Managing Aspiration in Children

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Objective
To understand the basics of evaluation and treatment in the management of aspiration.

Patient Types
- Outpatient clinical feeding/swallowing evaluation
- Patients s/p instrumental swallowing evaluation
- Patients transitioning to therapy from an inpatient setting

Where to Begin?
- Clinical feeding/swallowing evaluation

Clinical Feeding/Swallowing Evaluation: Histories
- Understand the history
  - Birth
  - Medical
    - Include GI and Respiratory
    - Hospital and Surgical
  - Feeding

Clinical Feeding/Swallowing Evaluation: Current Feeding Plan
- What is the feeding schedule?
- Frequency and volumes are important
- Try to obtain (3-day) sleep/feeding schedule
Clinical Feeding/Swallowing Evaluation: Current Feeding Plan

• Feeding Tube:
  • What kind?
  • Why do they have it?
• What is the feeding schedule (formula, frequency volume, rate)?
  • How are feeds tolerated?

Complete the feeding evaluation

• Oral stimulation
• Taste trials
• PO feeding
• Instrumental evaluation if concern for aspiration

Instrumental Swallowing Evaluations: When to consider

• Observed/reported clinical signs of aspiration
• Be aware of other causes for atypical sounds with feeds (e.g., airway, baseline congestion, reflux)
  • Gagging vs “choking”

Instrumental Swallowing Evaluations: When to consider

• Respiratory history
  • Chronic congestion
  • Recurrent URI’s
  • Pneumonia
  • Uncontrolled asthma symptoms

• Medical histories
  • Prematurity (IVH)
  • Neuro
  • Genetic abnormalities
  • Airway
  • Cardiac
  • Vocal cord paralysis/paresis
  • GI/reflux
  • Autoimmune: JDM
Instrumental Swallowing Evaluations

- Will they participate?
- No prior PO intake
- Behavioral/Aversion
- Ready to transition to next consistency
- GT removal

VFSS vs. FEES: Considerations

- Age
- Airway/structural concerns
- Imaging history
- Timing since last assessment
- Breastfeeding
- Secretion management concerns
- Positioning limitations
- Liquid considerations

No Prior History of PO

- ENT – TEF; complete tracheal rings
- Pulmonary – trach/vent
- GI – short gut; esophageal atresia
- Cardiac – single ventricle; HPLH
- Neurology – MM; CP; seizures

Factors in Swallowing Assessed via VFSS

- Reduced bolus control (anterior, posterior)
- Reduced oral-pharyngeal sensation
- Pharyngeal-nasal splashback
- Reduced pharyngeal compression
- Reduced hyolaryngeal elevation/epiglottic inversion
- Delayed initiation of the swallow
- Reduced airway closure
- Altered oral/pharyngeal/esophageal pressures
- UES dysfunction
- Esophageal or Motility issues

...so now what?

History of PO

- ENT – posterior laryngeal cleft, laryngomalacia, vocal cord paresis/paralysis
- GI – GER/GERD, malrotation, esophageal stricture
- Pulmonary – CLD, recurrent PN, recurrent aspiration, CF
- Cardiac – history of surgical intervention; vocal cord function
- Neurology – CP, brain tumor
Swallow Study Results

- What happened and why?
- What are the underlying issues contributing to aspiration?
- Recommendations?
- Status changes since the VFSS?
  - Diet
  - Medical status
  - Developmental skills

Always be thinking about...

- Status changes since the VFSS or last visit
  - Diet
  - Medical status
  - Developmental skills
- OM skills
  - Neurologic responses (reflexes) vs volitional patterns
- Developmental considerations
- Sensory responses

Sensory Responses

- Absent
- Oral
- Normal
- Oral
- Aversion
- Reflexes
- Hyposensitivity
- Hypersensitivity

-Wolf, Glass, 1992

Taste Trials: No prior PO

- May need medical clearance
- Consider patient response to dry stim
- Gradually integrate tastes into the oral stimulation activities
- Swipes across the lips
- Self-directed experiences can be beneficial
  - May help decrease aversion behaviors

Taste Trials: With or Without Prior History of PO

- Select the utensil based on:
  - previous oral experiences
  - developmentally appropriate items
  - items which best match the patient’s skill level
  - Items recommended from VFSS
- Select the food/liquid based on:
  - patient’s current diet
  - safest consistency
  - sensory tolerance
  - Bolus size

Taste Trials: Advancing

- Can they medically tolerate larger bolus trials?
  - May be able to accept limited quantities of po feedings for practice/stimulation
- Consider oral sensory tolerance and responses.
- Consider clinical responses to stim and lower level of tastes.
Taste Trials: Advancing

- Consider medical and respiratory status.
- Consider results of VFSS or FEES.

Larger Boluses: Where to Begin?

- Consistency
  - Use results of VFSS as guide to which is safest consistency to offer
  - Changes in pt’s medical status
- Utensil/Modality
  - Developmentally appropriate
  - Flow rate
  - Bolus Size

Larger Boluses: Where to Begin?

- Quantity
  - GI tolerance/quantity of supplemental feeding
  - Time limits/patient endurance
  - Team with nutrition to alter tube feeding
- Frequency
  - Current feeding schedule (NG/GT, etc.)
  - Consider starting with the targeted amount x1/day
  - May increase frequency of trials before you increase amount
  - Increase quantity as clinically appropriate

Therapeutic Strategies

- Positioning
- Nipple type/utensil type (regulating the flow rate)
- Single vs. consecutive swallows
- Bolus size
- Thickening
  - Working on extraction
- External Pacing
  - Facilitated double swallow
  - Limiting amount and/or frequency of trials
  - Altering temperature/texture
  - Oral motor exercises

Therapy/Follow-Up Visits

- Parent interview: Update since last session
- Medical changes/status
- Respiratory status
- Update feeding regimen
- Parent report of home trials
  - Adherence to recommendations
  - Recipes for thickened liquids
  - Positioning and feeding techniques
  - Clinical s/s aspiration

Therapy/Follow-Up Visits

- Observe ongoing trials, with goal to advance if medically and clinically appropriate.
- If the practiced trial is safe, then advance the home PO recommendation accordingly.
- How do you know what’s safe?
  - Medical status
  - Respiratory status
  - Clinical presentation
  - Informed understanding of patient’s swallow (VFSS/FEES)
Weaning from Tube Feedings
- PO trials should aim toward a schedule which matches their tube feeding plan.
- Consider safety/efficiency with PO intake.
  - May be weaned while on a modified feed.
  - May require repeat VFSS
- Consider medical, respiratory and nutritional needs.
- Discussion with PMD, nutrition, SLP, family

Full PO with Aspiration
- Chronic aspiration
- Anatomical anomalies
- SSB discoordination
- Prematurity
- GER
- Developmental/Medical

Aspiration
- Aspiration can occur
  - Before, during, or after the swallow
  - From above (intake)
  - From below (reflux)

Aspiration Before the Swallow
- Possible causes of aspiration before the swallow:
  - Poor bolus control
  - Flow rate, bolus size, SSB coordination, positioning
  - Delayed initiation of swallow response
  - Possible neurological involvement, poor sensation

Treatment Strategies: Poor Bolus Control
- Oral control exercises
- Thickening Liquids
- Regulating liquid flow
  - Nipple flow rate/straw/single sips/ spoon
  - Pacing
  - Modify bolus size
- Positioning

Treatment Strategies: Poor Bolus Control
- Considerations for toddlers:
  - Sip cup (with or without valve)
  - Open cup (consider shape and size)
  - Straw
- Small sips and external supports for stability
Treatment Strategies: Poor Bolus Control
• Positioning
  • Cradled at 45 degrees
  • Sidelying
  • Head supports
  • Trunk supports
  • Head and body alignment

Treatment Strategies: Delayed Initiation of Swallow
• Neuro/MD intervention
• Clinical Interventions:
  • Thermal Stimulation
  • Chilled liquids/foods
  • Strong/sour flavors
  • Carbonation

Aspiration During the Swallow
• Possible causes of aspiration during the swallow:
  • Vocal Fold paralysis/paresis
  • Posterior Laryngeal Cleft
  • Tracheoesophageal Fistula (TEF)
  • Poor laryngeal closure
  • Poor pharyngeal sensation
  • Poor breathing coordination

Treatment Strategies: Aspiration during the swallow
• Medical Management
• Base of tongue/Pharyngeal strengthening exercises
• Diet Modifications
• Swallowing techniques (chin tuck, supraglottic swallow, head turn)
• Vital Stim

Aspiration after the swallow
• Possible causes of aspiration after the swallow
  • Poor pharyngeal squeeze leading to build up of pharyngeal residue
  • Incomplete or uncoordinated opening of the Cricopharyngeal (CP) muscle or upper esophageal sphincter (UES)
  • Retroflow of material from the esophagus

Treatment Strategies: Aspiration After the Swallow
• Medical management
• Base of tongue/Pharyngeal strengthening exercises
• Thermal stim
• Compensatory Strategies
  • Alternating solids/liquids
  • Double swallow
  • Chin tuck
• Diet Modifications
  • Consistency
  • Bolus size
Therapy: Controlled Trials

• Goal 1: Maintaining health with full po diet

• Goal 2: Safely transitioning back to least restrictive consistency

Therapy: Controlled Trials

• Things to consider when transitioning to thinner consistencies:
  • Maintain health for 1-2 months on current diet
  • Small therapeutic trials of thinner consistencies
  • Consider s/s of aspiration
  • History of silent aspiration
  • Results of previous VFSS
  • Home trials of 1-2 feedings per day
  • Quantity to be determined based on clinical picture

Therapy: Controlled Trials

• Increase quantity and frequency of new consistency as respiratory health remains stable.
• When to consider repeat VFSS:
  • History of silent aspiration
  • Significant clinical improvement
  • Change in medical status

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References


