

# A Case of Maxillary Tumour with Difficult Airway.

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## Abstract

A young girl presented with a tumour of the maxilla that had deformed her facial features and dentition and also affected her normal breathing. Preoperative airway assessment indicated not only probability of difficulty in intubating the trachea, but also inability to ventilate through the face mask. In spite of unavailability of sophisticated instruments, the airway could be secured with judicious planning and preparations.

**Keywords:** Maxillary tumour, Facial deformity, Anticipated difficult ventilation and difficult intubation.

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## Introduction

Securing the airway is of utmost importance for an Anesthesiologist. The outcome of any surgical procedure depends on ensuring it. The 'Cannot ventilate Cannot Intubate' scenario being the nightmare of every practicing Anesthesiologist. Different methods and tests have been described to predict beforehand a difficult airway.<sup>[1,2]</sup> Otolaryngological and head and neck surgeries most commonly present with compromised airway.<sup>[3,4]</sup> Congenital and/or acquired deformities of face are the foremost conditions presenting with difficulty in securing the airways. The problem gets compounded when it is superadded with anomalies in facial skeleton, dentition and palate.<sup>[1,5]</sup>

Here we discuss the management of a case facial tumour anticipated to cause difficulty in securing the airway - both during ventilation as well as during intubation.

## Case Report

A 16yr old H/F presented to the ENT OPD of our hospital with a 6 months old swelling on right side of face, causing pain while chewing food, unresponsive to conventional analgesics. She was not able to breathe through right nostril.

She gave no history of trauma/discharge from the swelling, anorexia/weight loss. There was no H/O tobacco chewing or other comorbidities. She was unmarried, had attained menarche at the age of 13 and had normal menstrual cycles.

## Examination

She was of average body built-weighing 40kg, afebrile. Had mild pallor, but no cyanosis/icterus/oedema/any lymphadenopathy. PR-78/min, RR- 16/min, BP- 100/68 mmHg.

Respiratory system- she was breathing through her mouth. No chest wall deformity. Centrally placed trachea. B/L equal chest expansion. B/L equal vesicular breath sounds without any adventitious sounds.

Other systems on examination were normal.

## Airway Assessment

She had normal flexion and extension of the neck. TMD<6cm. Mouth opening was 3cm. Medial and lateral incisors and canine teeth were ill-developed in left upper jaw. Right upper jaw had mal-aligned incisors, canine and premolar teeth; and the incisors were also loose

A swelling of size 8cmx8cm was present on her right cheek, extending from right angle of mouth upto right lower eyelid, involving the lateral wall of right side of nose. The swelling extended and bulged into the right side of her hard palate, also into the floor of the right nose and obliterated her right nasal cavity. Her Mallampati grade was 3. All haematological tests were within normal limits. X-Ray PNS [Figure 1] revealed well-defined radiolucent lesion with a tooth inside right maxillary area. With a provisional diagnosis of Dentigerous cyst, the patient was posted for Cystectomy under GA.

She was categorized as ASA I.<sup>[1,8,9]</sup> Difficulty in securing the airway was anticipated. Patient was advised to use Xylometazoline nasal drop 8hrly and take Tab Ranitidine (150mg) and Tab Alprazolam (0.5mg) the night before surgery and asked to fast overnight.

## Pre-operative management

In the morning of surgery, she was started with intravenous RL solution in the ward and administered Inj Pantoprazole 40mg, Inj Metoclopramide 10mg IV and Xylometazoline nasal drop.

## Anesthetic Management

She was premedicated with Inj Glycopyrrolate (0.2mg), Inj Butorphanol (1mg) and Inj Midazolam (0.6mg) IV and then allowed to breath O<sub>2</sub>+N<sub>2</sub>O (50:50) with 2%Halothane through Bain's Co-axial circuit for 5minutes followed by intravenous Inj Propofol (60mg). Direct laryngoscopy with McCoy laryngoscope (No.3 blade) revealed Cormack Lehanne Grade-2b view of the glottis. The tip of a Frova intubating introducer preloaded with a lubricated No.6.5 cuffed, flexometallic endotracheal tube connected to the Bain's circuit was gently negotiated through the glottis and the endotracheal tube was railroaded over the introducer into the trachea, cuff was inflated and it's position was confirmed. Inj Vecuronium (4mg) was given IV immediately. The tube was positioned in the left retromolar space, [Figure 2], fixed and a throat pack was applied. Anesthesia was maintained with O<sub>2</sub>:N<sub>2</sub>O mixture (33:66) and Halothane (0.5-1 MAC) and patient was ventilated manually. Muscle relaxation was maintained with intermittent IV Vecuronium. Inj Tranexamic acid (500mg) and Inj Paracetamol (600mg) were administered intravenously. Total duration of surgery was 2hrs and there was about 300ml of blood loss. RL1000ml and 500ml NS were given during the intraoperative period. Urine output was 150ml.

At the end of surgery the throat pack was removed after thorough pharyngeal suction. Anesthetic gases were withdrawn. Muscle paralysis was reversed with intravenous Inj Neostigmine (2mg)+Inj Glycopyrrolate (0.4mg). Patient was extubated when she was fully awake with return of protective airway reflexes.

### **Post-Operative Management**

Immediately after extubation the patient was kept in lateral position and O<sub>2</sub> was provided by Hudson's facemask. She was observed for next 1/2hr inside the OT and then shifted to ward with advice to receive O<sub>2</sub> inhalation, IV fluids @ 80ml/hr, Inj Paracetamol 600mg IV 6hrly, Inj Ondansetron 4mg IV (if she vomits) and close monitoring. Postoperative recovery in the ward was uneventful and she was discharged after 10days.

### **Discussion**

A dentigerous cyst is formed by the accumulation of fluid between reduced enamel epithelium and the tooth crown of an unerupted teeth. It usually occurs in the 2nd to 4th decade of life.75% of cases are found either in the mandible or maxillary region and can present sometimes as large swelling displacing the adjacent teeth, as was obtained in the present case.<sup>[6,7]</sup>

The anesthetic problems associated in this case were: Large swelling involving angle of the mouth, palate, right side wall and floor of nose almost occluding the right nostril and decreasing the space of left nostril. [the patient was breathing through her mouth]. Difficulty in mask ventilation due to poor mask

fitting,<sup>[8]</sup> decreased pharyngeal space<sup>[8]</sup>, Mallampati grade-3, complete occlusion of right and partial occlusion of left nostril<sup>[9]</sup> was anticipated. Because of the above mentioned status of the nostrils, nasal intubation was ruled out from the management plan. So, also the possibility of being able to use LMA/ILMA to secure the airways in view of palatal swelling. We expected a small naso-pharyngeal airway may pass through the left nostril and accordingly we prepared the patient with preoperative vasoconstrictor nasal drop. Mouth opening of 3cm along with loose mal-aligned teeth on right-side of jaw, central incisor leaning towards left and ill-developed teeth on left upper jaw was a challenge for a smooth direct laryngoscopy with every possibility of dislocation of tooth and bleeding. In addition, a Mallampati Grade 3 and TMD<6cm were definite predictors of difficult intubation.<sup>[9]</sup> Hence, induction was planned with Halothane and Propofol to facilitate intubation under spontaneous ventilation without any muscle relaxant, so as to avoid Cannot intubate cannot ventilate situation. Use of McCoy laryngoscope increased the view of glottis to a modified Cormack Lehanne Grade 2b and the use of Frova intubating introducer gave added advantage of providing Oxygen and Halothane during intubation thereby maintaining the depth of anesthesia and Oxygen saturation.

Nevertheless we were ready with backup invasive methods of emergency airway management like needle cricothyrotomy + jet ventilation or tracheostomy and accordingly the surgeons were requested to remain prepared.



**Figure 1: X-Ray PNS showing radiolucent lesion with tooth in maxillary bone and abnormal dentition.**

### **Conclusion**

To quote Dr R Miller (Miller's anesthesia, Vol 2, 8th International edition): "Difficult airways are more frequently encountered in patients undergoing ear, nose and throat surgery.<sup>[4]</sup> From the day of first public demonstration of ether anesthesia (to remove a tumour in the neck), the relationship between anesthesiology and ear, nose and throat surgery has been vital".<sup>[4]</sup>



Figure 2: The maxillary tumour

In an Anesthesiologist's life, despite many methods and tests to predict beforehand the difficult airway handling the Cannot Ventilate Cannot Intubate scenario still is a big challenge.<sup>[2]</sup> Various procedures been described; many instruments employed to overcome it and save the patient's life. Advent of Modern gadgets like the Fiberoptic bronchoscope, Videolaryngoscope, Supraglottic airways, etc have helped to smoothen the Anesthesiologist's worries and successfully manage such cases avoiding catastrophic results].But, despite all precautions and availability of sophisticated instruments, such situations are still encountered. And in circumstances when these instruments are not available, judicious use of simple maneuvers/instruments still play an important role.

Proper planning with in depth knowledge and ability to expedite difficult airway management along with hand-to-hand cooperation of surgeons is essential for every anesthetist for a successful outcome and patient's safety.

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