

# Successfully Managed Difficult Airway -Case Series:

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**Abstract:** Managing difficult airway is based on many facts which include prompt preoperative assessment of airway, medical and surgical history, planned procedure, current condition and vitals of patient. Here importance of VDL scopy and FOB presence in clinical setup is emphasised by reporting three cases of difficult airway which is successfully managed. To create a safety culture it is imperative to involve various members of the patients care to plan effective management keeping in mind good communication, flexibility in decision-making and time to re-evaluate the situation.

## 1. Introduction

ASA definition of difficult airway is "when a trained anesthetist experiences difficulty in face mask ventilation of upper airway, difficulty with tracheal intubation or both". Managing difficult airway is based on many facts which include prompt preoperative assessment of airway, medical and surgical history, planned procedure, current condition and vitals of patient. Here presenting a case series of three scenarios managed successfully with different techniques. Most airway problems can be solved with available gadgets and techniques, but clinical judgement borne of experience and expertise is crucial in implementing the skills in any difficult airway scenario. (1) Fibre optic bronchoscopy is considered as a standard technique in an anticipated difficult airway. (2)

### CASE SCENARIO 1:

32 year old male presented with pain in lower jaw and neck, difficulty in chewing and swallowing, difficulty in breathing for 2 days. There was swelling in neck limited neck extension and flexion and restriction in mouth opening to 2 finger breath. Oral examination revealed swelling at lower right second molar tooth with draining of pus. He was diagnosed as Ludwig angina and posted for I and D. An awake fob was planned.

Patient shifted to OT in semi propped up position routine ASA monitors connected. Vitals: Temperature:101F,HR 118bpm,BP:110/70mmhg,SPO2:98%@RA. Airway block performed. B/L SLN block with 2ml of 2% lignocaine and intratracheal injection of 2% lignocaine. Nasal decongest drops instilled in nostrils. FOB checked and 6.5 size ET tube loaded. Lignocaine jelly applied in left nostril and fob inserted and negotiated through upper airway and vocal cord, trachea was entered and carina visualized. ET tube railroaded over bronchoscope into trachea. Tube insitu confirmed by direct visualization, ETCO2 traces. Induced with propofol 100mg, Atrac 30mg, Fentanyl 100mcg maintain with isoflurane 2%.

### CASE SCENARIO 2:

A 8 year old male child weighing 45kg of Ht:125cm, BMI:28.8. Treatment history: operated twice for craniopharyngioma with B/L VP shunt insitu and underwent 8 cycles of chemotherapy now posted for full mouth rehabilitation. Airway assessment: MO:2-3 fingers, MMP3 short neck, double chin, restricted neck flexion and extension, TMD:<6cm, H/O OSA present.

Patient shifted to ot and routine ASA monitors connected. I.V line secured. Preop xylometazoline instilled in nostril, nebulized with 4% lignocaine 2ml. oral and nasopharynx sprayed with 10% lignocaine. Premedication: glyco 0.2mg+ ondansetron 2.5mg+ given. Induction started with sevoflurane with 100% O2. Sevoflurane gradually increased to 6% preserving spontaneous ventilation. FOB passed in right nostril and upper airway negotiated cords, carina visualized ET tube of size 5.5 railroaded over bronchoscope and airway secured. ET tube position confirmed with chest rise, direct visualization, auscultation, ETCO2 traces. connected to ventilator. adequate oropharyngeal packing done. Atrac 30mg, fentanyl 80 mcg, sevoflurane 2%, O2:N2O 2:3

### CASE SCENARIO 3:

A 11 year old female child with post burn contracture of head and neck and chest was posted for primary cleft palate repair.

Mouth opening 2 fingers(cicatrized angle of mouth),moderate neck movement restriction in extention and flexion mask ventilation predicted as easy .Vedio assisted laryngoscopy is arranged. patient shifted to or .Routine ASA moniters connected. Vitals stable ,Premedication Glyco 0.2mg,midaz 1 mg and fentanyl 60mcg given.Before muscle relaxation with sevo induction trial direct laryngoscopy done difficulty in obtaining layngeal view .Muscle relaxant given preoxygenated VDL scopy used and intubated with south RAE tube size 6.ET tube place confirmed with chest rise, auscultation, direct visualization,ETCO2 traces. to place mouth gag incision made at both angle of mouth at the end of surgery sutured it .



## **2. Discussion:**

Difficult airway management is a critical aspect of anesthesia and emergency medicine, involving challenges in establishing and maintaining a patent airway for adequate oxygenation and ventilation. This can arise due to various anatomical, pathological, or situational factors potentially life-threatening scenario if not managed promptly and effectively making it a complex and disastrous. To create a safety culture it is imperative to involve various members of the patients care to plan effective management keeping in mind good communication, flexibility in decision-making and time to re-evaluate the situation(3). These are readily available preparatory interventions to assist in a difficult airway management case should it arise (4). These interventions are: (a) the availability of equipment for airway management; (b) informing the patient of a known/suspected airway difficulty; (c) pre-oxygenation; (d) patient positioning; (e) sedative administration; (f) local anesthesia; (g) supplemental oxygen during difficult airway management; (h) patient monitoring; and finally (i) human factors (5). These guidelines put anesthesiologists in the best position possible to handle difficult airway patients, preventing the likelihood of any severe implications.

Here are some key points for discussion regarding difficult airway management:

1. **Definition and Recognition:** What constitutes a difficult airway? Discuss the various anatomical features (e.g., large tongue, short neck, limited mouth opening) and clinical situations (e.g., trauma, obesity, edema) that can contribute to airway difficulty. Emphasize the importance of recognizing potential difficulties early on, especially in elective procedures where preoperative assessment can be conducted.

2. **Assessment and Planning:** Highlight the significance of thorough airway assessment before any procedure involving anesthesia or airway manipulation. This includes evaluation of patient history, physical examination, and consideration of adjuncts such as imaging or consultation with specialists. Discuss the role of airway prediction scores (e.g., Mallampati classification, thyromental distance) in assessing the likelihood of encountering a difficult airway.
3. **Equipment and Techniques:** Review the range of equipment and techniques available for difficult airway management, including various types of laryngoscopes, supraglottic airway devices, fiber-optic bronchoscopes, and surgical airway tools (e.g., cricothyroidotomy). Discuss the indications, advantages, and limitations of each approach, as well as the importance of familiarity and training with these tools.
4. **Team Approach and Communication:** Stress the importance of effective communication and teamwork in managing difficult airways, particularly in high-stress situations such as emergency intubations. Encourage interdisciplinary collaboration between anesthesia providers, emergency physicians, respiratory therapists, and other healthcare professionals involved in airway management. Discuss the concept of the "difficult airway algorithm" and its role in guiding stepwise decision-making.
5. **Training and Simulation:** Highlight the value of regular training and simulation exercises for healthcare providers involved in airway management. Discuss the benefits of simulation-based education in improving skills, confidence, and teamwork in managing difficult airways. Emphasize the need for ongoing practice and review of guidelines to maintain proficiency and readiness for managing challenging airway scenarios.
6. **Complications and Contingencies:** Address potential complications associated with difficult airway management, such as hypoxemia, aspiration, and airway trauma. Discuss strategies for preventing and managing these complications, including proper patient positioning, use of apneic oxygenation, and timely escalation to more advanced techniques or rescue strategies when initial attempts fail.
7. **Ethical and Legal Considerations:** Explore the ethical and legal implications of difficult airway management, including issues related to patient autonomy, informed consent, and the obligation to provide safe and effective care. Discuss the importance of documentation, debriefing, and quality improvement initiatives in optimizing patient outcomes and minimizing adverse events related to airway management. Early recognition and decisive decision-making are vital to reduce the potential of serious injury. Anesthesiologists often face the dilemma involving the choice of anesthesia to be performed, with each preference having its pros and cons regarding the efficacy and safety of the patient. The primary concern for anesthesiologists is the unpredictable occurrence rate of difficult airway cases, as confounding variables provide a small indication of the potential risk of a difficult airway case occurring (6)

### 3. Conclusion:

All three cases reported above emphasize the importance of having video laryngoscopy and FOB in clinical setup in managing difficult airway situation. As a last step of cannot ventilate cannot intubate scenario only surgical airway management is decided

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