Neonatal/Pediatric Videofluoroscopic Swallow Studies (VFSS)

Presented by Marjorie Meyer Palmer, M.A.
Speech Pathologist
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Considerations for the Neonate:

1) Infants under 37 weeks post-conceptual age are not expected to demonstrate a mature (continuous burst) suck pattern
2) Premature infants are not usually able to co-ordinate suck and swallow with respiration
3) If an infant can't breathe, he/she cannot eat!
4) Maintenance of the respiratory system is necessary in order to prevent aspiration
5) Premature infants frequently demonstrate esophageal dysmotility
6) Allowing additional time for esophageal clearance may prevent aspiration

Considerations for the Pediatric Patient:

1) Determine the most efficient consistency during the bedside evaluation
2) Begin the VFSS/MBS with this consistency in order to provide a baseline
3) If thin liquid is problematic be sure to examine both straw and cup drinking
4) If thickened material is used be sure to examine esophageal motility and clearance
5) Note during which phase of swallow (oral, pharyngeal, esophageal) solids become problematic.

Three Phases of Swallow: characteristics of normal development

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Earlier than three months	Later than three months
Oral	
*Central tongue groove	*bilabial closure
*Extension-elevation-retraction	*tongue tip elevation
*Anterior-posterior direction	*decreased jaw movement
Pharyngeal	
*Pause in valleculae	*smooth passage
Esophageal	
*Transient relaxation of the LES	*more competent LES
*Some degree of esophageal dysmotility	*improved motility
*Frequent regurgitation	*less frequent regurgitation

Three Phases of Swallow: When Compromised

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In the Neonate:

Oral phase:

*central tongue groove not well maintained (poor suction component)
* inefficient tongue base retraction (bolus propulsion)
*wide jaw excursions with poor expression

Pharyngeal phase:

*material remains in valleculae/piriform sinuses after swallow(pooling)
*naso-pharyngeal reflux
*laryngeal penetration
*aspiration

Esophageal phase:

*UES does not relax (achalasia)
*compromised downward peristalsis
*retrograde movement of material
*regurgitation of material

Clinical signs in the Pediatric Patient:

Oral phase:

-gags before the swallow
-chokes on thin liquids
-manages liquid from straw, not cup
-lack of volitional bolus transfer for chewing

Pharyngeal phase:

-material remains in pharynx after swallow (pooling)
-sneezes with meals (naso-pharyngeal reflux)
- gurgling noises increase as meal progresses

Esophageal phase:

-wet burps
-poor volume intake with premature satiety
-gagging/vomiting after pharyngeal swallow
-holds food/liquid in mouth for long periods
-difficulty with transition onto textures

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Clinical Signs of Feeding Problems in the Neonate:

*respiratory difficulty (oxygen desaturation, spells of apnea, color changes, "catch-up" breathing)
*gagging, coughing, choking
*naso-pharyngeal reflux
*pharyngeal pooling i.e., gurgling sounds increase as feeding progresses
*arching backward, crying, obvious discomfort and/or pain with feeding
*frequent vomiting/regurgitation

When to Refer for VFSS:

When therapeutic intervention has failed to correct the feeding problem

Intervention strategies include the following:

*regulation of suck/swallow/breathe
*change to a slow flow nipple
*change position to side-lying or upright
*use of external pacing
*smaller more frequent feedings
*anti-reflux positioning during and after feedings
*thickened feedings

Neonatal/Pediatric Swallow Studies: Modified Barium Swallow (MBS) Studies also known as Videofluoroscopic Swallow Studies (VFSS)

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