

**Drop the Inhaler:
Vocal Cord Dysfunction**

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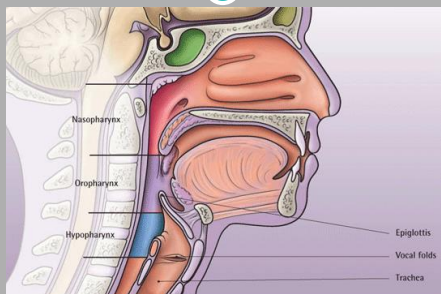
Disclaimers/Conflicts of Interest

I have NO conflicts of interest,
nor do I have any relationships,
financial or otherwise,
to disclose.

Clinical Scenario

- 20 yo female soccer midfielder
- First half of a late season conference game
- Develops shortness of breath, struggling
- Audible sounds with inspiration
- Anxiety, fear, sense of doom, panic
- Asthma?
- Cardiac Event?
- Sickle Cell Crisis?
- Vocal Cord Dysfunction?

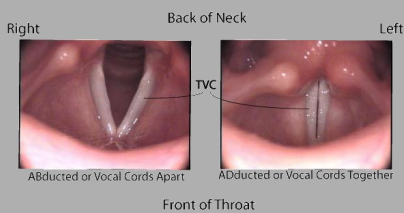
Anatomy



Source: http://lib.ansp.edu/ansp/wp-content/uploads/2012/02/02121_010_7_1a.gif

Vocal Cord Function/Dysfunction (VCD)

- Normal
 - Inspire/Expire = ABducted
 - Phonation = ADducted
- VCD
 - Inspiration = ADducted
 - Posterior Gap



Source: http://lib.ansp.edu/ansp/wp-content/uploads/2012/02/02121_010_7_1a.gif

AKA

- Pseudoasthma
- Emotional Laryngeal Wheezing
- Psychogenic Stridor
- Episodic Paroxysmal Laryngospasm
- VCD-EILO (Vocal Cord Dysfunction - Exercise Induced Laryngeal Obstruction)

- **Paradoxical Vocal Fold Motion (PVFM)**

Epidemiology

- Incidence: 2-12% of dyspneics
- Female:Male = 2:1
- Adults = 70%

- **Differential Diagnosis (in addition to above):**
 - Anaphylaxis, angioedema, epiglottitis, laryngomalacia, croup, vocal cord paralysis, foreign body aspiration

Signs and Symptoms of VCD

- Vocal cords inhibit inspiration (close, not open)

- SOB – Shortness of Breath
- Neck or Throat Tightness
- Coughing/Clearing
- Sudden Drop in Exercise Performance
- **STRIDOR**
 - High-pitched, grating/harsh, on Inspiration

- “Breathing through a straw”

Causes of VCD - Triggers

- Similar to Asthma Triggers:
 - Exercise (Outdoors worse)
 - Inhaled Irritants (Dust, smoke, chemicals)
 - GERD (Reflux)
 - Psychological (Stress, anxiety, depression, abuse, PTSD, panic attacks)

Work-up

- History and Clinical Exam
- Laryngoscopy
- Pulmonary Function Testing (Pre/Post Inhalers)
- Difficulty: Timing is crucial and random

VCD vs. Asthma

VCD	Asthma
<ul style="list-style-type: none">• Stridor<ul style="list-style-type: none">○ INspiration○ High-Pitched, grating○ From throat (tightness)• Rapid Onset (Early)• Rapid Recovery• Inhalers ineffective	<ul style="list-style-type: none">• Wheeze<ul style="list-style-type: none">○ EXpiration○ From Chest (tightness)• Cough• Gradual Onset (Late)• Gradual Recovery• Inhalers effective

Normal Vocal Cord Motion



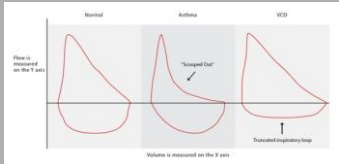
Video Courtesy of Timothy O'Brien, M.D.

Vocal Cord Dysfunction



Video Courtesy of Timothy O'Brien, M.D.

Pulmonary Function Tests



<http://csmr.org/health-education/asthma/asthma-2014-01-20-asthma-vcd-2014-01-20/>

Treatment

- After ruling out other medical conditions:
 - Eliminate triggers
 - Consultation with SLP
 - Psychological
 - Pressure Points
 - Relaxation
 - Biofeedback
 - Botox

Thank You!



Additional References

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