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ONLINE CONTINUING EDUCATION FOR THE LIFE OF YOUR CAREER

Test Your Ability to Interpret FEES: Level III

Joy Hesse, MA, CCC-SLP

Moderated by:
Amy Natho, MS, CCC-SLP, CEU Administrator, SpeechPathology.com

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How to earn CEUs

- Must be logged in for full time requirement
- Log in to your account and go to Pending Courses
- Must pass 10-question multiple-choice exam with a score of **80%** or higher
  - Within **7 days** for live webinar; within **30 days** of registration for recorded/text/podcast formats
- Two opportunities to pass the exam

CONTINUED

Test Your Ability To Interpret FEES: Level III

Joy Hesse, M.A. CCC-SLP
Iowa ENT Center, PLLC
jhesse@iowaencenter.com

CONTINUED

Learner Outcomes

After this course, participants will be able to:

- Identify 3 appropriate candidates for a FEES exam.
- Correctly identify penetration and residue and rate correctly using rating scales provided, after watching 3 FEES examinations.
- Describe how to formulate a treatment plan/recommendations based on results of 3 FEES examinations.
- Identify appropriate compensatory strategies for premature spillage, pyriform residue, and frank aspiration.

Purpose of FEES/Videostroboscopy Examination

- Flexible Endoscopic Examination of Swallow evaluates the function and structure of the aero-digestive tract during rest, during phonation, speech, and during swallowing as viewed through a flexible nasal endoscope.

2

Indications for Completing FEES/Videostroboscopy

- Need exam on that day
- Positioning in fluoroscopy is problematic- bedridden, contractures, obese, ventilator…
- Transportation to fluoroscopy is problematic- ICU, CCU, medically fragile patient
- Concern about excess radiation exposure
- Severe dysphagia with very weak or possibly absent swallow reflex and/or very limited ability to tolerate aspiration (brainstem stroke, tube fed for prolonged period of time, poor pulmonary status.
- Post-intubation or post-surgery especially CABG, carotid endarterectomy cervical fusion or any surgery where RLN was vulnerable. Endoscopy can visualize larynx directly for signs of trauma or neurologic damage and assess laryngeal competence.

Indications Continued

- Tracheostomy if you suspect laryngeal competence may be impacted.
- Need to assess fatigue or swallow status over an entire meal.
- Repeat exam to assess change; to assess effectiveness or need for maneuvers
- Therapeutic exam that requires time to try out several maneuvers, several consistencies, or use as biofeedback for patient/family

Contraindications for giving topical anesthetics

- ✓1. Check to make sure they do NOT have an allergy to any medications with “caine”.
- ✓2. Check to see if they have had adverse reaction to topical anesthetics.
- ✓DO NOT perform flexible endoscopy on patient with recent trauma to the nose! Could have severe reaction called methemoglobinemia!

Biomechanical Events During Oropharyngeal Swallow

- Tongue base retraction
- Arytenoid and vocal fold closure
- Laryngeal elevation
- Epiglottic inversion
- Pharynx shortening
- Pharyngeal wall squeeze
- UES opening

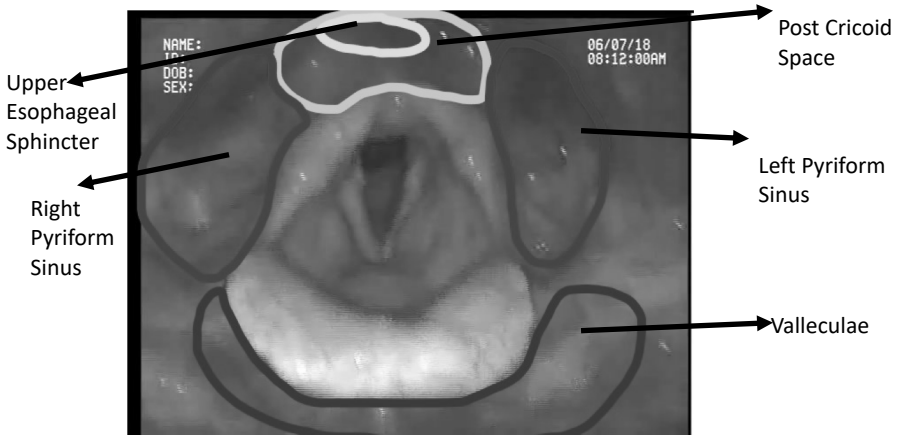
Langmoore, 2011

What you see endoscopically

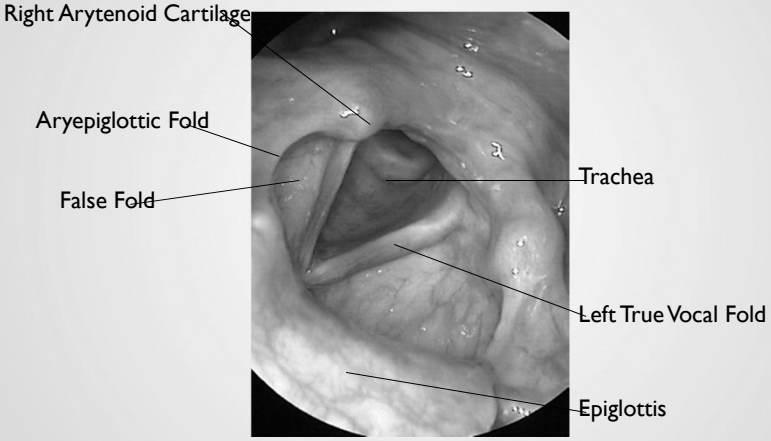
1. Arytenoid approximation or vocal fold adduction-only seen endoscopically
2. Hyolaryngeal elevation: larynx moves upward toward scope
3. White Out- indicates epiglottic inversion
4. Pharyngeal Shortening or Squeeze
5. Airway opens, structures return to rest

Langmoore 2011

Appropriate Terminology For Pharyngeal Anatomy



Laryngeal Anatomy



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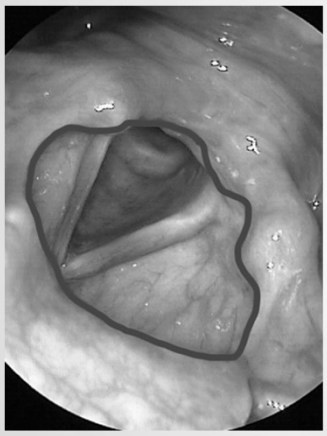
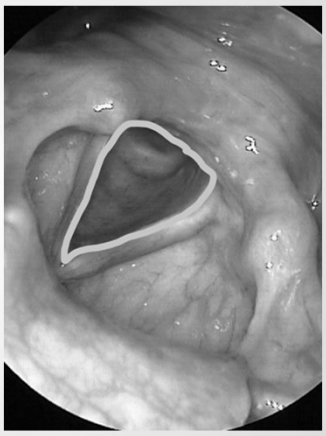
Penetration and Aspiration





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Penetration/Aspiration Scale (Pen/Asp)

PAS Scale	Score-Description
1	Material Does Not Enter Airway
2	Material enters the airway, remains above the TVFs, and is ejected
3	Material enters the airway, remains above the TVFs, is not ejected
4	Material enters the airway, contacts the TVFs and is ejected
5	Material enters the airway, contacts the TVFs and is not ejected
6	Material enters the airway, passes below the TVFS, is ejected into larynx or from the airway
7	Material enters the airway, passes below the TVFS, is not ejected into larynx or from the airway despite effort
8	Material enters the airway, passes below the TVFS, is not ejected into larynx or from the airway, no effort made to eject
	Rosenbeck, Robbins, Roecker, Coyle, & Wood (1996)

Yale Pharyngeal Residue Severity- Vallecula Residue (Neubauer et al, 2015)

1	None	0%	No Residue
2	Trace	1-5%	Trace Coating
3	Mild	5-25-%	Epiglottic Ligament Visible
4	Moderate	25-50%	Epiglottic Ligament Covered
5	Severe	> 50%	Filled to Epiglottic Rim

Yale Pharyngeal Residue Severity Scale-Pyriform Sinus Residue (Neubauer et al, 2015)

1	**None**	**0%**	**No Residue**
2	Trace	1-5%	Trace coating
3	Mild	5-25%	Up wall to ¼ full
4	Moderate	25-50%	Up wall to ½ full
5	Severe	> 50%	Filled to aryepiglottic Rim

Case Study #1

Throat Complaints: Patient is a 56 year old male referred for dysphagia therapy after radiation treatment for base of tongue cancer. He was first diagnosed with cancer in July 2018 and underwent chemotherapy and radiation treatment, ending in October. Before radiation a PEG tube was placed and he remained NPO except water until mid-December 2018. He was a former smoker, quitting roughly 25 years ago although did chew tobacco at the time of the initial diagnosis.

Past Medical History

Hypertension

Anxiety and Depression

Sleep Apnea

GERD

Paroxysmal Atrial Fibrillation

Surgical History

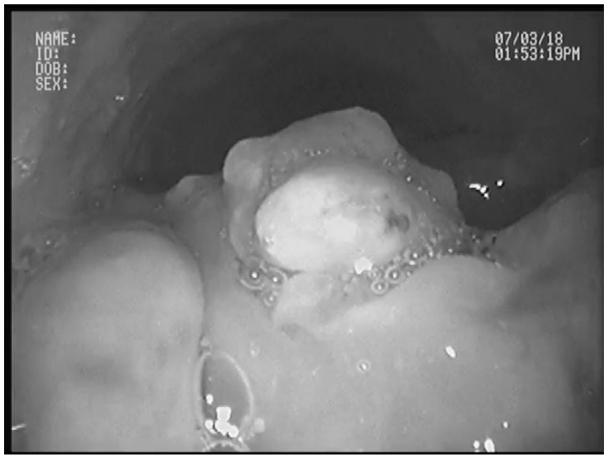
Tonsillectomy and Adenoidectomy

Angiogram

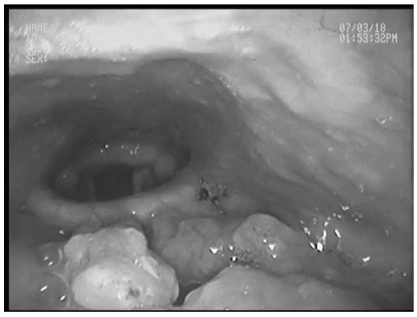
Speech Therapy Exam

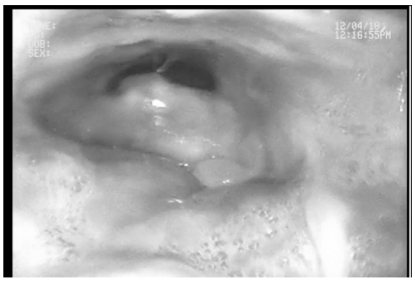
- Oral Motor Exam- Decreased oral excursion with overall edema status post radiation
- Voice: Mild hoarseness with asthenia
- No previous modified barium swallow study, main source of nutrition and hydration via PEG tube

Initial Evaluation

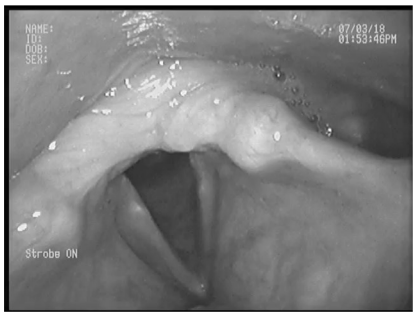


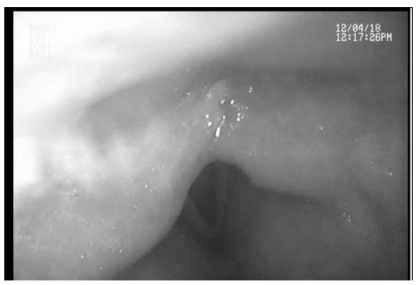
Tongue Base Before and After Radiation



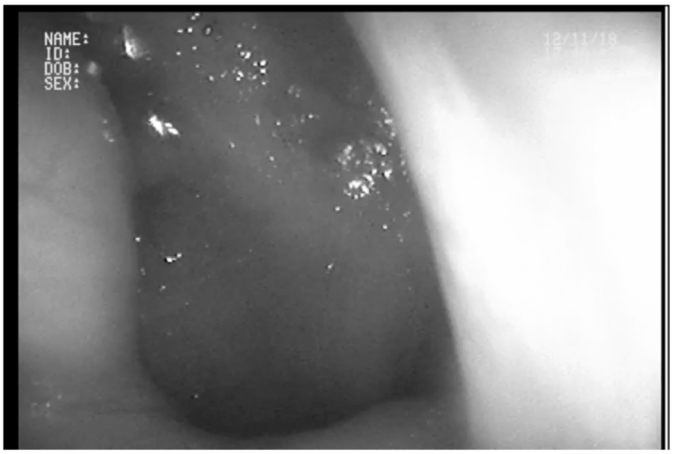


Larynx Before and After Radiation

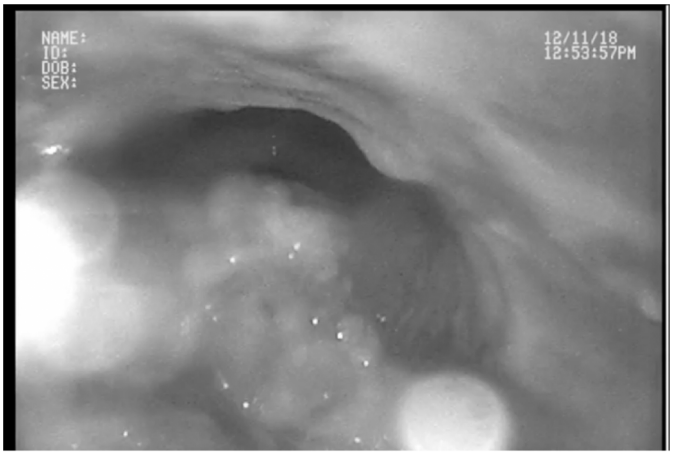




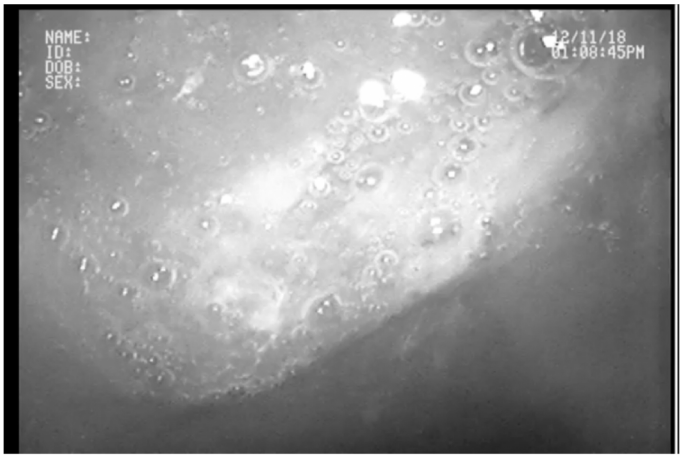
FEES Case Study #1
Pre-Treatment Video 1



Case Study #1
Pre Treatment Video 2



Case Study #1
Pre Treatment Video 3



Interpretation Case 1 Pre Tx

- Pen/Asp Scale Rating: 4 Material enters the airway, contacts the true vocal folds and is ejected
- Vallecular/pyriform reside: Vallecular Residue 5
- Compensatory Strategies: Chin tuck was helpful decreasing residue with solids and eliminating penetration for thin liquids.

Biomechanics of Swallow Impairment

- Patient exhibits impaired sensation from XRT. Impaired tongue base retraction, impaired lateral pharyngeal wall contraction, impaired hyolaryngeal elevation with reduced epiglottic inversion due to severe hypertrophy.

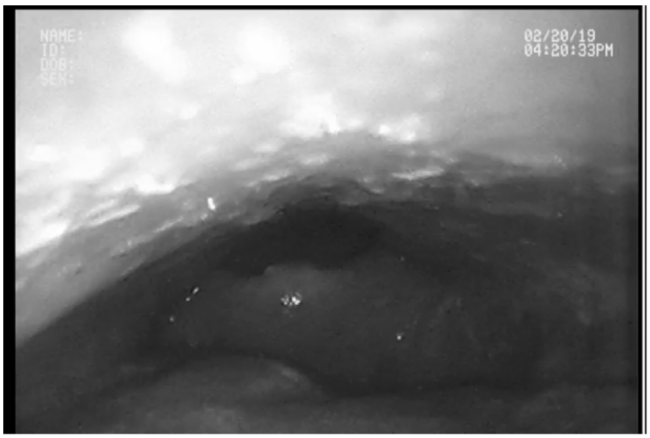
Recommendations

- Patient presenting with moderate pharyngeal phase dysphagia characterized by deep penetration with thin liquids and moderate to severe residue in the valleculae and base of tongue. Due to significant swelling it is difficult to judge pyriform residue, but some residue noted near the cricopharyngeus resulting in penetration when spilling over interarytenoid space.
- Pharyngocise exercise program recommended including:
  - pitch glide for laryngeal elevation
  - Jaw opening for UES opening
  - Lingual push up for BOT retraction
  - Effortful swallow for improved pharyngeal stripping

Recommendations Continued

- Patient also underwent myofascial release to address decreased range of motion/scarring/fibrosis.
- Therabite for Trismus
- Flexitouch pneumatic compression device from Tactile Medical for edema
- SLP also recommending he slowly increase oral intake with puree textures and thin liquids initially

FEES Case Study #1
Post-Treatment Video 1



Interpretation Case 1 Post

- Pen/Asp Scale Rating: 3 Material enters the airway, remains above the true vocal folds, and is not ejected
- Vallecular/pyriform reside: Vallecular Residue 4 before liquid wash, decreased to 2 after liquid wash
- Compensatory Strategies: Liquid wash was effective for clearing moderate residue along base of tongue for solids. Chin tuck no longer needed for eliminating penetration with thin liquids

Recommendations Case 1 Post

- Patient has not used his PEG tube for several weeks, maintaining nutrition and hydration orally. Additional follow up FEES demonstrating significantly improved swallow function and safety.
- Recommending patient follow up with primary oncologist for PEG tube removal and continue:
  - Rehabilitative Treatment for lymphedema and decreased range of motion
  - Compensatory Strategies: liquid wash, effortful swallow, slow rate and other general safe swallow strategies

Case Study #2

Patient is a 50 year old male presenting to the clinic with difficulty swallowing solids. He has a history of a motor vehicle accident with head injury, but is currently cognitively intact and functioning well besides recent onset of difficulty swallowing.

Past Medical History

Motor Vehicle Accident with Brain injury, shoulder injury, lung injury, and mandible broken in 2 places

Surgical History

Esophageal dilation

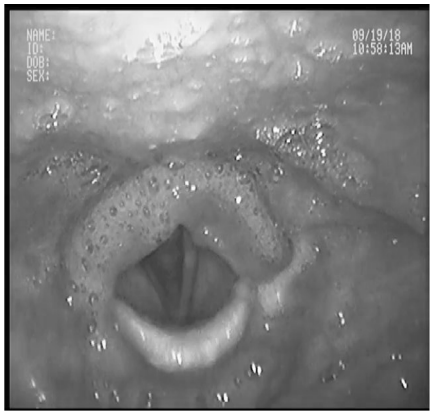
Right shoulder surgery

Tracheotomy

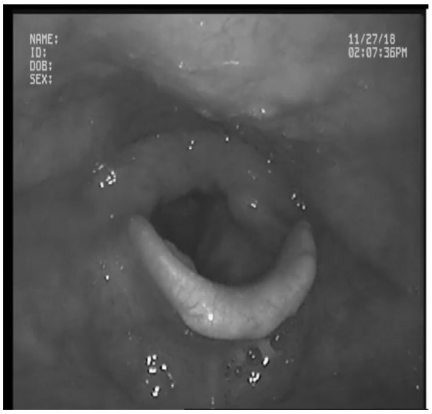
Speech Pathology Exam

- Voice: mild roughness and mild breathiness
- Oral Motor Exam: Normal movement of the tongue and palate, no asymmetry noted of the facial musculature.

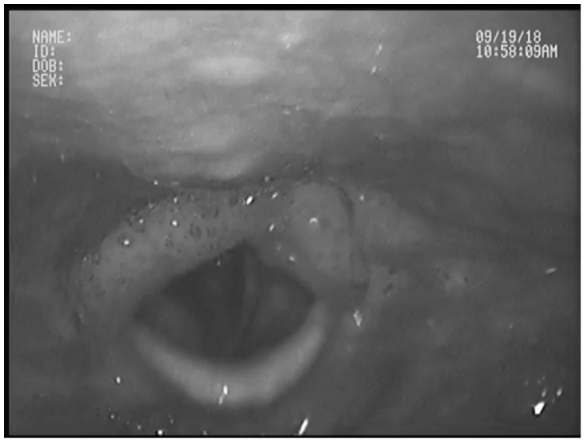
Pooled secretions before esophageal dilation



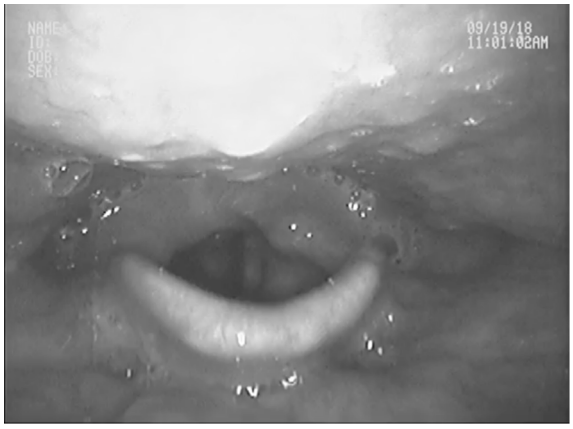
No pooled secretions after esophageal dilation



Case Study #2 Video 1



Case Study #2 Video 2



Interpretation

- Pen/Asp Scale: 6 material enters the airway and is ejected eventually
- Vallecular/pyriform sinus Residue Scale: V severe for both valleculae and pyriforms for solids

Recommendations

- Patient presenting with moderate pharyngo-esophageal phase dysphagia characterized by impaired UES opening and decreased base of tongue retraction.
- Compensatory Strategy: Chin tuck was helpful in eliminating deep penetration to the level of the vocal folds. There continued to be trace penetration into the laryngeal vestibule.
- ENT ordered barium swallow suspicious for Esophageal stenosis and pt did follow up for esophageal dilation, reporting significantly improved swallow function immediately after

Case Study #3

Patient is 47 year old female seen for voice deterioration.

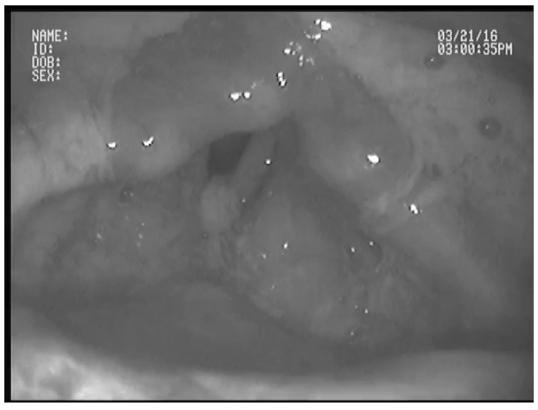
Past Medical History: Significant for MVA 20 years ago resulting in traumatic brain injury and spinal cord injury with subsequent neurological sequela from this.

Surgical History: Hysterectomy, shunt placement, tracheotomy, leg and spinal surgery.

Speech Pathology Evaluation

- Voice: severe breathiness, mild roughness
- Oral Motor Exam: Mild-moderate dysarthria with slow, imprecise speech.

Case Study #3 Video 1



Interpretation

- Penetration/Aspiration Scale: 6-7 material enters the airway and is not ejected from the trachea despite effort inconsistently
- Vallecular/Pyriform Residue: V for both valleculae and pyriform sinuses.

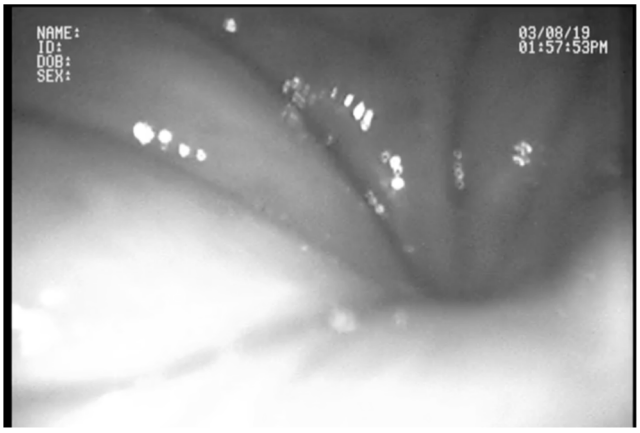
Biomechanics of Swallow

Patient presenting with severe pharyngeal phase dysphagia characterized by reduced sensation, reduced true vocal fold closure, impaired base of tongue retraction, impaired lateral/pharyngeal wall contraction, and impaired hyolaryngeal elevation. There is premature spillage and severe residue with resulting aspiration before, during, and after the swallow. Deficits are presumably from cranial nerve damage following traumatic brain injury.

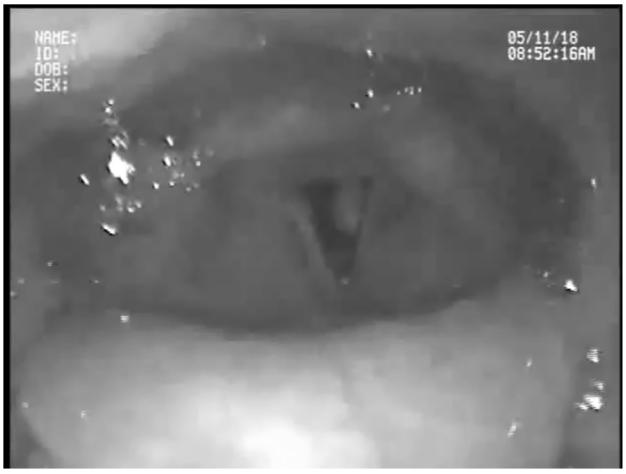
Recommendations

- ENT was not willing to complete any procedure to adduct the vocal folds in fear of compromising airway.
- Patient was unable to complete compensatory strategies due to reduced cognitive status.
- Continue with percussion vest after all meals, educated family on signs/symptoms of aspiration pneumonia.

Extra Interesting Video 1



Extra Interesting Video 2



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- 2. Ashford. J.R. 2013. Swallowing physiology through the endoscopy. SA Swallowing Services. Power Point from basic FEES course. Lecture in Nashville, TN.