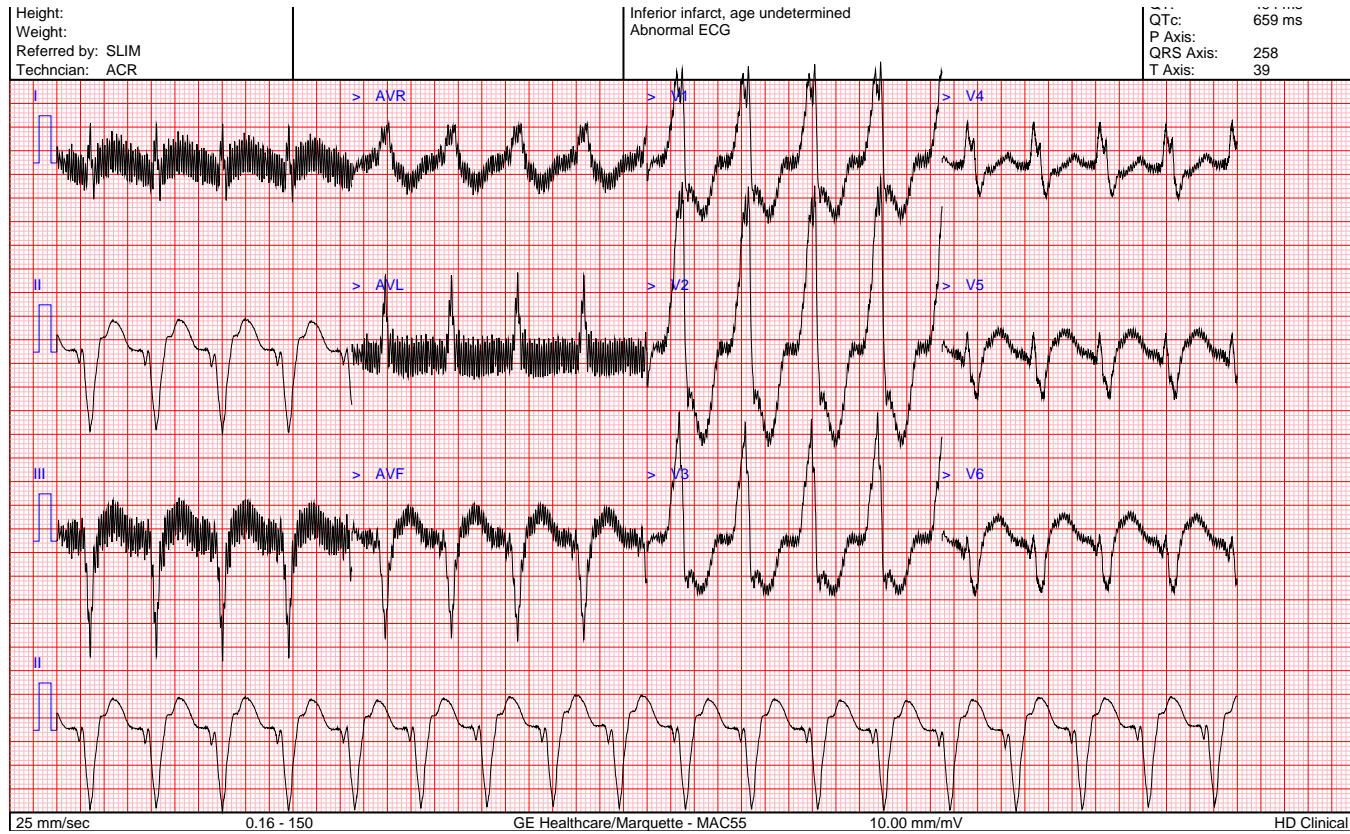
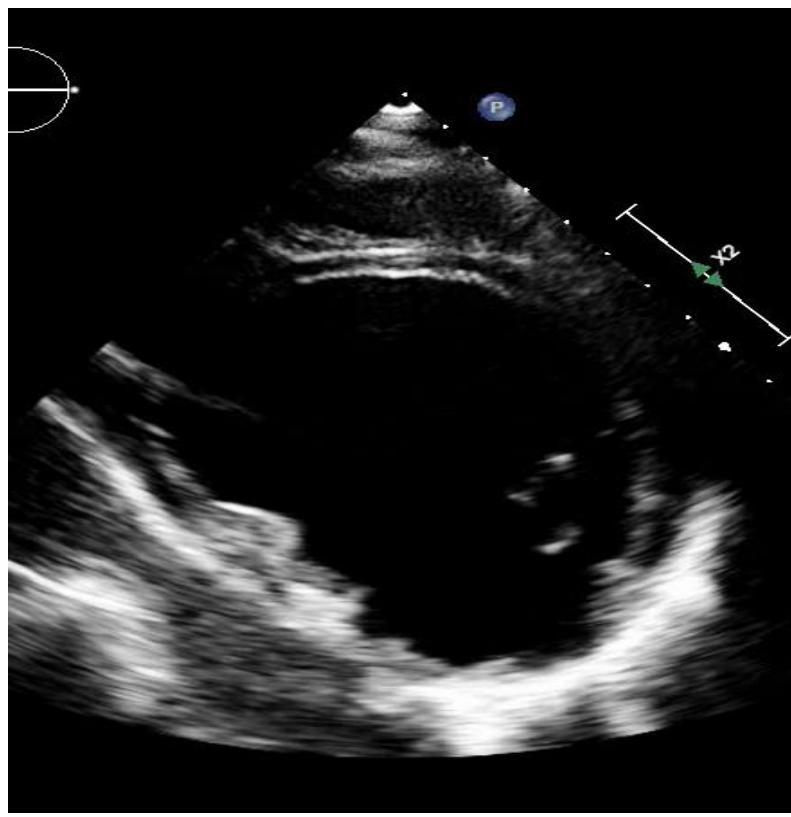


TO BURN OR NOT TO BURN...that is the question

Donah Zachariah
ELECTROPHYSIOLOGY FELLOW
Queen Elizabeth Hospital Birmingham







- Childhood myocarditis
- Idiopathic DCM, PFO
- Severe functional mitral regurgitation 2^o inferior wall aneurysm
- Dual chamber ICD- Birmingham Children's Hospital (downgraded to single chamber ICD due atrial lead failure).
- Previous VT ablation at Birmingham Children's Hospital- 2013 for VT storm
- HeartMate II left ventricular assist device- Feb 2015 with mitral valve repair



13cm

2D

63%

C 50

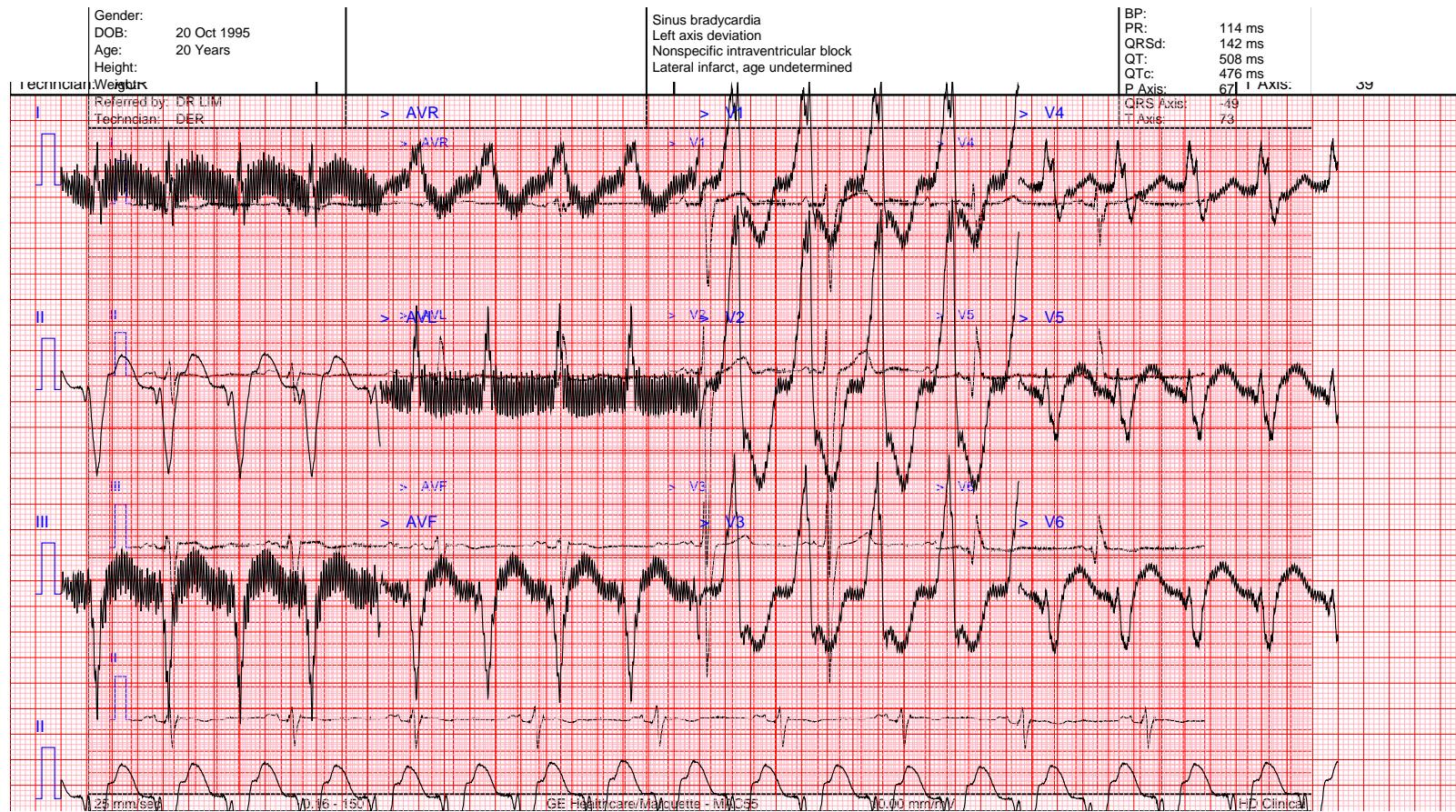
P Low

HGen

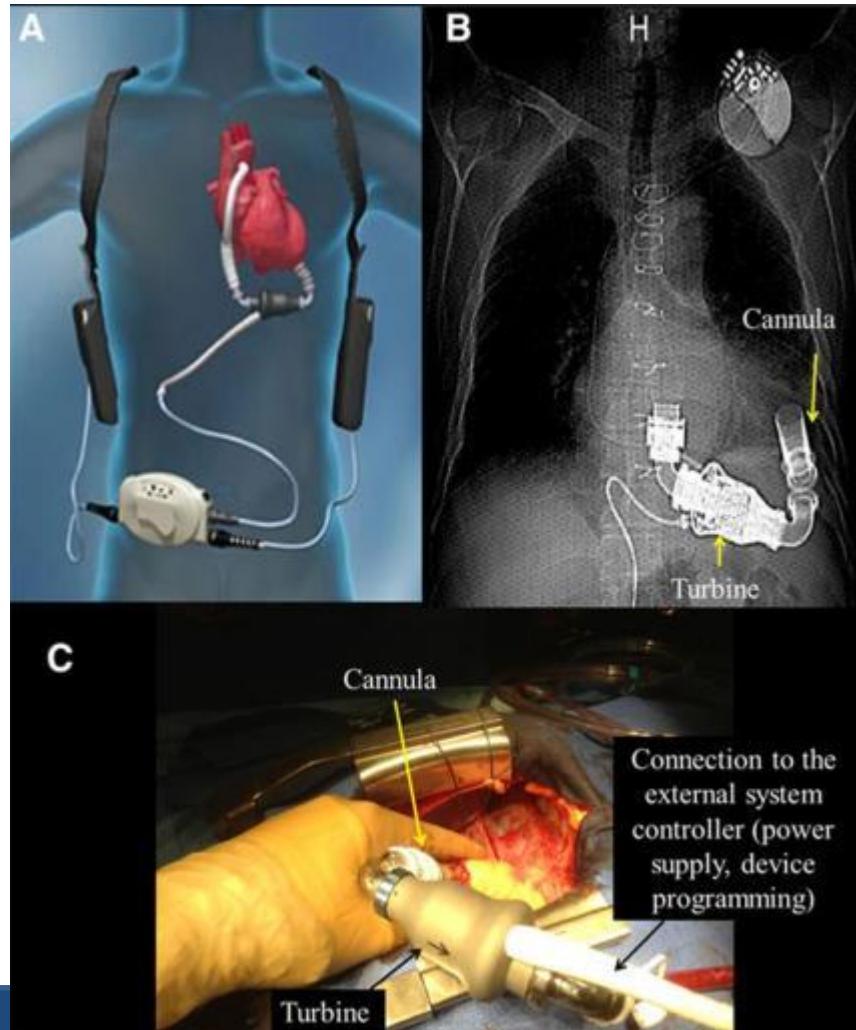


1.6 3.2





A, Heart Mate II device (Thoratec Corporation, CA).



Frederic Sacher et al. *Circ Arrhythm Electrophysiol*.
2015;8:592-597



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LVADs and arrhythmias

- Fluid and electrolyte shifts

Postoperative ventricular tachyarrhythmias have been documented in up to 35% of patients within 30 days of LVAD placement

(Ziv et al., 2005) (Refaat et al., 2008)

- Ventricular unloading and changes in parietal stretch → alteration of electrical properties of the tissue.
- Suction to an adjacent ventricular wall from the cannula (reduction in turbine speed may be useful in terminating VT).



What next?

- Increase betablockade?
- Increase amiodarone?
- Intravenous lignocaine?
- Reprogram device?
- Urgent heart transplant list?
- Do nothing?
- VT ablation?



Practical issues

- Invasive arterial blood pressure monitoring.
- Retrograde aortic access- no or little flow going across the aortic valve
- Risk of dislodging any thrombus that can be formed in the aortic root even in patients who are fully anticoagulated- TOE.
- For transseptal access- steerable sheath
- Epicardial access



Original Article

Characteristics of Ventricular Tachycardia Ablation in Patients With Continuous Flow Left Ventricular Assist Devices

Frederic Sacher, MD, PhD; Tobias Reichlin, MD; Erica S. Zado, PA-C; Michael E. Field, MJ
Juan F. Viles-Gonzalez, MD; Petr Peichl, MD, PhD; Kenneth A. Ellenbogen, MD;
Philippe Maury, MD; Srinivas R. Dukkipati, MD; Francois Picard, MD;
Josef Kautzner, MD, PhD; Laurent Barandon, MD, PhD; Jayanthi N. Koneru, MD;
Philippe Ritter, MD; Saagar Mahida, MBChB; Joachim Calderon, MD; Nicolas Derval, MD
Arnaud Denis, MD; Hubert Cochet, MD, PhD; Richard K. Shepard, MD; Jerome Corre, M^I
James O. Coffey, MD; Fermin Garcia, MD; Meleze Hocini, MD; Usha Tedrow, MD;
Michel Haissaguerre, MD; Andre d'Avila, MD; William G. Stevenson, MD;
Francis E. Marchlinski, MD; Pierre Jais, MD



34 patients (39 procedures, 5- previous ablation)

- Transseptal approach used in 25 procedures (74%)
- Retrograde-aortic approach in 14 (36%)

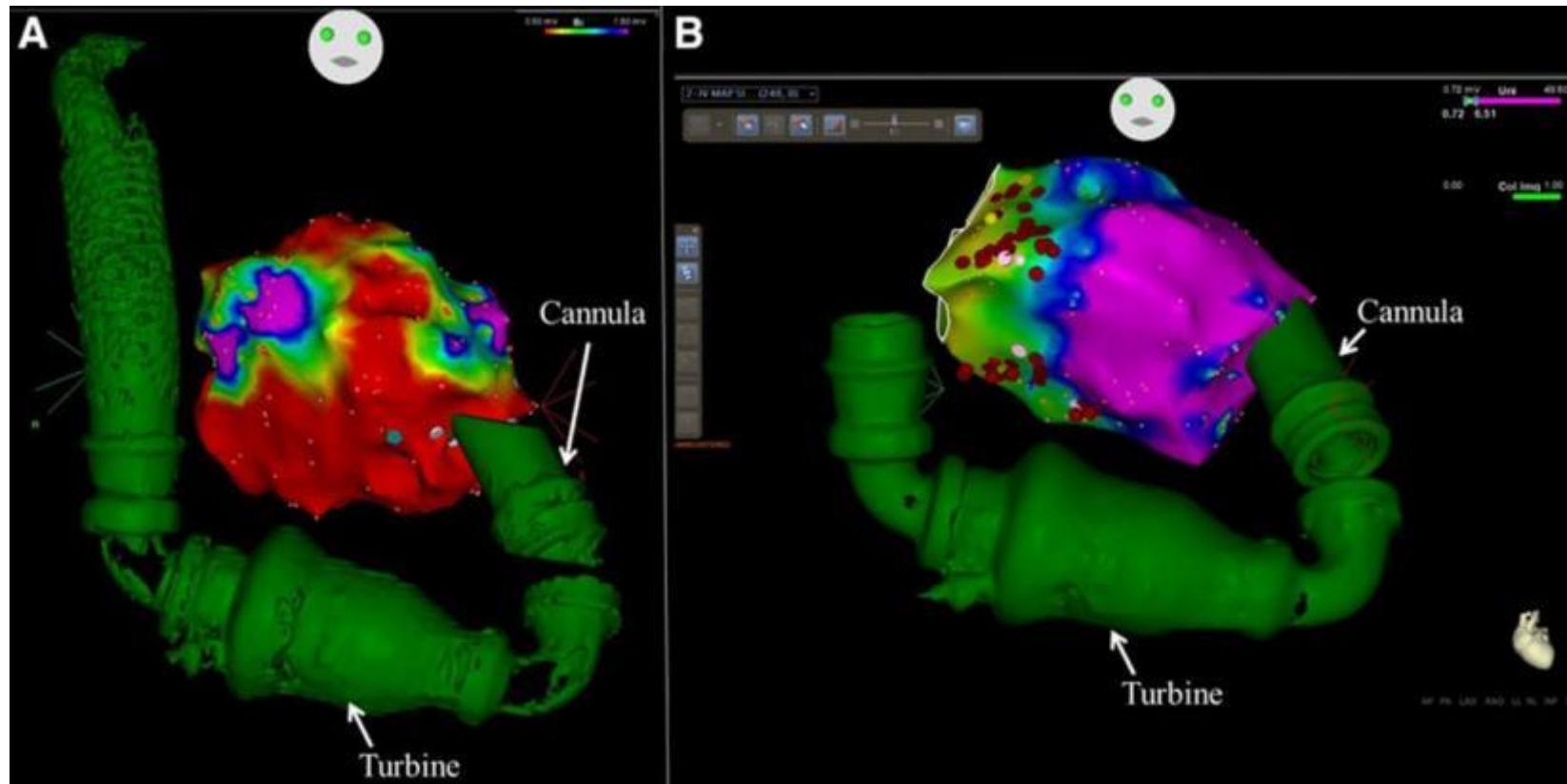
6 patients, no endocardial scar could be identified.

Scar locations:

- basal area in 4 (all patients with non-ischemic cardiomyopathy)
- apex (insertion site of the cannula) in 11
- anterior n=13, septal n=10, inferior n=8, lateral n=7



Bipolar voltage map (Carto 3) of the left ventricle (LV) in a patient implanted with a Heart Mate II device (Green) for progressive heart failure because of ischemic cardiomyopathy (A).



Frederic Sacher et al. Circ Arrhythm Electrophysiol.

2015;8:592-597



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Electrophysiologic characteristics and catheter ablation of ventricular tachyarrhythmias among patients with heart failure on ventricular assist device support.

[Cantillon DJ, Bianco C, Wazni OM, Kanj M, Smedira NG, Wilkoff BL, Starling RC, Saliba W. Heart Rhythm. 2012 Jun;9\(6\):859-64.](#)



611 recipients of VAD (mean age 53.3 ± 12.4 years, 80% men)

- 21 patients were referred for 32 EP procedures
- 44 inducible tachycardias (monomorphic VT 92%)

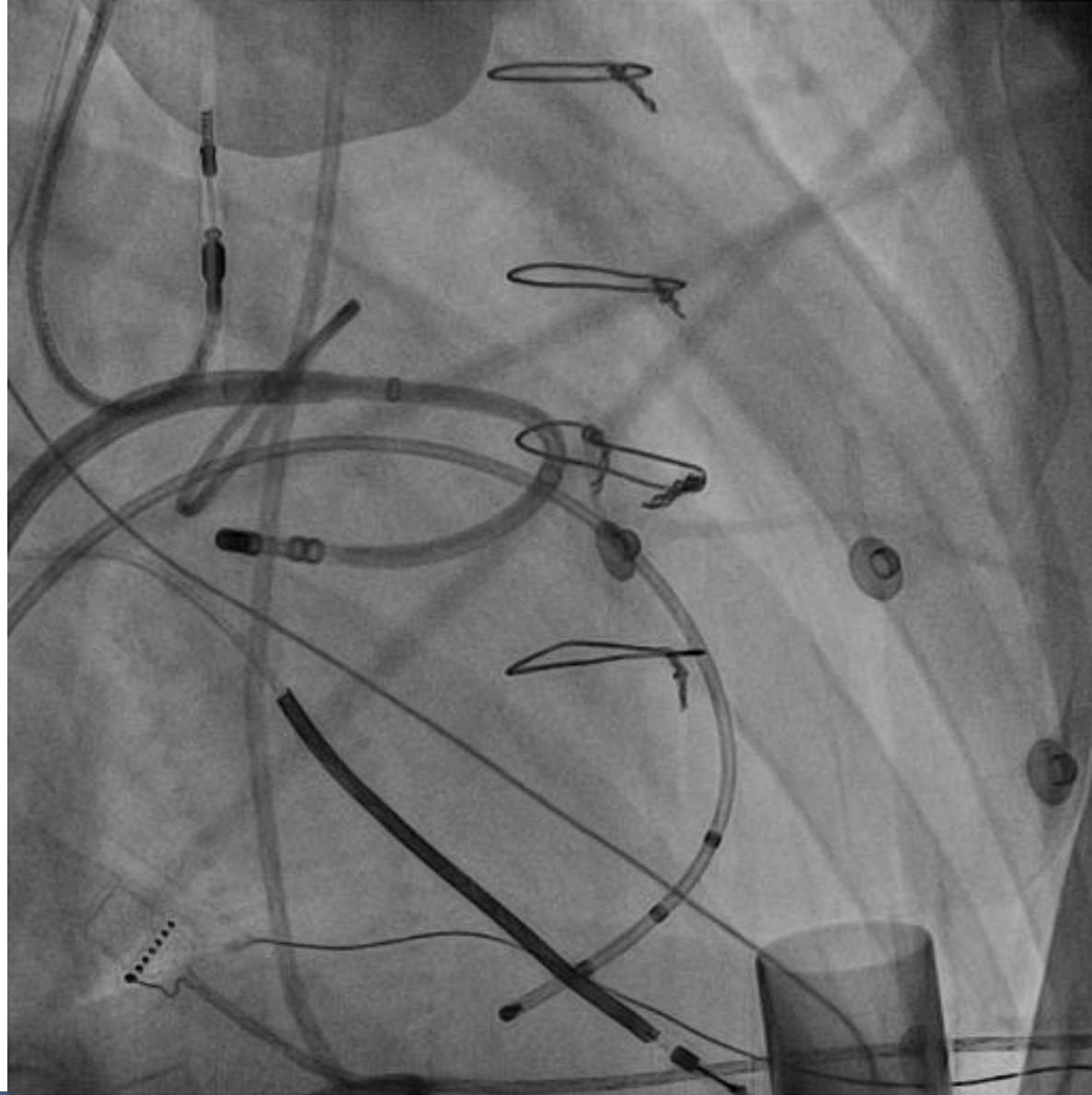
Electro-anatomic mapping :

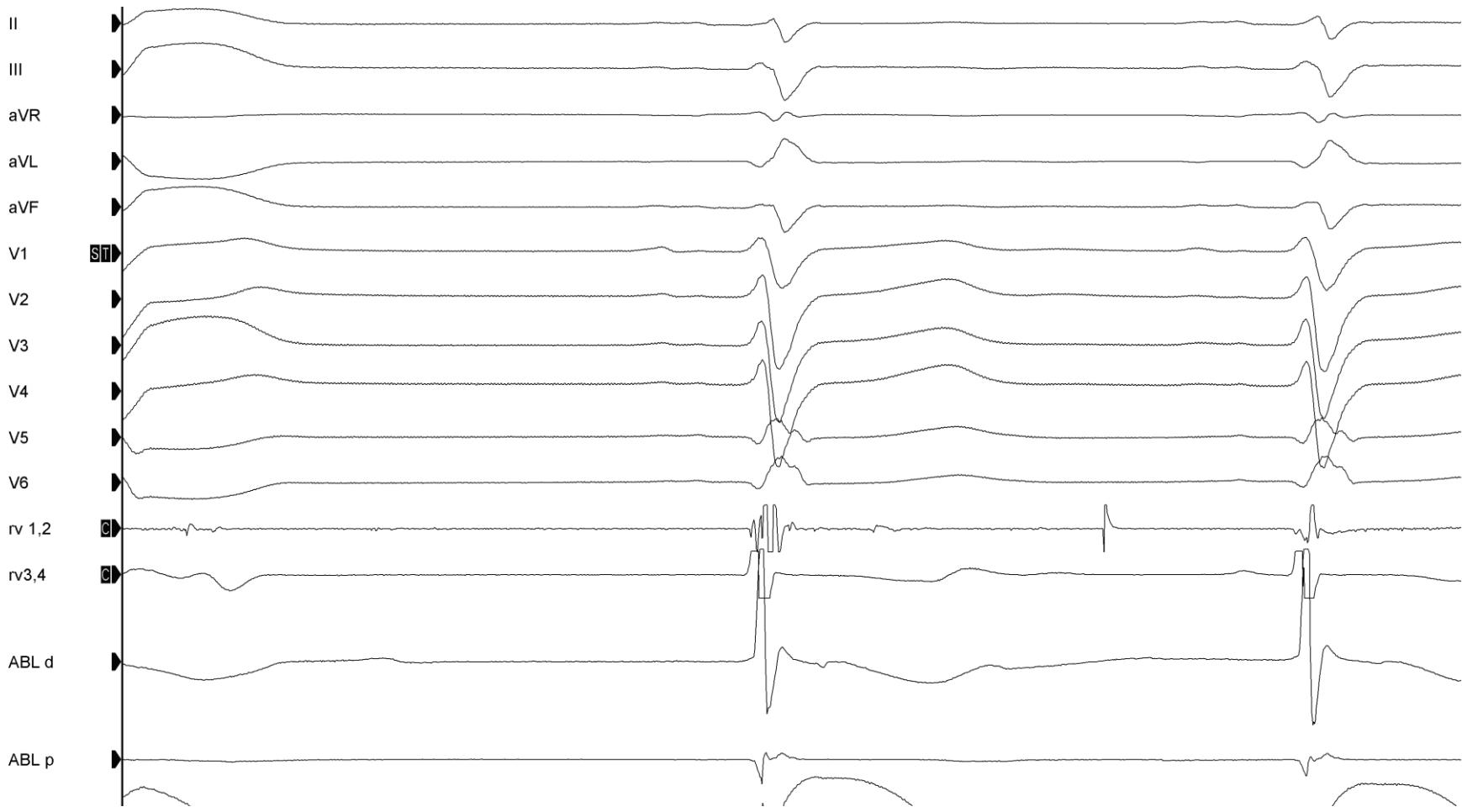
- Reentrant VT (intrinsic scar-75%, apical inflow cannulation site-14%)
- Focal/micro-reentry VT (7%)
- Bundle branch reentry (3.5%)

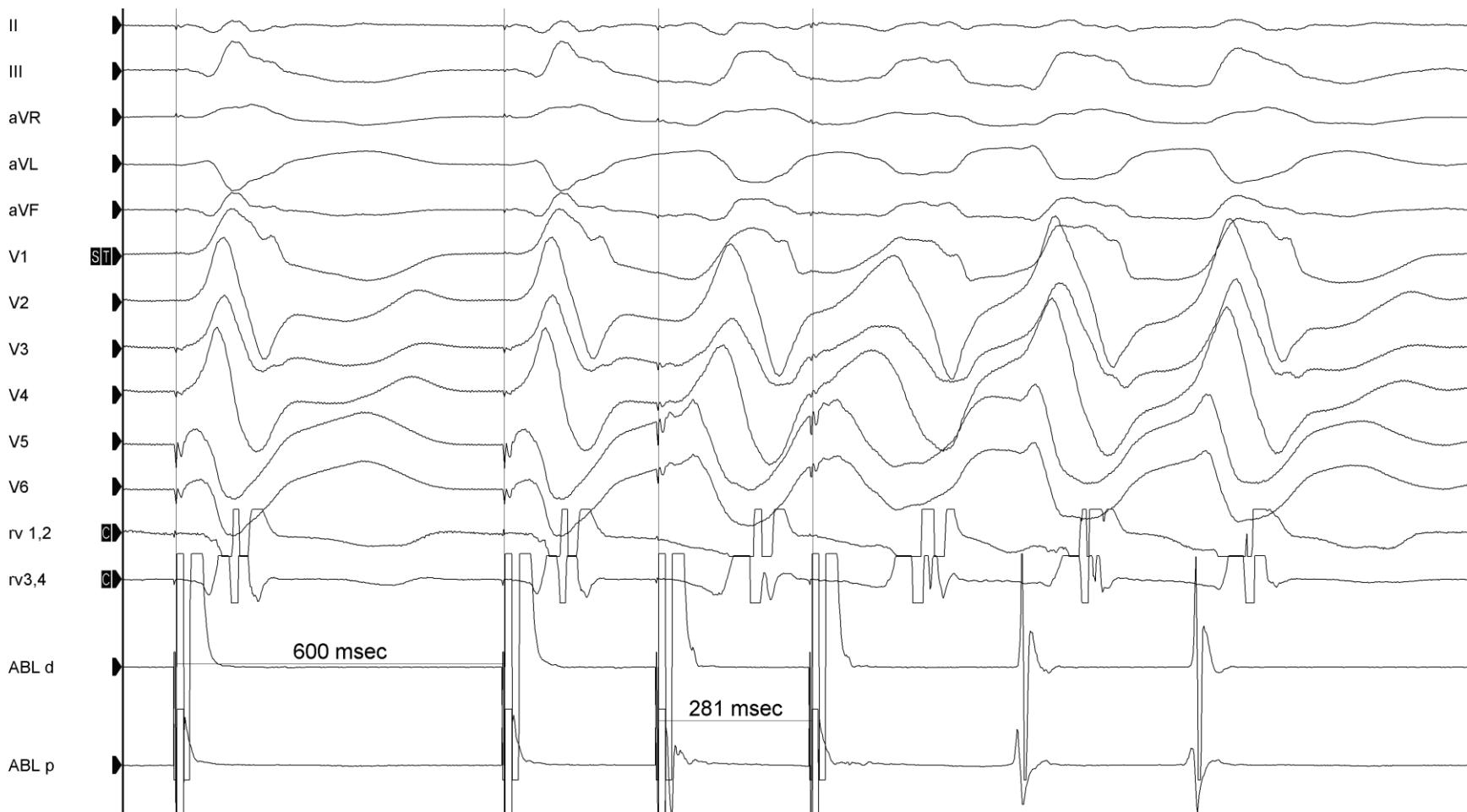


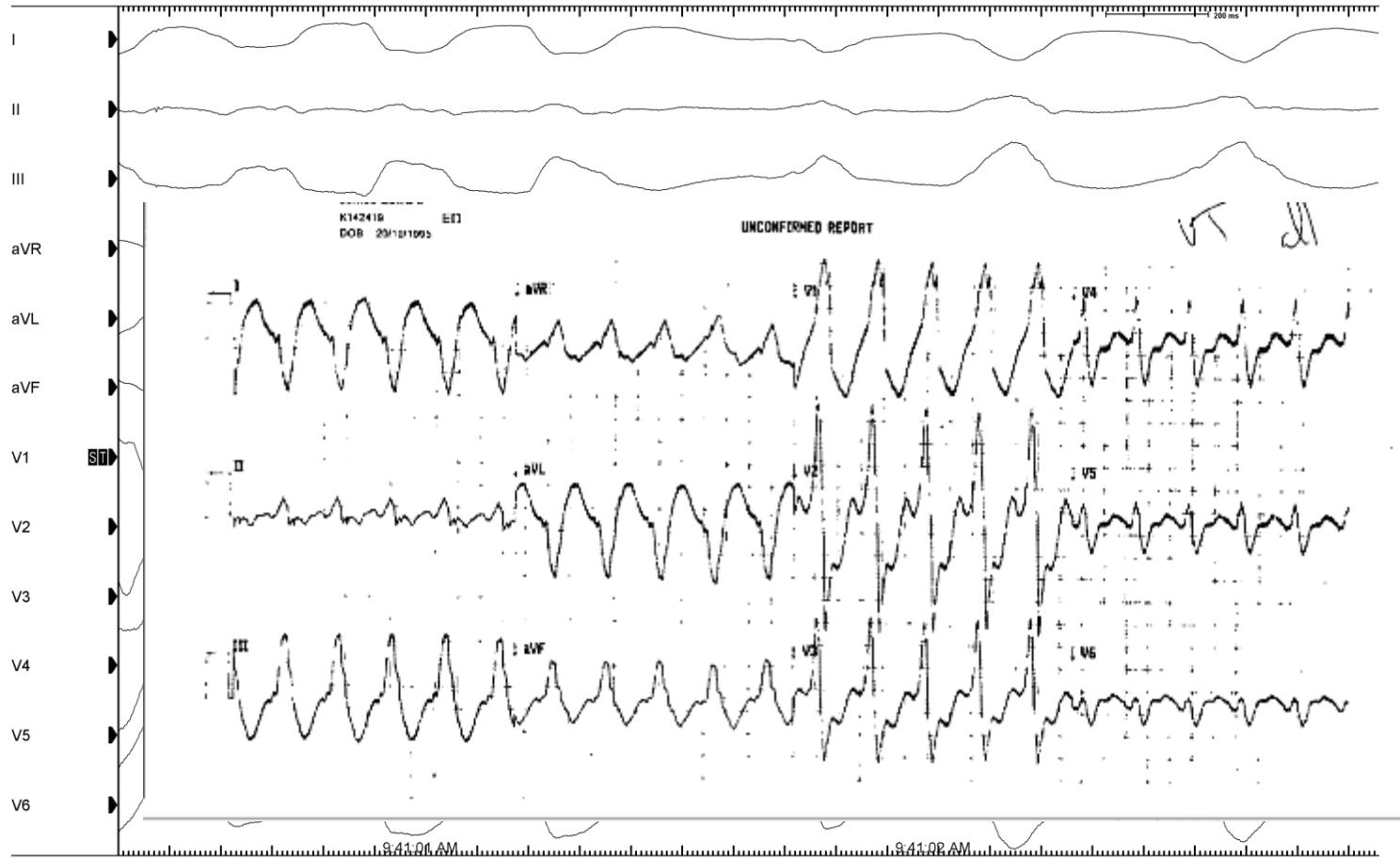
- Successful ablation in 86%.
- VT recurred in 33% at a mean of 133 ± 98 days
- 29% patients required repeat procedures
- Subsequent recurrence in 4 of 21 patients (19%)

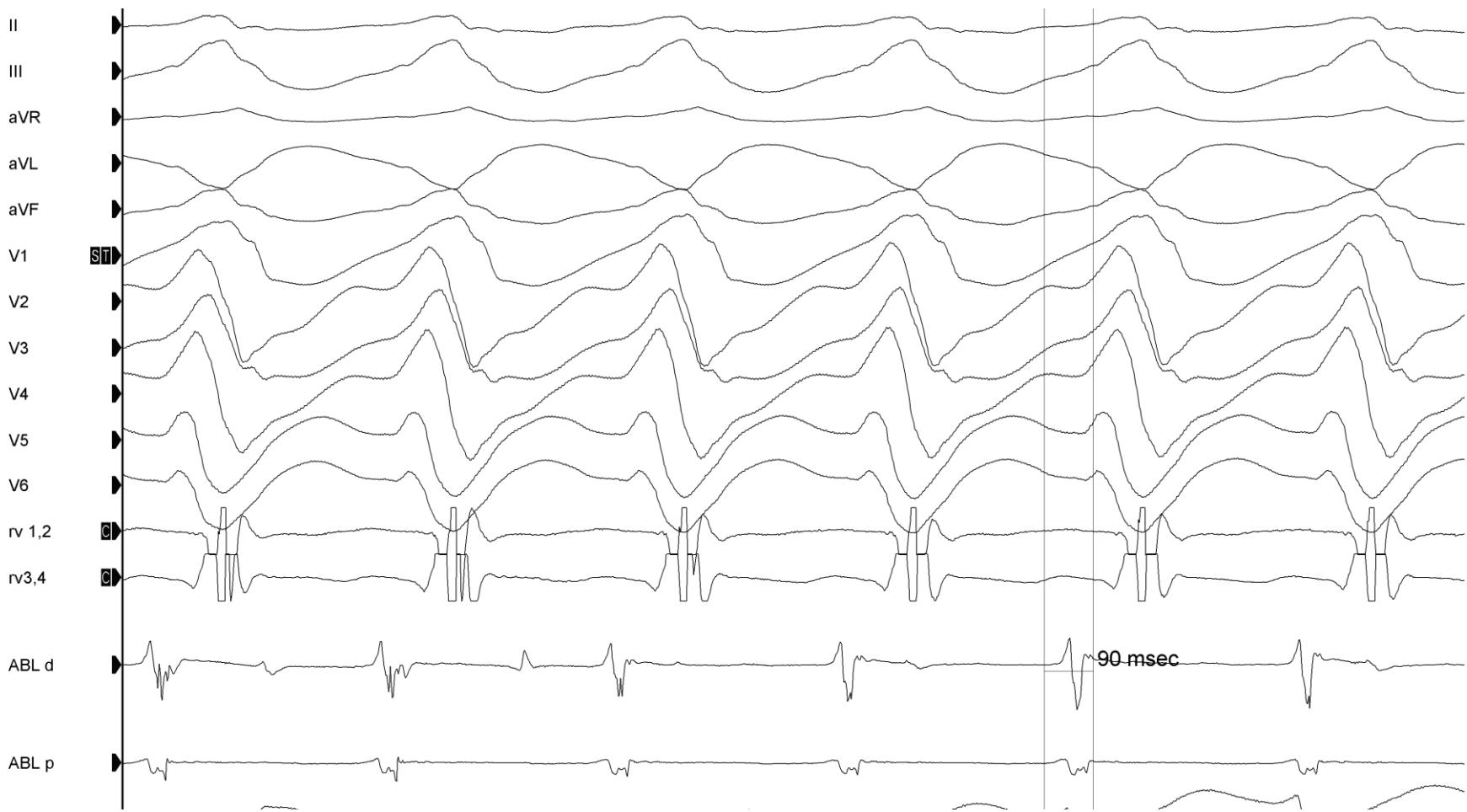


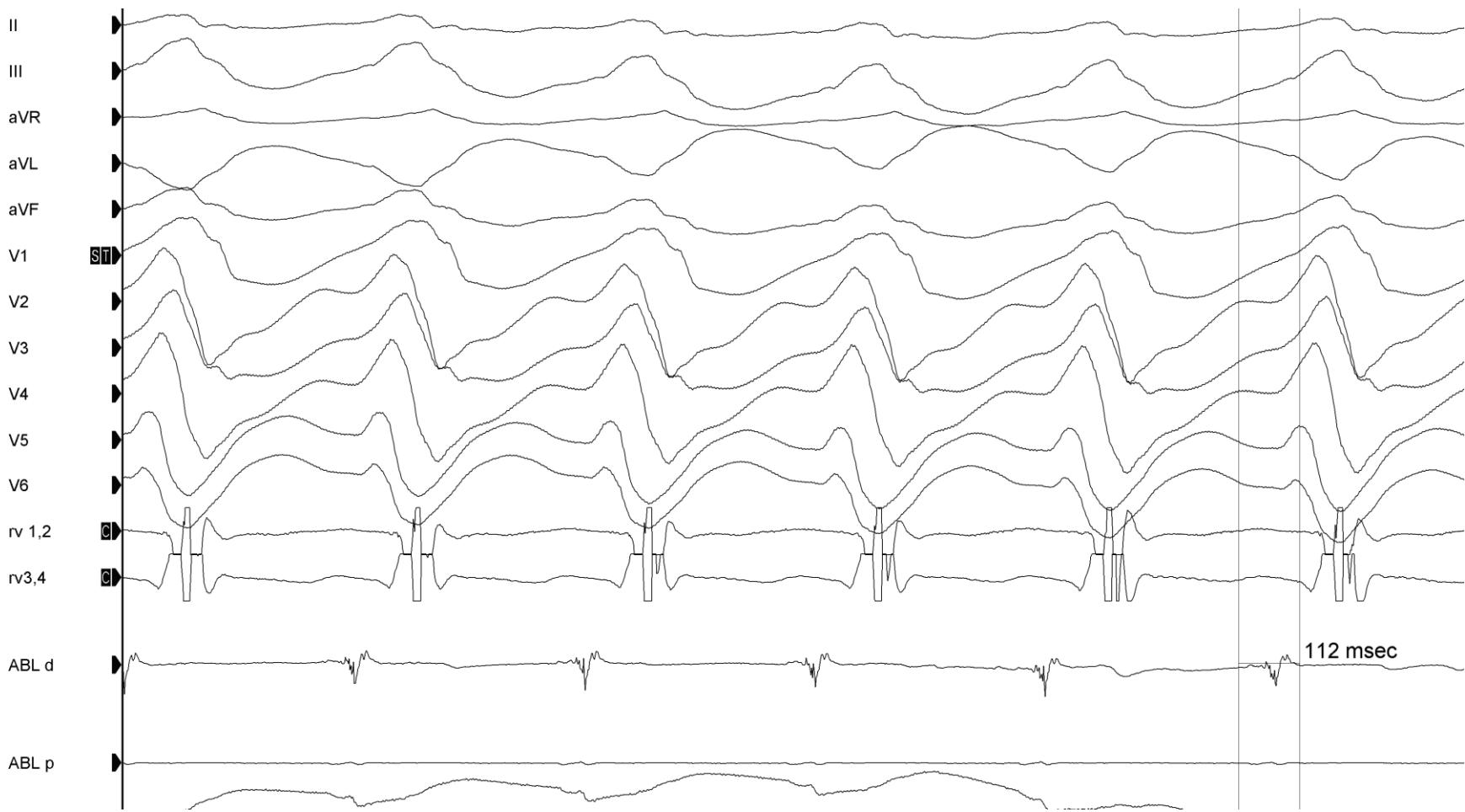


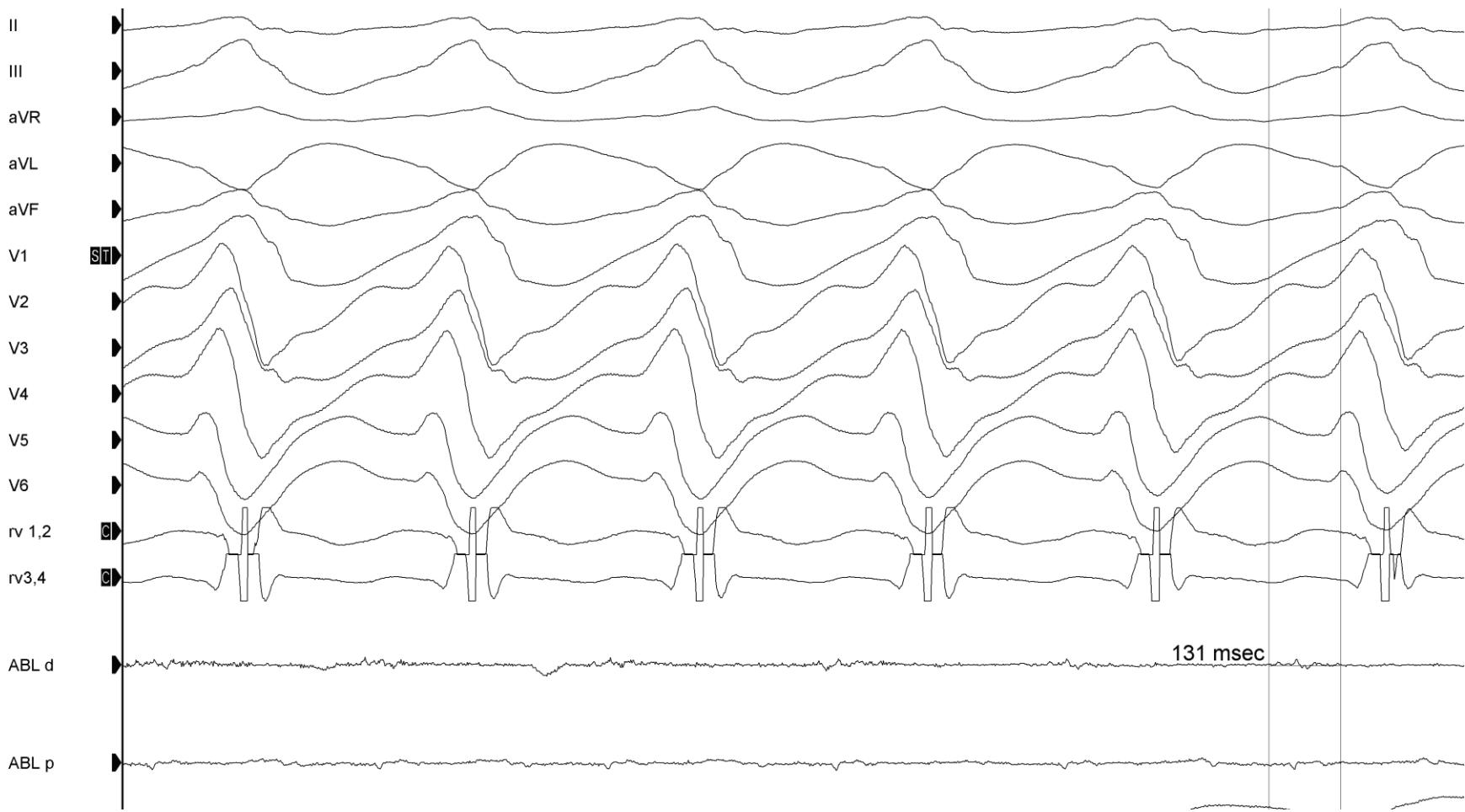




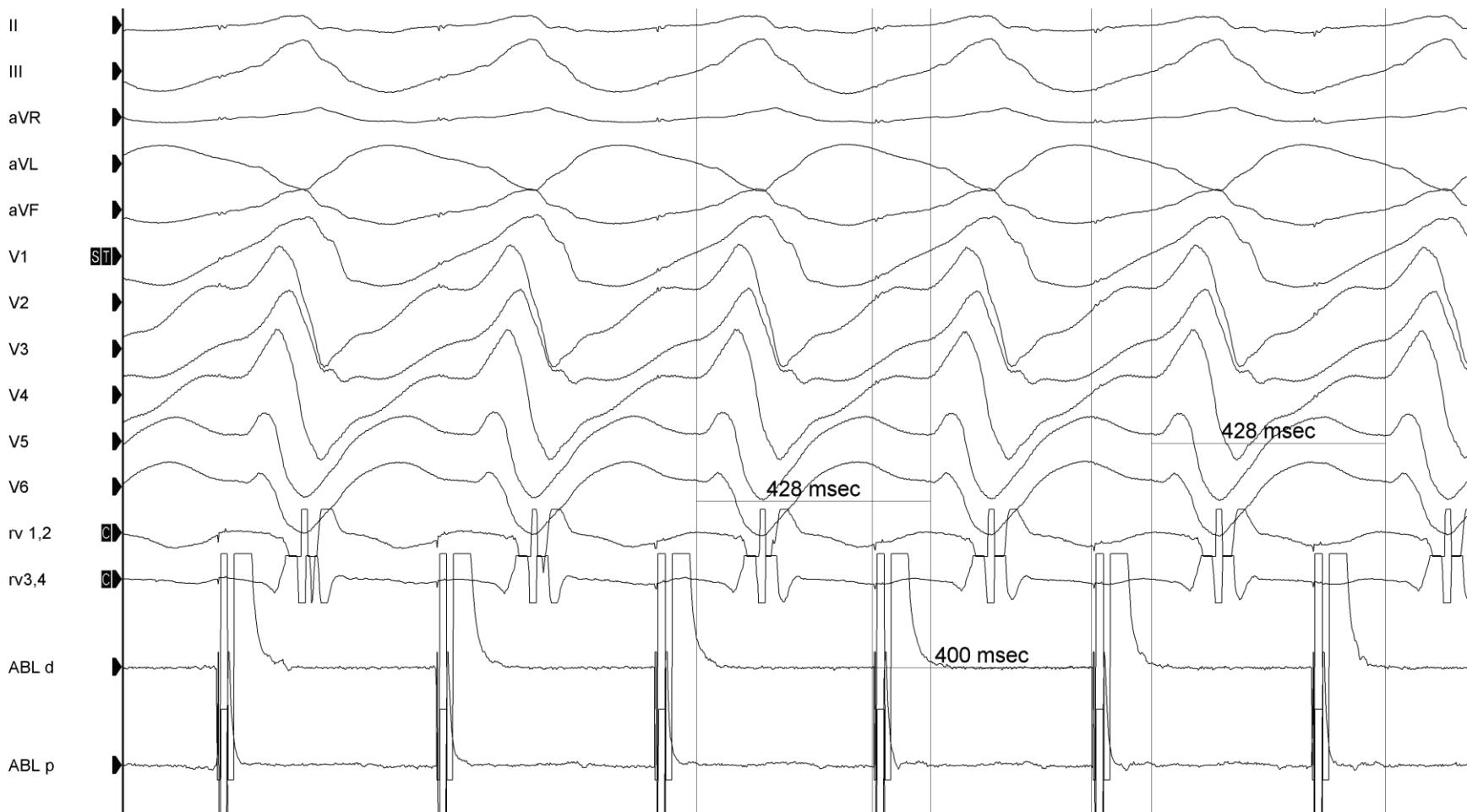


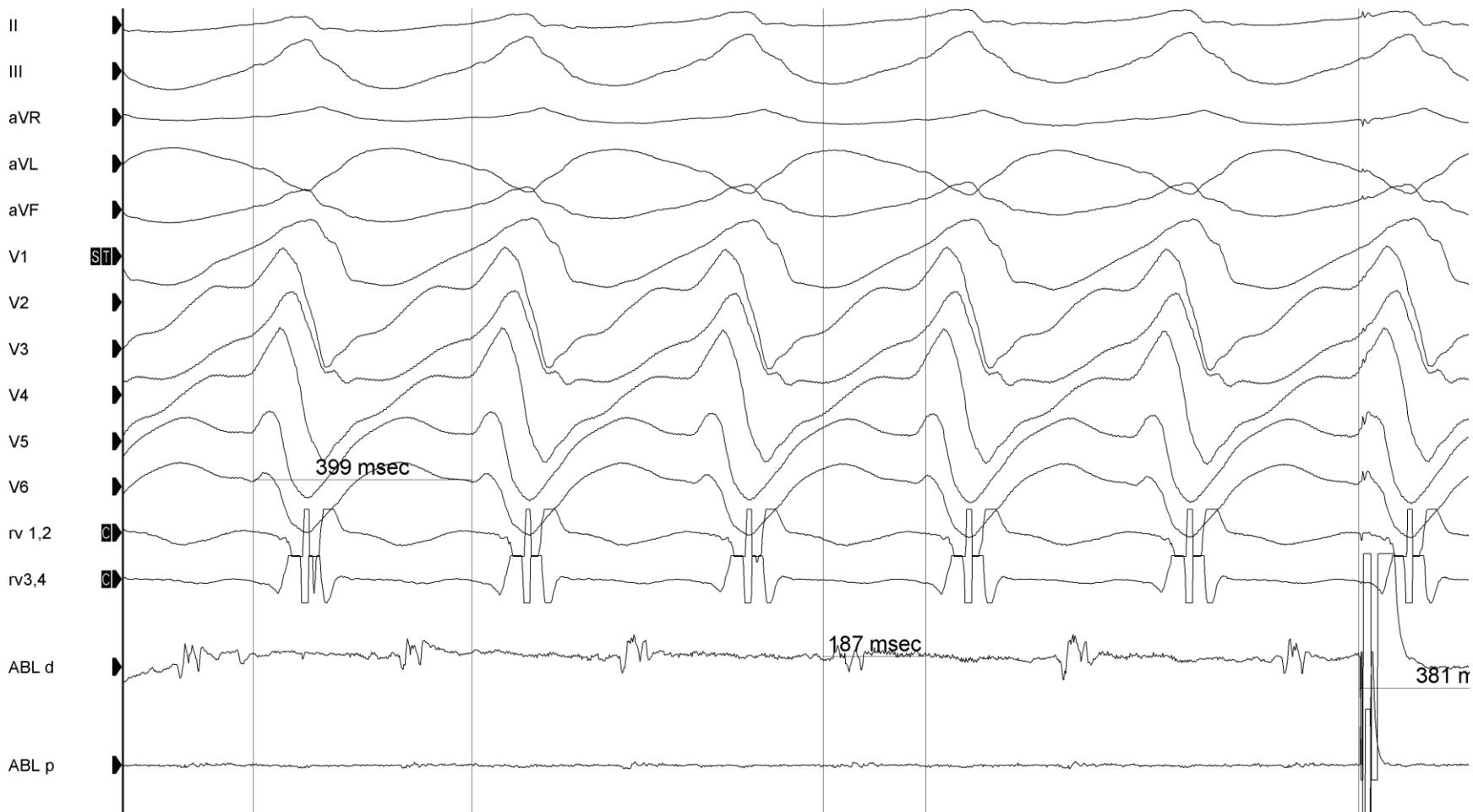


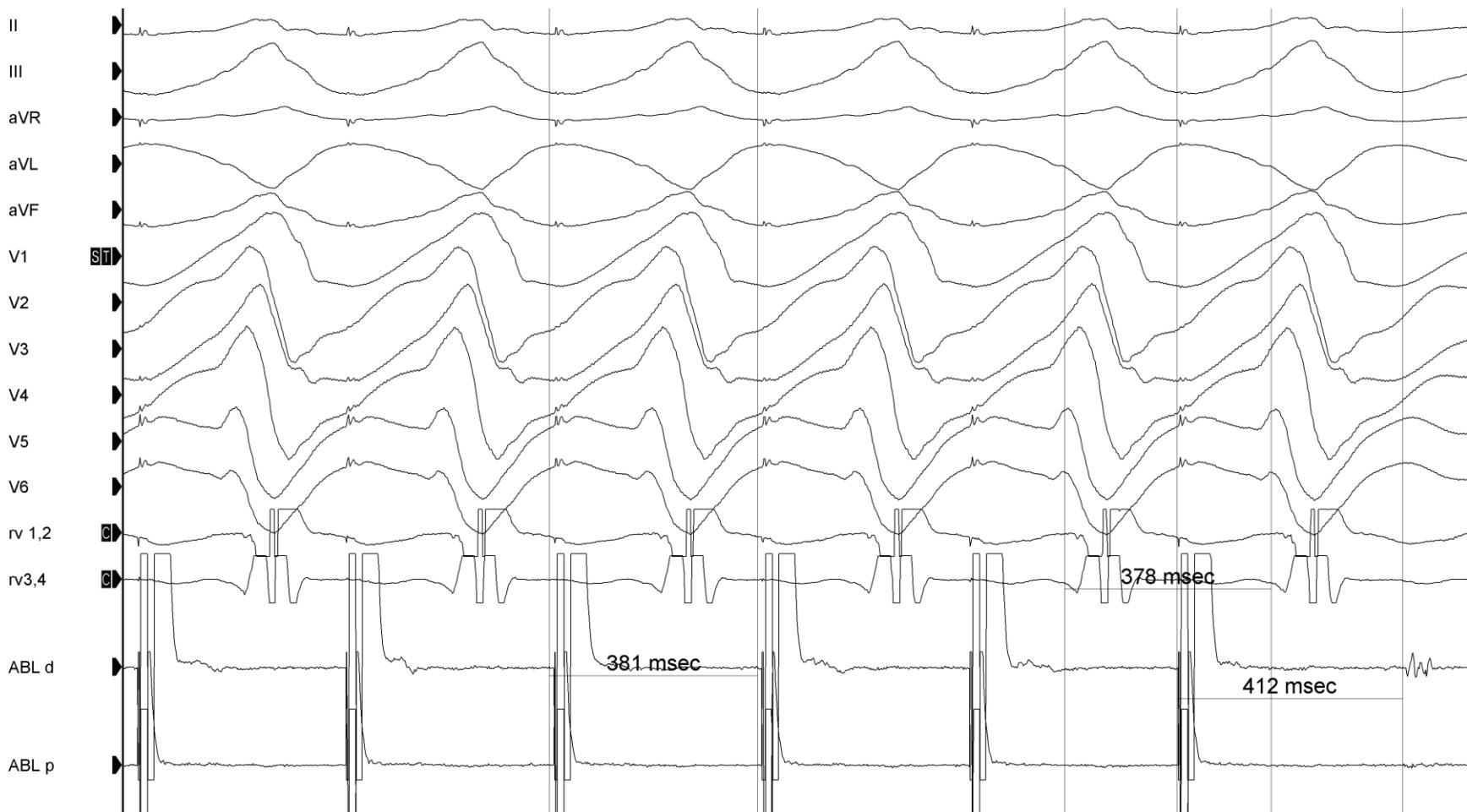


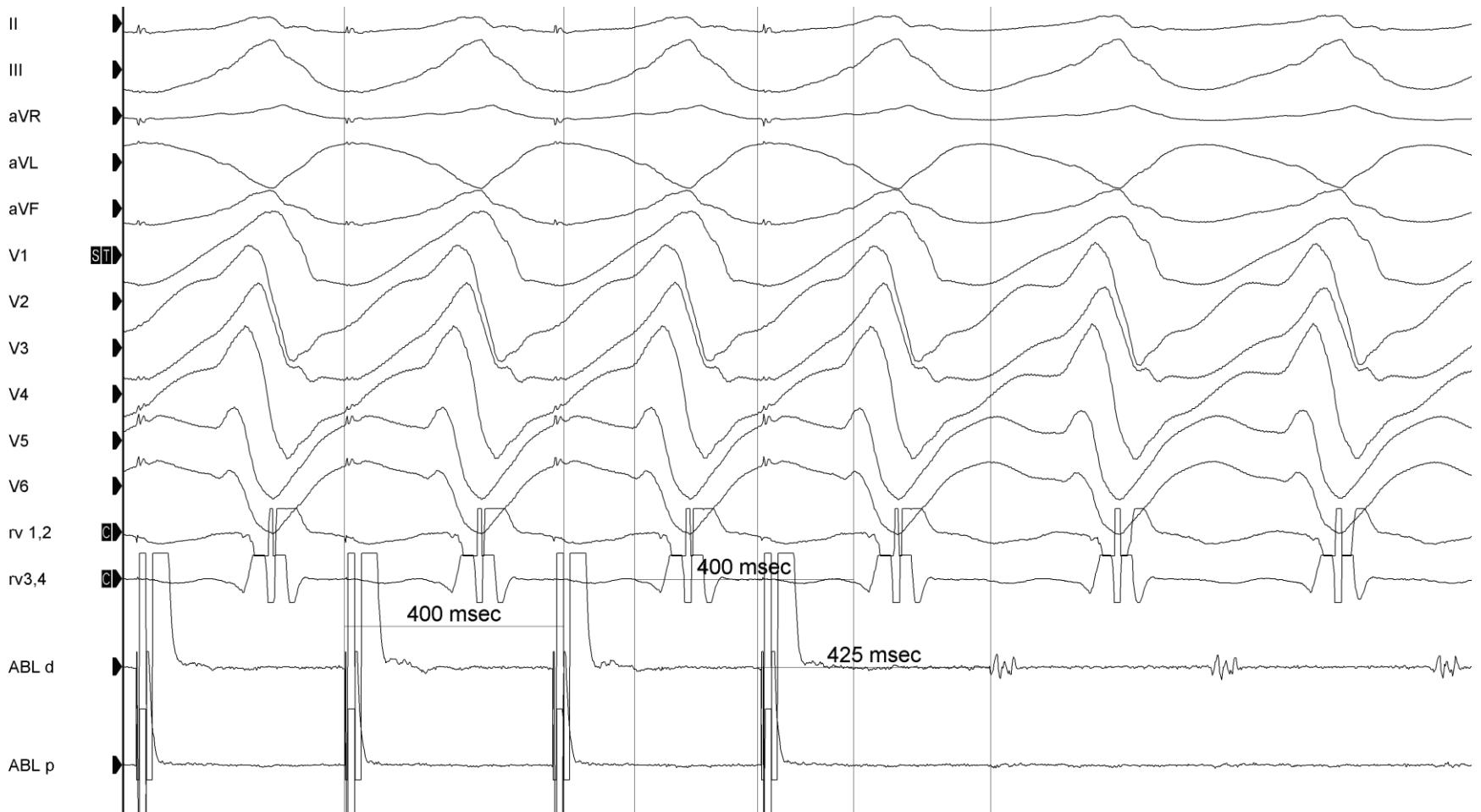


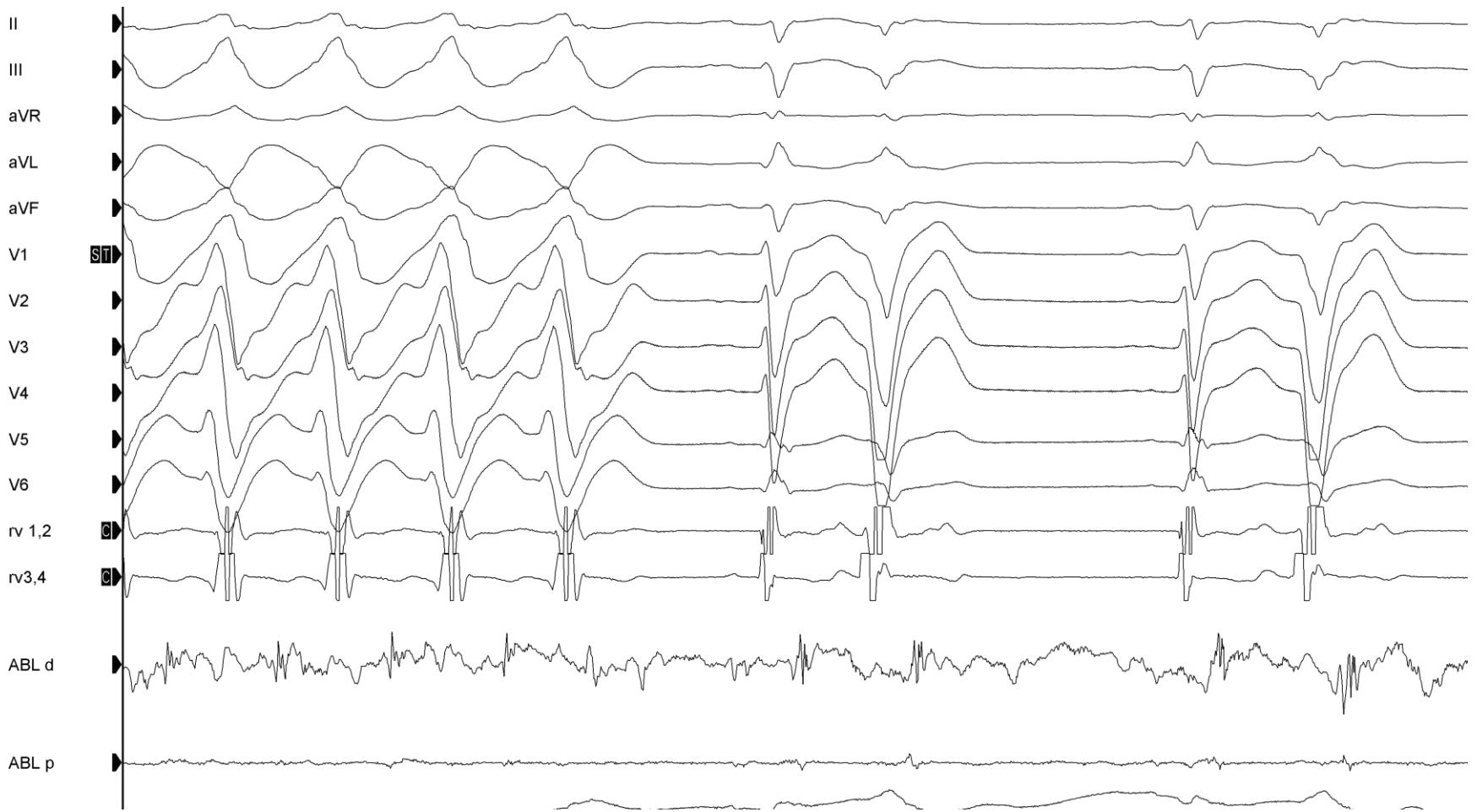


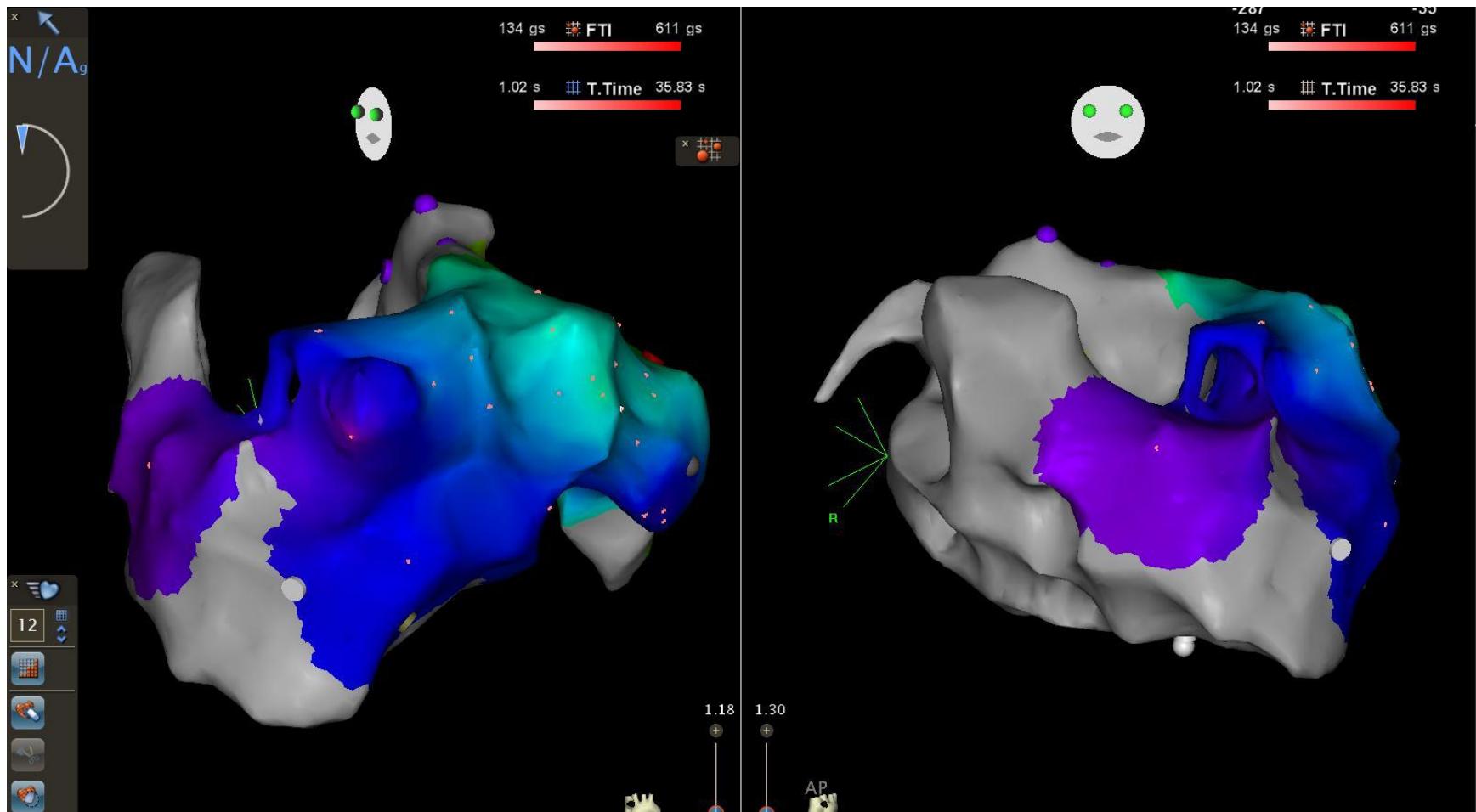




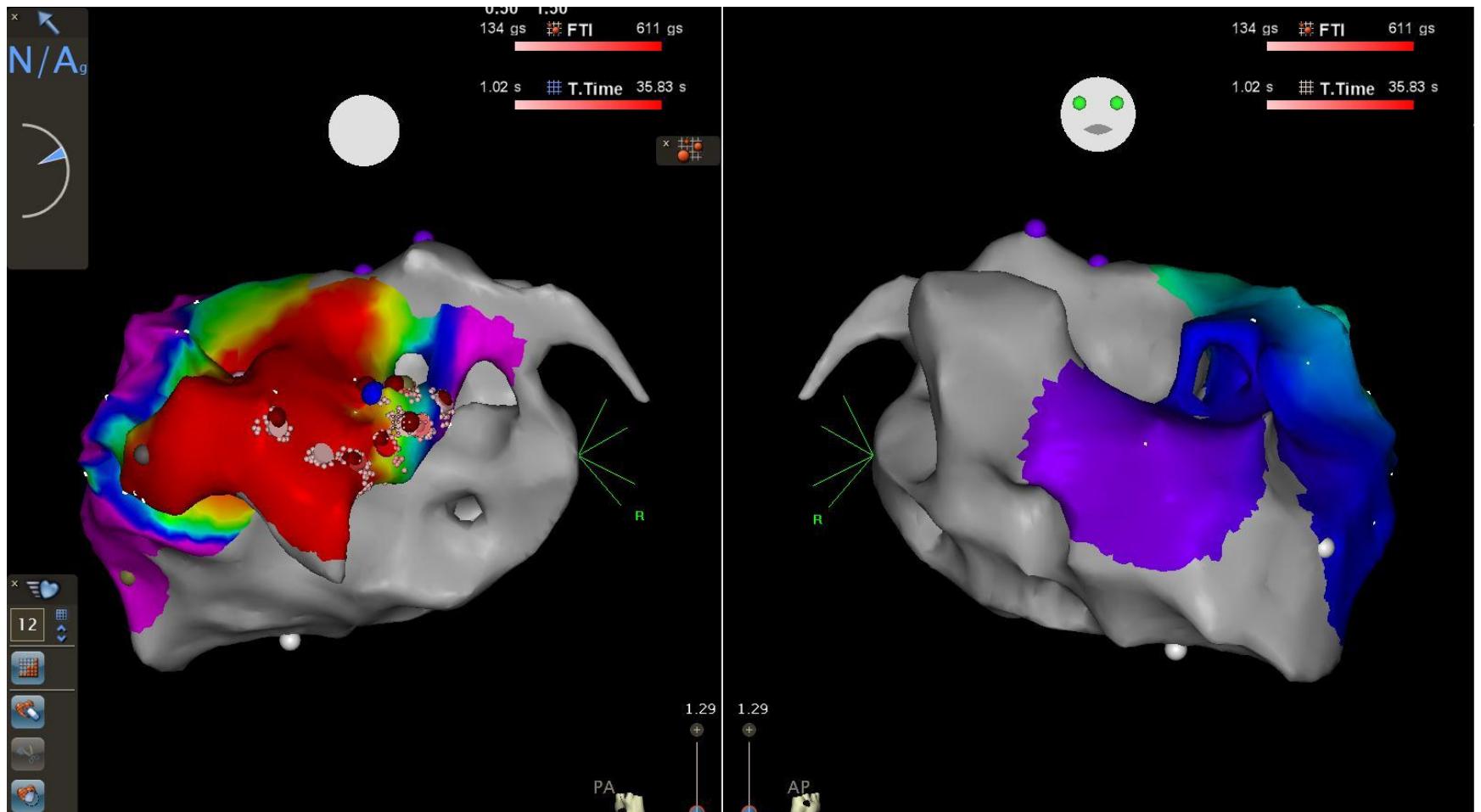


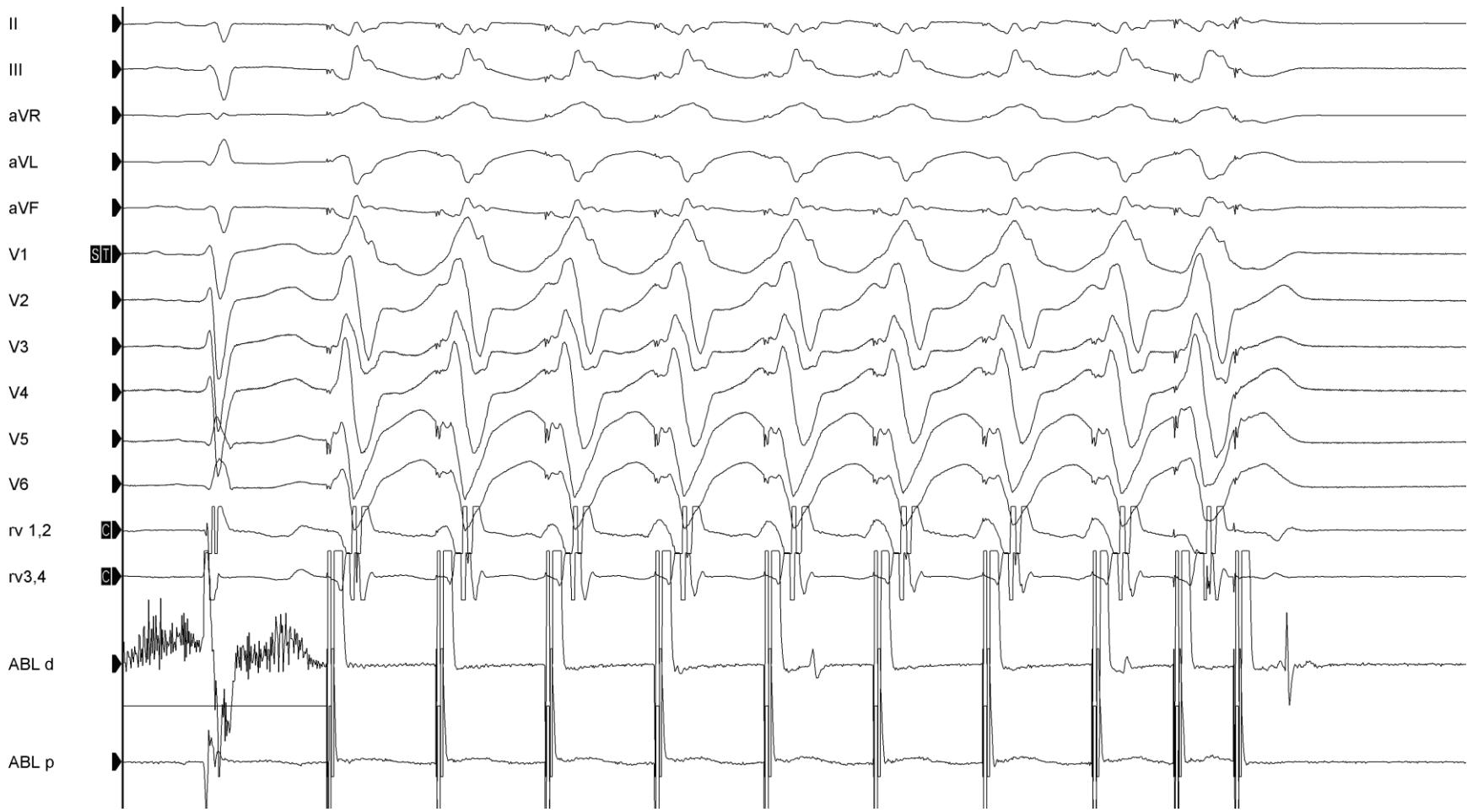














"Okay, folks, thi

WIND. REEL. AND PRINT.

