

Chapter 16

Airway Evaluation and Management



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16.1 Obstructive Sleep Apnea History and Management

When evaluating obstructive sleep apnea (OSA) history, there are key details that provide insight of how to manage the patient preoperatively. The ASA OSA task force has provided a thorough assessment [1] and recommendations for patients suffering with this disorder. Given that the morbidly obese patient will likely present with complications from OSA perioperatively, one should consider tailoring the anesthetic technique to minimize these complications including: easy access CPAP, easy access of reversal agents, adjustable beds to at least 30+ degrees, access to wedge pillows, short acting inhaled anesthetics, consideration of awake extubation, minimizing narcotics and barbiturates, use of multimodals including regional, inpatient O₂ monitoring overnight before discharge, and pt. education regarding the use of CPAP at home if narcotics are used on discharge.

Upon extubation, most of the morbidly obese patients undergoing bariatric surgery will require some supplemental oxygen. Depending on their OSA morbidity scores, these patients can quickly become hypercarbic and become less responsive in the recovery units. Strict instructions should be given to the post-anesthesia care teams to minimize the complications of hypercarbia and hypoxia by appropriately utilizing CPAP machines to facilitate an optimal respiratory status.

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16.2 Possible Difficult Laryngoscopy

When evaluating the morbidly obese patient for a general anesthetic, special attention should be placed on the patient's Mallampati score, neck mobility, Hx of difficult laryngoscopy, surgical Hx, patient cooperation, and equipment available for the anesthetic team for induction.

Whether the anesthetic plan dictates an awake intubation or intubation under general anesthesia with/or without videoscopes, proper patient positioning should be used to maximize the likelihood of first pass success in securing the airway. Proper positioning includes placing the patient in the sniffing position with or without wedge pillows. To ensure appropriate positioning, the tragus is anterior to the shoulder to facilitate alignment of the oral, pharyngeal, and laryngeal axes.

Before a laryngoscopic attempt is performed, per anesthesia guidelines, the anesthesia machine should be checked, suction should readily available, vital sign monitors placed and reviewed, video laryngoscope readily available, laryngeal mask airway (LMAs) readily available, and reversible agents readily available. Seeing that intubation is notoriously difficult with morbidly obese patients, it is advisable to have an experienced laryngoscopist in the anesthesia team to both assist and secure the airway.

Induction of general anesthesia is one of the most dangerous anesthetic events in these patients. Therefore, visual attention is recommended at bedside by OR staff and anesthesia team. The OR staff should be familiar with some of the anesthetic equipment if both the MD and certified registered nurse anesthetist (CRNA) are unable to leave the immediate care of the patient. The equipment that is often needed in an emergency include: bougie, LMA, video laryngoscope, endotracheal tubes, cricothyrotomy kit, and laryngoscope blades. It is advisable for the OR staff to familiarize themselves with the equipment to minimize the anxiety that comes in an emergency while trying to identify and assist with the airway devices. Once the airway is placed, the staff should wait until there is confirmation of end tidal CO₂ and the device is secured to the patient before manipulation is done to the patient or the operative bed.

If intravenous general induction is part of the anesthetic plan, it is preferred to use short-acting medications that allow optimal visualization of the vocal cords. With the advent of video laryngoscopes, it is common practice to opt for this route as the preferred method to visualize the vocal cords and subsequently securing the airway with an endotracheal tube. In the event of an unexpected difficult intubation, it is advisable to follow the American Society of Anesthesiologist Difficult Airway Algorithm [2].

16.3 Possible Difficult Mask

When evaluating the morbidly obese, it is of most importance to assess the likelihood of difficult mask ventilation. Some of these factors include body mass index $>26 \text{ kg/m}^2$, age older than 55 years of age, macroglossia, beard, lack of teeth, history of snoring, increased Mallampati grade $> \text{III}$, and lower thyromental distance $<5 \text{ cm}$. Identification of two or more of these factors [3] allows anesthesia providers to appropriately predict the level of difficulty of mask ventilation.

Most morbidly obese patients have two or more of the above criteria that predicts the possibility of experiencing a difficulty in mask ventilation. Therefore, we encourage anesthesia personnel to provide adequate preoxygenation and utilize short acting medications for the induction of general anesthesia. Additionally, we encourage having readily available backup help, LMAs, and more than one anesthesia provider in the room for the induction of general anesthesia. As always, follow the American Society of Anesthesiologist Difficult Airway Algorithm in the event of difficult mask ventilation.

References

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3. Langeron O. Predictions of difficult mask ventilation. *Anesthesiology*. 2000;92(5):1229–36.