

Management of the Difficult Airway



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KEYWORDS

• Airway management • Difficult airway • Intubation • Extubation • Airway algorithm

KEY POINTS

- Patients with a difficult airway present unique challenges and considerations.
- It is recommended that clinicians assess patients for a possible difficult airway by obtaining a thorough history and physical examination.
- Familiarity with difficult airway management guidelines, algorithms, tools, and techniques is essential to formulating a safe and effective plan for intubation as well as extubation of patients with this condition.

MANAGEMENT OF THE DIFFICULT AIRWAY

Airway management skills are critical to caring for patients in any setting. The American Society of Anesthesiologists defines a difficult airway as an airway in which an experienced anesthesia provider encounters difficulty with face mask ventilation, difficulty with tracheal intubation, or both.¹ The realm of airway management has advanced significantly in the last 15 years as various devices, tools, techniques, pharmaceuticals, and algorithms have been developed and implemented successfully. Although with careful planning an expertise in a limited number of tools is sufficient in most situations, the variety of options can be overwhelming.² Several detailed publications exist regarding techniques and specifications of airway equipment and tools. This article will focus on airway evaluation, identification, planning, extubation, and care of the patient with a difficult airway.

PREPARATION

Formulating a plan for management of the difficult airway is essential for success. The major adverse outcomes associated with a difficult airway include brain injury, cardiopulmonary arrest, need for surgical airway, trauma to the teeth and airway,

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and death. Many factors influence planning including the condition of the patient, the anticipated procedure, and the skills and preferences of the practitioner who will be managing the airway. Whether the difficult airway presents in the perioperative, intensive care, or emergency setting, following sentence.^{1,2}

Several basic preparations should be taken for difficult airway management^{1,2}:

1. Availability of a portable cart or storage unit with specialized equipment
2. Informing the patient or person responsible of the unique related risks and procedures
3. Availability of another individual capable of assisting during airway management
4. Preoxygenation of the patient, when possible, prior to initiating management of the airway; this may be limited in uncooperative or pediatric patients
5. Administration of supplemental oxygen throughout the airway management process, such as via nasal cannula, facemask, blow by, laryngeal mask airway (LMA), insufflation, and other available methods

The Difficult Airway Algorithm (DAA) (**Fig. 1**)¹ of the American Society of Anesthesiologists (ASA) is the foundation of the practice of difficult airway management. It provides clinicians with a decision path to choose when dealing with an anticipated difficult airway, a “can’t intubate but can ventilate situation,” and the “can’t intubate/can’t ventilate scenario.”

The following are 4 choices for management:

1. Awake intubation versus anesthetized intubation
 - Lack of cooperation or a pediatric patient can be a limiting factor in the options for awake intubation; using an approach that would not be considered as a primary method in a cooperative patient may be necessary
2. Noninvasive techniques versus invasive techniques
3. Video-assisted laryngoscopy as the primary approach to intubation
4. Maintenance of spontaneous ventilation versus halting of spontaneous ventilation

A report by Rosenblatt³ describes an airway approach algorithm (AAA) to organize airway related information prior to anesthetizing the patient, and this is intended to lead the clinician to choosing the best entryway to the DAA in order to avoid the emergency branch. If airway control fails, the emergency branch of the algorithm should be used by default. The AAA considers 6 basic problems identified by the ASA that may be encountered with a difficult airway including difficulty with patient cooperation or consent, mask ventilation, supraglottic airway placement, laryngoscopy, intubation, and surgical airway access.^{1,3}

Is Airway Control Necessary?

Consider the surgical procedure, surgeon, skills of the anesthesia provider, and patient cooperation. Using regional anesthesia or local infiltration with or without sedation has potential to require manipulation of the airway or conversion to a general anesthetic. Although it may provide an alternative to direct management of difficult airway, it is not a definitive solution and does not eliminate the need for a strategic plan for intubating a difficult airway.¹⁻³

Is There Potential for a Difficult Laryngoscopy?

Laryngoscopy is the standard of care and is also the quickest route to achieving tracheal intubation by most skilled practitioners. Review of the patient’s history and a physical examination provide valuable information in assessing the potential for difficult laryngoscopy. Clinical experience plays a large role in this assessment. If the

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