Behavioral Treatment for Paradoxical Vocal Fold Motion Disorder (PVFMD) & Chronic Cough (CC)

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Behavioral Intervention

Chronic Cough

Paradoxical Vocal Fold Motion Disorder (PVFMD)

What does therapy involve?
The Speech-Language Pathologist’s (SLP) Role

- Education
  - Vocal hygiene
  - Psycho-educational counseling

- Resolution and prevention of symptoms
  - PVFMD: Respiratory Retraining Therapy
  - CC: Cough Suppression Therapy

- Improve QOL
Chronic Cough

Behavioral Treatment
Important!

Combination of pharmaceutical and behavioral intervention = ENT and SLP team approach
20% of chronic cough is refractory to traditional pharmacological treatment …
Appropriate Patients

- Cough
  - lasts > 3 weeks
  - No underlying cause
  - Dry, non-productive
  - Starts as tickle or sensation in throat

- Concomitant pulmonary disease not uncommon

- Quality of life (QOL) affected
Cough Triggers

- External
  - noxious smells/fumes (i.e. gas, smoke)
  - temperature/weather change
  - exercise

- Internal
  - PND
  - GERD/LPR

- Psychological
  - Stress/anxiety
Chronic Cough: Clinical Case

- Post-URI
- OTC Cough Rx not helping
- Productive → dry
- Coughing Fits
- Lightheadedness or Incontinence
- Chemical and Fume Sensitivity
Behavioral Treatment

- Education
- Cough Suppression Therapy
- Vocal hygiene training
- Psycho-educational counseling

Vertigan et al., 2007
Cough Suppression Therapy

Education

• Lack of physiological benefit

• Negative side effects of repeated coughing

• Goals of behavioral management

• Capacity for voluntary control of cough
Cough Suppression Therapy

Exercise Goals

• Identify triggers and warning sensations
• Prevent initiation of cough
• Resolve cough - substitute competing responses
Cough Suppression Therapy

Preventative techniques

• **BEFORE** cough starts
  – Swallow – ice water, juice, something non-caffeinated
  – Hard candy – No mint and/or menthol
  – Hold breath/count in head
  – Hard, dry, “cartoon-ish” swallow
Cough Suppression Therapy
Reactive Techniques

• Anchor & bare down

• 3 bursts of audible & powerful EXHALE
  – “s”, “f”, “sh” sound, or pursed lips

• Silent INHALE:
  – Through nose or pursed lips
Cough Therapy:
Psycho-educational counseling

• Increases adherence and motivation

• Validates concerns

• Discuss emotional issues as triggers

• Perception is real; need is not

Vertigan, 2011; Blager, 2003
Paradoxical Vocal Fold Motion Disorder

Behavioral Treatment
PVFMD …

...or ...

- Vocal cord dysfunction (VCD)*
- Functional upper airway obstruction
- Spasmodic croup
- Irritable larynx syndrome
- Pseudo-asthma
- Factitious asthma
- Episodic laryngeal dyskinesia
- Emotional laryngeal wheezing

*Most commonly used
Appropriate Patients

- Chief complaint: dyspnea
- Symptoms:
  - Trouble - inhalation
  - “straw” sensation
  - Throat/neck tightness
  - Noisy breathing (stridor)
- Concomitant symptoms & complaints:
  - Cough
  - Hoarseness
PVFMD Triggers

• Environmental
• Internal (LPR, PND)
• Exertion
• Psycho-social
• Lower airway disease
The Challenge:

Most of the time patients come into the clinical when asymptomatic ...
Respiratory Retraining: Education

- Anatomy and physiology
- Vocal Hygiene
  - Laryngeal irritation & phonotrauma
  - Systemic vs. surface hydration
- Increase awareness of triggers
- Psycho-educational counseling
Respiratory Retraining Exercises

*Exhale* **FIRST**, with **ONE** of the following variations:

a. pursed lips  
b. “S” sound  
c. “F” sound  
d. “SH” sound …  

… Count (variable) … Abdomen **IN**

**THEN**

*Inhale* through, **ONE** of the following variations:

a. nose (as if smelling a rose)  
b. pursed lips (*think*: really thick milkshake through really thin straw)  

…  

… Count (variable) … Abdomen **OUT**
Respiratory Retraining
Exercises

• Goals –
  – Patient to pick **ONE** variation on inhale and exhale
  – Practice to automaticity
  – Variations with counts
  – Rescue breathing vs. recovery breathing variations
Why Do Exercises Work?

- Not sure! (Controversial)
  - Alters biomechanics
    - Lowers larynx
    - Depresses posterior tongue
    - Reduces tongue tension
    - ABducts VF
  - Produces back pressure
- Change of focus
Caution: Concomitant Lower Airway Disease ...
Lower Airway Disease

- 30% of PVMFD population; CC unknown
- Examples
  - Asthma
  - Obstructive Sleep Apnea (OSA)
  - COPD/Emphysema
  - Chronic Bronchitis
  - Pulmonary fibrosis
  - Pulmonary hypertension
  - Tracheobronchomalasia
**Upper vs. Lower Airway Disease: Steps towards Differential Diagnosis**

<table>
<thead>
<tr>
<th></th>
<th><strong>PVFMD</strong>*</th>
<th><strong>Asthma</strong>*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Timing of Symptoms</strong></td>
<td>Immediate (i.e. Less than 5 minutes after beginning exercise)</td>
<td>Gradual (i.e. 5-10 minutes or more after beginning exercise)</td>
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<tr>
<td><strong>Tightness</strong></td>
<td>In throat</td>
<td>Middle or lower chest</td>
</tr>
<tr>
<td><strong>Difficulty Breathing</strong></td>
<td>On inhalation</td>
<td>With exhalation</td>
</tr>
<tr>
<td><strong>Noisy breathing</strong></td>
<td>Stridor (on inhalation)</td>
<td>Wheezing (on exhalation)</td>
</tr>
<tr>
<td><strong>Recurrence</strong></td>
<td>Symptoms can occur immediately and more severely when trigger resumes</td>
<td>Symptoms tend to be less severe when trigger removed or bronchodilators are used</td>
</tr>
<tr>
<td><strong>Recovery Time</strong></td>
<td>May take less than 10 minutes</td>
<td>Usually takes up to an hour without medication</td>
</tr>
<tr>
<td><strong>Medications</strong></td>
<td>Bronchodilators won’t help</td>
<td>Bronchodilators will help</td>
</tr>
</tbody>
</table>

* Cough and hoarseness can occur in both PVFMD and Asthma

*Allergy & Asthma Today, Volume 6, Issue 1*
Clinical Case: Patient A
Exercise-Induced PVFMD

Young (10-25 yrs)  Female

Ambitious  Straight “A” Student

Competitive Athlete  Dyspnea hindering performance

Asthma Diagnosis (inhalers don’t help)
Clinical Case: Patient B

Multi-factorial PVFMD

Lower Airway Disease

Food Allergies

Multiple Chemical Sensitivity

Medically Unexplained Disorders (MUD)

Medically Compromised

Psychological Diagnosis
Concomitant Disorders

Goals in Therapy:

- Minimize severity of symptoms
- Improve QOL

...But Will **NOT** resolve dyspnea or cough symptoms
Treatment Outcomes

• Measured by objective tools:
  – *Dyspnea Index*
  – *Cough Severity Index*

• Patient interview
  – Percent improvement
  – QOL perception
  – Areas of improvement needed
Thank You!

*gasp*

*cough*

*cough*
Dyspnea Index (DI)

Name:  ____________________________________________
Date:  __

These are some symptoms that you may be feeling. Please circle the response that indicates how frequently you experience the same symptoms (0 = never, 1 = almost never, 2 = sometimes, 3 = almost always, 4 = always)

1. I have trouble getting air in. 0 1 2 3 4
2. My breathing problem causes me to restrict my personal and social life. 0 1 2 3 4
3. My shortness of breath gets worse with stress. 0 1 2 3 4
4. The change in weather affects my breathing problem. 0 1 2 3 4
5. My breathing gets worse with stress. 0 1 2 3 4
6. I have to strain to breathe. 0 1 2 3 4
7. It takes more effort to breathe than it used to. 0 1 2 3 4
8. My breathing problem upsets me. 0 1 2 3 4
9. My shortness of breath scares me. 0 1 2 3 4
10. My breathing problem makes me feel stressed. 0 1 2 3 4
Cough Severity Index (CSI)

Name: _______________________________________

Date: ___ / ___/ ___

These are some symptoms that you may be feeling. Please circle the response that indicates how frequently you experience the same symptoms (0 = never, 1 = almost never, 2 = sometimes, 3 = almost always, 4 = always).

1. My cough is worse when I lay down. 0 1 2 3 4
2. My coughing problem causes me to restrict my personal and social life. 0 1 2 3 4
3. I tend to avoid places because of my coughing problem. 0 1 2 3 4
4. I feel embarrassed because of my coughing problem. 0 1 2 3 4
5. People ask, “What’s wrong?” because I cough a lot. 0 1 2 3 4
6. I run out of air when I cough. 0 1 2 3 4
7. My coughing problem affects my voice. 0 1 2 3 4
8. My coughing problem limits my physical activity. 0 1 2 3 4
9. My coughing problem upsets me. 0 1 2 3 4
10. People ask me if I am sick because I cough a lot. 0 1 2 3 4
Diagnosing Severity

- Inspiration (I)/Expiration (E)
  - WNL/Mild* (< 50%)
    - 1
  - Moderate (≥ 50%)
    - 2
  - Severe (VF's touching)
    - 3

*suspected concomitant lower airway problem (twitchy and/or auto)

Full Abduction
Patients are unusually asymptomatic in clinical setting, making diagnosis challenging (e.g. COPD, Asthma).