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The Trauma Airway: Pearls and Pitfalls

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Financial Disclosures

- None

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Objectives

1. Troubleshooting the difficult trauma airway
2. Airway adjuncts to help with the difficult trauma airway
3. Delayed Sequence intubation for the altered trauma patient
4. Troubleshooting the hyperangulated blade


Main objective is to help you feel comfortable in managing **ANY** trauma airway that comes into your ED!

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Case 1: GSW to chest/back

- 23 yo M s/p several GSW to chest/back.
- CPR in progress
- Being bagged




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Airway Issues

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



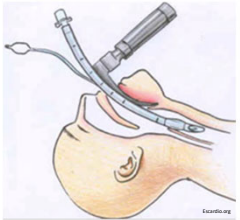
WHAT NEXT???

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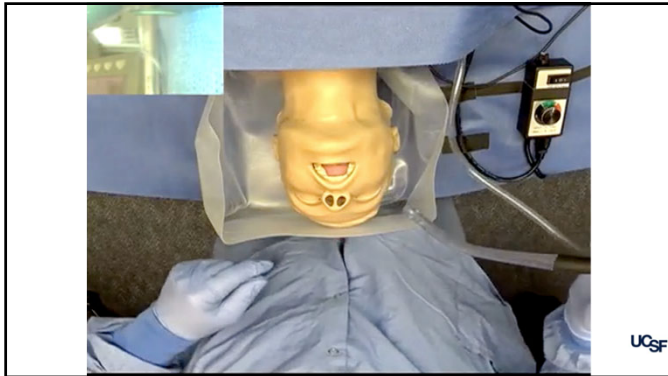
Attempted VL From Above

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



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Back to our case

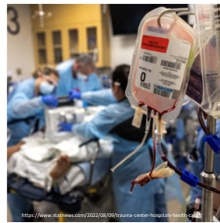
- VL from above successful with SALAD technique
- Blood in the airway slowed with pauses in MTP
- ED thoracotomy with no cardiac, aortic or tracheal injury noted
- Heart noted to be empty with no filling despite MTP
- Pt given multiple rounds of blood, FFP, platelets however unable to be resuscitated

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Case # 2: Found Down

- 65 yo M, unknown PMH, found down in pool of blood with signs of head trauma and burns to lower extremities.
- Given Narcan in field
- Tachycardic, tachypneic, hypoxic, borderline pressures
- In 4-point restraints, yelling, unable to follow commands



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Airway Issues

- Potentially life-threatening injuries
- Hypoxic
- Altered Mental Status
- Time



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ORIGINAL CLINICAL RESEARCH REPORT

Peri-Intubation Hypoxia After Delayed Versus Rapid Sequence Intubation in Critically Injured Patients on Arrival to Trauma Triage: A Randomized Controlled Trial

Anjishnujit Bandyopadhyay, DM, Pankaj Kumar, MD, Anudeep Jafra, MD, Haneesh Thakur, MD, Laxmi Narayana Yaddanapudi, MD, and Kajal Jain, MD

- Is DSI associated with better O2 sats while intubating delirious/agitated trauma patients?
- 200 patients randomized to DSI vs RSI
 - Peri-intubation hypoxia 8% DSI vs 35% RSI
 - 1st attempt 83% DSI vs 69% RSI

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Delayed Sequence Intubation

- Procedural sedation to help facilitate pre-oxygenation
- Breaks up RSI sequence:
 - 1st induce- keep patient breathing
 - 2nd paralyze- only push paralytics when ready
- Helps to:
 - Denitrogenate the lungs
 - Pre-oxygenation
 - Time for gastric emptying
 - Control of the room



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Delayed Sequence Intubation

- Ketamine 1mg/kg IV then 0.5mg/kg as needed; 3-4mg/kg IM then establish access
- 3 minutes to allow for pre-oxygenation and denitrogenation
 - NC
 - NRB
 - BiPAP
- Paralyze and intubate
- DSI also allows time to control the room & establish access, etc



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DSI gone wrong

- Peri-procedural emesis
- Affects on intracranial pressure and cardiovascular stability ?
- What happens if the patient goes apneic?
 - Has not been reported unless push ketamine fast and only lasts 15-30 seconds
 - If happens and get into a bind, push paralytic and RSI- same position you were in previously

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Back to our Case

- 250mg IM ketamine given
- 3-minute timer started
 - NC in place at 15L
 - IV access established x2
 - Lung US done to access for PTX prior to intubation
 - Equipment setup (including back-up bougie, LMA, cric kit)
- Video Laryngoscopy



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Case 3: Fall from stairs

- 85 yo F s/p fall down 12 stairs, GCS 5, agonal breathing
- BP: 180/100
- HR: 100
- RR: being bagged, agonal breathing
- O2 Sat: 90%
- Temp: AF



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Airway Issues

- GCS
- Neurologic Exam
- Cervical spine immobilization
- Agonal breathing



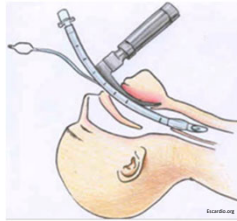
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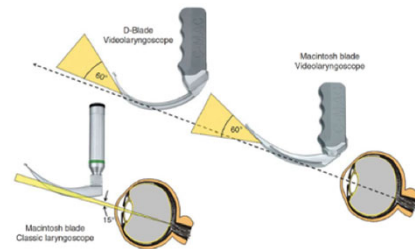
Attempted VL From Above

- VL with standard geometry blade
- Switch to hyperangulated blade
 - Problems passing the tube



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Common problems encountered

- Cannot get blade in mouth
- Not enough room in mouth for ETT
- Tube continues to go posterior or lateral to the cords
- Can't advance tube once through the cords

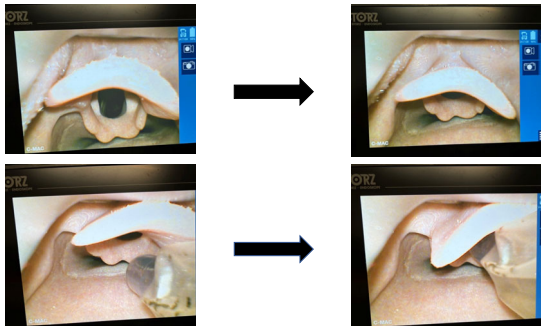
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- Difficulty placing blade in mouth
- No room for tube on right



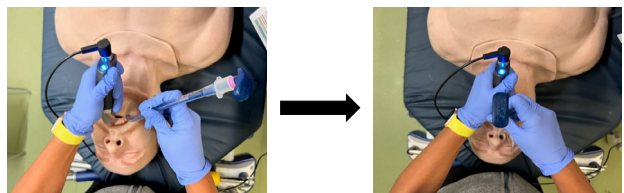
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- Tube posterior to cords



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- Tube posterior or lateral to cords



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Passing the tube

- Try insertion at 9 o'clock and then rotate to noon
- Try insertion of blade a little left to midline
- MUST be in vallecular space
- Restrict your view
- Glide along the underside of the epiglottis
- Line up tube to mirror blade instead of entering at an angle
- Advance tube by pushing stylet out with your thumb towards the patients' feet and advancing tube down with wrist rotation



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- Attempt from above unsuccessful with standard geometry blade
- Hyperangulated blade used with successful passing of tube
- CT scan revealed intra-cranial bleed and cervical spine injury

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Conclusion

- SALAD technique to improve view when obstructed
- Control the situation with DSI
- Using the hyperangulated blade is helpful when you know how to troubleshoot passing the tube

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Questions?

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