Sudden Cardiac Pathology in a Field Hockey Goalkeeper
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Background: A 21 year-old Caucasian female presented with post-episode idiopathic syncope, seizure, and cardiomyopathy without recollection. Her medical history was not significant for cardiovascular, neurologic, or metabolic conditions. Prior to incident, the patient awoke from sleep feeling normal. After approximately 20 minutes, she expressed feeling dizzy and nauseous before collapsing. Her roommate reported that she was breathing with her eyes open, but was unresponsive for two minutes. During that time, the patient experienced labored breathing, seizures, and incontinence. Post seizure, she remained incoherent for 30 minutes and was driven to the emergency department.

Differential Diagnosis: convulsive syncope, mitral stenosis, cardiac arrhythmia, and mitral valve prolapse. Treatment: The attending physician ordered a head CT scan and blood and urine tests. Results of diagnostic testing included a negative head CT scan, hemodynamically stable blood tests, and urinalysis was within normal limits. The patient was diagnosed with convulsive syncope secondary to dehydration and was released. After consultation with her parents, the patient sought a second opinion from a neurologist who ordered a head MRI and an electrocardiogram. Results of diagnostic testing included a negative MRI and an inconclusive electrocardiogram. Unable to diagnose the patient, the neurologist referred her to a cardiologist who ordered a stress test, table tilt test, electroencephalography, a second echocardiogram, and a two-holer monitor 24-hour electrocardiogram. Results of diagnostic testing included negative stress test, table tilt test, and electroencephalography; however, the second echocardiogram revealed minimal mitral valve regurgitation secondary to mild myxomatous mitral thickening. The two-holer monitor 24-hour electrocardiogram indicated a heart rate of 55 – 147 bpm and 47 – 150 bpm, and bigeminal and trigeminal premature ventricular contractions (PVC) with 2 reported couplets. Upon completion of diagnostic testing, the cardiologist confirmed the preliminary diagnoses of convulsive syncope for the day of the event, with other findings including mild myxomatous mitral thickening, mitral valve regurgitation, and frequent bigeminal and trigeminal PVCs. After discussing the diagnoses, the patient was cleared for unrestricted return to field hockey and was scheduled for a two year follow-up. The patient still complains of unexplainable random bouts of angina across the chest, deep in the thorax occasionally, traveling into the thoracic spine, sporadic dizziness and lightheadedness associated with angina, heart palpitations, and the feeling of pressure building in her chest.

Uniqueness: Despite being diagnosed with acute convulsive syncope secondary to dehydration, mild myxomatous mitral thickening, mitral valve regurgitation, and frequent bigeminal and trigeminal PVCs, the patient was permitted to participate without restriction and continues to participate at a high level of athletic competition. This case is also unique because although the patient underwent a battery of diagnostic testing and was diagnosed with pathological cardiac conditions, the cardiologist was unable to determine the causes related to the angina and arrhythmias. Lastly, this case is unique because the athlete was permitted to continue participation, although she continues to complain of sharp to dull pulsating pain across the chest from varying origins.

Conclusion: Athletic trainers will have exposure to patients suffering from cardiovascular conditions. As such, this case demonstrates
the importance of proper education in a broad range of conditions and disabilities in athletic training education, not only orthopedic pathologies. This case also demonstrates the need for athletic trainers to familiarize themselves with basic diagnostic testing available for patients with cardiac pathologies. Furthermore, patients suffering from symptomatic cardiac conditions may be cleared for unrestrictive athletic activities as long as the condition is not life-threatening. Finally, this case reminds clinicians to be vigilant of an individual's condition regardless of past and personal and family history. This patient was in good health, but one day experienced an unfortunate cardiac fall out. **Word Count:** 599