

Management of difficult airway in oncological patients: points to be remembered

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Malignant and benign tumours of the head & neck are the main causes of difficulty of airways due to presence of abnormal tissue growth and restricted jaw mobility. That's why we need to assess the airway thoroughly by clinical and radiological examinations.¹ Cancer in head and neck region worsen the scenario in terms of anatomical and physiological changes.² Dysphonia, dyspnea, inspiratory stridor, rales, wheezing, limited degree of neck movement and mouth opening should warn the physician about possible difficult airway. Fibro scope and radiological imaging are useful to delineate the airway pathology.^{2,4}

Preparation to deal with difficult airway is of paramount importance. Intensivist should be well versed in using various difficult airway equipment. Some of those essential skills and equipment are:

- Supraglottic Airway
- Intubation – Orotracheal / Nasotracheal – by using various devices like laryngoscope, bougie, fibro scope, video laryngoscope, bronchoscope etc.
- Anterograde or retrograde intubation using inhalational agents and rapid sequence induction.
- Cricothyroidectomy

Awake Airway Management:^{5,6}

In this method, patient's own respiration is not abolished. This is relatively safer practice, when intensivist is not sure about securing airway after administering muscle relaxant. However, to keep the patient comfortable, adequate analgesia of airway is achieved by nerve block and topical anesthesia.⁷ Only mild to moderate sedation should be given to patient in order to maintain spontaneous ventilation and oxygen saturation during the entire procedure.³ Although

considered safe, overall complication rate during awake intubation may be as high as 18%, and this include hypoxemia, hypercapnia, cardiac arrhythmias, hypotension, aspiration etc.⁷ Skill to perform cricothyrotomy and tracheostomy are essential difficult airway procedures. These methods are opted when oral or nasal Intubation is not possible. Tracheostomy should not be considered in pediatric patient due to small Trachea. Post radiotherapy patients with head and neck oncology may have distorted local anatomy and obscured anatomical landmarks.^{1,7} The benefits of tracheostomy over complications should be weighed. Commonly known complications include:⁸

1. Bleeding
2. Surgical emphysema
3. Cannula displacement
4. Tracheitis
5. Tracheomalacia
6. Tracheal esophageal fistula

Difficult Airway Management Cart Components:^{7,10}

Difficult airway management cart should always be ready and equipped with: self-inflating resuscitation bag, suction tubing, Yankauers, suction catheters with appropriate connectors, various sizes of face masks, various sizes of oral and nasal airways, various sizes and types of laryngoscope blades and handles, various sizes and types of tracheal tubes, tracheal tube introducer (Bougie) for adult patient, tracheal tube stylets (malleable and rigid), equipment for emergency invasive airway management, various sizes of supraglottic airways, water soluble medical lubricants, nasal cannula and oxygen face masks, video laryngoscope with appropriate

stylets, anesthetic induction, maintenance and rescue medications.

In anticipated difficult airway management: ^{2,6}

Difficult airway may be anticipated or unanticipated. Difficult airway society suggest following steps that to be followed while dealing with difficult airway management.

Asses the scenario whether:

a) The patient who can be adequately ventilated but is difficult to intubate

b) The patient who cannot be ventilated or intubated

○When appropriate, awake intubation should be preferred, if difficult intubation and difficult ventilation is anticipated.

○When appropriate, awake intubation should be preferred, if difficult intubation and increased risk of aspiration is anticipated

○When appropriate, awake intubation should be preferred if the patient is suspected to be a difficult intubation and anticipated to be incapable of tolerating a brief apneic episode

○When appropriate, awake intubation should be preferred if difficult intubation and difficulty with emergency invasive airway rescue is anticipated.

○If a noninvasive approach is selected, a preferred sequence of noninvasive devices should be identified to use for the airway management.

○If difficulty is encountered with individual techniques, combination techniques may be performed.

○Passage of time, the number of attempts and oxygen saturation should be kept mind.

○Feasibility of mask ventilation should be tested before every attempt and mask ventilation should be provided when feasible.

○Number of attempts for tracheal intubation or supraglottic airway placement should be limited to avoid potential injuries and complications.

○If an elective invasive approach to the airway e.g., surgical cricothyrotomy, tracheostomy, or large bore cannula cricothyrotomy is selected, preferred intervention should be identified.

○If required, invasive airway should be performed by an individual trained in invasive airway techniques whenever possible.

Unanticipated and emergency difficult airway management:¹⁰

○Upon encountering an unanticipated difficult airway, it should be determined the benefit of waking up the patient and restoring spontaneous breathing.

○The benefit of noninvasive versus invasive approach to airway should be determined.

○If a noninvasive approach is selected, a preferred sequence of noninvasive devices to use for airway management should be identified.

○If difficulty is encountered with individual techniques, combination techniques may be performed.

○Passage of time, the number of attempts and oxygen saturation should always be kept of mind.

○ Feasibility of mask ventilation should be tested before every attempt and mask ventilation should be provided when feasible.

○The number of attempts at tracheal intubation or supraglottic airway placement should be limited to avoid potential injuries and complications.

○If an elective invasive approach to the airway e.g., surgical cricothyrotomy, tracheostomy, or large bore cannula cricothyrotomy is selected, a preferred intervention should be identified.

○An invasive airway should be performed by an individual trained in invasive airway techniques whenever possible.

○If the selected invasive approach fails or is not possible, an alternate invasive intervention should be identified and performed.

Confirmation of Tracheal Intubation⁶

Confirm tracheal intubation should be confirmed using capnography or transtracheal ultrasound.

Extubating patients having difficult airway^{7,8}

There should be a pre-formulated strategy for extubation and subsequent airway management.

Intensivist skilled in difficult airway management should always be present during extubation.

Extubation should be done in the appropriate time of the day, preferably in the morning hours.

Relative clinical merits and feasibility of the short-term use of an airway exchange catheter and/or supraglottic airway that can serve as a guide for expedited reintubation should be

assessed. Before extubating, risks and benefits of the elective surgical tracheostomy should be evaluated. The clinical factors that may produce an adverse impact on ventilation after the patient is extubated should be identified and addressed.

Difficult airway is a life-threatening condition. Patient and attendant should be informed and explained. Documentation about the presence and nature of the airway difficulty should be recorded for future care.

Conflict of interest: Nil

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