



## ANAESTHETIC MANAGEMENT IN A CASE OF OSTEORADIONECROSIS OF MANDIBLE WITH RESTRICTED MOUTH OPENING

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**ABSTRACT** Osteoradionecrosis of the mandible, a severe consequence of radiotherapy for head and neck malignancies can cause a reduction of the mandibular space, and a variety of changes in the airway that can potentially lead to difficult intubation. A case of osteoradionecrosis of the mandible presenting with restricted mouth opening for elective surgery, under general anaesthesia is presented, which was successfully managed with awake nasal fibreoptic intubation and supplemented by local nerve blocks. The primary intention of this article is to focus anaesthesiologists on the airway problems to be anticipated in cancer patients who present for surgery after radiotherapy.

**KEYWORDS :** Restricted Mouth Opening, Awake Fibreoptic Intubation, Difficult Airway Management

### INTRODUCTION

Osteoradionecrosis (ORN) describes a process where irradiated bone undergoes necrosis & becomes exposed through soft tissue. This results in restricted mouth opening and a difficulty in securing the airway in cases where surgery is planned. In this case patient's airway was secured with Awake nasal fibreoptic intubation supplemented by local nerve blocks.

### CASE REPORT

A 55 yr old male presented with a complain of pus discharge from lower jaw since one month and a post malignancy lower lip defect.

#### Past history:

4 years back patient had presented with a swelling in cheek

↓  
Diagnosed as cancer of left buccal mucosa

↓  
He underwent Composite resection surgery of left buccal mucosa

↓  
33 cycles of radiotherapy

↓  
2 years back patient was diagnosed with squamous cell cancer

↓  
Wide excision of lower lip & marginal mandibulectomy along with right LN excision I to III and Nasolabial flap followed by 33 cycles of radiotherapy

Patient was now diagnosed with osteoradionecrosis of mandible with right lower lip defect with draining skin fistula and posted for Angular Flap surgery.

**Associated illness:** Patient had history of Diabetes Mellitus for 5-6 yrs and was on regular treatment of metformin. Patient also had history of hypothyroidism after radiotherapy for which he was started on tab Thyroxine 100 mcg OD, which had been stopped 3 months back, after normal levels were achieved.

Patient has been a chronic tobacco chewer for 25 years.

**Physical examination:** Patients vitals were in the normal range. Systemic examination was normal.

Airway was Mallampatti grade IV. Mouth opening was restricted with inter-incisor gap of 1 finger. There was absence of teeth in lower jaw.

All lab investigations were normal. Radiograms of neck and chest were normal.

**Preparation:** Standby call for TBCD physician for fibreoptic

intubation and ENT Surgeon for Tracheostomy was made. Medicine reference for k/c/o DM was obtained. Morning Se RBS and Se Acetone revealed normal values. Morning dose of hypoglycemic drugs was avoided.

The entire procedure of awake fibreoptic intubation was explained to the patient. High risk consent was taken for risk of difficult intubation as well as tracheostomy sos and risk of respiratory distress and requirement of ventilator support sos.

Patient was given nebulization with Inj Lignocaine, Budecort in the pre-op room along with Inj Glycopyrrolate 0.2 mg IM to reduce secretions. Lidocaine spray 10% was applied to base of tongue and pharyngeal walls using tongue depressor.

In the operating room, patient's pre op Heart rate, NIBP, SpO2 were within normal limits. Patient was premedicated with inj Emset 4 mg IV, inj Fentanyl 100 mcg IV.

Patient was given superior laryngeal nerve block and transtracheal block. A 7.0 mm cuffed flexometallic tube was lubricated and patient was intubated through right nostril under fibreoptic guidance. Confirmation was done using capnography. Auscultation was done to assess equality on both sides and tube was fixed after inflation of cuff.

Anaesthesia was induced using Inj. Propofol 100 mg IV and was maintained using Oxygen + Nitrous oxide + Desflurane along with muscle relaxant Inj. Cisatracurium 10 mg LD + 2 mg sos. Intraoperatively analgesia used was Inj Paracetamol 900 mg IV.

At the end of procedure, residual neuromuscular blockade was antagonized using Inj. Glycopyrrolate 0.4 mg and Inj. Neostigmine 3.5 mg IV. After thorough suction, cuff was deflated and awake extubation was done successfully. A smooth recovery with no complications, no nasal bleeding no decrease in saturation, no sore throat, no voice changes were noted.



**Fig 1:** Patient with restricted mouth opening



**Fig 2: Transtracheal Block**



**Fig 3: Fibreoptic intubation**

## DISCUSSION

Osteoradionecrosis of the jaws, particularly of the mandible, is a long-term and serious complication of therapeutic radiotherapy for head and neck cancer, which results in irreversible tissue death. The mandible, being highly vascular is more commonly affected than any other bones of head and neck region. The incidence of ORN of mandible is reported to be between 2% and 22%. The risk factors for development of ORN involve size and site of tumor, dose of radiation and type of mandibular resection, injury or dental extraction, infection, immune deficiencies and malnutrition. ORN in early stages may be asymptomatic. Its main feature is devitalized bone seen through ulcerated mucosa or skin. Pain is a common symptom and patients have intractable pain. Other symptoms include halitosis, dysguesia. In severe cases, patients can present with fistula from oral mucosa or skin, complete devitalization of bone and pathological fractures. The interval between RT and onset of ORN can vary, but most often occur between 4 months and 2 years.

Radiation induces a variety of changes in the airway, posing a difficulty to the anaesthesiologists in airway management. Radiation induces oedema with subsequent fibrosis or necrosis in the exposed tissues. These changes mainly affect the buccal mucosa, bone and dentition and may contribute towards difficulties at every step of airway management. Mask holding and ventilation is made difficult by mandibular osteoradionecrosis, orofacial pain due to mucositis, lack of dentition, orocutaneous fistulae with purulent discharge, pathological fractures and oedema caused by radiation. Laryngoscopy in irradiated patients is rendered difficult by fibrosis and oedema resulting in trismus and restriction of mouth opening and altered consistency of neck tissues causing restriction of neck movements. Early recognition and anticipation is the key to successful airway management.

The use of awake nasal intubation makes management of these cases of difficult airway comparatively easier. Fiberoptic intubation is often preferable to oral intubation in maxillofacial surgery. It provides unrestricted access to the mouth, which facilitates the insertion of instruments. It is also the gold standard technique for management of patients with anticipated difficult airway. For this procedure analgesia

and minimal sedation must be achieved. The ideal sedation technique enables patient to maintain spontaneous ventilation, to be cooperative and to tolerate passage of a fibroscope to facilitate nasotracheal intubation. It is important for patient to be sedated, but awake, to have decreased anxiety, discomfort and hemodynamic disturbances. During awake intubation, laryngospasm and coughing in response to intubation can be troublesome. Thus, effective topical airway anaesthesia is mandatory for the comfort of the awake patient. In this case topical anaesthesia was achieved with local nerve blocks; namely superior laryngeal nerve and transtracheal blocks. Patient remained vitally stable during the procedure of intubation and there was no desaturation and other adverse complications.

## CONCLUSION

Radiation induced changes in mandible resulting in difficult airway is a challenge to the anaesthesiologist, who has to secure airway and at the same time ensure unrestricted access to the oral cavity to facilitate insertion of instruments by surgeon. After proper explanation of procedure to patient along with consent and cooperation, awake fiberoptic nasal intubation under topical anaesthesia together with adequate sedation ensured successful management of difficult airway due to osteoradionecrosis of mandible.

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