Documenting and Reporting on Fiberoptic Endoscopic Evaluation of Swallow (FEES) Assessments

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Objectives

• Explain the therapeutic nature of the FEES assessment
• Make appropriate recommendations and referrals based on FEES results
• Demonstrate interpretation of FEES case studies and results

Madonna Rehabilitation Hospital

Welcome to Madonna Rehabilitation Hospital
Lincoln, Nebraska

Madonna Rehabilitation Hospital

Seeks to

• Rehabilitate those who have sustained injuries or disabling conditions to the highest level of independence possible.
• Lead research to improve rehabilitation outcomes and prevent physical disabilities through community programs.

Madonna Rehabilitation Hospital

Business Lines:

• Long Term Care Hospital
• Acute Rehabilitation Hospital
• TherapyPlus outpatient
• St. Jane de Chantal nursing home
• ProActive health and fitness
Hospital Beds

- 96 Long Term Care Hospital Beds
- 87 Acute Rehabilitation Hospital Beds (including 15-bed pediatric rehabilitation unit)
- 125 Nursing Home Beds (including 21-bed transitional care unit)

Admissions from across the country

- States that have admitted patients to Madonna (23 total)

Brain Injury

- Approximately 200 inpatients and 225 outpatients per year
- Very severe to mild
- Mild TBI Comprehensive Assessment & concussion Study
- Follow-up
- CARF Accreditation

Stroke

- Approximately 300 inpatients and 225 outpatients per year
- Severe to very mild
- Follow-up
- First in Nebraska to be CARF Accredited

Adolescent & Child Rehabilitation Program

- Birth through 18 years old
- Approximately 50 inpatients and new 175 outpatients per year
- Tech Tots
- Therapeutic Learning Center
- CARF Accreditation – Pediatric Family Centered

Now on to swallowing and FEES
Clinical Decision Making: which assessment is indicated?
(Langmore, Susan E., Endoscopic Evaluation of oral and pharyngeal phases of swallowing. GI motility online, (2006))

Prior to an Instrumental Study:
- For a FEES or MBS:
  - SLP will complete Bedside assessment
  - Must indicate voice or swallow abnormalities
  - Potential risk of aspiration
  - Further need for laryngeal imaging for vocal function

• Indications for MBS
  - Unknown medical etiology; vague symptoms; need comprehensive view
  - Visualize submucosal anatomy (e.g., cervical osteophytes)
  - Assess oral stage/base-of-tongue movement
  - UES stricture/hypertonicity?
  - Globus complaints
  - Esophageal symptoms

• Indications for a FEES (clinical reasons)
  - Visualize surface anatomy, mucosal abnormalities, resection, etc.
  - Velopharyngeal incompetence; visualize laryngeal movement/vocal fold mobility
  - Severe dysphagia; need conservative exam: visualize laryngeal movement/vocal fold mobility
  - Clinical question of secretion management: extended therapeutic exam needed/desired
  - Biofeedback is desired: therapy session

• Indications for FEES (logistic reasons)
  - Fluoroscopy not available
  - Transportation to radiology risky; medically fragile patient
  - Transportation to a hospital problematic
  - Family input desired during exam
  - Positioning problematic: contractures, quad, neck halo, obese, on ventilator
  - Concern about radiation

Adverse/Allergic Reactions for FEES
Practitioners must be able to recognize and understand appropriate treatment for the following conditions:
1. Tachycardia associated with epinephrine
2. Vasovagal response
3. Nasal inflammation
4. Nasal turbinate hypertrophy
5. Implications of blood thinners and hemophilia
6. Dosage and side effects of any nasal decongestants or anesthesia use in the procedure

Possible Contraindications for FEES
1. Patient is not sufficiently alert to be fed orally
2. Patient has severe nasal or pharyngeal stenosis
3. Patient is agitated and/or combative
4. Patient has movement disorder of sufficient severity to preclude safe completion of examination by endoscopy
5. Patient has history of epistaxis
6. Patient has a bleeding disorder
7. Patient has an acute cardiac condition that predisposes patient to cardiac irregularities
FEES Assessment

• Examination protocol developed by Susan Langmore in 2004
• 3 major components
  – Structural movement, sensory status and anatomic support for swallowing
  – Ability to swallow food and liquid
  – Response to postural, dietary or behavioral alterations

Anatomy

Normal Swallow

• 3 phases
  – Oral
  – Pharyngeal
  – Esophageal
• Structures viewed during the FEES
  – Nasopharynx
  – Oropharynx
  – Hyopharynx
  – Larynx

Case Study: normal swallow

https://www.youtube.com/watch?v=l8elCoypb28

• Normal Swallow:
  – http://www.nature.com/gimo/contents/pt1/fig_table/gimo28_V2.html

Whiteout

– Pharyngeal air space is obliterated by tissue contacting the other tissue and the bolus passing through and the light at the end of the endoscope is reflected back to the camera resulting in “whiteout”.
– After a normal swallow you should see no significant residue
Structural movement, sensory status and anatomic support for swallowing

- Altered anatomy may be from trauma, surgery, or congenital conditions
- Can have an impact on the bolus path, ability to clear the bolus, and ability to keep it out of the nose and airway.
- Foreign bodies and masses noted are referred to otolaryngology

Abnormal structure

- Cervical Osteophyte

Abnormal Structure

- Enlarged arytenoids due to NG tube

Case Study 1

- R.B. 77 y.o. male
- Dx – TBI from fall, R frontal temporoparietal hematoma with craniotomy for evacuation, respiratory failure
- Pt on vent on admit, weaned to TM during day. Unable to tolerate PMV trials.

Abnormal Structure

- Atypical Epiglottis
- Atypical larynx
- ENT consult completed – “omega epiglottis, vocal folds in adducted position”
- FEES (6/19) versus MBS (8/4)
• Status of standing secretions in pharynx
  – Amount
  – Consistency
  – Location

• Murray et al. showed that the presence of excess standing secretions within the laryngeal vestibule that are not cleared spontaneously by the patient are highly predictive of aspiration of food or liquids.

• Secretion Management
  – Oral Cares!
    – Ice chips
  • Continued PO trials
    – Assist in loosening dried secretions in pharynx
  • Are strategies successful?
    – “Hawking”, Effortful swallow, multiple swallows
• Structural movements assessed in phonatory tasks
  – base of tongue retraction
  – velopharyngeal port closure
  – laryngeal closure
  – laryngeal elevation
  – pharyngeal wall medialization.

Case Example 2
• L.B. 53 y.o. female
• Dx: Pneumonia leading to respiratory failure, vent, vocal cord paralysis, and 6 Shiley trach
• Admit diet: NPO- PEG tube

Case Example 3
• C.C. 77 y.o. male
• Dx: Left Carotid Endarterectomy
• Admit diet: NPO- NG tube

• Sensation
  – Endoscope
  – Secretions
  – Presence of residue, penetration/aspiration during the exam
Ability to swallow food and liquid

- Protocol will be up to examiner as examinations have different purposes and patients require different protocols
- Langmore’s 2004 FEES protocol:  
  - [http://www.nature.com/gimo/contents/pt1/fig_tab/gimo28_T2.html](http://www.nature.com/gimo/contents/pt1/fig_tab/gimo28_T2.html)
- Should include some standard swallows (ice chips, puree, liquids, solid) in order to make comparisons among patients easier when judging the presence and severity of spillage, residue, bolus clearance

FEES PO Setup

Abnormal findings

- Reduced ability to prepare the food orally
- Inability to initiate the swallow in a timely and coordinated manner
- Inadequate airway protection and/or velopharyngeal valving during the swallow
- Incomplete bolus clearance

Response to postural, dietary, behavioral alterations

- Once the nature of the problem is identified, examiner can begin to intervene with a variety of appropriate strategies
  - Determine safest oral diet
  - Beneficial compensatory strategies
  - Recommendations for rehabilitation techniques

Case Study 4

- A.M. 72 y.o. female
- Primary diagnosis: Pneumonia
- Secondary diagnoses: Respiratory Failure on 4/8/14
- Tracheostomy 8 Shiley, trach mask
- Patient admit diet: level 1 and nectar diet
In Conclusion:

- No matter what test is completed (FEES OR MBS), the goal is the same:
  - Identify and describe the swallow and test interventions to alleviate dysphagia.

Questions??