

Case report

A rather unconventional use of the laryngeal mask airway

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Summary

Jaw masses are often associated with difficult airway and very often anesthesiologists have to use ingenious but safe techniques to secure the airway. This report is upon awake insertion of the laryngeal mask airway in a patient with a huge jaw tumor.

Keywords: laryngeal mask airway; jaw masses; difficult airway

Difficult airway remains the greatest challenge to the anesthesiologist. This is especially true in developing countries where because of meager resources, equipment and personnel skilled in difficult airway management are often unavailable (1). Not infrequently anesthesiologists practicing in developing countries have to resort to 'unconventional' but safe techniques to deal with challenging airways. Jaw masses with or without intraoral extension have the potential to cause a difficult airway. We present our anesthetic management of a patient with a huge maxillofacial mass who required hemi-maxillectomy at the Korle Bu Teaching Hospital, Accra, Ghana.

A 17-year old (58 kg) male was scheduled for removal of a massive maxillary tumor. He was otherwise healthy apart from this slow-growing jaw mass which apparently started about 4 years prior to presentation. The swelling had been painless, but associated with nasal stuffiness, poor quality voice (he spoke through the side of his mouth) and halitosis. Mastication had been impossible in the

preceding months and his calorie intake had been mainly limited to liquid feeds. He had lost a few teeth in the previous 2 weeks.

The patient had been using local topical herbs for several years without improvement. He was not overly concerned about the gross facial disfigurement because he was able to work on the farm and go around the village with his face covered by a veil.

Examination revealed an anxious but cheerful young man in no apparent distress. There was a firm, nontender right maxillary mass with intraoral extension completely distorting the right hemimaxillary region and associated with dental anarchy (Figure 1). We obtained verbal consent to photograph the patient while awake as well as under anesthesia from the patient and parents. There was considerable sialorrhea and halitosis. Mallampati assessment was impossible, although he had normal thyromental distance and neck anatomy. Preoperative chest and neck X-ray showed good alignment of the spine. There was no retropharyngeal distortion and no pulmonary shadows.

Following review by the consultant anesthetist, we suggested an awake tracheostomy to secure the airway prior to the proceeding with surgery. The patient and his parents, however, refused to give consent for this. They however, agreed to an asleep

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Figure 1
Showing the large right hemi-maxillary mass with dental anarchy and impossible Mallampati assessment.

tracheostomy should there be a need. After consulting with the maxillofacial surgeons and considering our limited anesthesia options, we agreed a plan that would allow the initial phase of surgery (tumor enucleation) to proceed with the patient breathing spontaneously through a laryngeal mask airway (LMA); and when sufficient tumor debulking was accomplished, we would perform laryngoscopy under aseptic conditions and place a tracheal tube. We, however, had equipment and personnel ready for urgent asleep tracheostomy should this become necessary. We also had Miller 3 and 4 laryngoscope blades (Penton Ltd, Abingdon, UK) and a gum elastic bougie (Portex, Kent, UK) ready should we lose the airway at any time during this procedure. We did not have the facilities or the expertise for awake fiberoptic intubation at that time.

After careful explanation of the procedure to the patient, he was made NPO status the night before the surgery, started on i.v. fluids, given i.v. ranitidine 50 mg and metoclopramide 10 mg approximately 2 h before the surgery. He also received



Figure 2
After successful awake insertion of a size 4 laryngeal mask airway.

0.4 mg i.v. glycopyrrolate 30 min before being transported to the operating room, where standard monitoring was applied and he was given oxygen by nasal cannula. After ensuring adequate drying of the oropharynx, topicalization with aqueous 4% viscous lidocaine was carried out. We did not give any i.v. sedative. We tested the adequacy of topicalization by inserting an oropharyngeal airway which the patient tolerated. With the patient still awake and breathing spontaneously, a well-lubricated size 4 LMA was inserted through the left side of the mouth and the cuff was gently inflated (Figure 2). Once proper placement of the LMA was confirmed by observing movement of the 'anesthesia bag' and endtidal CO₂ tracing, we commenced slow inhalational induction with halothane to 4%. The patient continued to breathe spontaneously. When anesthesia was assessed to be 'deep' enough, a throat pack was inserted. Anesthesia was maintained with O₂/N₂O/halothane mixture. Surgery proceeded without incident with the patient breathing spontaneously. The initial phase of tumor enucleation lasted approximately 2.5 h during which the patient received 5 mg morphine i.v. After sufficient tumor debulking and we felt we could insert a laryngoscope into the mouth, we performed direct laryngoscopy with the patient still deeply anaesthetized, obtained a grade 1 view and intubated the trachea. The rest of surgery proceeded without incident and the patient was extubated fully awake at the end of surgery.

In the absence of sophisticated airway equipment, we devised a 2-stage airway management plan

involving the use of awake LMA insertion followed by direct laryngoscopy and intubation. This plan worked well and may be an option in similar situations. Difficult airway remains a major contributor to perioperative morbidity and mortality (2). We opted for awake insertion of the LMA because of concerns that once general anesthesia was induced, there would be a high likelihood of total airway loss, with the tongue falling backwards into the oropharynx and near impossibility with mask ventilation (Figure 1). The LMA is well tolerated by the awake patient even without prior oropharyngeal topicalization (3). As it was introduced into clinical practice, the LMA has been shown to be easy to use and very effective in maintaining upper airway patency and is now firmly in the ASA difficult airway algorithm (4).

Awake fiberoptic intubation which is considered the 'gold standard' in anticipated difficult airway situations, requires considerable expertise, good patient cooperation and expensive and fragile instruments. We only considered this option for academic reasons because we had neither the facilities nor the expertise for fiberoptic intubation at the time. We also considered blind nasal intubation but discarded this option because of the considerable maxillofacial distortion. Blind nasal intubation is associated with epistaxis which could cause significant patient discomfort and make for a very uncooperative patient. Nasopharyngeal bleeding could drip onto the vocal cords leading to laryngeal spasm.

Another option for managing the known difficult airway is the use of the intubating LMA (iLMA), which has been used successfully in many difficult airway situations (5,6). It also has a better success rate than the traditional LMA when used as a conduit for successful blind tracheal intubation (7). However, because of its cost, it is not readily available in every unit, and there are some concerns about using the iLMA in patients with limited mouth opening (8). The traditional LMA has been inserted in patients with mouth opening as small as 20 mm (9). Despite our patient's severely limited mouth opening, we were able to insert a size 4 LMA without difficulty.

It should be noted that our patient is a 'mature' adolescent who was able to participate in the decision-making process and was able to cooperate with awake LMA insertion, this may not be possible with many pediatric patients but could be applicable to the 'mature' child.

In conclusion, management of any potentially difficult airway situation requires adequate planning including close communication between the patient, the anesthesiologist, and the surgeon. Clearly, there is no universal method that will work in every situation and the anesthesiologist must be willing to adapt to local resources. From our experience with this case, we suggest that a 2-stage airway management technique may be used in older, cooperative patients with large maxillofacial masses and may save the patient an elective tracheostomy. While our approach is not a prescription for all maxillofacial tumors, it could be an alternative in similar situations.

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