

Airway and Anaesthetic Management of Massive Ameloblastoma with Free Fibular Graft and Osteocutaneous Flap

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Abstract

Introduction: Intubation can sometimes be difficult in patients with lesions in the mouth floor. Ameloblastoma is a frequently encountered tumor of the maxillofacial area. An extensive lesion might occupy the floor of the mouth, prevent displacement of the tongue, limiting the space for inserting a laryngoscope blade and resulting in difficult intubation even with fiberoptic bronchoscopy. Ameloblastoma is a common neoplasm affecting the jaws. It is an aggressive benign tumor of epithelial origin. Ameloblastomas are recognized for their invasive growth and tendency to recur. Reconstruction procedures are usually prolonged and require meticulous attention to fluid replacement, blood loss and prevention of hypothermia. Hence they present a challenge to the anaesthesiologist.

Case Report: A 40-year-old woman weighing 36 kgs presented with pain and swelling in the right jaw/mandible that had existed for three years. Her past medical history was unremarkable. Upon airway examination, mouth opening was inadequate, restriction of head and neck movements was noted, CECT showed pneumocysts in C5, C6 and C7 vertebrae and showed a large expansile lytic lesion involving body of mandible and inferior aspect of rami bilaterally with cysts and solid components show heterogeneous post contrast enhancement with mass effect on adjacent structures.

The results of general and systemic examination were within normal limits. Two large bore 16G cannulas secured for proper fluid resuscitation intraoperatively, as mouth opening is inadequate and difficult bag and mask ventilation anticipated.

Planned for awake fiberoptic intubation, patient premedicated with Glycopyrrolate and Fentanyl. As expected patient had breathing difficulty during the procedure and laryngeal edema seen on fiberoptic, patient given Dexamethasone 8mg, preoxygenated with facemask for 10 minutes and opted for 6mm ID flexometallic ET tube fiberoptic intubation.

Torniquet applied for 2 hours to left thigh to minimize blood loss for fibular graft patient developed hypotension after 8 hours of surgery PRBC and colloids transfused and resuscitated

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with fluids as surgeons opted for tracheostomy in between, after 16 hours of surgery patient shifted to ICU for observation shifted back to ward.

Conclusion: Our case was anticipated difficult airway, planned for awake fiberoptic intubation, even though it was prepared, because of the tumor, airway edema present and all small size endo tracheal tube was used surgical airway was ruled out as tumor was big and was in midline.

Keywords: Difficult Airway; Ameloblastoma of Mandible; Fiberoptic Intubation.



Key Messages: Any airway tumors can pose a challenge for the anaesthetists in terms of securing the airway and oxygenation during this process. Our case had a big tumor which caused mechanical obstruction if the patient was sedated and also posed a problem for giving airway blocks. We are presenting this challenging case with a successful airway access and mangement.

INTRODUCTION

Intubation can sometimes be difficult in patients with lesions in the mouth floor. Ameloblastoma is a frequently encountered tumor of the maxillofacial area. An extensive lesion might occupy the floor of the mouth, prevent displacement of the tongue, limiting the space for inserting a laryngoscope blade and resulting in difficult intubation even with fiberoptic bronchoscopy. Ameloblastoma is a common neoplasm affecting the jaws. It is an aggressive benign tumor of epithelial origin. Ameloblastomas are recognized for their invasive growth and tendency to recur. Reconstruction procedures are usually prolonged and require meticulous attention to fluid replacement, blood loss and prevention of hypothermia. Hence they present a challenge to the anaesthesiologist.

CASE REPORT

A 40-year-old woman weighing 36 kgs presented with pain and swelling in the right jaw/mandible that had existed for three years. Her past medical and surgical history was unremarkable. Upon airway examination, mouth opening was inadequate, restriction of head and neck movements was noted,



Fig. 1: Shows the Size of the swelling intraoperatively in supine position

CECT showed pneumocysts in C5, C6 and C7 vertebrae and showed a large expansile lytic lesion involving body of mandible and inferior aspect of rami bilaterally with cysts and solid components show heterogenous post contrast enhancement with mass effect on adjacent structures.

The results of general and systemic examination were within normal limits. Two large bore 16G cannulas secured for proper fluid resuscitation intraoperatively, as mouth opening is inadequate and difficult bag and mask ventilation anticipated.



Fig. 2: Shows the size of the swelling on Supine Position which was difficult to bag and mask

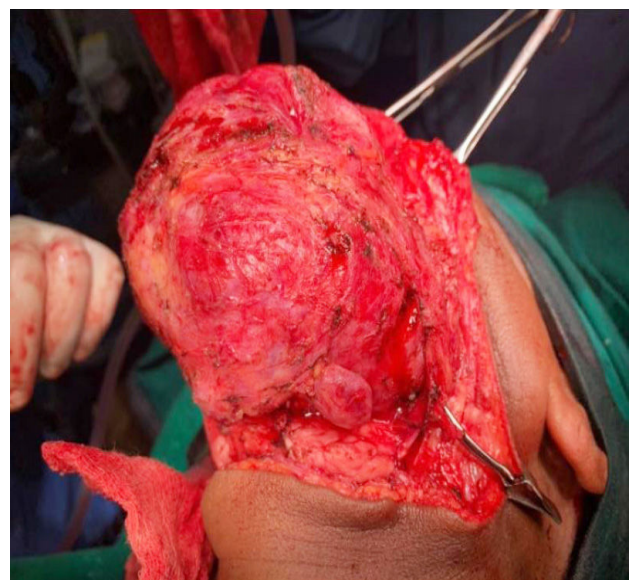


Fig. 3: Shows the mass which covers the floor of mouth and mandible

Planned for awake fibreoptic intubation, air way blocks given, patient premedicated with Glycopyrrolate and Fentanyl. As expected patient

had breathing difficulty during the procedure and laryngeal edema seen on fiberoptic, patient given Dexamethasone 8mg, preoxygenated with facemask for 10 minutes and opted for 6mm ID flexometallic ET tube fiberoptic intubation and induced using Propofol 100mg and Muscle relaxant Scoline 100mg given after checking bilateral air entry.

Tourniquet applied for 2 hours to left thigh to minimize blood loss for fibular graft patient developed hypotension after 8 hours of surgery PRBC and colloids transfused and resuscitated with fluids as surgeons opted for tracheostomy in between, after 16 hours of surgery patient shifted to ICU for observation shifted back to ward.

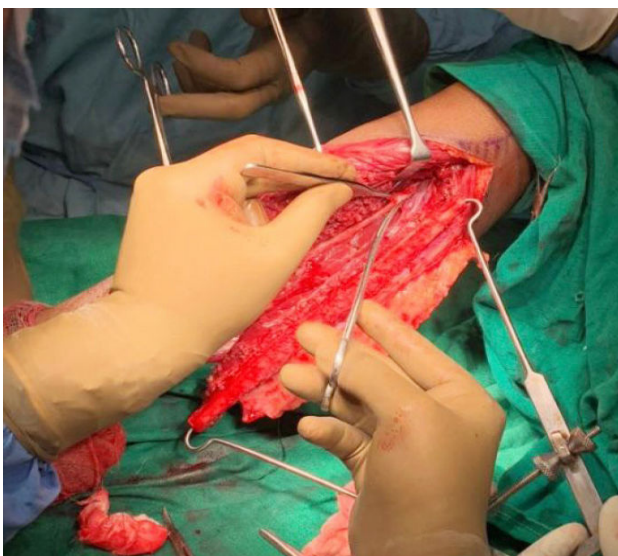


Fig. 4: Shows the free fibular grafting and application of tourniquet to control blood loss

DISCUSSION

Ameloblastoma, previously called adamantinoma, a benign, epithelial, locally-invasive, odontogenic tumour that grows slowly and persistently. The tumour is relatively uncommon, accounting for approximately 1% of all oral tumours¹. It occurs in all age groups but the lesion was most commonly diagnosed in the third and fourth decades. It typically occurs in tooth-bearing areas of the jaws and appears on X-ray as a cystic lesion.¹

Large ameloblastoma can distort the facial contour and make mask ventilation difficult. It may be impossible to insert a laryngoscope or oropharyngeal airway. The intraoral extension can also cause airway obstruction and difficulty in visualizing the glottis.²

In massive ameloblastoma with extension into the oral cavity, awake fiberoptic intubation is the technique of choice for several reasons. It is less stimulating than direct laryngoscopy, helps to assess the airway, secretions and blood can be sucked, oxygen can be supplemented and correct placement of the endotracheal tube can be confirmed.³

Chukwuneka *et al.* reported that 3 of 32 patients (9%) who underwent total mandibulectomy for advanced ameloblastoma in a developing country died because of anaesthetic problems, although the detailed anaesthetic courses were not described. We planned awake fiberoptic intubation because fiberoptic intubation is still considered the gold standard for management of difficult intubation complications from awake fiberoptic intubation have ranged from mucus plugging, discovery of cuff leaks after intubation, inadvertent extubation and multiple intubation attempts to desaturation (due to bleeding, hypoxia from oversedation and further trauma and possible edema in the supraglottis which may pose airway obstruction). Limitations for this technique include experience, training and skill of the proceduralist performing the intubation.⁴

CONCLUSION

Our case was anticipated difficult airway, planned for awake fiberoptic intubation, even though it was prepared, because of the tumour, airway edema present and all small size endotracheal tube was used as surgical airway was ruled out as tumour was big and was in midline.

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Conflict of Interest: Nil

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