# Sudden Cardiac Death Associated with Malignant Mitral Valve Prolapse

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## BACKGROUND

Mitral Valve Prolapse (MVP) is caused by myxomatous valve leaflet changes. Malignant MVP is an understated cause of sudden cardiac death (SCD).

## CASE

A 56 year old Female with history of MVP presented as a witnessed cardiac arrest while golfing. Patient received bystander CPR and was defibrillated once for Vfib with ROSC. EKG showed Non Sustained Ventricular Tachycardia (Figure 2). Patient completed therapeutic hypothermia with full neurologic recovery. Work up showed normal coronaries, Cardiac MRI with bileaflet MVP with moderate MR and mild inferobasilar scar (Figure 4), Mitral annular disjunction (Figure 5), normal ventricular size and systolic function.

## EKG

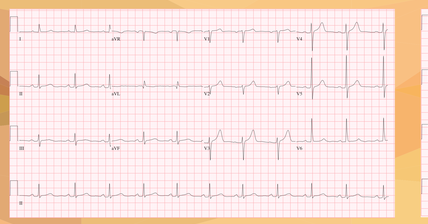

**Figure 1:** Baseline EKG.

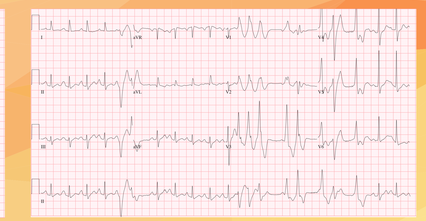

**Figure 2:** EKG on arrival in Emergency Department.

## RESULTS


**Figure 3:** Ventricular triplet demonstrated on Holter Monitor months prior to the event.

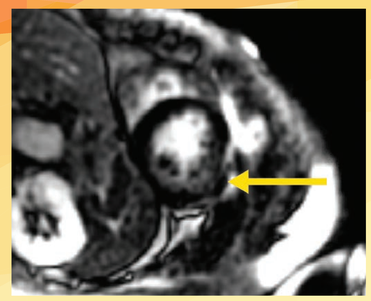

**Figure 4:** Cardiac MRI with late gadolinium enhancement, that is indicative of scar.

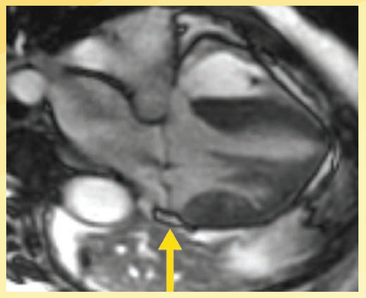

**Figure 5:** Mitral Annulus Disjunction on Cardiac MRI.

## CONCLUSION

The patient had a previous Holter monitor with 3.7% PVC burden; with couplets and one triplet (figure 3), and was started on B blockers.

Malignant phenotype of MVP includes:

- Young women
- Bileaflet prolapse
- Biphasic or inverted T waves
- Complex ventricular ectopy.[1]

The triad of substrate, trigger and transient excitation increase risk of SCD. MVP patients with scar have 7.7% risk of arrhythmic events compared to 2.5%.[2]

Overall risk for SCD has been described around 0.4%. The patient received an ICD for secondary prevention of SCD.

## DISCUSSION

MVP has been associated with SCD, necessitating a formal risk stratification strategy. This includes Holter monitor, CMR for scar and more recently PET is being studied to detect stage of inflammation. Above information can be used to guide decision and timing for Mitral valve intervention. Additionally, successful treatment with catheter ablation has been described.

### REFERENCES

1. Sriram C.S., et.al.; J Am Coll Cardiol. (2013), July 16; 62(3) pp 222-230.
2. Kitkungvan D., et. Al.; J am Coll Cardiol. (2018), Aug., 72 (8) pp 823-834

### DISCLOSURES

*No financial disclosures for Damon McEnroe, Fnu Vikram*



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