



ORIGINAL RESEARCH PAPER

Anaesthesiology

AIRWAY MANAGEMENT IN A PATIENT OF LARGE FACIAL SWELLING: A CASE REPORT

KEY WORDS: Airway, Difficult Mask Ventilation, Facial Swelling.

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ABSTRACT

INTRODUCTION: Difficulty bag-mask ventilation is quite challenging to an anaesthesiologist because mask ventilation is the primary technique of ventilation and the rescue technique if the tracheal intubation fails. Airway management of a patient with large facial swelling is often anticipated to be difficult. Here we report a case of anticipated difficult mask ventilation due to large fungating facial swelling on left side. Prudent and cautious corrective measures taken at the right time, ensures patient safety.

INTRODUCTION

There are different types of facial tumors which can sometimes be composing of inappropriately connected vessels. They may include arteriovenous (AV) malformations, lymphatic, capillary, and venous malformations¹. Over a period, vascular malformation continues to increase in size. Airway management of a patient with facial swelling is often anticipated to be difficult. However, due to the variation in presentation of site and size of swellings, there are no consensus guidelines established for securing the airway. Bag-mask ventilation and endotracheal intubation are predicted to be challenging in these patients. Difficult airway management includes difficult laryngoscopy, difficult intubation and sometimes difficult bag-mask ventilation or all. However, very less importance has been given to difficult mask ventilation as a separate entity. Mask ventilation is an essential and primary component of airway. It is important during unsuccessful attempts at laryngoscopy as effective pre-oxygenation prolongs the time that the patient can tolerate apnea, which can be crucial for intubation of an anticipated difficult airway². We present a case of large fungating swelling on left side of face posted for excision and biopsy under general anaesthesia.

CASE REPORT

An 85-year-old female weighing 38 kg presented with a large fungating swelling on left side of face in infraorbital area. The swelling had increased to present size over five years. Examination revealed swelling on left side of face extending from infraorbital region involving the maxillary area and extending up to ala nasi. (Figure 1)



Figure 1

The fungating mass was profusely bleeding and was fragile to touch. Airway assessment revealed Mallampati grade 2 and Thyromental distance ≥ 6 cms with adequate mouth opening. Mallampati grading did not suggest difficult airway but the extent of tumor was distorting anatomy externally. The size and extent of tumor was defined carefully to plan for mask holding and to avoid soft tissue injury during induction. (Figure 2)



Figure 2

As we anticipated difficult airway, our priority was to achieve mask ventilation. This was done by covering the mass under sterile ioban dressing. The sheet was used to cover the mass, dressing and most of the face. Oral and nasal cavities were then slit open. This helped in making space for mask position and adequate mask ventilation. (Figure 3)



Figure 3

After achieving acceptable mask seal, anaesthesia was induced using Injection Fentanyl 70µg, propofol 80 mg with 100% O₂ and Sevoflurane. After loss of eyelash reflex and checking adequate ventilation, Injection Atracurium 15 mg was given. Mask ventilation was successful. (Figure 4)



Airway was secured under direct laryngoscopy using south pole endotracheal tube of size 6.5 mm ID. Bilateral air entry was checked and tube was fixed. (Figure 5) Rest of intraoperative period was uneventful.



DISCUSSION

Swelling arising from the nose extending to the area of mouth is a challenge to anesthesiologists as it can give rise to can't intubate can't ventilate situation. The risk was more as the swelling was fragile and any pressure on the swelling could rupture the malformation. The prime consideration in management of this case was to achieve adequate mask ventilation in order to secure airway. Failure to oxygenate the patient can cause death, hypoxic brain injury or myocardial ischemia. There are several factors like beard, obesity (BMI >26), edentulous patient, history of snoring etc which can cause difficult mask ventilation and should be considered while attending the patient during preanesthetic evaluation. Mask seal may be difficult or impossible in patients with receding mandible, syndromes with facial abnormalities, burn strictures. Anticipation of the potential problem, better planning and preparation can help us to reduce morbidity and mortality associated with difficult mask ventilation. In

this case, we tried to do mask ventilation with a larger size face mask, size 5 as this technique was described by few authors³. We were unable to acquire adequate mask ventilation. Anesthesia could also be induced with 8% sevoflurane in oxygen and ventilation could be tried with mask kept over patients mouth with lips pursed so that the nasal swelling can be excluded from the mask. After achieving adequate ventilation and deepening the plane with intravenous anesthetics, laryngoscopy can be tried⁴. In our case, we tried this technique but was not successful in ventilating the patient. The mask ventilation was challenging due to the external facial deformity. Enough space for ventilation was created by covering the mass under sterile ioban dressing to achieve proper mask seal.

One limitation was that we could have tried awake fiberoptic for intubation as it was an anticipated difficult airway situation. However, it was difficult to convince the patient for an awake semi-invasive procedure as the patient was not much cooperative. Other methods of ventilation reported include the usage of a proper sized nasopharyngeal airway and connecting it to anesthesia circuit via connector. After deepening the plane of anesthesia with sevoflurane and also with small doses of intravenous agents, try to ventilate by closing the opposite nostril, and mouth. Once the adequate depth is achieved try to do a direct laryngoscopy and intubate the trachea⁵. In this case, we were little apprehensive in using a nasopharyngeal airway as it can traumatize the nasal cavity which was near the malformation. Another approach in this setting may be use of laryngeal mask airway along with local anaesthetic⁶. Therefore, there are various ways of managing difficult mask ventilation which depends on individual expertise and institutional protocols.

CONCLUSION

In conclusion, there is no unified approach for airway management in large facial swellings. An appropriately skilled provider is needed to manage these airways and anticipate difficulties such as the inability to mask ventilate, severe hemorrhage, or obscured airway view. An anesthesiologist should be comfortable basing his or her decision-making process on the clinical scenario rather than relying on a preset algorithm.

REFERENCES

1. Hutchinson I, Lawlor M, Skinner D (1990) ABC of major trauma. Major maxillofacial injuries. *BMJ* 301(6752):595-9.
2. Cogbill TH, Cothren CC, Ahearn MK, Daniel C Cullinane, Krista L Kaups et al. (2008) Management of maxillofacial injuries with severe oronasal hemorrhage: A multicenter perspective. *J Trauma* 65(5):994-9.
3. Barak M, Bahouth H, Leiser Y, El-Naaj IA (2015) Airway management of the patient with maxillofacial trauma: Review of the literature and suggested clinical approach. *Biomed Res Int* 118(2):251-70.
4. Mercer SJ, Lewis SE, Wilson SJ, Groom P, Mahoney PF (2010) Creating airway management guidelines for casualties with penetrating airway injuries. *J R Army Med Corps* 156: S355-60.
5. Joly LM, Oswald AM, Disdet M, Ragueneau JL (2002) Difficult endotracheal intubation as a result of penetrating cranio-facial injury by an arrow. *Anesth Analg* 94(1): 231-2.
6. Kotsev S (2005) Airway Management in a patient with a vascular injury and rapidly expanding neck hematoma. *Eur J Anaesthesiol* 22(7):556-8.