

Medical University of South Carolina, Charleston, SC

Modified Barium Swallow Study

Fluoroscopic Evaluation of Swallowing Function CPT Code 92611

Reason for Study: Persistent dysphagia to solids/pills following ACDF

Referring Physician: Dr. Jones

Evaluating Clinician: Humphries, Kate

MBSImP Patient ID: D7BE92BA-A50E

Study Number: 3

Patient Name:

MRN:

Status: Outpatient, Ambulatory

Age: 73

Gender: Male

Height: 5 feet 11 inches

Current Weight: 180.0lbs

Body Mass Index: 25.1

MEDICAL HISTORY:

Primary (admitting) Diagnosis:

Vocal Fold Paresis/Paralysis-right (478.32)

Spinal Cord Injury-Cervical, open (806.1)

Fibrillation, Ventricular (427.41)

Year of Onset or Diagnosis: 2014

Comorbidities:

Hypertension (416)

Gastroesophageal Reflux (530.81)

Profound hearing loss

Current Surgical History:

Discectomy/Fusion-other

Past Medical History:

Respiratory Distress (518.82)

Cerebrovascular Accident , the etiology of which was both ischemic and hemorrhagic.

Cortical; Cerebral Aneurysm ruptured ;

Past Surgical History:

Total Hip Replacement (right)

Past Medical Treatment(s):

Respiratory Tx/Breathing Tx

Current Medications: Nexium

Over the Counter Medications: Advil

Vitamins and Supplements: Fish Oil

Drug Allergies: Morphine

Food Allergies: Nuts

Environmental Allergies: Dust, mold

Social History:

Prior Tobacco Use: cigarettes, less than 1 packs/day; Quit 2012;
Current Alcohol Use: Beer, 3 Daily;

Current (pre-evaluation) Intake/Diet:

Route: PO

Diet Grade: Puree

Liquid Consistencies: Nectar

Pain: Chronic/Ongoing reported at time of study, Neck, rated 2 on scale 0-10

Special Needs: Interpretation

Barriers to Learning: Language

SUBJECTIVE:

Patient utilizes a super-supraglottic swallow to assist with airway protection when swallowing liquids.

OBJECTIVE:

Time-out: performed at 03:03

Evaluation Start: 03:07; **Stop:** 03:10

Patient Positioning: Standing

Viewing Planes: LAT & AP

Contrast: Commercially prepared, standardized Barium Viscosities were used and graduated from thin liquid to pudding consistency; administered via teaspoon, 5 ml boluses and by cup or straw in single & sequentially swallowed boluses, as tolerated; Solid evaluated with ½ shortbread cookie/3ml ba pudding coating, as tolerated.

MBSImP Results:

Lip closure for intraoral bolus containment resulted in interlabial escape, without progression to the anterior lip. Tongue control during bolus hold resulted in posterior escape of less than half of the bolus. Bolus preparation and mastication resulted in slow, prolonged chewing/mashing but with complete re-collection. Bolus transport/lingual motion was with slowed tongue motion. Oral residue was a collection on oral structures. Initiation of the pharyngeal swallow occurred as the bolus head reached the posterior angle of the mandibular ramus. Soft palate elevation resulted in no bolus between the soft palate and the pharyngeal wall. Laryngeal elevation was decreased, with partial superior movement of the thyroid cartilage/partial approximation of the arytenoids to the epiglottic petiole. Anterior hyoid excursion demonstrated partial anterior movement. Epiglottic movement resulted in partial inversion. Laryngeal vestibular closure was incomplete, with a narrow column of air/contrast noted within the laryngeal vestibule at the height of the swallow. Pharyngeal stripping wave was present, but diminished. Pharyngeal contraction was incomplete, with presence of pseudodiverticulae. Pharyngoesophageal segment opening demonstrated partial distension/partial duration, with partial obstruction of bolus flow. Tongue base retraction allowed a narrow column of contrast or air between the retracted tongue base and the posterior pharyngeal wall. Pharyngeal residue was a collection of residue within or on pharyngeal structures. Esophageal clearance in the upright position resulted in esophageal retention with incidence of retrograde bolus flow below the pharyngoesophageal segment.

	COMPONENT Number and Descriptor	Scale	CURRENT Score and Descriptor		PREVIOUS Score and Descriptor at Time of Last Study	
1	Lip Closure	(0-4)	1	Resulted in interlabial escape, without progression to the anterior lip.	4	Resulted in bolus escape beyond mid-chin.
2	Tongue Control/Bolus Hold	(0-3)	2	Resulted in posterior escape of less than half of the bolus.	3	Allowed posterior escape of greater than half of the bolus.
3	Bolus Prep/Mastication	(0-3)	1	Resulted in slow, prolonged chewing/mashing but with complete re-collection.	3	Was only minimal chewing/mashing, with the majority of the bolus unchewed.
4	Bolus Transport/Lingual Motion	(0-4)	2	Slowed tongue motion.	4	Yielded only minimal to no tongue motion.
5	Oral Residue	(0-4)	2	Was a collection on oral structures.	4	Resulted from minimal to no clearance of the bolus.
6	Initiation of Pharyngeal Swallow	(0-4)	0	Occurred as the bolus head reached the posterior angle of the mandibular ramus.	4	Was not visible at any level.
7	Soft Palate Elevation	(0-4)	0	Resulted in no bolus between the soft palate and the pharyngeal wall.	4	Resulted in bolus escape into the nostril(s).
8	Laryngeal Elevation	(0-3)	1	Was decreased, with partial superior movement of the thyroid cartilage/partial approximation of the arytenoids to the epiglottic petiole.	3	Demonstrated no superior movement of the thyroid cartilage.
9	Anterior Hyoid Excursion	(0-2)	1	Demonstrated partial anterior movement.	2	Demonstrated no movement.
10	Epiglottic Movement	(0-2)	1	Resulted in partial inversion.	2	Resulted in no inversion.
11	Laryngeal Vestibular Closure	(0-2)	1	Was incomplete, with a narrow column of air/contrast noted within the laryngeal vestibule at the height of the swallow.	2	Was absent, resulting in a wide column of air/contrast within the laryngeal vestibule at the height of the swallow.
12	Pharyngeal Stripping Wave	(0-2)	1	Was present, but diminished.	2	Was absent.
13	Pharyngeal Contraction	(0-3)	1	Was incomplete, with presence of pseudodiverticulae.	3	Produced bilateral bulging.
14	Pharyngoesophageal Segment Opening	(0-3)	1	Demonstrated partial distension/partial duration, with partial obstruction of bolus flow.	3	Yielded no distension, resulting in total obstruction of flow.
15	Tongue Base Retraction	(0-4)	2	Allowed a narrow column of contrast or air between the retracted tongue base and the posterior pharyngeal wall.	4	Resulted in no visible posterior motion of the the tongue base.
16	Pharyngeal Residue	(0-4)	2	Collection of residue within or on pharyngeal structures.	4	Resulted from minimal to no pharyngeal clearance.
17	Esophageal Clearance (upright)	(0-4)	2	Resulted in esophageal retention with retrograde bolus flow below the PES.	4	Was minimal to none.

Oral Impairment Score: 7

Pharyngeal Impairment Score: 11

Esophageal Impairment Score: 2

Laryngeal Penetration and Aspiration:

Neither penetration nor aspiration was observed in today's study with Cookie, Pudding-thick, Honey-thick, Nectar-thick, Thin.

Structural Abnormalities Noted:

Impeded:	Redirected:	Contributed to:	Hindered:	Improved:	Decreased:	Prevented:
Cervical Hardware noted, but had no functional significance.						

ASSESSMENT:

The patient's performance in today's study indicated impairment in swallowing characterized by decreased airway protection, and bolus preparation and transport or pharyngeal clearance.

Physiologic Component	Functional Significance			
	Impeded:	Redirected:	Contributed to:	Hindered:
Soft palate elevation		bolus flow		
Anterior hyoid excursion			aspiration	
Epiglottic movement	bolus flow		aspiration pharyngeal residue	
Pharyngoesophageal segment opening			aspiration pharyngeal residue	
Tongue base retraction			pharyngeal residue	

The following compensatory strategies have not been used until today's study, but when employed, improved swallowing function:

Head Turn Right eliminated Pharyngeal Residue

The following compensatory strategies have been used in therapy as well as in today's study and improved swallowing function:

Chin Tuck eliminated Penetration, Aspiration

The following exercises have been used in therapy and improvement(s) in swallowing function was/were seen today:

Effortful Swallow – SEMG decreased Aspiration

Mendelsohn Maneuver – SEMG decreased Aspiration, Pharyngeal Residue

Masako Maneuver decreased Pharyngeal Residue

The following exercises have been used in therapy but do not appear to have had a positive impact on swallow function:

Shaker Head Lifts

PLAN:

Intake Recommendations:

Route: PO

Diet Grade: Mechanical Soft

Liquid Consistencies: Thin,

Strongly recommend use of supplements (e.g. Boost or Ensure) to maintain nutrition given increased

effort and decreased rate of PO intake.

Suggested Referrals:

The patient might benefit from a referral to: Nutrition Services

Indication for Referral: nutritional support 2ndary to weight loss

Therapy Recommendations:

Therapy will be continued

Frequency per Week: 1

Number of Weeks: 6

Clinician Assessment:

The patient presents with moderately impaired swallow function. This is improved from previous studies. Laryngeal elevation and laryngeal vestibular closure is improved and only minimal and the use of a super-supraglottic swallow and chin tuck prevents aspiration of thin liquids. PES opening remains decreased, but allows for partial passage of bolus which is improved with a Mendelsohn Manuever.

Prognosis for Improvement: Excellent given current progress and diet advancement.

Patient's Personal Goals:

To eat a hamburger.

Short Term Goals:

The patient will perform 5 repetitions of the Masako, Effortful, Mendelsohn, Shaker exercise, 5 times each daily with 80% accuracy and minimal cuing.

Long Term Goals:

The patient will tolerate the least restrictive diet to meet nutritional needs by mouth.

Clinician - Supplemental, Miscellaneous Communication:

The patient will be evaluated on an ongoing basis for diet advancement and PO safety.

Education:

Education regarding findings from today's study and plans for therapy were provided to Patient and family/caregiver through Verbal Instruction, Written Instruction, Demonstration. Understanding was expressed by the Patient and family/caregiver.

Kate Humphries, MS