Airway Emergencies in the Outpatient Clinic

Pediatric Emergency Medicine Update

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Disclaimer

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I do not plan to discuss any product which is still investigational or not labeled for the use under discussion.

Clinical examples are for illustrative purposes only, and no names, ages, other demographic data, or specific diagnoses of actual patients are contained in this lecture.
Objectives

• Brief review of pediatric physiology

• Discuss specific examples of airway emergencies presenting in the outpatient setting.

• Review treatments for each of these processes
Topics for a Different Day…

- Rapid sequence intubation (RSI)
- Pediatric airway management
- Orotracheal, nasotracheal, and retrograde intubations
- Extracorporeal membrane oxygenation (ECMO)
- Asthma, bronchiolitis, community-acquired pneumonia, carbon monoxide poisoning...
Decreased Physiologic Reserve

1. Oxygen consumption

2. Functional residual capacity
Pediatric Physiology

Functional Residual Capacity (FRC)

- IRV
- TV
- ERV
- RV
- VC
- TLC
Clinical Vignettes

3 y.o. female with rhinorrhea for 5 days. Nasal discharge is unilateral and opaque, although not malodorous.

PMH: None
Meds: None.

VSS.

HEENT: NCAT, PERRL, no conj. Injection, TMUs clear...
Nasal Foreign Body
Nasal Foreign Body

- Usually in infants and young children
- Right-sided > left-sided
- Organic or inorganic
- Lack of history
- Variable clinical presentation
Foreign Body Removal

• Curette
• Alligator forceps
• Suction
• Balloon catheter
Foreign Body Complications

- Infection
- Direct tissue damage
- Aspiration
Treatment of Complications

- Amoxicillin
- Amoxicillin-clavulanate
- Clindamycin
- +/- Vancomycin
Foreign Body Pitfalls

• Multiple attempts

• Topical vasoconstrictors

• Addition of liquids in proximity of a button battery
Case Progression...
Nasal Foreign Body
Nasal Foreign Body
Nasal Foreign Body
Nasal Foreign Body
Clinical Vignette

• 5 y.o. male with sore throat for the past 7 days, associated with fever, neck pain.

• PMH: none
• Meds: acetaminophen

• Vitals: T 39.4°; HR 120; RR 18; BP 110/85; 98%
• Gen: ill-appearing, not in respiratory distress
Clinical Vignette

- Vitals: Temp 39.4°; HR 120; RR 18; BP 110/85
- Gen: ill-appearing, not in respiratory distress
- HEENT: Trismus. Otherwise unremarkable.
- Neck: will flex but not extend. +Cervical LAD
Retropharyngeal Abscess

http://www.hawaii.edu/medicine/pediatrics/pemxray/v5c01.html
Retropharyngeal Abscess
Retropharyngeal Abscess

Microbiology

Streptococcus pyogenes
Streptococcus viridans
Staphylococcus aureus
Bacteroides
Fusobacterium
Prevotella
Peptostreptococcus
Retropharyngeal Abscess

- Usually less than 6 years of age
- May be secondary to other local infection
- Trauma
- “Shotgunning” crack cocaine
Retropharyngeal Abscess

Classic Presentation

- Fever
- Trismus
- Drooling
- Neck swelling
- Neck pain with limitation of movement
Retropharyngeal Abscess

Treatment Controversy

- Medical
- Surgical
- Dual Therapy
Retropharyngeal Abscess

Complications

- Airway compromise
- Venous thrombosis
- Mediastinitis
- Aspiration pneumonia
- Sepsis
Retropharyngeal Abscess

Pitfalls

- Nonspecific prodrome
- Lack of visible bulge in the oropharynx
- Lack of dyspnea
- Rupture of abscess
- Recurrence
Case Progression

http://www.hawaii.edu/medicine/pediatrics/pemxray/v5c01.html
Case Vignette

13 y.o. male with sore throat for 10 days, increasing for the last 2 days. Associated with fever to 101°F, but without cough, coryza, dyspnea, neck stiffness, or altered mental status.

PMH: none

VSS

HEENT: NCAT, PERRL, EOMI, TMs clear, Nose clear…
Peritonsillar Abscess

http://www.norwestent.com/services/tonsilitis.php
Peritonsillar Abscess

History

• 18\textsuperscript{th} and 19\textsuperscript{th} centuries
• Celsus
• Ebers Papyrus
Peritonsillar Abscess

http://www.crystalinks.com/egyptmedicine.html
Peritonsillar Abscess

http://doctorspiller.com/Oral_Anatomy.htm
Peritonsillar Abscess

Epidemiology

- Incidence
- Seasonality
- Peak age range
- Ethnicity/Gender
Peritonsillar Abscess

Microbiology

Streptococcus pyogenes
Staphylococcus aureus
Bacteroides
Fusobacterium
Prevotella
Peptostreptococcus
Veillonella
Peritonsillar Abscess

Clinical Presentation

- +/- antecedent pharyngitis
- Fever
- Odynophagia
- Voice changes
- Difficulty with secretions/drooling
Peritonsillar Abscess

Clinical Presentation

- Trismus
- Tonsillar asymmetry
- Uvular deviation
- Palpable fluctuance and tenderness*
Peritonsillar Abscess

Treatment

- Broad-spectrum antibiotics
- Needle aspiration
- Incision and drainage
- Steroids and analgesics
Peritonsillar Abscess

Complications

- Airway obstruction
- Hemorrhage
- Mediastinitis
- Thrombophlebitis
- Recurrence
Case Progression

http://www.norwestent.com/services/tonsilitis.php
Clinical Vignette

• 2½ y.o. female with acute onset of suspected “croup” with respiratory distress, associated with fever, and extreme anorexia. No cough.

• PMH: none but completely unvaccinated

• Vitals: T 39.6°; HR 186; RR 46; BP 85/61; 91%

• Gen: Toxic, severe distress, TRIPOD position

• HEENT: NCAT, drooling.
Clinical Vignette

- Vitals: T 39.6°; HR 186; RR 46; BP 85/61; 91%
- Gen: Toxic, severe distress, TRIPOD position
- HEENT: NCAT, drooling.
- Neck: extended
- Lungs: stridor, increased work of breathing
- EMS activated…
Epiglottitis

http://www.web-books.com/Classics/ON/B0/B575/11MB575.html
Epiglottitis

Microbiology

- *Haemophilus influenzae* (type B)
- *Streptococcus pneumoniae*
- *Staphyloccocus aureus*
- *Moraxella catarrhalis*
- *Candida*
Epiglottitis

Noninfectious Etiologies

• Chemical burns
• Thermal burns
• Physical trauma
• Graft-versus-host disease
Epiglottitis

Clinical Presentation

- Sudden onset
- Fever
- Stridor and Dyspnea
- Drooling
Epiglottitis

Clinical Presentation

• Odynophagia
• “Tripodding”
• Anxiety
• Cyanosis
Epiglottitis

Pediatric Clinical Presentation

• Rapid progression
• Increased severity of respiratory distress
• Lack of oropharyngeal findings
• Extreme tenderness over the hyoid
Epiglottitis

Management

• Preparations for definitive airway
• Lateral neck film
• Defer noxious stimuli if tenuous respiratory status
• IV abx
Epiglottitis

Complications

- Pneumonia
- Lymphadenitis
- Epiglottic abscess
Case Progression

http://chandrajayasuriya.com/?q=node/135
Summary

- Pediatric physiology
- Nasal foreign bodies
- Retropharyngeal abscess
- Peritonsillar abscess
- Epiglottitis
Thank you!
References


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