Sports Shorts Case Study
Vocal Cord Dysfunction (VCD)

Jared Miller, MD
Cincinnati Children’s Hospital Medical Center

Chief Complaint
Shortness of breath while running

History of Present Illness: 16 year old female presents for evaluation of difficulty breathing during exercise. Patient is a cross country runner in 10th grade. Patient reports difficulty breathing with running for 3 months, more specifically during 5k competitive races. She describes the event as feeling normal for 1-1.5 miles but then will develop chest tightness and difficulty breathing air in. This continues until the end of the race and will worsen once the race is finished to the point where her father can hear audible stridor and the patient feels like she may collapse. She has never passed out. Dad will try to hold her arms above her head to help ease her breathing, which does not help. Patient will walk around and focus on breathing, which tends to improve after about 10 minutes. These episodes have occurred sporadically in the past, but have recently worsened and become more consistent. The episodes do not occur during practice, which consists of 8-10 mile runs and do not occur during any other events such as weight-lifting, test-taking or other stressful situations.

Past Medical History
Juvenile Myoclonic Epilepsy. She is followed by Neurology and has been doing well on Keppra.

Past Surgical History: appendectomy 2012

Family History
Mother with history of anxiety and depression

Social History
Patient is an A-B student and always wanting to do better. She reports pushing herself hard in school and athletics. She admits to putting stress on herself to do better. She endorses some anxiety now with races given these episodes. Father was an athlete as a child too and both parents are sports fans.

Physical Examination
- Vitals: BP 117/64 mmHg | Pulse 51 | Ht 171.5 cm | Wt 59.3 kg | BMI 20.16 kg/m2
- General: anxious appearing, comfortably sitting on exam table, cooperative
- HEENT: head atraumatic, normocephalic; Eyes with EOMI, PERRLA; Ears patent, no external swelling; Nares patent, no drainage; Throat non-erythematous, uvula midline.
- Neck: normal ROM to flexion/extension, rotation, and neck bend bilaterally
- Heart: regular rate and rhythm, s1s2 normal; distal pulses 2+ upper and lower extremities
- Lungs: easy respirations, lungs clear to auscultation bilaterally, no wheeze or stridor
  - Abdom: +BS, soft, nontender to palpation
  - Skin: no obvious rash or bruising on exposed skin

Differential Diagnosis
- Vocal Cord Dysfunction (VCD)
- Exercise-induced Bronchospasm (EIB)
- Asthma
- Foreign Body
- GERD
- Environmental Irritants
- Rhinosinusitis
- Anxiety/Panic Attacks
- Anaphylaxis

Lab information and diagnostics
AP/Lateral CXR obtained day prior to evaluation was normal.

Working Diagnosis
Vocal Cord Dysfunction

Treatment plan
Patient and family were educated regarding the diagnosis, pathophysiology, and treatment of vocal cord dysfunction. The commonly used sniffing technique was taught and the patient was able to demonstrate the technique in clinic. Patient was also referred to voice clinic for further testing and management.

Return to play
Permitted to run as tolerated with use of the sniffing technique when needed.

Outcome
Patient was seen by the voice clinic and assessed by speech pathology and ENT. Flexible laryngoscopy was performed to assess the vocal cords, which did not reveal any obvious abnormalities but did note that during rapid counting tasks, there was occasional mistiming of adduction/abduction of the focal folds, which could indicate possibility of VCD. She was referred for VCD therapy with goals of practicing daily breathing strategies, beginning at rest and then incorporating these strategies in sports activity.