



In the name of God

Air way management

By:

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OBJECTIVES

Review aims of airway management

Review airway anatomy

Review airway examination

Review basic airway maneuvers

Review blind insertion airways

Review advanced airway techniques



AIRWAY ANATOMY

Upper Airway

- ▣ Pharynx
- ▣ Epiglottis
- ▣ Glottis
- ▣ Vocal cords
- ▣ Larynx

Lower Airway

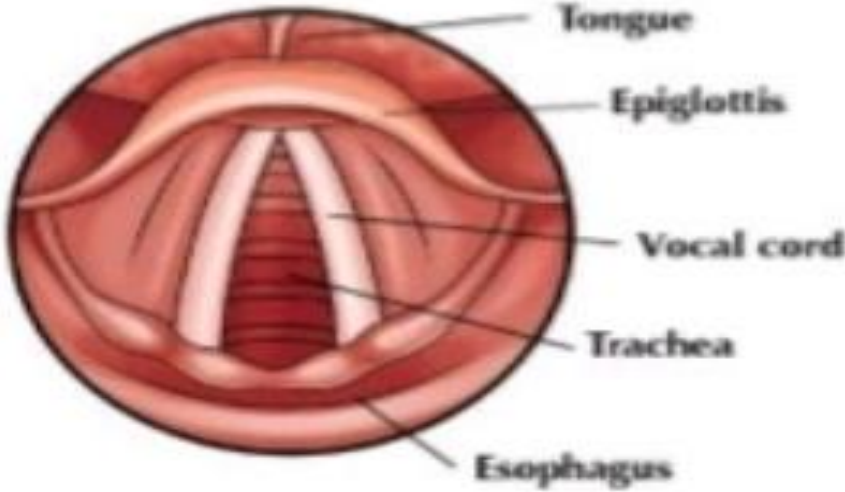
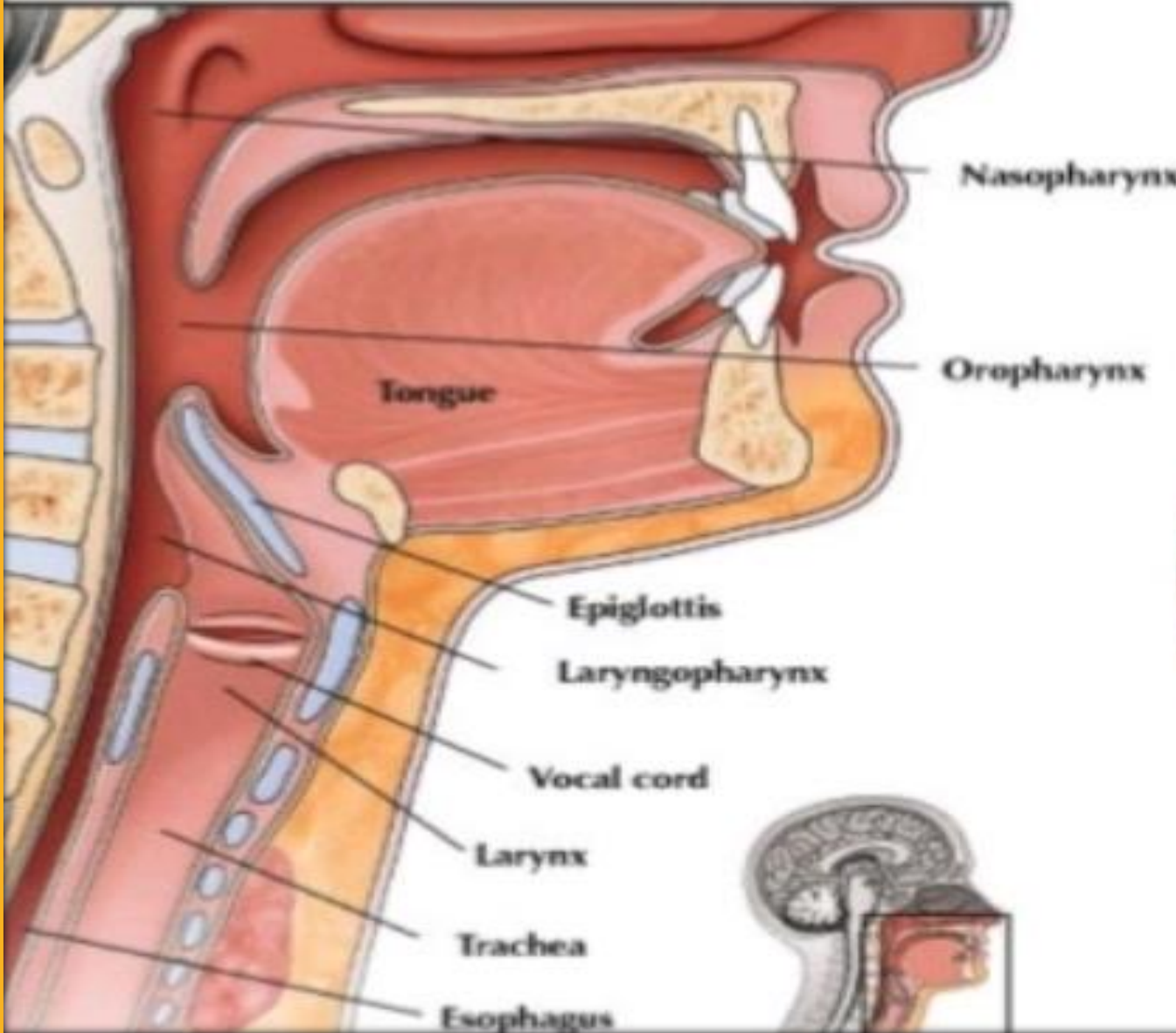
- ▣ Trachea
- ▣ Bronchi
- ▣ Alveoli
- ▣ Lung tissue, consisting of lobes and lobules (3 on the right and 2 on the left)
- ▣ Pleura



UPPER AND LOWER AIRWAYS

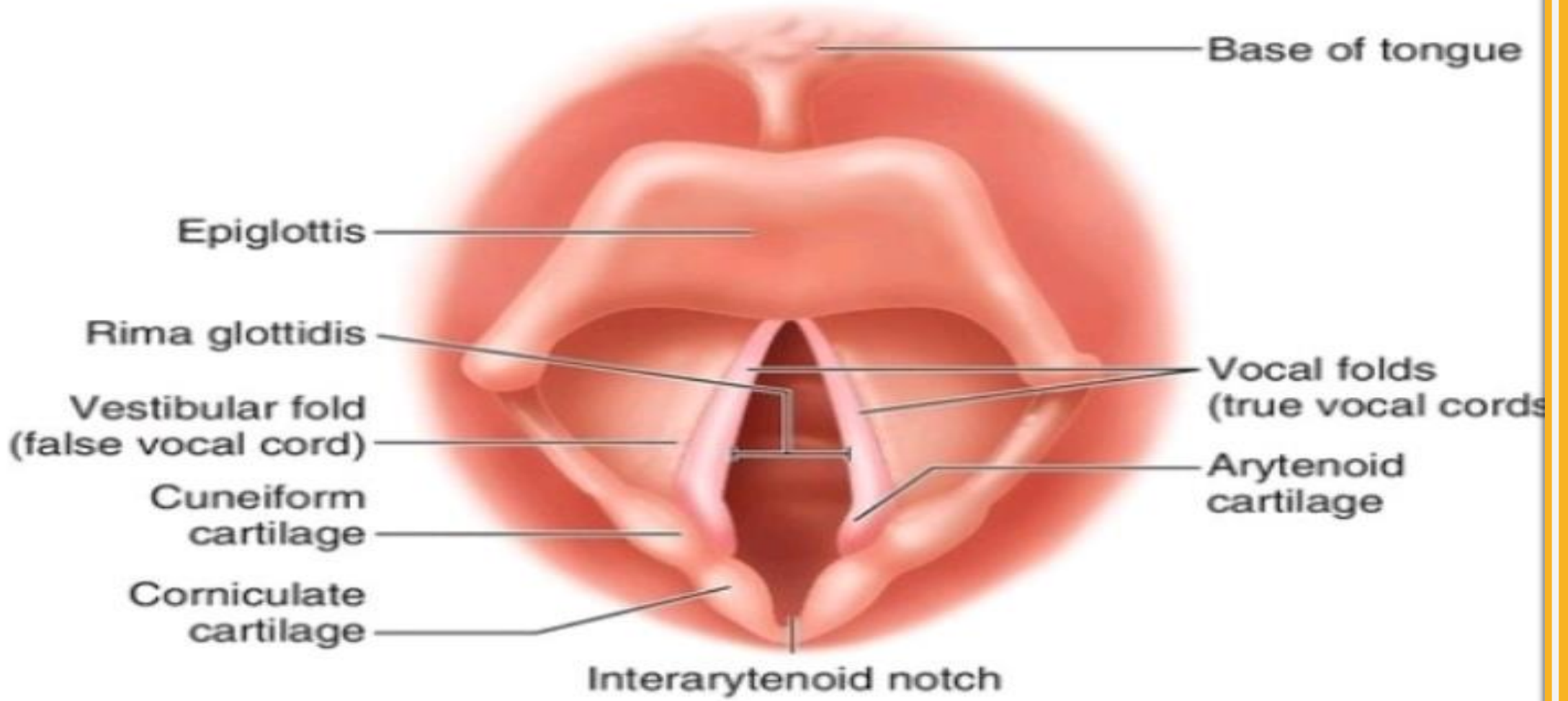


ANATOMY OF THE LARYNX

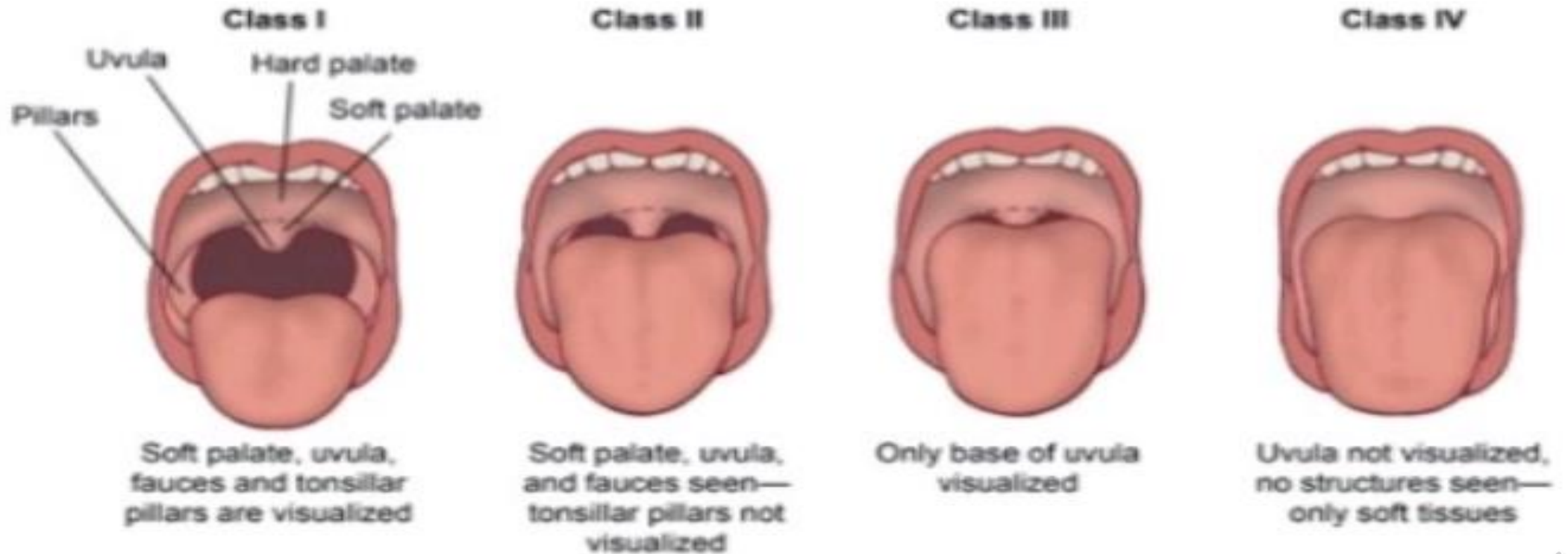


LARYNGOSCOPIC VIEW





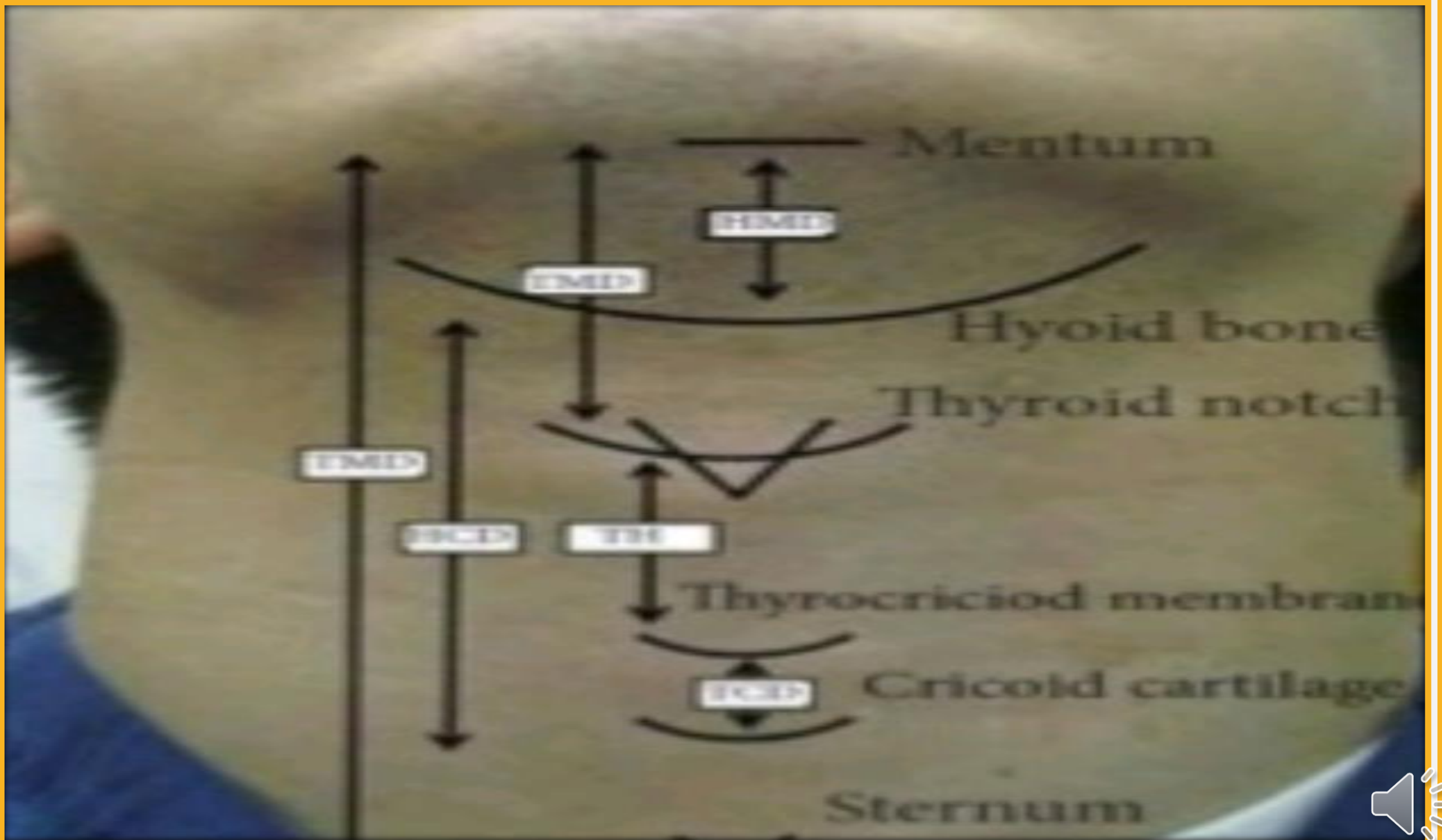
MALLAMPATI SCORE



TMD

Thyromental distance
Tip of thyroid cartilage to the
tip of the chin (mentum)





CORMACK & LEHANE GRADING

Grade I



Grade II



Grade III



Grade IV



- I Visualisation of the entire glottic aperture
- II Visualisation of just arytenoid cartilages (cuneiform and corniculate) or posterior portion of glottic aperture
- III Visualisation of epiglottis only
- IV Visualisation of tongue or of tongue and soft palate only



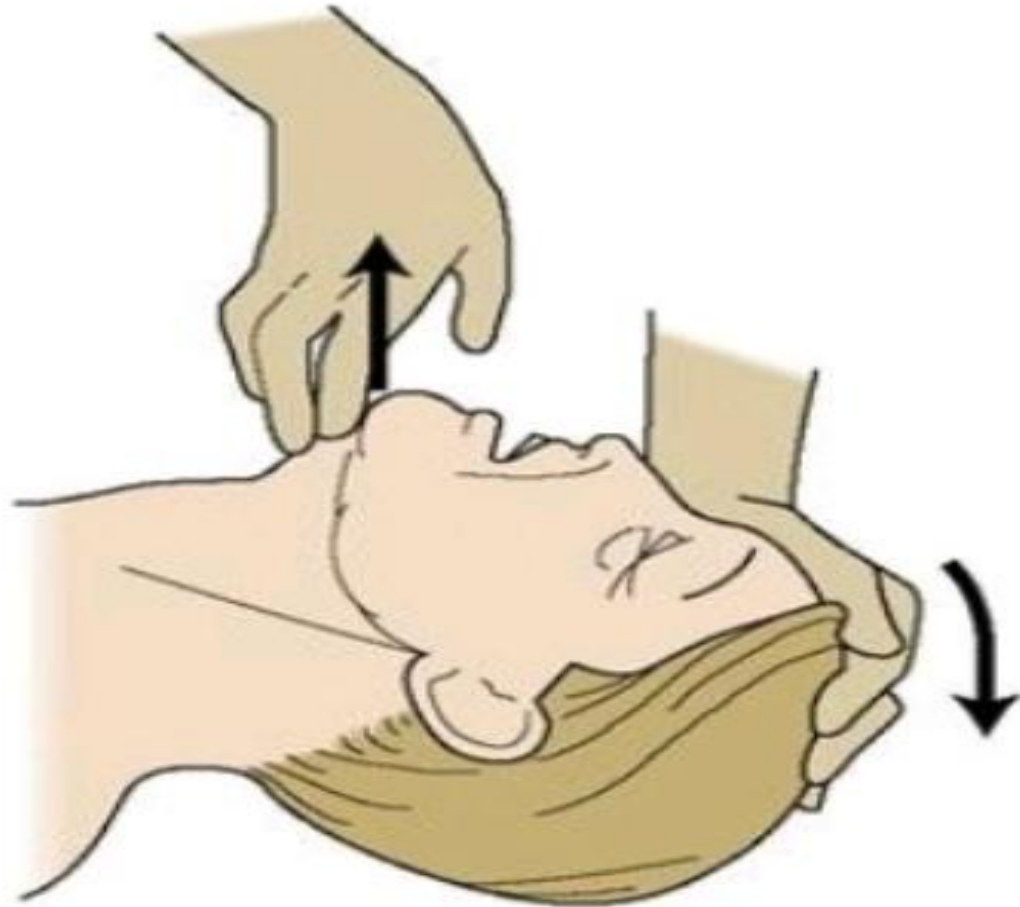
BASIC AIRWAY MANEUVERS

ALWAYS REMEMBER THE BASICS

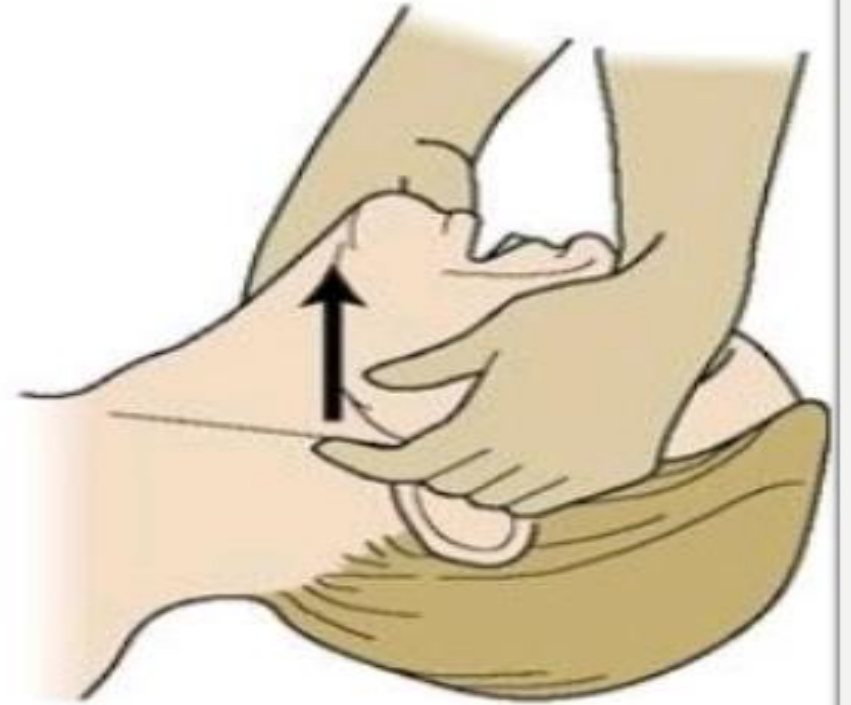
These skills should be used prior to initiating any advanced airway technique

- ▣ Head-tilt/chin lift
- ▣ Jaw thrust
- ▣ Modified jaw thrust (for trauma patients)
- ▣ Sellick's maneuver



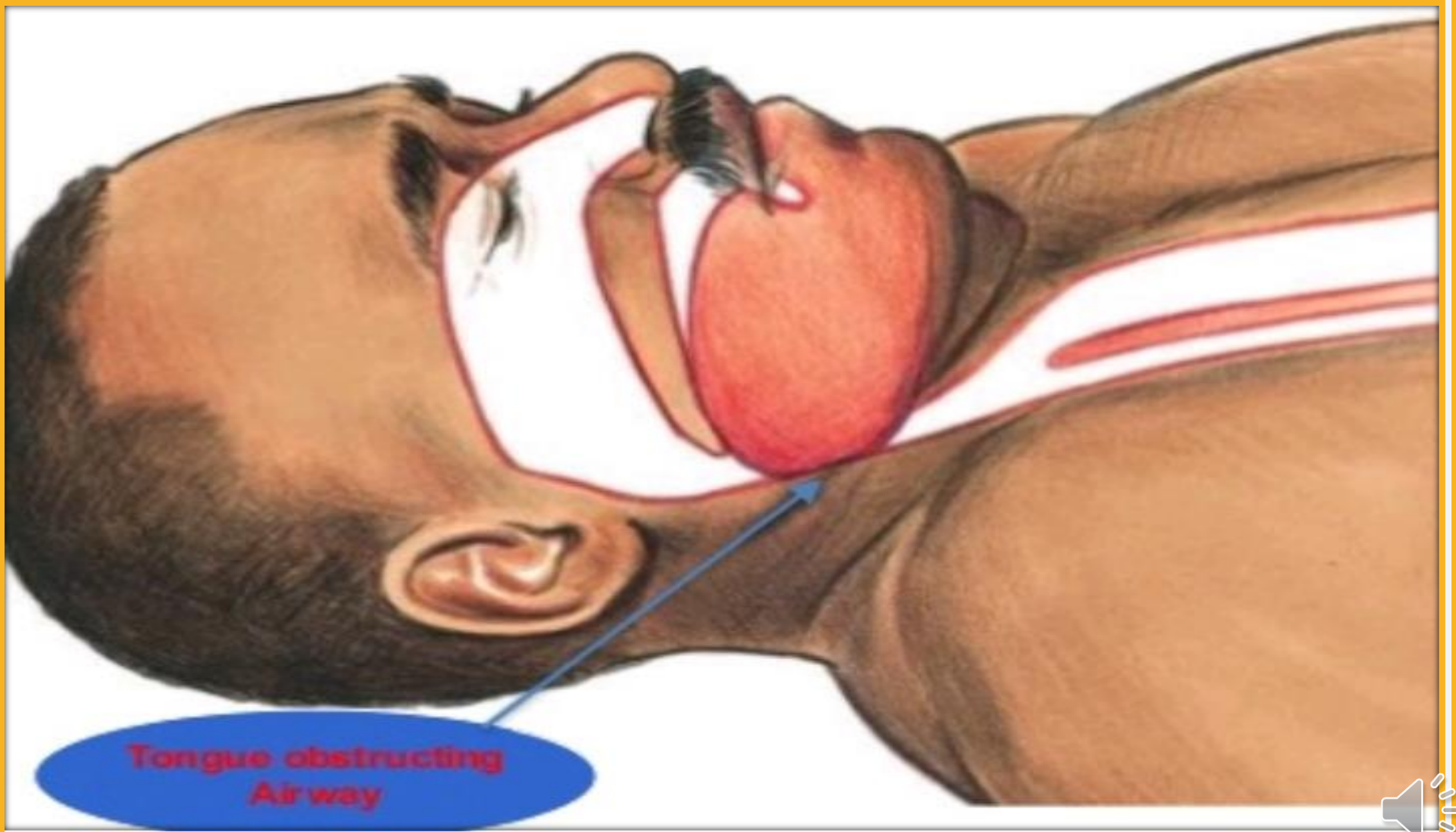


Head tilt–chin
lift maneuver



Jaw-thrust
maneuver



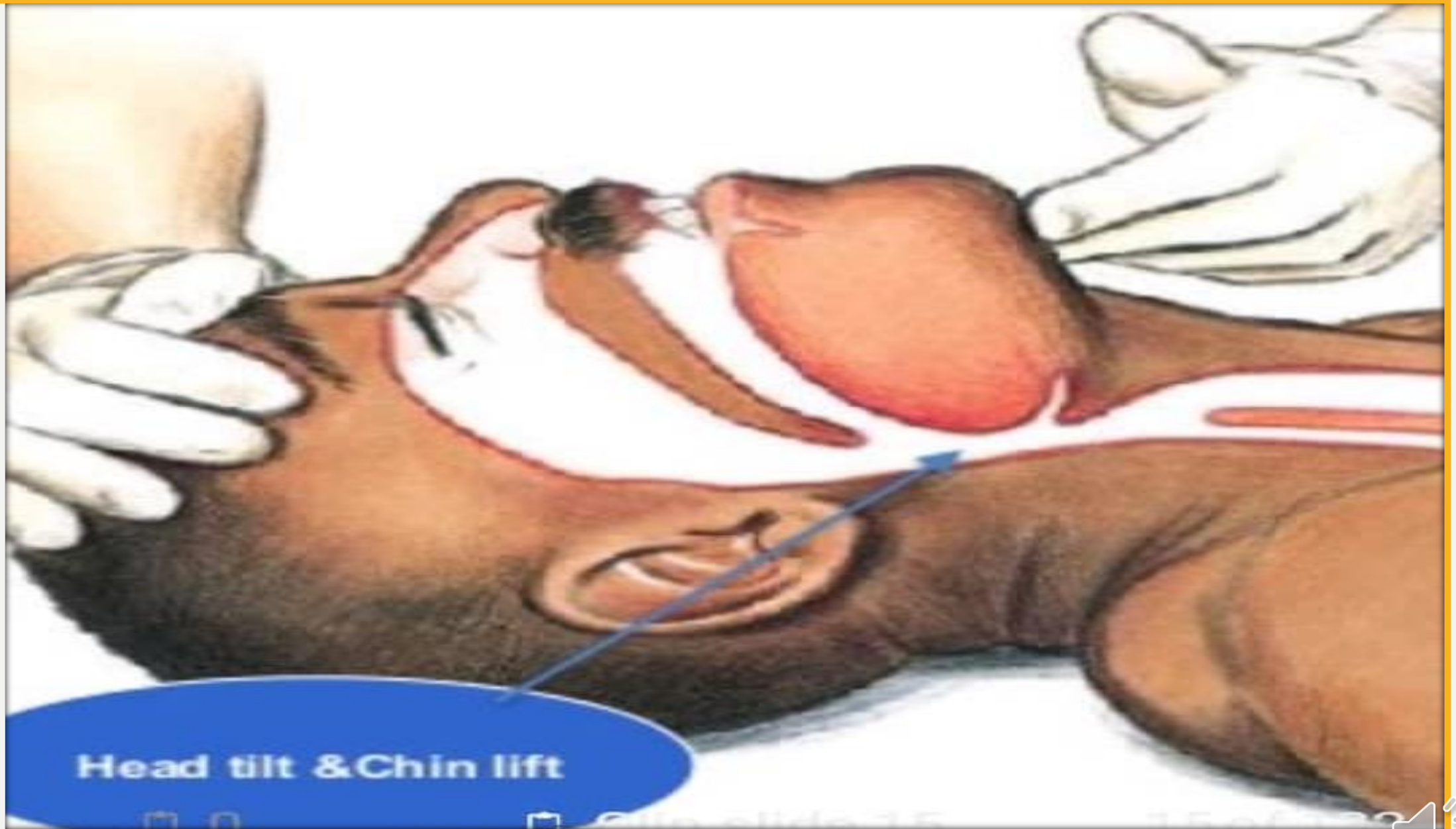


**Tongue obstructing
Airway**



Jaw thrust





Head tilt & Chin lift



Slide 9/15

15/03/2020



Trauma ?

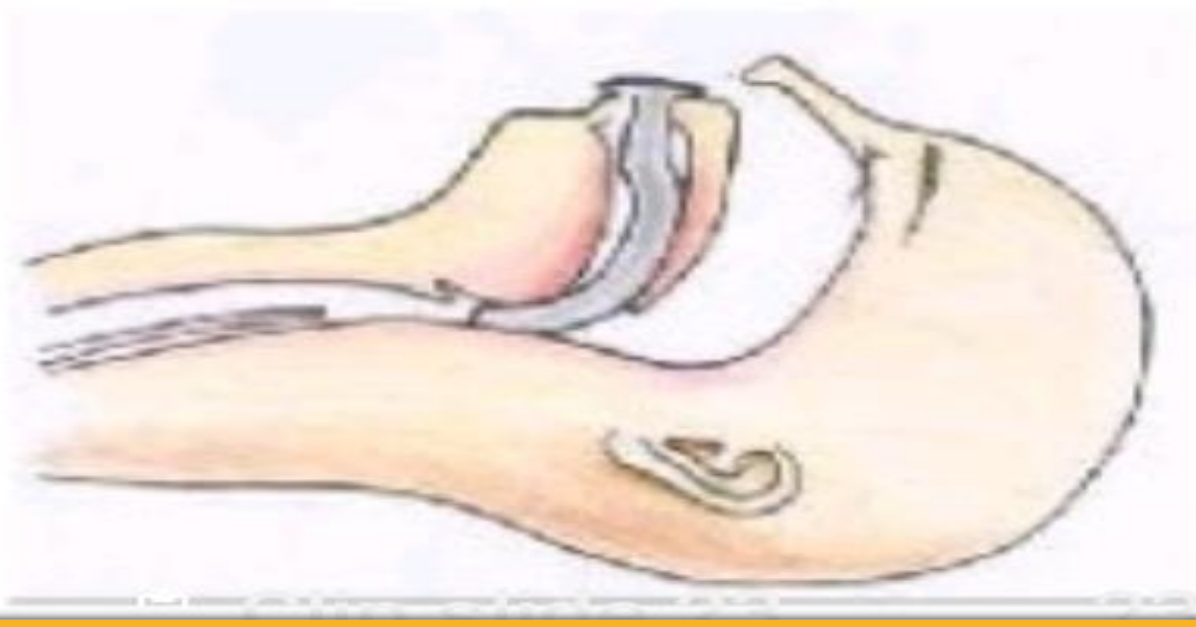
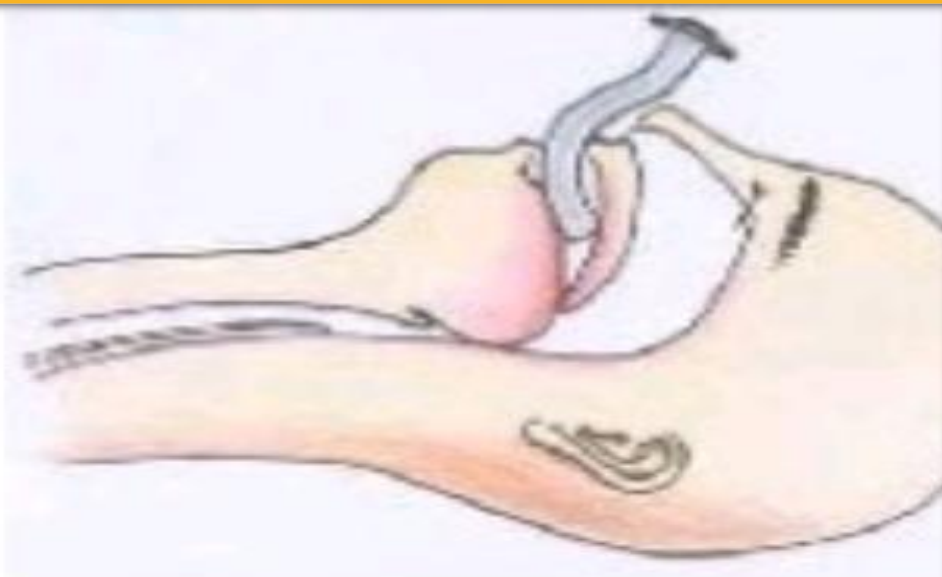


OPA



Sizing - oropharyngeal airway





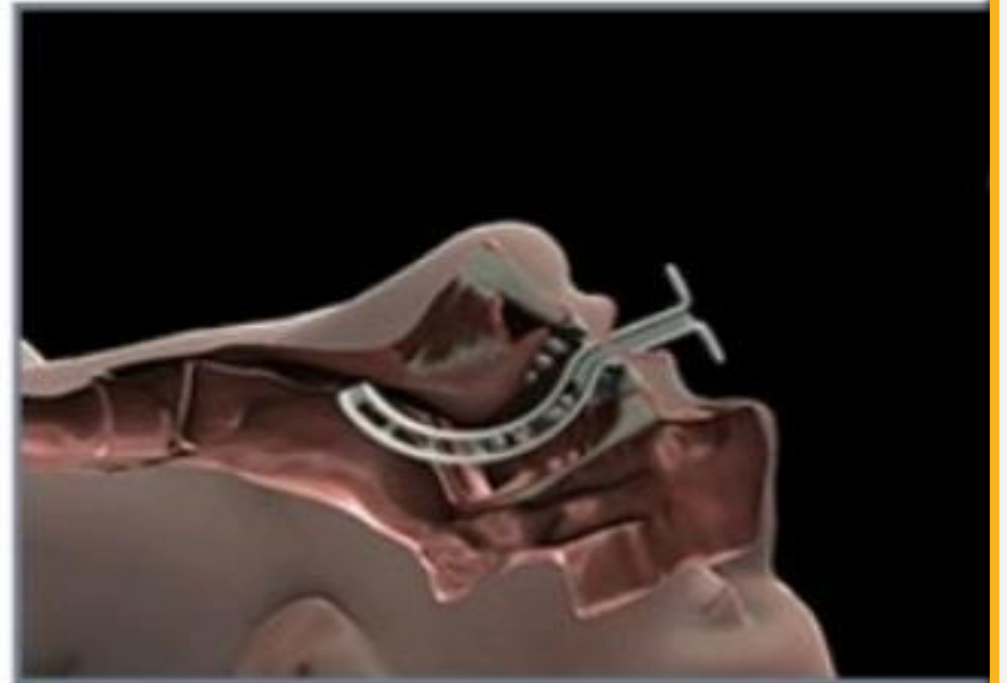
ORAL AIRWAY INSERTION TECHNIQUE



ORAL AIRWAY CONTINUED

The oral airway is inserted with the curve towards the side of the mouth

Then rotated so that the curve of the airway matches the curve of the tongue



- OPA is not tolerating ?
- Airway reflexes retained ?
- Inability to open mouth ?

NPA





N
P
A



AIMS OF AIRWAY MANAGEMENT

Airway management in critical situations (life support)

Airway management in elective cases (surgical purposes)



Recognize Adequacy of Ventilations



Pulse oximeter



Approximate Blood oxygen level

- SpO₂ 100% = PaO₂ 100mm of Hg
- SpO₂ 90%= PaO₂ 60mm of Hg
- SpO₂ 60%= PaO₂ 30mm of Hg
- SpO₂ 50%= PaO₂ 27mm of Hg



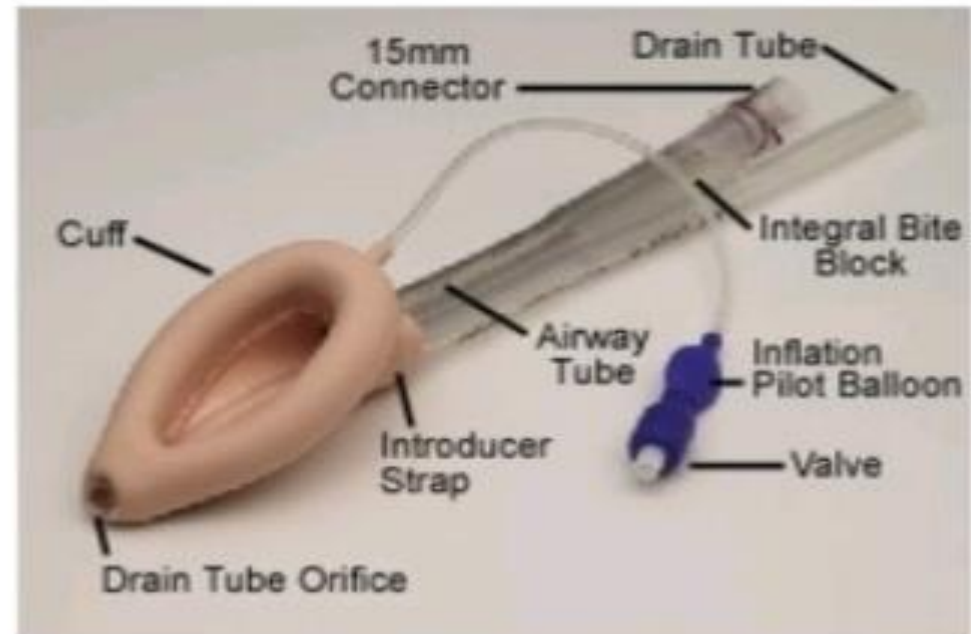
LARYNGEAL MASK AIRWAY

Sits over the glottic opening

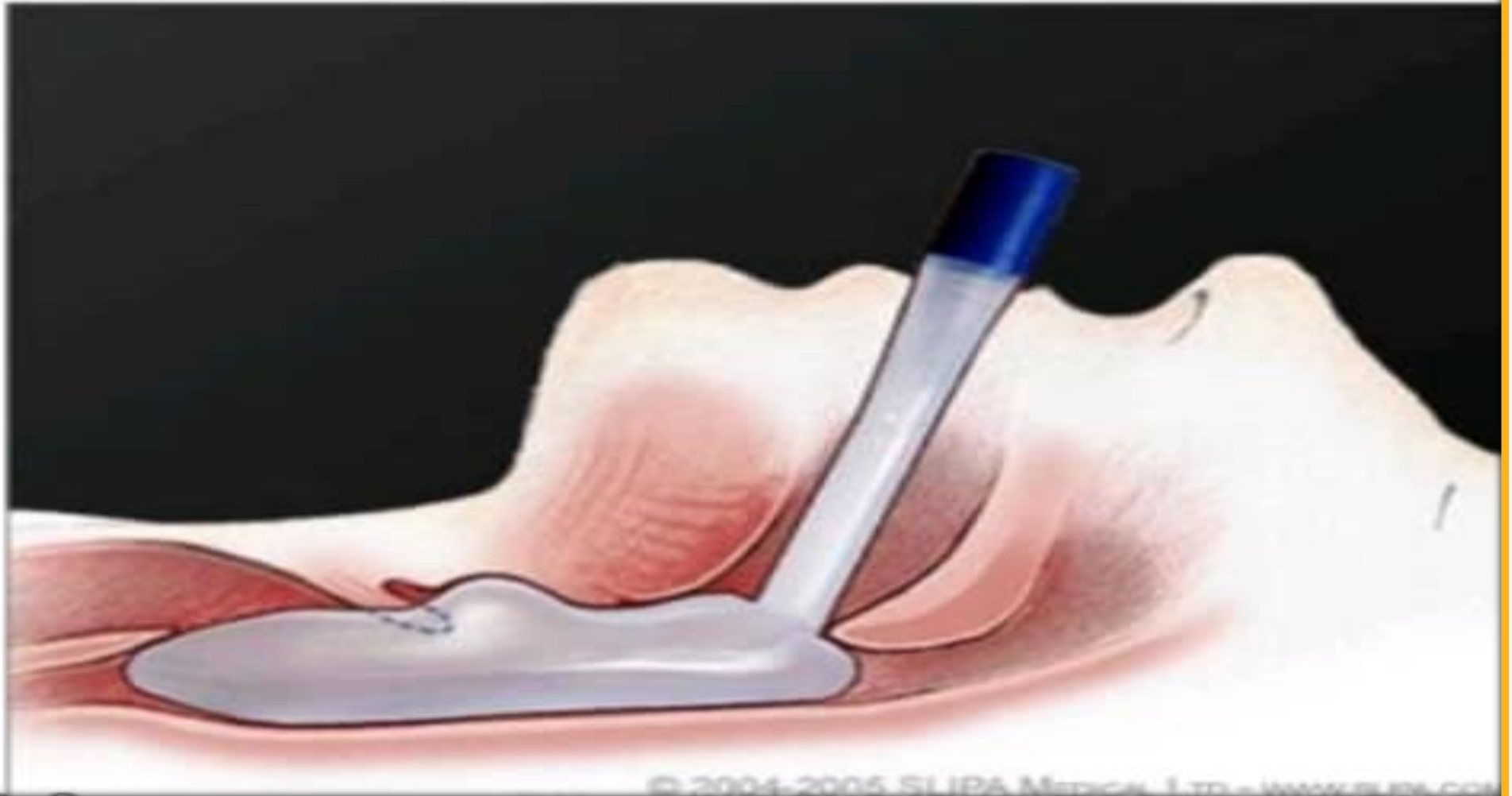
Available in different sizes

Has a drain tube to aid in gastric suctioning

With some versions an endotracheal tube may be passed through to aid in intubation



LMA POSITIONING



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LMA- Sizes

Size	Description	Weight
1	Neonates	Upto 5 Kg
1 ½	Pediatric	5 - 10 Kg
2	Infant	10 - 20 Kg
2 ½	Child	20-30 Kg
3	Large child/ Small Adult	30 - 50 Kg
4	Adult	50 - 70 Kg
5	Adult	> 70 Kg

Clip slide 102

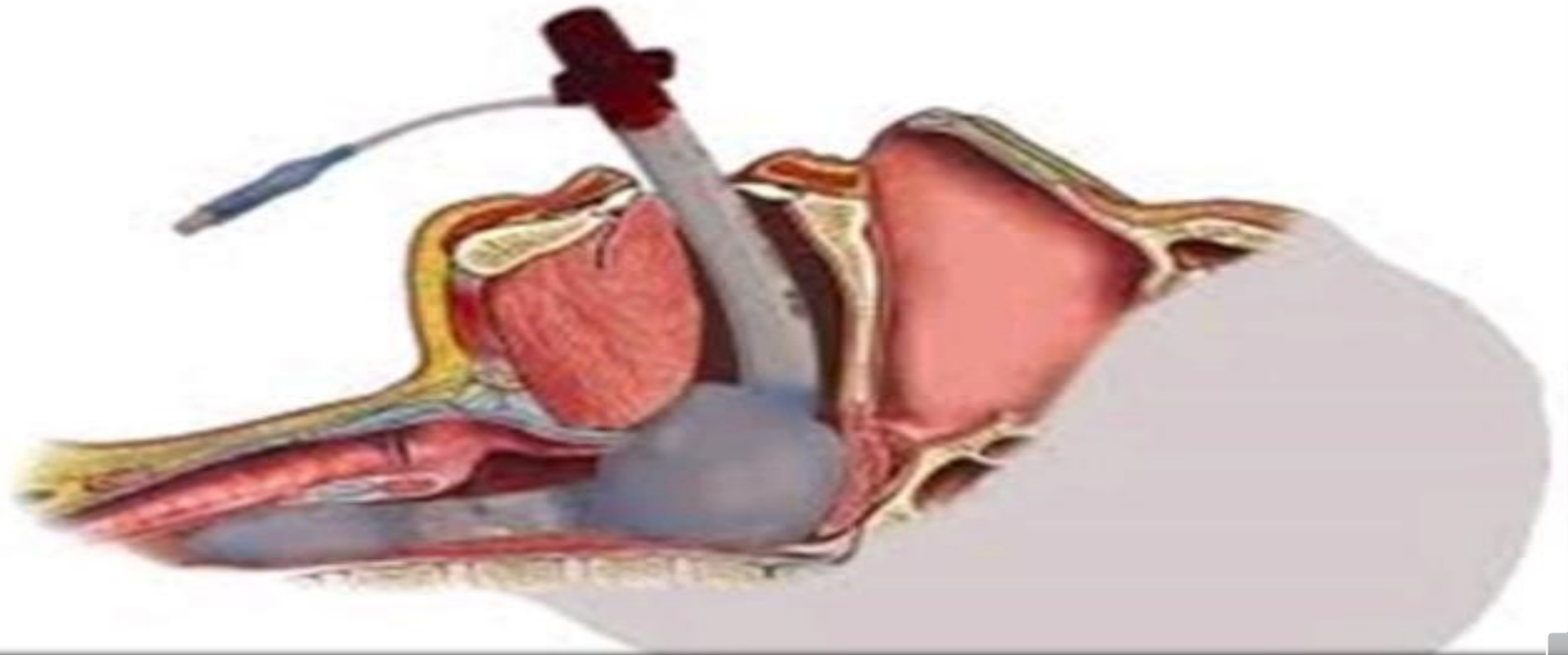
102 of 132



LARYNGEAL TUBE



LARYNGEAL TUBE



ADVANCED AIRWAYS

Orotracheal Intubation

Nasotracheal Intubation

Digital Intubation

Surgical Airways



INDICATIONS OF INTUBATION

Airway protection

Maintaining oxygenation

Continuing ventilation

Delivering some drugs

Anticipating upcoming needs



OROTRACHEAL INTUBATION PROCEDURE

Assemble all needed equipment, while patient is being ventilated

- Choose appropriate ET tube size
- Check balloon with 10cc of air
- Place stylet, stopping approximately ½ inch short of the end of the tube (optional)
- Assemble laryngoscope and check it's light
- Connect and check suctioning device

Put the patient in "sniffing" position (neck flexed forward, head extended back, and back of head should be level with or above the shoulders).

If cervical spine injury is suspected have an assistant hold the patient's head in a neutral position.



OROTRACHEAL INTUBATION

Requires direct visualization of the vocal cords with the use of a laryngoscope

Completely isolates the esophagus from the trachea

At least two forms of placement verification are required

- ▣ Physical assessment (color improvement, equal breath sounds, absence of gurgling over epigastrium, and direct visualization of tube passing through cords)
- ▣ End-tidal CO₂ detector
- ▣ Esophageal detector device (EDD)



INTUBATION (CONTINUED)

Pre-oxygenate the patient with 100% oxygen

Insert laryngoscope to right of the midline. Move to midline, pushing the tongue to the left.

Lift straight up on the blade to expose posterior pharynx.

Identify the epiglottis; tip of curved (Macintosh) blade should sit in vallecula (in front of the epiglottis), straight blade should slip over the epiglottis. With further, gentle traction, identify trachea and arytenoid cartilages and vocal cords

Insert ET tube along the blade, into the trachea and advance the tube 1-1.5 inches beyond the cords and inflate the cuff.



PATIENT PREPARATION

Patient should be informed of the risk & the planning of intubation (awake)

Premedication (atropine/sedatives)

An assistant should be available



Laryngoscope



BLADE TYPES



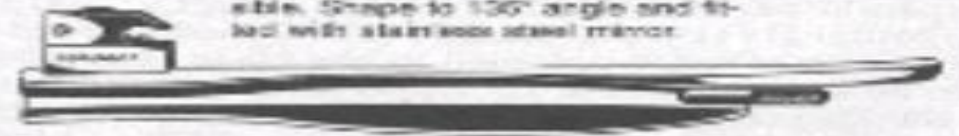
MACINTOSH LARYNGOSCOPE
Original design. By lifting the base of the tongue, indirectly raises the epiglottis.



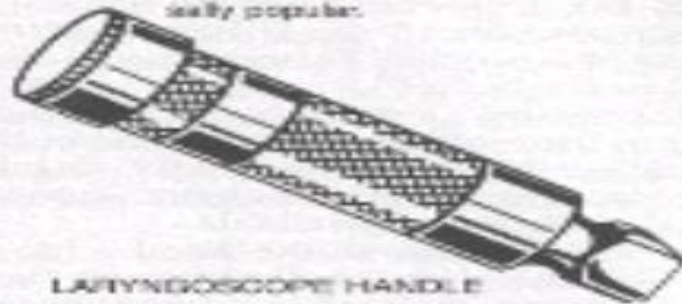
SIKER MIRROR LARYNGOSCOPE
For indirect laryngoscopy of patients with anatomical variations which make intubation with conventional blades difficult or impossible. Shape to 135° angle and fitted with stainless steel mirror.



MILLER LARYNGOSCOPE
Developed in conjunction with Robert A. Miller, M.D., of San Antonio, Texas; this blade is universally popular.



W.S. FOREGGER LARYNGOSCOPE BLADE



LARYNGOSCOPE HANDLE



GUEDEL LARYNGOSCOPE
The Guedel laryngoscope blade, with its characteristic acute angle to the handle, was the first designed for intubation with a cuffed endotracheal tube.

FIG. 19-17. Useful and popular types of laryngoscopes. Courtesy of Foregger Co., Inc.

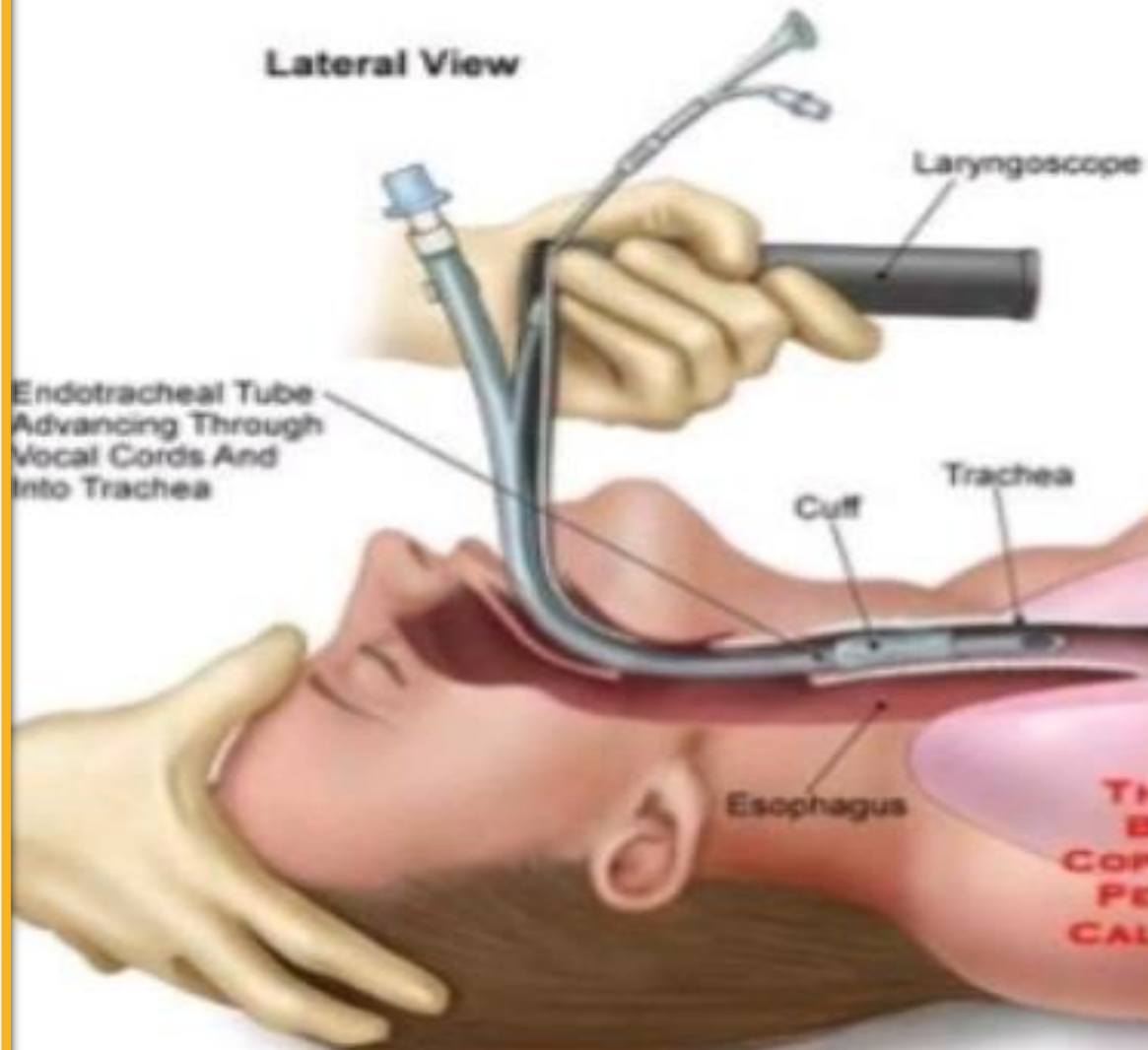


SNIFFING POSITION

- Head extension
- Neck flexion
 - Onto the shoulders
- 20-30 degree angle



Lateral View



Endotracheal Tube Advancing Through Vocal Cords And Into Trachea

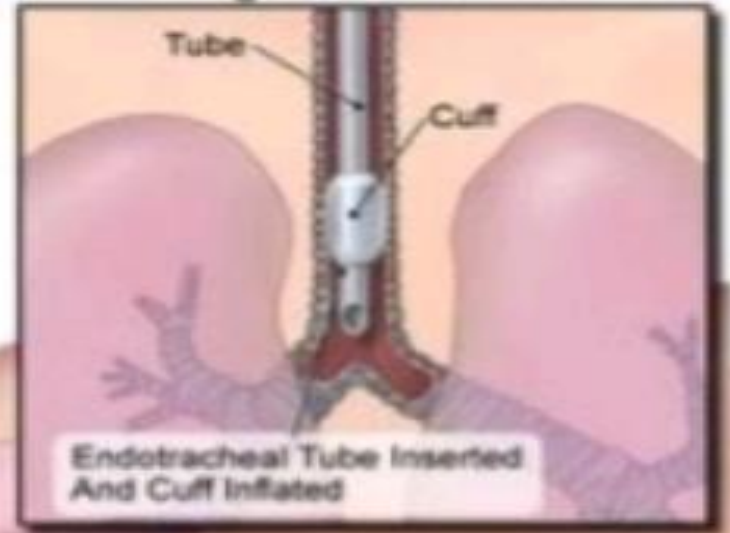
Laryngoscope

Cuff

Trachea

Esophagus

Enlarged Anterior View



Tube

Cuff

Endotracheal Tube Inserted And Cuff Inflated

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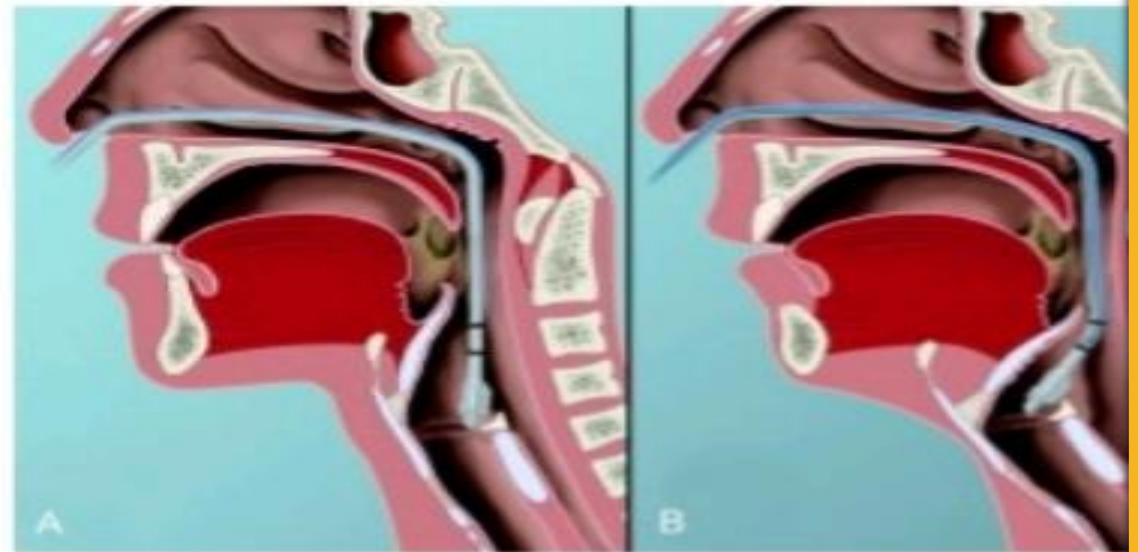
NASOTRACHEAL INTUBATION

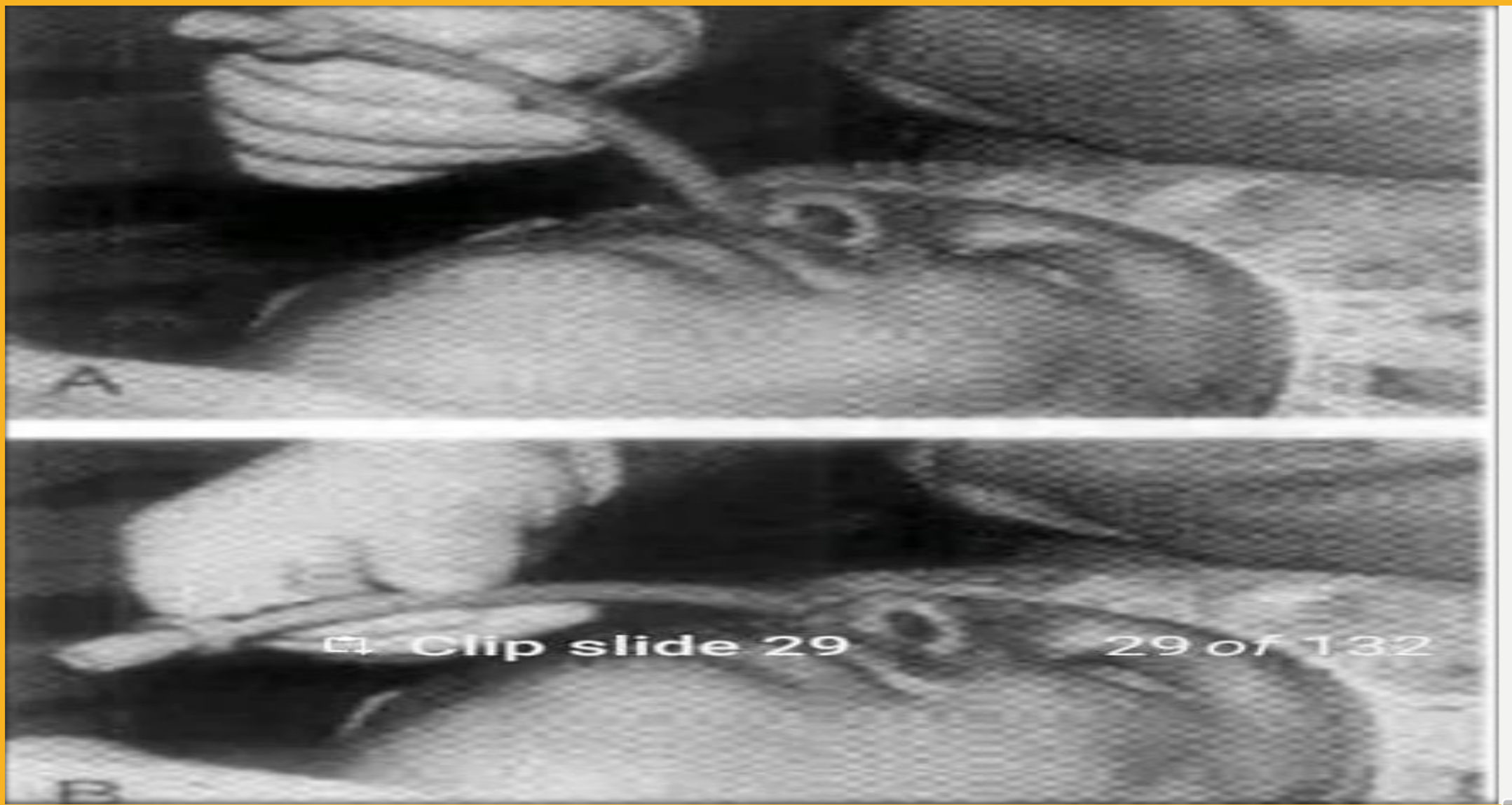
Can be done blind or with the aid of a laryngoscope.

If done blind, the patient must be breathing.

Cannot be performed on patients with a suspected basilar skull fracture.

Can be performed on patients with an intact gag reflex.





A

B

Clip slide 29

29 of 132



Chest X ray

- Although chest radiography is universally recommended after ETT placement, its primary purpose is to ensure that the tube is well positioned below the cords and above the carina.



DIFFICULT INTUBATION

Definition

If proper tube insertion needs more than 3 consecutive attempts

or

If proper tube insertion prolongs more than 10 minutes.

What should be considered?

Need for help

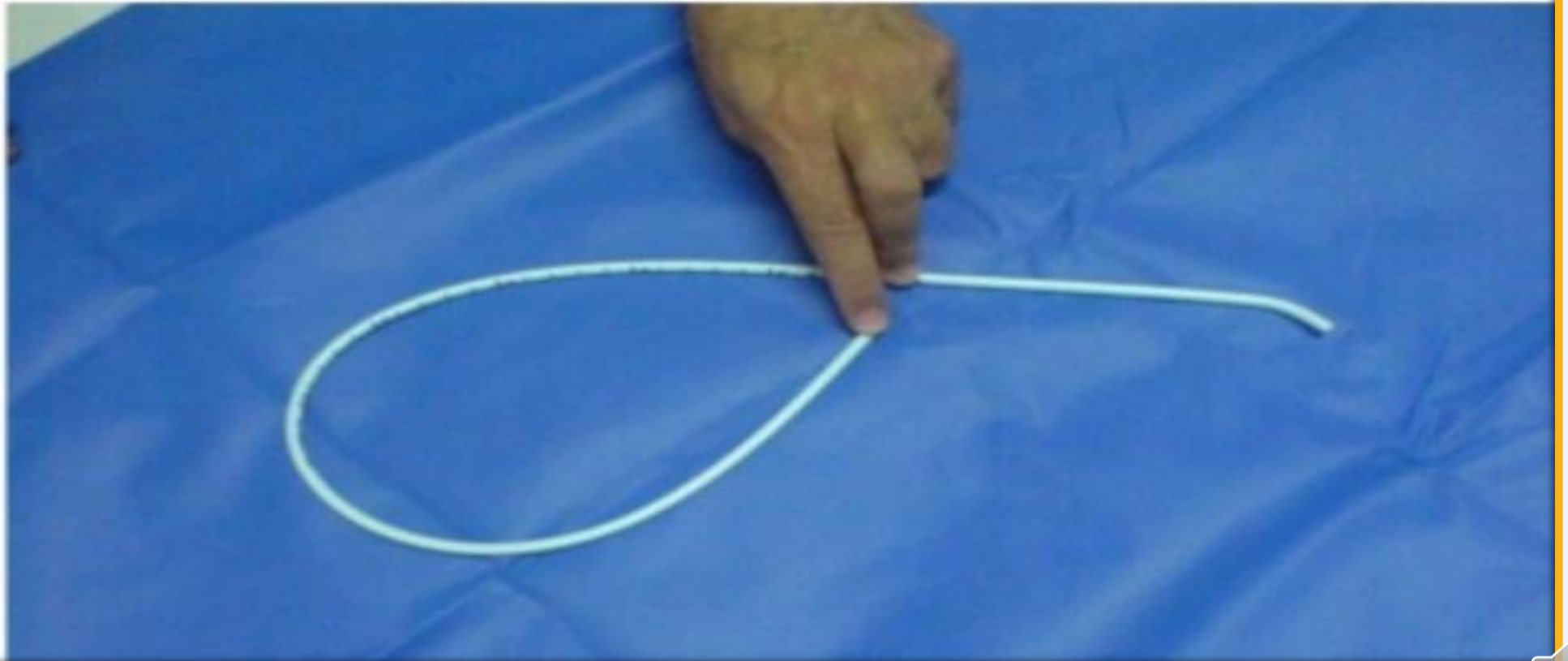
Awake intubation

Appropriate equipments

Plan B



High Success Rate Low Cost Bougie



Macoy Laryngoscope

