

Difficult Airway

Group B

Case Scenario 2

A 35-year-old woman presented for laparoscopic lysis of adhesions. Her first laparotomy occurred 10 years prior to this admission. After induction of anesthesia the patient had airway obstruction

Q1) What are the causes of airway obstruction after induction of general anesthesia?

Depends on the type of general anesthesia whether inhalational or IV, and depends largely on mean alveolar concentration (MAC).



Inhalational anesthesia will lead to:

Atelectasis :

Atelectasis causes pulmonary shunt and, therefore, undoubtedly contributes to the impairment of gas exchange during general anesthesia.

Alveolar hypoventilation :

CO₂ retention is the hallmark of hypoventilation and is always present.

Aspiration Pneumonitis: Regurgitation and aspiration of gastric contents during induction of anaesthesia leads to aspiration pneumonitis.

Increased salivary and respiratory secretions: Anesthetic gasses and tracheal intubation may impair normal muco- ciliary transport.

CNS respiratory depression: affect the central regulation of breathing, changing the neural drive to respiratory muscles such as the diaphragm which will lead to decreased O₂ consumption .

Increased RR : which will lead to decreased tidal volume which will decrease alveolar minute ventilation

Decreased muscle tone : which will lead to difficulty in respiration

IV anesthesia will lead to :

Respiratory depression and apnea.


Response to hypoxia will decrease .

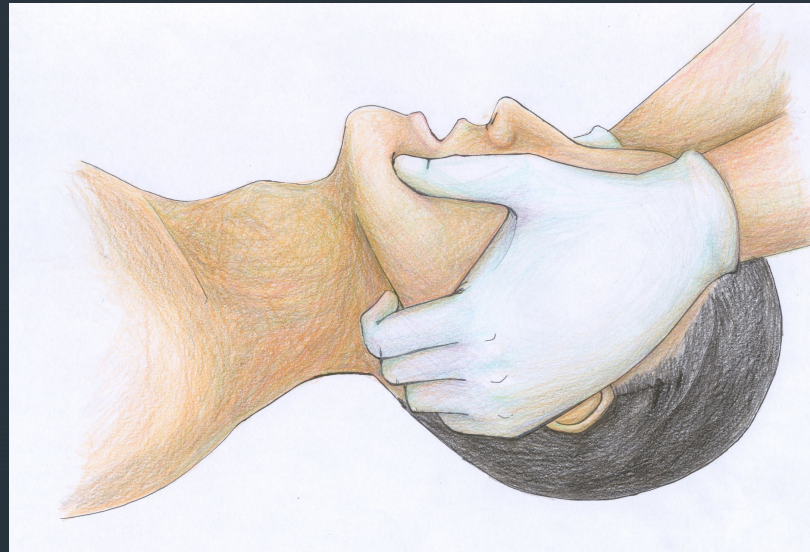
Laryngeal and pharyngeal muscle relaxation .

Decreased tracheal reflexes .

Q2. What are the devices can be used to restore airway patency?

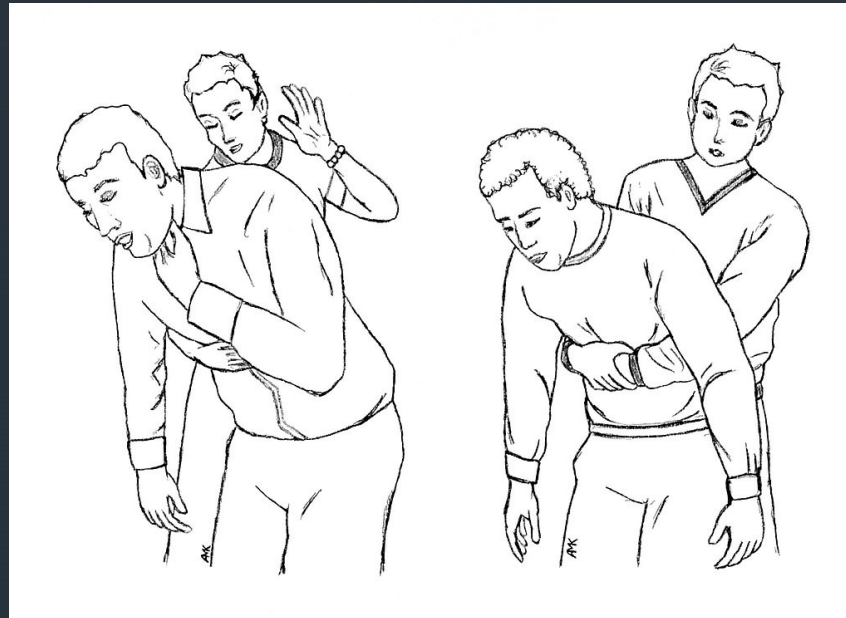
- Respiratory airway patency can be achieved by simple maneuvers such as (chin lift and (jaw thrust)
- Or (abdominal thrusts) in case of foreign body obstruction

REMEMBER:  **DO NOT** insert your finger into a patients mouth and take good care of a patient who has loose or crowned teeth.



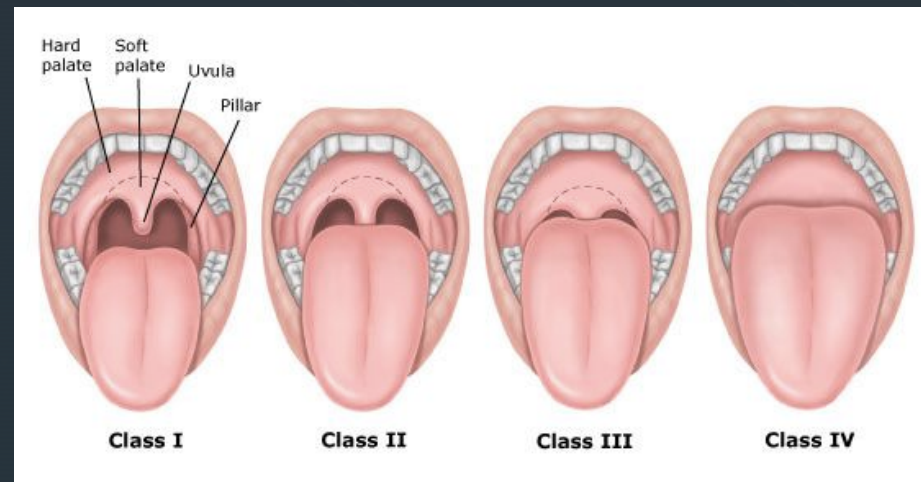
Q2. What are the devices can be used to restore airway patency?

- In emergency situations some devices can be used to allow a patent airway when intubation and ventilation cant be achieved. Such devices include (cannula), nasotracheal procedure, endotracheal tube .
- Direct surgical access such as cricothyrotomy and tracheostomy

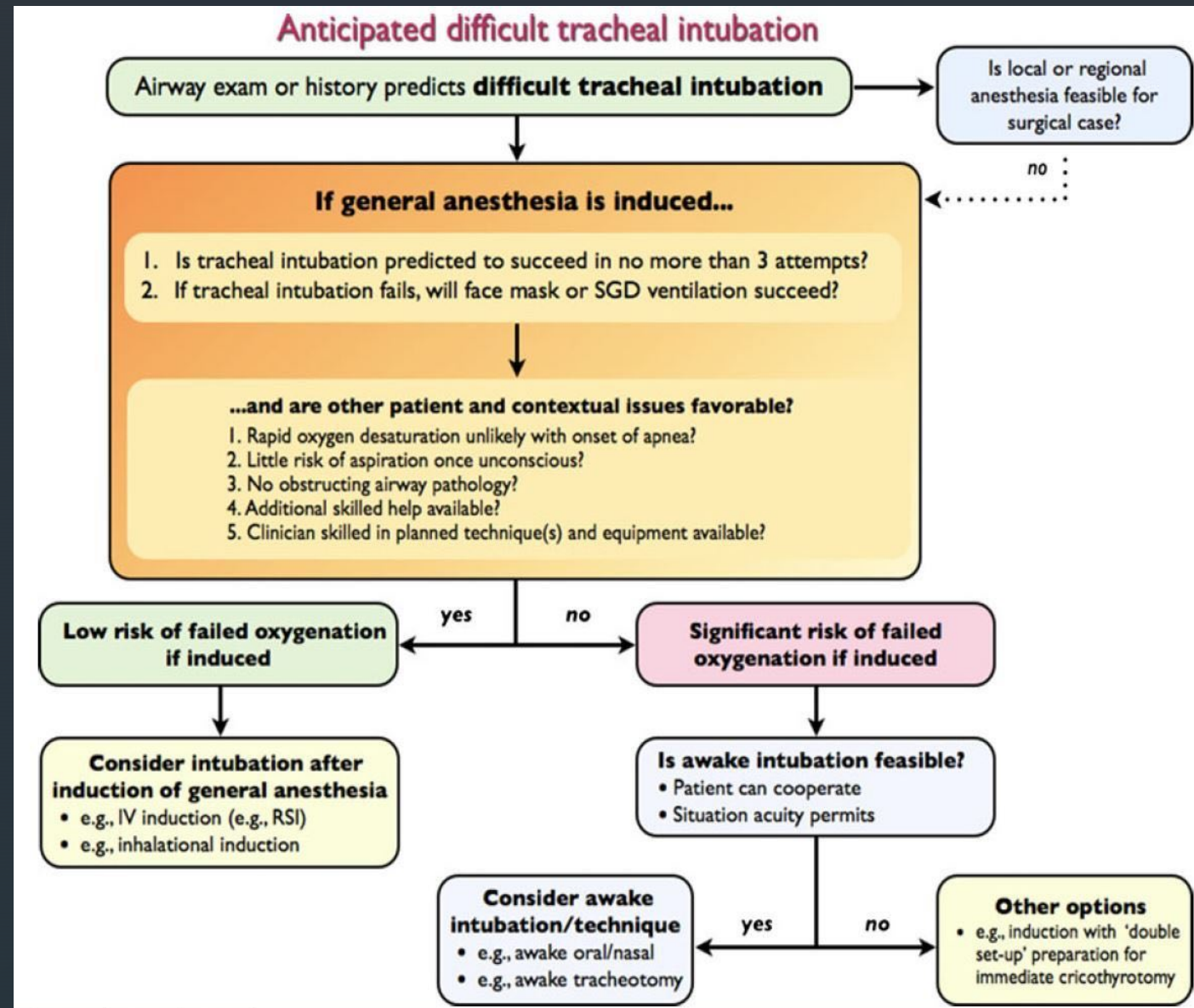


Q3. What are the predictors of difficult mask ventilation?

- Any form of obstruction
- Laryngospasm or pharyngospasm
- Previous head\neck\thoracic\abdominal surgeries
- Facial deformities or injuries
- Tongue size (tumors)
- Mouth opening (temporomandibular joint dysfunction) use Mallampati classification
mouth opening must be 4-6 cm
- Nasal blockage (polyps\septum deviation\ Enlarged Adenoids)
- Trauma, down syndrome, rheumatoid arthritis
- Obesity
- **Must stabilize neck properly or it will lead to spinal cord damage**



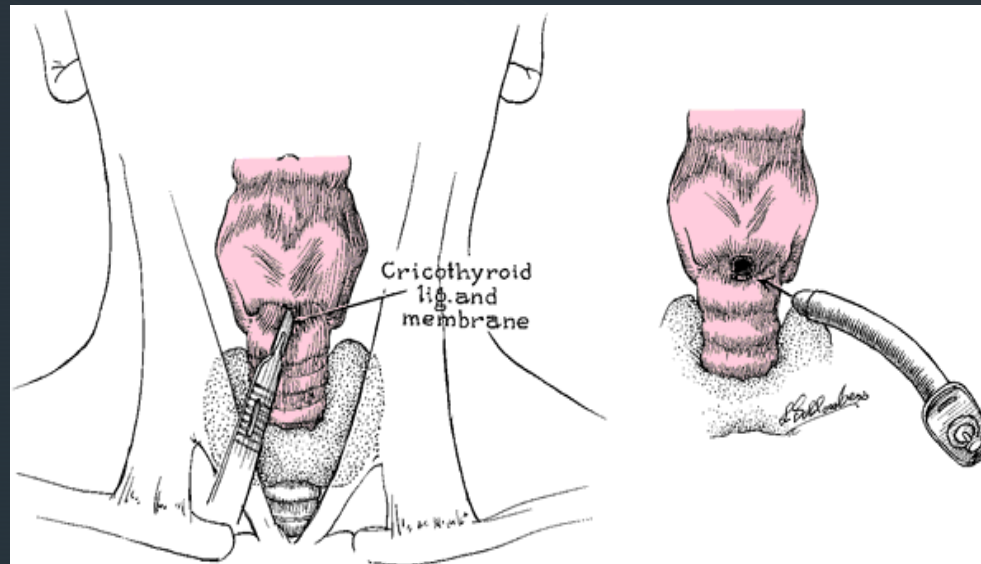
Q4. How is the anticipated difficult intubation approached?



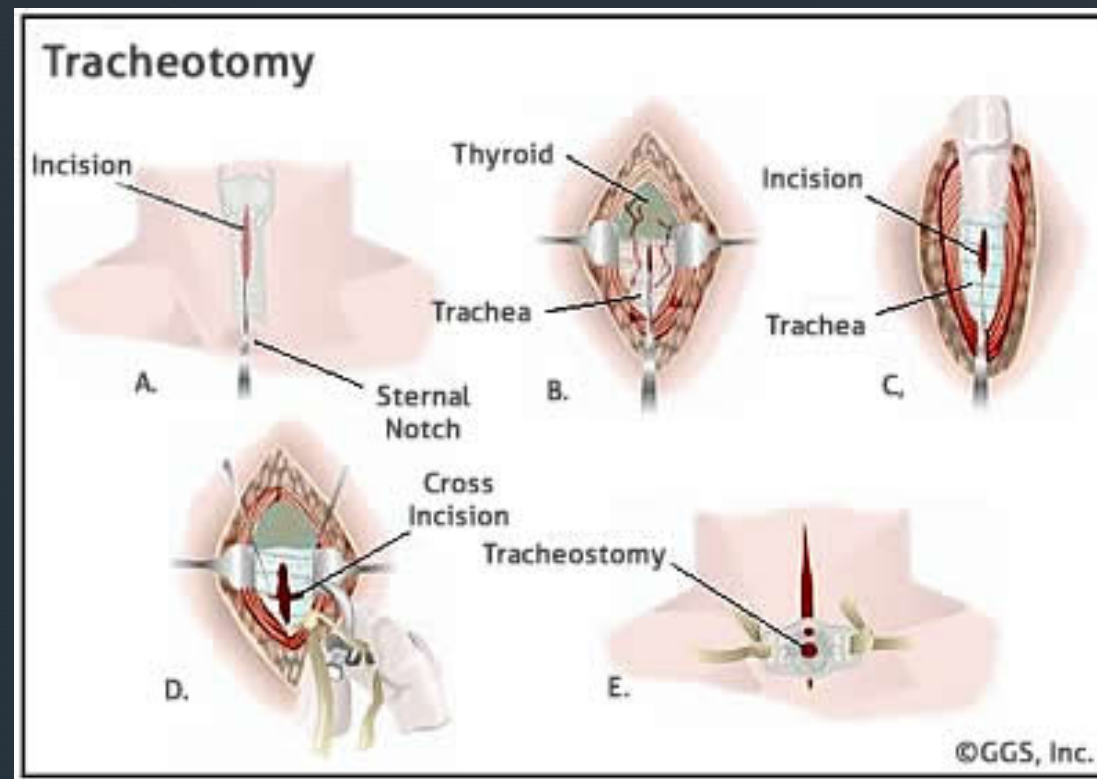
Q5) Describe the management options for a patient who can't ventilate can't intubate?

In this case 2 surgical option is available:

1. **Crico-thyrotomy** is an incision made through the skin and cricothyroid membrane to establish a patent airway during certain life-threatening situations, such as airway obstruction



2. Tracheostomy is creating an opening in the neck in order to place a tube. The tube is inserted through a cut in the neck below the vocal cords. This allows air to enter the lungs.



Q6. How you can verify successful tracheal intubation?

- **Physical examination** methods such as auscultation of chest and epigastrium, visualization of thoracic movement, and fogging in the tube are not sufficiently reliable to confirm endotracheal tube placement. Similarly, pulse oximetry and chest radiography are not reliable as sole techniques to determine endotracheal tube location.

Q6. How you can verify successful tracheal intubation?

- During intubation, direct visualization of the endotracheal tube passing through the vocal cords into the trachea, especially with the use of a video laryngoscope, constitutes firm evidence of correct tube placement, but additional techniques should be used as objective findings to confirm proper endotracheal tube position.

Q6. How you can verify successful tracheal intubation?

- Use an end-tidal carbon dioxide detector (i.e., continuous waveform capnography, colorimetric and non-waveform capnography) to evaluate and confirm endotracheal tube position in patients who have adequate tissue perfusion
- Use esophageal detector device, ultrasound, or bronchoscopy for patients in cardiac arrest and for those with markedly decreased perfusion.



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THANK YOU

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