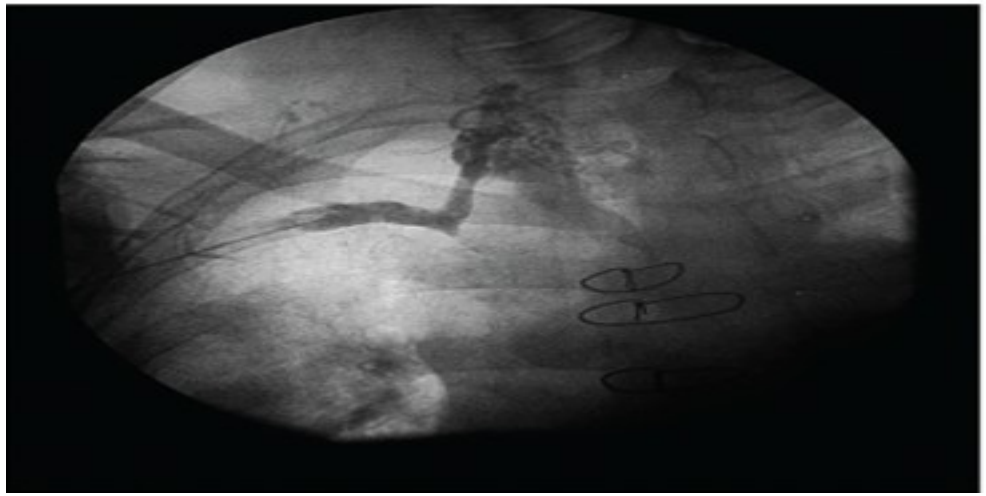
İSTANBUL GİRİŞİMSEL KARDİYOLOJİ KURSU
17–18 Şubat 2017
Radisson Blu Hotel İstanbul Şişli

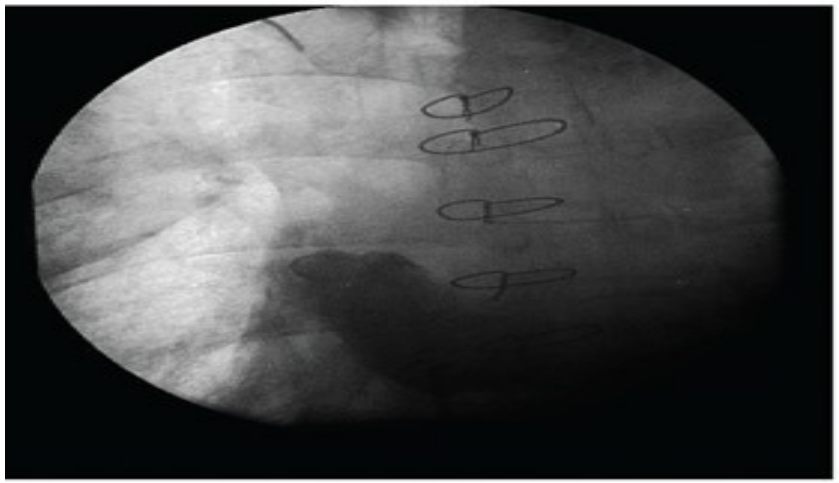
PACEMAKER VE KRT'DE ALTERNATIF LEADLER VE YERLEŞTIRME YERLERI

PROF. DR. MURAT SUCU

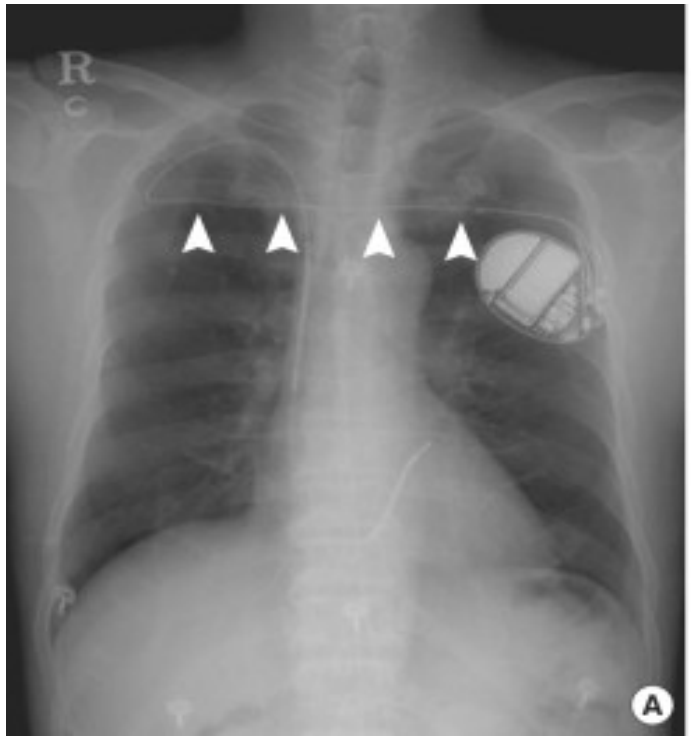
GAZIANTEP ÜNIVERSITESI TıP FAKÜLTESI KARDIYOLOJI A.D.

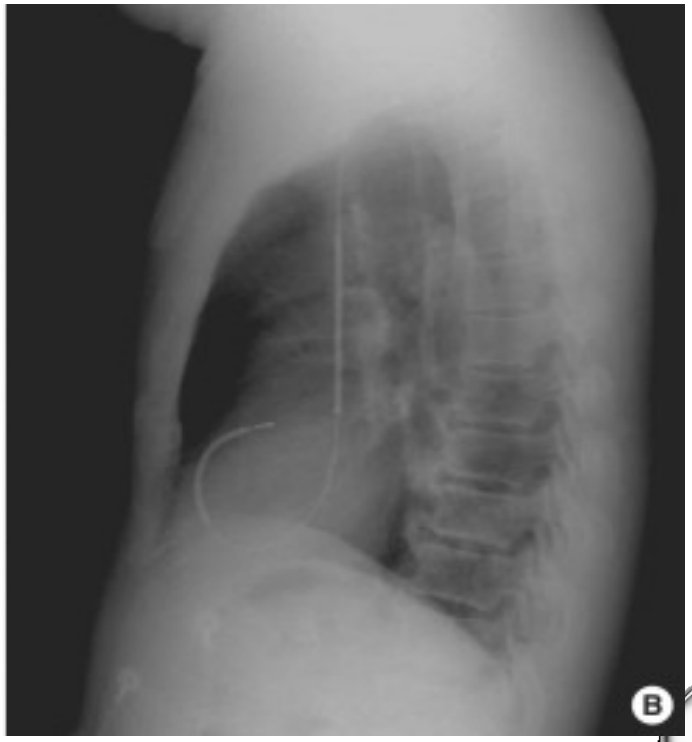
GIRIŞIM YERI ALTERNATIFLERI



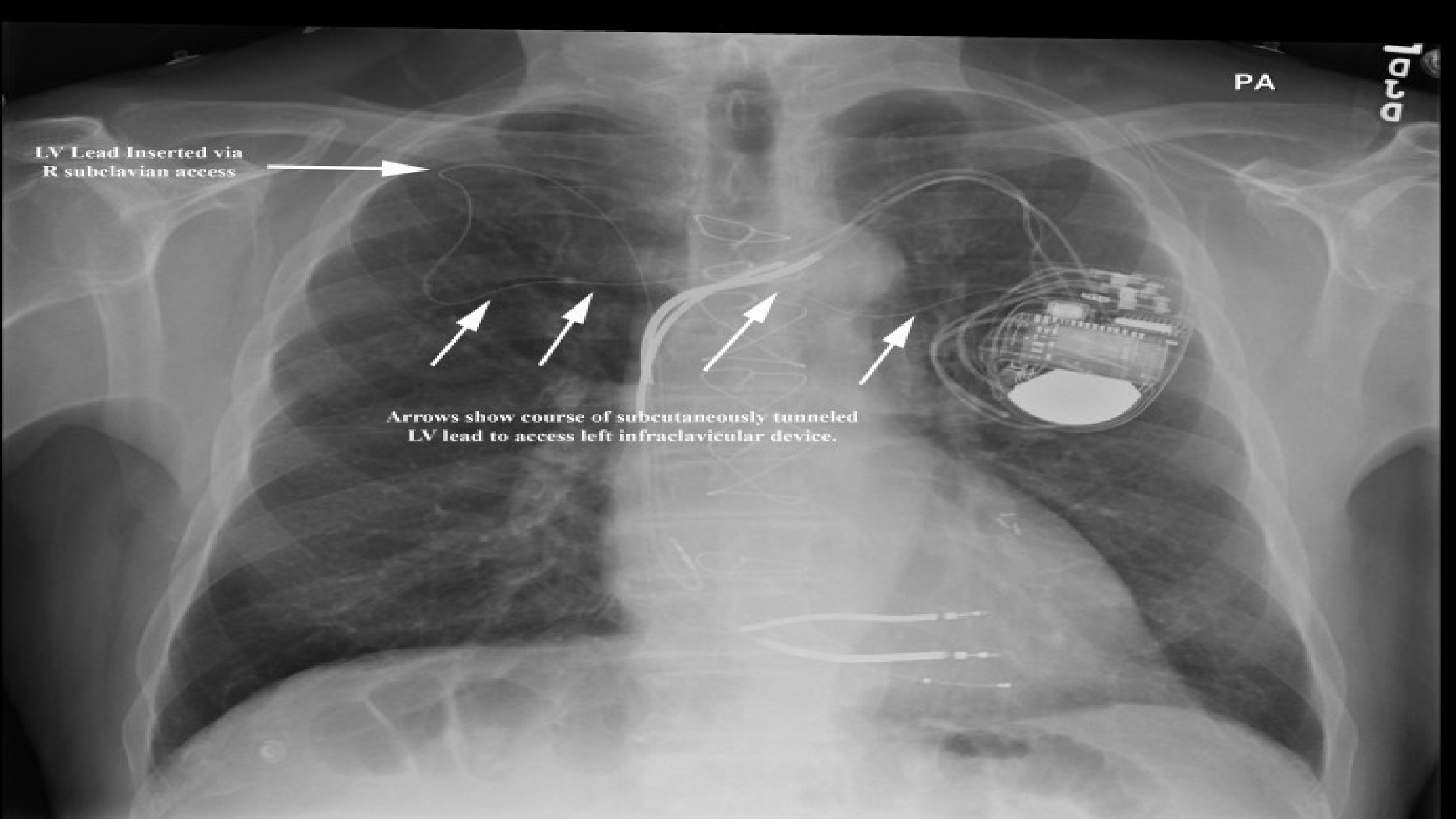


İPSİLATERAL BATARYA YERLEŞTIRME

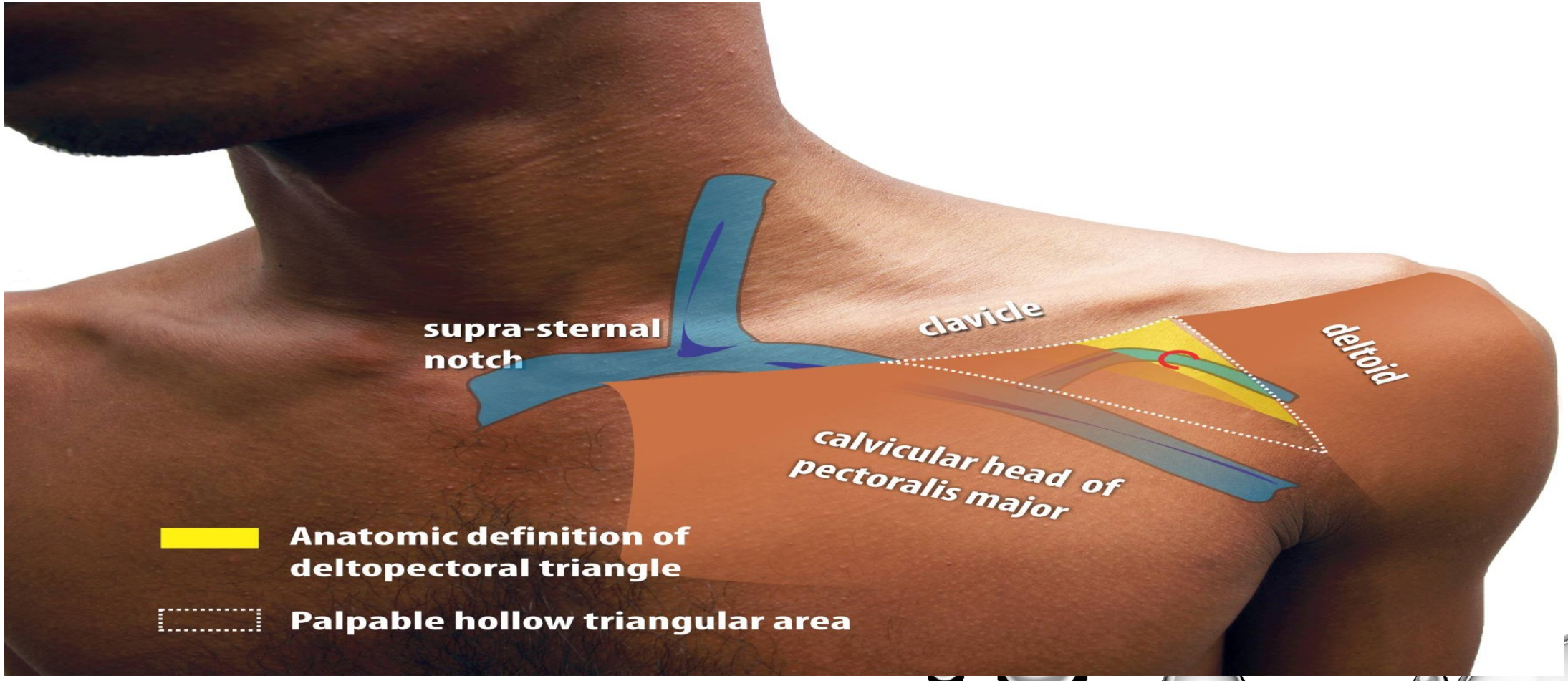




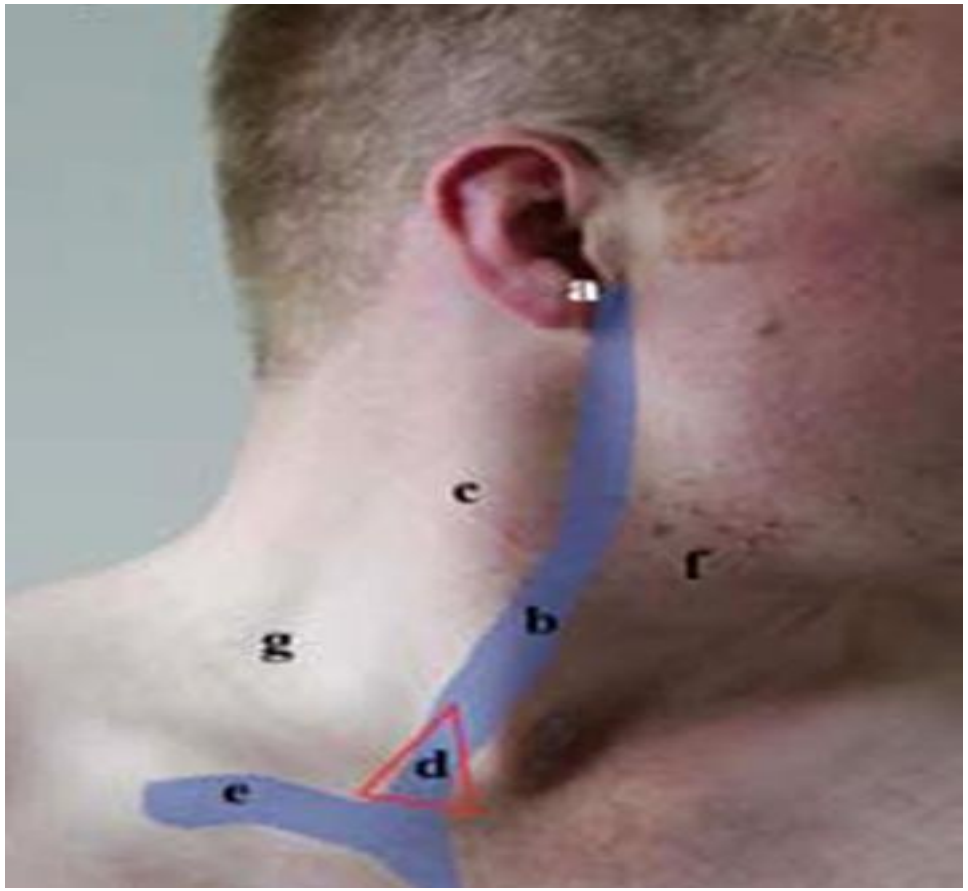
Jin-Bae Kim et.al Use of a Tunneling Technique to Achieve a Lower Defibrillation Threshold during Implantable Cardioverter Defibrillator Implantation via the Right Subclavian Vein.J Korean Med Sci. 2010; 25: 1526–1528.

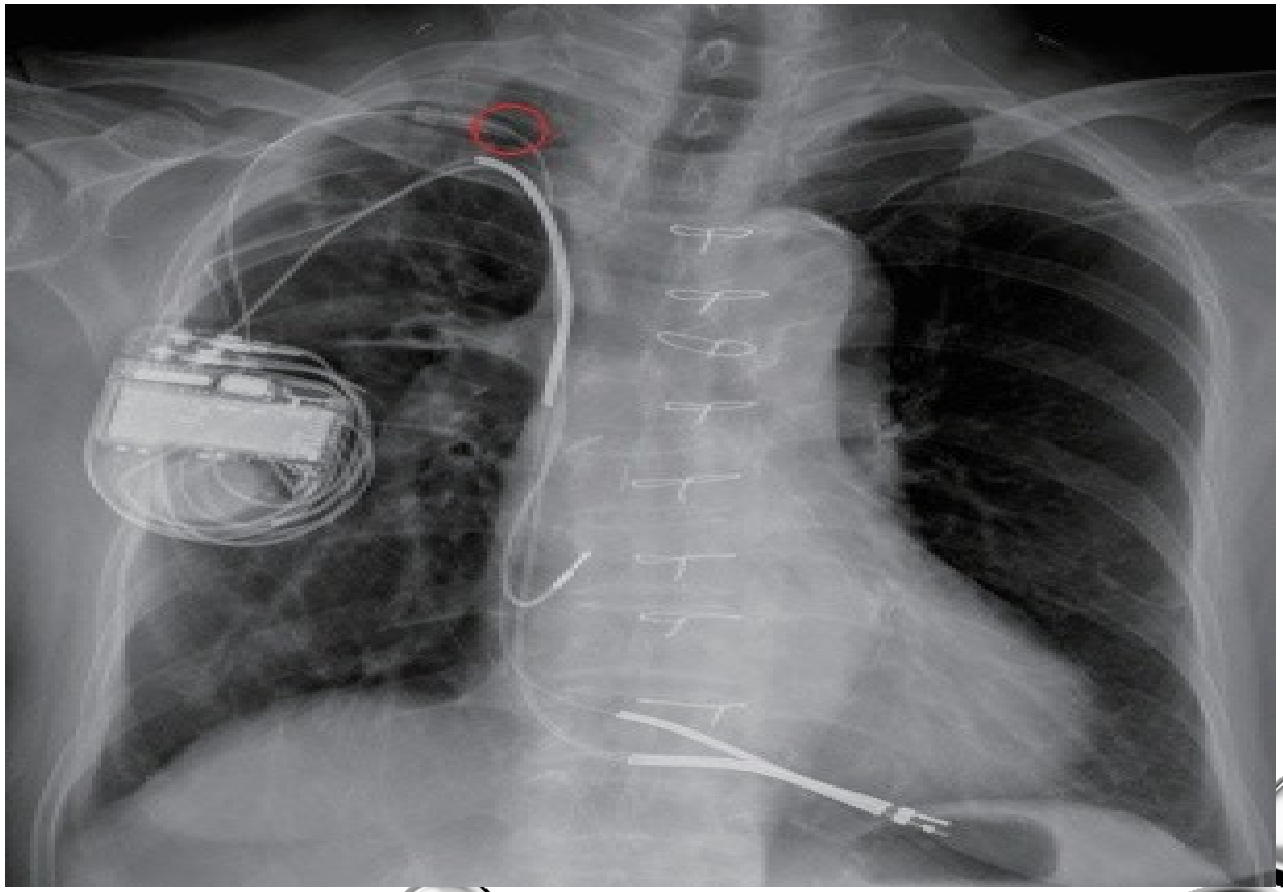

PA
LV Lead Inserted via
R subclavian access
Arrows show course of subcutaneously tunneled
LV lead to access left infraclavicular device.

CEPHALIC VEN CUTDOWN

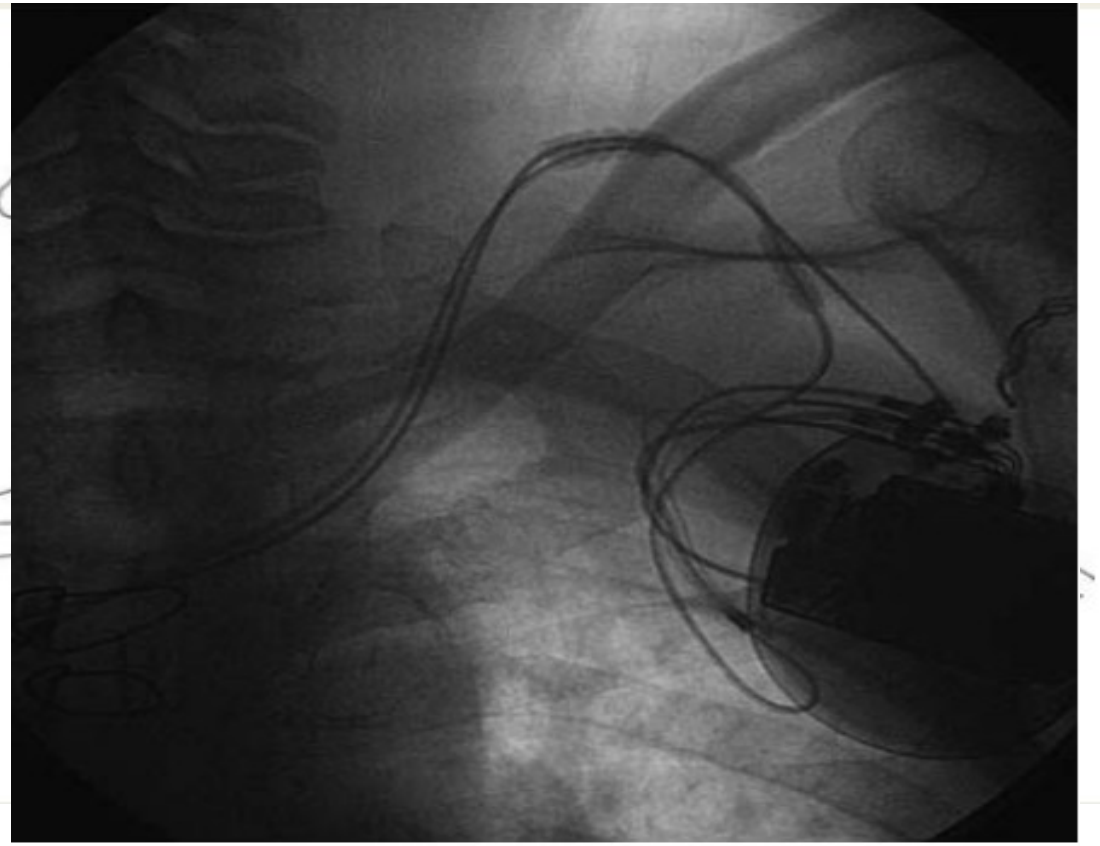


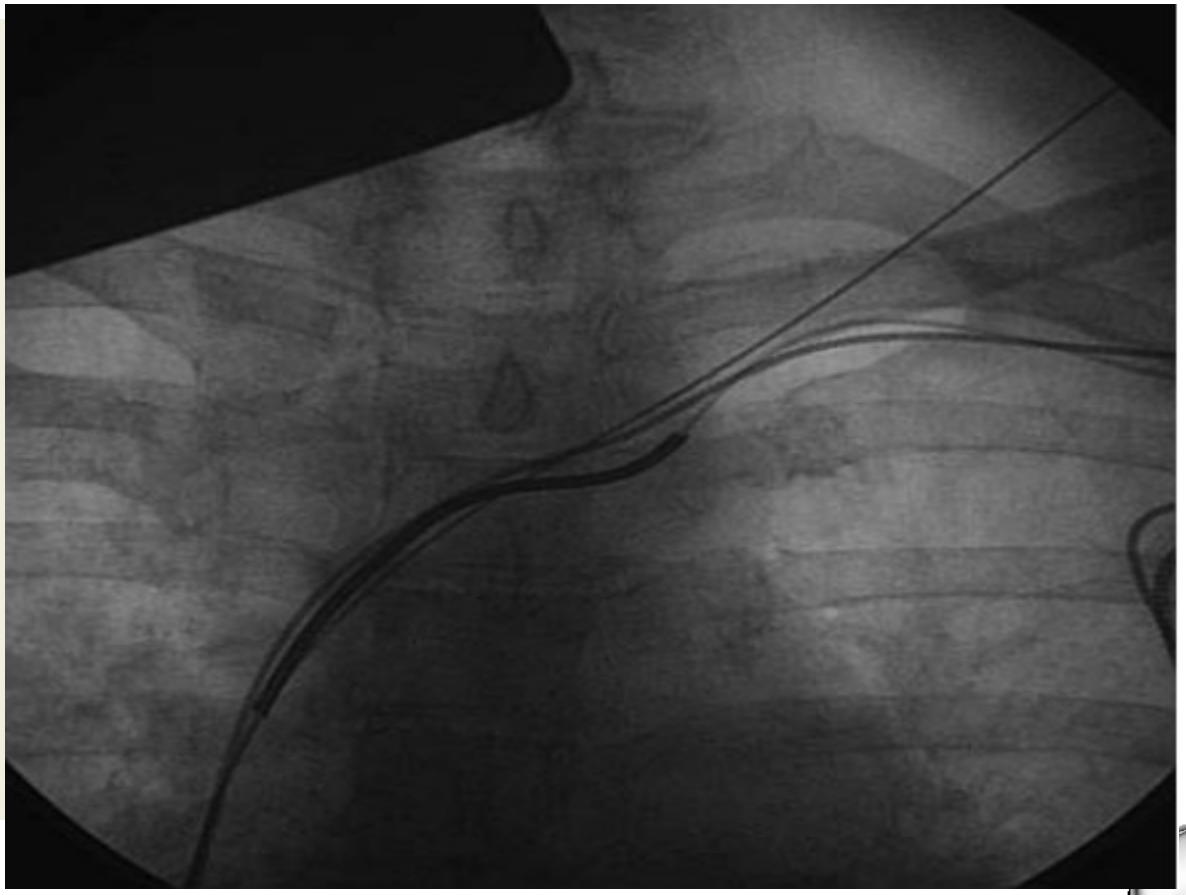
İNTERNAL JUGULAR VEN



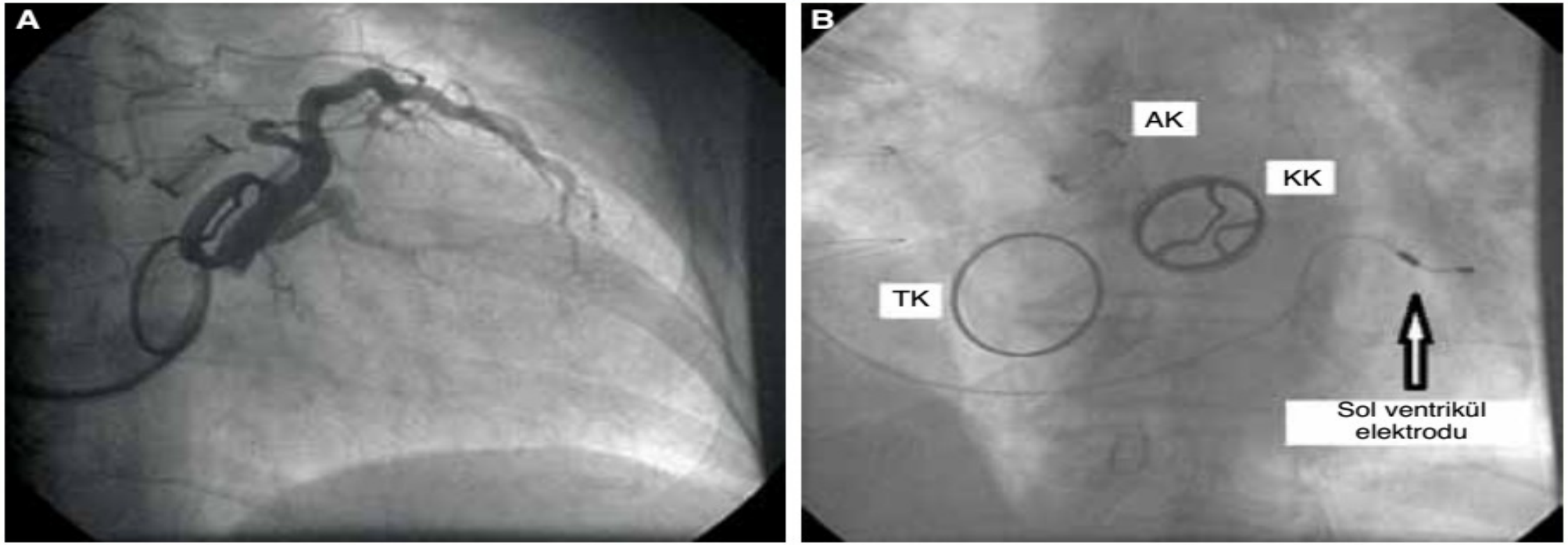


SUPRAKLAVİCULAR VEN



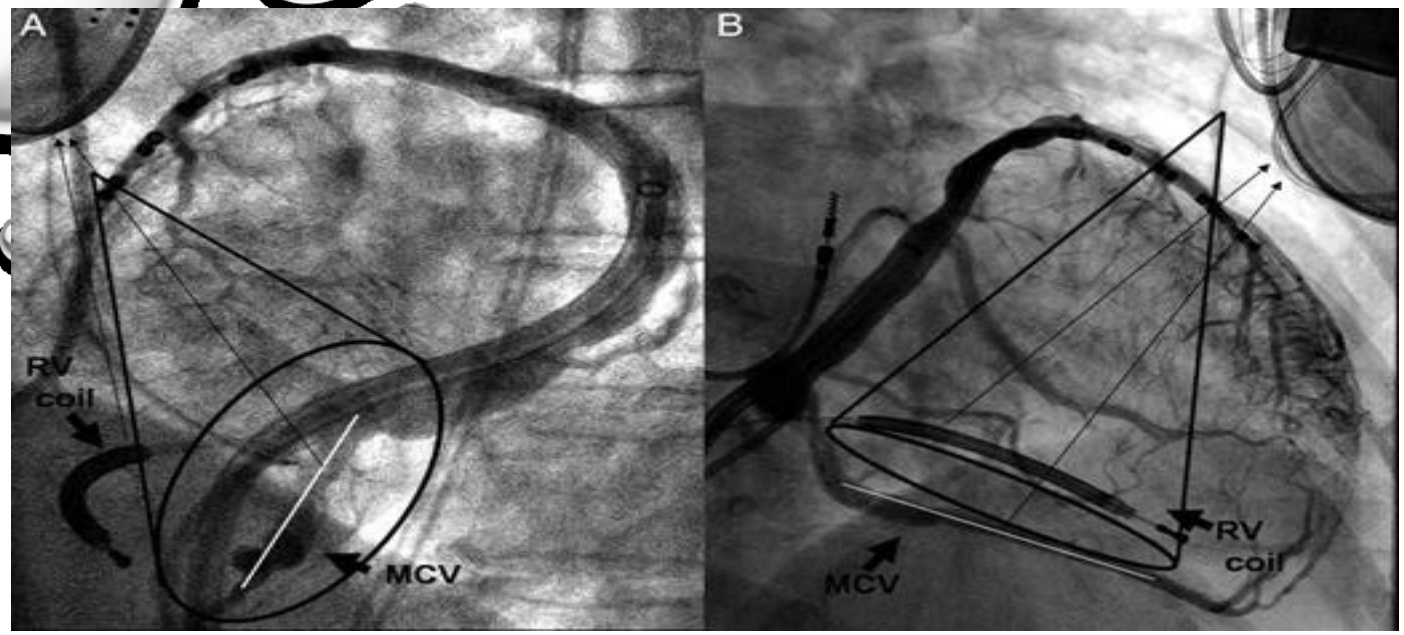


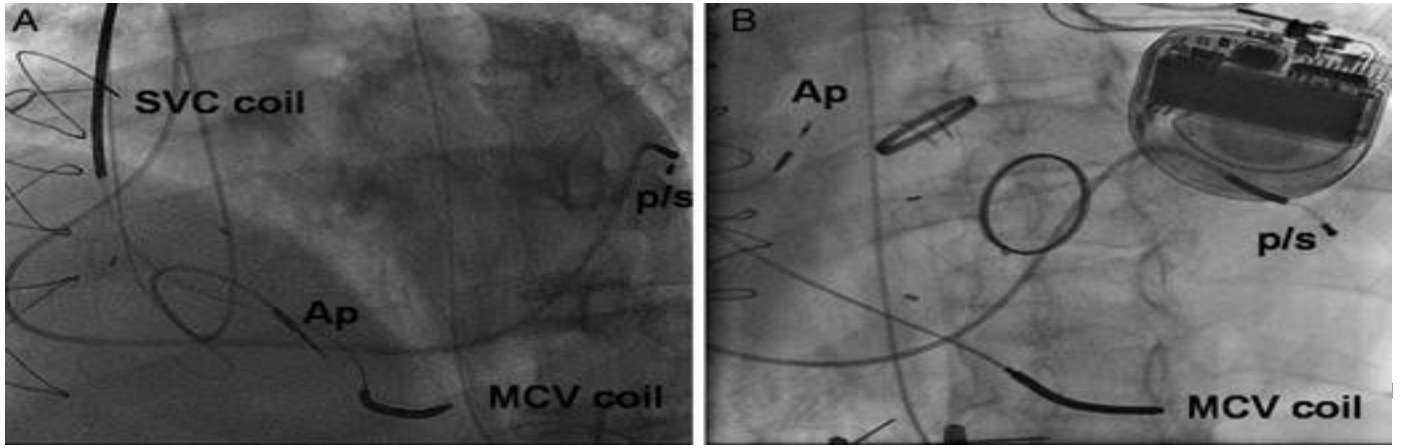
KORONER SINÜS YAKLAŞıM



Şekil 1. **(A)** Koroner sinüs venogramı. **(B)** Lateral kardiyak vene sol ventrikül elektrodunun yerleştirilmesi.
AK: Aortik kapak; MK: Mitral kapak; TK: Triküspit kapak.

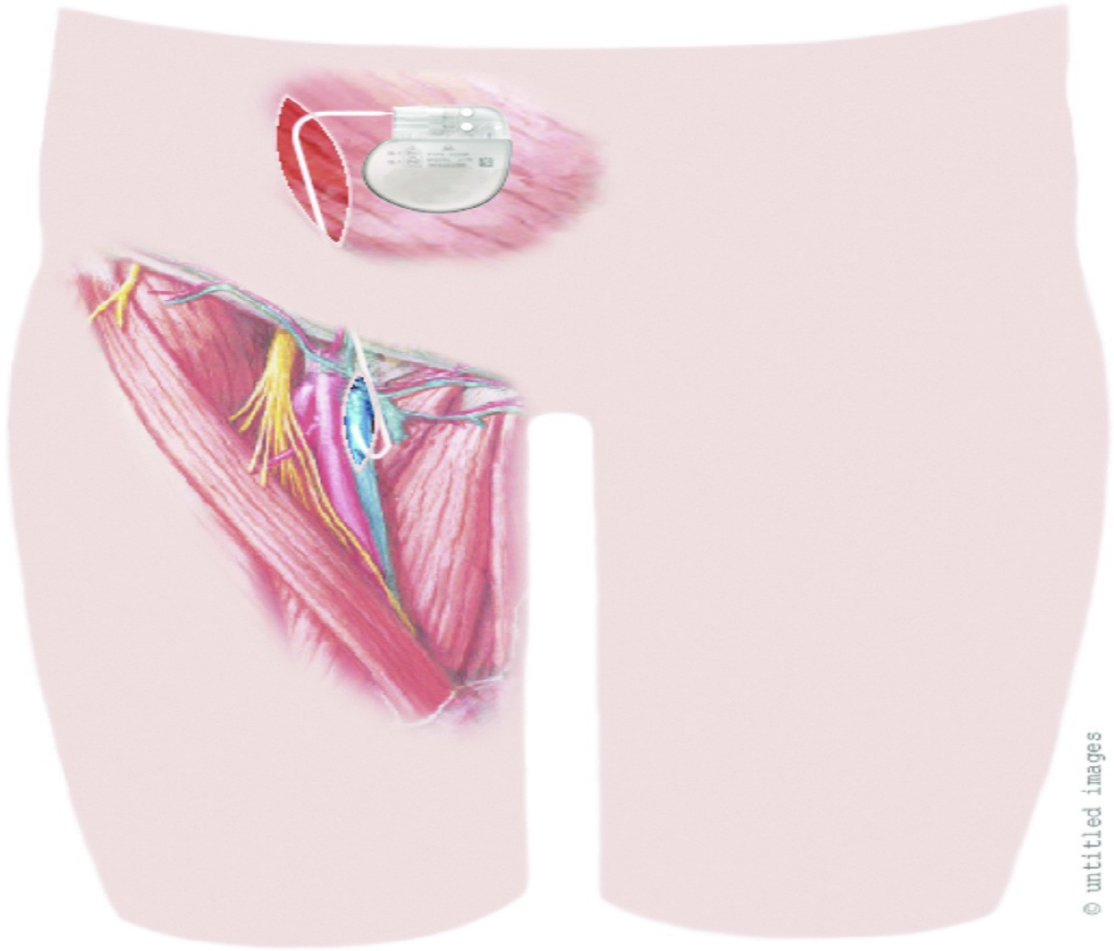
Demir AD. et.al.Arch Turk Soc Cardiol 2011;39(3):244-247

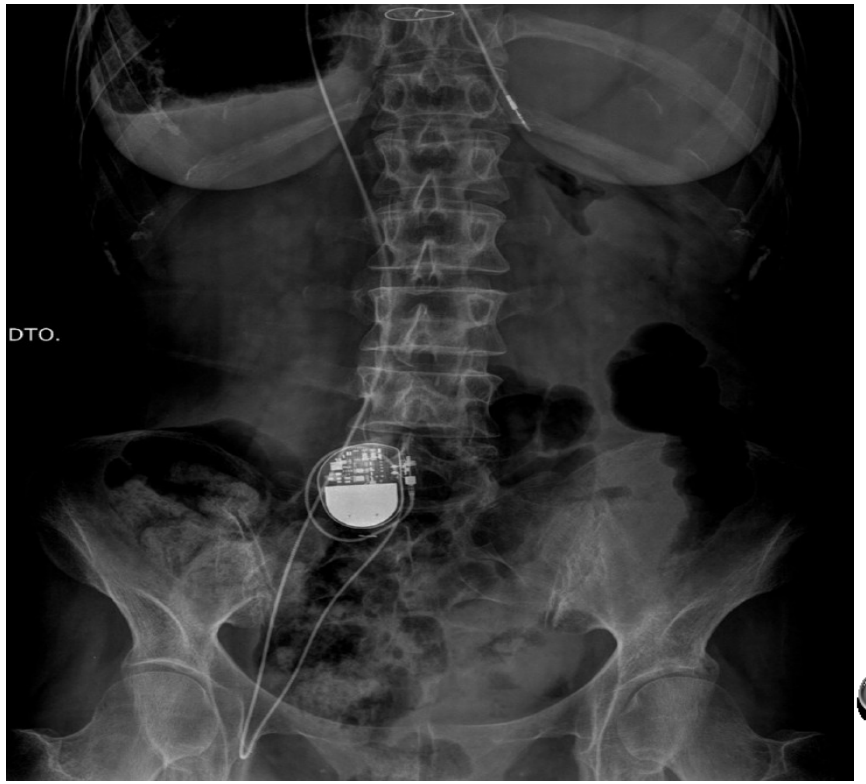


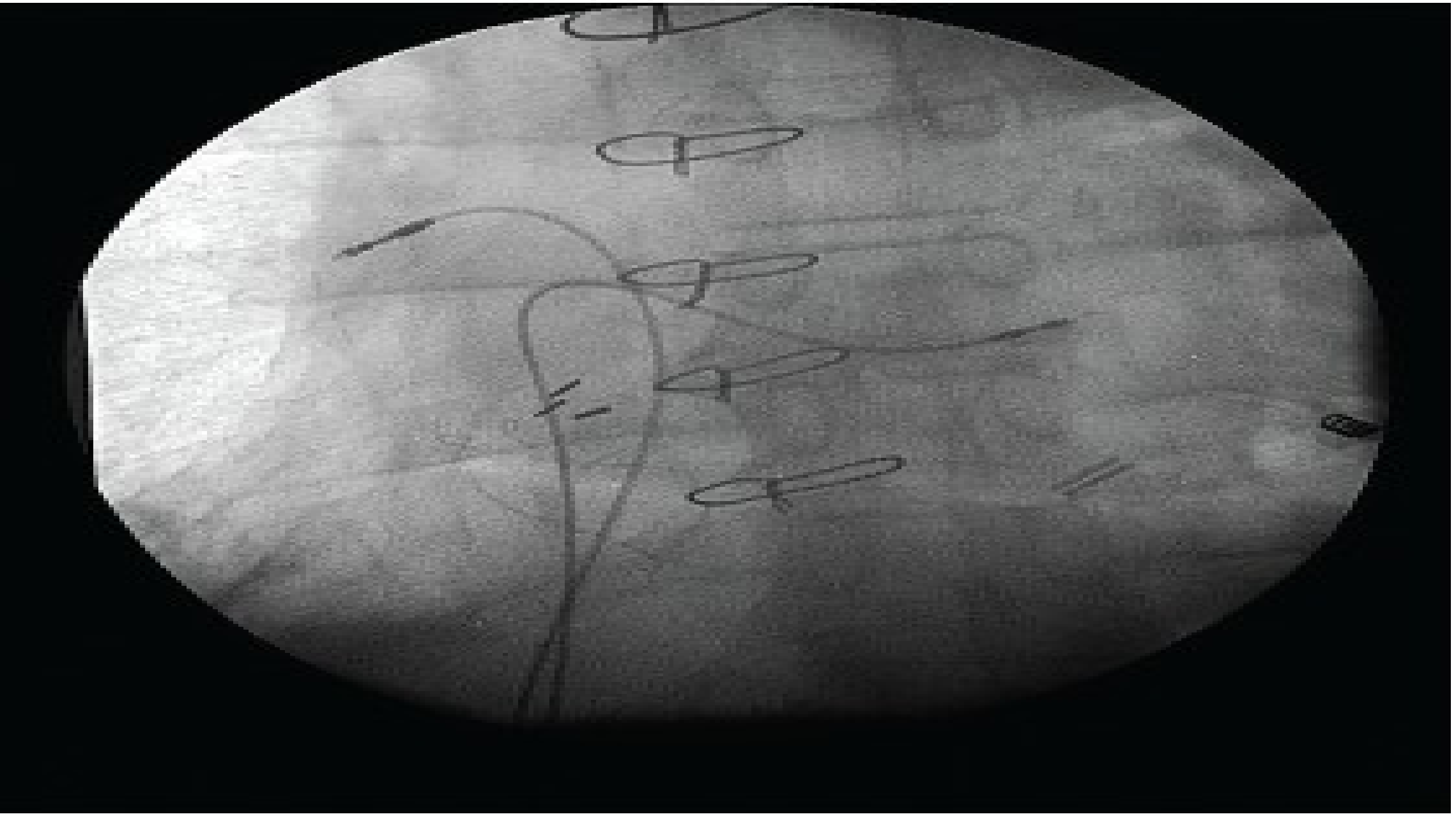


J. Alberto Lopez. Implantable cardioverter defibrillator lead placement in the middle cardiac vein after tricuspid valve surgeryEuropace (2012) 14 (6): 853-858.

FEMORAL YAKLAŞIM

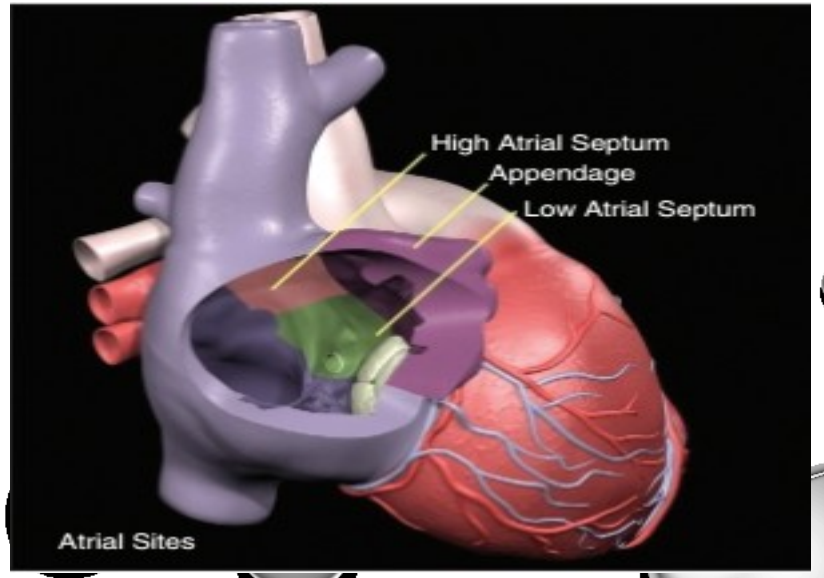




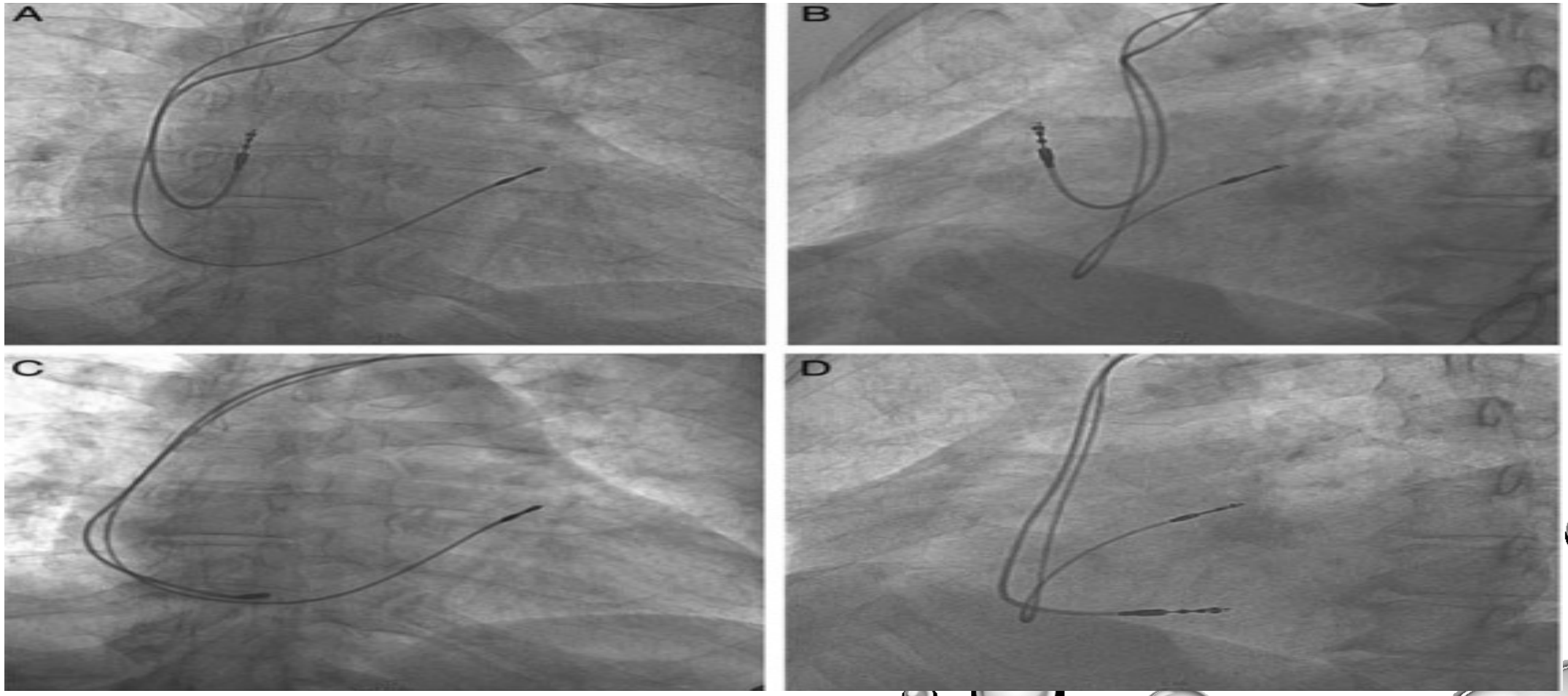


ALTERNATIF ATRIAL LEAD YERLEŞIMLERI

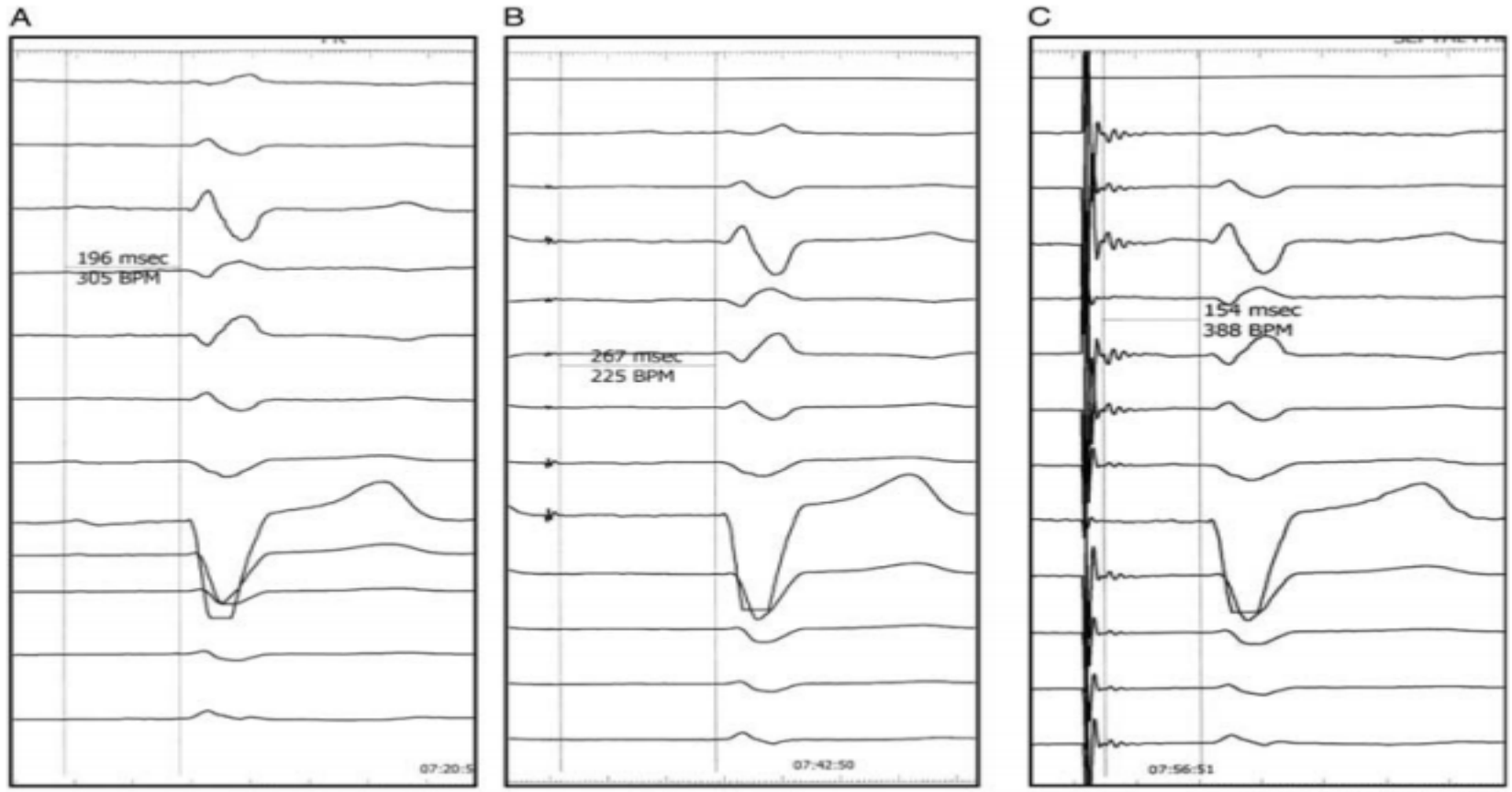
- İNTERATRIAL SEPTUM, BACHMANN'S BUNDLE LOW, CLOSE TO THE CORONARY SINUS OS;
- BIATRIAL
- SAĞ ATRIUMDA IKI LEAD.



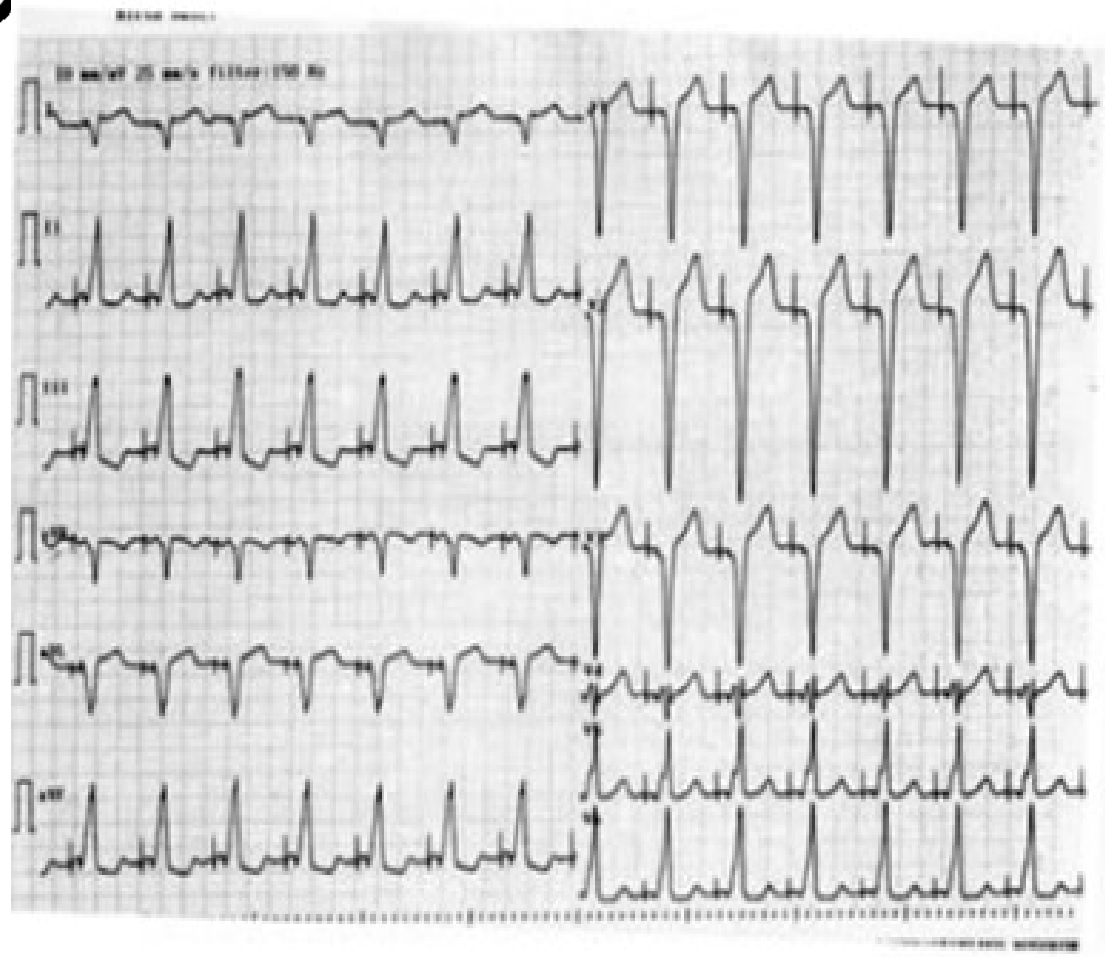
SAĞ ATRIAL LOW SEPTUM



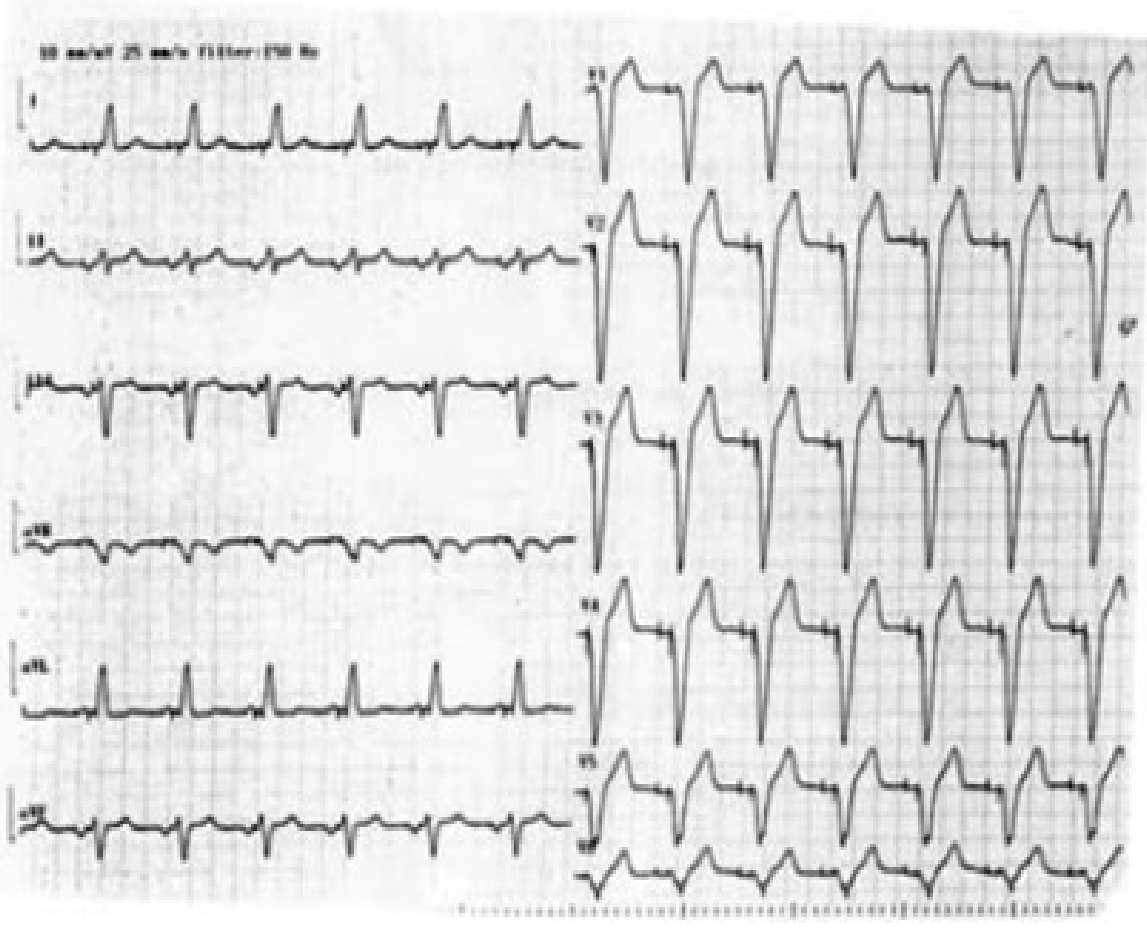
SAĞ ATRIAL LOW SEPTUM

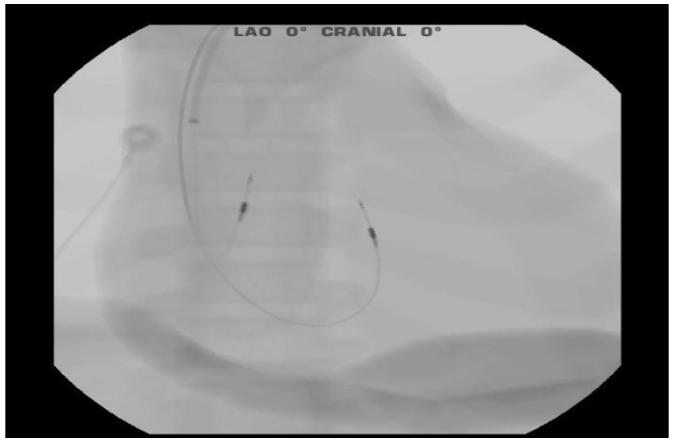


RA SEPTUM+RVOT HİGH

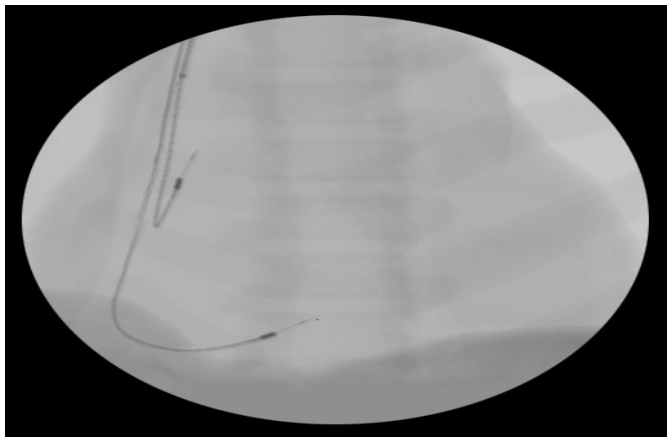


CS OS+RVOT MİD

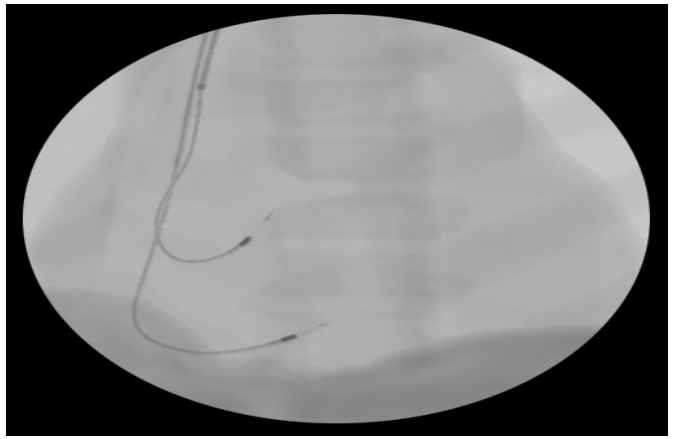




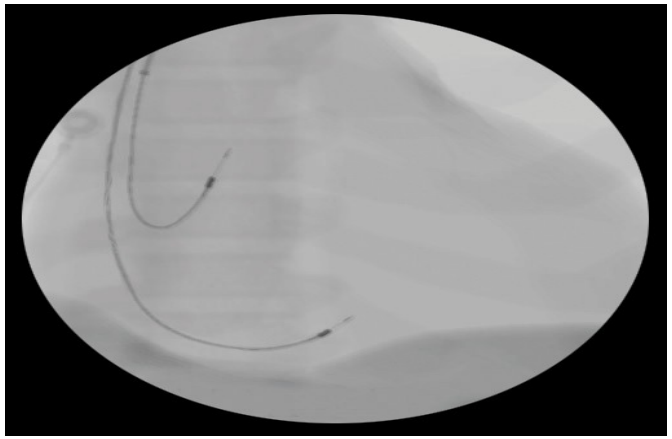
Right Atrial Appendage — AP view



Right Atrial Appendage — LAO view



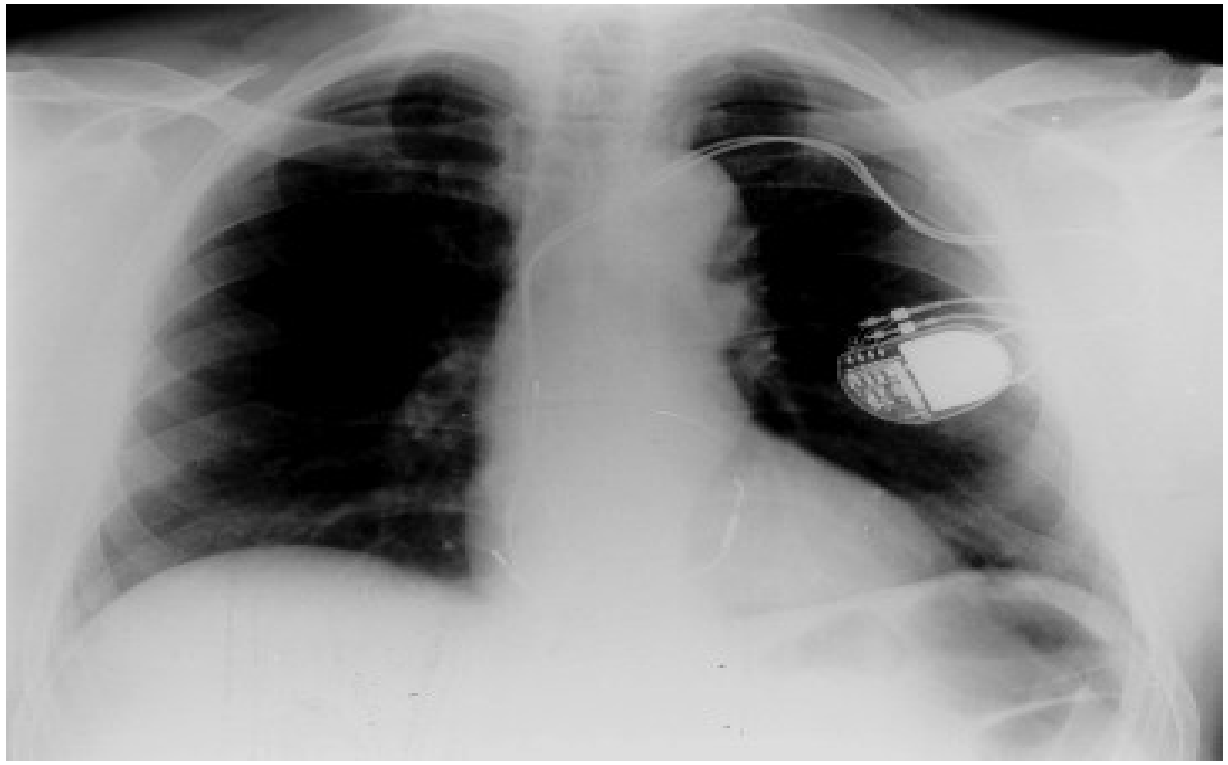
High Interatrial Septum — AP view

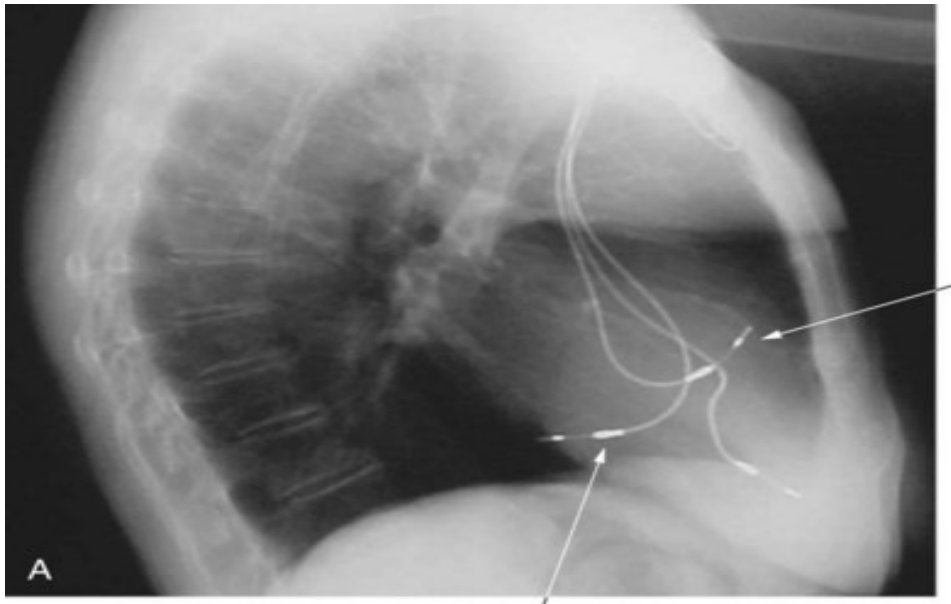


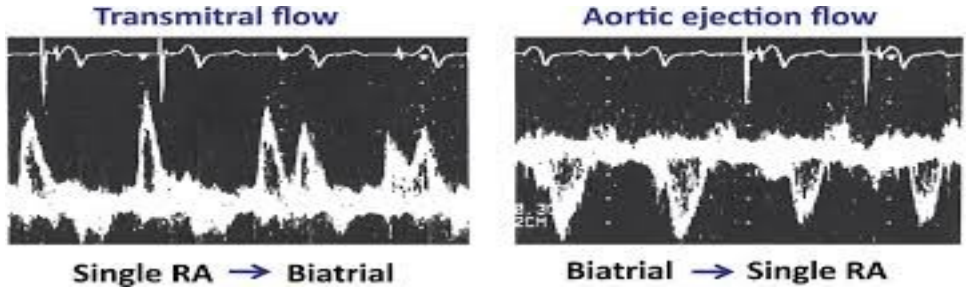
High Interatrial Septum — LAO view

RIGHT ATRIAL HIGH SEPTUM

BİATRİAL PACİNG

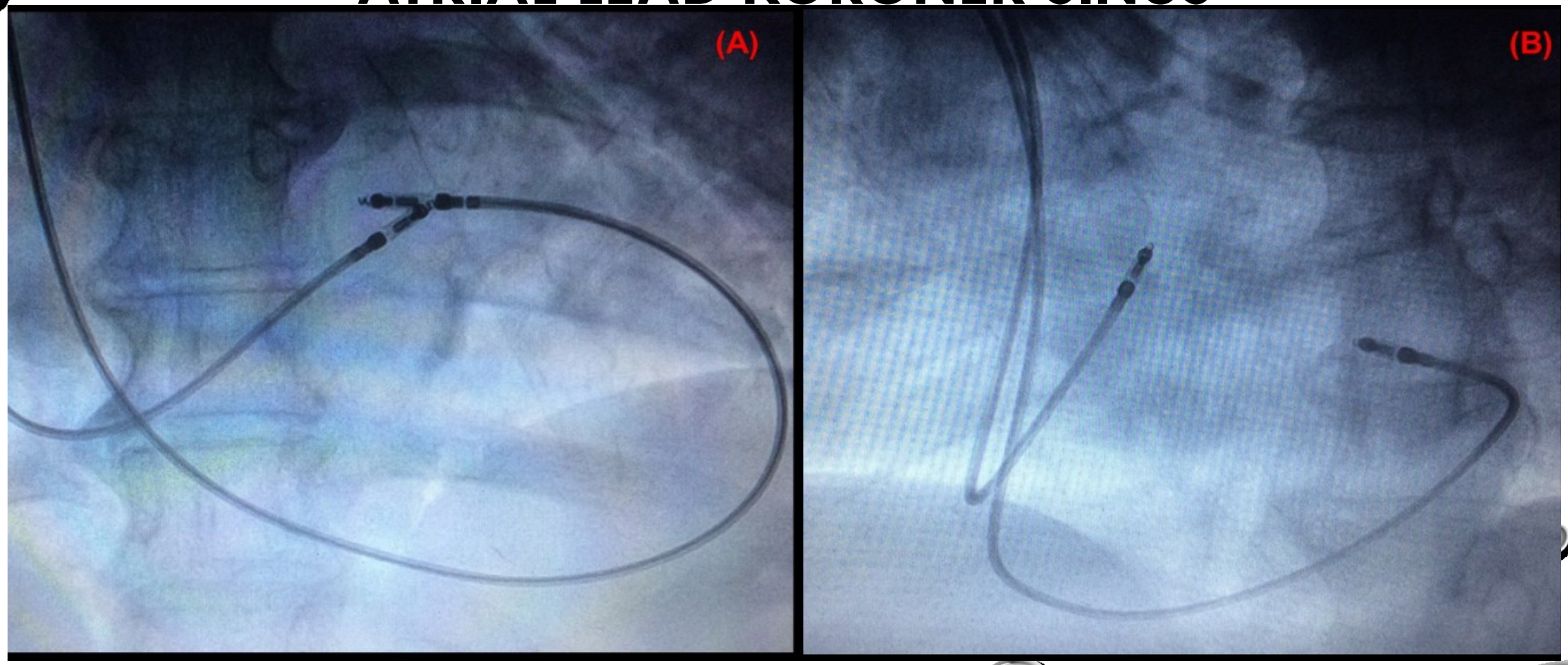






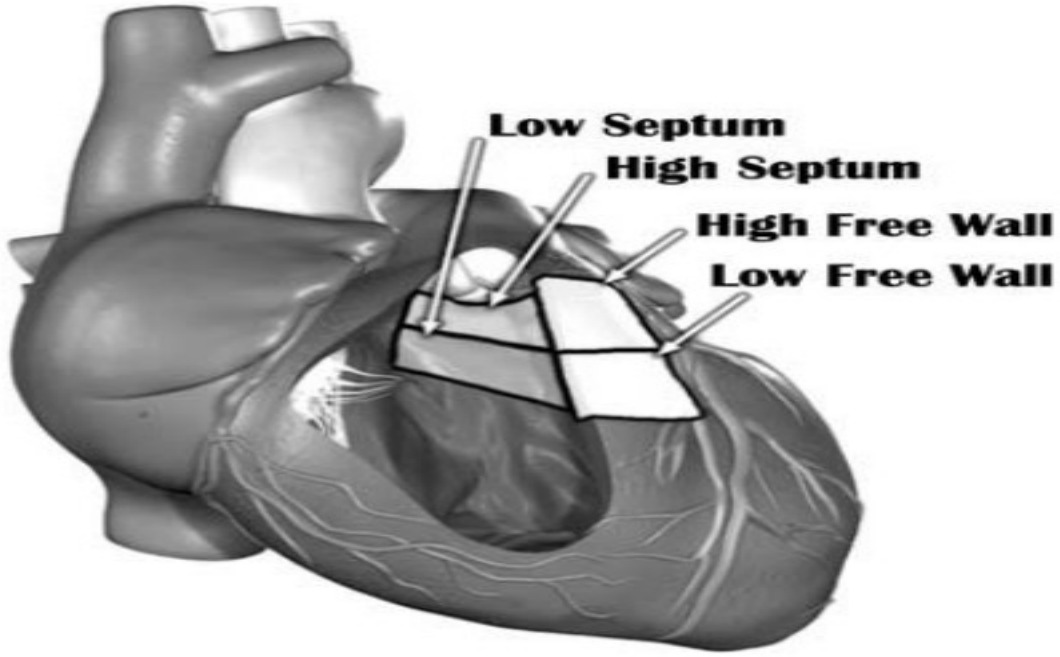
2012 EHRA/HRS expert consensus statement on cardiac resynchronization therapy in heart failure

ATRIAL LEAD KORONER SINUS

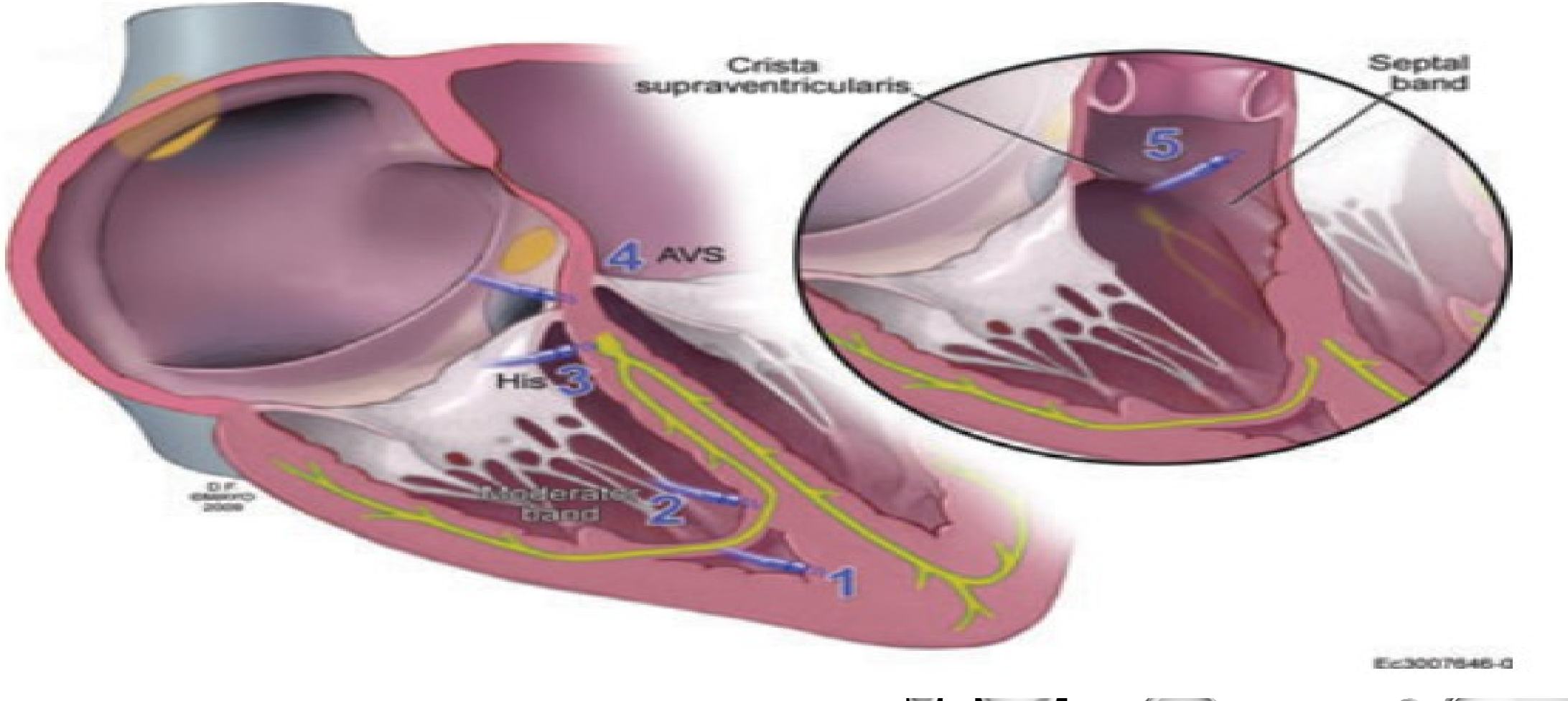


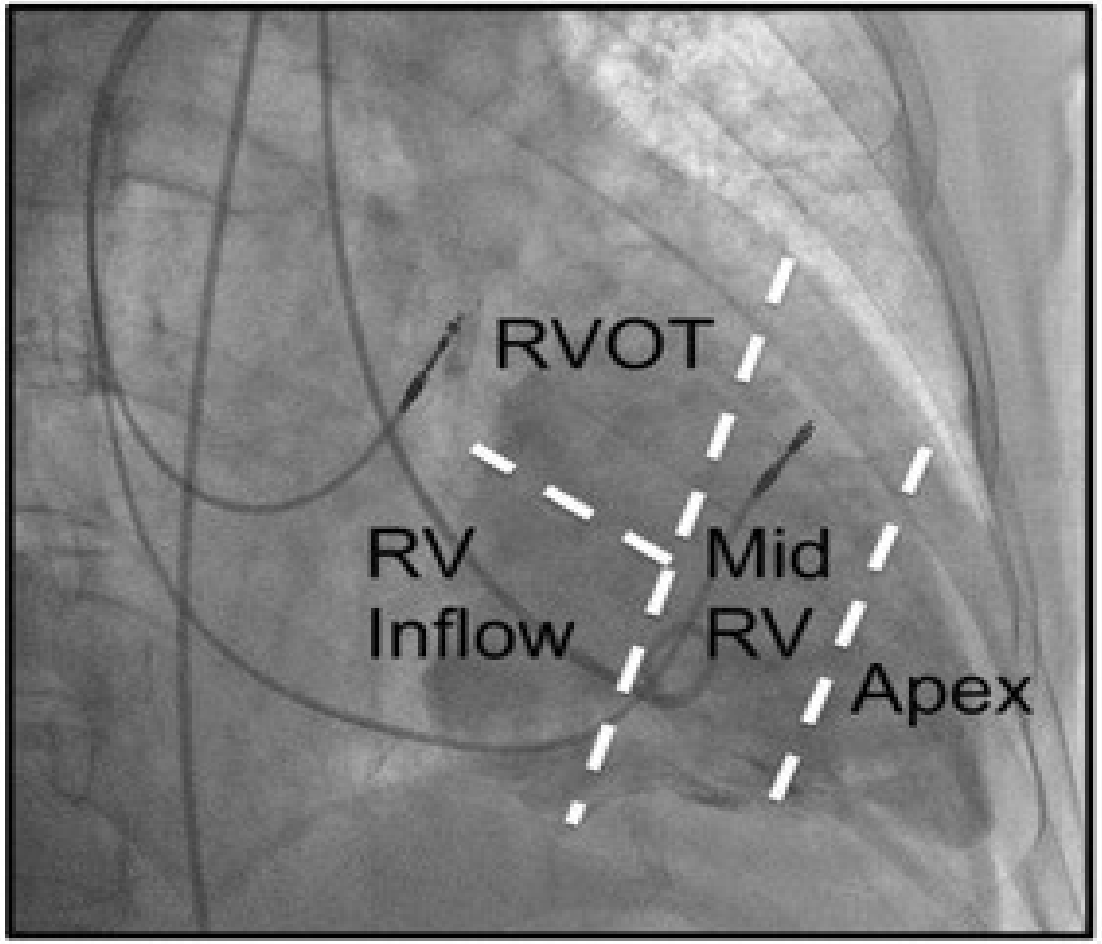
SAĞ VENTRIKÜLER YERLEŞIM

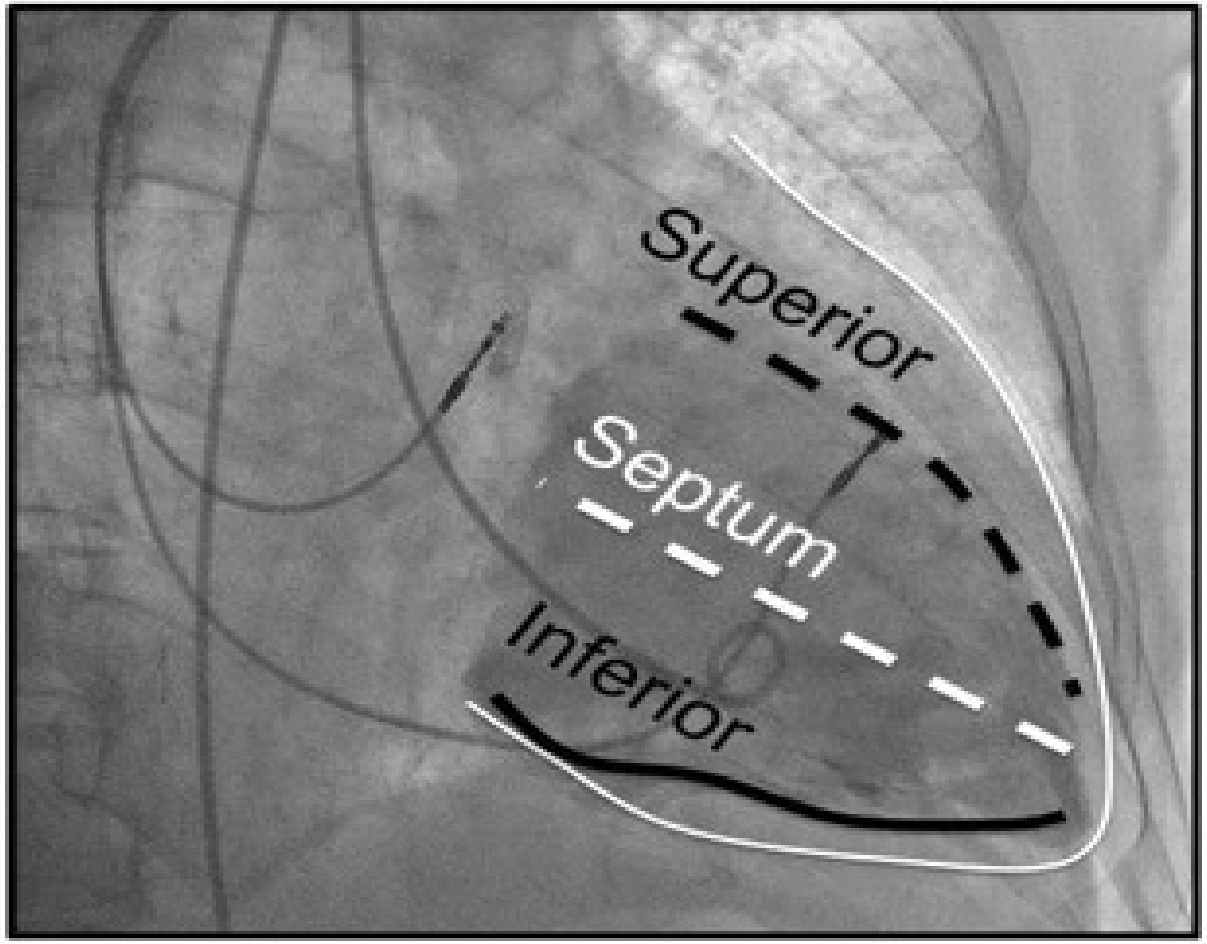
- İNTERVENTRIKÜLER SEPTUM VEYA HIS BUNDLE
- RVOT

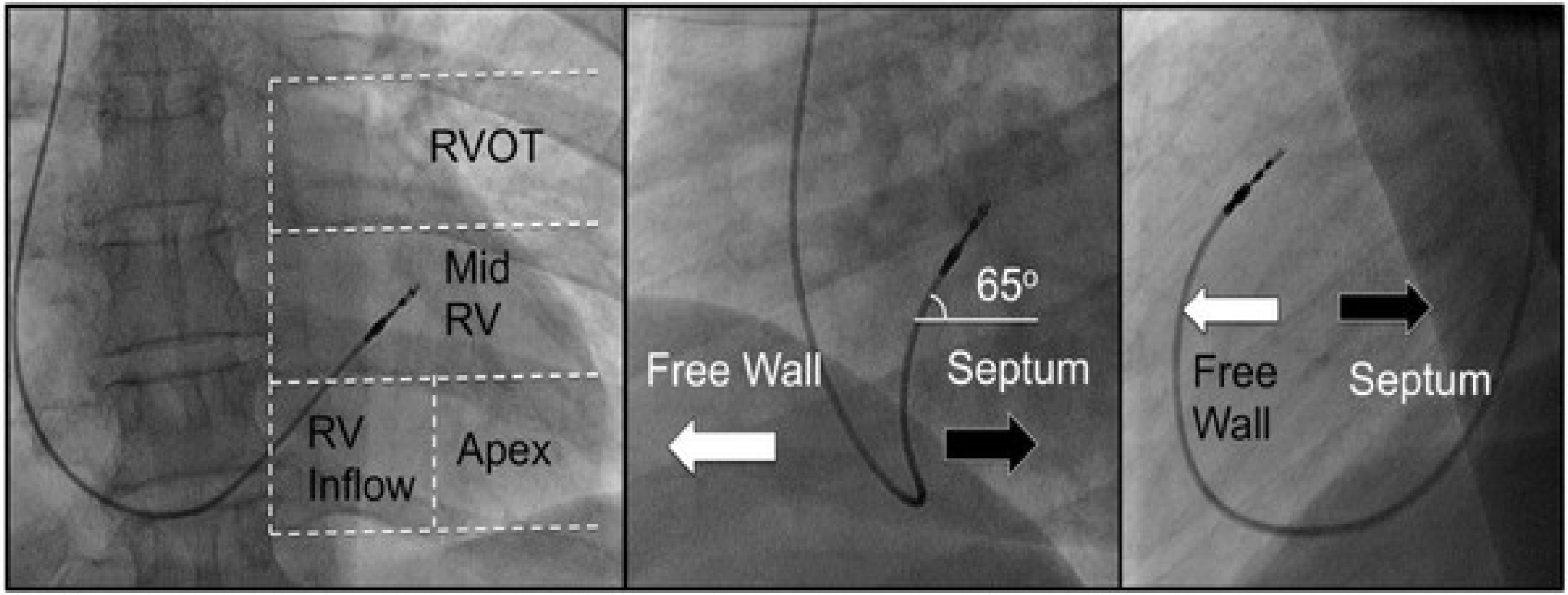


SAĞ VENTRIKÜLER YERLEŞIM

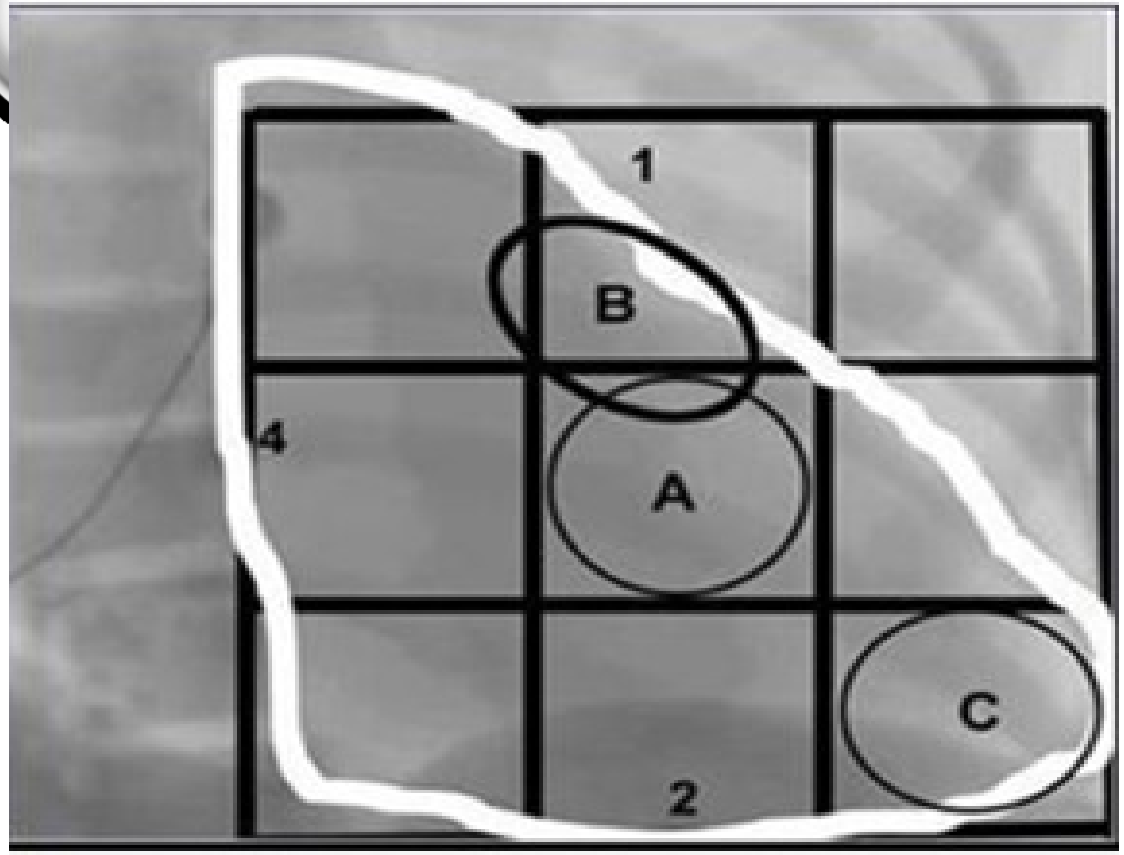


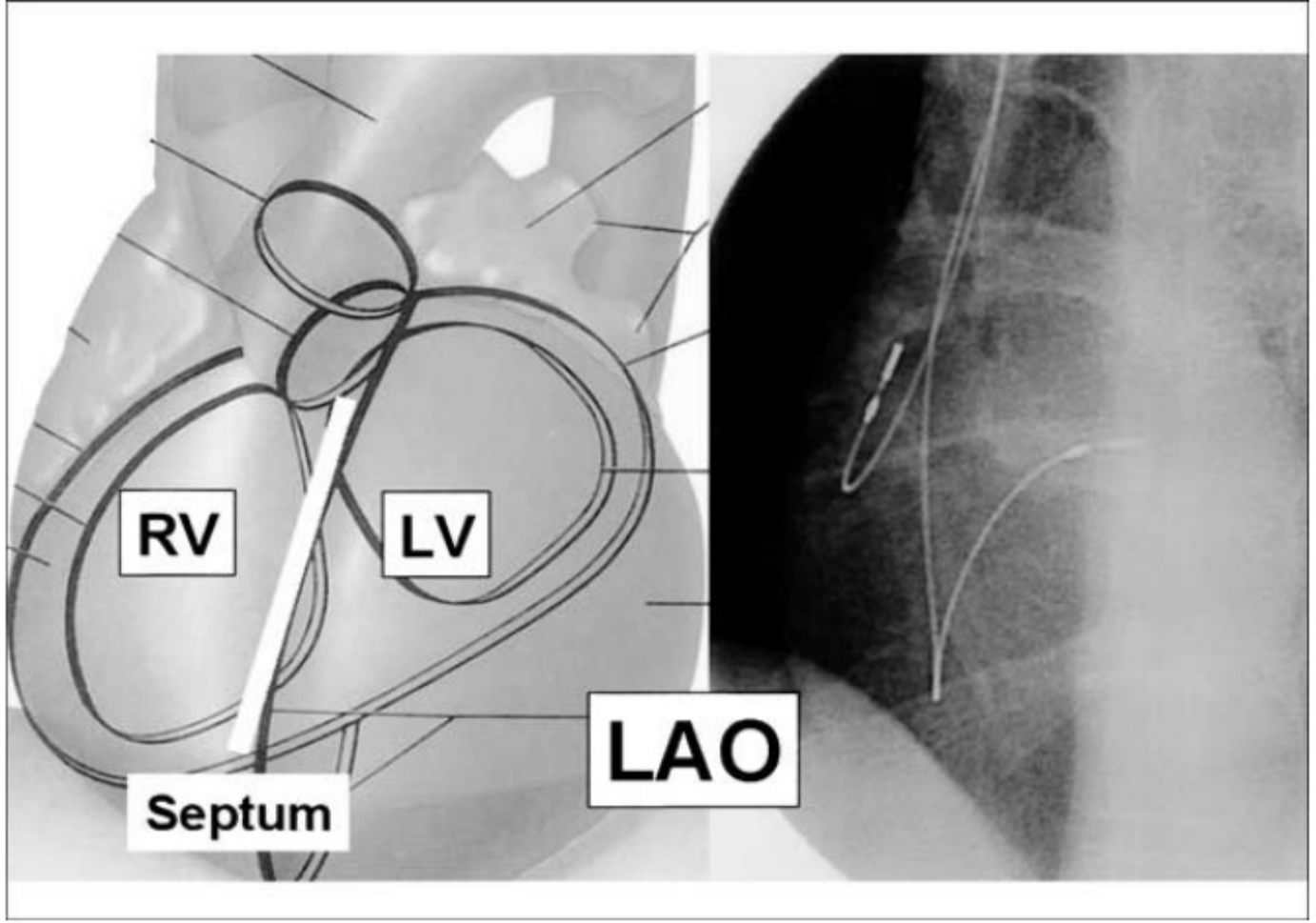

RVOT
RV
Inflow
Mid
RV
Apex


Superior
Septum
Inferior

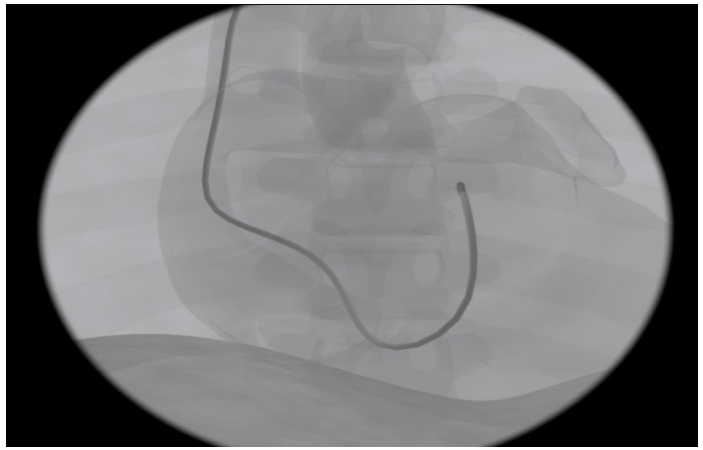


PA view LAO view Left Lateral view

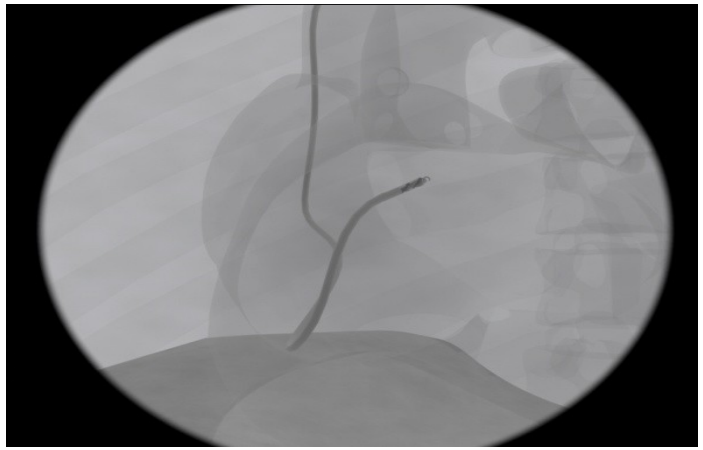




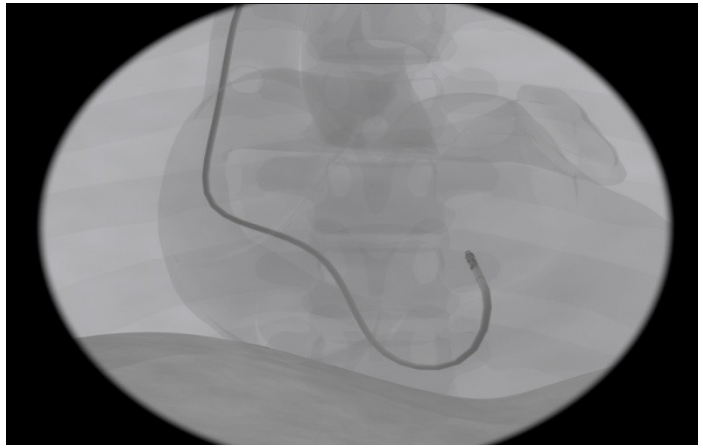
Right Ventricular Selective Site	Lead I	aVF
High septal	−	+
Low septal	−	±
High free wall	+	+
Low free wall	+	±



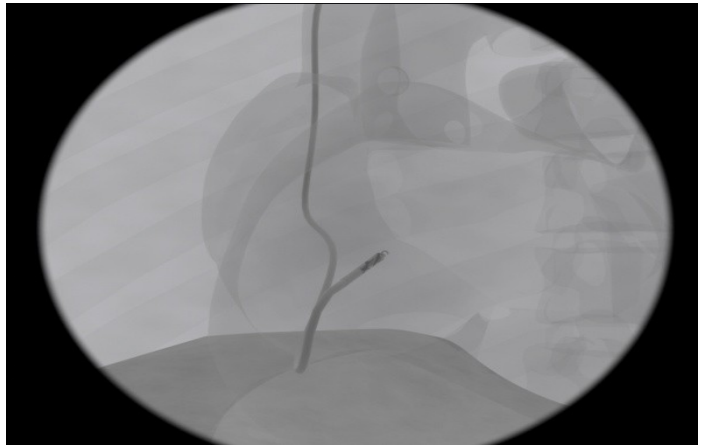
High septum — AP view



High septum — LAO view

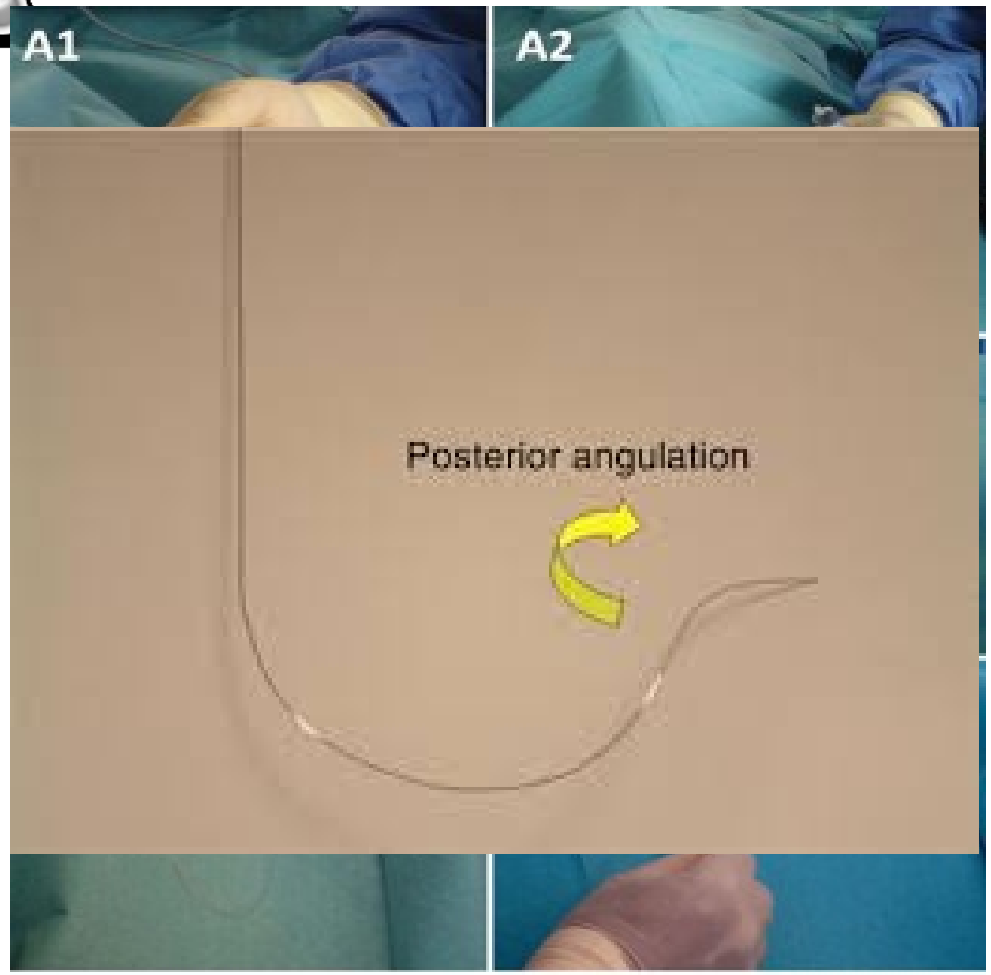


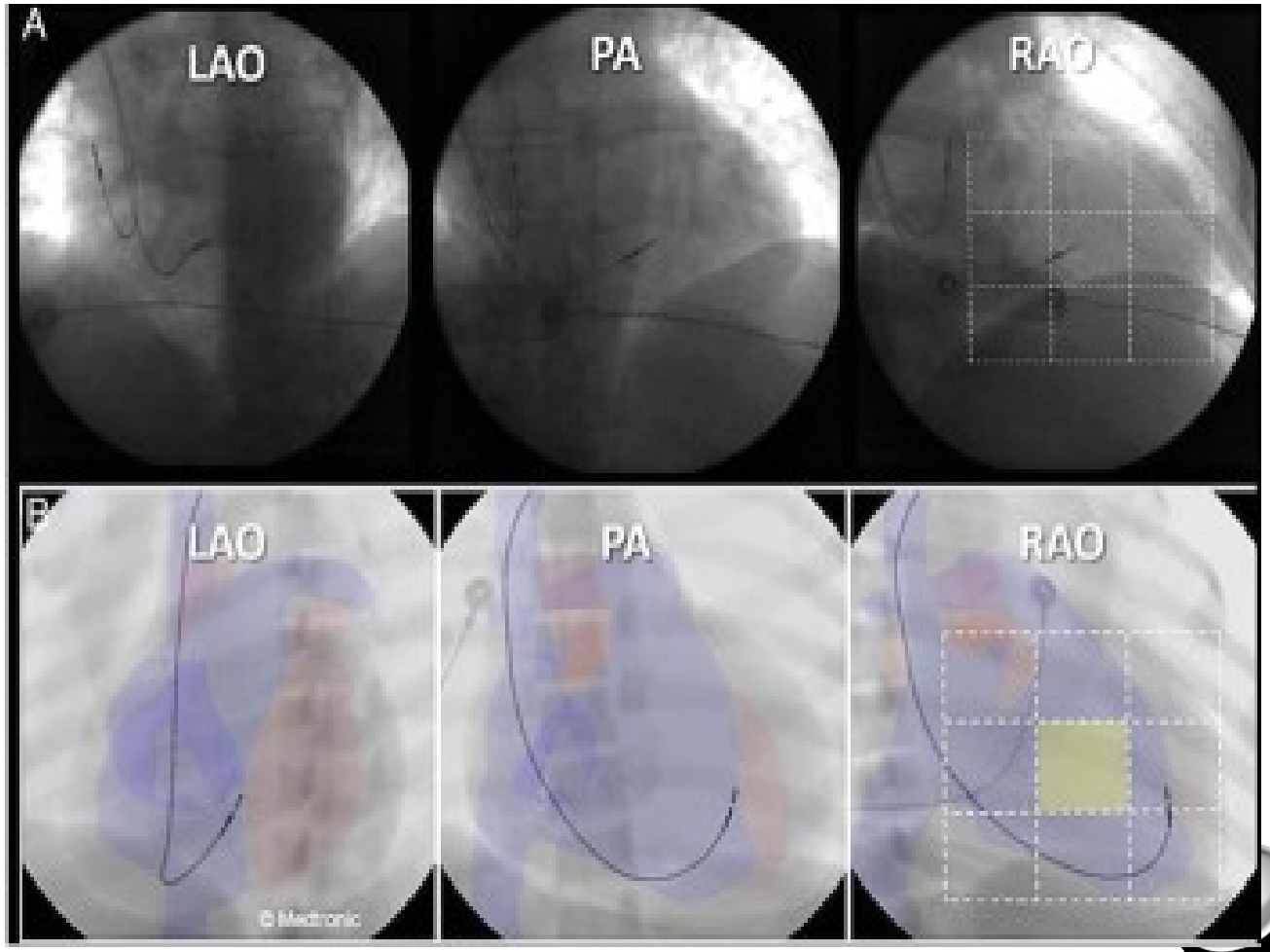
Low septum — AP view

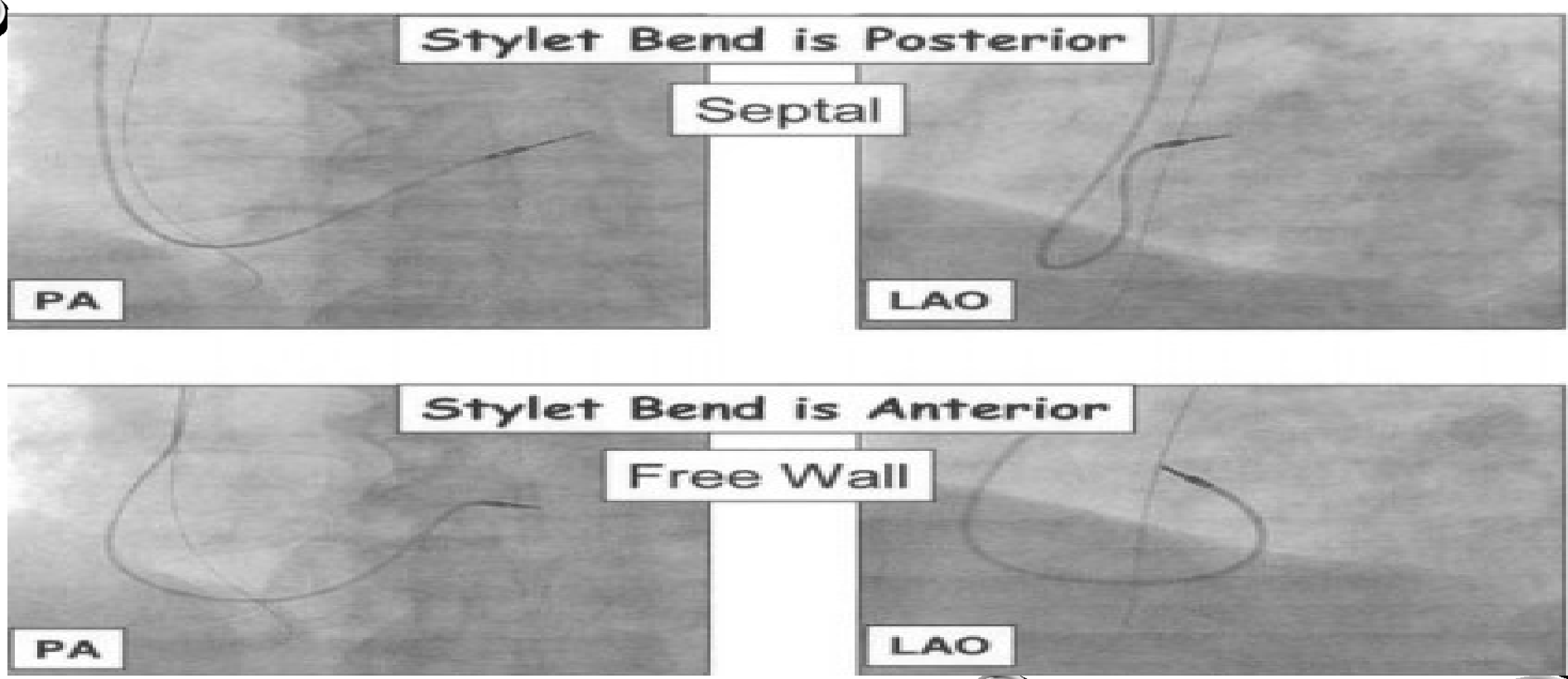


Low septum — LAO view

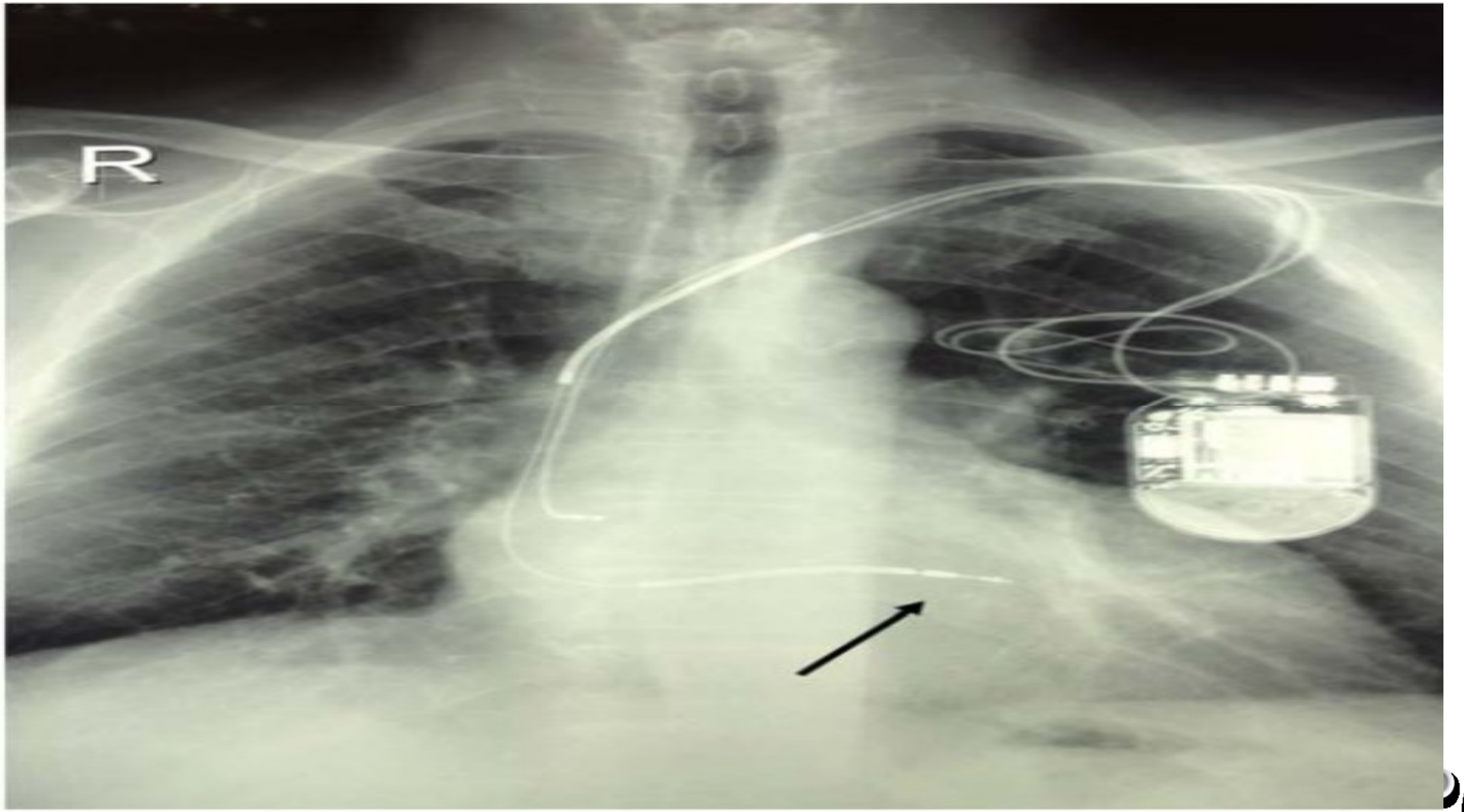
RIGHT VENTRICULAR SEPTAL PACING



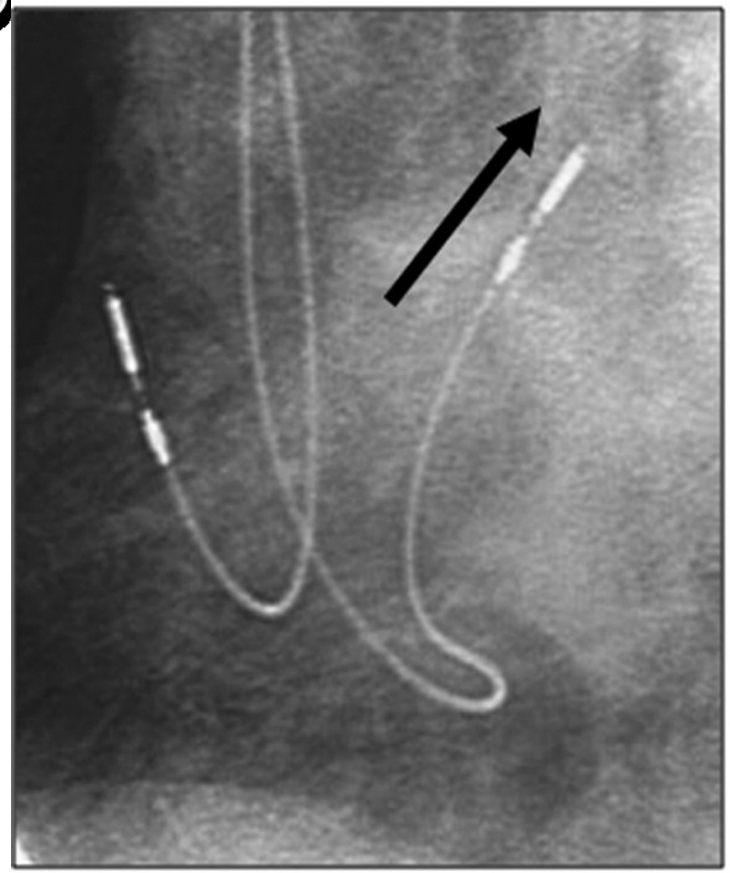



Stylet Bend is Posterior
Septal
PA
LAO
Stylet Bend is Anterior
Free Wall
PA
LAO

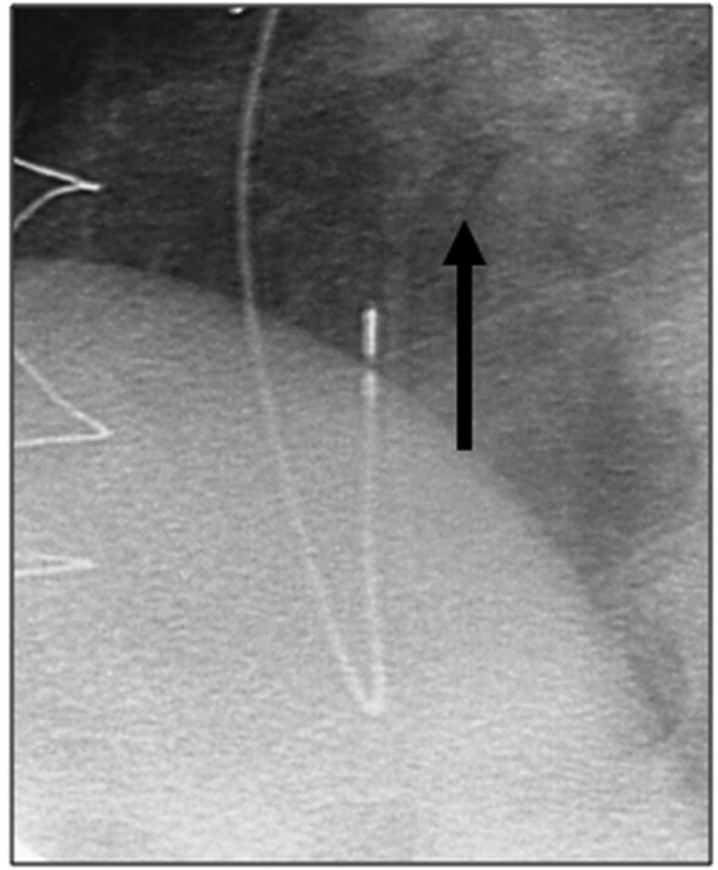
RVOT MİD SEPTAL



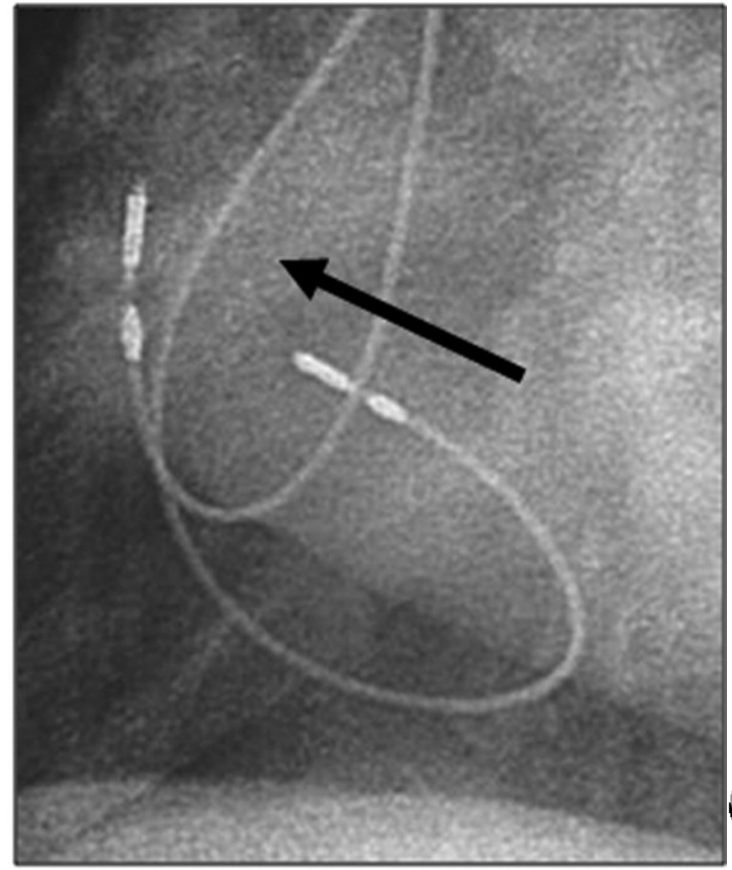
40° Left Anterior Oblique Views



Septal

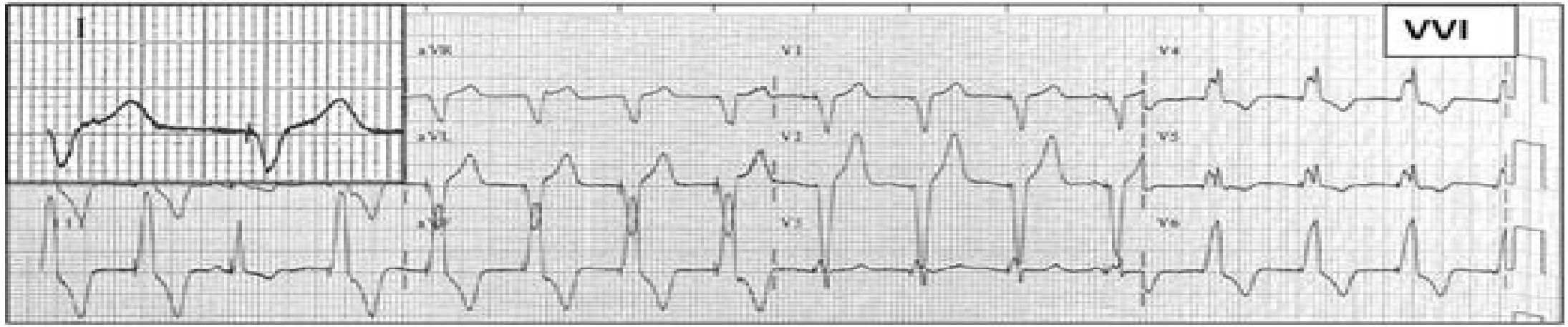


Anterior



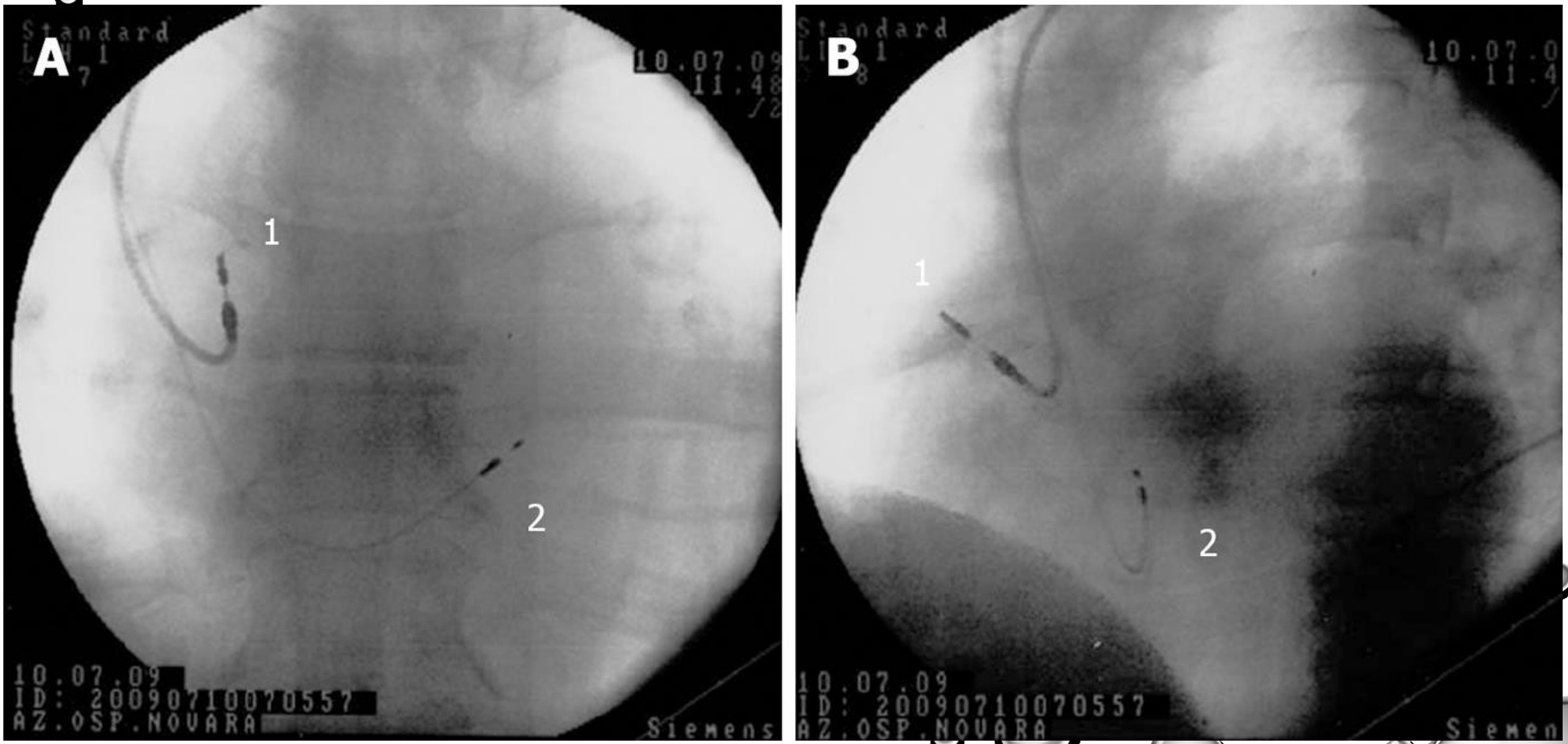
Free Wall

RVOT Septum

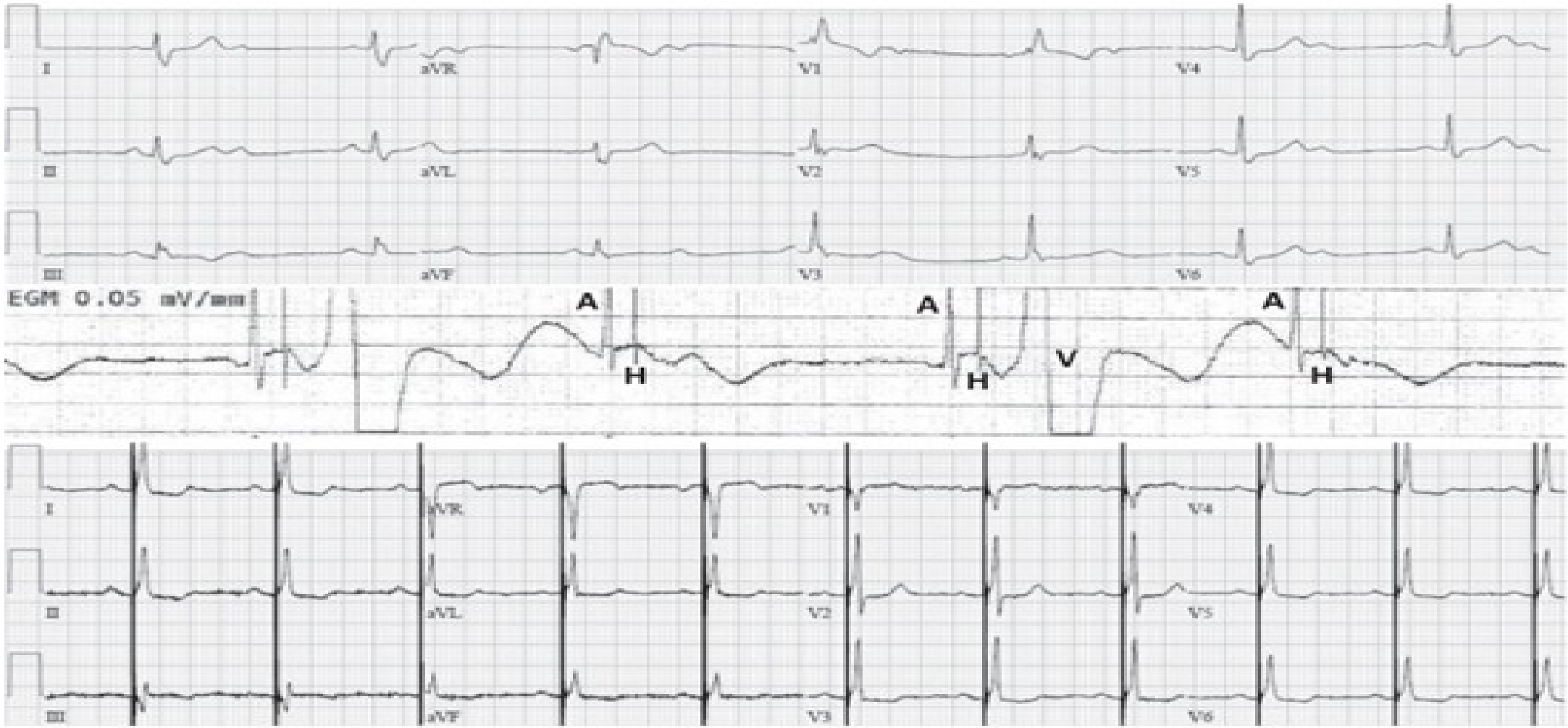


RVOT Free Wall

HİS BUNDLE PACING



HİS BUNDLE PACING



HİS BUNDLE PACING

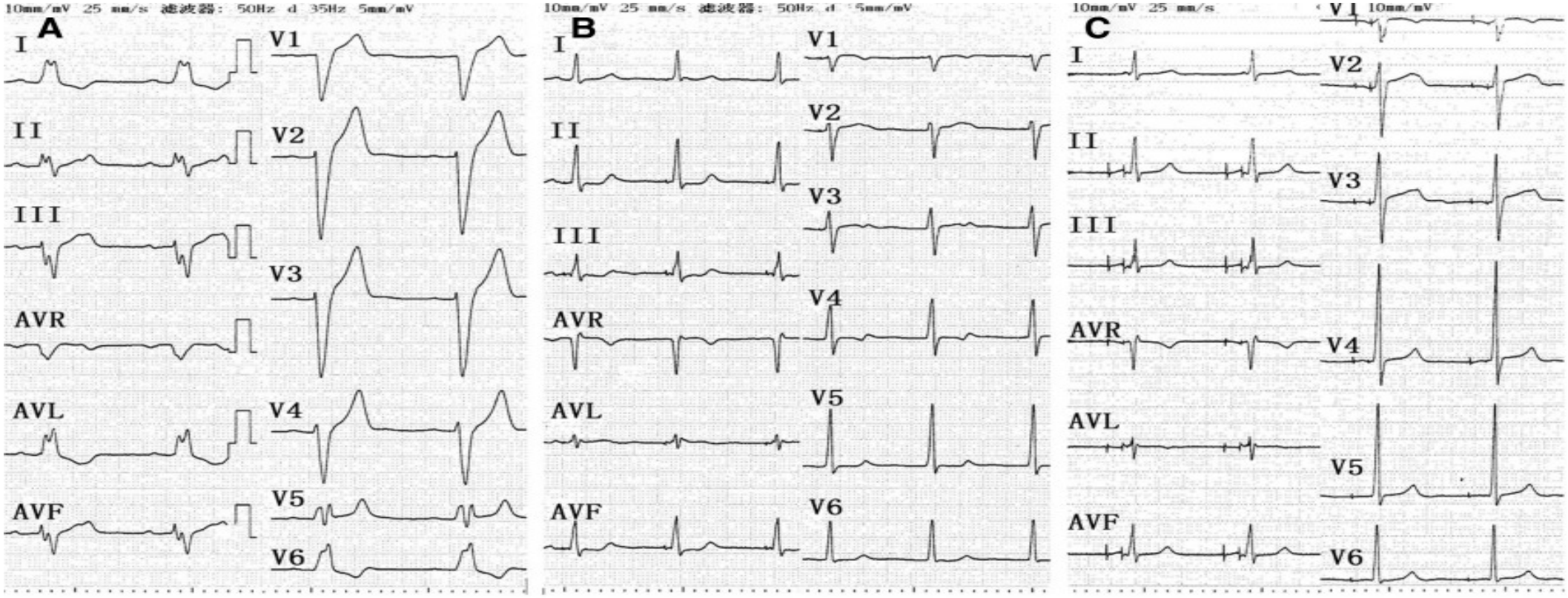
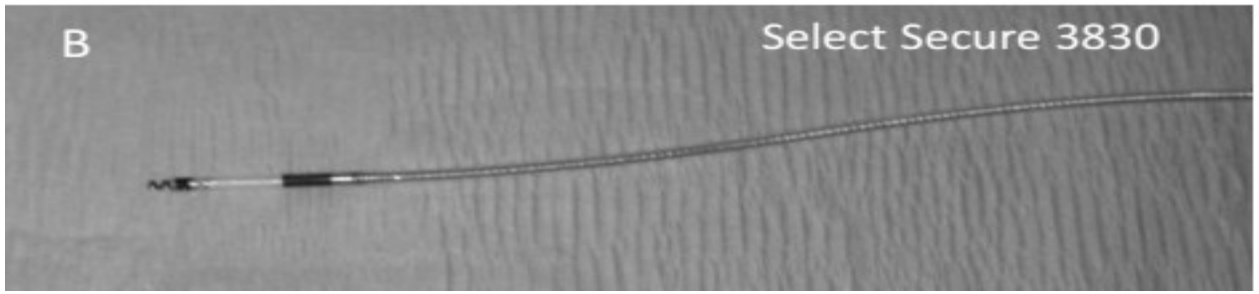
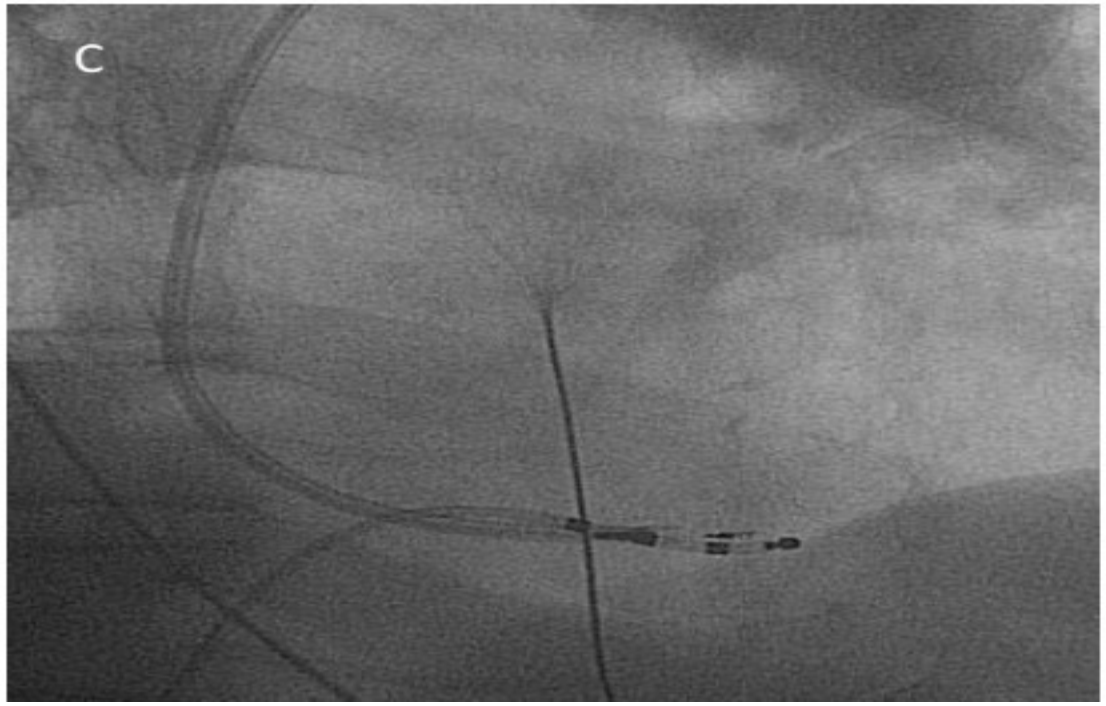


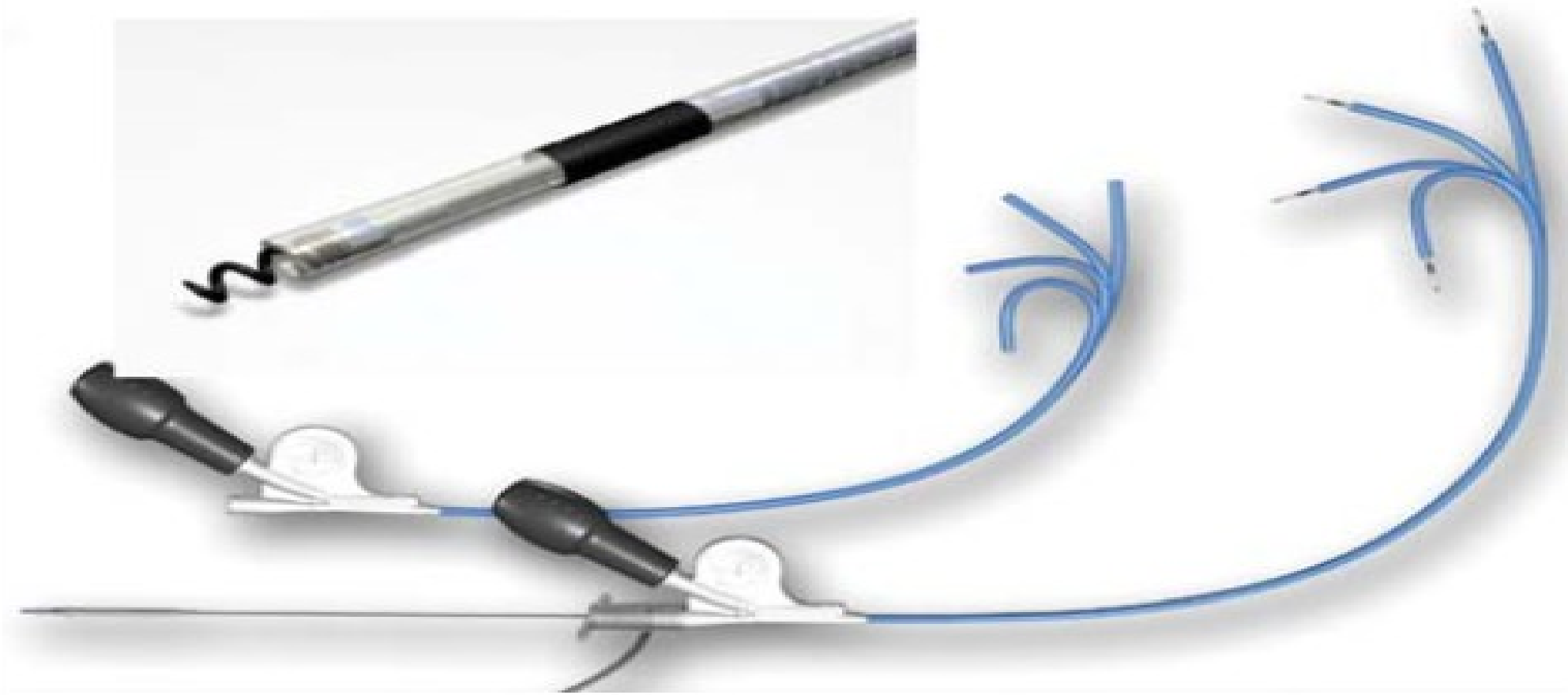
Fig. 1. 12-lead ECGs prior to procedure and at follow up visits. A, pre-procedure, QRS 200 ms and CLBBB. B, VVI mode, HBP output of 2.5v/0.5 ms, narrow QRS (90 ms), Vp-V interval approximates 50 ms; C, DDDR mode, paced AV delay 110 ms, BVP with LV (HBP) first of −80 ms with output of 5.0 v/0.5 ms, QRS width 90 ms, Vp-V interval approximates 50 ms. Statement: amplitude calibration for chest leads: C 10 mm/mV; A, 5 mm/mV.

HİS BUNDLE PACING



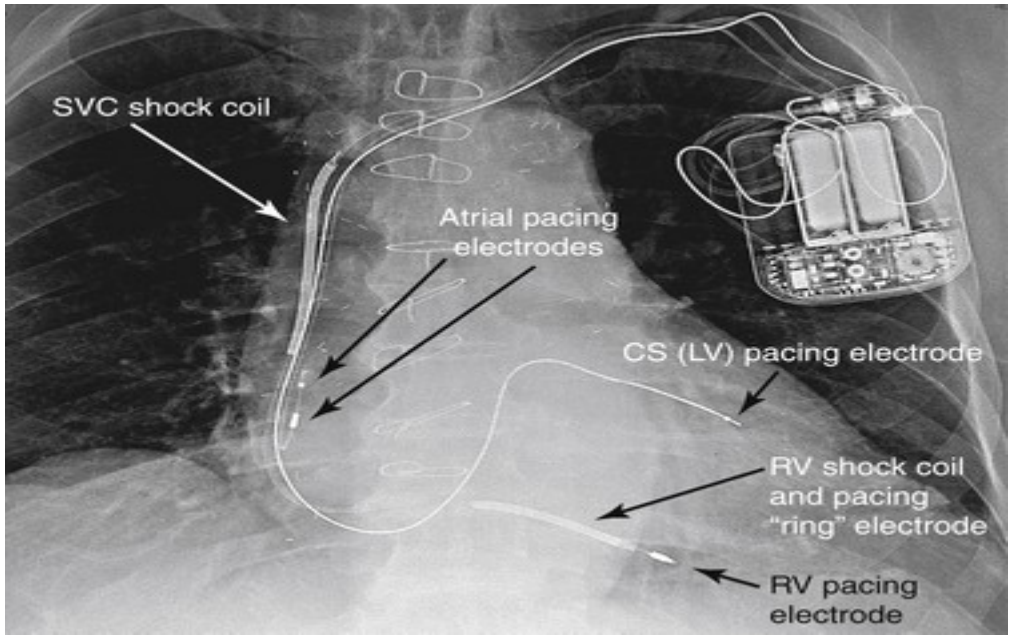


SELECT SECURA™

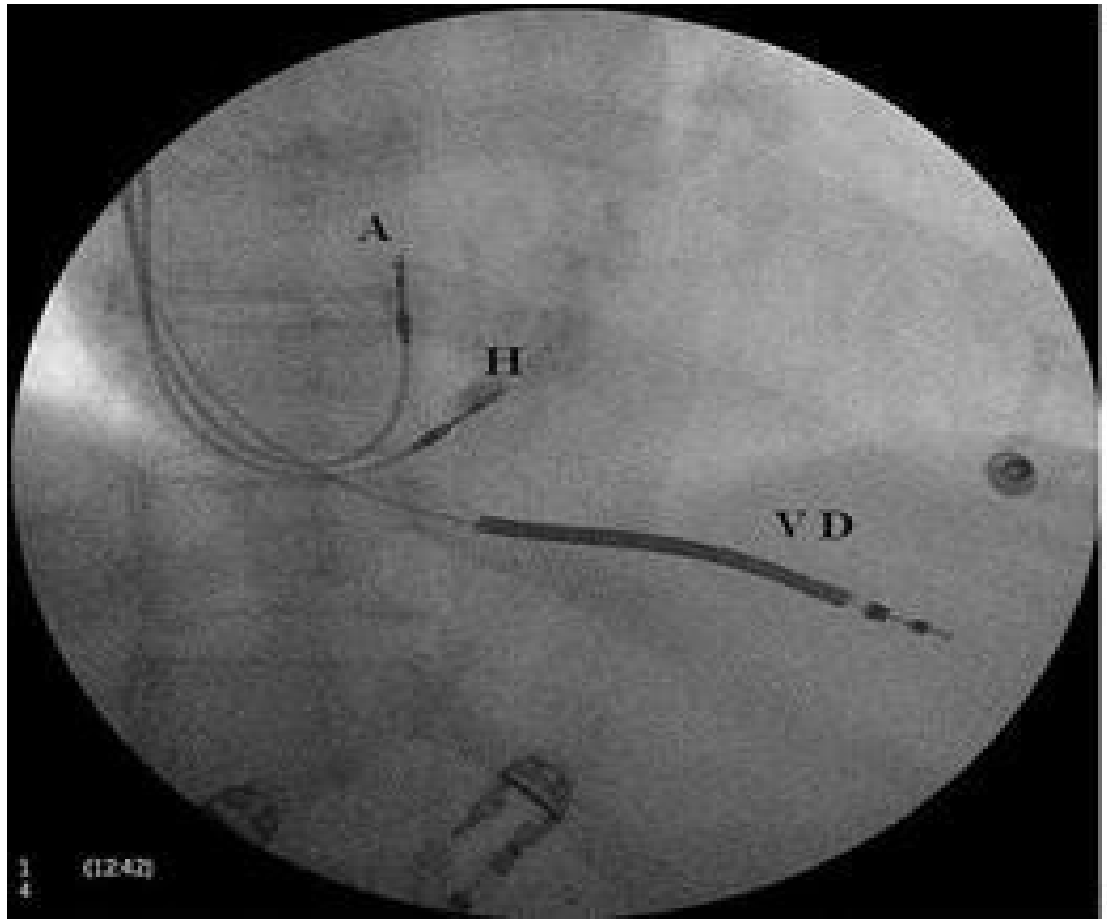


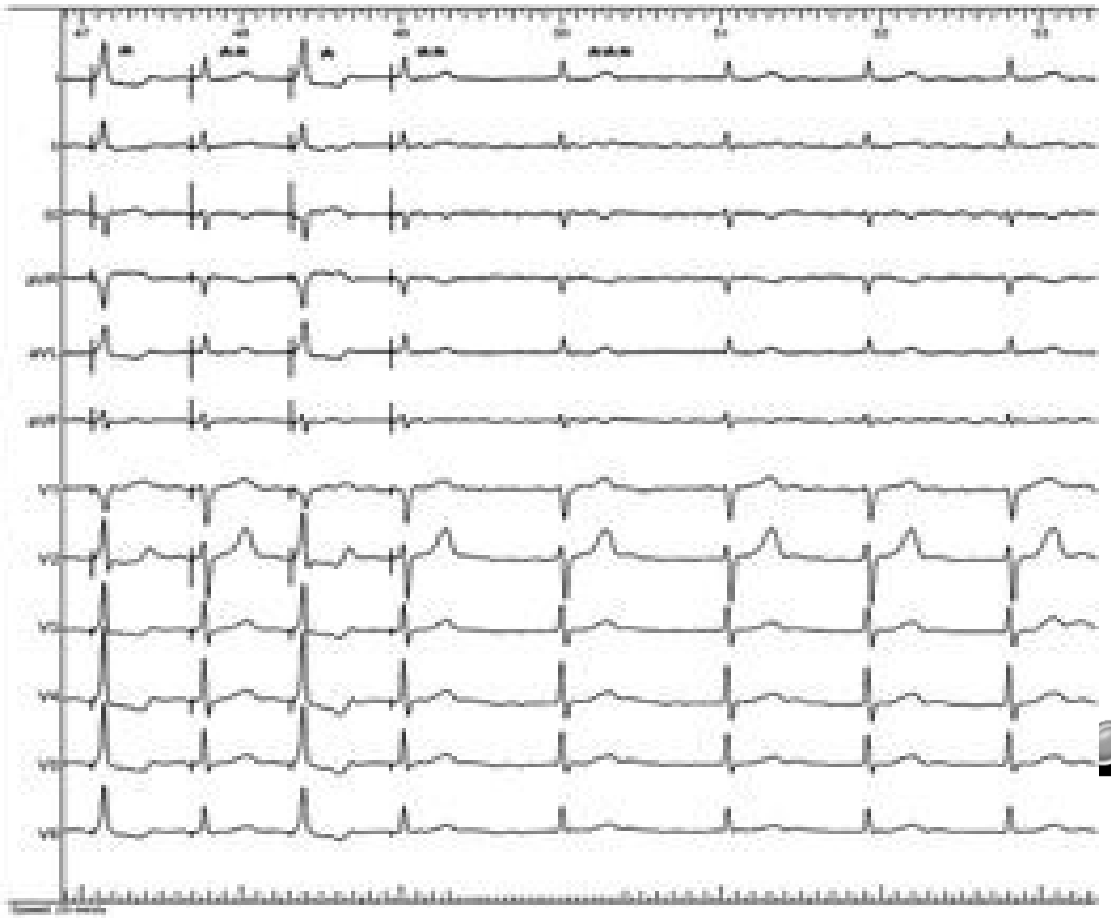
CRT ALTERNATİF POZİSYONLAR

- RVOT PACING
- RVOT+RV APEKS
- SAG VENTRIKÜL SEPTUM
- PARAHISIAN PACING

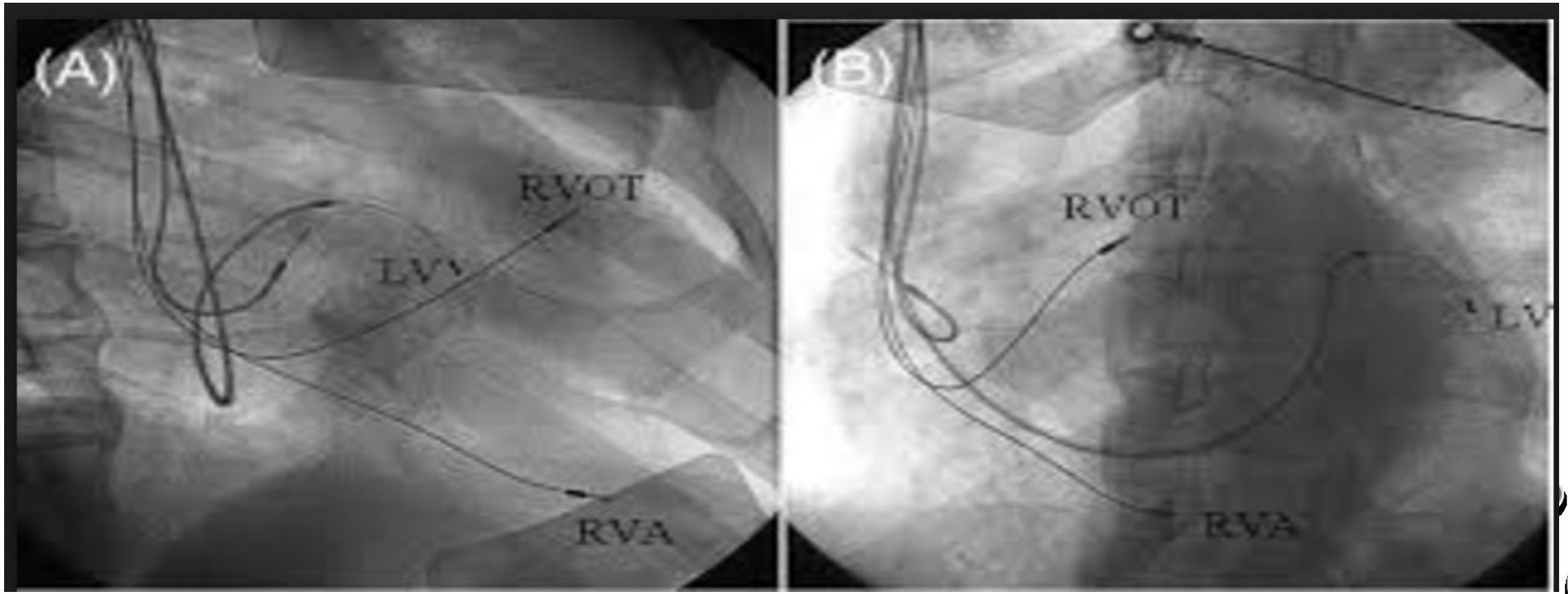


HİS PACİNG+RV APEKS PACİNG

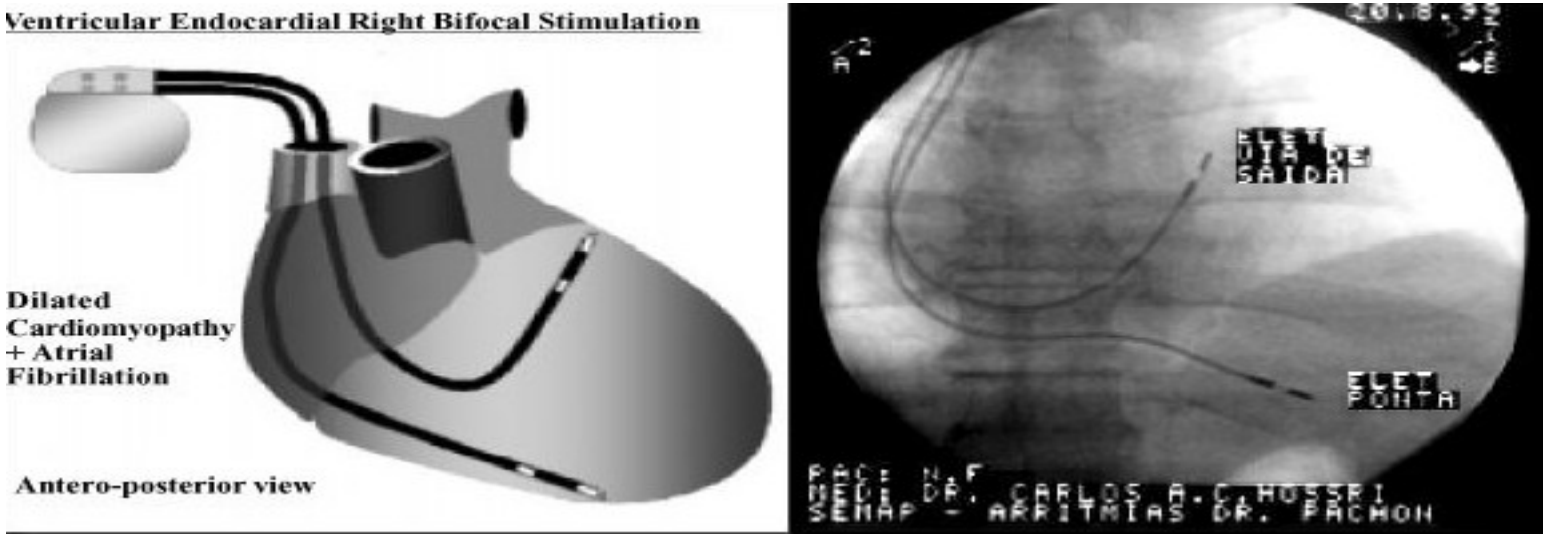


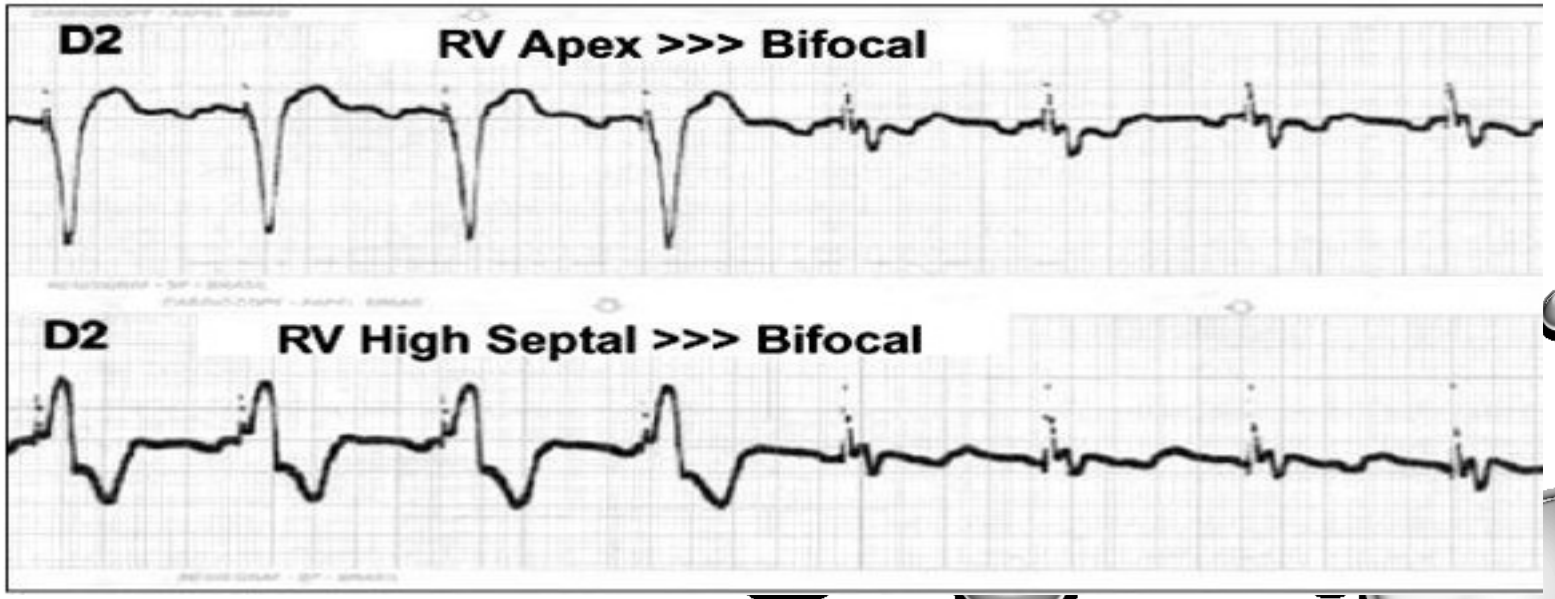


TRIANGLE VENTRIKÜLER PACING



BİFOKAL PACİNG





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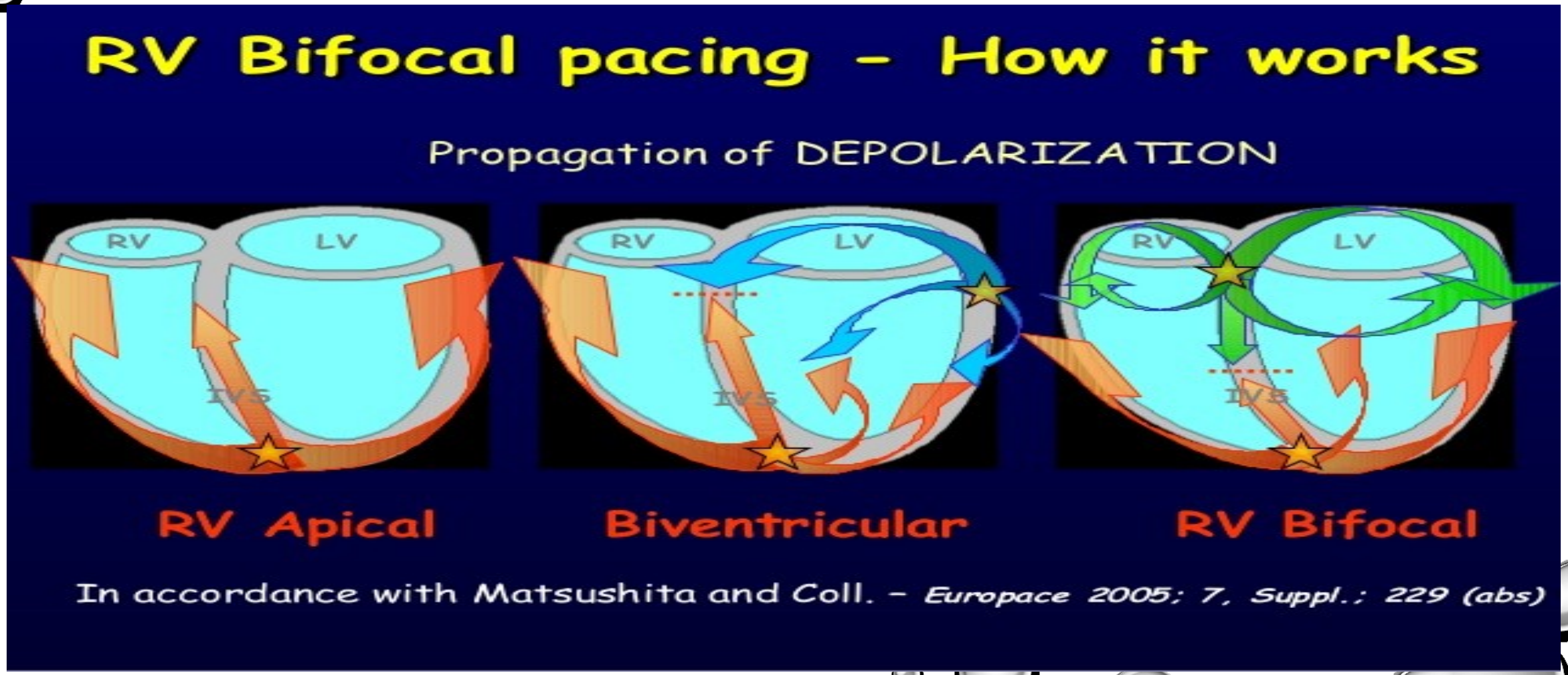

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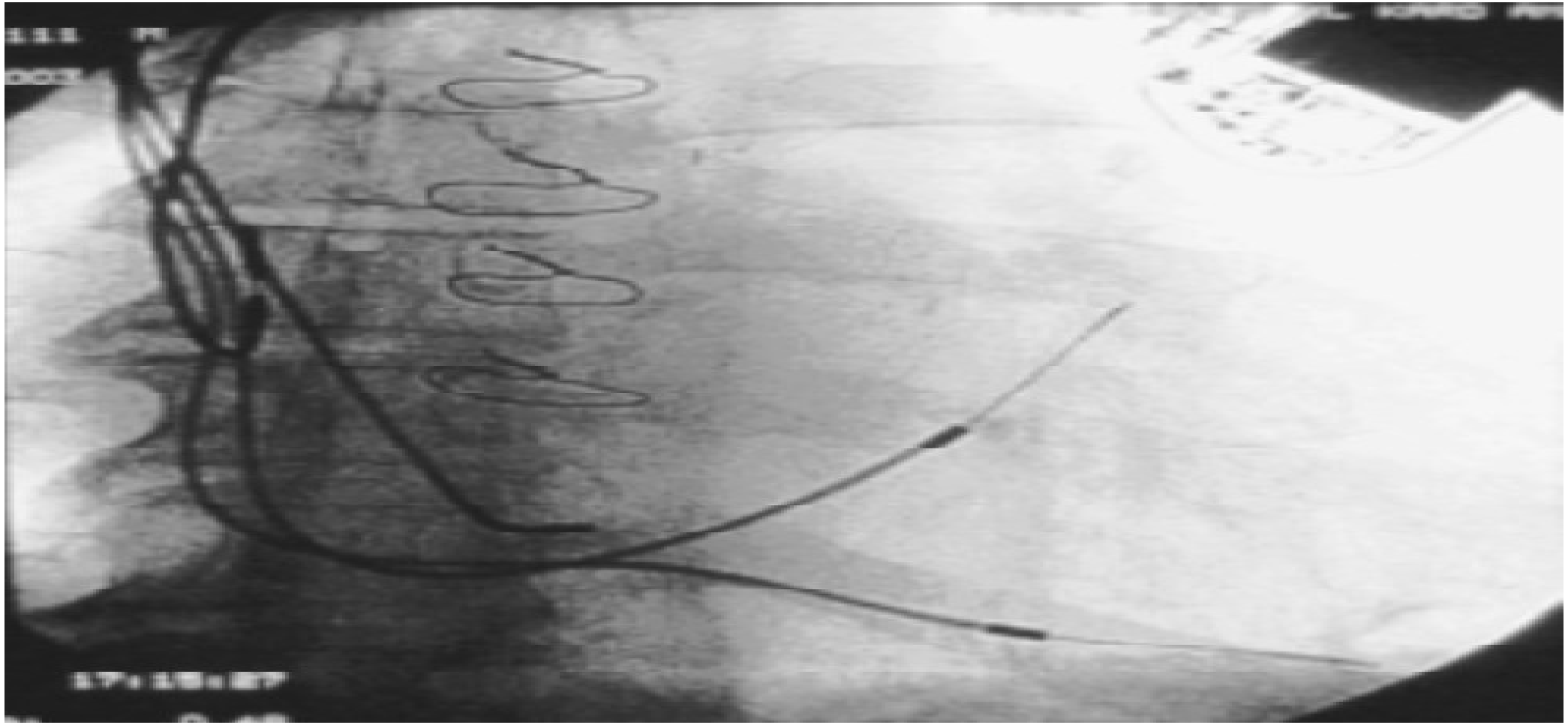
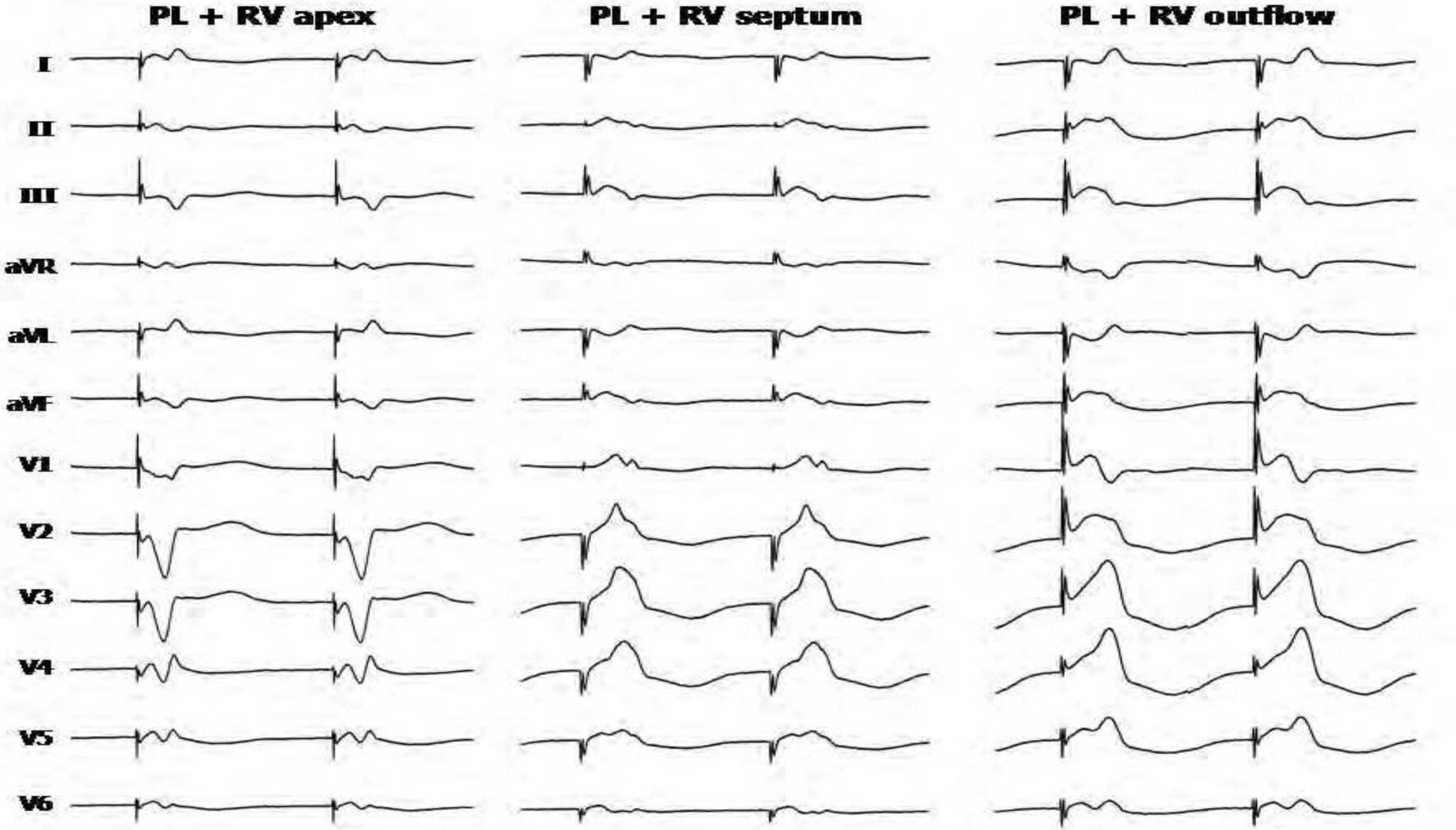
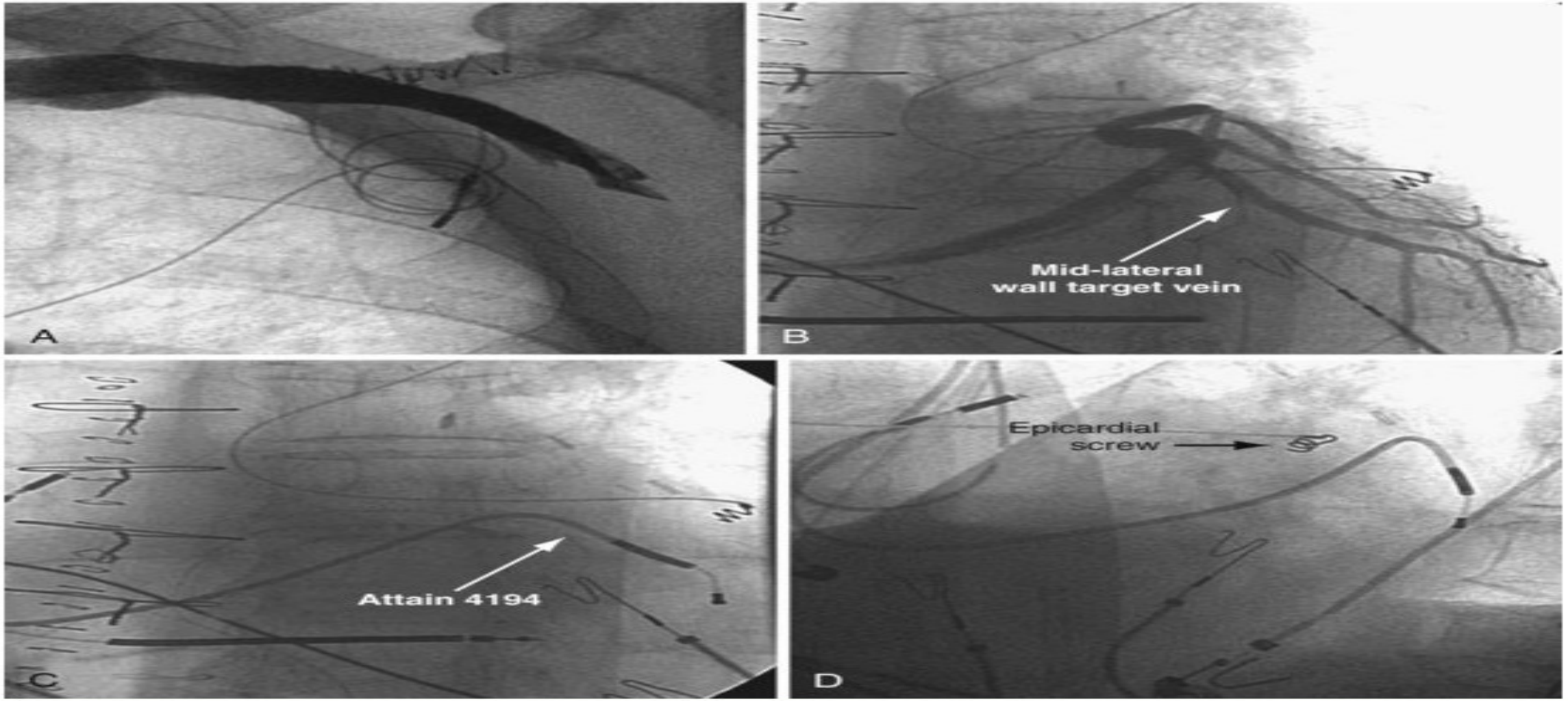
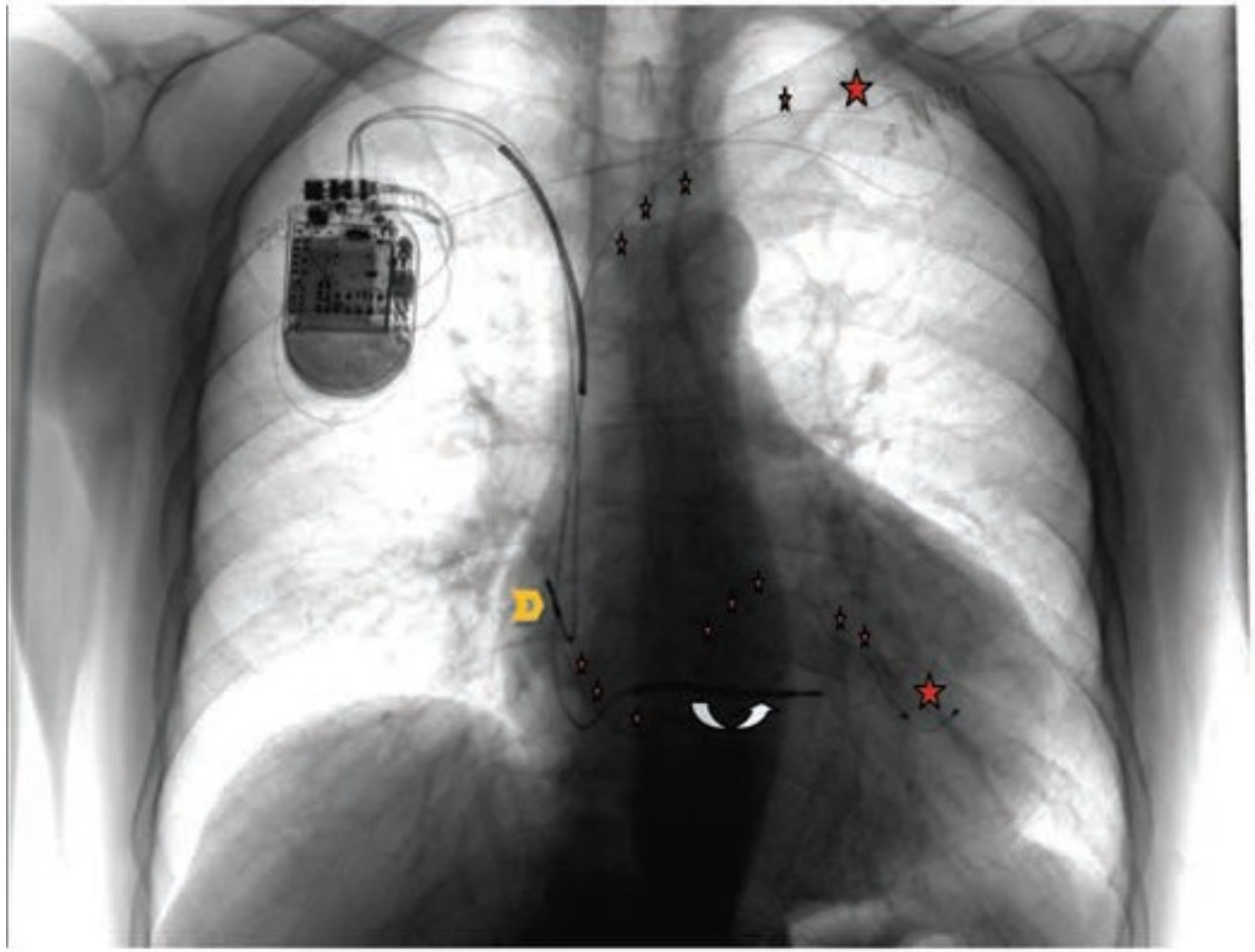


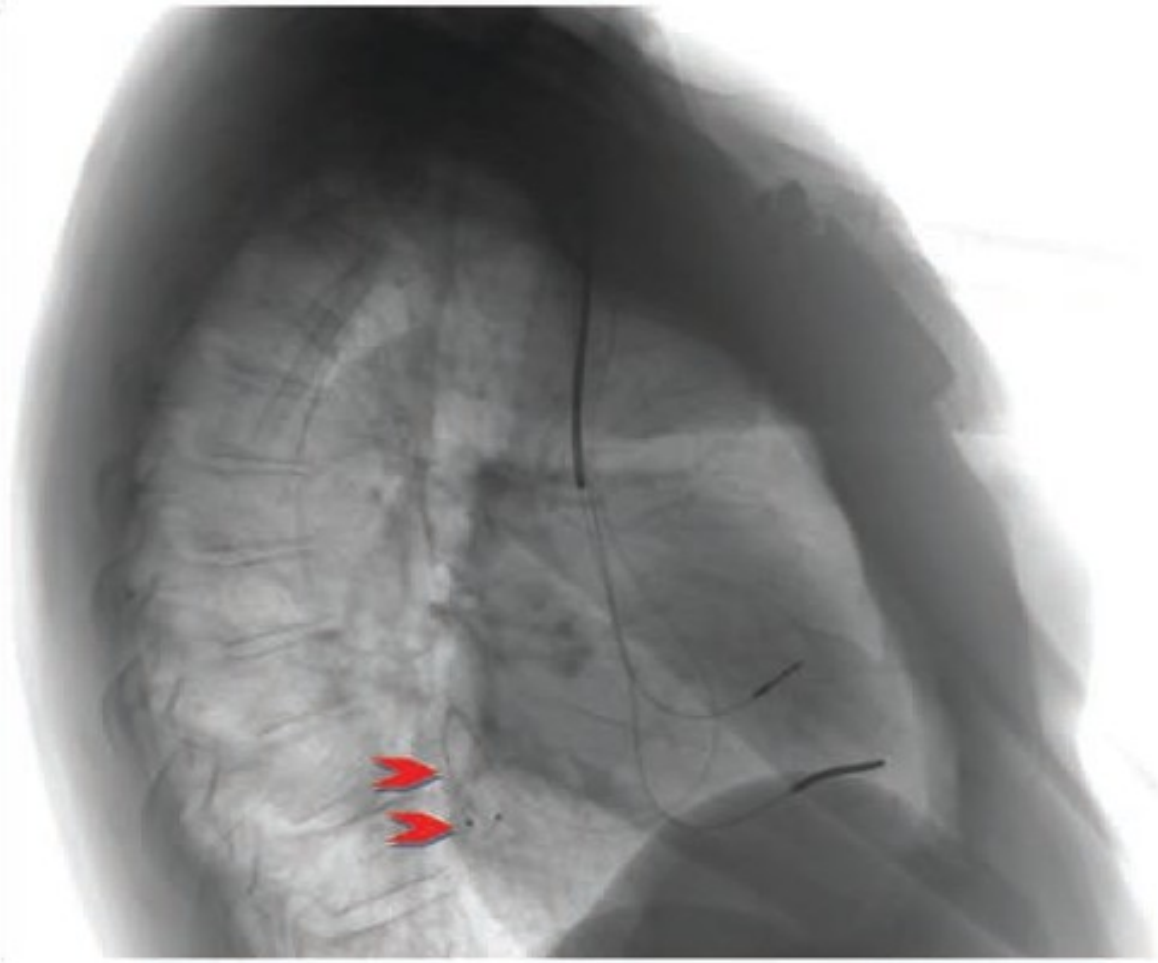

PL + RV apex
PL + RV septum
PL + RV outflow
I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6

NONRESPONDER CS - EPİKARDİYAL YERLEŞİM

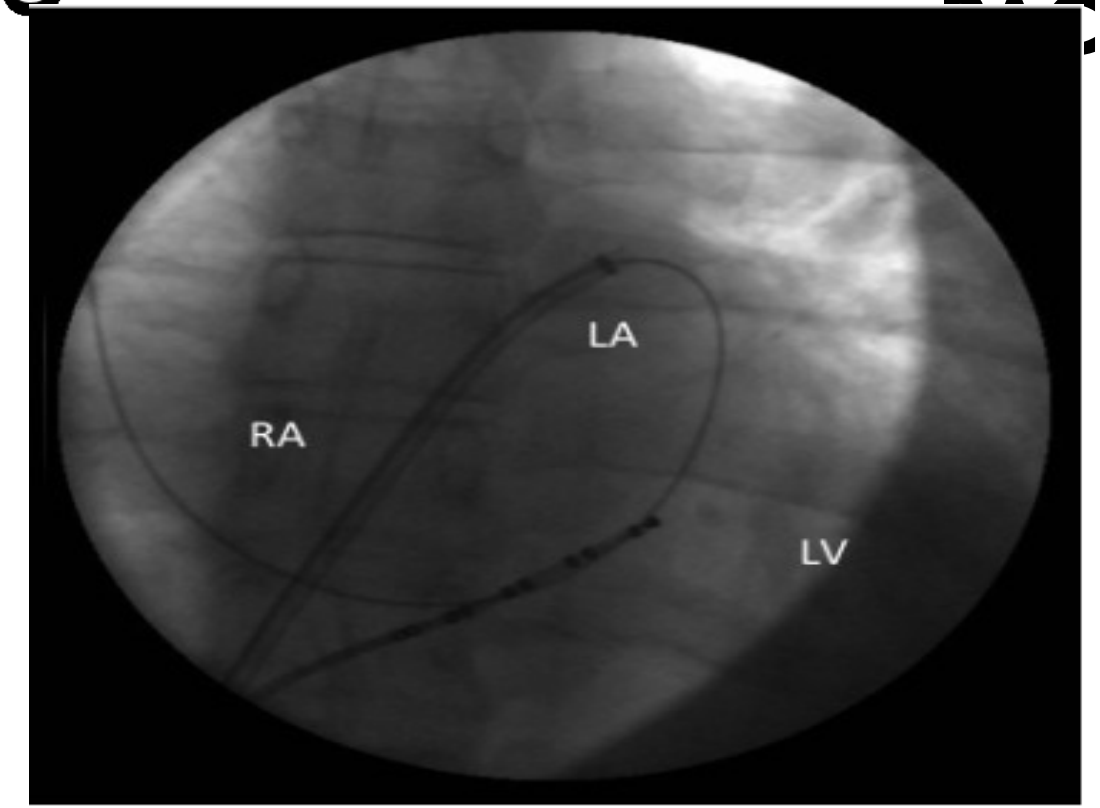


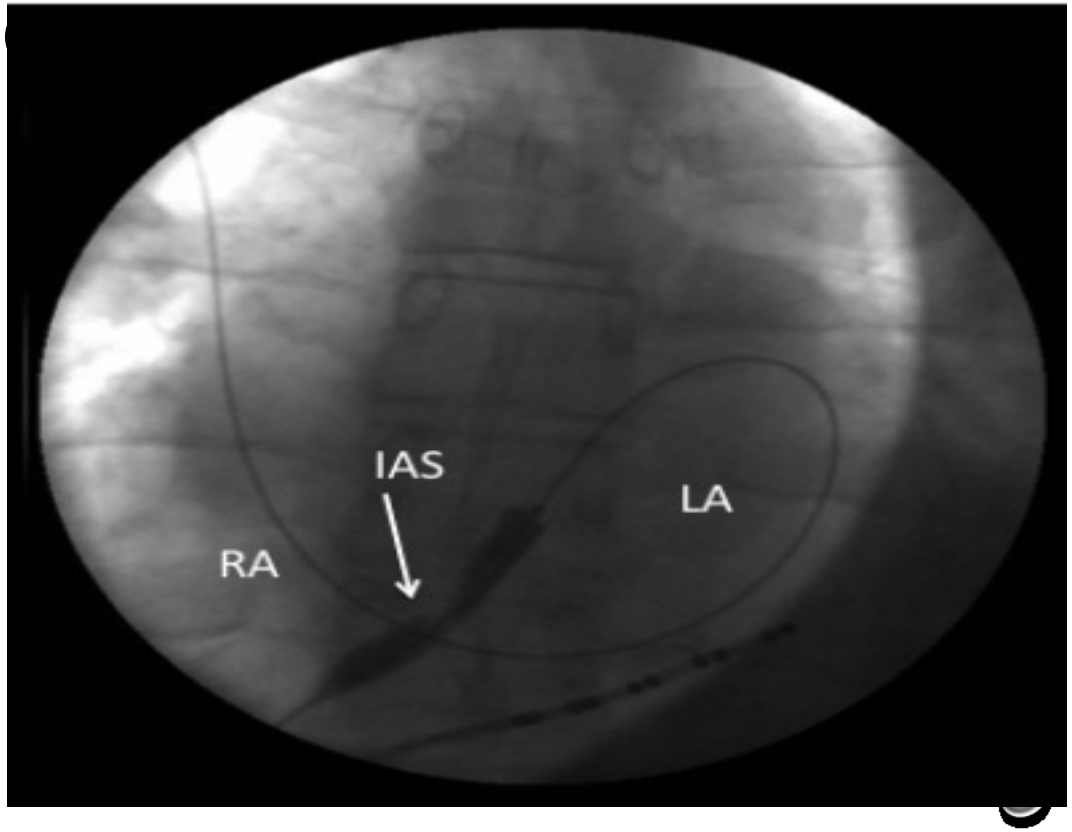
EPİKARDİYAL YERLEŞİM





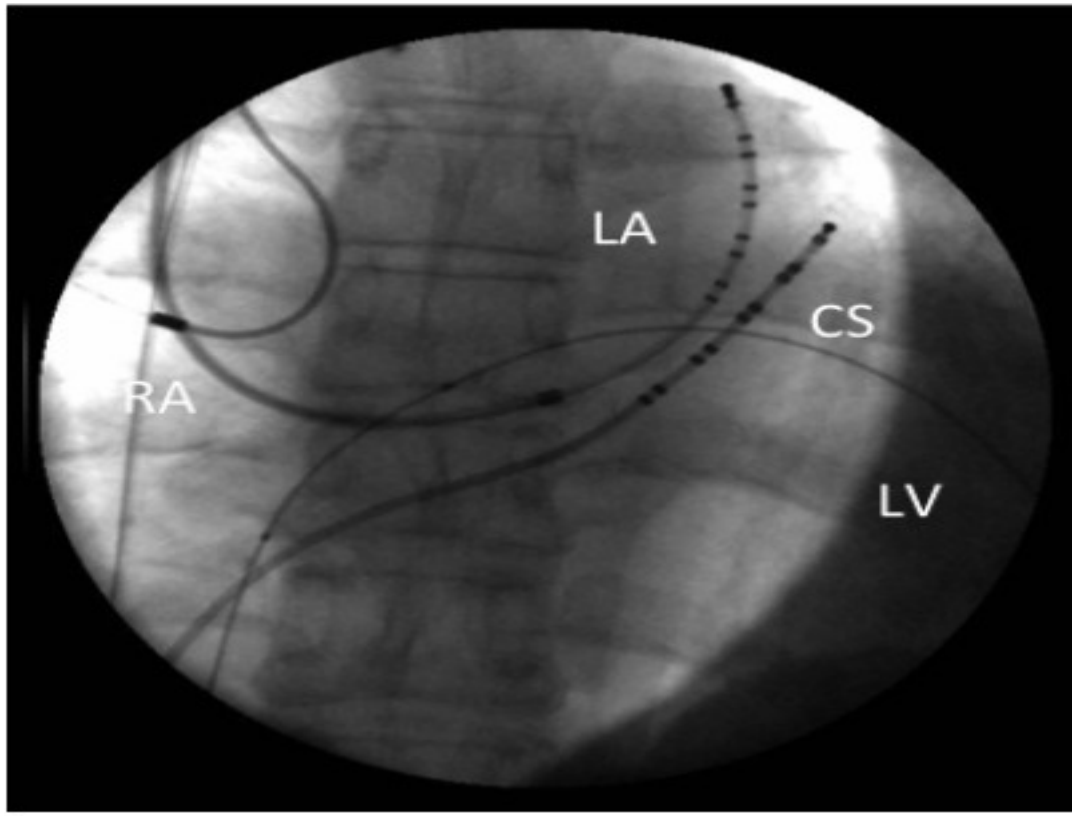
TRANSSEPTAL LEFTVENTRIKÜLER ENDOCARDIAL PACING

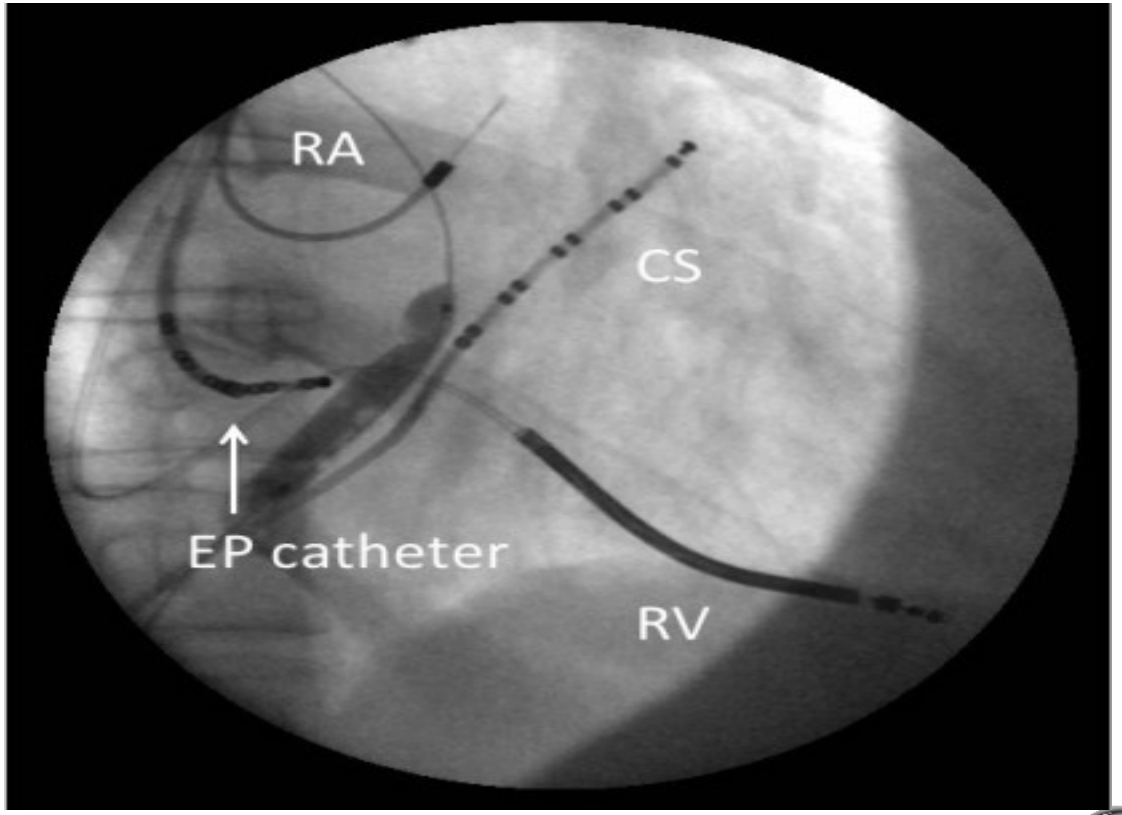




I. NEUHOFF ET.AL.Transseptal Leftventricular Endocardial Pacing is an Alternative Technique in Cardiac Resynchronization Therapy. One Year Experience in a High Volume Center. ROM. J. INTERN. MED., 2016, 54, 2, 121–127

TRANSSEPTAL LEFTVENTRİKÜLER ENDOCARDİAL PACİNG CRT





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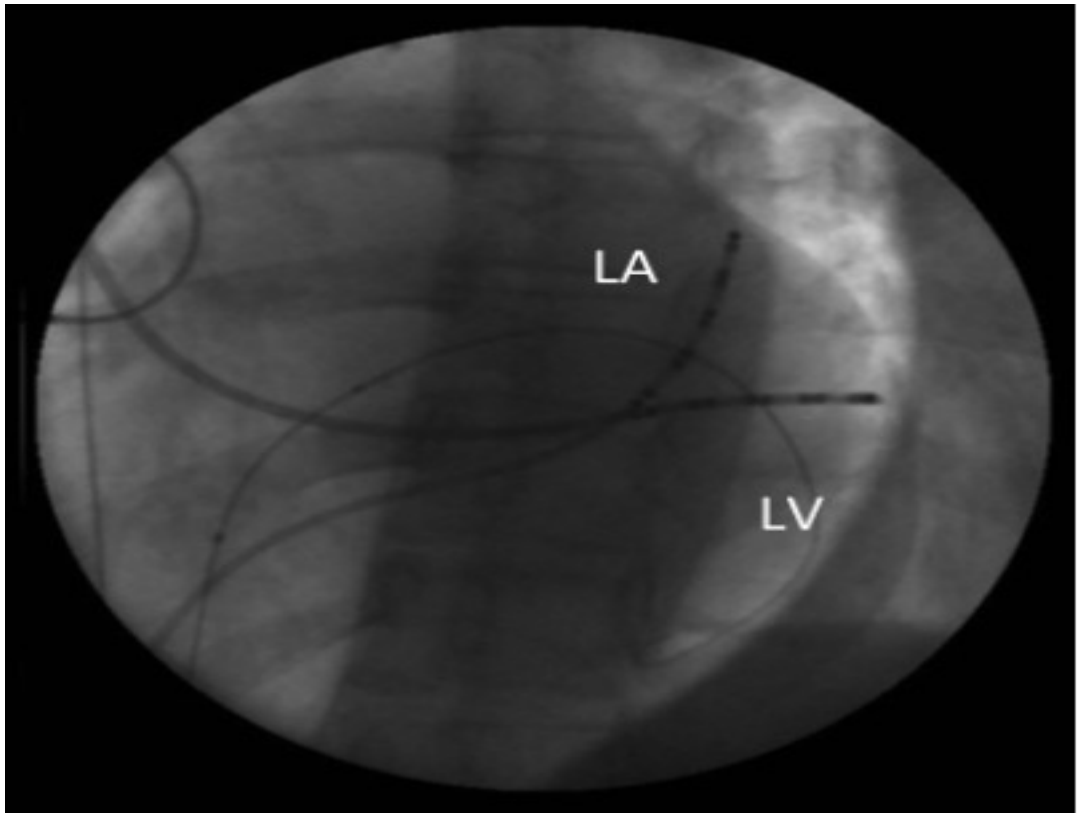
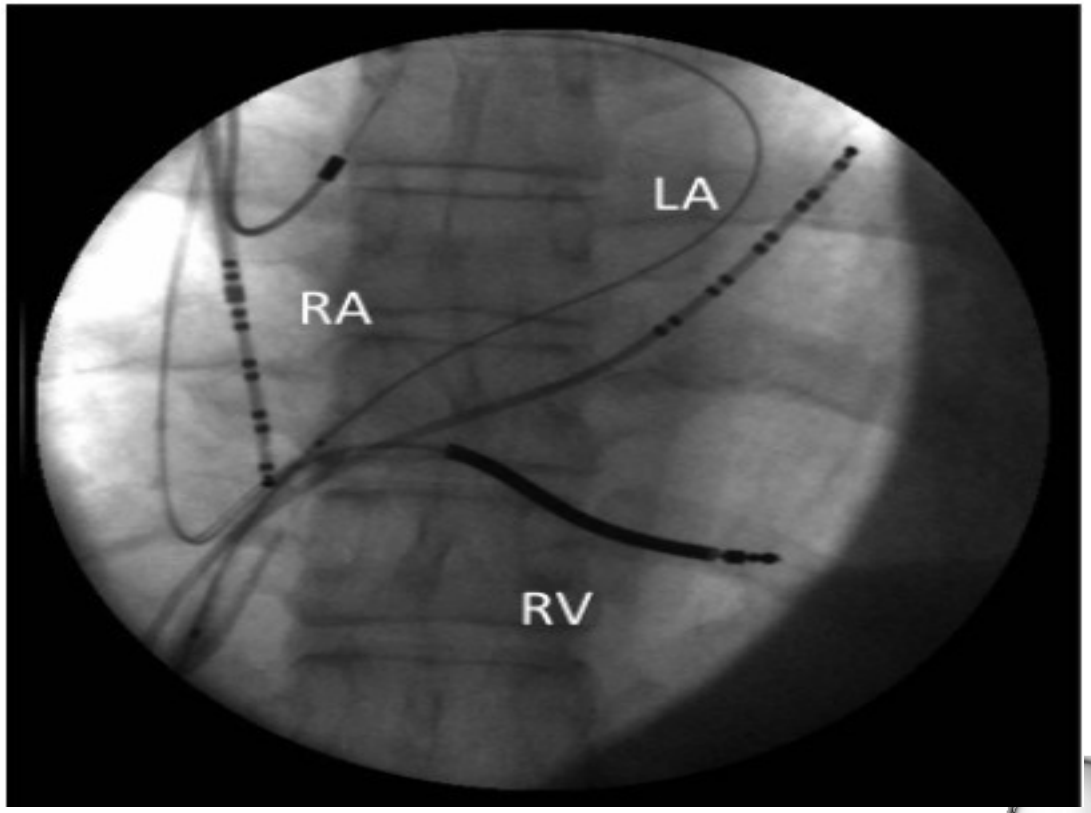
TRANSSEPTAL LEFTVENTRİKÜLER ENDOCARDİAL PACİNG CRT





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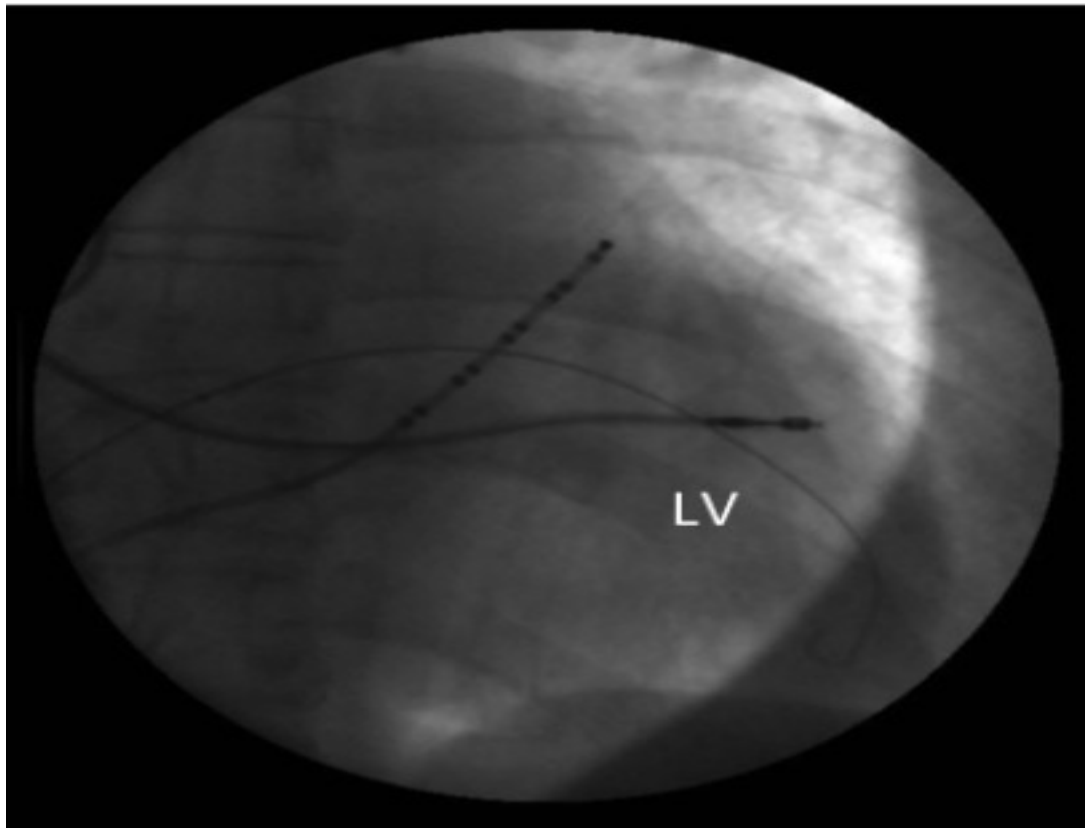

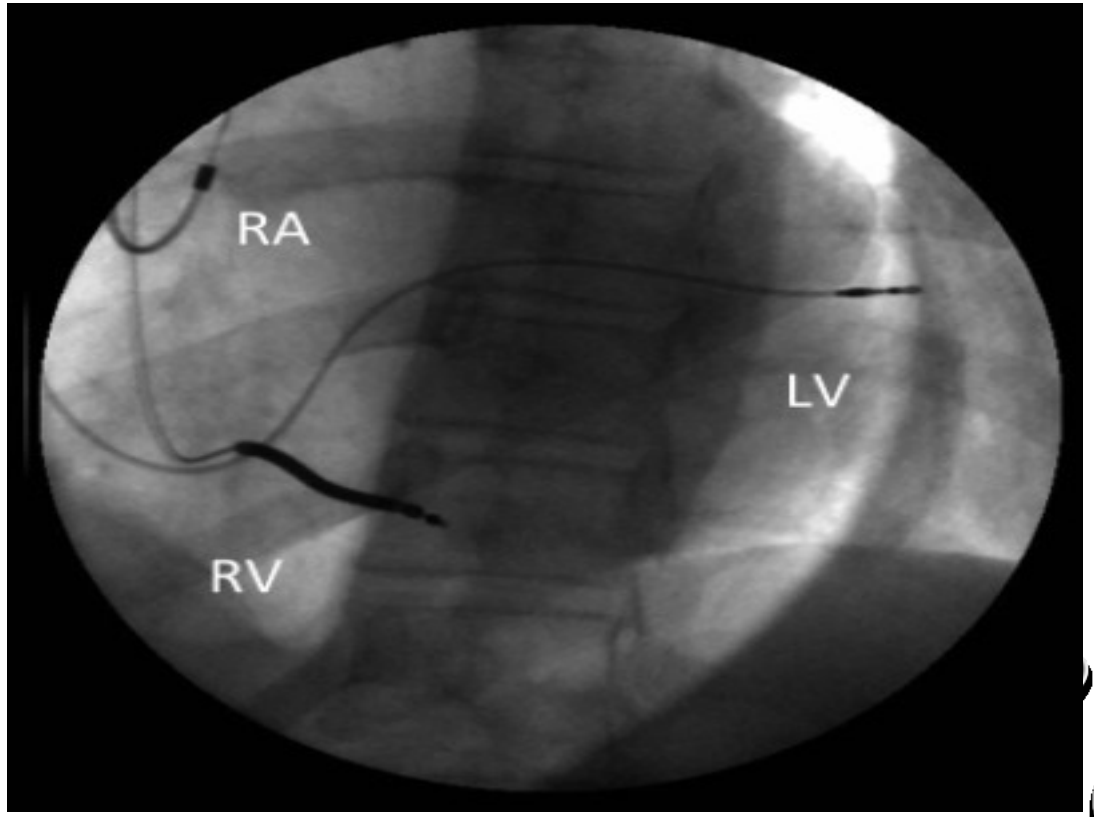

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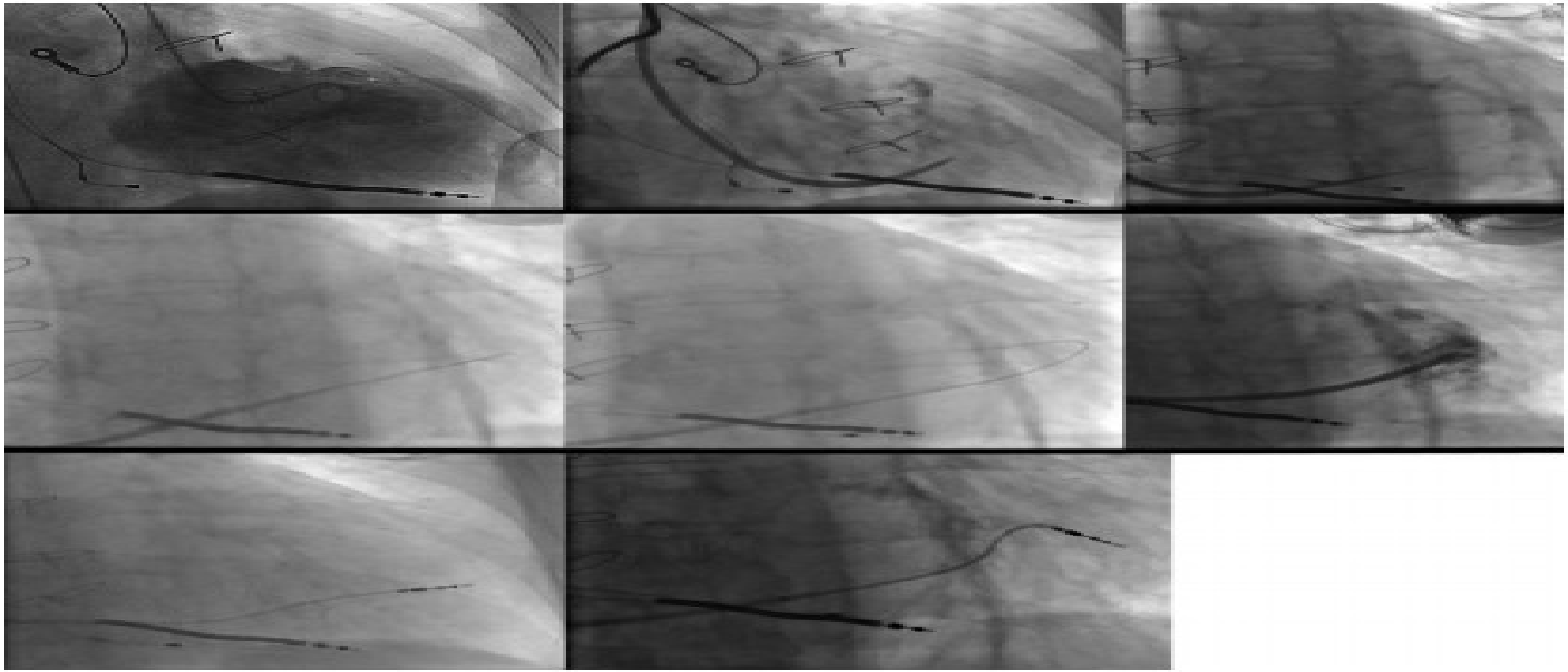
İNTERVENTRİKÜLER YAKLAŞIM



Tim R. Betts.Development of a Technique for Left Ventricular Endocardial Pacing via Puncture of the Interventricular Septum *Circ Arrhythm Electrophysiol*. 2014;7:17-22

SABRINIZ İÇİN TEŞEKKÜRLER