The Difficult Airway

Strategy and Tactics

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Objectives

- Identify the Enemy
- Outline Our Strategy
- Define Our Tactical Options
- Review and Demonstrate New Tactics
  - KING Airway
  - I-LMA
  - Video Laryngoscopes

The Difficult Airway

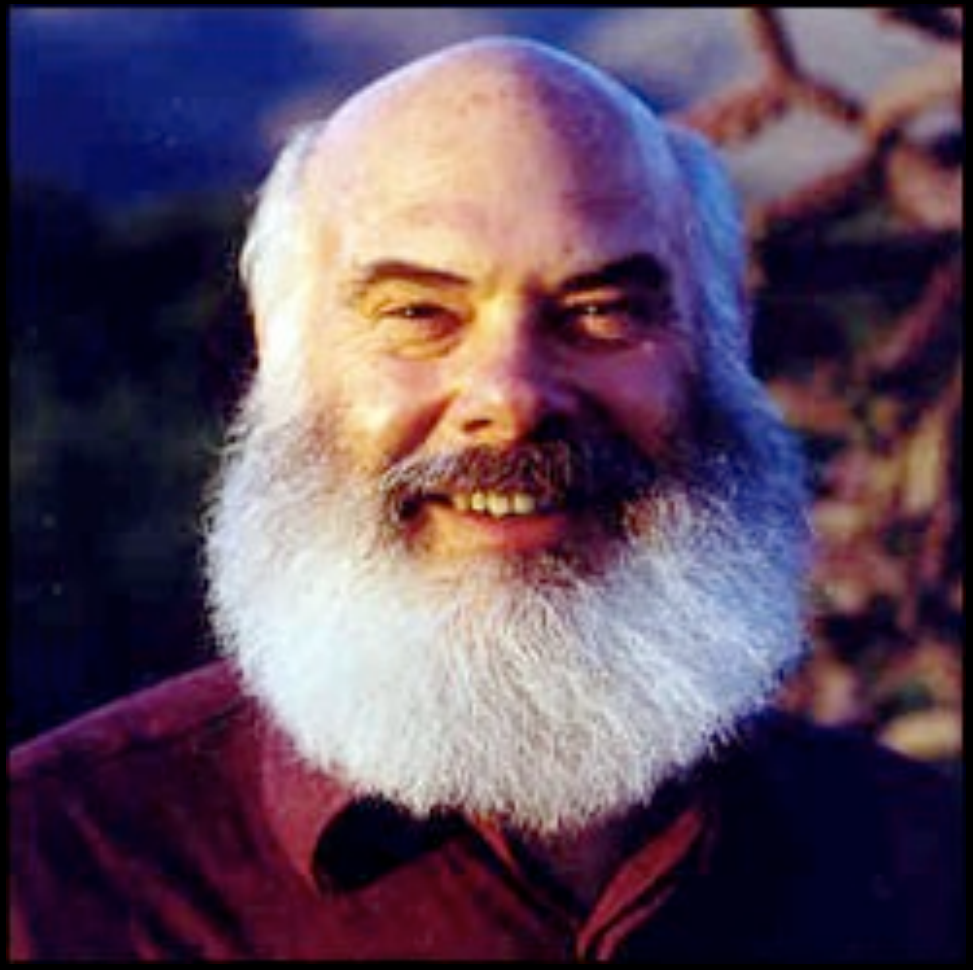
- Rule #1
- ALL airways must be treated as difficult airways!

A Few Definitions

- Difficult Airway
- Crash Airway
- Failed Airway

Identify the Enemy (Airway)

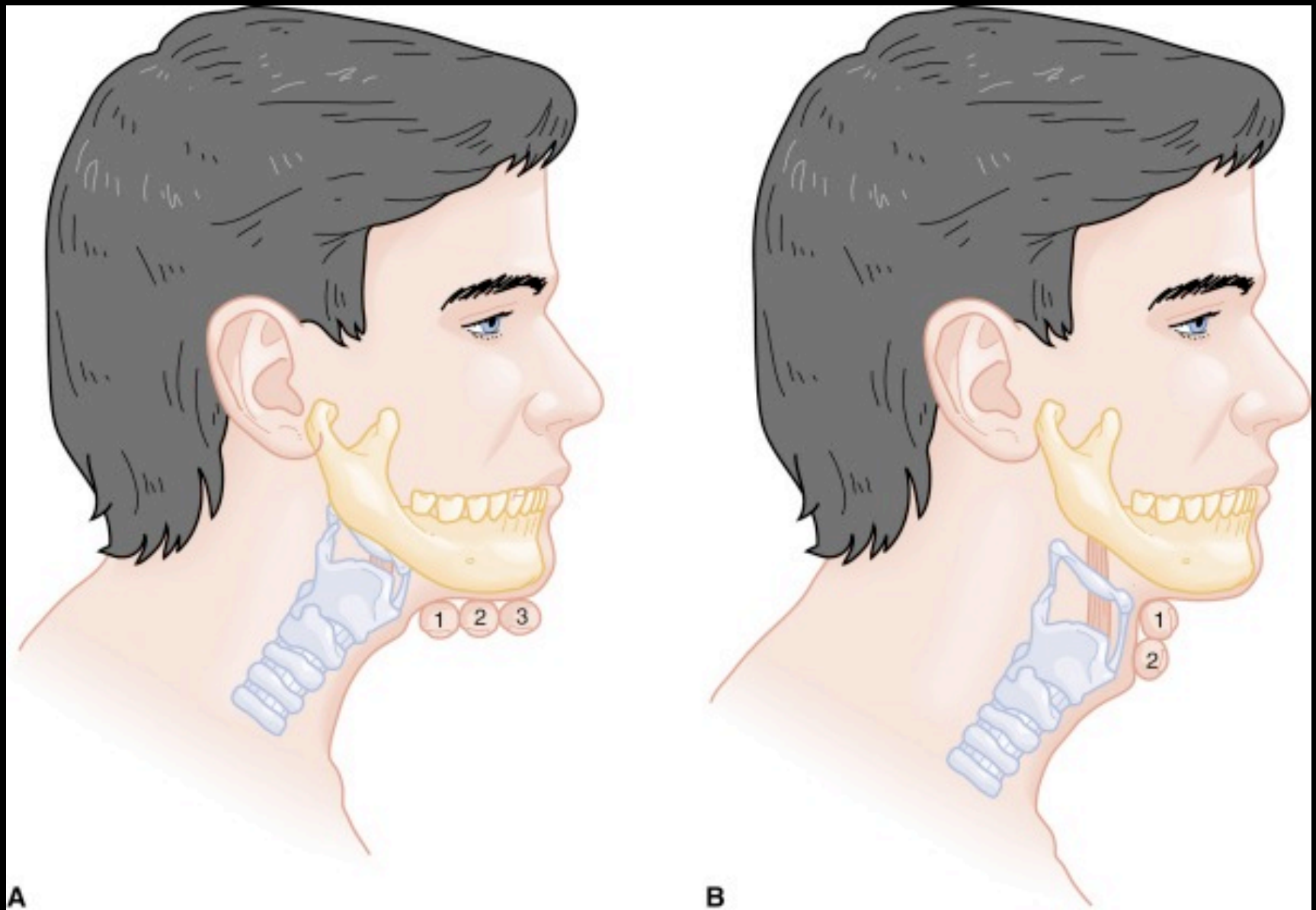
- Various Assessment Schemes
  - 3-3-2
  - Mallampati Score
  - Facial Structure
  - Tracheotomy Scars
  - Facial Hair
  - Etc, etc, etc



Rapid Fire Assessment

- 10 Second Difficult Airway Assessment
  - "LEMON" Approach
    - L-ook for obvious signs of potential problems
    - E-valuate via the 3-3-2 rule
    - M-allampati
    - O-bstruction
    - N-eck Mobility

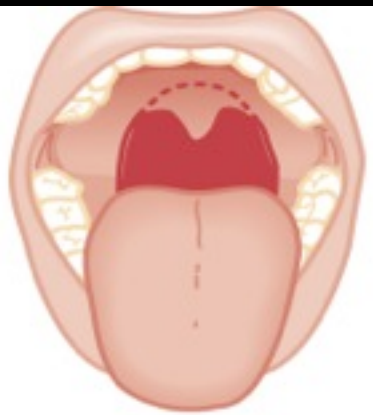
3-3-2 Rule



Mallampati

Class I: soft palate, uvula, fauces, pillars visible

No difficulty

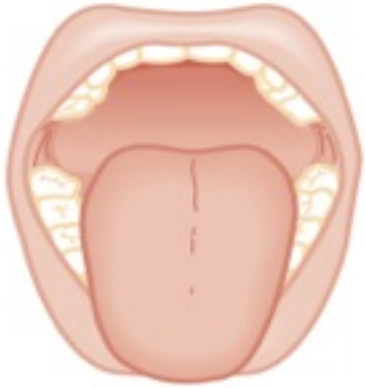


Class II: soft palate, uvula, fauces visible

No difficulty

Class III: soft palate, base of uvula visible

Moderate difficulty



Class IV: hard palate only visible

Severe difficulty

Outline Our Strategy

- Strategy:

- An Overall plan of action designed to accomplish a specific goal

The Oft Forgotten… BVM

- More lives are saved from solid bag valve mask technique than from any so-called "advanced airway device" ever made

- All airway classes should begin and end with BVM technique

Approach to the Difficult Airway

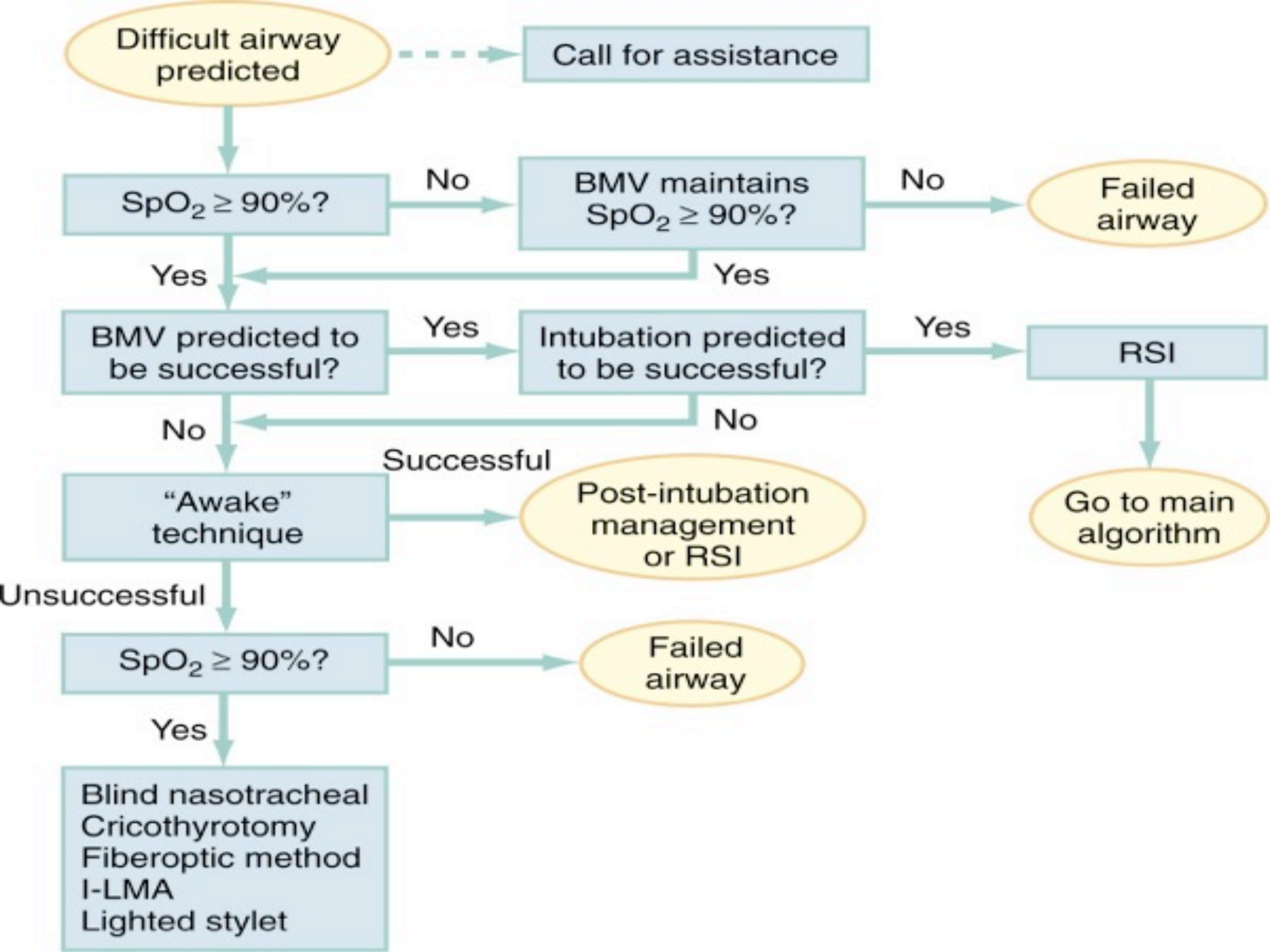
- Traditional "Double-Setup"

1. Laryngoscope and tube
2. Cricothyrotomy Tray (kit)

Approach to the Difficult Airway

- "Deca-Setup"

1. Traditional Laryngoscope
2. GEB
3. I-LMA
4. Glidescope
5. Cricothyrotomy Kit
6. KING
7. Retro-grade Kit
8. Fiber Optic Scope
9. Trans-Tracheal Jet Ventilator
10. Tracheostomy Tray


Difficult airway predicted
Call for assistance
SpO2 ≥ 90%?
No
BMV maintains SpO2 ≥ 90%?
No
Failed airway
Yes
Yes
BMV predicted to be successful?
Yes
Intubation predicted to be successful?
Yes
RSI
No
No
Successful
"Awake" technique
Post-intubation management or RSI
Go to main algorithm
Unsuccessful
SpO2 ≥ 90%?
No
Failed airway
Yes
Blind nasotracheal
Cricothyrotomy
Fiberoptic method
I-LMA
Lighted stylet

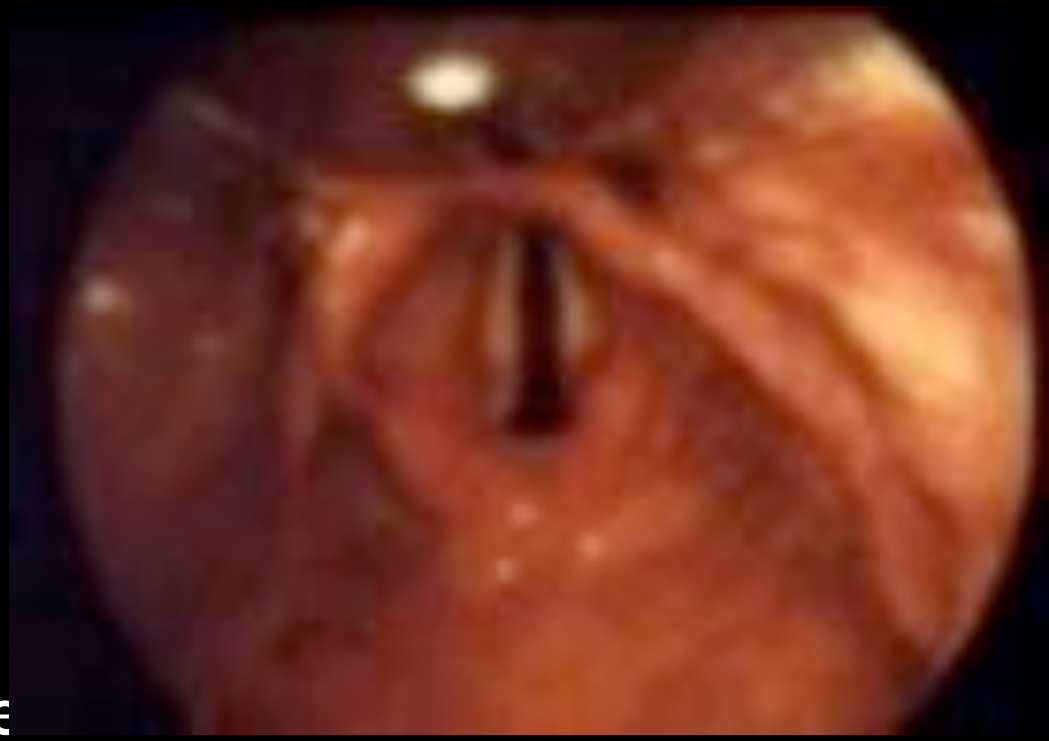
"Awake" Technique?

- Purpose: to determine whether direct laryngoscopy is **possible**!
- What does awake really mean?
- The patient maintains spontaneous respirations
- Sedation + Topical Anesthesia

"Awake" Technique

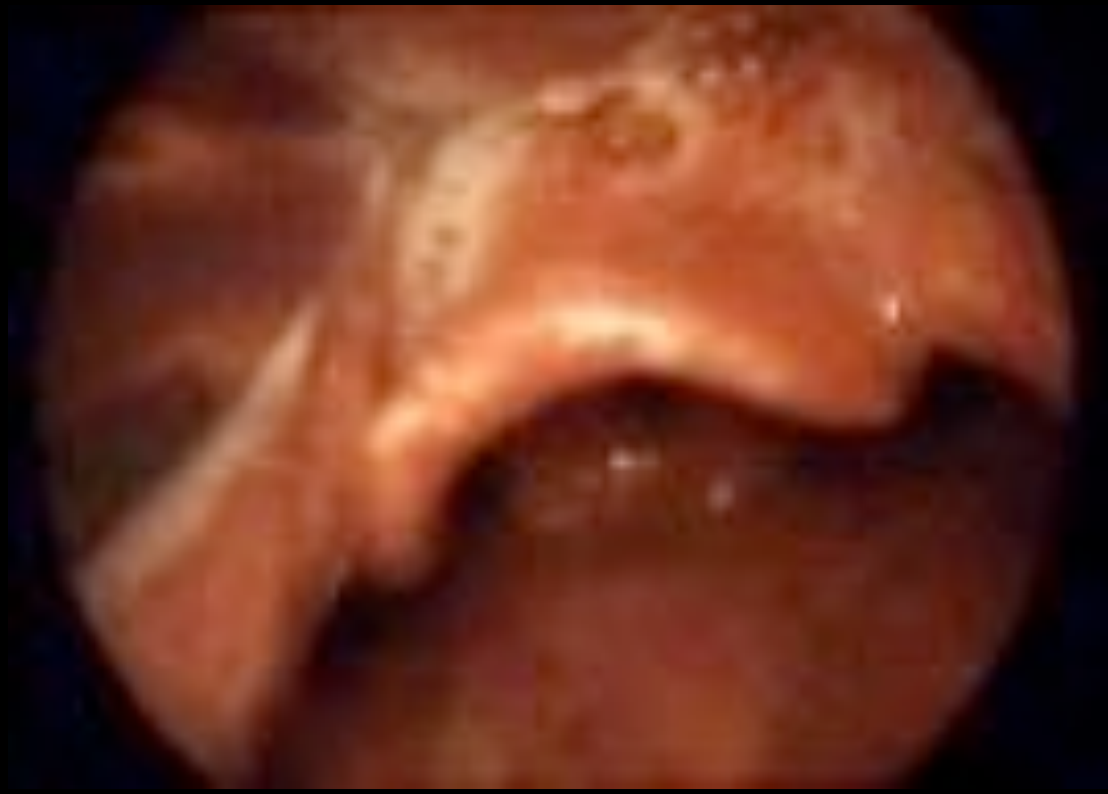
- This is the classic case for an "awake" nasal fiberoptic intubation
- KEY point is to NOT paralyze in the field!

Grade I View



- Grade I View
- Whole Larynx Visible

Grade 2 View



- Grade 2 View
- Only Part of the Glottis Visible

Grade 3 View

- Grade 3 View
- Epiglottis Only

Grade 4 View

- Grade 4 View
- NO laryngeal structures

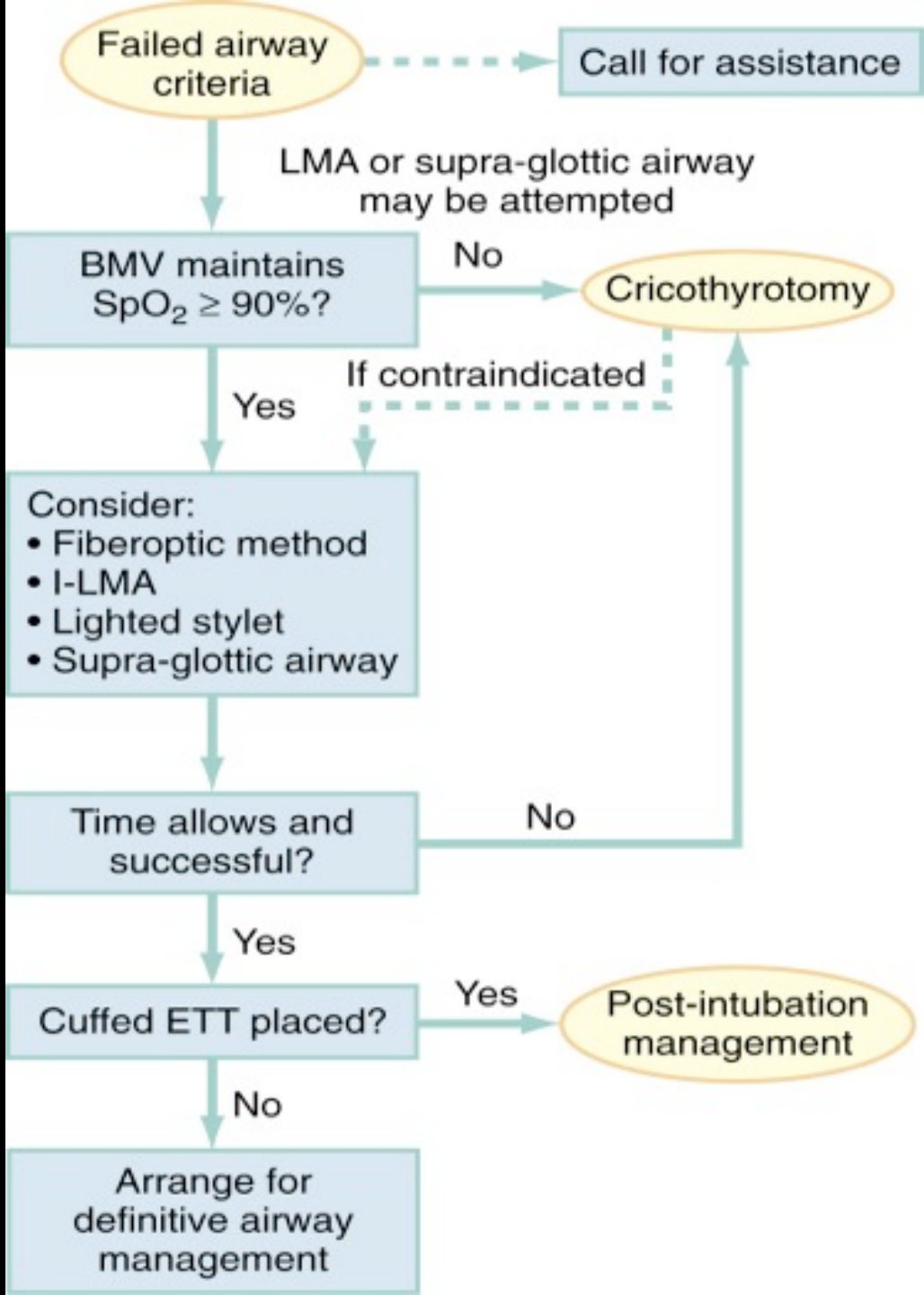
Awake Technique

- Grade 1 view = RSI ok
- Grade 2 view = RSI ok
- Grade 3 view = NO RSI
- Grade 4 view = “Impossible” Intubation

Definition

- Failed Airway
- 3 Failed Attempts by an experienced operator using optimal patient positioning and best possible technique
- O2 Sat < 90% with 2 man BVM + adjunct
- Grade IV view on Laryngoscopy

- Failed Airway Algorithm



Define Our Tactical Options

- Tactics:

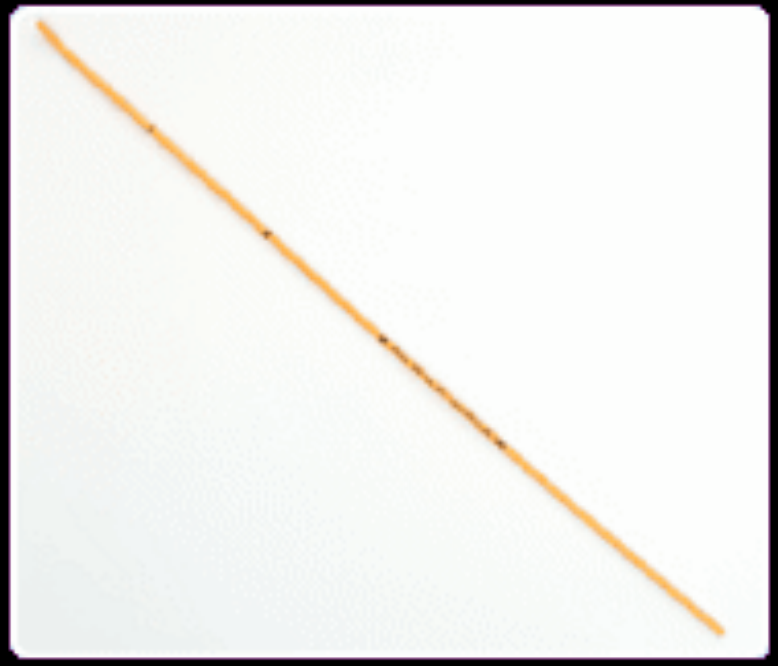
- Near term actions taken to solve a specific problem or achieve a certain aim

Difficult Airway Options

- GEB
- KING
- I-LMA
- Glidescope
- Cricothyrotomy Kit
- ~~Fiberoptic Scope~~

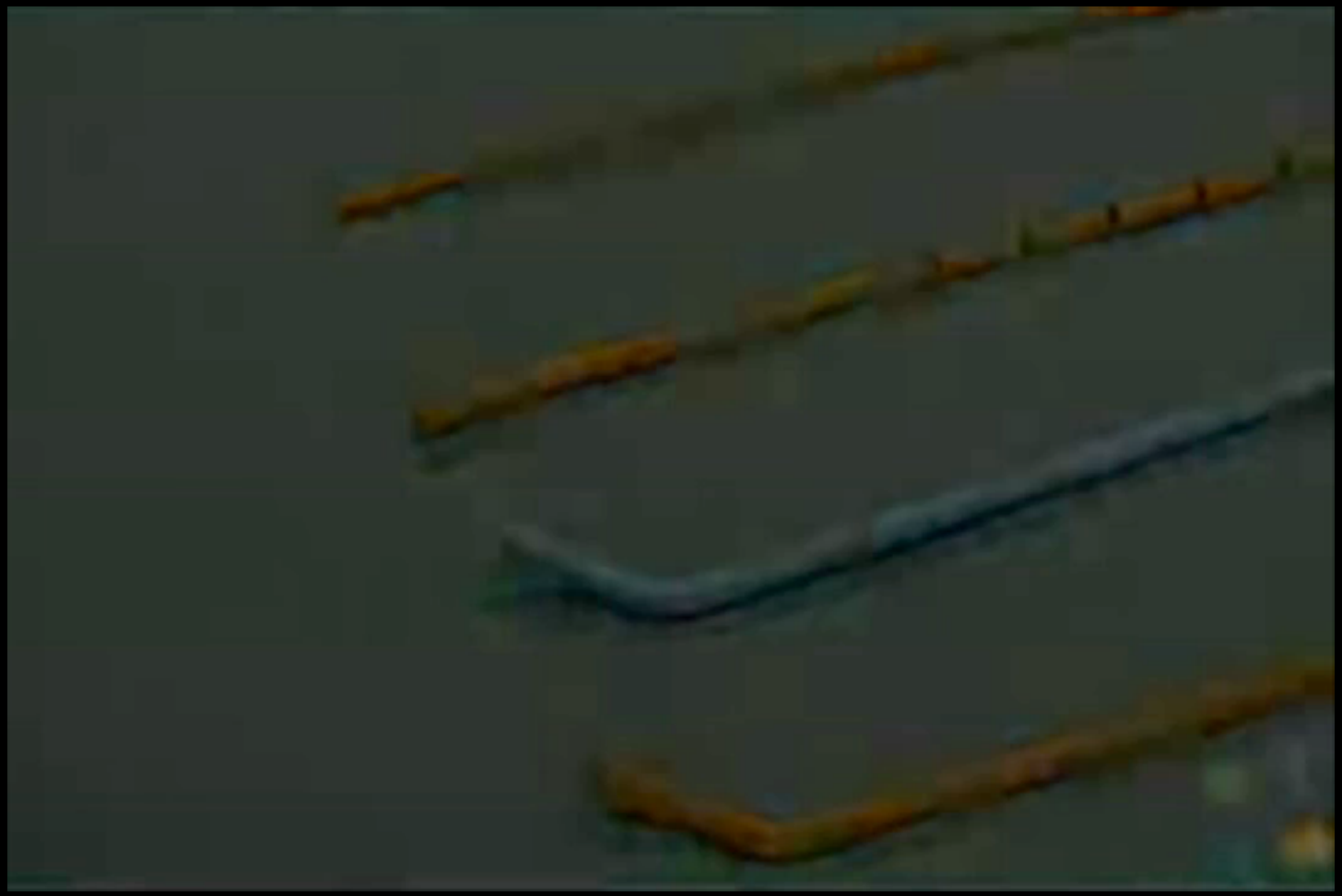
Gum Elastic Bougie

- Tracheal Tube Introducer
- 60 cm long
- 15 french diameter
- J-tip curve at tip



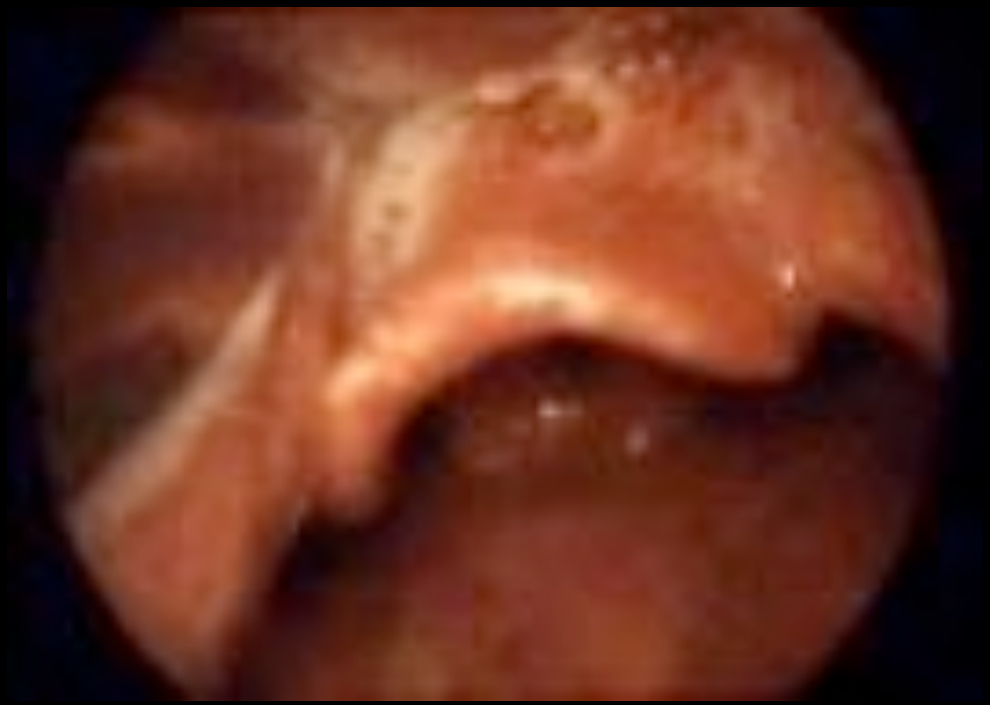
Set Up

- Set up for traditional intubation as usual
  - Same equipment
  - Same procedure
  - Same positioning
  - Same drugs
- Prepare GEB
  - J-tip
  - Gentle C curve



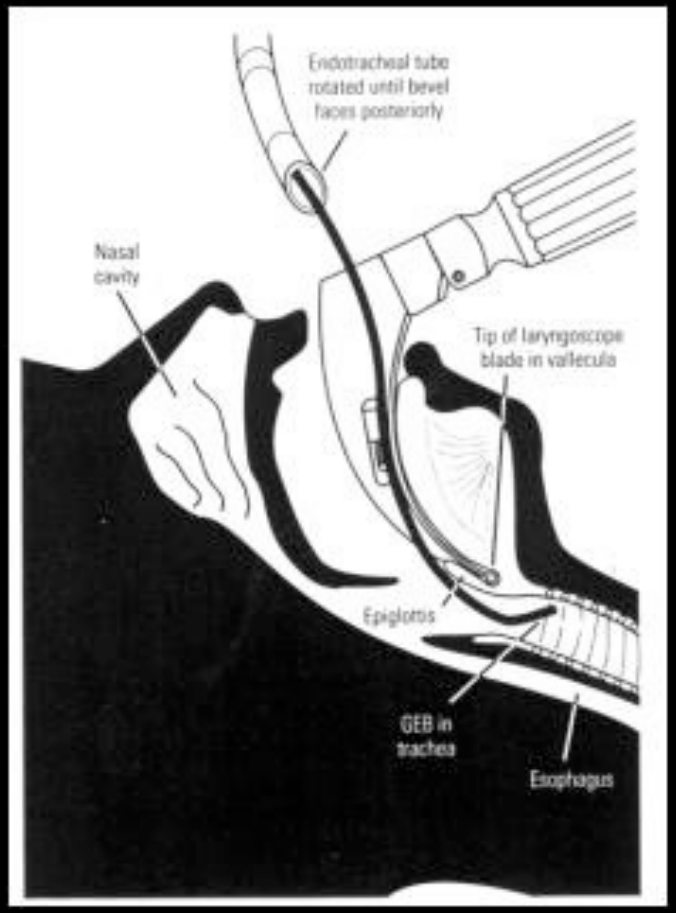
Attempt Intubation

- Consider GEB IF:
  - Grade II or III view seen (Arytenoids or epiglottis only)
- Obtain best possible view with laryngoscope



Insert GEB

- If cords NOT visible pass GEB so that J-tip points anterior when passing the epiglottis



Is It In?

- Characteristic "clicks" should be felt when passing the GEB over tracheal rings
- If unsure, advance the GEB to see if resistance is met at the carina

- **IF CLICKS ARE NOT FELT AND NO RESISTANCE IS MET WITH ADVANCMENT OF THE GEB => ESOPHAGEAL PLACEMENT**

Confirmation

- Once the tube is passed through the cords, the intubator will maintain control of the ETT
- The assistant will remove the GEB
- Endotracheal tube placement will be confirmed using traditional methods

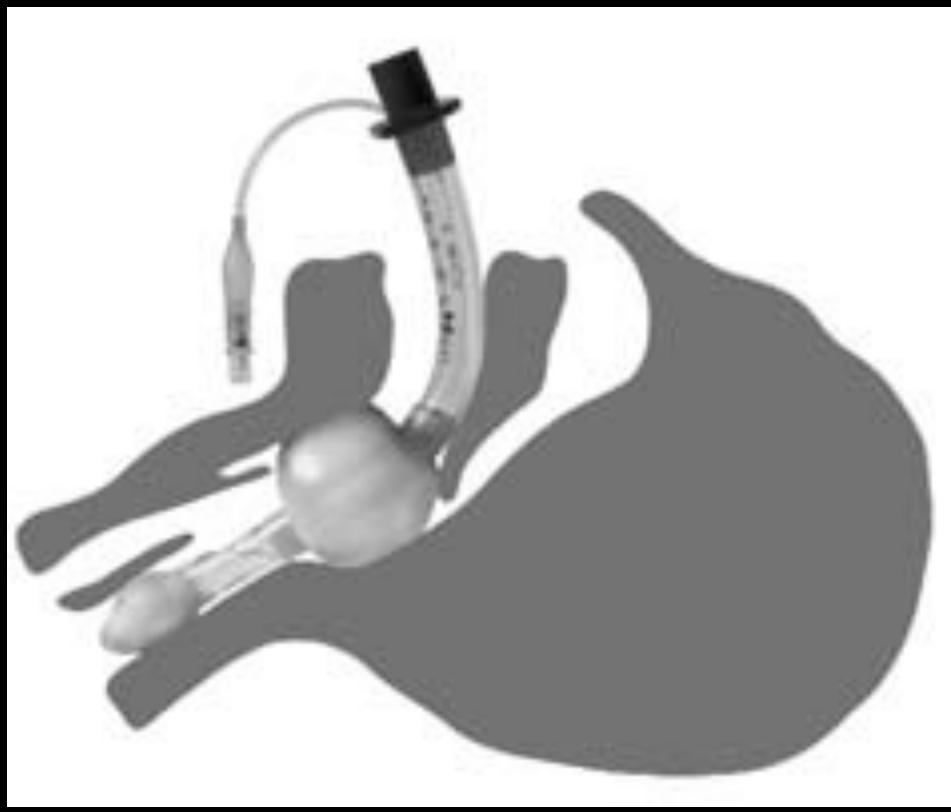
Questions on the GEB?

KING LTD Airway

- THE prehospital rescue airway device
- BLS skill level for insertion technique
- 10 seconds to oxygenation

KING LTD Airway

- Two Balloons
- One in the distal esophagus
- Other in the posterior pharynx
- Ventilation outlets



KING LT
Insertion

KING LTD Airway

- Chin Lift
- Tube held "cocked" at 45 degree angle
- CAREFUL with the balloons going past the teeth!!!

KING LTD Airway

- Rotate the tube back to neutral as the tube tip passes the tongue

KING LTD Airway

- Advance the tube WITHOUT force

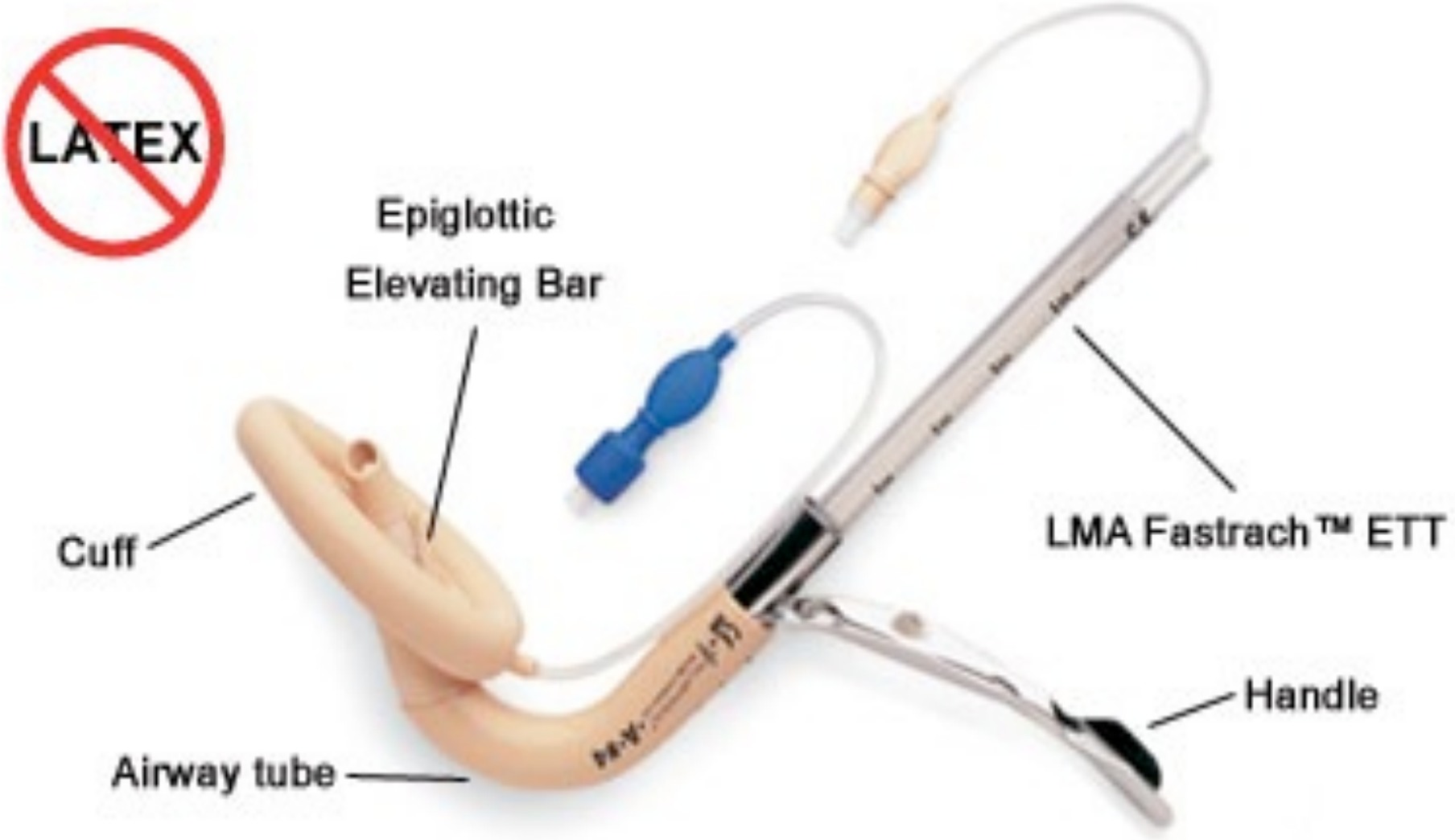
KING LTD Airway

- Until the tube phalange is resting on the teeth or gums

- Then inflate cuff with 60 cc of air
  - or to 60 cm H2O

Questions on the KING LTD?

The LMA Fastrach



The LMA Fastrach

- Facilitates oxygenation and ventilation with or without intubation
- LMA portion alone is NOT a definitive airway
- Accommodates up to an 8.0 ET tube
- Inserted blindly

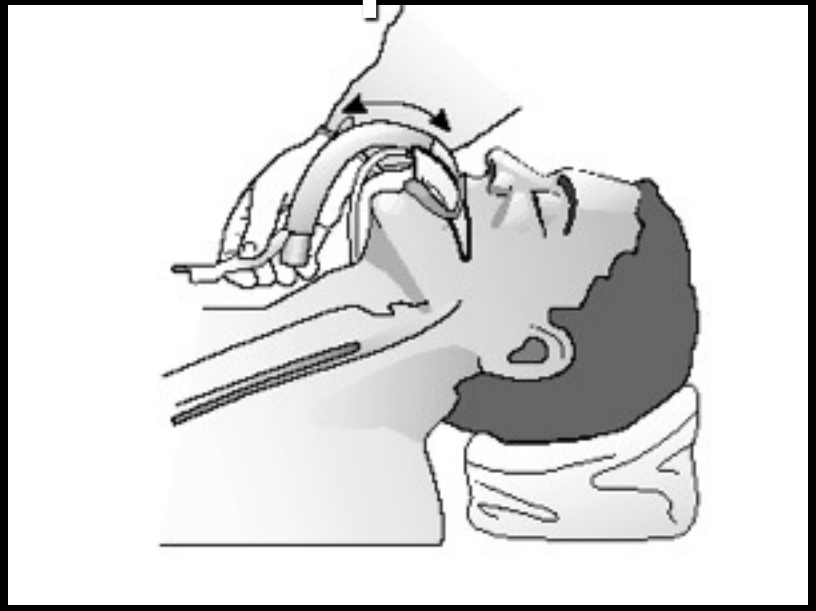
Tracheal Intubation Using The Fastrach

Insertion Technique

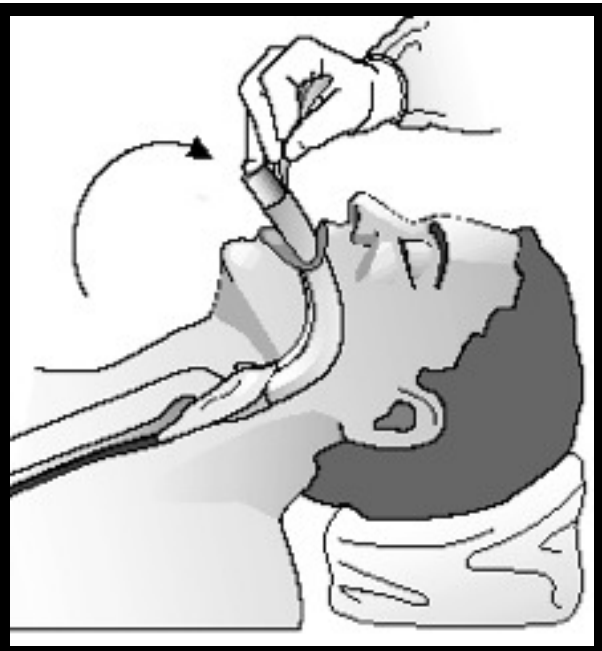
- Visually inspect to ensure device is not defective/ damaged
- Deflate cuff fully – will not hold tight with leaky cuff
- Place patient's head in neutral position
- Lubricate POSTERIOR tip

Insertion technique

- Place tip against hard palate with metal tube against chin



- Using a circular motion, glide the mask along the hard palate and into position



Insertion Technique

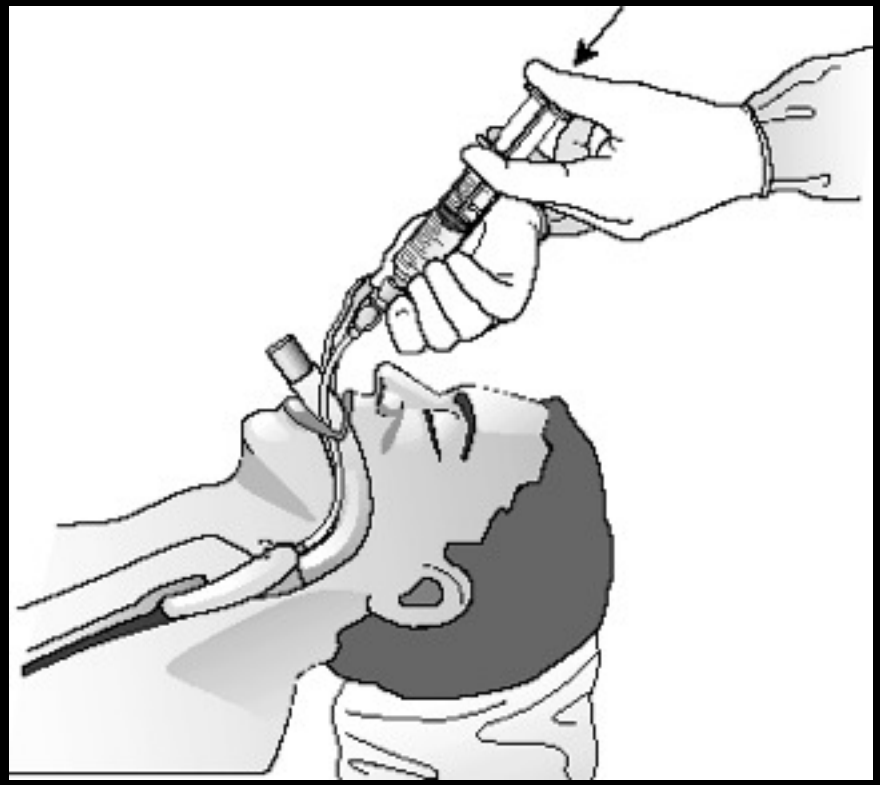
- Inflate cuff using

  30 cc syringe to approx

  50% of maximum

  - 15 to 20 cc of air

- Use fine adjustments of mask position to find "best fit" with minimal air leak



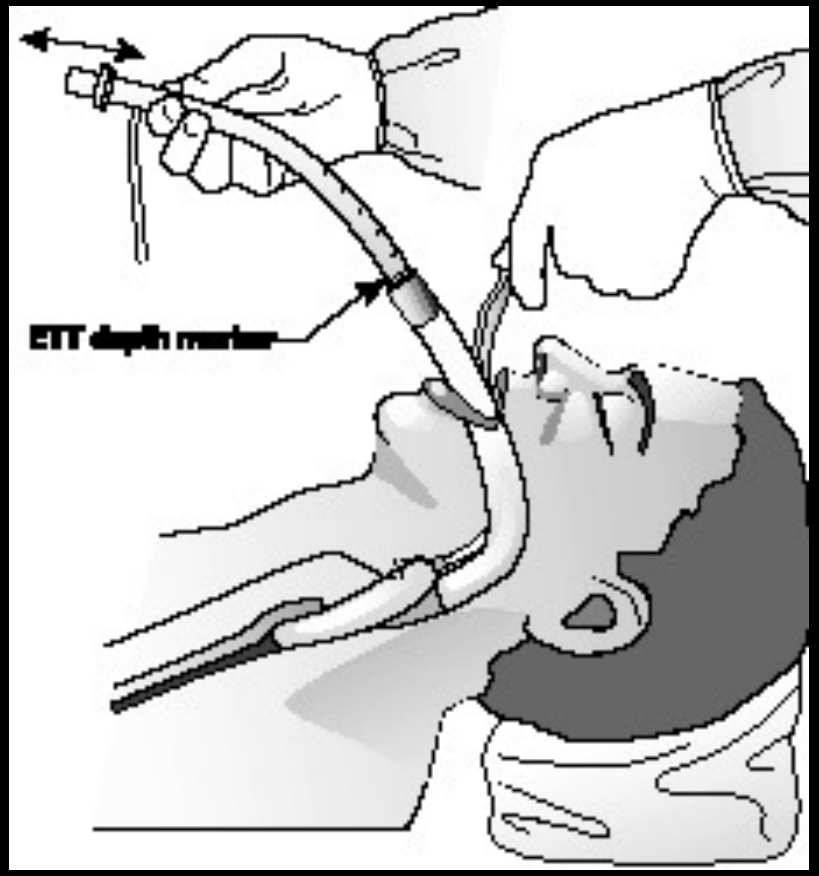
Insertion Technique

- Use end-tidal CO2 detector to confirm placement
- Oxygenate with bag-valve mask 15 L/ Min oxygen
- Intubate

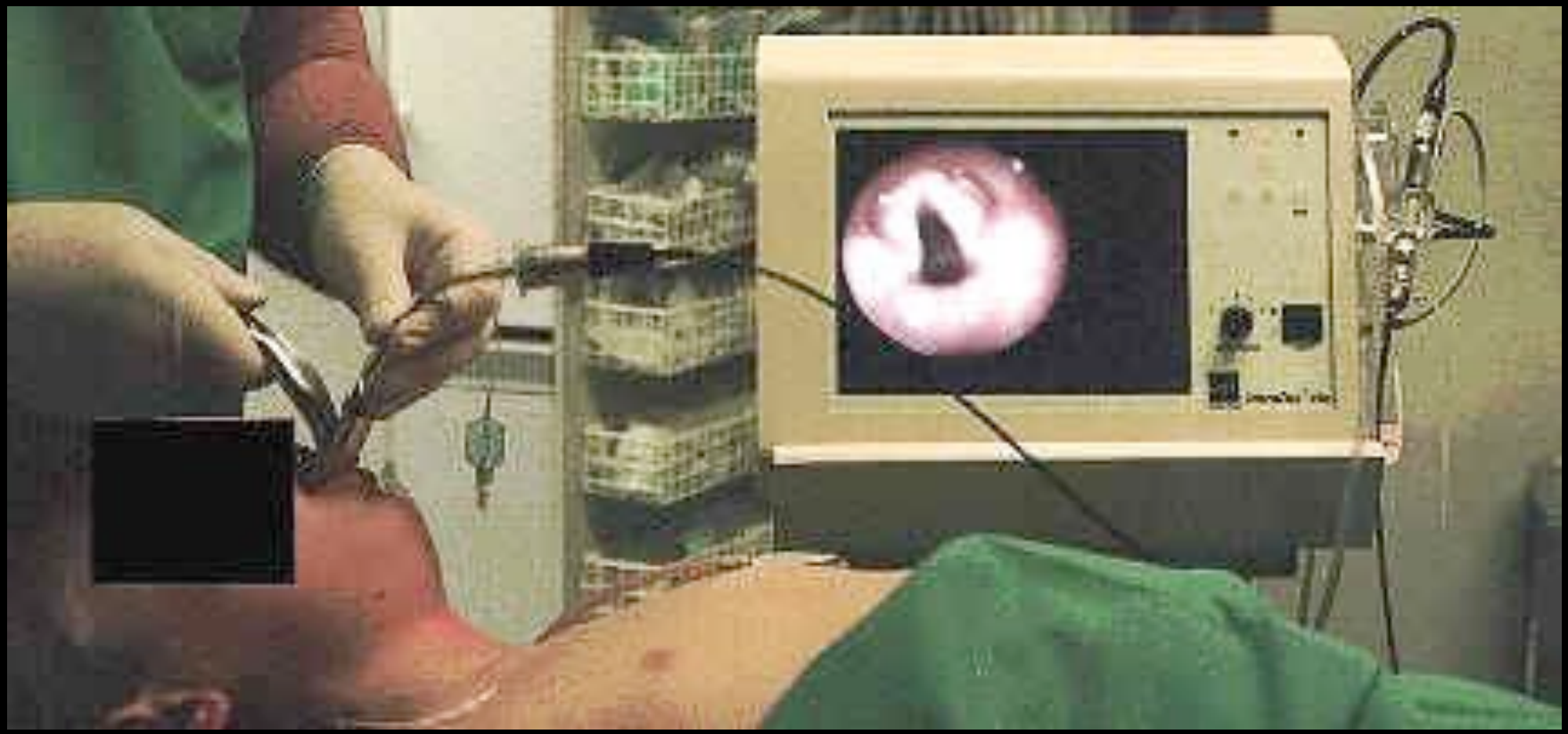
FIGURE 8
Ventilate the patient prior to intubation.

Intubating through the I-LMA

- Inspect the ET tube
- Lubricate ET tube
- Use tube to lubricate LMA

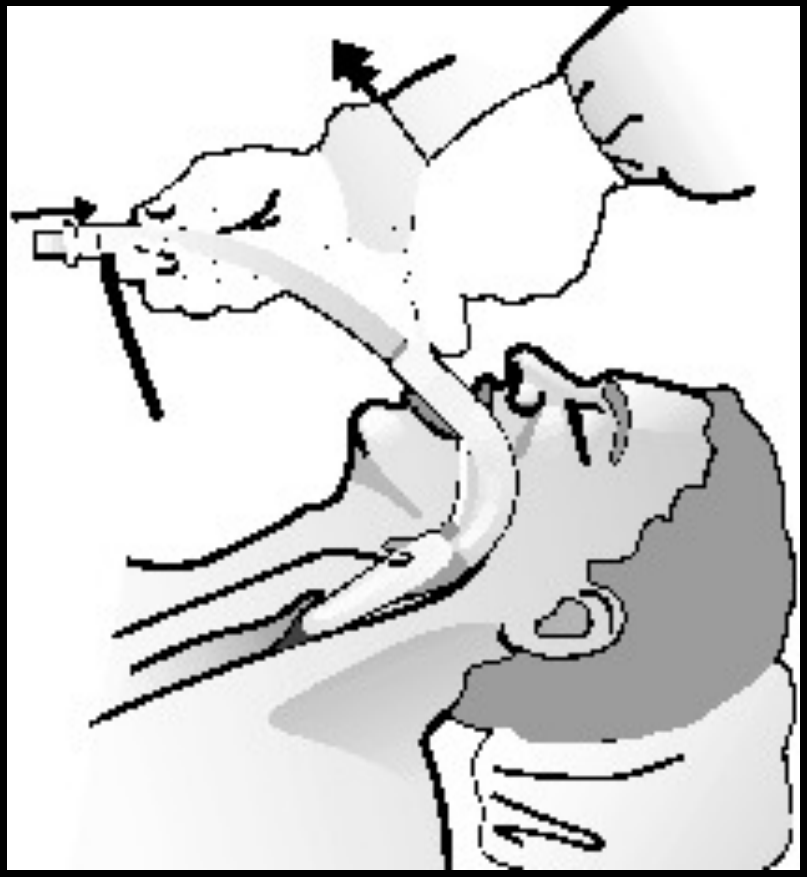


Intubating through the I-LMA



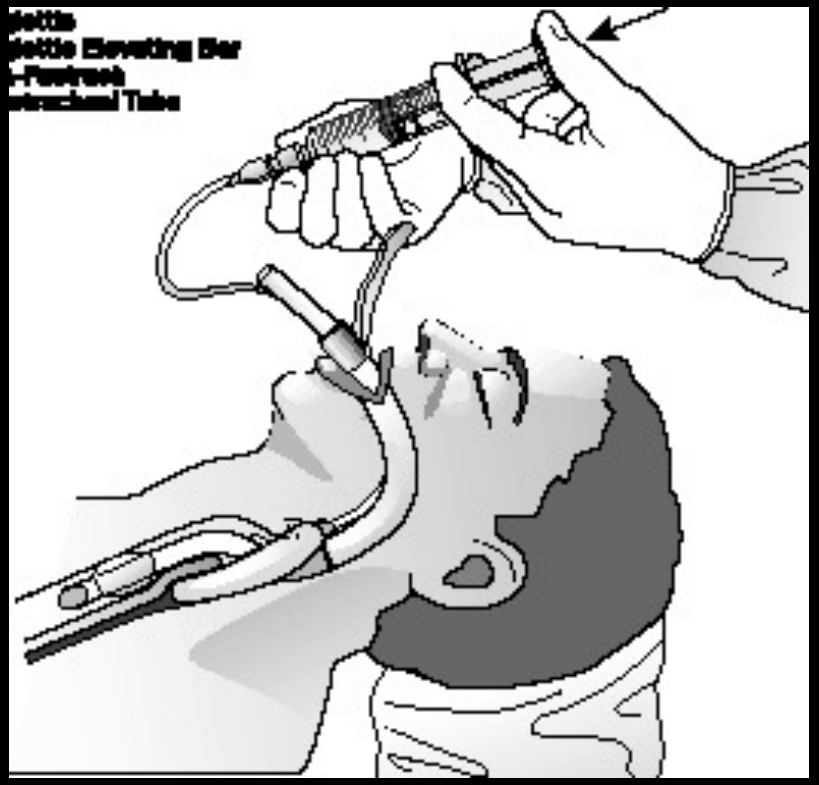
Intubating through the LMA

- Lift straight up on handle to ensure proper LMA seal
  - The "Chandy" maneuver
- Gently pass tube to minimum depth of 15 cm



Intubating through the LMA

- Inflate ETT cuff using 10 cc syringe
- Confirm placement with end-tidal CO2 detector, auscultation for breath sounds, watch O2 sats



Questions on the I-LMA?

Cricothyrotomy

- The ONLY option for a true FAILED airway
- Can't Intubate + Cant Ventilate = Knife
- Multiple Options to accomplish the goal

Cricothyrotomy

Cricothyrotomy

The Bougie-Aided Cricothyrotomy

with Darren Braude, MD, EMT-P

Questions on the GEB Cric?

Glidescope

- Video Laryngoscopes ARE THE FUTURE!!
- Provide Grade 1 view 99% of the time
  - In trained hands

Glidescope Ranger

- 7” by 6”
- Weighs 1.5 lbs
- Can survive extreme temperatures

Glidescope

- Field tested in Iraq
- Used primarily at Combat Support Hospitals

Glidescope

434

445

474

"Rescue"

KING

vs

Video Laryngoscope

THE END