

Airway management

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Case

- You are called to see a patient who is unconscious and making a loud snoring noise
- O₂ 2 l/min via nasal prongs
- SpO₂ 98%



Case

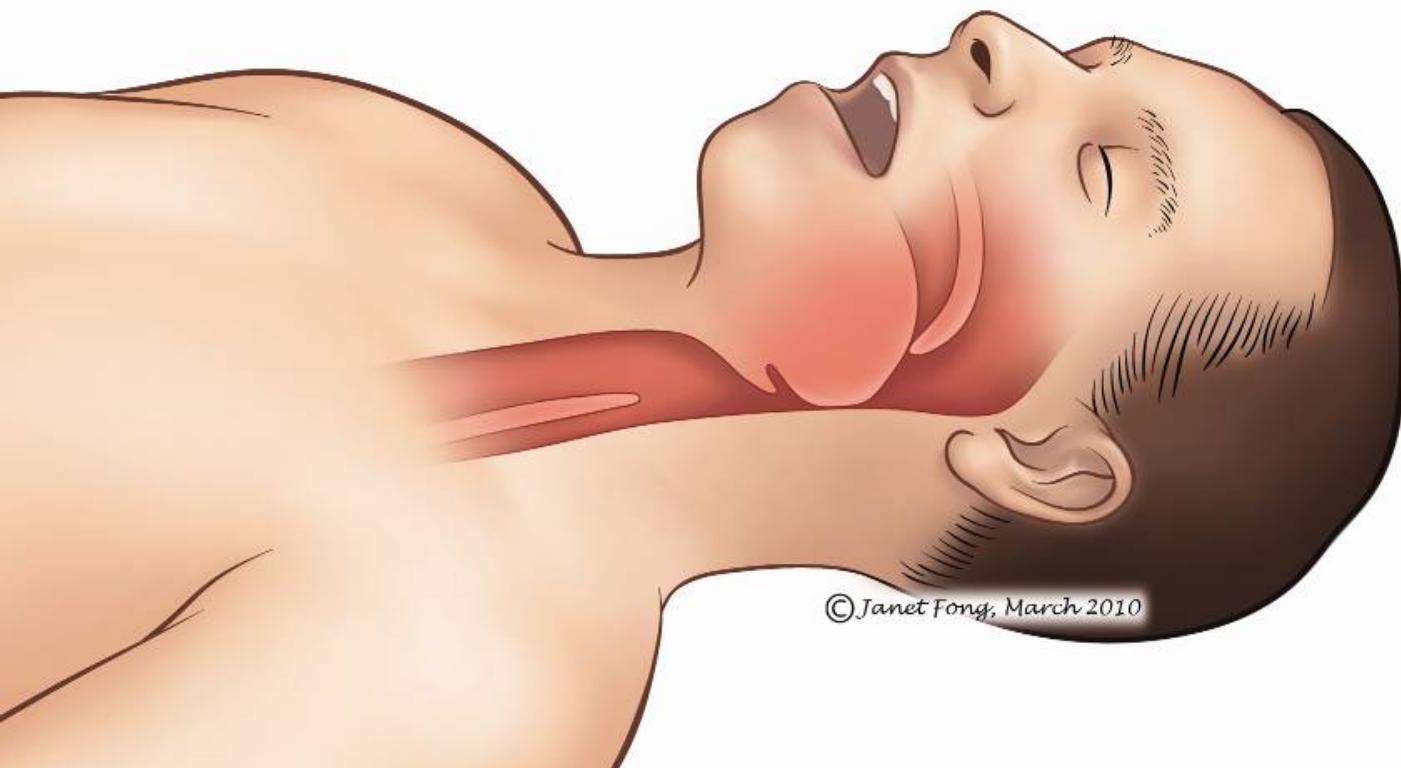
- Does this patient require any airway intervention?



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Airway obstruction

- Normal SpO₂ does not exclude obstruction

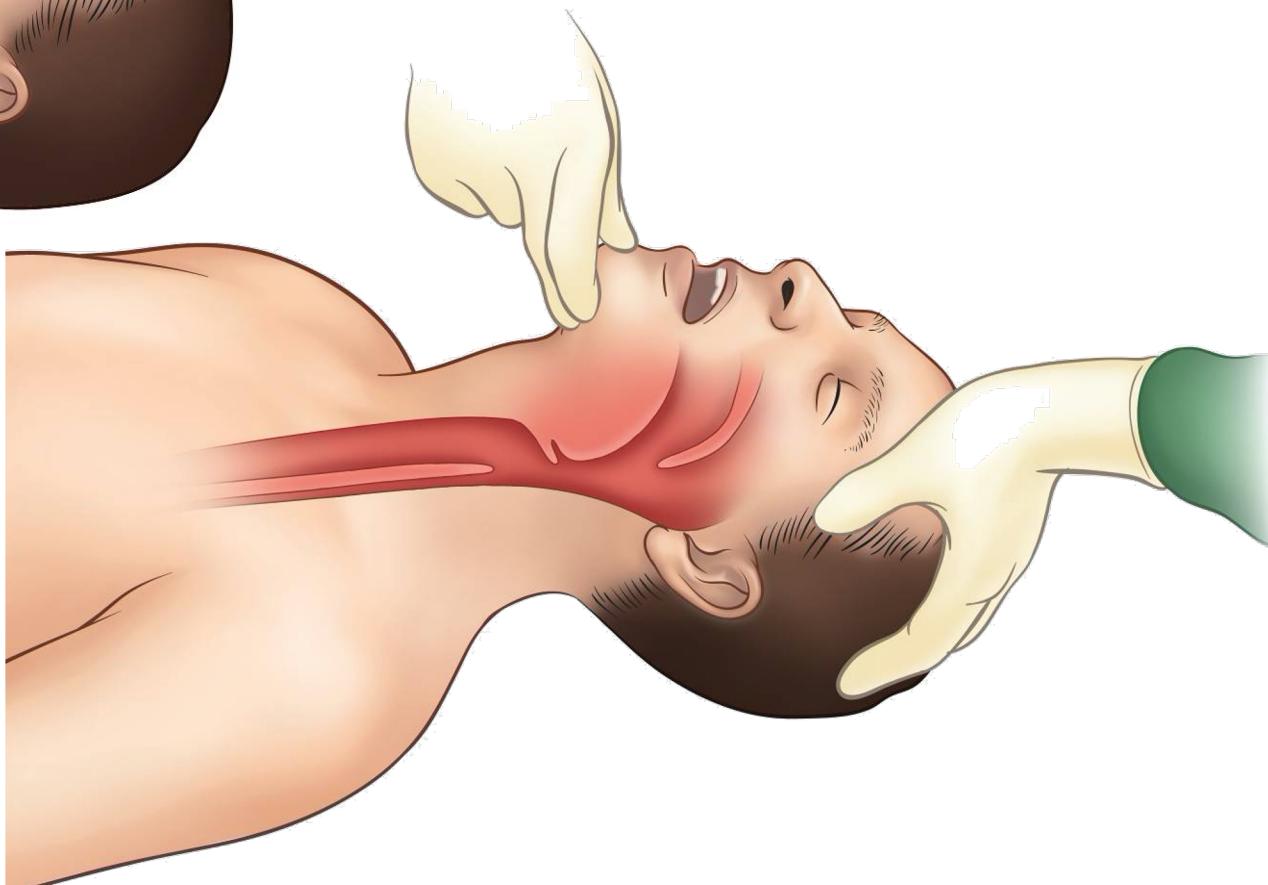
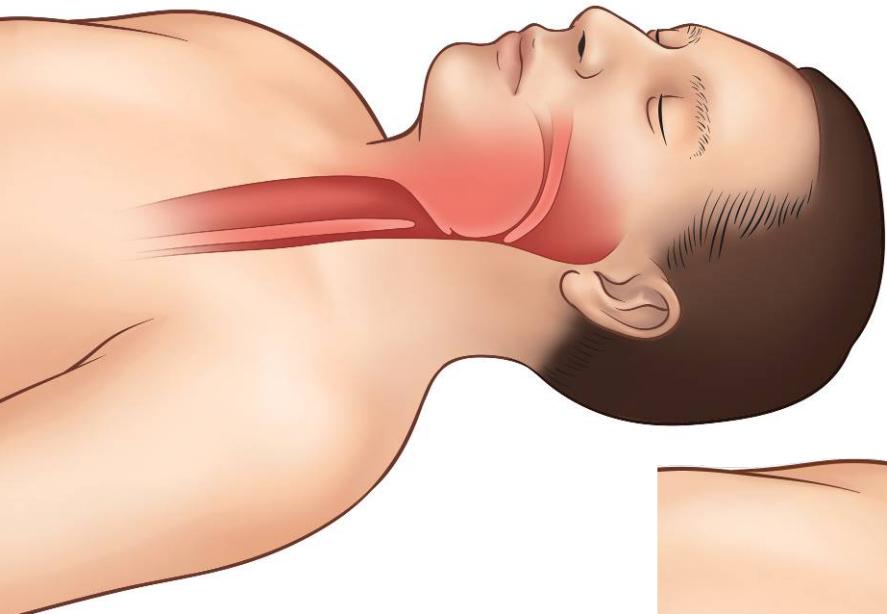


Airway management

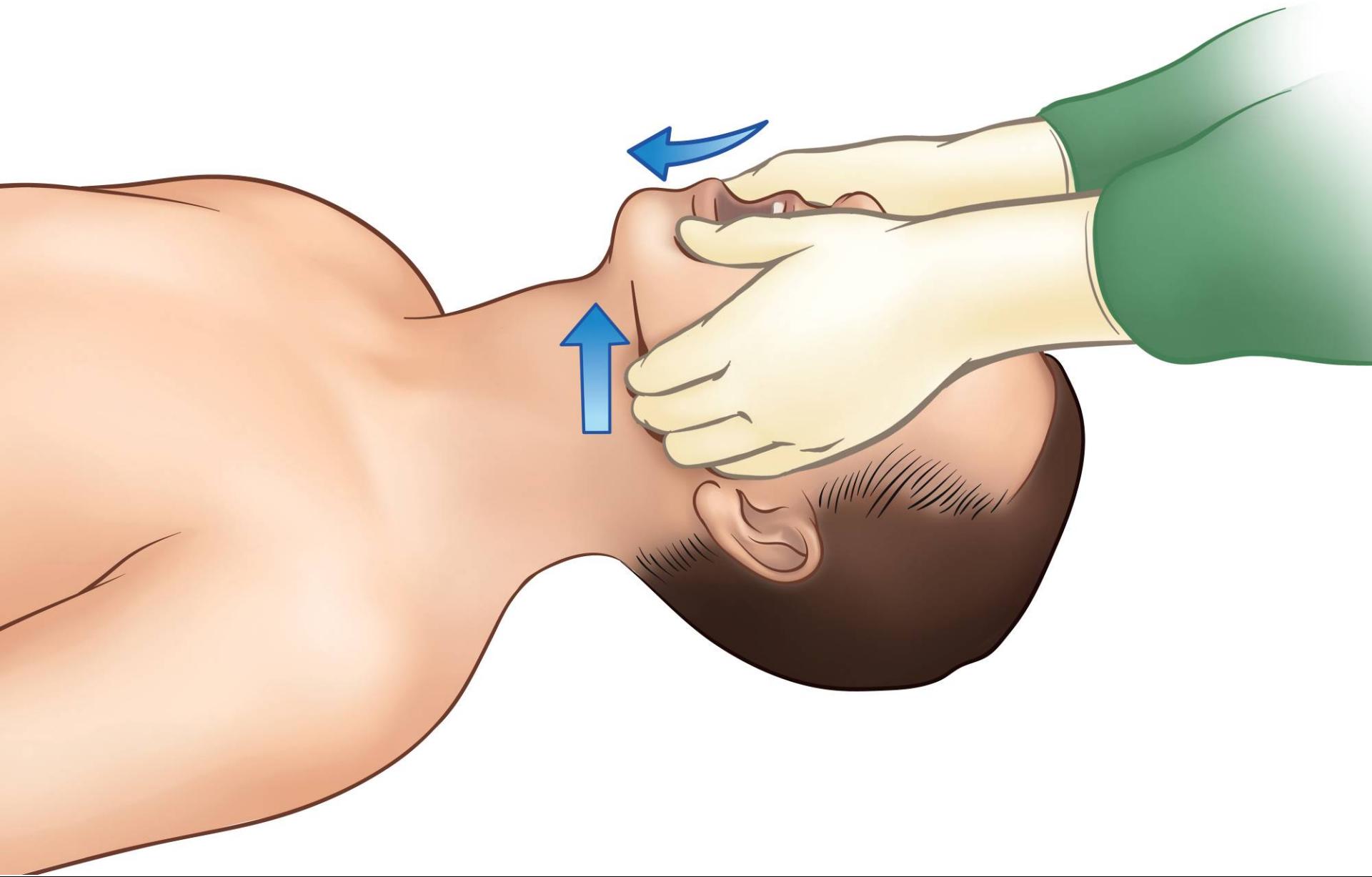
- Can be extremely difficult, even for an expert
- Call for help early



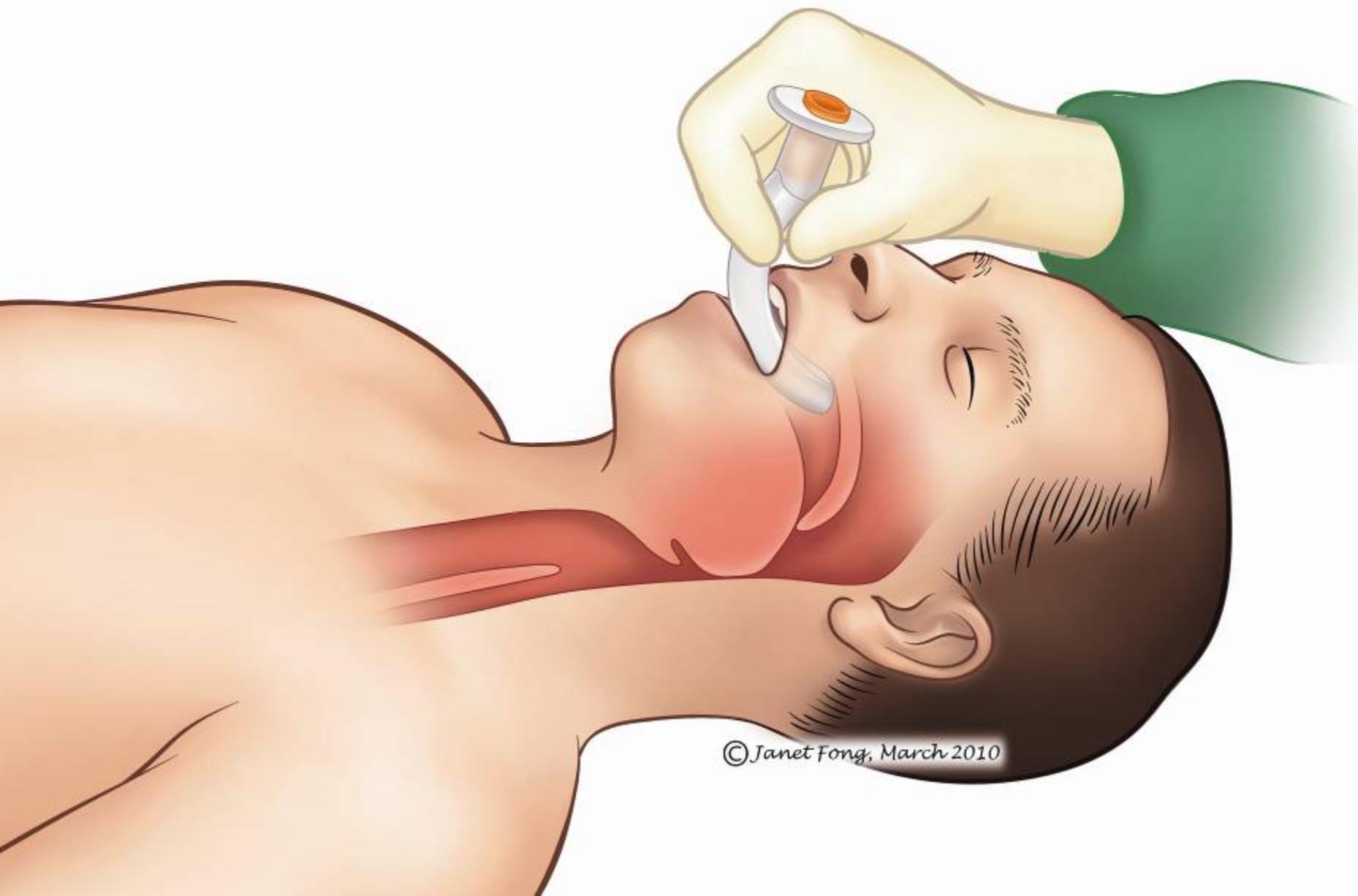
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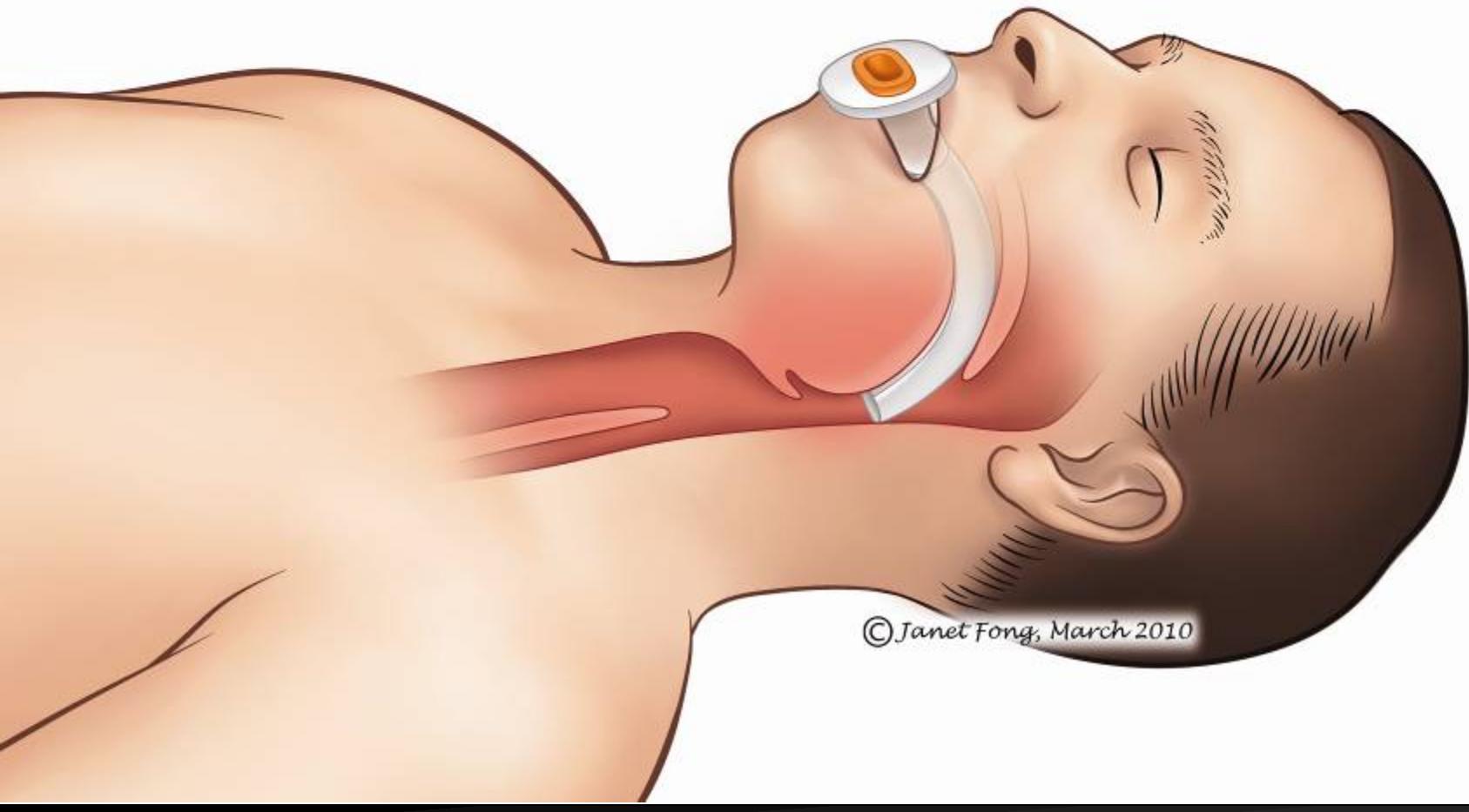
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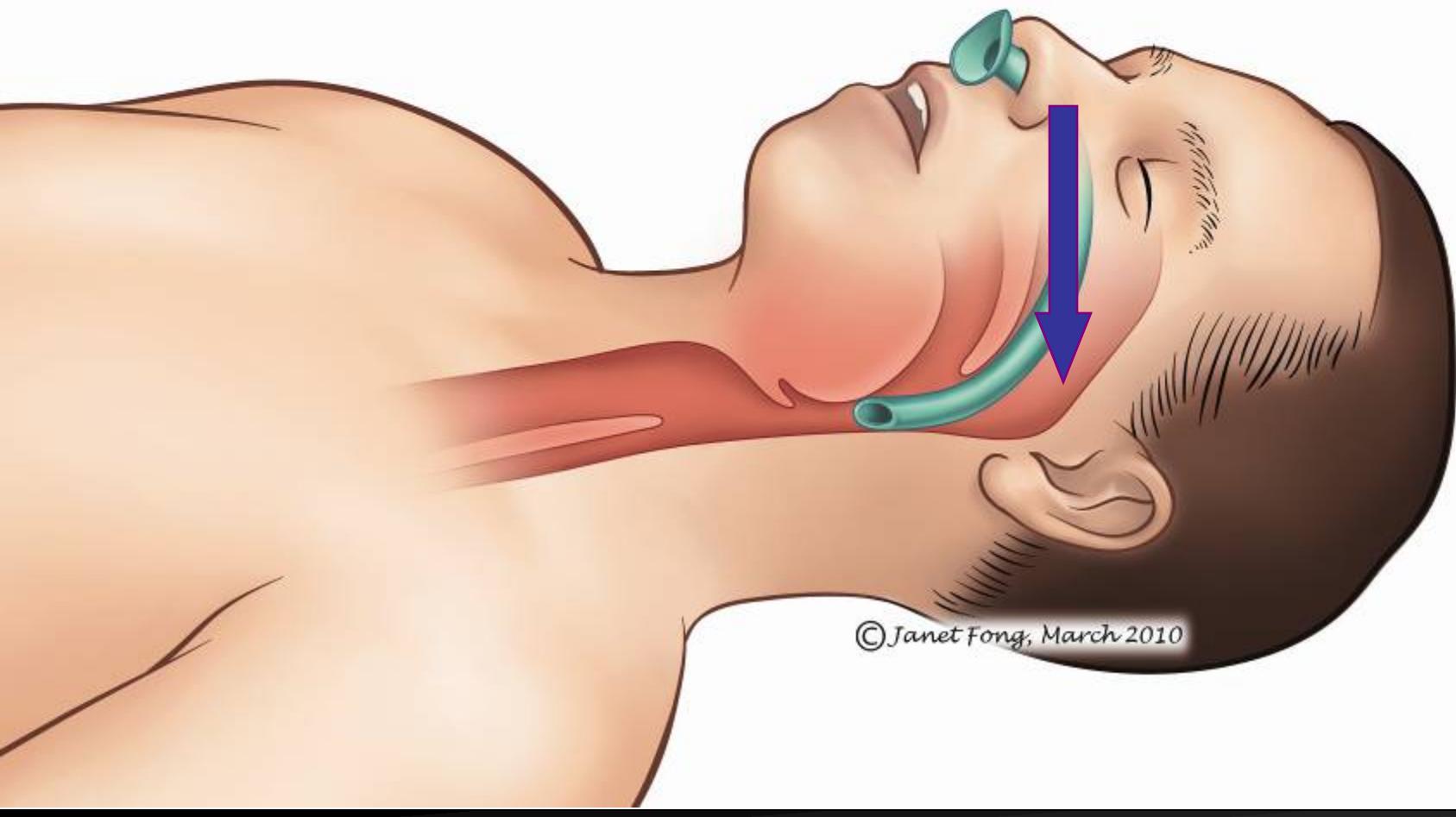
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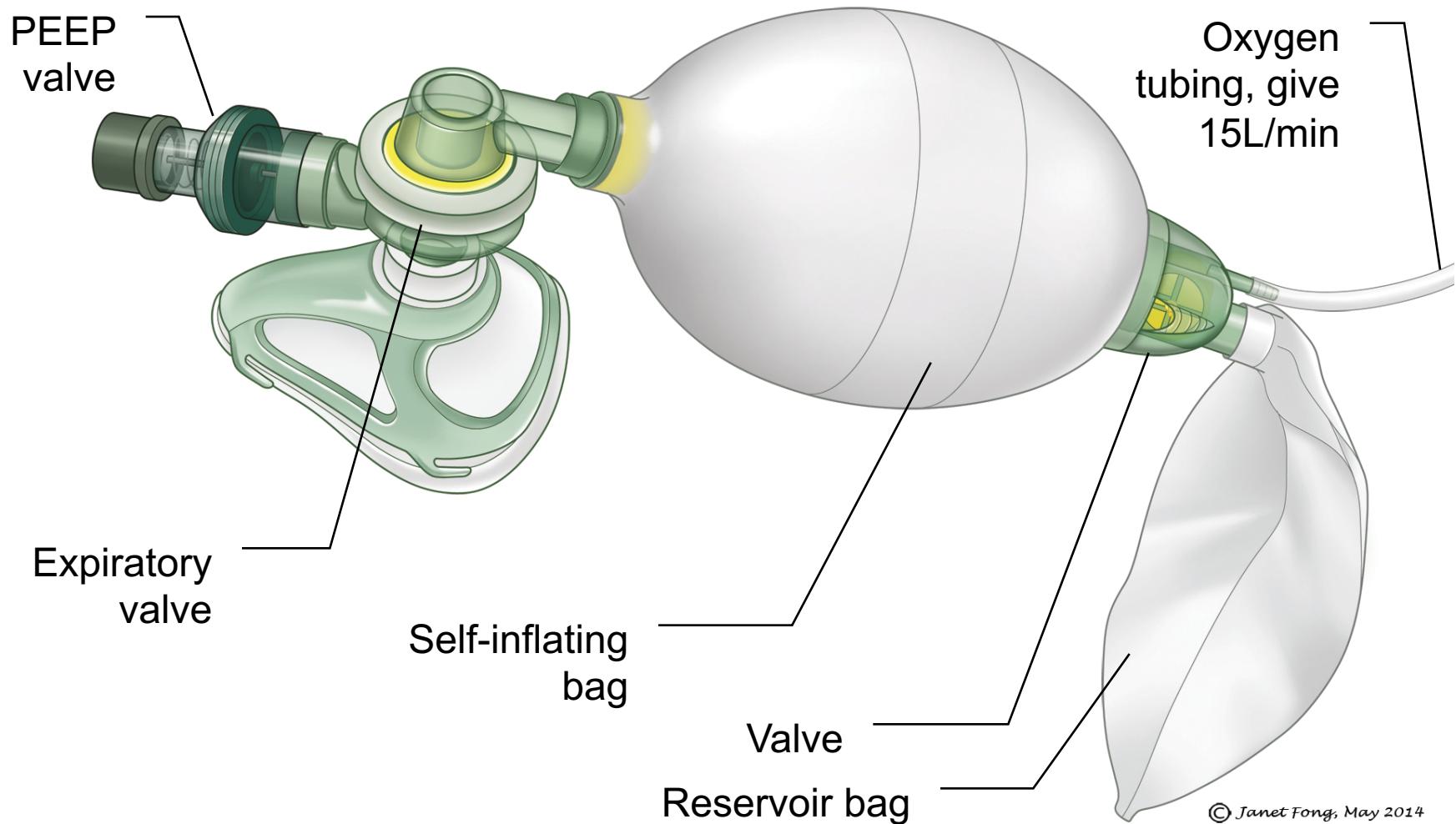
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Case

- Airway patency restored
 - Look, listen, feel
- Respiratory rate low



Breathing, ventilation

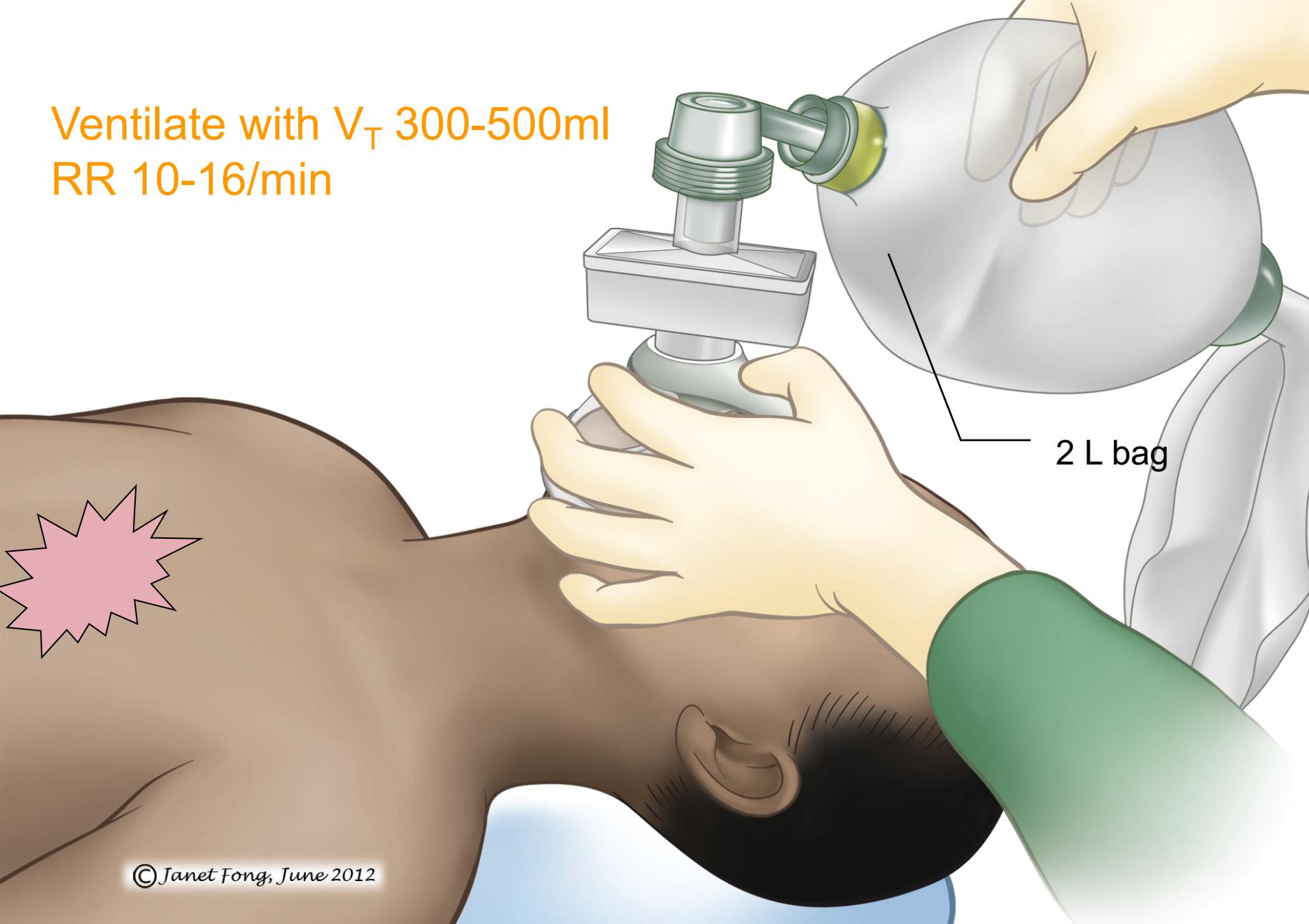


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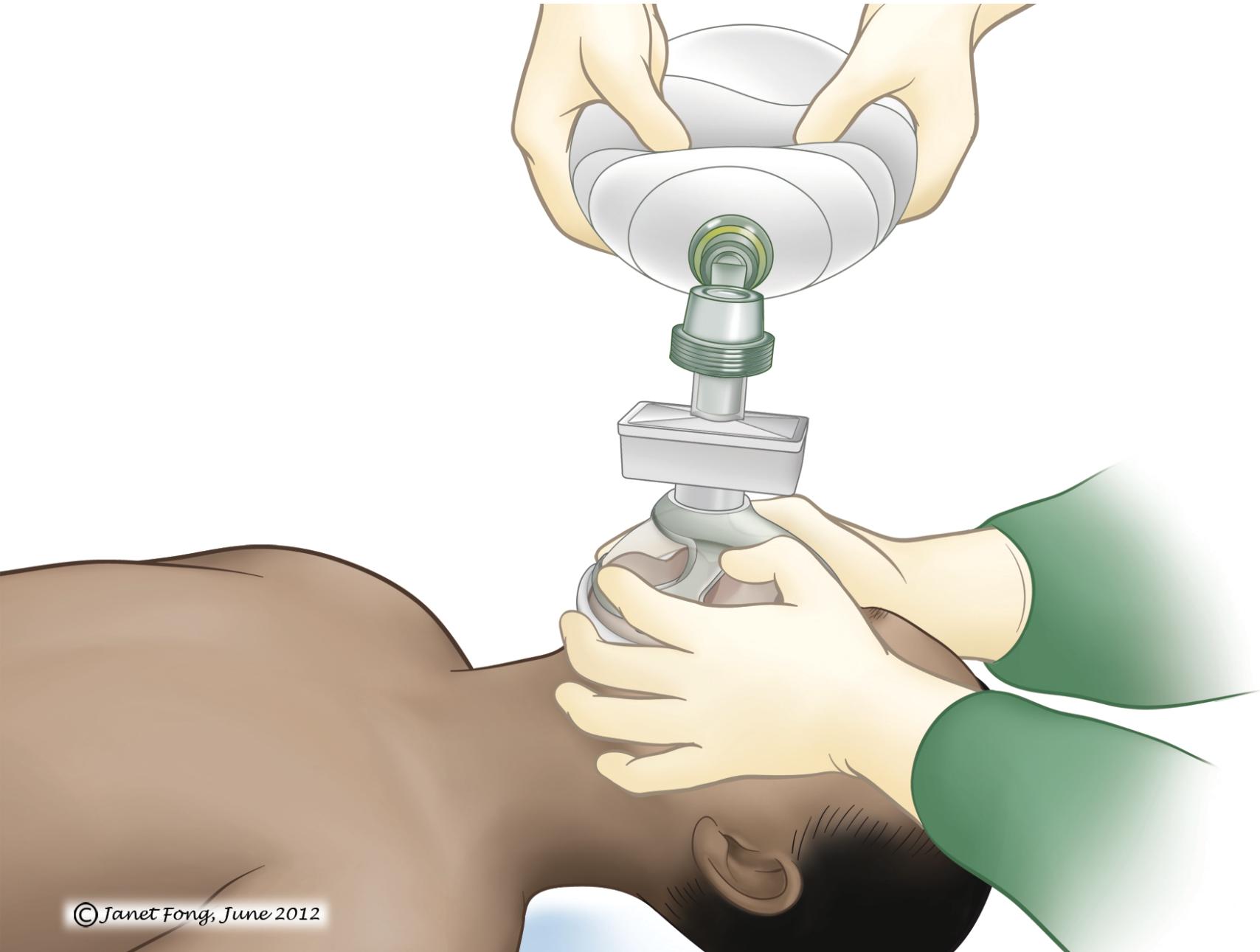
Ventilate with V_T 300-500ml
RR 10-16/min



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Case

- What next?
- Intubate?



Indications for intubation

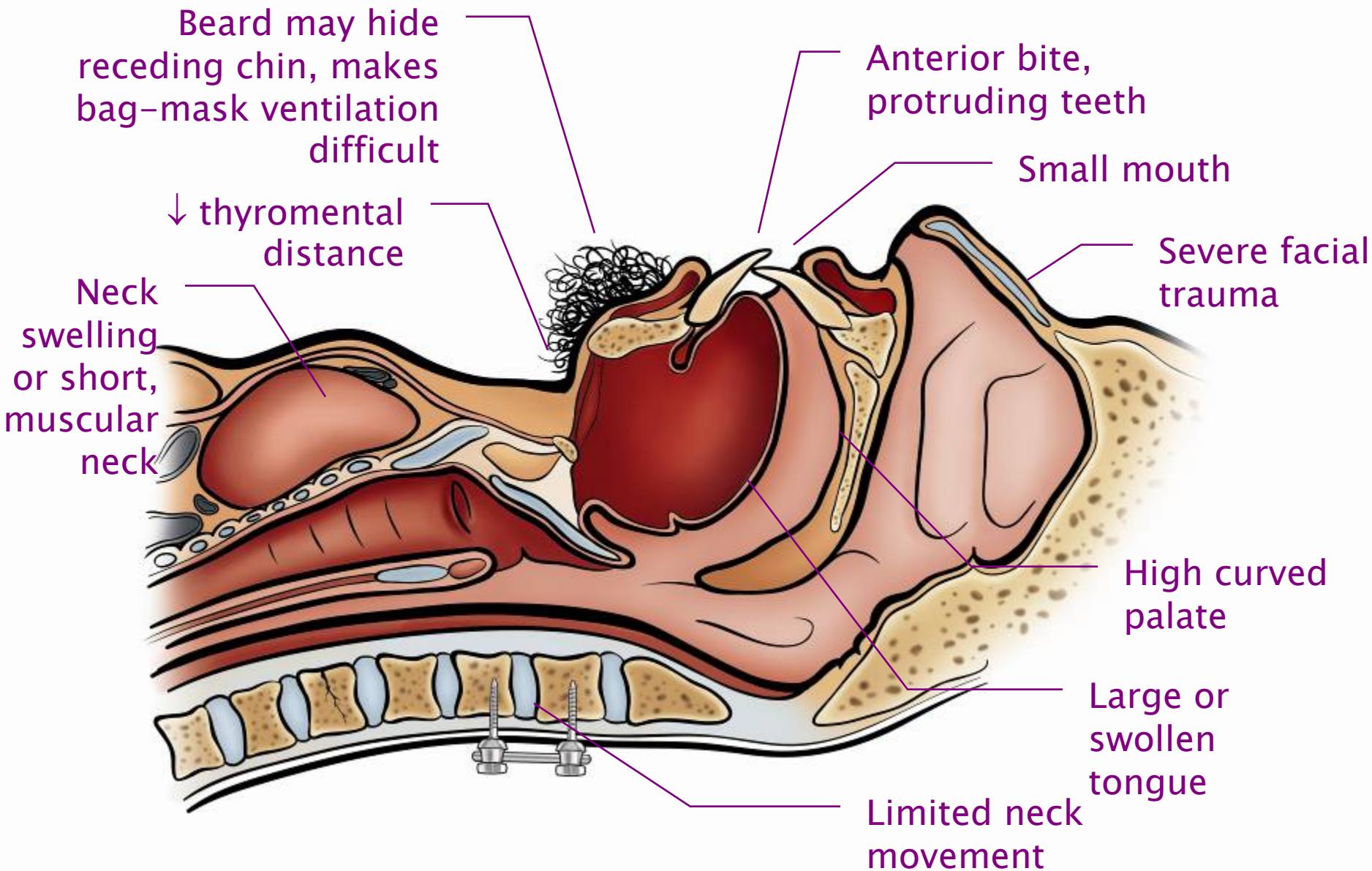
- Hypoxemic respiratory failure
- Hypercapnic respiratory failure
- Patient unlikely to be able to maintain an unobstructed airway
- Airway protection
- Airway suction



Timing

- Indication
 - Severe hypoxia?
 - Airway protection?
- Difficulty
- Your skill





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Obstructing lesion in oropharynx or larynx

- High risk of failure to intubate, failure to ventilate
- Do NOT attempt rapid sequence induction



Anticipated difficult airway

- Call for help immediately while applying basic airway techniques
- High flow oxygen via bag-valve-mask resuscitator
- Make preparations for advanced airway techniques
- Wait for help
- If patient develops complete airway obstruction or cardiorespiratory arrest is imminent, attempt an advanced airway technique
 - Choice of technique is dependent on the situation and your skill in performing the technique



Case

- Decide to go ahead with intubation
- (Inform patient)



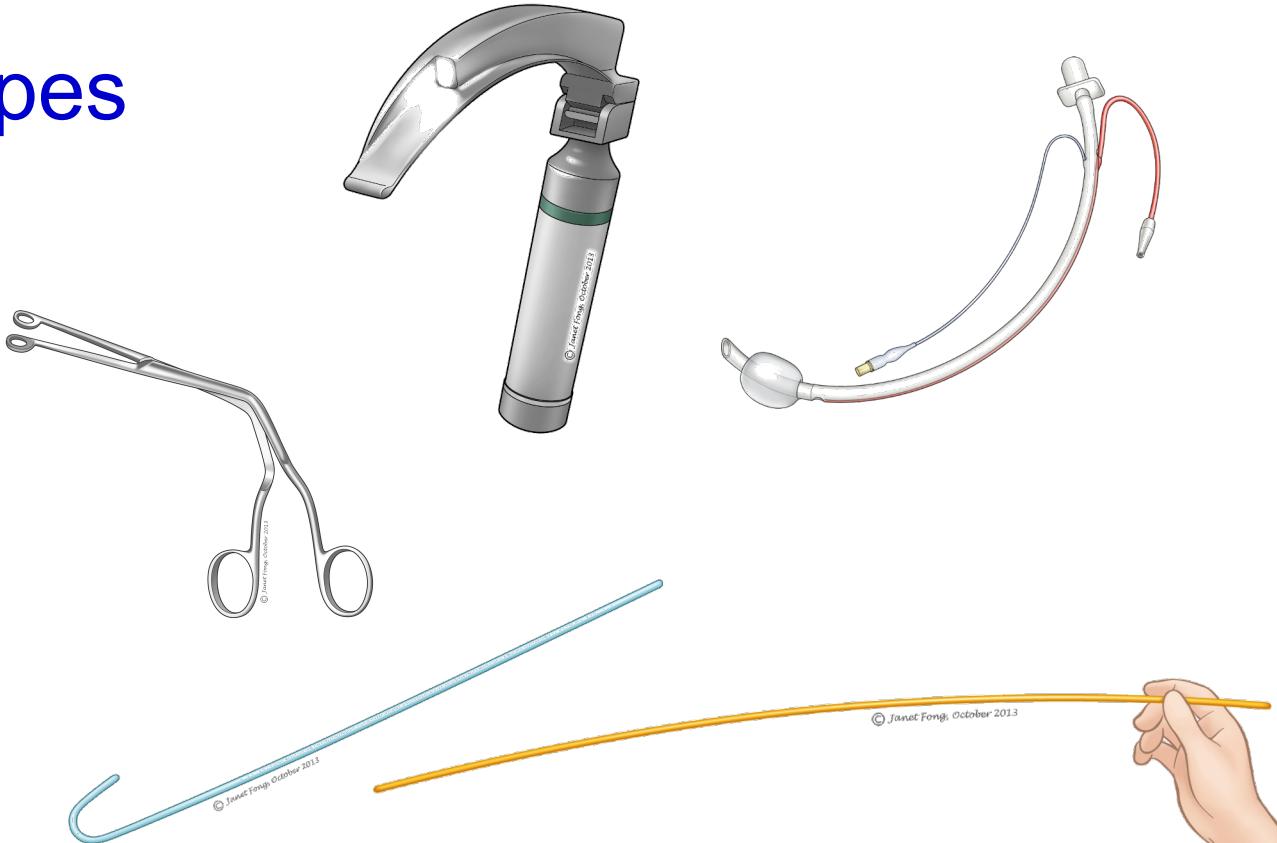
Prepare

- Equipment
 - Intubation equipment
 - Monitoring
 - Suction
 - Bag-mask resuscitator
 - Artificial airway
- Does the equipment work?



Intubation equipment

- Laryngoscopes
 - Blades
- ETTs
- Forceps
- Stylet
- Syringe



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Laryngoscope



To lift tongue
and epiglottis

To move tongue to left

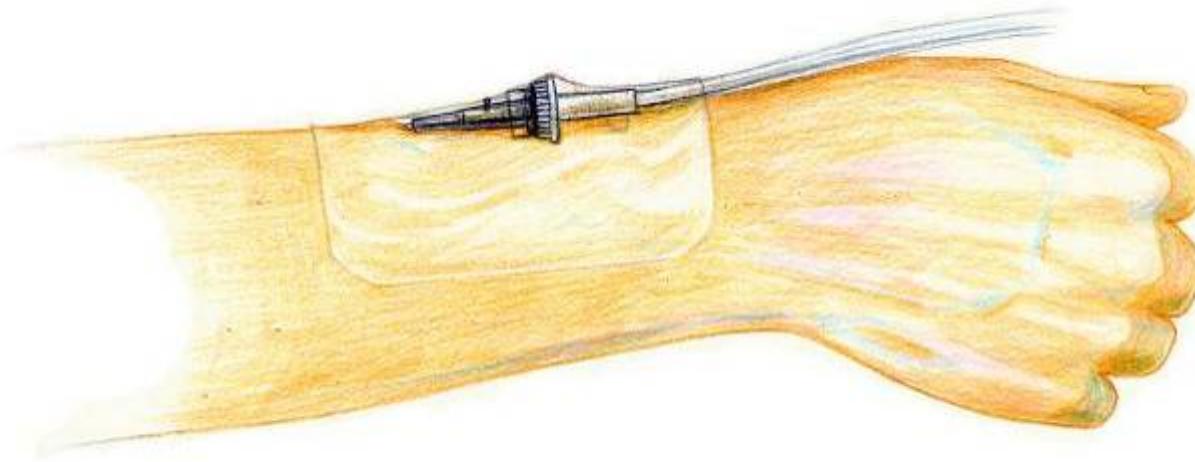


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Drugs

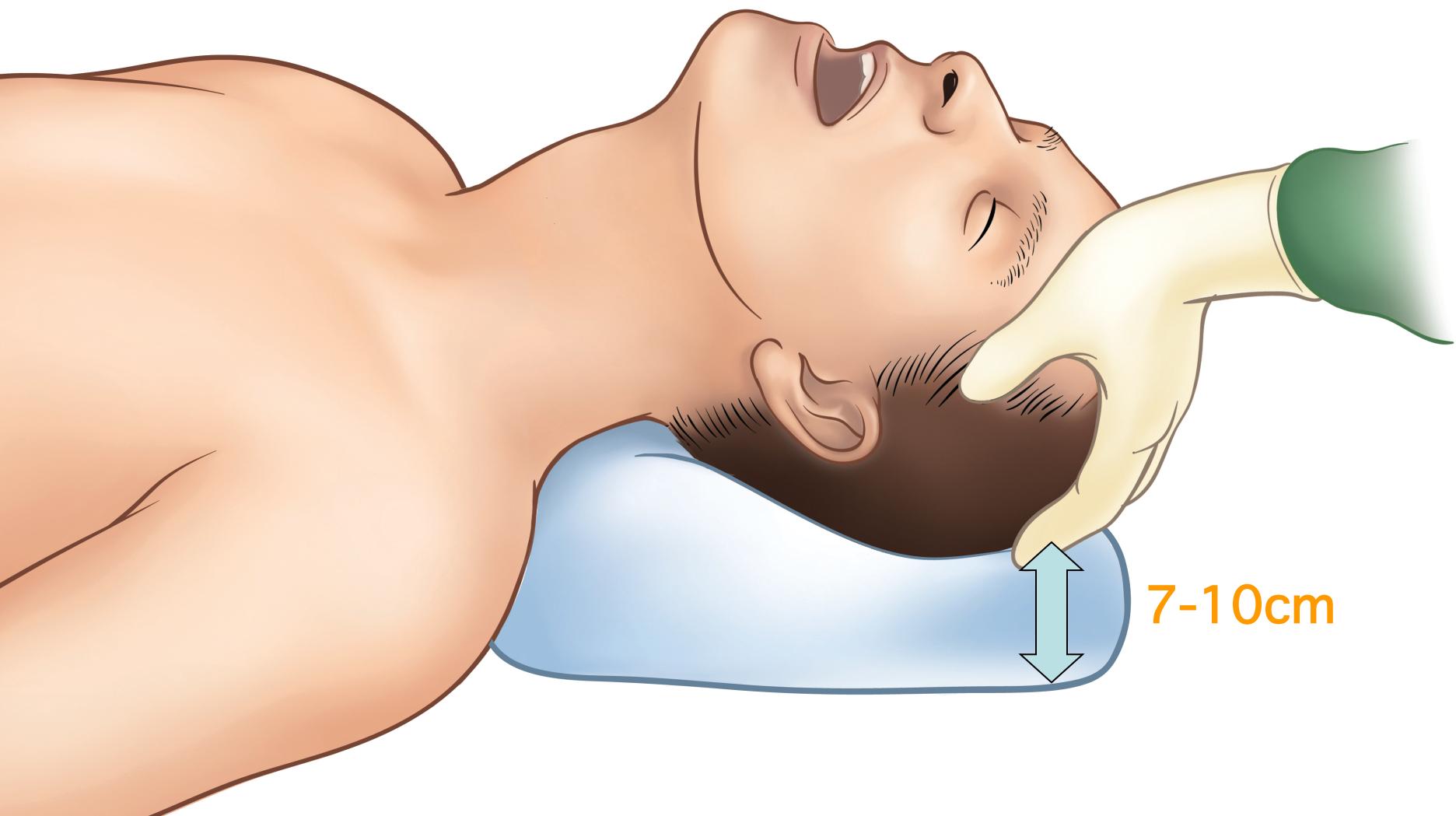
- Induction agent
- Muscle relaxant
- Oxygen
- Sedative
- Resuscitation drugs
- Fluids





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Preparation



7-10cm

People

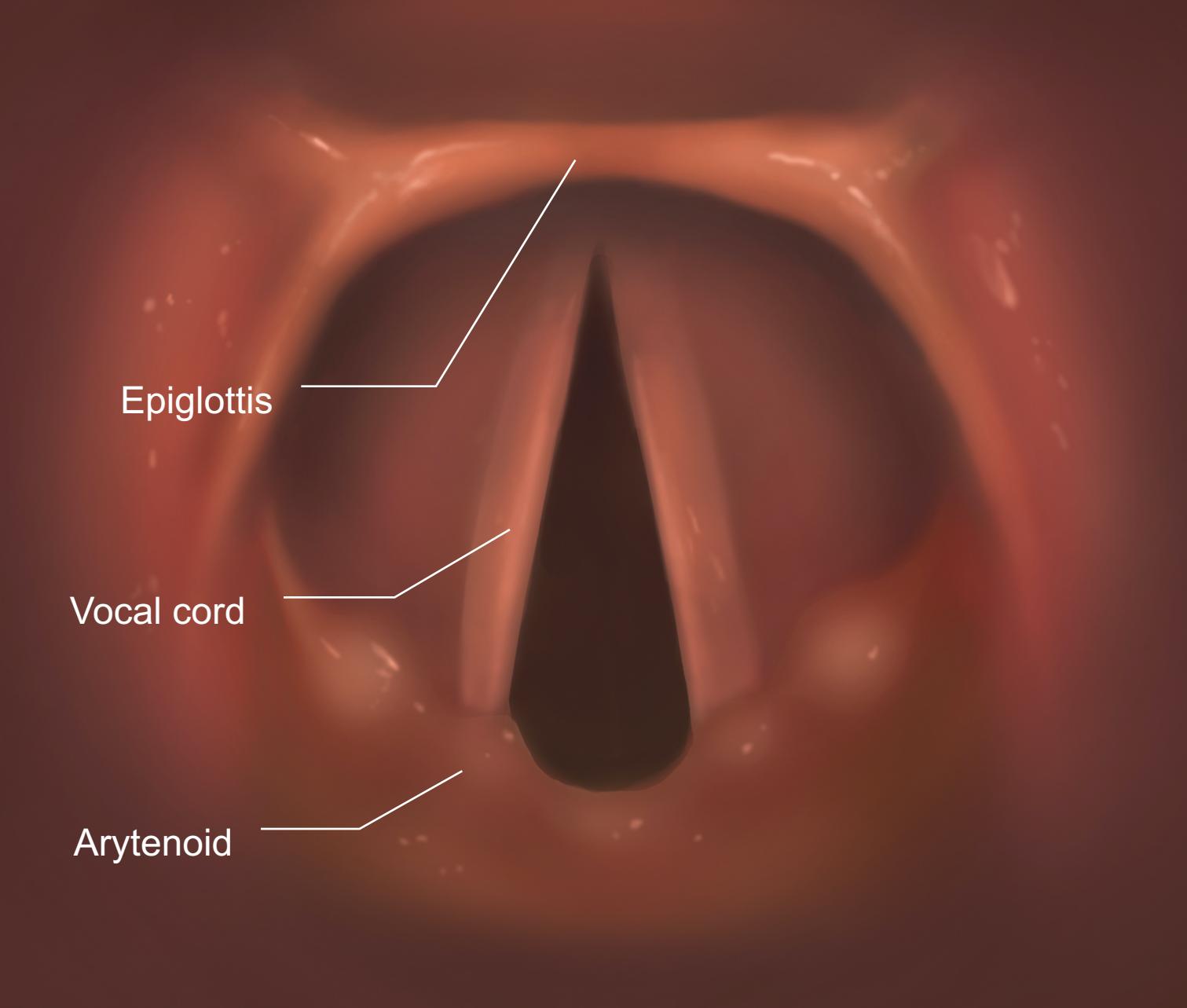
- Clear roles
 - Drug administration
 - What
 - How much
 - When
 - Equipment
 - Cricoid pressure
 - No other role



Hypnosis and Muscle Relaxants

- Only if required
- Must be confident of being able to maintain and control the airway
- Be careful of suxamethonium side-effects, Rocuronium is an alternative, but is long acting





A close-up, reddish-pink image of the larynx. An endotracheal tube is inserted through the glottis. The epiglottis is visible as a small, triangular flap above the vocal folds. The vocal folds are shown as two dark, vertical bands. The arytenoid cartilages are located at the base of the vocal folds. A white line points from the label "Epiglottis" to the epiglottis, another line points from "Vocal cord" to the left vocal fold, and a third line points from "Arytenoid" to the base of the vocal folds.

Epiglottis

Vocal cord

Arytenoid



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Rapid Sequence Intubation

- Pre-oxygenate
- Cricoid pressure
- Pre-determined boluses of drugs
- Avoid ventilation if possible*
- Intubate immediately
- Release cricoid pressure when tube position confirmed



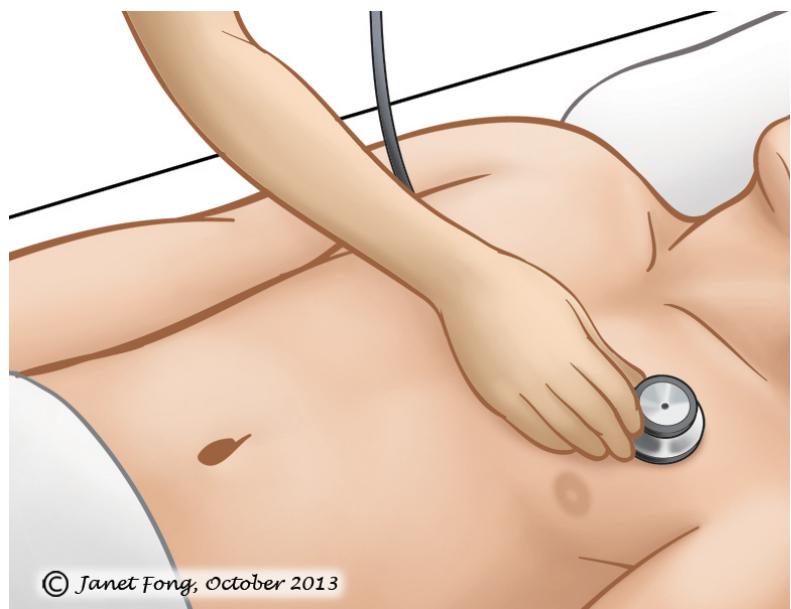
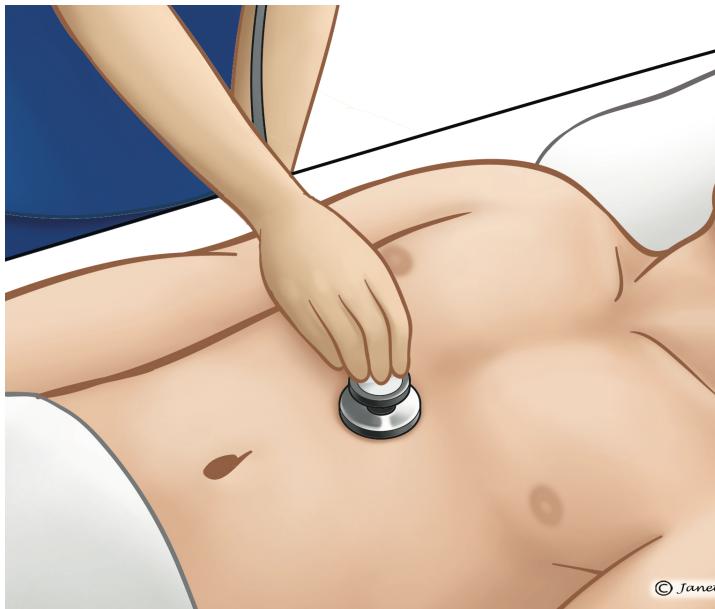
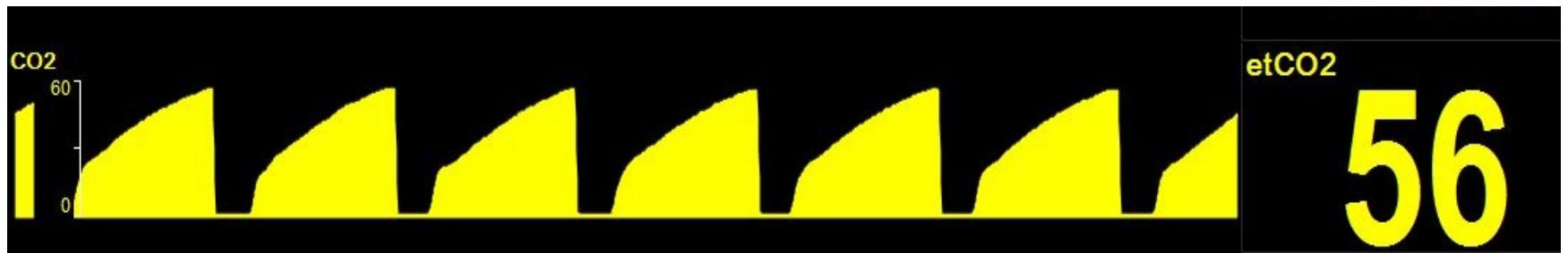
Cricoid pressure





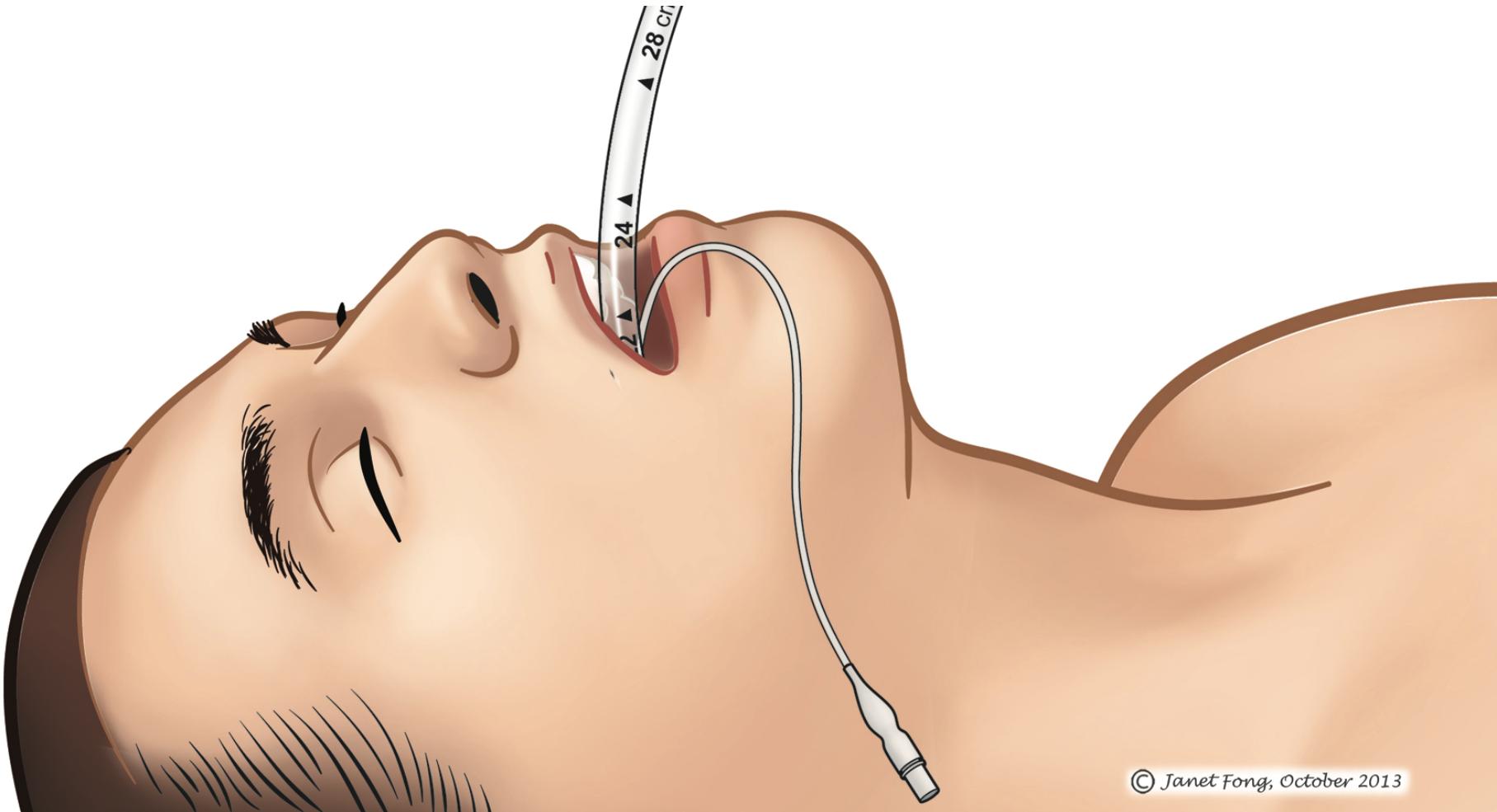
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Confirm tube position



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Correct depth

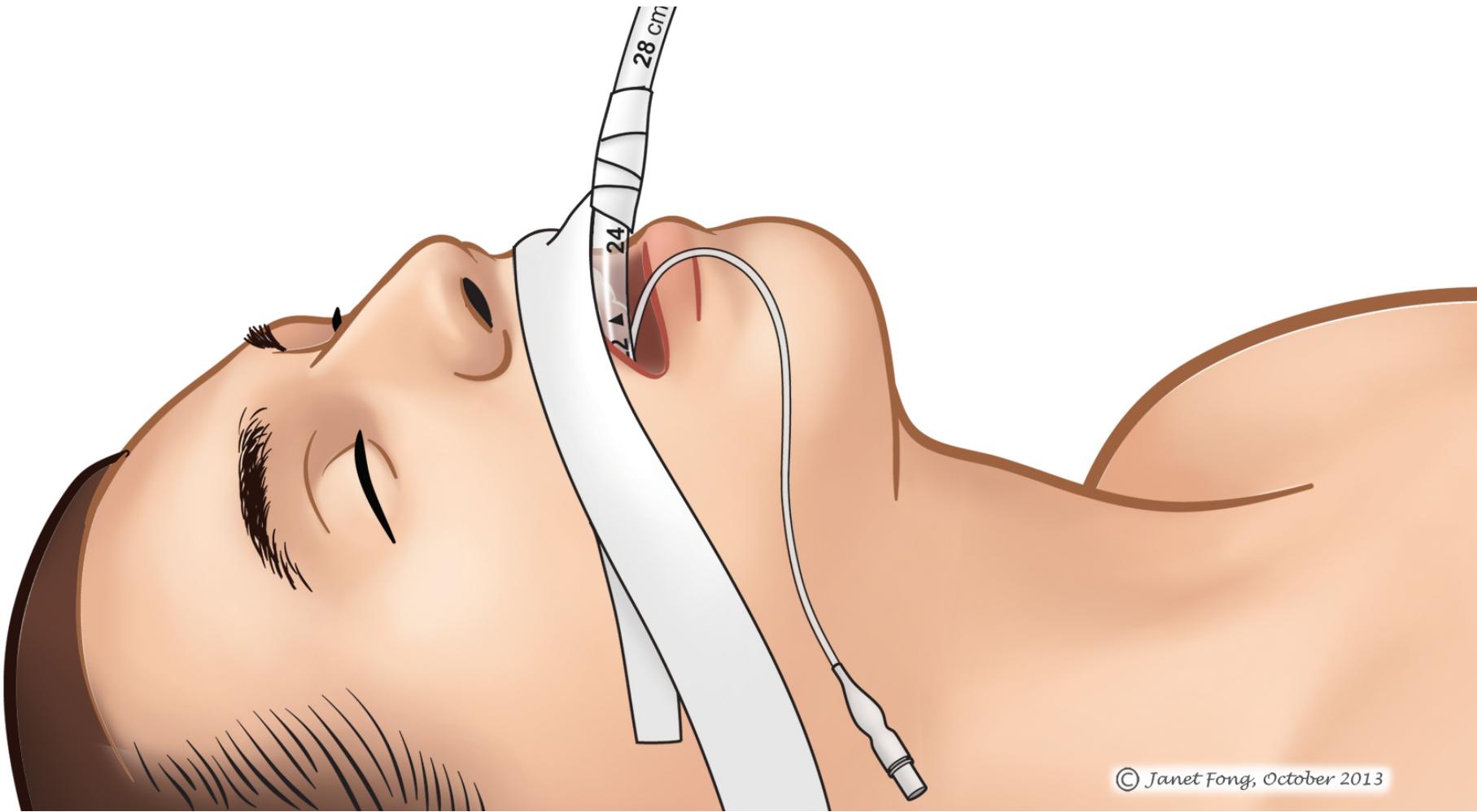


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Secure the tube



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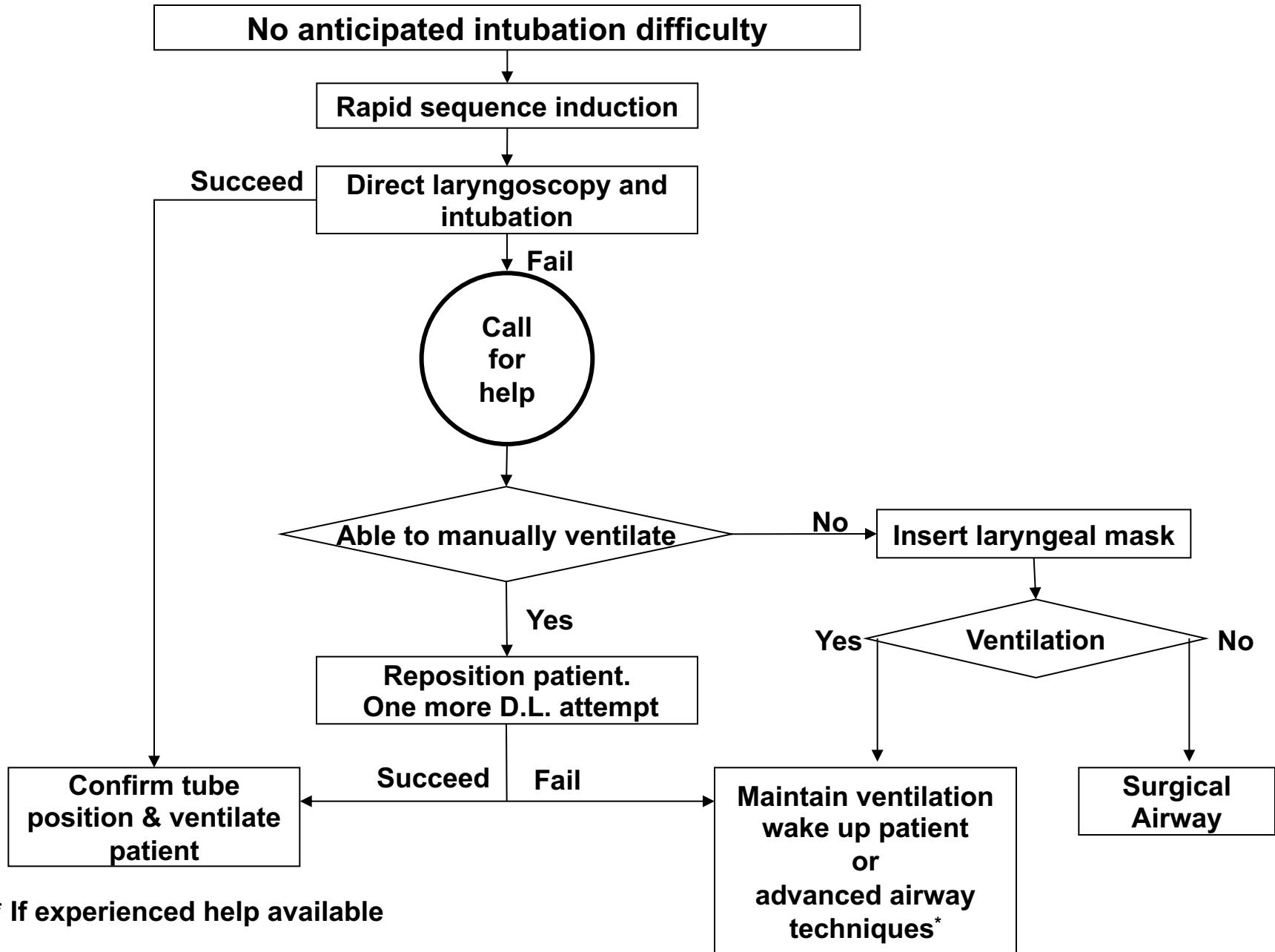


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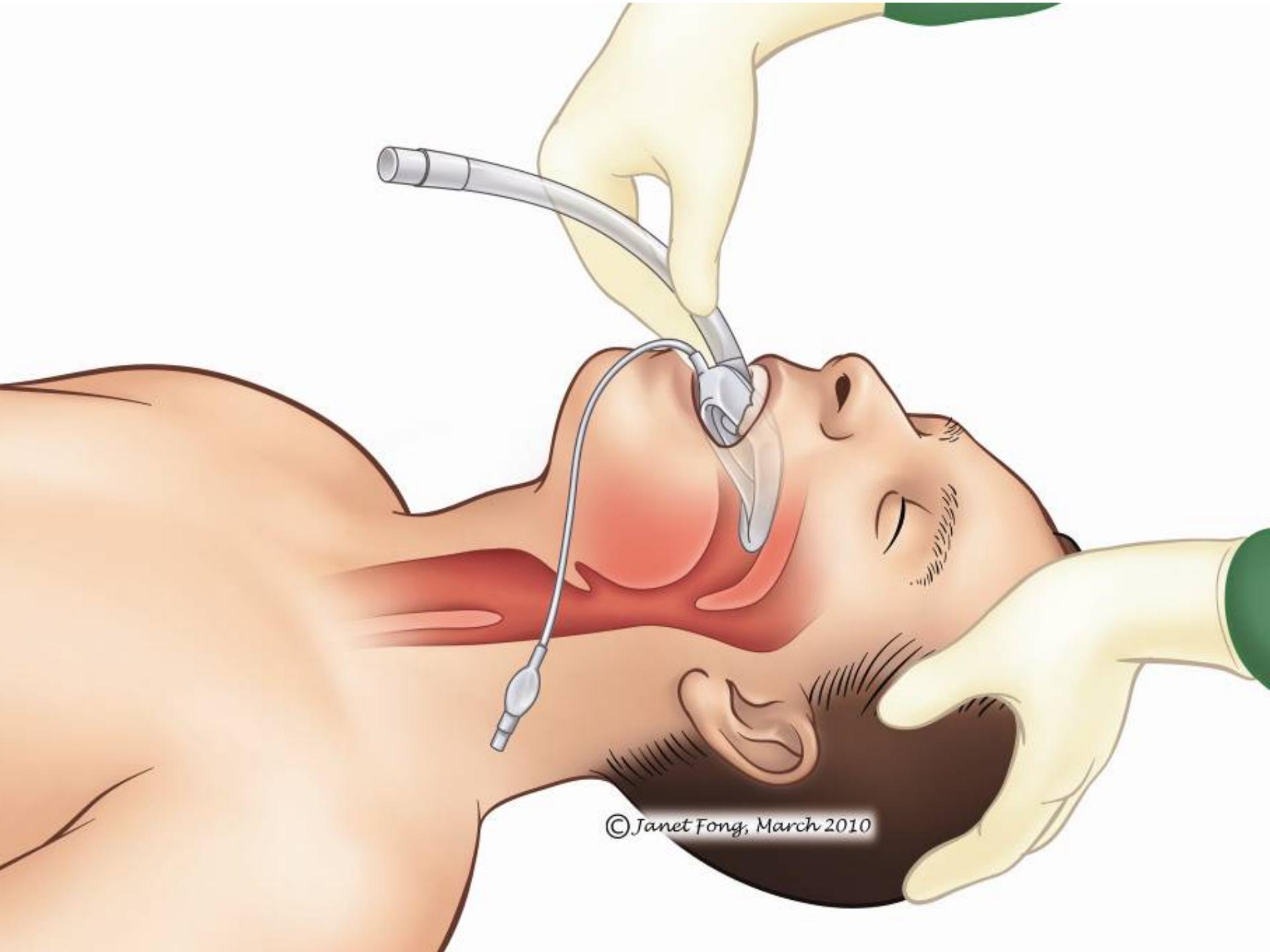
Failed Intubation

- Risk of failure about 1-5%
- Consequences of hypoxia potentially catastrophic
- Have a plan

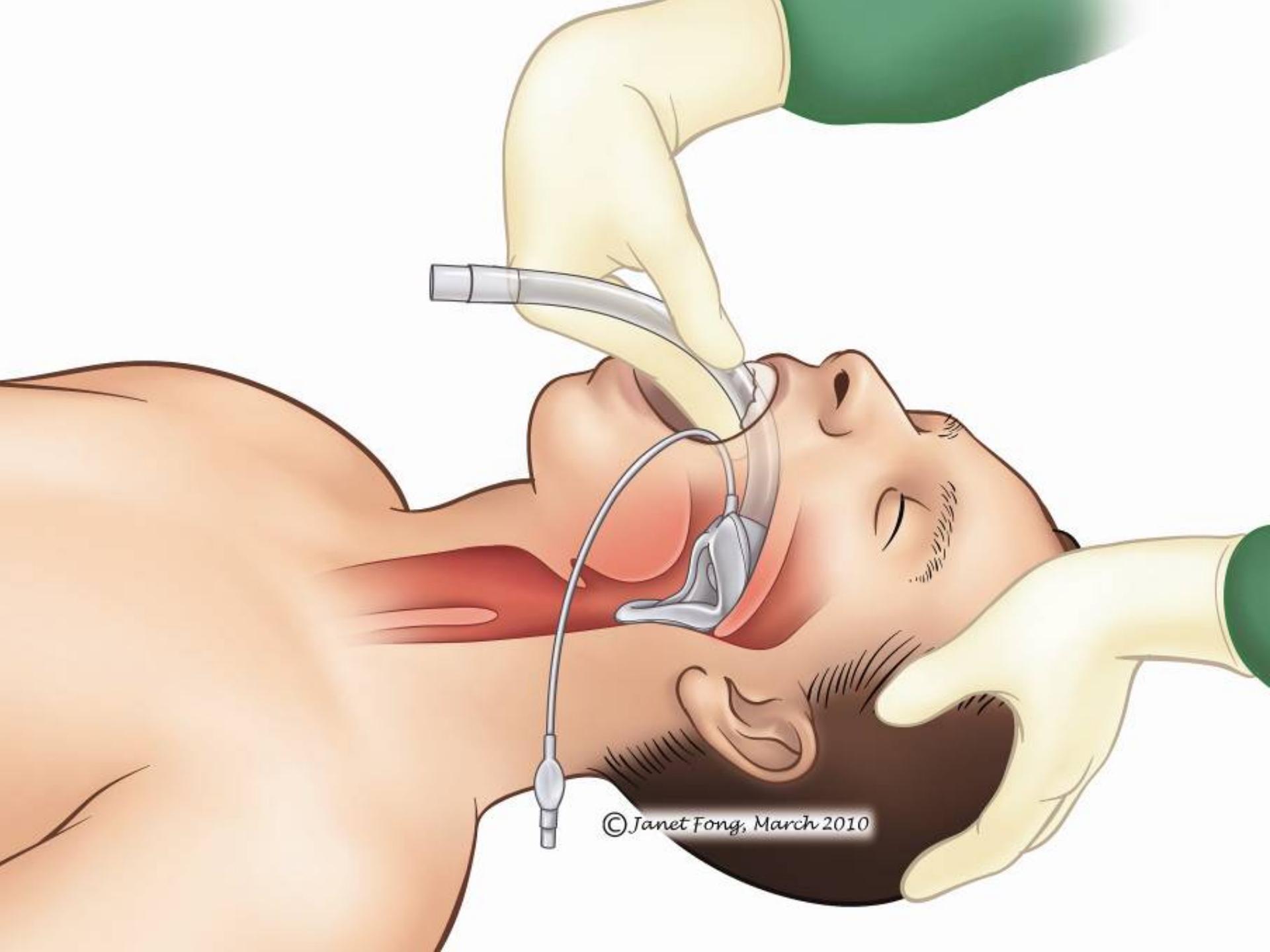




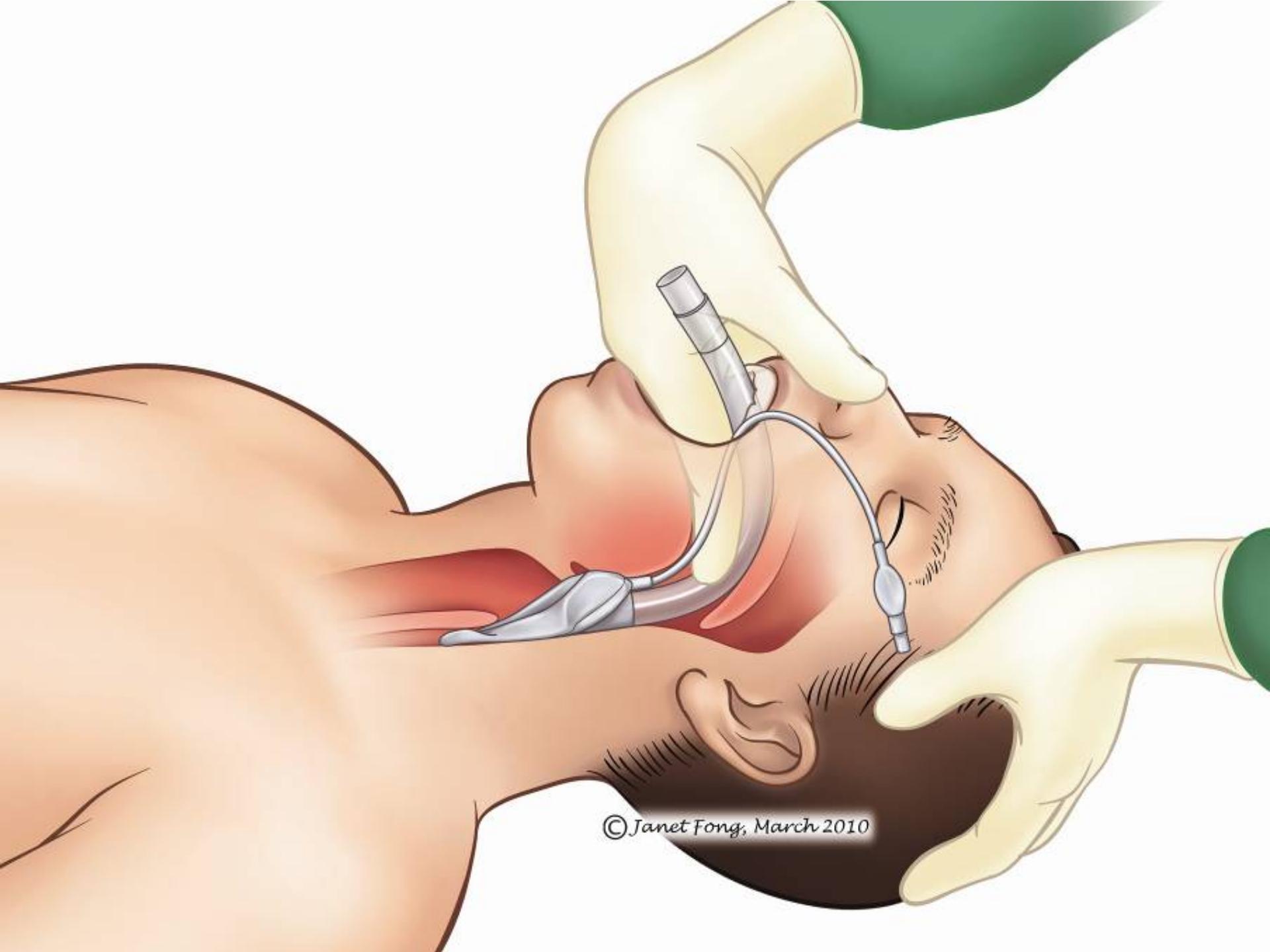
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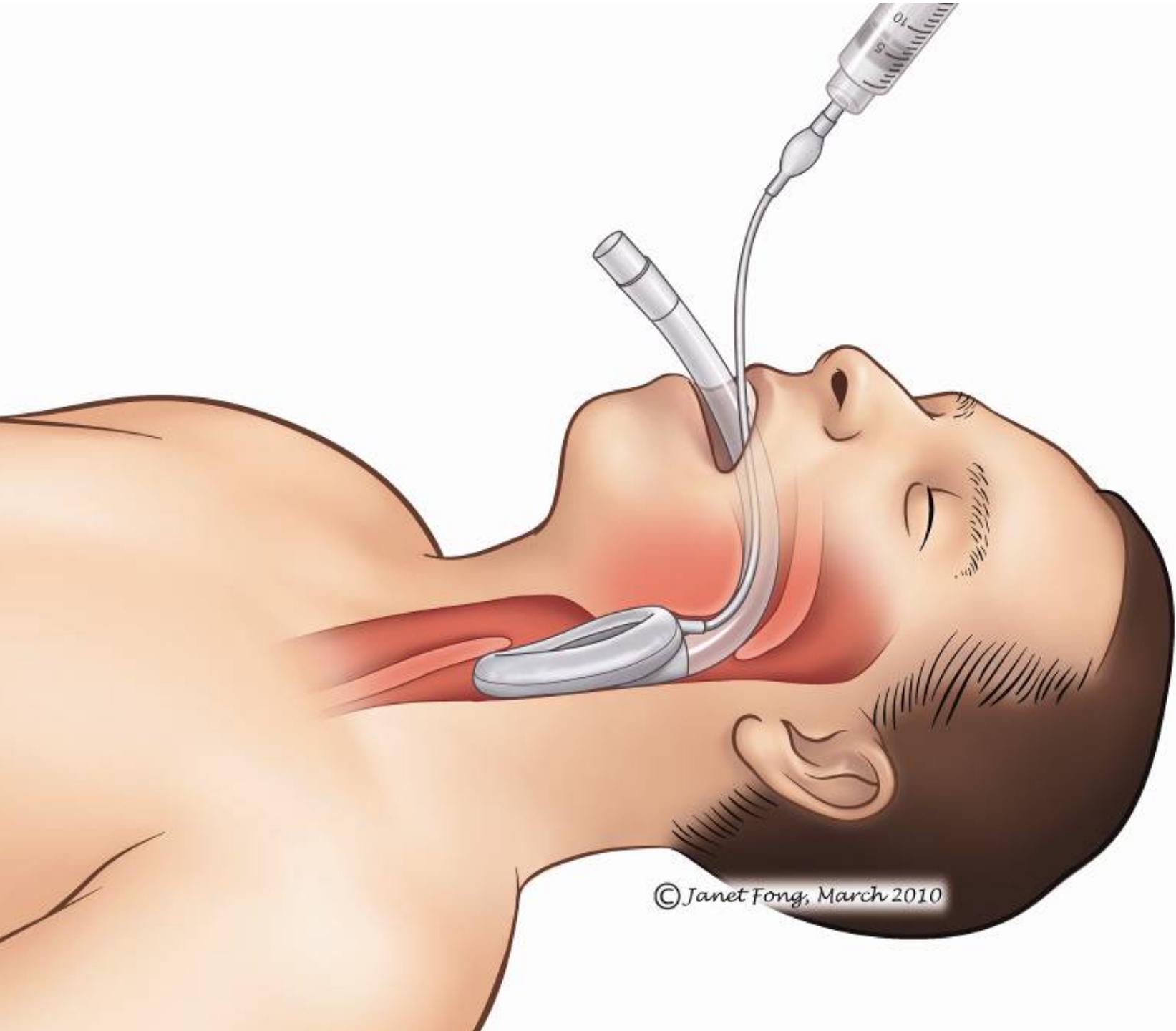
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Summary

- Maintaining airway is a life saving skill
- Timing of intubation depends on:
 - Indication
 - Difficulty
 - YOUR skill
- Appropriate preparation of equipment, drugs, personnel, patient

