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Case

A 70-year-old woman with apical hypertrophic cardiomyopathy (HCM), heart failure with reduced ejection fraction (HFrEF) and atrial fibrillation (AF) status post ablation presented with shortness of breath. She was tachycardic to 115 beats per minute (BPM) and hypoxemic to the 80's, requiring supplemental oxygen via a non-rebreather mask. She was found to have COVID19 pneumonia, for which dexamethasone and remdesivir were started. She developed marked bradycardia and eventually asymptomatic Mobitz type 1 atrioventricular block (AVB).

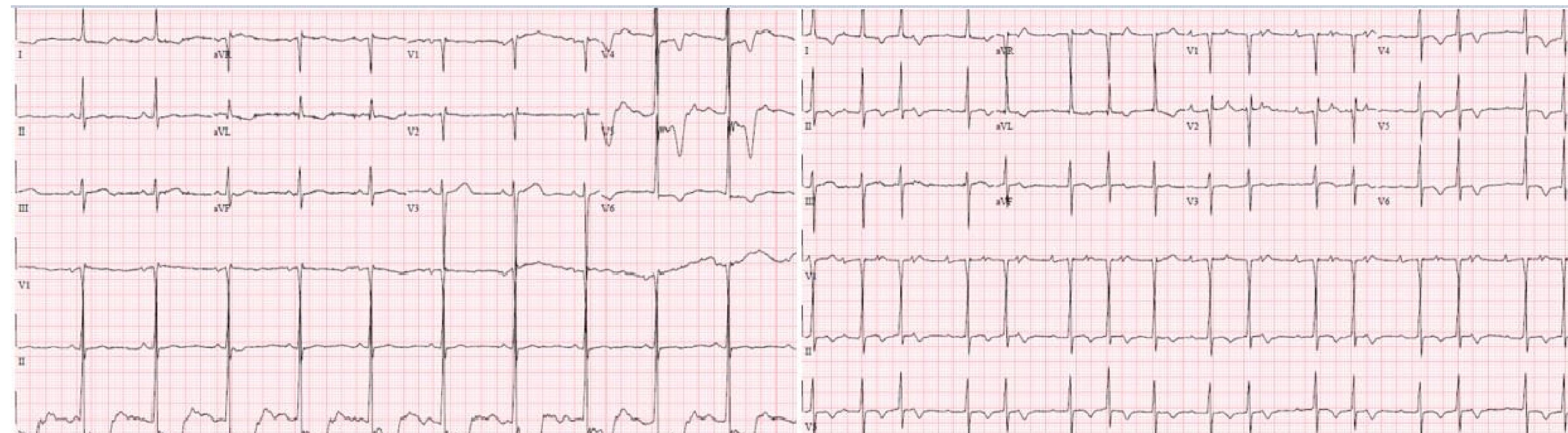


Figure 1A) Electrocardiogram prior to admission showing NSR with lateral lead T-wave inversions in the setting of apical HCM while on metoprolol succinate for HFrEF.

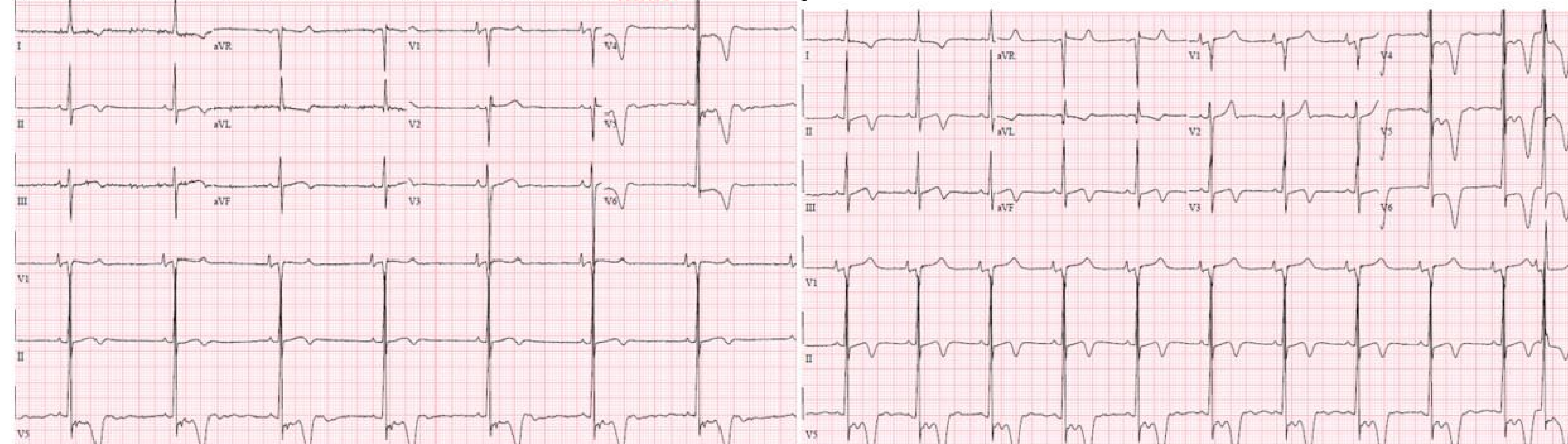


Figure 1B) Electrocardiogram showing sinus bradycardia to 45 BPM with unchanged lateral lead T wave inversions in the setting of apical HCM following the 200-milligram loading dose of remdesivir.

Figure 1C) Development of 2:1 Mobitz type I AVB after several maintenance doses of remdesivir.

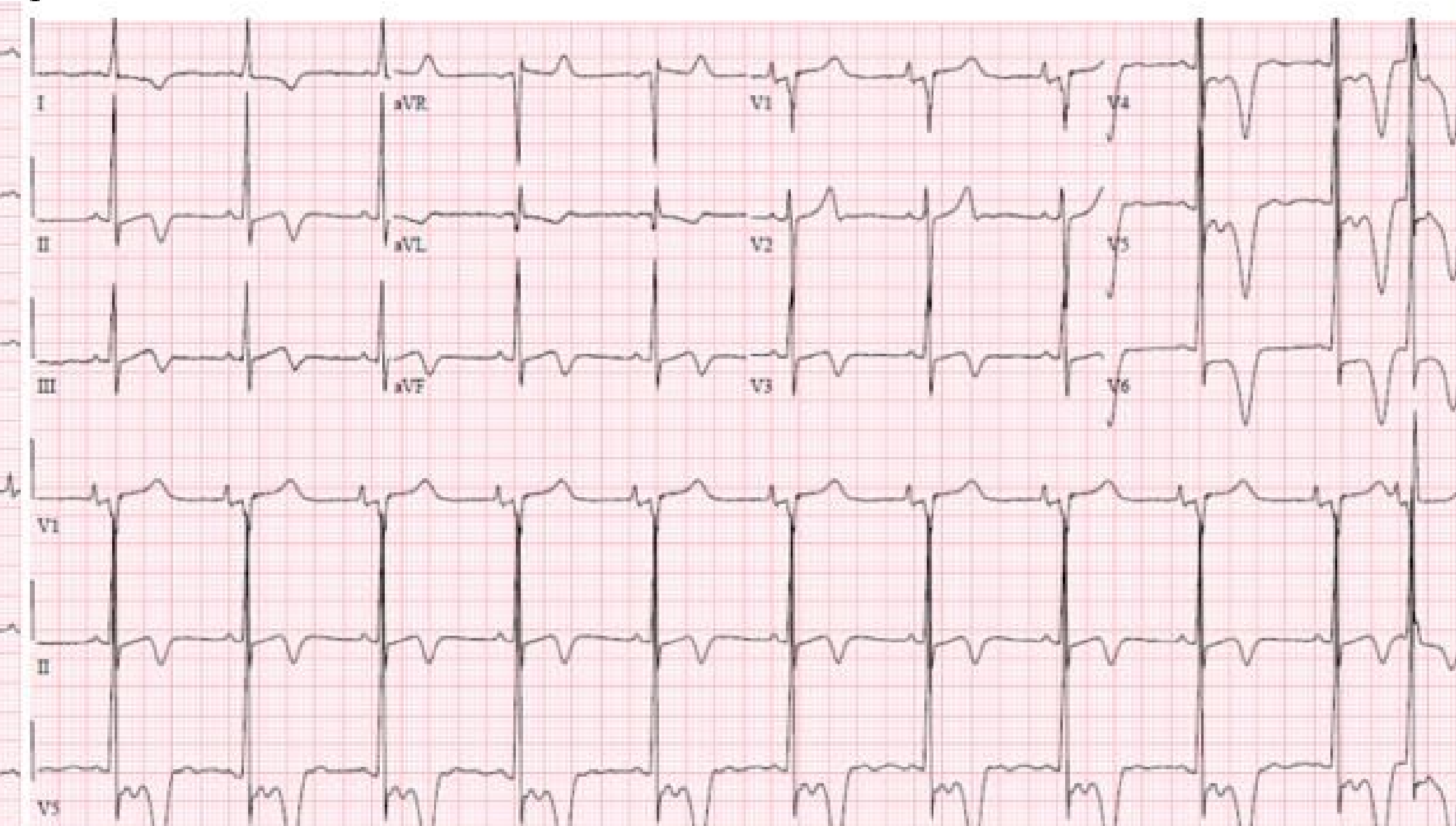


Figure 1D) Electrocardiogram showing normal sinus rhythm with one premature atrial contraction and unchanged lateral lead TWI in the setting of apical HCM after cessation of remdesivir. Patient was restarted on metoprolol succinate and tolerated without issues.

Background

Remdesivir has emerged as a novel treatment in hospitalized COVID19 patients not requiring mechanical ventilation. Though there have been several case reports of remdesivir-associated sinus bradycardia, this association is still unclear. Furthermore, remdesivir's interaction with beta blockers has not been studied.

Decision Making

Once COVID19 pneumonia was diagnosed, dexamethasone and remdesivir were started. She immediately became bradycardic and remdesivir and beta blockade were held. Of note, she was taking metoprolol succinate at home for HFrEF. Bradycardia and AVB resolved with cessation of remdesivir and she was discharged home safely on metoprolol succinate.

Conclusion

Patients on remdesivir, especially those with underlying cardiomyopathy, are at higher risk for bradyarrhythmia. Remdesivir may potentiate the effects of beta blockers and their concomitant use requires judicious monitoring.