

INCESSANT VENTRICULAR TACHYCARDIA FOLLOWING PERMANENT HIS BUNDLE PACING

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INTRODUCTION

The issues related with acute performance of the pacing leads are being recognized. Occurrence of sustained ventricular tachycardia presumably due to myocardial and conduction tissue injury caused by active fixation lead at the His bundle has not been reported so far.

CASE PRESENTATION

A 65-year-old female, rheumatic heart disease, mitral valve replacement (22mm Omnicarbon™ mechanical mitral prosthesis, 17 years back) normally functioning prosthetic valve, moderate aortic regurgitation and severe LV dysfunction (EF 30%, LVID(d) 65mm) with H/O of syncope, she was found to have sick sinus disease unrelated with antiarrhythmic drugs.

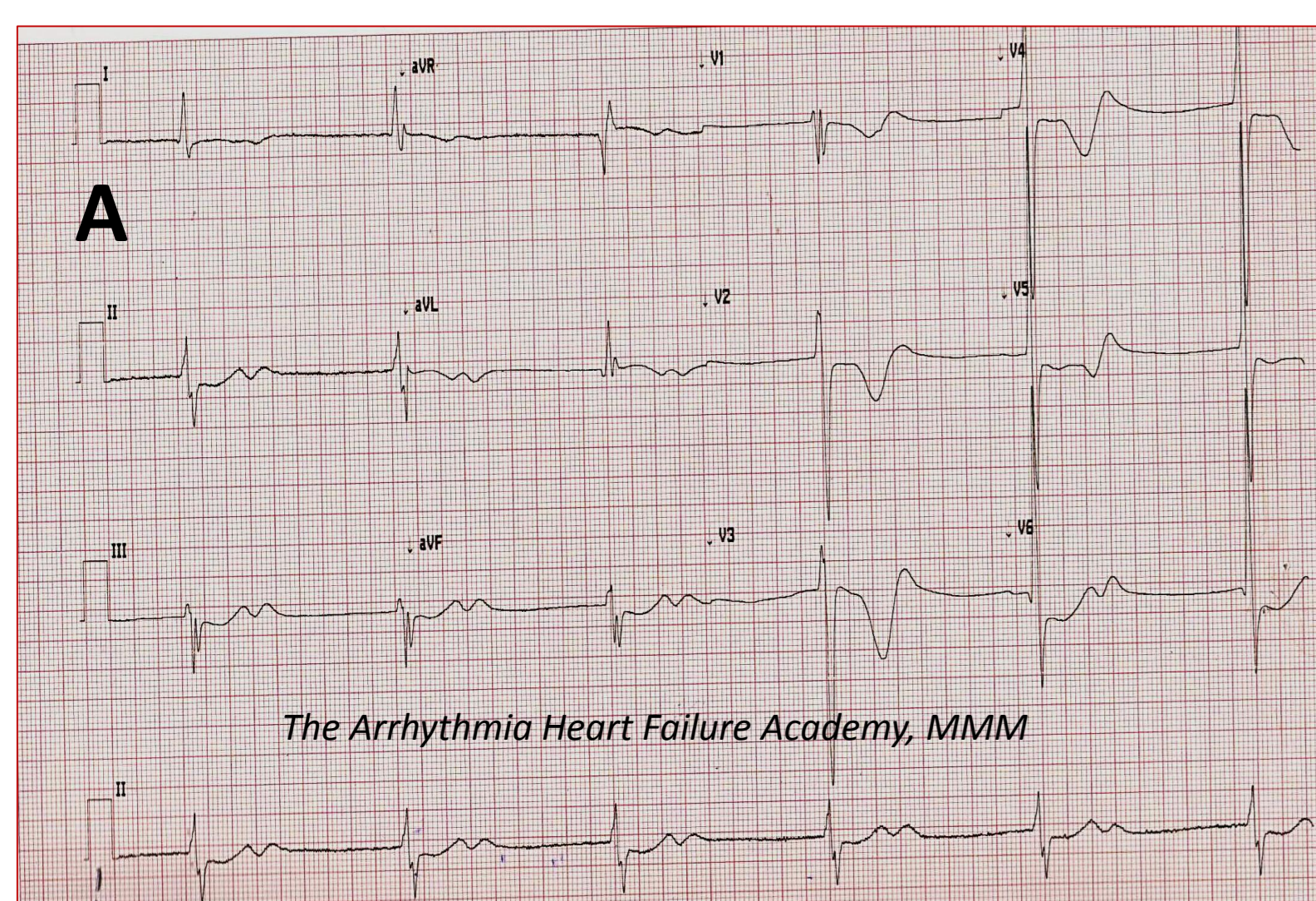


Figure A: Narrow QRS escape rhythm (32 bpm)

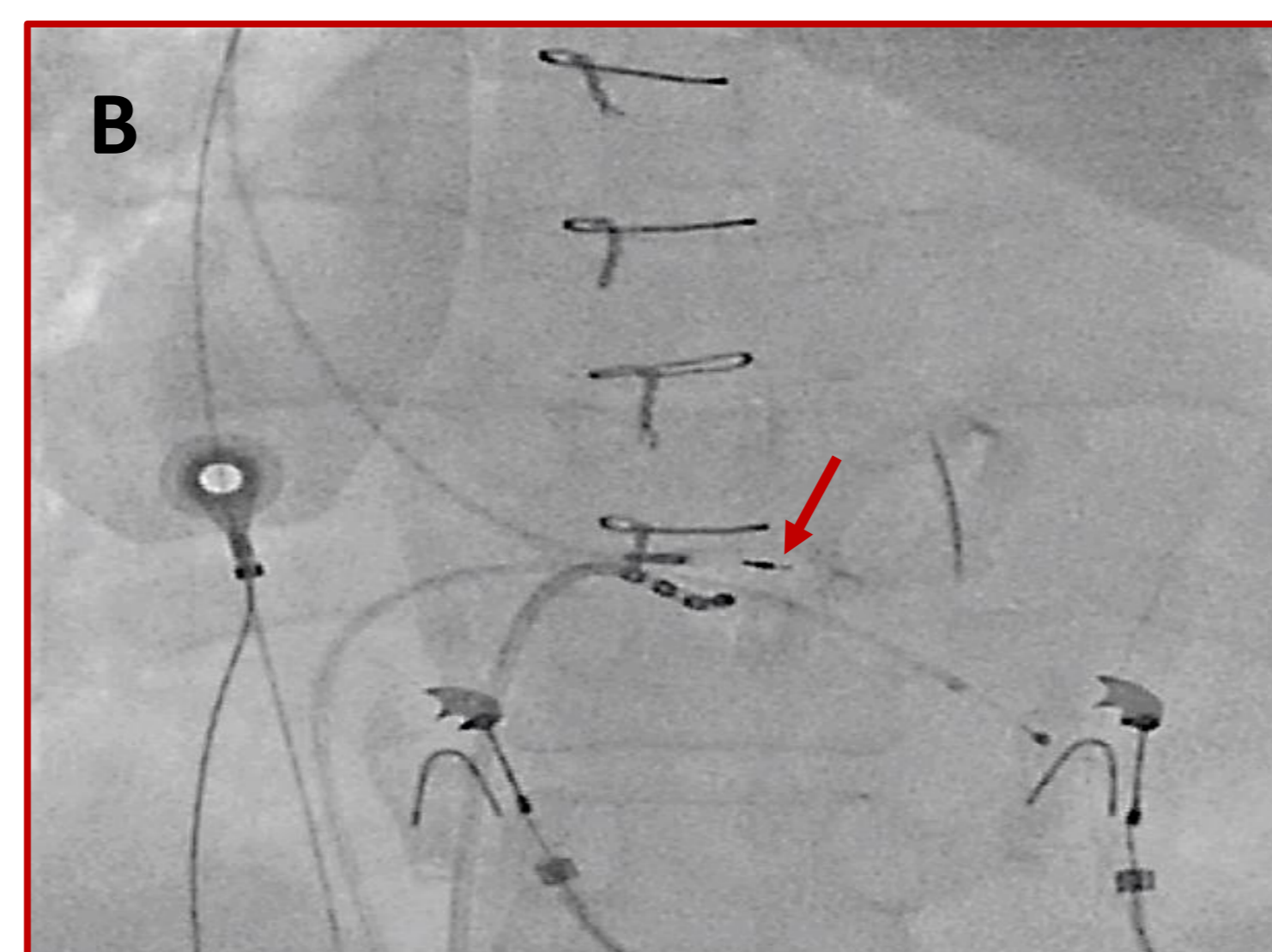


Figure B: Site (arrow) where the His bundle lead (Medtronic SelectSecure™ 3830) recorded His potential



Figure C: His potential recorded by His bundle lead (Medtronic SelectSecure™ 3830)

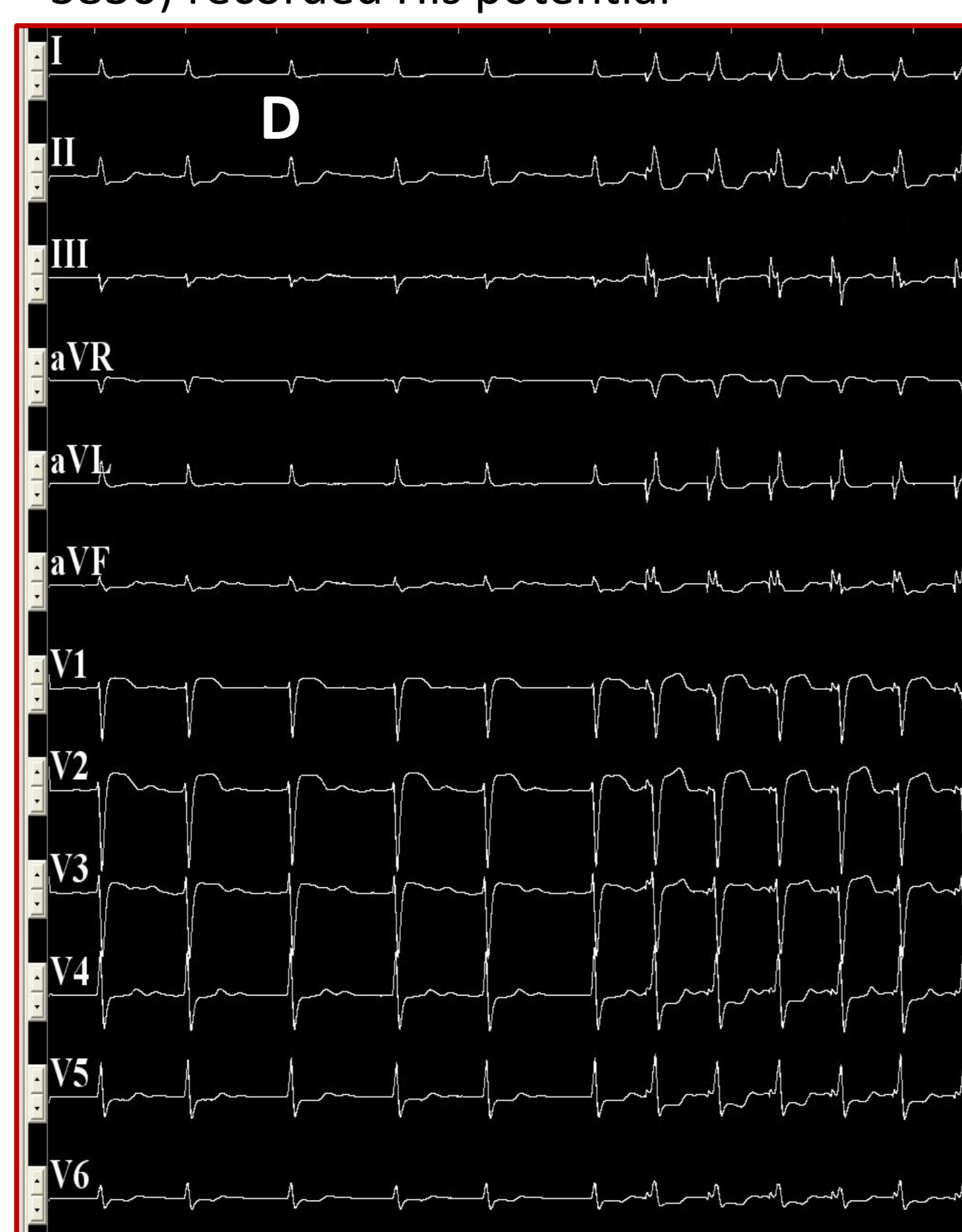


Figure D: unipolar pacing (2.0V @1ms threshold) resulted in non-selective HBP with QRS duration of 20ms more than the native QRS.

Post screwing (3 turns) bipolar HBP resulted in non-selective HBP with further QRS widening (1.5V @1ms threshold). To achieve narrower paced QRS morphology it was decided to pace at a different site.

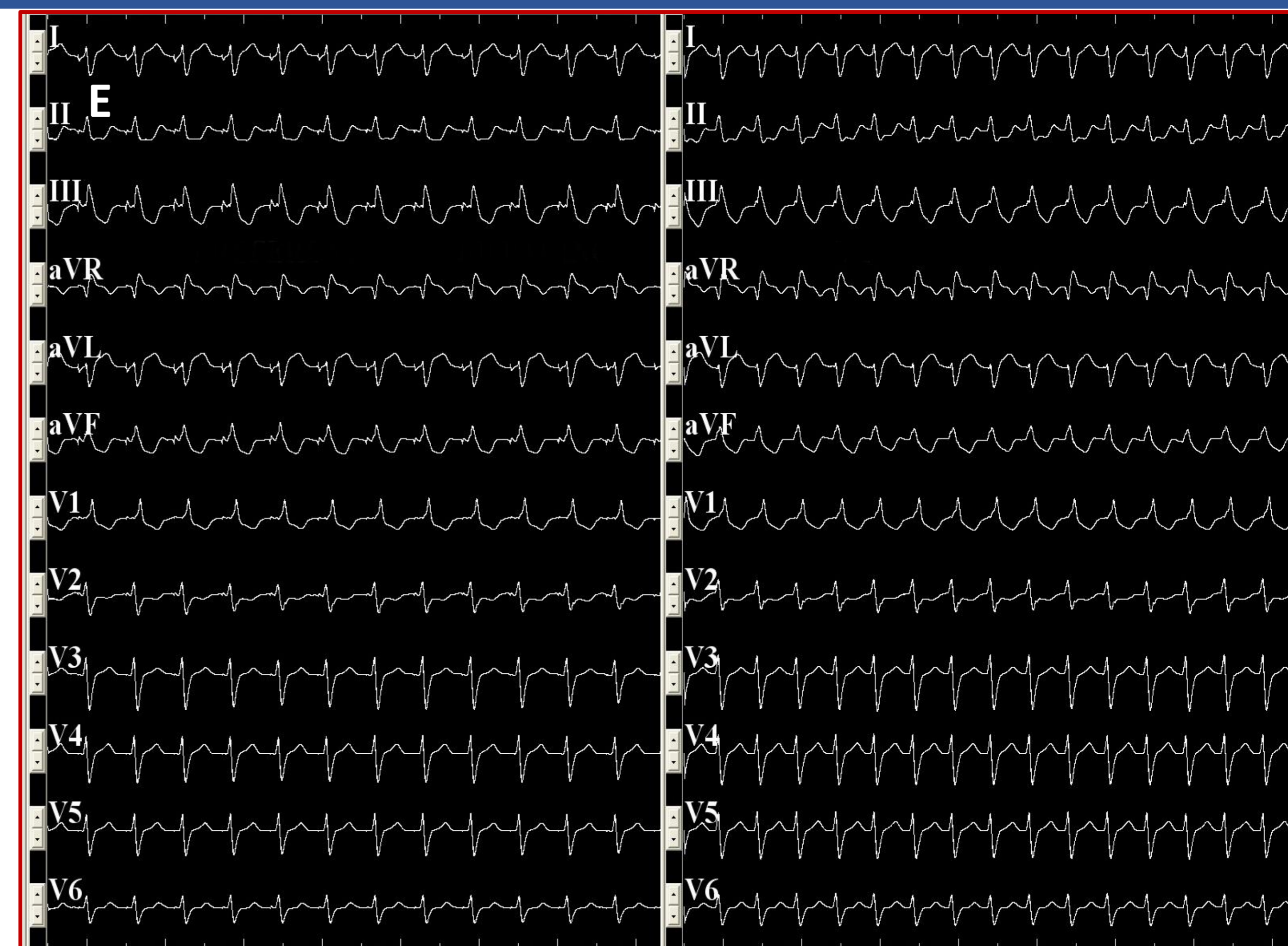


Figure E: Immediately after the lead was unscrewed, patient developed sustained monomorphic tachycardia of the morphology similar to the paced morphology.

The tachycardia was hemodynamically unstable. Three attempts of external electrical cardioversion (100J-250J) failed. Adenosine (12mg IV) terminated the tachycardia for few seconds. Atrial and ventricular pacing (from RV apex and HBP site) could not terminate tachycardia. AV dissociation established the diagnosis of VT.



Figure G: Radiofrequency ablation (40W, 50°C, 7F Therapy™ ablation catheter) at the site where the lead was screwed-in terminated the tachycardia in 5 seconds.

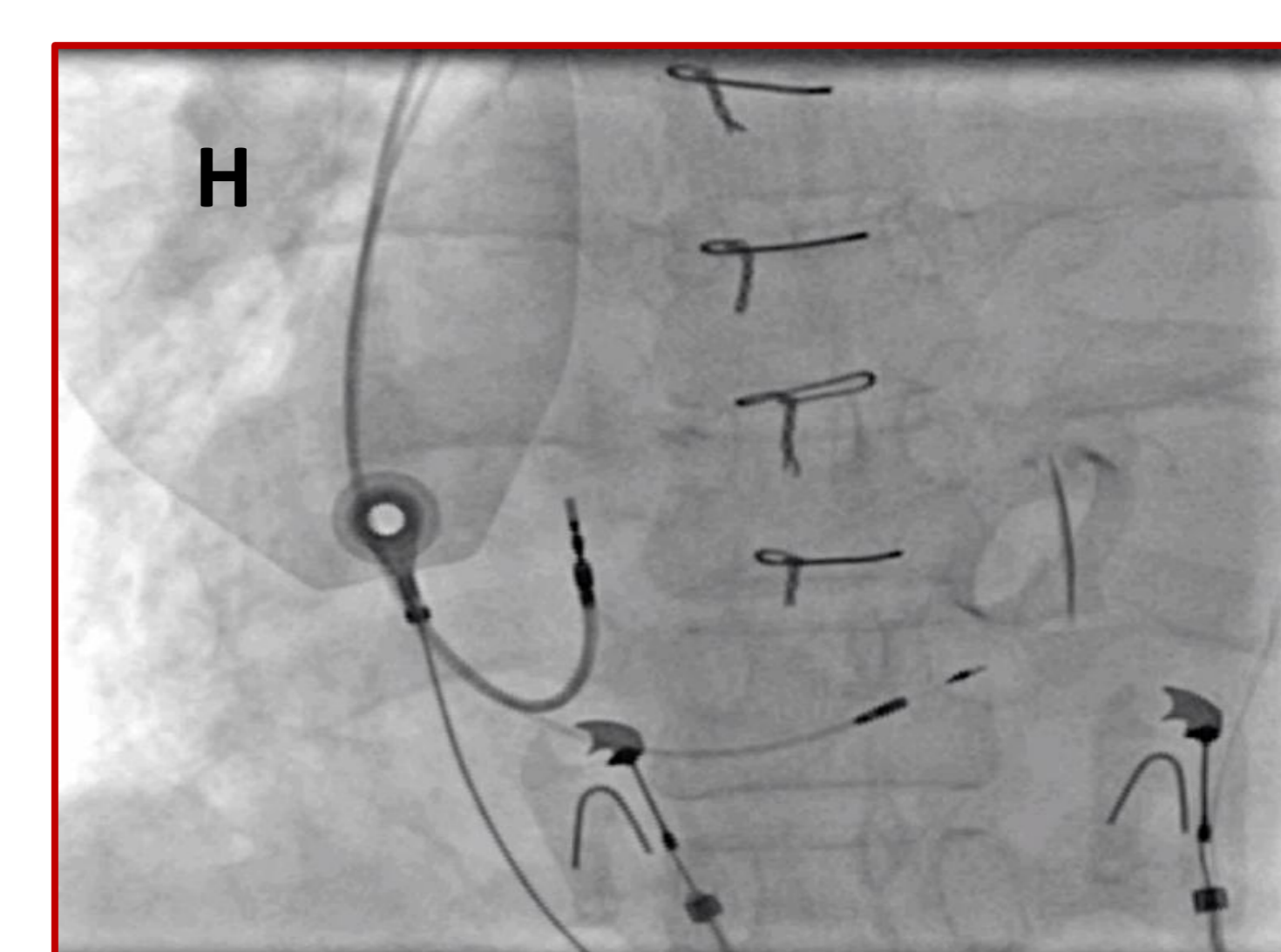


Figure H: The lead was finally screwed-in distal to the ablation site with satisfactory parameters

The tachycardia could not be induced by programmed atrial and ventricular stimulation even on isoprenaline.

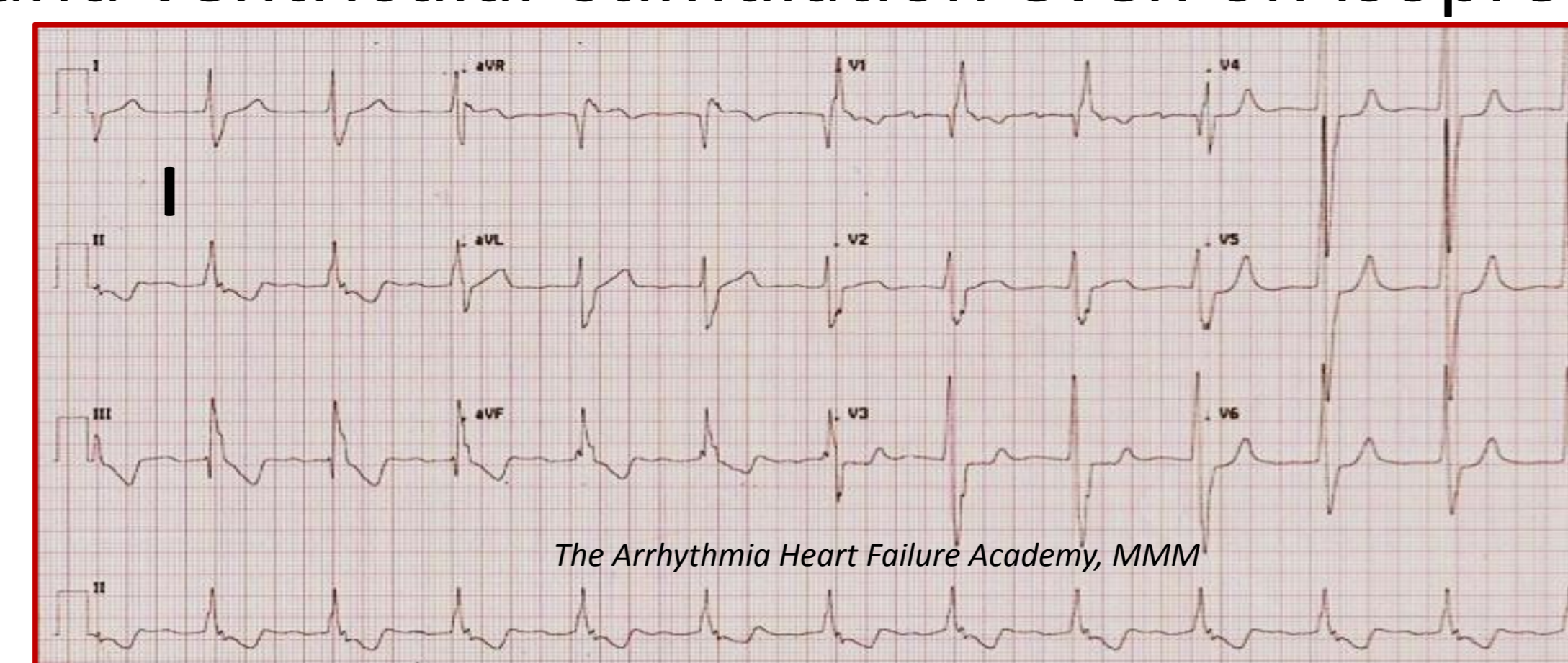


Figure I: During the 1st month follow-up patient remained asymptomatic. The injury caused by the HBP lead was still evident on the ECG qRBBB and PR interval 240ms.

CONCLUSION

A sustained ventricular tachycardia responsive to adenosine but not to overdrive atrial or ventricular pacing can occur after unscrewing active fixation from the HBP site. The RFA at the fixation site cures the tachycardia.