

## **A Case of Symptomatic Tachyarrhythmia of Unknown Etiology**

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**Case:** A 42-year-old African American female with a relevant past medical history of essential hypertension, pre-diabetes, and polycystic ovarian syndrome presented with new onset chest pain upon exertion. The first episode of symptoms occurred while the patient was performing her regular duties as a housekeeping manager, when she suddenly experienced palpitations, diaphoresis, and an overall sense of warmth that dissipated with rest. A little less than one week later, the patient experienced her second episode of palpitations while grocery shopping. However, these palpitations were accompanied by a sudden pain in her left shoulder, radiating up to her jaw and down into her chest, unlike anything she had experienced before. Treadmill stress EKG was ordered and the patient was only able to complete 3 minutes of the test before experiencing the same pain in her left shoulder and jaw, along with dizziness, lightheadedness, and palpitations. Interestingly, the onset of symptoms coincided exactly with a run of polymorphic non-sustained ventricular tachycardia captured on EKG. The stress test was terminated immediately, and the patient was admitted by the cardiology team for further evaluation. The electrocardiogram (EKG) recorded during the stress test exhibited non-sustained ventricular tachycardia, a heart rate of 280 beats per minute, and variable morphology closely coupled to T wave with a superior axis. She was taken for coronary angiography later that afternoon to assess any ischemic etiology of her new unstable angina. However, the study was negative. Following a series of unrevealing imaging studies, including TTE, non-contrast chest CT, and cardiac MRI, the evaluation concluded with a cardiac MRI which showed evidence of dilated cardiomyopathy but lacked evidence of an infiltrative disorder. The patient was ultimately discharged with a LifeVest defibrillation device and scheduled for follow-up in the electrophysiology clinic after completing a repeat treadmill stress test while on 50 mg of metoprolol succinate without triggering another run of ventricular tachycardia.

**Discussion:** This case is remarkable in the extent of symptomatology experienced by the patient, presenting similarly to obstructive coronary disease, as well as the lack of supporting evidence for a physical abnormality or pathologic process that may have contributed to the patient's presentation. While the findings of the myocardial bridging seen on cardiac MRI were suggestive of a potential anatomic etiology, their presence was not correlated with any evidence of ischemic changes on cardiac catheterization which would be expected.<sup>3</sup>

## **References**

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