EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

BROWARD HEALTH
Care Warriors

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Airway Obstruction

A 55-year-old female with a PMH of DM, HTN, and SLE presents to the ED with progressive dyspnea, dysphagia, and a hoarse voice for the past 24 hours. She denies similar episodes in the past. The patient underwent recent neck surgery two weeks ago. The patient denies any recent new foods, medications or known allergies. She is afebrile, tachycardic and tachypneic. On physical exam, an anterior neck incision is intact with no obvious signs of infection. Severe respiratory distress with accessory muscle use and inspiratory stridor with copious secretions are noted. Which of the following is the most appropriate initial treatment for this patient's condition?

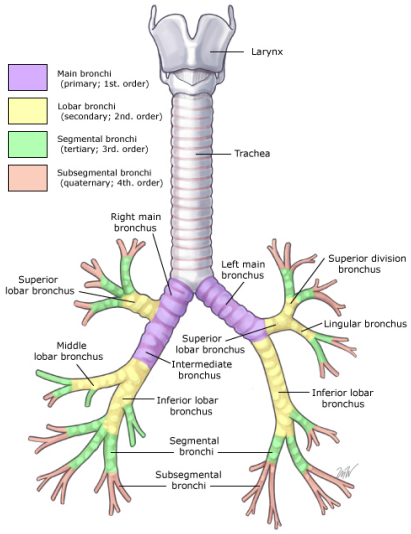
A. Epinephrine, steroids and Benadryl

B. Chest x-ray

C. Secure the airway

D. Surgical decompression

E. Consult anesthesia



Central airway obstruction (CAO) – refers to the obstruction of airflow in the trachea and mainstem bronchi

Upper airway obstruction (UAO) – refers to the obstruction of flow in the portion of the airway that extends from the mouth through the length of the trachea and therefore includes the nasopharynx and larynx

Lower airway obstruction – airflow obstruction due to obstructive lung diseases including asthma, bronchiectasis, and COPD involves the smaller bronchi in the lower airway distal to the mainstem bronchi and not typically associated with CAO or UAO.

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

BROWARD HEALTH MEDICAL CENTER

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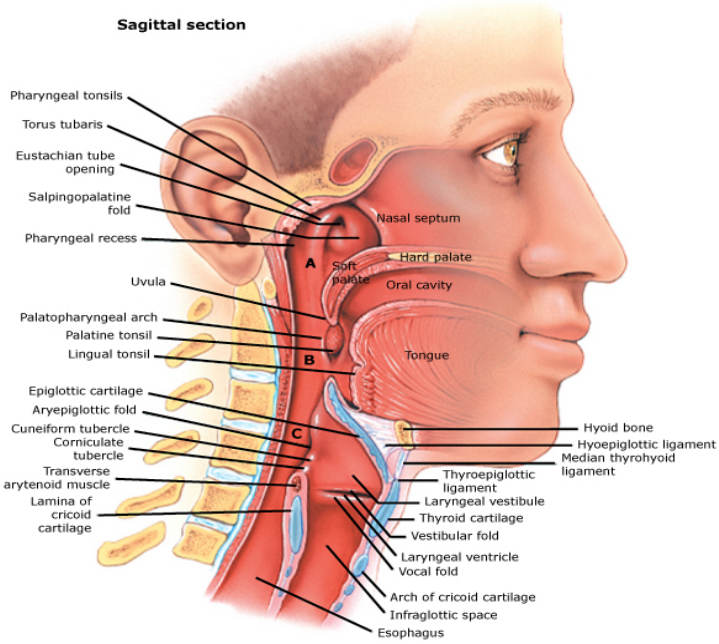
The correct answer is C. In this case, the patient is in severe respiratory distress and securing an airway is the most important next step.



Differential Diagnoses:
Allergic reaction vs. postoperative swelling vs. foreign body vs. epiglottitis

Discussion

Airway obstruction can be incomplete or complete.
Complete obstruction of the upper airway occurs when there is inability to talk, cough or breathe. Apnea and cyanosis can be seen.

Incomplete obstruction occurs when there is partial upper airway obstruction and the ability to breathe is maintained. Inspiratory stridor and increased work of breathing are the hallmarks.

Upper airway obstruction can be due to the following factors:

- Luminal (e.g. foreign body)
- Intramural (e.g. tumor, neuromuscular disease)
- Extramural (e.g. thyroid mass)

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- Foreign body
- Infection – epiglottitis, retropharyngeal abscess, bacterial tracheitis, Ludwig's angina, tetanus, laryngotracheitis
- Immune – angioedema, anaphylaxis
- Tumor
- Trauma - neck hematoma , laryngeal fracture, burns, post-operative complications

Stridor is a high pitched sound on inspiration associated with airway narrowing.

It is commonly seen in children (epiglottitis), not adults.

If there is stridor at rest, it implies a reduction in airway diameter of >50%.

On history, inquire for the progression of symptoms, positional exacerbation, and whether the patient wakes at night having difficulty breathing/dysphagia/drooling.

If there is severe obstruction, coughing can become difficult and even lead to chest infections.

Treatment → A,B,Cs

Secure the airway!

Treatment usually depends on the site of obstruction, whether supraglottic, laryngeal, or subglottic (mid-tracheal & lower tracheal/bronchial).

For supraglottic and laryngeal lesions → tracheostomy and/or intubation is the appropriate management.

Mid-tracheal lesions → ensure the patient can be intubated to below the level of obstruction. Normal induction may be appropriate.

When severe life threatening obstruction is suspected, it is critical that patients be oxygenated and their airways secured for adequate ventilation. Support typically includes initial bag valve mask ventilation followed by endotracheal intubation.

For a list of educational lectures, grand rounds, workshops, and didactics please visit ***BrowardER.com*** and **click** on the ***"Conference"*** **link**.

All are welcome to attend!

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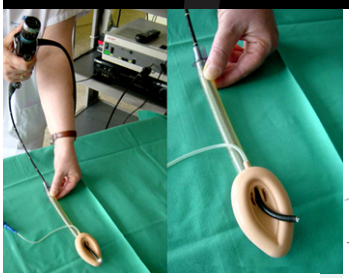

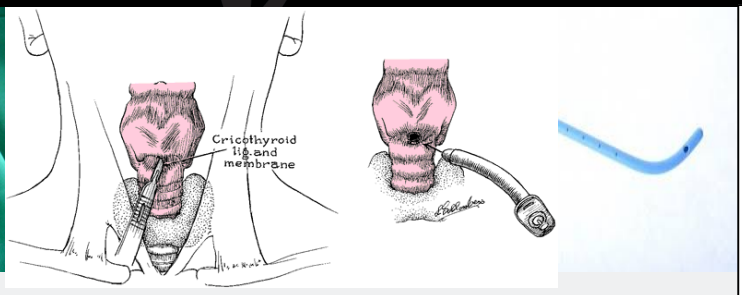

- Airway assessment and prediction of the difficult airway is an inexact science, especially in emergent situations
- There is no method of prediction of difficult intubation that is both sensitive and specific

- The term “difficult airway” is generally used when oxygenation and ventilation cannot be achieved in the desired manner.
- Bougie (aka endotracheal tube introducer) is an effective and inexpensive adjunct to difficult airway management.
- Laryngeal Mask Airway (LMA) is a form of an extraglottic device, an airway for oxygenation and ventilation without traversing the glottis. These are critical tools for difficult and failed airways.
- The Glidescope is a type of video laryngoscope that provides a better view of the glottis, requires less time to intubation and leads to higher rates of successful intubation.
- Optical laryngoscopes use lenses to provide a view of the anterior glottis. Image quality is inferior to video laryngoscopes but they are inexpensive, durable and a portable tool for difficult airway management.
- When a clinician cannot intubate and oxygenate the patient, placement of an extraglottic airway may be attempted as a rescue maneuver or as a bridge to provide ventilation while preparations are made to perform a cricothyroidotomy.
- Cricothyroidotomy is indicated when an emergency airway is required and orotracheal or nasotracheal intubation is either unsuccessful or contraindicated.

Take Home Points

- Airway obstruction can be complete or incomplete and there are several causes; evaluate each patient individually.
- If an adult patient is in severe respiratory distress with notable inspiratory stridor, secure the airway!
- There is no perfect method of predicting a difficult airway.
- An “easy” intubation can easily turn into a difficult one, so always assess and prepare.
- There are multiple devices for difficult airways such as bougies, LMAs, and laryngoscopes; last resort will be a cricothyroidotomy.

ABOUT THE AUTHOR

This month’s case was written by Kristina Torres. Kristina is a 4th year medical student from NSU-COM. She did her emergency medicine rotation at BHMC in October 2016. Kristina plans on pursuing a career in Internal Medicine after graduation.

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