Eosinophilic Esophagitis: SLP Perspective

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Disclosures

Financial Disclosures

- Nina Williams is a salaried employees at Boston Children's Hospital

Non-Financial Disclosures

- No non-financial disclosures

Clinical Presentation

Infants and Toddlers

- Food refusal
- Delayed development of chewing skills
- Vomiting
- Poor weight gain

School Aged Children and Adolescents

- Abdominal/chest pain
- Patient reports: Globus Sensation, “food gets stuck” or “stays in throat”
- Throat Clearing

Clinical Feeding Evaluation

- Coughing with feeding
- Frequent vomiting during or after bottle feeds
- Delayed Transition off of the bottle

- Preference for puree consistency vs. chewable solids
- Emergence of allergic symptoms with solid introduction
- Preference for liquids vs. solid

- Delayed Progression with solid foods
- Avoidance of certain textures
- Drinks large volumes of liquid with meals

VFSS

Oral Phase:

- Effortful/prolonged chewing
- Prolonged bolus holding
  - Behavioral/Compensatory

Pharyngeal Phase:

- Typically no bolus hold-up/pharyngeal residue
- +/- aspiration

Esophageal Phase:

- Often no abnormalities with bolus flow through UES or esophageal retention

Other Solid Food Dysphagia Etiologies

- Delayed Skill Development
- History of EA s/p surgical intervention
- Enlarged Tonsils
- Hypotonia/Pharyngeal Weakness
- Oral Hypersensitivity

EoE and Pediatric Feeding Disorder

- Modify Bite Size
- Support Chewing Skill Development
- Liquid Wash Down
- Modify Dense/Dry Textures

Case Study 1:

8 y.o. male, *arrived for initial MBS study, PCP referral*

Medical History:

- Chronic cough and concern for throat clear
- Asthma
- Eczema
- Egg allergy and seasonal allergies
- Sleep apnea s/p T&A at 5 y.o.
- No history of recurrent URI or PNE (though mild illnesses last longer than siblings)
- No GI concerns
- Current medications: Omeprazole, Pulmicort, Albuterol, Zyrtec and a multivitamin (no improvement in symptoms with meds trialed)

Case Study 1:

8 y.o. male, *arrived for initial MBS study*

Feeding History:

- Frequent throat clearing with eating
- Throat clearing improves with liquid wash down
- Denies sensation of food becoming stuck
- Drinks large volumes of liquids with meals
- Noted to use a large volume of condiments, sauces with meals
- Eats a variety of solids: pasta, meatballs, waffles, French toast sticks

Case Study 1:

8 y.o. male, *arrived for initial MBS study*

MBS Results: WNL

- *Thin liquid via open cup*: No laryngeal penetration or aspiration (PAS 1)
- *Thin liquid via straw*: No laryngeal penetration or aspiration (PAS 1)
- *Pudding via spoon*: No laryngeal penetration or aspiration (PAS 1)
- *Solids (Oreo cookies)*: No laryngeal penetration or aspiration (PAS 1)

Case Study 1:

8 y.o. male, *referred to Gastroenterology -evaluated 1mo. later, EGD – 2 mo. later*

EGD Results: Eosinophilic Esophagitis Diagnosis

- Taken off Omeprazole prior to EGD, and no diet restrictions (egg re-introduced after passed allergy challenge)
- EGD results: esophagitis with 30 eosinophils in the distal, 15 in the mid and 25 in the proximal esophagus.

Treatment: Started on Mometasone

Case Study 2:

15 m.o. male, *arrived for initial MBS study*

Medical History:

- GERD and persistent vomiting, ?FPIES
- Milk protein intolerance
- Vomiting improved upon removal of dairy from diet
- Allergy to egg protein and sesame seeds causing anaphylaxis
- Familial history remarkable for EoE (mother)
- No recent URIs or PNE, although frequent colds

Case Study 2:

15 m.o. male, *arrived for initial MBS study*

Feeding History:

- Full oral feeder
- Loves to eat, and accepts a variety of foods
- No concerns regarding coughing or choking with solids
- Coughs and chokes with thinner liquids (water and oat milk)
- Often drinks smoothies (less coughing appreciated with naturally thick beverages)
- Drinks via Miracle 360 cup and straw

Case Study 2:

15 m.o. male, *arrived for initial MBS study (December 2021)*

MBS Results: *Significant Oropharyngeal Dysphagia with heightened risk of aspiration of all consistencies*

- Thin liquid via Munchkin 360 cup : Gross direct silent aspiration during the swallow (PAS 8)
- Thin liquid via straw: Direct silent aspiration during the swallow (PAS 8)
- Slightly thick liquid via straw cup: Direct silent aspiration during the swallow (PAS 8)
- Mildly thick liquid via straw cup : Direct silent aspiration during the swallow (PAS 8)
- Moderately thick liquid via straw cup: REFUSED
- Moderately thick liquid via Munchkin 360 cup: REFUSED
- Moderately thick Silicone straw cup: Deep consistent laryngeal penetration to the vocal cords; No aspiration (PAS 4)
- Runny purees via spoon: Direct silent aspiration during the swallow with no cough triggered in response to the aspiration (PAS 8)
- Varibar barium pudding via spoon : 1 episode of shallow laryngeal penetration (PAS 2)
- Solids (Chex mix): silent aspiration of solid residue during the swallow with no cough triggered in response to the aspiration (PAS 8)

**Patient admitted for NG-tube placement, cleared for pudding- thick consistency only (mashed potatoes, pudding, cottage cheese, Greek yogurt, thick oatmeal, etc.)*

Case Study 2:

Repeat Targeted MBS study during admission (focus on solids)

- Limited study due to poor participation
- Peanut butter sandwich: *no laryngeal penetration or aspiration (PAS 1)*
- *Dry chex cereal: REFUSED*
- *Goldfish: REFUSED*
- *Crackers: REFUSED*

Initial Triple Scope during admission

- EGD: white plaques in the upper esophagus as well as a duodenal erosion. "*Moderately active esophagitis at 21 cm (distal) (80 eosinophils per high-power field) with marked regenerative epithelial changes. Esophagus at 14 cm (proximal): Moderately active esophagitis (50 eosinophils per high-power field) with marked regenerative epithelial changes"*
- DLB revealed edema, could not rule out laryngeal cleft.

**EoE Treatment: Swallowed Flovent*

Case Study 2:

***Feeding Recommendations:**

- Avoid offering all liquid consistencies, thin purees, and dry solids that scatter given concern for aspiration.
- Liquids via NG-tube, Soft mashable solids and Thick purees/Pudding thick (see examples below)

 Vegetables-soft, cooked/steamed (e.g. carrots, squash), avocado
 Fruit-banana, plantains
 Starch/Grains-thick oatmeal, moist bread (sandwich bread, banana bread, dense muffin, inside of bagel), pasta, mac and cheese, mashed potato, cooked sweet potato, French fries
 Protein-refried beans, coconut yogurt thickened with oatmeal, moist meatloaf or meatball (lightly coated in sauce), deli meat, salmon, tuna
 Dairy-deli cheese, Baby bell cheese, mozzarella cheese stick
 Sweet spreads-nut butter, chocolate hummus, pudding

***Underwent Brain MRI at 16mo. which was WNL**

Case Study 2:

Second Triple Scope at 20mo.

- EGD: continued EoE, although improved from prior (11 / 21 / 9 eos/hpf distal to proximal).
- DLB: Mildly deep interarytenoid groove with edema suggestive of possible type 1 laryngeal cleft, mild tracheal edema
- BAL: ~ 90% macrophages, 10% respiratory epithelial cells.

***EoE Treatment:** *Swallowed Flovent □ Mometasone*

**New diagnosis of adrenal insufficiency*

Repeat MBS study at 20mo.

- Continued aspiration of all liquid consistencies and thin puree via pouch
- No aspiration with solids, purees from a spoon, or pudding thick via pouch.

***NG-tube removed**

Case Study 2:

Initial Laryngeal Cleft Repair – at 23mo.

***Introduce pudding thick water via straw, gradually wean to moderately thick water via straw**

Repeat MBS study at 2 yo. 1 mo.

- Continued aspiration of all liquid consistencies and thin puree via pouch
- No aspiration with variety of solids, purees from a spoon, or **pudding thick via straw**

Third Triple Scope at 2yo. 6mo.

- EGD: ongoing improvement, mild activity; mild gross and histologic esophagitis, mostly in the distal esophagus (2 / 2/ 25 eos/hpf from distal to proximal)
- DLB revealed an intact laryngeal cleft repair.
- Bronch and BAL showed inflammation with neutrophils and eosinophils, worse compared to his last bronch/BAL which was performed while he was on NG feeds.
- Tolerating pudding thick clinically, many URIs this winter at daycare

Case Study 2:

Repeat MBS study at 3y.o.

- Continued aspiration of mildly thick
- Cleared for **moderately thick via straw**

Repeat MBS study at 3yo. 8mo.

- Continued aspiration of thin and mildly thick, despite wean
- Return to moderately thick via straw

EoE Treatment Mometasone □ Dupixent

Fourth Triple Scope at 4yo.

- EGD: showed distal pallor and small fissures grossly. Histologically showed 45 / 6/ 4 eos/hpf distal to proximal.
- DLB showed "prior laryngeal cleft repair is noted. Good healing noted, groove now above the level of vocal cords, there remains space for additional stitch if needed."

Case Study 2:

***EoE Treatment:** Continue on Dupixent, started PPI for reflux at 5yo.*

***Type 1 Laryngeal Cleft Repair Revision –** 5 yo.

**Patient currently weaning from moderately thick liquids following repair with plan for repeat MBS*

Considerations:

Multidisciplinary care

Sensory/Behavioral Component

Other co-morbidities

Developmental Milestones

Impact on Family System

References:

1. Arvedson JC, Brodsky L. Pediatric swallowing and feeding: assessment and management. 2nd ed. Newyork: Albany; 2002.
2. Arvedson JC, Lefton-Greif MA. Instrumental Assessment of Pediatric Dysphagia. Semin Speech Lang. 2017;38(2):135-46.
3. Borowitz KC, Borowitz SM. Feeding Problems in Infants and Children: Assessment and Etiology. Pediatr Clin North Am. 2018;65(1):59-72.
4. Coulthard H, Harris G, Emmett P. Delayed introduction of lumpy foods to children during the complementary feeding period affects child's food acceptance and feeding at 7 years of age. Matern Child Nutr. 2009;5:75–8
5. Cichero, J.A.Y., Lam, P., Steele, C.M. *et al.* Development of International Terminology and Definitions for Texture-Modified Foods and Thickened Fluids Used in Dysphagia Management: The IDDSI Framework. *Dysphagia* **32,** 293–314 (2017). https://doi.org/10.1007/s00455-016-9758-y
6. Dodds WJ, Logemann JA, Stewart ET. Radiologic assessment of abnormal oral and pharyngeal phases of swallowing. AJR Am J Roentgenol.
7. Dodrill P. Feeding problems and oropharyngeal dysphagia in children. J Gastroenterol Hepatol Res. 2014;3(5):1055–60
8. Hirano I, Furuta GT. Approaches and Challenges to management of pediatric and adult patients with eosinophilic esophagitis. Gastroenterology. 2020;158(4):840–51. 5.
9. Keles MN, Ertoy Karagol HI, Serel Arslan S, Egritas Gurkan O, Sari S, Elbasan B, Dalgic B, Bakirtas A; Gazi University Pediatric Eosinophilic Gastrointestinal Diseases Working Group. Oropharyngeal Dysphagia in Children with Eosinophilic Esophagitis. Dysphagia. 2023 Feb;38(1):474-482. doi: 10.1007/s00455-022-10489-3. Epub 2022 Jul 4. PMID: 35781555.
10. Mehta P, Furuta GT, Brennan T, et al. Nutritional state and feeding behaviors of children with eosinophilic esophagitis and gastroesophageal reflux disease. J Pediatr Gastroenterol Nutr. 2018;66(4):603–8.
11. Sohn JK, Barnes BH, Al-Hazaymeh A, Sauer BG, McGowan EC. High prevalence of developmental disorders in pediatric eosinophilic esophagitis (EoE): A single-center observational study. J Allergy Clin Immunol Pract. 2021 Feb;9(2):1032-1034.e1. doi: 10.1016/j.jaip.2020.09.032. Epub 2020 Oct 1. PMID: 33010523; PMCID: PMC7870538.