Jumping the Hurdles of Pediatric Dysphagia

Case reviews and panel discussion
The Panel

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- Sharon McGrath-Morrow, MD, Assoc. Prof. Pediatrics Johns Hopkins School of Medicine.
- Maureen Lefton-Greif, PhD, CCC-SLP, BRS-S, Assoc. Prof. Pediatrics and Otolaryngology Head & Neck Surgery, Johns Hopkins University School of Medicine.
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- Donna Edwards, M.A., CCC-SLP, BRS-S, Dayton Children’s Hospital
- Barbra Kline, MA, CCC-SLP, BRS-S, Akron Children’s Hospital
- Neina Ferguson, M. A., CCC-SLP, University of South Alabama
- Moderator: Marni Simon, MA, CCC-SLP, BRS-S, Connecticut Children’s Medical Center
Disclosures

Maureen A. Lefton-Greif


Principle Investigator (MPI), NIDCD, 5R01DC011290-02, Standardization of videofluoroscopic swallow studies for bottle-fed children, 2011 – 2015

No other panel participants have any disclosures.
Participant Outcomes

- Identify current management strategies for pediatric patients with oropharyngeal dysphagia secondary to complex medical diagnoses.

- Identify the need for referrals to additional practitioners for differential diagnosis of airway concerns complicating oropharyngeal dysphagia.

- Identify the importance of correct diagnosis of oropharyngeal dysphagia as the sole and/or concomitant etiologic component of a patient’s presenting respiratory complaints.
Factors that May Modify the Impact or Consequences of Dysphagia in Children

Host Characteristics
- Diagnostic condition(s)
- Co-morbidities
- Severity of dysphagia

Age / Timing of Exposure
- Growth and development
- Susceptibility to injury

Environmental / Social Factors
- Feeding techniques
- Health care access and management
- Exposure to environmental stressors

Lefton-Greif + McGrath, 2007
Laryngeal Cleft

Case Presentation
Presentation: 1 year

- Full term
- Dx: Severe, uncontrolled asthma, reflux
- Prior Evaluations:
  - UGI: reflux, otherwise WNL
  - Sweat test: negative
- Developmental Hx: No concerns
Presentation: 1 year

Pertinent Feeding History:

• Needed slow flow nipple or sippy cup + valve to prevent choking w/ liquids
• Feeding improved with Thick-It® to a honey-thick consistency
• Picky feeder

GI
• Formula changes – currently, Alimentum
• Reflux meds
VFSS
Benjamin / Inglis Classification of Posterior Laryngeal Clefts

Congenital laryngeal clefts are characterized by posterior midline deficiency in the separation of the larynx and trachea from hypopharynx and esophagus and incomplete development of the tracheoesophageal...

Ann of Otolaryngology 1989, 98:417-420
Failed : Conservative Tx. For Laryngeal Clefts Type I + II

- Medical Management + Feeding Therapy
  - Proton pump inhibitor for GERD
  - Upright position during feeding
  - Thickened feeds
  - Other therapeutic interventions based on VFSS/FEES findings

Chien et al, *IJPO*, 2006
Meet Criteria for Considering Surgical Treatment

- Findings on VFSS
  - Confirmed aspiration
  - Rule out other swallowing impairments as primary cause of aspiration
- Absence of significant co-morbid conditions predisposing to aspiration

Benjamin / Inglis Classification of Posterior Laryngeal Clefts

- Type 1 Deep Laryngeal Cleft
- Diagnostically treated with Radiesse Voice Gel
VFSS: Post Injection
Case Discussion: Next steps?

**SLP**
- Would you recommend oral feeding?
- What conditions?
- Therapeutic intervention?
  - Utensils?
  - Pacing?
  - Liquid modifications?

**Pulmonary/Otolaryngology:**
- What if any concerns would you have about oral feeding?
- Any other evaluations?
- Medical management?
- Surgical intervention: Repair?
Bronchopulmonary Dysplasia (BPD): A common diagnosis

Case Presentation
Case: Female infant born preterm with BPD

<table>
<thead>
<tr>
<th>PCA at birth</th>
<th>23 weeks 3 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>550 grams</td>
</tr>
<tr>
<td>Delivery</td>
<td>Emergency department</td>
</tr>
<tr>
<td>Surfactant</td>
<td>Administered</td>
</tr>
<tr>
<td>Mechanical ventilation</td>
<td>21% FIO2</td>
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</tbody>
</table>
# Respiratory History

<table>
<thead>
<tr>
<th>Method</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal prong ventilation</td>
<td>36 weeks 2 days</td>
</tr>
<tr>
<td>Nasal CPAP</td>
<td>41 weeks 2 days</td>
</tr>
<tr>
<td>Room Air</td>
<td>42 weeks</td>
</tr>
</tbody>
</table>
Feeding History

<table>
<thead>
<tr>
<th>Enteral bolus feeding</th>
<th>28 weeks 1 day</th>
</tr>
</thead>
<tbody>
<tr>
<td>First oral feeding</td>
<td>41 weeks 5 days</td>
</tr>
<tr>
<td>Nasal cannula oxygen</td>
<td>44 weeks</td>
</tr>
<tr>
<td>resumed during feeding</td>
<td></td>
</tr>
<tr>
<td>to treat desaturation</td>
<td></td>
</tr>
<tr>
<td>events</td>
<td></td>
</tr>
</tbody>
</table>
## Feeding History

<table>
<thead>
<tr>
<th>Modified barium swallow</th>
<th>Due to apnea, desaturation, cyanosis, and overt coughing during feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Results</strong></td>
<td><strong>Poor coordination of sucking, swallowing, and breathing</strong></td>
</tr>
<tr>
<td>No penetration</td>
<td>Multiple swallows with prolonged apnea</td>
</tr>
<tr>
<td>No aspiration</td>
<td></td>
</tr>
</tbody>
</table>
BPD VFSS
Case Discussion

**SLP**
- Would you recommend oral feeding?
- What conditions?
- Therapeutic intervention?
  - Utensils
  - Pacing
  - Liquid modifications

**Pulmonary/Otolaryngology**
- What if any concerns would you have about oral feeding?
- Any other evaluations?
- Medical management?
- What are your thoughts on using supplemental O2 during feeding? Are there possible consequences?
## Discharge Feeding Status

<table>
<thead>
<tr>
<th>Feeding</th>
<th>Full oral feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>0.05 liters</td>
</tr>
<tr>
<td>Oxygen increased during feeding</td>
<td>1.0 liter</td>
</tr>
<tr>
<td>Strategies used</td>
<td>Pacing used to facilitate breathing during oral feeding</td>
</tr>
</tbody>
</table>
Differential Diagnosis of Airway Concerns versus Dysphagia

Case Presentation
Differential Diagnosis of Airway Concerns versus Dysphagia

Male: 2 year old-typically developing child

- Chronic cough and asthma-Daily inhaled steroids for management
- Positive lipid laden macrophages- greater than 100 during BAL
- No structural concerns observed during bronchoscopy
- Inconclusive MBS results: Episodic penetration, no contact with cords, ejected during swallow, no cough during observation
- Thickened liquids not trialed-no indication from SLP perspective
Case Discussion

**SLP**
- Would you recommend oral feeding?
- What conditions?
- Therapeutic intervention?
  - Utensils
  - Pacing
  - Liquid modifications

**Pulmonary/Otolaryngology**
- What if any concerns would you have about oral feeding?
- Any other evaluations?
- Medical management?
- What is the role / impact of chronic use of inhaled steroids?
- How come lipid laden microphages vary so frequently? What should this information signal to the SLP?
Pediatric Choking Risk

Case Presentation
Pediatric Choking Risks

Male: 2 yrs. 4 months, 18 days

Birth/Med History:
- Lengthy labor with emergent C-section; OM; dehydration at 9 M of age with hospitalization; constipation

Feeding/Growth:
- 50% on World Health Organization (WHO) growth chart
- Limited diet-refuses age appropriate table foods
- ‘Has difficulty with dinner’; ‘very picky avoids all but a handful of foods and won’t try new things’
- Trialed open cup-typically drinks from hard spouted sipper cup

Family goal for child to have dinner successfully with family, increase number of foods in his diet
Pediatric Choking Risks

Clinical assessment:

• Reduced saliva management
• Tonsil size appropriate when viewed during oral inspection
• Overly wide jaw excursion with spoon feeding and attempt to bite into a chicken nugget
• Minimal chewing, immature sucking pattern with subsequent swallow of partially chewed solid.
VFSS
Case Discussion

SLP
• Would you conduct MBS?
• Would you feed this child orally?
• What conditions?
• Therapeutic intervention?
  – Utensils?
  – Pacing?
  – Liquid modifications?

Pulmonary/Otolaryngology
• What concerns does this child present from a pulmonary perspective?
• Are their any structural issues the SLP should be concerned about in these patients?
• Would you put restrictions on the child’s oral feeding?
• Any other medical evaluations?
• Medical management?
Pediatric Choking Risks

Plan:
• Reduced bite size
• Portion control
• Diet modification with physician approval
• Spoon with small bowl
• Offer assisted open cup sips
• Smooth puree in cup to help with transition
• Table food purees for calories
• Easy chewable foods for ‘chewing practice’
• Avoid foods requiring overextension of the jaw
References


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