

PHTLS

Prehospital Trauma Life Support

NINTH EDITION

LESSON 3

Airway

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Lesson Objectives

- Discuss the potential causes of airway obstruction in a trauma patient.
- Demonstrate the steps of a primary and secondary survey of a trauma patient's airway.
- Choose the most appropriate airway management intervention based on the patient's physical findings.
- Describe the structural differences in the anatomy of adults and children.

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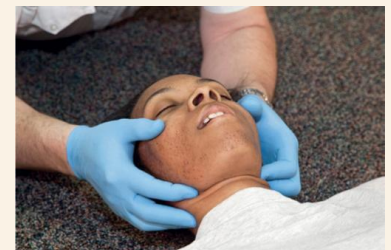
Airway Management

- Airway management is a process.
- Practice makes perfect.
- Start with the basics, then progress to advanced skills/techniques.
 - Assess
 - Position
 - Suction
 - Adjunct
 - Ventilate
 - Oxygenate

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Airway Adjuncts and Techniques

- Basic adjuncts and techniques
 - Positioning
 - Suctioning
 - Nasopharyngeal airway
 - Oropharyngeal airway
 - Bag-mask device



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Airway Adjuncts and Techniques

- Advanced adjuncts and techniques
 - Supraglottic airway
 - Endotracheal intubation
 - Pharmacologically assisted intubation
 - Surgical airway



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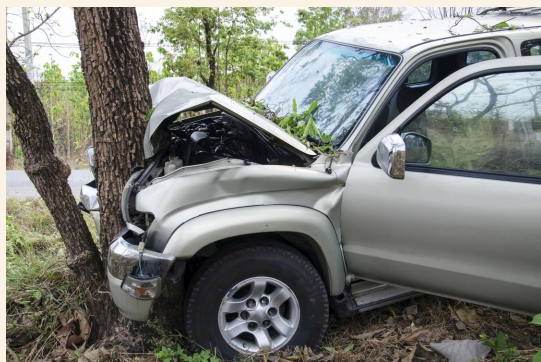
Presentation/Dispatch

- Single vehicle crash into a tree
- 27-year-old female
- Crash occurred on a 4-lane suburban highway at 2100 hours on a clear night at 70°F (21°C)
- 18-inch (46-cm) intrusion into the engine compartment; 50 mph (80 kph) at the time of impact
- Patient was wearing lap and shoulder belt, but there was no air bag deployment.
- Level I trauma center is 30 minutes and local hospital emergency department is 10 minutes away by ground.

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Scene Safety

- What may be potential vehicle hazards?
- What may be potential scene hazards?



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Scene Size-Up and General Impression

- Scene size-up
 - Law enforcement personnel are directing traffic.
 - Fire personnel cut the battery cables and are prying open the jammed driver's side door.
- General impression
 - Patient is conscious and talking.
 - Cervical spine stabilization is maintained.
 - No serious bleeding is noted.

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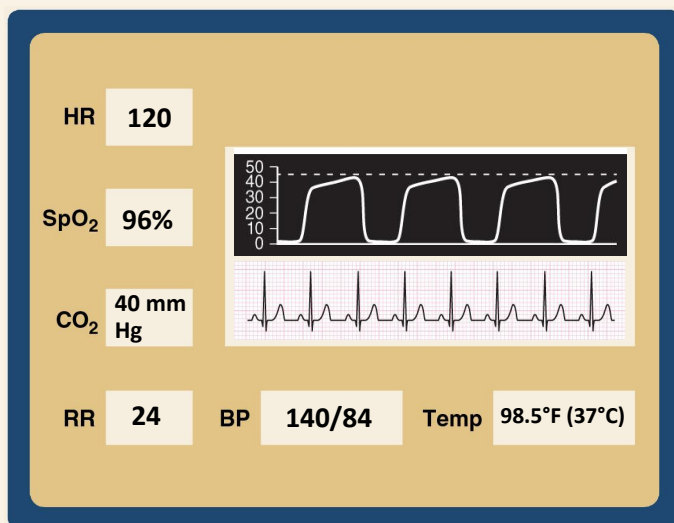
Primary Survey

- Primary survey
 - X—No serious bleeding noted; small abrasion to throat area
 - A—Patient talking to firefighter holding c-spine
 - B—Patient breathing without difficulty; states her throat is sore
 - C—Patient has a pulse at the radial artery.
 - D—Patient conscious, appropriate mentation, and upset; GCS: 15 (E4, V5, M6); able to move all four extremities
 - E—Patient remains in the vehicle as the driver's door is stuck.

Discussion

- Is the patient maintaining her airway?
- Do you anticipate any airway issues?
- What additional assessment do you plan to conduct at this point?
- What are the physics of trauma of this crash that concern you regarding the patient's airway?

Secondary Survey



Discussion

- Is cervical spine stabilization indicated?
- Is airway management indicated?
- What additional assessment can be performed while the patient is still in the vehicle?
- What additional information do you want to know about your patient?

Case Progression

- Primary survey—reassessed
 - X—None
 - A—Open; cervical spine is stabilized; complains of trouble swallowing
 - B—Patient is breathing, talking, and occasionally coughing.
 - C—Patient has a radial pulse.
 - D—Patient is conscious, oriented, and talking.
 - E—Patient is extricated and now on backboard away from vehicle.

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Management Options

- Based on what we know about the patient, what are our management options?
- Is the patient stable or unstable?
- What is your management plan?

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Discussion

- What is your airway assessment plan?
- How will you determine if the patient has an adequate airway and breathing?
- Does the patient require oxygen?

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Pulse Oximetry

- What does a pulse oximeter measure?
- Is pulse oximetry 100% accurate?
- What physiologic conditions could render pulse oximetry useless?
- What features should you have in a pulse oximeter?



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Case Progression

- The patient has coughed up some blood.
- She complains that her throat is really hurting now.
- There is increased redness to the patient's midline neck at her thyroid cartilage.

Discussion

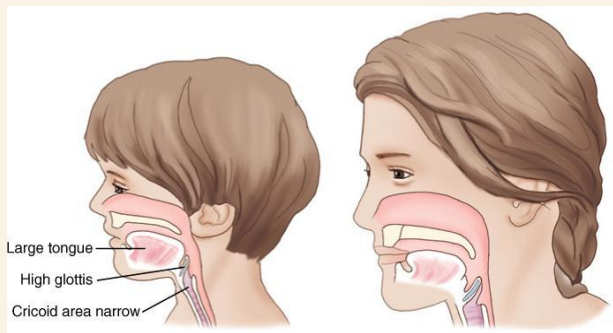
- What do you suspect is going on with the patient?
- How will you manage this patient's airway?
- What is your backup airway plan?
- Would a supraglottic airway work in this situation?

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Pediatric Airway Management

- Pediatric vs Adult Airway

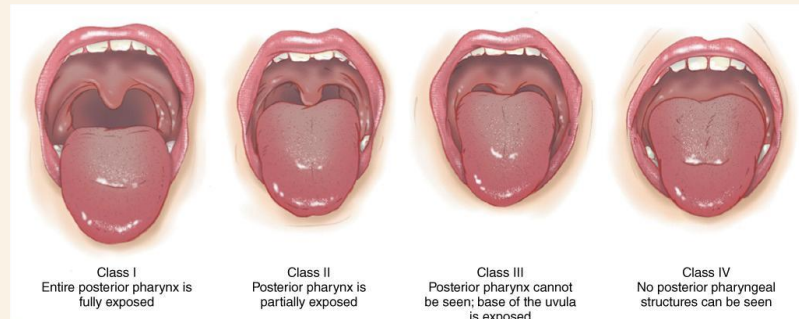


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Intubation Assessment: LEMON

- L—Look externally
- E—Evaluate the 3-3-2 Rule
- M—Mallampati classification
- O—Obstruction
- N—Neck mobility



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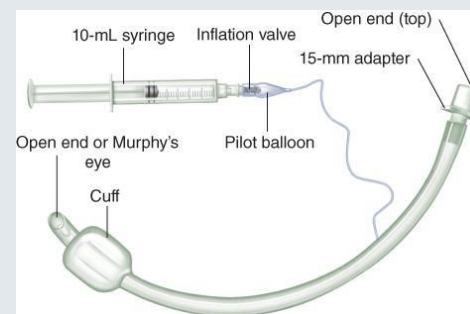
Intubation Assessment: HEAVEN

- H—Hypoxemia
- E—Extremes of size
- A—Anatomic changes
- V—Vomit/blood/fluid
- E—Exsanguination/anemia
- N—Neck mobility

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Pharmacologically Assisted Intubation

- How will you prepare to intubate this patient?
- What pharmacologically assisted intubation path will you use?
- How will you prepare the patient for intubation?



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Confirming ET Tube Placement

- What are your assessment points for confirming correct endotracheal tube placement?



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Monitoring and Transport

- How will you monitor the patient after her airway is secured?
- To what type of facility will you transport your patient?
- During transport, your patient's SpO₂ alarm goes off (89%).
- ETCO₂ drops to 35 mm Hg.

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Don't Be a DOPE!

A change in an intubated patient's status requires immediate reassessment.

- Use the DOPE mnemonic.
 - D—Dislodgement
 - O—Obstruction
 - P—Pneumothorax
 - E—Equipment
- Complete a primary survey.

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Case Summary

- Secondary survey completed during transport
- Patient transported to a level I trauma center
- Patient had to have a temporary tracheostomy due to laryngeal swelling.
- Patient has since been discharged from the hospital and is doing well.
- Patient visited your EMS station to thank you

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Critical Actions

- Airway assessment to identify potential life threats
- Determination of the best airway to manage the patient
- Reassessment of the airway after management of the airway is completed

Wrap-Up

- Trauma airway management can be difficult.
- Know your limitations.
- Start with the basics, and then move to advanced management.
- Practice makes perfect.
- Use a team approach.
- A failed airway renders all other trauma care fruitless.

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