



Speech Pathology and Respiratory Care April 11, 2013

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How can Speech Therapy help?

1

Respiratory Compromise and Swallowing

Swallowing is a complex sequence of carefully timed oropharyngeal executions. A breakdown in any level of oropharyngeal function may compromise a person's airway and respiratory function.

- Penetration of airway: Food/liquid enters the laryngeal vestibule, but does not travel inferiorly below the vocal folds
- Aspiration: Food/liquid passes below the level of the vocal folds

2



“Red Flags” for Aspiration

Inability to handle own secretions is a 100% indicator of aspiration.

- Red Flags:
 - ◆ orders to “NT suction” or “suction PRN” in absence of trach
 - ◆ Wet or rattling sound to breathing at the level of the larynx
 - ◆ Palpable rattle at the level of the larynx.

3



Signs and Symptoms of Aspiration

Signs and Symptoms that occur while or shortly after oral trials are given:

- Cough
- Throat clear
- Wet vocal quality
- Clear, thin nasal discharge
- Watery eyes
- Oxygen desaturation
- Increased respiratory effort



“Silent” Aspiration

- Aspiration with NO cough or other obvious s/s. Sensory response is impaired; no protective mechanism to notify the body to cough to eject aspirated material
- *May* be suspected at bedside, provided that clinical picture supports likelihood of aspiration.
- Can only be proven with extra diagnostic testing, such as Modified Barium Swallow Study (MBS) or Flexible Endoscopic Evaluation of the Swallow (FEES).
- A patient who is diagnosed with Silent Aspiration should not be passed for diet upgrade without passing diagnostic testing.

5



Video – Silent Aspiration

<http://www.youtube.com/watch?v=1sFNMk87558>



Trach Population – Not Ventilator-Dependent

Prior to PMV trials:

- Should be able to tolerate being on Trach Shield
- Should be able to tolerate cuff deflation
- Should be able to demonstrate satisfactory air passage when trach is occluded with the finger.
 - ◆ Bonus if they can produce voice with finger occlusion!

7



PMV Trials

If patient has been suctioned (if needed), and requisite tolerances are demonstrated, leave cuff deflated, and PMV is applied

- Patient is monitored carefully for tolerance.
 - ◆ Maintenance of oxygen saturations
 - ◆ Absence of other signs of distress
 - SOA
 - Facial reddening
 - Extreme anxiety
 - Excess coughing
 - Buildup of secretions

8



Vocal quality is assessed by SLP

- Poor vocal quality may indicate vocal fold (VF) edema, paresis, paralysis, injury, etc.
 - ◆ Depending on length of time patient has been intubated, it could take longer for poor vocal quality to resolve.
 - ◆ If poor vocal quality persists longer than expected by SLP, laryngoscopy or videostroboscopy may be indicated. ENT consult may be indicated.

9



Evaluation of Voice and Swallow in Ventilator Dependent Trach Population

- Require collaboration with Respiratory Care to place the patient on speaking valve, or Passy Muir Valve (PMV) "in line" with the vent.
- Vent settings are adjusted by Respiratory Care to allow cuff deflation and PMV placement.
- Monitoring for patient tolerance is a joint effort between the disciplines.
- Vocal quality and swallow is assessed by Speech Pathologist (SLP)

10



Swallowing

Patient is suctioned one more time if needed prior to first trials by mouth. PMV is put back on.

- WHY PMV with swallow?
 - ◆ PMV placement “normalizes” pressure in the pharynx, allowing for more complete clearance of food/liquid from pharynx with swallow.
 - ◆ Pharyngeal Sensation is improved with “normalized” pattern of airflow, providing for a swallow response that is more prompt.

11



Swallowing Evaluation with PMV

1. “Colored bolus” (colored food/liquid of a particular consistency) is provided.
2. Patient is suctioned. Suction return is examined carefully for evidence of the color in the bolus
3. If there is evidence of the color in suction return, that consistency is discontinued. Another consistency may be attempted, depending on multiple factors and the SLP’s clinical judgment.
4. If there is no evidence of the color in suction return, trials are expanded until a safe diet consistency is determined. Suctioning occurs between each consistency, to ensure that each individual consistency is assessed completely.

12



Oral Diet and the Trach Population

Orders for diet are written by SLP, including texture of foods and liquids, positioning of patient, placement of PMV for all PO, and suctioning by RN after each meal for the first 24-48 hours, with special attention to examining the content of suctioned material for evidence of food given. If evidence of food is noted in suctioned material, the patient is to be NPO until reassessed by SLP.

13



Vocal Cord Dysfunction (VCD)

Also known as:

- Paradoxical Vocal Fold Motion (PVFM)

What is it?

- The tendency of the vocal folds to *close* when a person is attempting to breathe.

***A patient can have both asthma and VCD.
Having VCD does not exclude one from
having asthma, and vice versa.***

14



News Story

<http://www.youtube.com/watch?v=CObQjAf87cE>

15



Diagnosis of VCD

- The literature indicates that definitive diagnosis takes place during laryngoscopy, when the vocal folds are visualized to close upon inhalation or exhalation
 - ◆ However, patients are often asymptomatic unless exposed to their triggers
- Differential diagnosis is the most common method of determining VCD is present
 - ◆ Physician diagnoses based on patient's signs and symptoms, along with careful documentation of attempts to manage other medical respiratory diagnoses such as asthma, COPD, etc..
 - ◆ Basically, if asthma treatment fails, or starts to become less effective, AND the patient is describing s/s VCD, a physician may suspect VCD. PFT is often helpful in supporting VCD diagnosis.

16



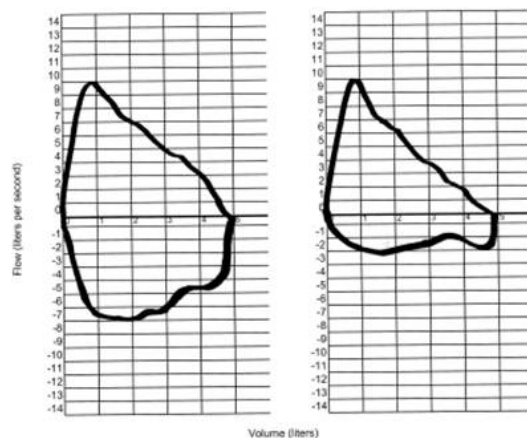
PFT and VCD

PFTs may show an aberration in flow loop, if a patient is in an active episode of VCD.

- Inspiratory, or expiratory, or BOTH flow loops may be depressed/flattened.
- VCD can occur on inspiration or expiration, or both, though it is most common on inspiration.

17

PFT and VCD



Flow Volume Loop. The left side depicts normal expiratory/inspiratory flow loop. The right depicts normal expiratory loop with "flattering" of the inspiration.

Laryngoscopy

<http://www.youtube.com/watch?v=gmNwpJf1zUQ>

19



ED visits and VCD – misdiagnosis?

- Patients have occasionally been intubated or had emergency tracheostomies for VCD episodes
- Epinephrine is often given in the field or at ED, which may or may not yield results
- Anxiety medication is often given in ED
- Nasal cannula is often placed in ED, and patient is instructed to breathe through the nose.

20



Signs and Symptoms of VCD

- “It feels like my throat is closing off.”
- “My chest gets tight, and then my throat closes off.”
- “My asthma medicines do not work (or only occasionally work).”
- “My throat makes a funny/squeaky sound when I breathe.” (stridor)
- “I cough when I’m trying to breathe.” (only with specific episodes with triggers, and when the cough is unproductive and described to be originating in the throat)
- “It feels like there’s something in my throat.”

21



VCD Triggers

- Reflux (may be symptomatic, as in acid reflux/heartburn, but is usually asymptomatic, such as with Laryngopharyngeal Reflux (LPR))
- Extreme temperature (cold/hot weather or cold/hot air)
- Humidity (shower, weather)
- Dust or other allergens
- Odors
 - ◆ Cleaning products, rubbing alcohol, vinegar, bleach, laundry detergent, candles, perfume, cigarette smoke, fireplace smoke, vehicle exhaust/gasoline, flowers, etc..
- Physical activity
 - ◆ Walking, running, stairclimbing, bicycling, lifting heavier items
- Stress/Anxiety

22



VCD Evaluation and Treatment

- SLP evaluates patient and takes a detailed medical history and history of present illness, as well as social/work history
- SLP encourages the patient to detail the problem in his/her own words
- Vocal hygiene is emphasized
- Cough reduction strategies, if appropriate, are taught to patient
- Relaxed Throat Breathing is taught in hierarchical stages, beginning in supine position and extended to the highest level of activity that the patient is able to physically achieve. The breathing strategy is tailored for the individual needs and capabilities of the patient.

23



Helpful Information – Resources

<http://www.aafp.org/afp/2010/0115/p156.html> - good resource for basic information – could even refer some patients to this site.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2599980/> - better resource for professionals. Includes history of VCD and very nice tables (Tables 1 & 2) detailing symptoms associated with VCD vs. asthma. Beware of assuming the primary trigger is stress or psychological factors.

