



# “A MATTER OF THE HEAT”

AMSSM Annual Conference 2021  
Maine Dartmouth Sports Medicine Fellowship  
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## Maine Dartmouth SPORTS MEDICINE FELLOWSHIP

### History

- An 18-year-old Eastern European female DIII volleyball player presented for her PPE.
- Her pre-participation questionnaire was positive for a history of “heat stroke.”
- Her first episode followed a beach volleyball match where she developed fatigue, nausea, and vomiting with an oral temperature of 103 degrees Fahrenheit.
- She denied requiring hospitalization or ice bath treatment.
- She had three less severe events following high exertion activities with poor hydration in climate controlled environments.
- Each episode resolved after several hours of rest and rehydration in a cool environment.
- She denied any history of associated chest pain, palpitations, or shortness of breath.
- However, she did report a brief syncopal event with preceding dizziness after a recent workout just prior to her evaluation.

### Physical

- **Vitals:** BMI-27.5 BP-116/74 HR-82
- **General:** Well appearing and in no acute distress.
- **HEENT:** Carotid pulses 2+ without bruit or thrills. No jugular venous distension.
- **Lungs:** Clear to auscultation bilaterally, without wheezes, rales, or rhonchi.

### Physical Continued

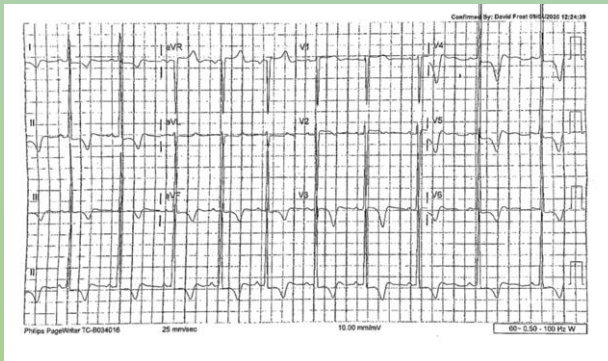
- **Heart:** Regular rate and rhythm. Normal S1 and S2. No murmurs, rubs, or gallops appreciated in supine, seated, deep squat, standing, Valsalva positions.
- **Abdomen:** Soft, non-tender, non-distended without organo-megaly.
- **Extremities:** Femoral pulses and posterior tibialis pulses 2+. No peripheral edema.
- **Skin:** Warm and well perfused.

### Differential

1. Exertional heat illness/Exercise associated collapse
2. Hypo/hyponatremia
3. Hypertrophic cardiomyopathy
4. Cardiac arrhythmia
5. Relative Energy Deficiency Syndrome

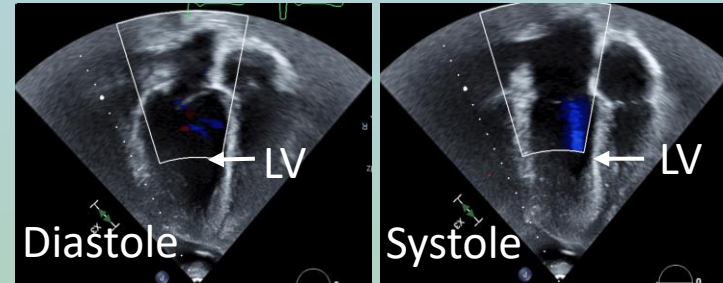
### Results

- **EKG:** Infero-lateral ST depressions with diffuse T-wave inversions. Left ventricular hypertrophy.

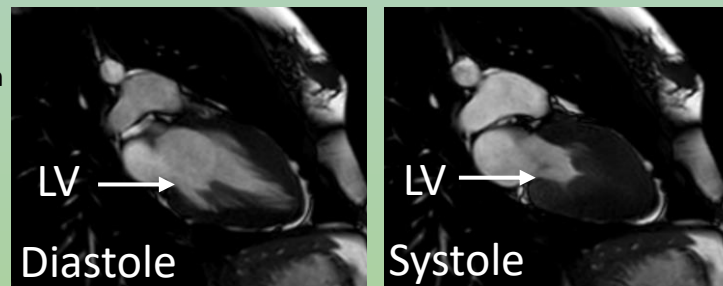


### Results Continued

- **Echocardiogram:** Normal left ventricular size with evidence of apical hypertrophic cardiomyopathy (HCM) without outflow obstruction.



- **Cardiac MRI:** Left ventricle of normal size with hyper-dynamic function and pattern of wall thickness consistent with apical HCM.



- **Event Monitor:** No detected dysrhythmias with rare ectopy.
- **Cardiopulmonary Exercise Testing:** No ischemia or arrhythmia at maximal cardiorespiratory effort.

### Final Diagnosis

- Apical Hypertrophic Cardiomyopathy
- Our initial concern was patient had a predisposition to heat exhaustion.
- We wanted to assure she was properly educated to prevent recurrence.
- Without her reported syncopal episode, cardiac evaluation may not have been pursued and her underlying condition may have gone undiagnosed.
- Ultimately, after cardiology evaluation, it was deemed these episodes were related directly to dehydration.
- Dehydration led to decreased preload, which her heart could not compensate for during high exertion activities.

### Discussion

### Outcome/Return to Play

- She was initially restricted from play given AHA guidelines stating players with HCM should be restricted from all but class IA sports.
- However, apical variant carries less risk and she lacked ischemia and arrhythmias on further work up.
- Thus, after discussion of risks, she signed a waiver of liability and played in the fall season.
- If at risk of dehydration, she is restricted from play.
- She will have yearly echos and exercise stress tests with her cardiologist.