PEDIATRIC ENT & YOU—A PATIENT CARE PARTNERSHIP

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UTHSCSA Department of Otolaryngology-Head & Neck Surgery
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Learning Objectives
At the end of this presentation the participant will be able to:
1. Discuss diagnostic methods for airway evaluation
2. Evaluate patients whose care may require the assistance of an otolaryngologist
3. Identify the role of the pediatric ENT in the patient care team

When Might you Need an ENT?
- Respiratory Symptoms
  - Noisy Breathing
  - Airway obstruction
  - Weak voice
  - Extubation failure
- Chronic Aspiration
- Infectious Considerations
  - Neck swelling
  - Eye swelling
  - Recurrent throat infections
  - Recurrent ear infections
  - Recurrent rhinosinusitis
- Hearing Loss

Topics to Discuss Today
- Airway Evaluation
- Airway urgency/emergency
- Adenotonsillar disease
- Recurrent/chronic otitis media
- Foreign Bodies
- Patient care partnership topics

Definitions
- "Noisy breathing" could mean anything
- Definitions courtesy of Merriam Webster
  - Stertor—
    - the act of producing a snoring sound : snoring
    - from Latin stertere to snore
  - Stridor—
    - 1) a harsh, shrill, or creaking noise
    - 2) a harsh vibrating sound heard during respiration in cases of obstruction of the air passages
Types of Stridor

- Inspiratory
  - Supraglottic
  - Biphasic
  - Glottic/Subglottic

- Expiratory
  - Intrathoracic

Dynamic Examination

- Flexible laryngoscopy
  - Patient Preparation:
    - Preferably 30 minutes or more after previous feeding
    - Local anesthetic/decongestant used depending on patient age
    - The patient should not be sedated as the goal is to evaluate vocal cord mobility, secretion management, and dynamic tone

  - Limitations:
    - Small diameter scope does not provide the best resolution
    - Limited evaluation beyond vocal cord level
    - Diagnostic tool only, not for interventions

  - Other Capabilities:
    - Assist with swallowing evaluations: Flexible Endoscopic Evaluation of Swallowing (FEES)

Flexible Laryngoscopy

Indications

- Voice concerns
- Breathing concerns (stridor, stertor)
- Chronic cough
- Aspiration
- Globus sensation
- Laryngopharyngeal reflux (LPR) and GERD
- ALTE Workup
- Otalgia

Completion of Airway Evaluation—Operative Direct Laryngoscopy and Bronchoscopy

- Improved optics for greater resolution/detail
- Ability to evaluate subglottis, trachea and bronchi
- Ability to ventilate through the bronchoscope
- Ability to perform interventions
  - Foreign body removal
  - Airway sizing
  - Airway dilation
  - Biopsy/removal of lesions

Rigid Direct Laryngoscopy
Rigid Bronchoscopy Tools

Anesthesia for Rigid Bronchoscopy

Rigid Laryngoscopy and Bronchoscopy

Flexible Laryngoscopy

Visualization Difference: Flexible vs. Rigid Instrumentation

Rigid Bronchoscopy
Common Airway Pathology

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of Patients</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Congenital laryngeal anomalies</td>
<td>150</td>
<td>53%</td>
</tr>
<tr>
<td>Congenital tracheal anomalies</td>
<td>35</td>
<td>11%</td>
</tr>
<tr>
<td>Congenital bronchial anomalies</td>
<td>11</td>
<td>3%</td>
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<tr>
<td>Traumatic tracheal disruptions</td>
<td>14</td>
<td>4%</td>
</tr>
<tr>
<td>Tracheal stenosis</td>
<td>12</td>
<td>4%</td>
</tr>
<tr>
<td>Tracheal stenosis</td>
<td>12</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>272</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Percentages have been rounded off.*

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subglottic anomalies</td>
<td>90</td>
<td>34%</td>
</tr>
<tr>
<td>Subglottic anomalies</td>
<td>45</td>
<td>17%</td>
</tr>
<tr>
<td>Tracheal stenosis</td>
<td>27</td>
<td>10%</td>
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<tr>
<td>Tracheal stenosis</td>
<td>15</td>
<td>6%</td>
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<tr>
<td>Other</td>
<td>7</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td>100%</td>
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Subglottic Stenosis Grading

Airway Sizing

Supraglottoplasty
- Surgery becomes necessary in less than 10 percent of patients with laryngomalacia
- Apnea
- Cyanosis
- Failure to gain weight despite appropriate care
- Significant chest and neck retractions
- Oxygen requirements
- Surgery will not eliminate stridor
- Reduce the severity of the symptoms
- Decrease apnea
- Improve weight gain

Laryngomalacia • Most common cause of stridor

From Holinger’s Pediatric Laryngology and Bronchoesophagology, Lippincott, 1996.
Laryngomalacia Treatment--Supraglottoplasty

Tracheomalacia
- Primary
  - Intrinsic anatomical abnormality (especially associated with esophageal atresia and tracheoesophageal fistula)
  - Secondary
    - Extrinsic compression (vascular rings and slings)
  - Acquired
    - Prolonged intubation, infections, relapsing polychondritis

Tracheomalacia Examples

Hoarseness

Cough & Chronic Aspiration
Airway Urgency & Emergency
- Contact ENT team sooner rather than later
- Keep the patient breathing spontaneously
- Consider a nasal trumpet or a LMA
- For pediatric patients at UHS a Formal Critical Airway Protocol is currently being drafted
- Patients with known or suspected airway pathology
- An Emergency Airway Cart with rigid instrumentation will be located in the OR and be taken to emergent situations throughout the hospital

Critical Airway Concept
- Certain patients at UHS will be labeled as having a “Critical Airway”
  - Known difficult intubation by anesthesia
  - Acute airway issue
  - Anatomical abnormality where they cannot be intubated from above and are dependent on a tracheostomy
  - Patients who have just undergone an airway reconstruction
- Goal of “Critical Airway” label is to help facilitate care of patients who need rapid airway stabilization and increase vigilance for stabilized patients
- Patients with fresh tracheostomies do not necessarily meet criteria as a critical airway

24 Hour Coverage

AAO-HNS Guidelines

Criteria for Tonsillectomy

<table>
<thead>
<tr>
<th>Statement</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watchful waiting for recurrent throat infection: Clinicians should recommend watchful waiting for recurrent throat infection if there have been fewer than 7 episodes in the past year or fewer than 5 episodes per year in the past 2 years or fewer than 3 episodes per year in the past 3 years. Recommendation based on randomized controlled trials with limitations and observational studies with a preponderance of benefit over harm.</td>
<td></td>
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</table>
Tonsillectomy Guideline

STATEMENT 3. TONSILLETOLOGY FOR RECURRENT INFECTION WITH MODIFYING FACTORS: Clinicians should assess the child with recurrent throat infection who does not meet criteria in Statement 2 for modifying factors that may increase the risk of recurrent infections, which may include but are not limited to multiple antibiotic allergy/intolerance, PFAPA (periodic fever, aphthous stomatitis, pharyngitis, and adenitis), or history of peritonsillar abscess. Recommendation is based on randomized controlled trials and observational studies with a preponderance of benefit over harm.

Otitis Media

- Definitions:
  - Recurrent acute otitis media
    - 3 episodes in 6 months or 4 episodes in 1 year
  - Chronic otitis media with effusion
    - Effusion that persists for 3 months or more

Table 1. Summary of guideline action statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. OME of short duration</td>
<td>Clinicians should not perform tympanostomy tube insertion in children with a single episode of otitis media with effusion (OME) of less than 3 months duration.</td>
</tr>
<tr>
<td>2. Hearing testing</td>
<td>Clinicians should obtain an appropriate hearing test if OME persists for 3 months or longer (chronic OME) or prior to surgery when a child becomes a candidate for tympanostomy tube insertion.</td>
</tr>
<tr>
<td>3. Chronic bilateral OME with hearing difficulty</td>
<td>Clinicians may perform tympanostomy tube insertion in children with bilateral or bilateral OME for 3 months or longer (chronic OME) and demonstrated hearing difficulty.</td>
</tr>
<tr>
<td>4. Chronic OME with symptoms</td>
<td>Clinicians should offer bilateral tympanostomy tube insertion to children with bilateral OME who did not receive tympanostomy tubes, until the effusion is no longer present. Significant hearing loss is detected, or structural abnormalities of the tympanic membrane or middle ear are suspected.</td>
</tr>
<tr>
<td>5. Surveillance of chronic OME</td>
<td>Clinicians should reevaluate at 3- to 6-month intervals, children with chronic OME who did not receive tympanostomy tubes, until the effusion is no longer present, significant hearing loss is detected, or structural abnormalities of the tympanic membrane or middle ear are suspected.</td>
</tr>
</tbody>
</table>

Foreign Bodies

- Certain Foreign Bodies constitute a surgical emergency:
  - Button batteries
  - Airway foreign bodies causing acute airway obstruction/distress
    - Button battery injuries
      - External auditory canal and middle ear
      - Nasal cavity
      - Esophagus

Esophageal Foreign Body
Esophageal Injury

Sending Patients with Foreign Bodies to the Pediatric ENT Clinic
- Ear foreign bodies
- Nasal foreign bodies

- Protocol
  - Ensure that the object is not a button battery
  - Call Pediatric ENT Clinic and have the patient scheduled for the next clinic session. Foreign bodies will be added on during specific timeslots
  - Instruct the family to keep the patient NPO that morning in case in office removal is not successful

Patient Education/Partnership
- Nasal saline irrigation can help with
  - Nasal congestion
  - Post-Nasal Drip
  - Allergic Rhinitis
  - Chronic Sinusitis
  - Epistaxis

  - It only works if patients use it!

Sinus Irrigation Demo

Nasal Saline
- Compliance with use can be difficult due to taste as concerns of a “drowning feeling”
- Stress importance of making nasal irrigation part of daily routine
- Encourage use with head tilted forward to keep salt water out of the throat
- Encourage irrigation to be done at bath time/during showers

Essential Trach Tenets
- Humidification is of the utmost importance
- Suctioning to an appropriate depth helps prevent mucosal irritation and injury
Routine Trach Care

- ANY patient with a tracheostomy who is admitted should have the same equipment available
  1. Appropriately sized trach obturator taped to the bed to be used if accidental decannulation occurs
  2. Replacement tracheostomy tube equivalent in size and type to the trach tube currently in place. A second trach tube that is the next size smaller
  3. Suction equipment including an adequate number of appropriate sized suction catheters
  4. Oxygen or room air mist, as ordered
  5. Resuscitation bag with appropriate size mask
  6. Monitor appropriate for patient
  7. Surgical lubricant (Surgilube)
  8. Appropriately sized trach ties
  9. A placard denoting appropriate suction depth for the patient’s particular trach. If in doubt about suction depth, measure obturator of the extra trach of the same size

Trach Care & Clinical Follow Up

- Patients with long-standing tracheostomies, should be seen in the ENT clinic at least every 6 months
- Follow up recommended sooner if:
  - Excessive stomal granulation tissue
  - Difficulty with trach changes
  - Difficulty suctioning
  - Bloody secretions
  - Any other concerns

In office procedures

- Ear and nose foreign body removal
- Flexible laryngoscopy & stroboscopy
- Nasal endoscopy
- Nasal cautery (limited)
- Cerumen removal
- Freulotomy (unless the child has teeth)

Management of Expectations

- Many ENT procedures can be done without general anesthesia
- However, this may require a brief period of assistance holding an anxious child still
- The ENT Clinic is NOT set up for conscious sedation

Clinic Scheduling

- Brady Green Clinic
  - 358-3505
- MARC Clinic
  - 450-9950

Current Health Plan Enrollment

- Aetna (commercial only)
- Amerigroup (commercial only)
- BCBS
- Carelink
- University Health Plan
- Community First Health Plan & CFHP CHIP
- Healthsmart
- Humana
- Medicare
- Nexcaliber
- Plan Vista
  - More soon….
How to Contact Me

- Pager (210) 513-1631
- Cell (314) 691-4269
- Email: mcevoy@uthscsa.edu

Note: Some night and weekend call coverage is being provided by Drs. Juan Bonilla and Don Moe. The ENT Resident on call will be able to direct consults to appropriate staff.

Questions