

EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE



Care Warriors

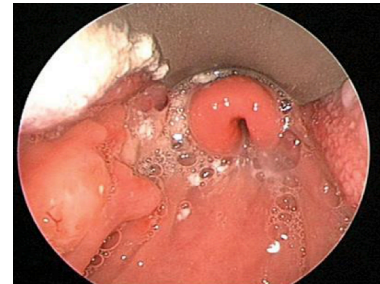
Author: Kerry Fine, OMS-IV | Editor: Ajith Susai, D.O.

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Acute Airway Management

A 52-year-old female with past medical history of HTN presents to the ED with increasing shortness of breath for the past 48 hours. The patient states that around this time she noticed swelling of her lips and tongue, and a rash over her chest that has since resolved. She admits a low-grade fever, nasal congestion, and a productive cough for the past week – for which her primary physician prescribed a course of Amoxicillin 3 days ago. She denies any recent travel. The patient has been on Lisinopril 20 mg daily for the past 3 years and is up to date on her vaccinations. She is afebrile, hypertensive, and tachypneic with a O₂ saturation of 95%. On physical exam, the patient is in mild respiratory distress, and has some swelling of the lips and tongue, 3+ tonsils, pooling of secretions in the oropharynx, cervical lymphadenopathy, and stridorous breathing. Which of the following is the most appropriate next step in management of this patient's condition?

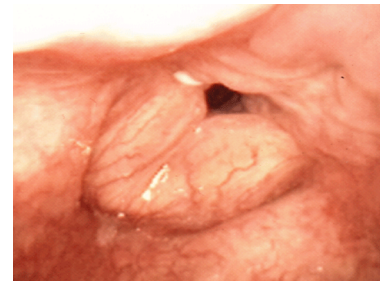
- A. Methylprednisolone 5 mg/kg.
- B. IV Ceftriaxone 2 g.
- C. Racemic Epinephrine.
- D. Discontinue Lisinopril and admit patient for observation.
- E. Immediate cricothyrotomy in the ER.
- F. Consult ENT and plan for endotracheal intubation in the OR.
- G. Direct visualization of airway with a flexible fiberoptic scope.
- H. X-Ray of the neck.



Epiglottitis: It Hasn't Gone Away
<http://anesthesiology.pubs.asahq.org/article.aspx?articleid=2513159>



Fatal Angioedema associated with Lisinopril
<https://www.ncbi.nlm.nih.gov/pubmed/1330096>



Laryngeal Edema
<http://www.ucdvoice.org/laryngeal-papilloma/>

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

Department of Emergency Medicine
1625 SE 3rd Avenue
Fort Lauderdale, FL 33316

The correct answer is F. This patient with impending airway collapse needs intubation to protect her airway. Even when the origin of a patient's dyspnea is uncertain, there are key factors that should point a physician towards urgent endotracheal intubation. In this patient, it is unclear if her symptoms are the result of a drug allergic reaction, ACE inhibitor-induced angioedema, epiglottitis, or a different etiology entirely. Regardless of the etiology, this patient presented with pooling of secretions which indicates that she is unable to protect against aspiration and requires urgent intubation under controlled conditions.

Discussion

When the decision to intubate is unclear, several factors should be considered. These include age and comorbidities, respiratory status, the pathologic process involved, prospect of clinical deterioration, resources available, and need for transfer to another facility or location in the hospital. When the decision is still unclear, there are three questions that can distinguish a patient who needs intubation versus one who can simply be observed. If the answer to any of the following questions is yes, intubation should be highly considered.

Is there failure of airway maintenance or protection?

The same level of alertness necessary to maintain airway tone is required to prevent aspiration. The ability to phonate clearly and answer questions demonstrates airway patency and appropriate vocal cord function. The ability to swallow secretions is a good indicator of the ability to protect against aspiration. Swallowing represents a higher level of neurologic complexity than the gag reflex, and is therefore a more accurate representation of a patient's ability to protect against aspiration.

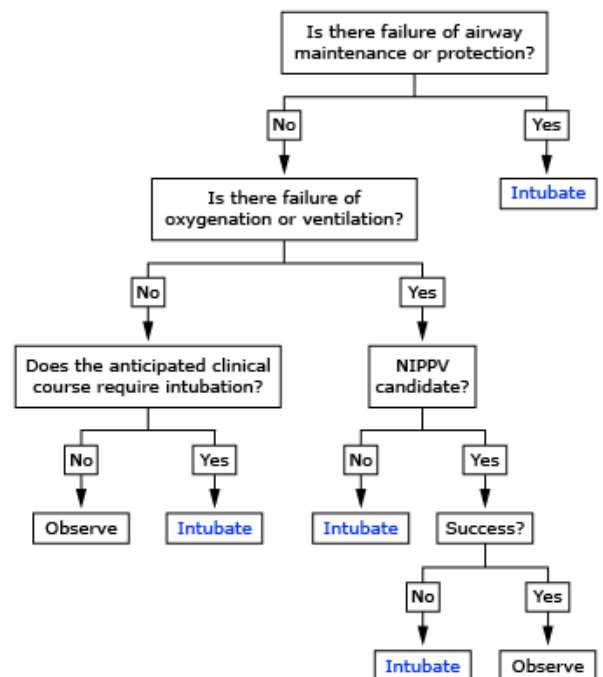
Is there failure of oxygenation or ventilation?

Hypoxia should be determined clinically through mental status examination. Pulse oximetry is also useful tool so long as peripheral perfusion is not compromised. Arterial blood gas analysis should not be readily used in the emergent setting of airway collapse due to the little additional information it provides over clinical presentation and occasionally providing misleading results.

Impaired carbon dioxide elimination due to airway obstruction, muscular weakness, or drug-induced hypopnea also indicates the need for airway management with intubation. Under certain circumstances, such as with acute exacerbations of chronic obstructive pulmonary disease, noninvasive positive pressure ventilation (NIPPV) allows the sparing use of endotracheal intubation in alert patients who are able to protect their airway.

Is there an anticipated need for intubation?

When there is a concern that the natural disease progression will threaten the airway, it is important to pursue early intervention to prevent unexpected airway collapse at an inopportune moment. For this reason, it is important to consider the potential for respiratory decompensation especially in elderly patients, trauma patients, and burn victims, and prior to transferring a patient to another department or facility.



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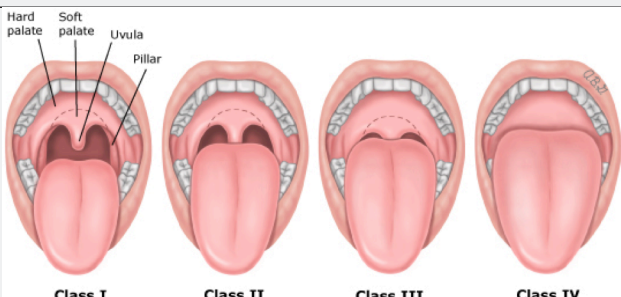
For a list of educational lectures, grand rounds, workshops, and didactics please visit BrowardER.com and click on the "Conference" link.

All are welcome to attend!

Warriors

Approaching the airway

Once the decision for intubation has been determined, the patient should be assessed for suspected difficulty of intubation. If no difficulty is suspected, rapid sequence intubation (RSI) is recommended. RSI utilizes a rapidly acting induction agent and a neuromuscular blocking agent to rapidly and optimally control the airway. The LEMON approach can be used to assess for difficulty in using direct laryngoscopy for endotracheal intubation.

Look externally	Body habitus, unusual anatomy, facial trauma
Evaluate (3-3-2 rule)	 <p>Prediction on difficulty in visualizing the glottis</p>
Mallampati score	 <p>Estimate of space available for oral intubation</p>
Obstruction/Obesity	Supraglottic mass or infection, hematoma, disruption of upper airway, laryngeal mass, redundant tissue
Neck mobility	Ability to position the neck for intubation – cervical trauma, rheumatoid arthritis, degenerative joint disease



This month's case was written by Kerry Fine. Kerry is a 4th year medical student from NSU-COM. He did his emergency medicine rotation at BHMC in December 2017. Kerry plans on pursuing a career in Otolaryngology & Facial Plastic Surgery after graduation.

Take Home Points

- Airway emergencies must be identified and evaluated rapidly. Evaluation includes determination of the need for early airway protection with endotracheal intubation.
- When it is unclear whether intubation is indicated, three questions may be asked: Is there failure of airway maintenance or protection? Is there failure of oxygenation or ventilation? Is there an anticipated need for intubation?
- Once the need for intubation is determined, the airway should be evaluated for difficulty of intubation. Rapid sequence intubation is indicated when no difficulty is predicted. The LEMON mnemonic can be used to predict difficult visualization of the airway with direct laryngoscopy.
- In the case of a difficult airway, other devices should be utilized such as the endotracheal tube introducer, optical stylet, flexible endoscope, video laryngoscope, or surgical airway devices.

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