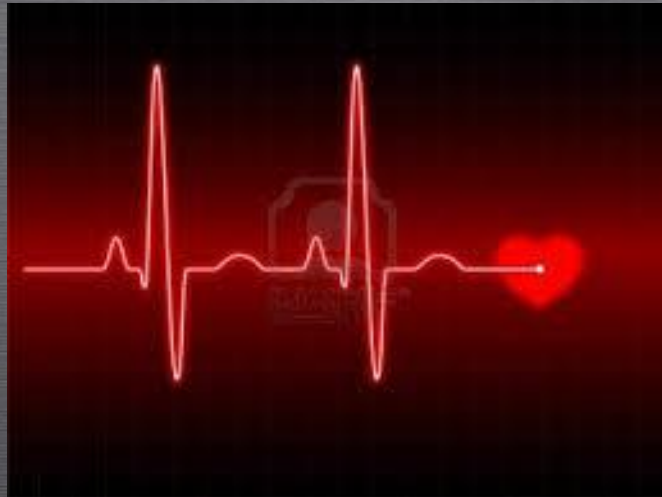


# ECG WORKSHOP

## PATTERN RECOGNITION, INDUCTIVE- DEDUCTIVE MECHANISMS OR BOTH?



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FEBRUARY 2015  
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# CONFLICT OF INTEREST

- UNRESTRICTED GRANT (BAYER)
- UNRESTRICTED GRANT (MEDTRONIC)
- HONORARIUM FROM BAYER, MEDTRONIC, ST JUDE, BOEHRINGER INGELHEIM

Special thanks to IWAS Organizers  
to allow us to participate in this meeting





EUGENE...WOULDN'T BE  
GREAT IF WE RUN AN ECG  
EXAM DURING IWAS?

DO IT!



I NEED A WI-FI  
CONNECTION FOR 55  
PEOPLE AND ADVERTISING  
TO PRE-REGISTER.....

DO IT!



I NEED THE EXPENSES OF  
MY CO-INVESTIGATOR  
COVERED, TWO ROOMS, A  
LARGE POT OF COFFEE,  
SOME EXTRA  
COMPUTERS...

DO IT!



So, here we are...after fighting for months for this opportunity....



# ROUTE MAP

1. AB TO DELIVER A 30-40 MIN TALK ON ECG TEACHING STRATEGIES WITH 3+ EXAMPLES
2. COFFEE BREAK 5 MIN
3. KQ TO EXPLAIN THE DYNAMICS OF THE NEW ECG DIGITAL TOOL (ANONYMOUS!!!)
4. ECG EXAM (TIMED OUT!) 30 MIN



TOMORROW



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# OBJECTIVES

- TO QUICKLY REVIEW METHODS TO LEARN ECG SKILLS
- TO REVIEW 3+ INTERESTING ECGs
- TO EVALUATE A NEW DIGITAL TOOL TO ASSESS ECG INTERPRETATION SKILLS





# How to teach electrocardiology?

1. No teaching method has been validated
2. No “specified skills” are required to become a teacher
3. No clear objectives are described in the curricula
4. No evaluation system has been designed so far
5. No strategy to avoid “erosion” has been implemented





# How to teach electrocardiology?

## Strategies

Pattern  
Recognition



- Memory
- Associations
- Recollection
- Exposure

Inductive/deductive  
mechanisms

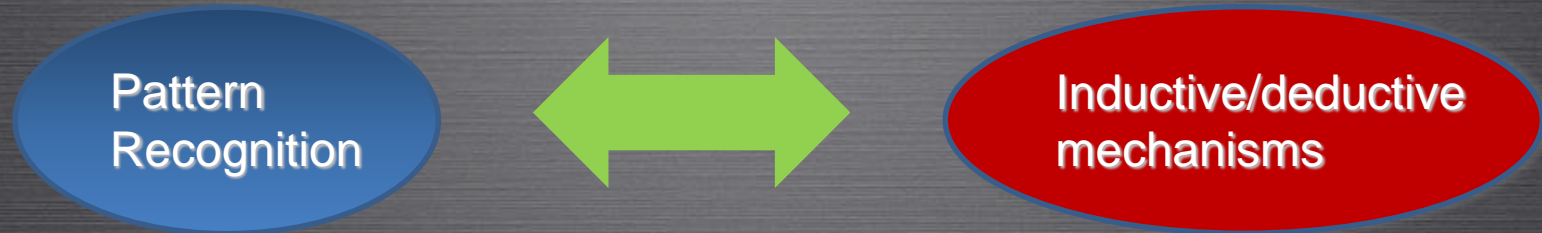


- Physiopathological understanding
- Algorithms
- Clinical vignettes/ scenarios
- Clinical practice





# INTERACTION

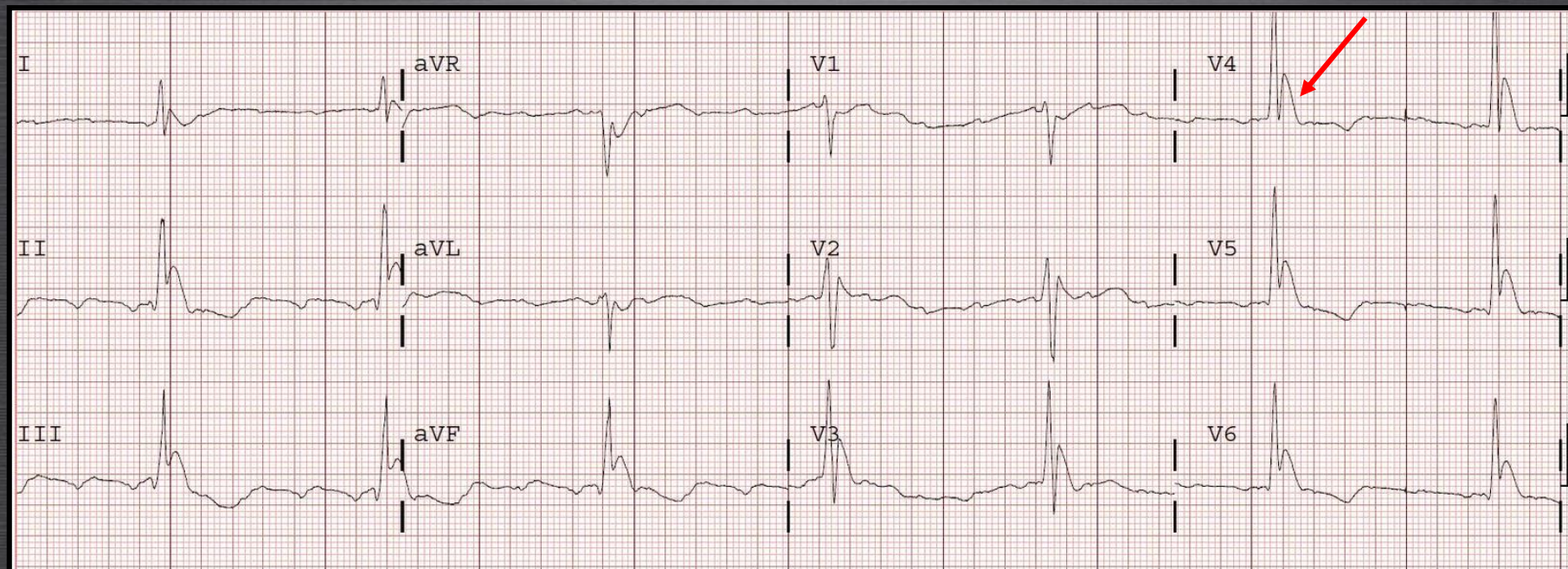


1. ECG is useful for diagnosis
2. ECG is useful to decide treatment
3. ECG is useful to understand electrophysiological mechanisms
4. ECG is useful for prognosis





# CASE #1



Hypothermia

- Osborne waves (J-point!!!)
- QRS widening
- Atrial arrhythmias
- QT Prolongation



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Pattern  
Recognition



Inductive/deductive  
mechanisms

Hypothermia

- Osborne waves (J-point!!!)
- QRS widening
- Atrial arrhythmias
- QT Prolongation

1. Learn effects of cold over the conduction system
2. See gradual deterioration with lower temperatures
3. Find cases from clinical practice (effects of cooling in ICU, CABG, etc)
4. Discuss treatment (re-warming) and management of VF in this setting



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# CASE

## #2

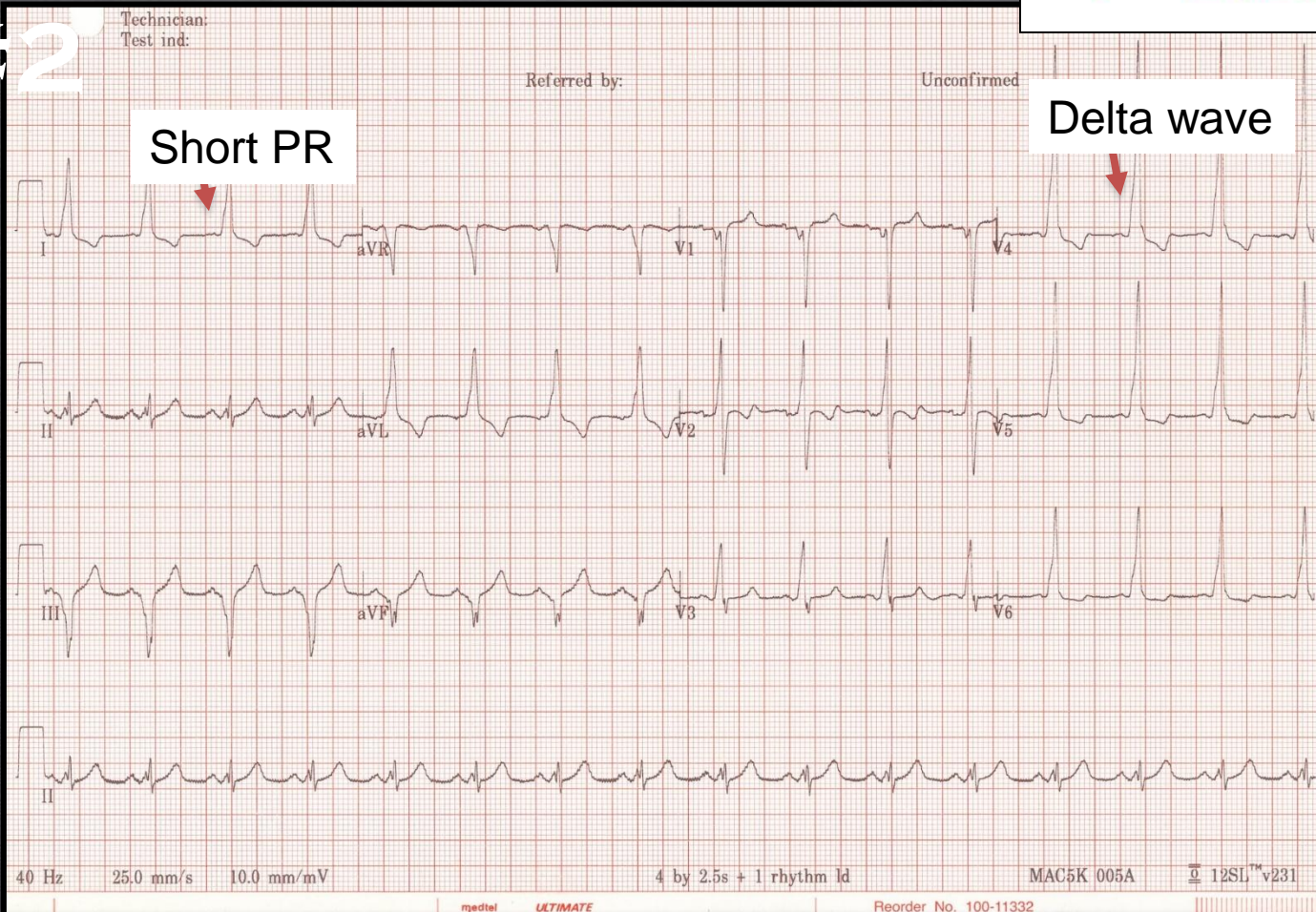
Technician:  
Test ind:

Referred by:

Unconfirmed

Short PR

Delta wave



Ventricular  
Preexcitation

- Short PR
- Delta-waves / QRS widening
- Pseudo-infarct pattern (inferior leads)



Pattern  
Recognition



Inductive/deductive  
mechanisms

Ventricular  
Preexcitation

- Short PR
- Delta-waves / QRS widening
- Pseudo-infarct pattern (inferior leads)

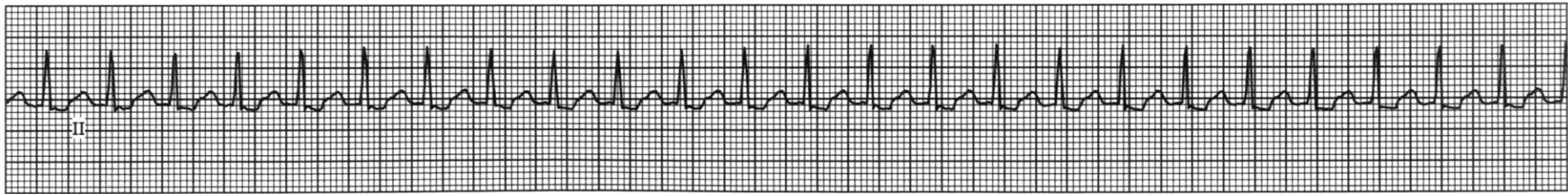
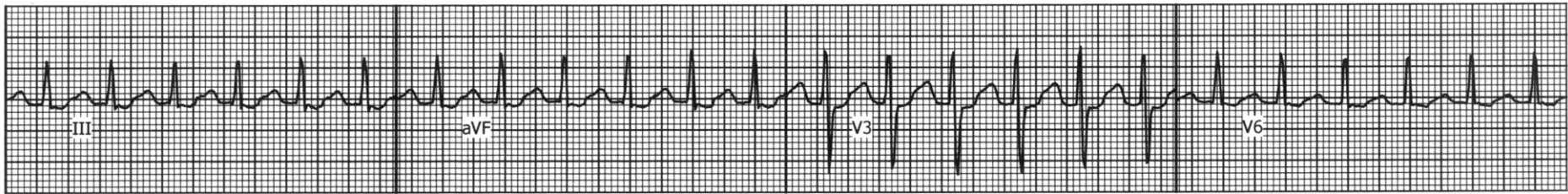
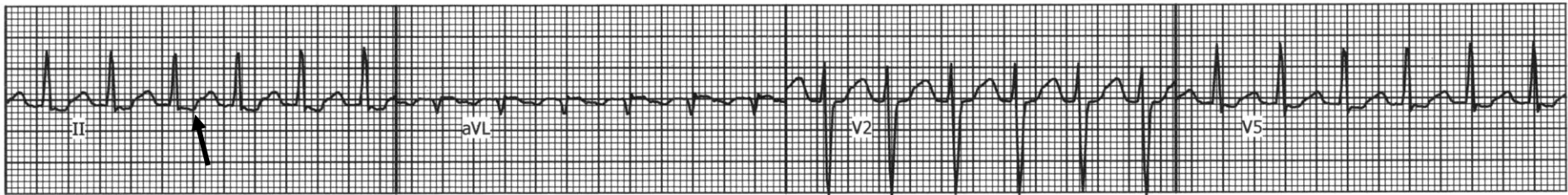
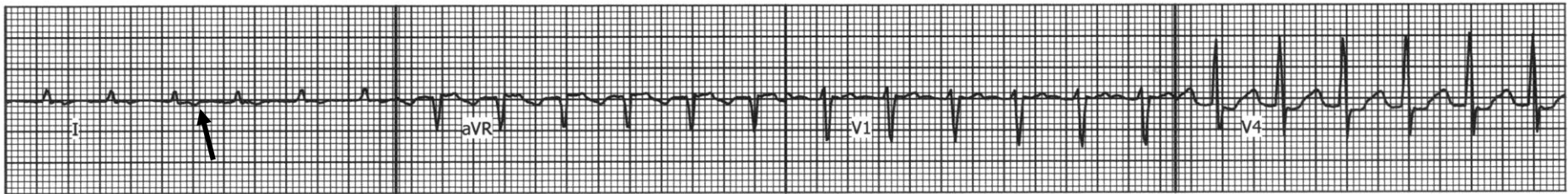
1. Learn effects of AV accessory pathways on surface ECG
2. Algorithms to locate the accessory pathways
3. Learn arrhythmias associated with accessory pathways (WPW)
4. Plan your treatment accordingly (ie: invasive approach based on pathway location)



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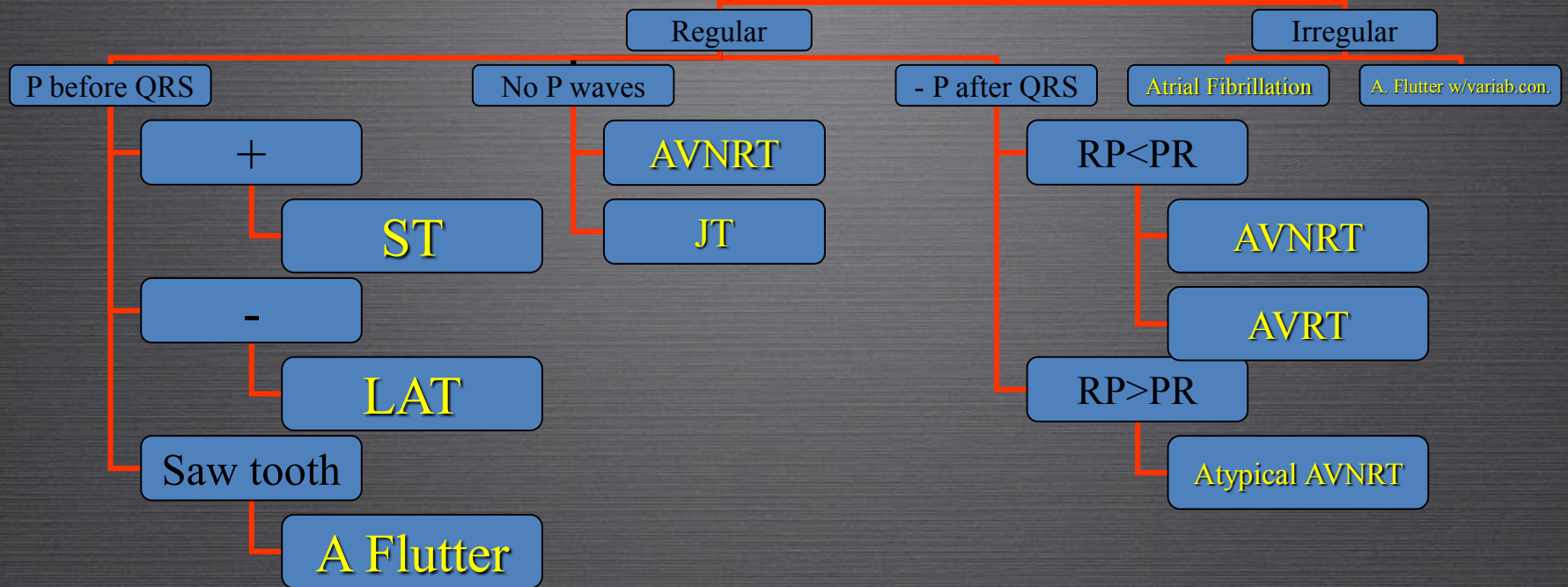
# CASE #2 —





# CASE #2 – CONT.

## Narrow Complex Tachycardia



Pattern  
Recognition

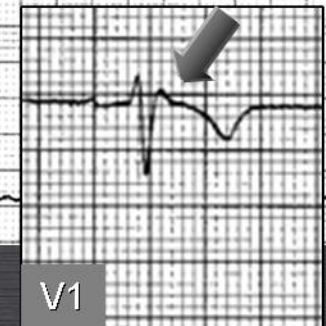
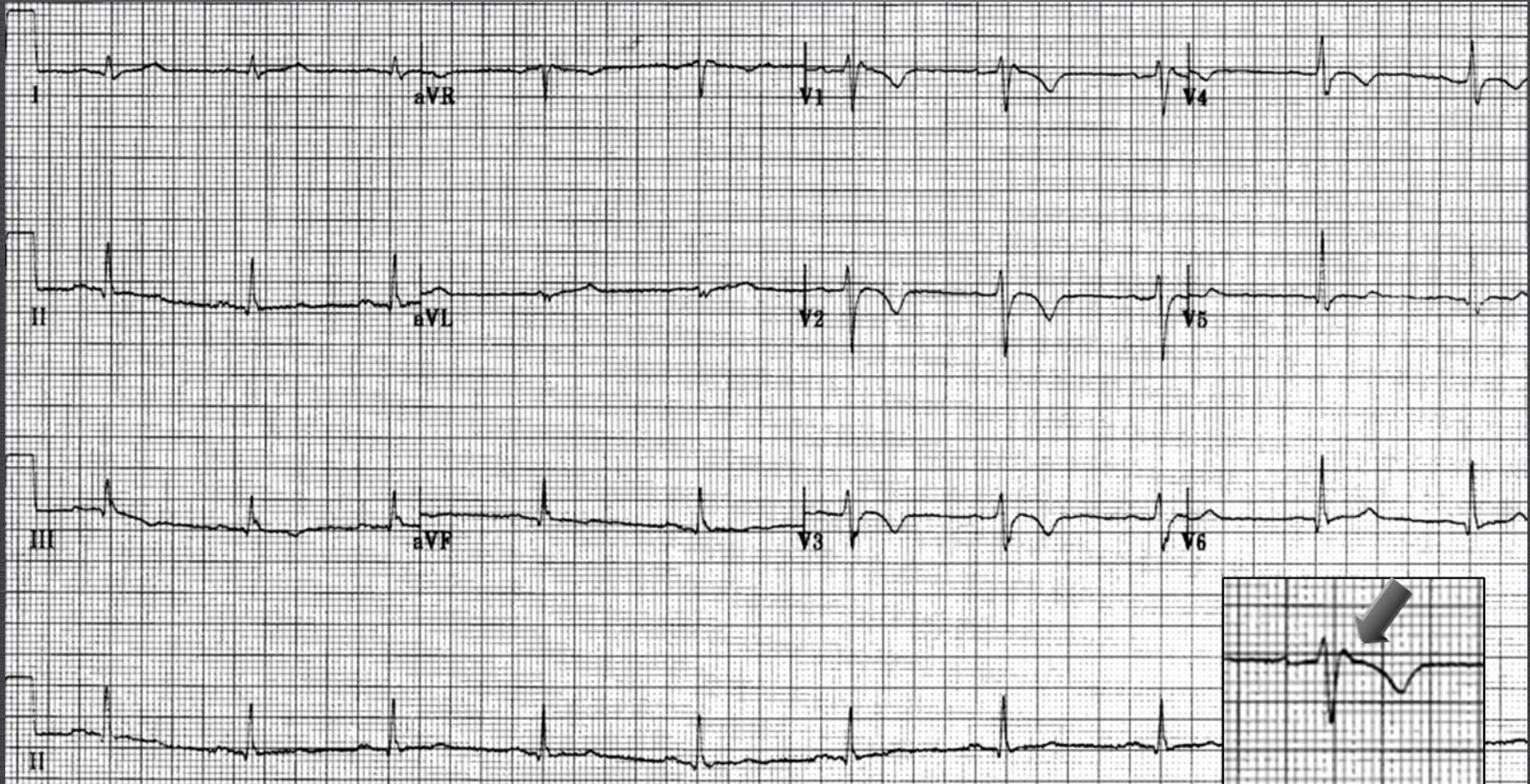


Inductive/deductive  
mechanisms





# CASE #3



ARVD

- Low voltage
- T-wave inversion V1 to V4
- Epsilon-wave in right precordial leads





Pattern  
Recognition



Inductive/deductive  
mechanisms

ARVD

- Low voltage
- T-wave inversion V1 to V4
- Epsilon-wave in right precordial leads

1. Learn about major/minor criteria
2. Review physiopathology of ARVD (fatty/fibrous tissue replacing myocytes)
3. Bring other modalities for diagnosis (MRI, ECHO, SAECG)
4. Review Fontaine leads placement
5. Plan your treatment accordingly (ie: AAD, ICD, etc)



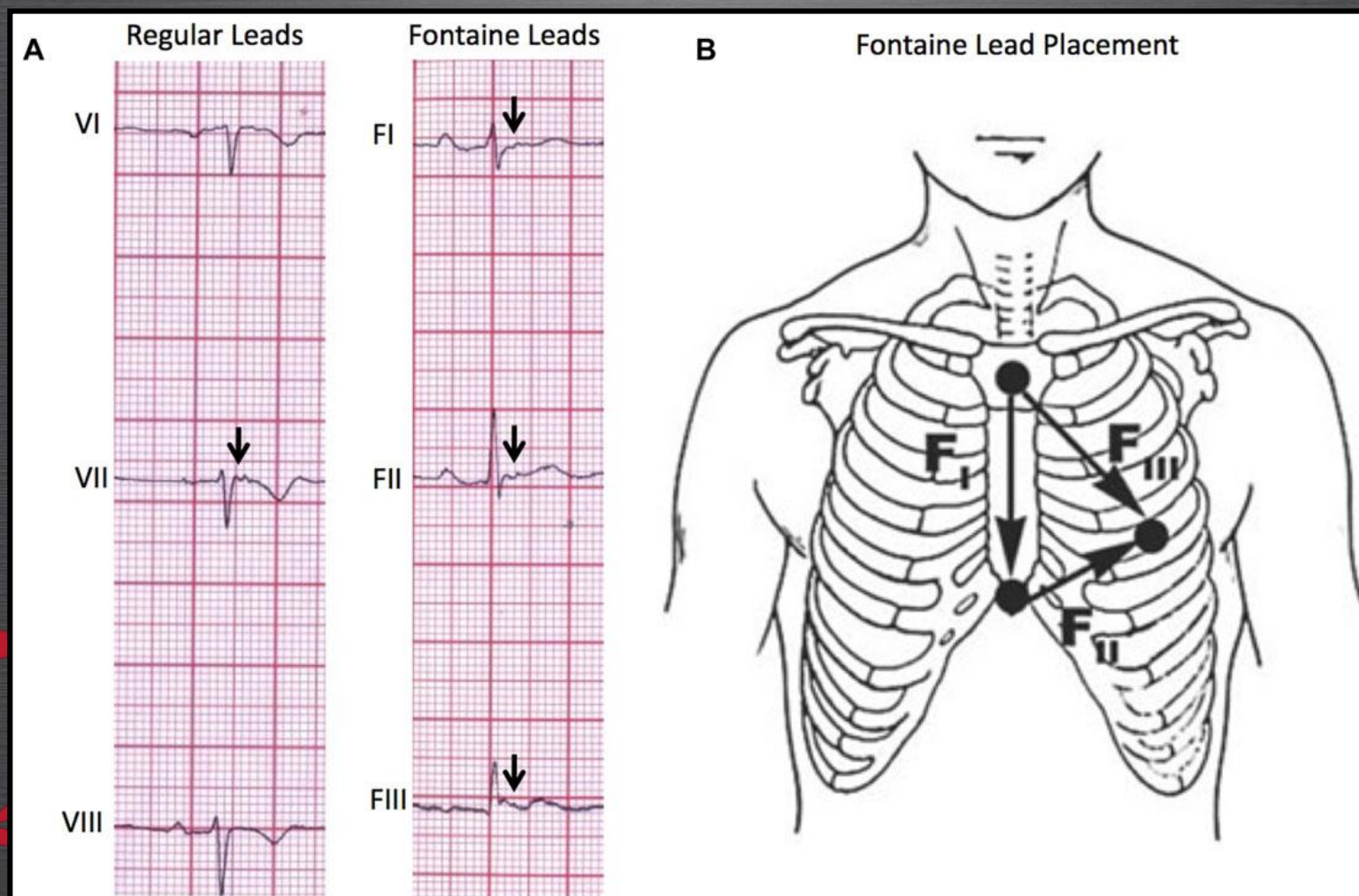
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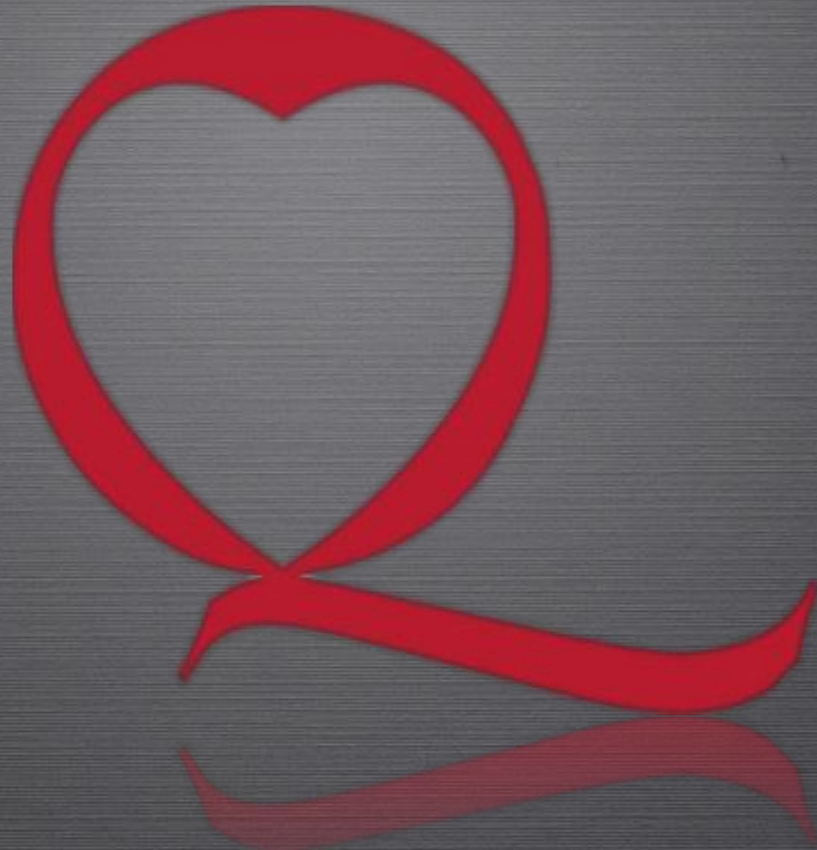
# The Use of Fontaine Leads in the Diagnosis of Arrhythmogenic Right Ventricular Dysplasia

Byron Gottschalk, B.M.Sc.,\* Michael Gysel, B.Sc.,\*  
 Raimundo Barbosa-Barros, M.D.,† Ricardo Paulo De Sousa Rocha, M.D.,†  
 Andrés Ricardo Pérez-Riera, M.D., Ph.D.,‡ Li Zhang, M.D.,§ Guy Fontaine, M.D.,¶  
 and Adrian Baranchuk, M.D., F.A.C.C., F.R.C.P.C.\*

ANE 2014







**Thanks for your attention!!!!**



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