Videofluoroscopic Swallowing Studies

A web-based continuing education course prepared by:

When To Choose Videofluoroscopy

LENGTH: 60 minutes

OVERVIEW:

This module features case scenarios that will be used to help explore some of the factors that clinicians need to consider when deciding whether or not to order videofluoroscopy.

Learning Objectives:

At the end of this module, the clinician learner will be able to:

1) Identify reasons for sending a patient to videofluoroscopy
2) Identify situations where a videofluoroscopy is not the best approach to evaluating a patient's swallowing
3) Be able to identify alternatives to a videofluoroscopy when it is difficult to access or not suitable for evaluating a patient's swallowing
4) Identify the relative priority of cases for videofluoroscopy

Case Studies

- What are the key clinical questions that need to be answered?
- Can VFSS answer those?
  - Assuming a standard protocol?
  - What other adaptations are needed (limitations)?
- Are there any reasons to avoid VFSS?
- Is there a better type of Ax?

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Resource

- Use the blank table on the next page throughout to record your impressions as you work through the module
- For each case, you can pause the recording if you would like to test your own knowledge before the completed version is revealed

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Would a VFSS be helpful in this case?

- Mrs. Yang is a 69-year old lady who was admitted to your hospital 3 days ago due to an ischemic stroke.
- She is alert and responsive and has no difficulty with breathing or head/trunk support.
- She presents with oral motor apraxia, some word finding difficulties and visible orofacial weakness on the right side, including poor lip seal.
- A water swallow screening test revealed no signs of difficulty on single small sips, but a possible wet voice after a series of large sips.

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Would a VFSS be helpful in this case?

- Mr. Wright is a 58-year old man who was admitted to your hospital 6 days ago due to a brainstem stroke in the medulla.
- He is alert and responsive and has no difficulty with head/trunk support.
- He does not have a tracheostomy and breathes room air without need for supplementary oxygen.
- He presents with a wet, gurgly voice and spits frothy secretions into a cup every couple of minutes.
- A water swallow screening test reveals a long delay before a swallow but no coughing.

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Would a VFSS be helpful in this case?

- Mr. Turgeon is a 21-year-old man who was transferred by air ambulance to your hospital following a skiing accident 9 weeks ago. He has a C5-C6 injury resulting in quadriplegia, contusions of the brainstem, medulla, and cerebellum, multiple cranial nerve palsies, and a right vocal fold paralysis.
- Upon admission, he was intubated and an NG tube was placed for nutrition. After 6 weeks, he failed extubation and was re-intubated.
- He was assessed and determined that he would require a tracheostomy tube to maintain airway patency.
- Due to his prolonged intubation and delirium, a PEG tube was placed.
- He has now been extubated, maintaining SpO2 of 97% on supplemental oxygen (1.5L/min) via nasal cannula, and his delirium has resolved. He tells staff that all he wants is a Tim Horton's coffee.
- A clinical swallowing assessment revealed that Mr. Turgeon is able to generate a saliva swallow on command.

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Would a VFSS be helpful in this case?

- Mr Singh is a 68-year old man who is an inpatient in your stroke unit. He presents with a history of hypertension, currently in hospital being treated for multiple infarcts in the pons and medulla as determined by MRI.
- He is currently on 2L of supplemental oxygen via nasal cannula, and is self-suctioning with a Yankauer.
- He is cognitively intact and presents with a wet gurgly voice.
- Nursing reports that they gave him ice chips and a teaspoon of water and he coughed. They want to know what (if anything) he is able to eat or drink safely.

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Outpatient Follow-Up

- Over the past 8 weeks, Mr Singh has has moved from the inpatient program to day treatment on an outpatient basis.
- He has attended dysphagia therapy twice weekly, and has been doing Mendelsohn maneuvers and chin tuck against resistance in therapy and twice daily home practice.
- Clinical signs are equivocal; he sometimes still has a wet voice, and he coughs on some clinical trials of slightly thick liquid by teaspoon.
- You want to know if Mr Singh's status has changed following this course of therapy.

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Would a VFSS be helpful in this case?

- Mrs. Paredes is a 54-year old woman who has been referred to your outpatient swallowing clinic.
- She complains of a feeling of food sticking in her throat.
- She has particular difficulty with solid foods.
- She complains of a need to throat clear or cough for about 30 minutes after meals.
- Her voice quality is slightly hoarse.

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Would a VFSS be helpful in this case?

- Mrs Cardinal, a 78-year old woman, suffered a fall and required a hip replacement 6 months ago.
- During her stay in hospital, she developed pneumonia and aspiration was suspected as the likely cause.
- An SLP was consulted and performed a VFSS, which identified oropharyngeal dysphagia and silent aspiration, as well ascervical osteophytes from C3-C6. Mrs Cardinal was put on a modified diet of mildly thick liquids and pureed foods.
- Since being sent home, Mrs Cardinal's medical status has been stable.
- 6 months later, she has returned to the outpatient clinic to follow up on her hip replacement. She has asked if she can return to a normal diet. Since she has a history of silent aspiration, you are reluctant to trust clinical signs alone.

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Would a VFSS be helpful in this case?

- Mrs. Malcolm is a 76-year-old woman who is living in a nursing home.
- She has dementia.
- She is on a diet of soft and bite-sized solids and thin liquids.
- She has had two episodes of pneumonia in the last 6 months.
- Clinical observations do not reveal any coughing.
- The closest facility where VFSS can be conducted is 2 hours away.

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Would a VFSS be helpful in this case?

- Mrs Hernandez is a 92-year-old woman who is living in a nursing home. She has dementia and has great difficulty following instructions.
- She has an advanced directive stating that she declines non-oral feeding. She has a DNR and her family does not wish her to be hospitalized in the event of pneumonia.
- She is on a soft & bite-sized diet with thin liquids.
- She has had three episodes of pneumonia in the last year, and staff are concerned about recent weight loss.
- Clinical observations at bedside reveal coughing on thin liquids, and both a wet gurgly voice and repeated throat clearing during and directly after meals.

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Would a VFSS be helpful in this case?

- Olivia is a 10-year-old female with a diagnosis of Pierre Robin Syndrome, hypotonia and oropharyngeal dysphagia, who has asked her mother if she will ever be able to eat and drink like her friends.
- During her first year of life, a PEG was placed and her cleft palate was repaired. Most of her nutrition and hydration are still delivered by PEG but she enjoys some small amounts of oral intake at mealtimes with her family. Olivia has had two recent bouts of pneumonia.
- She is bright and communicative, but her speech intelligibility is poor, characterized by articulation problems and VPI.
- She experiences fatigue during meals and other ADLs, and she does best with very small bites of puree, and drinking using a straw..
- She is observed to clear her throat frequently when sipping, and she appears to work hard to clear her mouth.

(ASHA 2007)

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Would a VFSS be helpful in this case?

- Amelia is a 6 week-old baby who was born prematurely by c-section at 28-weeks gestational age, weighing 2 lbs, 2 oz.
- Amelia's mother, Vanessa, had a normal pregnancy but developed polyhydramnios (excessive amniotic fluid) beginning at 25-weeks.
- Within 24 hours of birth, Amelia displayed respiratory distress during attempts to feed.
- At 2-days of age, a nasogastric feeding tube was inserted due to concerns that Amelia was unable to safely complete a feed. Amelia's mother was trained to do oral stimulation and to encourage non-nutritive sucking to preserve the possibility of a later transition to oral feeding.
- Amelia's medical status has resolved. She weighs 4 lbs, just below the expected range for 34-weeks gestational age. The medical team feels that she is ready to leave the NICU and want to determine whether a transition to breast or bottle feeding is appropriate.

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Would a VFSS be helpful in this case?

- Amelia is now 4 years old. She feeds orally, with normal foods and has a good appetite. Amelia's parents prepare all her liquids in a nectar-thick consistency due to persisting concerns about penetration and aspiration on thin liquids. Her weight is at the 30th %ile for her age. She uses a bronchodilator inhaler to address concerns about asthma and recurrent upper respiratory infections.
- Just before her 4th birthday, Amelia underwent a chest CT for the first time. This exam revealed mild bronchiectasis.
- Amelia's medical team are wondering whether she might have a type 1 laryngeal cleft.
- Amelia's parents want to know whether it is safe to give Amelia water (without thickening) and whether Amelia will be able to drink regular liquids by the time she begins kindergarten.

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Would a VFSS be helpful in this case?

- Eve is a 2-year old girl with cerebral palsy and oral motor dysfunction.
- At two weeks old, VFSS showed aspiration during bottle feeding and poor coordination of tongue during sucking.
- Eve was placed on a G-tube for all nutrition and hydration needs.
- Now that Eve is 2, her parents would like to begin feeding her orally.
- Eve is in a wheelchair; she has use of her hands, and she is cognitively delayed, unable to follow directions.

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Would a VFSS be helpful in this case?

- Mr. Shiau is a 55-year-old man with a recent diagnosis of bulbar-onset amyotrophic lateral sclerosis (ALS).
- Over the past year, he has experienced a gradual onset of hoarseness, increased difficulty speaking in the evening, and bilateral lower-extremity muscle-twitching with mild proximal muscle weakness in the right leg.
- He reports occasional coughing on saliva, fatigue while chewing, a feeling of "tongue thickness", and that mealtimes are taking longer.

(ASHA 2007)

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Would a VFSS be helpful in this case?

- Mr. Da Silva is an 82 year old man with a history of Parkinson's disease.
- He has been admitted to your hospital from his long-term care institution due to pneumonia.
- He has moderate cognitive impairment.
- He has a very weak voice, obvious tremor in his orofacial musculature and some drooling.

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Which case goes for VFSS?

1. Mrs Kamlani is a 49-year-old female who recently underwent a knee replacement.
   - Although the surgery itself was uneventful, she experienced unexpected post-operative complications and developed acute respiratory distress syndrome.
   - She was sent to the ICU, and after failing extubation, a tracheostomy was performed.
   - She is now medically stable and alert, her cuff is deflated, and the physician is anxious to begin oral feeding.
   - A blue dye test was performed, and showed no evidence of blue colouring in suctioned secretions over 24 hours.
   - With finger occlusion of the tracheostomy, she can phonate and cough, but both are noted to be weak.

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Which case goes for VFSS?

2. Mr Cohen is a 66-year old man who had an ischemic stroke two weeks ago; he initially presented with moderate expressive aphasia and visible right sided weakness.
   - Upon admission, a VFSS exam indicated he aspirated thin liquids, but had a safe and efficient swallow on all other textures.
   - Over the last two weeks, his status has improved; the right sided orofacial weakness has almost entirely resolved and he only presents with weakness in his right arm and leg.
   - A water swallow screening test revealed coughing on large volumes of thin liquid.
   - Mr Cohen would like to have coffee with his meals and his wife is requesting a repeat VFSS to determine whether this is safe.
   - You would like to know whether he can be upgraded to a full diet, and what treatment interventions might be useful.

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Which case goes for VFSS?

3. Ms Porter is a 58-year old woman who has been referred to you by an ENT due to complaints of globus sensation.
   - She reports a feeling of solid foods sticking in her throat, particularly meat, and she points to the sternal notch when asked where she feels the food sticking.
   - She also complains of a need to throat clear or cough during meals, and she reports being frustrated by the large amounts of water it takes to be able to wash food down.
   - Her voice quality is normal.

(ASHA 2007)

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Which case goes for VFSS?

4. Mrs Sankaran is an 89-year-old woman who was admitted to the hospital with a large left hemisphere bleed following a fall.
   - Upon admission, she was too drowsy for an assessment at bedside so she was ordered NPO. She was unable to be roused for a subsequent assessment so she remained NPO.
   - After 48 hours, a joint SLP and dietitian assessment found that she was still not ready to begin oral feeding and recommended continuation of the NG tube feeding.
   - It is 12 days later and discharge planning has begun. Eligibility for a nursing home is contingent on discontinuation of the NG feeds.

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Key Messages

- VFSS is the gold standard, used to:
  - provide evidence to support differential diagnosis
  - evaluate anatomy for structural anomalies
  - identify aspiration (and response)
  - identify post-swallow residue
  - observe and describe the physiology of the oropharyngeal swallow and determine why aspiration or residue are occurring
  - determine the suitability and effectiveness of specific interventions
  - evaluate treatment outcomes

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Key Messages

- In considering whether videofluoroscopy is indicated, the following questions are helpful:
  - What are the key clinical questions that need to be answered?
  - Can VFSS answer these questions (assuming a standard protocol)?
  - What adaptations may be needed?
  - What limitations exist?
  - Is there an alternative/better type of assessment that may be more appropriate?

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Key Messages

- Factors that may impact your decision:
  - The number of VFSS you can schedule per day/week
  - Patient acuity and ability to tolerate the procedure, including transport
  - Whether alternatives exist (e.g., FEES, clinical observation)
  - The urgency of collecting information to guide treatment decisions (either swallowing or other treatment)
  - Importance of collecting video evidence of impairment for documenting severity or for education of client and family

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KNOWLEDGE CHECK

Key Clinical Question(s)	Can VFSS answer the key clinical question?	Limitations or adaptations needed?	Reasons to avoid VFSS?	Is there a better or alternative assessment tool?

KNOWLEDGE CHECK ANSWER KEY

Use the blank table including in this Study Guide throughout to record your impressions as you work through the module.

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EXPAND YOUR KNOWLEDGE

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