

TRACHEOTOMY 101

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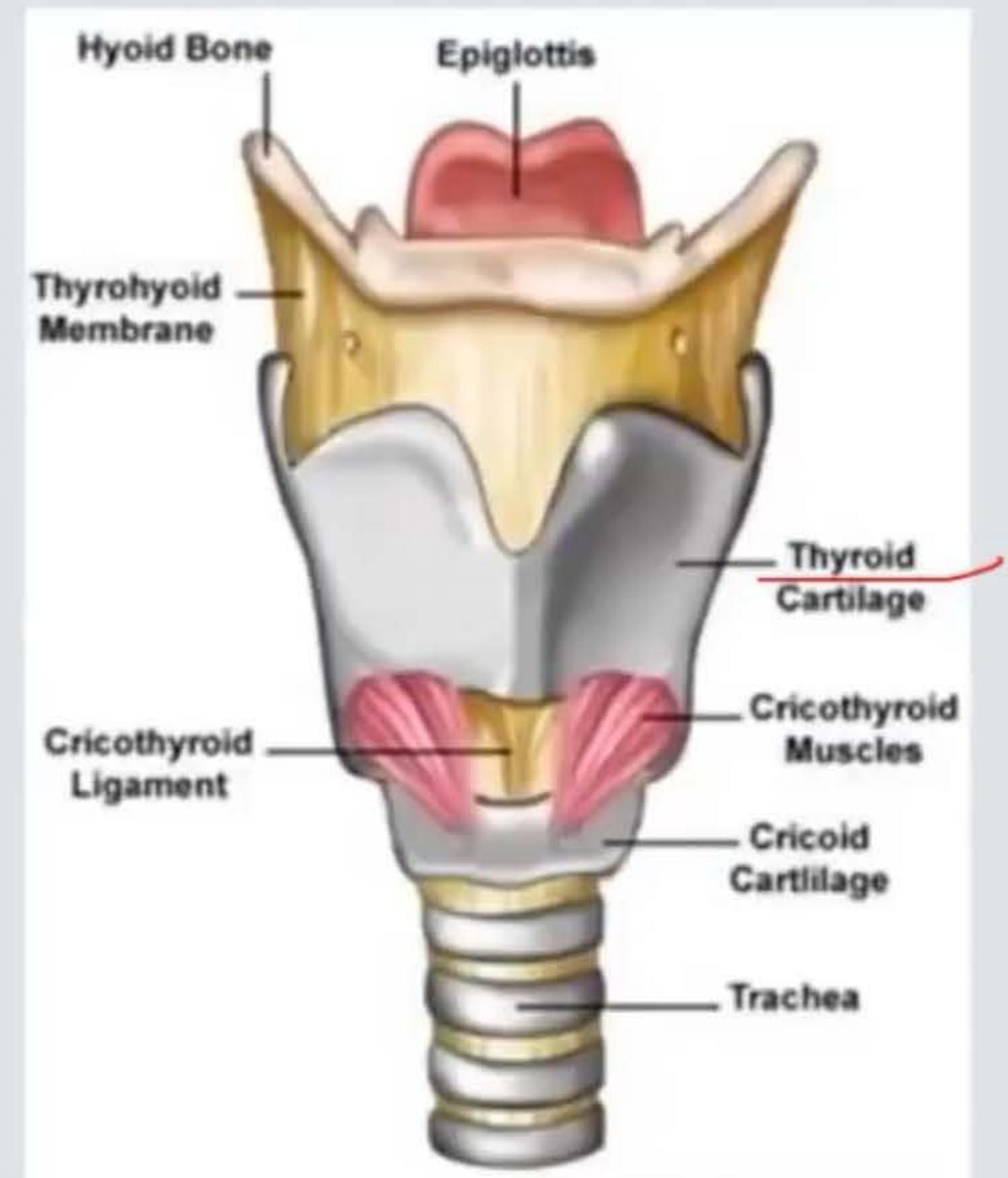
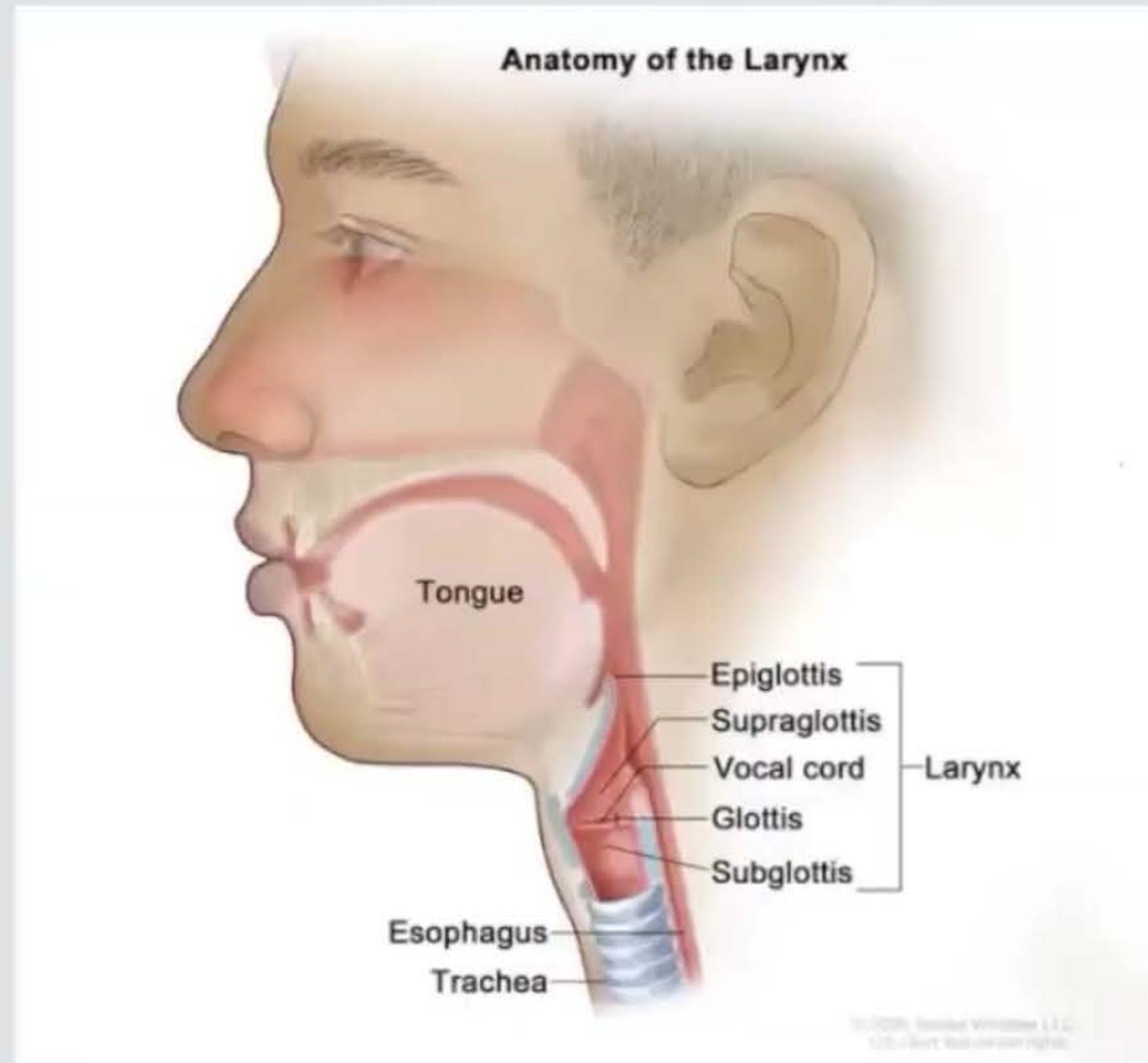
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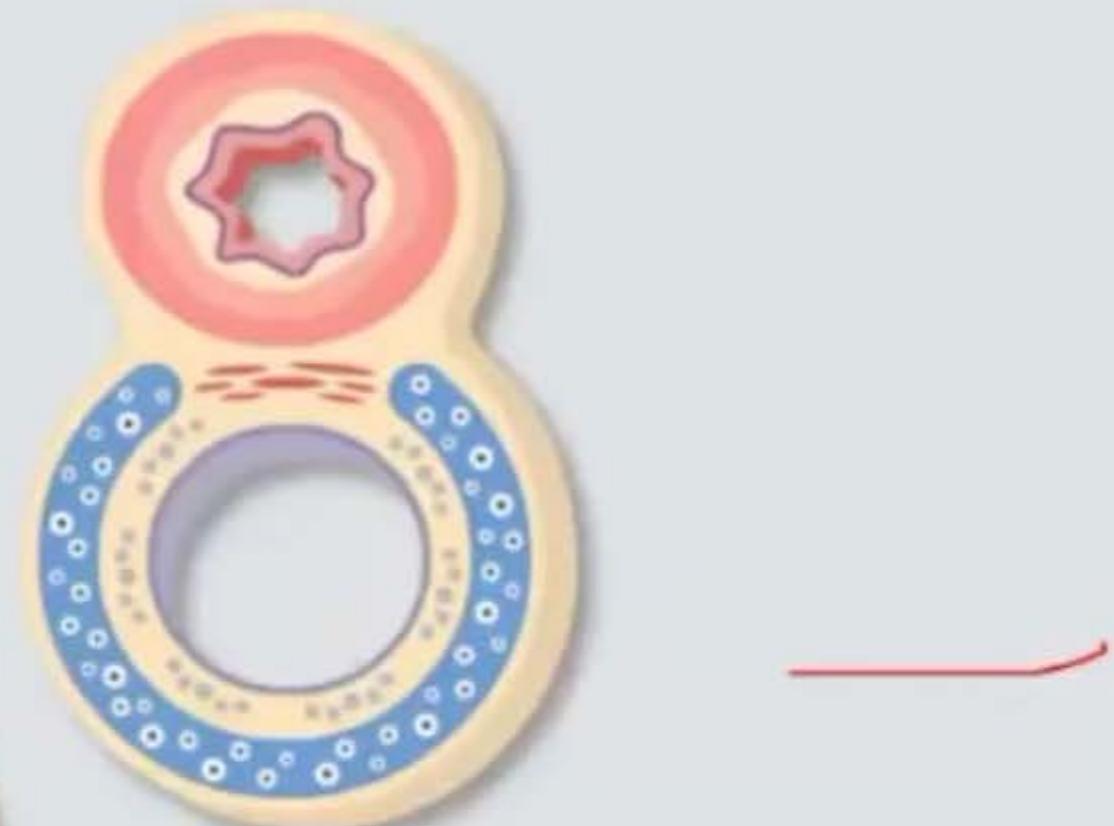
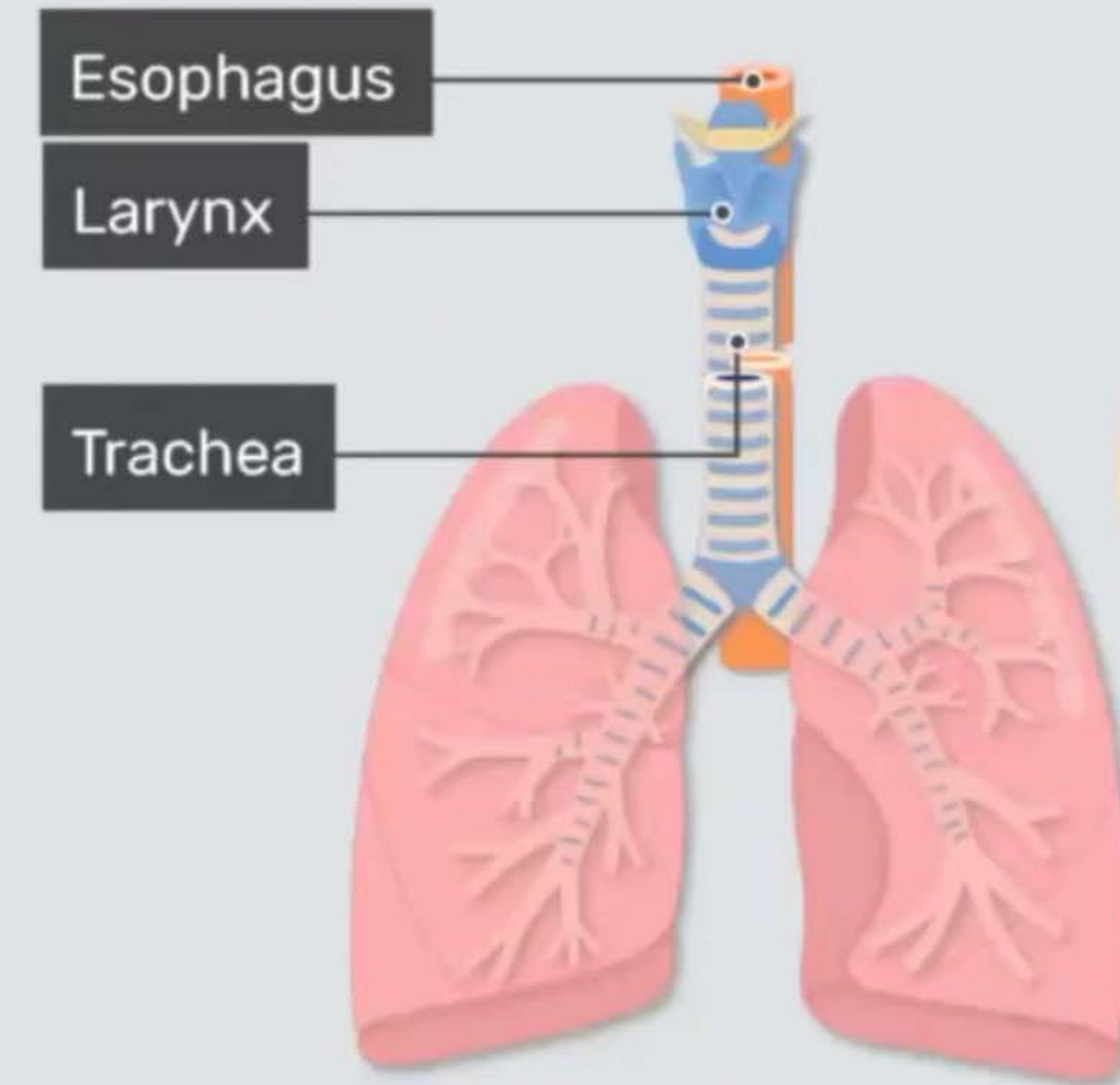
ROAD MAP

- Head and Neck Anatomy
- Tracheotomy tube basics
- Indications for tracheotomy
- How I do it – standard and emergent tracheotomy
- Tracheotomy tube parts and pieces
- Speaking valve versus capping
- Removing a tracheotomy tube
- Laryngectomy

GOAL

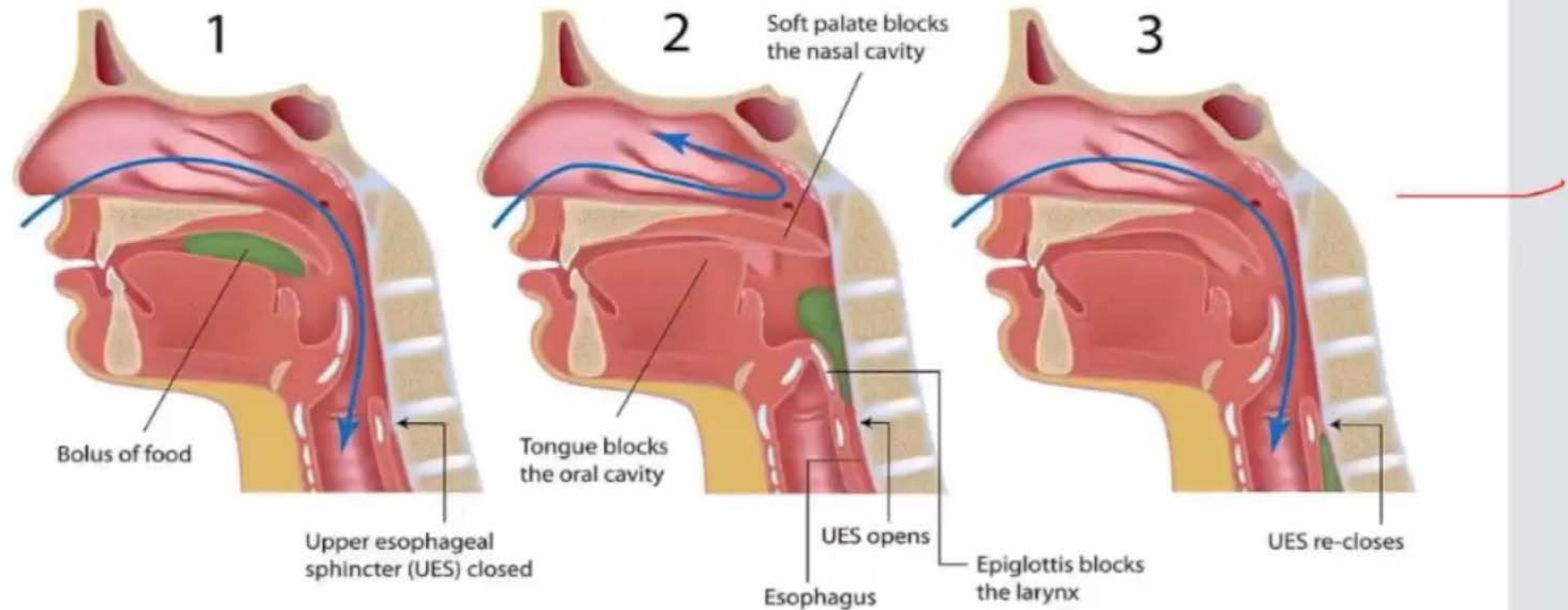
- For you to be facile with the terminology of tracheotomy tube care at the end of this discussion





Cross-sectional
view of trachea
and esophagus

Swallowing

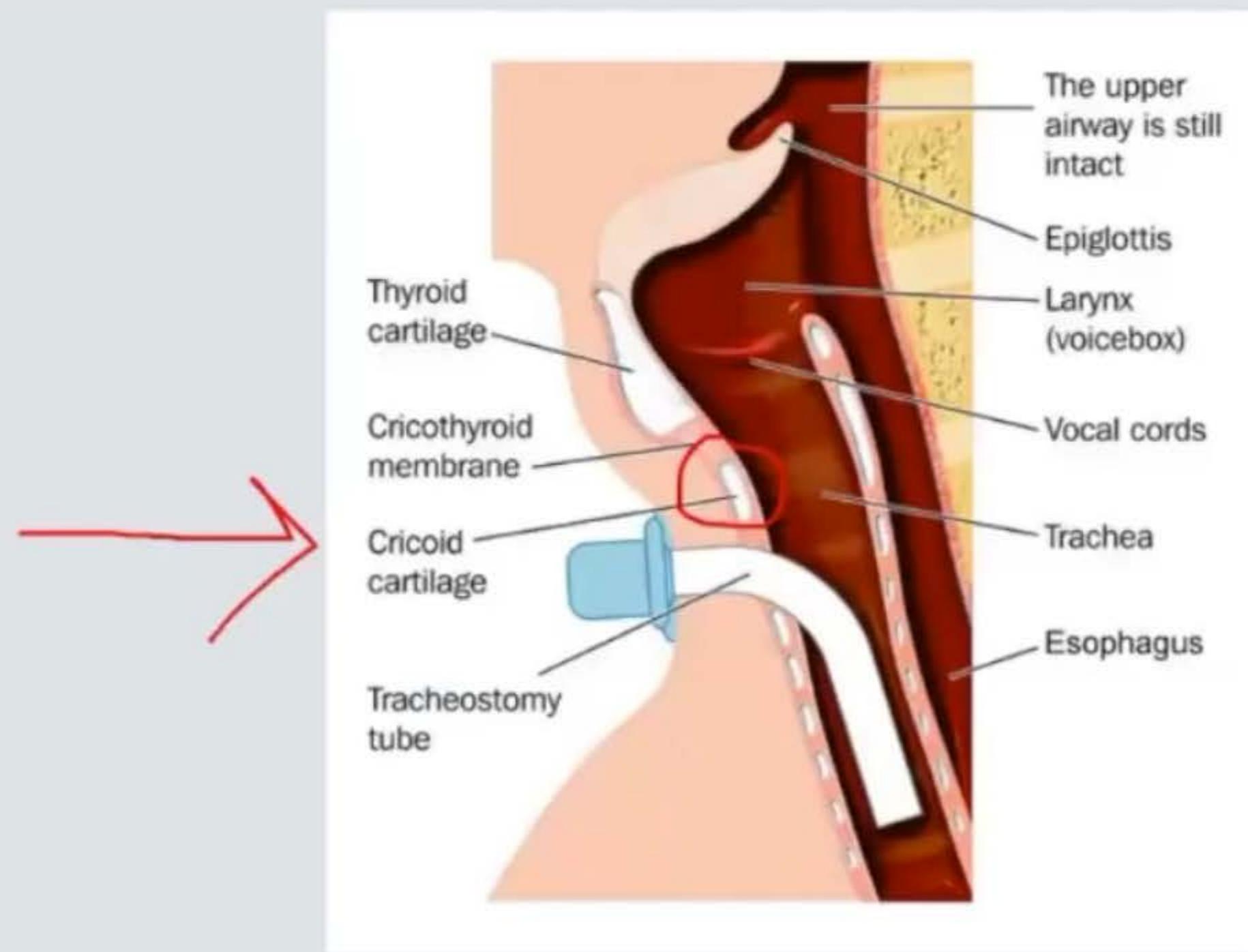


TRACHEOTOMY VS TRACHEOSTOMY

They have the same meaning!!



WHERE DOES A TRACHEOTOMY TUBE SIT?



LARYNGOSCOPY/BRONCHOSCOPY
WITH A TRACHEOTOMY TUBE





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INDICATIONS FOR A TRACHEOTOMY

1. Prolonged ventilation – patients on a ventilator who are intubated
2. Upper airway obstruction – head and neck cancers (think big tongue tumor), deep neck infection, bilateral vocal cord paralysis
3. Obstructive Sleep apnea – for the most severe of cases
4. Tracheal stenosis – narrowing below the vocal cords

Bonus

1. Chronic aspiration – neurologic patients in whom suction is needed
2. Certain head & neck surgeries – mandible surgery



Tracheal Stenosis with Tracheostomy Tube Placement



Area of injury

Pre-operative Condition

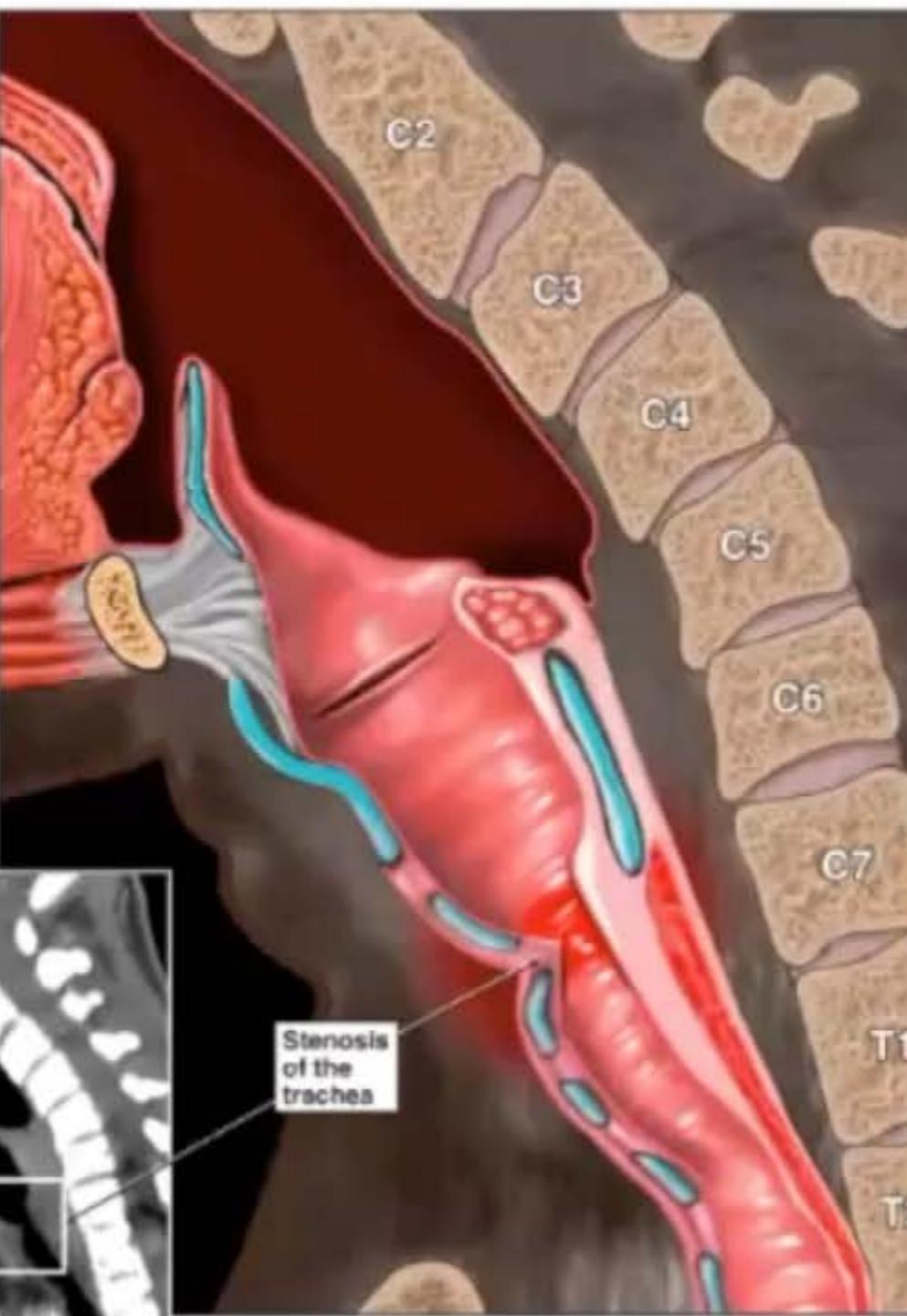
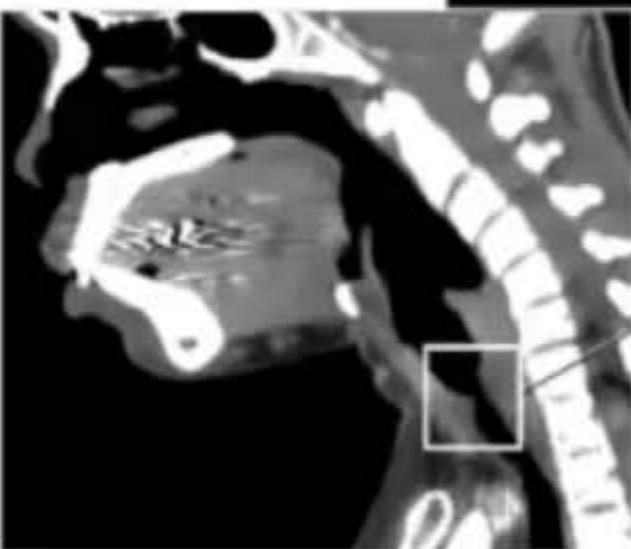
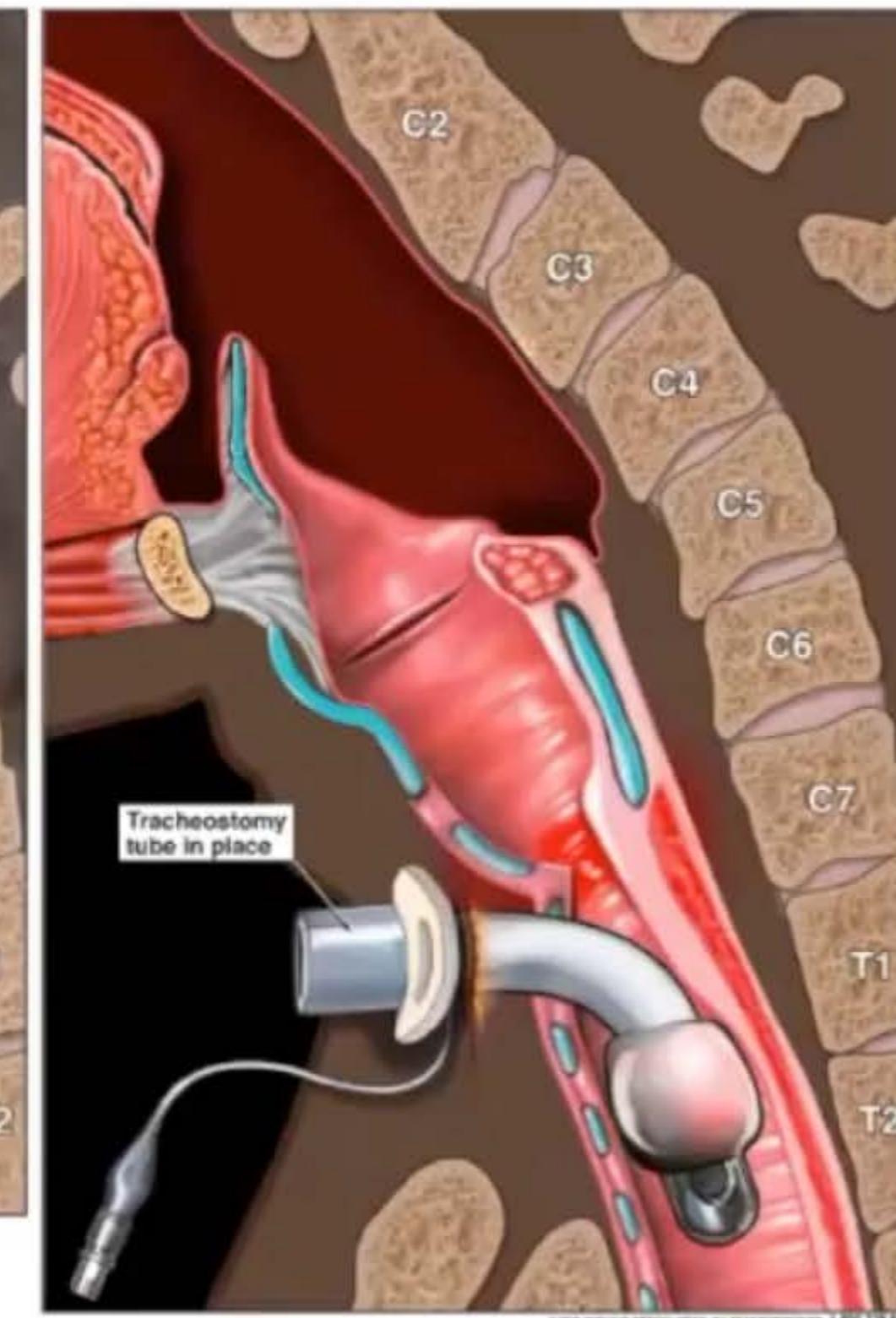


Illustration based on sagittal film

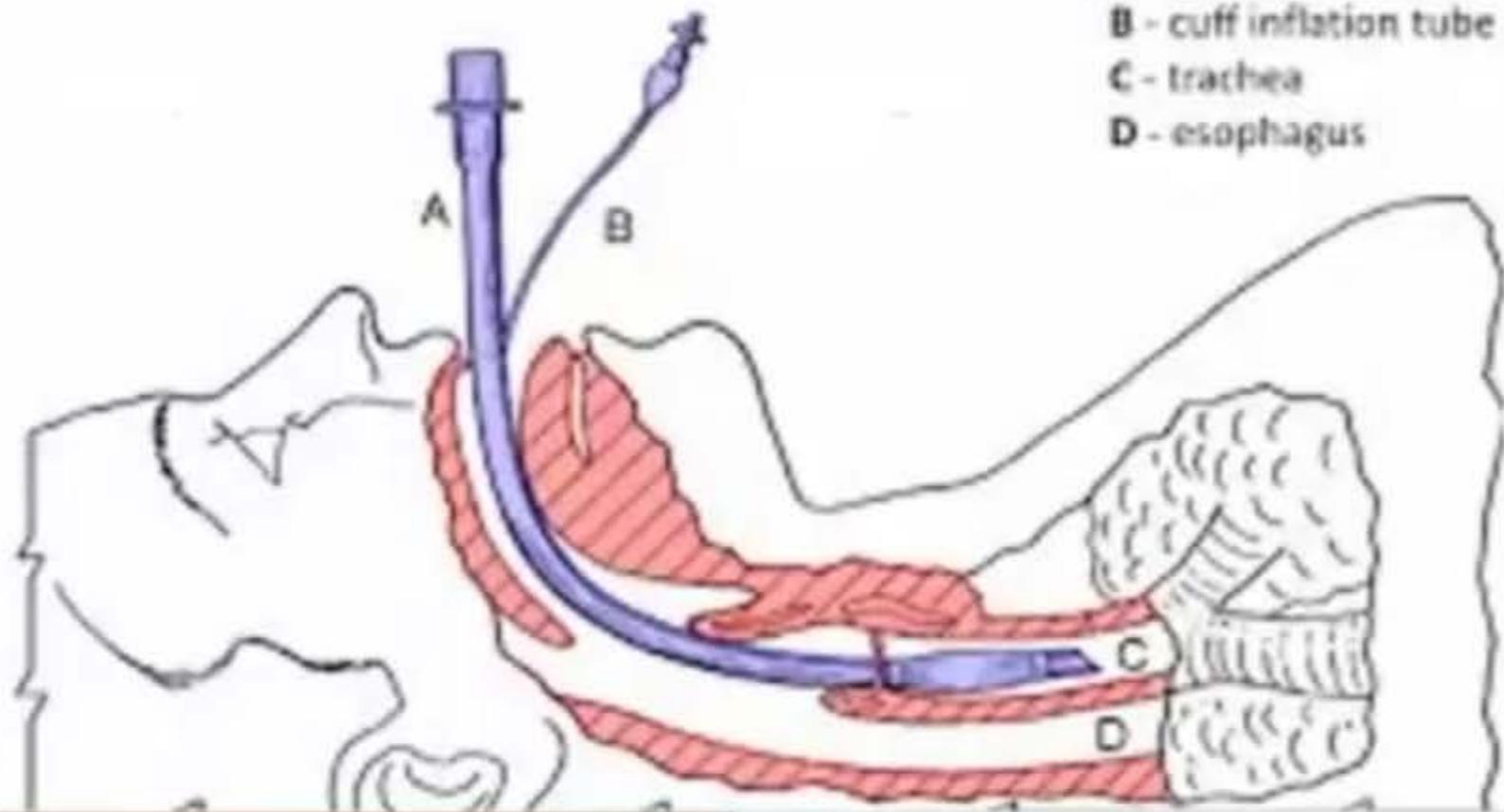


Sagittal film view

Post-operative Condition



- A - endotracheal tube
- B - cuff inflation tube
- C - trachea
- D - esophagus



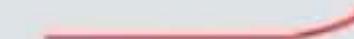
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TYPES OF TRACHEOTOMY TECHNIQUES

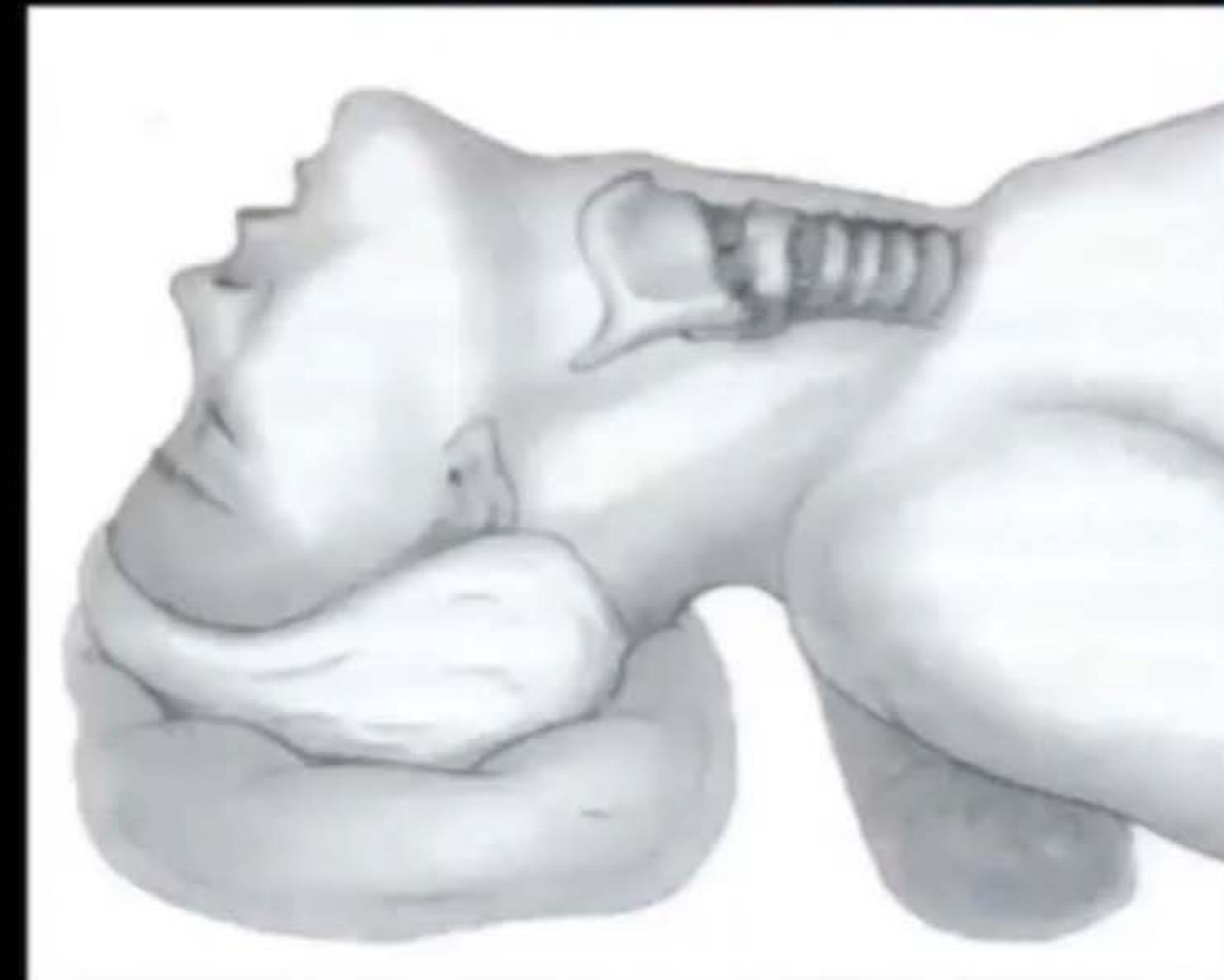
1. Cricothyroidotomy
 2. Open Tracheostomy
 3. Percutaneous Procedure
- 

1. Airway control

2. Patient position-
supine ,neck extended
,pillow under the shoulder

3. Anesthesia

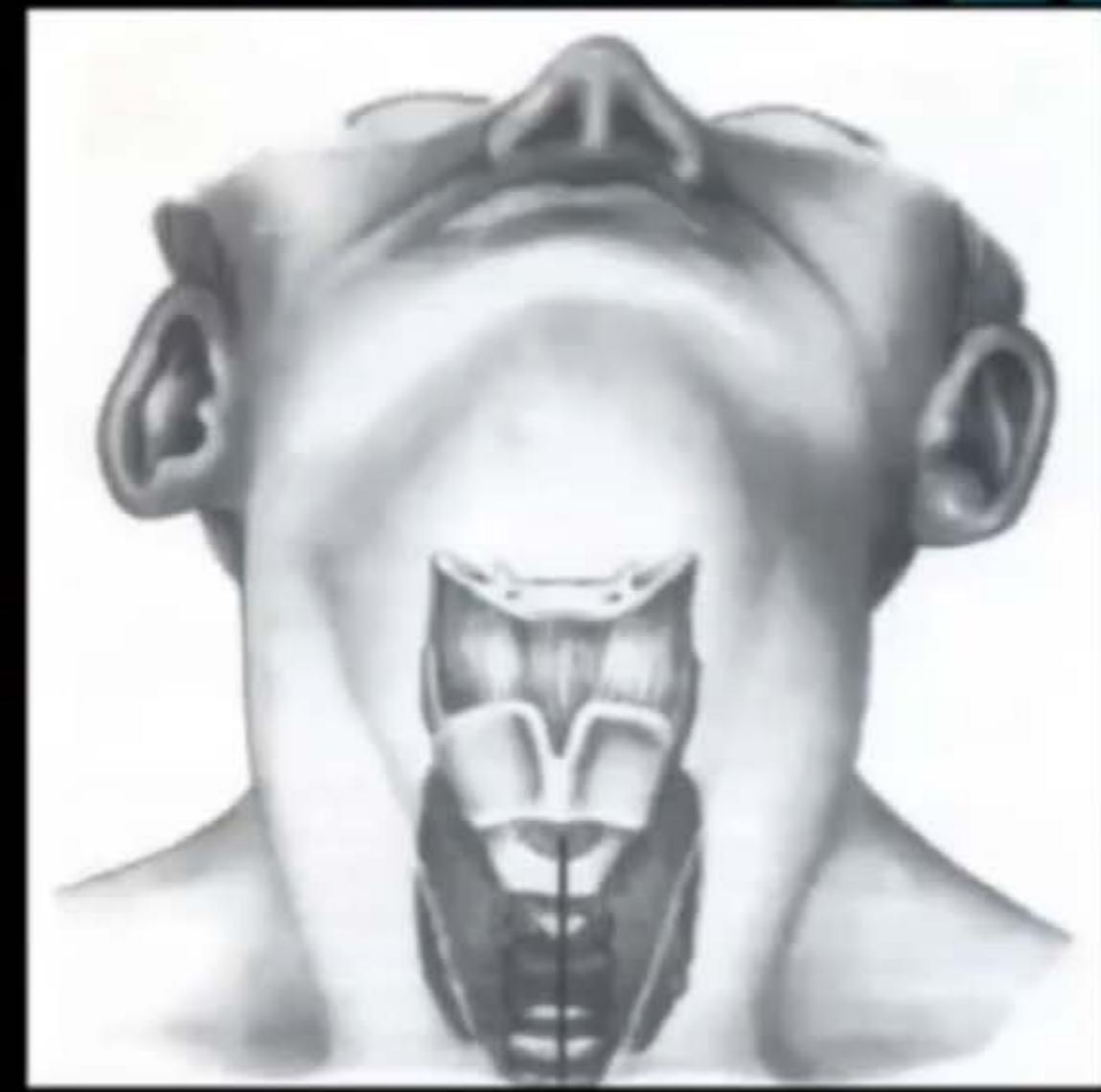
- Not necessary if pt is unconscious or n emergency situations
- If conscious ,1-2% lignocain +epinephrine is infiltrated in the line of incision and area of dissection
- Sometime general anesthesia with intubation is used



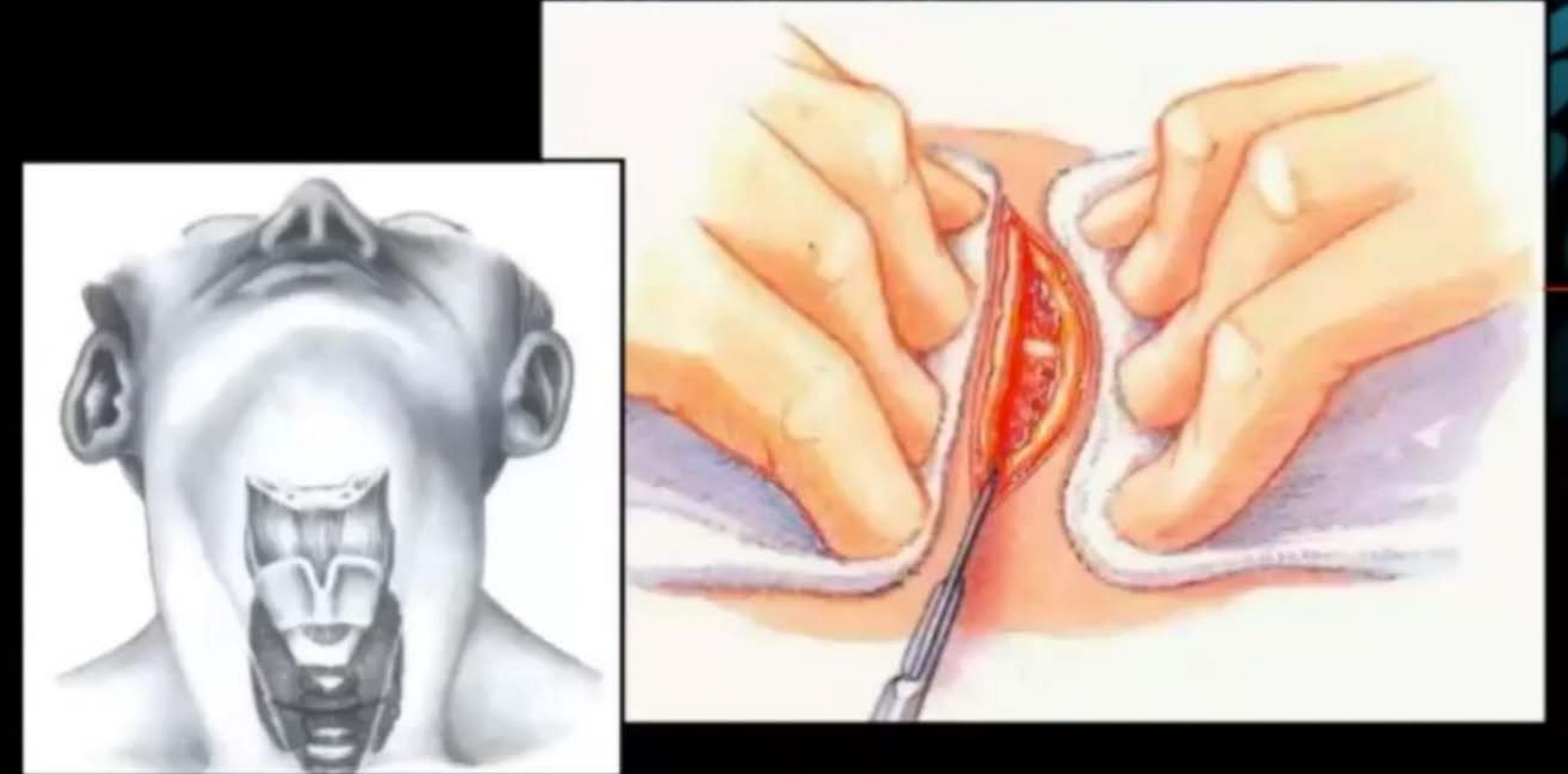
Identify the landmarks



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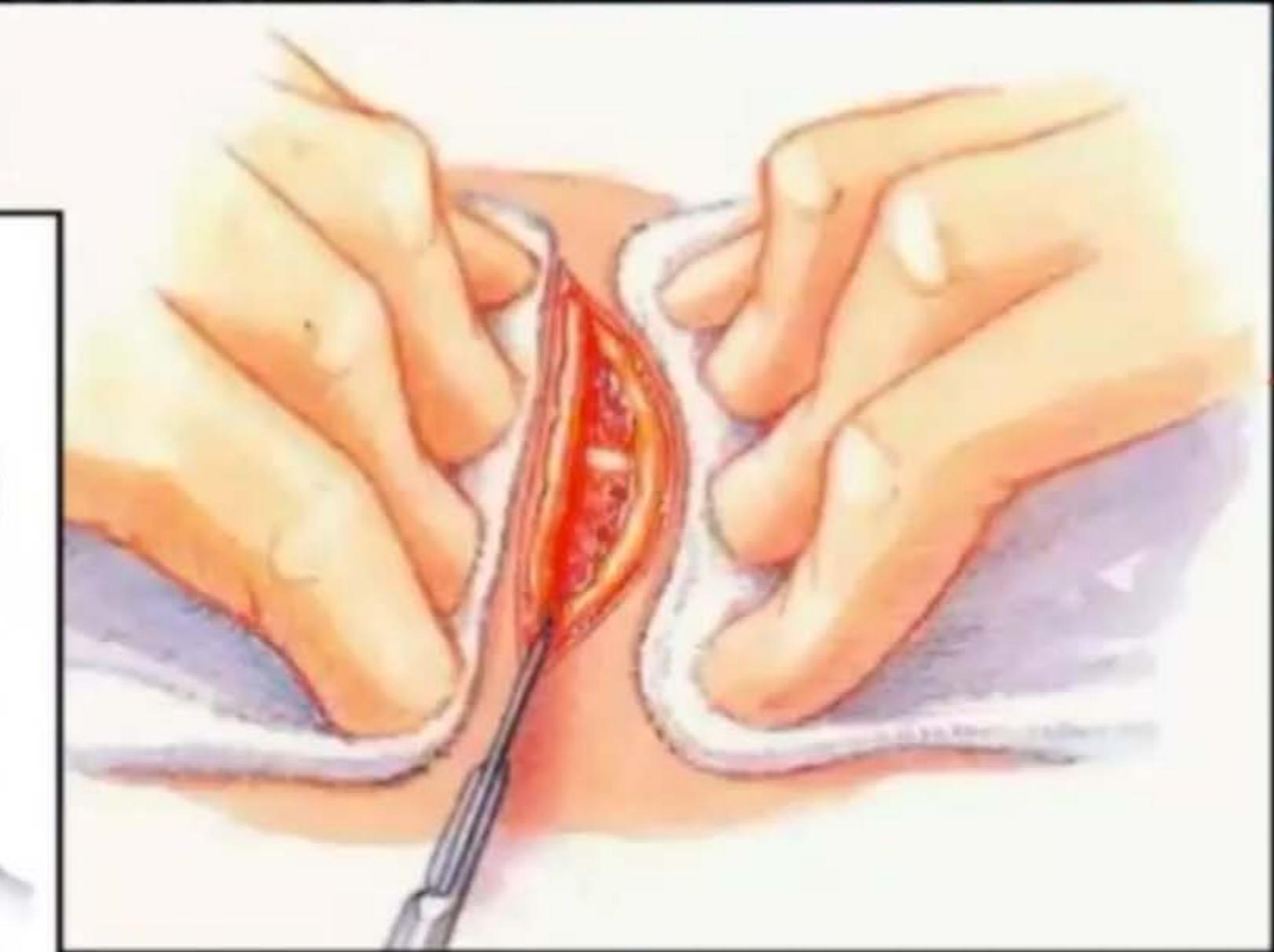
a transverse Incision 1 cm below the cricoid
or halfway between the cricoid and the
sternal notch.



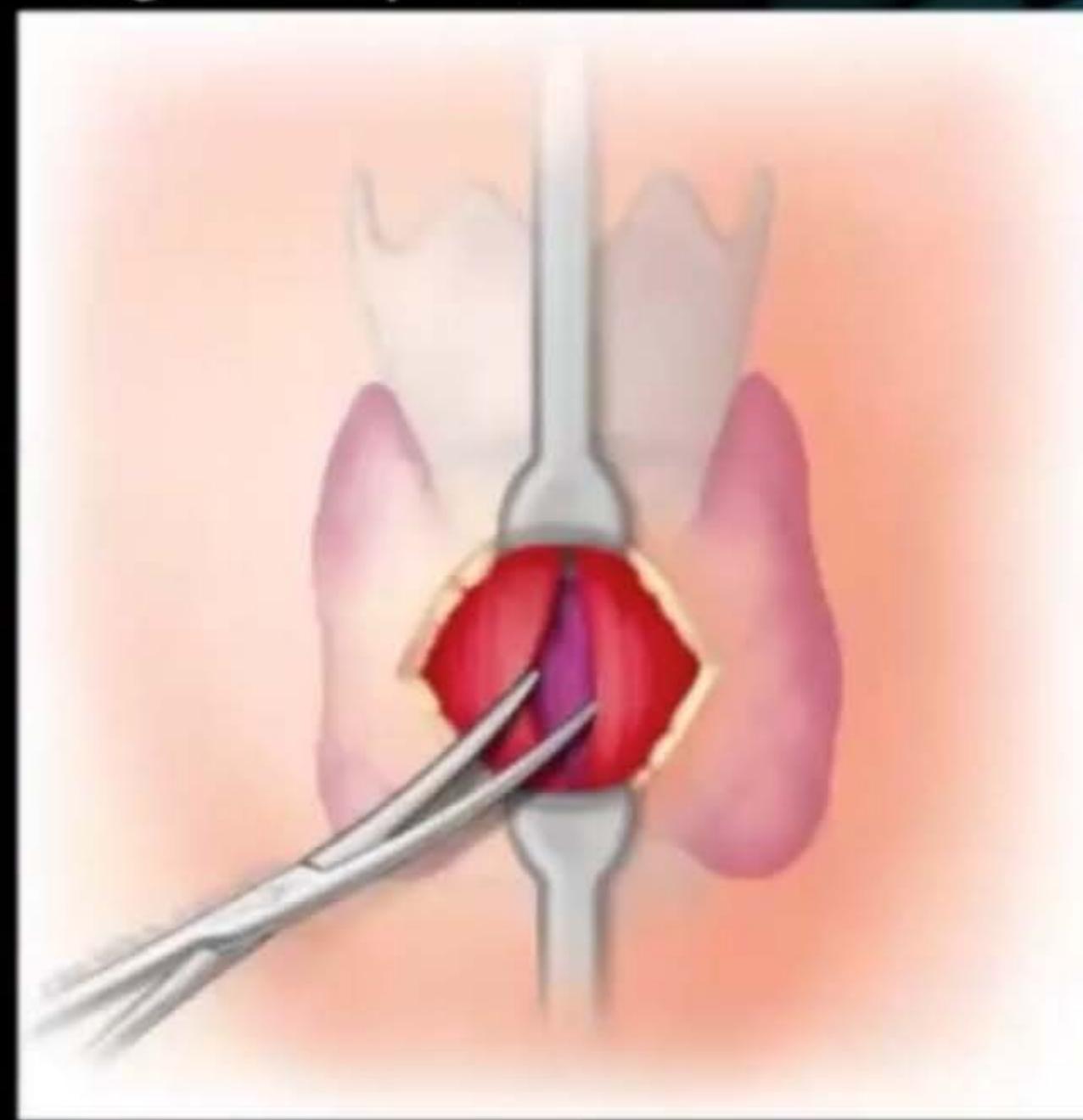
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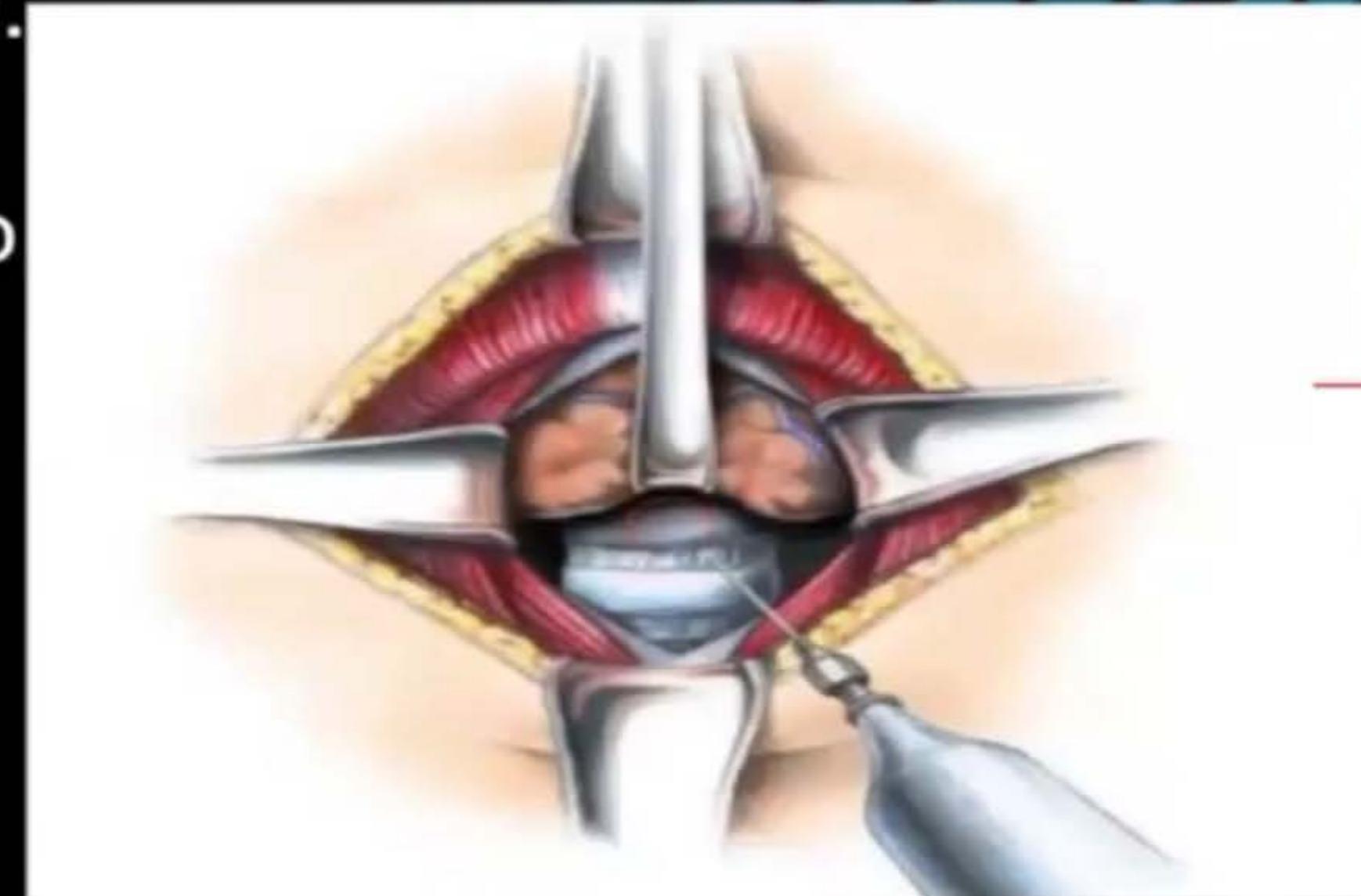
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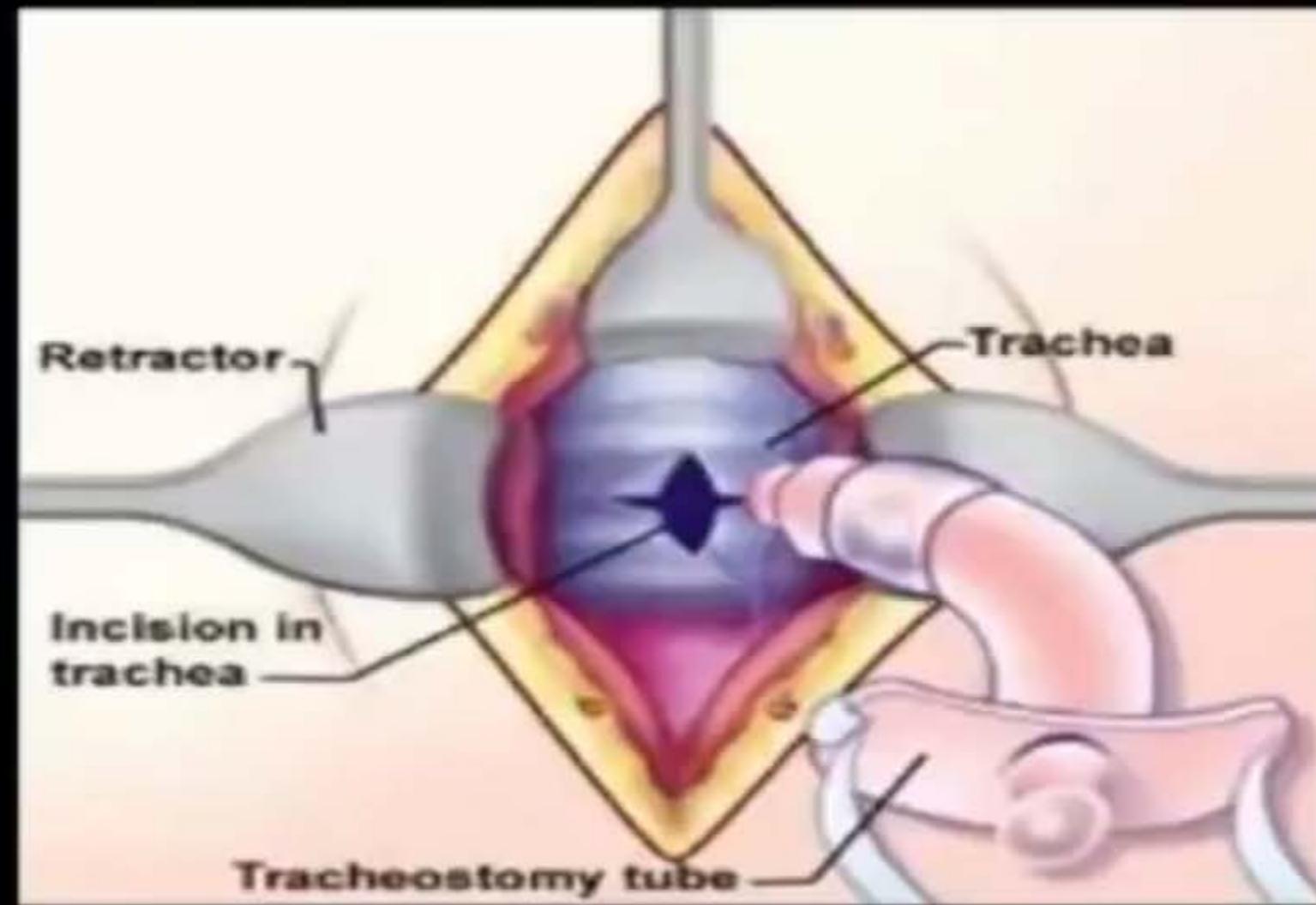
Retractors are placed, the skin is retracted, and the strap muscles are visualized in the midline. The muscles are divided along the raphe, then retracted laterally



- The thyroid isthmus lies in the field of the dissection.
- Typically, the isthmus is 5 to 10 mm in its vertical dimension.
- Retract it up.



Tube is inserted and secured



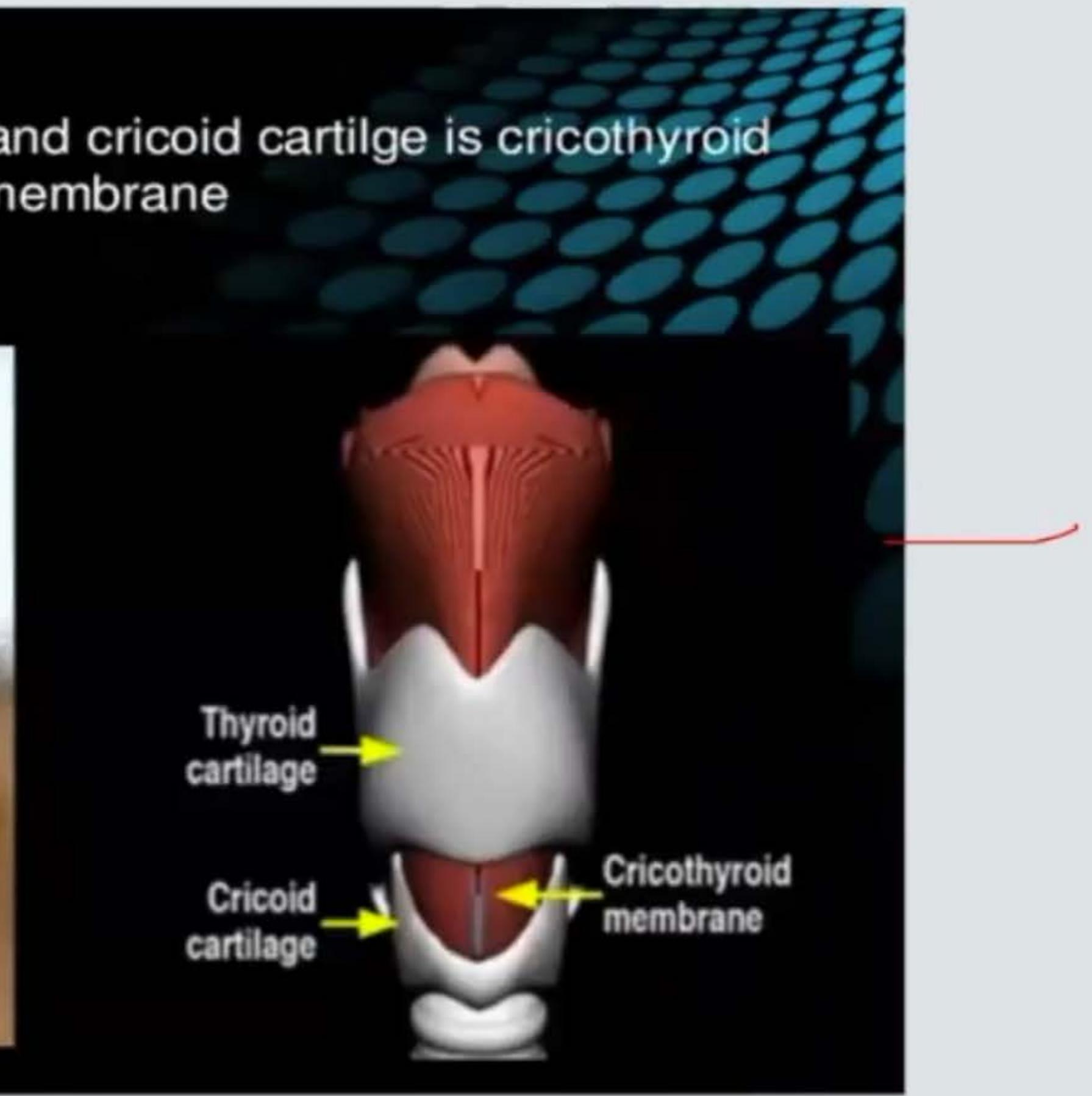
SURGICAL STEPS TO A CRICOHYROIDOTOMY



supine position, neck extended, L.A., stabilize larynx



space between thyroid and cricoid cartilage is cricothyroid membrane



1 cm vertical incision thru skin and
sub cut. tissue



use curved hemostat for blunt dissection thru planes



use horizontal incision on cricothyroid membrane



Insert tracheostomy tube



inflate cuff with 10cc syringe

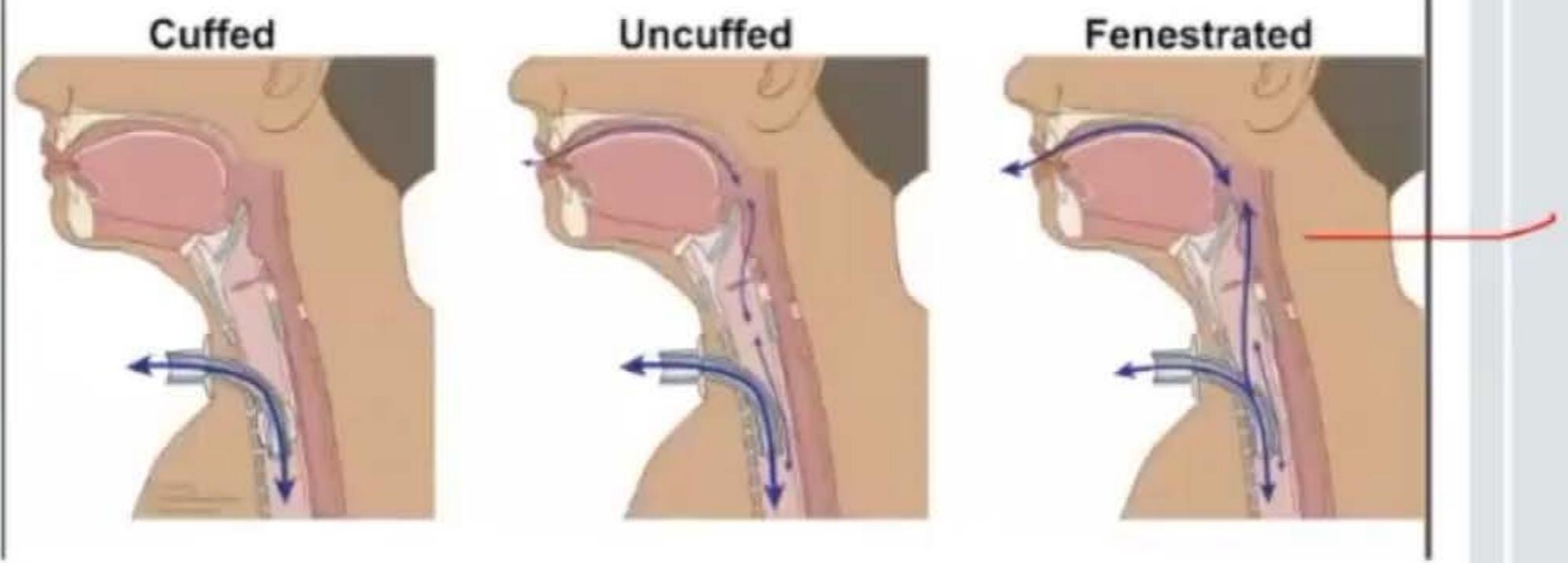


attach bag valve unit and ventilate pt.



VOICE AND SWALLOWING AFTER A TRACHEOTOMY TUBE PLACEMENT

- Voicing and swallowing are still possible after tracheotomy tube placement
- Laryngeal anatomy and esophagus are undisturbed



PASSING-MUIR VALVE (PMV)

- Speaking valve
- One-way valve that attaches to the outside opening of the tracheostomy tube and allows for air to pass into the trach but NOT out through it
- Safety Precautions
 - Do not use the valve while sleeping
 - Remove immediately if the patient has difficulty breathing.
 - The valve must not be used on tracheas that have the cuff inflated.
 - Can NOT be used with ventilator patients



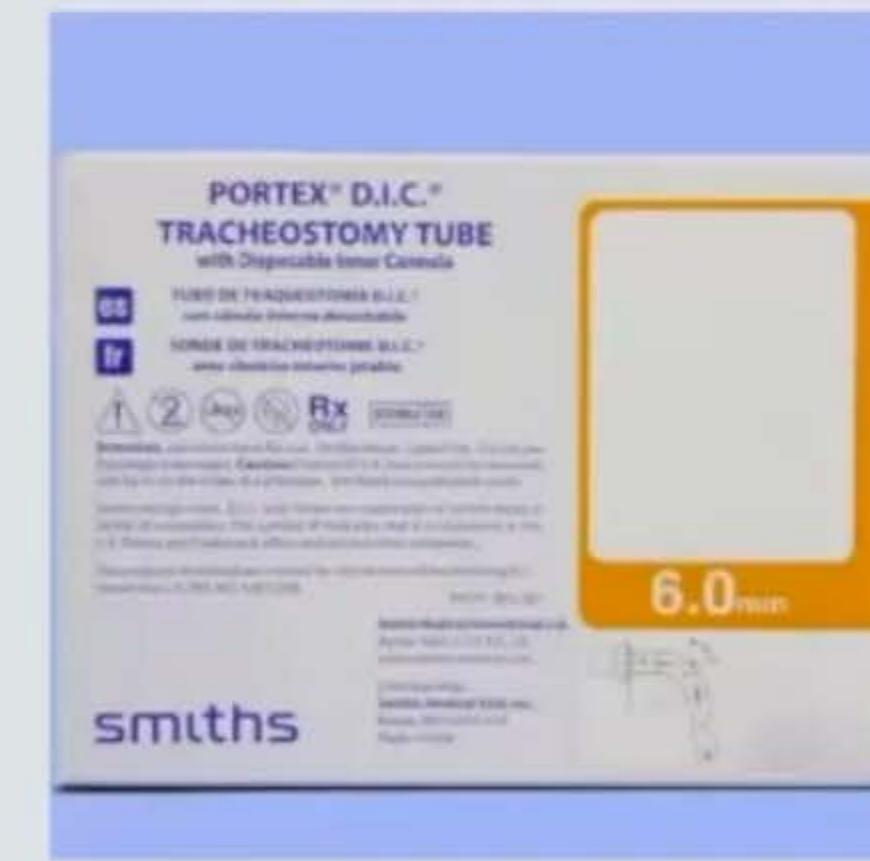
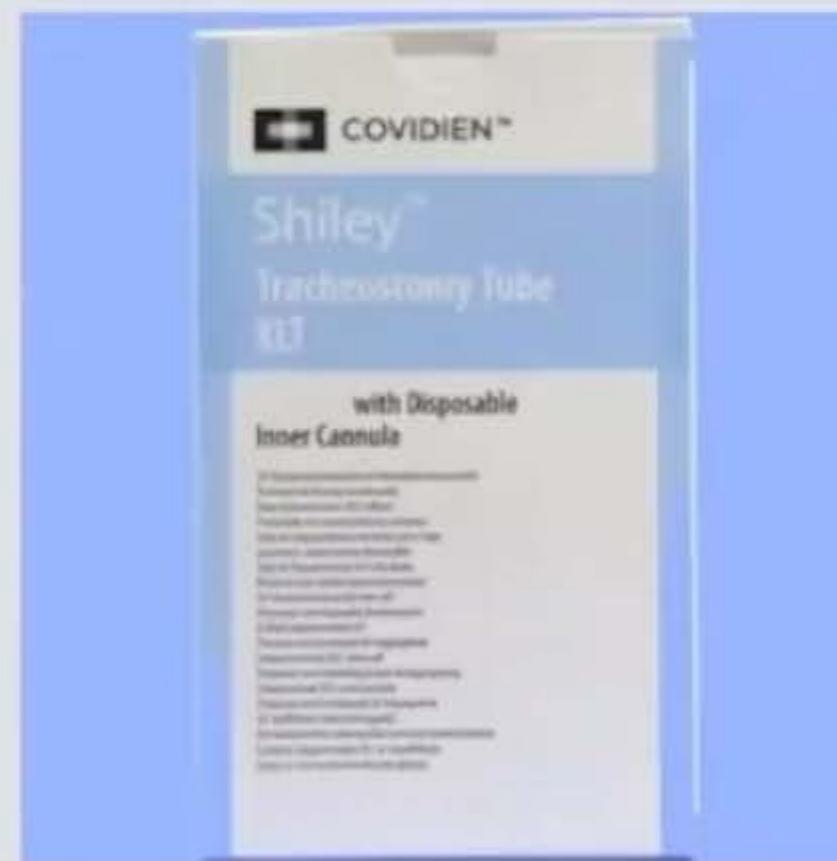
PARTS OF A TRACHEOSTOMY TUBE AND BRANDS

IMPORTANT THINGS TO KNOW

- Tracheotomy tube brand
- Tracheotomy tube size
- Cuff or no cuff?
- Inner cannula?
- Attachments such as PMV, HME or cap

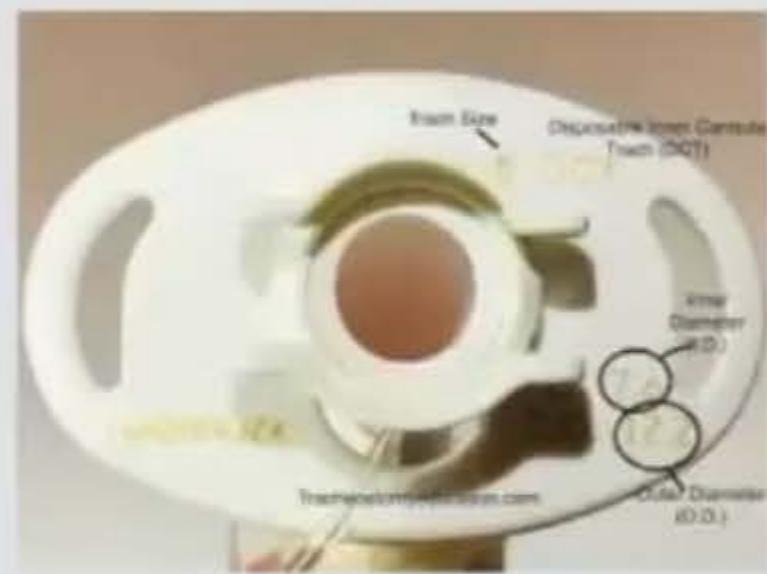
I. SHILEY

2. PORTEX



FLANGE (NECK PLATE)

- Part of the trach tube that extends from the outer part of the trach tube and has holes to attach the trach tube tie.
- Should lie flush against the skin on the neck
- Has important info about the trach tube including: trach tube size, OD, ID, and the brand and cuff type
- Three common sizes are 4, 6, and 8



OUTER CANNULA

- Directly inserted into the trachea
- It can be cuffed or un-cuffed



CUFFED VS UN-CUFFLESS TRACHEOSTOMY TUBE

- Cuffed trach has a balloon-like feature located around the outer cannula, near the bottom of the trach tube
- If the trach tube does not have the balloon-like feature, then the trach is termed "un-cuffed"



PARTS OF A CUFFED TRACHEOSTOMY TUBE

- Pilot Line - leads from the cuff to the pilot balloon
 - It is a pathway for air to flow into and out of the cuff
- Pilot Balloon - balloon-like feature located at the end of the pilot line
 - A syringe attaches to the Luer valve to either inflate or deflate the cuff of the trach tube.

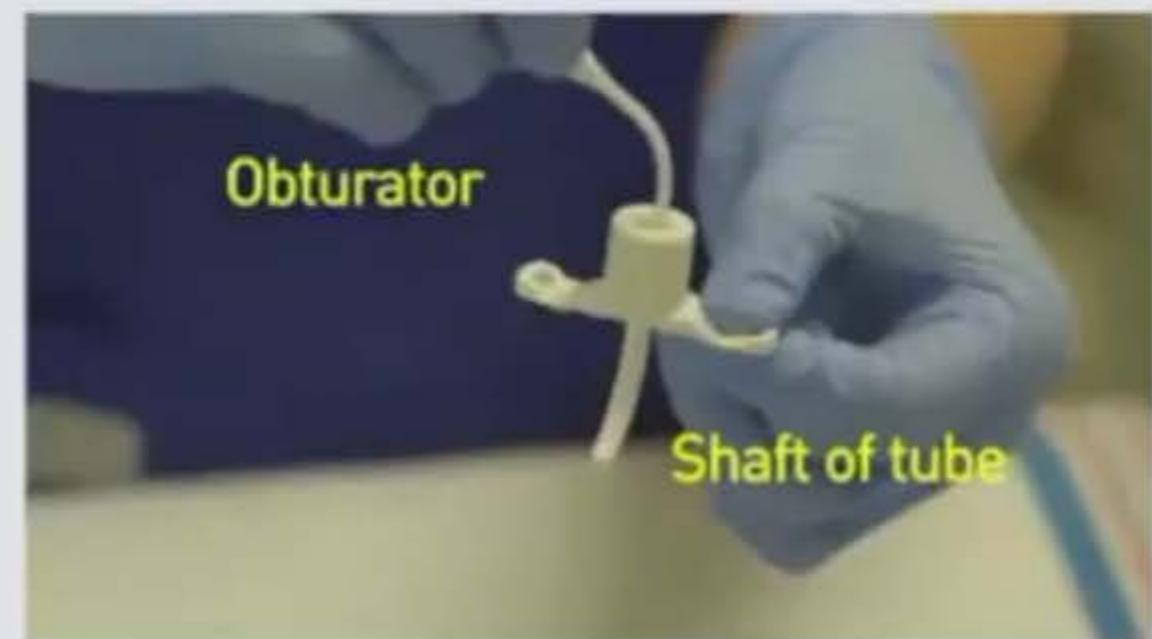


PURPOSE OF A CUFF

- The cuff fills the tracheal space around the trach tube to prevent airflow from escaping around the tube and through the upper airway
- Typically seen with patients on a ventilator
- CAREFUL not to over inflate the cuff as it can “rub” against the trachea membrane and into the esophageal membrane and create an tracheal-esophageal fistula
- The cuff does **NOT** prevent aspiration!

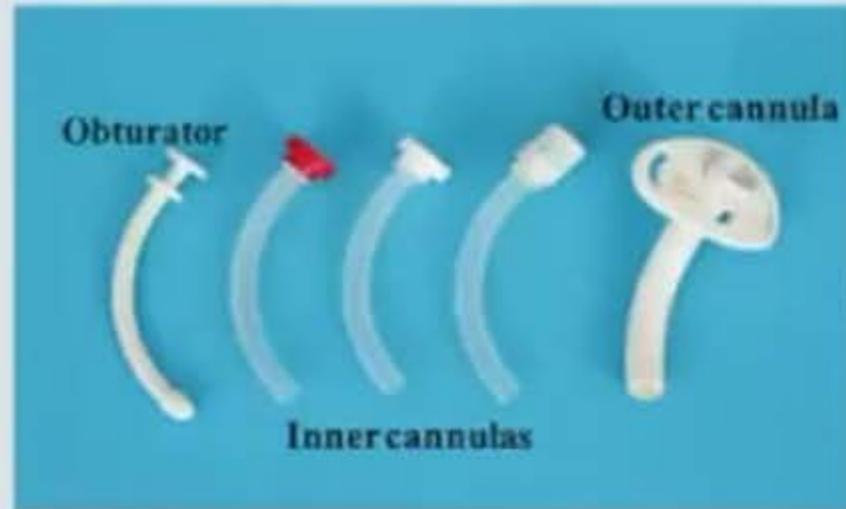
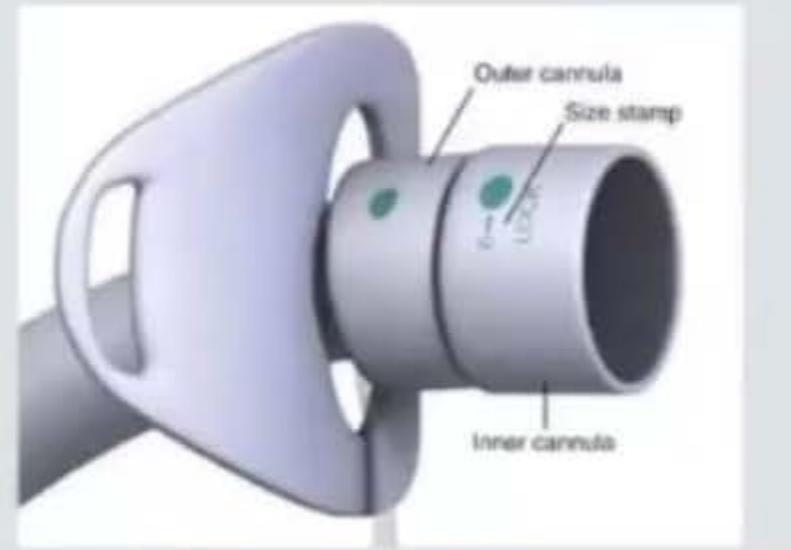
OBTURATOR

- Assists with insertion of the trach tube
- It has a blunt tip and cushions the placement of the tube in the trachea to avoid tissue damage
- Immediately following placement, the obturator is removed and replaced with the inner cannula



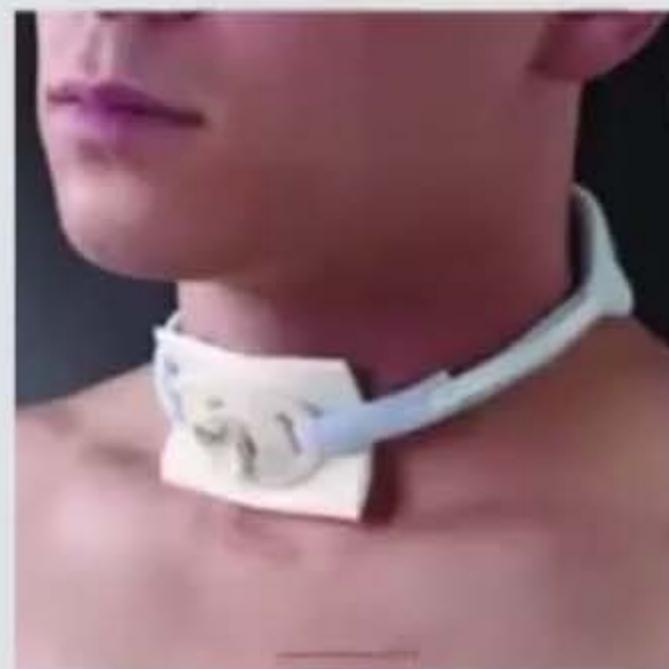
INNER CANNULA

- Placed inside the outer cannula
- Can easily be removed or replaced for cleaning
- There are different sizes that must be matched to the corresponding outer cannula or it will not fit properly
- Must be secured inside the outer cannula



TRACH TUBE TIES

- Used to keep the trach tube in place to prevent accidental decannulation
- Attaches to the flange and wraps around the neck
- One finger should be used to ensure the trach tie is tight enough to prevent dislodgement
- Trach tie materials:
 - Twill
 - Velcro ties
 - Stainless steel metal chain



ROUTINE TRACHEOTOMY TUBE CHANGE

1. Un-package new trach tube. Place obturator inside the outer cannula and lubricate the outer cannula. Place aside to an easily accessible place.
2. Remove trach tie from around the patient's neck
3. Remove outer cannula using a twisting motion.
4. With the new lubricated trach tube insert it into the stoma using a twisting motion
5. Remove obturator and insert inner cannula and lock it into place
6. Place trach tie back on around patient's neck



DECANNULATION

- Decannulation- the process whereby the tracheostomy tube is removed once the patient no longer needs it.
- Requirements:
 - Should not be dependent on a ventilator
 - Patient should be alert and responsive and able to manage their oral secretions without a risk of aspiration
 - Should not require frequent suctioning for tracheal secretions
 - Should be able to cough and clear tracheal secretions
 - No breathing difficulty with a smaller trach tube in place
 - No respiratory difficulty while being capped (or occluded) for 12-24 hours
- Stoma will heal over the next few days/weeks

CAPPING

- Allows no air to go in or out of trach tube



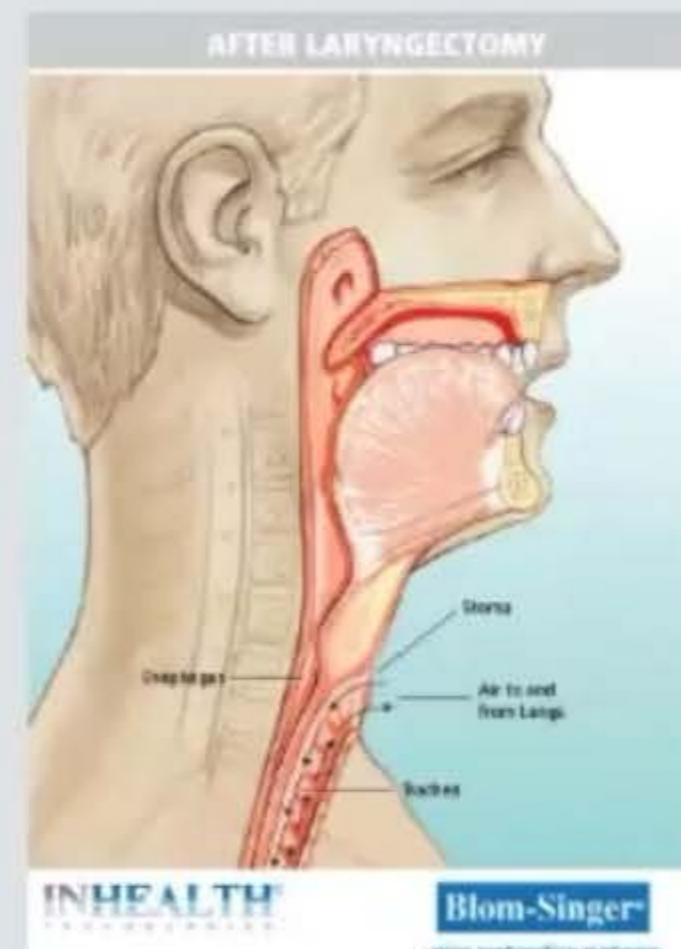
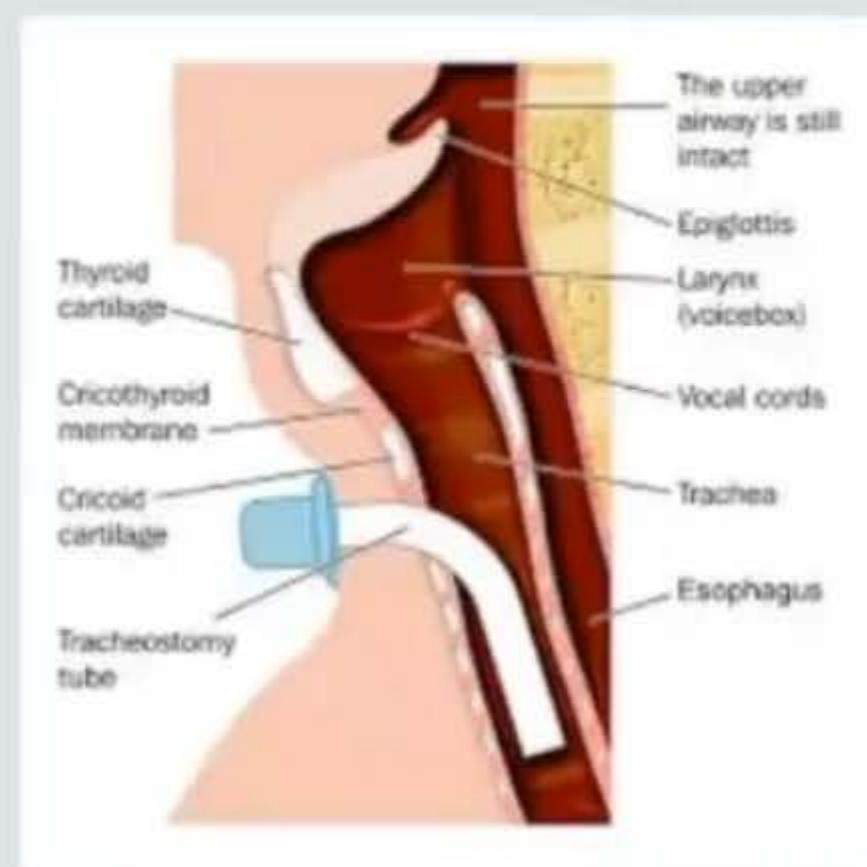
TRACH TUBE CARE

- Suctioning
 - Regular gentle suctioning
- Skin Care
 - Diligent wound and stoma care
 - To prevent irritation and secondary inflammation due to discharge
- Inner cannula tube care
 - Once or more daily removed and cleaned

DISLODGEMENT OR FALLING OUT

- Do not panic!
- If dislodged try to re-insert trach, if unable to reinsert new trach
- If trach fell out -
 - Place oxygen over the tracheal stoma site (if the patient requires oxygen and/or is on a ventilator)
 - Quickly insert a new tracheostomy tube
 - Place a small endotracheal tube

TRACHEOTOMY VS LARYNGECTOMY



INHEALTH

Blom-Singer®

Voice restoration systems