

DL vs. VL/IL

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Direct Laryngoscopy vs. Video/Indirect Laryngoscopy and Tube Delivery



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"Live as if you will die tomorrow. Learn as if you will live forever"

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Front of Neck Access/Surgical

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FOAMed

Free Open Access Medical Education

PHARM: Prehospital and Retrieval Medicine

Levitan, the "Laryngeal Handshake" and the "Cartilaginous Cage"

by Yen Chow on November 27, 2012

Pearls from Rich Levitan on surgical airways: Do the "Laryngeal Handshake" to identify airway anatomy and the Cricoidyal "Cartilaginous Cage" is protective

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INTUBATION: Small Simple Steps

1. POSITION Ear to Sternal Notch, Head up
2. FIND EPIGLOTTIS
3. IDENTIFY LARYNX
4. EXPOSE LARYNX create space/align ...
5. TUBE DELIVERY

INTUBATION: Small Simple Steps

1. Airway Position
2. Epiglottoscopy
3. Interarytenoid Notch
4. Expose Larynx
5. Tube Delivery

Airway Position

Position Patient Preintubation

- 1) Ear to Sternal Notch positioning [E2N] & Face plane parallel to ceiling [Face=]
- 2) Head of Bed up (airway above stomach) [HoB up] & Head of Patient at top of bed [HoP up]
- 3) 360 degree access around head of bed [360] & Patient head at Intubator's Belly or Belt Height

Airway Position

From Rich Levitan @airwaycam

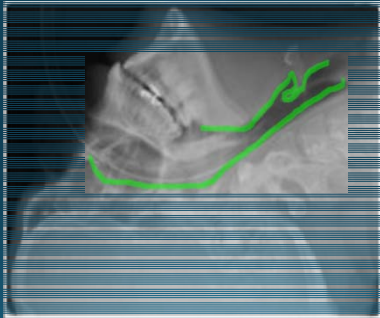
Airway Position

Head and neck **neutral**

From Rich Levitan @airwaycam

Airway Position

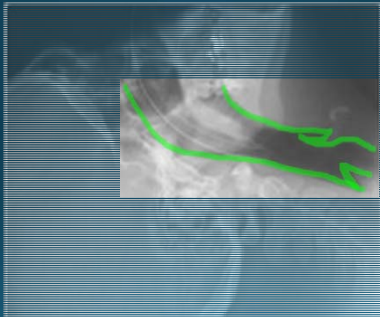
Head and neck **extended**



From Rich Levitan @airwaycam

Airway Position

Head and neck **ear to sternal notch (head forward)**



From Rich Levitan @airwaycam

Airway Position

Position Ear to Sternal Notch
Face parallel to ceiling



From Rich Levitan @airwaycam

Airway Position



From Rich Levitan @airwaycam

Airway Position



From Rich Levitan @airwaycam

Airway Position

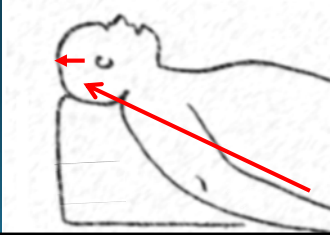
C-spine stabilization



From AIME @kovacsj

Airway Position

Position Head close to top of bed
Head of bed up (airway above stomach)

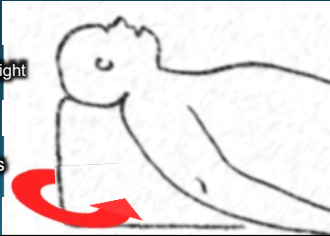


Airway Position

Position Head at Your Belly Height
Make space around head of bed

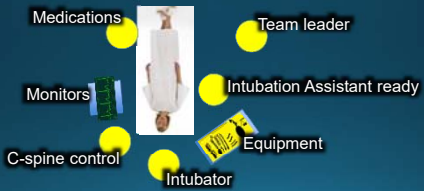
Intubator Belly or Belt height

360 degree access



Airway Position

Position Team and Equipment



Medications

Monitors

C-spine control

Intubator

Team leader

Intubation Assistant ready

Equipment

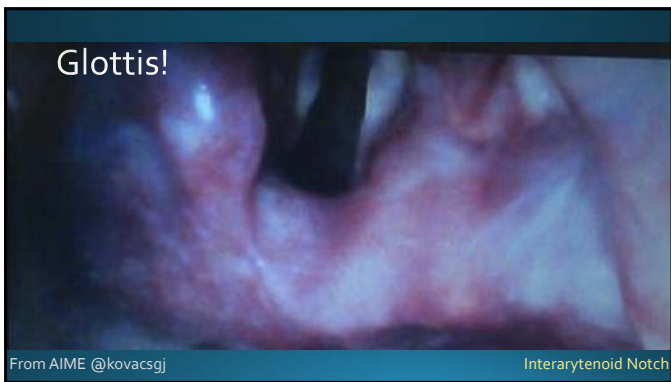
Airway Position

Epiglottoscopy



Interarytenoid Notch







Epiglottis + Notch identifies larynx!



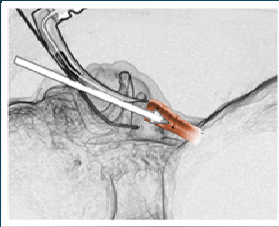


Jose Cabrera, DO
University of Miami

Interarytenoid Notch

Expose Larynx

Expose Larynx for Tube Delivery




- Create Space
- Align airway

Modified from AIME course courtesy George Kovacs

Expose Larynx

Expose Larynx for Tube Delivery




- Create Space
- Align airway

Modified from AIME course courtesy George Kovacs

Expose Larynx

Expose Larynx for Tube Delivery



1. Tongue control
2. Engage blade tip into valleculae
3. Bimanual Laryngoscopy External Laryngeal Manipulation
4. Head Elevation
5. "Mac as Miller" directly elevate epiglottis
6. Straight blade

Modified from AIME course courtesy George Kovacs

Expose Larynx


Importance of tongue control



Tube delivery can fail due to lack of space
For direct laryngoscopy sweep tongue to left, keep right side clear

From Rich Levitan www.airwaycam.com Expose Larynx

Blade tip into valleculae
Engage the "sweet spot"



Epiglottis will move only when the hyoepiglottic ligament is engaged

From AIME @kovacsj Expose Larynx

Bimanual laryngoscopy - External Laryngeal Manipulation



Left hand moves laryngoscope blade tip to seat better in midline and valleculae
Right hand on thyroid cartilage moves glottis into view and pushes laryngeal complex and valleculae to engage the blade tip

Josef Calhena, DO
University of Miami

Expose Larynx

Head Elevation



From AIME @kovacsj

Expose Larynx

Mac as Miller



Use blade tip to directly lift epiglottis if all other maneuvers are not working to expose the arytenoids/glottis opening

From Rich Levitan @airwaycam YACC 2017

Expose Larynx

Right Paraglossal Straight Blade

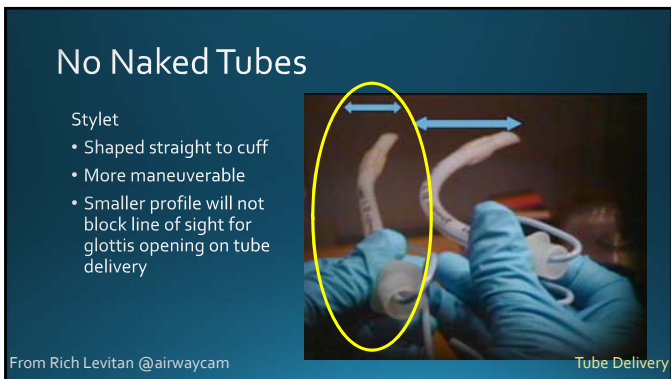


From AIME @kovacsj

Expose Larynx

Tube Delivery

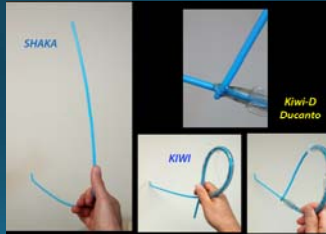




No Naked Tubes

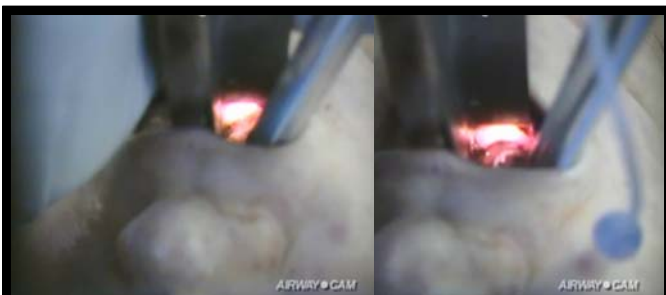
Bougie

- Ensure able to determine direction of tip by using shaka grip or other hold or preloaded ETT where bougie is secured to the ETT
- If using preloaded technique practice first
- Preloaded ETT will hamper ability to feel tracheal ticks and get hold-up for confirmation of blind insertions



From Rich Levitan @airwaycam

Tube Delivery



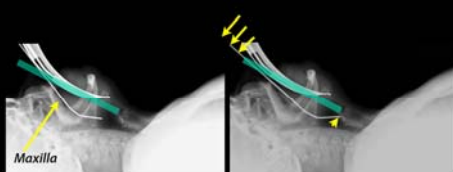
Curved stylet shaped ETT blocks line of sight to glottis opening target

Straight to cuff stylet shaped ETT allows maintaining line of sight to target while tip toggles over cartilages into glottis opening

From Rich Levitan @airwaycam Video Series

Tube Delivery – Stylet Straight to Cuff

Straight-to-cuff stylet shape initially inserted into mouth; positioned behind maxilla and below line of sight

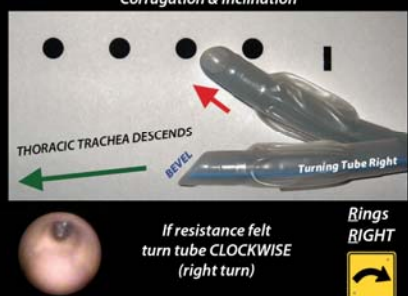


Slight tilting of proximal tube and stylet brings distal tip upward, keeping tip visible as it approaches target. Tube is ALWAYS below line of sight until inserted.


From Rich Levitan @airwaycam

Tube Delivery

Even after insertion, tube tip can catch on tracheal rings...
Corrugation & Inclination



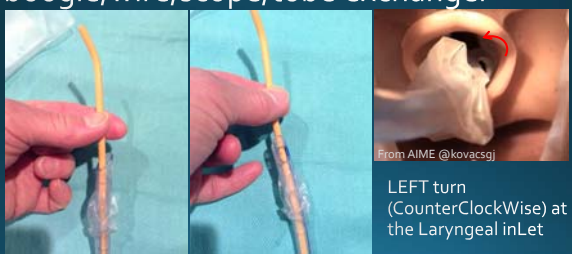
From Rich Levitan @airwaycam Tube Delivery



- Pass bougie's and straight-to-cuff styleteted tubes BELOW the line of sight and toggle the tip over the arytenoids to ensure that proper delivery into the glottic opening occurs

Tube Delivery - Bougie

Railroad endotracheal tube over bougie/wire/scope/tube exchanger



From AIME @kovacsj

LEFT turn (CounterClockWise) at the Laryngeal inLet

Tube Delivery

Video Laryngoscopy





Video Laryngoscope

- See good

BUT

- Fluids/C.R.A.P. (colored runny airway particulates)
- Tube delivery can be tough!

Can render VL useless!

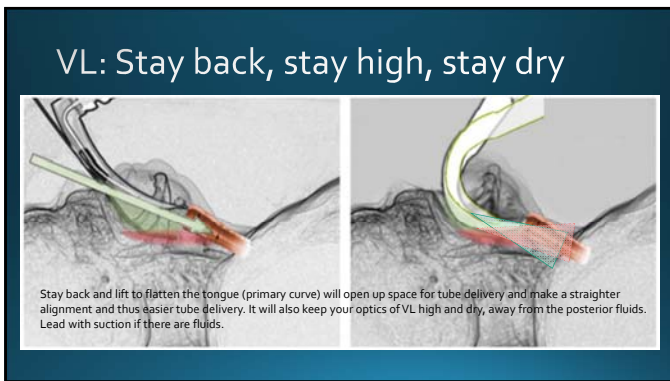
Vomit and VL

Overwhelming Airway Chunks

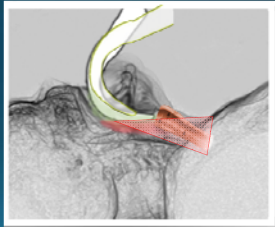
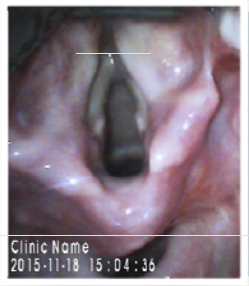








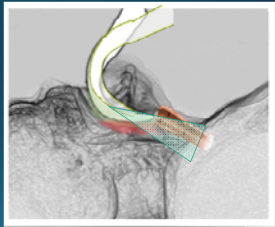

AVOID BEING TOO CLOSE: Larynx takes up more than 50% of view, More than 50% of cords seen, Can see anterior wall the cricoid ring = difficult tube delivery mechanics with more hyperangulated approach



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2015-11-18 15:04:36

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50/50 view with black hole trachea = better tube delivery mechanics



Larynx in top 50% of view, Only max 50% of cords seen, Tracheal appears as black hole as your trajectory is straight down the trachea

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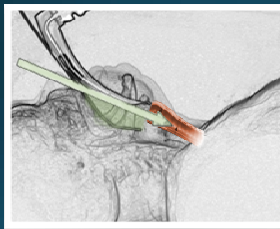
Direct and Indirect Laryngoscopy plus Tube Delivery

Summary

INTUBATION: Small Simple Steps

1. Airway Position
2. Epiglottoscopy
3. Interarytenoid Notch
4. Expose Larynx
5. Tube Delivery

Expose Larynx for Tube Delivery

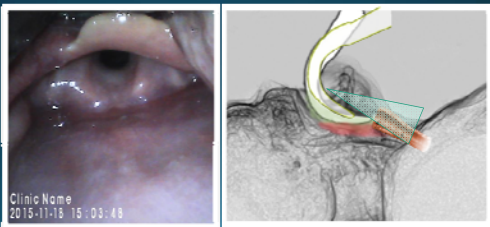


1. Tongue control
2. Engage valleculae sweet spot
3. Bimanual Laryngoscopy
4. Head Elevation
5. "Mac as Miller"
6. Straight blade

Modified from AIME course courtesy George Kovacs

Expose Larynx

VL stay back high dry
50/50 view
Black hole sign



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