The Worrisome Apex- A Case of Apical Hypertrophy With Ventricular Tachycardia

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Case Presentation

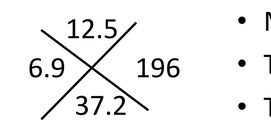
- A 73-year-old female presented to ED with recurrent episodes of palpitations and dizziness
- She described these episodes as occurring spontaneously, worst with activities, lasting only seconds to minutes and resulting in recurrent lightheadedness with near-syncope
- The patient had a 30-day continuous cardiac event monitor placed prior to her presentation for similar episodes
- Review of systems: Denied any nausea, vomiting, diaphoresis, chest pain, abdominal pain, or new leg swellings
- PMH: Apical hypertrophic cardiomyopathy (AHCM), hypertension, and paroxysmal atrial fibrillation
- No family history of coronary artery disease or arrhythmia
- Patient is non-smoker, doesn't drink alcohol or do illicit drugs
- Vital signs on presentation: Blood pressure 119/77, pulse 102, oral temperature 36.6° C, respiratory rate 18 and Oxygen saturation 98 % on RA
- Physical exam: No carotid bruits or JVD. Tachycardic, Irregularly irregular, no murmur, rubs, or gallop. No lower extremity edema. Unremarkable pulmonary, abdominal, and neurological exam

Introduction

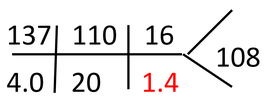
- Apical hypertrophic cardiomyopathy (AHCM) is an uncommon type of hypertrophic cardiomyopathy, which usually involves the apex of the left ventricle
- It's rare in the United States with a prevalence of 1-3% of HCM cases

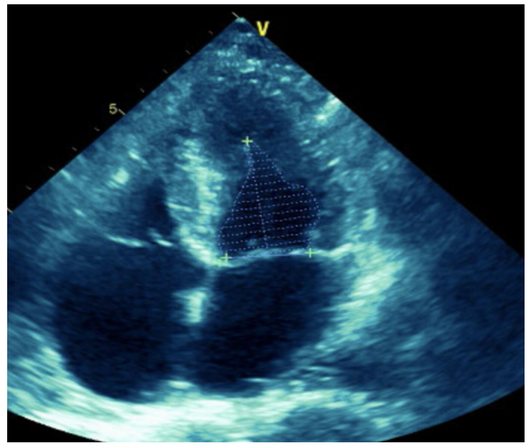
Hospital Course

Initial Work Up

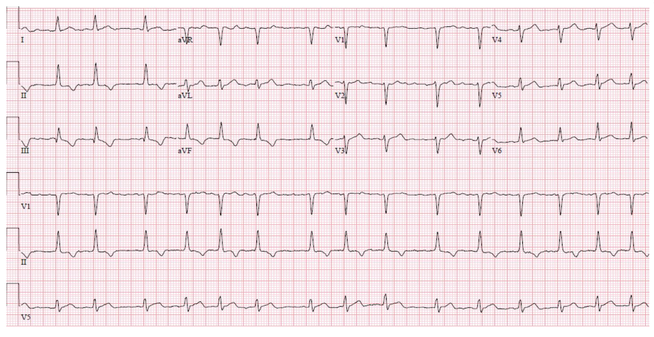


- Mg 1.9
- TSH 2.88
- Troponin 0.03 x 2

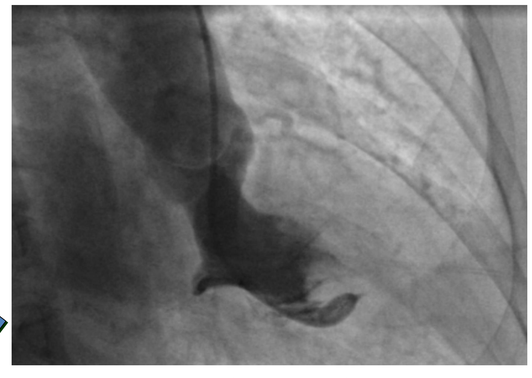




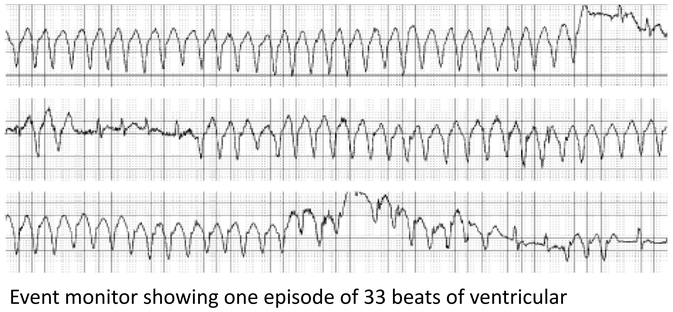
A transthoracic echocardiogram shows apical hypertrophy with LV end- diastolic diameter of 4.4 cm and normal systolic function



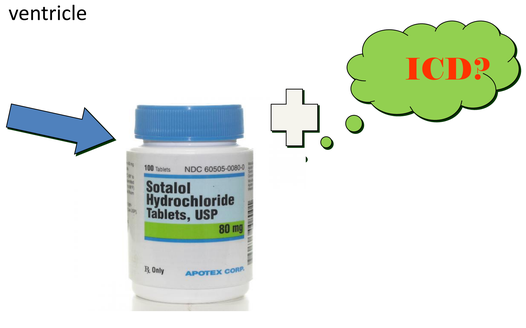
EKG results showing atrial fibrillation with a rate of 92



Coronary angiography shows normal coronaries and LV-gram showing ace of spade like configuration left ventricle



Event monitor showing one episode of 33 beats of ventricular tachycardia



Discussion

- AHCM is often sporadic, manifests as unexplained recurrent syncope, myocardial infarction, arrhythmia, or congestive heart failure
- Echocardiography and cardiovascular magnetic resonance imaging (CMRI) are known to be the most valuable imaging methods
- Even though the overall mortality of AHCM patients is relatively low, the current guideline recommends that they should undergo sudden cardiac death risk stratification
- Initial management includes beta-blockers, verapamil, and antiarrhythmic agents
- Recent literature suggests that ICD can be beneficial for AHCM patients with previous cardiac arrest, family history of sudden death and those with episodes of ventricular tachycardia
- Our case emphasizes the importance of arrhythmia surveillance in patients with AHCM and that there is a frequent discrepancy between common LVH criteria on ECG and LVH by TTE or CMRI

References

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- Furushima H., Chinushi M., Iijima K., Sanada A., Izumi D., Hosaka Y., Aizawa Y. Ventricular tachyarrhythmia associated with hypertrophic cardiomyopathy: incidence, prognosis, and relation to type of hypertrophy. J Cardiovasc Electrophysiol. 2010 Sep;21(9):991-9.
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