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Arrhythmogenic Mitral Valve Prolapse with Multivalvular Regurgitation in a Young Adult

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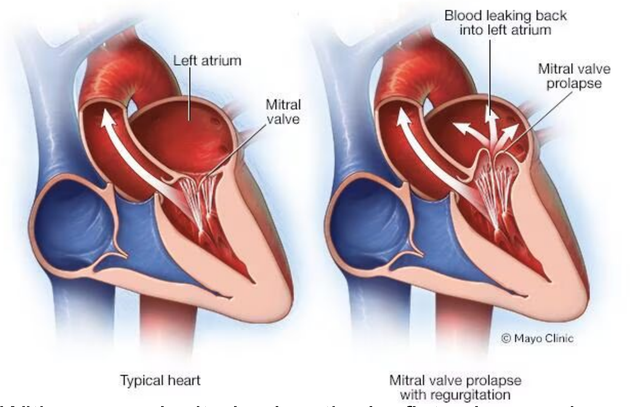
Introduction

- Mitral Valve Prolapse (MVP) is a common valvular abnormality that can occur in up to 3% of the population[1]. While it is typically an asymptomatic and benign finding, there is a subset of individuals with this condition that can experience arrhythmias, particularly ventricular tachycardia.
- While this subset of patients can be otherwise asymptomatic and without chronic medical conditions, evidence shows that sustained ventricular tachycardia can increase the risk of sudden cardiac death, with an annual increased risk estimated at 0.2%–1.9%[2].
- Risk stratification in this population remains under-recognized.
- This highlights the need for thorough evaluation and investigation of patients who report palpitations in the presence of an otherwise benign clinical presentation.

Case Summary

We present a 24-year-old female with no cardiovascular risk factors who reported one year of palpitations and lightheadedness with positional changes and exertion. Seven-day Holter monitoring demonstrated sinus rhythm with a mean rate of 76 bpm, a 23-beat paroxysmal supraventricular tachycardia, and four runs of nonsustained ventricular tachycardia (≤3 beats) occurring during exercise. Exercise stress testing was negative for ischemia and achieved 189 bpm. Transthoracic echocardiography revealed mitral valve prolapse with mild regurgitation, as well as mild tricuspid and pulmonic regurgitation, with normal chamber size and function. Physical examination and laboratory evaluation were otherwise unremarkable.



With a normal mitral valve, the leaflets close and prevent backflow into the atrium (left). In symptomatic cases of MVP, valve prolapse leads to insufficient closure of mitral leaflets and regurgitation of blood into the left atrium during systole (right)[3].

Discussion

- To address symptomatic ventricular ectopy and palpitations, the patient was started on metoprolol succinate 25 mg daily with plans for repeat echocardiography every 12-18 months.
- This case highlights an intermediate-risk profile of arrhythmogenic MVP: young age, symptomatic palpitations, supraventricular and ventricular ectopy, and multivalvular regurgitation in the absence of ventricular dysfunction.
- Recognition of this phenotype is essential, as these patients require ongoing surveillance due to heightened risk of electrical instability and sudden cardiac death[1].
- Structured risk stratification helps identify patients requiring closer follow-up to reduce the likelihood of cardiac complications.

References

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