

روش های کمکی و جایگزین لوله گذاری تراشه

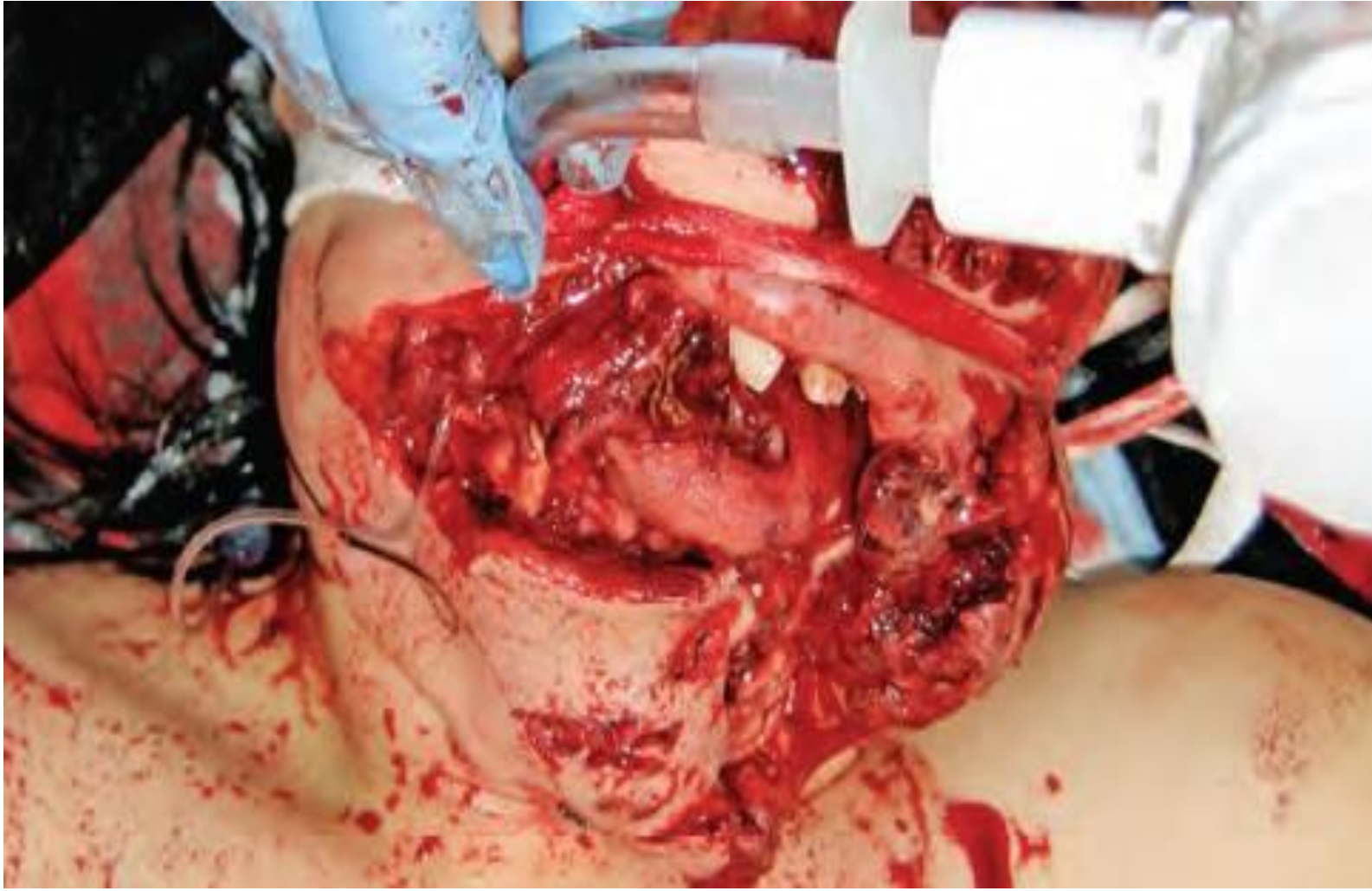
دکتر سید محمد افتخاری

استادیار طب اورژانس دانشگاه علوم پزشکی تهران

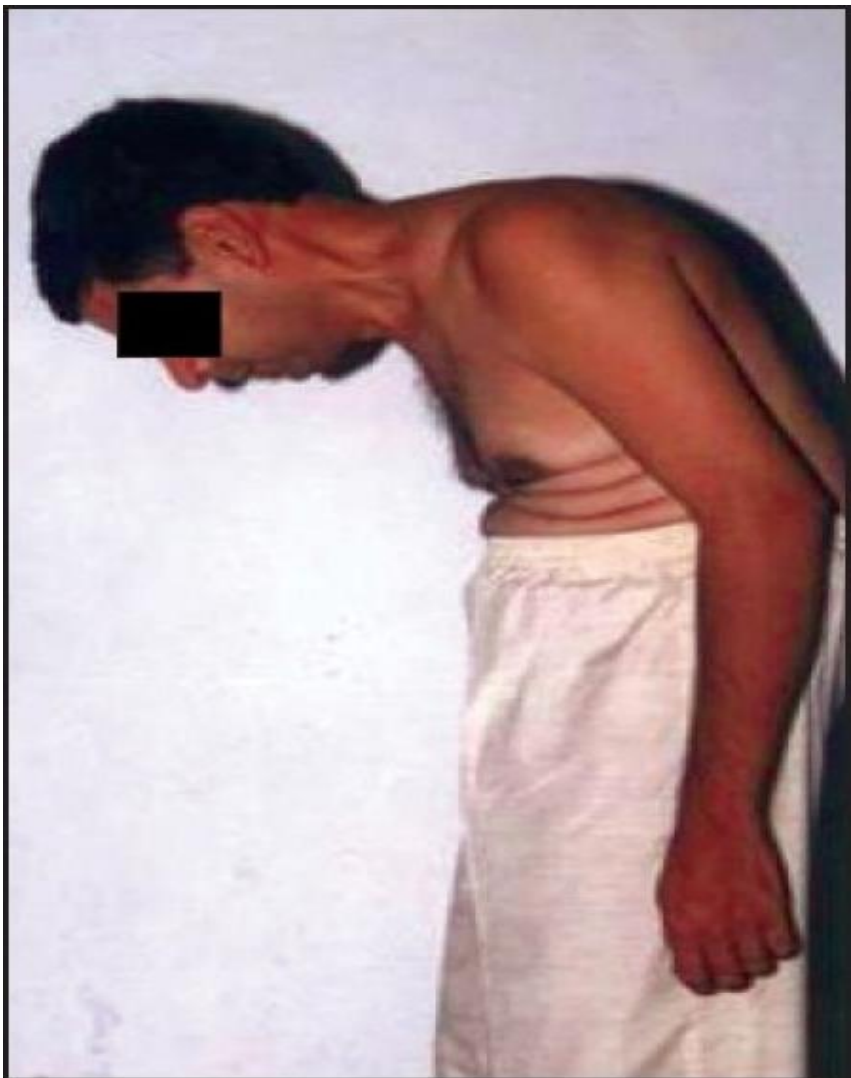
مجتمع بیمارستانی امام خمینی







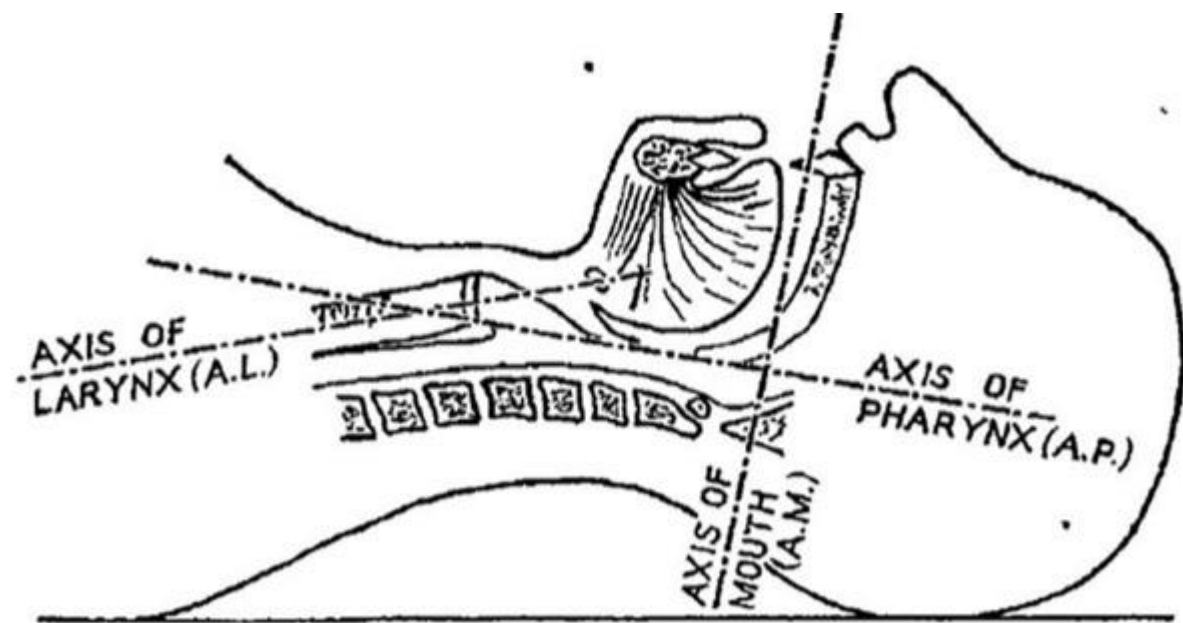




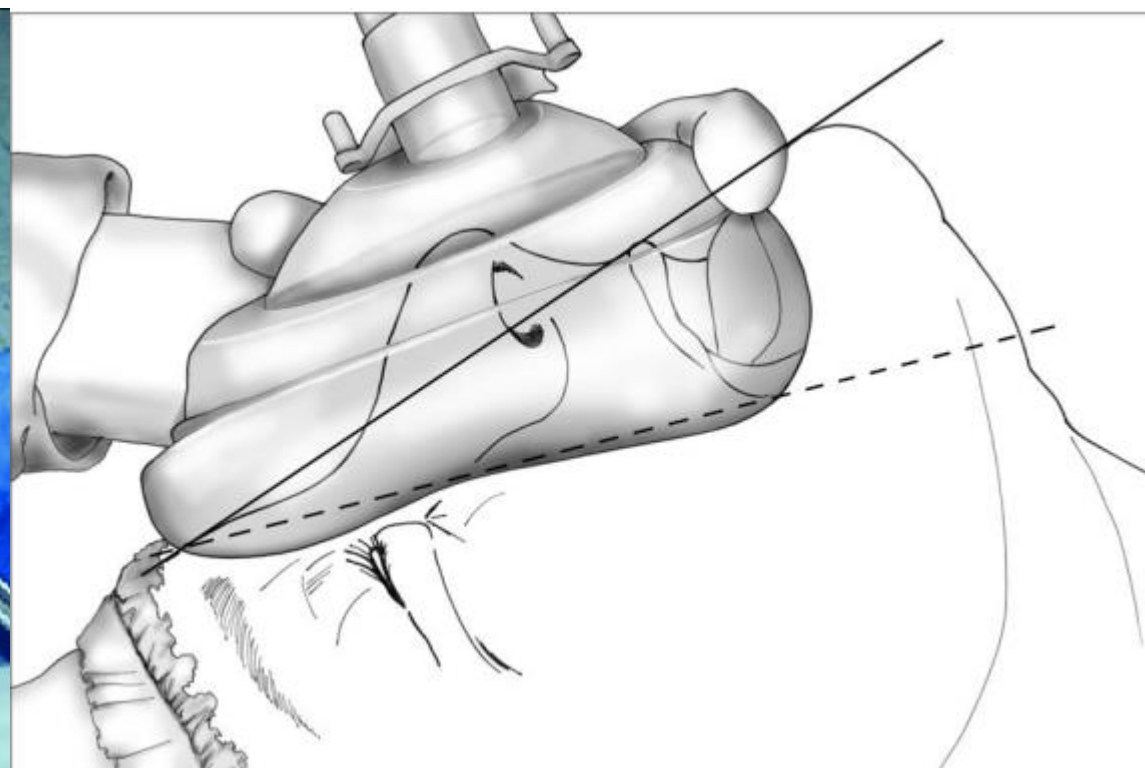


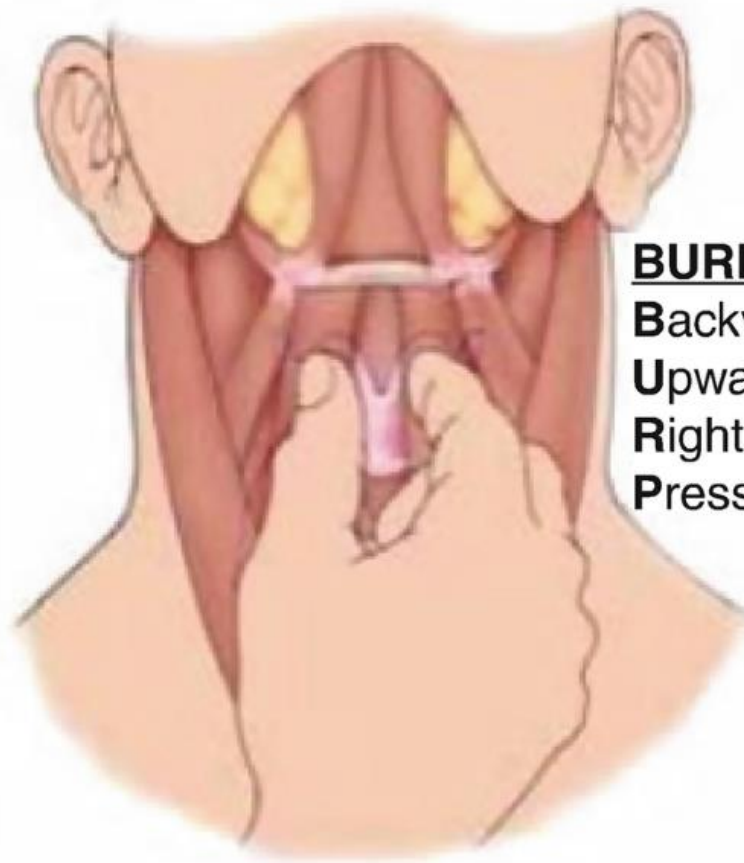
روش های پایه کمکی

- تغییر پوزیشن: رمپ، پوزیشن اسنیف داینامیک، هایپراکستانسیون گردن، و BURP.
- گذاشتن ماسک در لب تحتانی
- اکسیژناسیون در حالت آینه









BURP Maneuver

Backward

Upward

Right

Pressure





دانشگاه علوم پزشکی
و خدمات بهداشتی درمانی تهران

وسایل اکستراگلوتیک

LMA •

King •

Combitube •

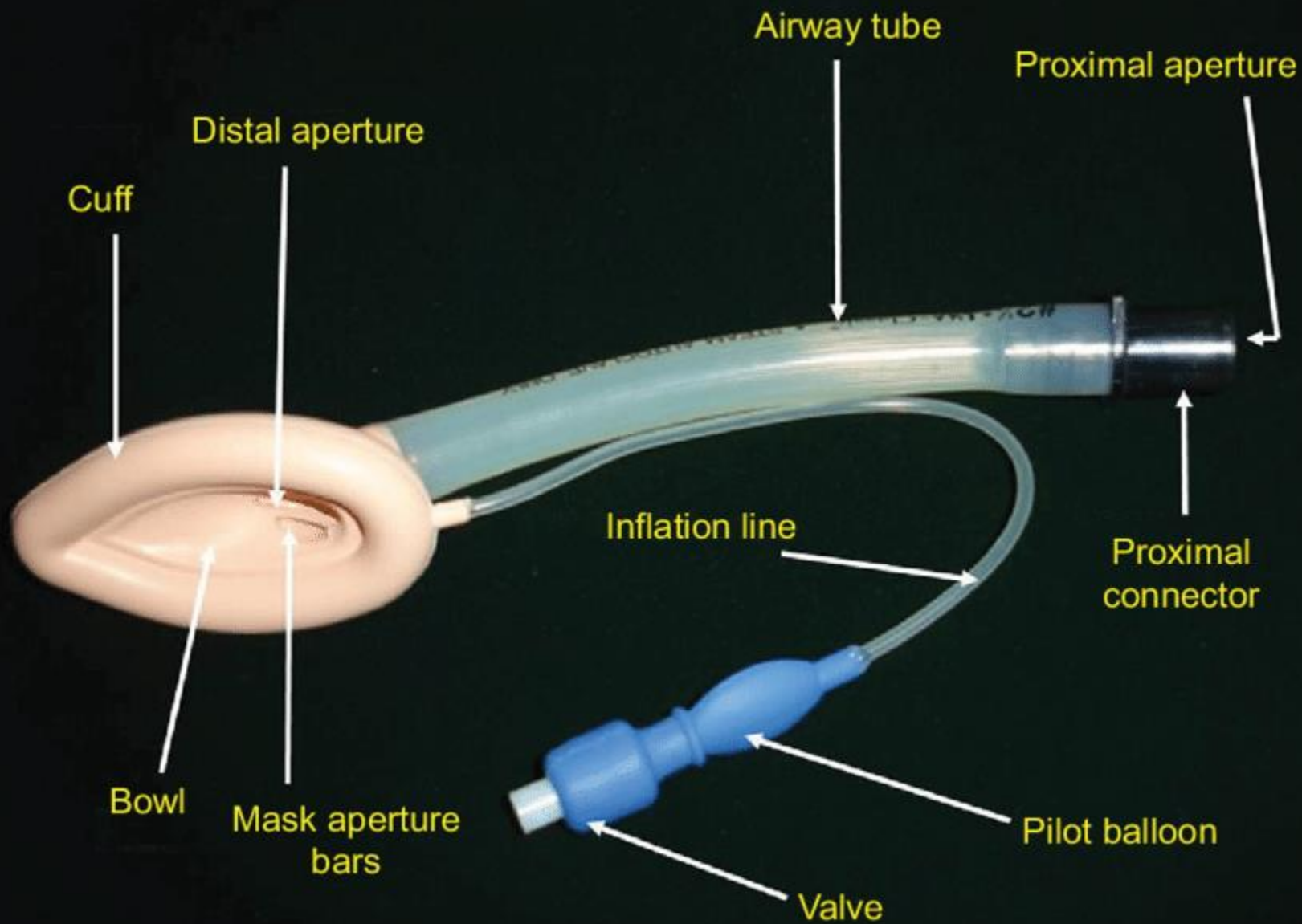


Table 1. Recommended Sizing for the LMA[®] Classic[™] and LMA[®] ProSeal[™], Based on Patient Weight^{47,48}

Laryngeal Mask Size	Patient Weight (kg)	Max Cuff Volume (mL)
1	< 5	4
1.5	5-10	7
2	10-20	10
2.5	20-30	14
3	30-50	20
4	50-70	30
5	70-100	40

Information available from LMA[®] product brochures.

Laryngeal Mask Airway Insertion

1



After selecting the appropriate size LMA, completely deflate the cuff while pushing it posteriorly so that it forms a smooth wedge shape without any wrinkles.

2



Place a small amount of water-soluble lubricant onto the posterior surface of the LMA just before insertion.

3



Hold the LMA like a pen, with the index finger at the junction of the airway tube and the cuff.

4



Insert the LMA with the posterior tip pressed against the hard palate and into the oropharynx.

5



Advance the LMA further by extending the index finger and pushing the posterior cuff along the soft palate and posterior pharynx. Exert counterpressure on the occiput during insertion.

6



When resistance is felt, carefully remove the index finger while holding the proximal end of the tube with the other hand.

7



Let go of the airway tube and inflate the cuff with enough air to achieve a good seal. This may require only half of the maximum cuff volume. *Do not overinflate the cuff!*

8



Attach a bag and ventilate while using chest rise, breath sounds, and capnography to confirm adequate gas exchange.

**Latex Free and
Single Patient Use**

**Single Valve /
Pilot Balloon**

Inflates both the proximal
and distal cuffs.

Orientation / X-Ray Line

Two Ventilation Outlets

In front of the larynx for efficient
ventilation and allow passage of
fiberoptic bronchoscope or tube
exchange catheter.

Open Distal End

Allows access to gastric
chamber for suctioning

cm Depth Markings

Proximal Cuff

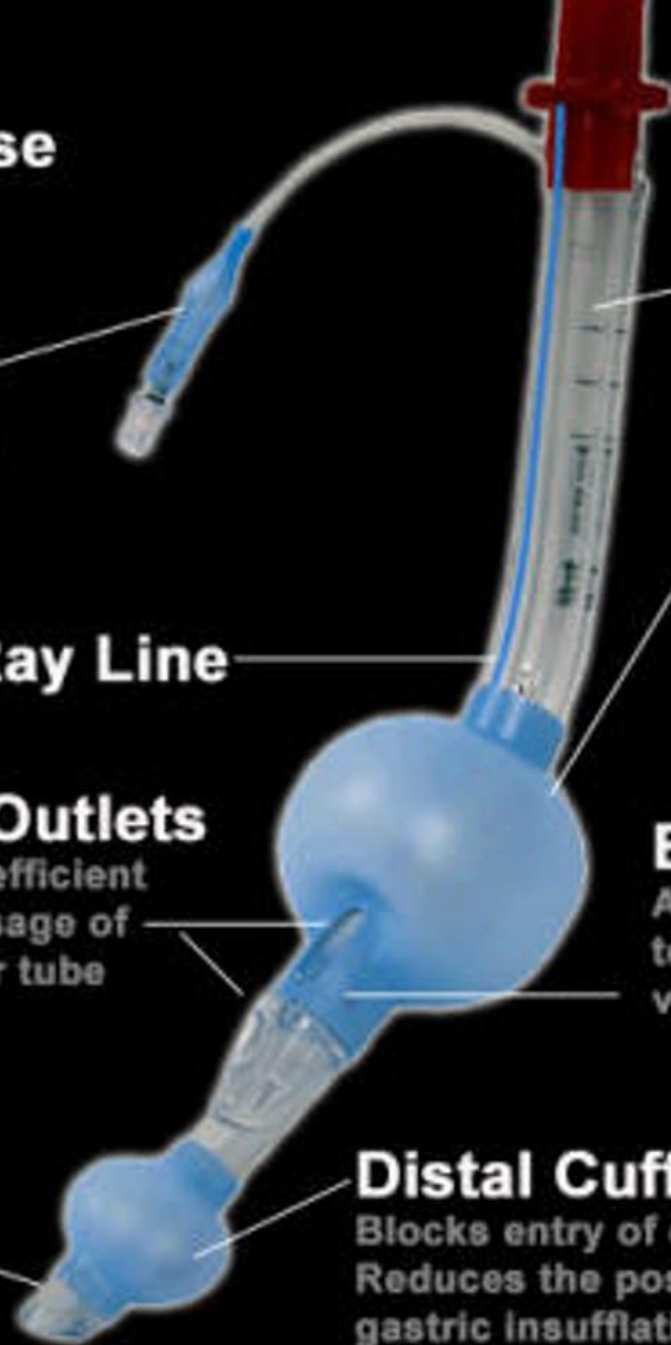
Stabilizes KING LT-D
and seals the
oropharynx

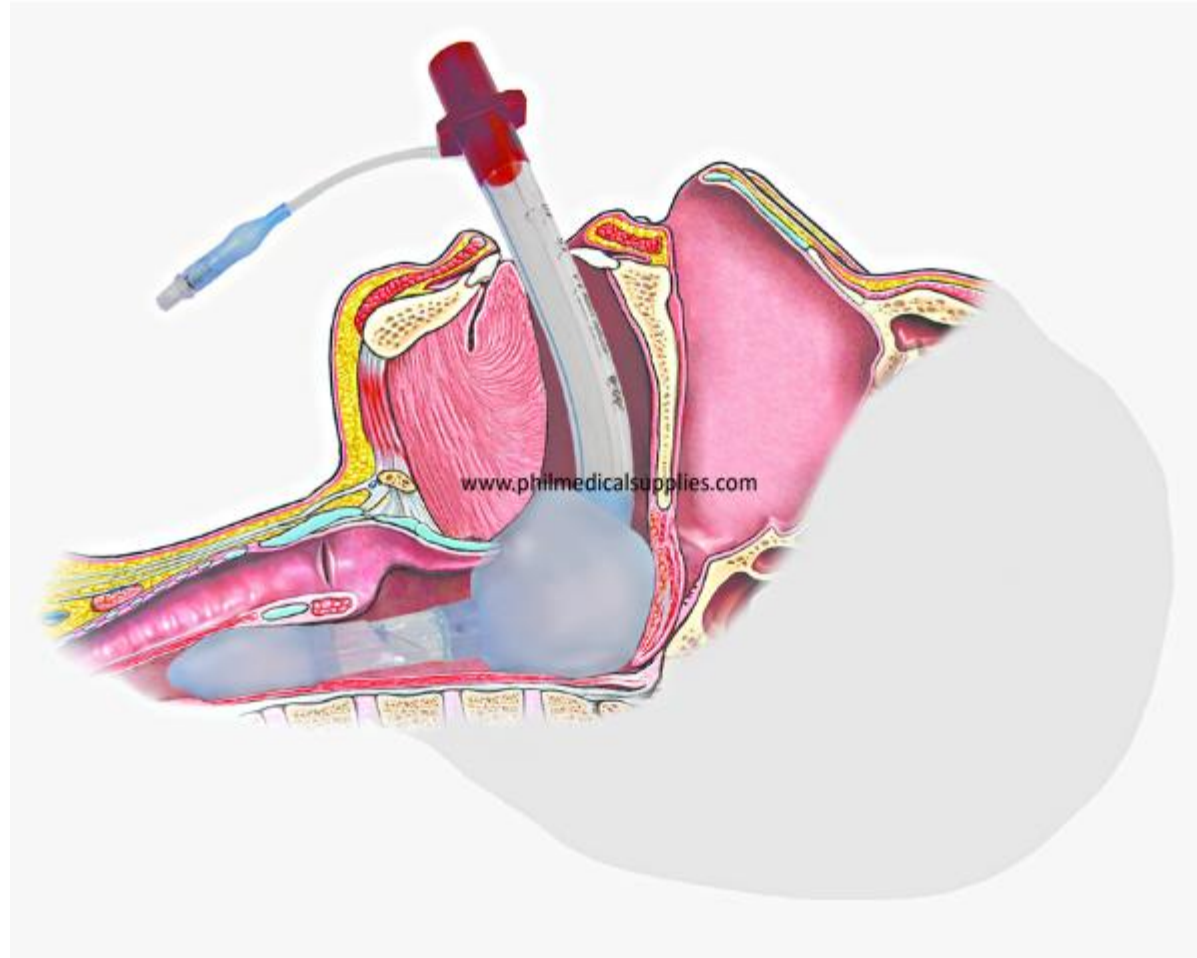
Bilateral Eyes

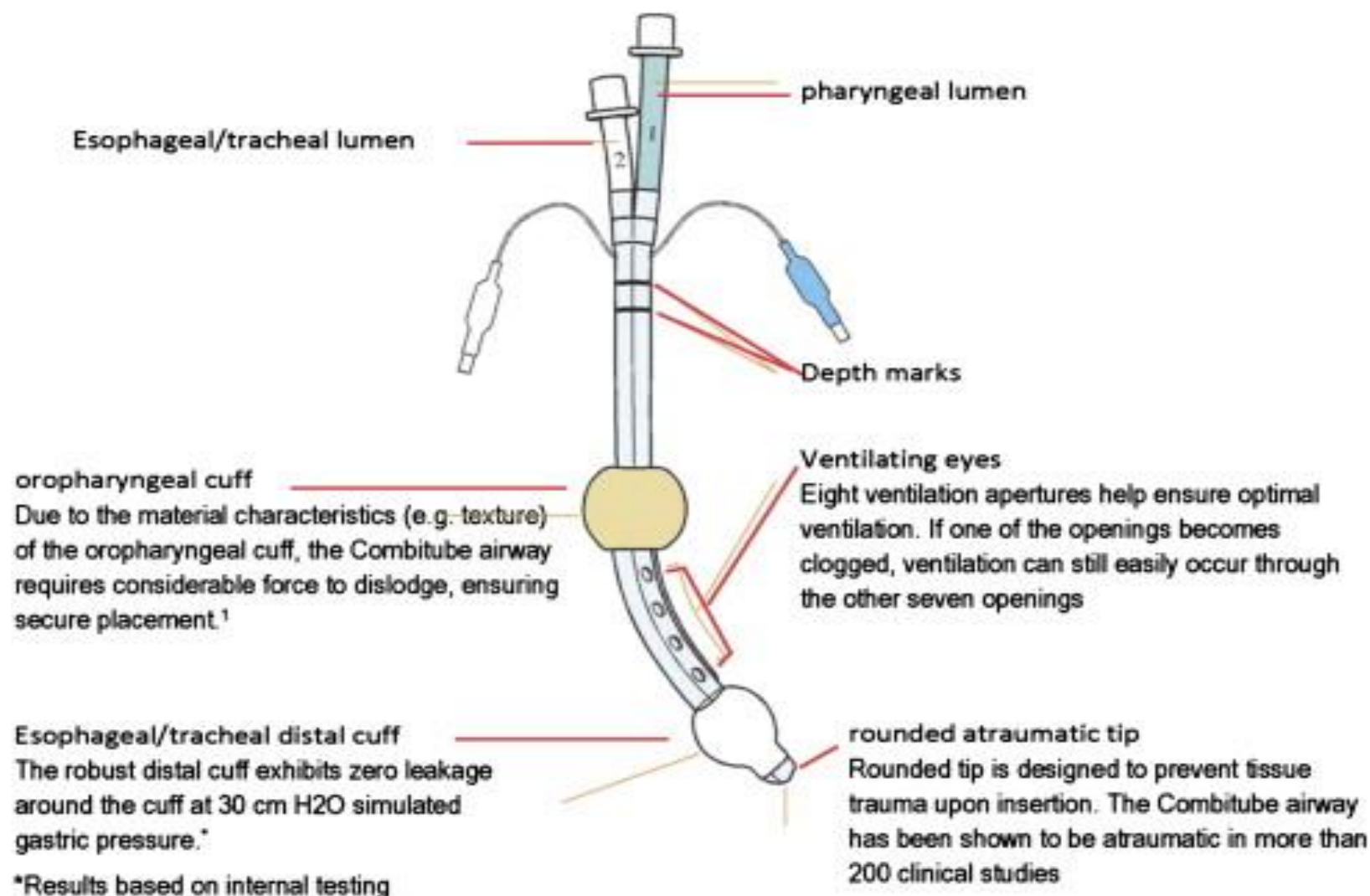
Additional eyelets
to supplement
ventilation.

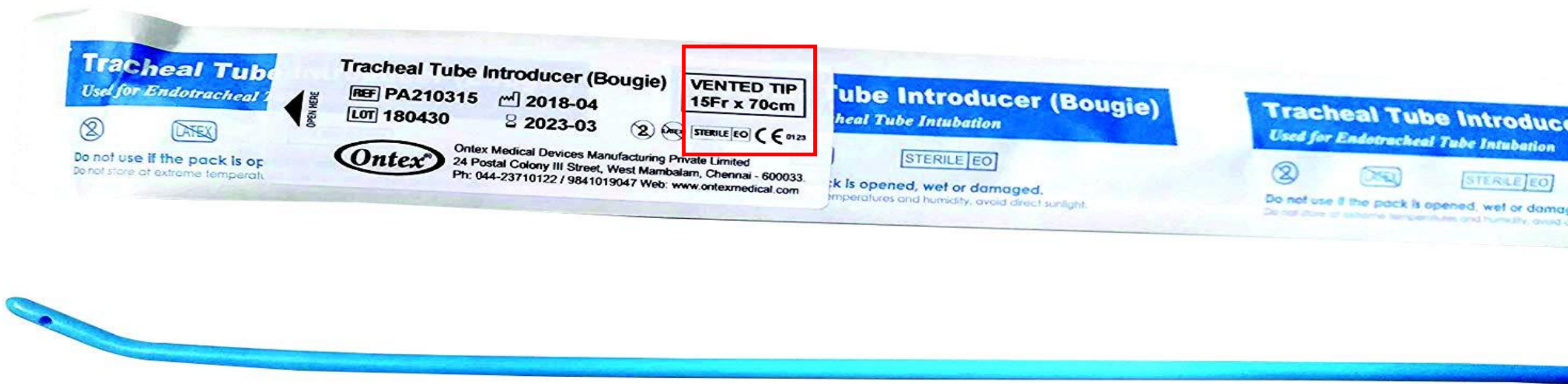
Distal Cuff

Blocks entry of esophagus
Reduces the possibility of
gastric insufflation









in	.223	.21	.197	.184	.17	.158	.144	.131	.118	.105	.092	.079	.066	.053	.039
mm	5.7	5.3	5.0	4.7	4.3	4.0	3.7	3.3	3.0	2.7	2.3	2.0	1.67	1.35	1
Fr	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3
															
															
Fr	18	19	20	22	24	26	28	30	32	34					
mm	6.0	6.3	6.7	7.3	8.0	8.7	9.3	10.0	10.7	11.3					
in	.236	.249	.263	.288	.315	.341	.367	.393	.419	.445					

CREGANNA
 MEDICAL DEVICES

French Catheter Scale

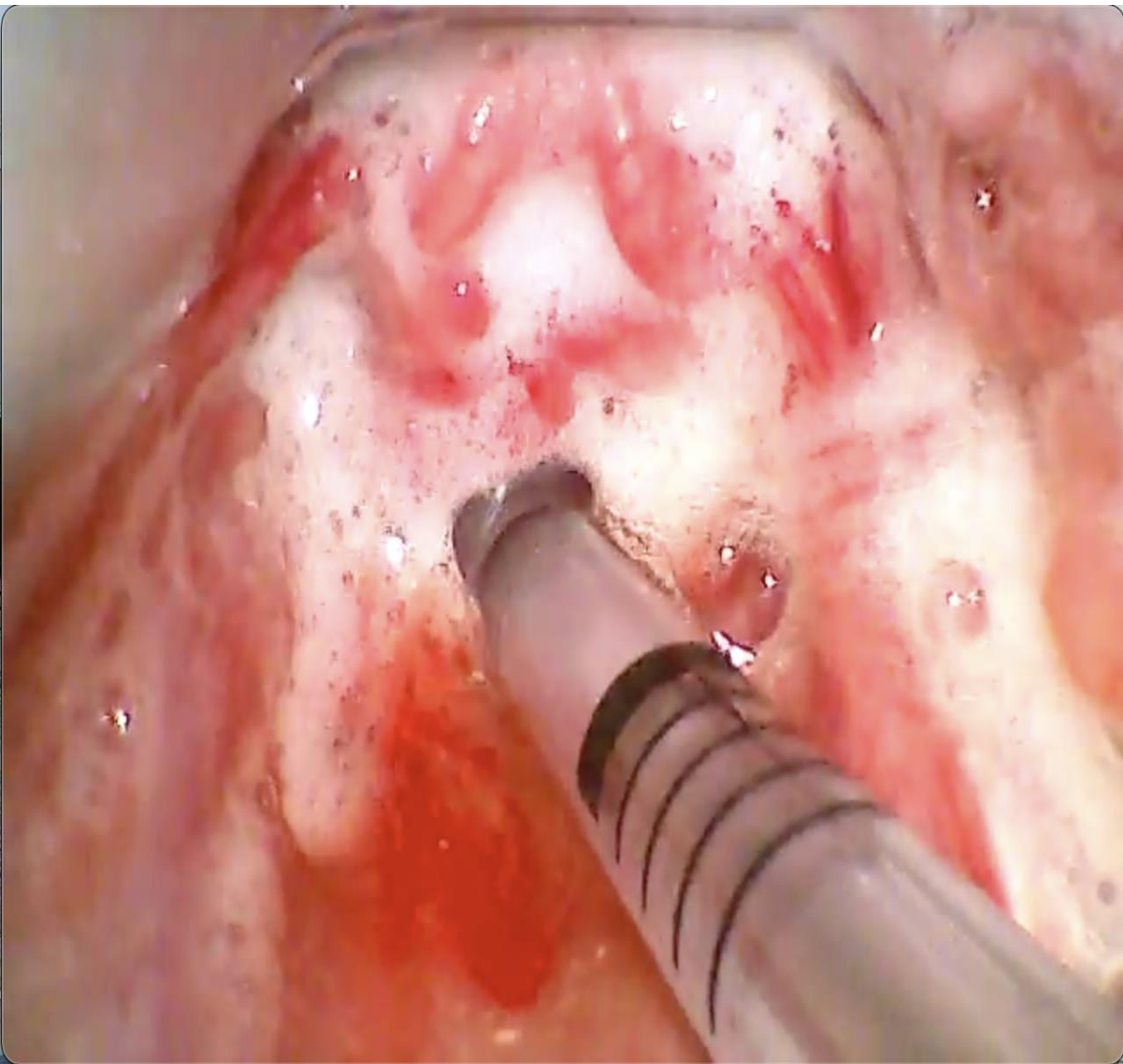
روش های جایگزین لوله گذاری با لارنگوسکوپی مستقیم



• ویدئو

• مزایا

• معایب



ادامه

- گلایدوسکوپ

- برونکوسکوپ فلکسیبل

- استایلت نیمه سفت



Fig. 1.16. The Clarus Video System incorporates a curved stylet containing a CMOS chip video camera surrounding by a malleable but rigid protective metal sheath. Images are displayed on a video screen attached to the handle. The screen can swivel for optimal viewing as the stylet is inserted into the mouth. (Courtesy Clarus Medical, Minneapolis.)



Fig. 1.17. The Shikani optical stylet (SOS) with endotracheal tube mounted. The eyepiece and battery pack are at the right. (Courtesy Clarus Medical, Minneapolis, MN.)



B

Retrograde Intubation

1



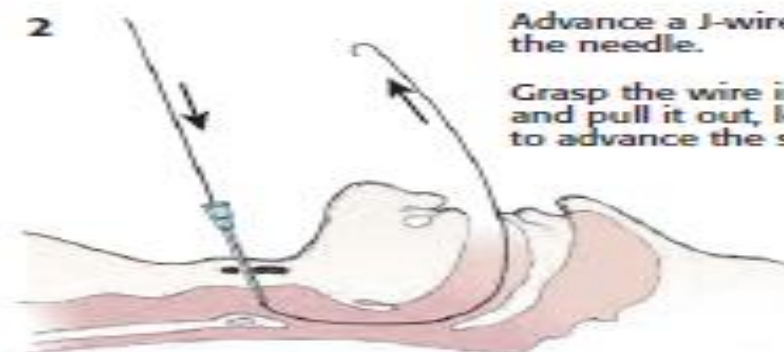
Place a saline-filled needle through the cricothyroid membrane.

Orient the needle bevel cephalad.

Aspirated air bubbles indicate tracheal entry.



2



Advance a J-wire cephalad through the needle.

Grasp the wire in the pharynx and pull it out, long enough to advance the sheath.

3

A) Grasp the wire at the neck with a clamp to keep it taut.

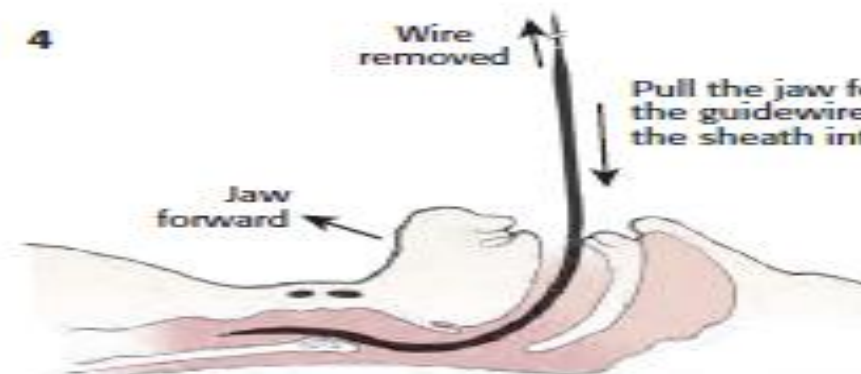
B) Pass the antegrade sheath over the wire into the trachea while keeping both ends of the wire taut.



NOTE: The sheath will be stopped just below the epiglottis because the wire exits the trachea.

This is the critical portion of the procedure because only a small portion of the sheath is in the trachea.

4

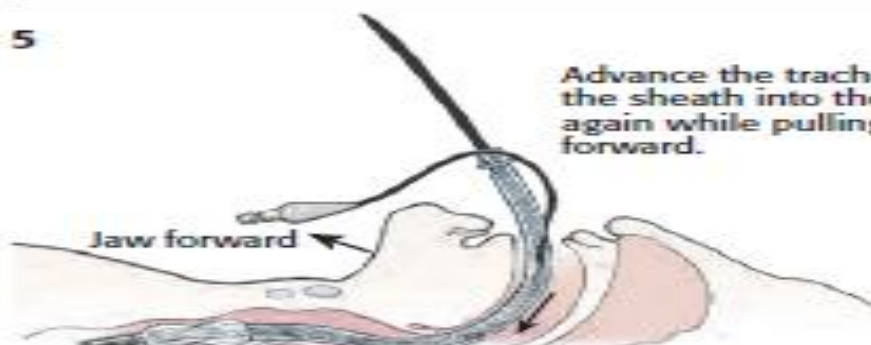


Wire removed

Pull the jaw forward, remove the guidewire, and advance the sheath into the trachea.

Jaw forward

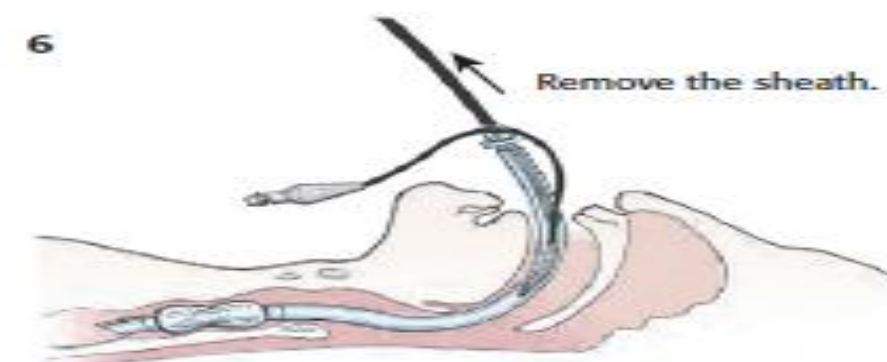
5



Advance the tracheal tube over the sheath into the trachea, again while pulling the jaw forward.

Jaw forward

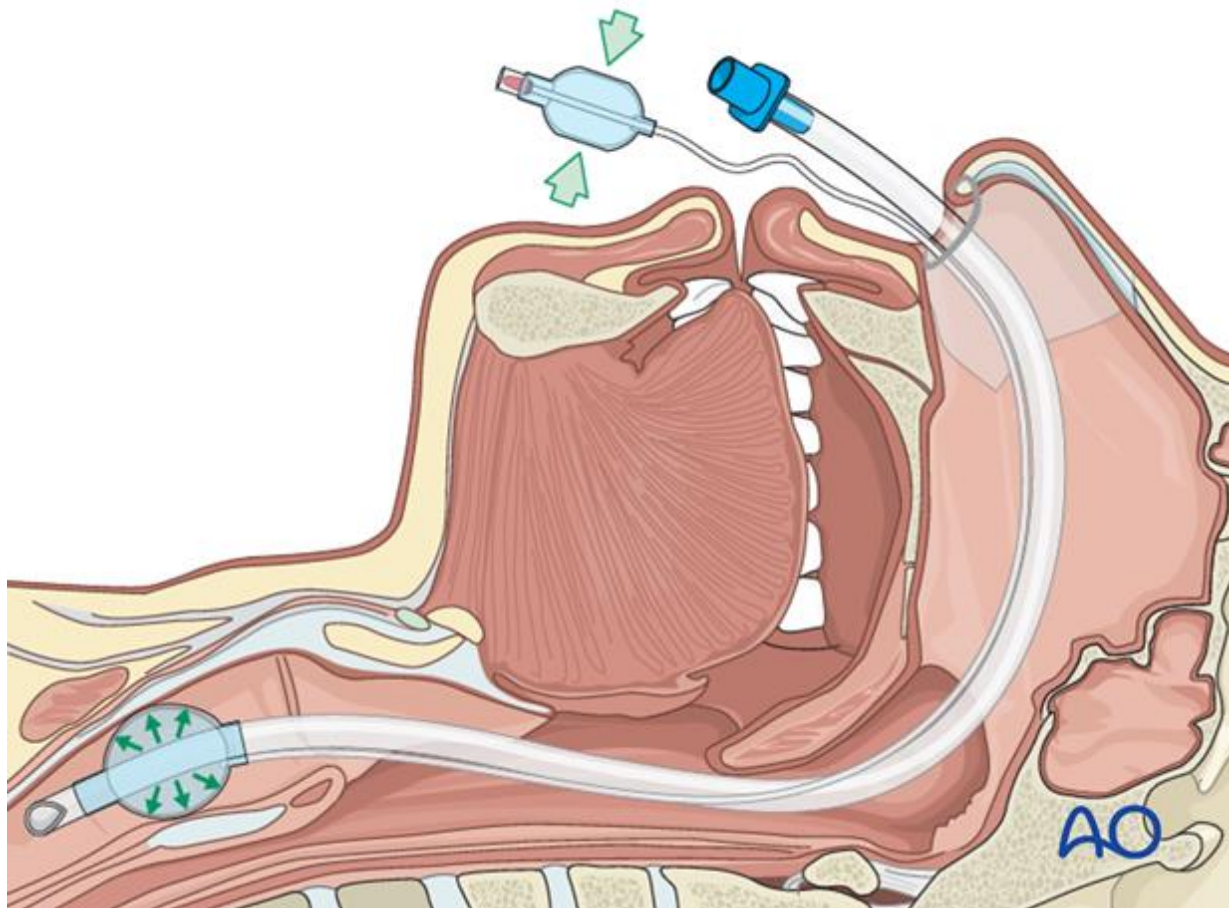
6



Remove the sheath.



از طریق بینی





دانشگاه علوم پزشکی
و خدمات بهداشتی درمانی تهران

با انگشت



غشا کریکوتایروئید

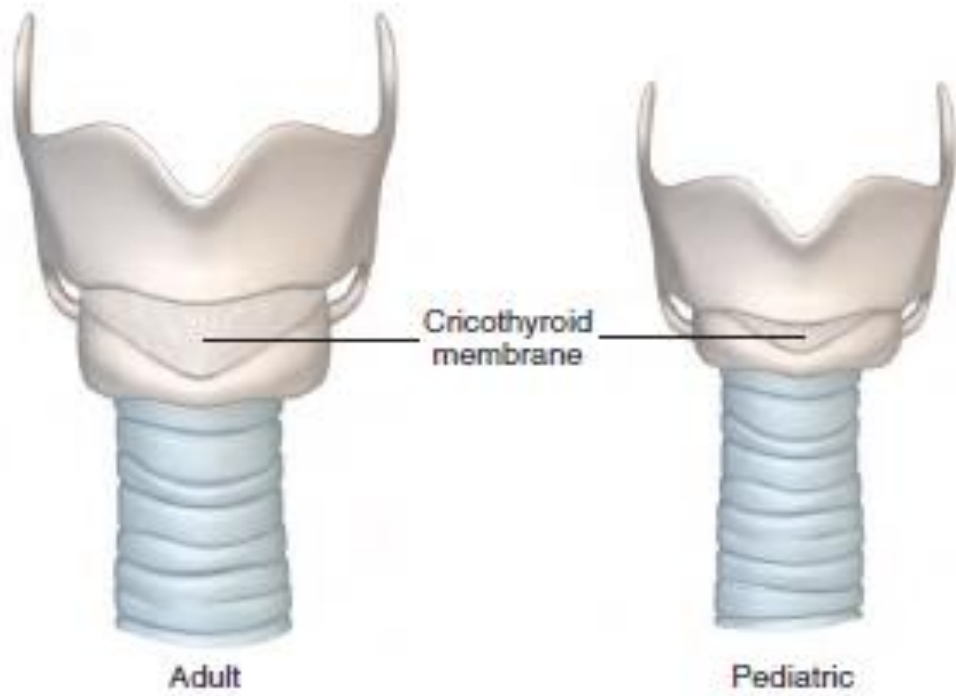


Figure 6.2 Adult larynx compared with a pediatric larynx.

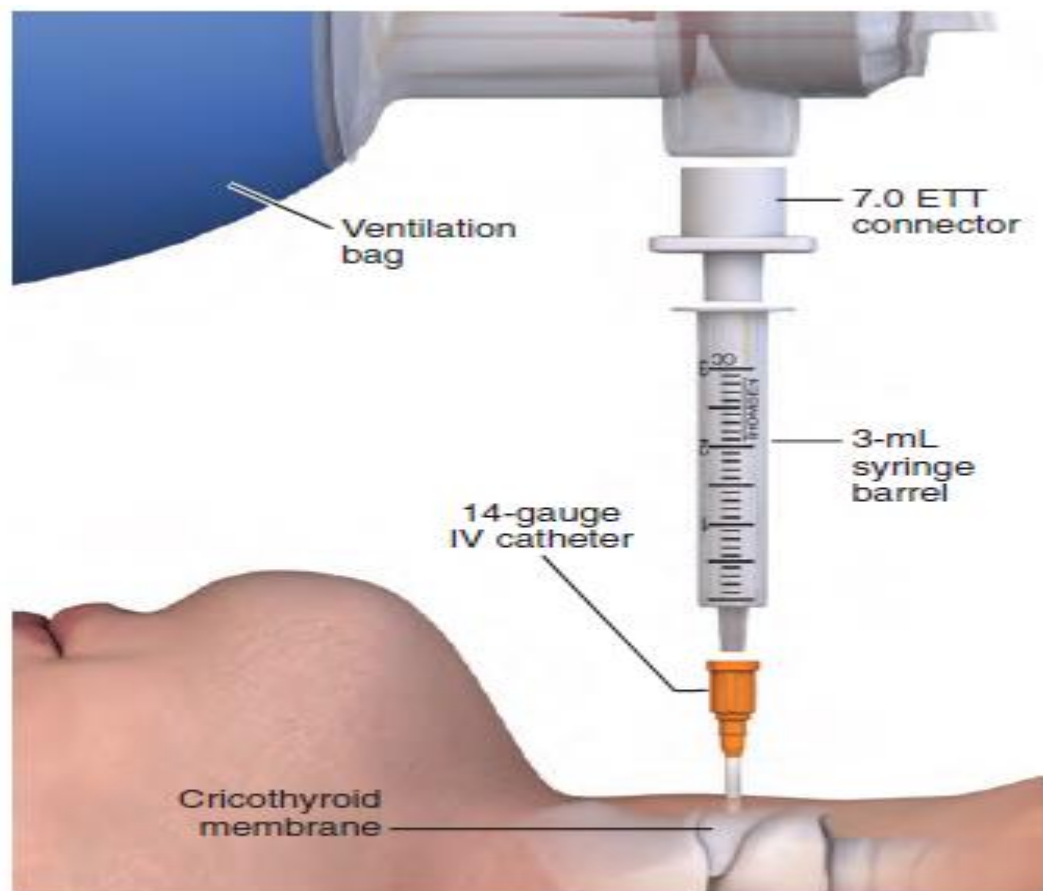


Figure 6.13 Homemade ventilation setup for transtracheal catheter ventilation using a ventilation bag, a standard endotracheal tube adapter, a 3-mL syringe, and a 14-gauge angiocatheter. *ETT*, Endotracheal tube; *IV*, intravenous.

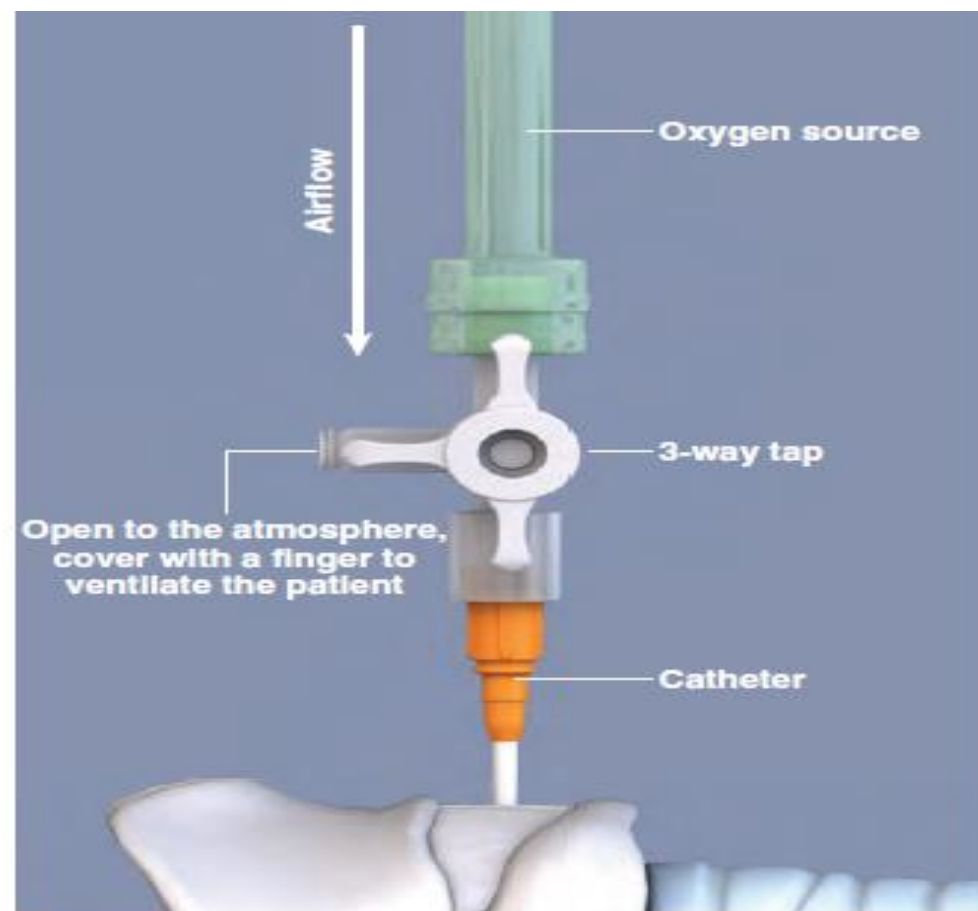


Figure 6.14 Three-way stopcock connecting the oxygen tubing to the hub of the catheter with the third arm open to the atmosphere.

SURGICAL CRICOTHYROTOMY: TRADITIONAL TECHNIQUE

1



Extend the neck whenever possible for better access to the trachea. Immobilize the larynx with your nondominant hand and palpate the cricothyroid membrane with your index finger.

2



Make a 3- to 5-cm *vertical* midline incision through the skin and subcutaneous tissues.

Palpate the membrane through the skin to confirm the anatomy.

3



Make a <1-cm *horizontal* incision through the cricothyroid membrane. *Note that the skin incision is vertical, but the membrane incision is horizontal.*

4



Insert the tracheal hook in the opening of the membrane, and rotate it cephalad, while grasping the inferior border of the thyroid cartilage. Ask an assistant to provide upward traction on the hook.

5



Place the tips of the Trousseau dilator into the opening in the membrane and spread in the longitudinal (vertical) plane.

6



Rotate the handle 90° until the handle is vertical or parallel to the neck.

7



Insert the tube between the blades of the dilator until the flanges rest against the skin of the neck.

Keep your thumb on the obturator during tube insertion.

8



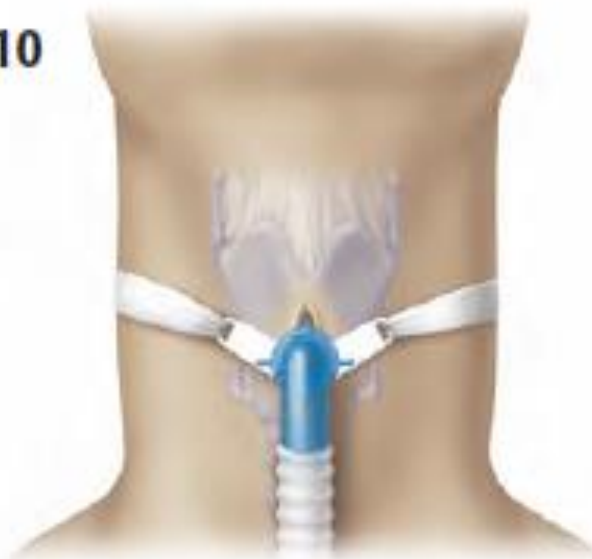
Carefully remove the Trousseau dilator and the obturator.

9



Replace the inner cannula of the tracheostomy tube and inflate the balloon.

10



Ventilate and confirm tube position by auscultation and end-tidal CO₂.

Secure the tube in place.

Figure 6.6 Surgical cricothyrotomy: traditional technique. (Adapted from Custalow CB: *Color atlas of emergency department procedures*, Philadelphia, 2005, Saunders.)

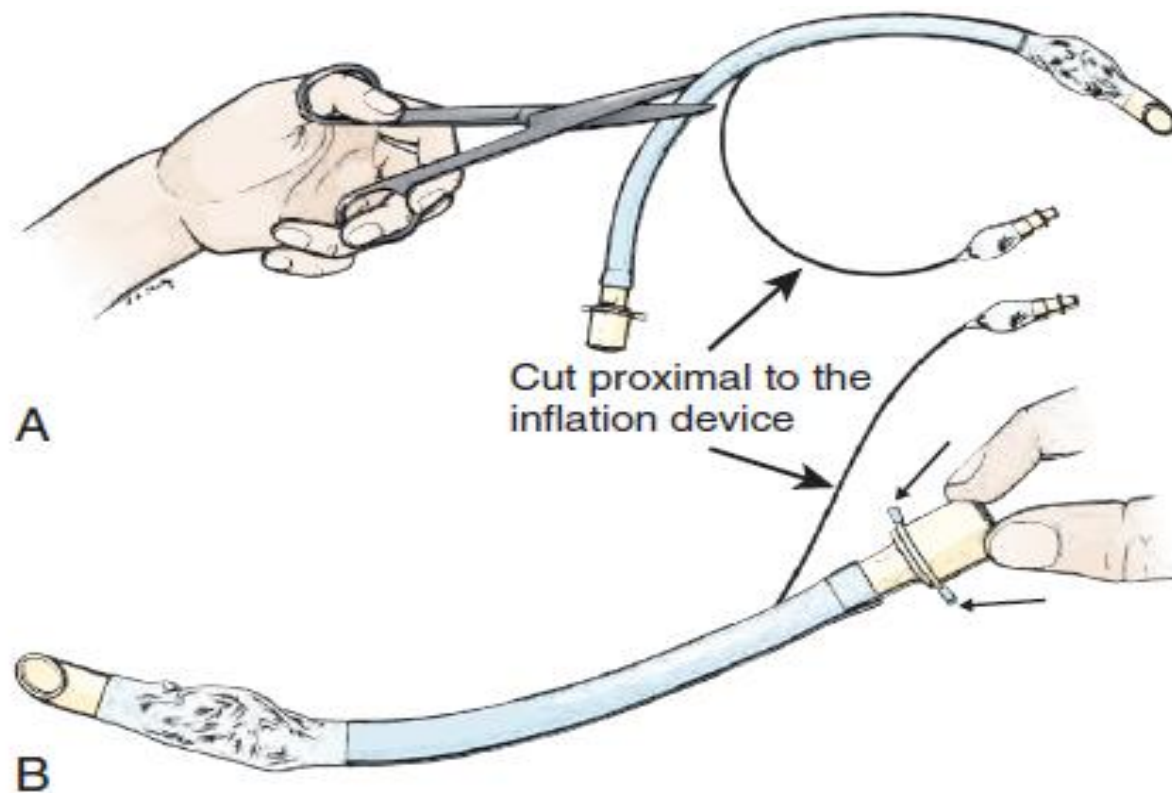


Figure 6.8 A, Modify the standard endotracheal (ET) tube for use in surgical cricothyrotomy as a temporary alternative to a tracheostomy tube. Cut the proximal end of the ET tube but be careful to not cut the balloon inflation apparatus. B, Replace the adapter on the cut end of the tube.

SURGICAL CRICOTHYROTOMY: RAPID FOUR-STEP TECHNIQUE

1



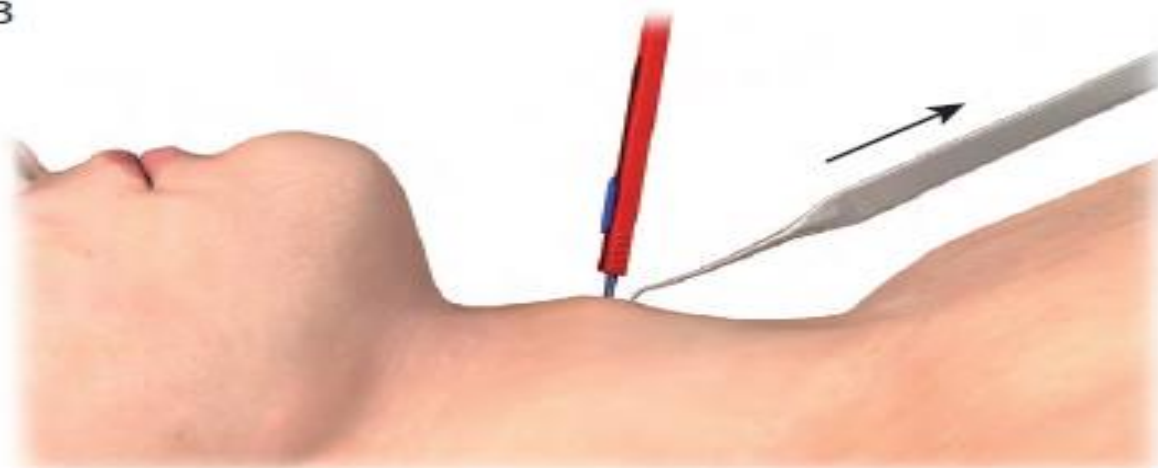
If possible, extend the neck to better expose the trachea. Palpate the depression over the cricothyroid membrane with your nondominant hand.

2



Make a 1.5-cm single horizontal stab incision through the skin, subcutaneous tissue, and cricothyroid membrane.

3



Using the scalpel blade as a guide, pick up the cricoid cartilage with the tracheal hook and provide traction in the caudal direction to stabilize the trachea.

4



Place a No. 4 cuffed tracheostomy tube or a 6.0 cuffed endotracheal tube through the opening.

Figure 6.9 Surgical cricothyrotomy: rapid four-step technique. Extension of the neck (if clinically feasible) facilitates the procedure. (Redrawn from Brofeldt BT, Panacek EA, Richards JR: An easy



خلاصه

- بوژی و اکسیژناسیون در حالت آینه را همیشه در نظر داشته باشیم.
- همواره LMA آماده باشد.
- ویدئولارنگوسکوپ بطور کلی وسیله انتخابی برای کلیه اینتوباسیون های داخل تراشه.
- وسایل ویدئویی و اپتیک در شرایط ترشحات زیاد راه هوایی مناسب نیستند.
- بزرگترین اشتباه در کریکوتایروتومی/ستومی انجام ندادن آن است!

روش انتخابی شما؟

















دانشگاه علوم پزشکی
و خدمات بهداشتی درمانی تهران

ممنون از توجه شما

• سوال