Radiofrequency Ablation of Left Ventricular Outflow Tract Arrhythmias. The Tel-Aviv Medical Center Experience.

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No Disclosures

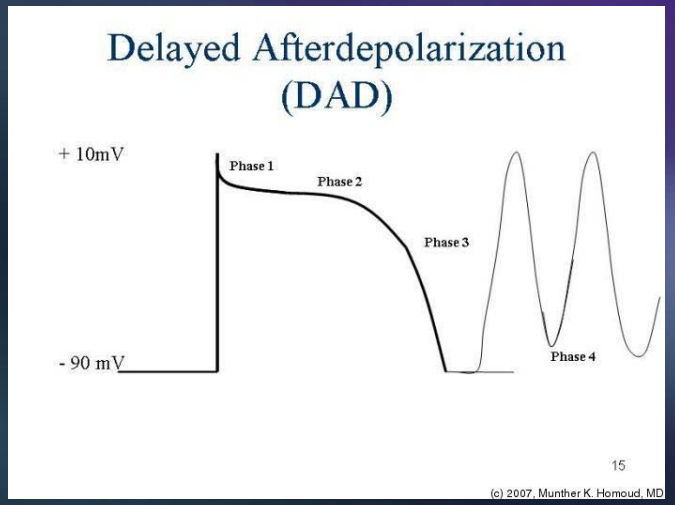
Background

Incidence

- Idiopathic ventricular tachycardia- 10% of all VT
- 15–25% of Outflow tract arrhythmias arise from the Left ventricular outflow tract (LVOT)

Mechanism

- cAMP-mediated triggered activity due to delayed afterdepolarization (DADs), determined by intracellular calcium load.

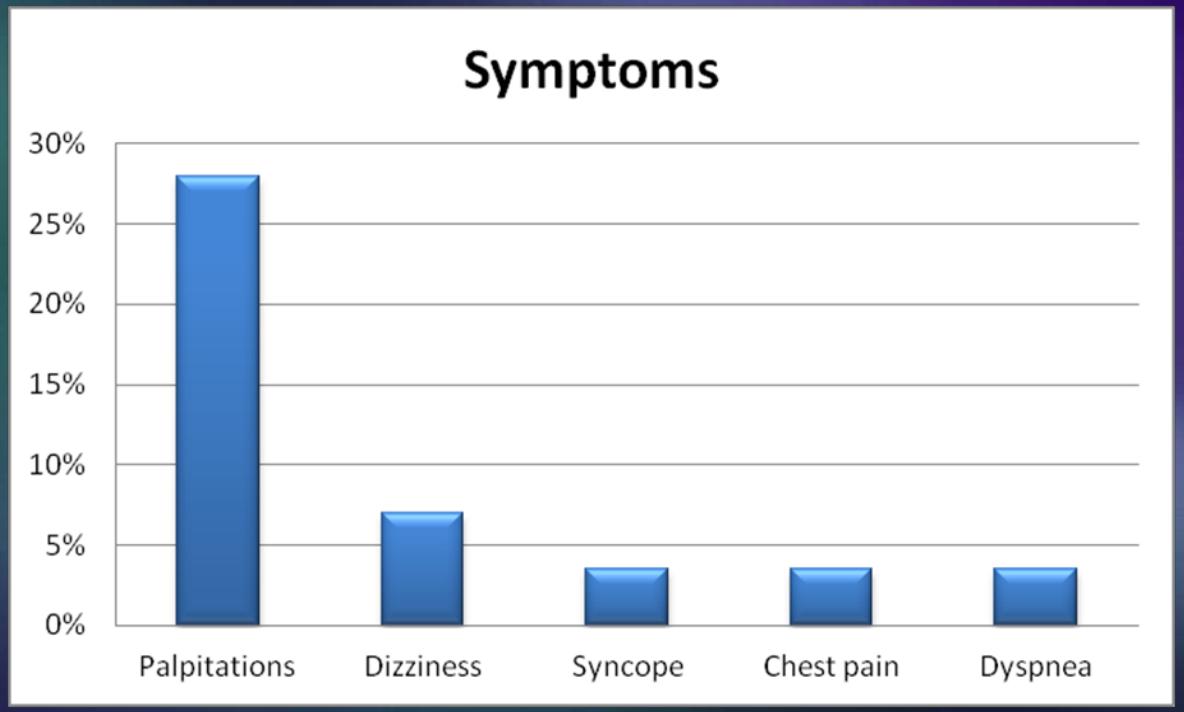


Methods

- 29 consecutive pts with LVOT arrhythmias who underwent RF ablation between years 2000-2012.
- left retrograde arterial approach was used in all pts and a pericardial approach was also performed in 1 pts.
- Identification of the arrhythmia site of origin was based on data from mapping activation, pace-mapping or both.
- RF energy (max temp 55deg) was delivered through standard 4-mm tip ablation catheters. A 3-D mapping system (NAVx) was used in 1 pt.

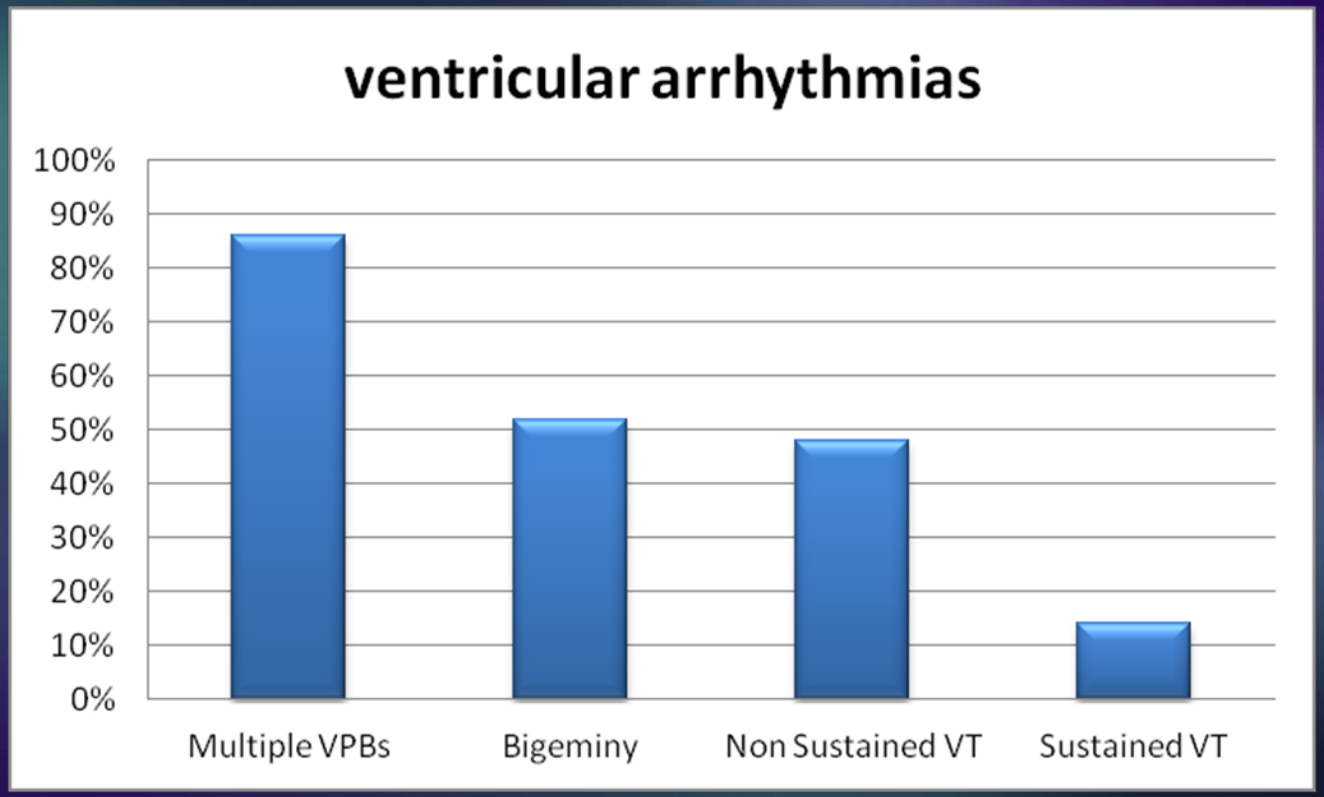
Results

- 18 (62%) male and 11 (38%) female
- Age 55±16.3 years
- 59% were symptomatic



Results

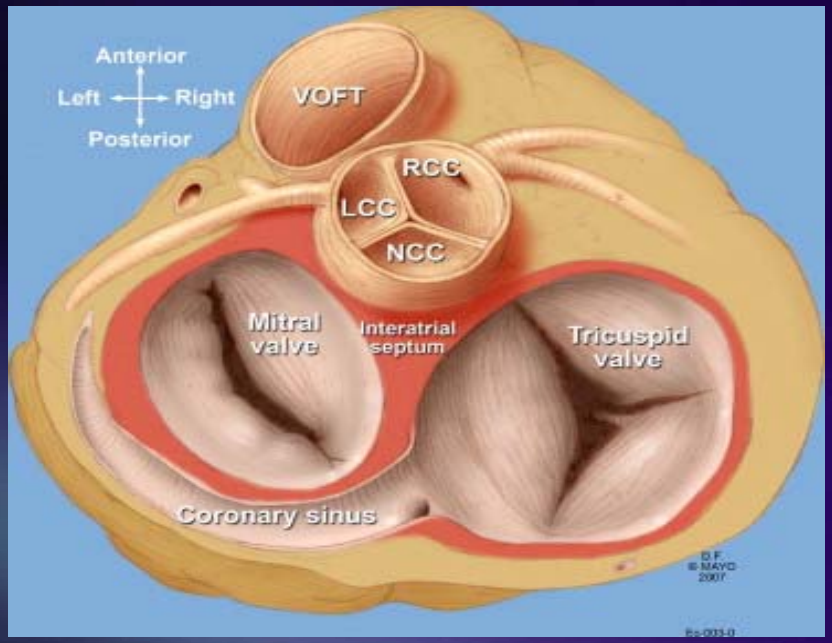
- All suffered from drug-refractory high grade ventricular arrhythmias (VAs)



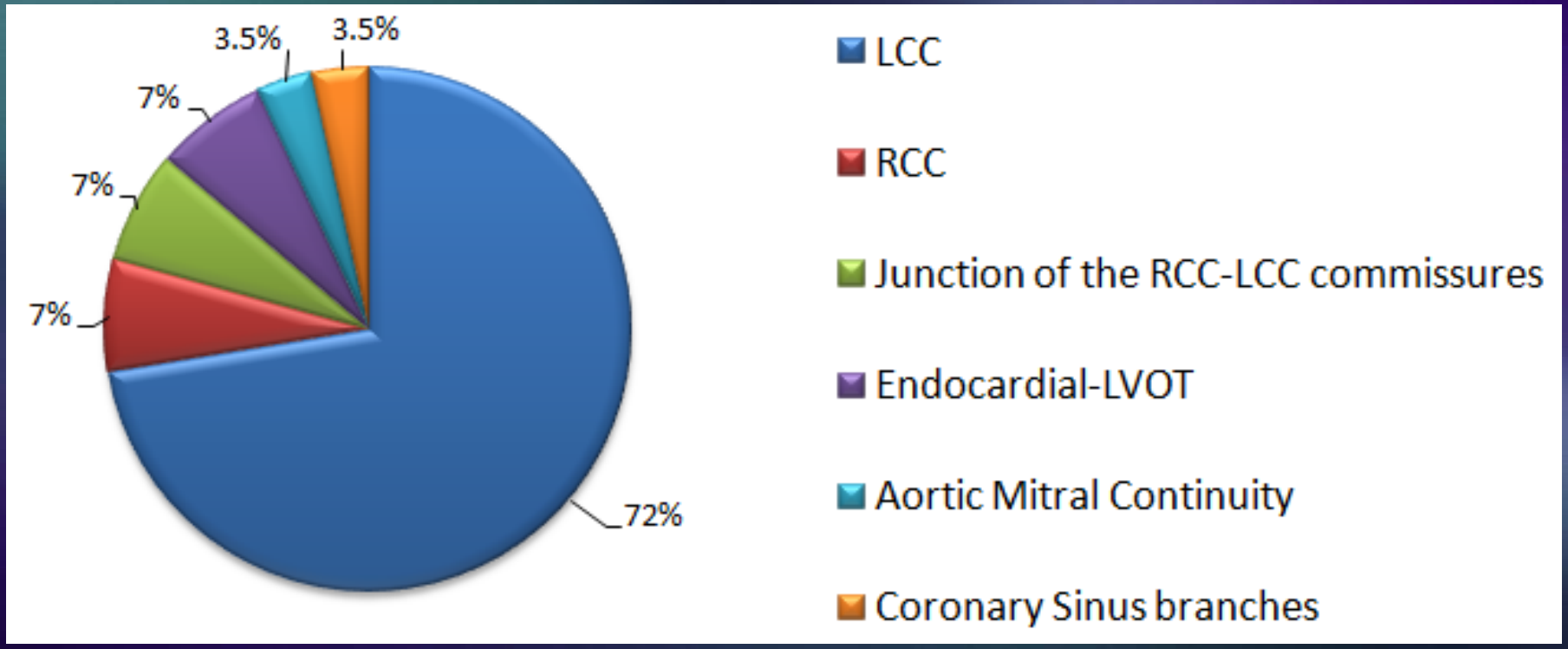
Results

- LV dysfunction (EF≤35%) was observed in 7 (24%) pts.
- Twelve (41%) pts had undergone a previous RF ablation procedure (using a right approach in 10 pts).
- In 13 (45%) pts several antiarrhythmic drugs failed to control the arrhythmia.

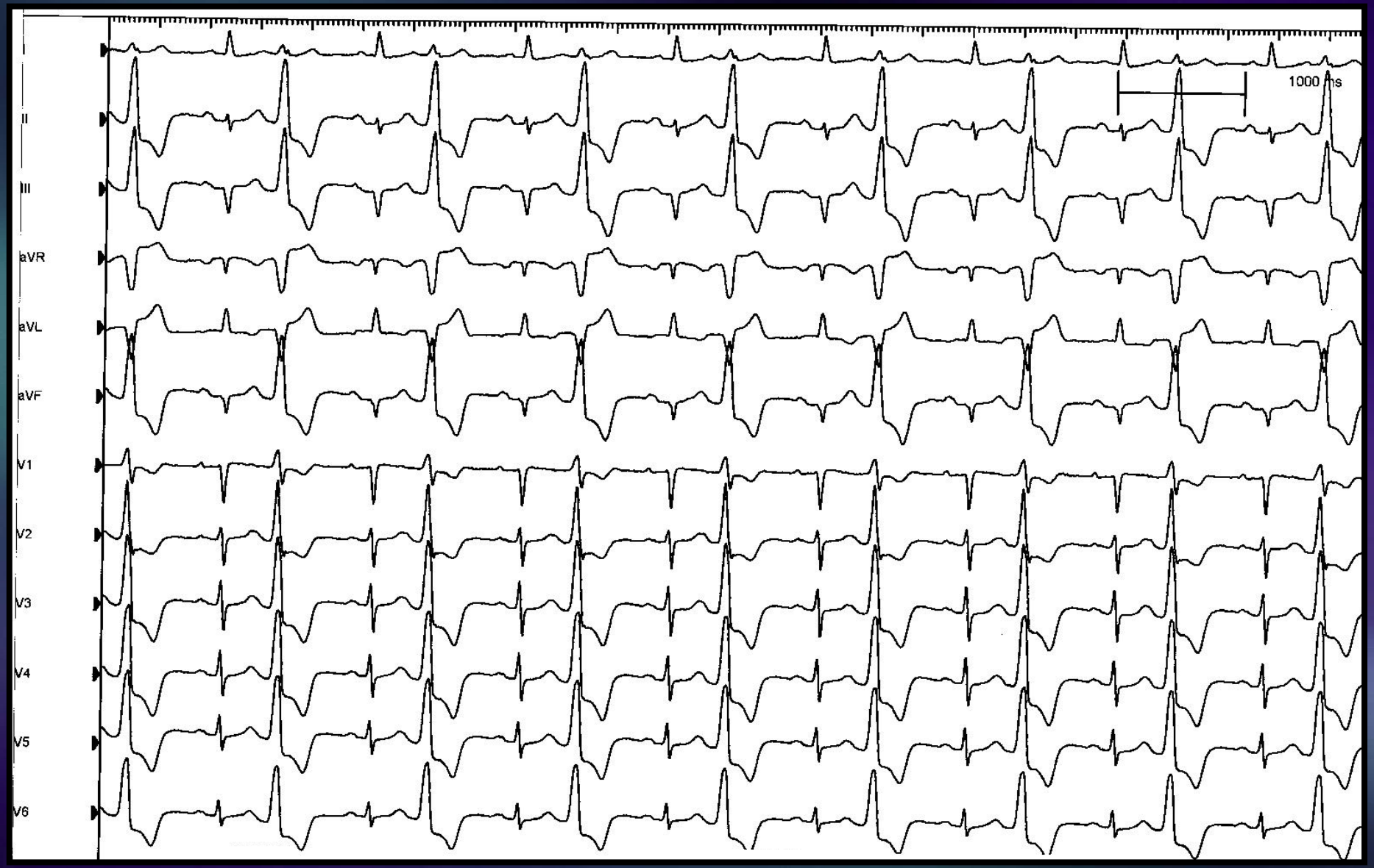
Results



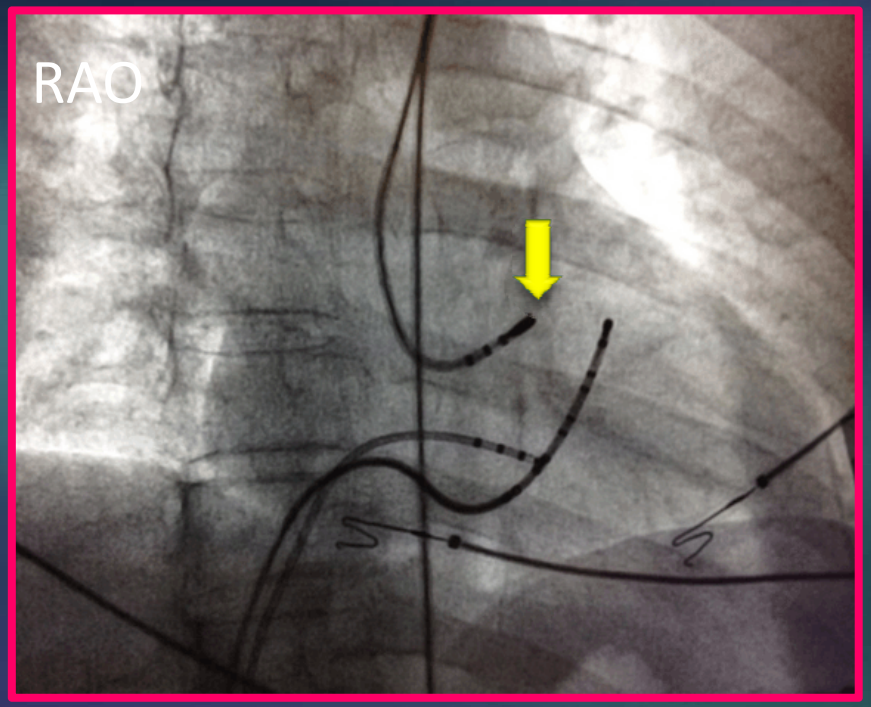
Site Of Origin

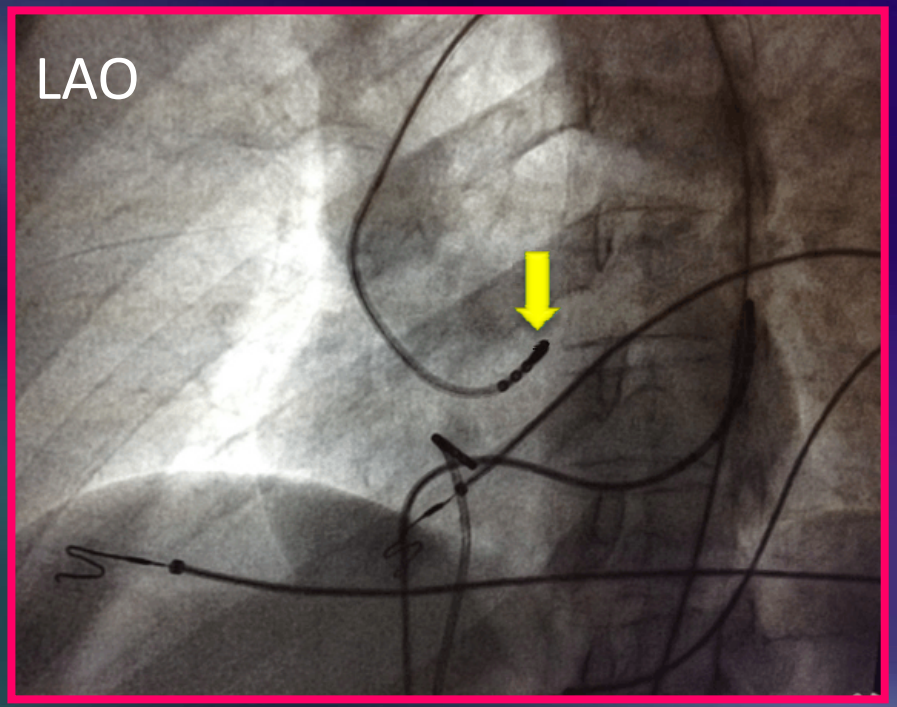


LCC - Left Coronary Cusp

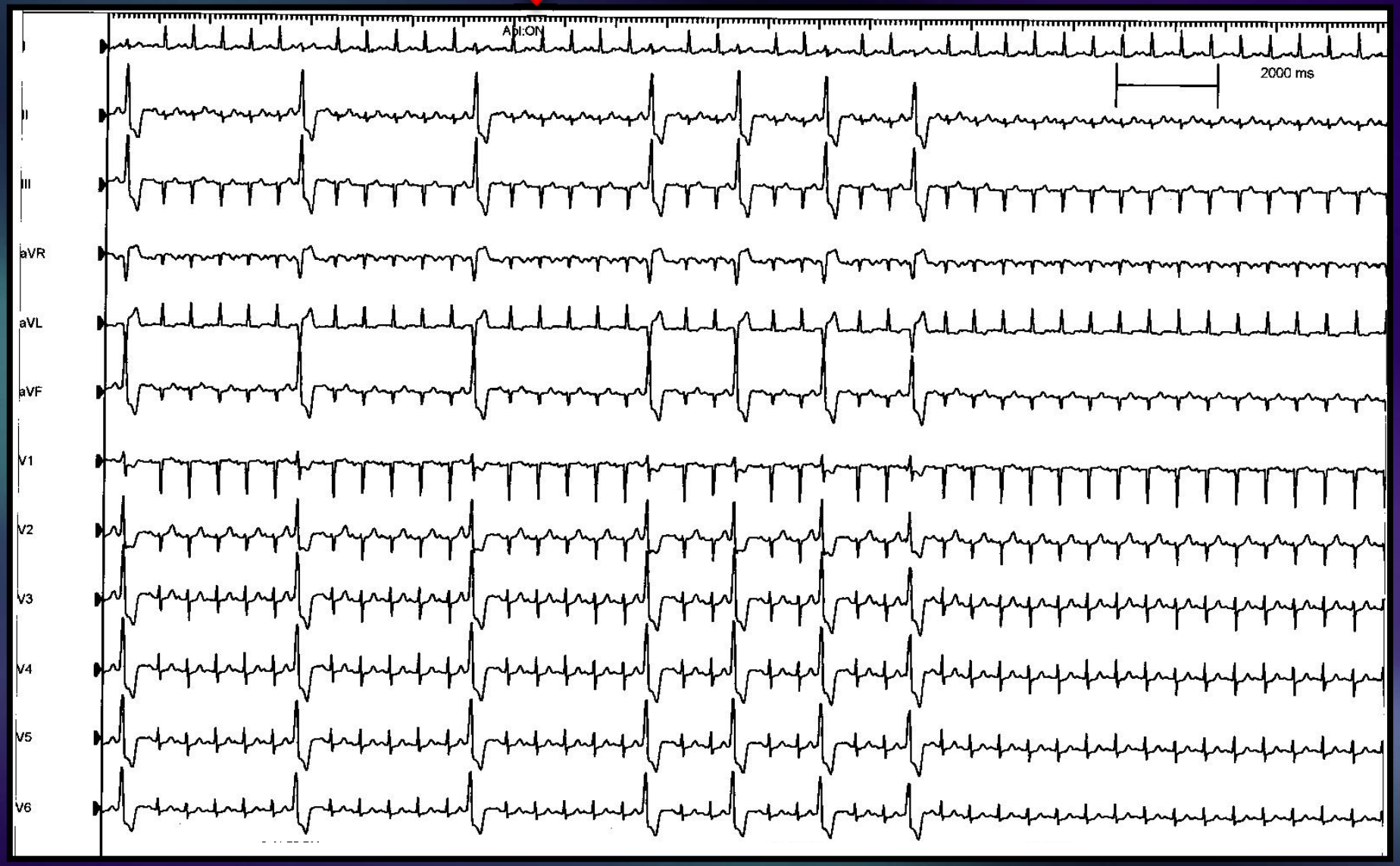


LCC



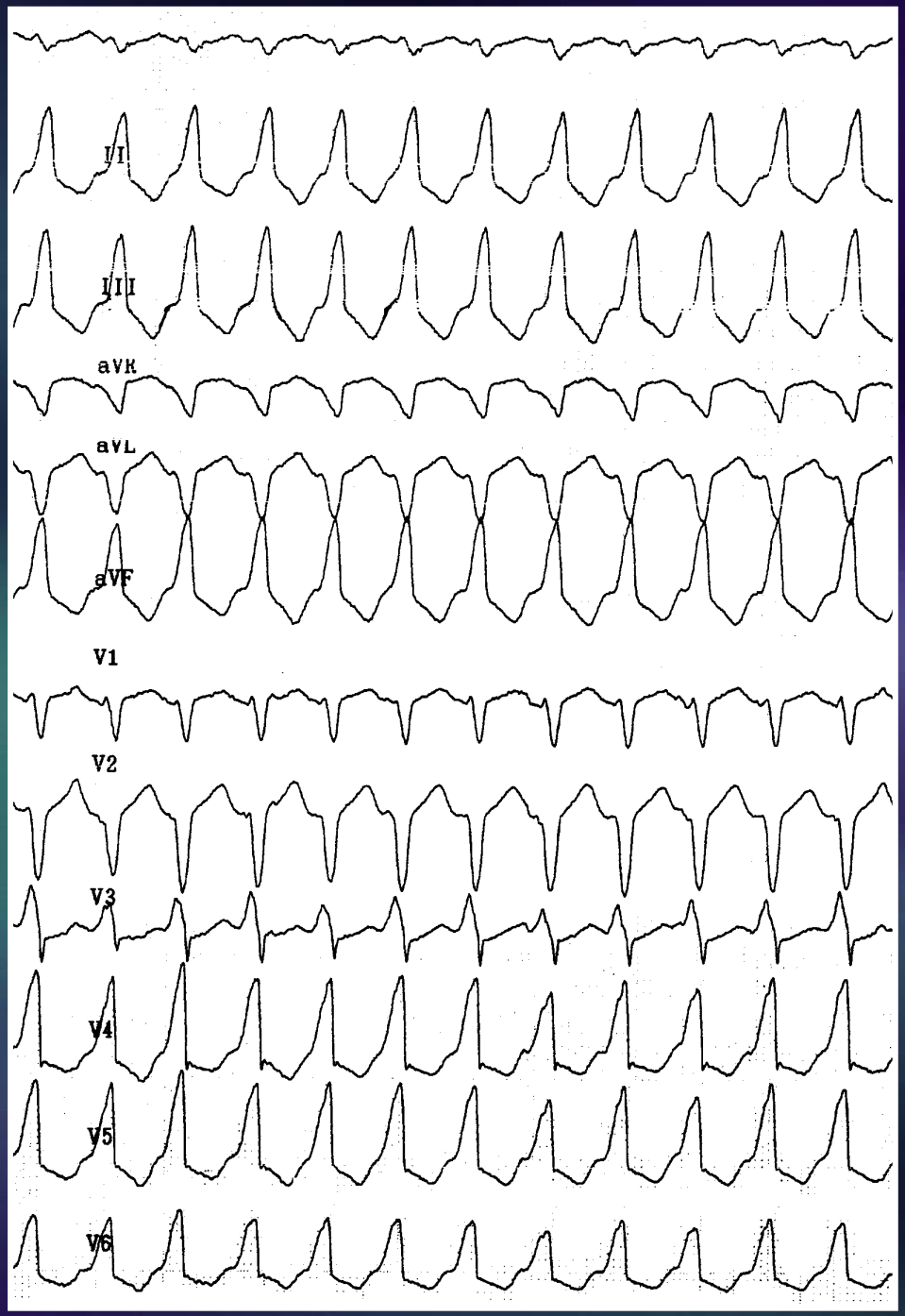


LCC

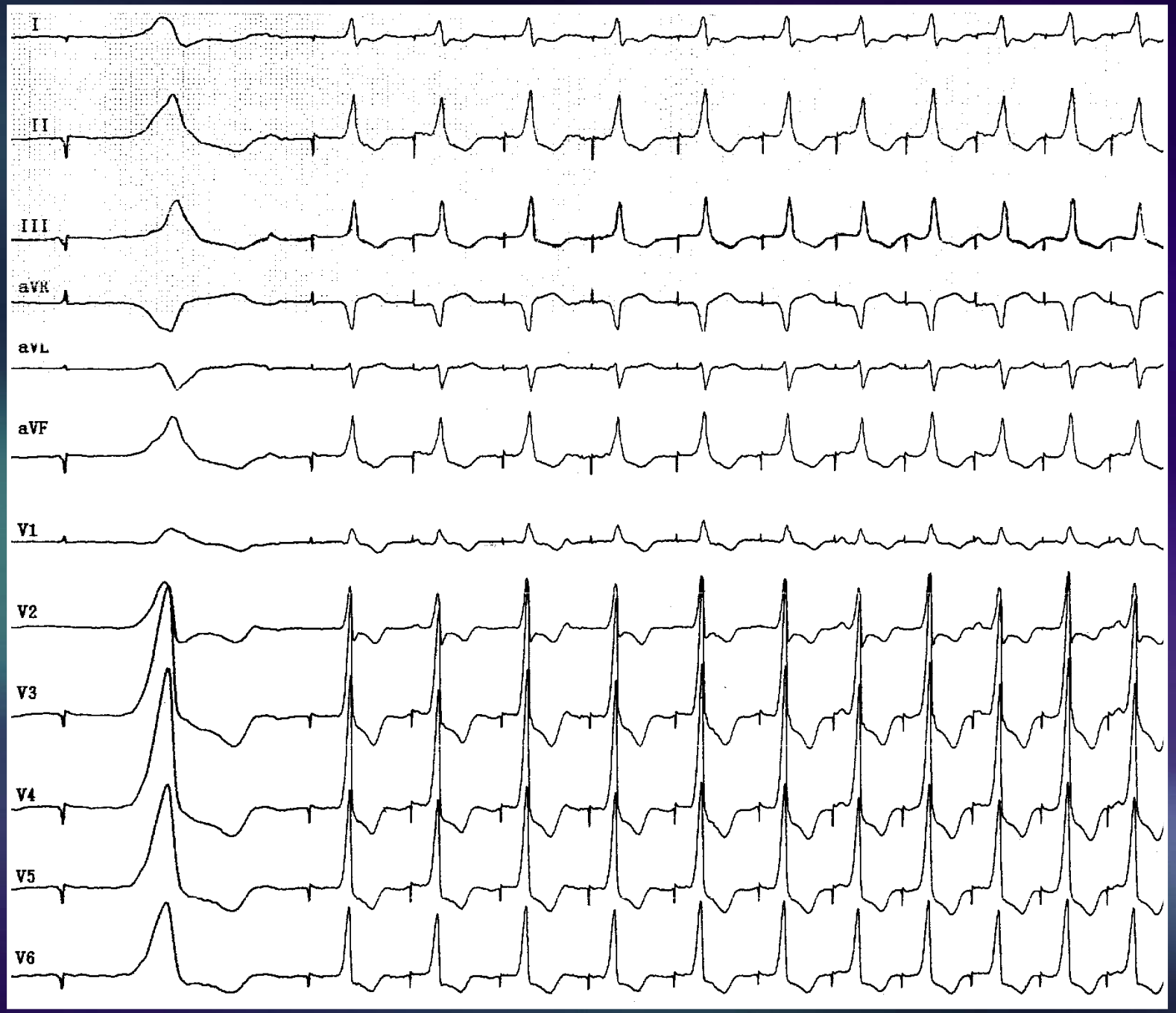


RF#1; abolition of arrhythmia at low power (17Wts), low temperature (44deg)

RCC - Right Coronary Cusp



RCC



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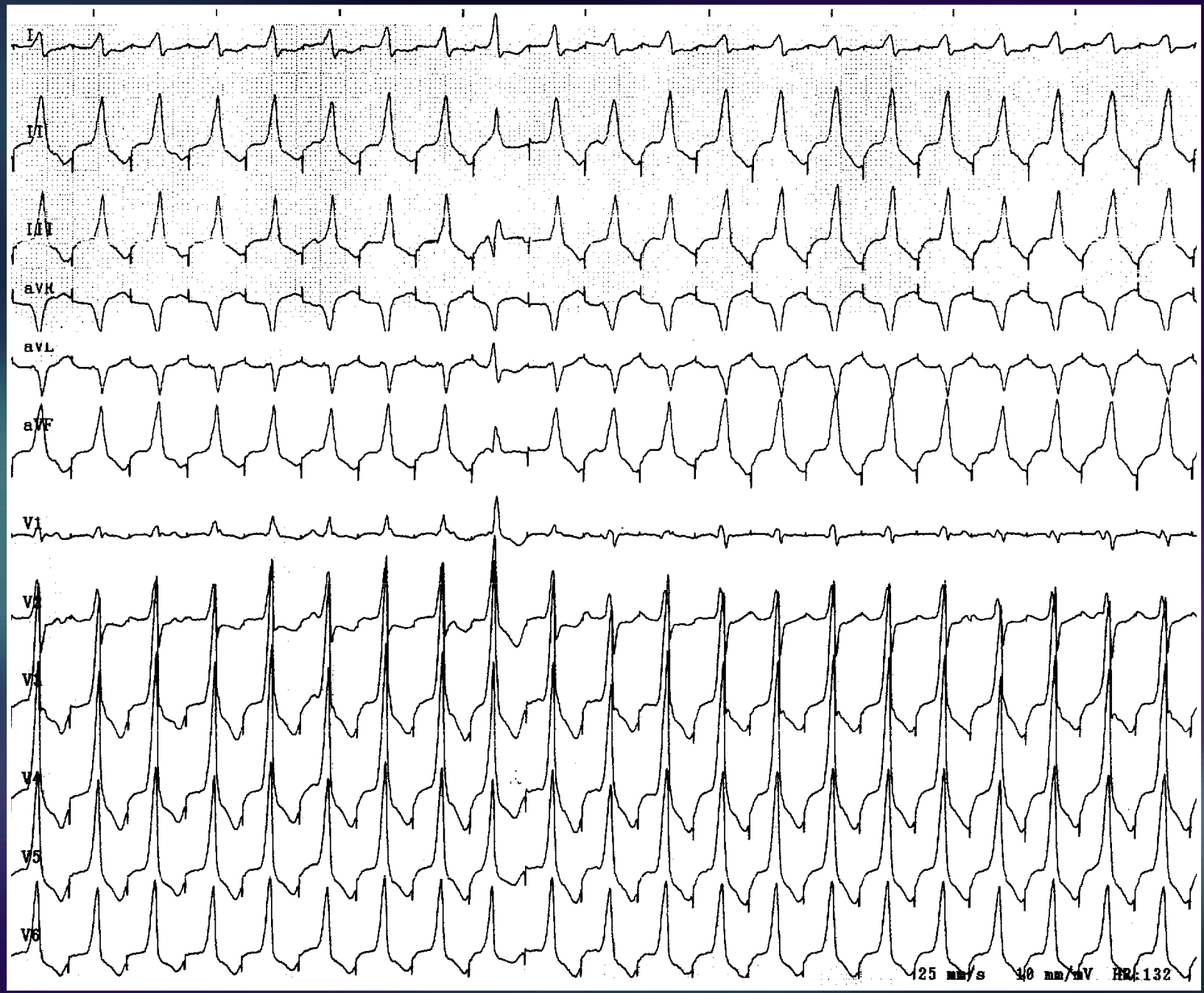

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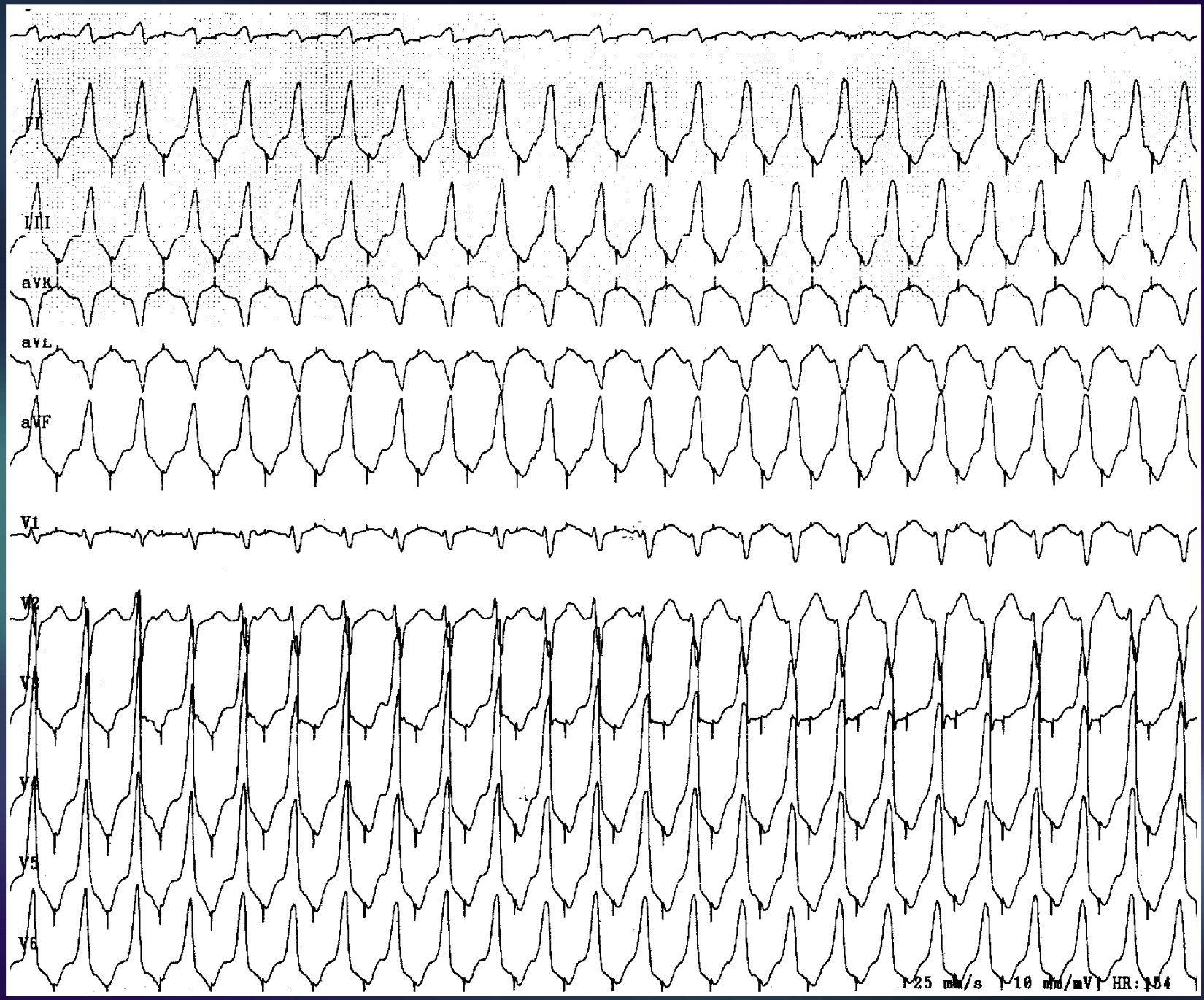

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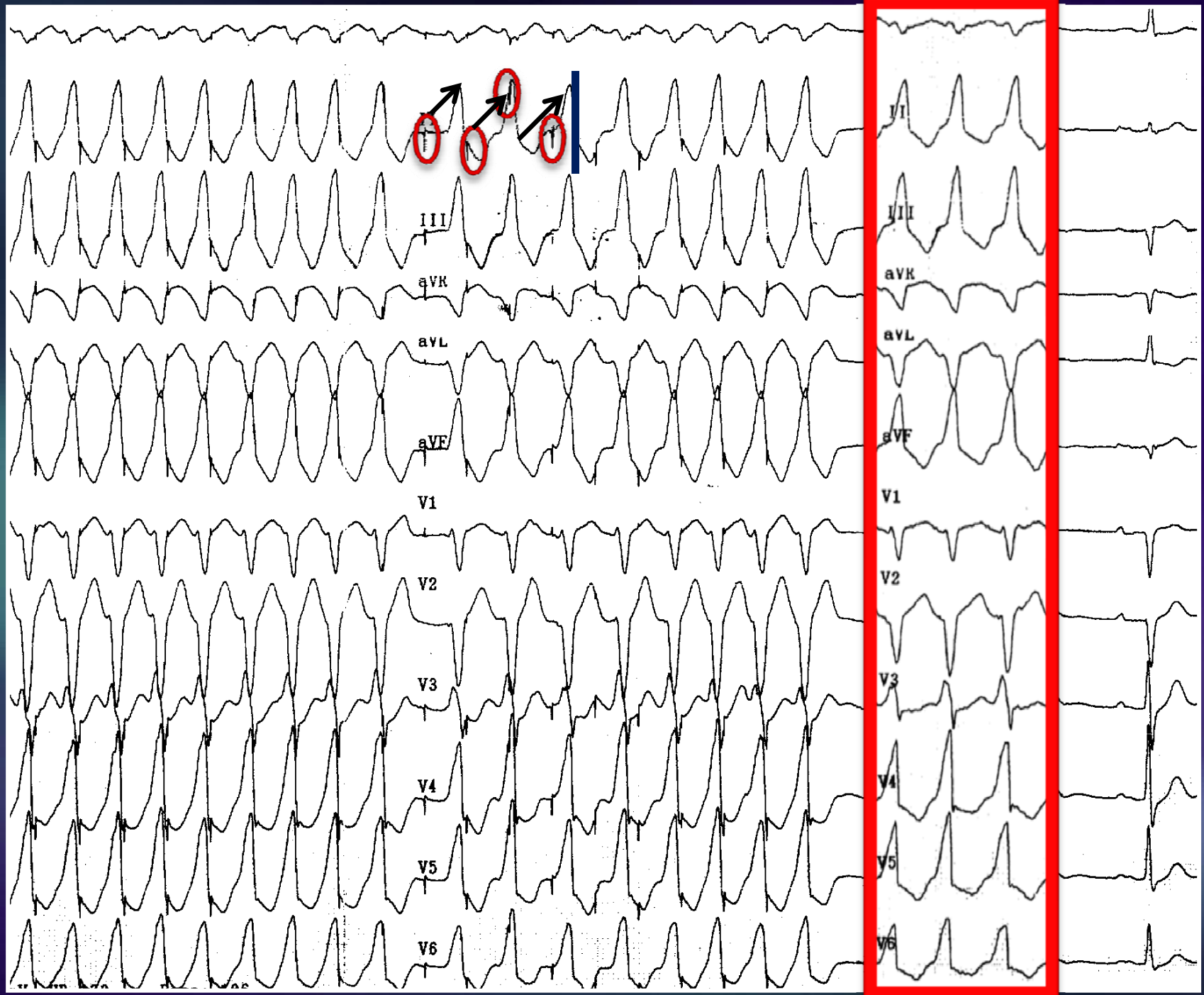
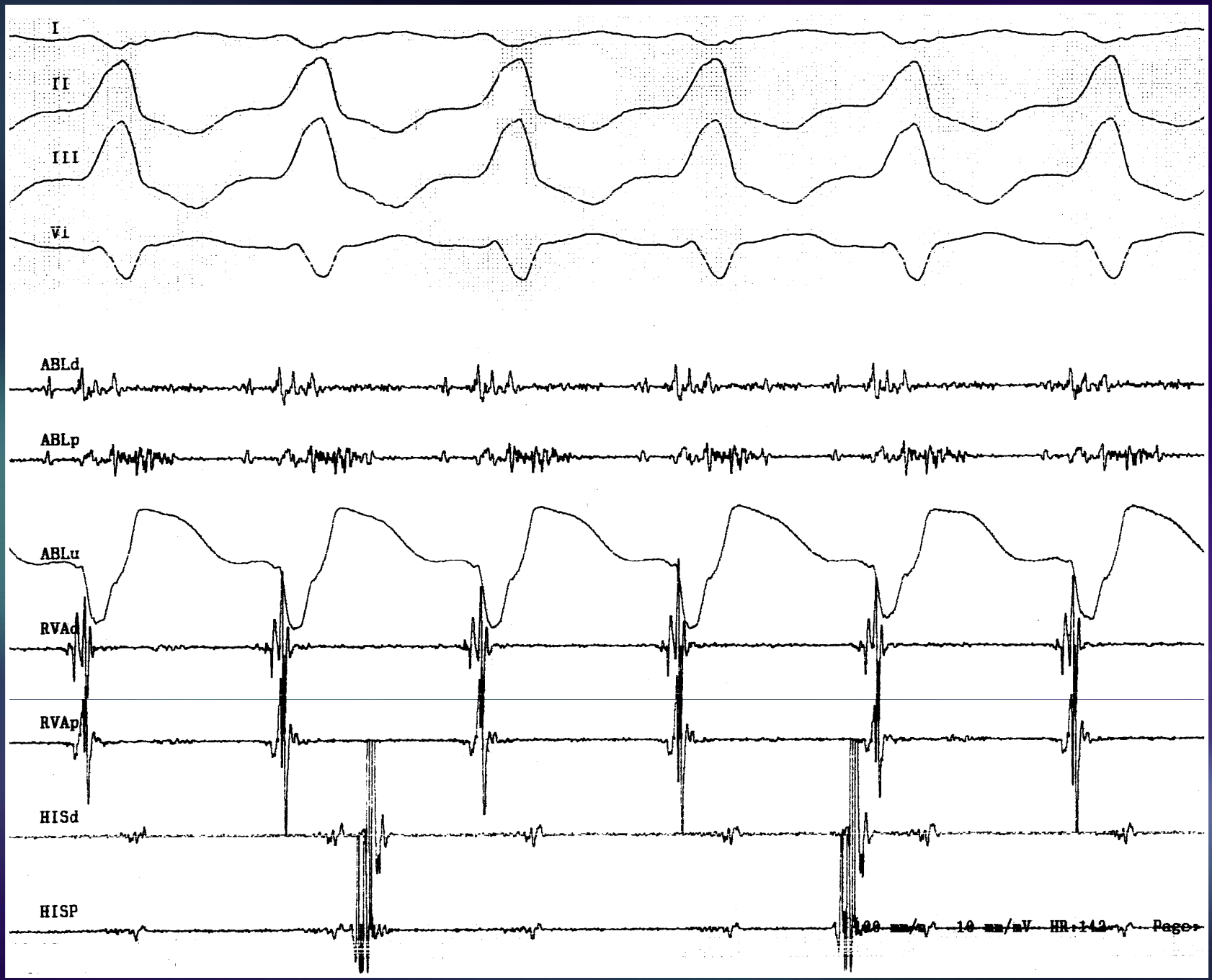


RCC



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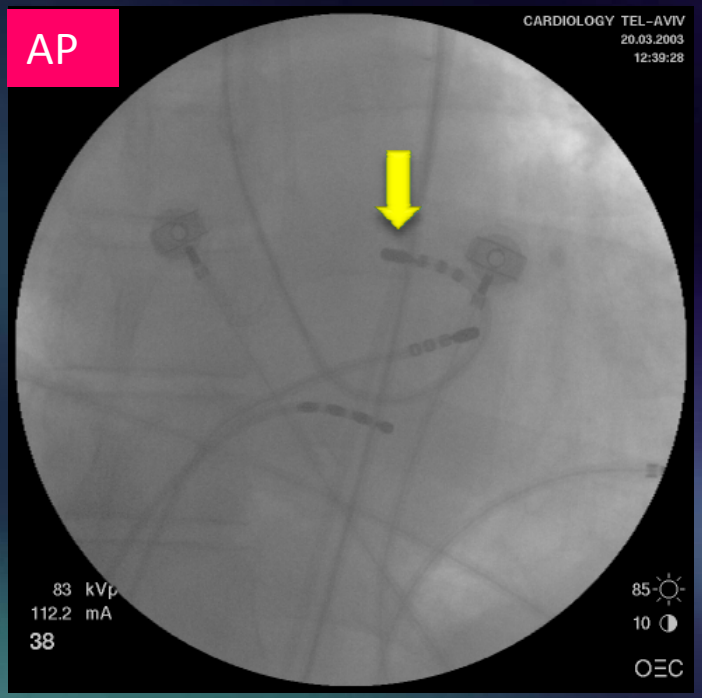
AP
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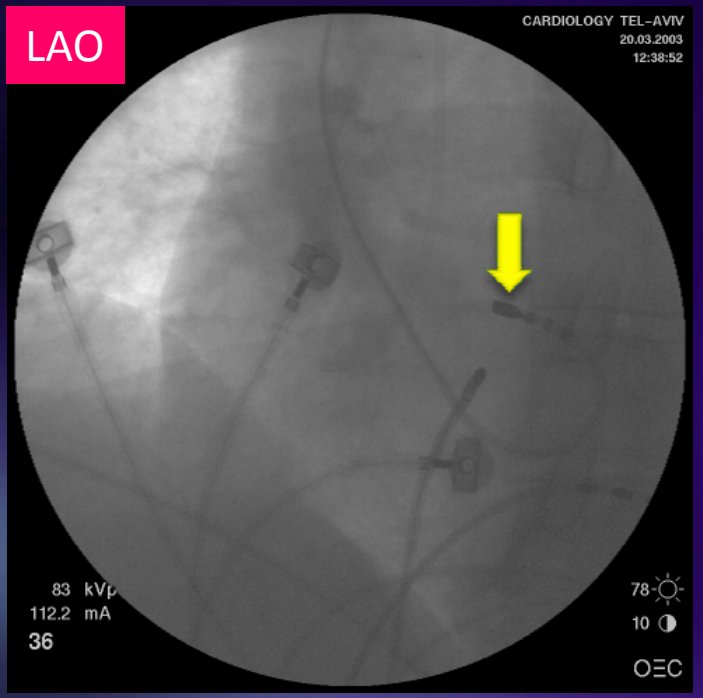
20.03.2003
12:39:28
83 kVp
112.2 mA
38
85
10
OEC


LAO
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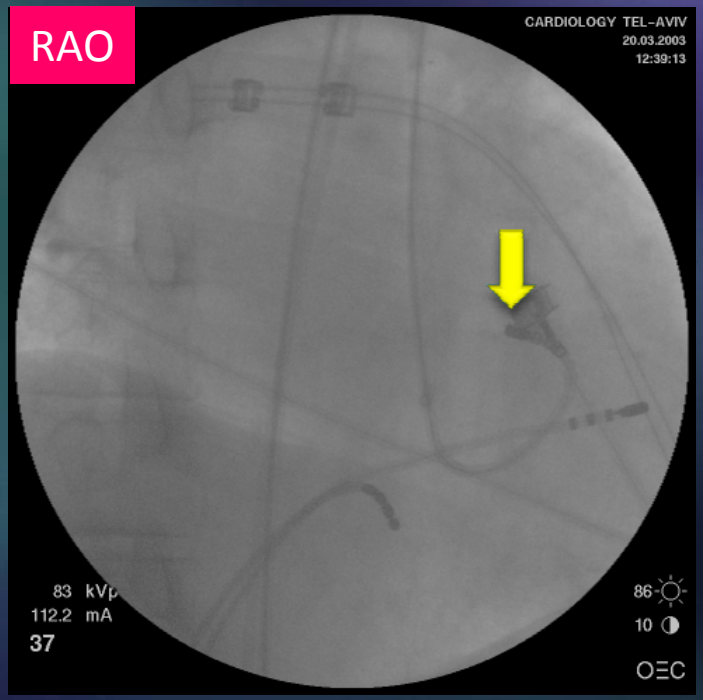
83 kVp
112.2 mA
36
78
10
OEC


RAO
CARDIOLOGY TEL-AVIV
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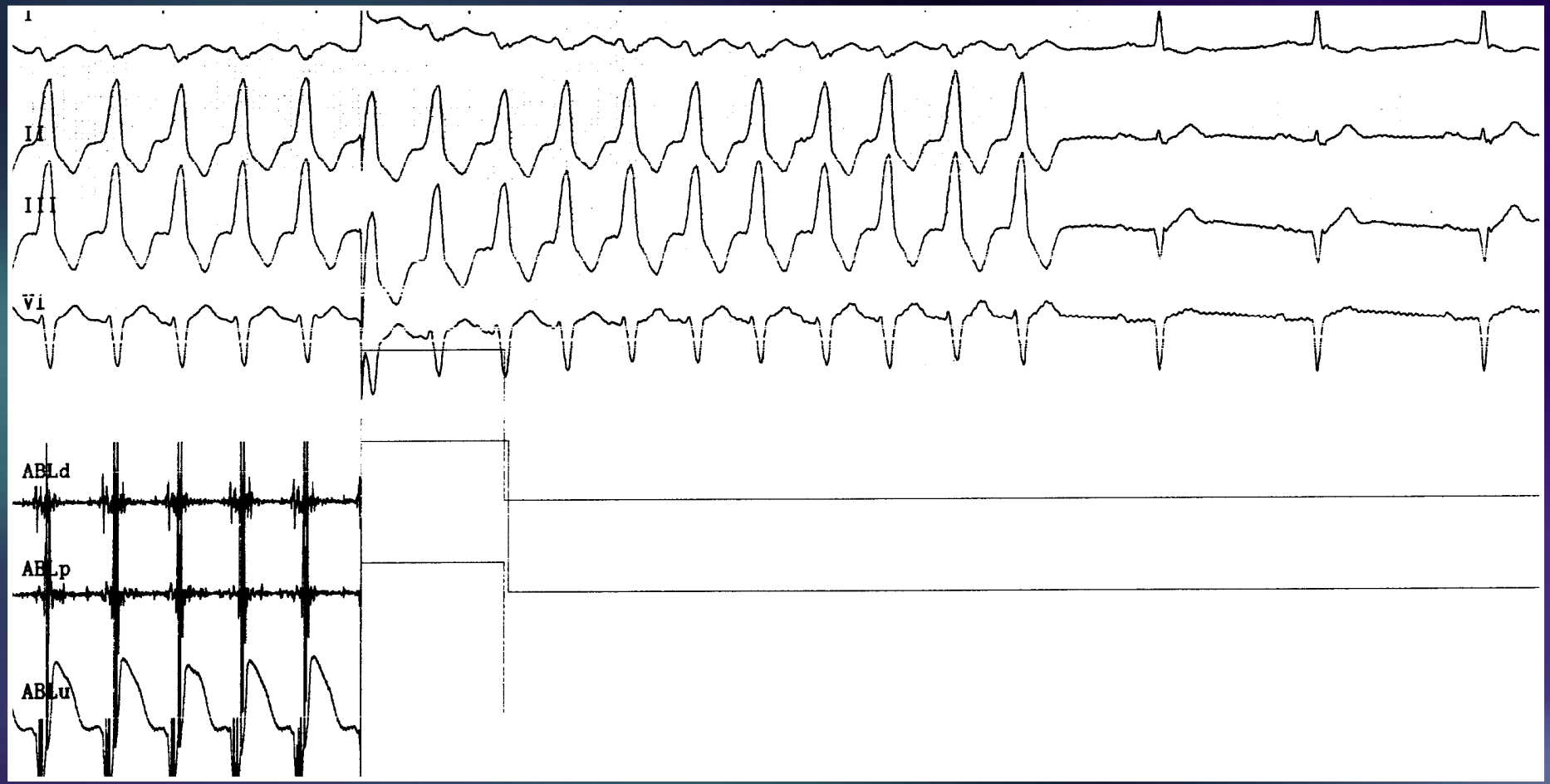
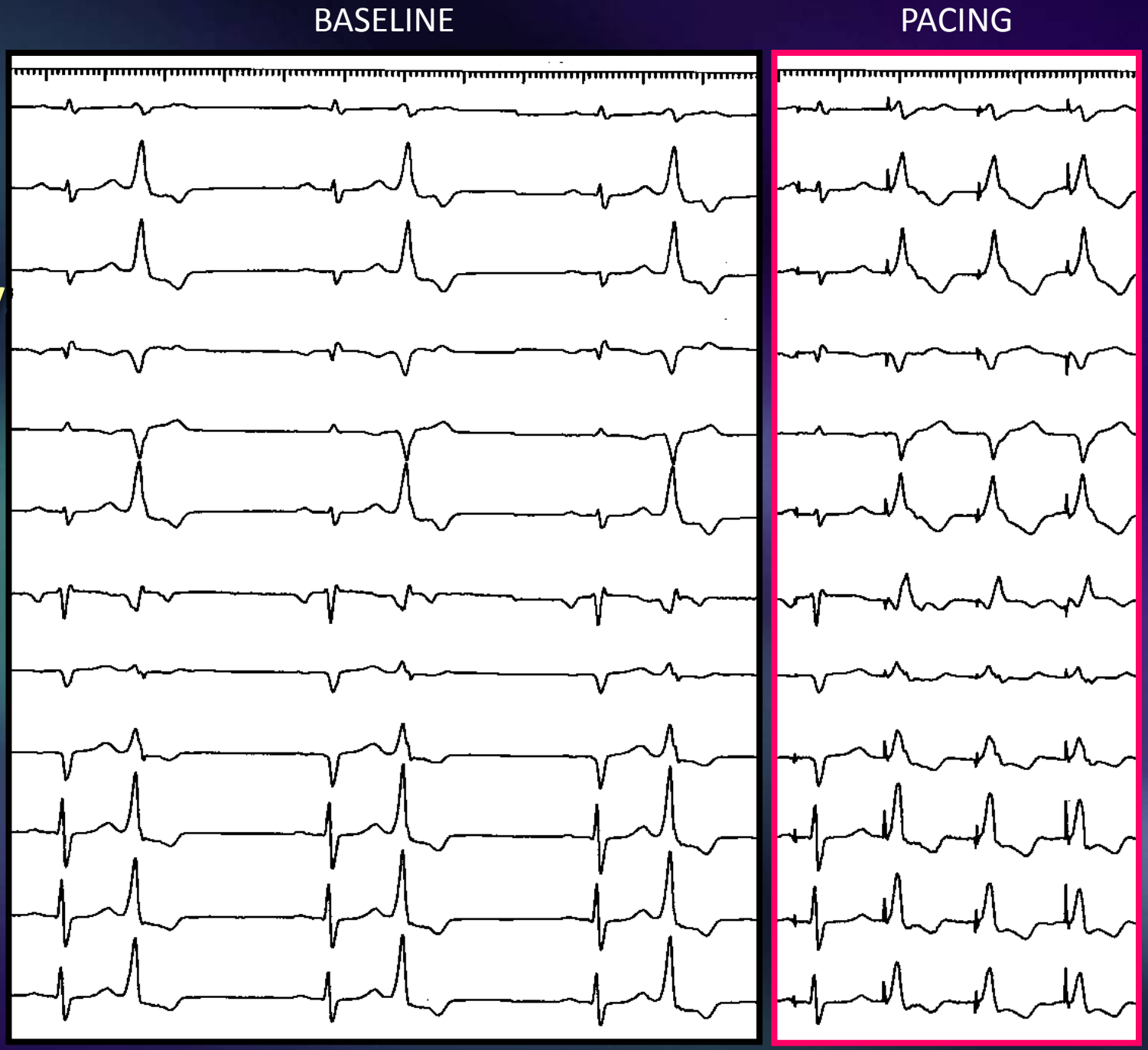
83 kVp
112.2 mA
37
86
10
OEC

RCC



ABL ON

AMC-
Aorto - Mitral Continuity



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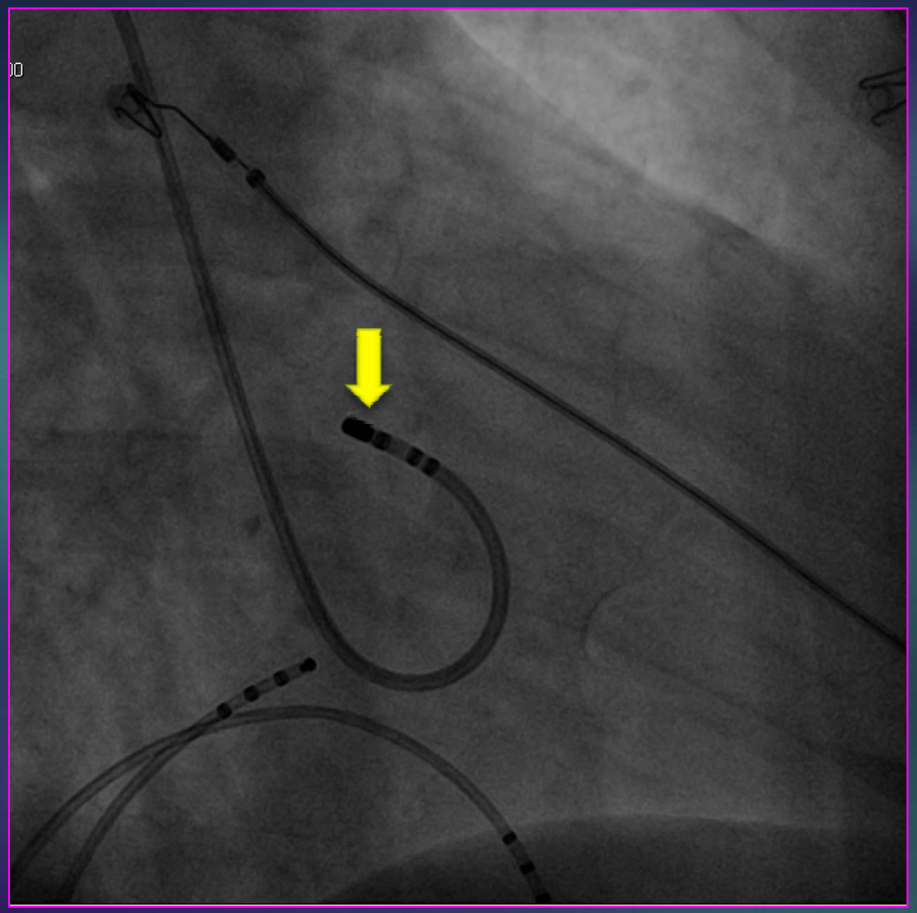

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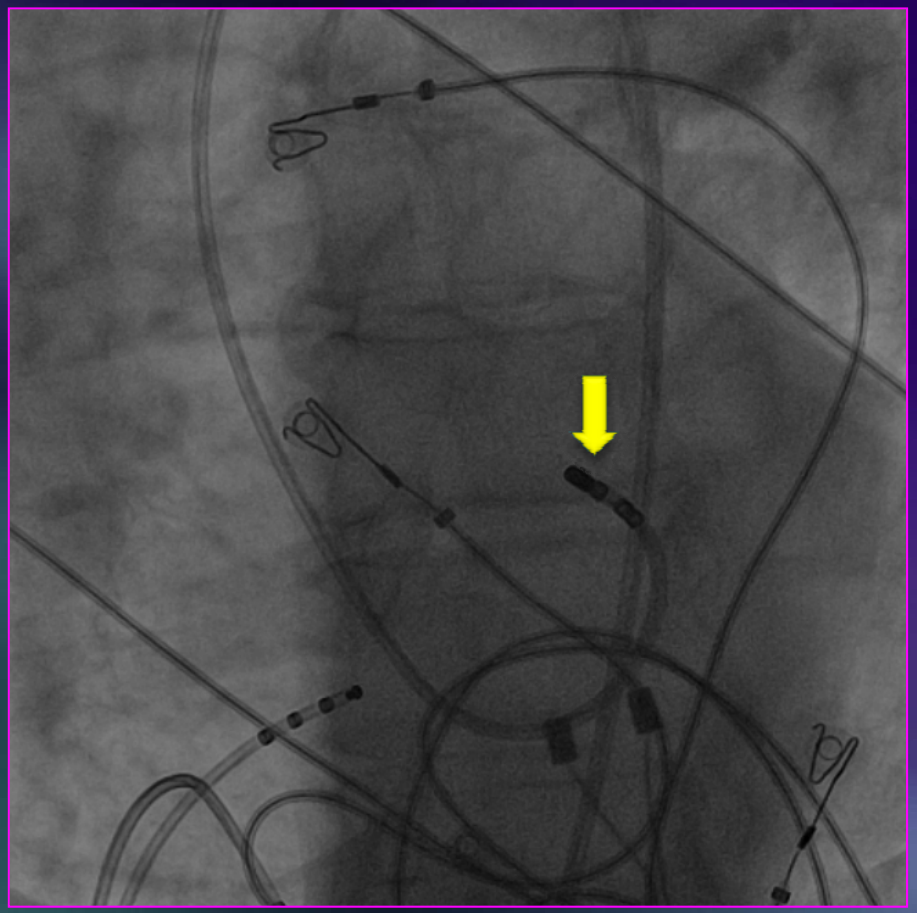
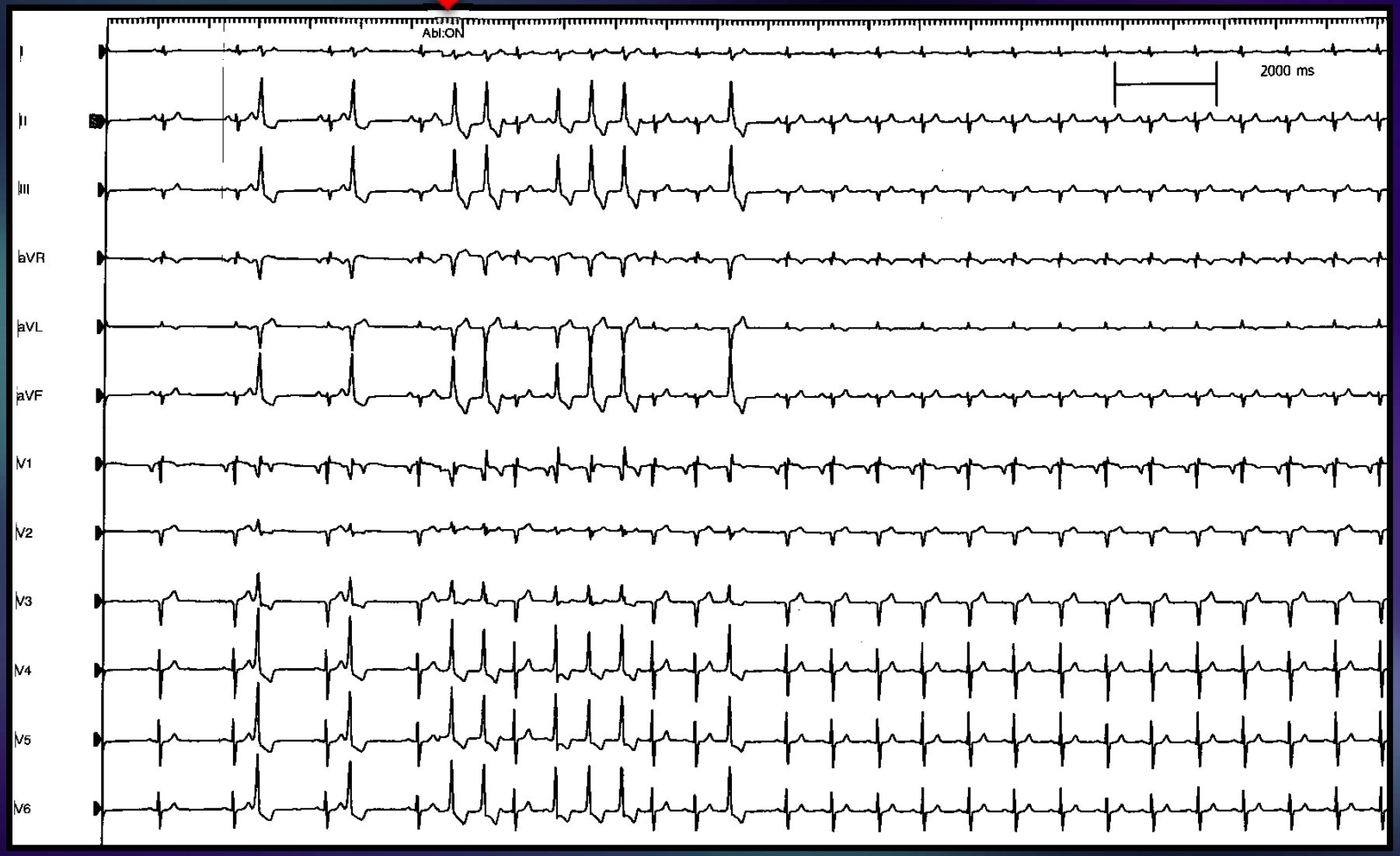
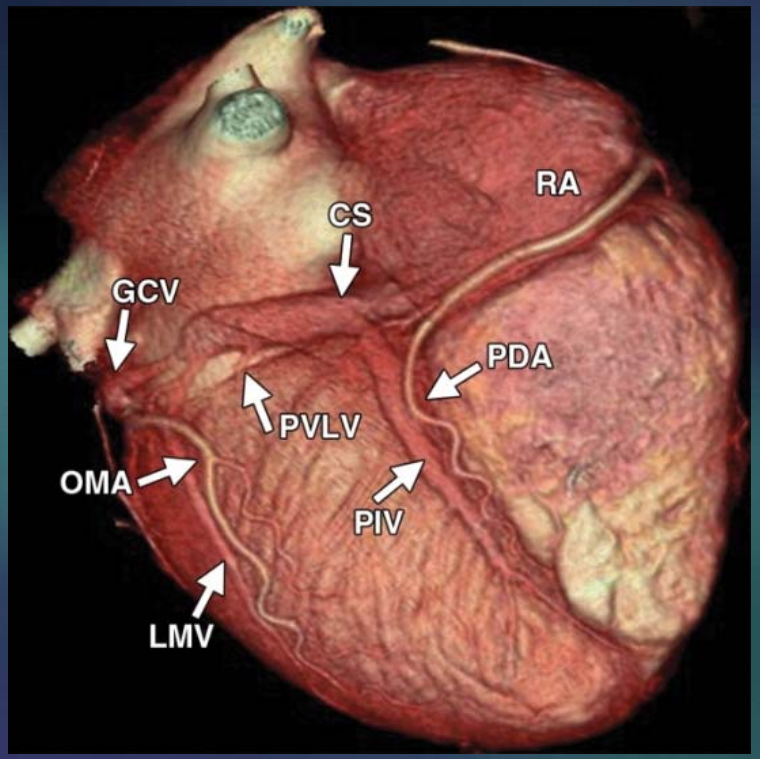


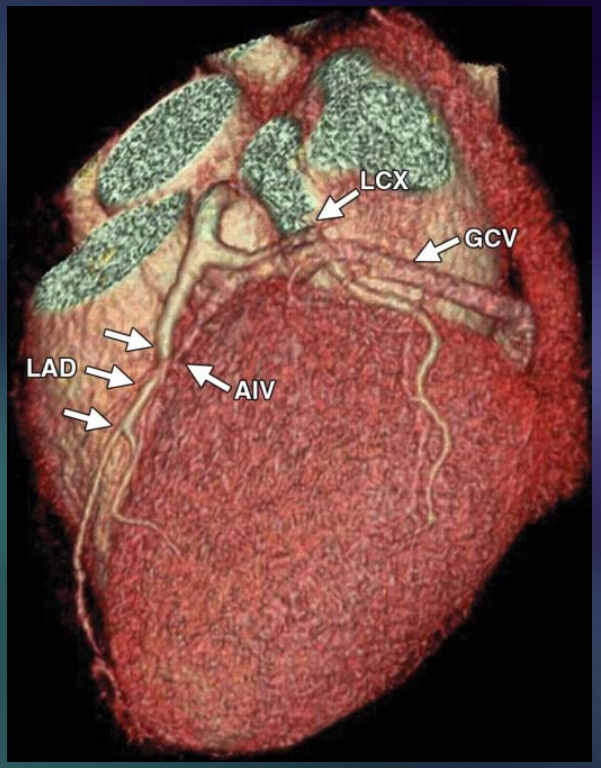
LAO

AMC



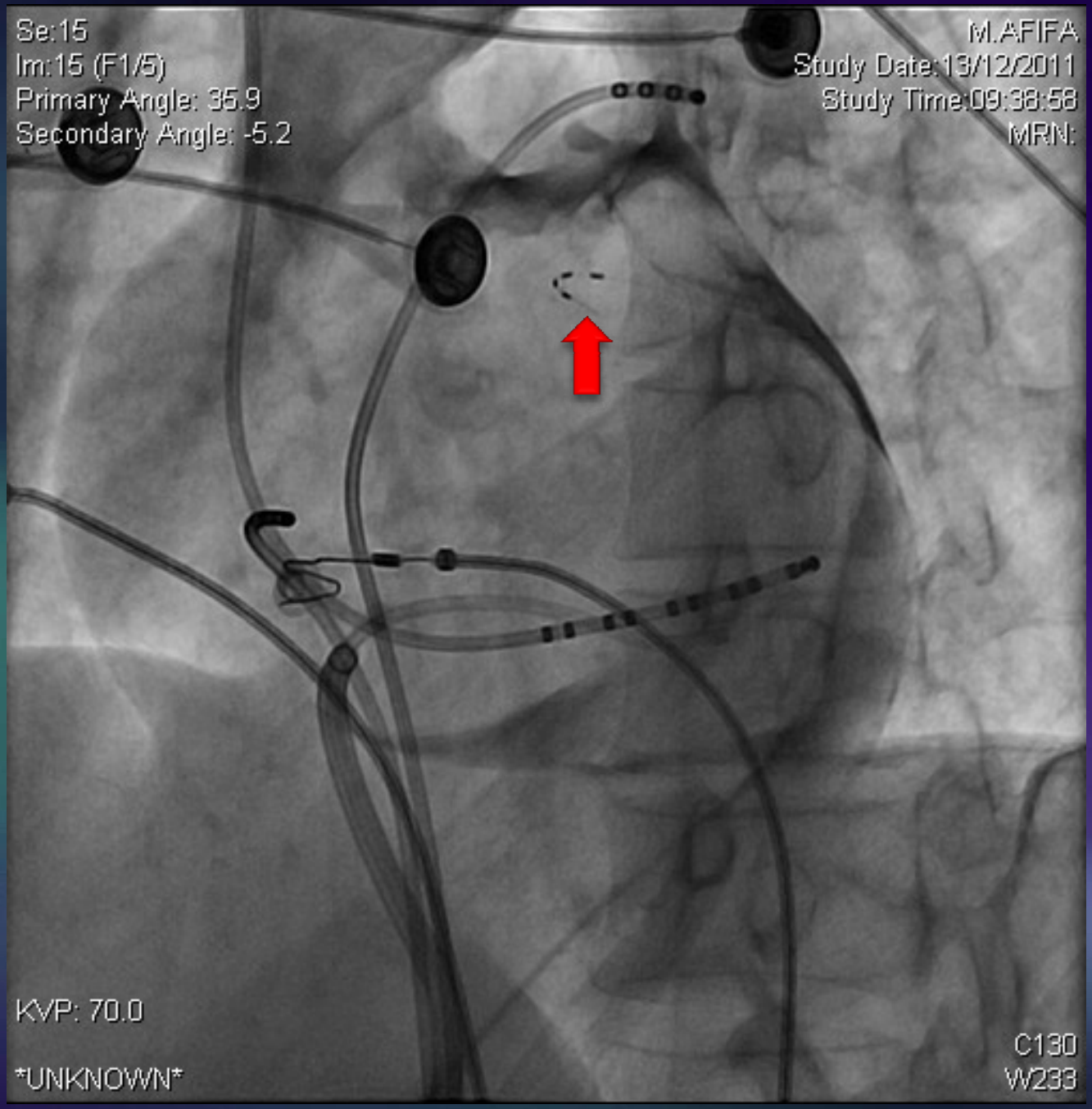
Epicardial

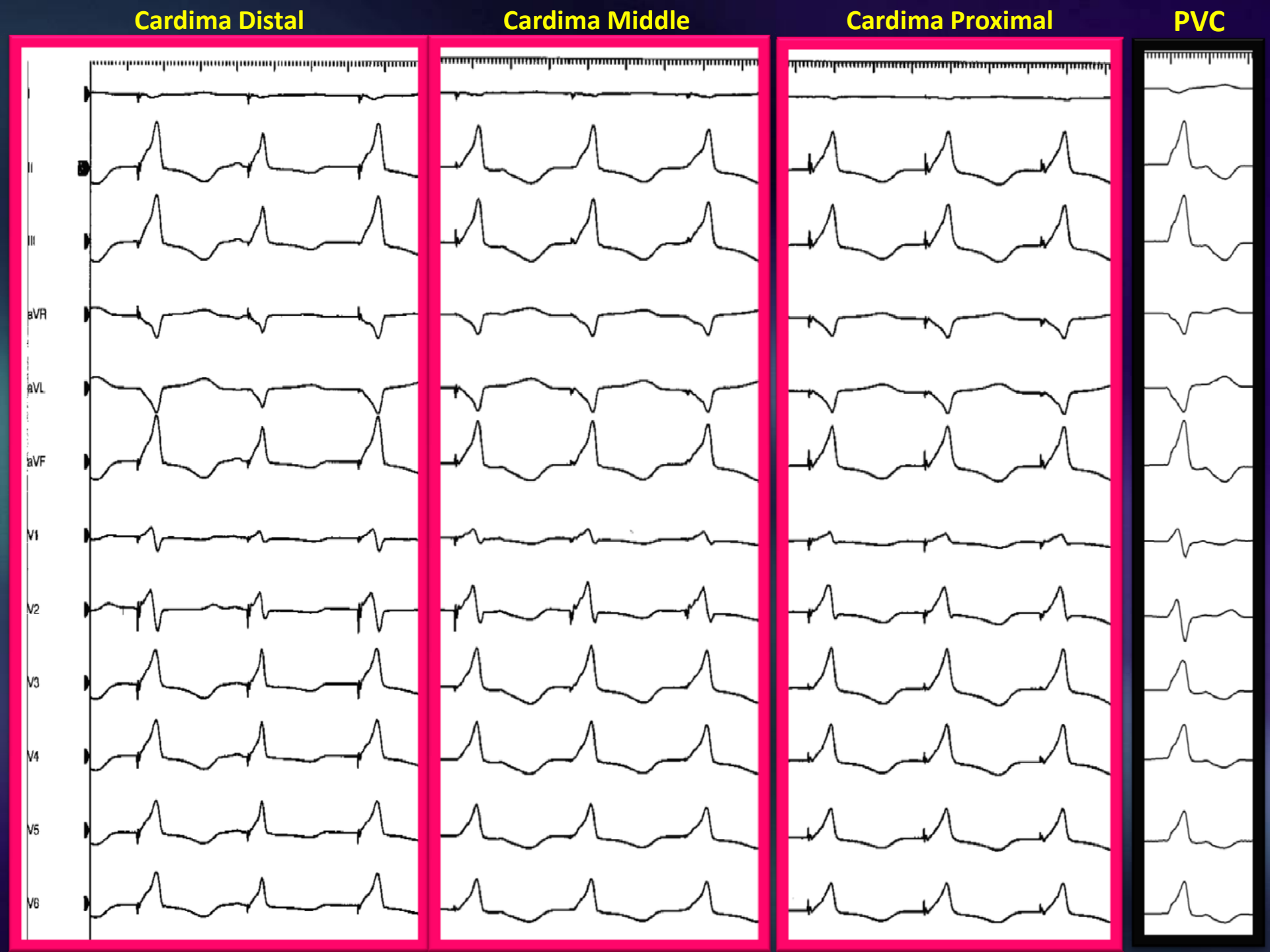




BASELINE

Epicardial

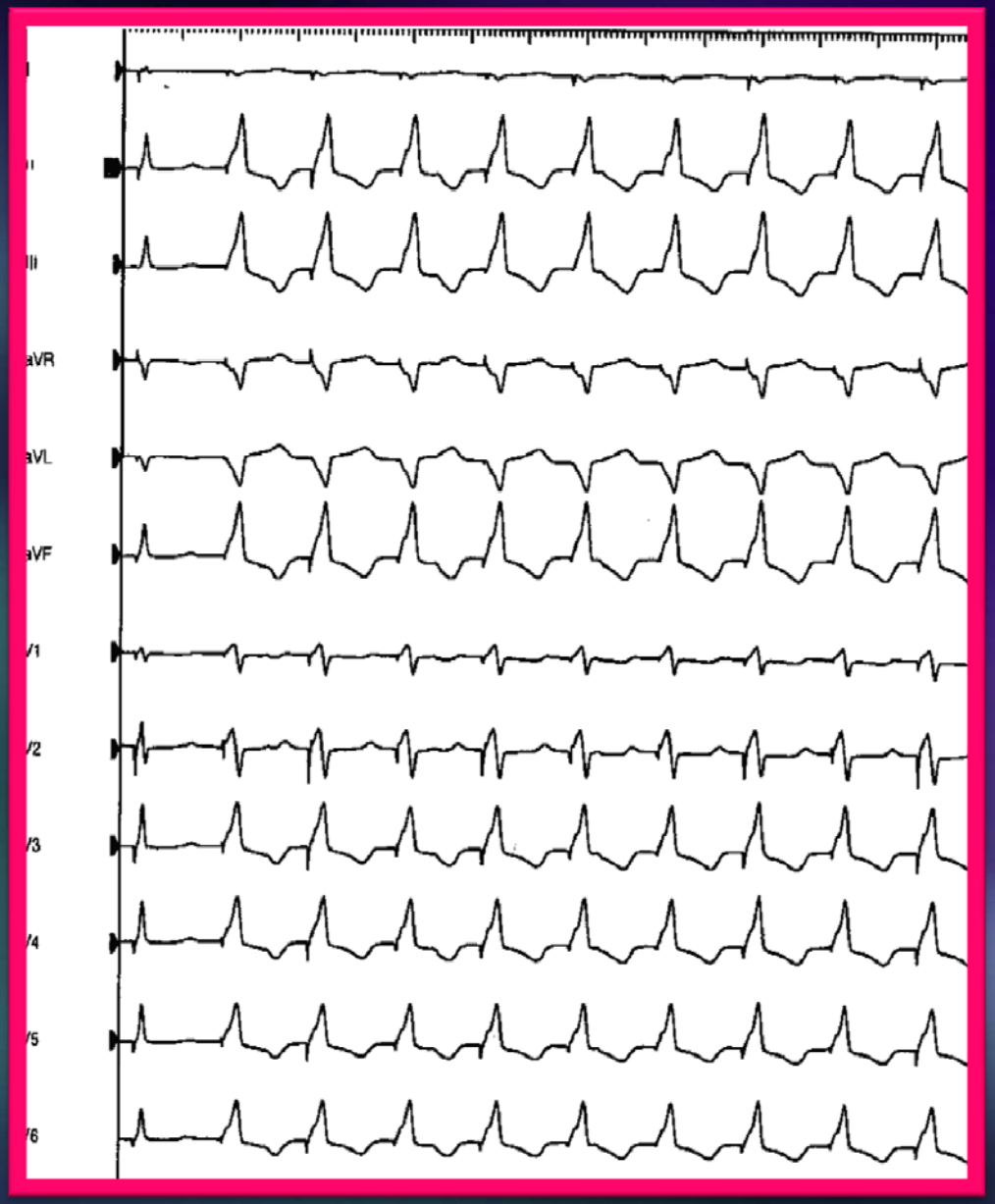

Se:15
Im:15 (F1/5)
Primary Angle: 35.9
Secondary Angle: -5.2
M.AFIFA
Study Date:13/12/2011
Study Time:09:38:58
MRN:
KVP: 70.0
UNKNOWN
C130
W233

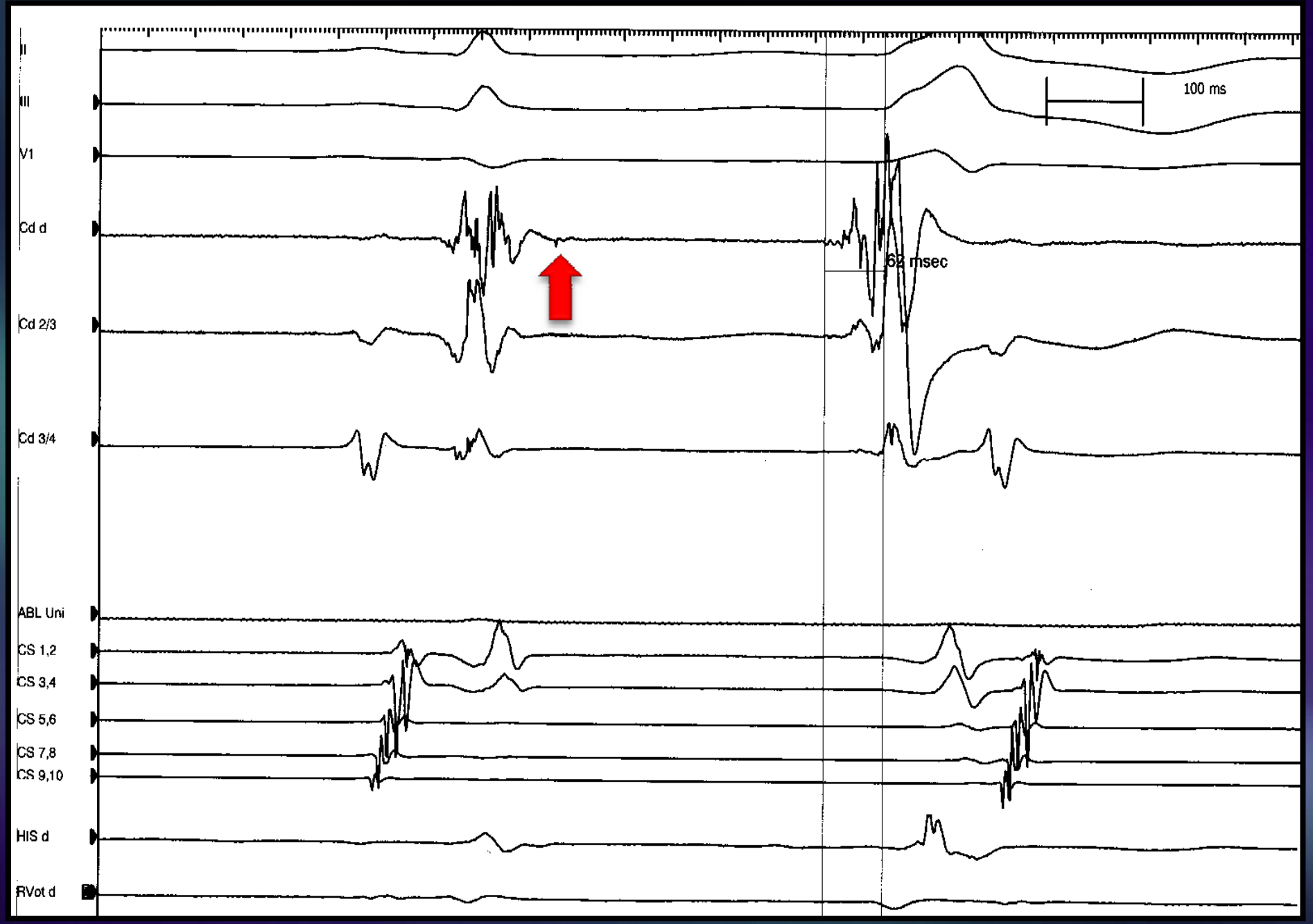

Cardima Distal
Cardima Middle
Cardima Proximal
PVC
I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6

Epicardial

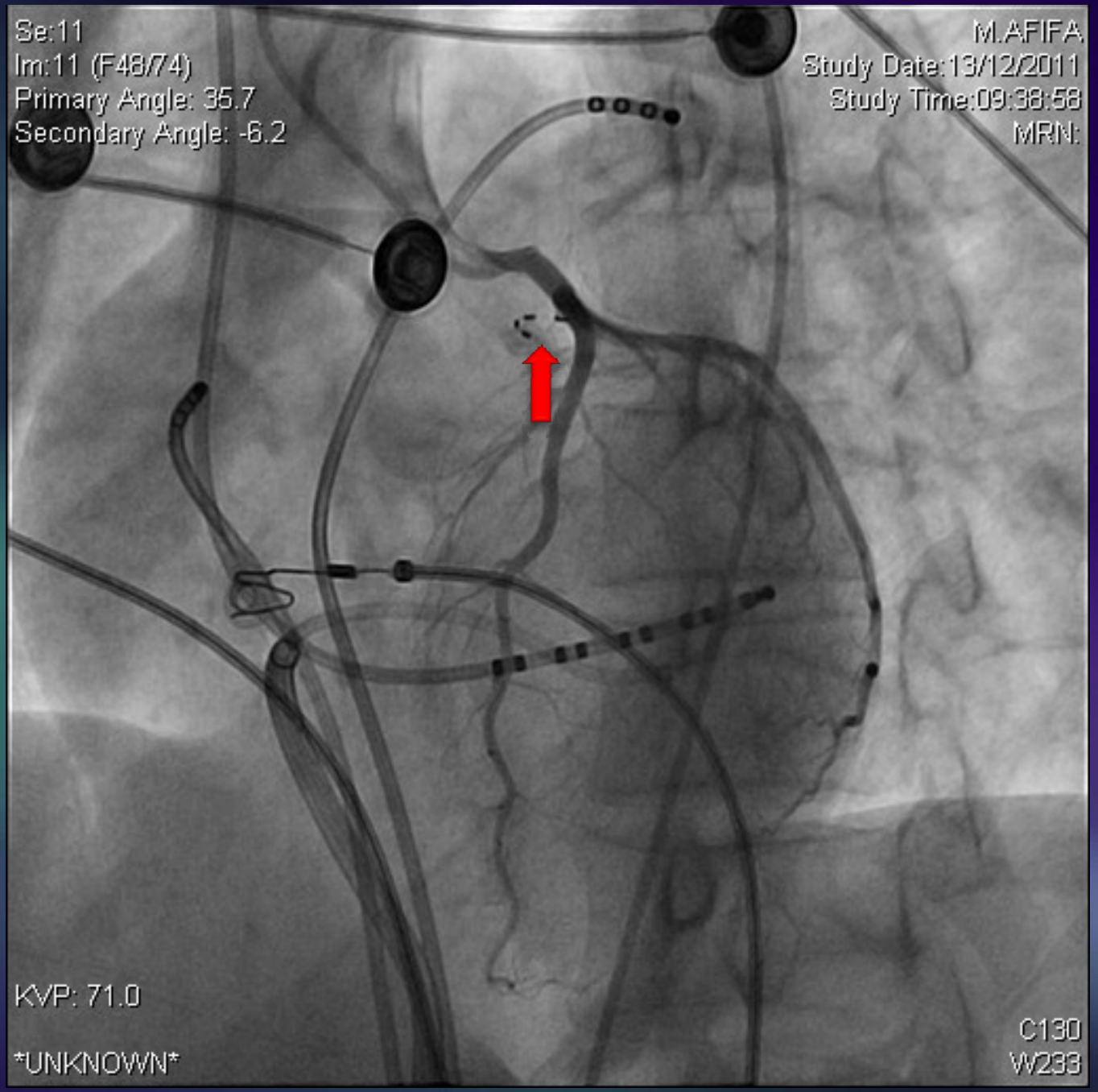
BASELINE

PACING

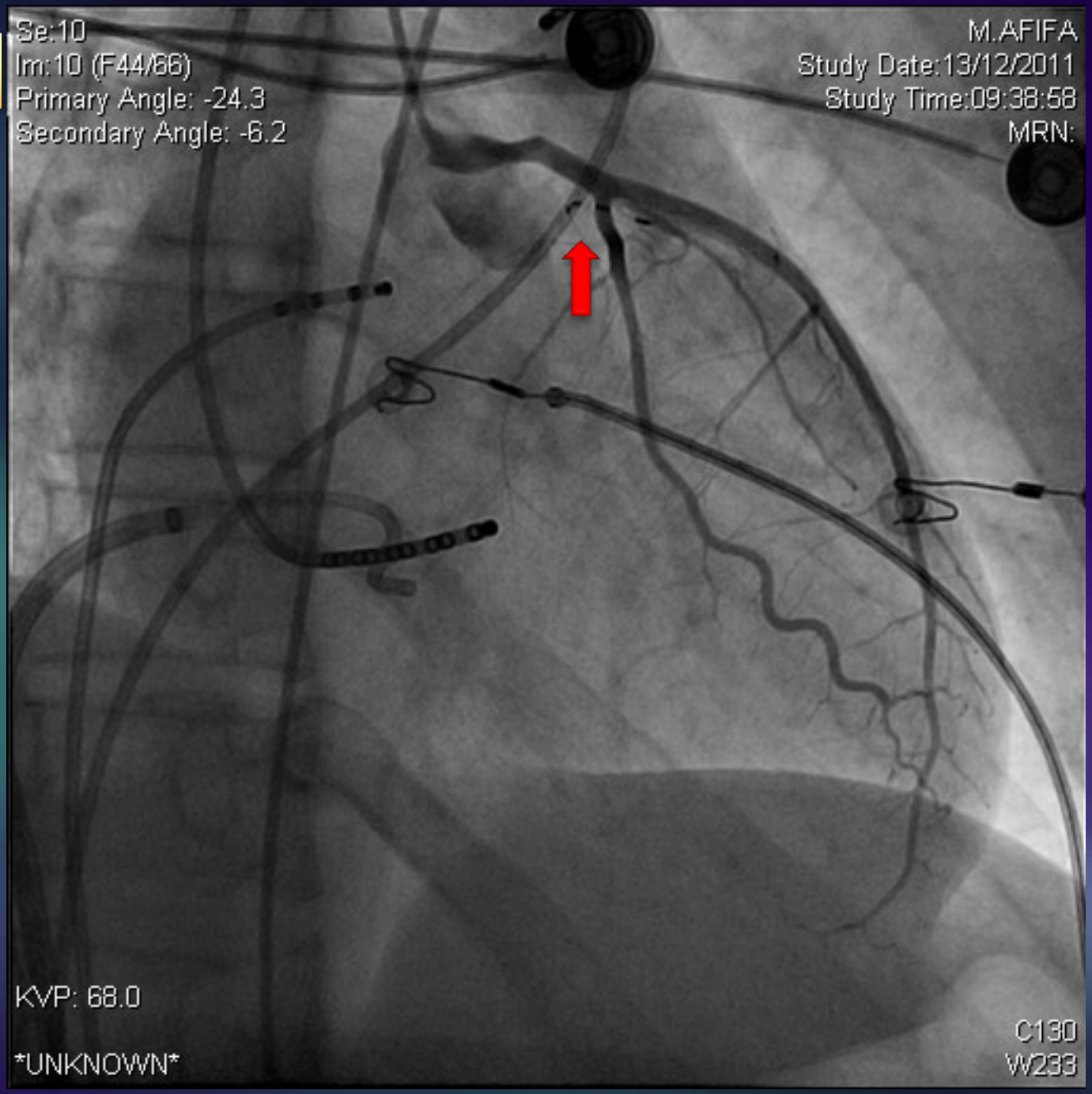



II
III
V1
Cd d
Cd 2/3
Cd 3/4
100 ms
62 msec
ABL Uni
CS 1,2
CS 3,4
CS 5,6
CS 7,8
CS 9,10
HIS d
RVot d

Epicardial


Se:11
Im:11 (F48/74)
Primary Angle: 35.7
Secondary Angle: -6.2
M.AFIFA
Study Date:13/12/2011
Study Time:09:38:58
MRN:
KVP: 71.0
UNKNOWN
C130
W233

Epicardial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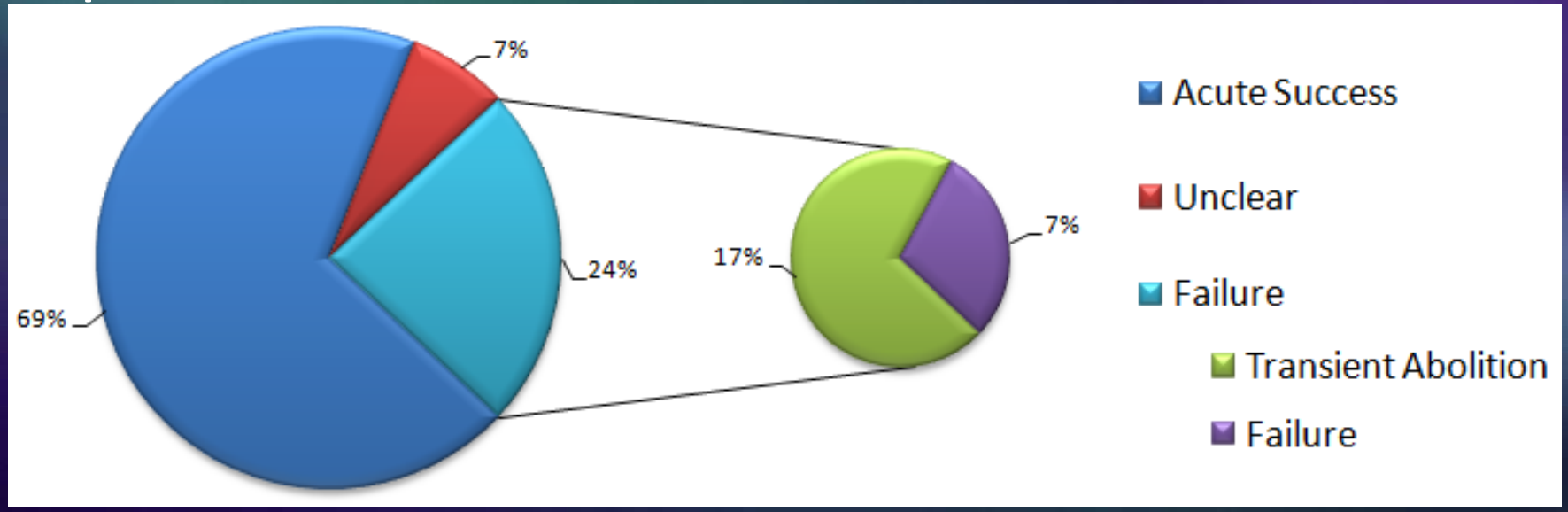
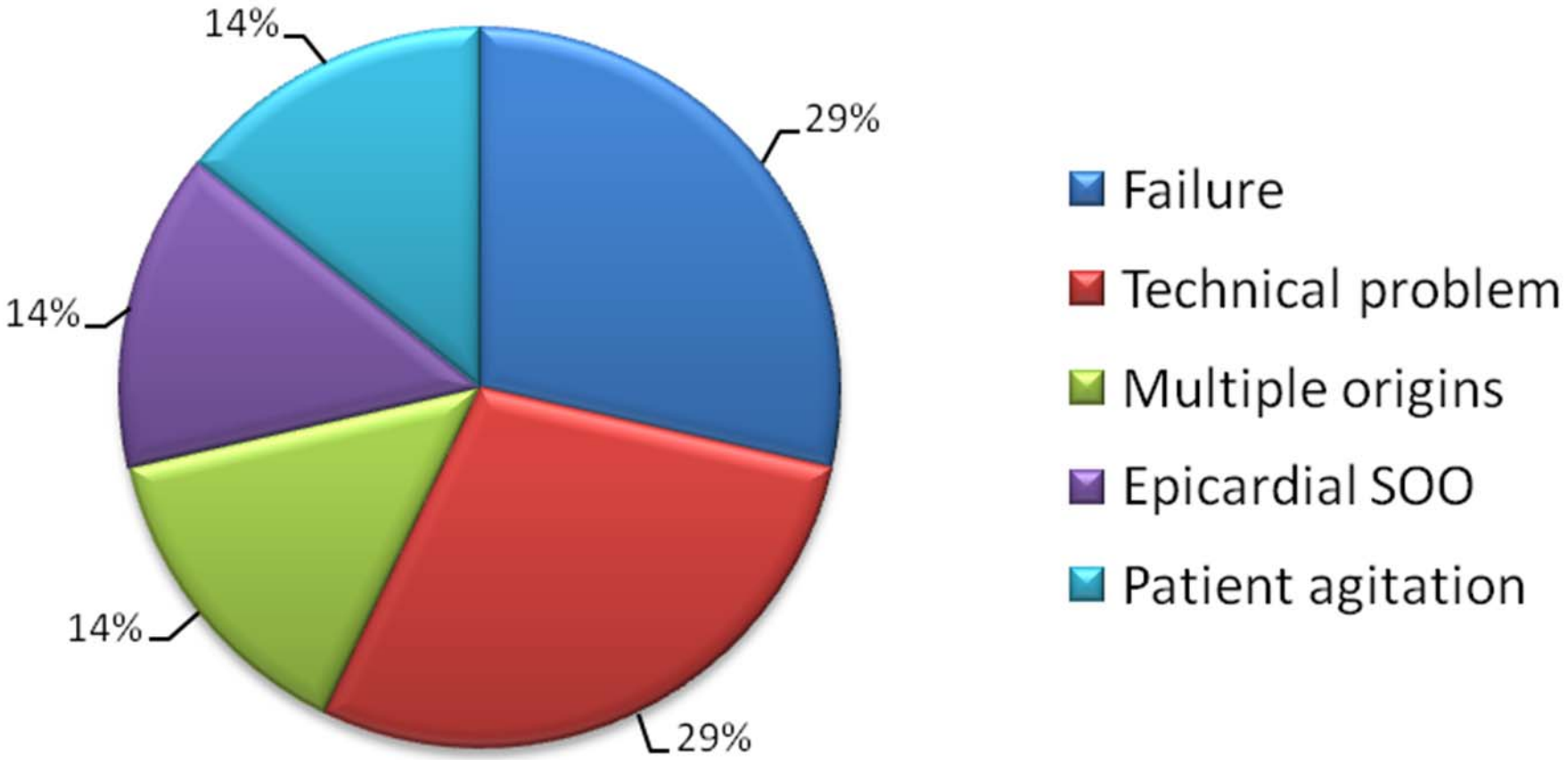
Im:10 (F44/66)
Primary Angle: -24.3
Secondary Angle: -6.2
M.AFIFA
Study Date:13/12/2011
Study Time:09:38:58
MRN:
KVP: 68.0
UNKNOWN
C130
W233

Results

- Acute successful ablation was achieved in 20 (69%) pts. The procedure failed in 7 (24%) pts.
- The result of the procedure was unclear in 2 (7%) pts, due to infrequent spontaneous arrhythmia.
- Transient abolition of the arrhythmia was achieved in 5 of 7 (71%) of pts in whom the procedure failed.



Causes of Failure



Results

- Two patients (7 %) experienced a complication (pseudo-aneurysm of the femoral artery and ischemic ECG changes with emergency PCI in 1 pt each).

Conclusions

- LVOT arrhythmias mostly originate from the LCC.
- RF ablation is moderately effective in this type of arrhythmias and is associated with a low rate of complications, in concordance with results of the literature.


Thank you