Difficult Airway Case Review

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Financial Disclosures

- None

Objectives

- To be facile with the fiberscope
- To be ready to cut for a cricothyroidotomy
- Use SALAD technique for copious secretions

To become more comfortable in predicting a difficult airway and the various methods to secure an airway.

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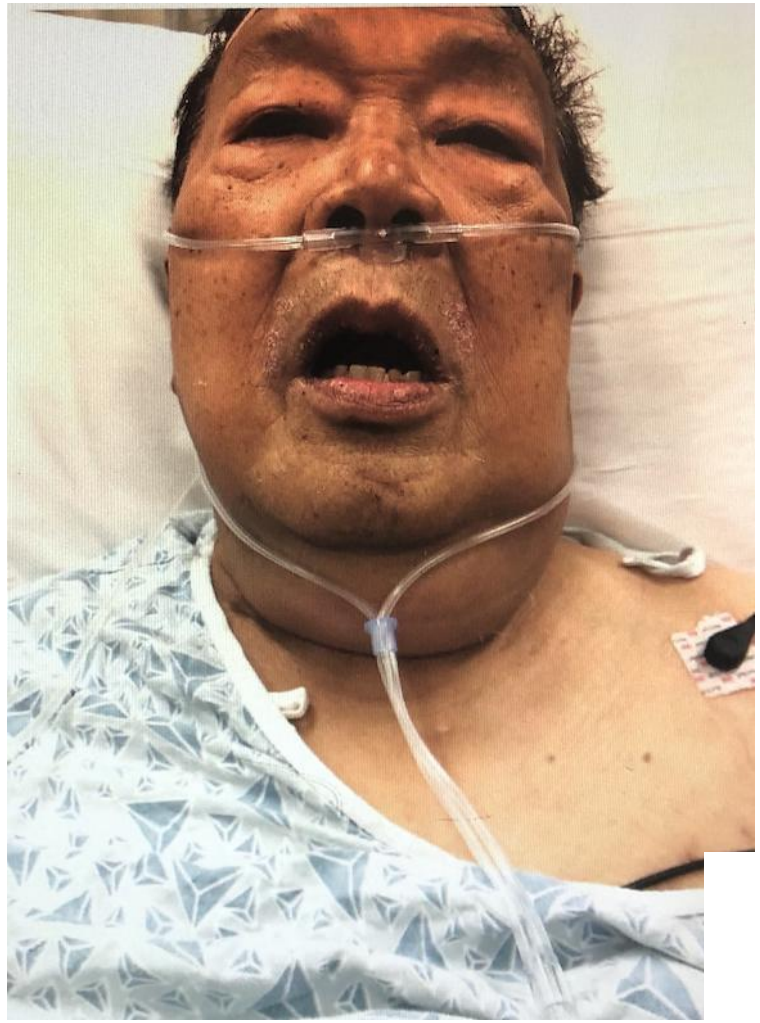
Case 1: Ludwig's Angina/Neck abscess

- 53 yo, PMH HIV/AIDS on ARV, p/w 2-3 days of progressing worsening throat pain and anterior neck swelling. Today patient had difficulty breathing and swallowing so called 911.

- BP: 140/90
- HR: 110
- RR: 28
- O_2 Sat: 97%
- Temp: 39.5 ^{oC}



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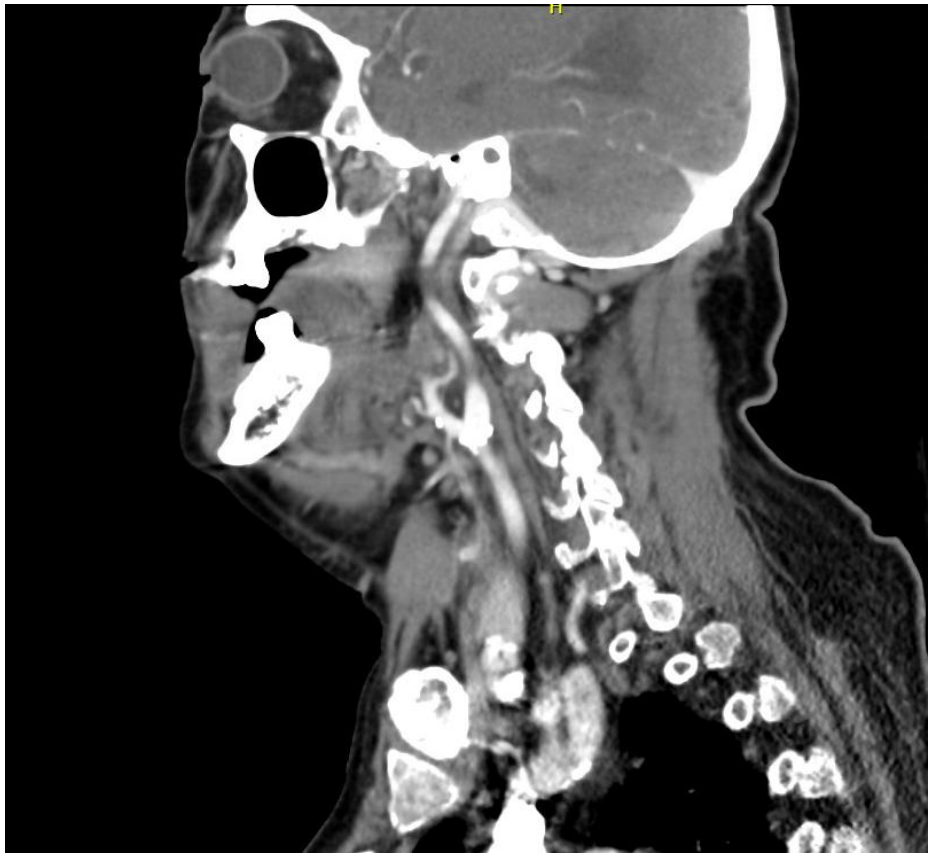
Airway Issues

- Distress
- Stridor
- Trismus
- Submandibular/Anterior neck swelling
- Time



WHAT NEXT???

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Awake Fiberoptic Intubation

- Indications
  - Known/suspected difficult oral intubation
  - Unstable cervical spine
  - Abnormal anatomy
- Relative Contraindications
  - Severe facial trauma/massive bleeding
  - Obtunded
  - “Crash airway”
- Nasotracheal vs Oral


Storz

Airway Preparation

- Pre-oxygenate
- Positioning
- Dry them out, take away their gag
  - Glycopyrrolate 0.2mg IV or atropine 0.1mg/kg
  - Zofran 4mg IV
  - Suction and use gauze to wipe off excess saliva
- Topicalization +/- Sedation

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Lots

Topical

None

Lots

Ketamine

None

Fully Cooperative

Totally Uncooperative or No Time

EMCrit

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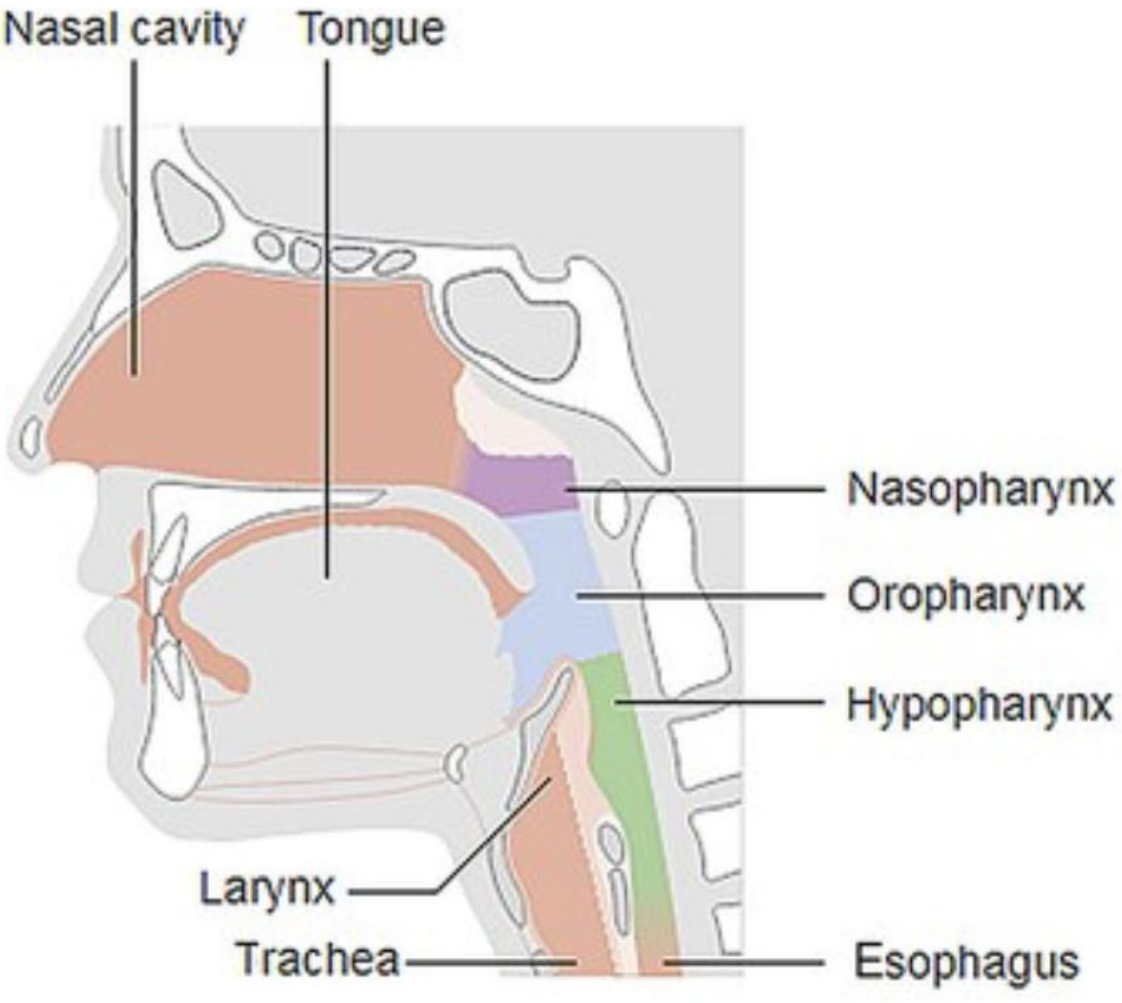
Topicalize

- Afrin
- 4% lidocaine nasal atomizer- 1-2 mL
- Gargle viscous lidocaine
- 4% lidocaine with Mucosal Atomizer Device for epiglottis/top of cords- 1-2 mL
- Optional: 4% lidocaine down the cords- 3 mL max



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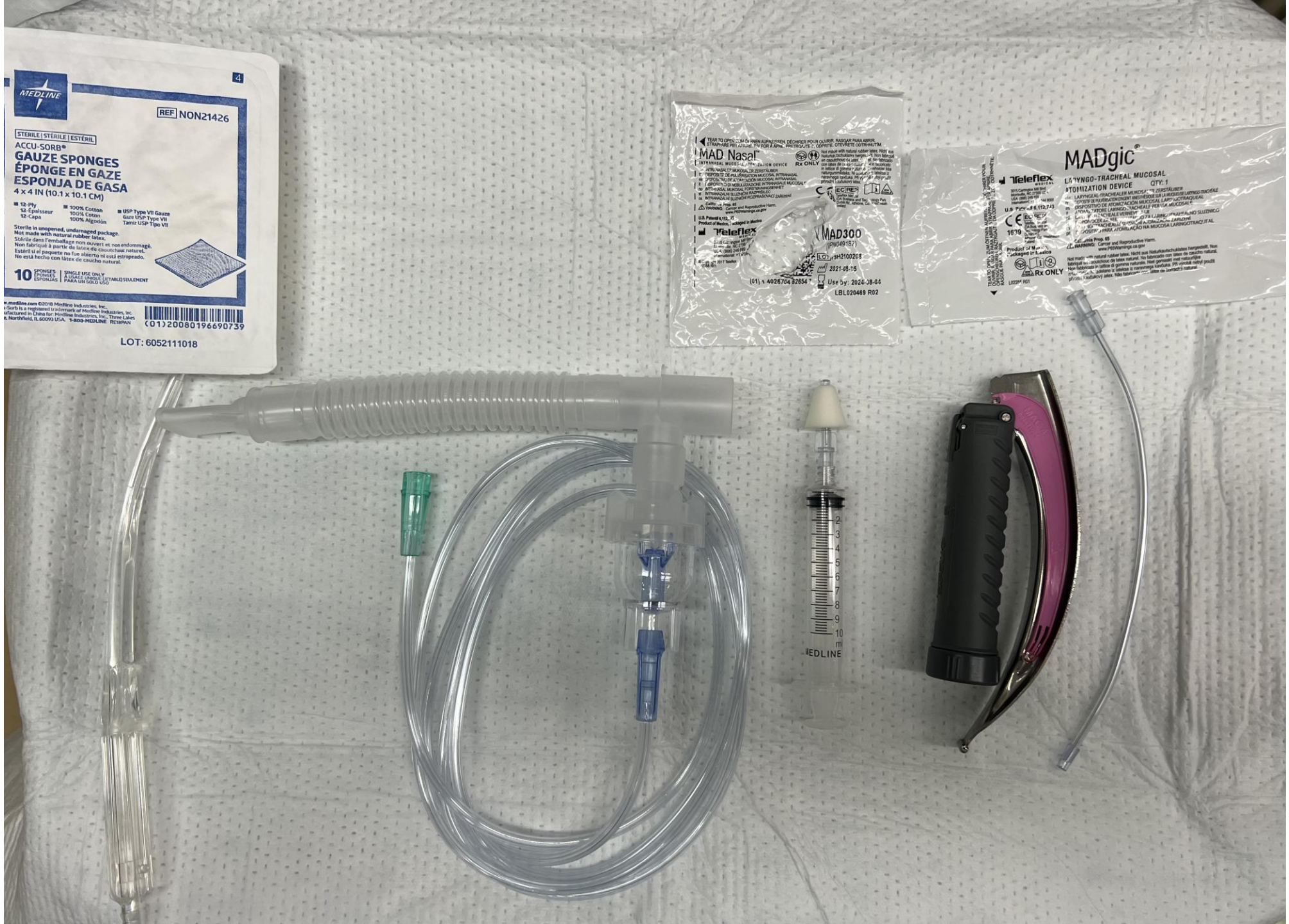
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STERILE | STÉRILE | ESTÉRIL
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GAUZE SPONGES
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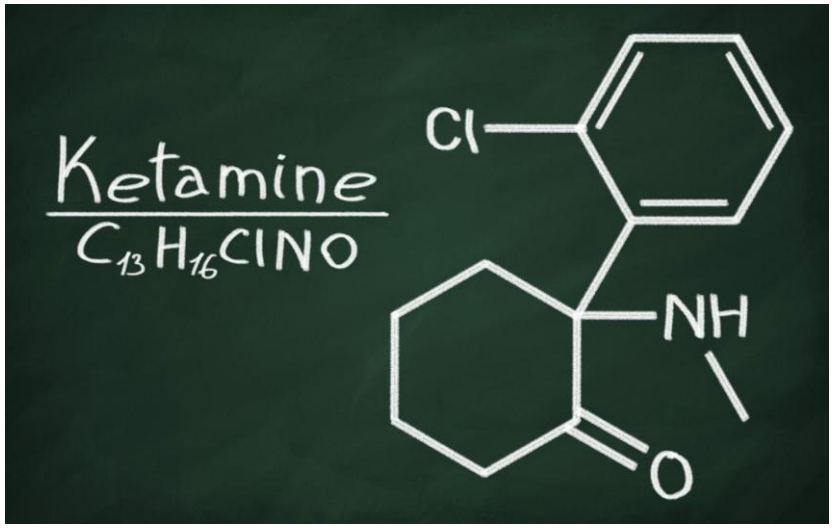

- Ketamine
  - 1-1.5mg/kg dose range for full induction
  - Give small bolus (20-30mg) then 10mg every minute
- Propofol
- Etomidate
- Versed/Fentanyl

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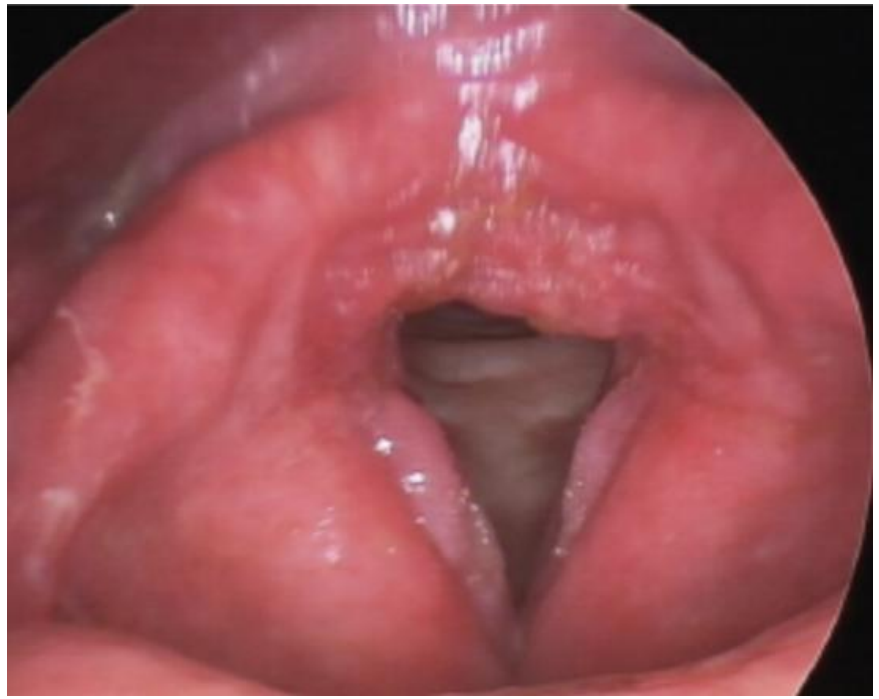
Back to our Case

- Patient topicalized
- Anesthesia for back-up
- Ketamine 20mg IV slow pushes prn
- Nasal approach with visualization of the cords and epiglottis
  - Moderate aretynoid, cord and epiglottic swelling seen
- Once we saw this, and had scope through the cords, we gave more ketamine for full induction, pushed paralytics and secured the tube



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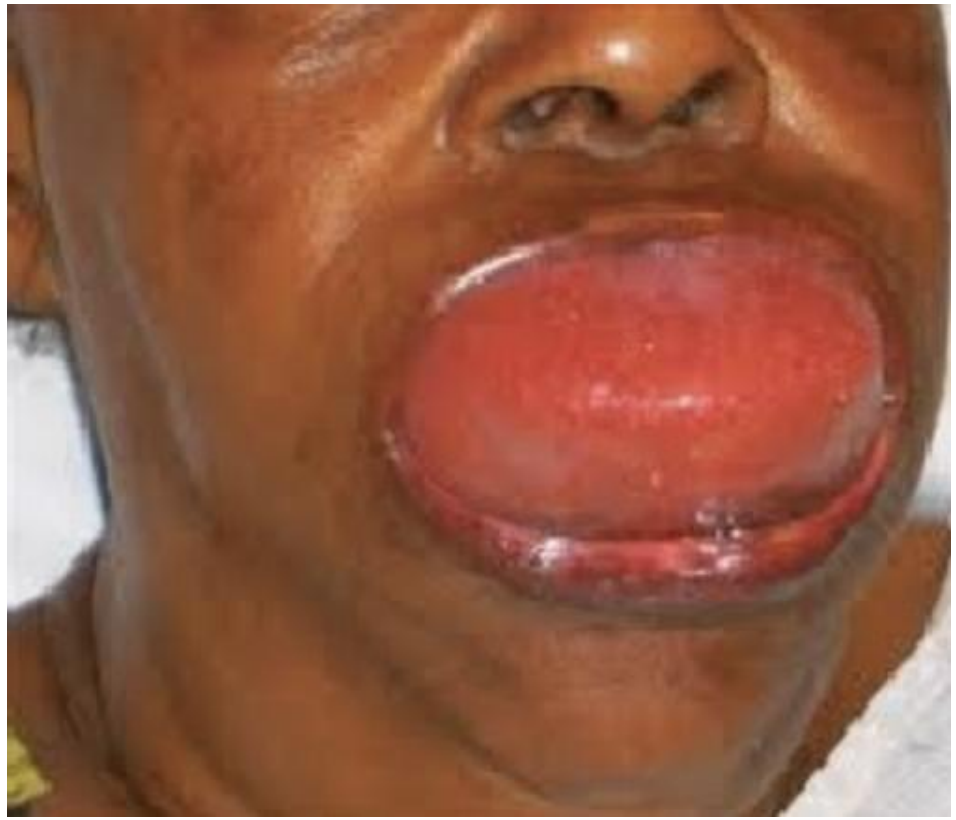
Case 2: Anaphylaxis vs Angioedema

- 35 yo, PMH HTN, p/w tongue and lip swelling and difficulty breathing.

- BP: 160/90
- HR: 110
- RR: 30
- O_2 Sat: 94%
- Temp: AF



Airway Issues

- Hemodynamics
- Obstruction
- Lung vs Airway vs both?
- Time?

WHAT NEXT???

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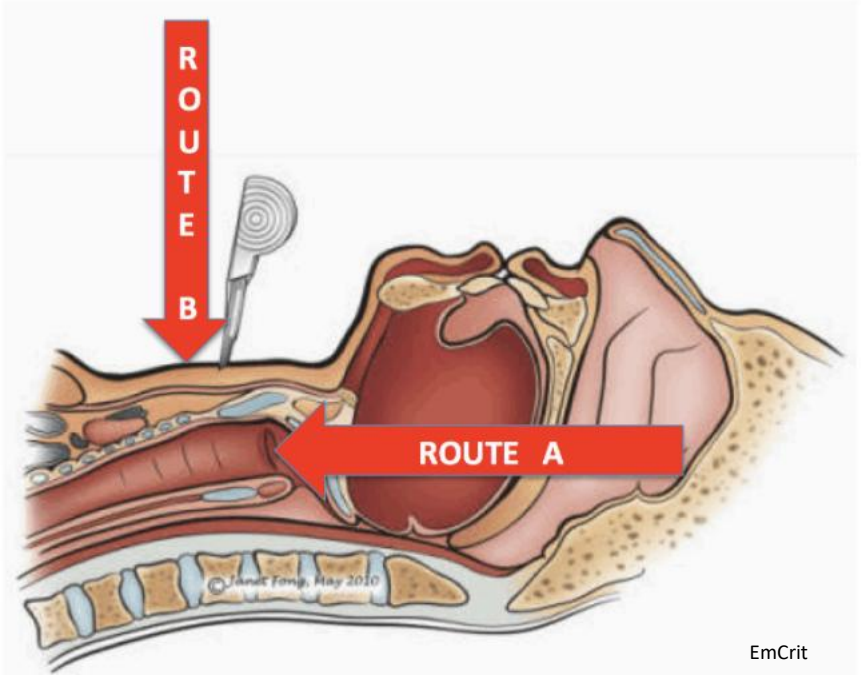
Securing the Airway: Double Prep Set-up

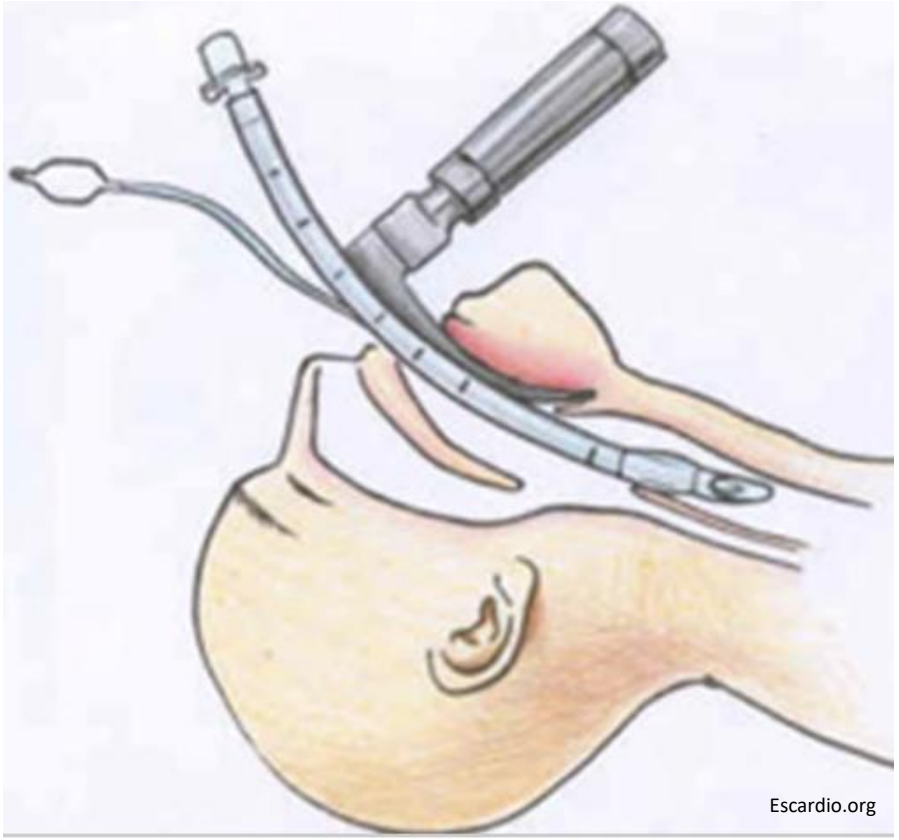
- Prep for both oral intubation and cricothyrotomy
- Pre-oxygenation
- Optimize and stabilize patient



EmCrit

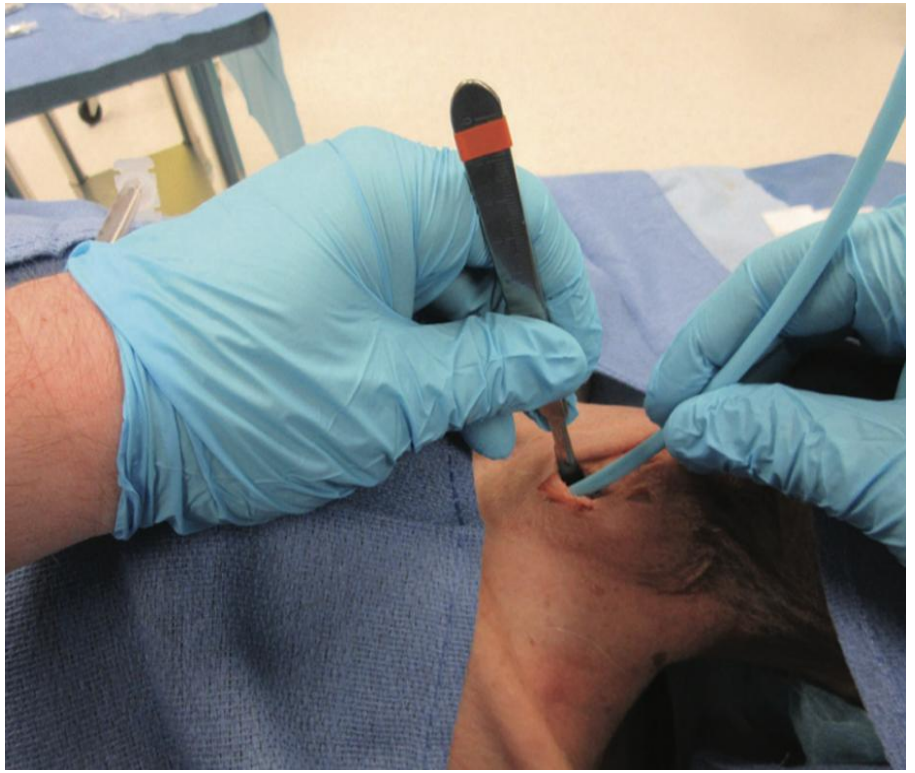
Attempted VL From Above

- Induction/paralytic meds
- VL attempted



Cricothyroidotomy

- Needle versus surgical technique
- Indications
  - Can’t intubate, can’t oxygenate/ventilate
- Contraindications
  - Tracheal injury
  - Pediatrics (< 10 yo) - do a needle cric



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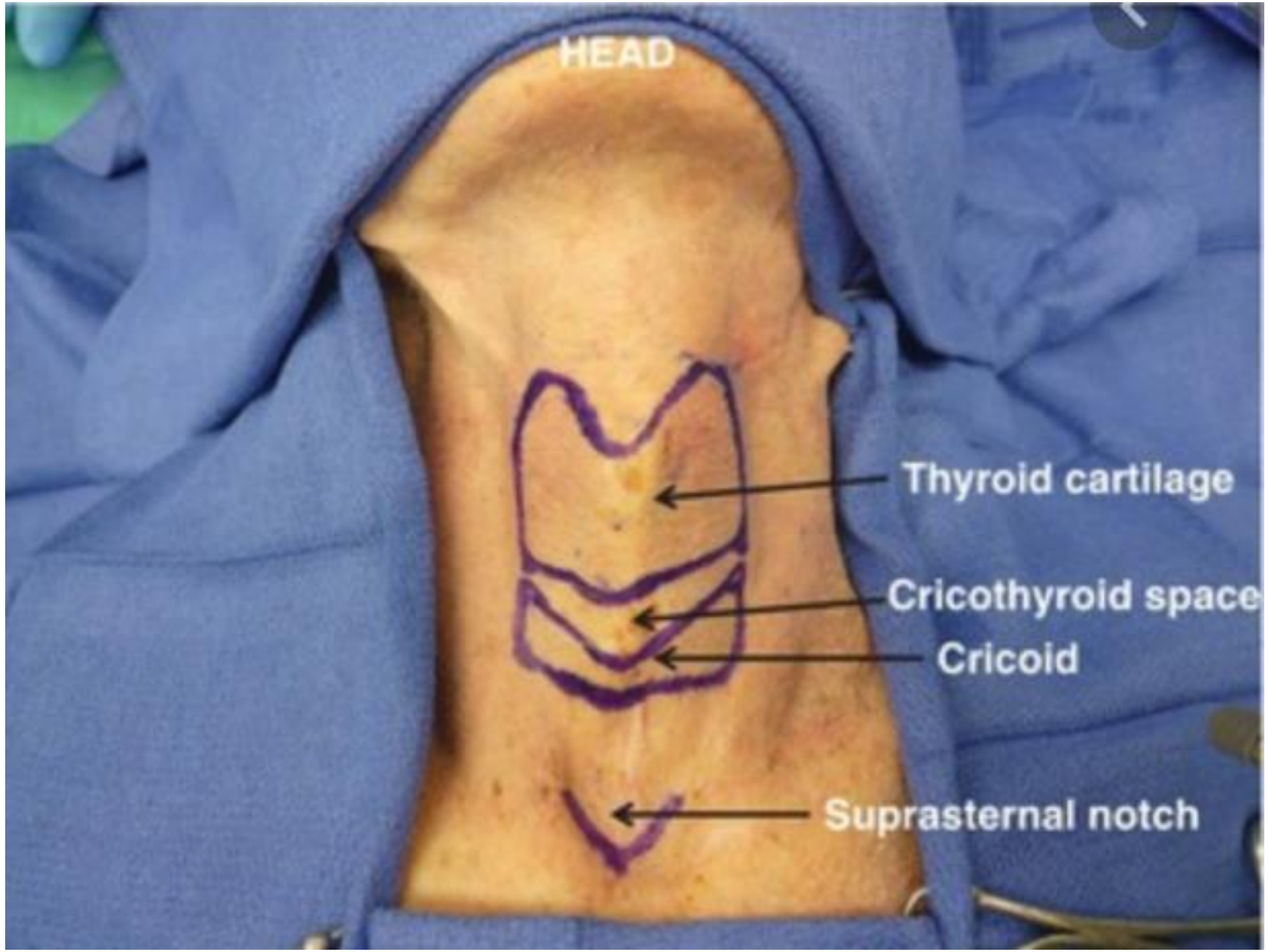
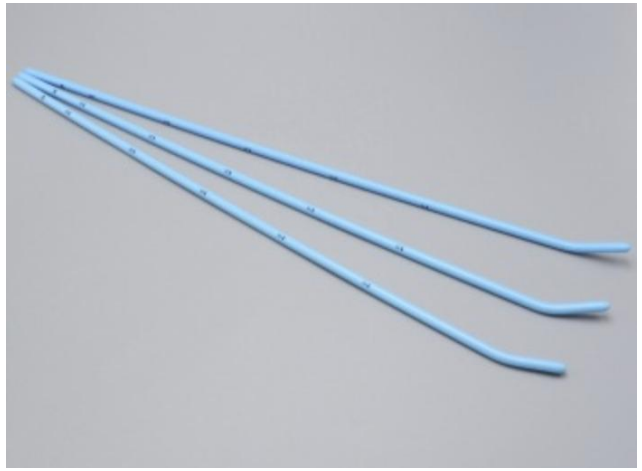

HEAD
Thyroid cartilage
Cricothyroid space
Cricoid
Suprasternal notch

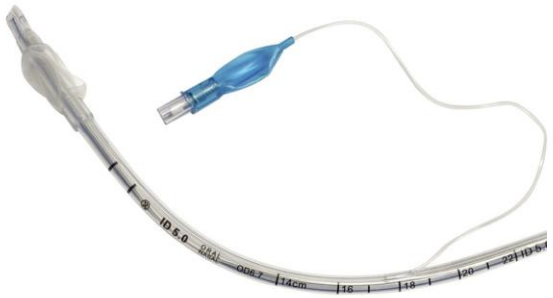

PHILIPS

Surgical Cricothyroidotomy

- Crash airway

- Assemble equipment
  - Scalpel, bougie, ETT
  - Optional: +/- lidocaine with epi, tracheal hook, trousseau dilator, 6.0 cuffed treacheostomy tube





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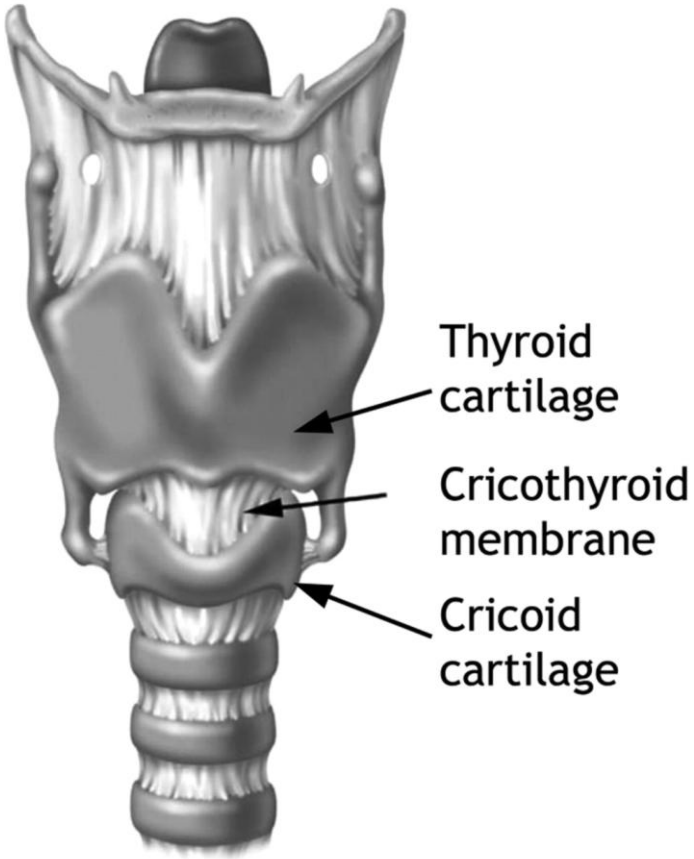
Back to our case

- Attempt by ED at cricothyrotomy unsuccessful
- ENT/Surgery arrive and after multiple other attempts, cric successful.

- Pt achieves ROSC and is sent to ICU
- Noted in OR that initial attempts were too lateral with ligation of superior thyroid artery

- Pt with anoxic brain injury and died



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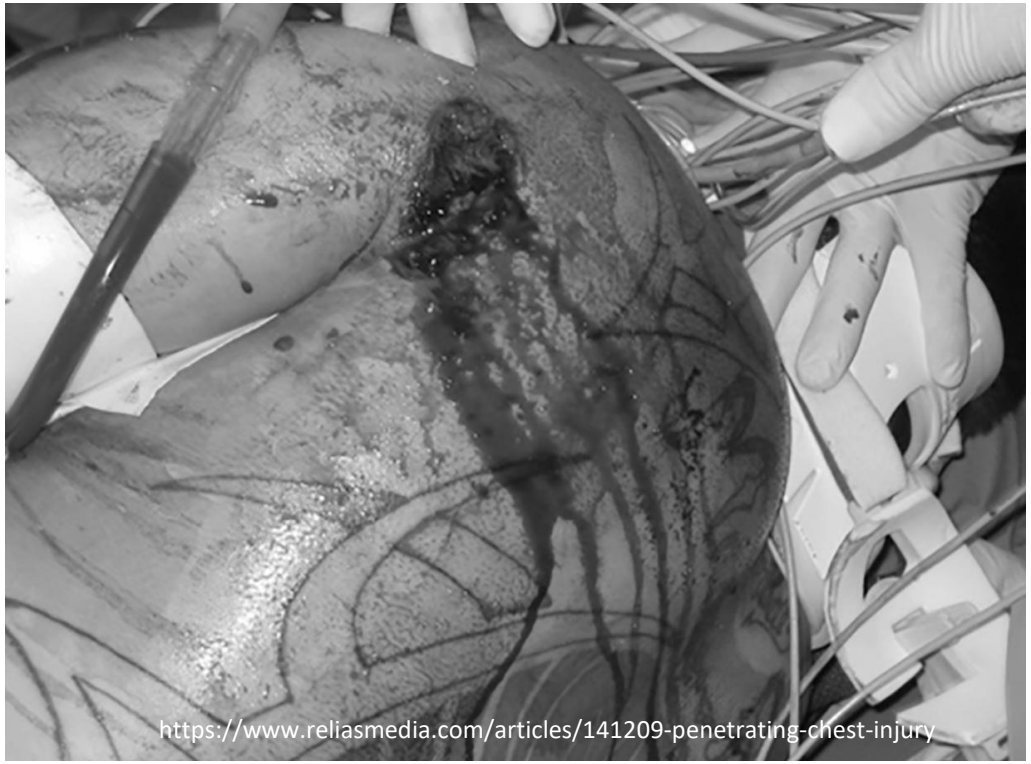
Case 3: GSW to chest/back

- 23 yo M s/p several GSW to chest/back.

- CPR in progress
- Being bagged



Airway Issues

- CPR in progress
- Significant blood loss
- Uncertain path of GSW/injuries
- Blood and secretions in airway

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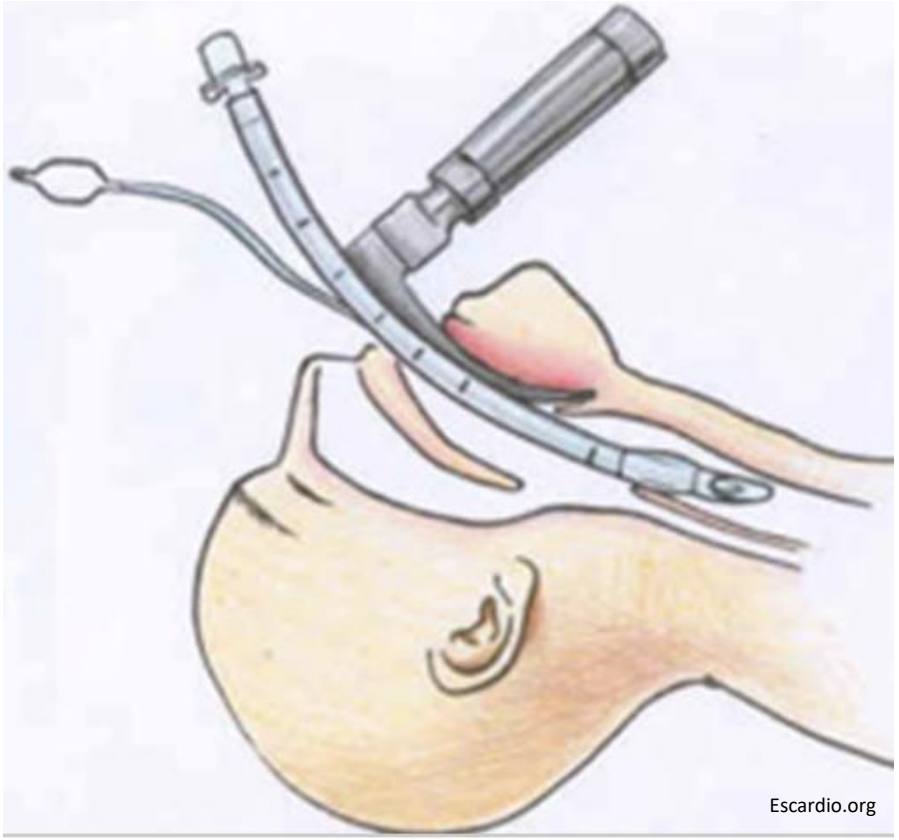
Attempted VL From Above

- Induction/Paralytic meds
- VL with standard Yankauer catheter
- Suction Assisted Laryngoscopy Airway Decontamination (SALAD) technique



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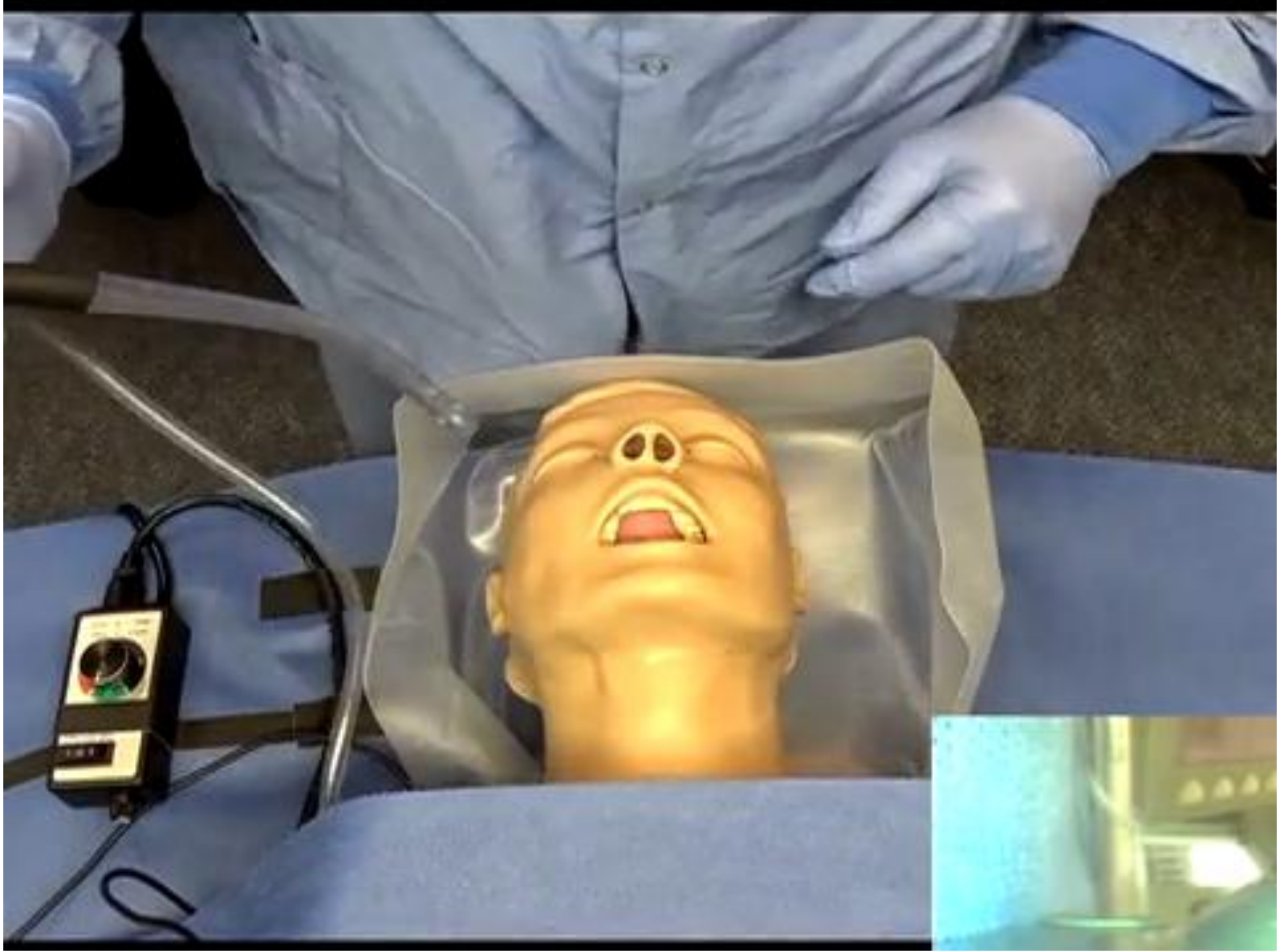

Back to our case

- VL from above successful with SALAD technique
- Blood in the airway slowed with pauses in MTP

- ED thoracotomy with no cardiac, aortic or tracheal injury noted
- Heart noted to be empty with no filling despite MTP

- Pt given multiple rounds of blood, FFP, platelets however unable to be resuscitated

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Take Away's

- Use the fiberscope when you have time- it's a proactive approach
- Thorough topicalization will decrease the need for systemic sedation
- Double prep if there is any concern that you might progress to a cricothyroidotomy
- Laryngeal handshake and NEVER let go
- Use the SALAD technique for copious secretions that obstruct your view


Questions?
Thank you!
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