

## Anesthesia Management in an Edentulous Patient with Huge Parotid Tumour: Case Report

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### ABSTRACT

Huge head and neck tumors are known to cause difficult ventilation and difficult intubation. Edentulous mouth can result in difficult mask ventilation. Head and neck tumor resections can also present hemodynamic challenge, due to their proximity to large vessels.

We herein report a clinical case of difficult ventilation due to large parotid tumor in an edentulous patient.

### Introduction

Securing airway safely without damaging the airway is the most important step and an essential primary goal in the process of General anesthesia. Difficult airway is either difficult ventilation or difficult intubation. As a part of safe anesthesia protocol pre-assessment of difficult airway for predictive risk factors helps in thorough preparation with strategy of both in terms of gadgets and techniques. Mismanagement of difficult airway during general anesthesia can increase the morbidity.

Head and neck tumors are known to cause difficult ventilation and difficult intubation. Apart from that edentulous mouth is an independent risk factor for difficult ventilation. Along with large parotid tumor compressing the mouth and neck, edentulous mouth poses a challenge to ventilation. Learning newer techniques and discussing the challenges will improve in the preparation and care.

### Case Report

69-year-old elderly gentleman was presented with complaints of swelling on the right side of the cheek and neck for the past 20 years (Figure 1). It was gradually increased in size and no pain was present. Patient had difficulty while chewing food, due to the heaviness of the mass.

No history of difficulty in breathing on lying down. No history of recent weight loss.

No other co-morbidities present.

Patient was moderately built and was weighing 65kg with height of 168cm.

Vital parameters were observed to be within physiological limits for his age.

The neck swelling was uneven, huge with 13×13×15cm and no tenderness on palpating.

On pre-anesthetic evaluation, mouth opening was adequate with Mallampatti grade 3, upper tooth was missing, in the lower only lateral incisor and canine were present. Neck movements were within normal range. Trachea was slightly deviated to left side.

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His hemoglobin was 14 gm/dl, and other investigations were within normal limit.

Chest and neck radiographs were taken and there was slight deviation of the trachea to the left (Figure 2-3).

Computed tomographic scan showed a huge mass (15×14×15cm) arising from the right side of parotid gland.

CT imaging/ CT angiogram showed no extension into neck vessels (Figure 4).

Informed written high risk consent was taken. In the operation room, difficult airway cart was kept ready. Adequate compatible blood products were arranged.

Standard ASA monitors included electrocardiography, noninvasive blood pressure, and pulse oximetry, Non-invasive haemoglobin monitor (Masimo) were connected. Intravenous access with two 18G cannulas was established.

The patient was premedicated with inj.Glycopyrrolate 0.2 mg IV and inj.Midazolam 1 mg IV. After preoxygenation, he received inj.Fentanyl 100 µg and hypnotic dose of inj.Propofol 80 mg. After induction, check ventilation was done.

We encountered difficulty in ventilation due to edentulous mouth and the pull of the tumor. We sealed the airway using gauze pads. Bag and mask ventilation was better possible when the swelling was supported from below against gravity. Check Laryngoscopy was done using MacIntosh blade 3, Cormack-Lehane grading was 1. After giving intravenous inj.Succinylcholine 75mg the patient was intubated with an 8-mm internal diameter cuffed endotracheal tube. After intubation, non-depolarizing muscle relaxant inj.Vecuronium 5mg was given. Anesthesia was maintained on oxygen and nitrous oxide in 50:50 ratio along with isoflurane, intermittent boluses of inj.Fentanyl and inj. Vecuronium. He received inj. Paracetamol 1g inj.Tranexamic acid 1g /100ml NS, adequate amounts of inj.Ringer lactate during surgery.

The total duration of surgery was 7h and approximate blood loss was 800 ml. Urine output was hourly monitored and found to be adequate.

Patient vitals were maintained within normal range. Surgery underwent uneventful.

Outcome and Follow-up:

Patient was extubated and shifted to the post-operative care unit for monitoring. After 24 hours, patient was shifted to the ward.



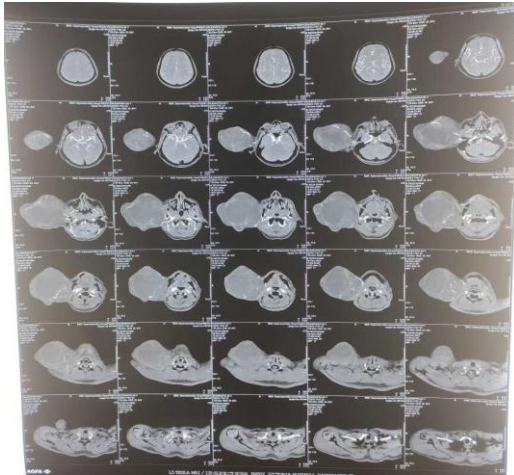
**Figure 1- Showing Huge parotid tumor**



**Figure 2- Chest Xray PA view**



**Figure 3- Neck radiographs (A) anterior and (B) lateral view**



**Figure 4- CT Image**

## Discussion

Salivary gland tumors are relatively rare. The incidence is about 5-6% of all the head and neck tumors. Parotid is the most commonly involved salivary gland (almost 80%), followed by submandibular and sublingual and rest minor salivary glands. These neoplasms can originate in any age group, but they are most common in fifth to sixth decade of life.

60% of all parotid tumors are pleomorphic adenomas. Parotid adenoma is the most common salivary gland tumor in an adult., which is benign. It can affect any age group but most common in between the fifth and sixth decades of life [1-3].

Some of the tumors might grow and take uneven large shape. Due to delayed presentation some might present in such a large shape and size that might cause difficulty in ventilation and or intubation. We are reporting anesthetic management of a huge parotid mass, in an elderly edentulous patient. To achieve successful airway management in such cases is challenging [4-6]. It is essential to predict and preoperatively assess the difficulty in ventilation and intubation<sup>5</sup>. Shah PN et al have described predicting factors for difficult mask ventilation and difficult intubation. They found Snoring, retrognathia, micrognathia, macrognathia, edentulous tooth, short thick neck, Mallampati grade III/IV, abnormal SLUX grade and BMI > 26 kg/m<sup>2</sup> were independent risk factors for difficult mask ventilation. In this case, we had the difficult mask ventilation predictors such as Mallampati grade III, edentulous teeth.

Patient was induced in supine position with small pillow below the head. We encountered difficult mask ventilation during induction. There exist variable techniques to manage difficult mask ventilation in edentulous patients. Golzari et al have studied different methods of bag mask ventilation in edentulous patients. Placing compressed and folded gauze piece in buccal

space along with placing an airway, had better results of bag mask ventilation<sup>6</sup>. We preferred securing with gauze pad which worked out well sealing the leak. Yet we were not able to achieve desired tidal volume fully. Upon lifting of the tumor, its downwards pull was prevented and ventilation was achieved to desired level [7-8]. After confirming ability to ventilate, muscle relaxant was given and patient was intubated.

These tumors because of high vascularity and their proximity to the great vessels of the neck pose a great hemostatic challenge. It is essential to chalk out the surgical plan and to have a thorough multidisciplinary discussion [9].

### Learning Points:

- Difficult ventilation might be a bigger challenge than difficult intubation in such cases.
- Thorough follow-up of the surgical steps by the anesthesiologist during tumor resection.

## Conclusion

Parotid or any other large tumors pressing on the neck pose a huge challenge of difficult ventilation. Adding on to it any other risk factor like edentulation will put a greater challenge to anesthesiologist. It is essential to be prepared to handle the sudden collapse of airway by combination of different techniques. In case of any dilemma, awake fiber-optic intubation would be the technique of choice.

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