



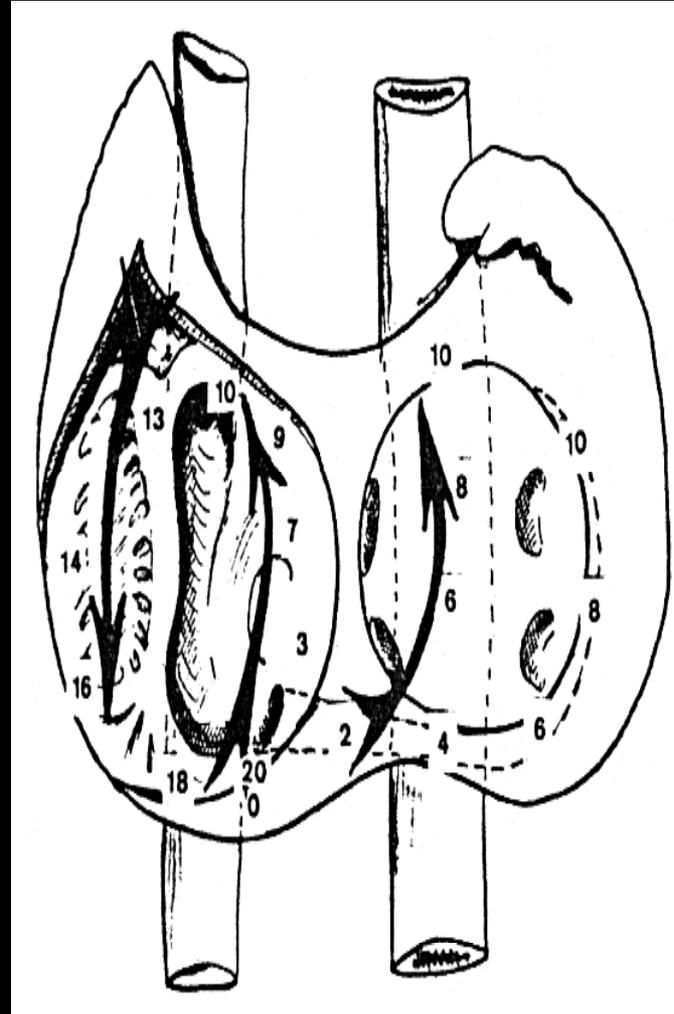
# De l'ECG de surface à L'EGM endocavitaire: Flutter commun



Clinique Saint George  
Nice

# Flutter auriculaire typique, rotation anti-horaire

Thomas Lewis



Paul Puech



Albert L. Waldo



Lewis T. et al. Heart 1912; 4: 171.

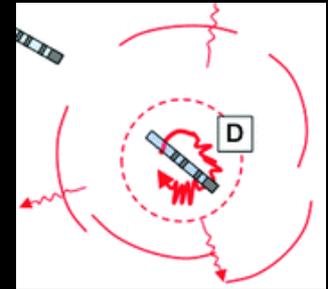
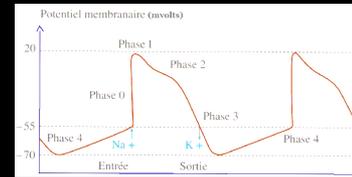
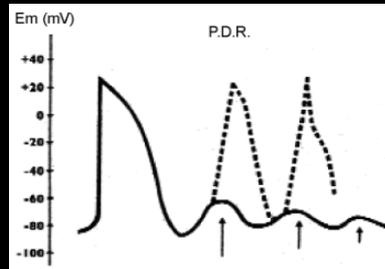
Puech P. et al. Arch Mal Cœur 1970; 63: 116.

Waldo AL et al. Circulation 1977; 56: 737.

# Quelles sont les différences entre une tachycardie atriale focale et un flutter?

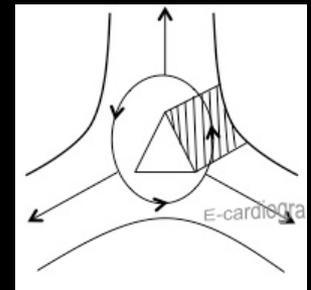
## • Tachycardie atriale focale:

- Rythme atrial rapide ( $> 100$  bpm) régulier (*pas toujours*)
- N'ayant pour origine le nœud sinusal
- Morphologie de l'onde P stable (chaque onde P ressemble à la précédente)
- Avec un retour à la ligne iso-électrique entre chaque onde P (*pas toujours*)
- Mécanisme: Focal (activité déclenchée, automaticité, micro-réentrée)

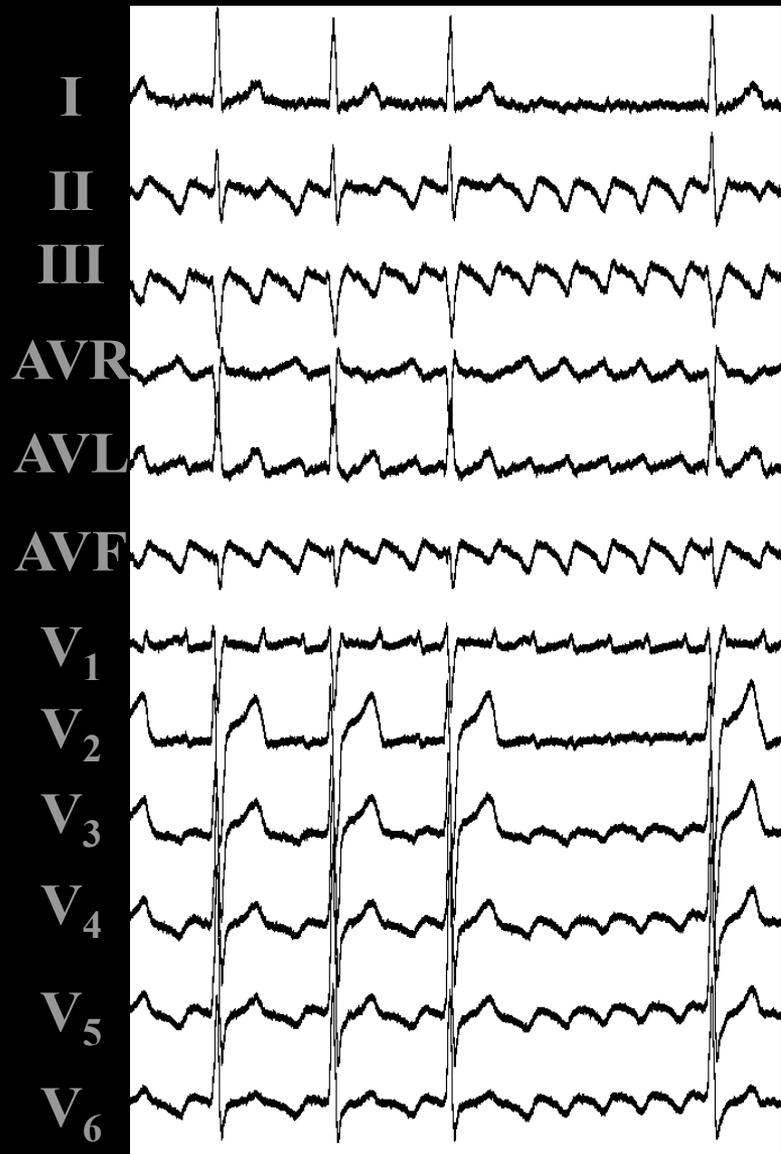


## • Flutter atrial:

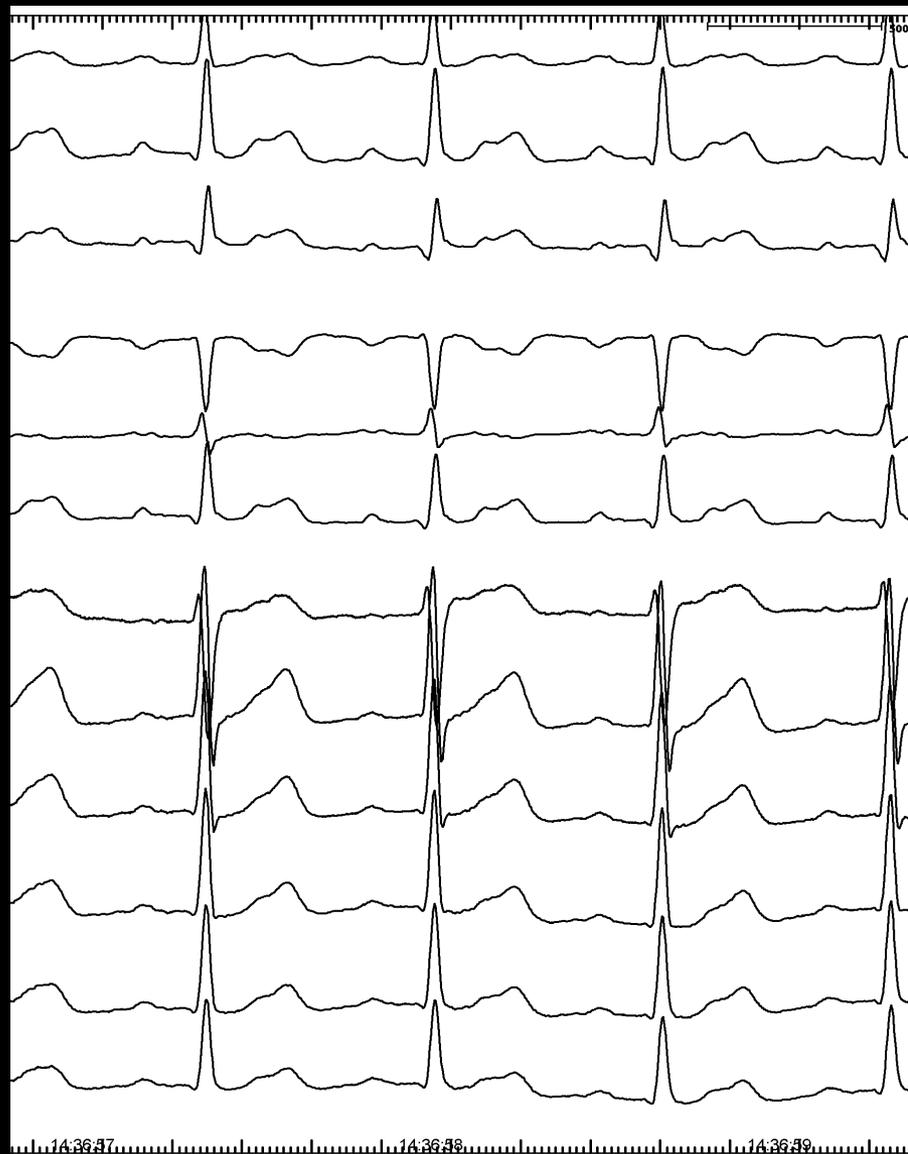
- Rythme atrial très rapide (240-350 bpm, en l'absence de traitement)
- Pas de retour à la ligne iso-électrique (*Pas toujours*)
- Mécanisme: Macro-réentrée



# Flutter



# T. atriale focale



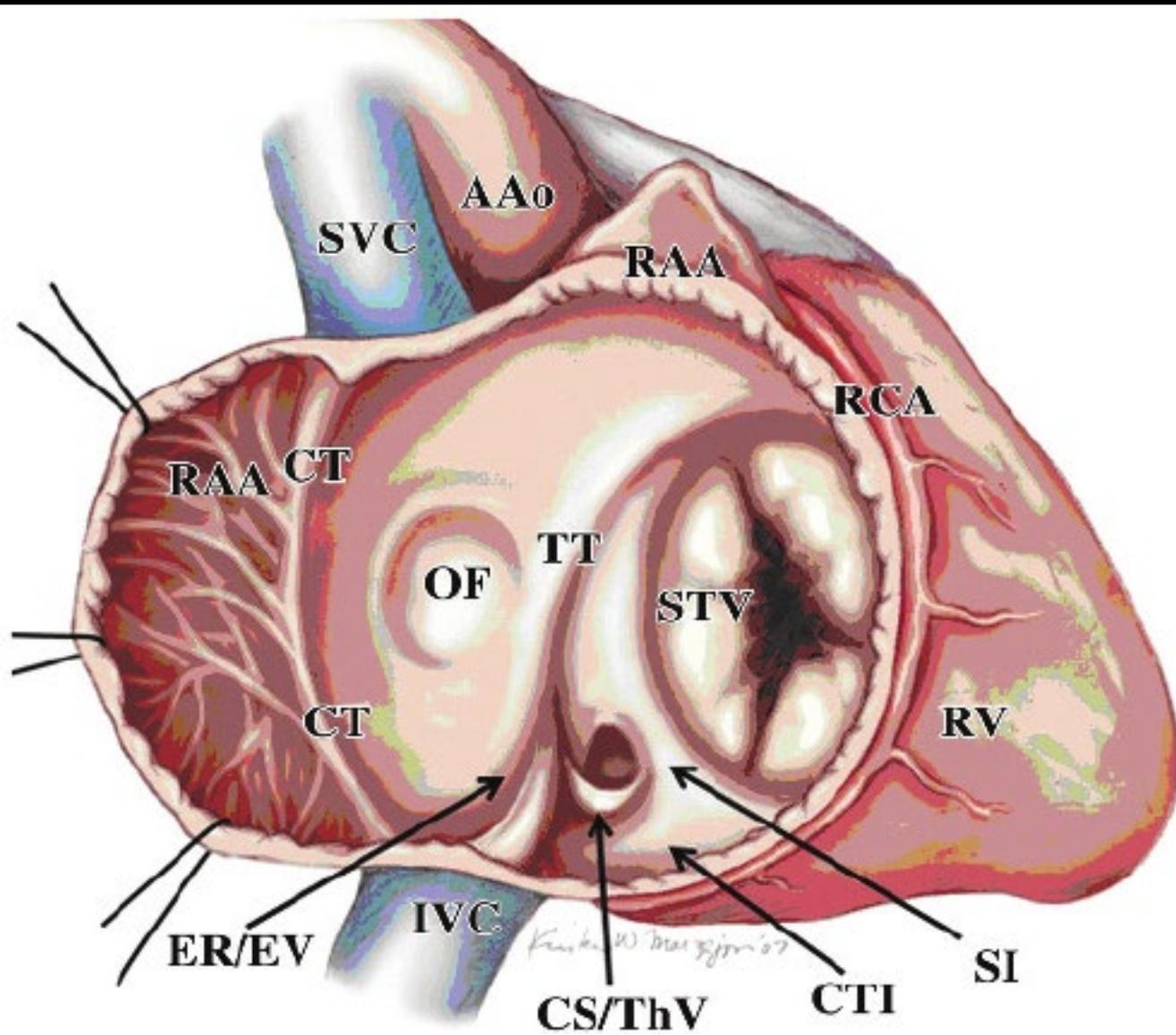
### A classification of atrial flutter and regular atrial tachycardia according to electrophysiological mechanisms and anatomical bases

A Statement from a Joint Expert Group from the Working Group of Arrhythmias of the European Society of Cardiology and the North American Society of Pacing and Electrophysiology

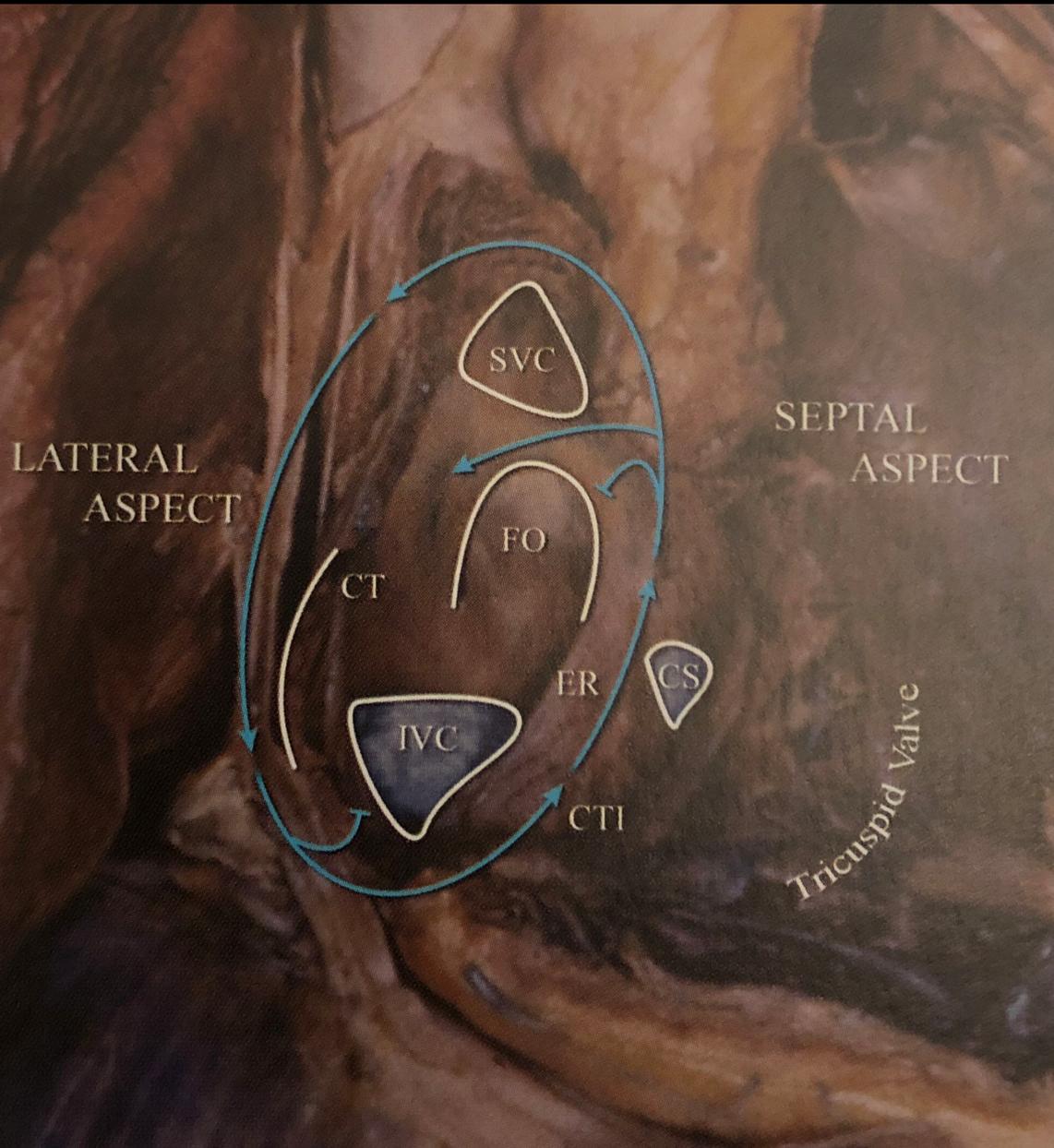
N. Saoudi, F. Cosío, A. Waldo, S. A. Chen, Y. Iesaka, M. Lesh, S. Saksena, J. Salerno and W. Schoels

- **Based on EP findings not on ECG**
- **Typical flutter: cavo-tricuspid isthmus (CTI) dependant**
- **Atypical flutter: not dependant of CTI**

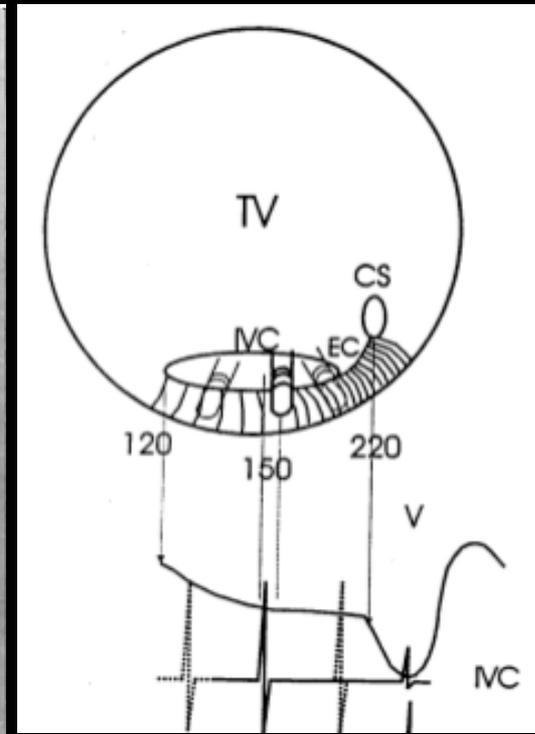
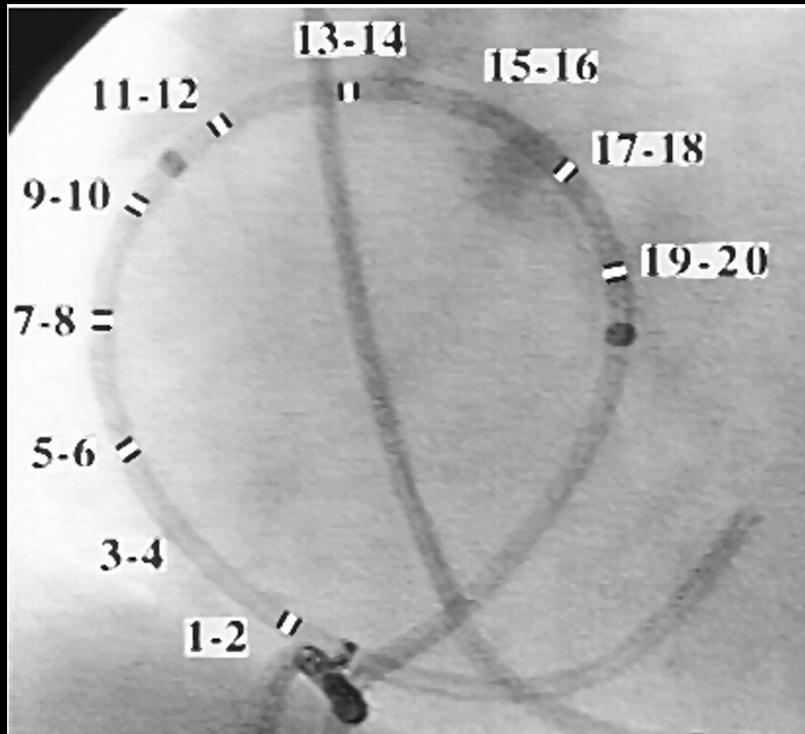
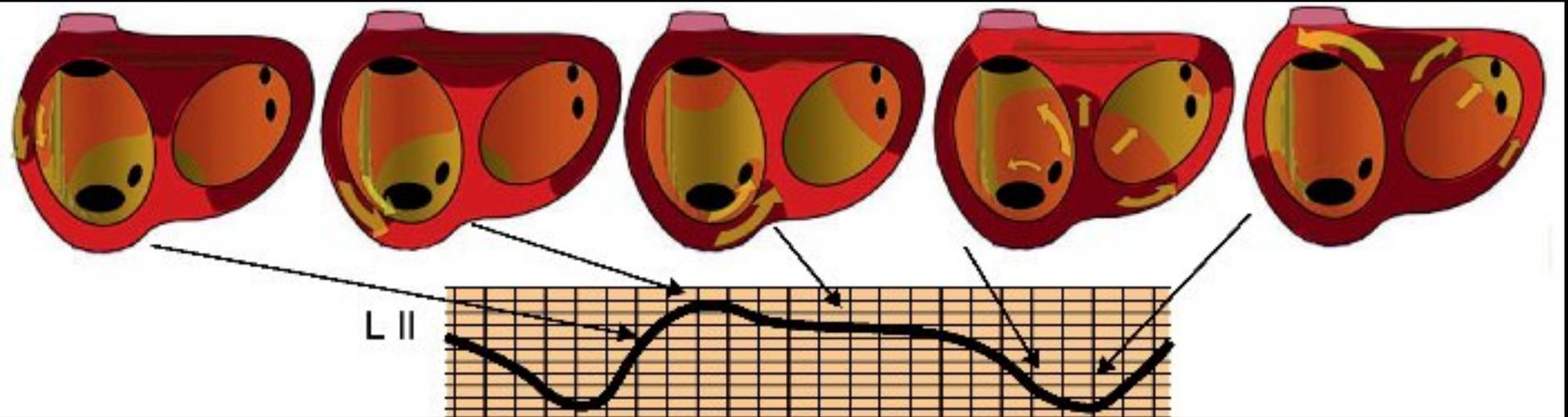
# Anatomie de l'oreillette droite



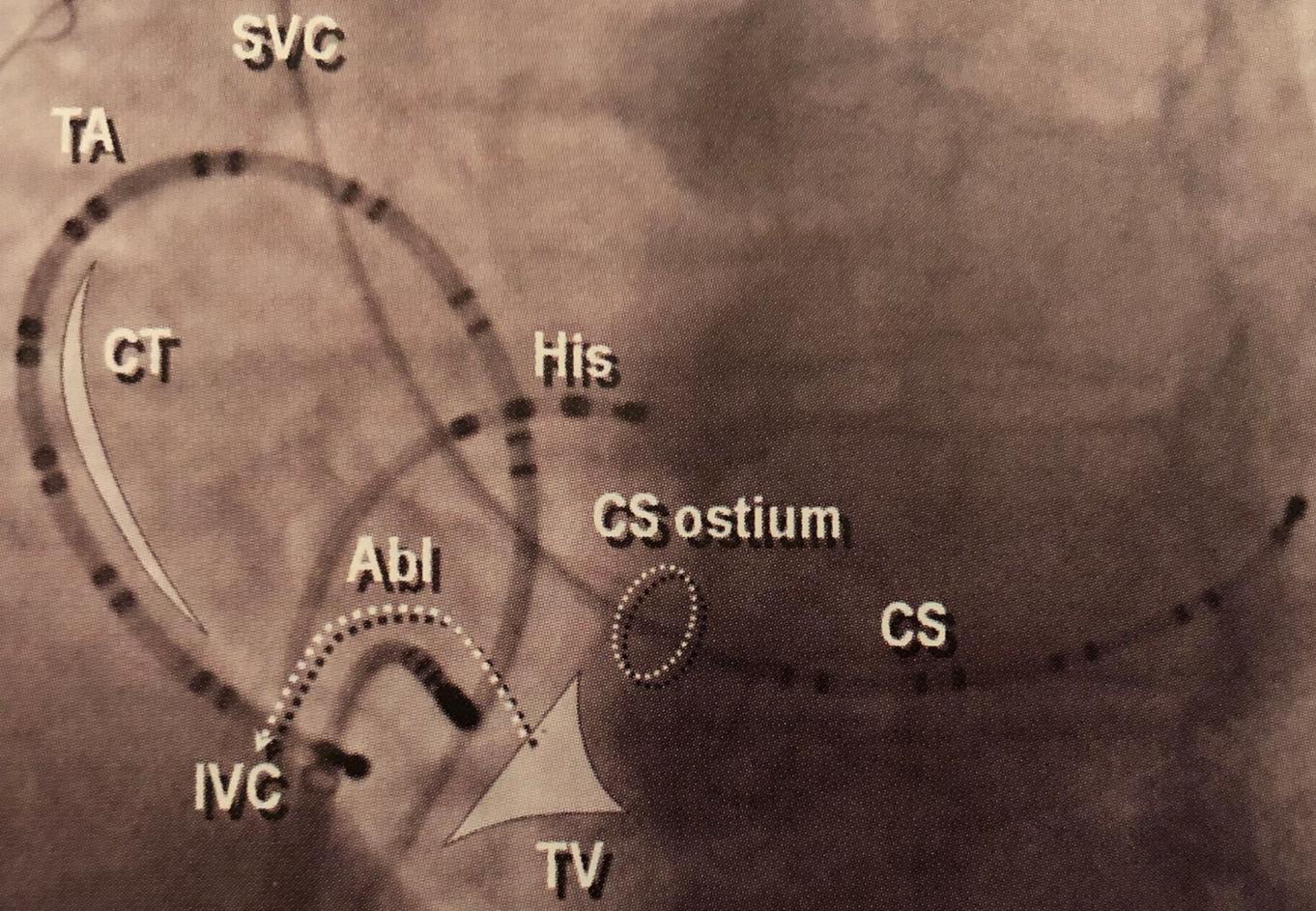
# Circuit du flutter typique



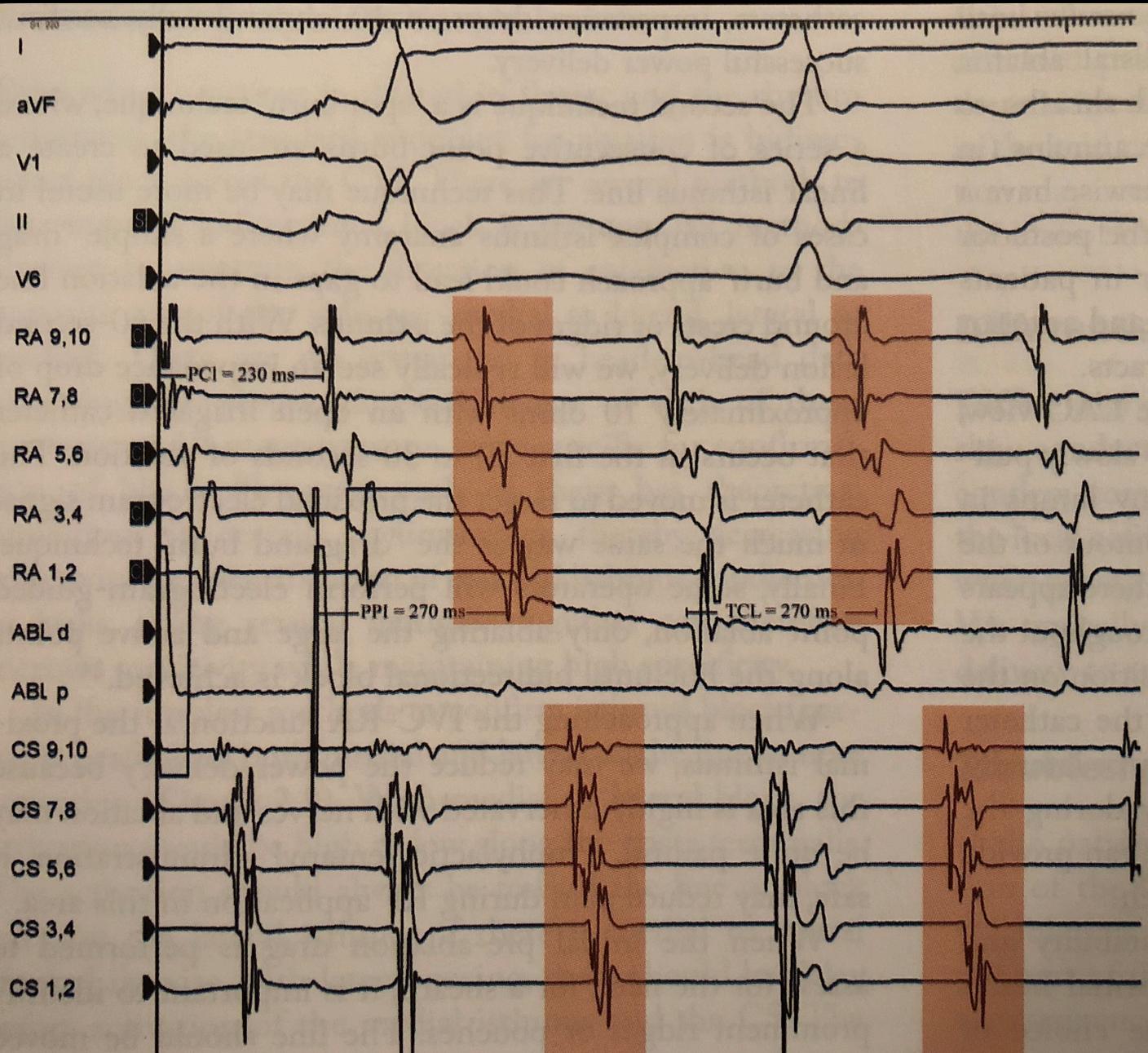
# Flutter atrial: ECG et activation électrique intra-cardiaque



# Position des cathéters dans le coeur



# EGM endocavitaires du flutter typique

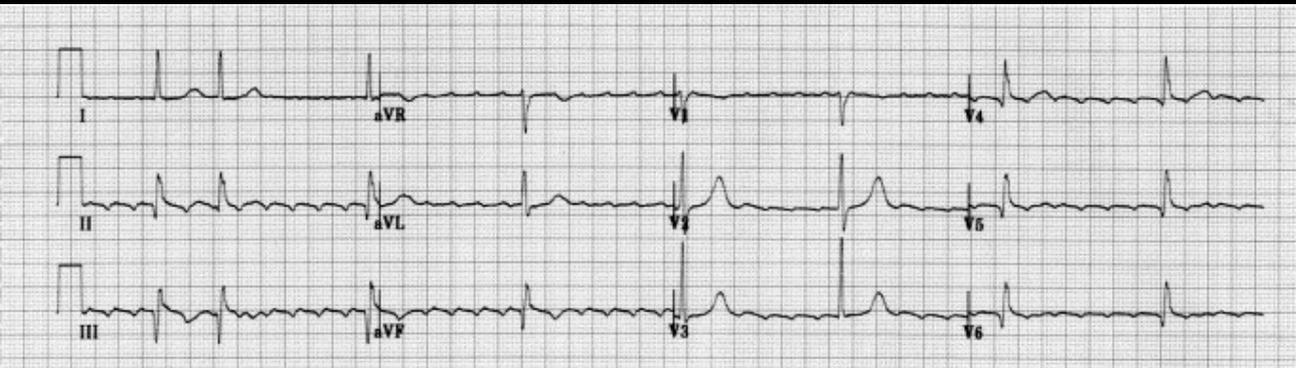


# Electrocardiographic characteristics of typical atrial flutter (1)

**N = 130**

## **Type 1 (27%)**

- Purely negative F waves (II, III, AVF)
- Younger Pts
- Less heart disease
- Smaller LA



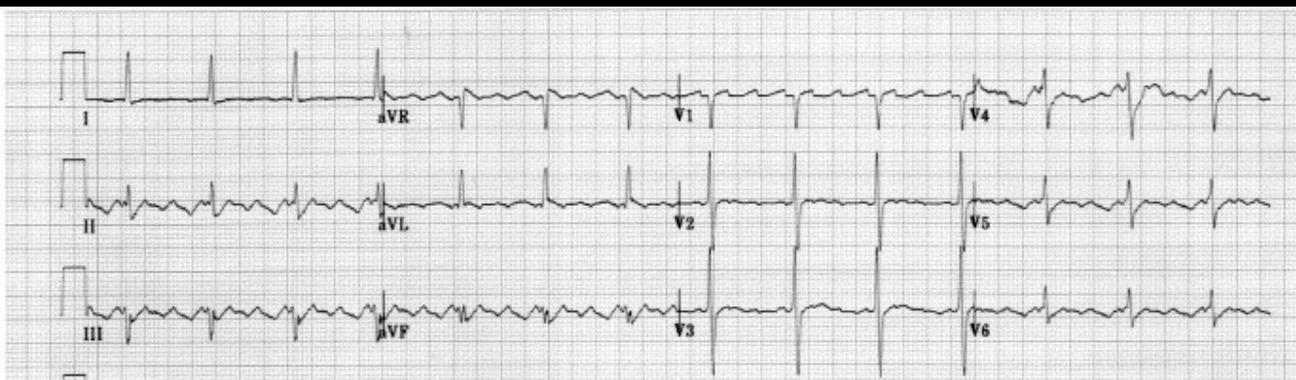
## **Type 2 (15%)**

- Negative F waves with small positive terminal deflection
- Larger LA
- Prior A Fib



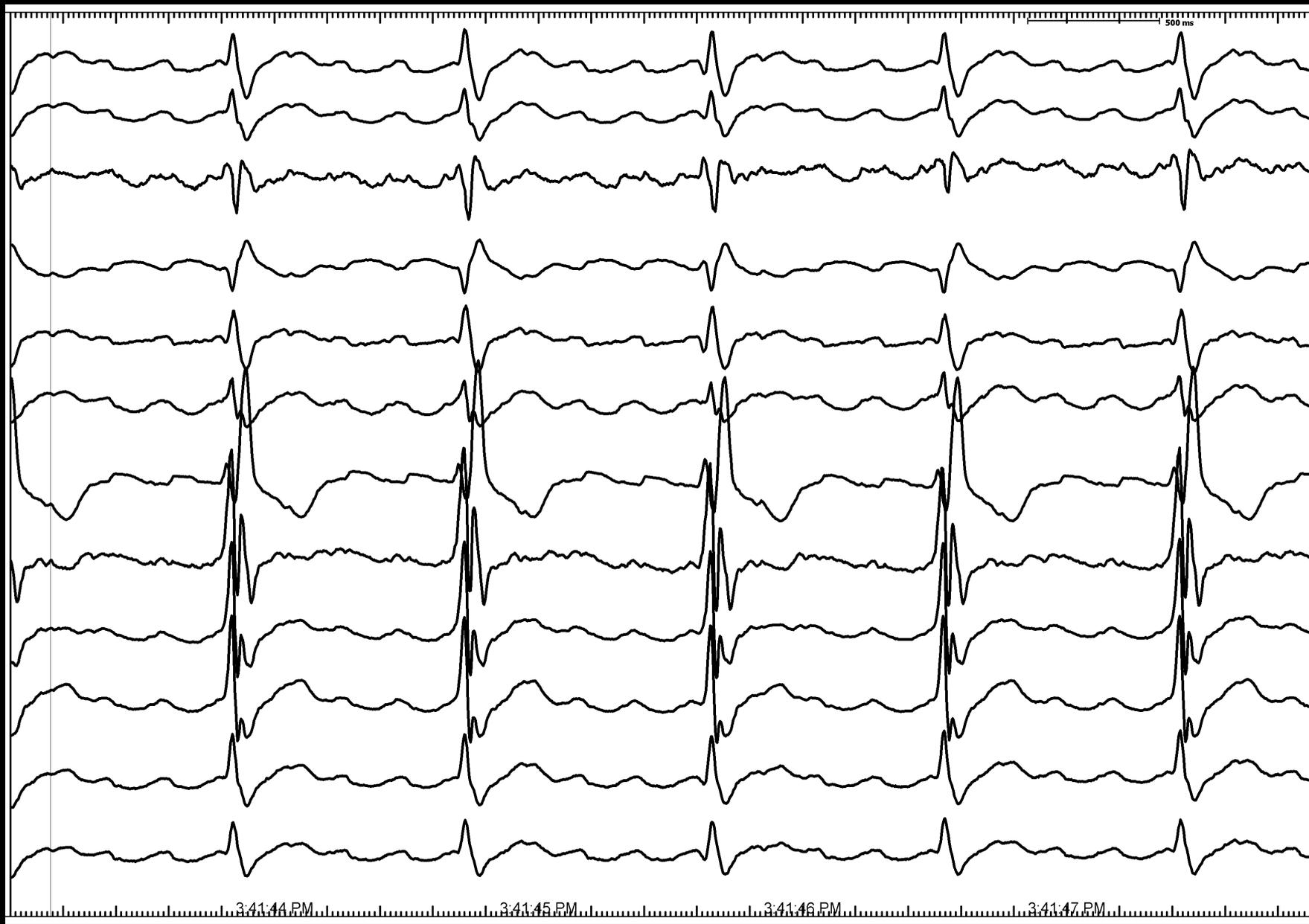
## **Type 3 (58%)**

- Negative F waves with broad positive terminal deflection
- Prior A Fib
- Longer CL

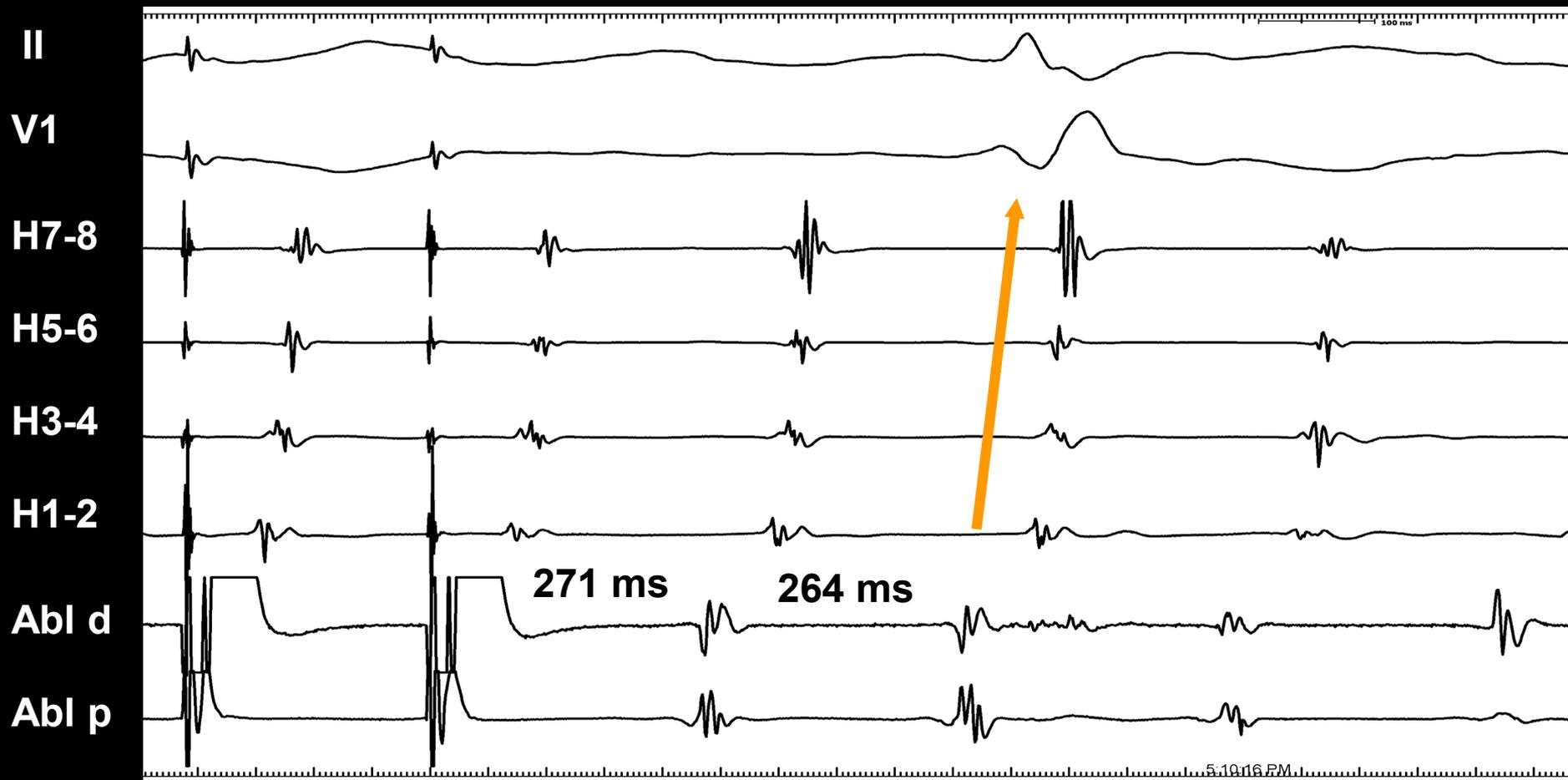


# Atypical flutter?

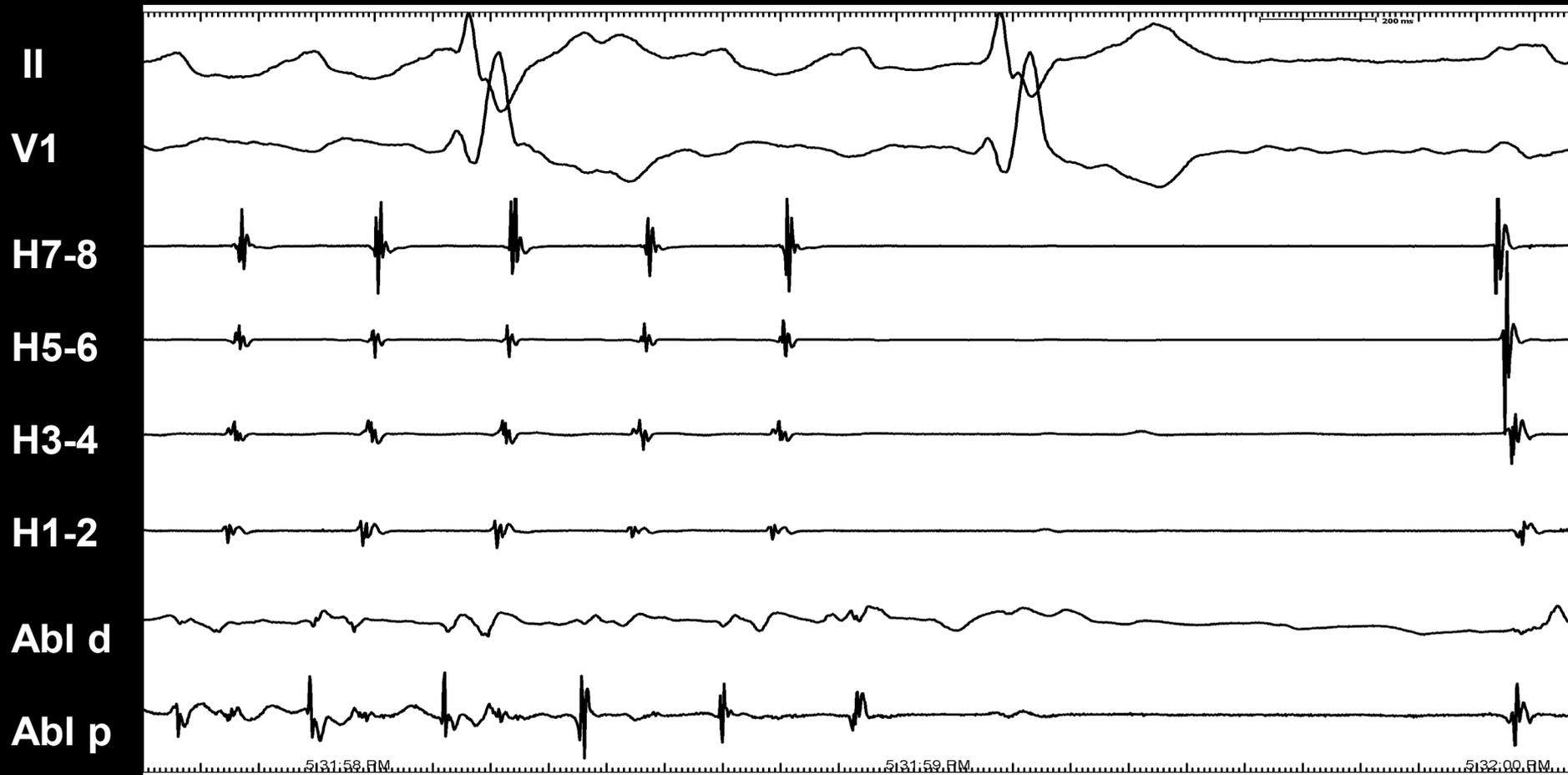
I  
II  
III  
aVR  
aVL  
aVF  
V1  
V2  
V3  
V4  
V5  
V6



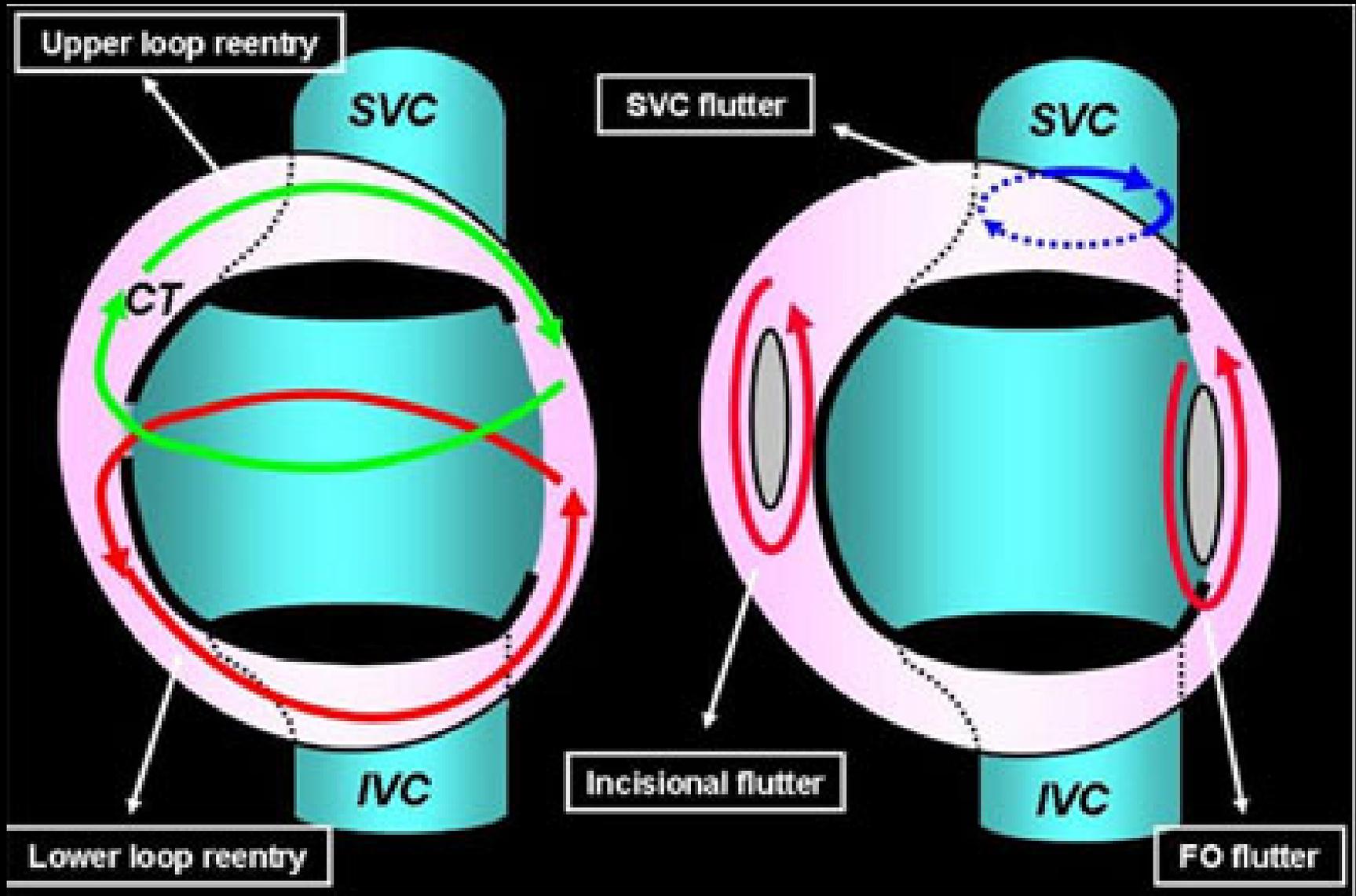
# Typical clockwise isthmus-dependant flutter



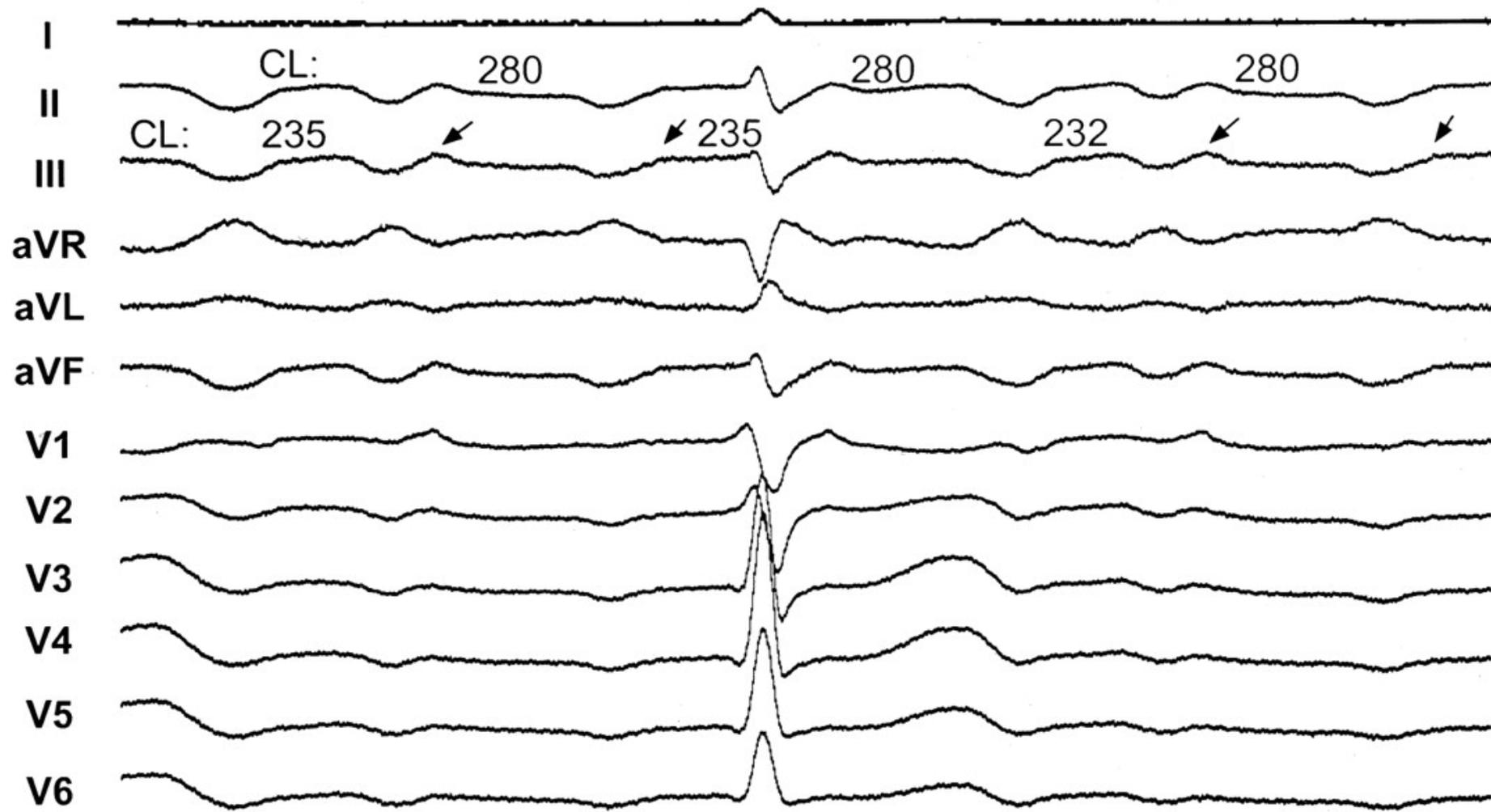
# Termination typical clockwise isthmus-dependant flutter during RF ablation



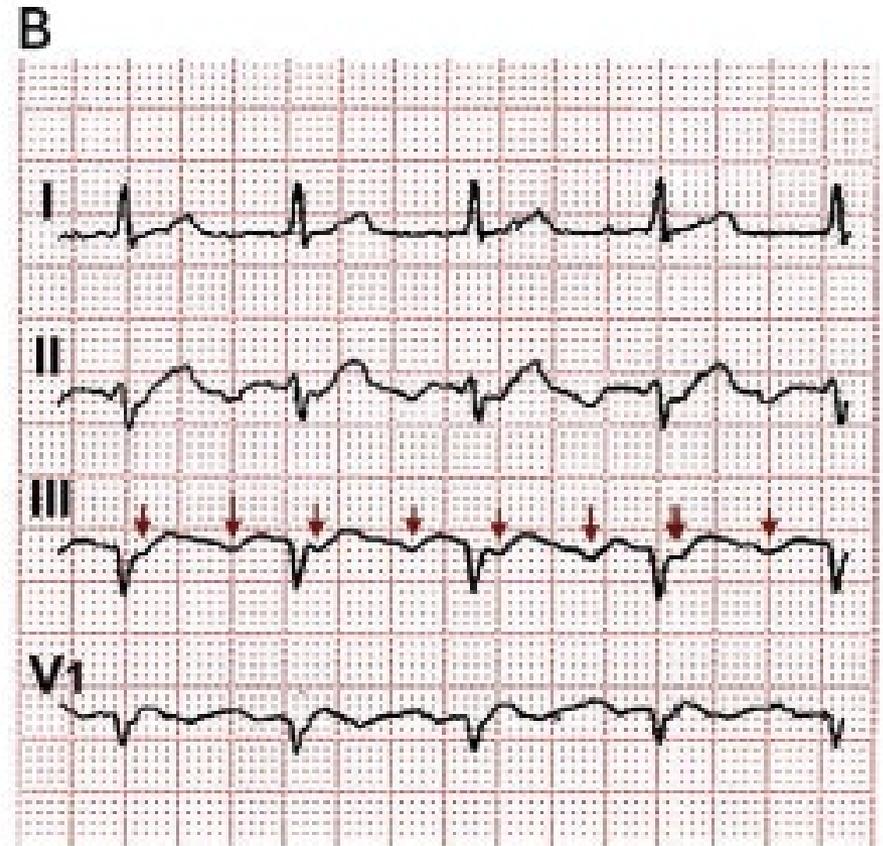
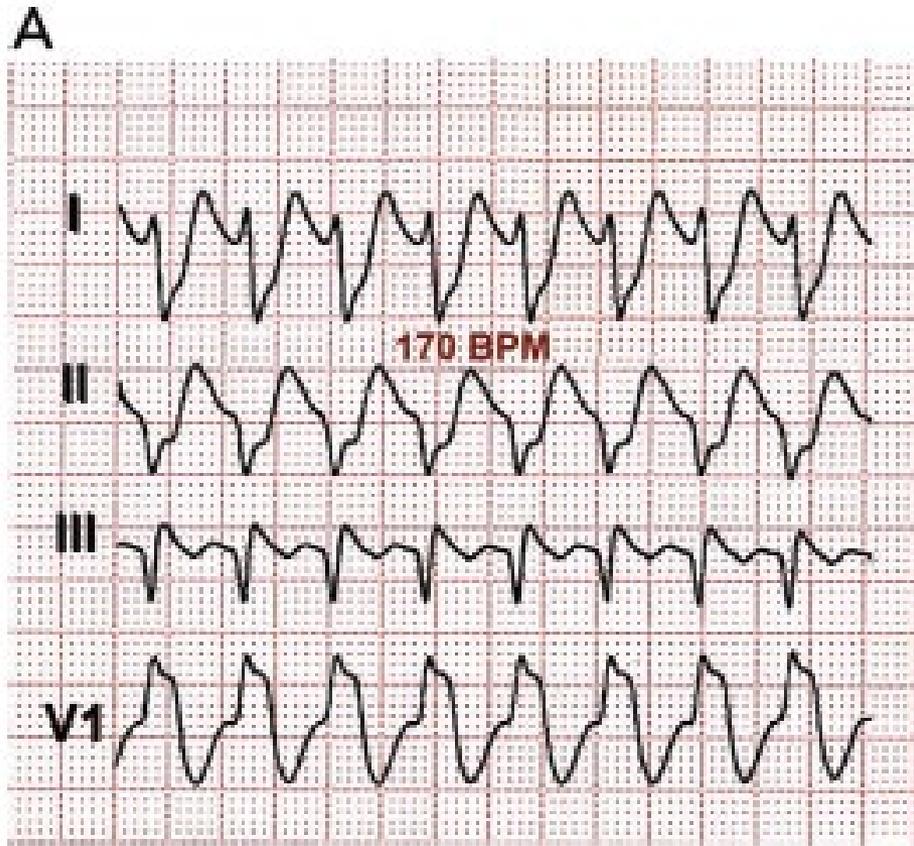
# Les circuits de flutter dans l'oreillette droite



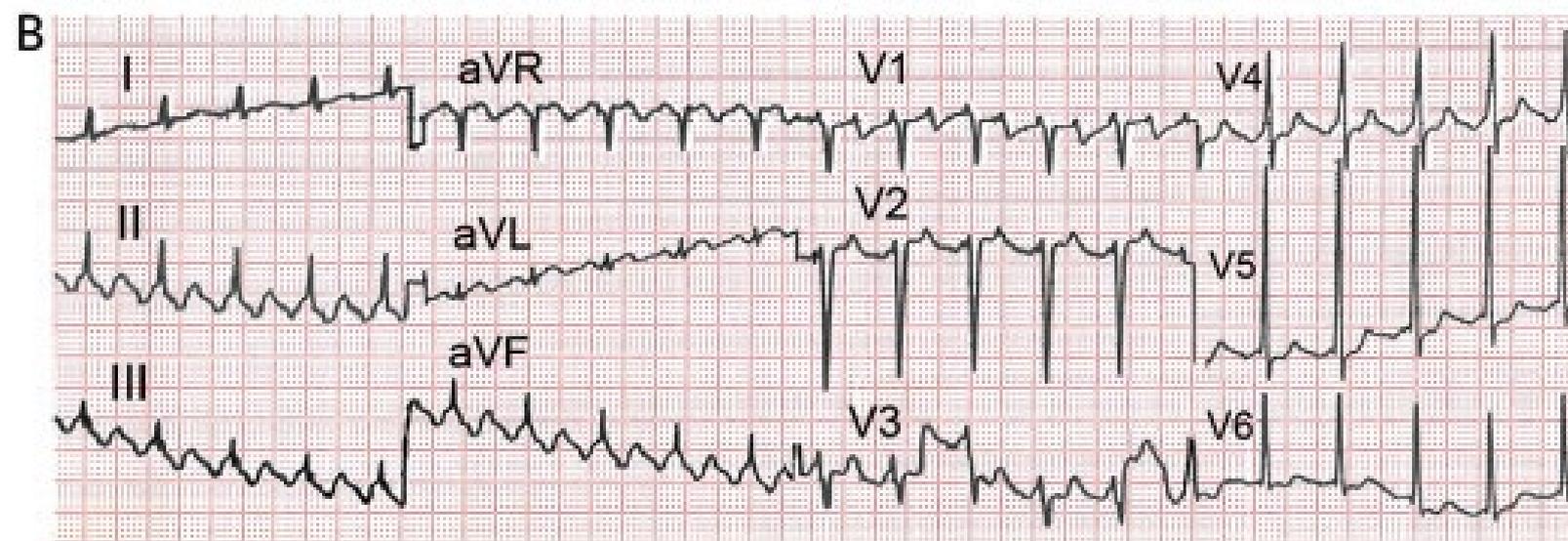
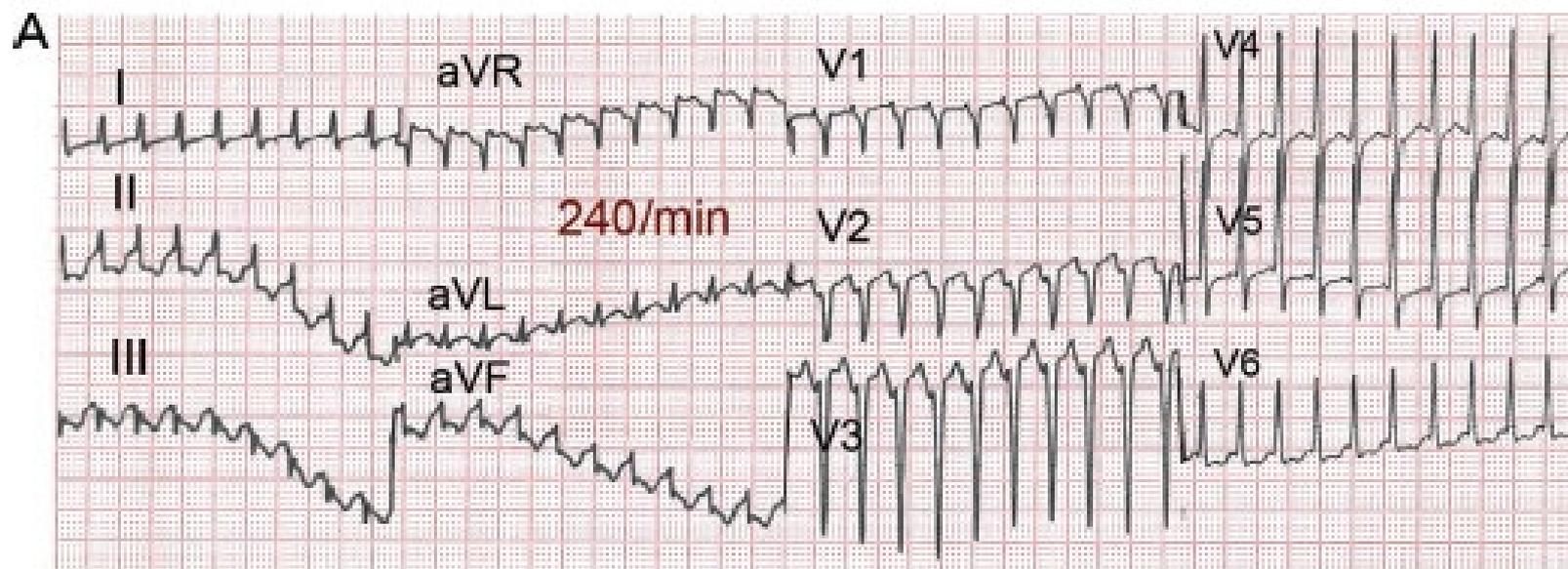
# Typical atrial flutter?



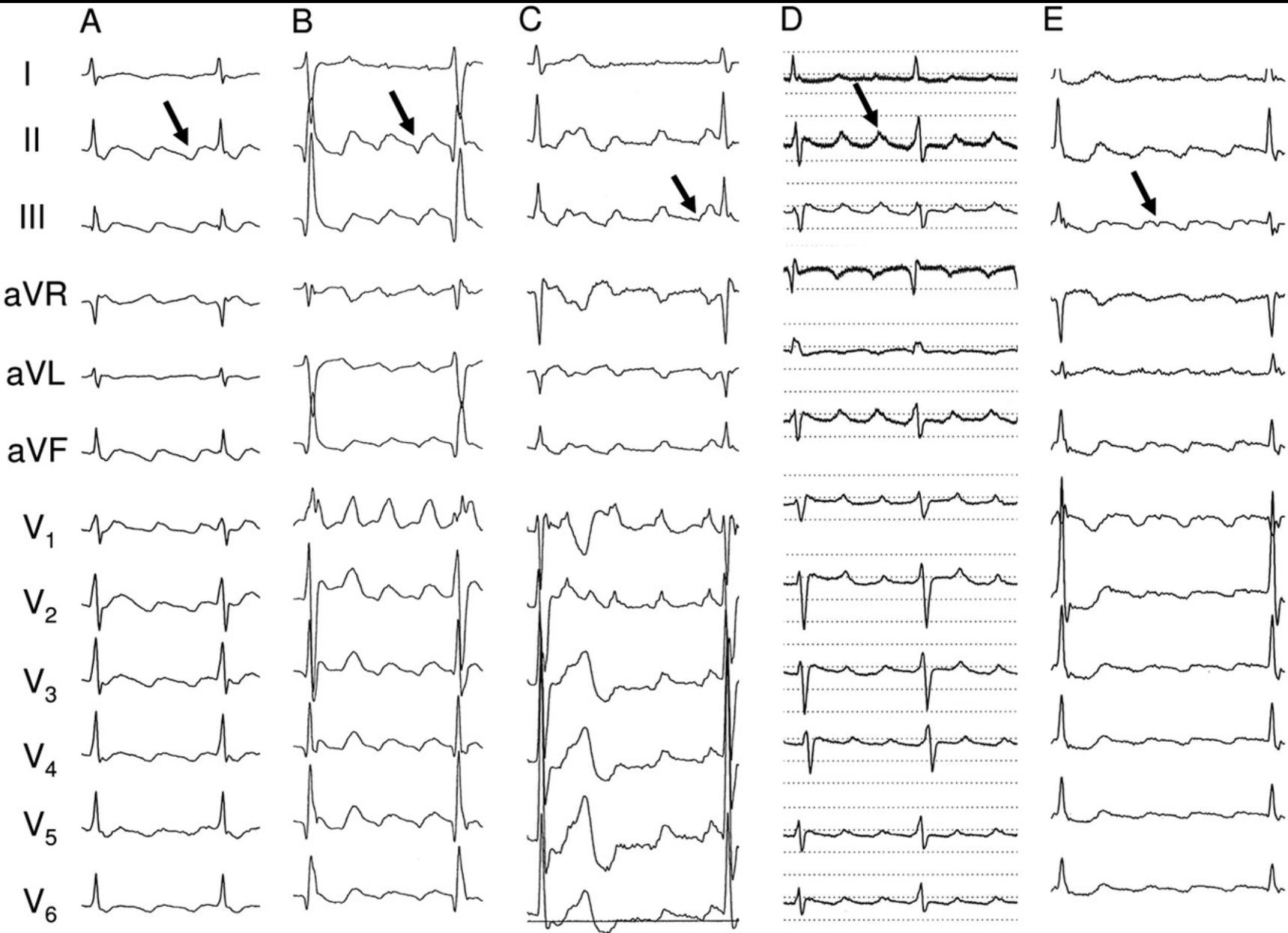
# Flutter typique 1 pour 1 sous Flécaïnide



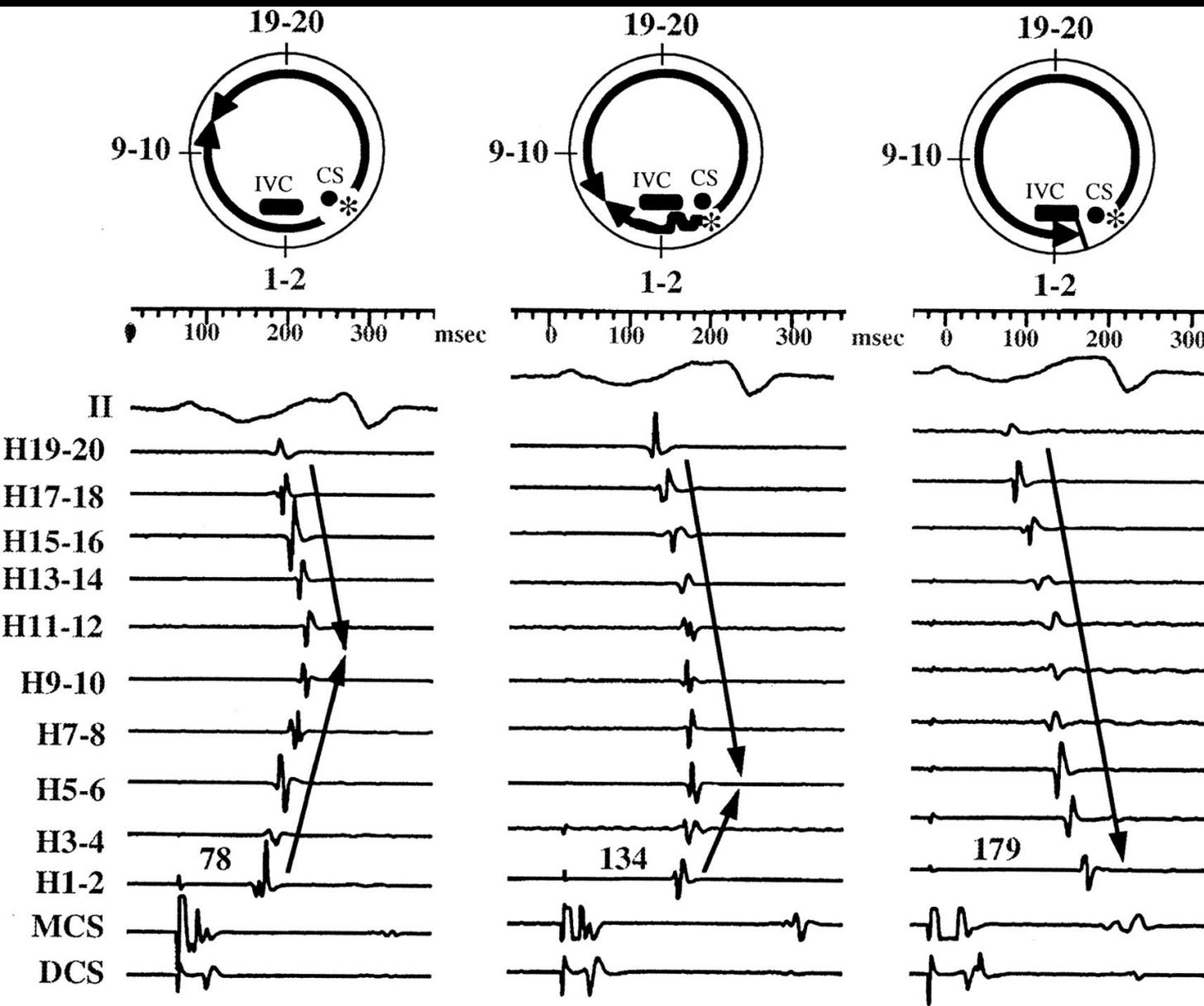
# Flutter 1 pour 1 avec fréquence ventriculaire rapide



# Bizarre ECG of typical flutter after LA ablation



# Evaluation du bloc isthmique



# Conclusions

## Le flutter typique:

- Plusieurs ECG
- Un seul mécanisme
- Un seul traitement: l'ablation par radiofréquence