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Shortness of Breath in a Swimming Athlete

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HISTORY: 13yr old female with shortness of breath during exercise. Symptoms presented in the winter of 2017/18. She is regular qualifier for the NYSPHAA State Championships. Her symptoms are described as “tightness in my throat and chest” while swimming longer distances and repeated bouts of sprinting. She describes more trouble with inspiration than expiration.

DIFFERENTIAL DIAGNOSIS: 1) Baseline asthma 2) Exercise-Induced Asthma 3) Exercise –Induced Laryngeal Obstruction 4) Unreasonable fitness expectations 5) Anemia 6) Cardiac pathology 7) Lung pathology

PHYSICAL EXAMINATION: Healthy and well developed 13yr old
Ht: 62.5" Wt: 105lb BMI: 19.3

TESTS AND RESULTS:

03/01/17: Spirometry; WNL, no significant response to beta agonist

03/01/17: ECG: Sinus arrhythmia otherwise WNL, Resting HR: 62bpm
Hemoglobin/ Hematocrit: 14mg/dL and 42%

03/01/17: CXR, PA and lateral: WNL

04/06/17: Exercise Induced Asthma provocation test

Peak VO₂: 57.6ml/kg/min

Post exercise decrease in FEV₁ of 26%

Obstructive expiratory loop that improved with Albuterol

8/17/17: Continuous Laryngoscopy with Exercise

Grade 2 supraglottic closure with posterior movement of the epiglottis causing closure of the upper airway at sub max workload

FINAL/WORKING DIAGNOSIS: Comorbidity of grade 2 supraglottic (EILO) and mild (EIA)

TREATMENT AND OUTCOMES: Successful evidence was gathered to diagnose patient with EILO and EIA
Conservative treatment of 6 weeks speech therapy was initiated which includes poolside therapy

Medication was prescribed for EIA

- Qvar 40 mcg/Act 2 puffs twice a day
- Proair HFA 108 (90 Base) mcg/Act 2 puffs as needed at the onset of shortness of breath and prior to exercise

The patient is still competing at a high level and continuing to improve times in swimming events. It has been a multifaceted approach including medication, speech therapy, and further education about the comorbidity of EIA and EILO. Timing of her rescue inhaler is crucial to not exacerbate EILO symptoms. Performing speech therapy poolside has been a unique challenge. The patient will continue to follow up regularly for repeat spirometry, monitoring of medication usage, and update on symptoms.