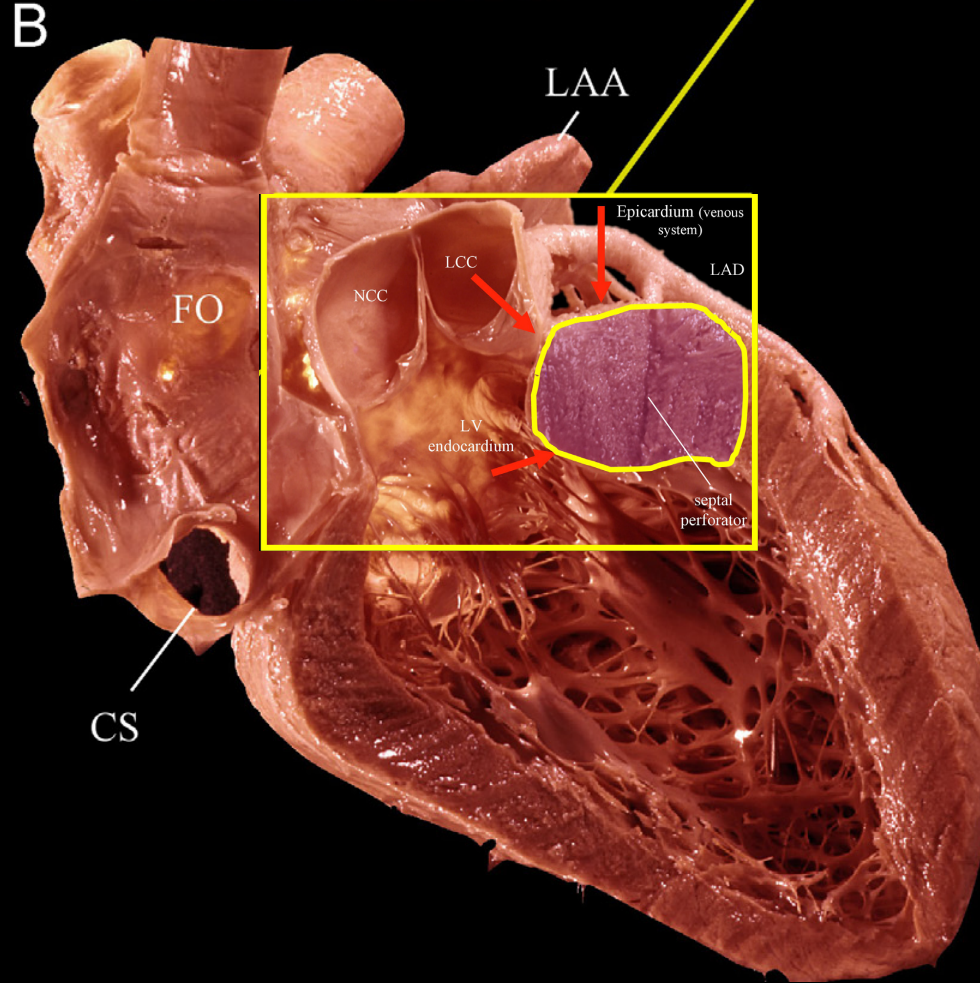
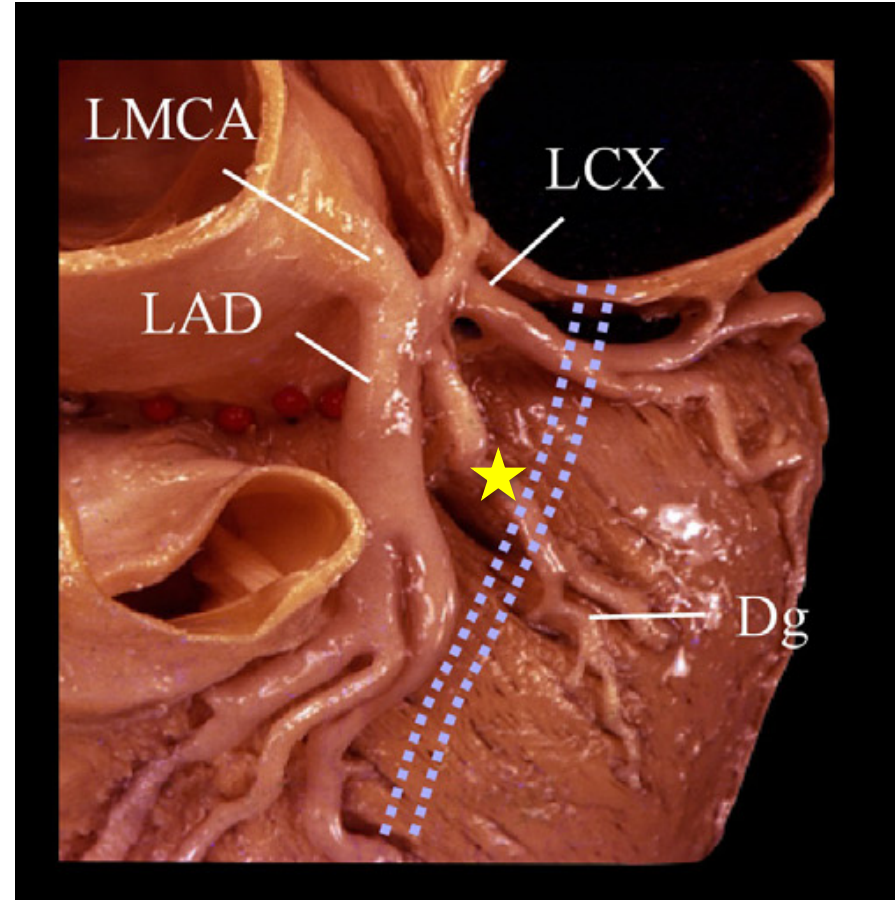
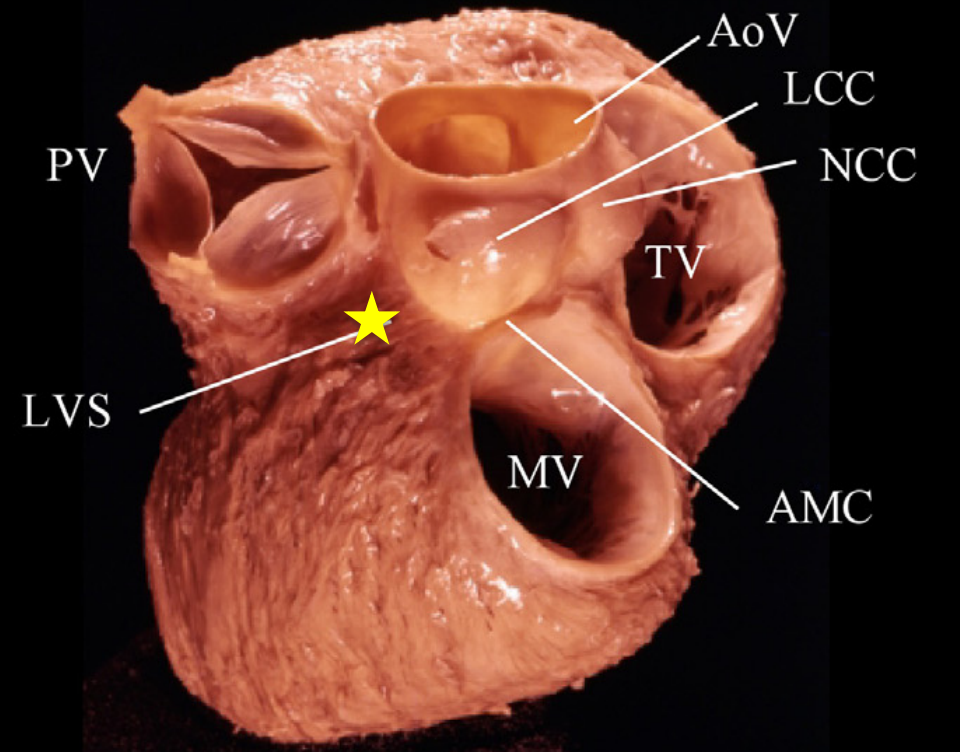


# Sol Ventrikül “Summit” Taşikardileri

Dr. Emin Evren Özcan, PhD  
Dokuz Eylül Üniversitesi  
İzmir

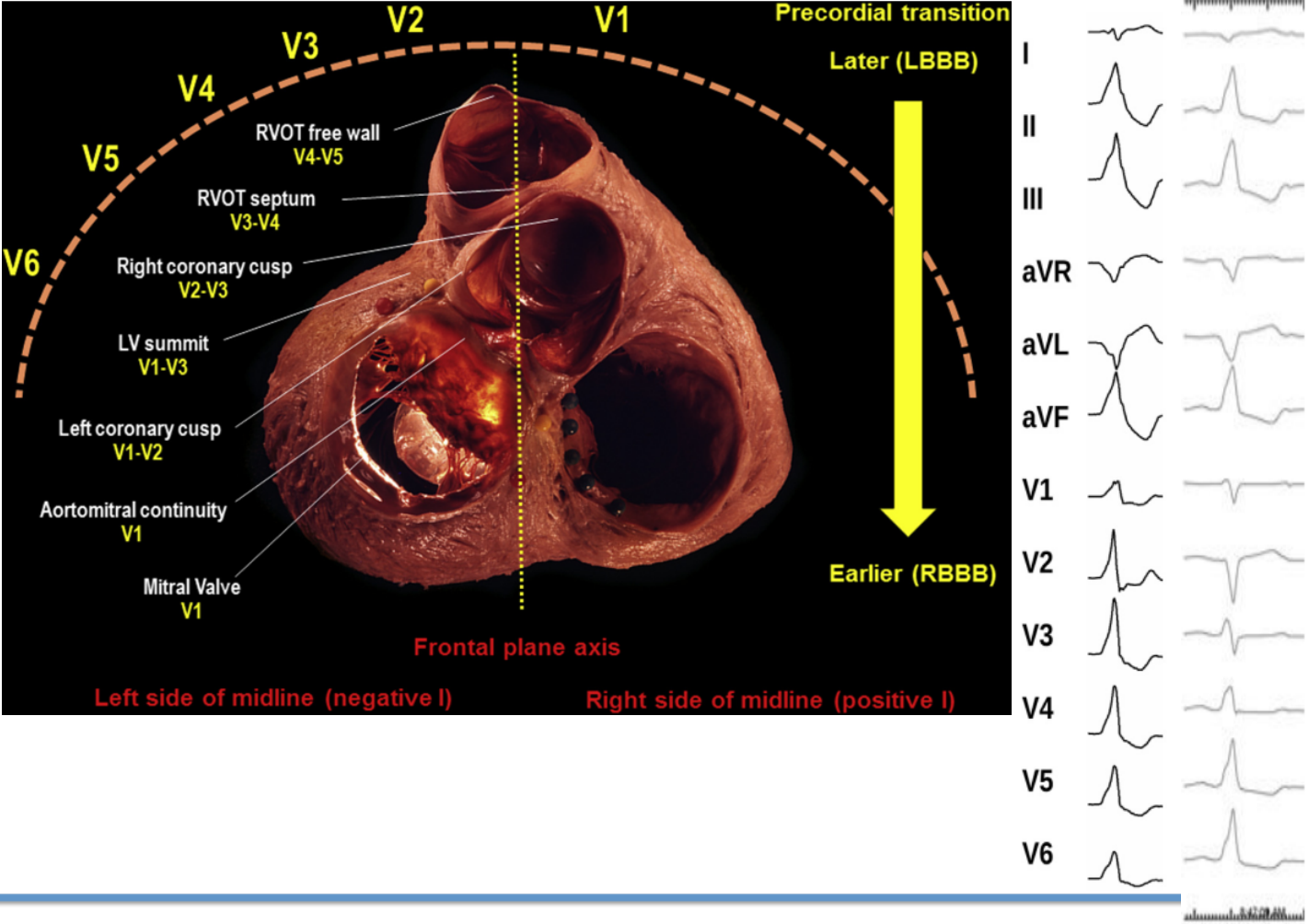


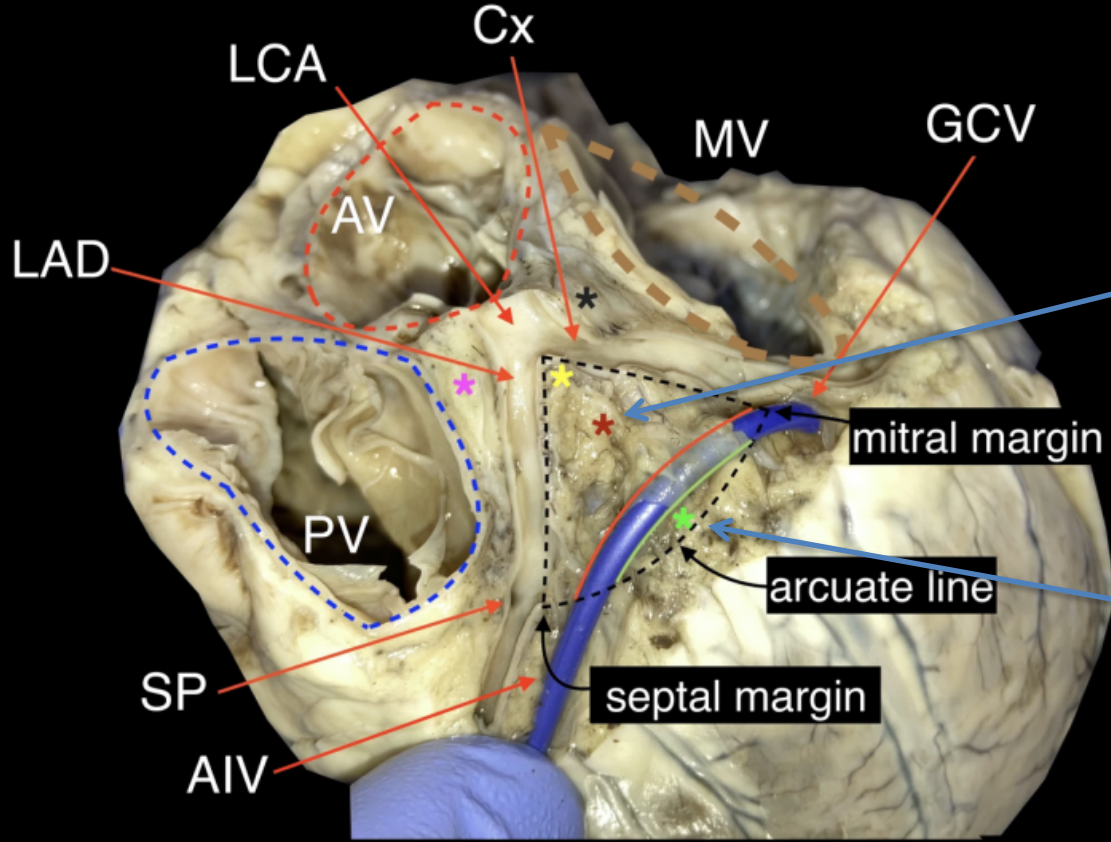




# EKG

- RBBB
- İnf aks , R D III > DII
- LBBB erken geçiş (V2 veya V3)
- %30 vakada Lead I negatif
- MDI>0.55





LV summit apeks;  
(Inaccessible area)

LAD-CX bifurkasyon

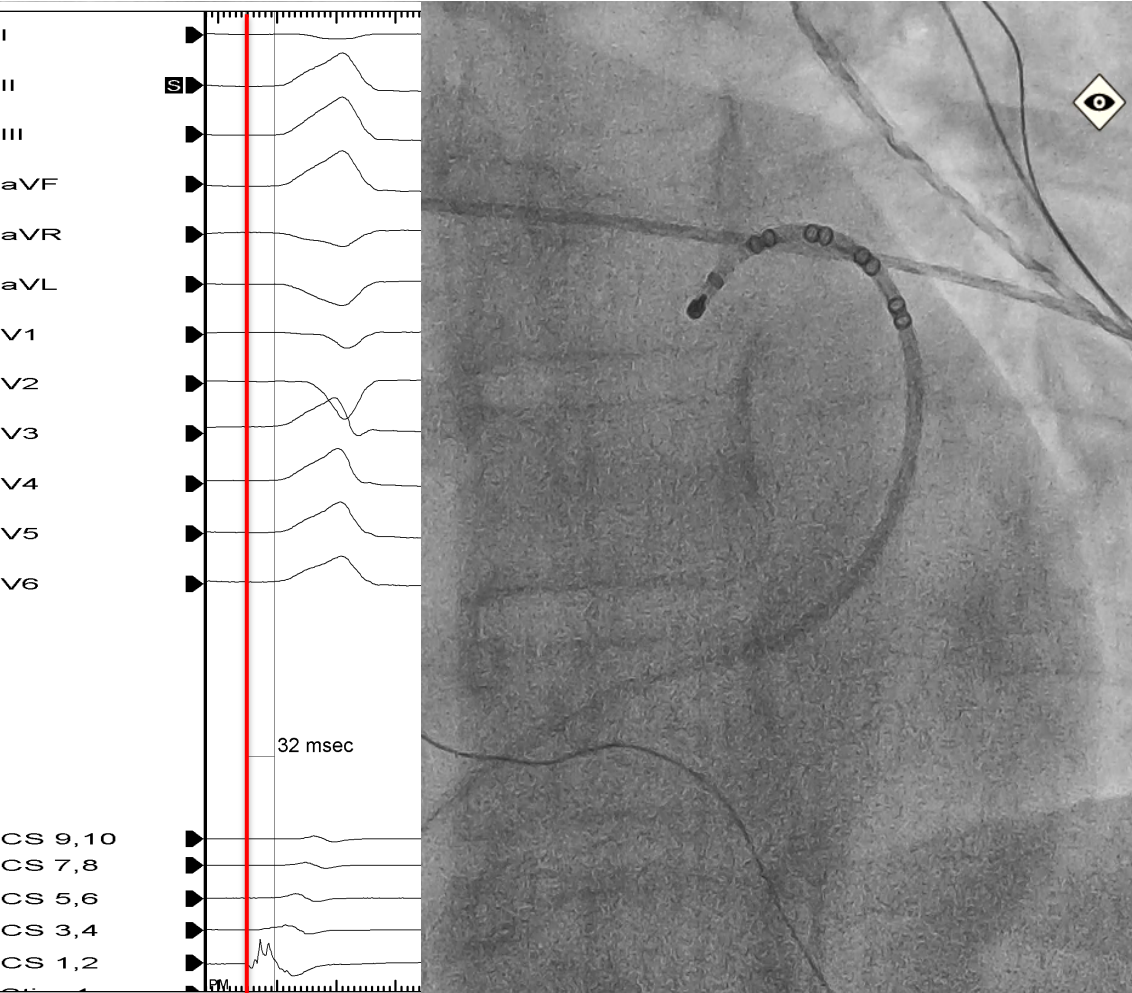
Aortik kök-Fibröz yapı

Septal-Aortomitral devamlılık

Sağdan subpulmoner yapı

Epikardiyal yağ

Accessible area;  
GVC altında kalan kısım  
Septal-Mitral sınır



## EKG

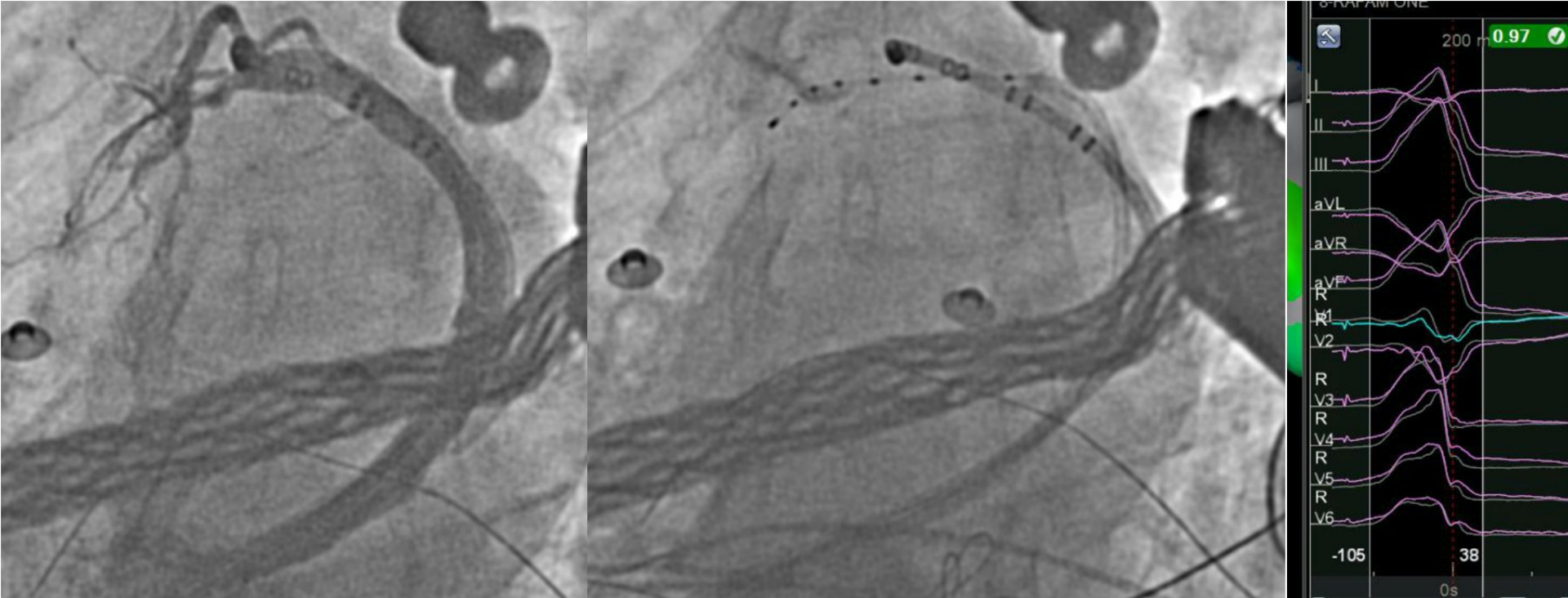
- V3 predominant R dalgası

## Haritalama

- 6 Fr dekapolar kateteri GCV ilerletiyoruz
- Anatomik zorluklar ilerlemeyebilir
- 100 ml/sn bolus mayi
- Uzun yönlendirilebilir sheath

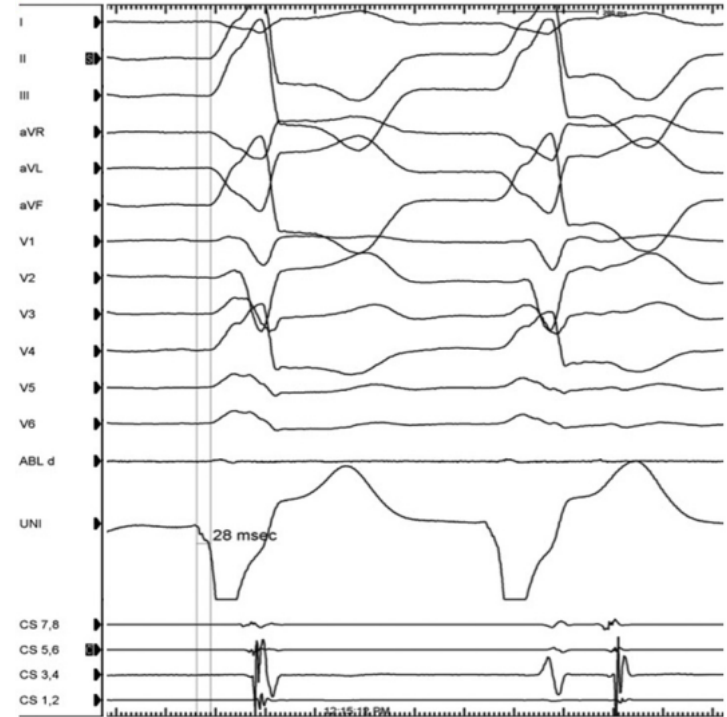
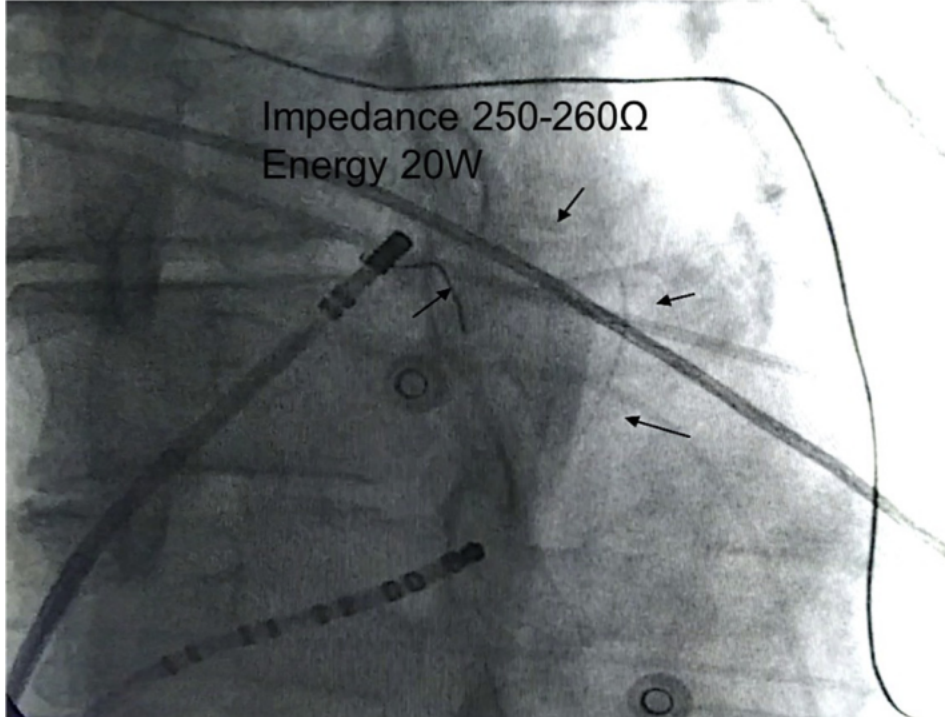


## Koroner sinüs ve GCV/AIV haritalama diğer yöntemler



- 2 - 4 Fr oktapolar - quadripolar

# Koronar sinüs ve GCV/AIV haritalama diğer yöntemler 0.014 guidewire – unipolar kayıt ile haritalama

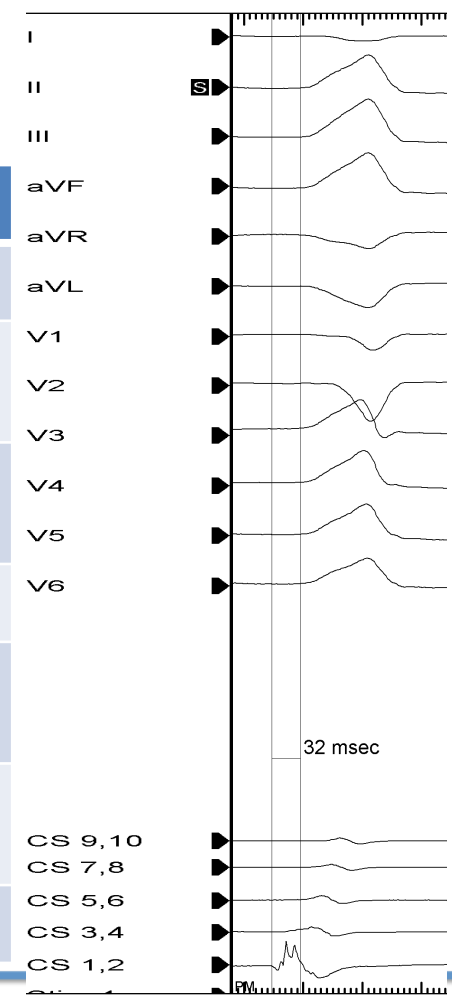


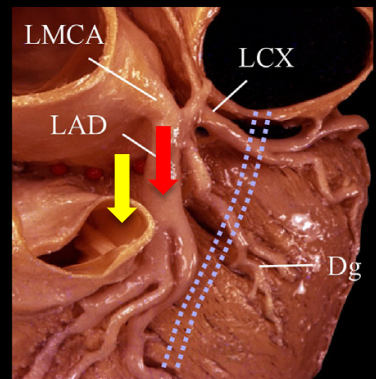
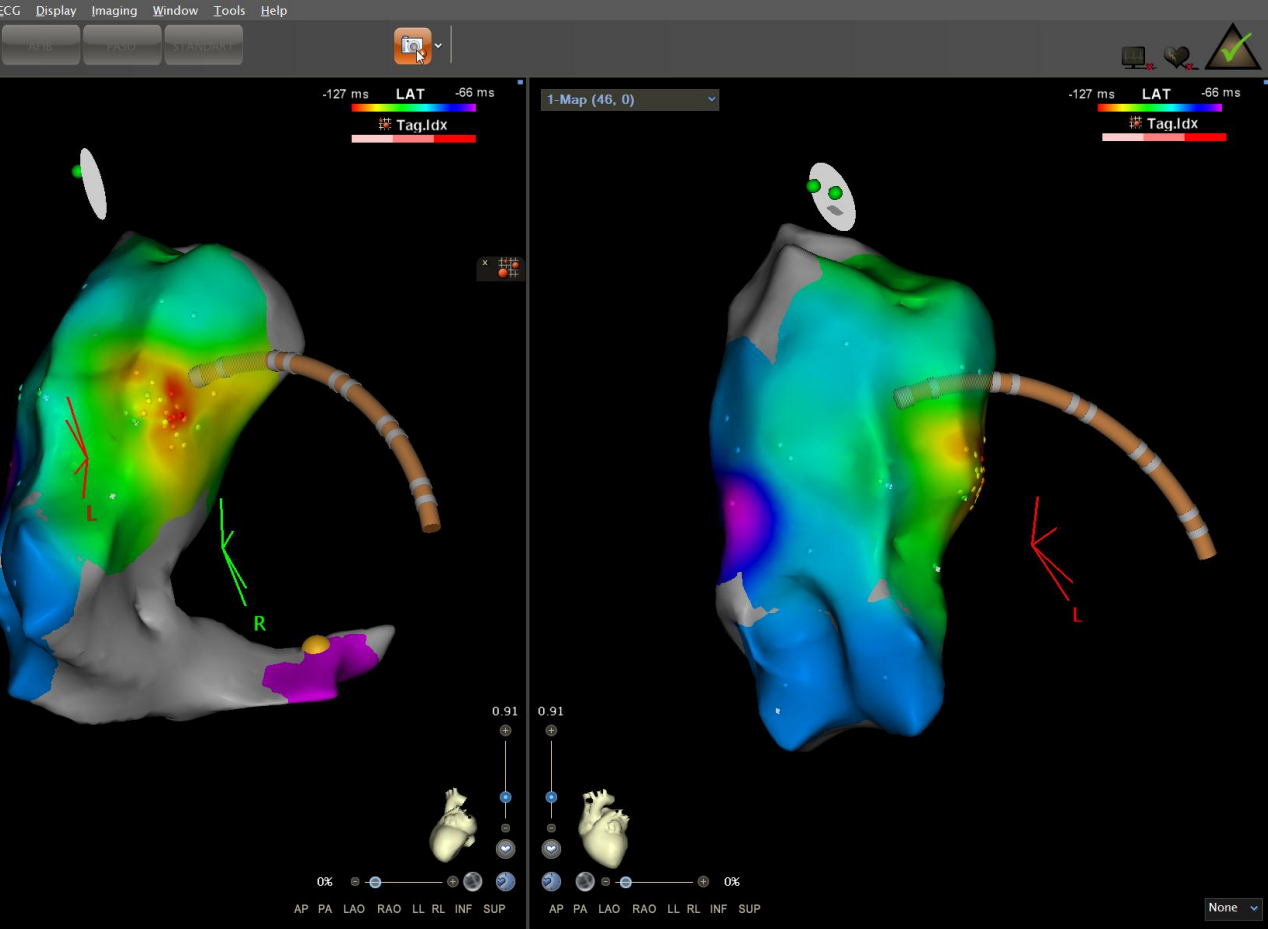
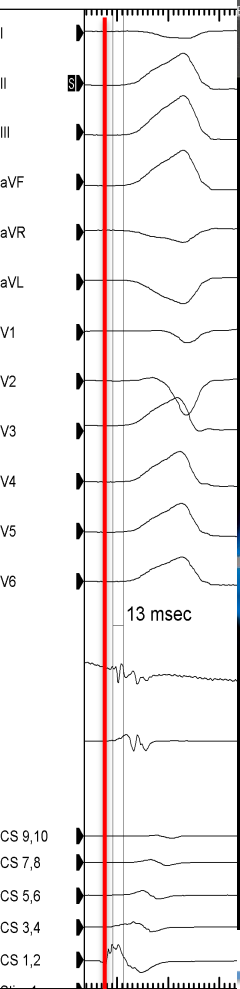




# Haritalama ve Ablasyon

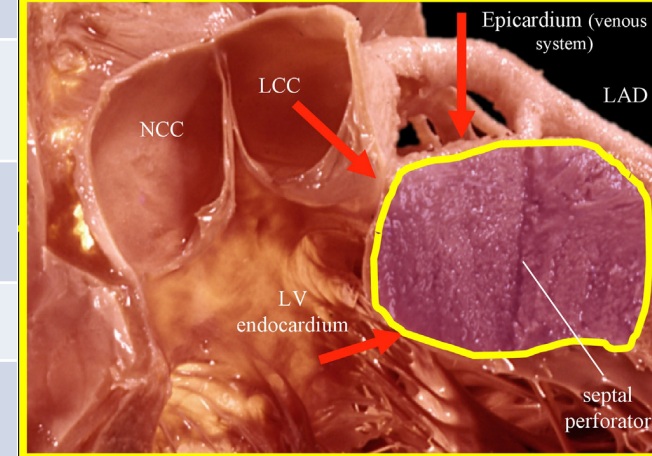
LV summit Yaklaşım yeri	Ulaşılabilen LV summit bölgesi
Sağ ventrikül çıkış yolu	Aşağı sağ septal inaccessible LVS
Ana pulmoner arter/Sol pulmoner arter	Yukarı sağ septal inaccessible LVS
Sol sinüs valsalva/ LCC	LVS apeks septal, aortik-mitral devamlılık
L-R interleaflet trigon	LVS apeks septal
Sol atriyal apendaj	LVS mitral sınırı, accessible ve inaccessible alan
GCV/AIV	LVS mitral sınırı, accessible ve inaccessible alan
Subksifoid- Epikardiyal yaklaşım	Accessible septal ve mitral sınır

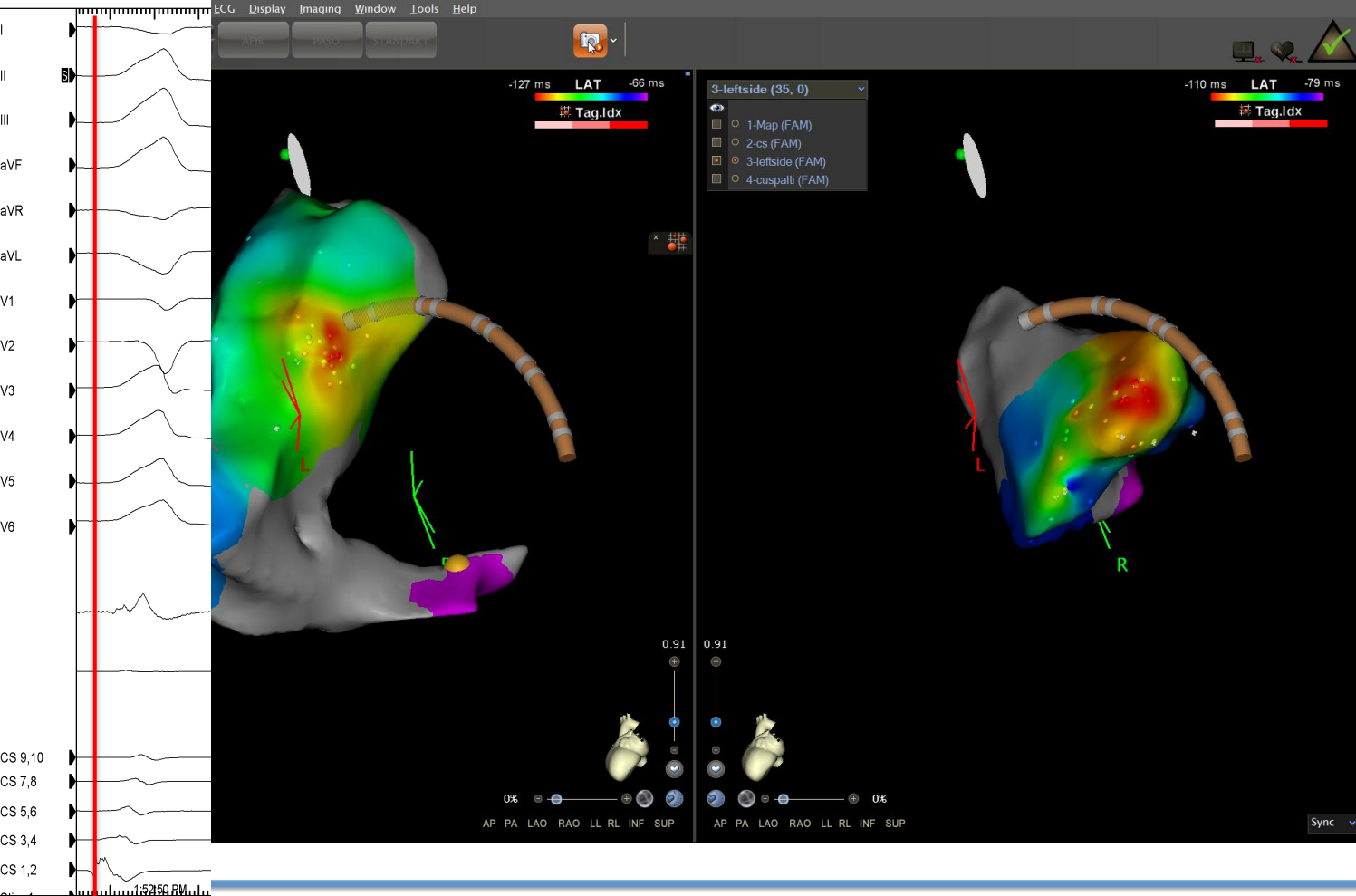




# Haritalama ve Ablasyon

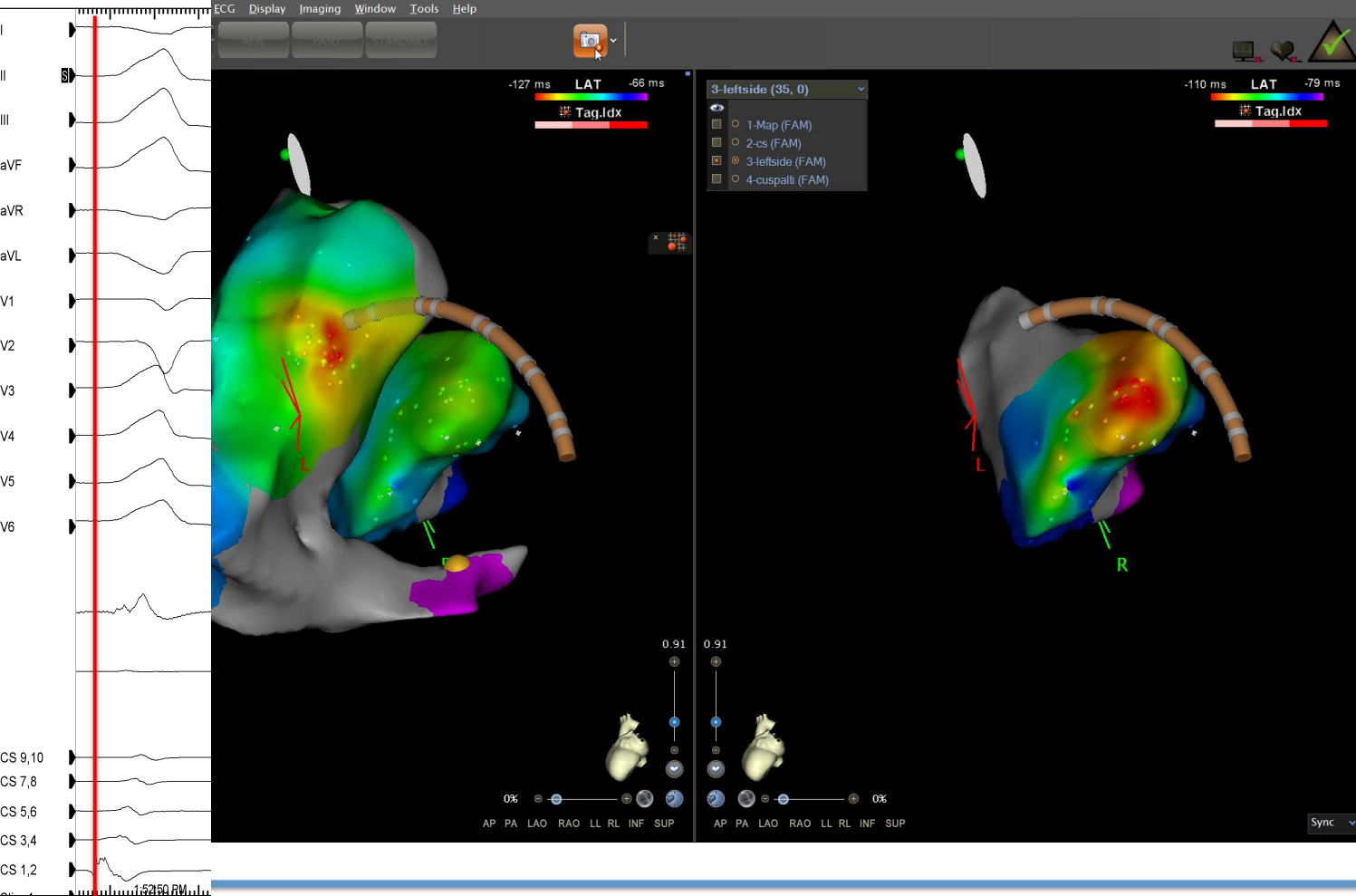
LV summit Yaklaşım yeri	Ulaşılabilinen LV summit bölgesi
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Sol sinüs valsalva/ LCC	LVS apeks septal, aortik–mitral devamlılık
L-R interleaflet trigon	LVS apeks septal
Solatriyal apendaj	LVS mitral sınırı, accessible ve inaccessible alan
GCV/AIV	LVS mitral sınırı, accessible ve inaccessible alan
Subksifoid- Epikardiyal yaklaşım	Accessible septal ve mitral sınır





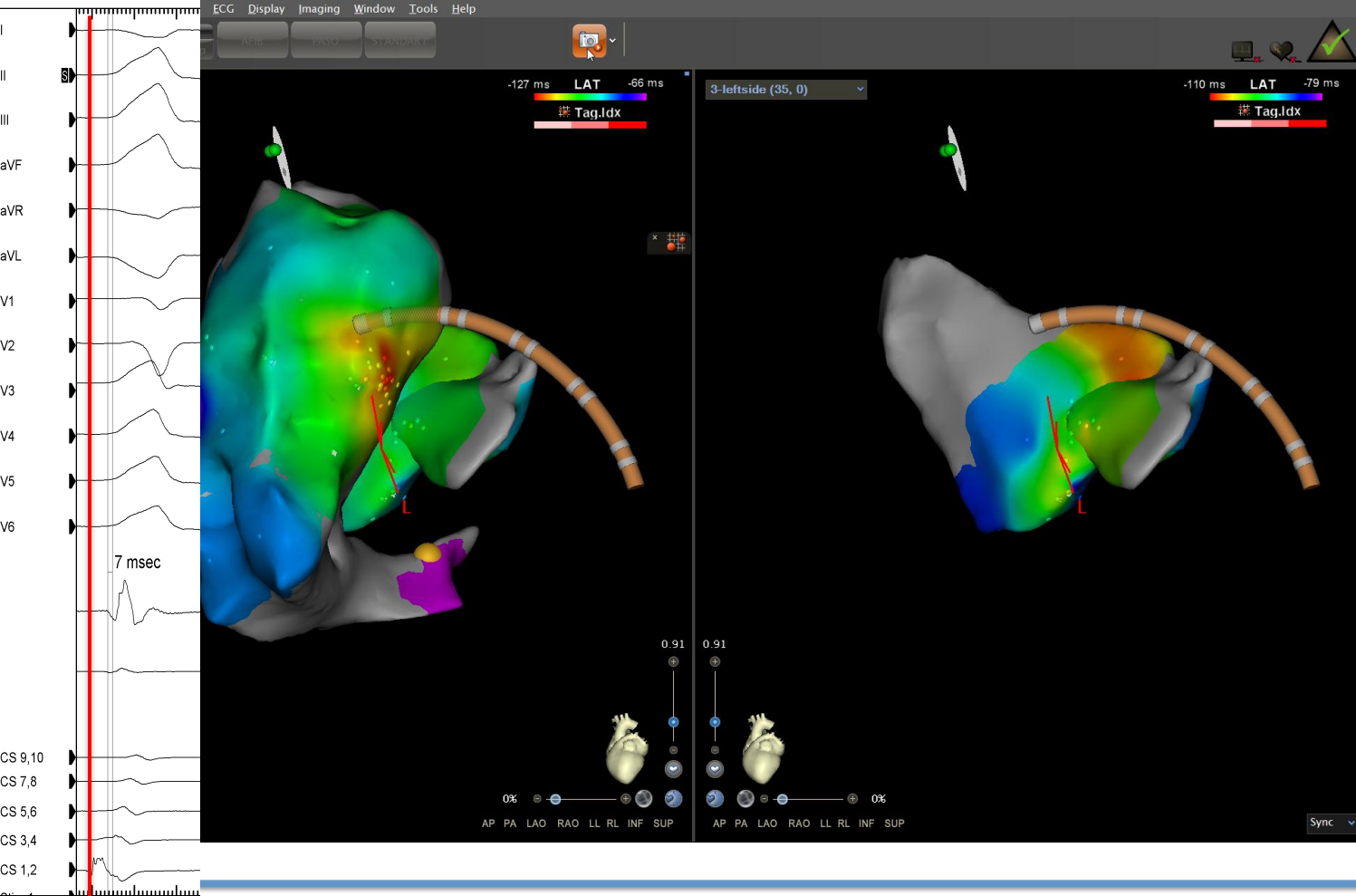
## LVOT haritalama

- LCC
- RCC
- L-RCC junction



**LVOT haritalama**

Kusplar sağa göre geç

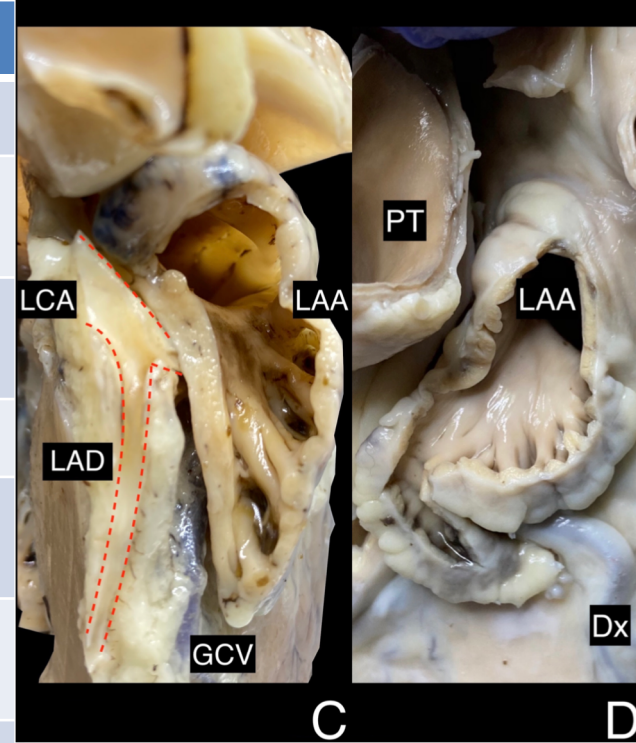


**Kusp altı haritalama**

Kusp altı sağa göre geç

# Haritalama ve Ablasyon

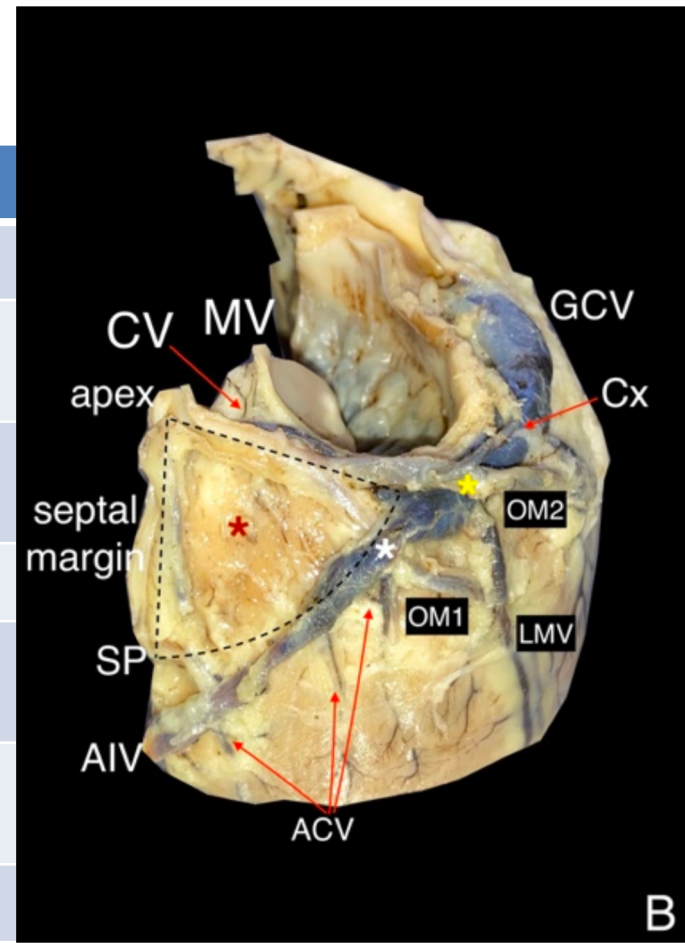
LV summit Yaklaşım yeri	Ulaşılabilinen LV summit bölgesi
Sağ ventrikül çıkış yolu	Aşağı sağ septal inaccessible LVS
Ana pulmoner arter/Sol pulmoner arter	Yukarı sağ septal inaccessible LVS
Sol sinüs valsalva/ LCC	LVS apeks septal, aortik-mitral devamlılık
L-R interleaflet trigon	LVS apeks septal
<b>Sol atriyal apendaj</b>	<b>LVS mitral sınırı, accessible ve inaccessible alan</b>
GCV/AIV	LVS mitral sınırı, accessible ve inaccessible alan
Subksifoid- Epikardiyal yaklaşım	Accessible septal ve mitral sınır

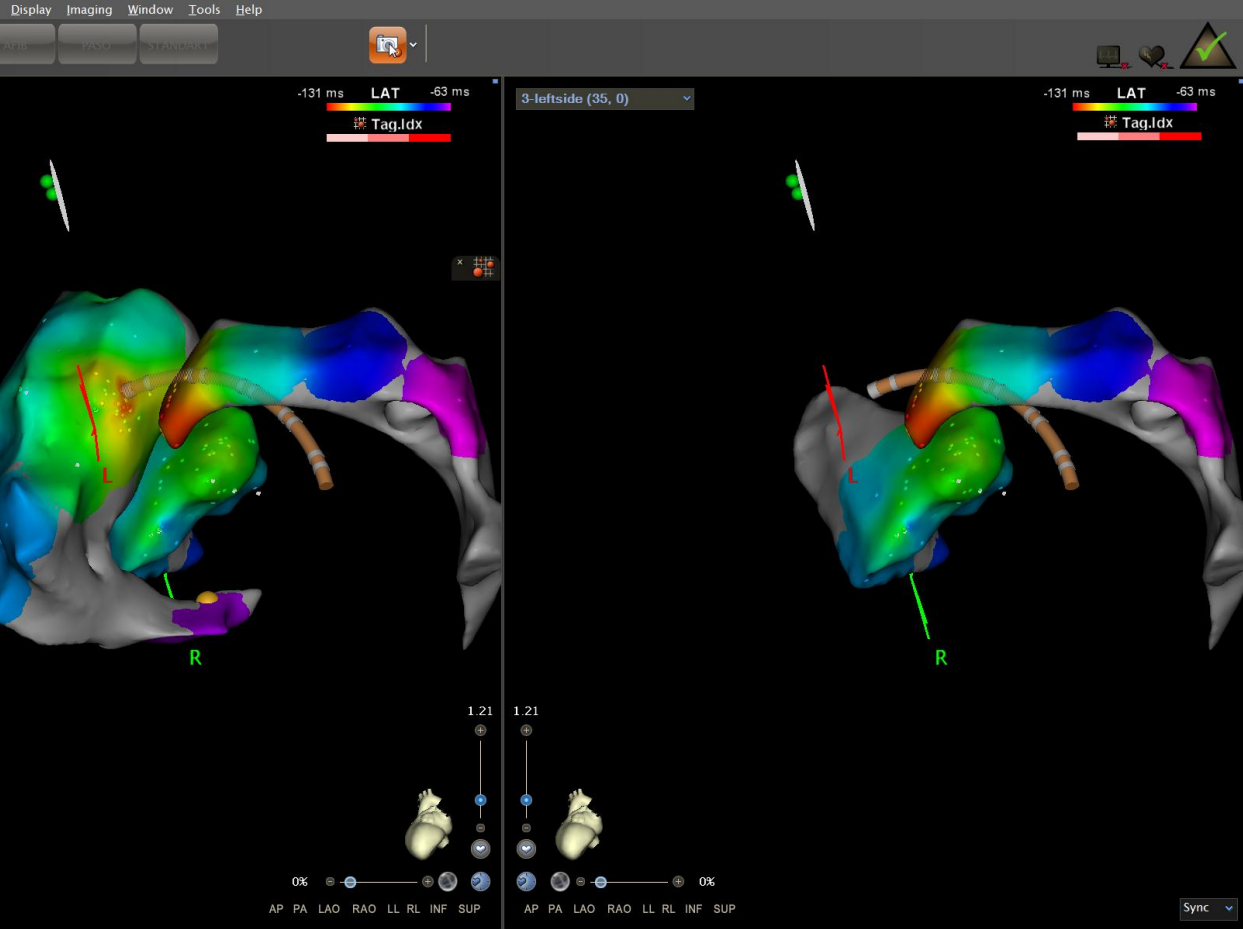
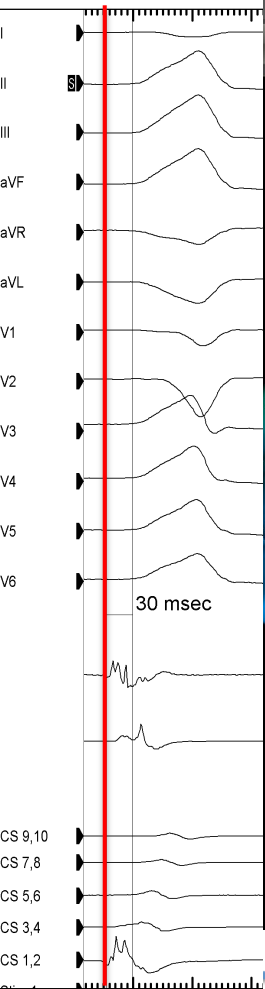




# Haritalama ve Ablasyon

LV summit Yaklaşım yeri	Ulaşılabilinen LV summit bölgesi
Sağ ventrikül çıkış yolu	Aşağı sağ septal inaccessible LVS
Ana pulmoner arter/Sol pulmoner arter	Yukarı sağ septal inaccessible LVS
Sol sinüs valsalva/ LCC	LVS apeks septal, aortik-mitral devamlılık
L-R interleaflet trigon	LVS apeks septal
Solatriyal apendaj	LVS mitral sınırı, accessible ve inaccessible alan
<b>GCV/AIV</b>	<b>LVS mitral sınırı, accessible ve inaccessible alan</b>
Subksifoid- Epikardiyal yaklaşım	Accessible septal ve mitral sınır





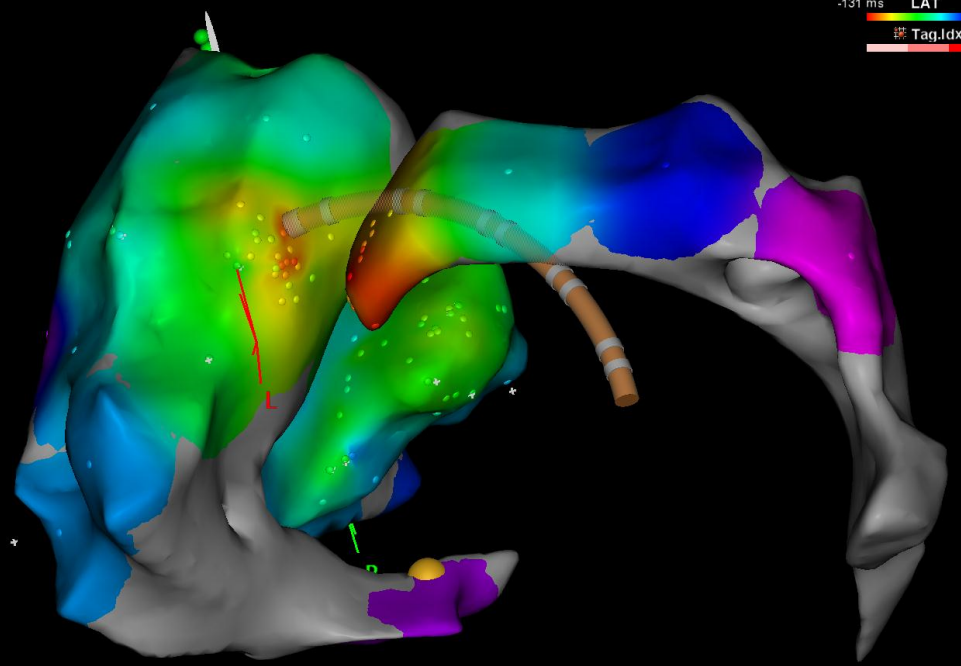


1-Map (46, 0)

-131 ms LAT -63 ms  
Tag.Idx



16

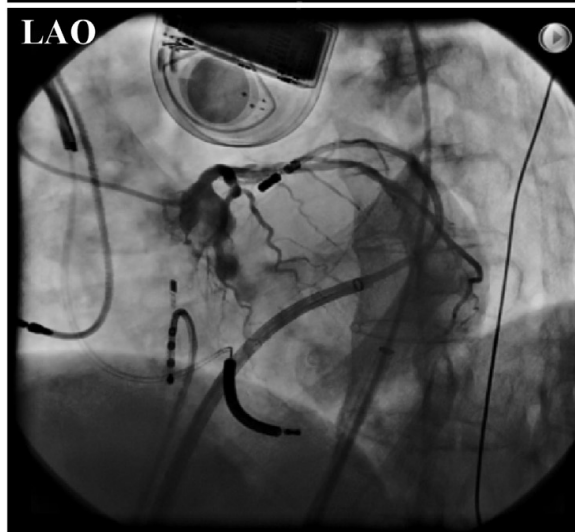
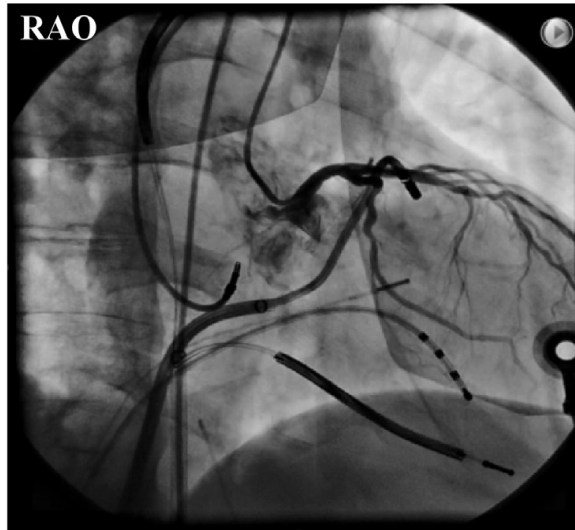
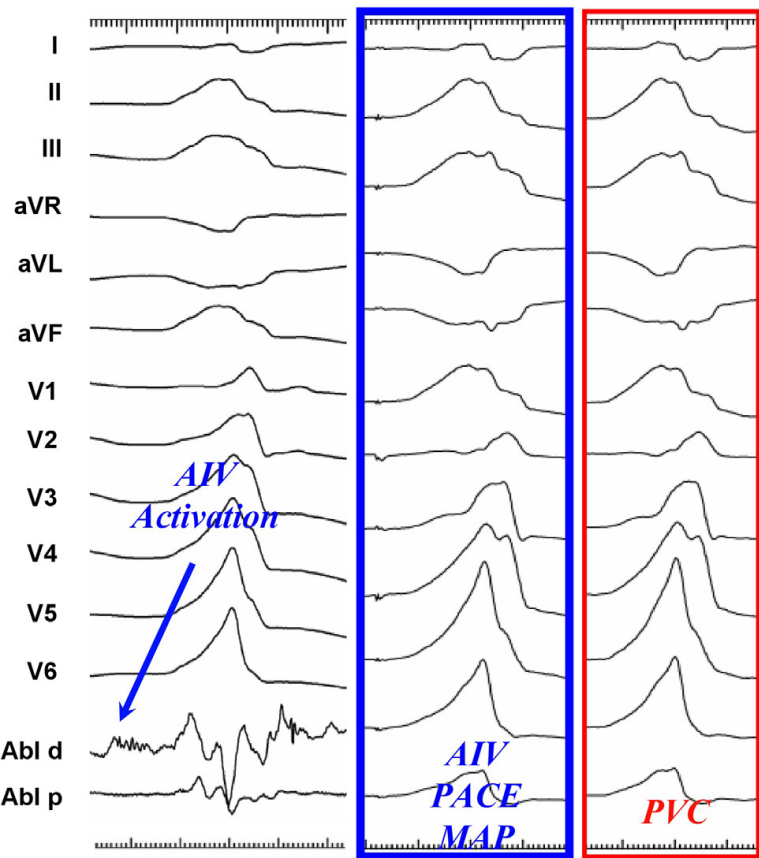


0.83



0%

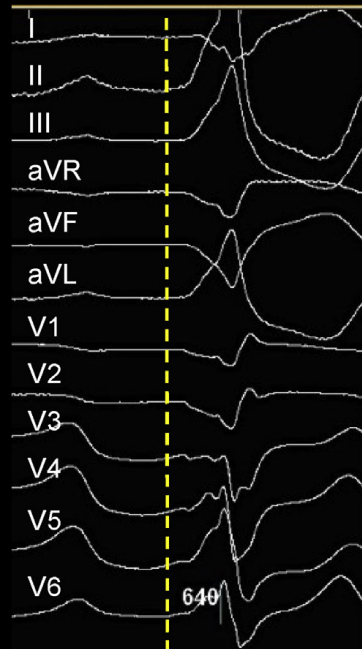
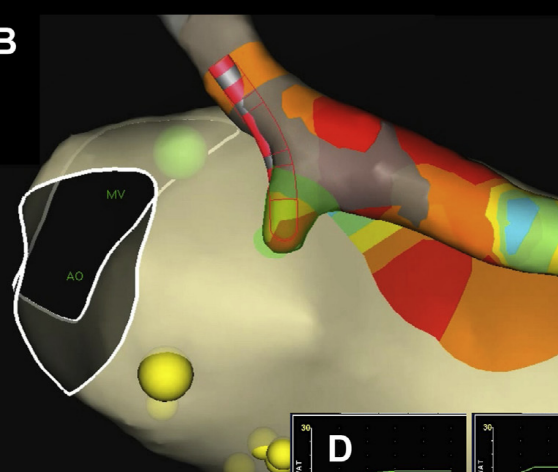
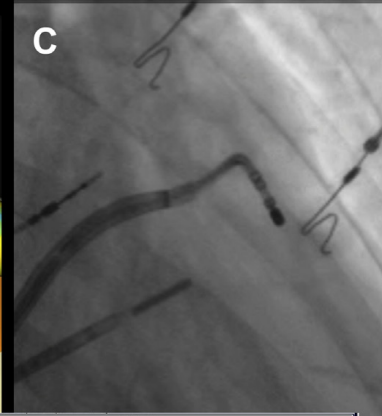
AP PA LAO RAO LL RL INF SUP



## AIV içinden ablasyon

- Güvenli mesafe Koronerlere >5mm
- 15-20 W irrigasyonlu Kateter

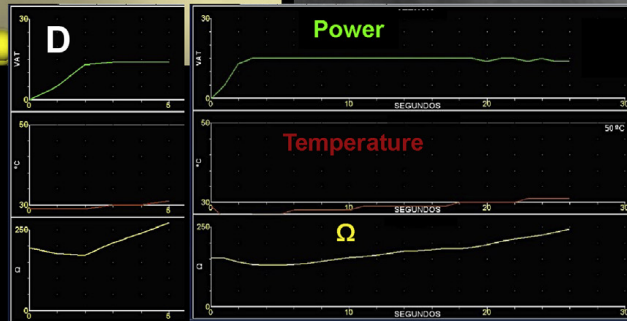
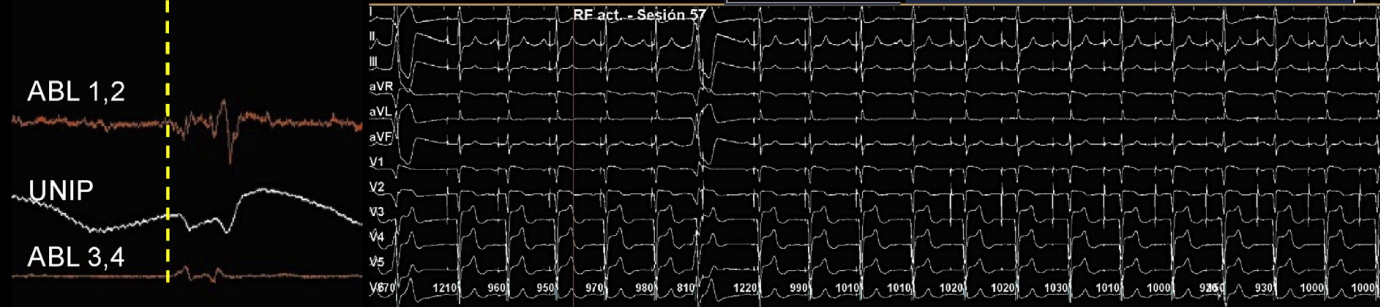
Empedans!

**A****B****C**

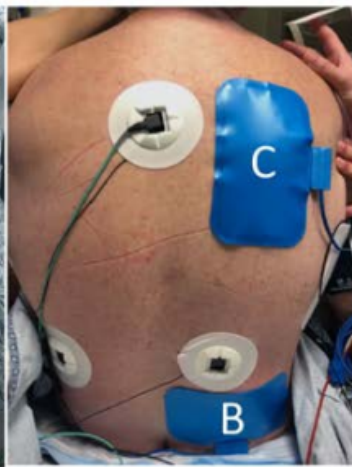
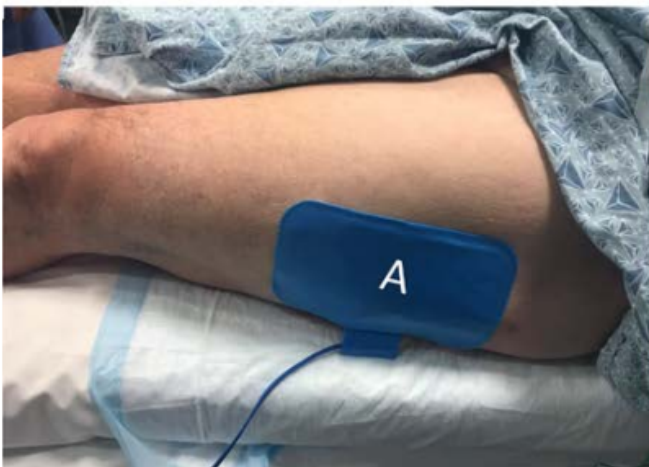
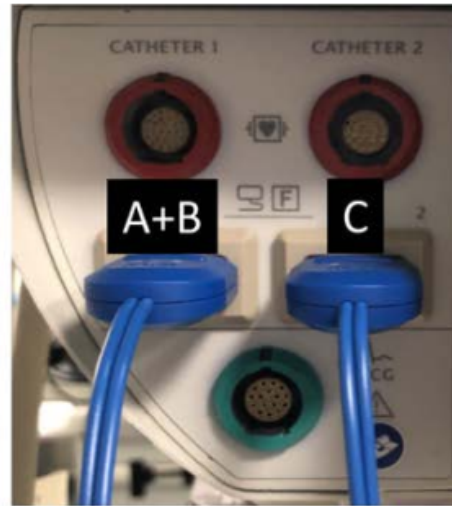
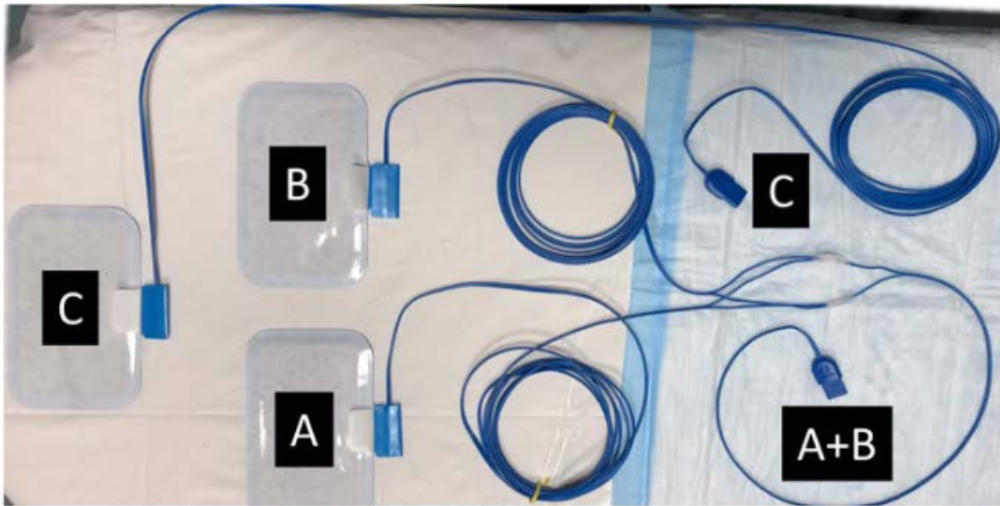
Anterior interventricular ven  
Empedans yüksek etkili RF  
uygulayamıyorsunuz

Half Normal Saline

Steam pop riski!

**E**





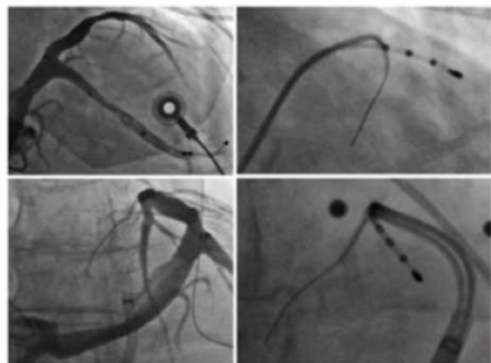
Bazal empedansı düşürmek için patch yerleşimi ve sayısını arttırmak

# Septal Coronary Venous Mapping to Guide Substrate Characterization and Ablation of Intramural Septal Ventricular Arrhythmia

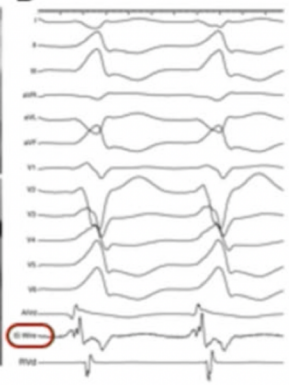


David F. Briceño, MD,<sup>a</sup> Andres Enriquez, MD,<sup>b</sup> Jackson J. Liang, DO,<sup>a</sup> Yasuhiro Shirai, MD,<sup>a</sup> Pasquale Santangeli, MD, PhD,<sup>a</sup> Gustavo Guandalini, MD,<sup>a</sup> Gregory E. Supple, MD,<sup>a</sup> Robert Schaller, DO,<sup>a</sup> Jeffrey Arkles, MD,<sup>a</sup> David S. Frankel, MD,<sup>a</sup> Carlos Tapias, MD,<sup>c</sup> Diego Rodriguez, MD,<sup>c</sup> Luis C. Saenz, MD,<sup>c</sup> David J. Callans, MD,<sup>a</sup> Francis Marchlinski, MD,<sup>a</sup> Fermin C. Garcia, MD<sup>a,c</sup>

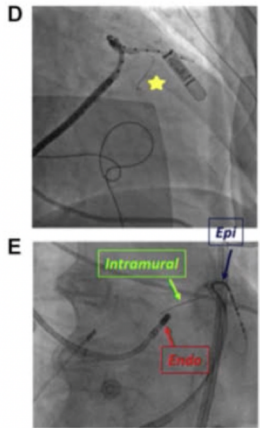
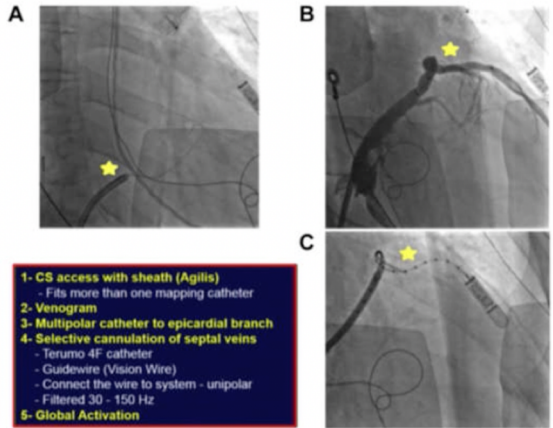
A



B

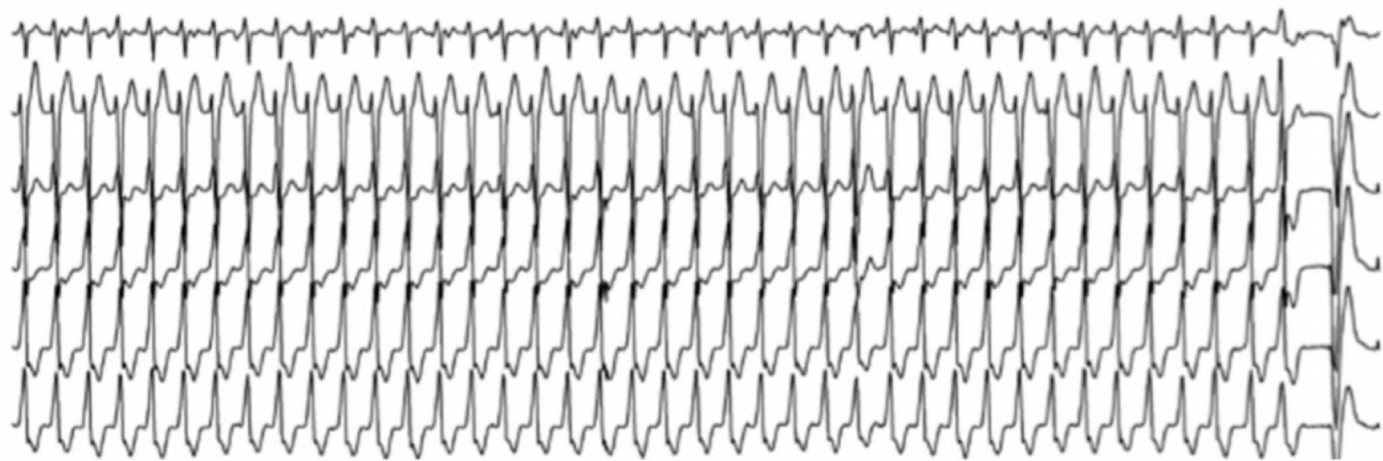
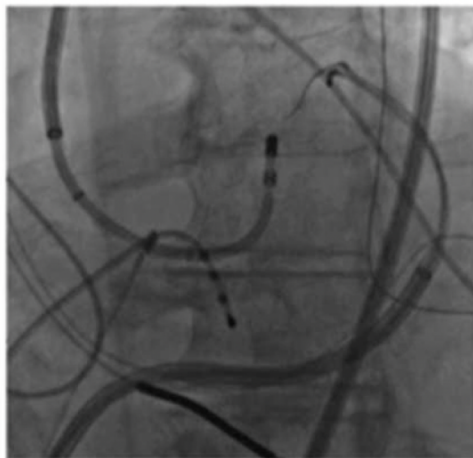
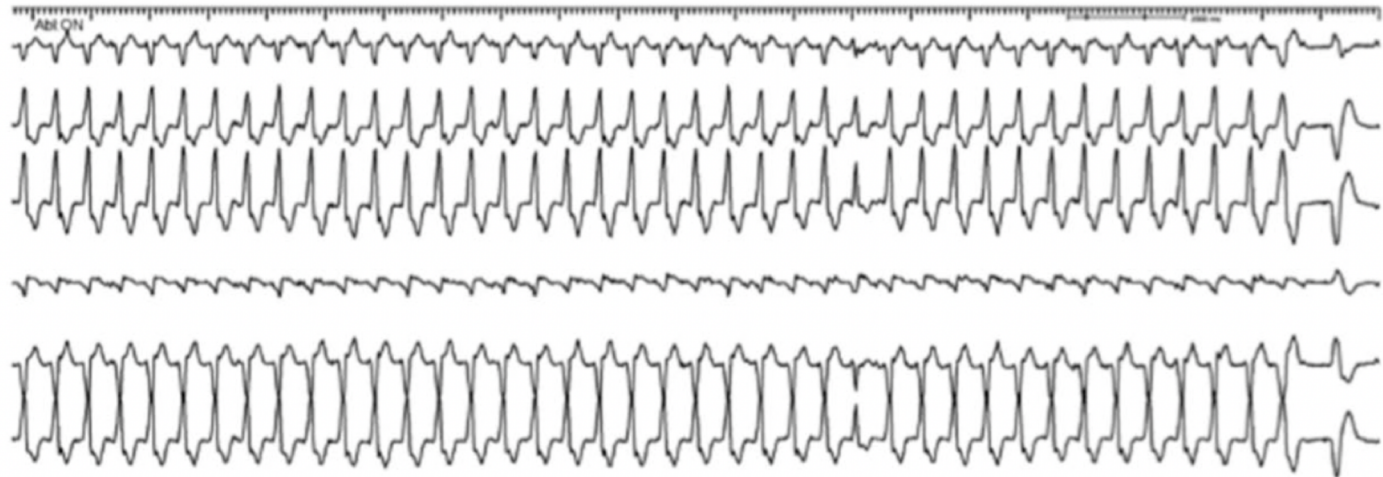
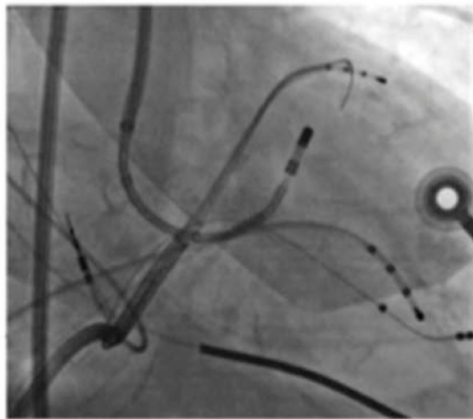


C

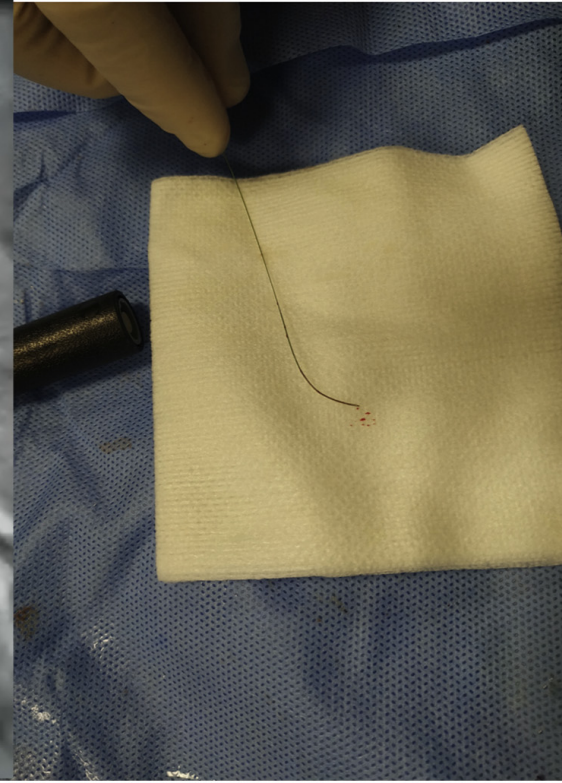


- 1- CS access with sheath (Agilis)
  - Fits more than one mapping catheter
- 2- Venogram
- 3- Multipolar catheter to epicardial branch
- 4- Selective cannulation of septal veins
  - Terumo 4F catheter
  - Guidewire (Vision Wire)
  - Connect the wire to system - unipolar
  - Filtered 30 - 150 Hz
- 5- Global Activation





Impedance 155-164 $\Omega$   
Energy 10-15W

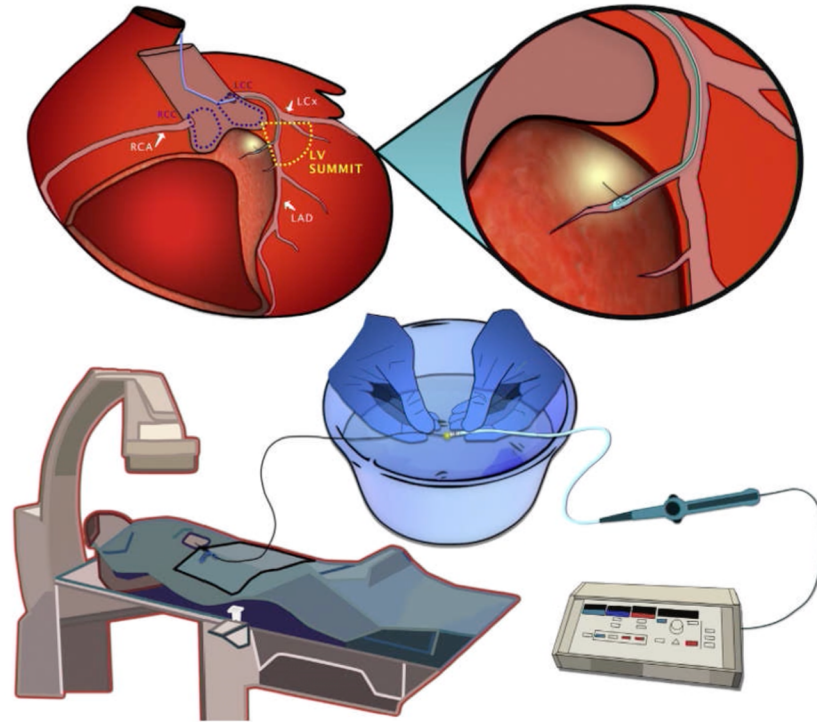
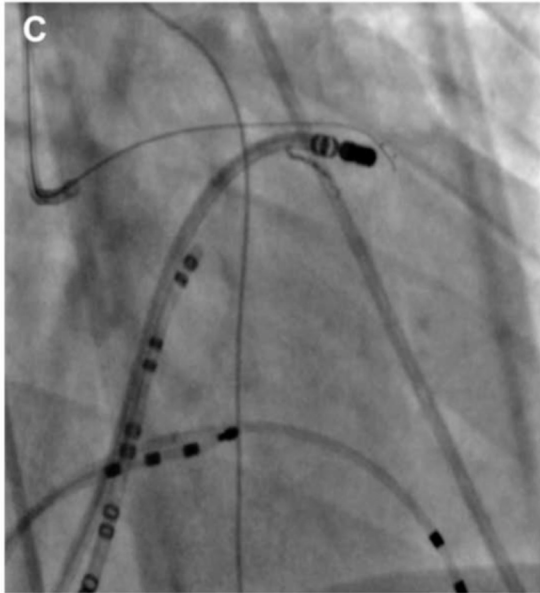


Wire ablasyonu- Mikrokateter  
Crocodile saline banyosu içinde

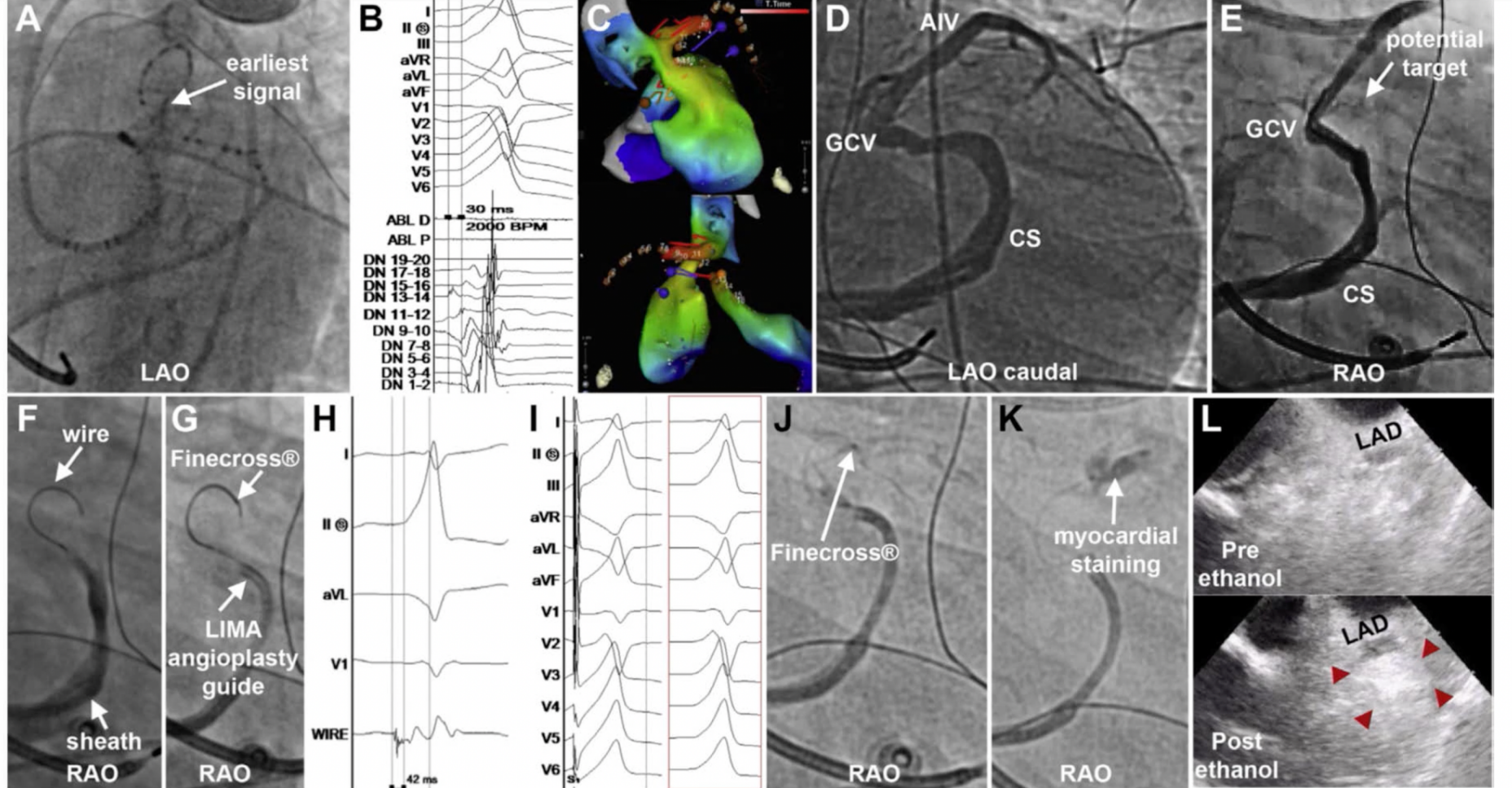
# Intramyocardial radiofrequency ablation of ventricular arrhythmias using intracoronary wire mapping and a coronary reentry system: Description of a novel technique

Jorge Romero, MD, FHRS,\*<sup>†</sup> Juan Carlos Díaz, MD,<sup>†</sup> Justin Hayase, MD,\* Ravi H. Dave, MD,\* Jason S. Bradfield, MD, FHRS,\* Kalyanam Shivkumar, MD, PhD, FHRS\*

From the \*UCLA Cardiac Arrhythmia Center, David Geffen School of Medicine at UCLA, Los Angeles, California, and <sup>†</sup>Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, New York.

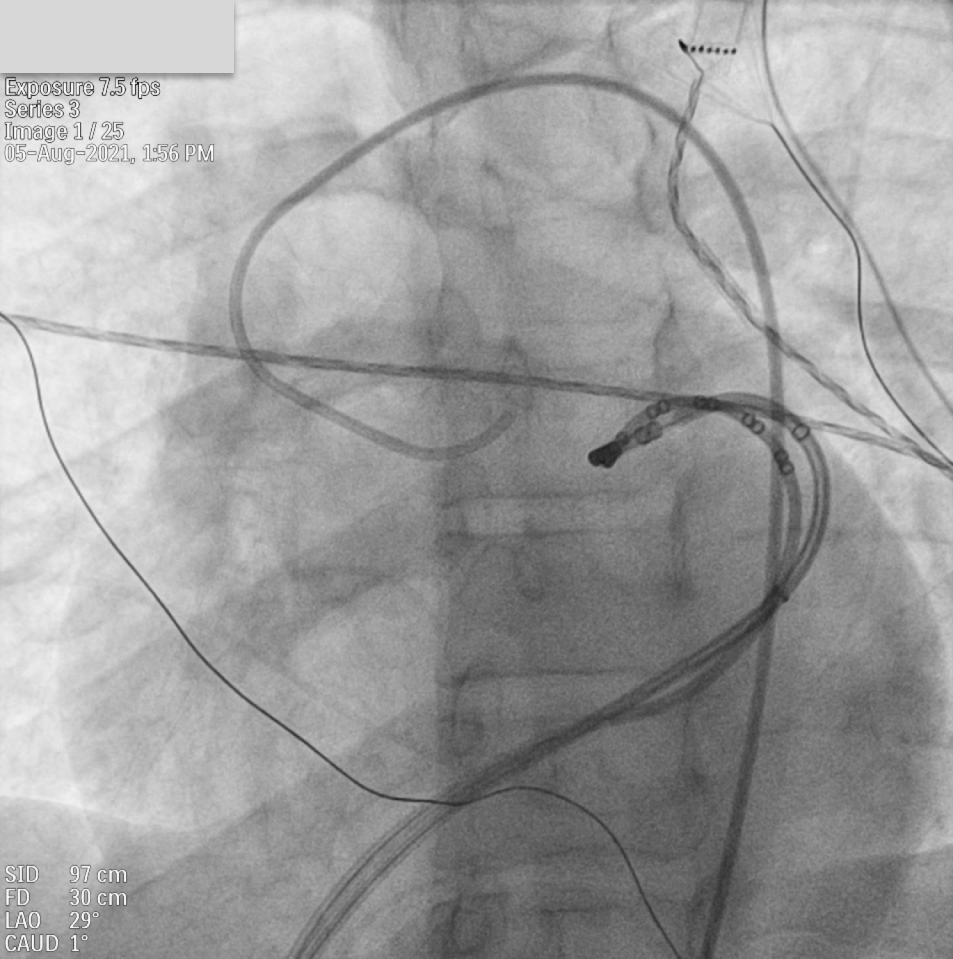






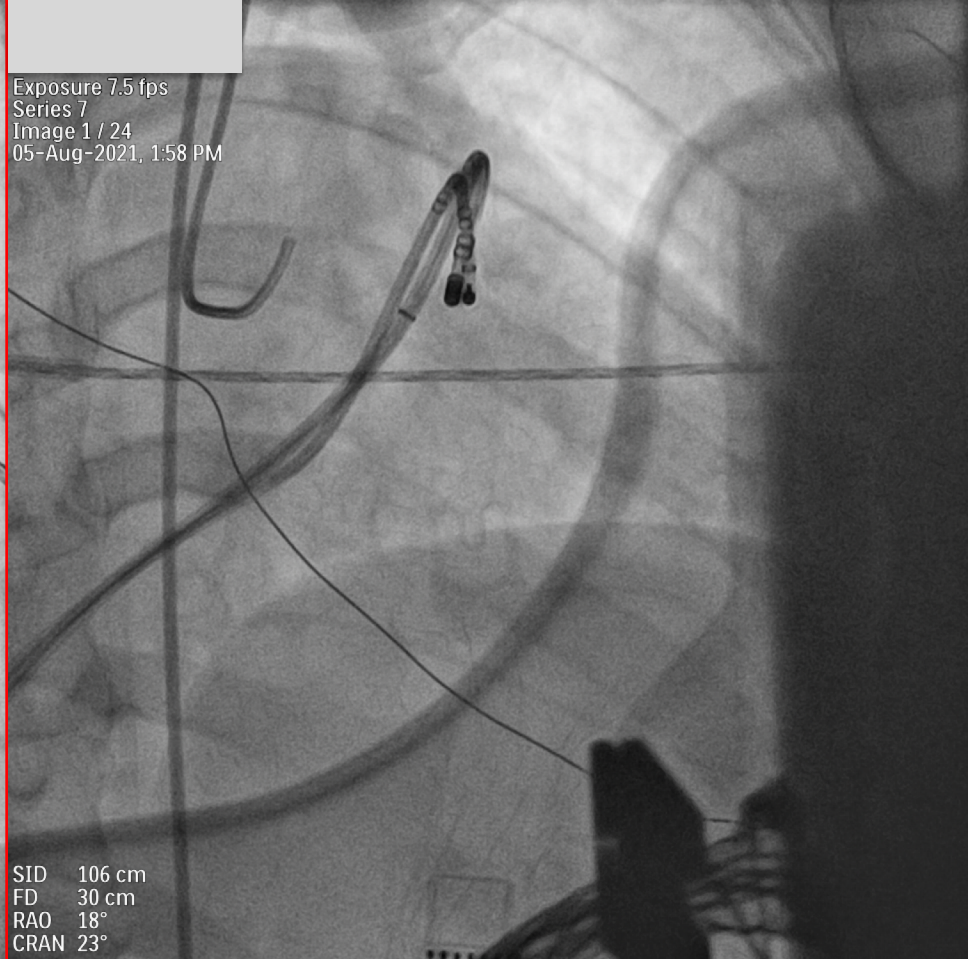


Exposure 7.5 fps  
Series 3  
Image 1 / 25  
05-Aug-2021, 1:56 PM



SID 97 cm  
FD 30 cm  
LAO 29°  
CAUD 1°

Exposure 7.5 fps  
Series 7  
Image 1 / 24  
05-Aug-2021, 1:58 PM



SID 106 cm  
FD 30 cm  
RAO 18°  
CRAN 23°

# Class IC antiarrhythmic drugs for suspected premature ventricular contraction–induced cardiomyopathy



Matthew C. Hyman, MD, PhD, Danielle Mustin, BS, Gregory Supple, MD, Robert D. Schaller, DO, Pasquale Santangeli, MD, PhD, Jeffrey Arkles, MD, David Lin, MD, FHRS, Daniele Muser, MD, Sanjay Dixit, MD, FHRS, Saman Nazarian, MD, PhD, Andrew E. Epstein, MD, FHRS, David J. Callans, MD, FHRS, Francis E. Marchlinski, MD, FHRS, David S. Frankel, MD, FHRS

*From the Section of Cardiac Electrophysiology, Division of Cardiovascular Medicine, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, Pennsylvania.*

**BACKGROUND** Class IC antiarrhythmic drugs (IC-AADs) can effectively suppress premature ventricular contractions (PVCs). However, IC-AADs increase mortality in patients with PVCs and left ventricular dysfunction after myocardial infarction. Whether IC-AADs can be safely used to treat premature ventricular contraction–induced cardiomyopathy (PVC-CM) remains to be established.

**OBJECTIVE** The purpose of this study was to determine the safety and efficacy of IC-AADs in patients suspected of having PVC-CM.

**METHODS** The electronic medical records at the Hospital of the University of Pennsylvania were screened to identify all patients suspected of having PVC-CM treated with flecainide or propafenone. Clinical, electrocardiographic, and imaging studies were reviewed.

**RESULTS** Twenty patients suspected of having PVC-CM were treated with IC-AADs. Patients had undergone an average of  $1.3 \pm 0.2$  previous unsuccessful ablations. Six had an implantable or wearable defibrillator. With IC-AAD treatment, mean PVC burden decreased

from  $36.2\% \pm 3.5\%$  to  $10.0\% \pm 2.4\%$  ( $P < .001$ ). Mean left ventricular ejection fraction (LVEF) increased from  $37.4\% \pm 2.0\%$  to  $49.0\% \pm 1.9\%$  ( $P < .001$ ). Seven patients with myocardial delayed enhancement on cardiac magnetic resonance imaging (all  $< 5\%$  of the total myocardium) experienced similar improvement in LVEF (from  $36.8\% \pm 4.3\%$  before IC-AAD to  $51.7\% \pm 3.7\%$  afterward;  $P < .01$ ). Over an average  $3.8 \pm 0.9$  treatment-years, no sustained ventricular arrhythmias or sudden cardiac deaths occurred.

**CONCLUSION** In patients suspected of having PVC-CM, IC-AADs effectively suppressed PVCs, leading to LVEF recovery in the majority. No adverse events occurred in this small cohort.

**KEYWORDS** Cardiomyopathy; Class IC antiarrhythmic drug; Flecainide; Premature ventricular contraction; Premature ventricular contraction–induced cardiomyopathy; Propafenone

(Heart Rhythm 2018;15:159–163) © 2017 Heart Rhythm Society. All rights reserved.

En az 1 defa Ablasyon denenmiş KMP olan hastalarda;

Flekainid, Propafenon

Ort 3.8 yıllık takipte etkili ve güvenli



# 10. Atriyal Fibrilasyon Zirvesi 2021

11-13 Kasım 2021 • Calista Kongre Merkezi Antalya



## Ablasyon Başarısı

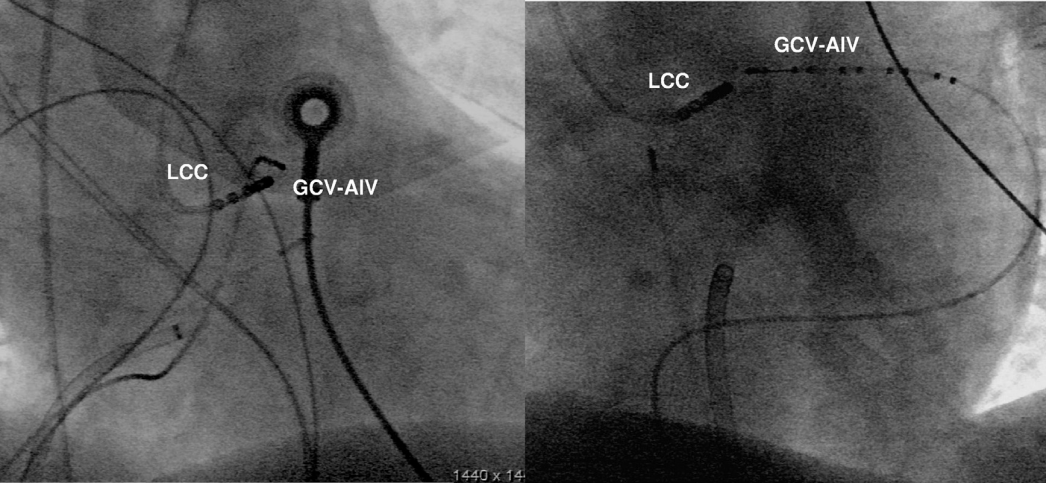
Çalışma	H.Sayısı	Erken aktivasyon	Ablasyon yeri	Akut başarı	Komplikasyon
Lin et al. 2016	16	GCV/AIV	Koroner sinüs içinden en erken ativasyona	100	-
Yamada et al. 2016	24	Distal GCV	Koroner sinüs içinden en erken ativasyona Aortomitral devamlılık- 9 hastaya Simultane unipolar AMC-GCV- 3 hastaya	100	-
Santangeli et al. 2015	23	Epi LV summit AIV	Perkütan epikardiyal	22	GCV perforasyonuna bağlı perikardiyal effüzyon
Mountantonakis et al. 2015	47	Distal GCV, n=25 AIV, n=19 MCV, n=3	Koroner sinüs komşulukları  Koroner sinüs içi	55  94	Cx arter proksimal stenozis Perikardiyal eff Psödoanevrizma
Frankel et al. 2014	2	AIV	Septal RVOT	100	-
Abularach et al. 2012	16	Distal GCV/AIV	Sol sinus valsalva Yakın komşuluk LV endo	56	-

## Epi başarılı ablasyon için EKG prediktörleri;

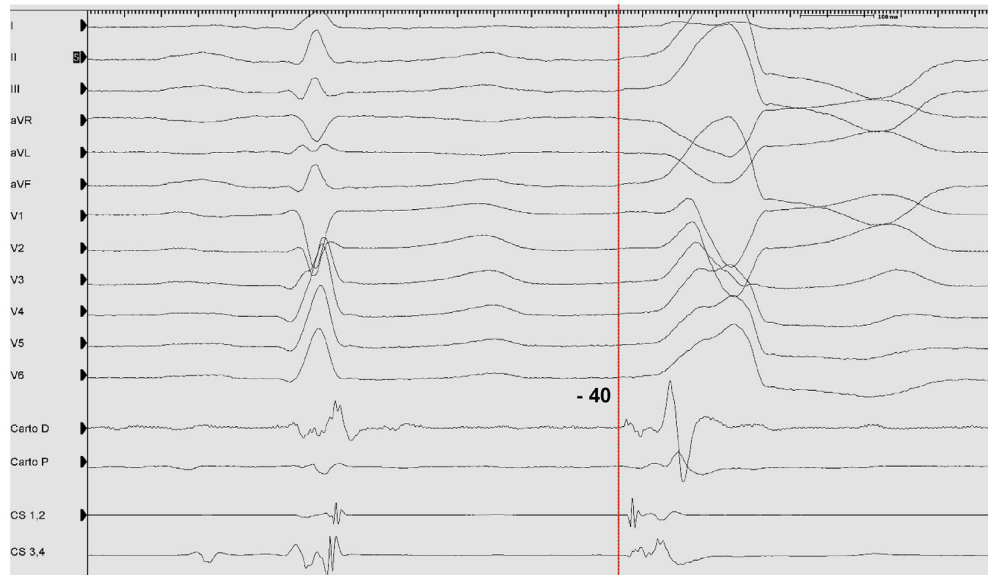
- aVL/aVR Q-wave oranı  $> 1.85$ ,
- V1 de R/S oranı  $> 2$
- V1 de q olmaması

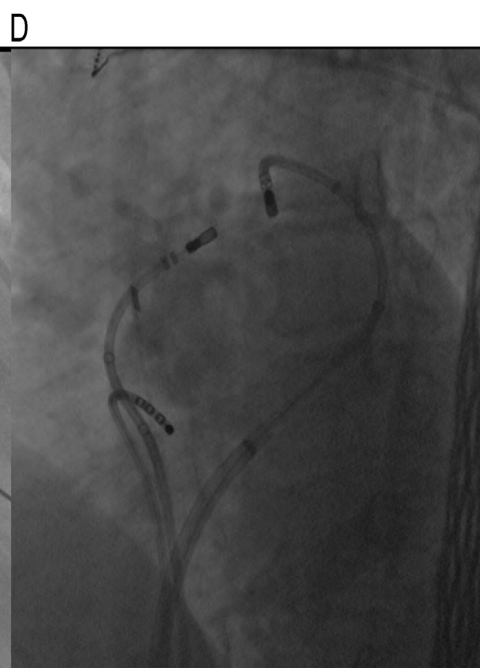
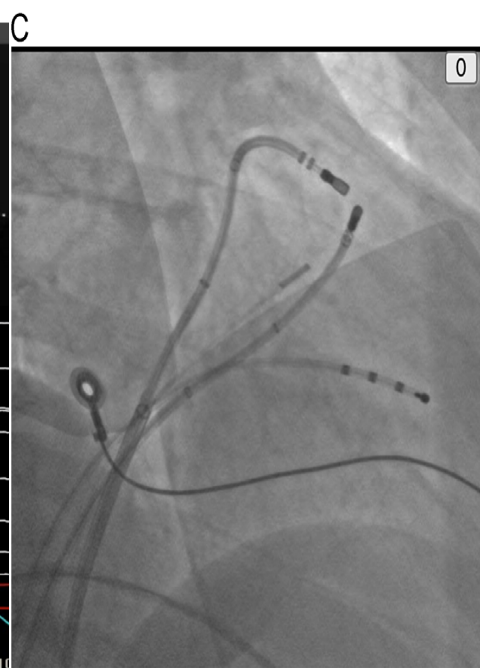
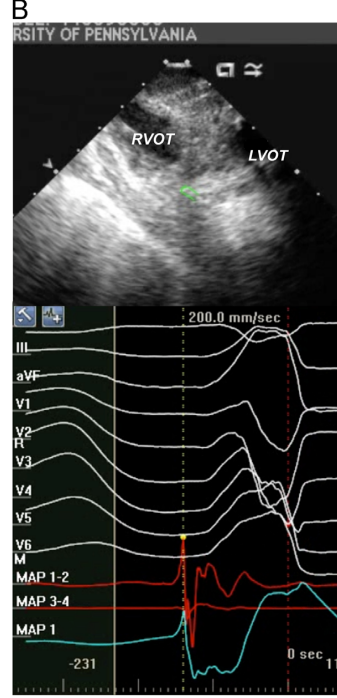
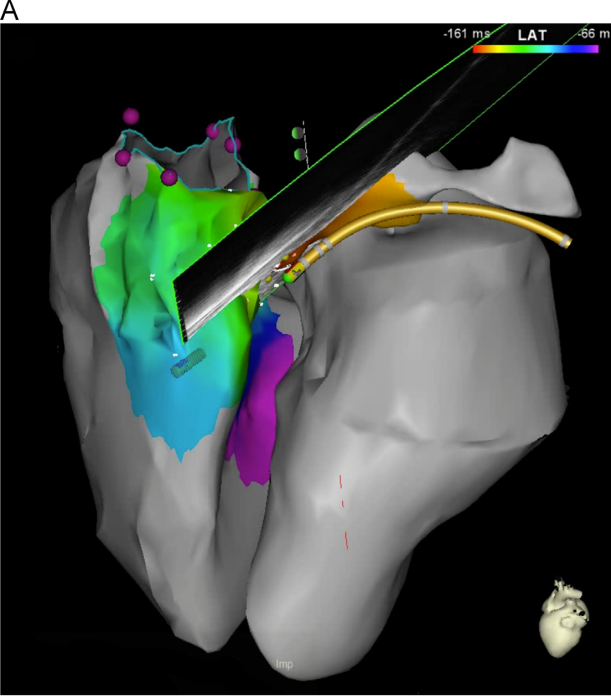
## Başarısız;

Pattern break V2  
(LAD yakın)  
%58 ablasyon başarısı



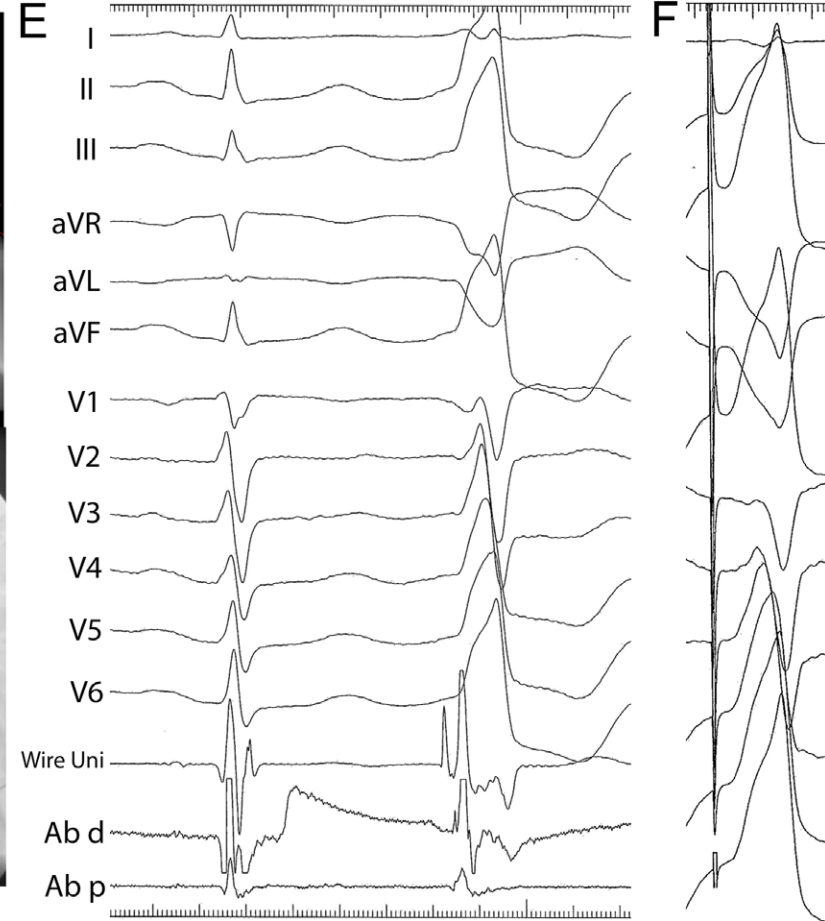
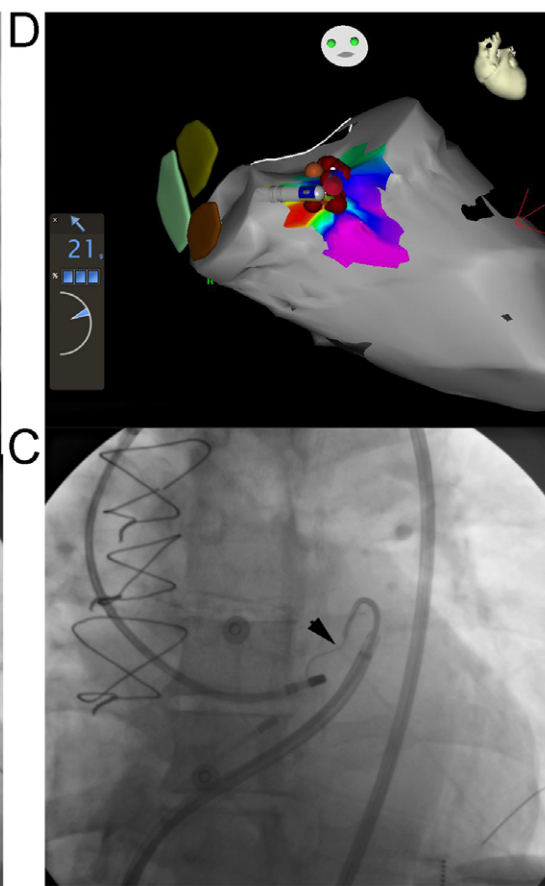
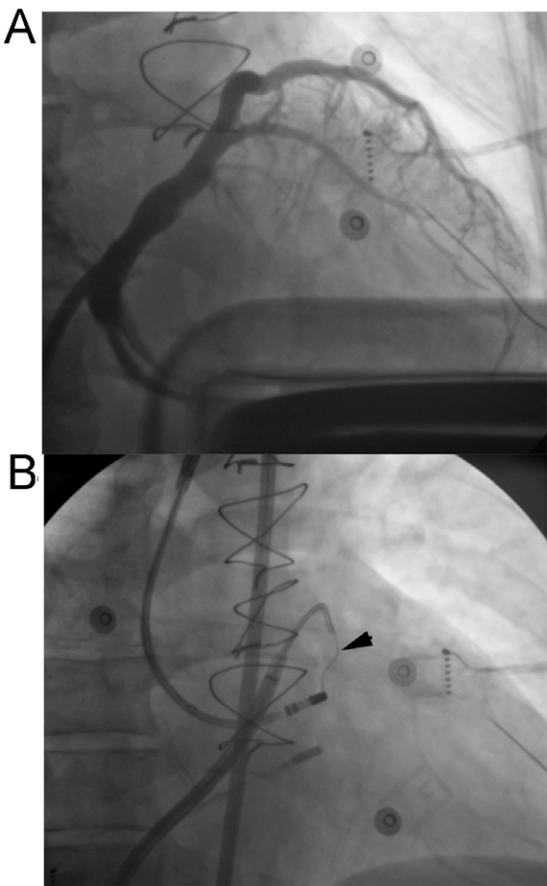
## LCC'den LV summit VEV ablasyonu





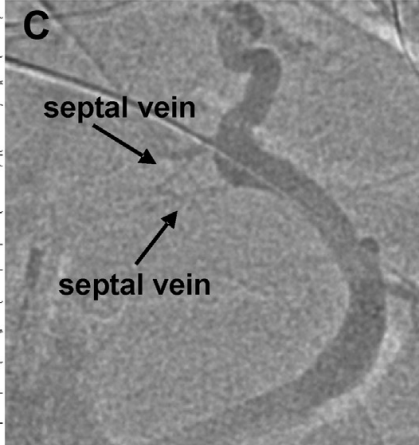
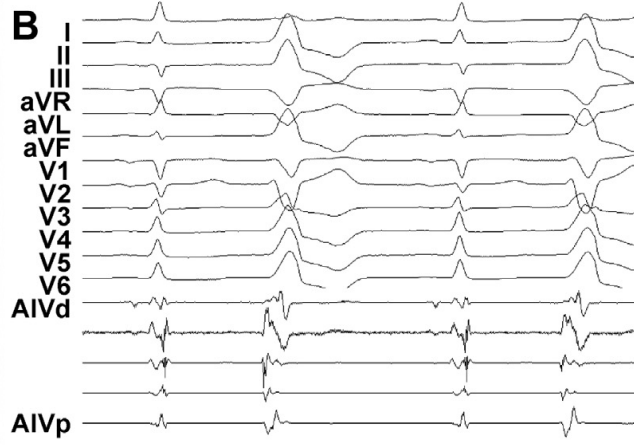
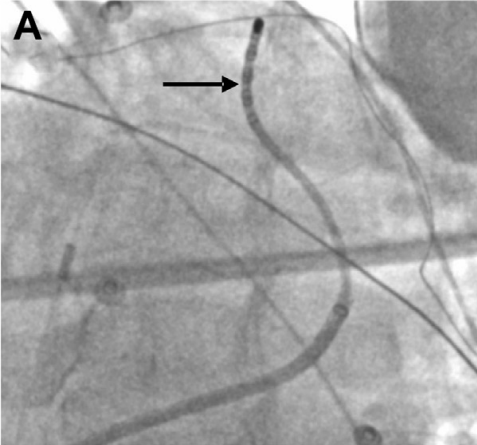
Sağ ventrikül çıkış yolundan LV summit VEV'inin ablasyonu  
Pulmonik kusp üzerinden LAD dikkat!!!





## LV Endokardiyal Ablasyon

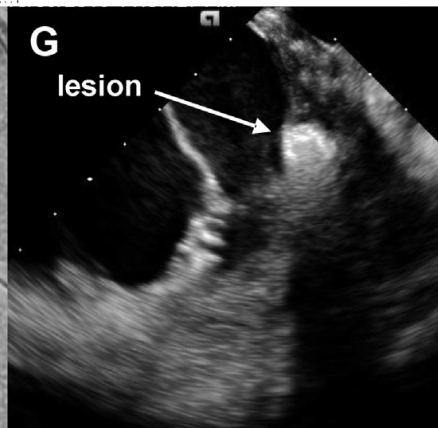
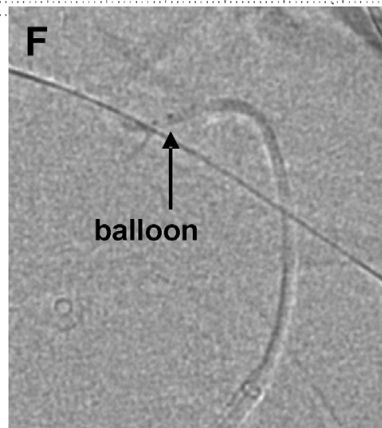
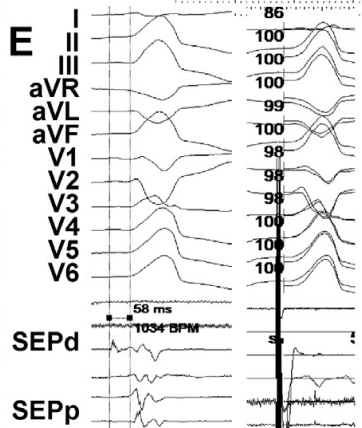
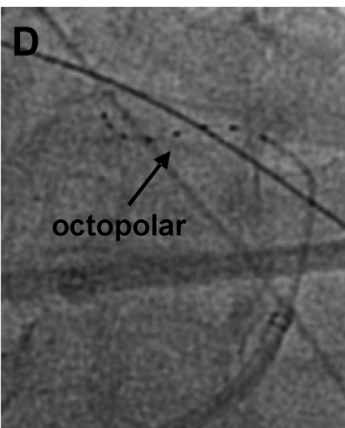
Wire ile mapping – zitti olan endo Ablasyon



Etanol ablasyonu

Gerekenler;  
oktopolar  
Kateter

İyi bir Venogram



Balon

ICE?

