MADE EASY

# Difficult Airway Management : Made Easy

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**Making difficult airway “easy” is difficult.**
**But Anticipation, Acquiring skill , knowledge& practice and Adequate preparedness will do it**



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# This session is try to answer ....

- What is an Difficult airway ?
- What are the causes for Difficulty?
- How will you predict it?
- How will you manage it ?
- What are the pearls and do's and don'ts
- Manthras in difficult airway positions


**Declaration:**
**I don't have any conflict of interest to declare on this presentation and I am not promoting or supporting any specific company or produc. The various equipment described in the session are purely based on academic interest only.**

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# What is meant by Difficult airway ?

- The clinical situation in which a conventionally trained anaesthesiologist experiences **difficulty with FMV of the** upper airway, tracheal intubation, or both.*!*
- Represents a ***complex interaction*** between patient factors, the clinical setting, and the skills of the practitioner.

# Can you predict difficult airway ?

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# History

**Congenital airway abnormalities:**
e.g. Pierre Robin, Klippel- Feil, Down's syndromes

**Acquired**
Rheumatoid arthritis, Acromegaly, Benign and malignant tumors of tongue, larynx etc.

**Iatrogenic**
Oral/pharyngeal radiotherapy, Laryngeal/tracheal surgery, TMJ surgery.

Reported **previous anaesthetic/ Intubation** problems

Dental damage, Emergency tracheostomy, Med-alerts from the previous record etc.

# GENERAL EXAMINATION

**Adverse anatomical features:**
Small mouth, receding chin, high arched palate, large tongue, morbid obesity

**Mechanical limitation:**
reduced mouth opening, post-radiotherapy fibrosis, poor cervical spine movement

**Poor dentition:**
Prominent/loose teeth

Orthopaedic/orthodontic **equipment.**

**Patency** of the nasal passage

# Basic categories

## AIRWAY EVALUATION

a) Evaluation of tongue size relative to pharynx

b) Mandibular space

c) Assessment of glottic opening.

d) Mobility of the joints

1. TMJ
2. Neck mobility

# Airway assessment indices

**4.Advanced indices**

- **Flow volume loop**
- **Acoustic response measurement**
- **Ultra sound guided**
- **CT/MRI**
- **Flexible bronchoscope**

## 1.Individual indices

## 2.Group indices

Wilson’s score

Benumof’s analysis

Saghei & safavi test

## Lemon assesment

## 3.Radiological indices

a)X Ray Neck[Lataral]
b)CT Scan
c)Helical CT
d)USG

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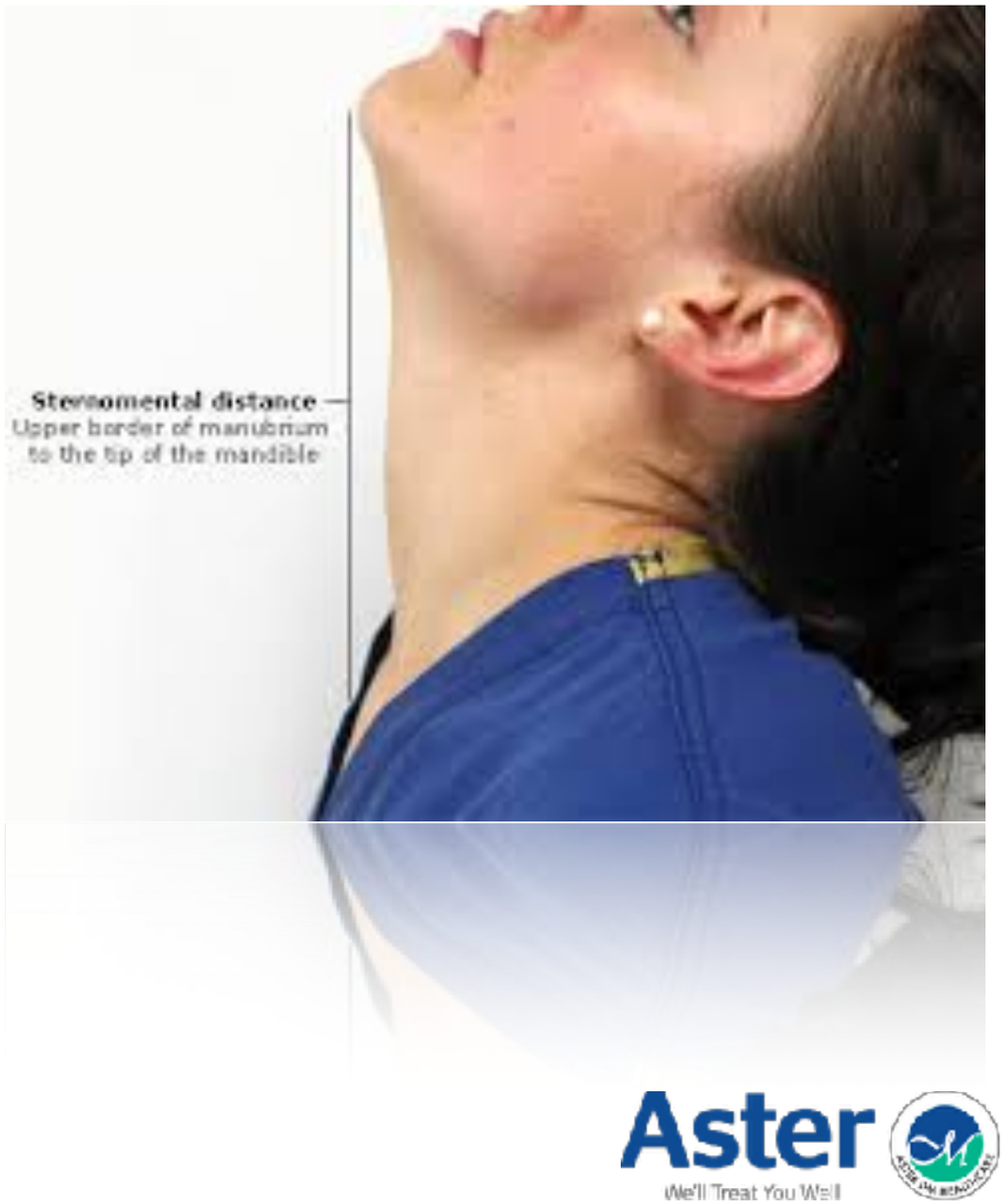
# STERNO-MENTAL DISTANCE (SAVVA TEST)

- Distance from the upper border of the manubrium to the tip of mentum, neck fully extended, mouth closed

- Minimal acceptable value – 12.5 cm

- *Single best predictor* of difficult laryngoscopy and intubation ( Has high sensitivity & specificity).



# Radiological Airway assessment

## X-Ray neck (lateral view)

1. **Occiput - C1 spinous process distance< 5mm.**
2. **Increase in posterior mandible depth > 2.5cm.**
3. **Ratio of effective mandibular length to its posterior depth <3.6.**
4. **Tracheal compression**

## Bed side Ultrasound

Trachea, Soft tissues

## CT Scan:

1. **Tumors of floor of mouth, pharynx, larynx**
2. **Cervical spine trauma, inflammation**
3. **Mediastinal mass**

## Helical CT (3D-reconstruction):

- **Exact location and degree of airway compression**

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# Wilson's risk score

| | Score |
|---|---|
| Weight | 0=<90kg<br>1=>90kg<br>2=>110kg |
| Head and neck movement | 0=Above 90degrees<br>1=About 90degrees<br>2=Below 90degrees |
| Jaw movement | 0=IG>5cm or SLux >0<br>1=IG<5cm and SLux = 0<br>2=IG<5cm and SLux<0 |
| Receding mandible | 0=Normal<br>1=Moderate<br>2=Severe |
| Buck teeth | 0=Normal<br>1=Moderate<br>2=Severe |

- Head movement assessed with pencil taped to a patient's forehead.
- IG = Interincisor gap measured with mouth fully open.
- SLux = Maximal forward protrusion of the lower incisors beyond the upper incisors.

- **score 5 or < =easy laryngoscopy**
- **Score 8-10 =severe difficulty in laryngoscopy**

# BENUMOF'S 11 PARAMETER ANALYSIS

| | Parameter | Minimum acceptable value |
|---|---|---|
| 1. | Buck teeth | <1.5cm |
| 2. | Subluxation | Absent |
| 3. | Interincisor gap | Yes |
| 4. | Palate configuration | >3cm |
| 5. | Mallampati class | No arching/narrowness |
| 6. | Upper inciors length | <2 |
| 7. | TM distance | > 5cm |
| 8. | SMS compliance | Soft to palpation. |
| 9. | Neck thickness | Qualitative ( >33cm DI) |
| 10. | Length of neck | >8cm |
| 11. | Head /neck mvt | Normal range |

**4-2-2-3 rule**

4 for tooth

2 for inside of mouth

2 for mandibular space

3 for neck examination.

***Group indices***

# 1. SAGHEI & SAFAVI'S

- Weight >80kg
- Tongue protrusion < 3.2cm
- Mouth opening <5cm
- Upper incisor length >1.5cm
- Mallampati class >1
- Head extension <70 degree

Any 3 indices if present - Prolonged laryngoscopy

# Spectrum of difficulty

**Difficulty at 4 level**

- Spontaneous/mask ventilation
- Standard tracheal intubation
- Supra glottic airway
- Surgical Airway

BOX 1-2

# MOANS Mnemonic for Evaluation of Difficult Bag-Mask Ventilation

*M*ask seal

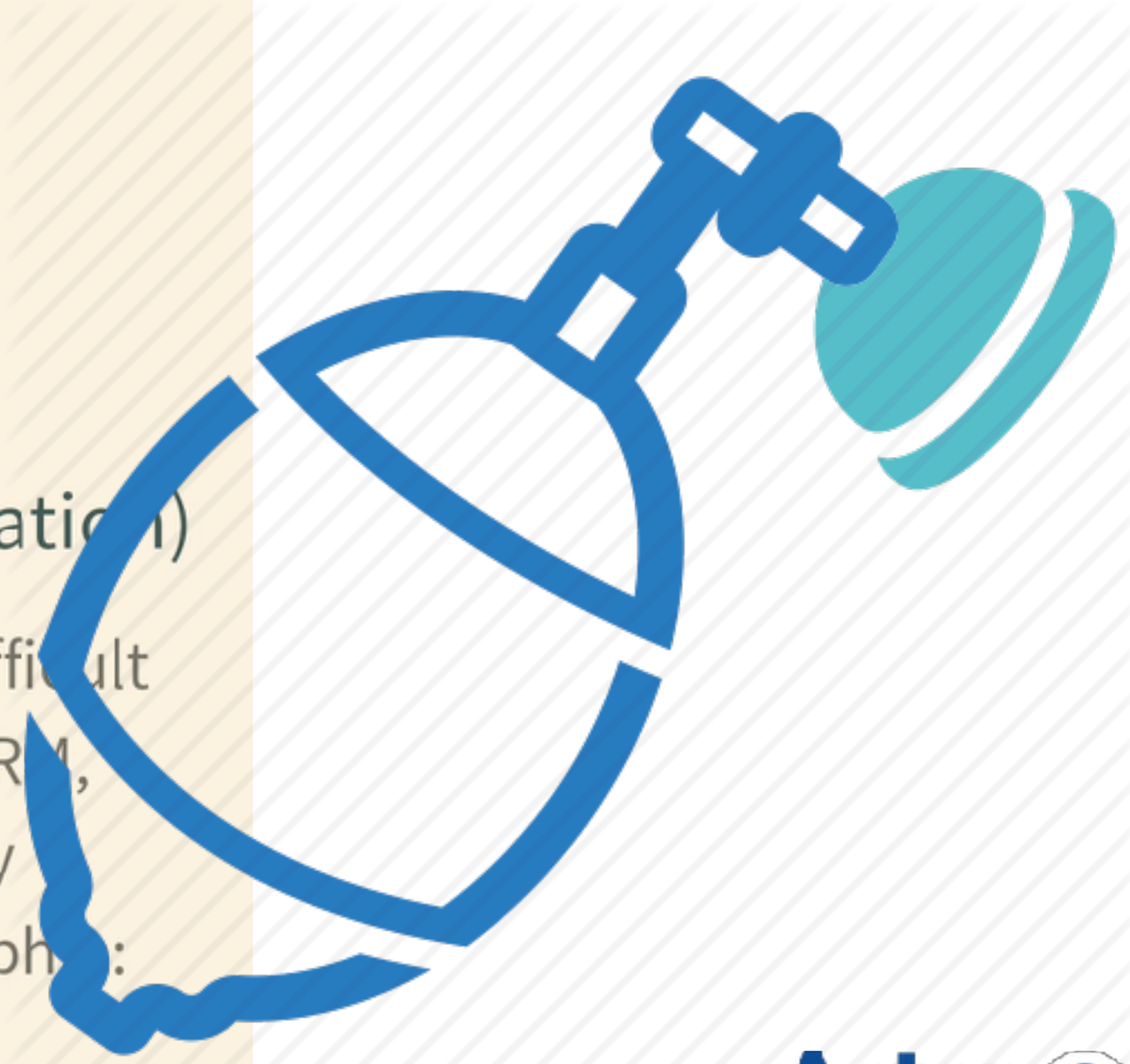
*O*bstruction or obesity

*A*ged

*N*o teeth

*S*tiffness (resistance to ventilation)

Adapted with permission from The Difficult Airway Course: Emergency and Walls RM, Murphy MF, eds. Manual of Emergency Airway Management, 4th ed. Philadelphia: Lippincott, Williams & Wilkins; 2012.



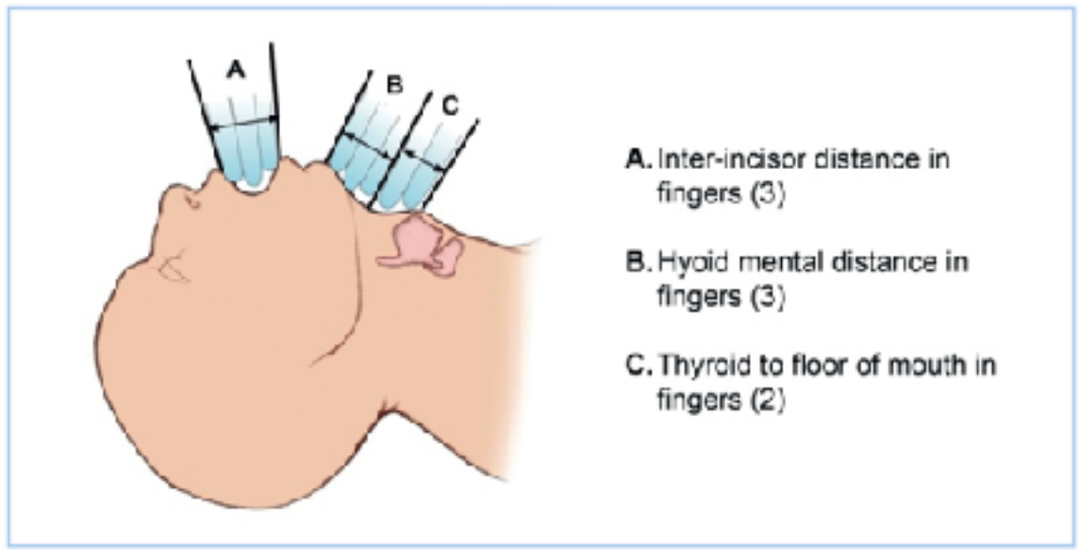



**FIGURE 14.6** LEMON airway assessment method. (Murphy MF, Wall RM. The difficult and failed airway. In: *Manual of Emergency Airway Management*. Chicago, IL: Lippincott Williams and Wilkins; 2000:31–39.)

Source: Hung OR, Murphy MF: *Management of the Difficult and Failed Airway, 2nd Edition*
www.accessanesthesiology.com

BOX 1-1

## LEMON Approach for Evaluation of Difficult Direct Laryngoscopy

*L*ook externally for signs of difficult intubation (by gestalt)

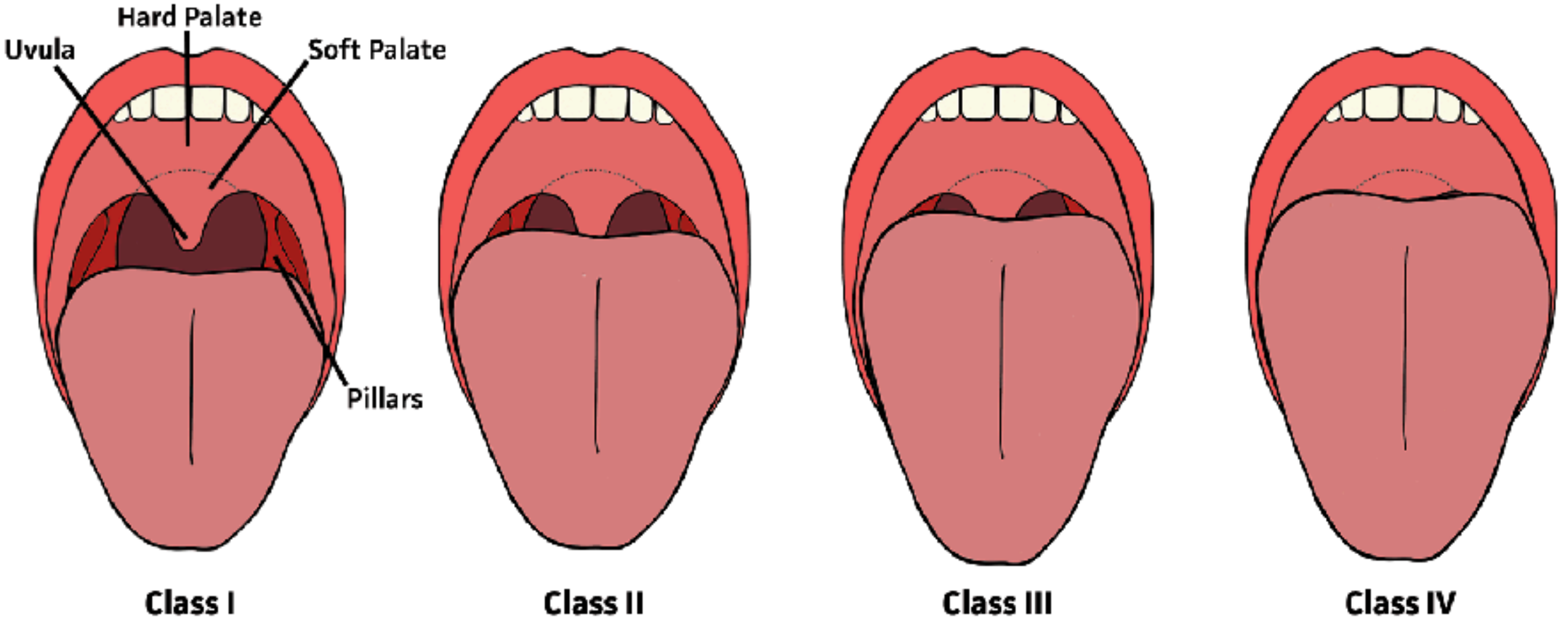
*E*valuate the "3-3-2 rule"

*M*allampati

*O*bstruction or *o*besity

*N*eck mobility

Adapted with permission from The Difficult Airway Course: Emergency and Walls RM, Murphy MF (eds). Manual of Emergency Airway Management, 4th ed. Philadelphia: Lippincott, Williams & Wilkins; 2010.




# SIGNIFICANCE OF MMP SCORE

• Class III or IV: signifies that the angle between the base of tongue and laryngeal inlet is more acute and not conducive for easy laryngoscopy

• Limitations

– Poor inter observer reliability – Limited accuracy

• Good predictor in pregnancy, obesity, acromegaly

# LEMON in ED

**Mallampatti is not possible in**
**Crash airway management and Unresponsive patients**

**LEON**

**Neck mobility can’t do in Trauma**

**LEO**

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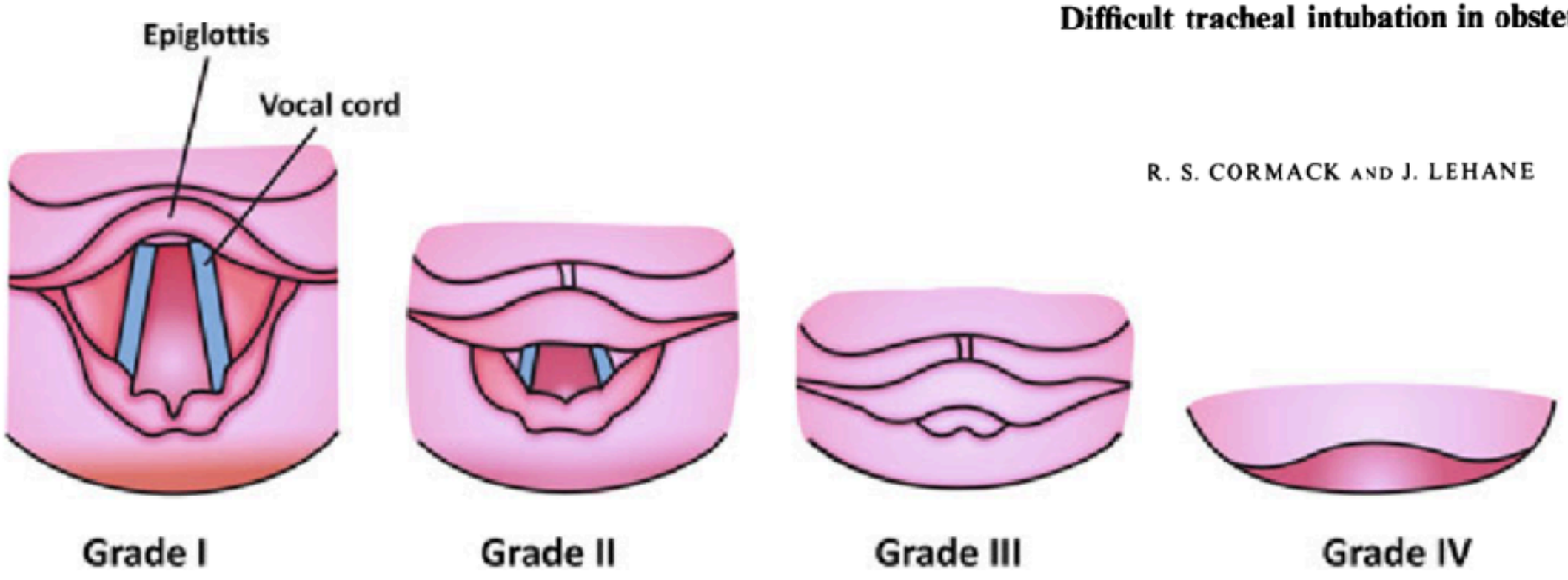
# CL -Classification

*Anaesthesia*, 1984, Volume 39, pages 1105–1111

**Difficult tracheal intubation in obstetrics**

R. S. CORMACK AND J. LEHANE



# COOK MODIFICATION! CORMACK-LEHANE CLASSIFICATION

**S. M. Yentis and D. J. H. Lee** • Grading of direct laryngoscopy Anaesthesia, 1998, **53**, pages 1041–1044

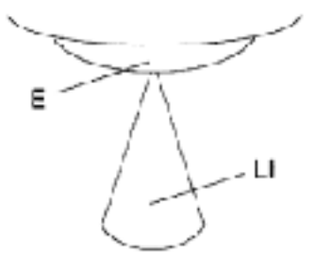
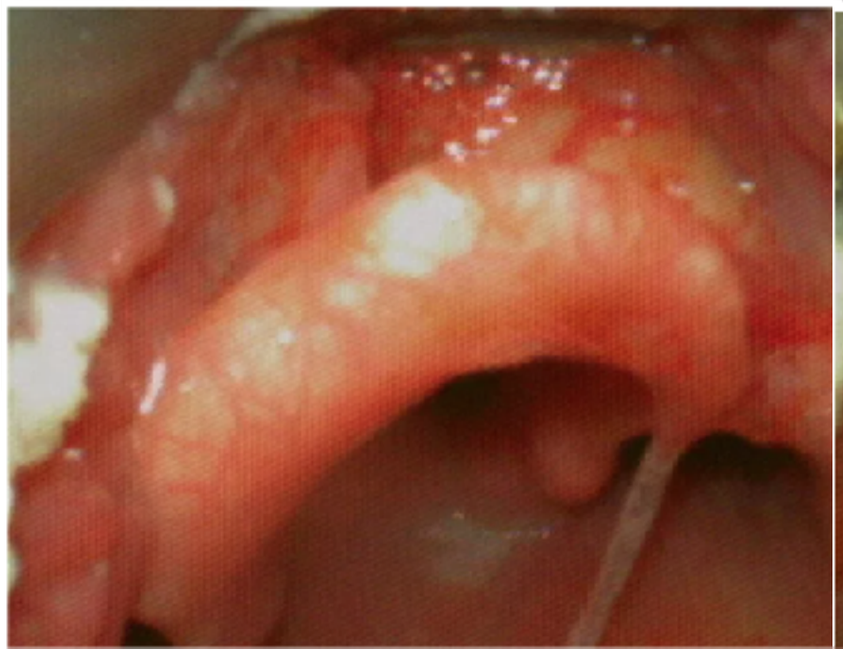
| | | | | | |
|---|---|---|---|---|---|
| **Original Cormack and Lehane system** | 1<br>Full view of the glottis | 2<br>Partial view of the glottis or arytenoids | | 3<br>Only epiglottis visible | 4<br>Neither glottis nor epiglottis visible |
| **View at laryngoscopy** |  |  |  |  |  |
| **Modified system** | 1<br>As for original Cormack and Lehane above | 2a<br>Partial view of the glottis | 2b<br>Arytenoids or posterior part of the vocal cords only just visible | 3<br>As for original Cormack and Lehane above | 4<br>As for original Cormack and Lehane above |

**Figure 1** Description of the two scoring systems used. E = epiglottis, LI = laryngeal inlet.

Cormack–Lehane 1:

Cormack-Lehane 2a:



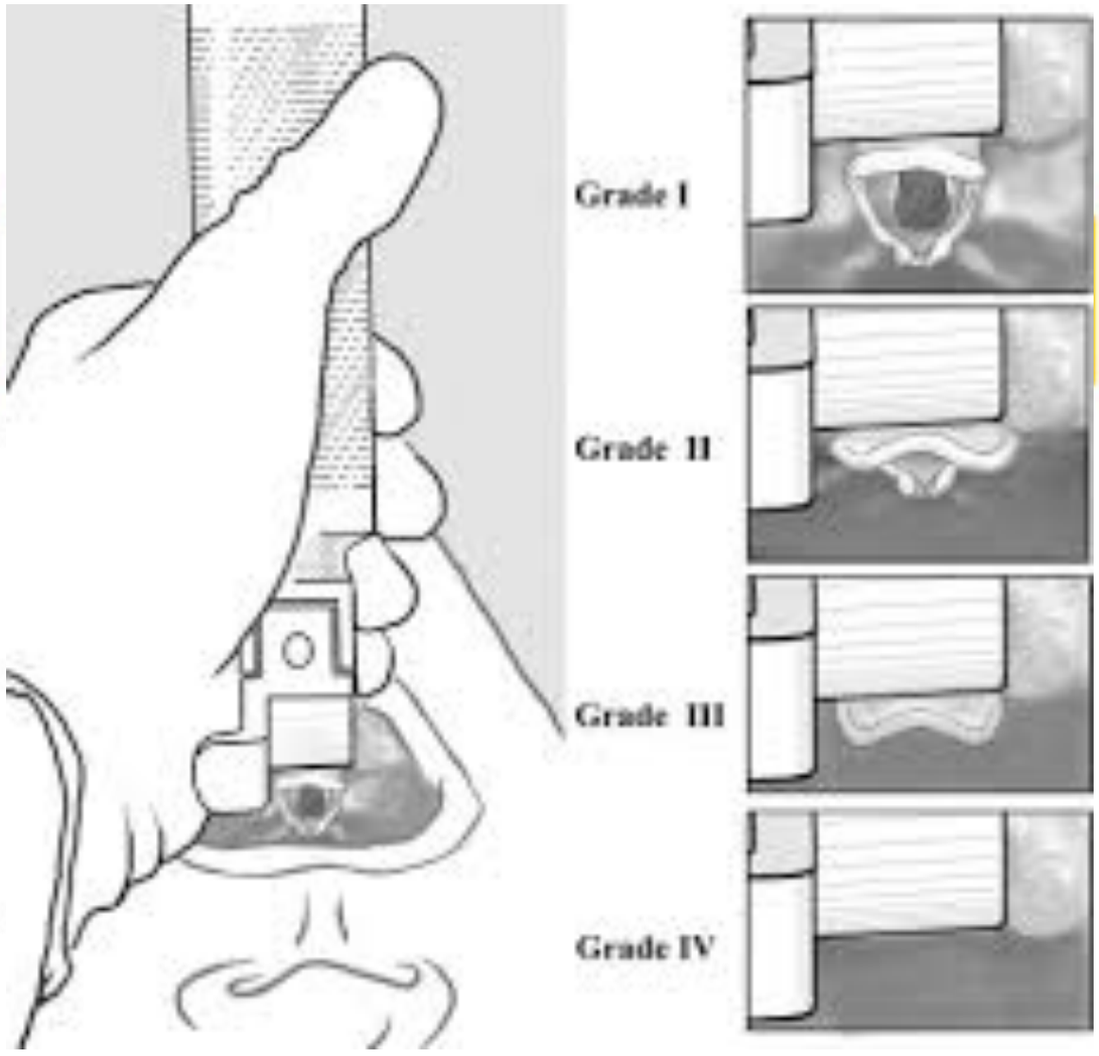
Cormack-Lehane 2b:

Cormack-Lehane 3:

Cormack-Lehane 4:

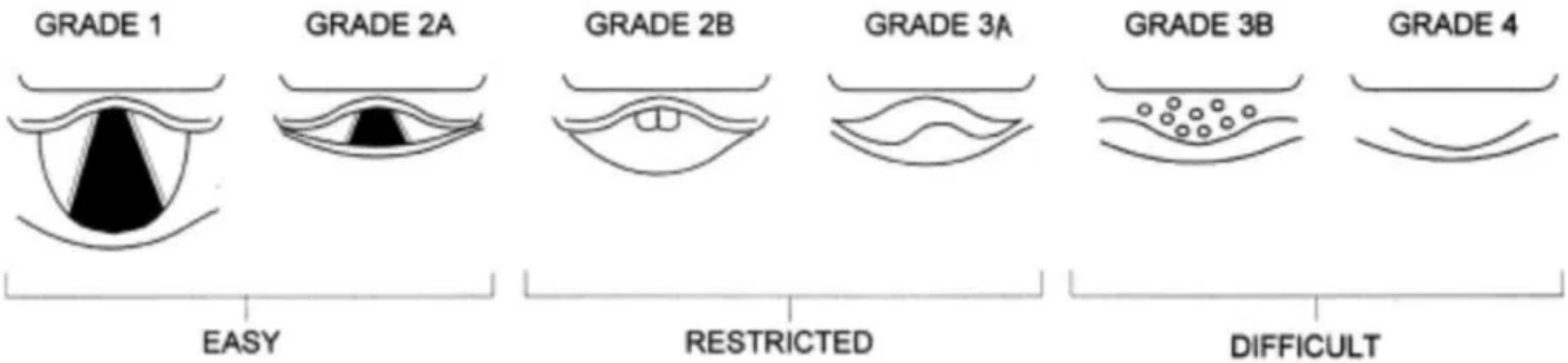
## Grading ease of intubation

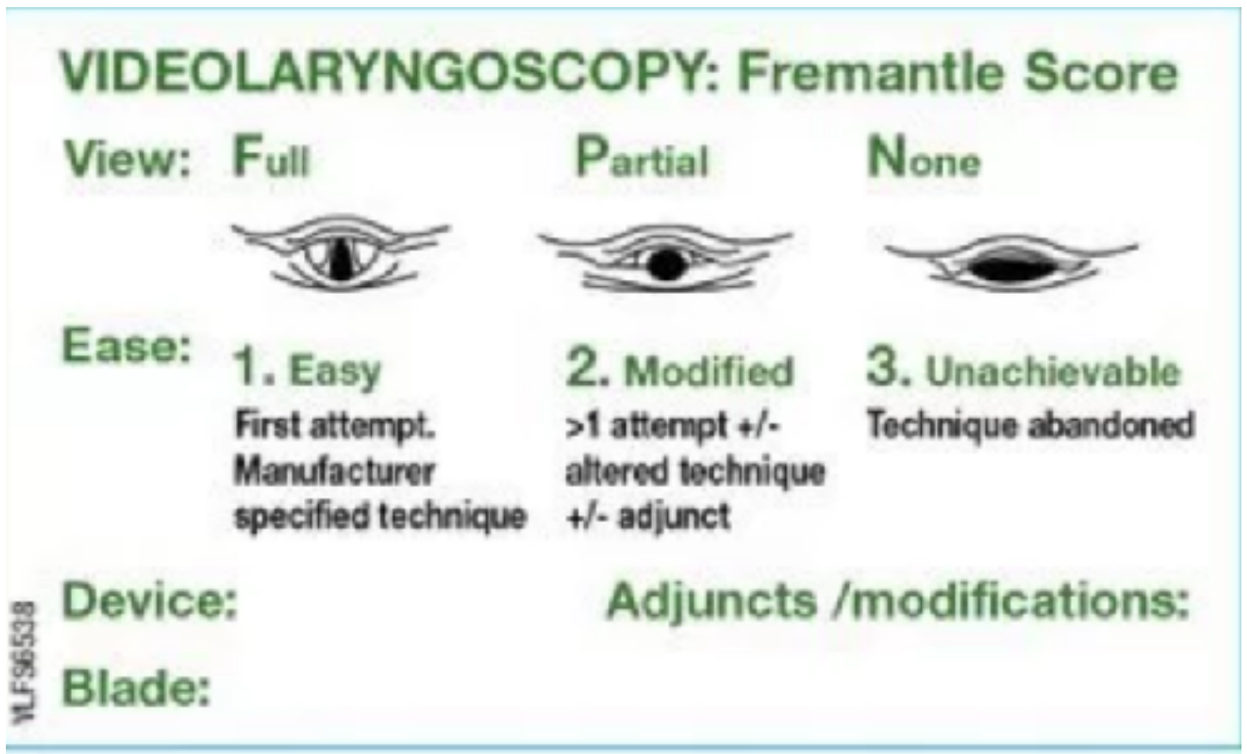
| | |
|---|---|
| Grade 1 | Extrinsic manipulation of larynx not required |
| Grade 2 | Extrinsic manipulation of larynx required |
| Grade 3 | Intubation possible with stylet guided |
| Grade 4 | Failed intubation |




- **USEFUL WHEN NEW INTUBATING DEVICE TO RECORD EXACT % OF GLOTTIC OPENING** THAT CAN BE VISUALISED BY THIS DEVICE

Various modifications to this scheme have been proposed for use with video laryngoscopy (VL), including suggestions by Cook and Fremantle:



9 cm 8 cm 7 cm 6 cm 5 cm 4 cm 3 cm 2 cm 1 cm

**TM** distance **> 7.5 cm** | **TM 6-7.5 cm** | **TM**, Thyro-mental distance Thyroid cart. to Mentis **< 6 cm (Warning)**

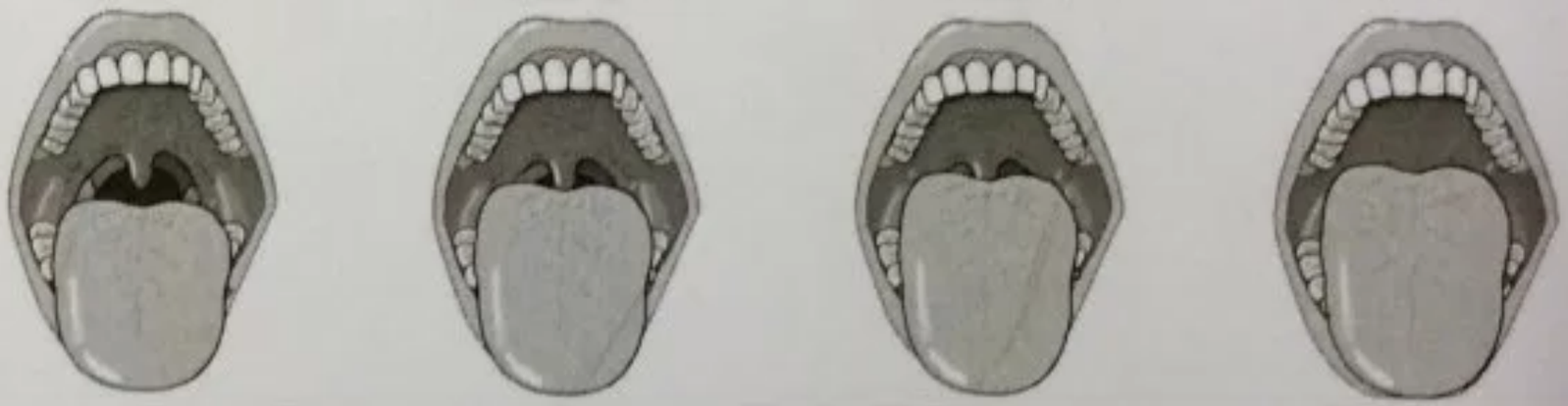
**Mouth opening** (MO) **> 4 cm** Inter incisive distance | **MO 3-4 cm** | **MO < 3 cm** (Warning)

| | | | | |
|---|---|---|---|---|
| Neck extension: | >30° | | 10°-30° | <10° |
| Upper-Lip-Bite-Test: | **Grade I (yes)** | **Grade II (yes)** | **Grade III (yes)** | **Grade III (no)** |
| Instruments: | Direct Laryngoscopy | | Videolaryngoscopy | Intubation Fiberscope and/or BONFILS |

## Mallampati Class I-IV

At class III-IV, 50% are difficult to intubate

**Class I** | **Class II** | **Class III** | **Class IV**



## Cormack & Lehane Grade I-IV

At grade III-IV it is difficult or impossible to intubate

**Grade I** | **Grade II** | **Grade III** | **Grade IV**

**What was difficult last time?** If the patient once had a difficult airway, the risk is high that this will happen again.

BOX 1-3

## RODS Mnemonic for Evaluation of Difficult Extraglottic Device Placement

*R*estricted mouth opening

*O*bstruction or obesity

*D*istorted anatomy

*S*tiffness (resistance to ventilation)

Source: Michaleidou A, Gaukroger PB. The Anesthesia Guide. www.accessanesthesiology.com


Adapted with permission from The Difficult Airway Course: Emergency and Walls RM, Murphy MF, eds. Manual of Emergency Airway Management, 4th ed. Philadelphia: Lippincott, Williams & Wilkins; 2012.

# SMART Mnemonic for Evaluation of Difficult Cricothyrotomy

*S*urgery

*M*ass (abscess, hematoma)

*A*ccess/anatomy problems (obesity, edema)

*R*adiation

*T*umor

Adapted with permission from The Difficult Airway Course: Emergency and Walls RM, Murphy MF, eds. Manual of Emergency Airway Management, 4th ed. Philadelphia: Lippincott, Williams & Wilkins; 2012.

# What & Where are the Equipment to manage Difficult airway ?

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# Must available

- Functioning suction
- Oxygen source
- Monitors
- Ventilation and Oxygenation devices
- Emergency drugs

DAM Kit / Kart

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Must
Spot-Check
36
20
Running
ID: 678 Adu
18:03
Pulse Oximeter
97
74
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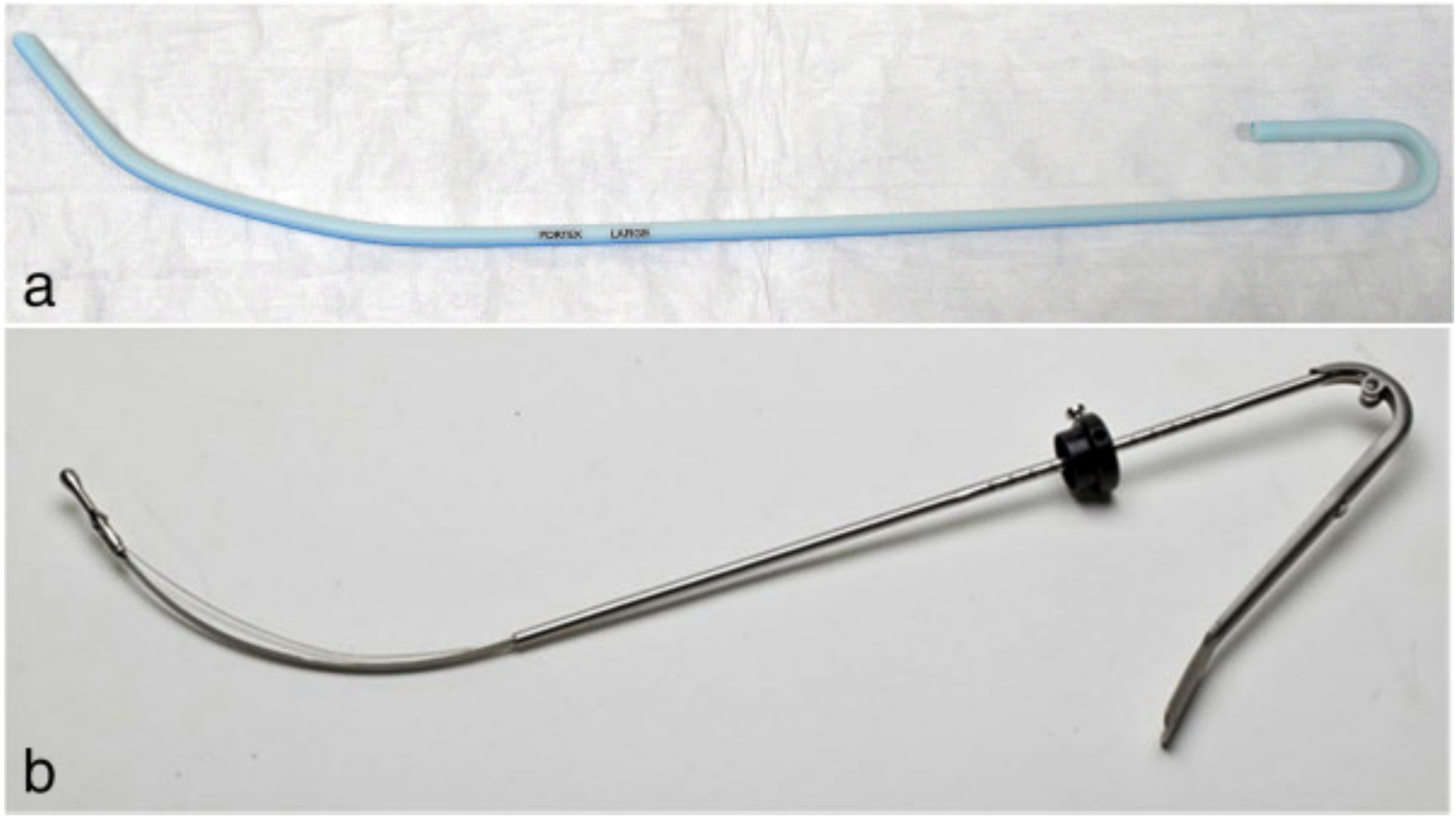
# OPA and NPA

# Stylet

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# Forceps

- **Magill forceps** : Double angled forceps have grasping ends in the axis of ETT and handle at the right angle

- **Tube bender forceps (Aillon forceps)** : These have unequal limbs which can bend the distal end of the ETT in the desired direction

# Machintosh and Miller Blades

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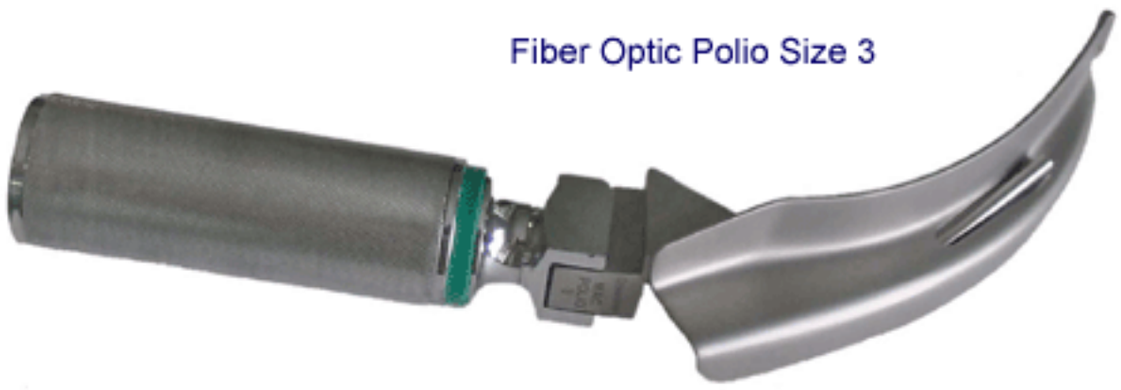
# Different Laryngoscopes for difficult airway

- **Left handed Macintosh blade -** for left handed laryngoscopists
- **Improved vision** Macintosh blade
- **Polio Blade** – The angle between the blade and the handle is made obtuse.

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## Uses of left handed L Scope

- Abnormalities of Rt side of Face
- Abnormalities of Rt Oropharynx
- Lt handed persons
- Intubations in Rt lateral position
- Positioning a tracheal tube directly on the left side of mouth


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# Different Laryngoscopes for difficult airway

- *Laryngoscope with **"stunted" or short handle*** : useful in **obese** patients and in patients with **large breast.**

- ***Oxiport Macintosh*** *:* It has an oxygen port in the blade allowing **oxygen insufflation** during intubation attempts.
- ***Tull Macintosh*** *:* This blade has a **suction port**.

# Different Laryngoscopes for difficult airway

- ***Siker blade*** *:* has stainless steel **mirrored surface** which permits visualisation of an **"anterior" larynx**. It gives an inverted image.

- ***Huffman Prism*** *:* **Images are real**. - Prism should be placed in warm water for 30 sec on anti-fog solution to prevent fogging

# Maccoy Laryngoscope

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Eclipse Tilting Tip blade by Timesco,
similar in function to a McCoy blade

# Eclipse Tilting tip blade


2960.175.20
Optima Eclipse VM Macintosh
Tilting Tip Blade
Adult No.3 (130x18mm)



- Tilting tip for elevation of the epiglottis
- Increased view of larynx
- Less force required to intubate
- Unique design
- Less risk of patient trauma
- Ideal for difficult intubations

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# *Bullard Laryngoscope*

- Fiber-optic laryngoscope with a built in rigid $90^0$ curved blade.
- It is battery operated Eye piece is attached to the main body of the scope at $45^0$ angle.
- Useful in **mid-facial hypoplasia syndrome & unstable cervical spines.**

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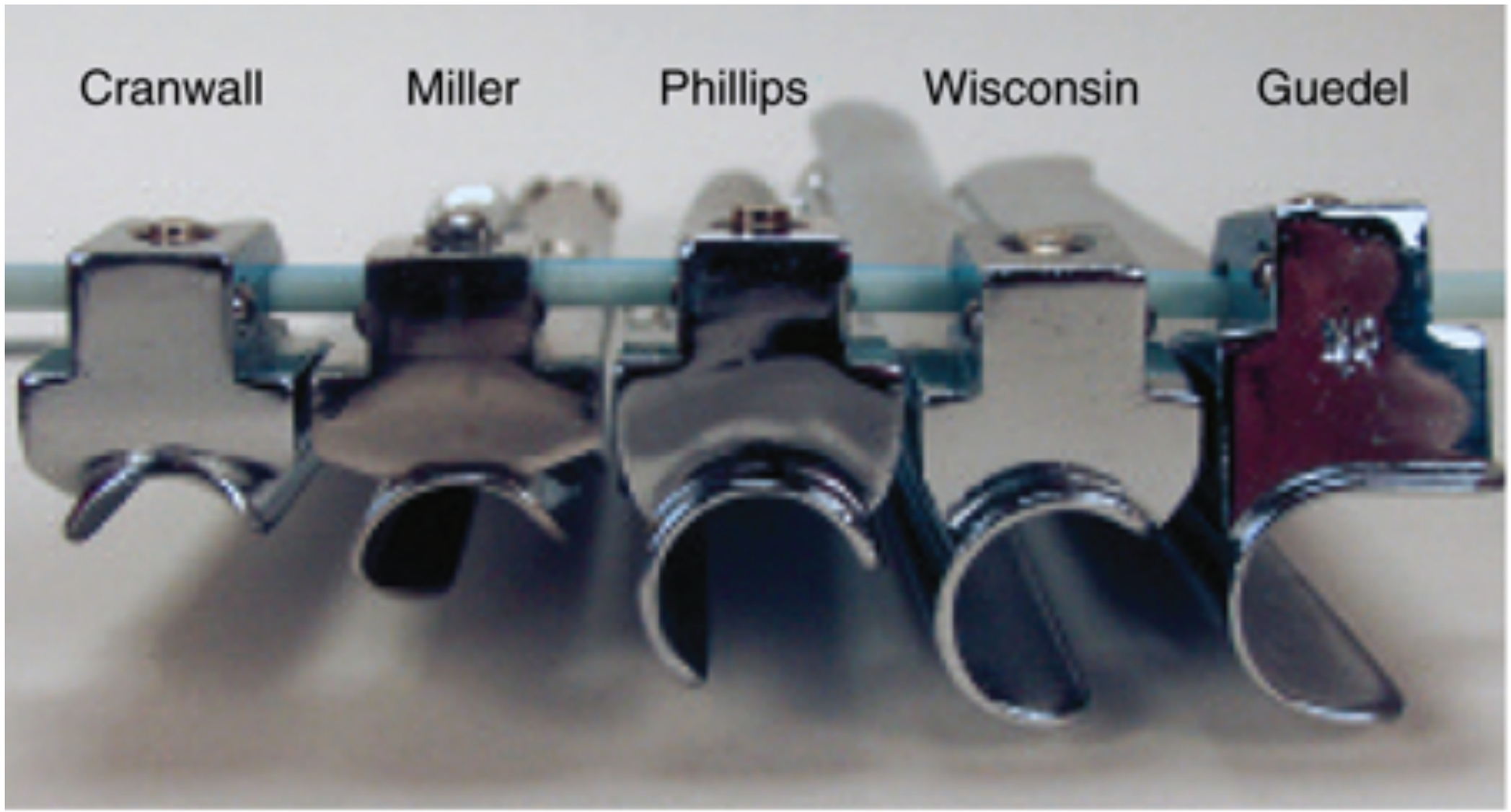
# Upsher fibre optic laryngoscope

- Combines fibreoptic round the corner viewing with manoeuvrability.
- The tip of blade is advanced until it comes to rest **close to the cords**.
- The tube sits in the semi-enclosed space in the blade.
- The variable focus eye piece enables the operator to obtain uninterrupted view of the procedure.
- The eye piece can be attached to T.V. Camera for teaching purposes.

# *Belscope*

- Long angulated blade with $45^0$ bend at midpoint and a detachable prism.
- **Minimizes damage to teeth**, due to angulation – the blade stays a**way from upper teeth.**
- Gives a **good view of larynx** when the macintosh blade gives grade 3 view

# Other blades




Source: Hung OR, Murphy MF: *Management of the Difficult and Failed Airway, 2nd Edition*: www.accessanesthesiology.com

# Endotracheal Tube

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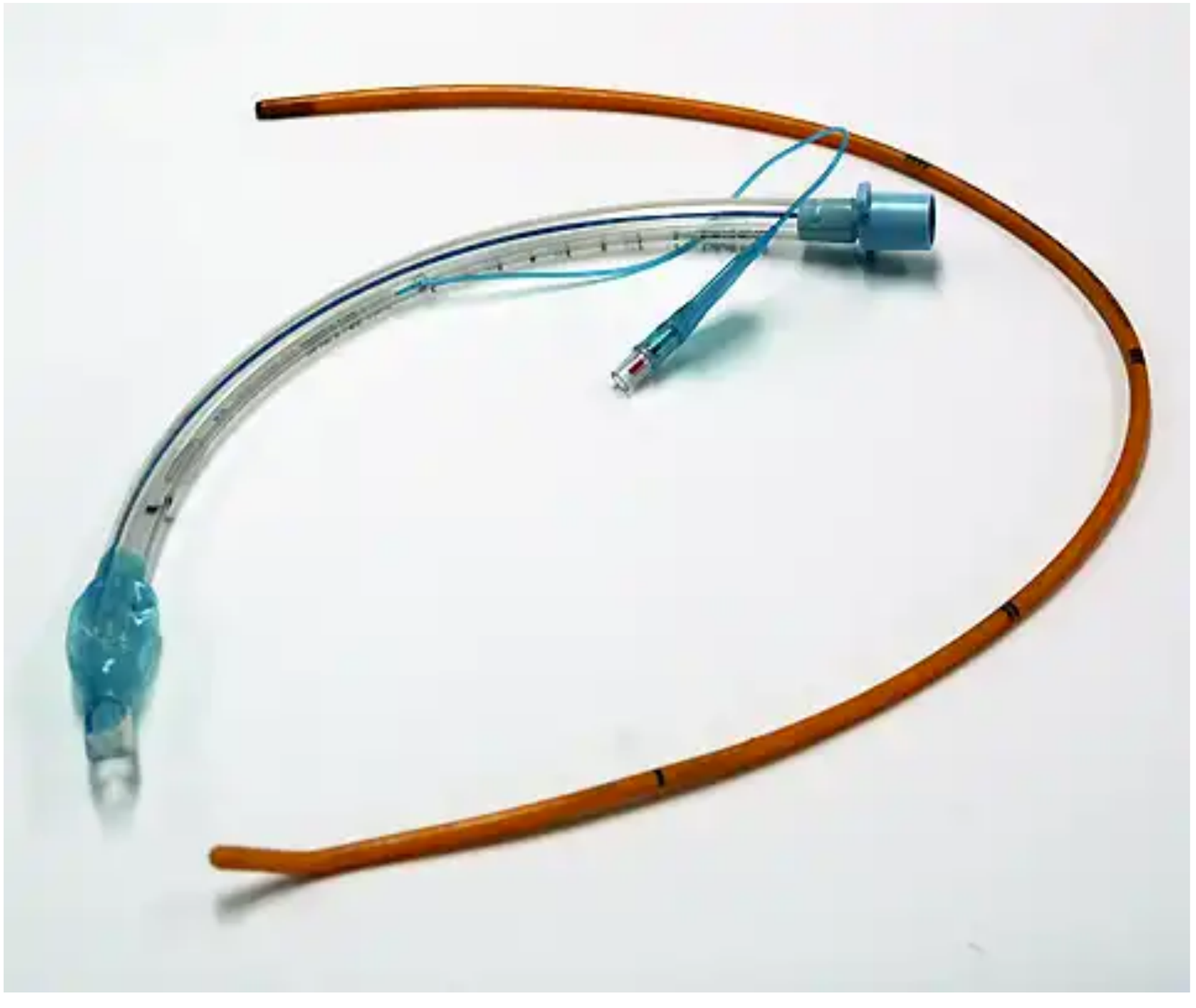
# Gum elastic bougie



# Tube exchanger

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The **standard laryngeal mask airway** (LMA Classic) is available in sizes from infant to large adult.

FIGURE 1-15 The standard laryng...

# LMA PROSEAL & LMA SUPREME

**Permit posterior pharyngeal suctioning**


- Large inflatable plastic cuff no post cuff.
- Finns in the mask of bowl to prevent epiglottic obstruction.
- Pharyngeal seal intermediate between cLMA and Proseal LMA.

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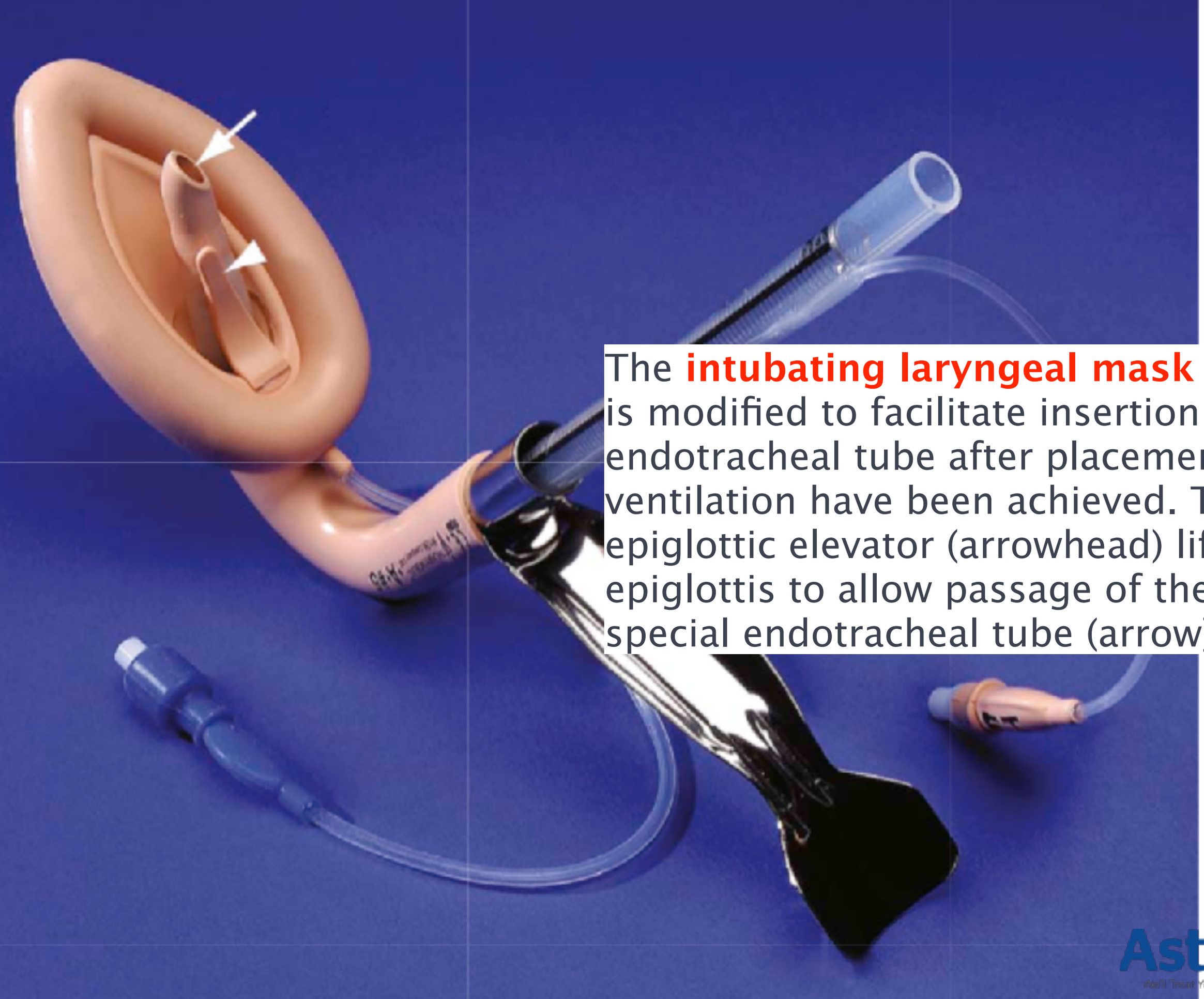
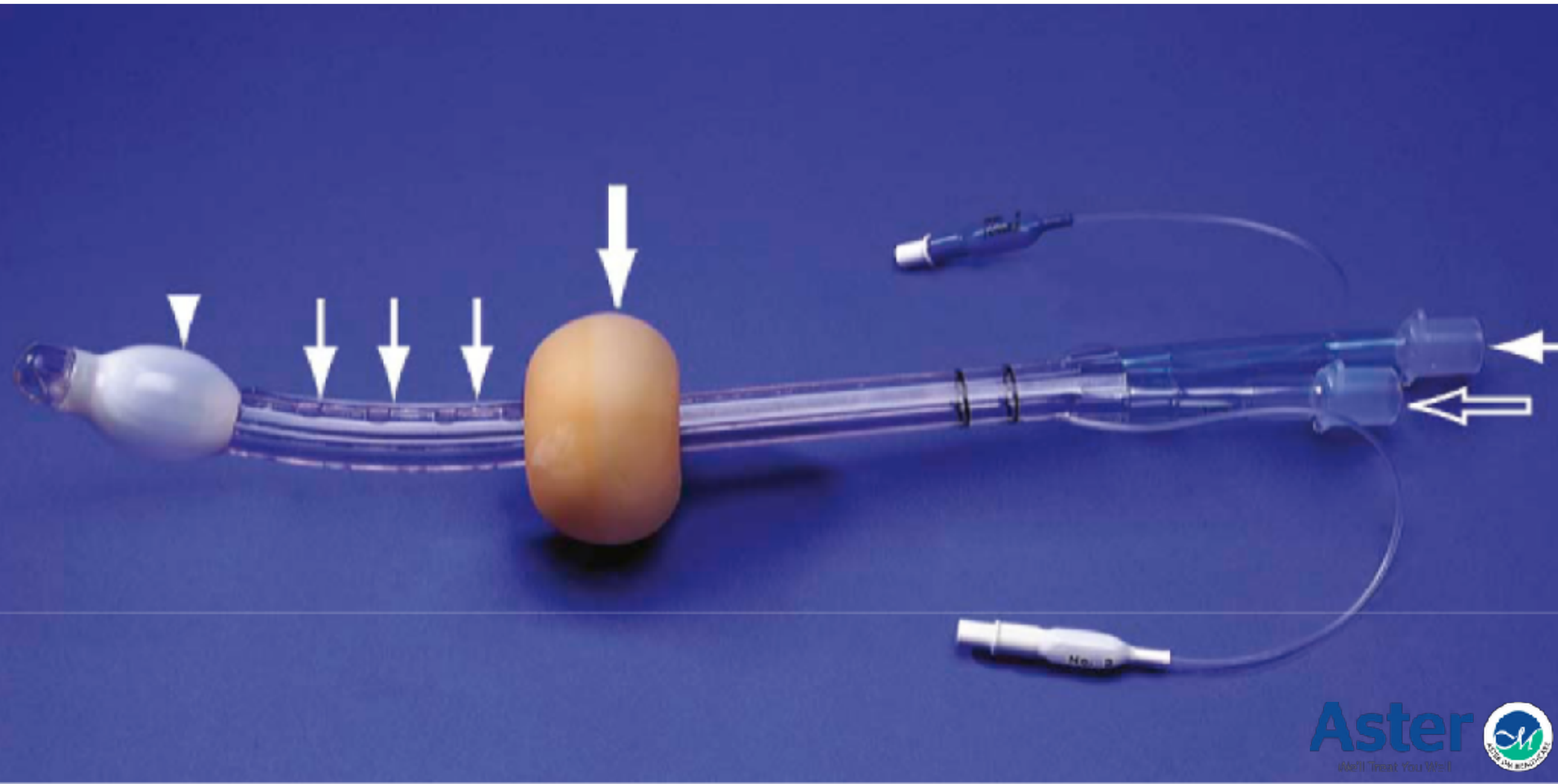
The **i-gel mask airway** does not have an inflatable cuff and is available in sizes from infant to adult

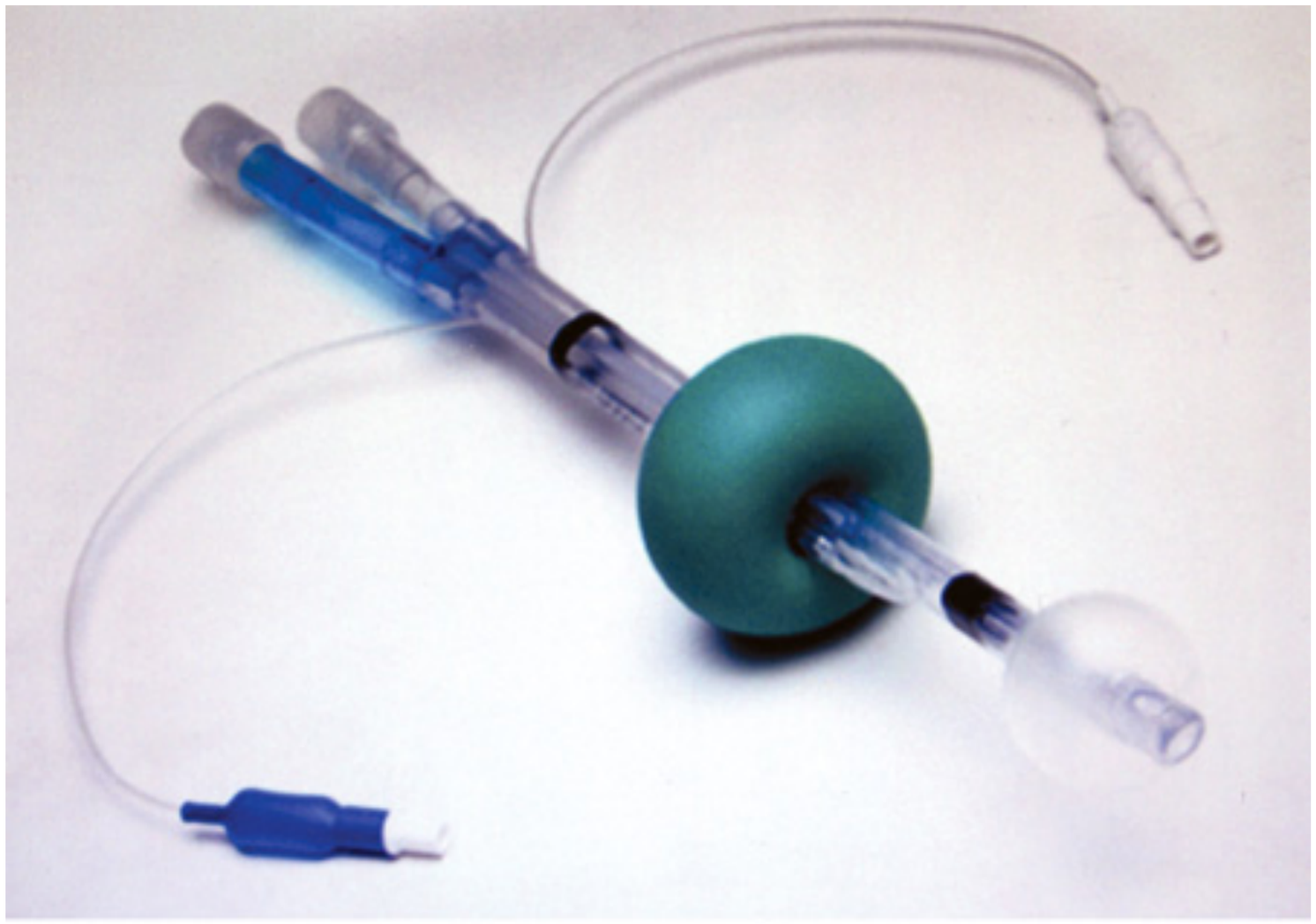


The **intubating laryngeal mask airway** is modified to facilitate insertion of an endotracheal tube after placement and ventilation have been achieved. The epiglottic elevator (arrowhead) lifts the epiglottis to allow passage of the special endotracheal tube (arrow)

The **Combitube** is inserted through the mouth blindly, although a laryngoscope can be used if desired. It seats itself in the esophagus more than 95% of the time, and ventilation is performed through the proximal lumen and side ports (white arrows) after inflation of the two balloons. The lower balloon (arrowhead) occludes the esophagus. The upper (large) balloon (thick arrow) occludes the oropharynx. If the tube is in the trachea, the alternate lumen (clear arrow) is used for ventilation.

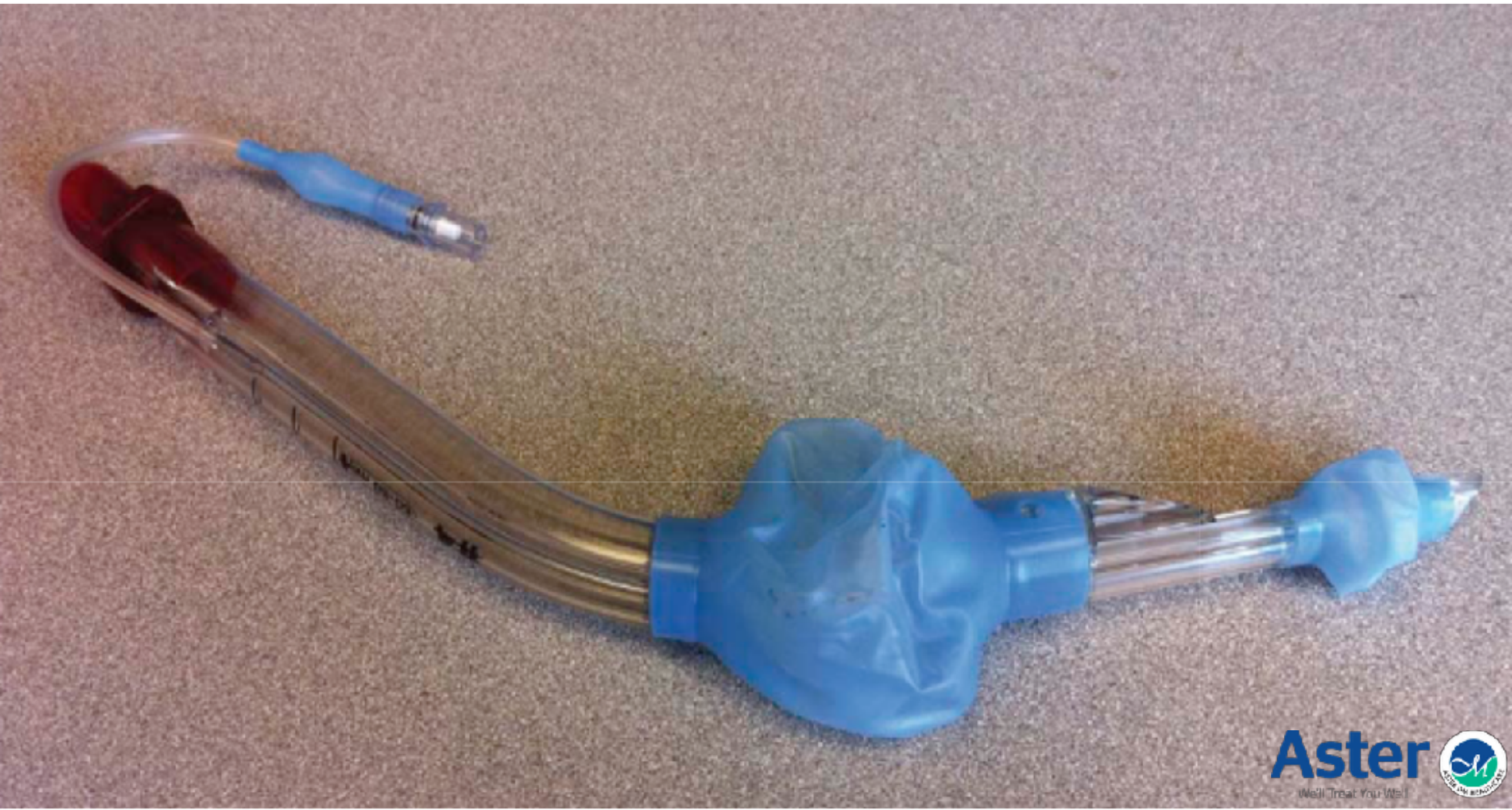


***Pharyngo-tracheal lumen airway*** - it is double lumen tube consisting of a long tube with a distal cuff (15 cc) designed to be inflated in esophagus and shorter tube that protrudes through the larger tube and past alarge proximal cuff (100 cc) to ventillate the lungs.



**C**

**King laryngeal tube** incorporates two cuffs but inflates with a single bolus of air. There is a channel in the back for passage of an orogastric tube. It is available in a variety of adult sizes.



# Ovassapian fiberoptic intubating airway

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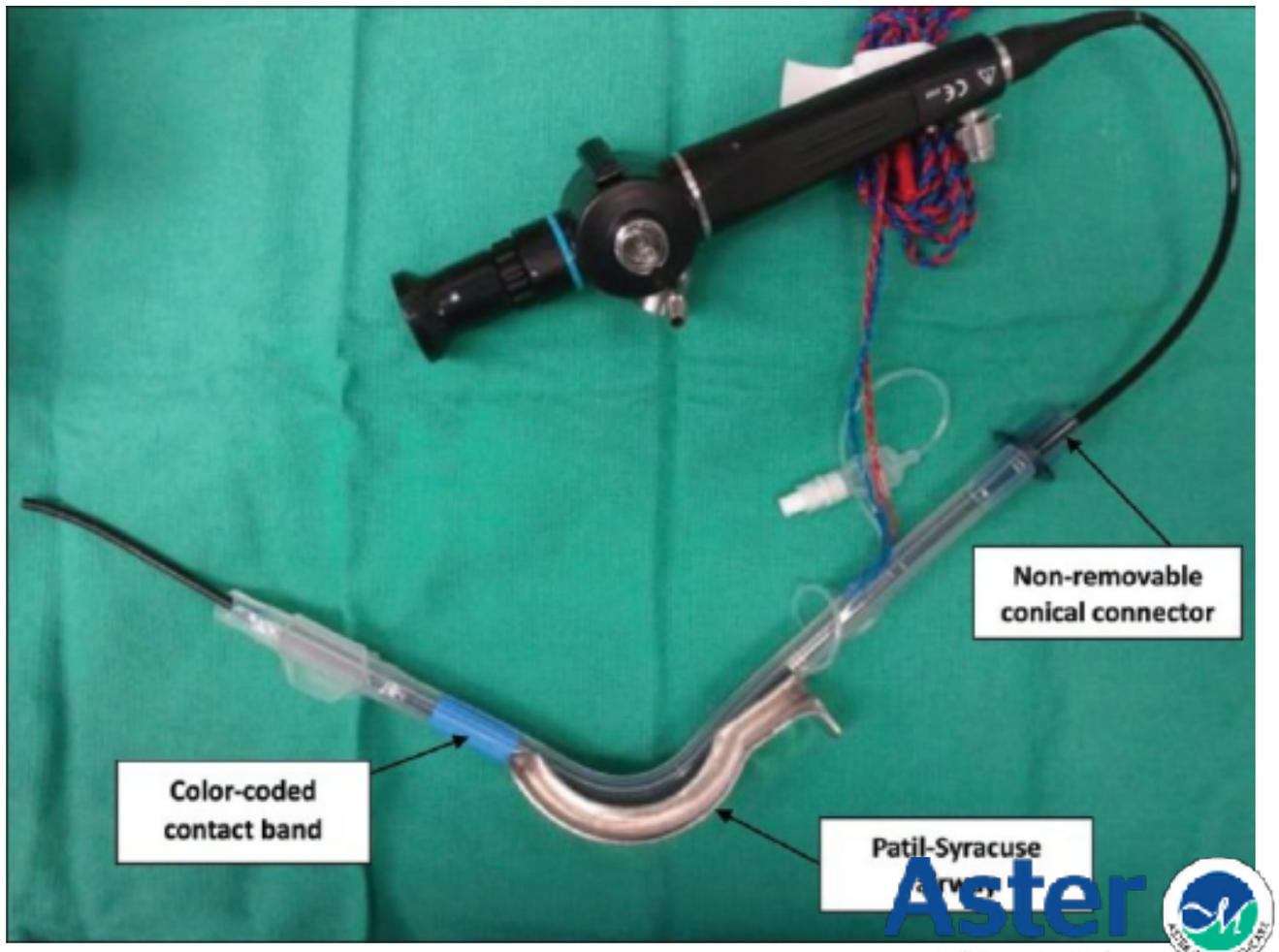
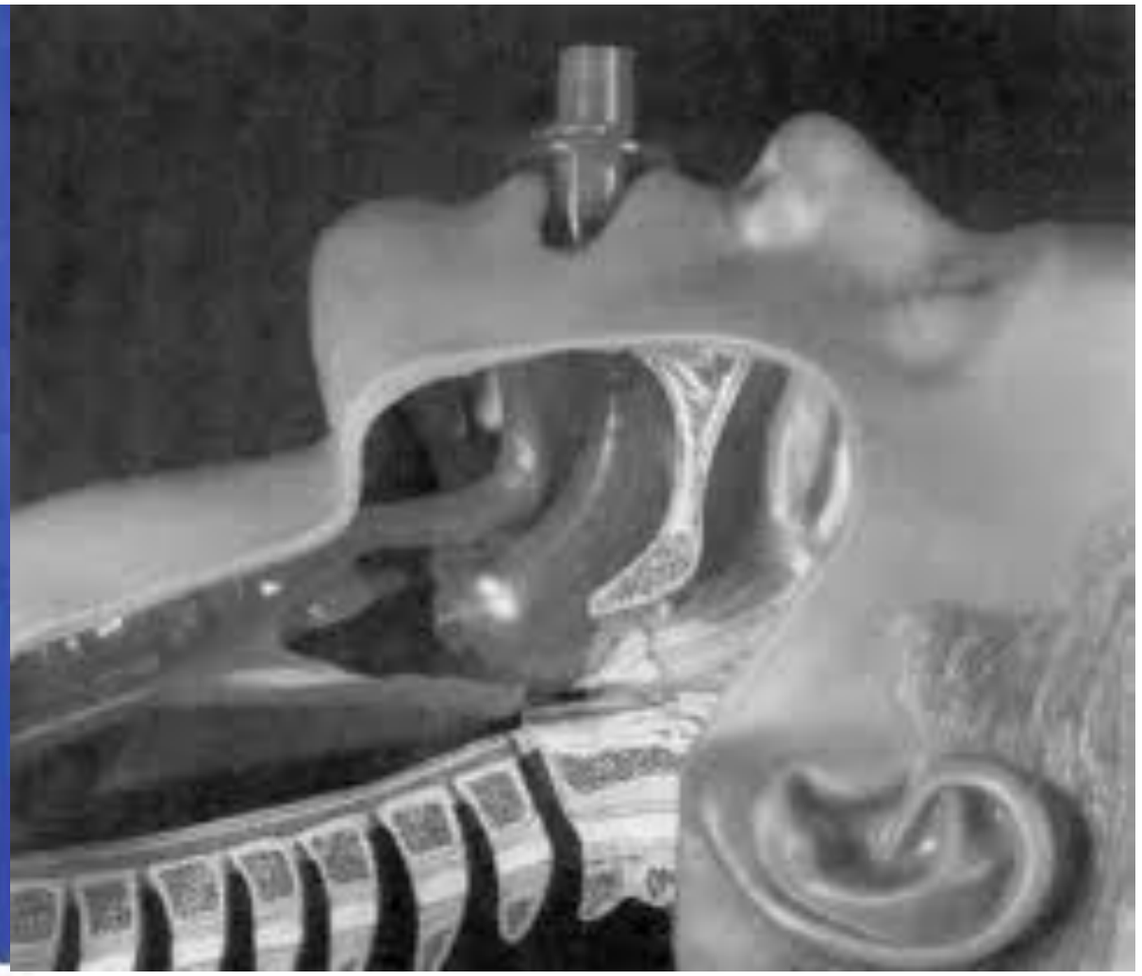
# Patils syracuse oral airway



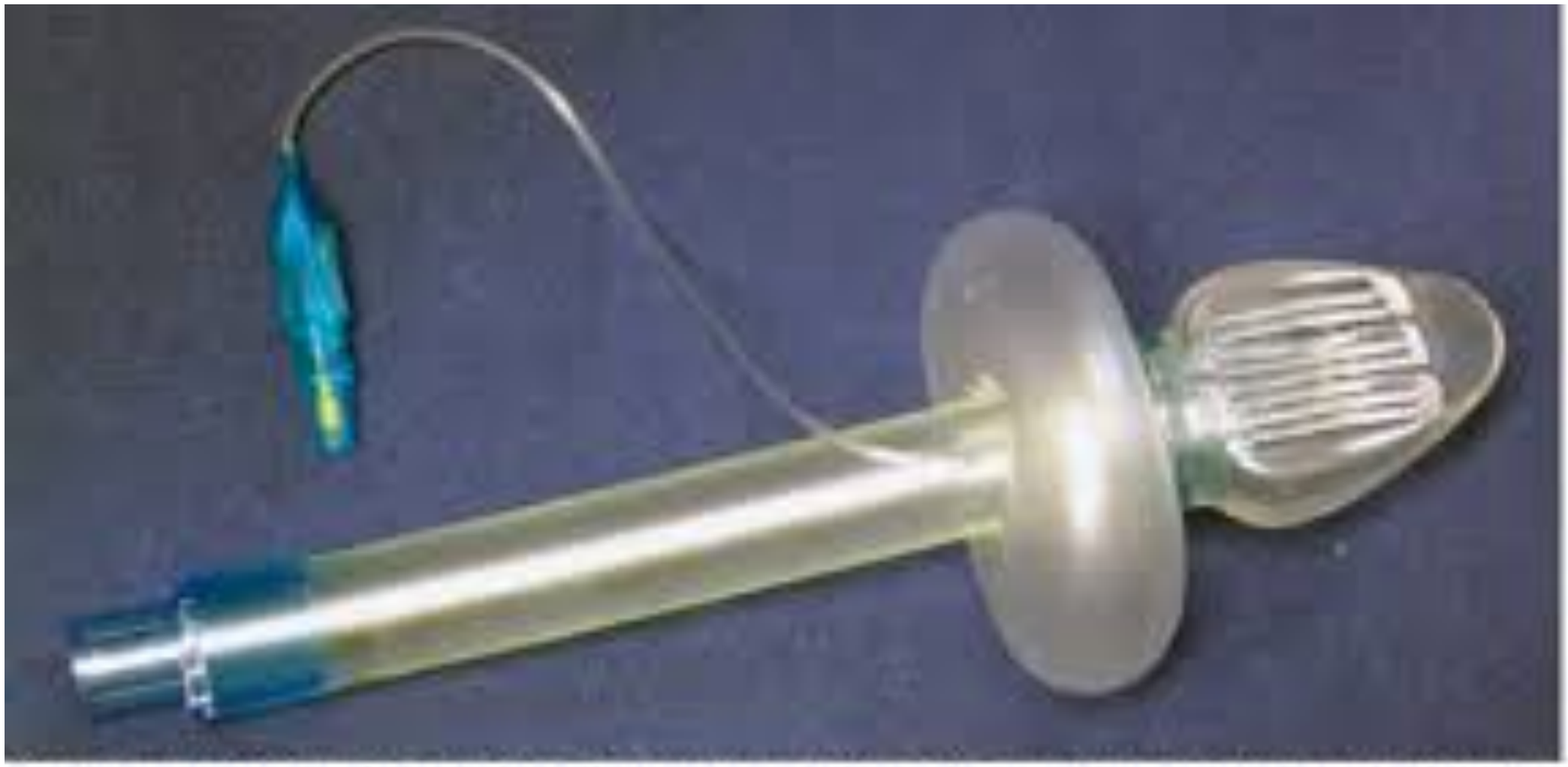
## COPA (Cuffed Oropharyngeal airway )-

Disposable device that combines a guided airway with an inflatable distal high volume low pressure cuff and a proximal 15mm adapter. - distal tip should be behind base of tongue



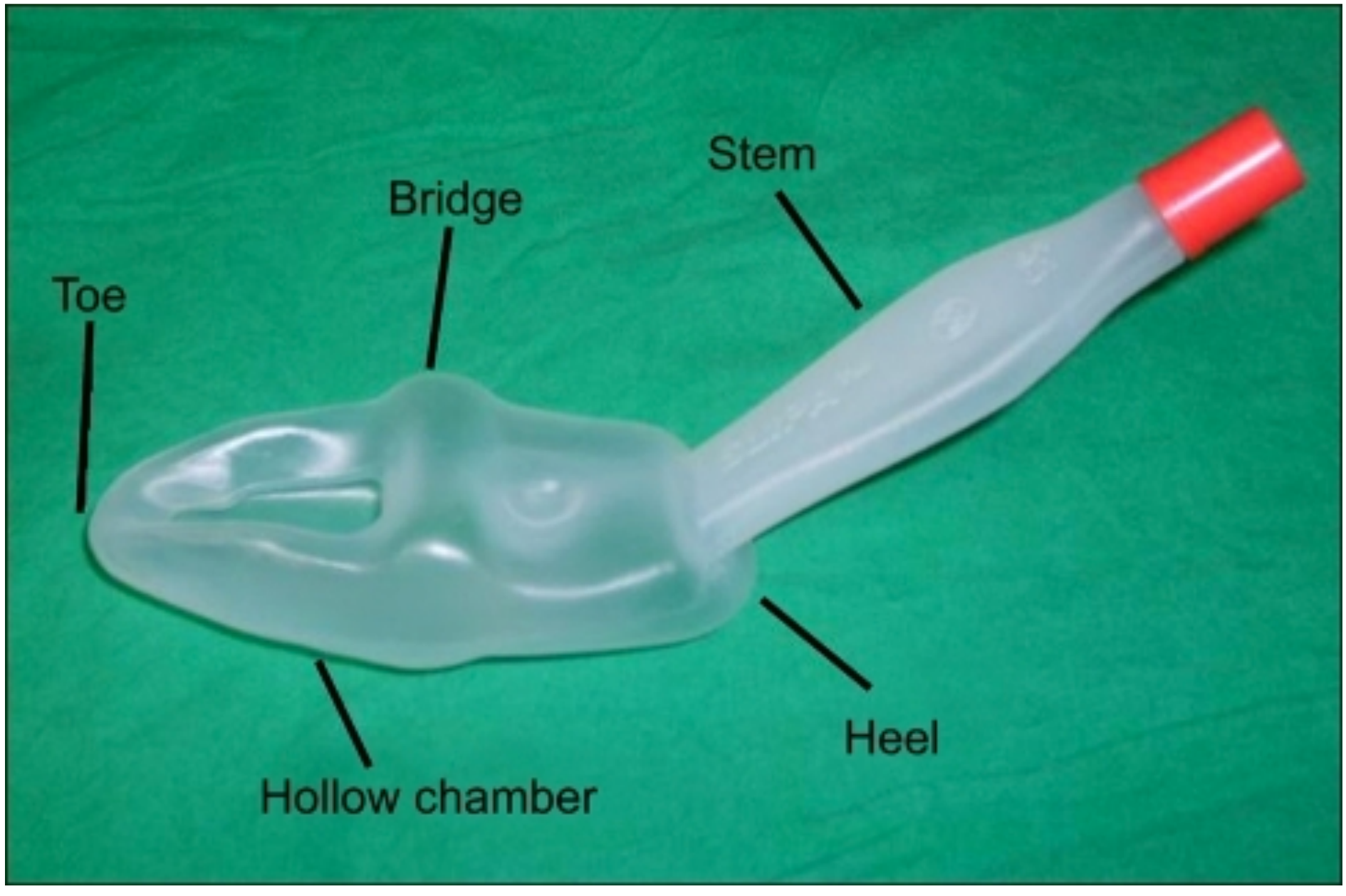
Source: Hung OR, Murphy MF: *Management of the Difficult and Failed Airway, 2nd Edition*: www.accessanesthesiology.com

**Pharyngeal airway Xpress** – Curved tube with anatomically shaped gilled distal tip, large oropharyngeal cuff and an open hooded window that **allows ventilation**. More **effective seal** than LMA.



Source: Hung OR, Murphy MF: *Management of the Difficult and Failed Airway, 2nd Edition*: www.accessanesthesiology.com

# Streamlined liner of pharyngeal airway (SLIPA)




New type of SLA device that does not have a cuff, rather, it has a preformed plastic that **fits anatomically to the shape of the pharynx**. This device allows one to give **positive pressure ventilation** to the patient without cuff

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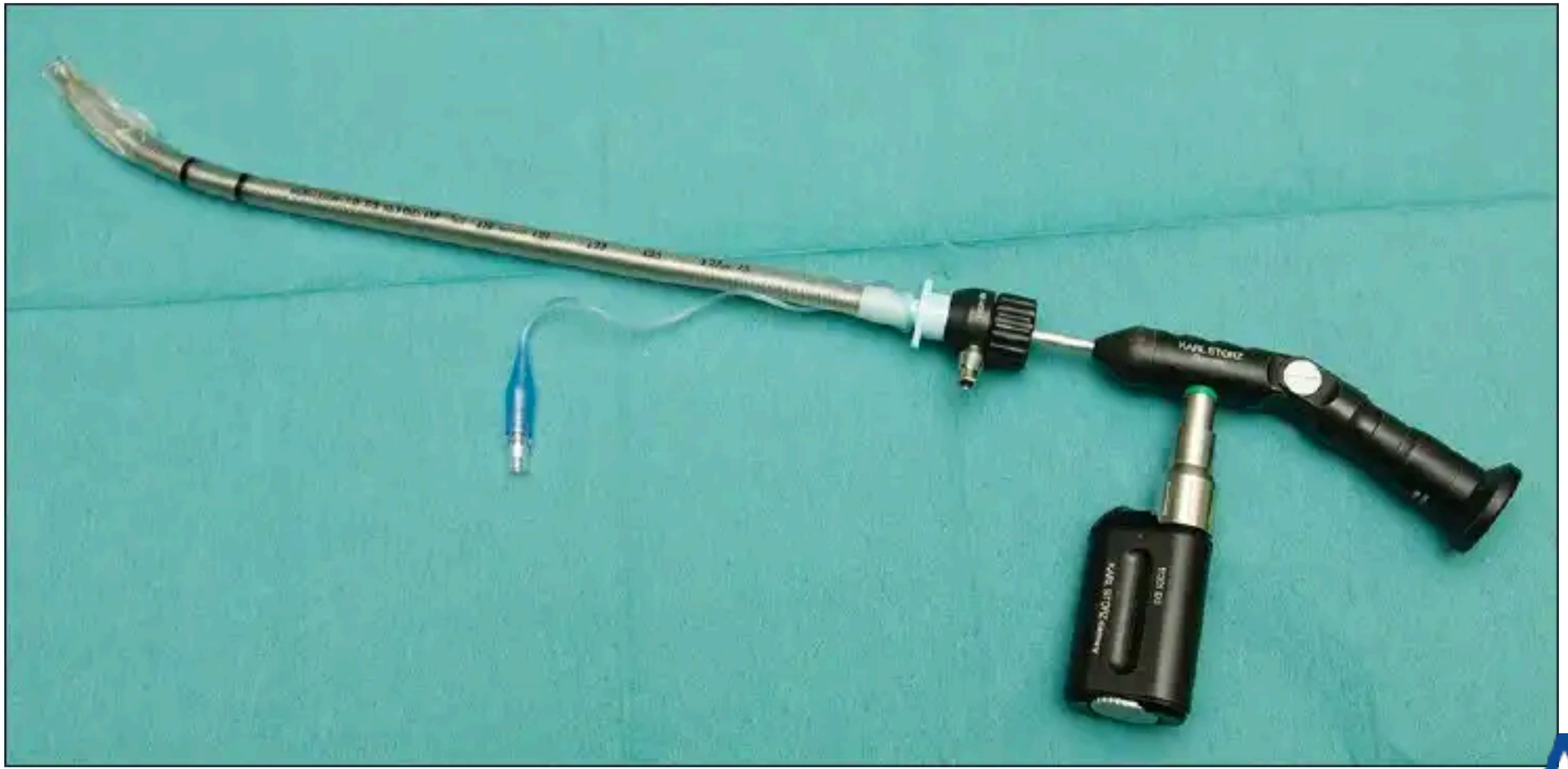
**GlideScope** AVL (Verathon Inc.) uses a high-resolution digital display; includes single-use Stats (blade sheaths) that cover the video baton; and has the ability to record still images and video clips through internal and removable storage devices.

# BONFILS retromolar intubation fibrescope

- Utilises the para glossal technique of intubation
- It is a 5mm optical, distally curved stylet which can accommodate a 6mm or larger ET tube
- Permits continuous oxygen insufflation
- Light supplied via remote Xenon source
- Can be attached to a module with image display

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# Intubation Fiberoscope

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The **Clarus Video System** (Clarus Medical) incorporates a curved fiberoptic stylet surrounded 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.


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The **Shikani optical stylet** (SOS; Clarus Optical) with endotracheal tube mounted. The eyepiece and battery pack are at the right.

The **C-MAC video laryngoscope** (Karl Storz Endoscopy) uses an integrated **Complementary Metal Oxide Semiconductor (CMOS)** video chip to capture a **video image from near the distal tip** of an otherwise conventional laryngoscope blade. The image is conveyed to a video screen, where it is viewed by the intubator.

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# Universal Surgical Cric Set


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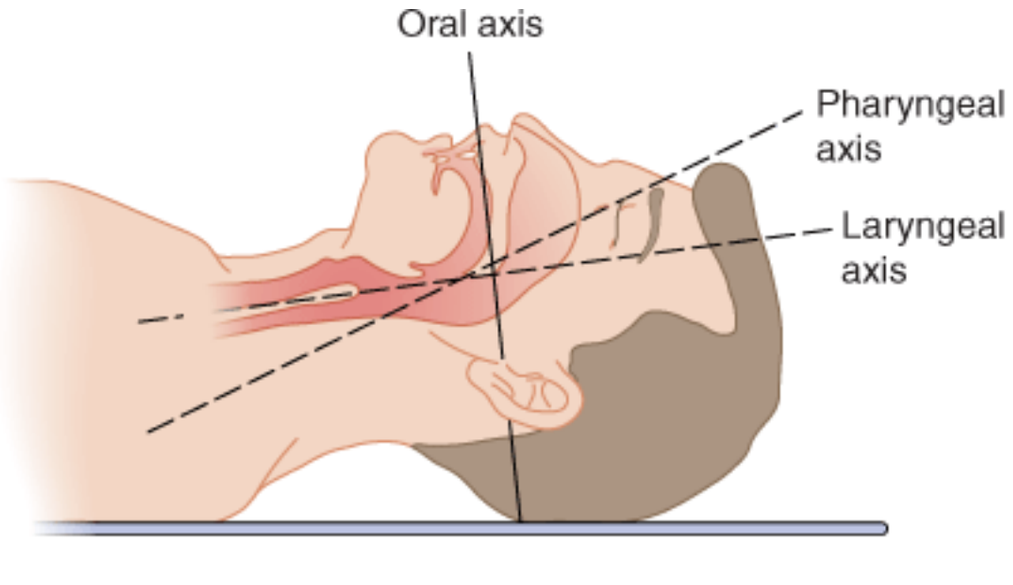
# Surgical Airway

## Indications

1) Obstruction
2) Facial Trauma
3) Intubation or other Alternatives impossible
4) Trismus
50) Age more than 8 years

# Position




Source: Tintinalli JE, Stapczynski JS, Ma OJ, Cline DM, Cydulka RK, Meckler GD: *Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 7th Edition*: http://www.accessmedicine.com
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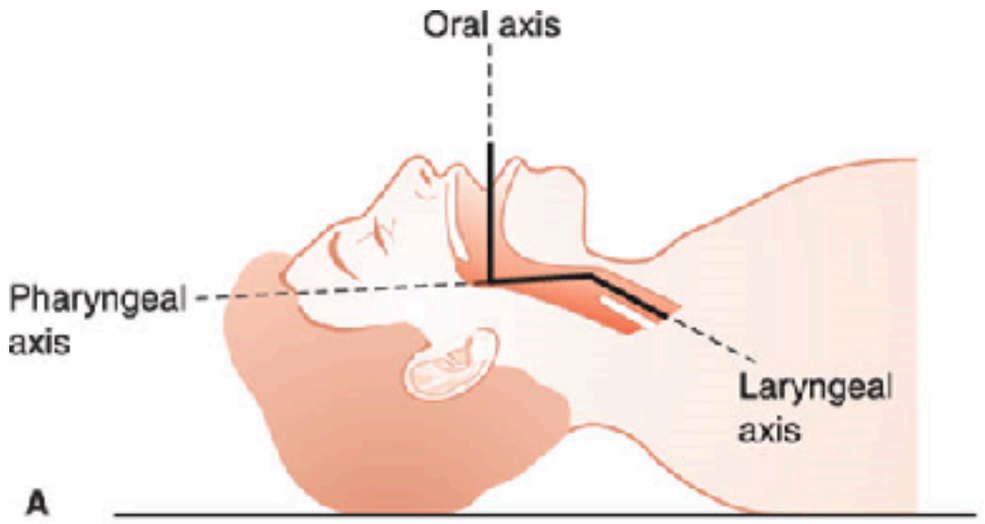


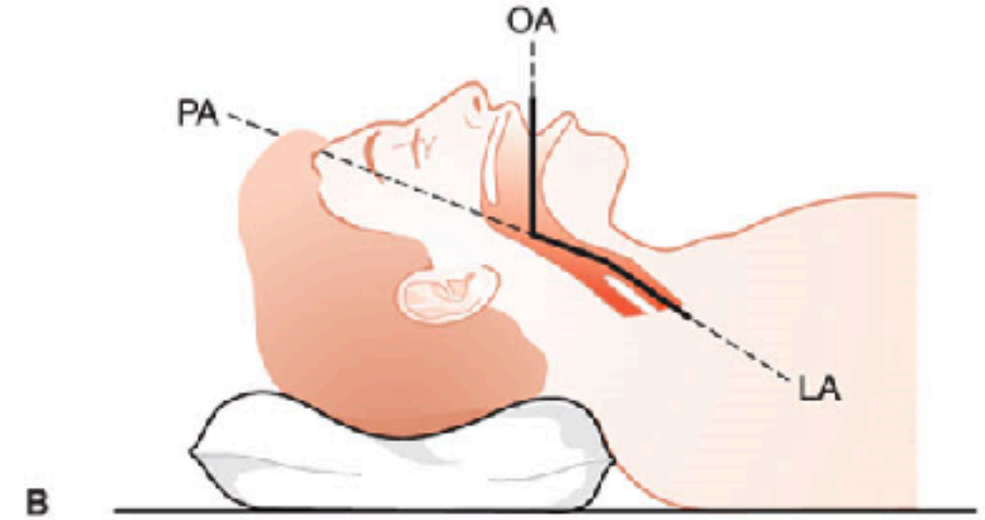


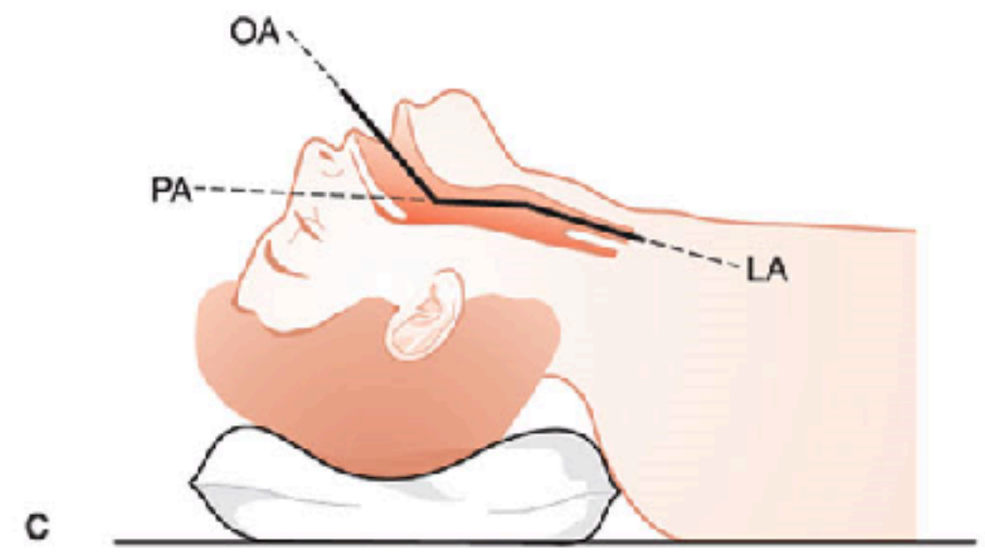


Source: D.E. Longnecker, S.C. Markey, M.F. Newman, W.S. Sandberg, W.M. Zapol: Anesthesiology, Third Editio
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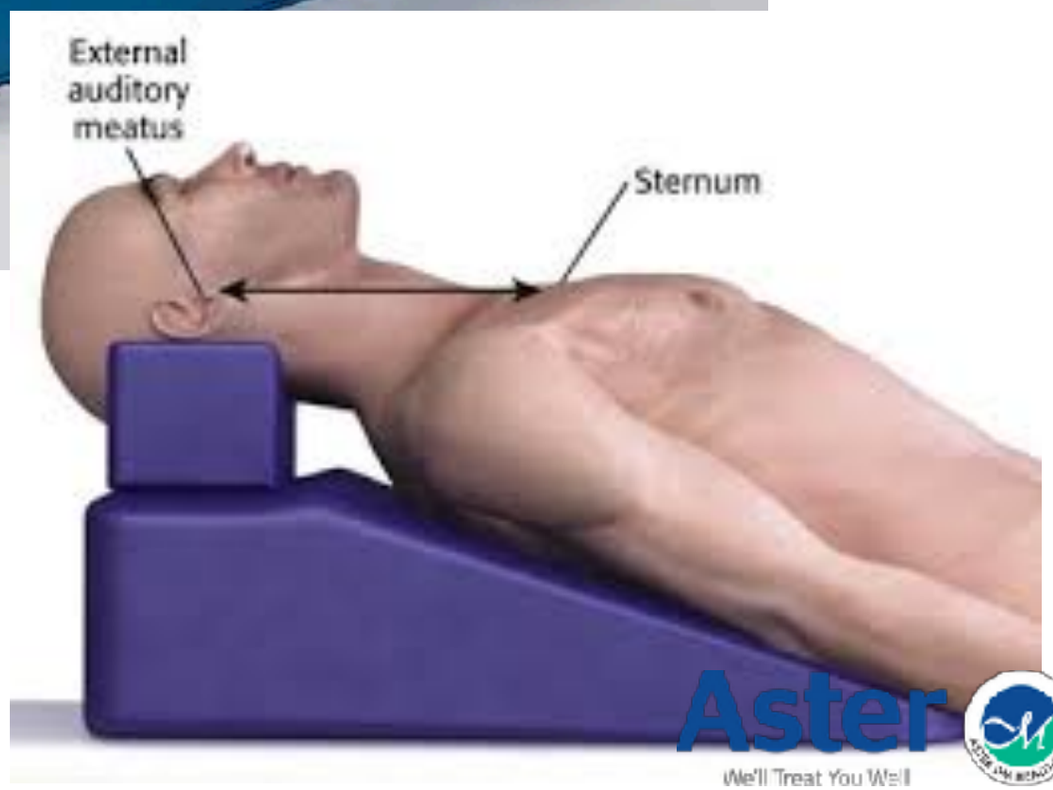
# Troop Elevation Pillow





# Difficult airway - Task

- Inform
- Ascertain help
- Pre-oxygenation
- Supplemental oxygenation throughout

- Rigid laryngoscope blades
- ETTs
- ETT guides/bougie
- LMAs
- FOI equipments
- Retrograde intubation kit
- Emergency non invasive airway ventilation device.
- Emergency invasive airway access
- Exhaled $CO_2$ detector

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What are we going to do if we don’t get the Tube placement??

**Plan “A”, “B” and “C” Approach**

**A- Alternate**

**B-BVM and other ventilation technique**

**C-Cant ventilate ,Cant intubate scenario**

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# Plan A- Alternate

- Different length of blade
- Different type of blade
- Different position

- Bougie
- Light wand guided
- Call for help
- Best attempt laryngoscopy

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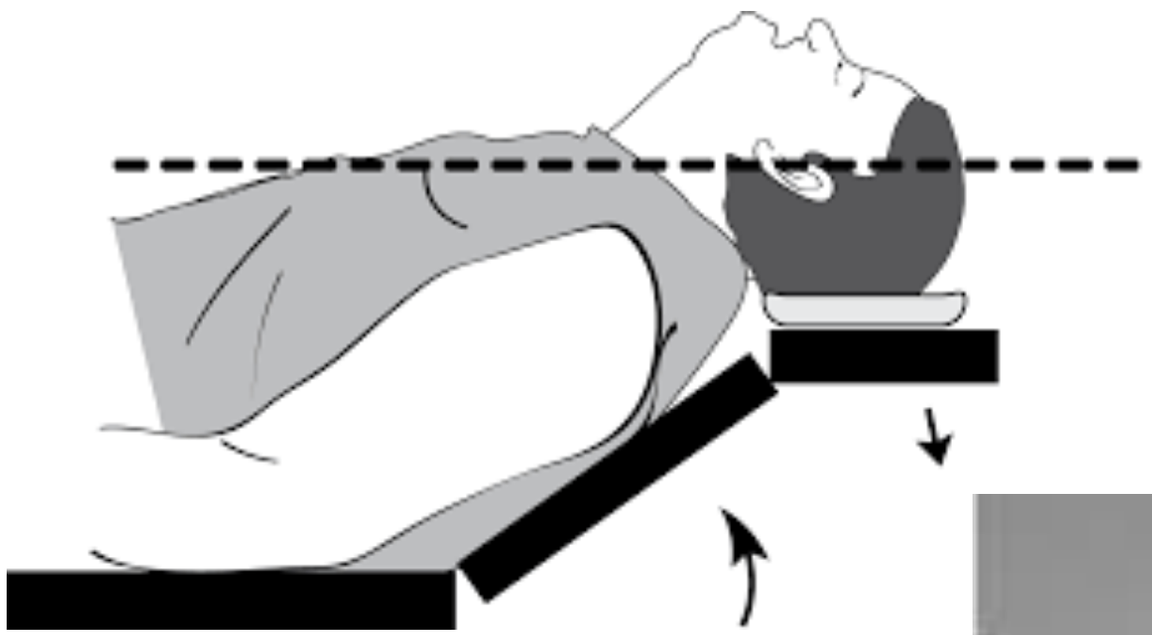
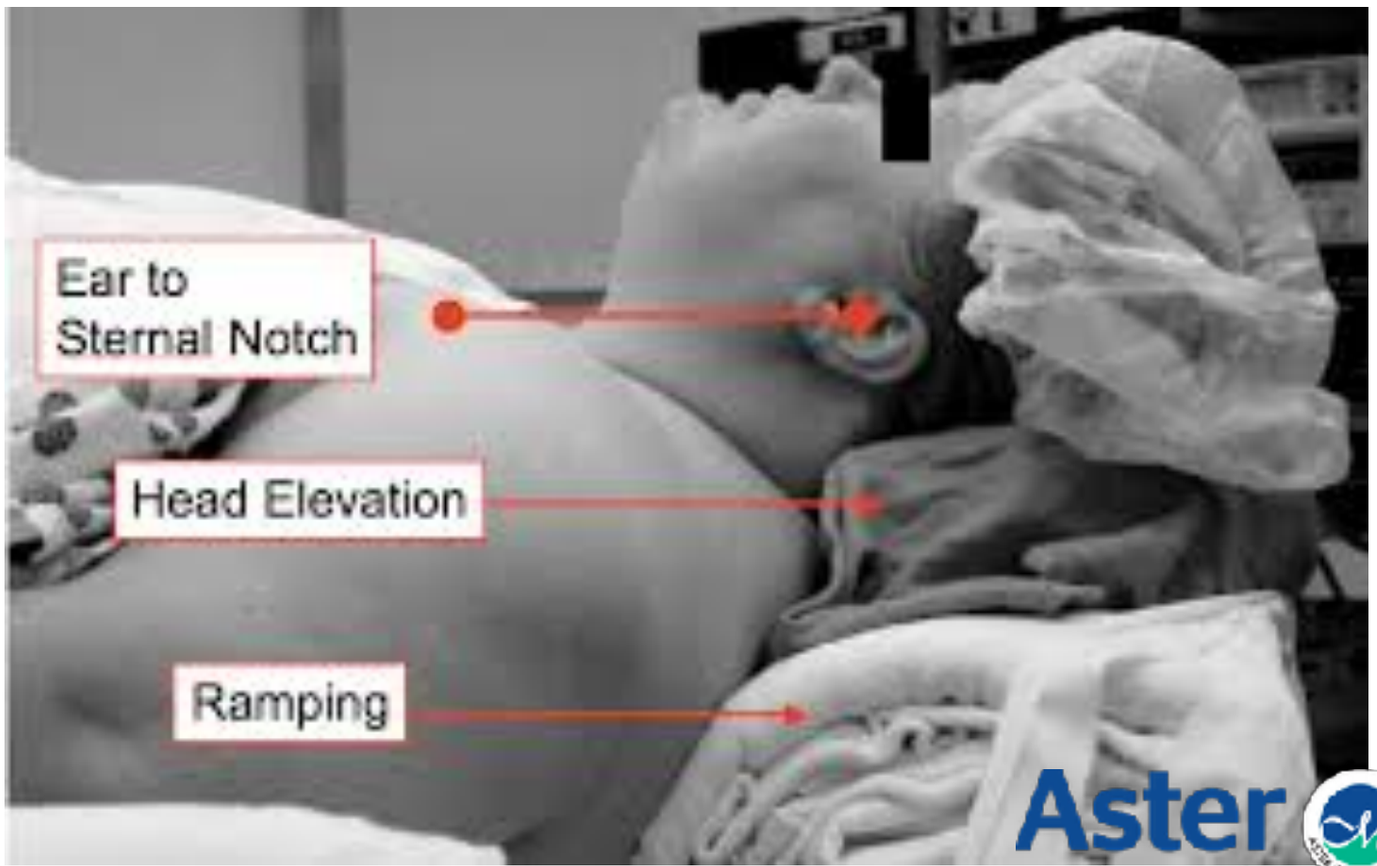
# RAMP position

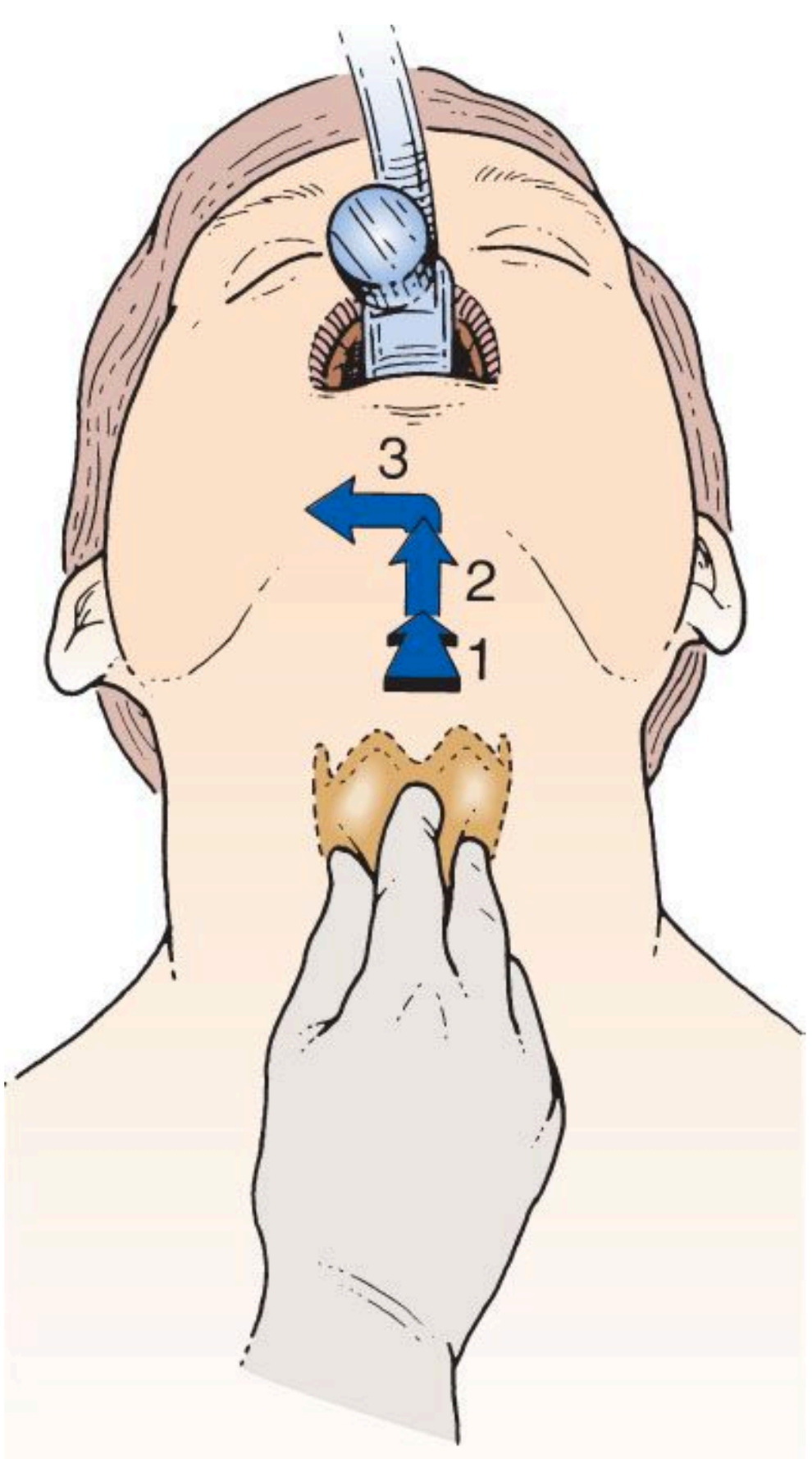




# “BURP” & “External Laryngeal Manipulation”

- **Backward, Upward, Rightward Pressure: manipulation of the trachea**

- **90% of the time the best view will be obtained by pressing over the thyroid cartilage**



# Bimanual Laryngoscopy

*Bimanual laryngoscopy. The force on the neck is opposite direction of lift by the laryngoscope.*

# Plan B-BVM and other ventilation strategies

- Can we Ventilate with a BVM? (Consider two NPA's or a OPA, gentle Ventilation)
- Two person ventilation
- LMA an Option?
- Other supra glottic airway ?

- ILMA?
- Combi-Tube?
- Kings airway
- Retrograde Intubation?

We should have an assistant at this stage

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# Difficult BMV

- ***Optimal Attempt at BMV***
  - ***2 person effort!***
  - ***Triple Airway Maneuver:!***
    - **T:** *tilt head!*
    - **A:** *advance mandible!*
    - **M:** *mouth open!*
  - ***Large oropharyngeal and/or nasopharyngeal airways!***

# Difficult BMV

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# Difficult Bag  mask ventilation Technique

# Plan C - Cant intubate… Can’t ventilate scenario

- Needle cric
- Surgical crico thyroidectomy
- TTJV
  Tracheostomy
- Try to wake up the patient from the time we fail intubation.

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# DAS Difficult intubation guidelines – overview

2015

**Plan A:**
Facemask ventilation and tracheal intubation

**Plan B:**
Maintaining oxygenation: SAD insertion

**Plan C:**
Facemask ventilation

**Plan D:**
Emergency front of neck access

**Laryngoscopy** — Succeed → Tracheal intubation

Failed intubation

**Supraglottic Airway Device** — Succeed →

**STOP AND THINK**
Options (consider risks and benefits):
1. Wake the patient up
2. Intubate trachea via the SAD
3. Proceed without intubating the trachea
4. Tracheostomy or cricothyroidotomy

Failed SAD ventilation

**Final attempt at face mask ventilation** — Succeed → Wake the patient up

CICO

**Cricothyroidotomy**

No option in ED

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# The Emergency Airway Cognitive Tool

**A** Intubation

1st look direct C-Mac
Stylet/bougie

**B** SAD

2nd generation
Supraglottic Airway Device

**C** Face Mask

2 person technique
Oral +/- Nasal airway

**D** Can't Intubate, Can't Oxygenate

Needle or Surgical Cricothyroidotomy

**Vortex approach**

**MANIPULATIONS:**
- HEAD & NECK
- LARYNX
- DEVICE

**ADJUNCTS**

**SIZE / TYPE**

**SUCTION / $O_2$ FLOW**

**MUSCLE TONE**

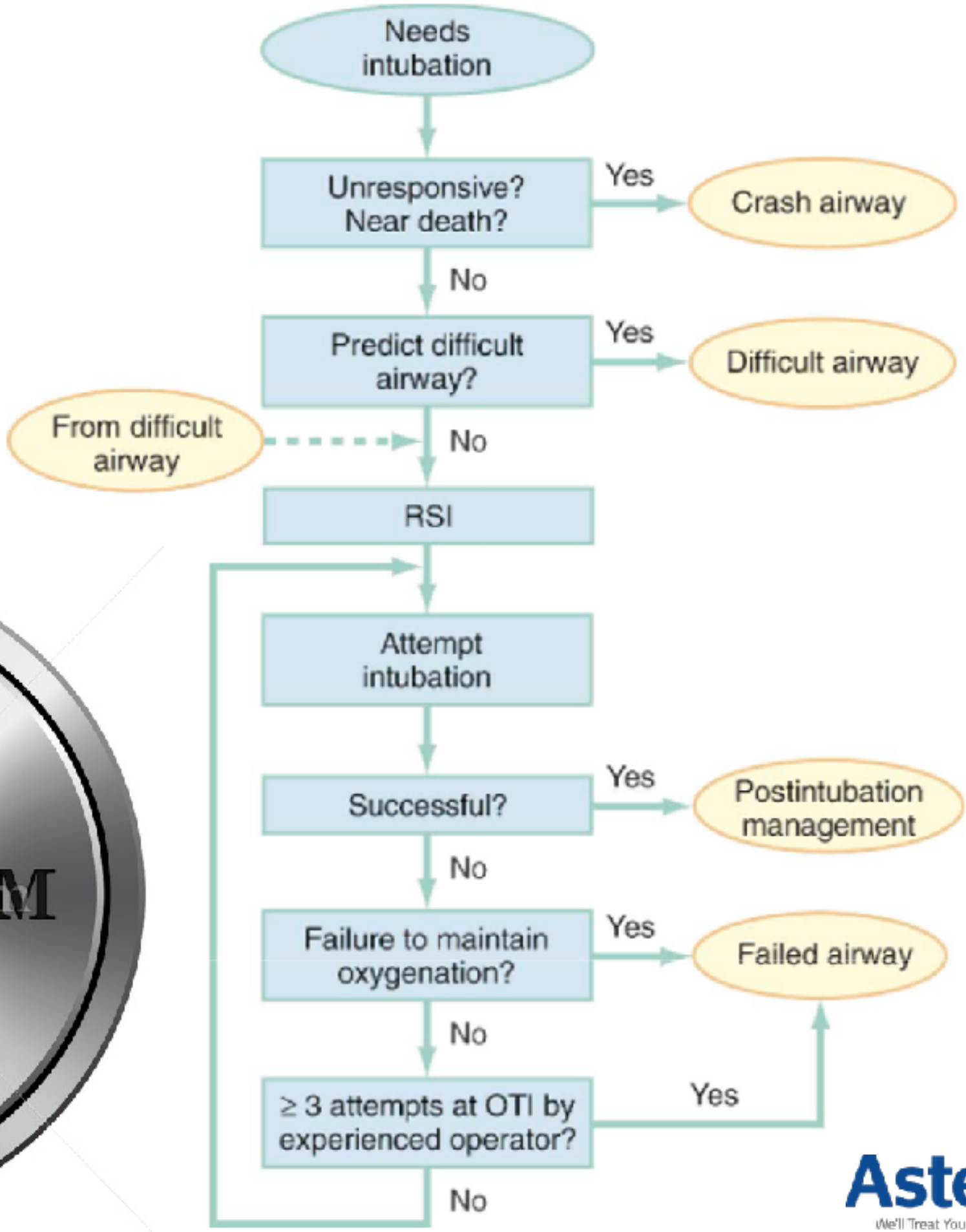
DIFFICULT AIRWAY SOCIETY DAS

VortexApproach.org

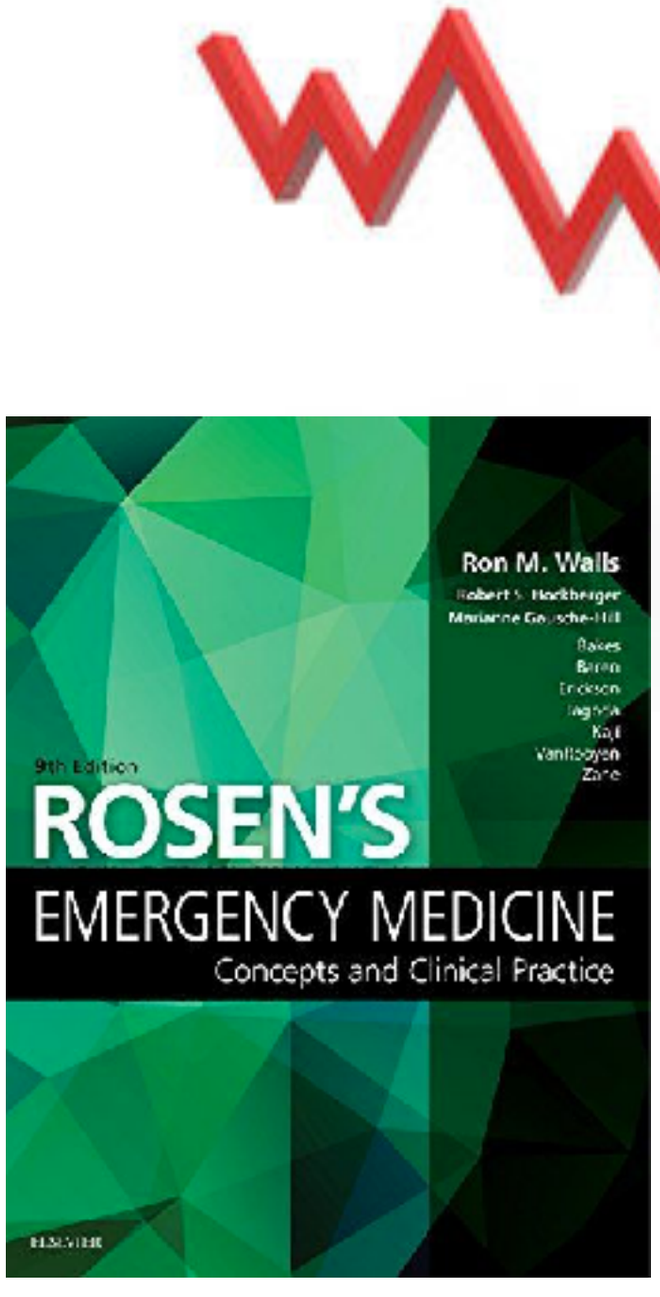
RNSH Airway

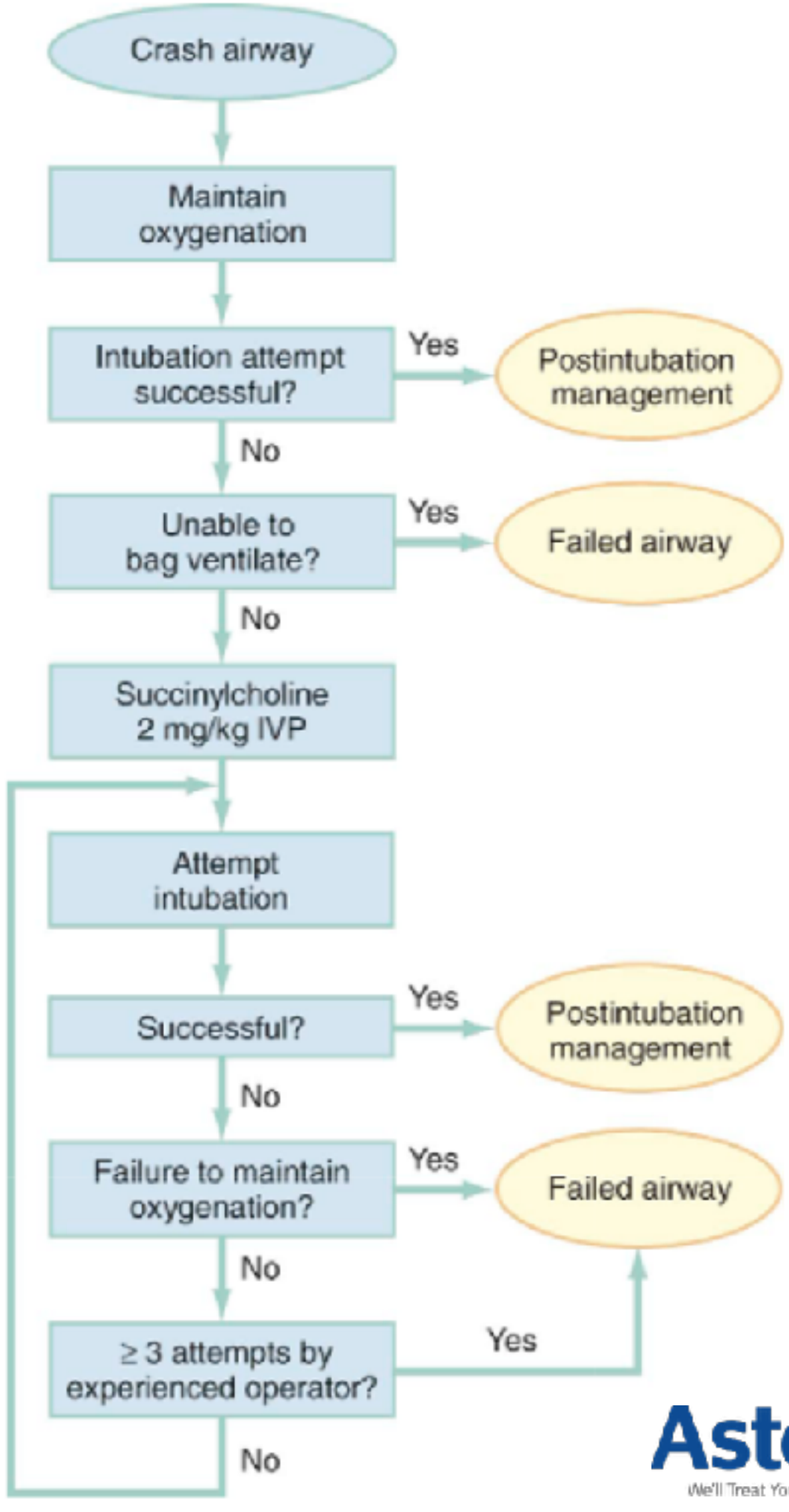

# ALGORITHM

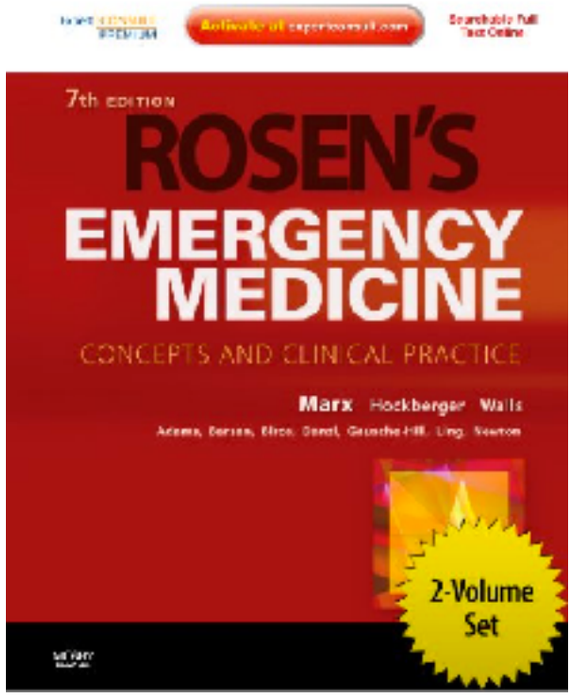




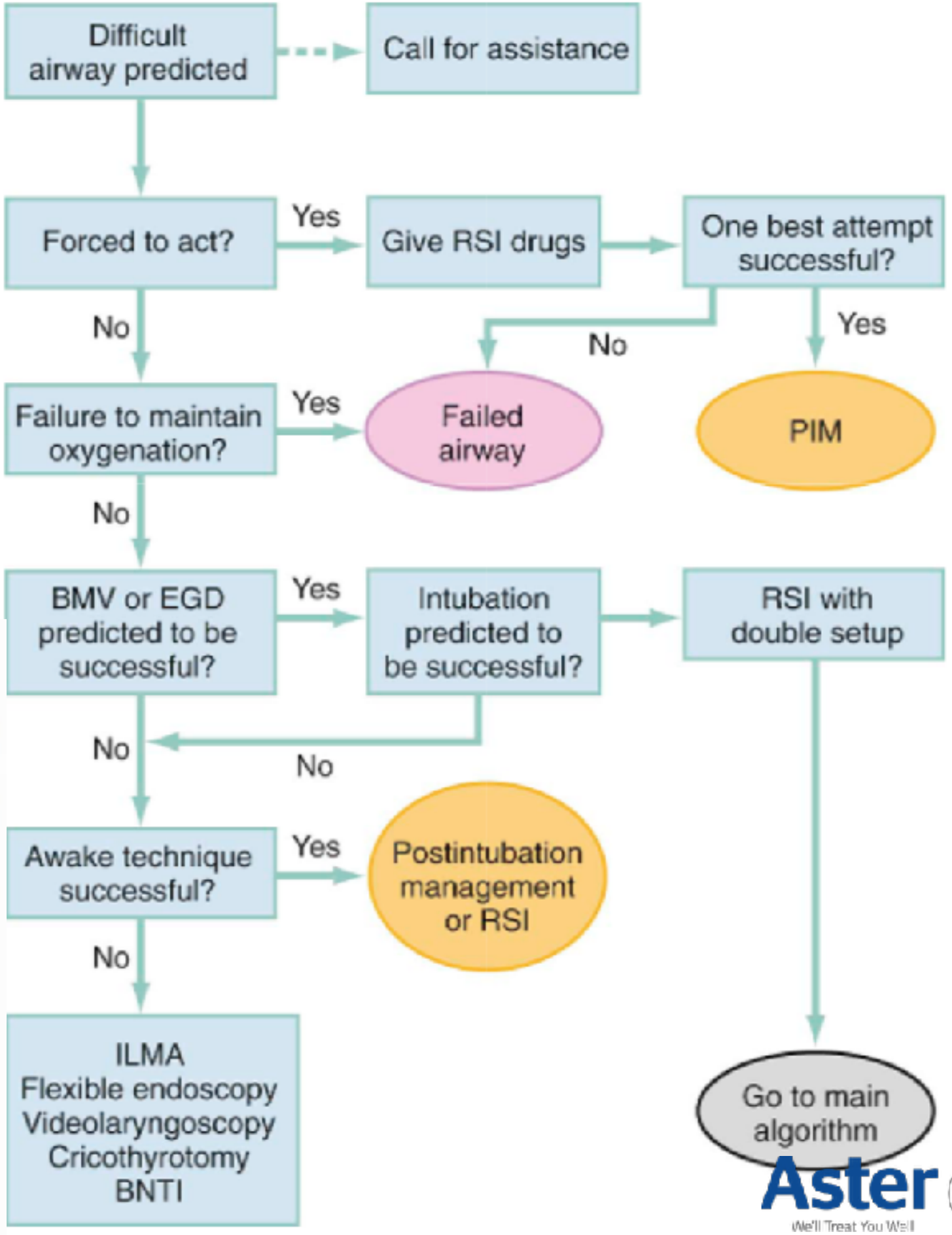
# Crash Airway






# Difficult airway - Predicted

# DO'S & DON'Ts

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# Do`s

1. Use antisialogue in premedication.
2. Aspiration prophylaxis.
3. ET of assorted size.
4. LMA of assorted size.
5. Tracheostomy set.
6. Check special airway equipment
7. Keep help of senior faculty or anaesthesiologist.
8. Pre-oxygenate patient
9. End tidal CO2 device.

# Don’ts

Don't produce deep plane of sedation

Don't use technique that you are not familiar

## Avoid multiple attempts

Don't render the patient apnoeic, unless you are certain that mask ventilation can be maintained

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# Pearls

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# Don’t be panic !!!

Can’t see the cords - ...try ***BURP***

***Remember:*** BURP is NOT Cricoid Pressure

Another attempt needed – ...***change something***

## Failures ??

When your best  just isn’t good enough-…..Call for help

**Mistakes ???  Have a backup plan -….**

**“Prior planning prevents poor performance”**

Cant Ventilate ….Cant Intubate scenario
is the biggest crisis in Airway management

**Predict-Plan-Prepare-Pre-Oxygenate-**
**Practice -Post placement care**

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**Saturation Reserve** :

At **90%** the patient's oxygen saturation falls off a cliff....

Actively pursue opportunities to deliver supplemental oxygen throughout the process of difficult airway management

During Pre-Oxygenation "First, ***do not*** bag!"
Avoid "Sellick's" maneuver (cricoid pressure)

Use ETCO2 for tube positioning

Keep Dentures in when using a BVM

Gum Elastic bougie is not useful when laryngeal view is totally obscured

**All your DA equipment are available at your ARM SPAN**
**Know that where is your drugs and equipment located in ER**

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**1) Most of the Preparatory & Practice plan in difficult airway management are based on operation theatre and anaesthesia based .**

**2) Managing DA scenario in OT is something like Five star … but in ED and Ambulance there is No star or Minus star and highly challenging**

**3) Emergency difficult airway scenario, there is no option to wake up the patient and plan for another session. It is rather a "do or die" situation**


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# “Yellow” = Yes

A Practice Tip


End Tidal CO2 Detector

# “Purple” = Pathological

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# Preintubation POSITIONING

MANTRA
1) E2N & Face=
2) HoBup & HoPup
3) 360 & Belly/BeltHeight
4) TeamEquipment & AssistantsReady

**8 facts- Must know and must follow**

## 1 Face=

Face plane parallel to ceiling
(or just slightly 10 degree tilt back)

## 2 E2N

Ear to Sternal Notch (sniffing)
Ramp high BMI

## 3 HoP up

Head of Patient up
to Head of Bed

## 4 HoB up

Head of Bed up 30 degrees
Reverse trendelenburg in
- High BMI
- Late pregnancy
- Spinal immobilization

## 5 360

360 degree access to the patient

## 6 Belly height

Head at or just above belt/belly level

## 7 Team Equipment

Standardized positions for all
Team members with roles
Equipment on hand

## 8 Assistants ready

To help add or maintain
- Collar opening
- External Laryngeal Manipulation
- Head elevation
- Jaw thrust
- Mouth opening

@TBayEDguy
version 1.2
2015-08-21

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# Nutshell

## E2N & Face =

## HoBup & HoPup

## 360 & Belly/Blet Height

## Team Equipment & Assistants Ready


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