

# Tachycardies atriales

Pr Philippe Chevalier

CHU Lyon

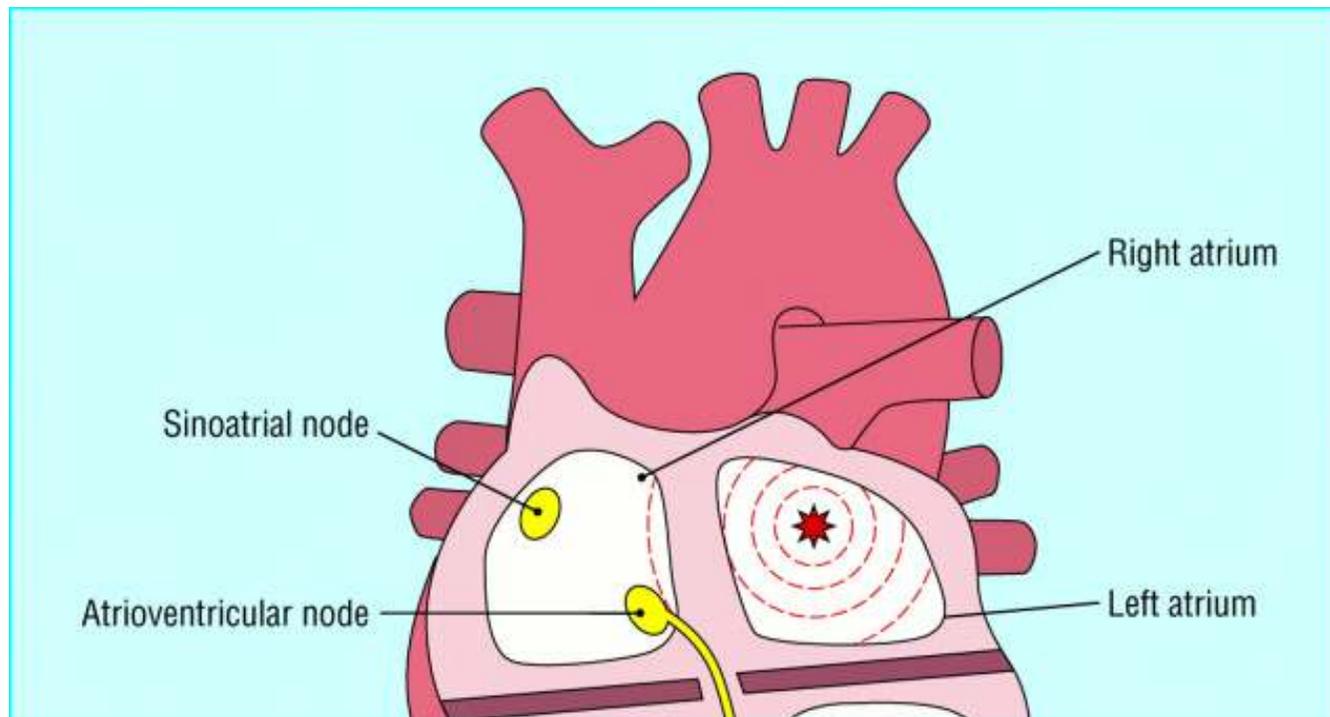
# Tachycardies atriales

## Classification

- Tachycardie atriale focale
- Tachycardie sinusale inappropriée
- Fibrillation atriale
- Tachycardie atriale par macro réentrée
  - Flutter typique
  - Flutter atypique
  - Flutter péri-atriotomie

## Tachycardies atriales

Définition : Indépendantes du nœud AV



## Tachycardies atriales

### Mécanismes

- Réentrée
- Automaticité anormale
- Activité déclenchée

→ Le succès de l'ablation n'indique pas le mécanisme

	Réentrée	Automaticité anormale	Activité déclenchée
<b>Initiation</b>			
ESA	oui	non	oui
Warm up	non	oui	qqfois
Facilitée par adrénaline	qqfois	oui	oui
<b>Pacing</b>			
Arrêt par ESA	oui	non	non
Par Overdrive	oui	non	oui
<b>Ca Bloquants</b>	non	transitoire	terminaison
<b>Adénosine</b>	non	transitoire	terminaison

# Tachycardies atriales

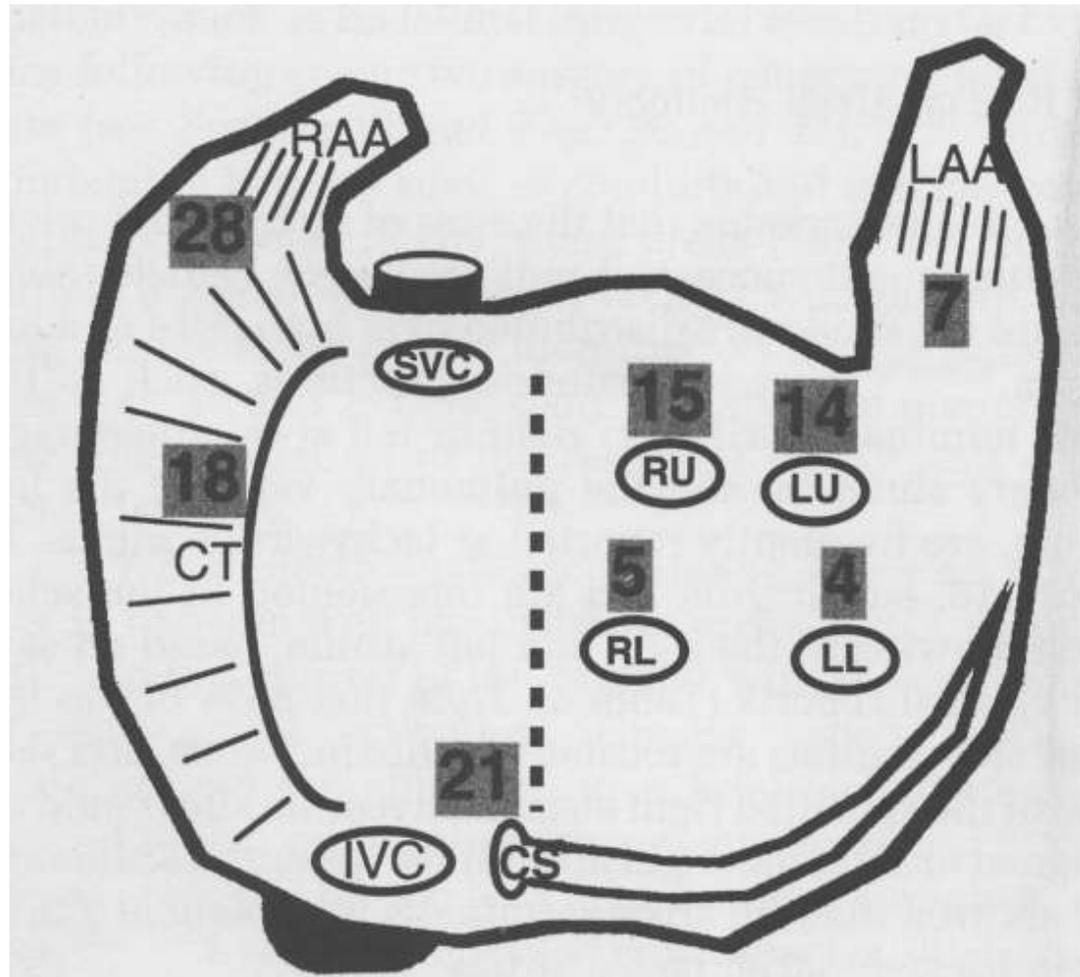
## Classification

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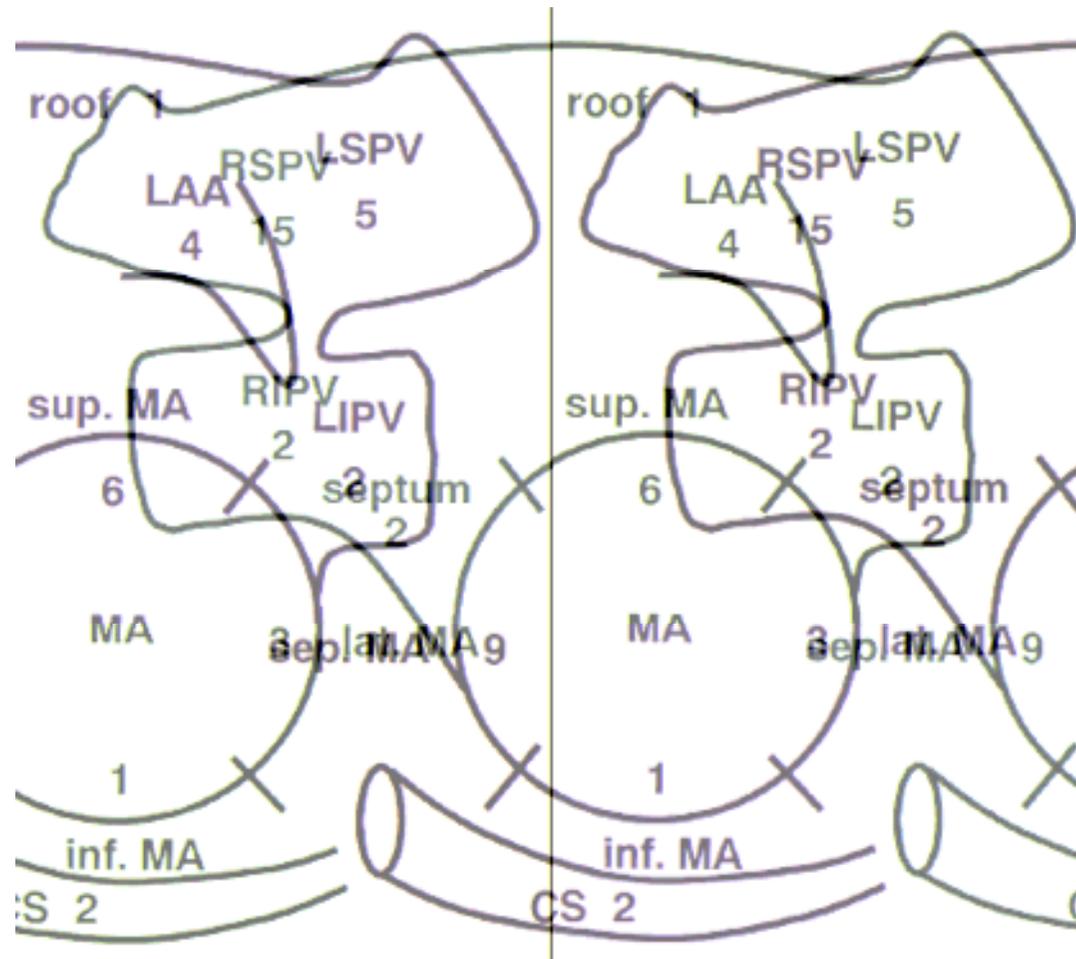
## Tachycardies atriales focales

- Entre 130 et 240 b/min
- Ligne isoélectrique
- Morphologie de l'onde P

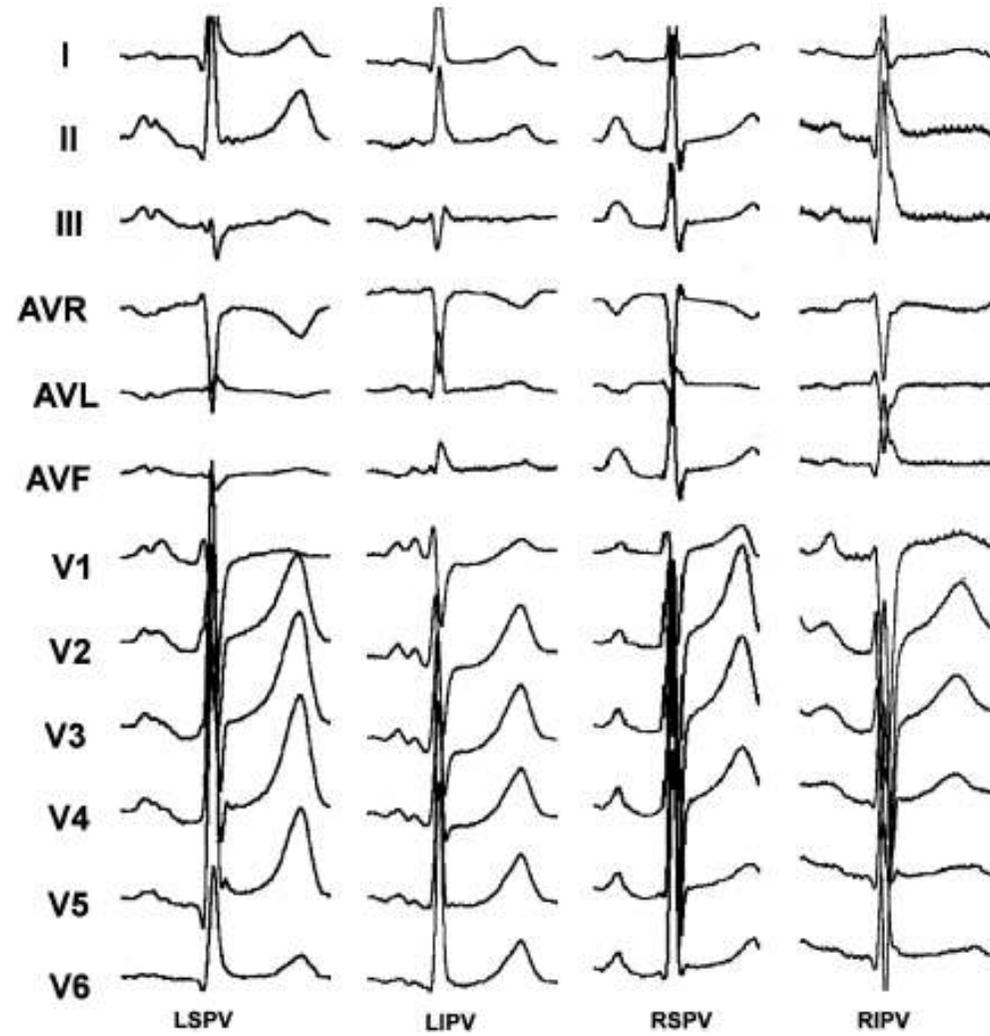
« Atrial ring of fire »?

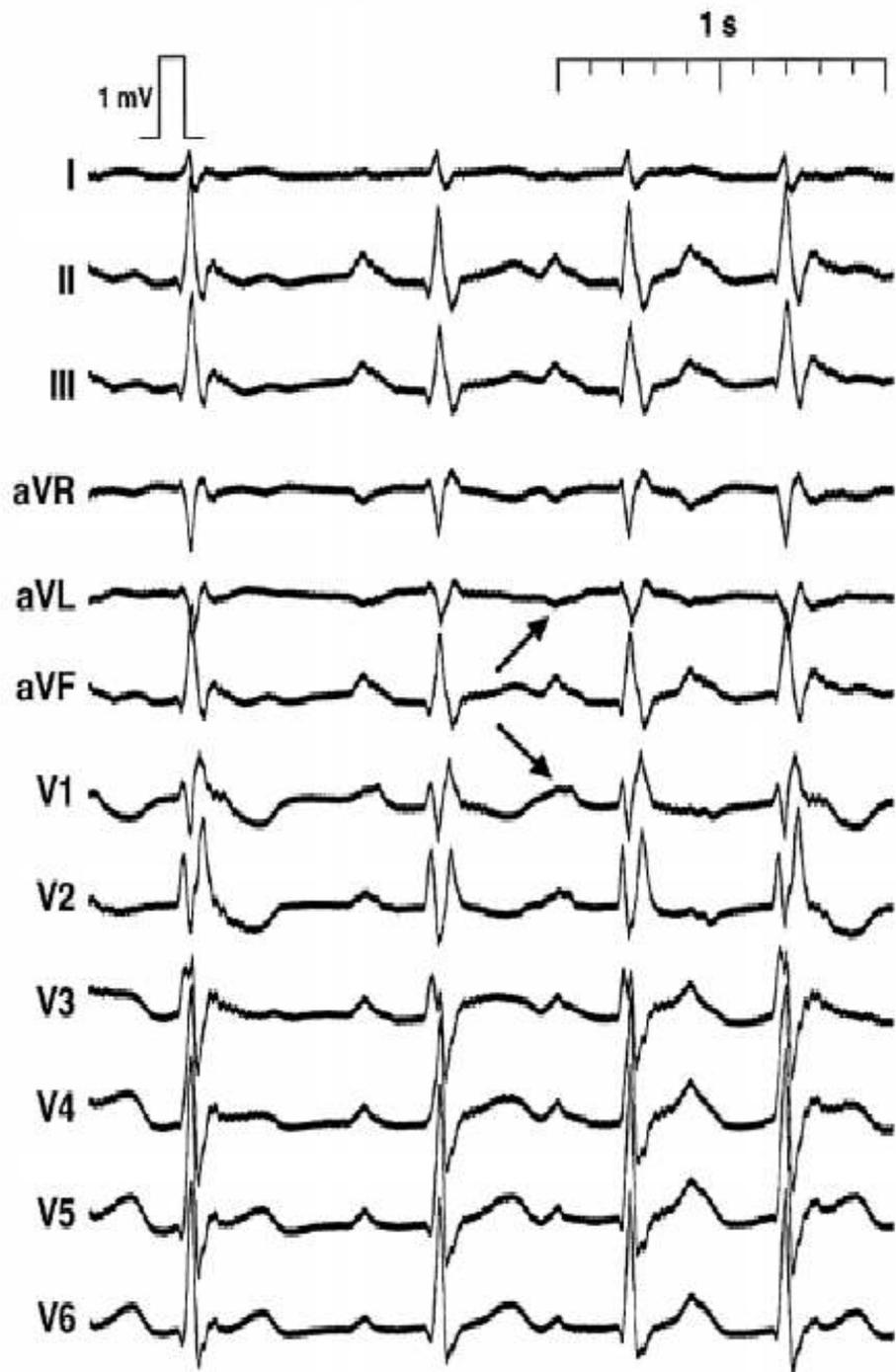


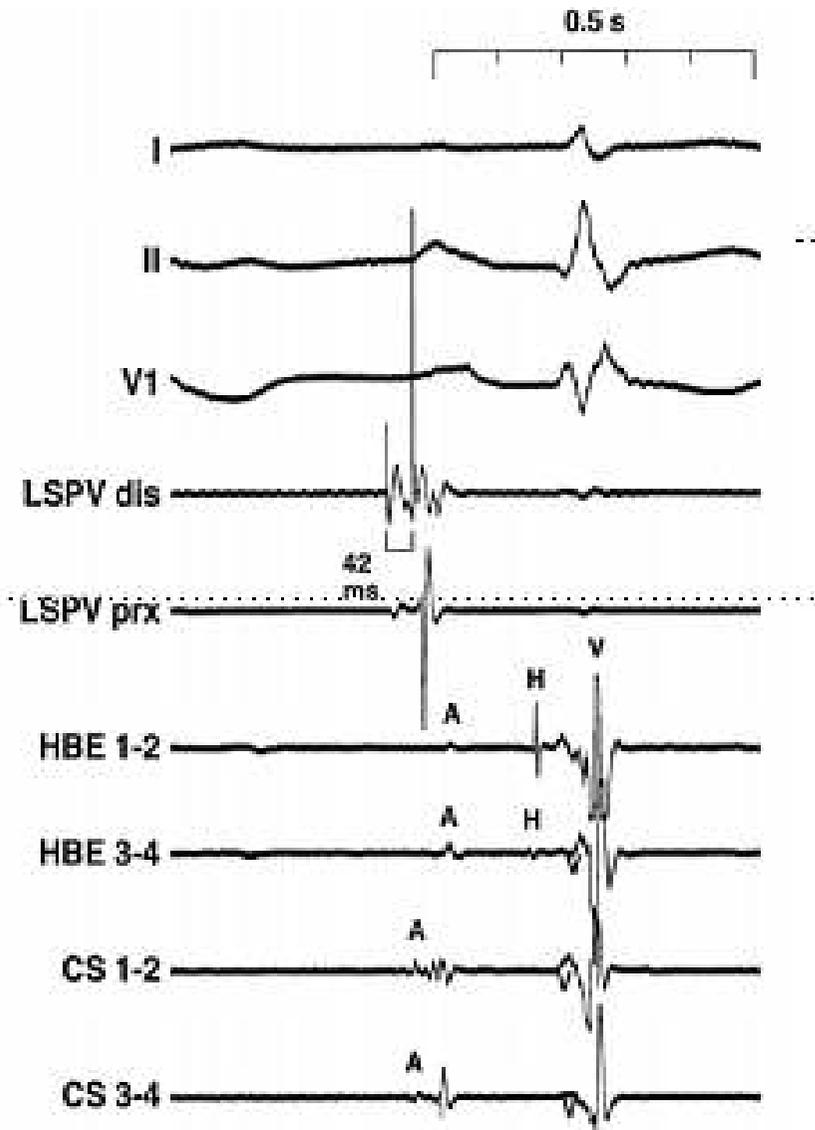
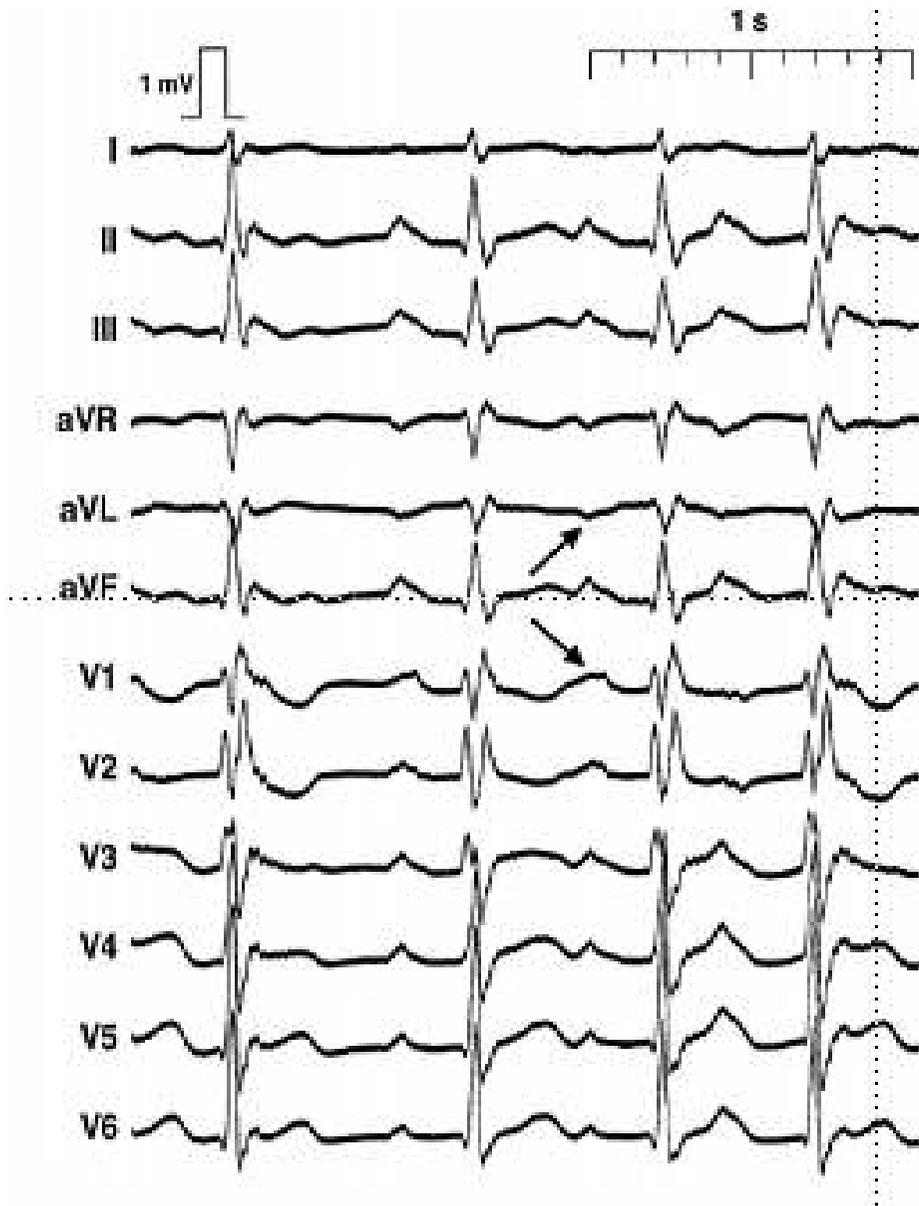
# Tachycardies gauches



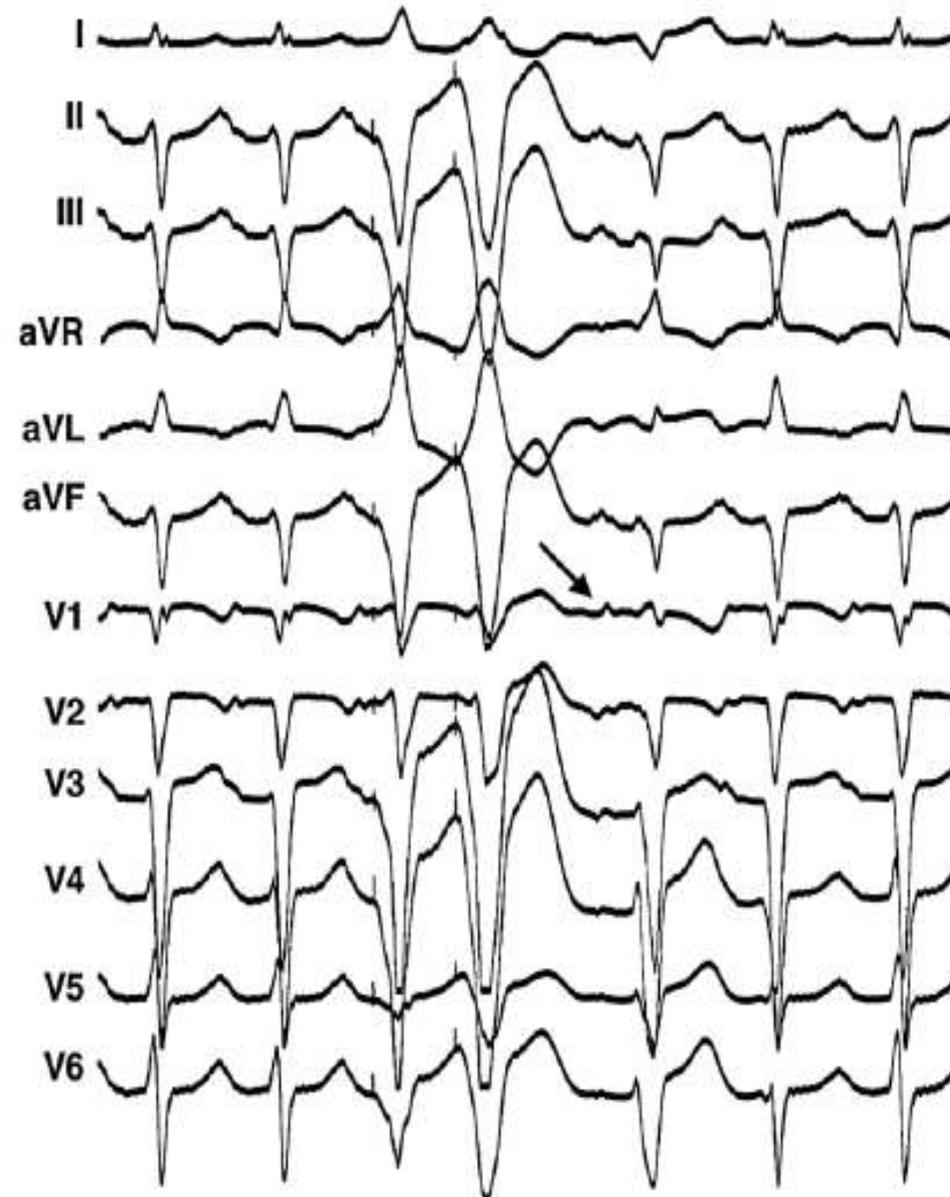
# Veines pulmonaires et onde P

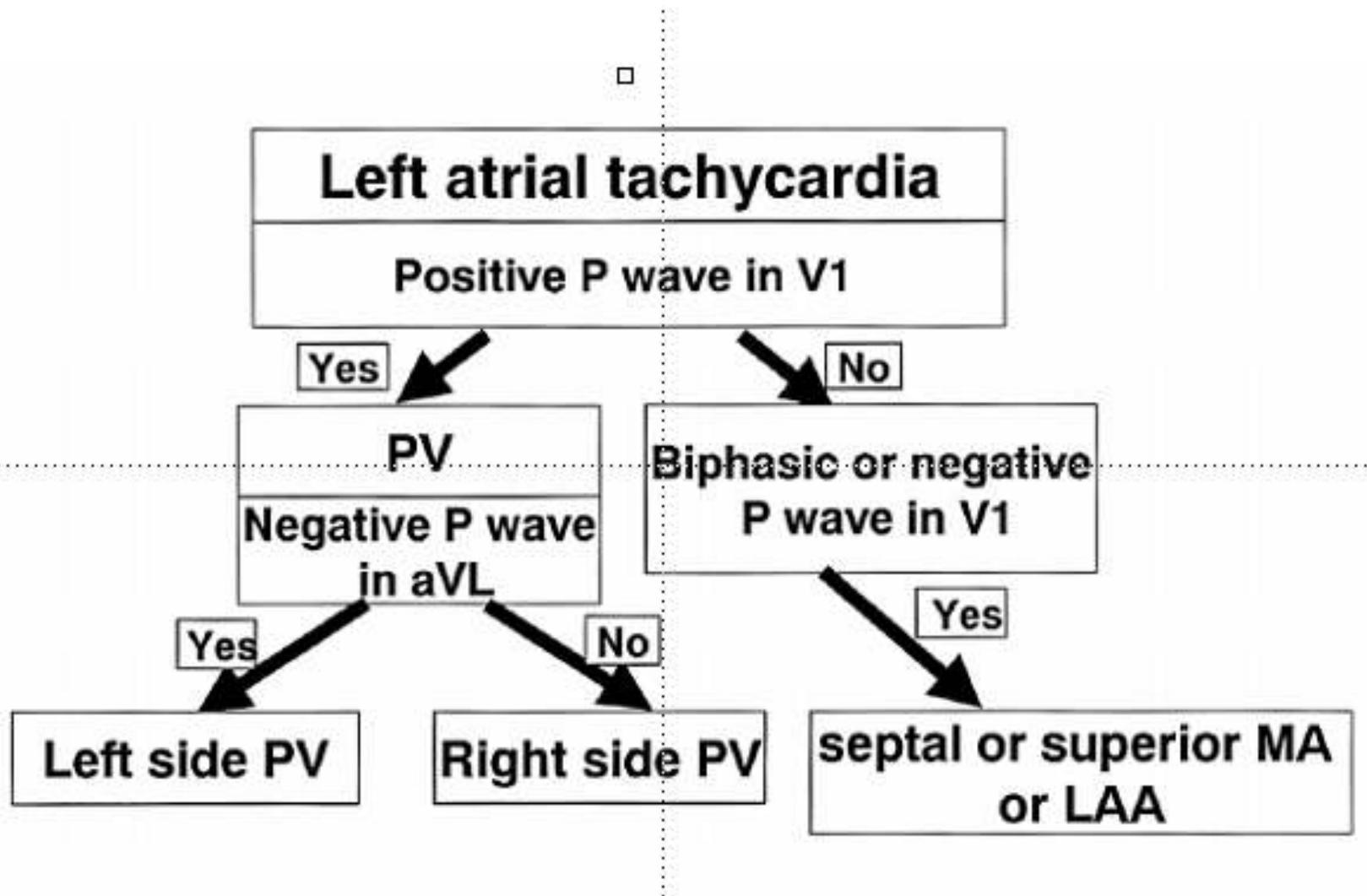


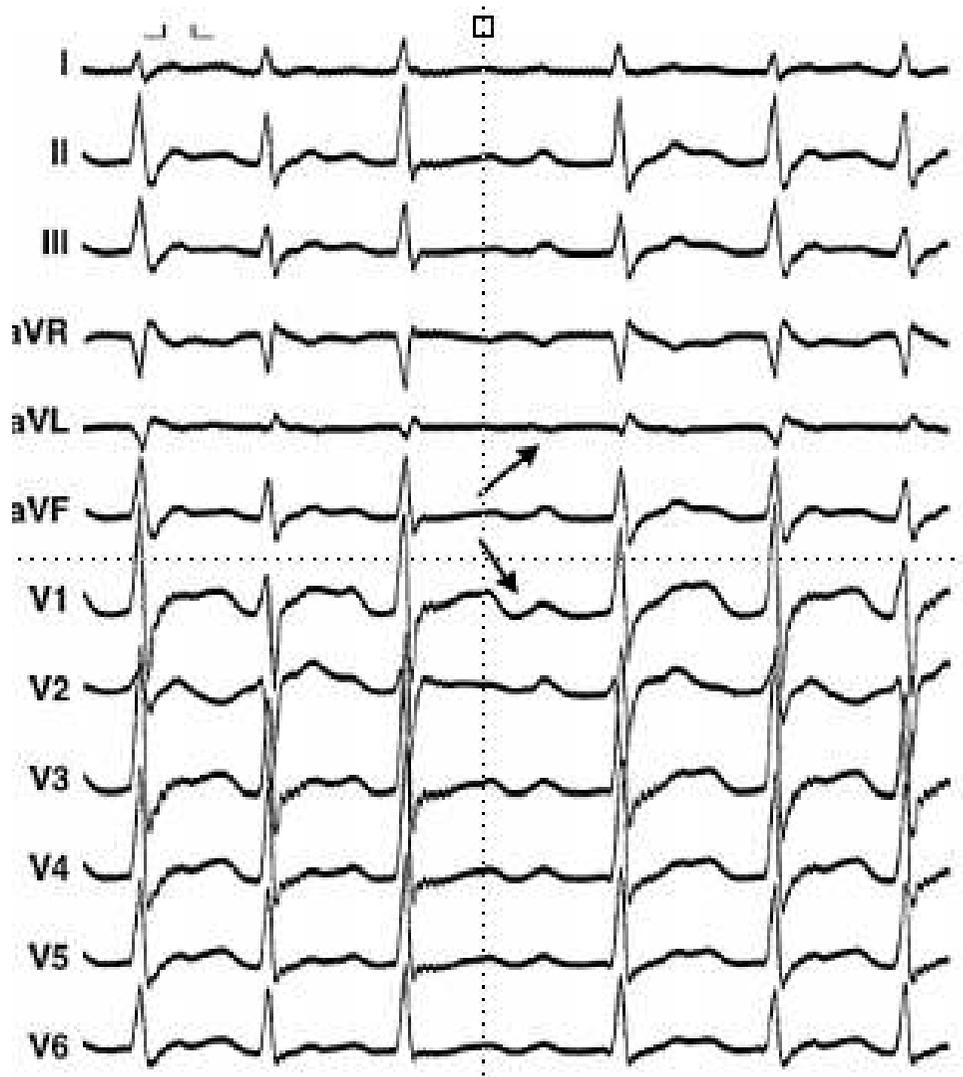


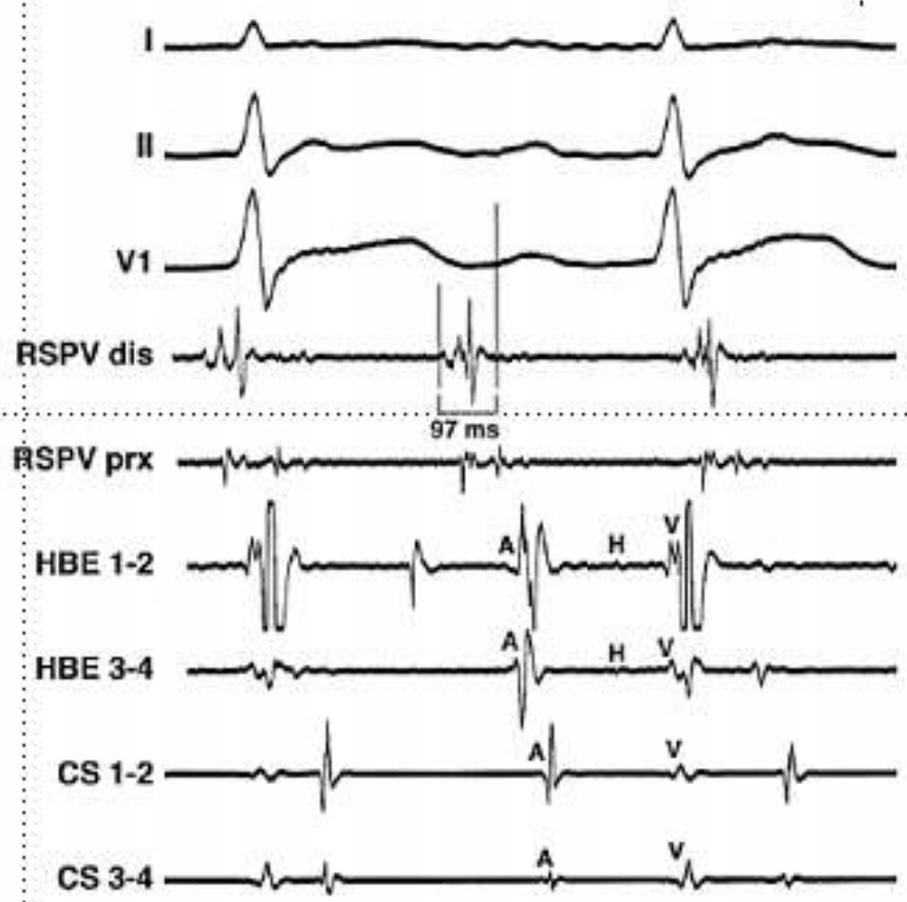
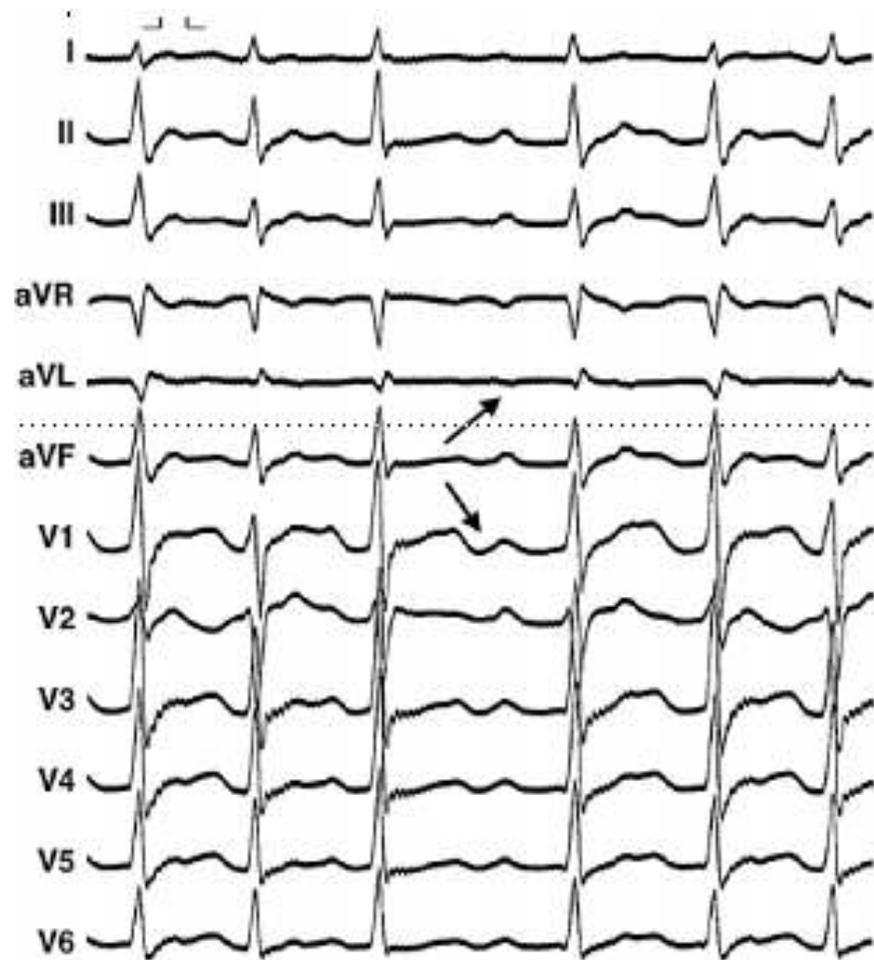


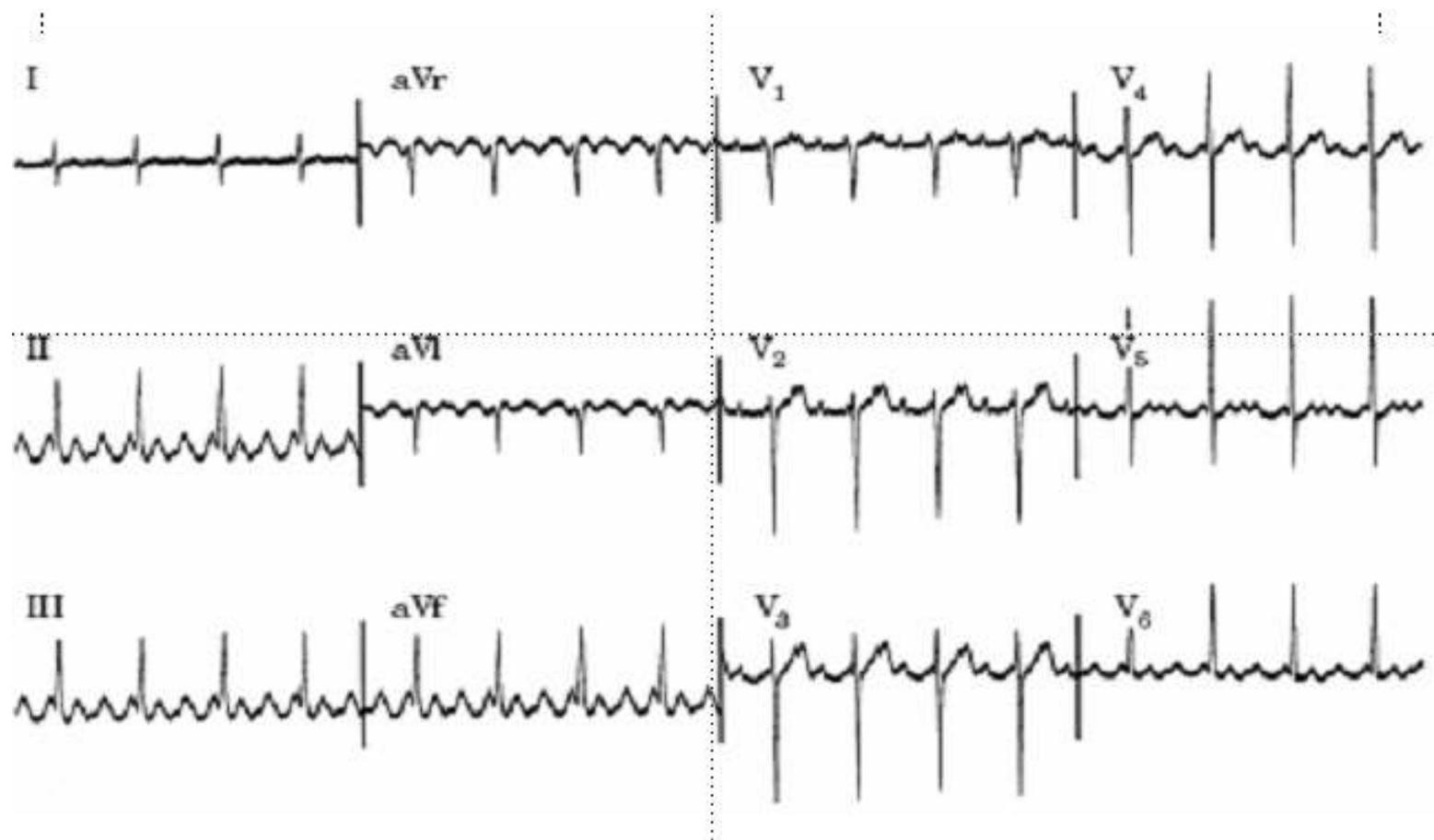
# Auricule gauche



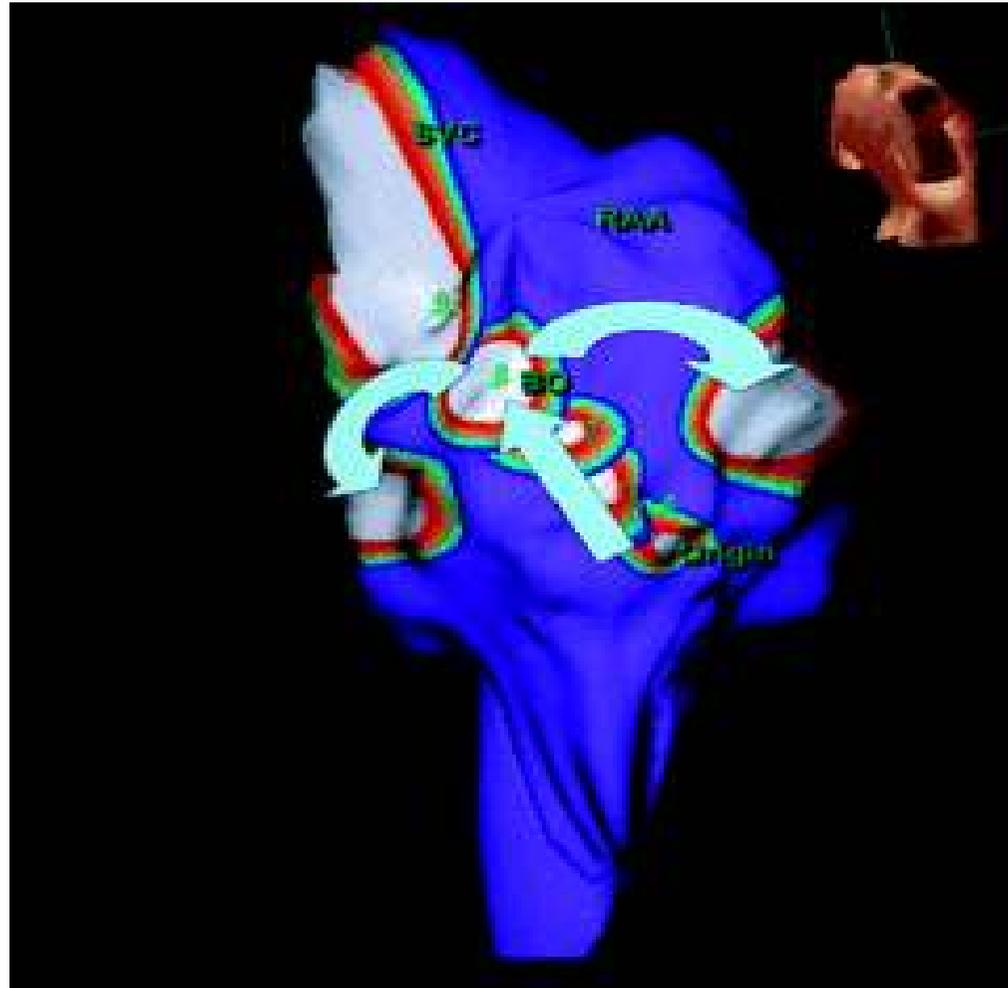


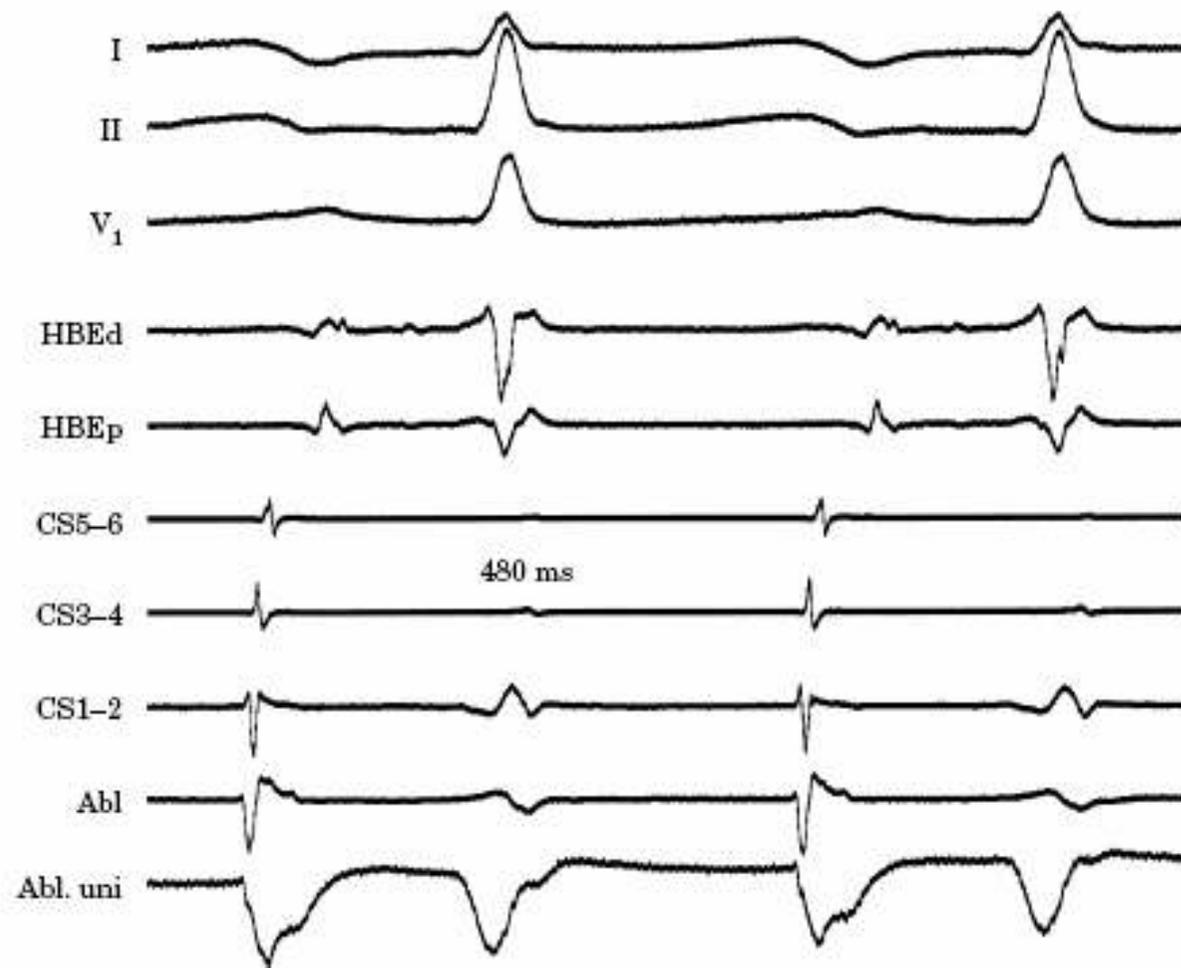




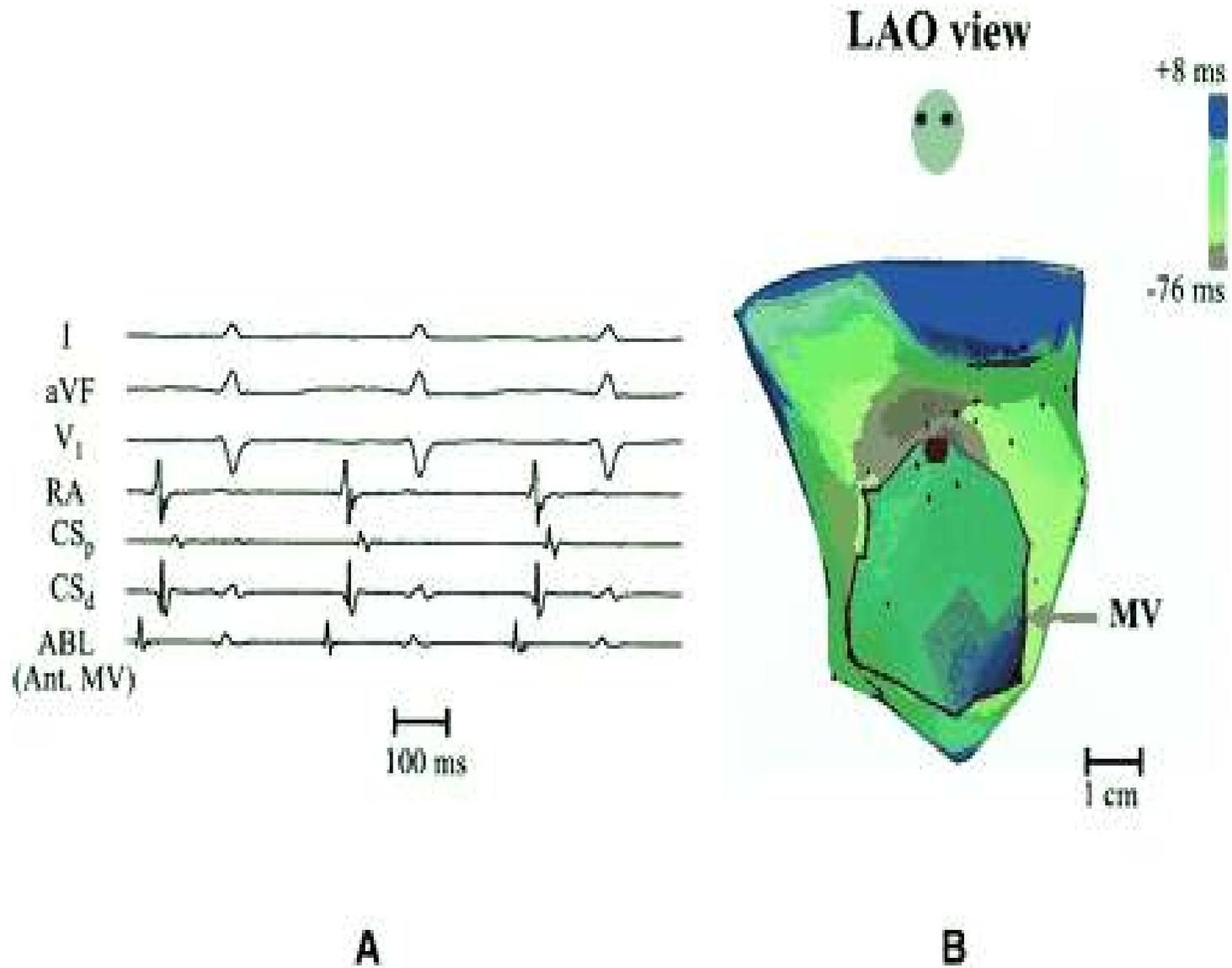


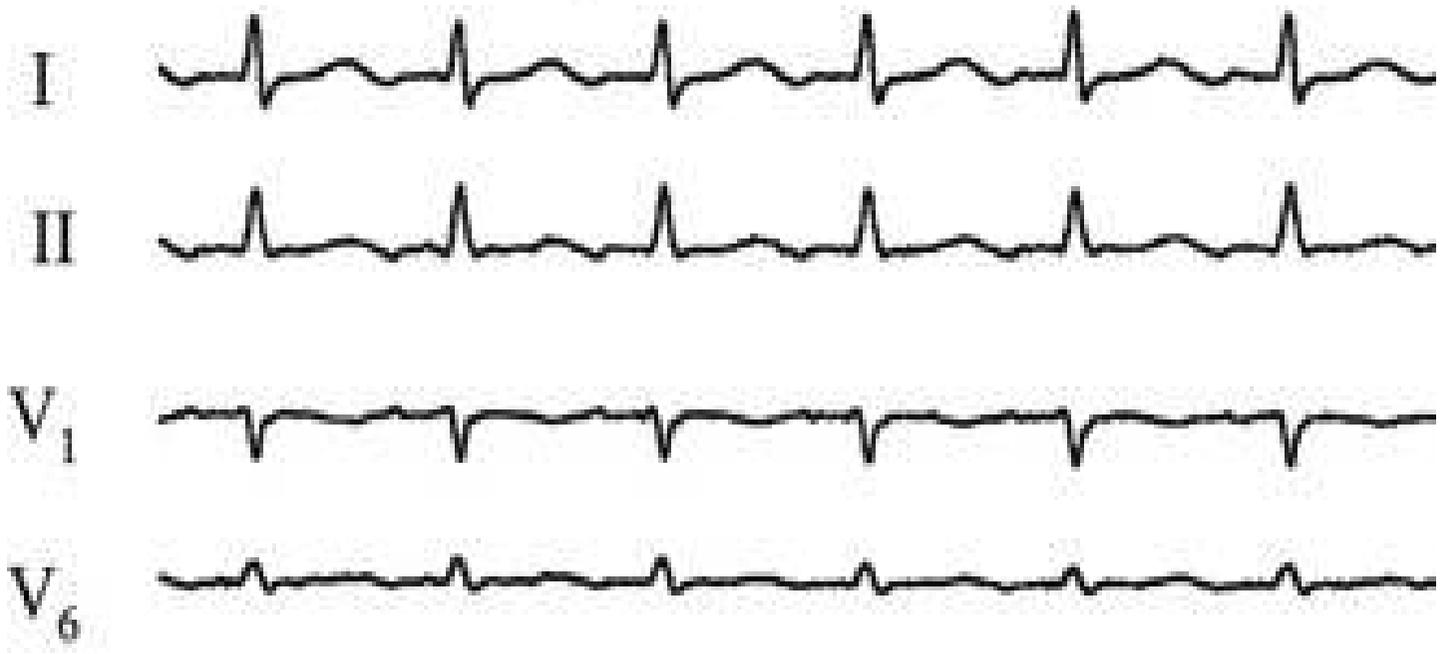
# Tachycardie focale avec conduction préférentielle et zone de rupture





# Tachycardie focale

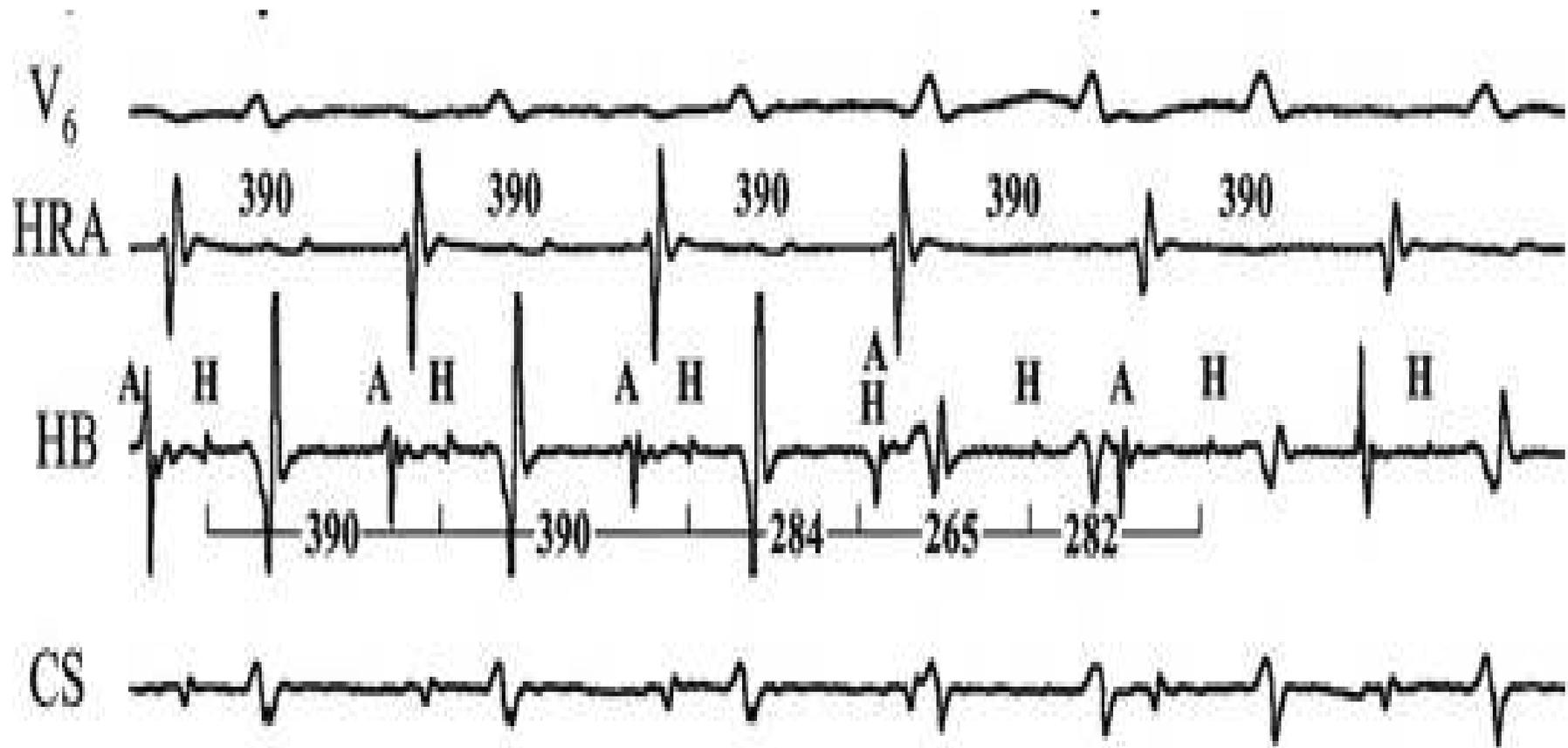




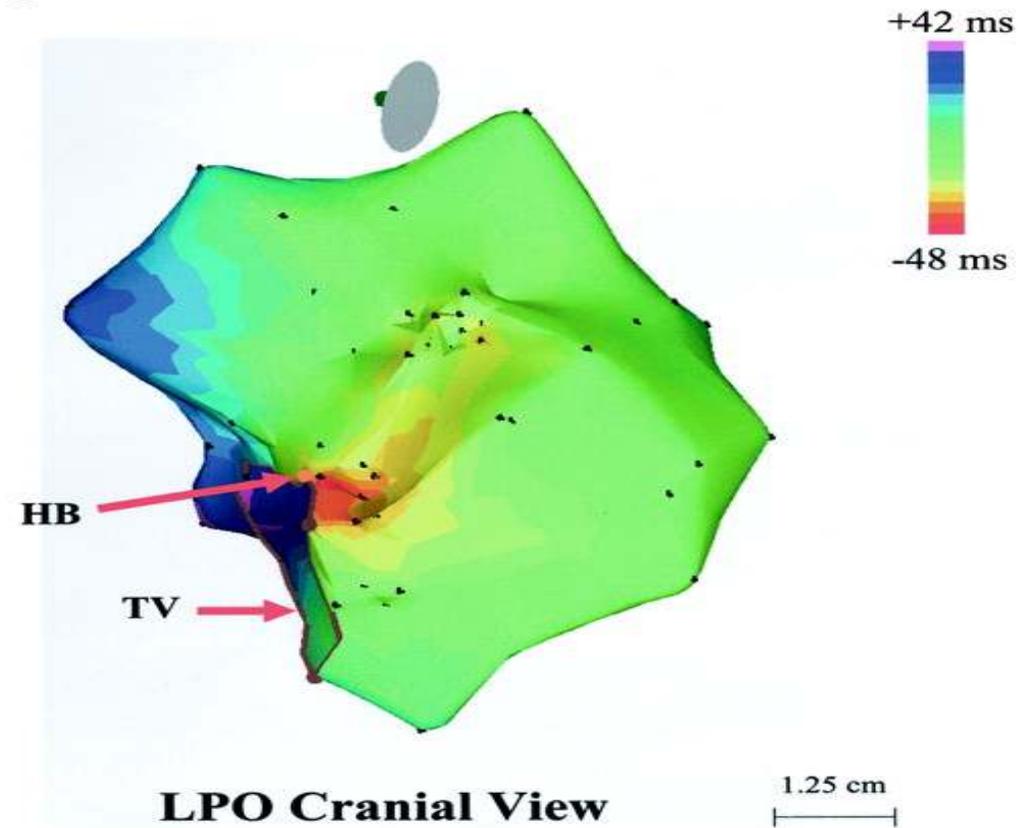
Adenosine 3 mg + 7 sec



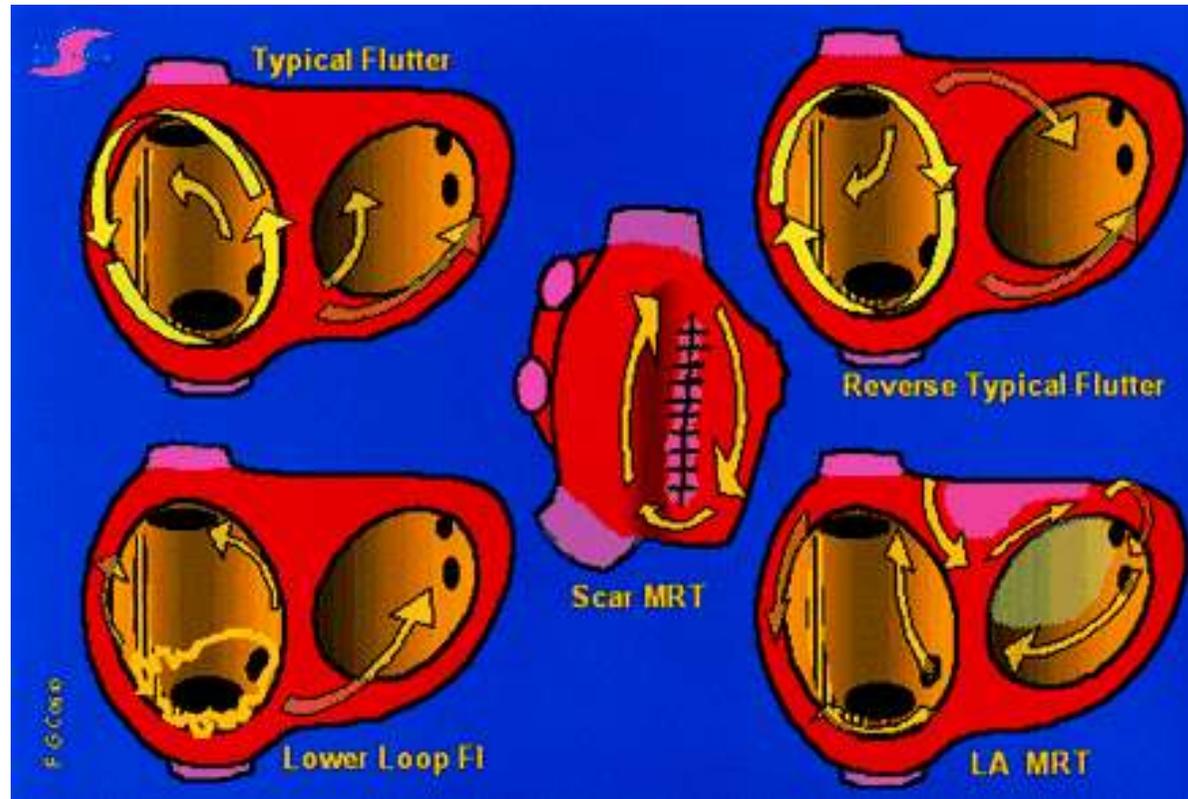
## Tachycardie atriale focale



# Tachycardie atriale focale



# Macro réentrées



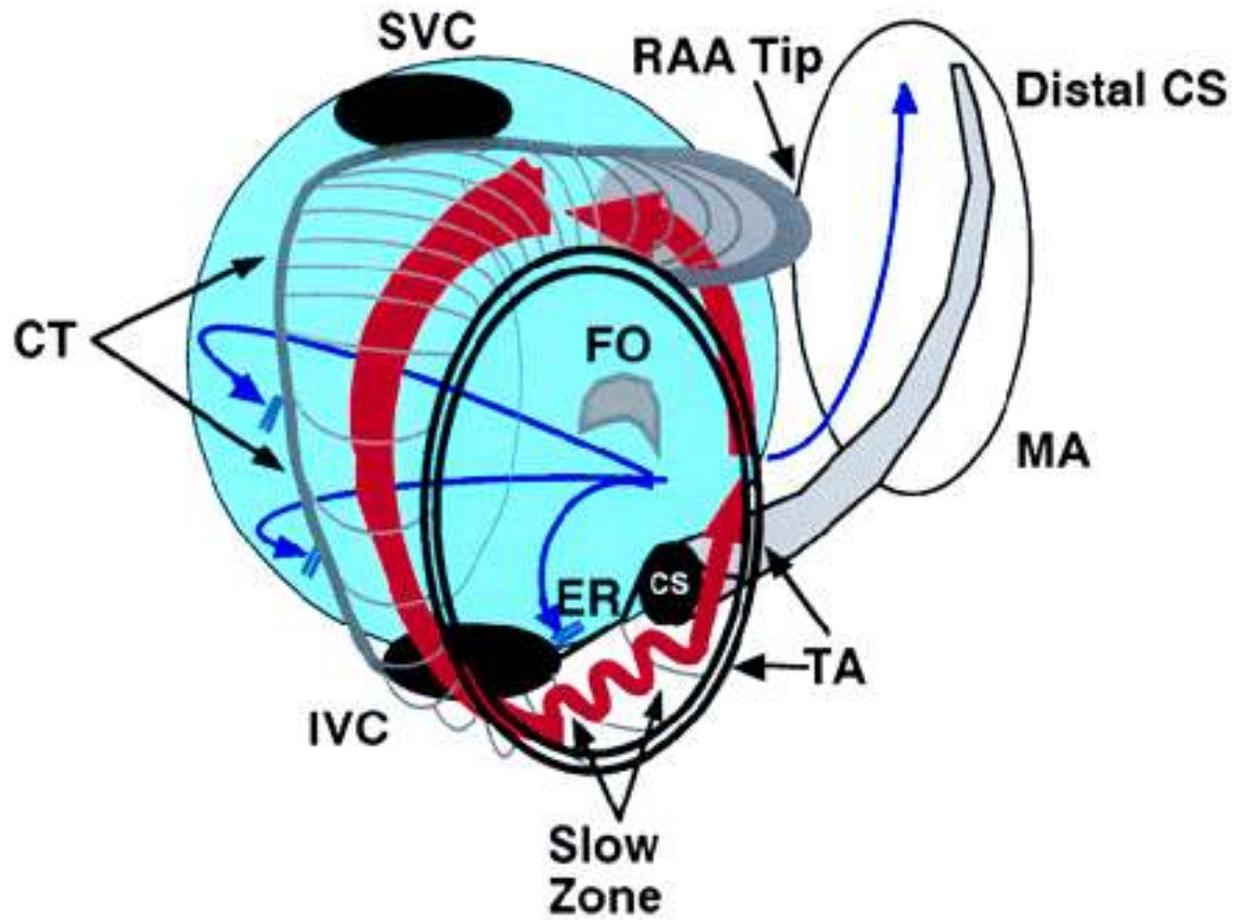
# Flutter atrial commun



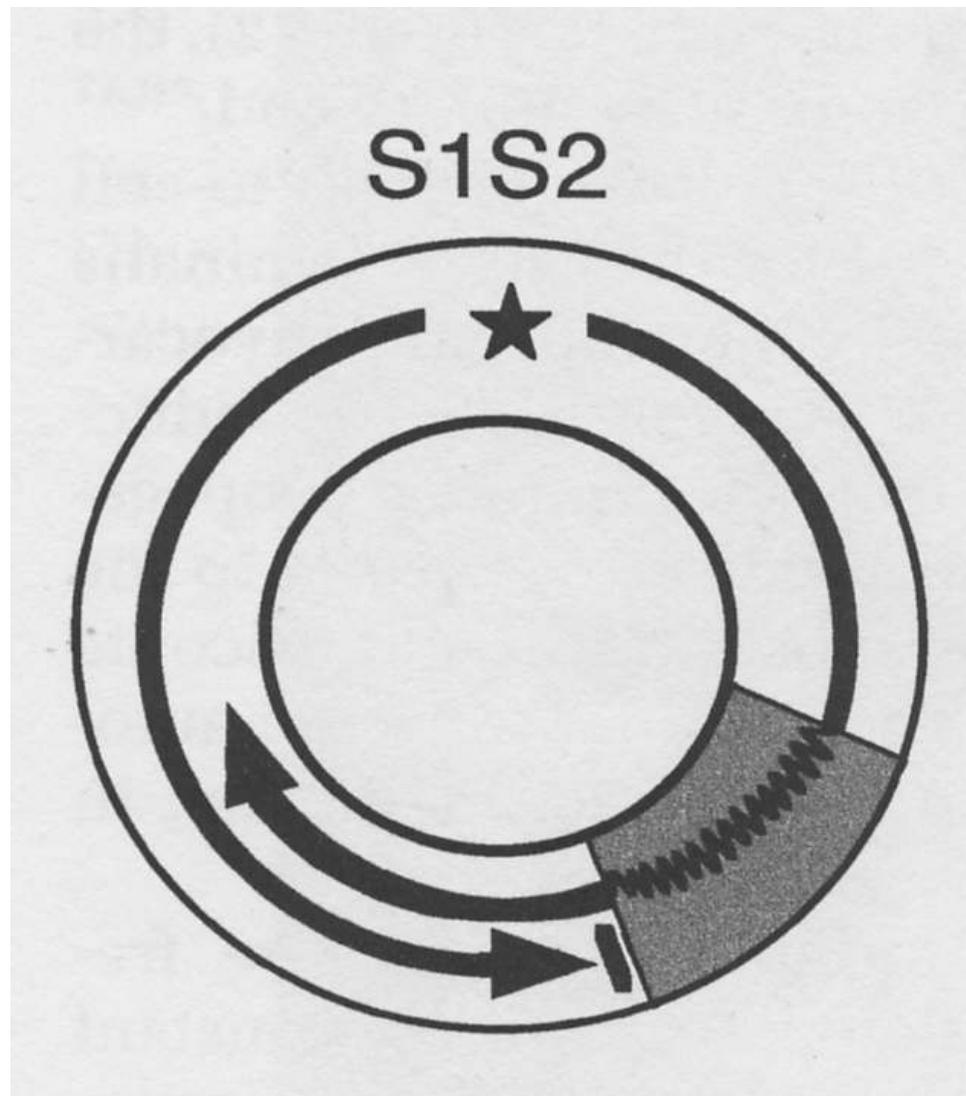
## Flutter atrial commun



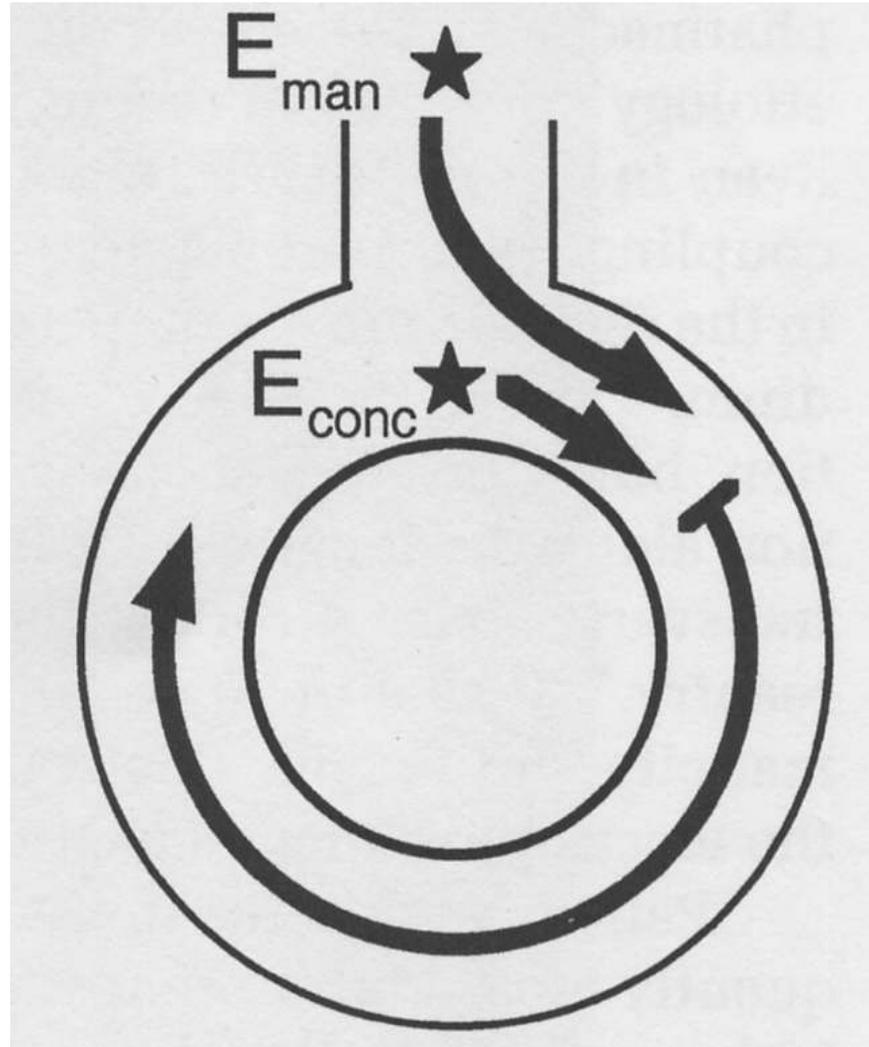
**Flutter atrial**  
**Anti horaire (90%)**



# Réentrée



# Entraînement



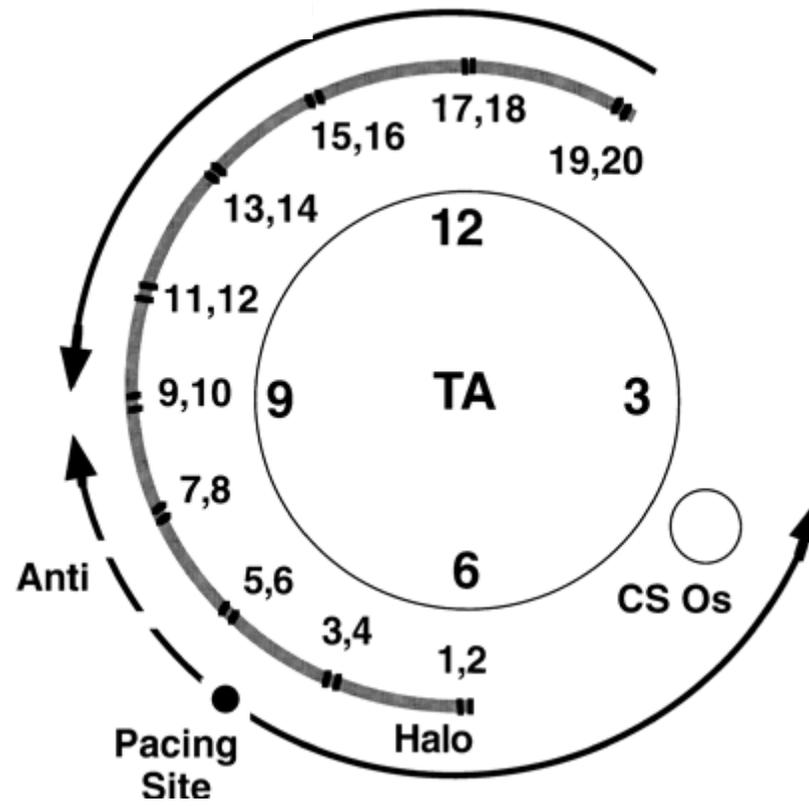
## Flutter atrial : Entraînement caché sur l'ECG de surface

2% de variation B/B

190 à 250 msec



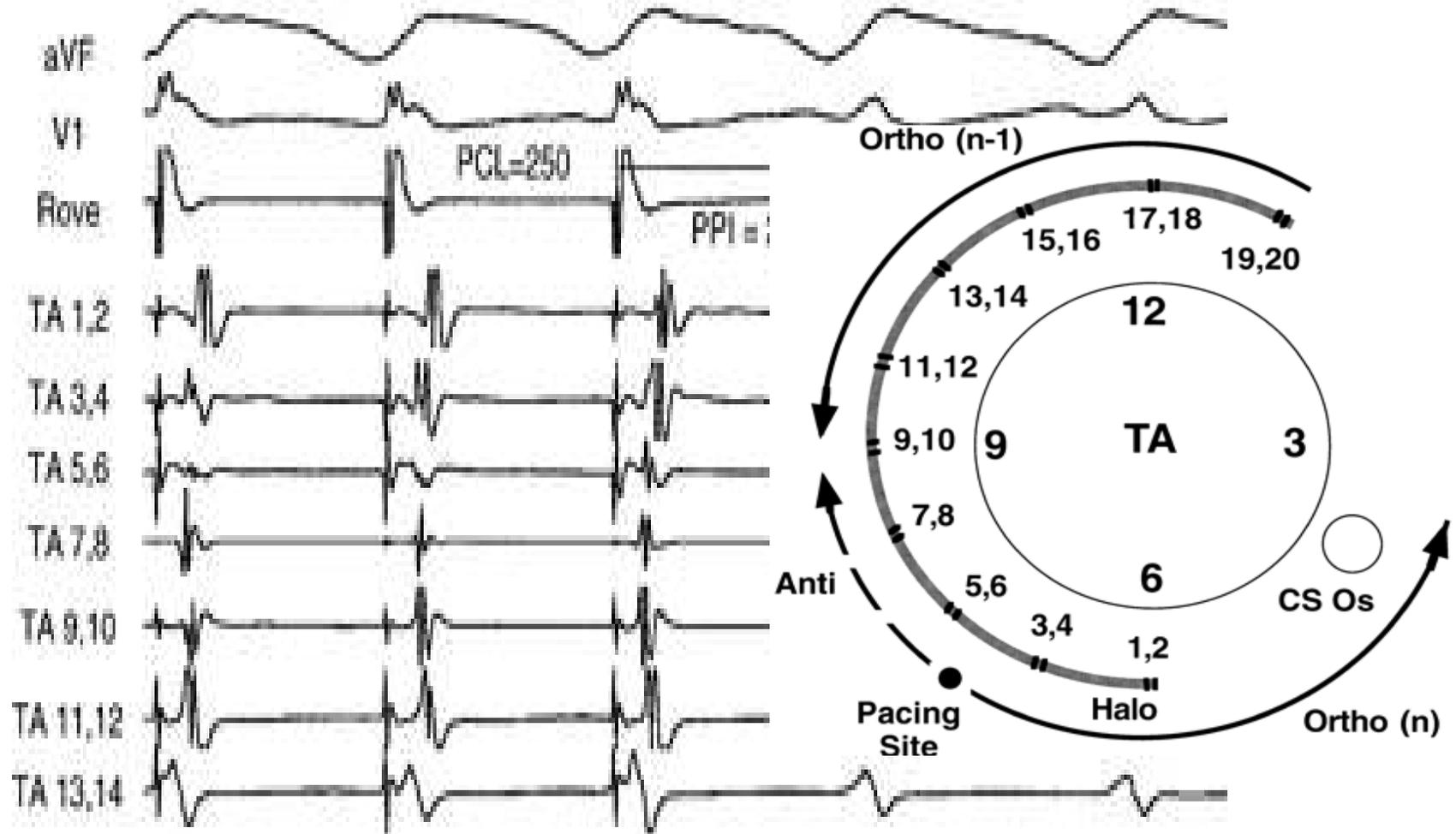
# Entraînement



# Entraînement

Cycles de retour < 20 msec

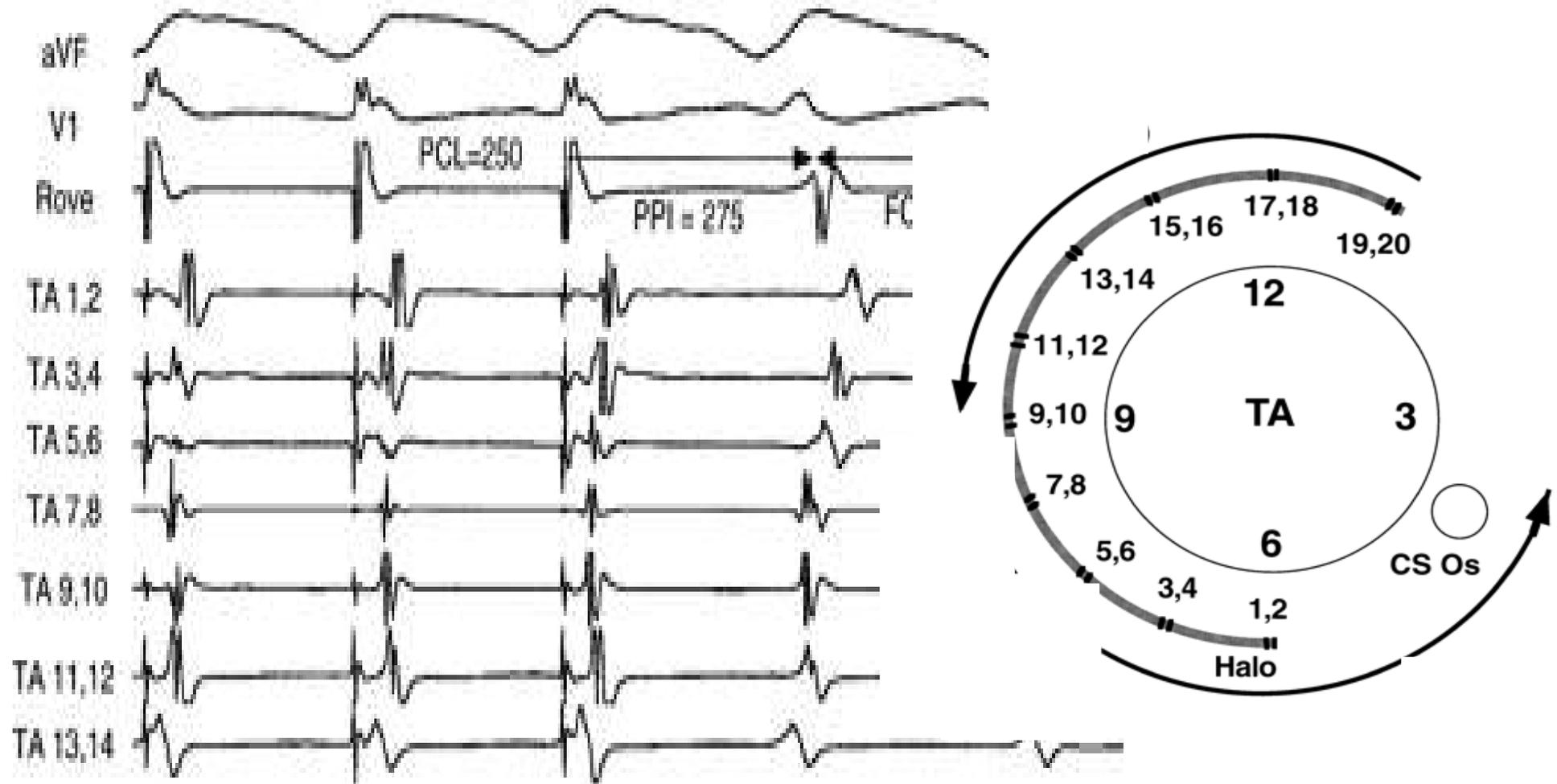
2 endroits différents



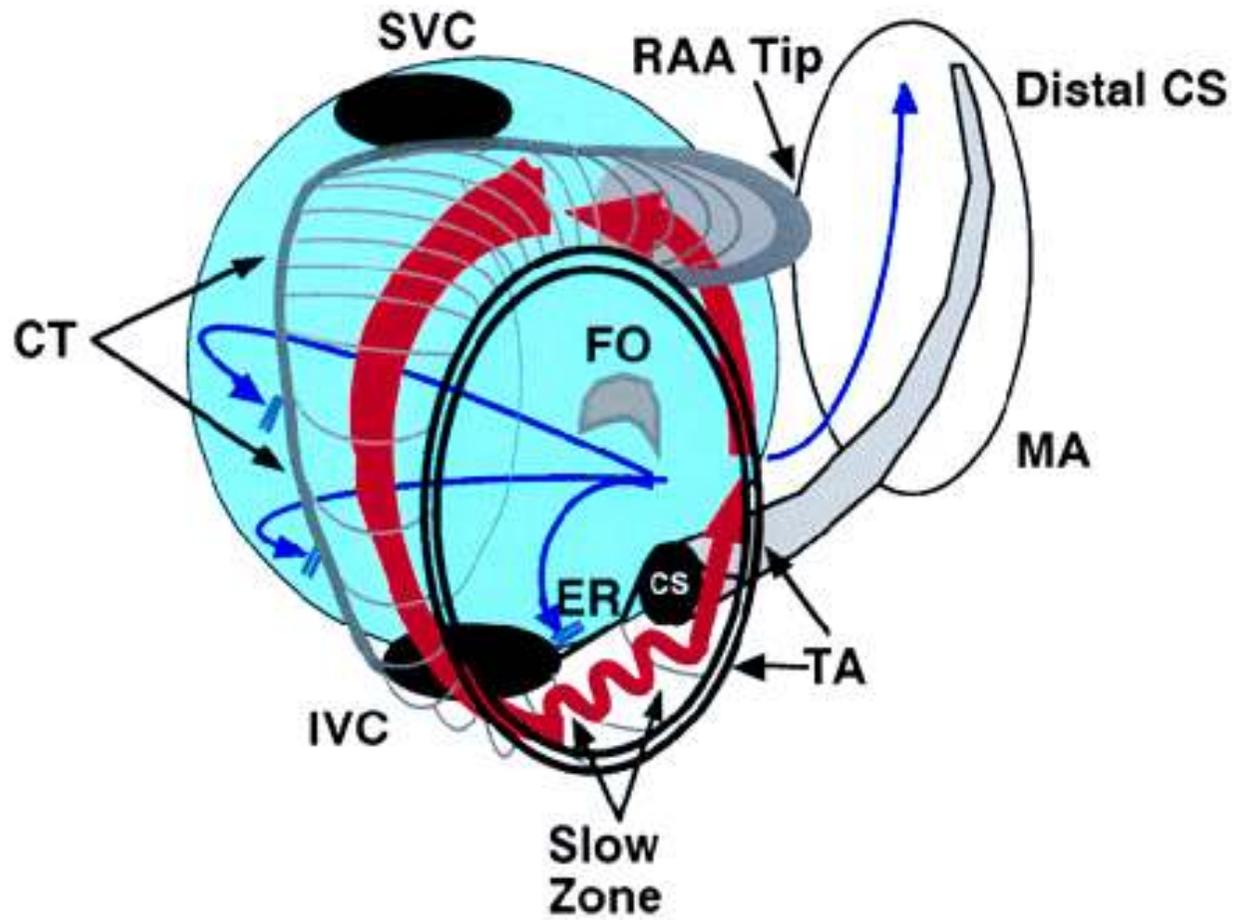
# Entraînement

Cycles de retour < 20 msec

2 endroits différents

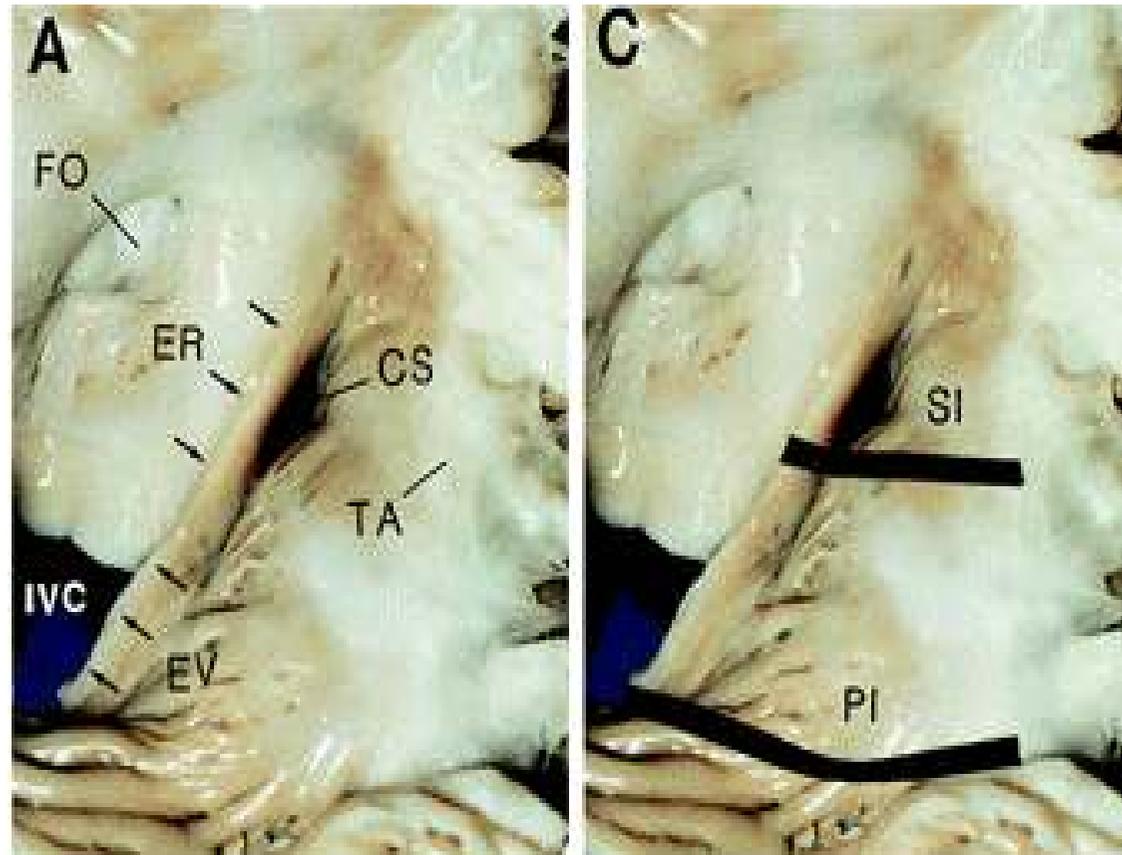


**Flutter atrial**  
**Anti horaire (90%)**

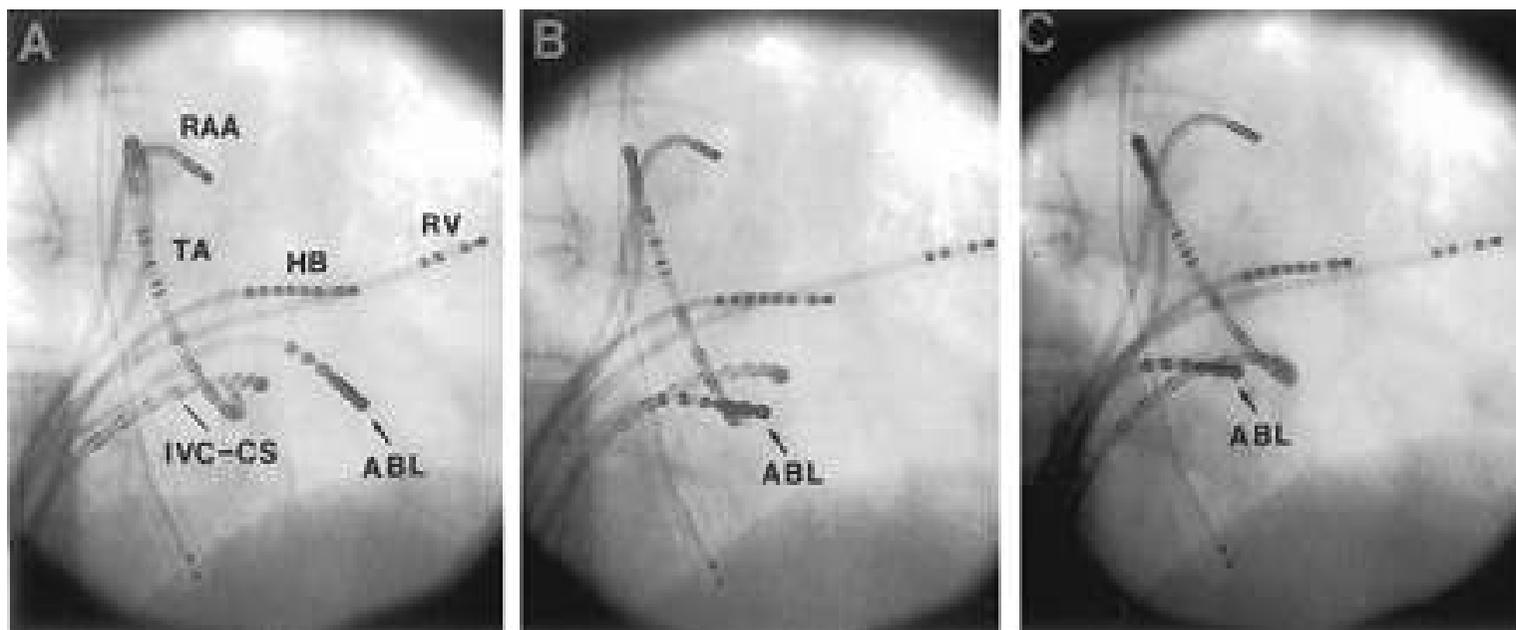


# Ablation de l'isthme cavo-tricuspidien

## Approche anatomique

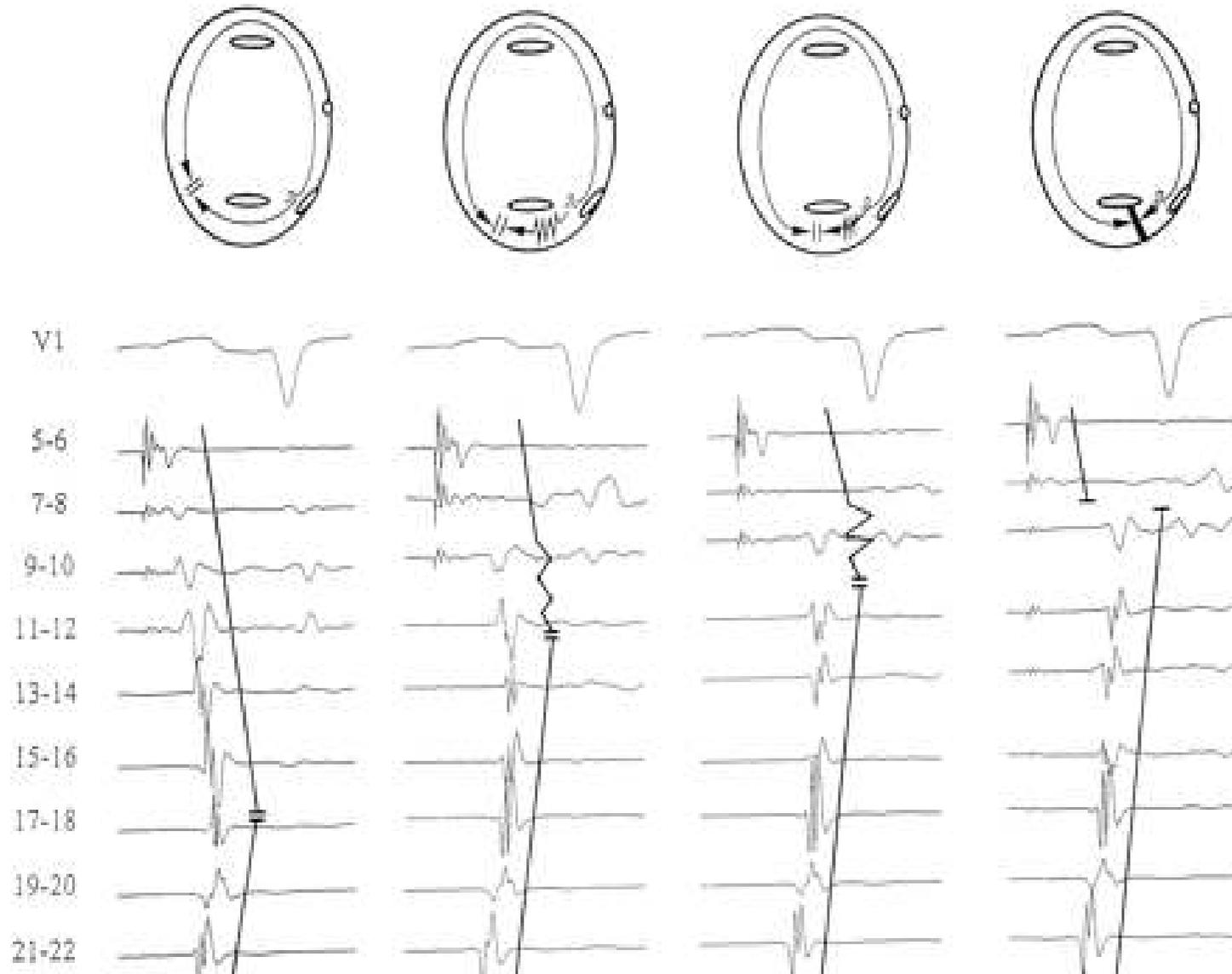


## Ablation de l'isthme septal

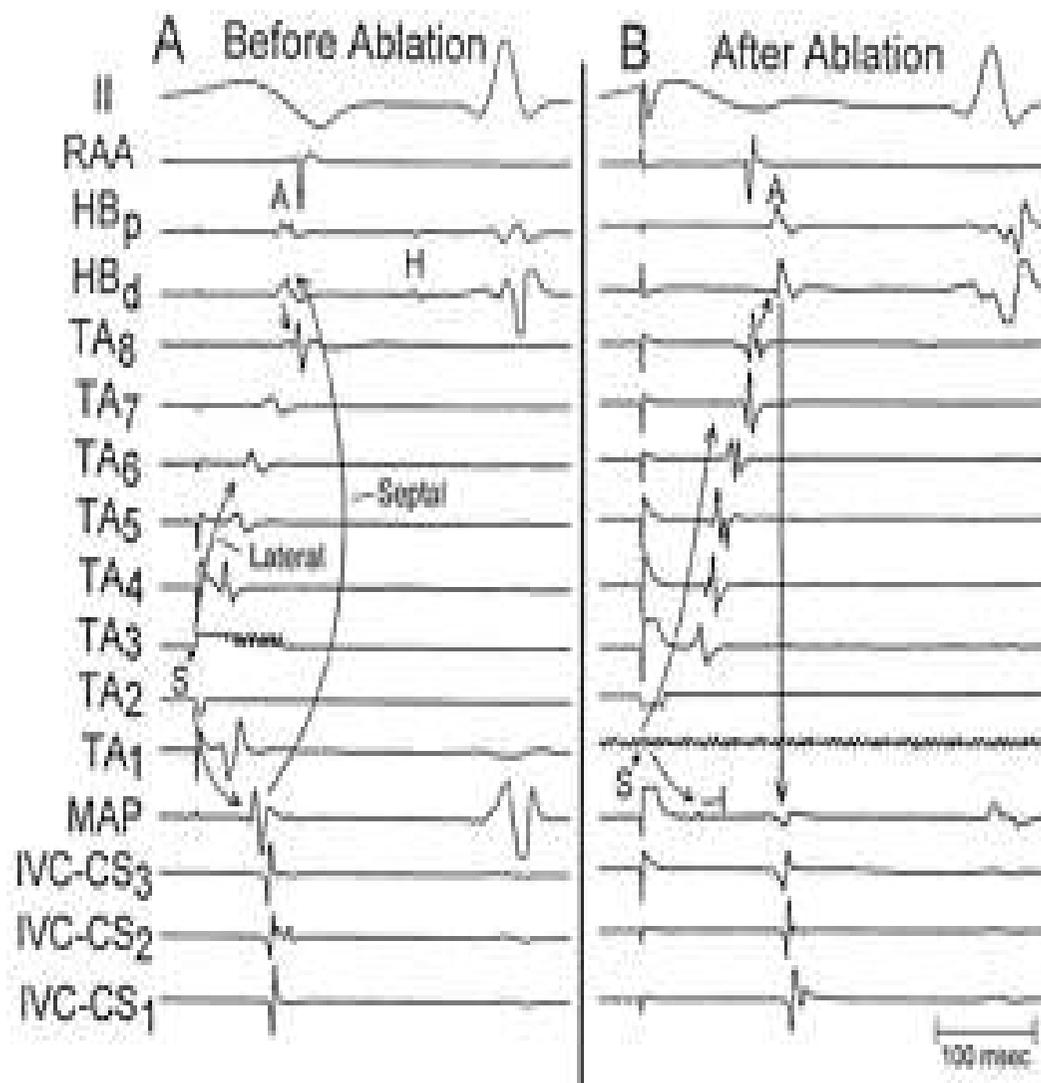


Oblique antérieur droit

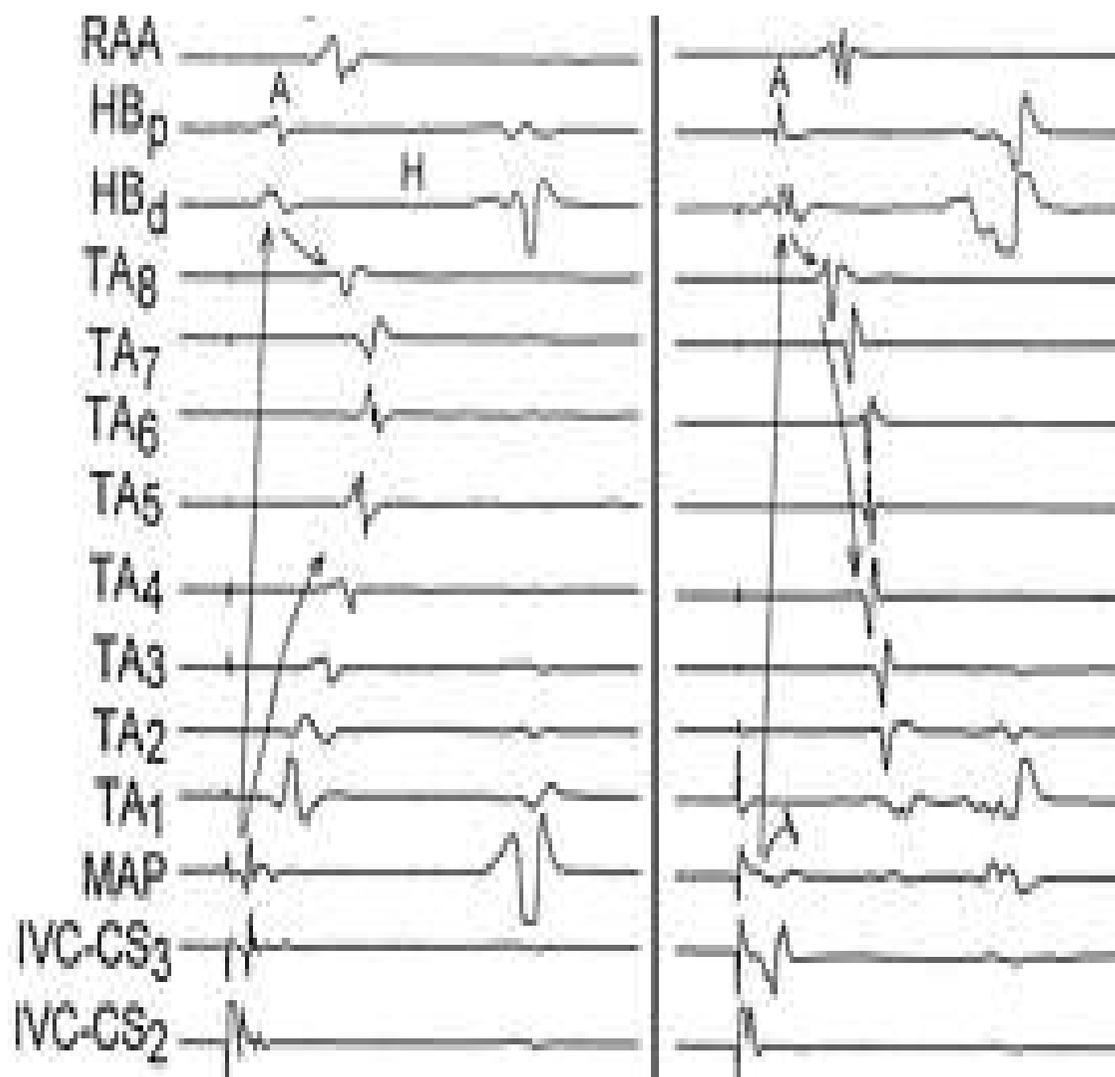
## Modification de la séquence d'activation pendant l'ablation



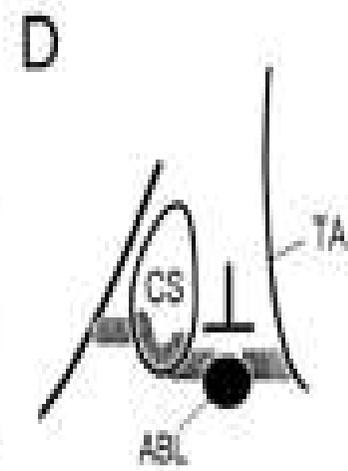
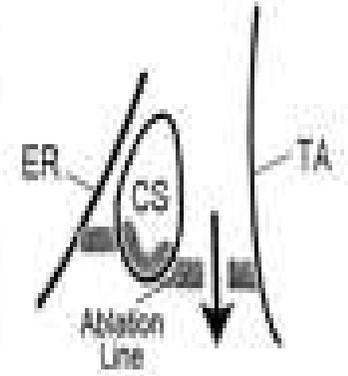
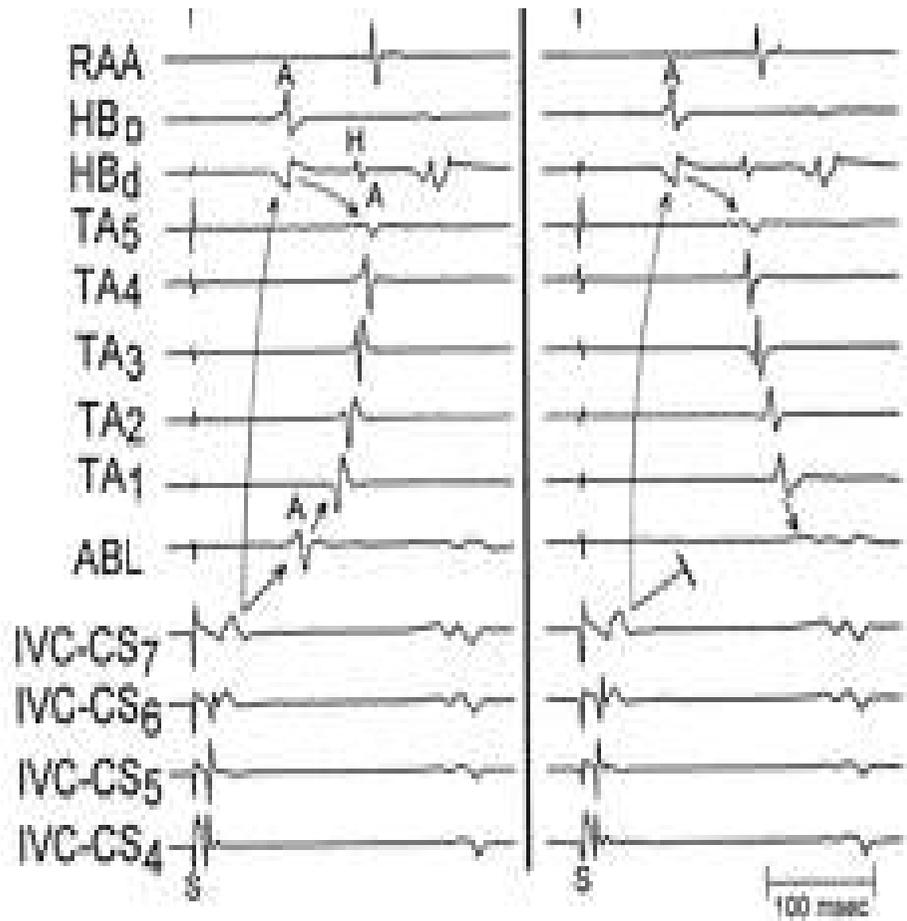
## Confirmation du bloc isthmique (1)



## Confirmation du bloc isthmique (2)



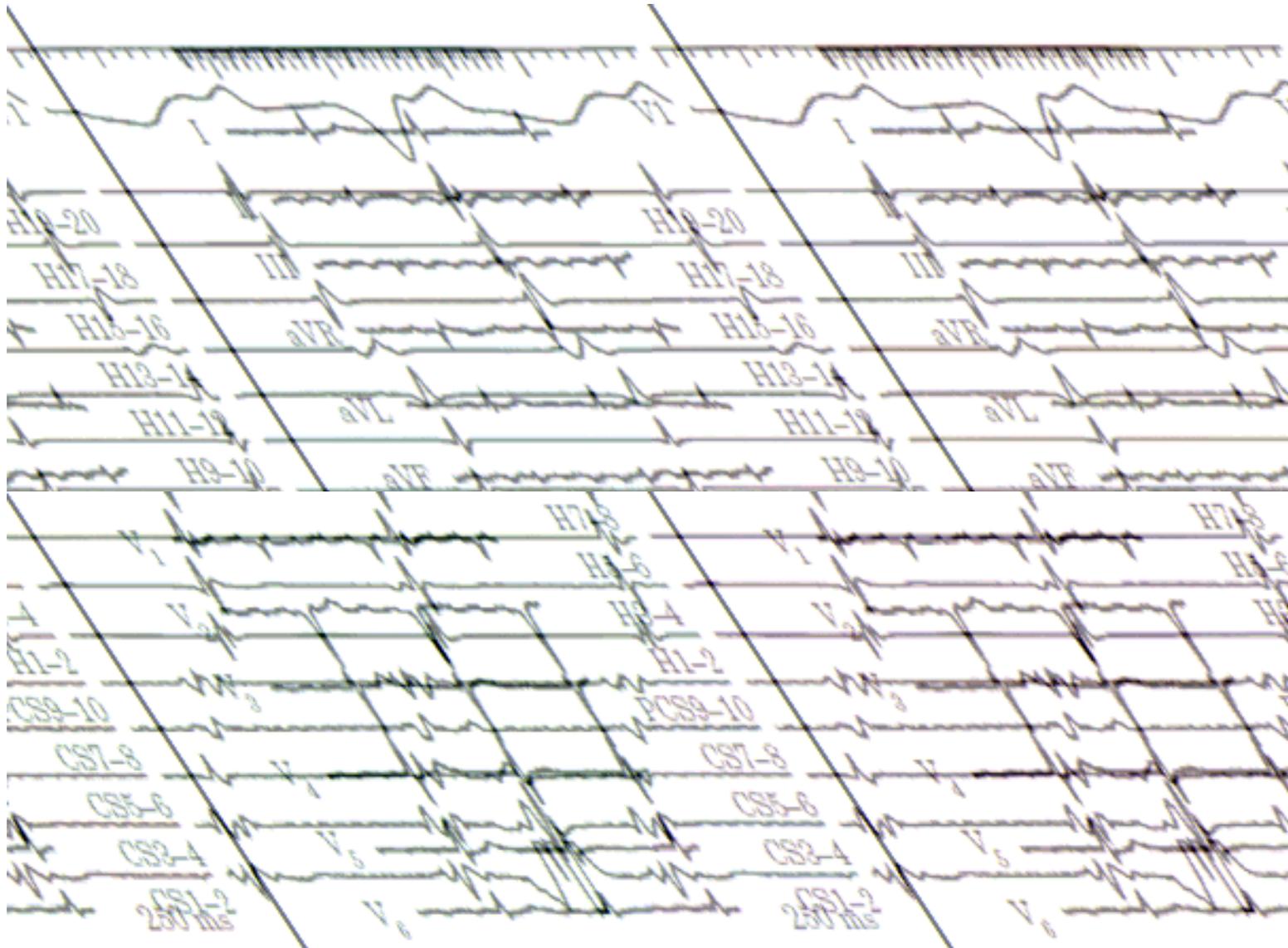
# Recherche de gap



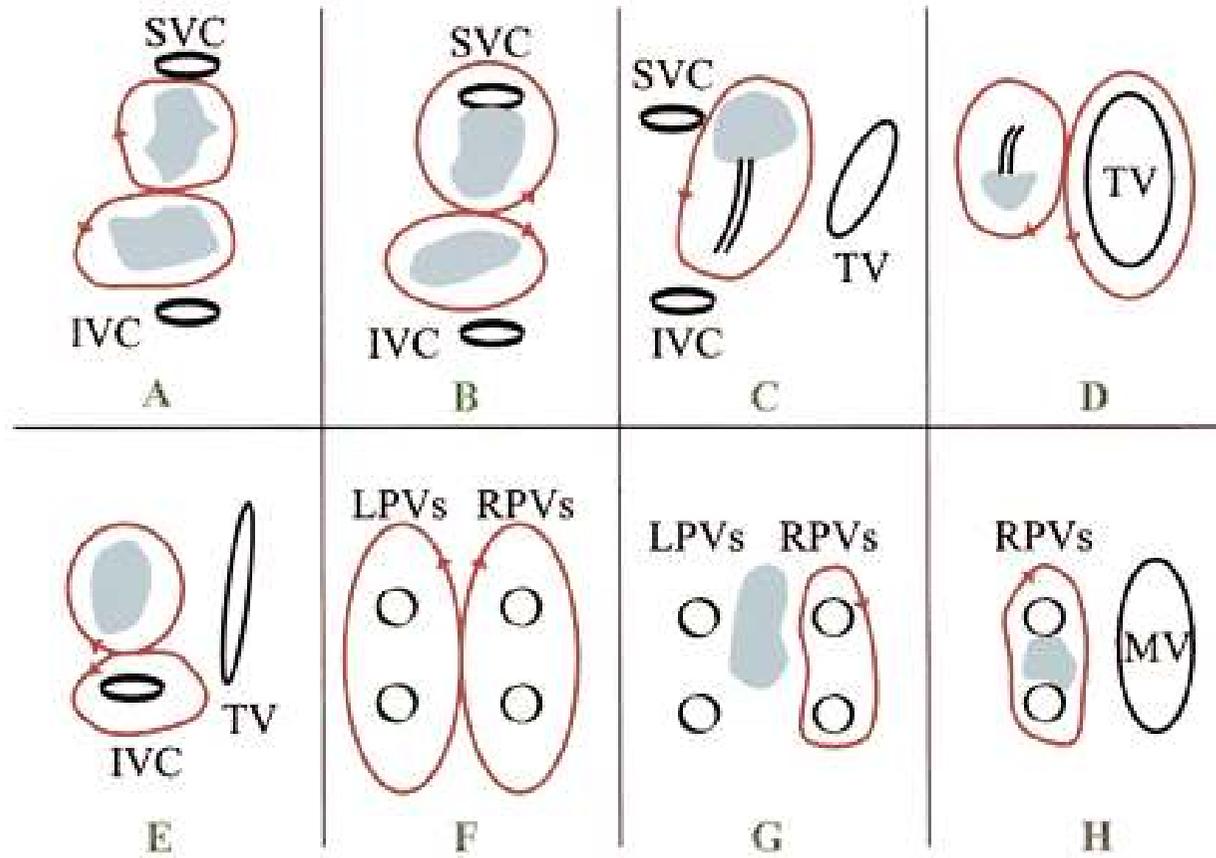
## Flutter atypiques



# Flutter atypique Macro réentrée gauche

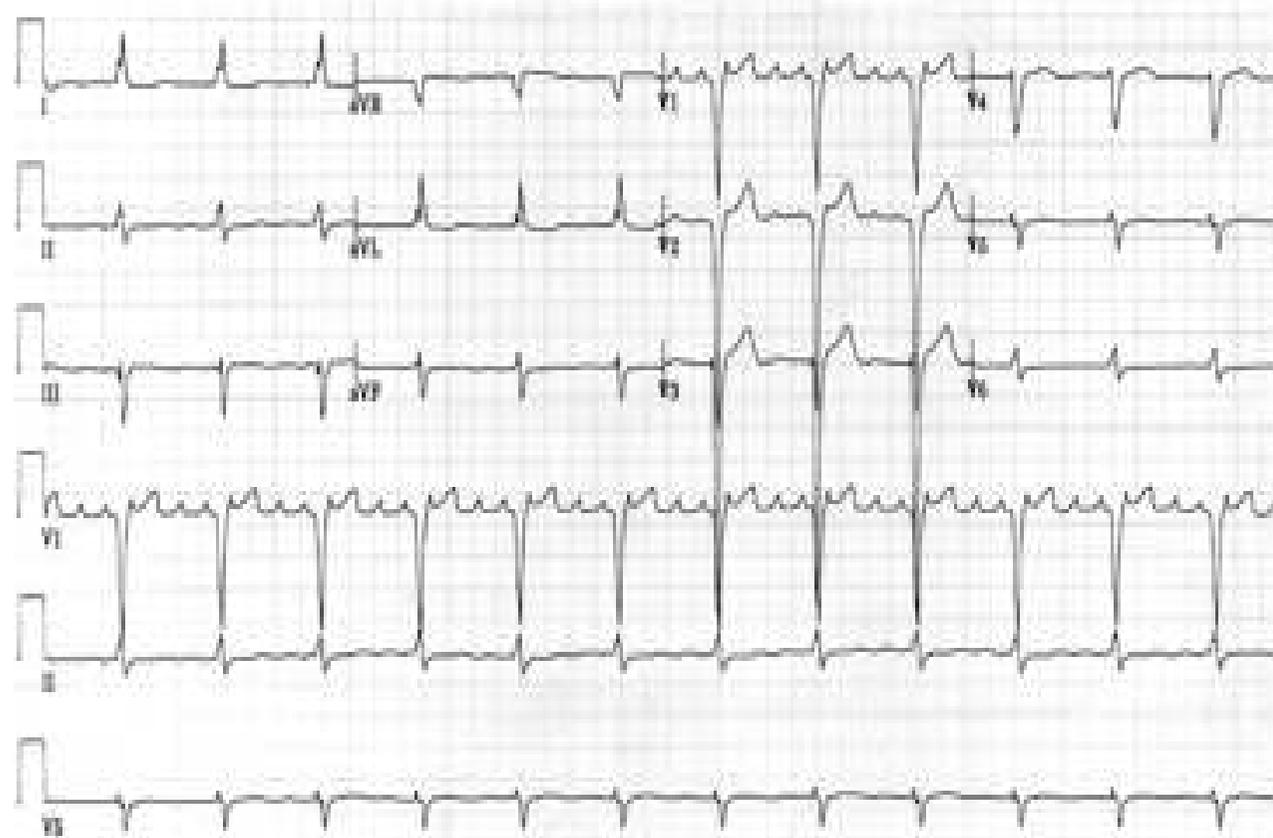


## Autres Macro-réentrées

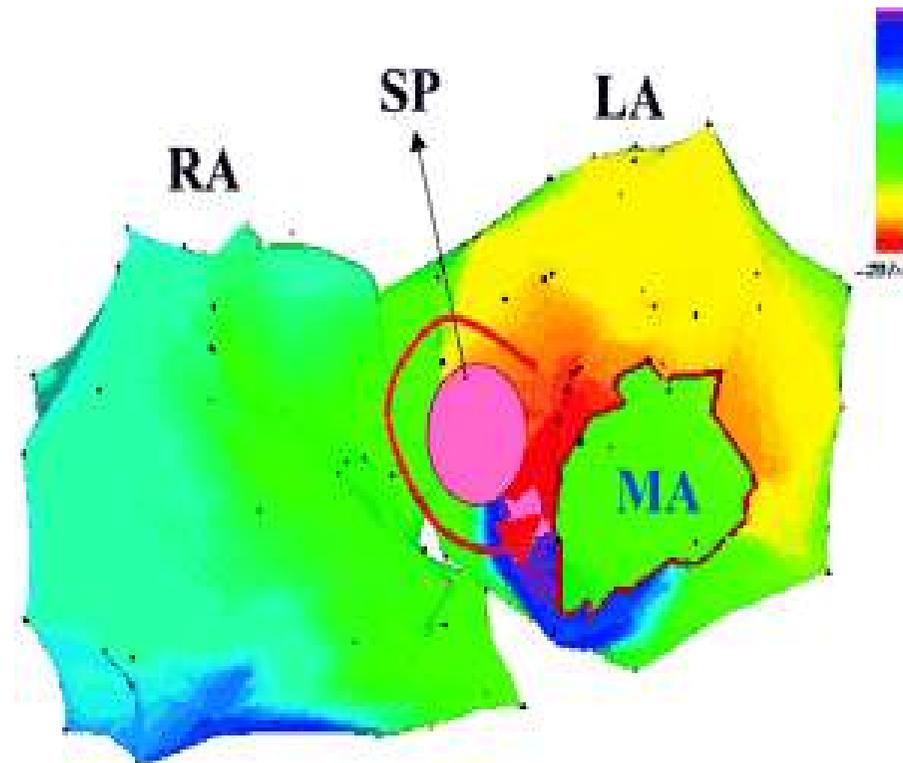


# Flutter septal gauche

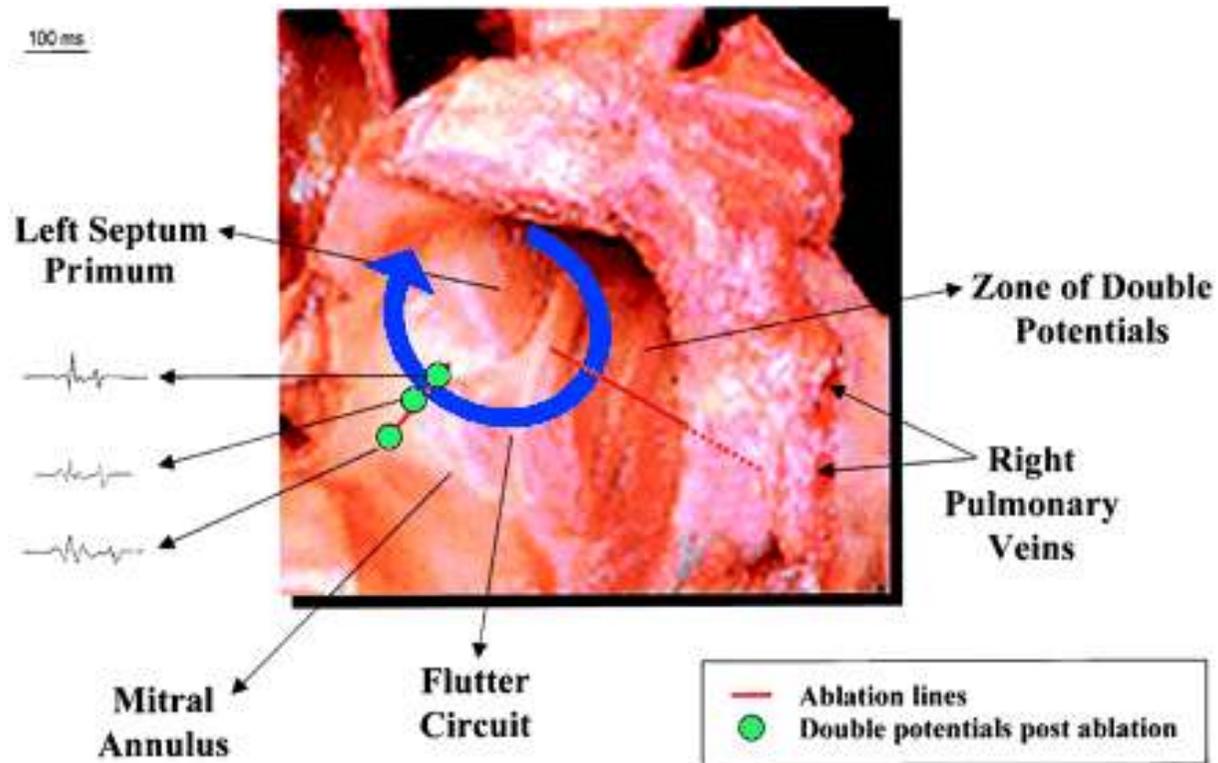
## Anti-horaire



## Flutter septal gauche

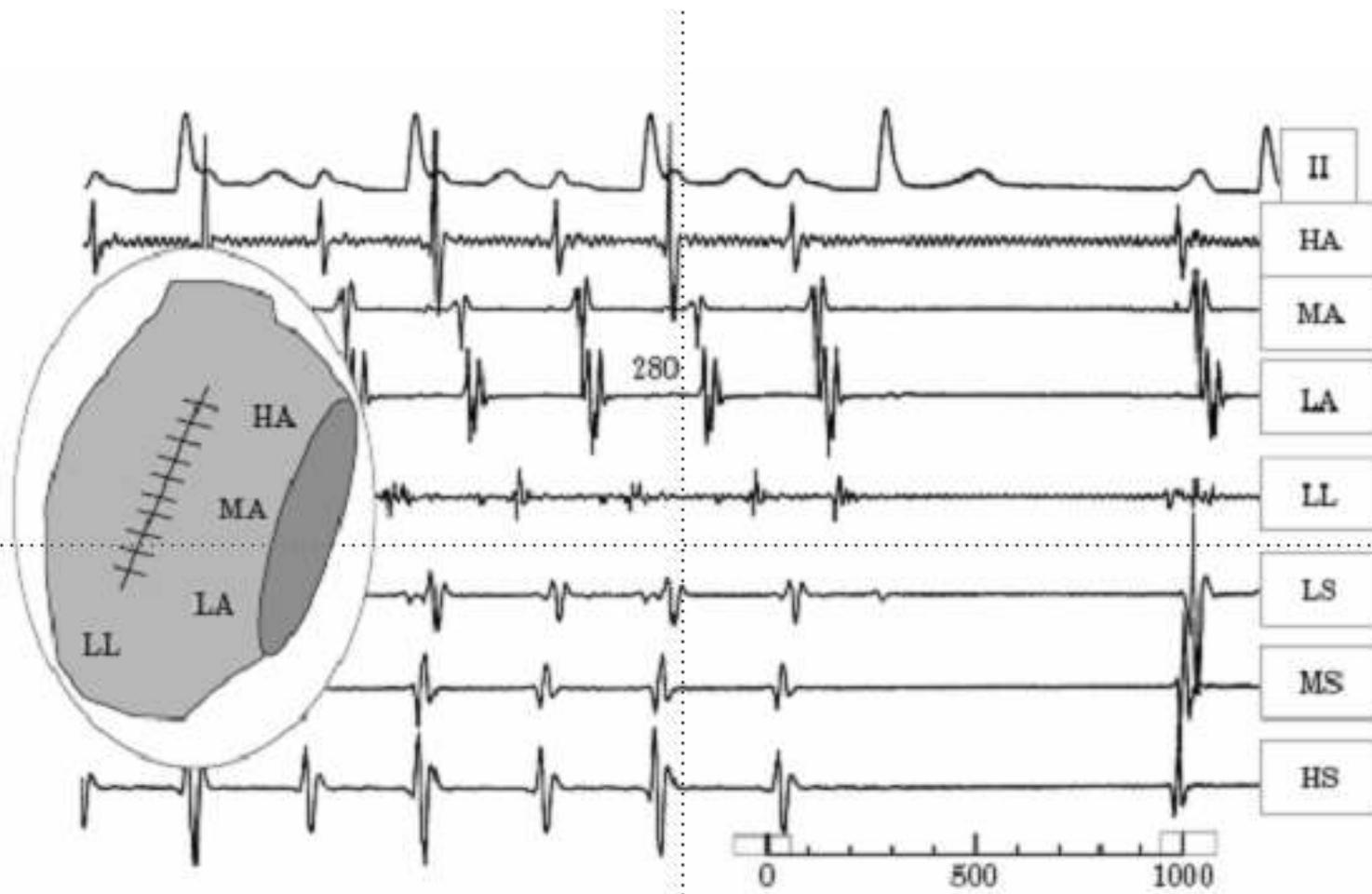


## Flutter septal gauche

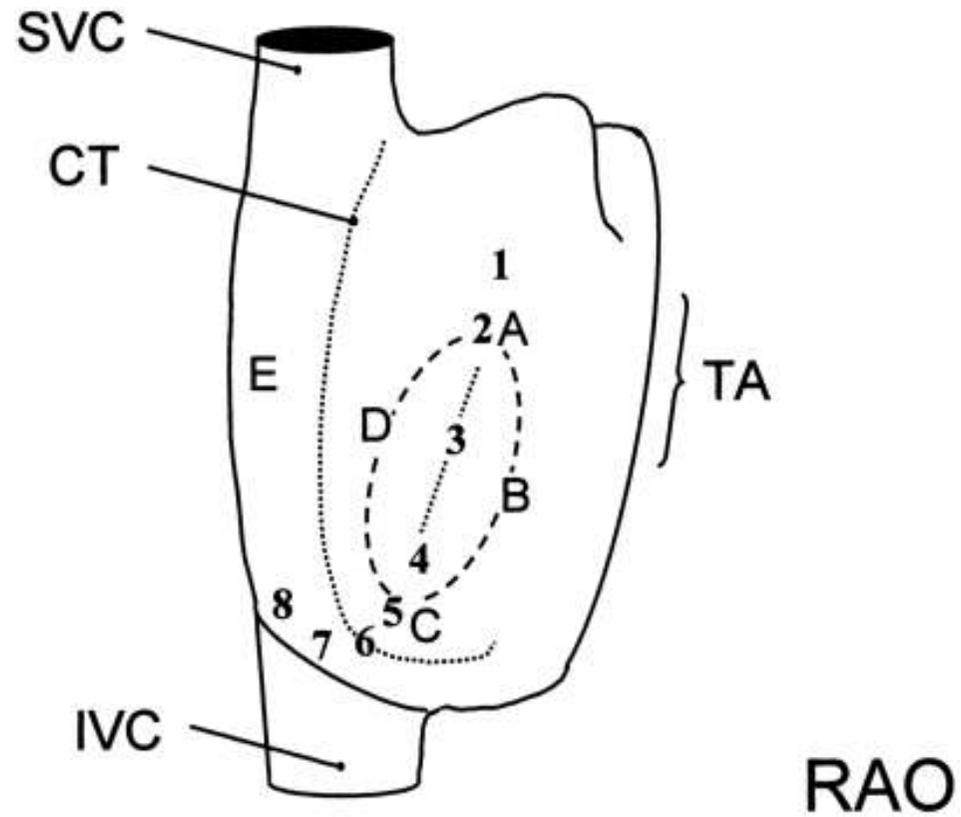


## Flutter « post-incision »

- Péri-atriotomie
- Flutter et cardiopathies congénitales
- Flutter après ablation de FA

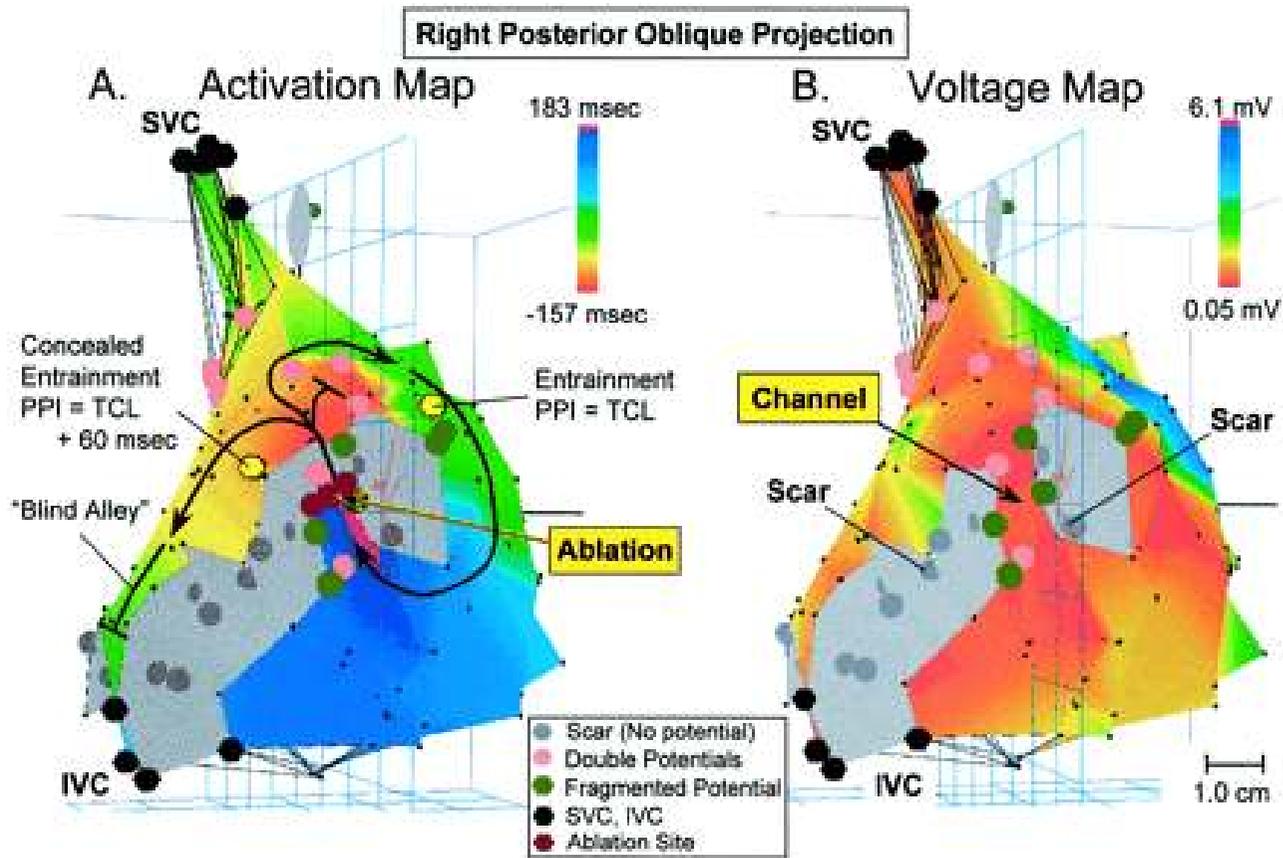


# Ligne d'ablation ?

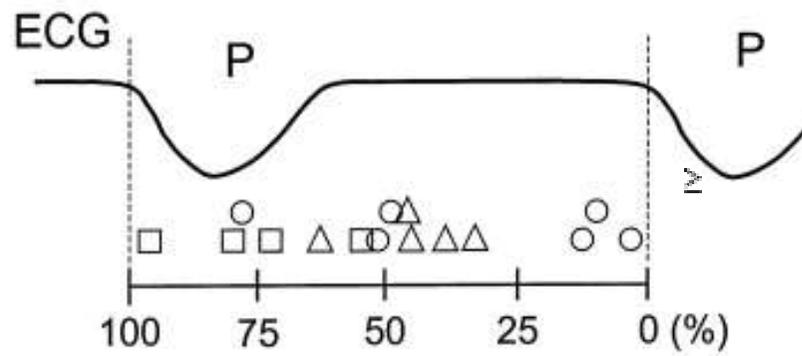


..... = Double Potentials  
----- = Reentrant Circuit

# Cardiopathies congénitales

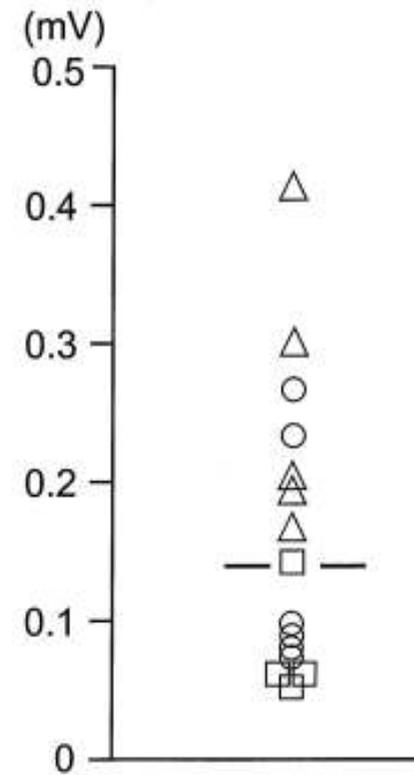


A. Timing of Atrial Potential

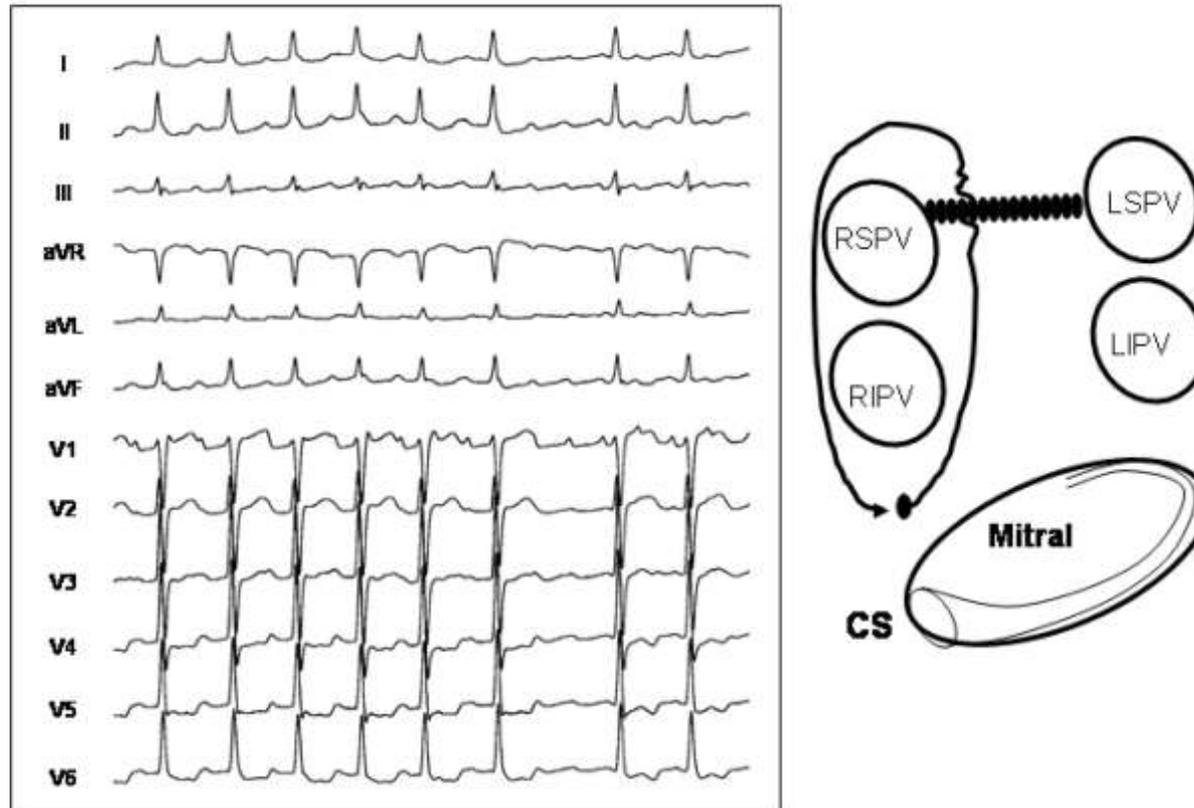


- Single Potential
- △ Double Potentials
- Fragmented Potential

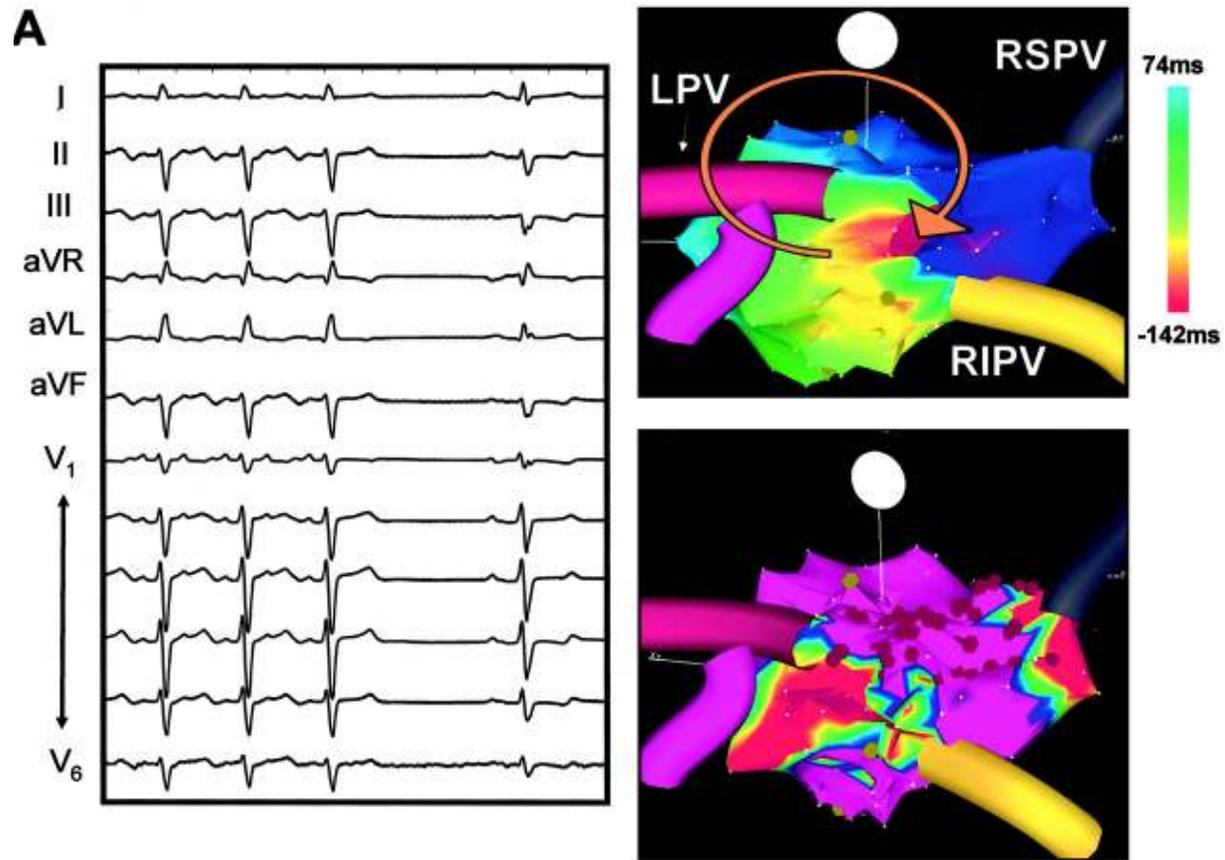
B. Atrial Potential Amplitude



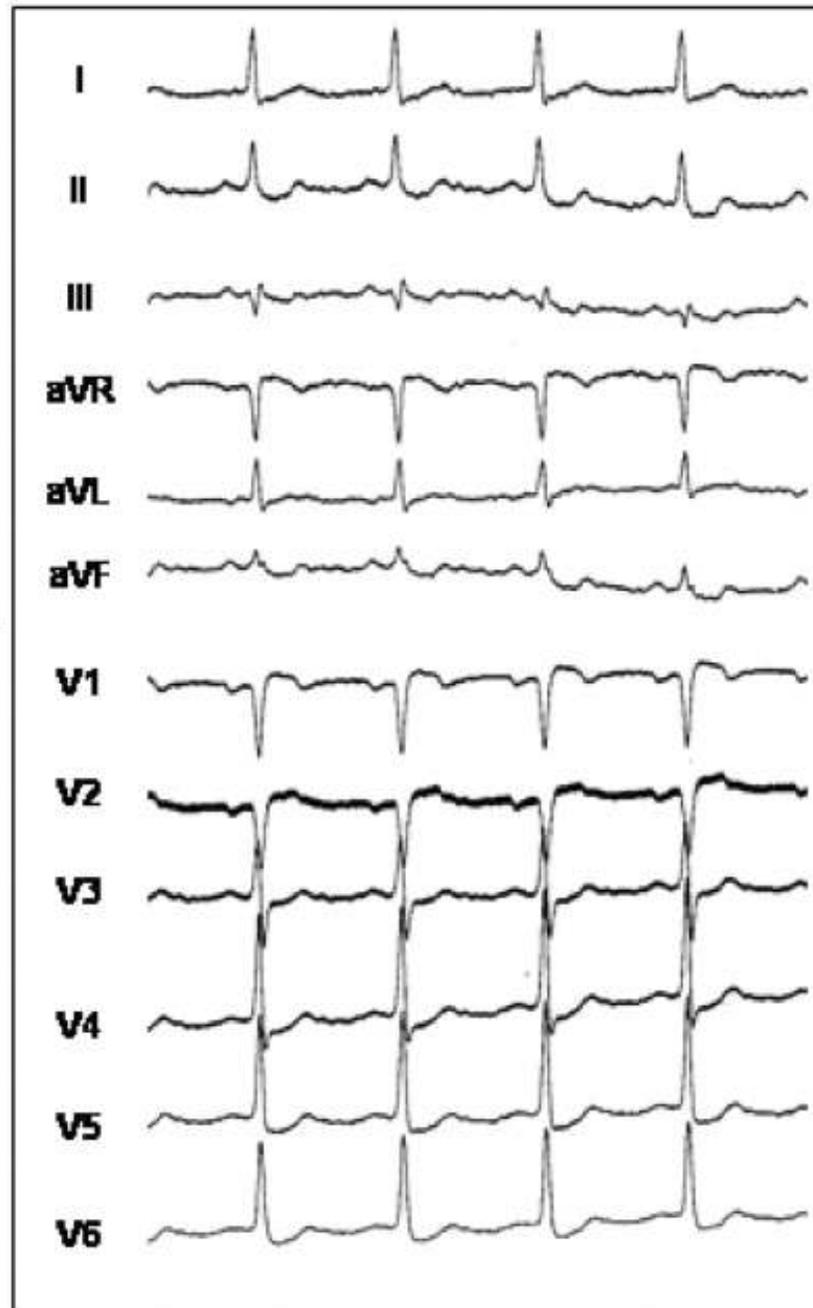
## Macro-réentrée autour des veines droites



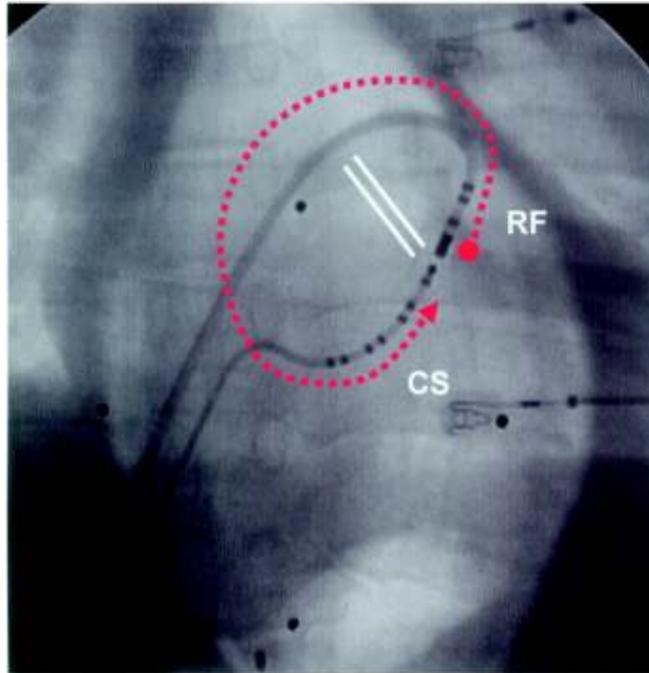
# Tachycardie atriale post-ablation de FA



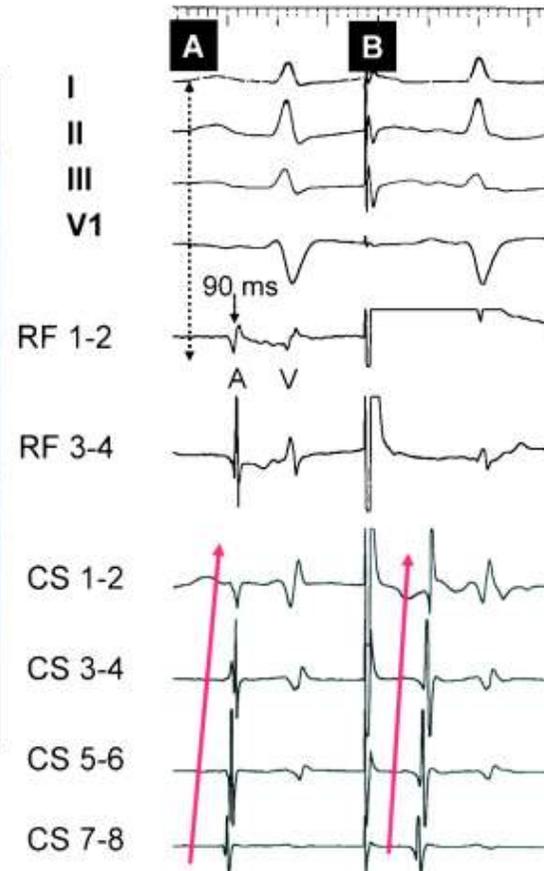
# Perimitral macrore-entry

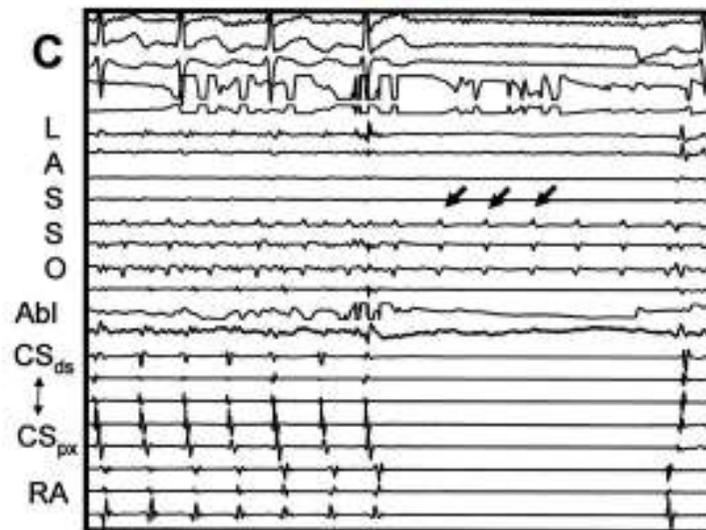
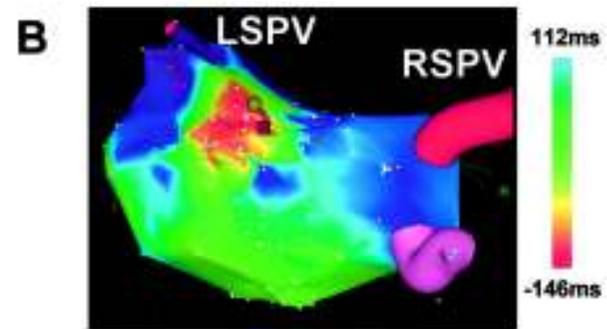
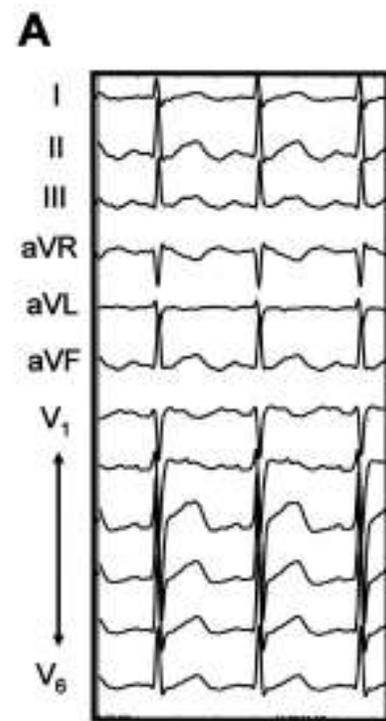


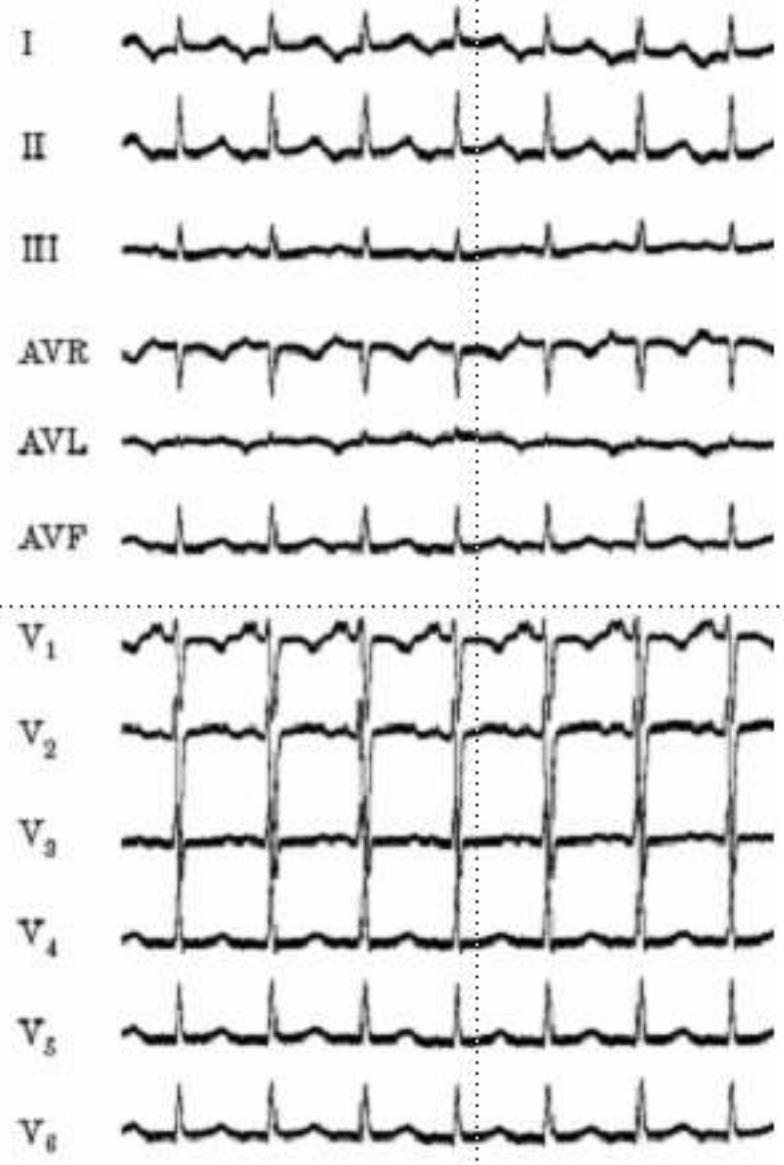
# Ablation de l'isthme mitral



AP view

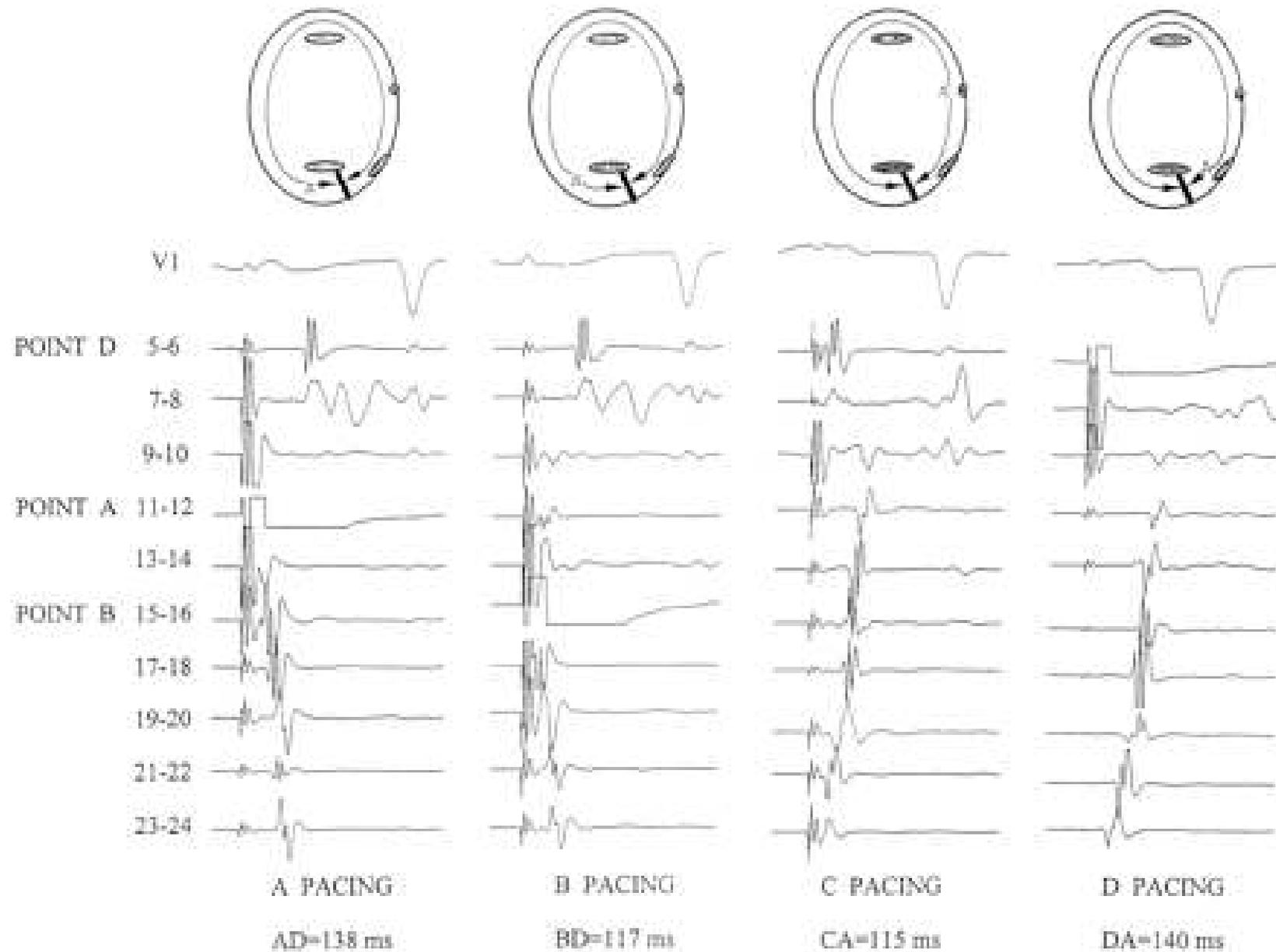


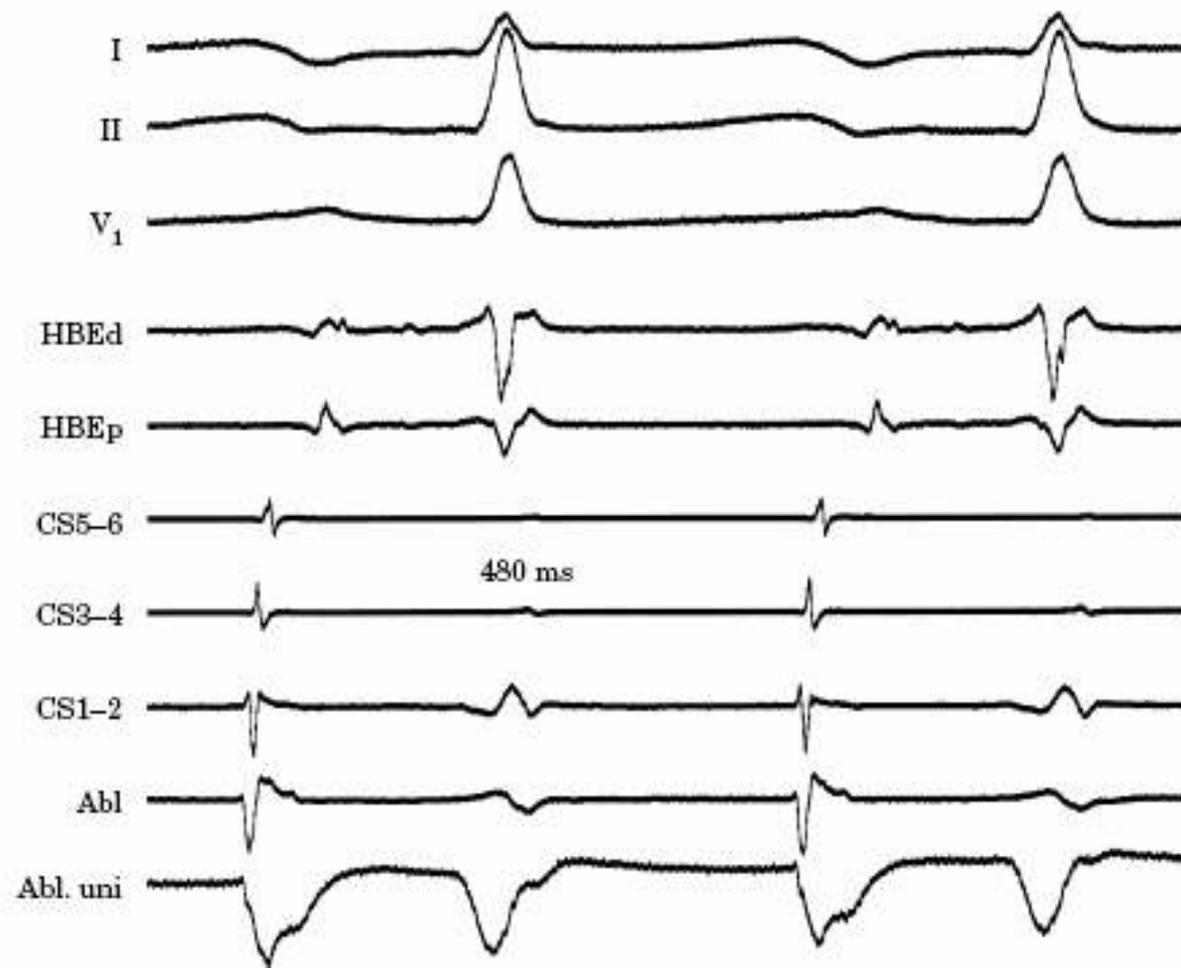




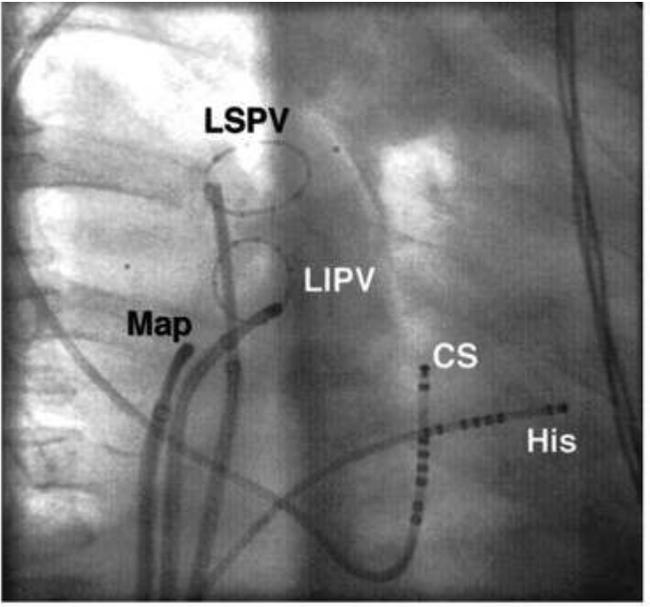


# Confirmation du bloc isthmique

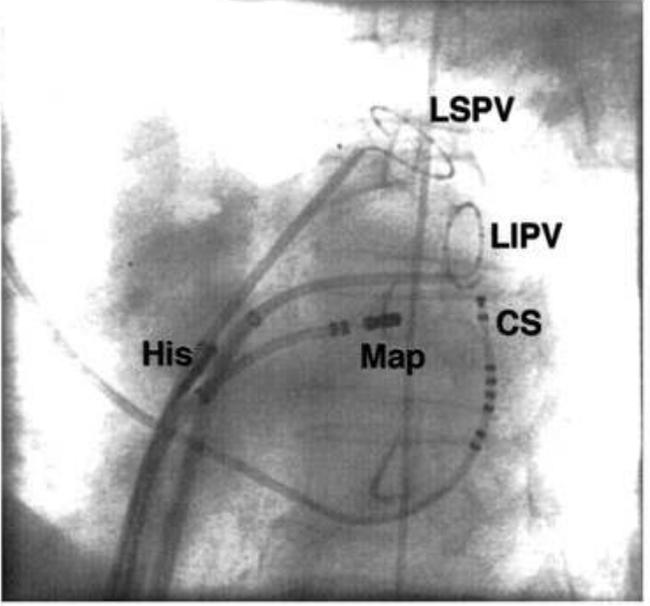
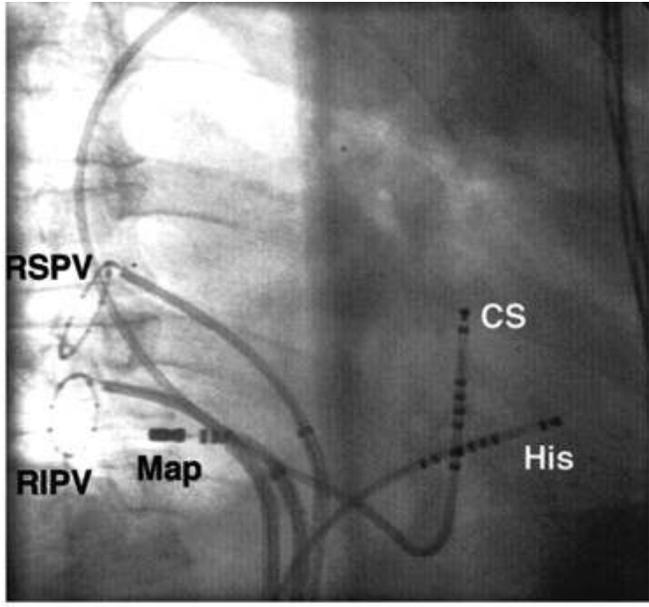




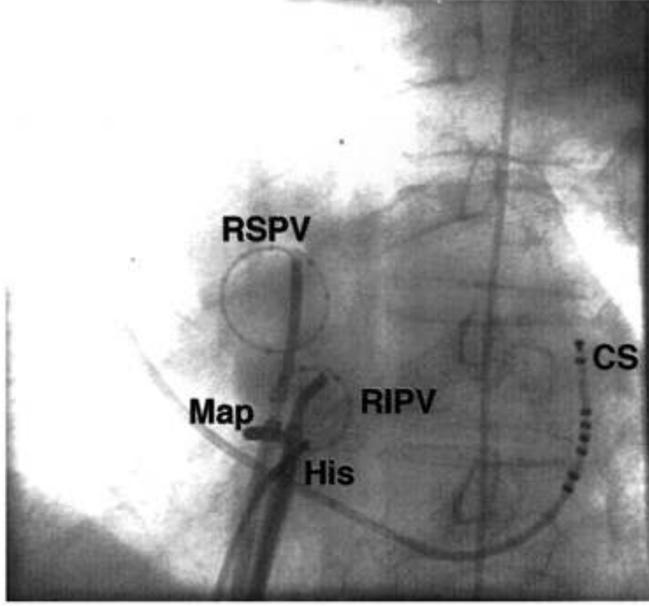
**A**



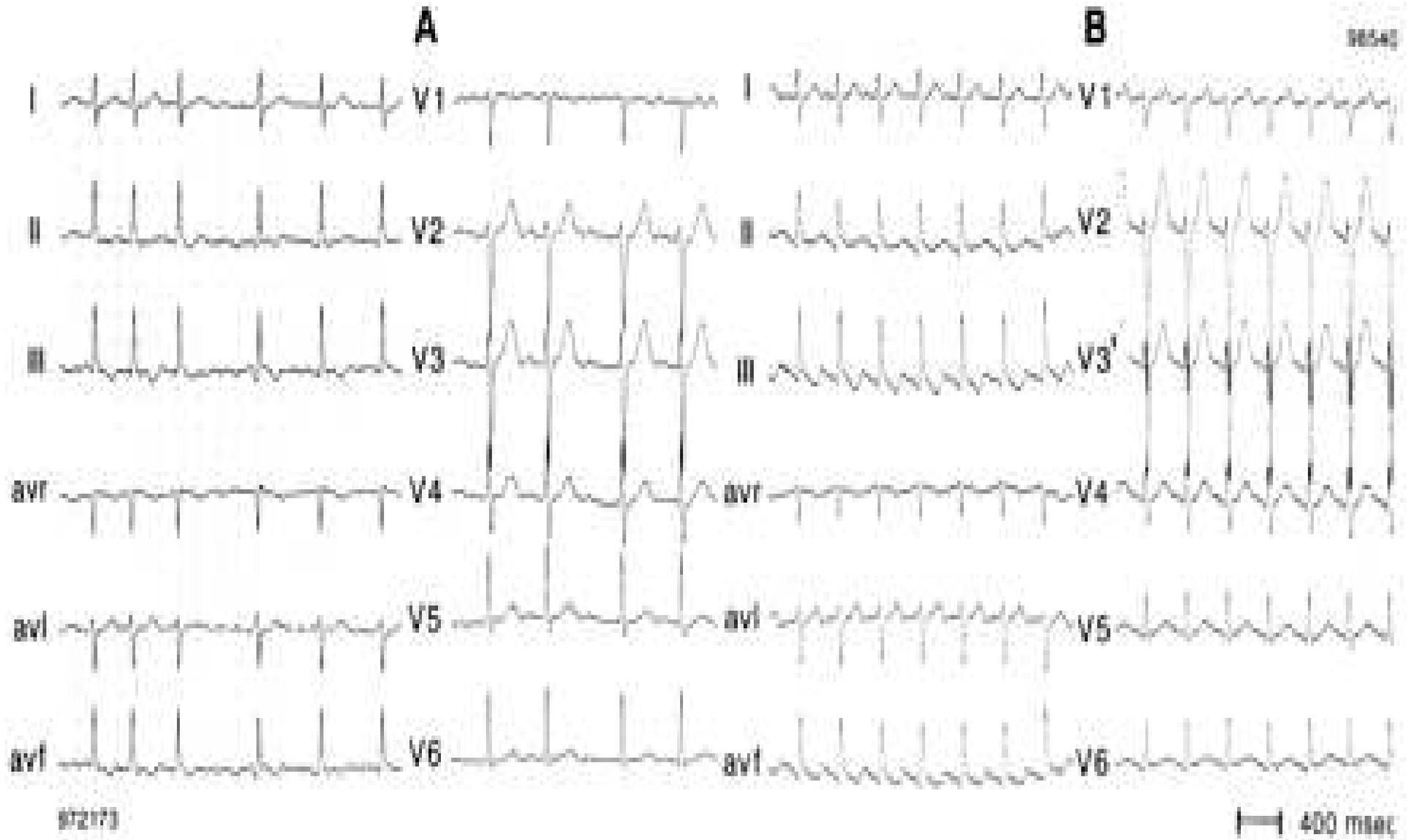
RAO



LAO

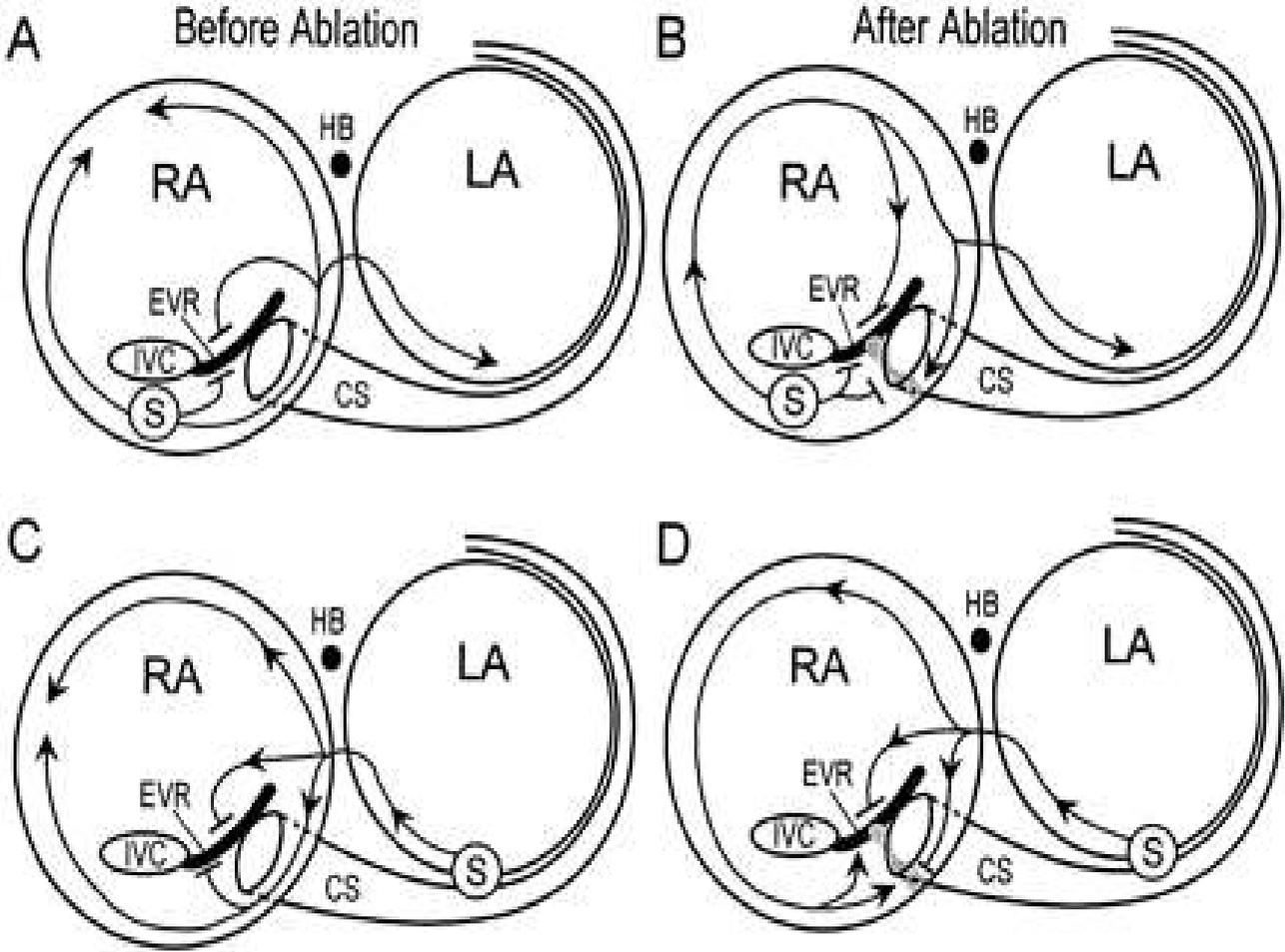


# Effet proarythmique

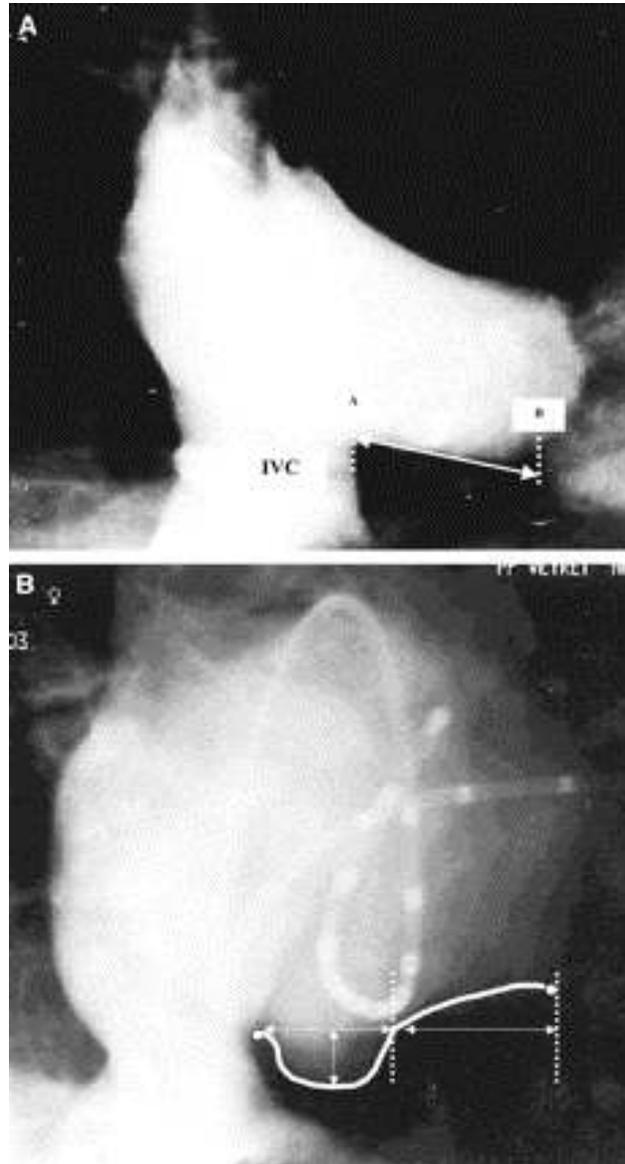


**Figure 9** Entrainment of left atrial macroreentrant tachycardia by pacing the mid anterior right atrium. From top to bottom recordings from the high anterior (HA), low anterior (LA), high septal (HS), mid septal (MS) and low septal (LS) right atrial and proximal (PCS), mid (MCS) and distal (DCS) coronary sinus and ECG leads II and  $V_1$ . The left panel shows the end of entrainment at 250 ms cycle length, and the right panel at 220 ms cycle length. The baseline activation sequence, which recurs after pacing, shows coronary sinus activation from distal to proximal preceding the septal right atrium. Anterior right atrial activation occurs last. During pacing, septal activation is reversed. Pacing cycle length 250 (left panel) advances PCS relative to MCS. Pacing cycle length 220 (right) advances PCS further and changes the morphology of MCS, indicating collision of paced and reentrant activation at this site. After pacing at 250 ms cycle length, the return cycle length is equal to the baseline at DCS, but long in all right atrial sites. Pacing at cycle length of 220 ms results in a prolonged return cycle length at DCS, suggesting pacing-induced conduction delay in the circuit. Note the ECG pattern of P waves with isoelectric baselines in  $V_1$ .

# Bloc isthmique



# Anatomie de l'isthme cavo-tricuspidien



# Macro réentrée activité électrique continue



*Figure 17* Atypical atrial flutter due to left atrial macroreentrant atrial tachycardia. Endocardial activation mapping shows that during atrial flutter, activation proceeds from the distal to the proximal coronary sinus, and then to the infero lateral wall of the right atrium. The higher portion of the lateral wall of the right atrium is depolarized in a descending fashion, presumably after activation via the Bachman bundle. The ECG shows a low voltage continuously undulating atypical atrial flutter. HI9-20 to HI-2 represent recordings from a halo catheter in the right atrium in the usual position. CS1-2 to CS9-10 represent the recording of a decapolar catheter that is pushed in the coronary sinus, the distal coronary sinus being CS1-2.

# Macro réentrée atriale gauche

