



What to Do in Case of Recurrence?



## Incidence and Need of Second Procedure

Which recurrence?

- Atrial Fibrillation
- Left atrial flutter of new onset

Author	AF	N° pts	Abl. Strategy	Success rate * after 1st proc	Recurrence rate	Complication	N° procedures	Cause repeat
<i>Häissaguerre Circ. 2000</i>	PAF	70	PV isolation	73% (4±5m) wo AAD	44%	P.effus 3% fem aneu 3%	(2) 41%	AF
<i>Marrouche Jacc 2002</i>	PAF CAF	211 -21 -190	PV Trigger PV Isolation	93% (6±4m)	24% 15%	3,5% -2 tamp -2 stroke -4 PVst	(2) 24% (2) 10%	AF
<i>Oral Circ. 2003</i>	PAF	40 40	PV isolation PV encircling	67% (6 m) * 89% (6 m) * wo AAD	32% * 10% *	LAFI 1/40	(2) 18%pts (1) 0%	AF
<i>Gerstenfeld JCE 2003</i>	PAF Persist AF	226	PV isolation	76% 62% wo AAD* (7±6m) ↓82% in 15% pts	24% (55 pts + AF)		(2) 15%	AF
<i>Ouyang Circ. 2004</i>	PAF	41	PV isolation through encircling	77%* (1 m) ↓95% (4 m)	24%	Pericarditis 5%	(2) 22%	Atrial tachy.
<i>Ouyang Circ. 2004</i>	Persist AF	40	PV isolation through encircling	62%* (1 m) ↓95% (8±2m)	38%	vagal reflex 2.5%	(2) 35%	AF, LAFI, AFI
<i>Hocini Eur Heart J 2005</i>	PAF	20	PV encircling	65% (13±8m) * 95%	35% -3 pts AF -3 LA FI -1 AF+LA FI		(2) 35%	AF
<i>Oral Circ. 2006</i>	PAF	153	PV isolation/ encircling	77% (11±4m) ↓wo AAD	23% - 18% FA - 5% LA FI	LAF 5% Tampon. 1% TIA 1%	(2) 18%	AF 13% LAFI 5%
<i>Oral NEJM 2006</i>	CAF	77	PV encircling	74%(12m) wo AAD	26% - 22% FA - 4% LA FI		(2) 32%	26% AF 6% LAFI



# Incidence and Need of Second Procedure

## Methodology

### Atrial Fibrillation

- Accept and change strategy
  - pharmacological
  - alternative interventional (AV modification, ablate and pace)
- Re-do
  - consolidate former design
  - enlarge ablation design



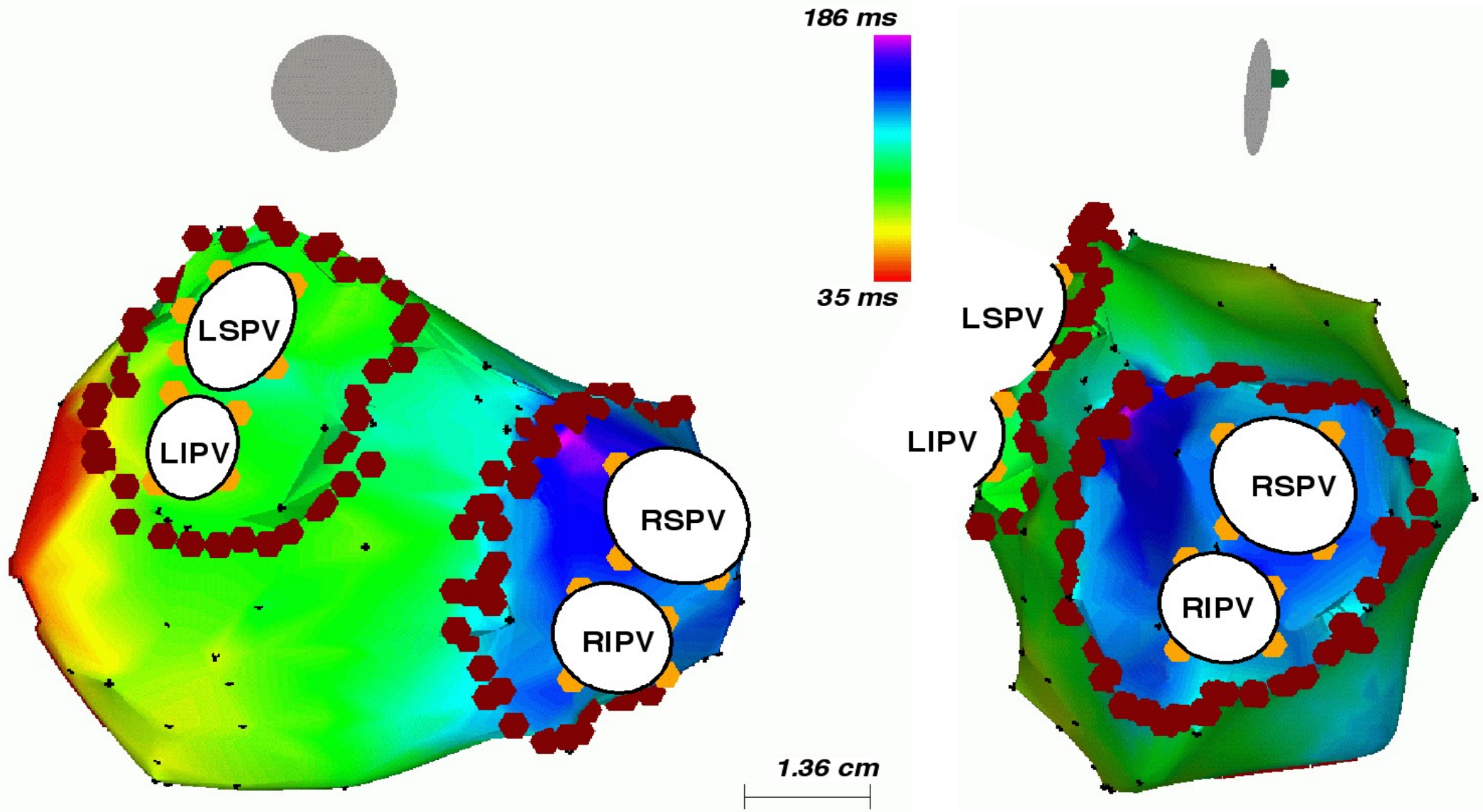
# Incidence and Need of Second Procedure

## Methodology

- Incidence of conduction recurrence after complete RF-induced electrical disconnection of target PVs unknown
- Role of conduction recurrence relative to clinical outcome unclear
- Inadequacy of the ablation design or the stability of the achieved design? (execution & not strategy that is faulty!)

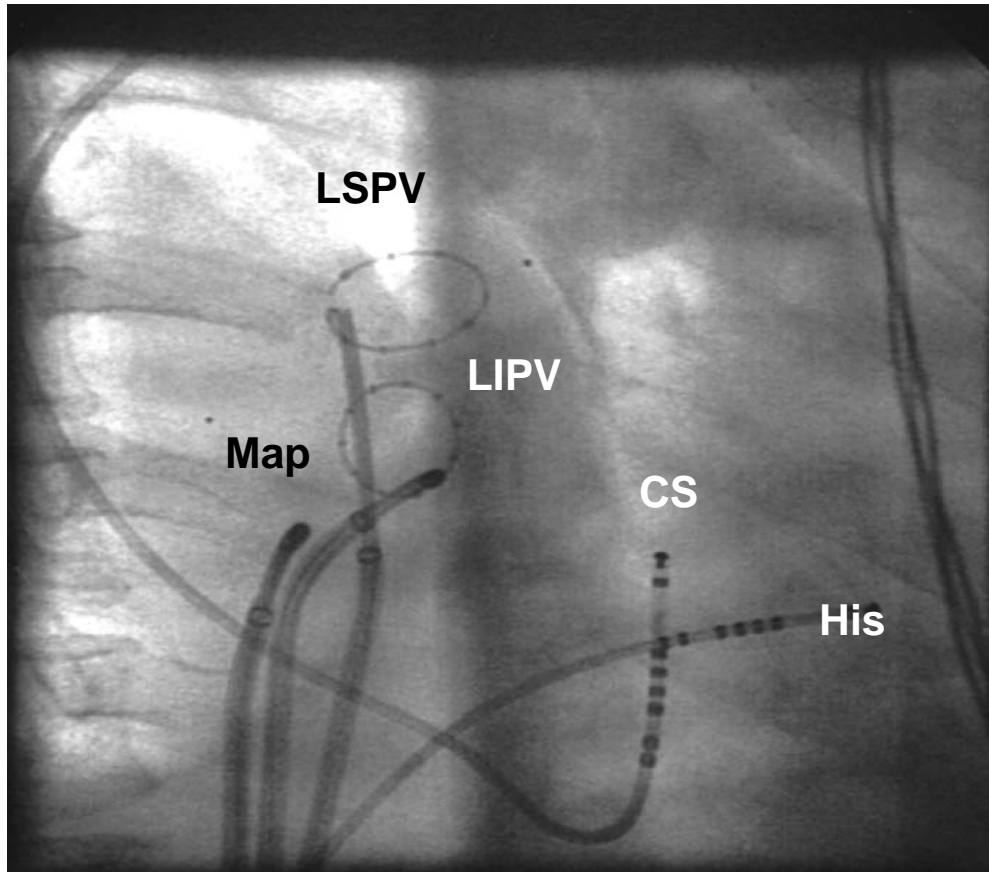
Posteroanterior view

Right lateral view

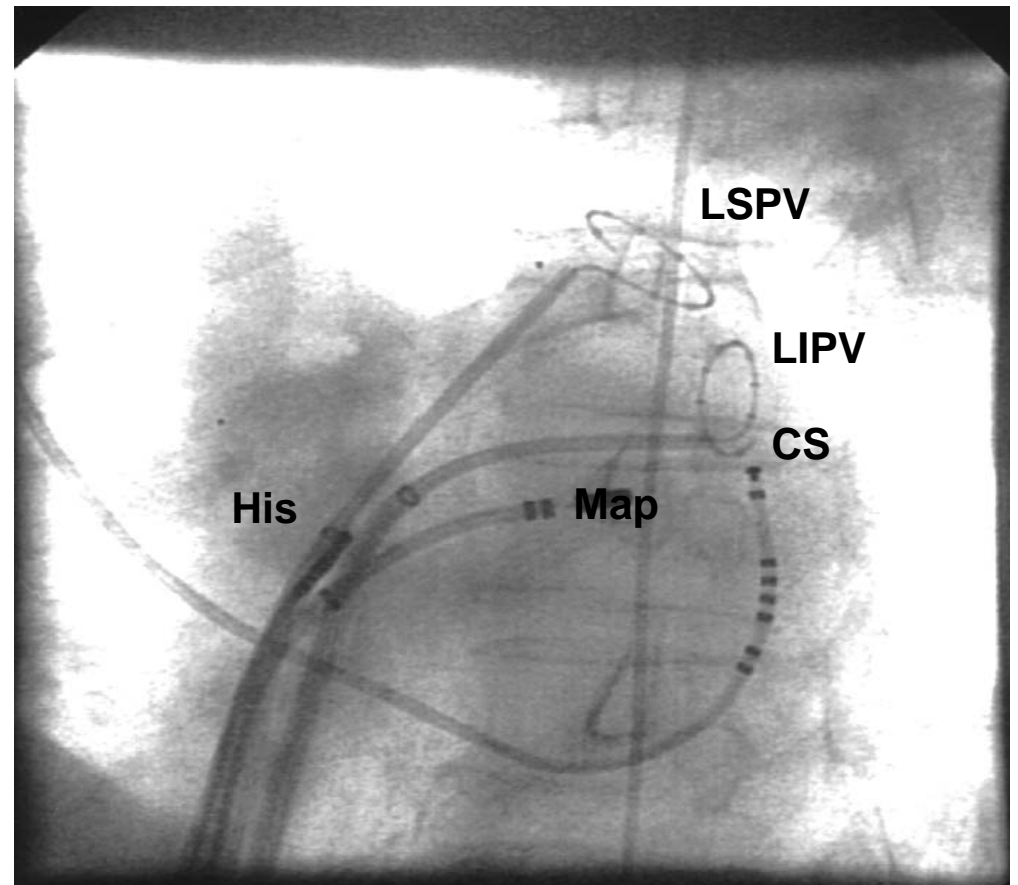


# PV Isolation with Double Lasso and CARTO Mapping

20031044



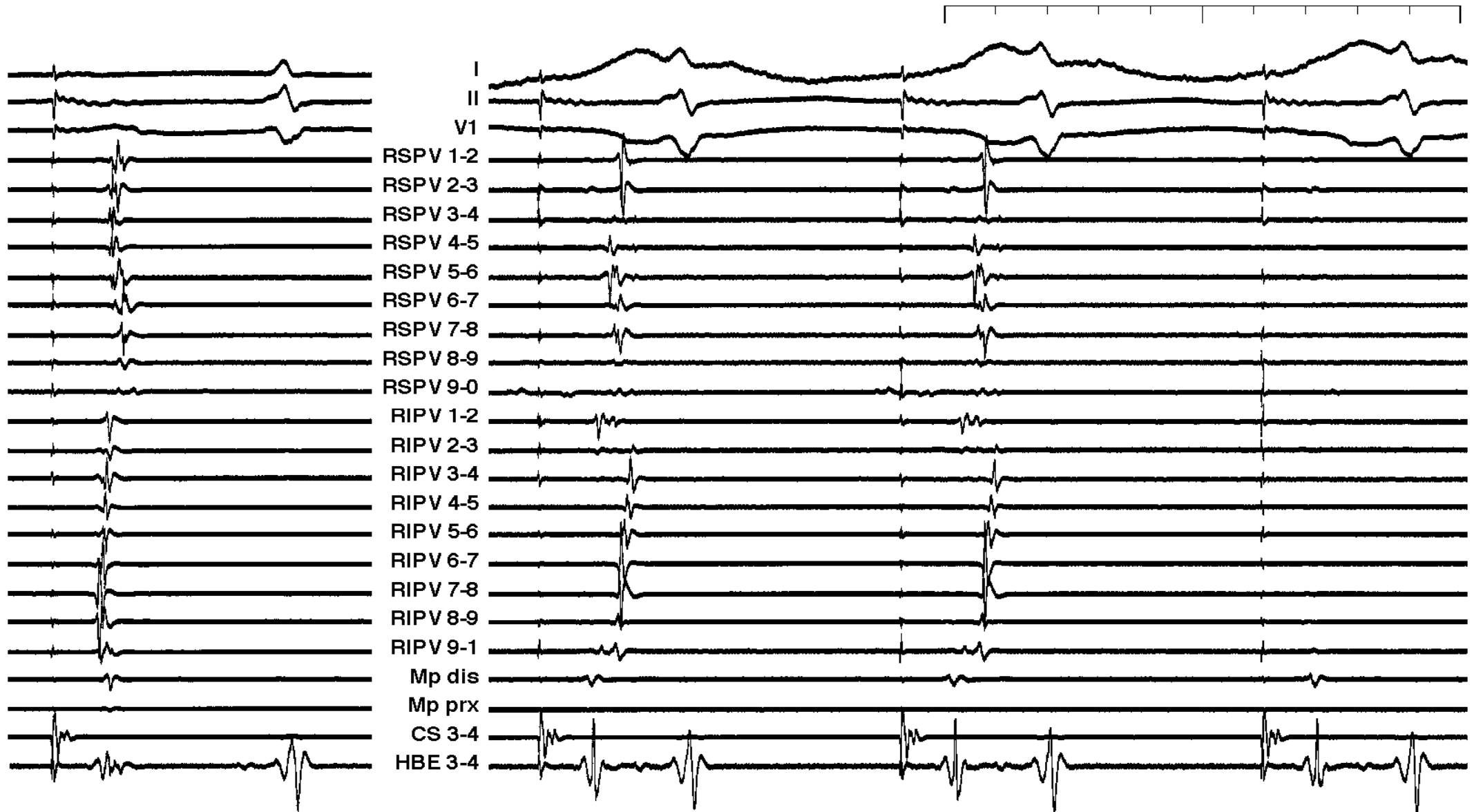
RAO



LAO

20030994

1 sec



before right CCL

after right CCL

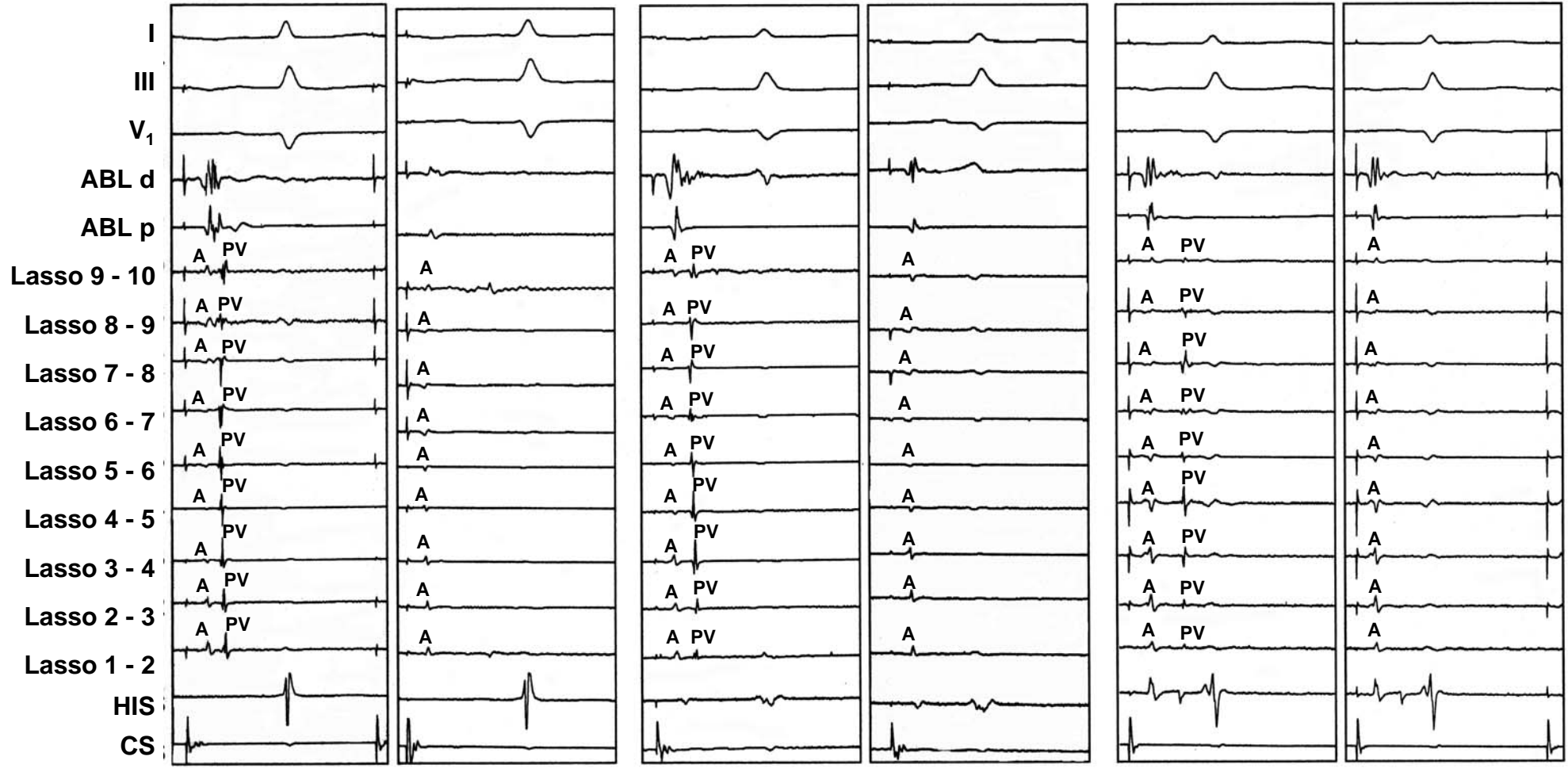
Ouyang et al, 2004

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**First procedure (day 1)**

**Second procedure (day 93)**

**Third procedure (day 234)**



**pre-ABL1**

**post-ABL1**

**pre-ABL2**

**post-ABL2**

**pre-ABL3**

**post-ABL3**

┆ 100 ms

**shortest A-PV 50 ms**  
**longest A-PV 60 ms**

**65 ms**  
**80 ms**

**105 ms**  
**115 ms**



## Techniques for Catheter Ablation of A Fib

### Intra-venous disconnection: Conduction recurrences

- Rate of disconnection 95.1% - 100.0%
- **Recurrence of conduction**
  - during a 2<sup>nd</sup> attempt ( $4.6 \pm 1.9$  mos)
    - superior PVs 72.5% - 82.1%
    - inferior PVs 73.8% - 83.3%
  - during a 3<sup>rd</sup> attempt ( $5.1 \pm 2.4$  mos)
    - superior PVs only 61.0% - 73.6%



## Incidence and Need of Second Procedure

### Methodology

- Inadequacy in the stability of the achieved design (execution & not strategy that is faulty!)



# Left Atrial Flutter of New Onset



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