip. 4 months back patient was operated for lip defect and reconstruction of both the lips was done by Radial artery forearm free flap.

Postoperatively patient developed gradually decreasing mouth opening which allowed the patient to take only liquid food that too with the help of straw. (Figure 1)



Figure 1: Preoperative picture showing reconstructed upper and lower lips and absence of mouth opening.

Now patient was planned for defatting of flap so as to create a mouth opening of atleast 2 fingers to restore her functional status. On Preanesthetic assessment, there was no significant medical

and allergic history. Patient's ASA Physical status I.

Airway examination showed no mouth opening. On an attempt to separate upper and lower lip, a slit like opening could be seen. Mouth opening was around 5 mm. All the teeth were absent. TM Joint movement showed normal range of motion in both forward and anterior direction. Thyromental distance was 6.5 cm. Neck flexion and extension was normal. So we planned to manage this airway with awake fiberoptic intubation.

Blood investigations, Chest X-ray and ECG were within normal limits.

Preparation for awake fiberoptic intubation was done. Informed written consent was obtained including tracheostomy consent. Patient was taken in operating room. Monitors attached and iv line secured with 20 Gauge cannula. Preop BP - 112/72 mm Hg, HR - 86/min,  $spO_2$  - 100% on room air. Cotton pledgets soaked in 2% lignocaine were placed in nose and 0.1% xylometazoline nasal drops instilled into both nostrils. Preoxygenated with 100%  $O_2$  for 5 minutes. Then premedication given which included Inj. Glycopyrrolate 0.2mg, Inj. Midazolam 1mg and Inj. Fentanyl 80 $\mu$ g. Bilateral superior laryngeal nerve block given using 2% lignocaine. 3ml of 2% lignocaine was injected into the trachea through the cricothyroid membrane to block the recurrent laryngeal nerve.

Adult size fiberoptic bronchoscope, with 7.0 mm ID cuffed ET tube threaded on it, was introduced through right nostril. The epiglottis was visible, followed by visualisation of vocal cords. ET tube was advanced into trachea under direct vision. Position of the tube was confirmed. Then induction was done with thiopentone 250 mg slow iv in incremental doses and muscle relaxation was achieved with Inj. Atracurium 20 mg and as and when required thereafter. Maintenance was done with sevoflurane 0.75-1% and  $N_2O$  and  $O_2$ . The intraoperative period was uneventful. (Figure 2)

At the end of surgery patient was reversed with neostigmine 2.5mg and glycopyrrolate 0.4mg, spontaneous respiration present, eye opening present, adequate muscle power obtained, and trachea was extubated. (Figure 3)



Figure 2: Intraoperative picture (after induction of anesthesia) with nasal intubation.



Figure 3: Postoperative picture showing two finger mouth opening

## DISCUSSION

Microstomia is the term used to describe a congenital or acquired reduction in the size of the oral aperture that is severe enough to compromise cosmesis, nutrition, and quality of life. Surgery is often needed to maintain nutrition.

Various options available for intubating trachea in cases of difficult intubation are: awake fiberoptic intubation, LMA, ILMA, blind nasal intubation, video assisted laryngoscopy, retrograde intubation and tracheostomy. [2,3]

Airway management is often difficult in such cases due to absence of mouth opening. Mask ventilator may be either difficult or completely normal.

In our case mask ventilation was adequate. Use of LMA, ILMA and glidescope was not possible due to restricted mouth opening. Blind nasal intubation was avoided as any bleeding due to trauma (because of blind technique and multiple attempts) would be deleterious for use of fiberoptic bronchoscope. Fiberoptic tracheal intubation is the gold standard technique in patients whose airways are difficult to intubate. Tracheostomy was kept as last resort if fiberoptic intubation failed. [4]

Following the Difficult Airway Algorithm of American Society of Anesthesiologists, the best approach is to manage such patients along the awake limb of algorithm, with preservation of spontaneous respiration. Patient cooperation and local anesthesia of airway is very essential for this technique. Another option for our patient was to perform fiberoptic intubation with the muscle relaxant having rapid onset and short duration of action like succinylcholine. But we selected to manage the patient with preservation of spontaneous respiration.

Along with advantage of direct visualisation of glottic structures, fiberoptic bronchoscope minimizes the chances of airway trauma during intubation and hence does not lead to bleeding and airway oedema. [4,5]

## CONCLUSION

Airway management in patients with microstomia is often a challenge to anesthesiologists. Proper preoperative assessment and preparation is necessary for a positive outcome in such cases. The

management of difficult intubation has been simplified as more experience is gained with fiberoptic technique. A planned and unhurried fiberoptic intubation represents a safe, predictive alternative management strategy for such patients.

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