

Ablate and Pace: Reversing Dilated Cardiomyopathy in a Patient with Atrial Fibrillation

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Introduction:

Atrial fibrillation (AF) can independently cause left ventricular dysfunction - arrhythmia-induced cardiomyopathy, confirmed only once function recovers after treatment [1]. "Ablate and pace" significantly reduces mortality versus rate control in permanent AF [2]. However, CAAN-AF trial investigators found no benefit in already rate-controlled patients [3]. This suggests that the benefit concentrates in poorly controlled AF.

Case Presentation

A 56-year-old male with non-ischemic dilated cardiomyopathy (diagnosed 2023, negative coronary angiography and cardiogenetic testing) was followed for progressive left ventricular dysfunction. Baseline ejection fraction (EF) was 20% by cardiac MRI/echocardiography, attributed to chronic tachysystolic AF refractory to maximal beta-blocker and amiodarone therapy. In September 2025, a CRT-P device was implanted, followed in October 2025 by AV node ablation, with the device programmed in VVIR mode.

At follow-up in August 2026, the patient's EF had markedly improved from 20% to 59% (Simpson's method), with normalized LV geometry and significant NT-proBNP reduction (91 ng/l, previously BNP 841.9 ng/l). The patient remained largely asymptomatic.

Discussion

Recovery of EF and normalized LV geometry despite persistent AF suggest a reversible tachyarrhythmia-mediated component of this dilated cardiomyopathy. A meta-analysis linked AV

junction ablation in CRT recipients to greater LV end-diastolic diameter reduction consistent with this recovery [4]. However, contributions from rate control, CRT, and medical therapy cannot be fully separated.

Conclusion

This case demonstrates that AF-induced cardiomyopathy can be substantially reversible with ablate-and-pace therapy in patients with poorly rate-controlled permanent AF, highlighting the need for careful patient selection based on baseline rate control rather than universal application of this strategy.

References:

1. Shoureshi P, Tan AY, Koneru J, Ellenbogen KA, Kaszala K, Huizar JF. Arrhythmia-Induced Cardiomyopathy: JACC State-of-the-Art Review. *Journal of the American College of Cardiology*. Elsevier Inc.; 2024. p. 2214–32. doi:10.1016/j.jacc.2024.03.416 PubMed PMID: 38811098.
2. Linde C. Pace and ablate better than drugs in patients with heart failure and atrial fibrillation: Lessons from the APAF-CRT mortality trial. *European Heart Journal*. Oxford University Press; 2021. p. 4740–2. doi:10.1093/eurheartj/ehab695 PubMed PMID: 34613382.
3. Sanders P, Ariyaratnam JP, Stiles MK, Puvrez A, Nicholls SJ, Abhayaratna WP, et al. Cardiac resynchronization therapy with or without atrioventricular node ablation in atrial fibrillation: the CAAN-AF trial. *Eur Heart J*. 2026 Apr 16. doi:10.1093/eurheartj/ehag206
4. Waranugraha Y, Rizal A, Setiawan D, Aziz IJ. The Benefit of Atrioventricular Junction Ablation for Permanent Atrial Fibrillation and Heart Failure Patients Receiving Cardiac Resynchronization Therapy: An Updated Systematic Review and Meta-analysis. *Indian Pacing Electrophysiol J*. 2021 Mar 1;21(2):101–11. doi:10.1016/j.ipej.2020.12.005