

**PROBLEM-BASED LEARNING:
AN INTERACTIVE CASE DISCUSSION OF
AN ATHELETE w/ EXERCISE INDUCED
DYSPNEA**

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FINANCIAL DISCLOSURES

- NONE RELEVANT TO TODAY'S TALK

OBJECTIVES

- To discuss the differential diagnoses of a patient with exercise-induced dyspnea.
- To understand the evaluation and management of this patient.

HISTORY

- **Vicki D.** is a 15 year-old Caucasian female competitive soccer player who presents to your office with a history of “difficulty breathing and wheezing” occurring during her games over the last few months. Her primary care physician recently placed her on a combination inhaler (fluticasone 250 mcg/salmeterol 50 mcg Diskus), 1 inhalation twice daily after a trial on albuterol inhaler 2 puffs, 10 minutes prior to her games did not help. Despite this new inhaler, she is still being taken out of games due to her breathing problems.

HISTORY (cont'd)

- She is accompanied by both of her parents, who are very concerned that this problem will affect her potential to be recruited for a college soccer scholarship.
- Social History-“well-adjusted” teen ager; A+ student; great athlete.

HISTORY (cont'd)

- Past Medical History, Review of Systems, Family History and Physical Exam are all unremarkable. She's never had breathing problems before and has no Family history of allergies or asthma.

IMPRESSIONS

- 1.

- 2.

- 3.

DIFFERENTIAL DX of DYS/PNEA w/ EXERCISE

- EIB
- VCD/EILD
- DECONDITIONING
- LARYNGO or TRACHEOMALACIA
- GERD/LPR
- E.I.ANAPHYLAXIS
- RESTRICTIVE LUNG DZ. (OBESITY, INTERSTITIAL)
- CARDIAC ETIOL.

EVALUATION

- 1.

- 2.

- 3.

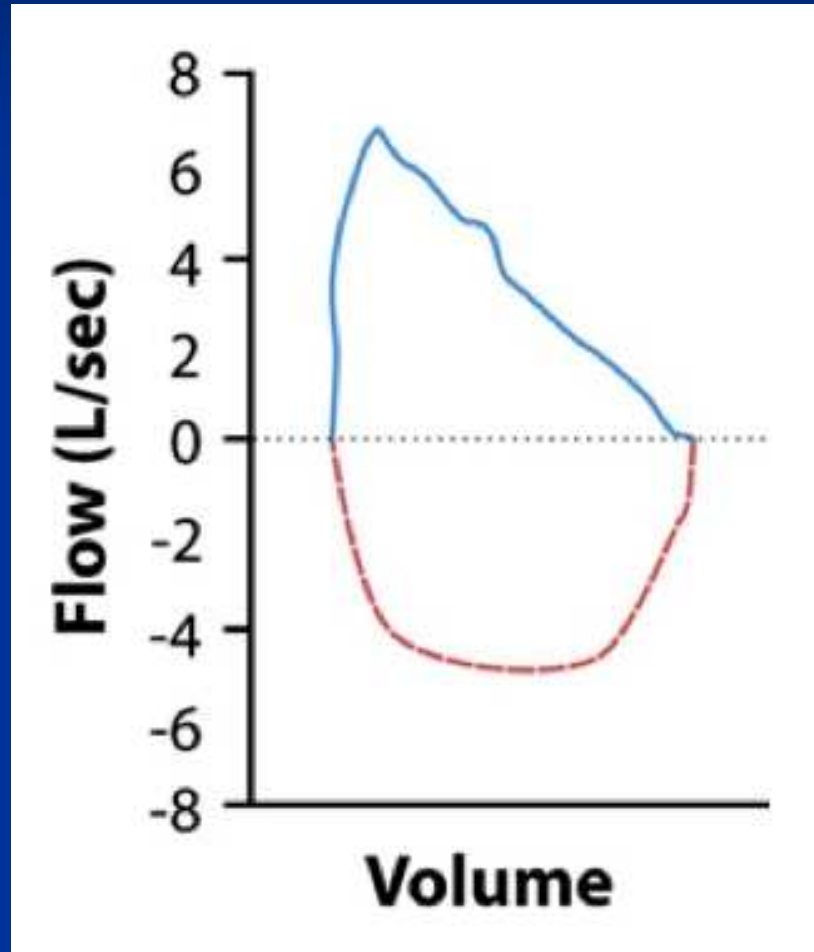
TEST RESULTS

■ CXR- Normal

■ SPIROMETRY

■ BASELINE		POST
B.D.		
■ FVC	100 %(of predicted)	+ 2%
■ FEV1	98% (of predicted)	+ 2%
■ FEV1%	90%	0
■ FEF 25-75	85% (of predicted)	+ 1%

FLOW VOLUME LOOP



EXERCISE CHALLENGE

- EXERCISE CHALLENGE TESTING
w/FLOW VOLUME LOOPS...
- FOLLOWED BY IMMEDIATE
NASOPHARYNGOSCOPY WAS NORMAL.
- METHACHOLINE CHALLENGE TESTING
WAS ALSO NORMAL.
- SO, WHAT DO YOU DO WITH THIS
HISTORY, BUT ALL NORMAL TESTS???

CHARACTERISTICS OF E.I.B.

- OCCURS IN 90% OF ASTHMATICS
- ONSET OF SX USUALLY > 5 MIN.
- MORE DIFFICULTY ON EXHALING
- USUALLY BLOCKED BY ALBUTEROL PRE-TX
- LUNG FUNCTION IS USUALLY NORMAL AT REST
- IF LUNG FCN. IS ABNL, MAY NEED ICS DAILY
- FeNO MAY BE HELPFUL
- GOLD STANDARD DX:
EXERCISE CHALLENGE TESTING ↓ FEV1 ≥ 10%
(MANNITOL TESTING NOW IN YOUR OFFICE)

VOCAL CORD DYSFUNCTION

- a disorder that occurs when the vocal cords paradoxically adduct upon inspiration when they should abduct.
- symptoms can include dyspnea, noisy breathing, inspiratory stridor, chest or neck tightness, cough and sometimes a feeling of panic.
- VCD can co-occur in patients diagnosed with asthma.

VCD



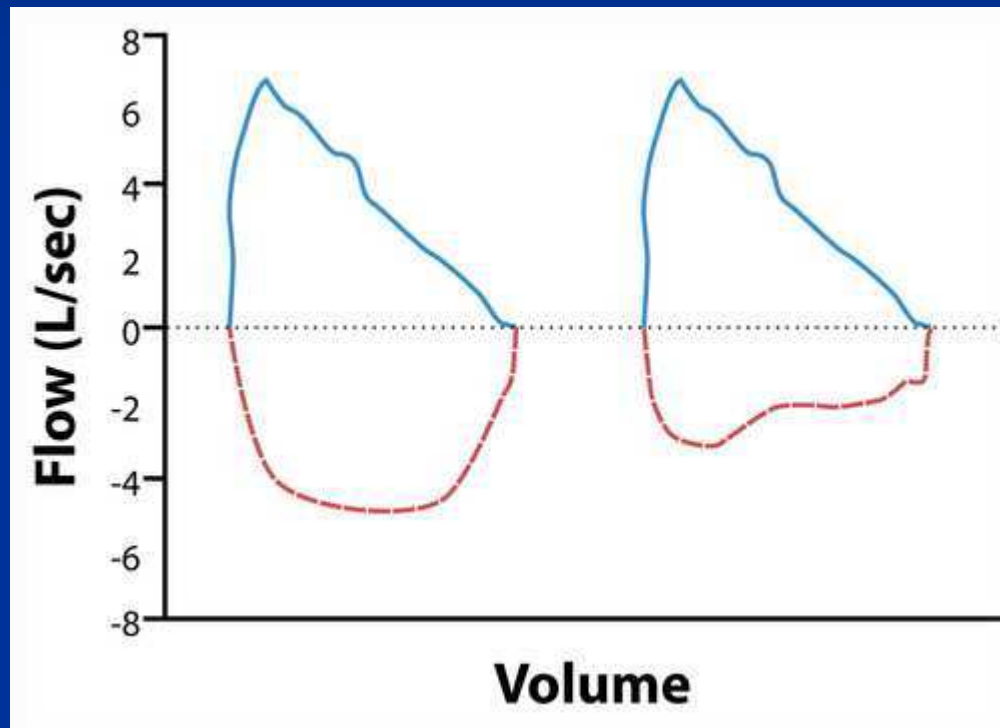
CHARACTERISTICS OF V.C.D

- OFTEN NO HX OF ASTHMA OR ALLERGIES
- ONSET WITHIN SECONDS TO MINUTES
- MORE DIFF. "GETTING AIR IN THAN OUT"
- NOT BLOCKED BY ALBUTEROL PRE-TX
- STEREOTYPE OF "TYPE-A" TEEN-AGE GIRL
- FLOW VOLUME LOOPS MAY BE "CLIPPED"
- LUNG FUNCTION IS USUALLY NORMAL
- GOLD STANDARD DX: EX. CHALLENGE w/
NASOPHARYNGOSCOPY
- MAY BE PERFORMANCE ANXIETY OR A
CONVERGENCE REACTION

TRIGGERS OF VCD

- -exercise
- -stress
- -performance anxiety
- -allergies
- -GERD/reflux
- -asthma
- -laughing/crying
- -fragrances
- -extreme temperatures
- -wind/brass instruments

INSP/EXP FLOW VOL. LOOPS



GOLD STND DX VCD

- EXPENSIVE TO PERFORM EX. CHALLENGE AND COORDINATE AN ENT/ALLERGIST'S NASOPHARYNGOSCOPY IMMEDIATELY FOLLOWING
- TIME CONSUMING
- PARENTS/PATIENTS MISS WORK/OR SCHOOL
- UNPLEASANT EXPERIENCE
- NOT ALWAYS ABLE TO PROVE VCD

GOLD STND DX VCD



VIDEOTAPING FOR DX VCD



Davis RS, et al., Use of Videography in the diagnosis of exercise-induced vocal cord dysfunction: A case report with video clips. *J Allergy Clin Immunol* 2007;119:1329-31.

TREATMENT

- MOST EFFECTIVE IS WITH A QUALIFIED SPEECH THERAPIST
- PROPER BREATHING EXERCISES NEED TO BE PRACTICED REGULARLY
- STRATEGIES TO DEAL WITH ANXIETY/PERFORMANCE ANXIETY
- SOMETIMES PSYCHOLOGIST OR PSYCHIATRIST CONSULTATION

ANY QUESTIONS?

