HUMBER RIVER HOSPITAL

Cardiac Arrhythmias

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Séminaire
Winter Arrhythmia
School

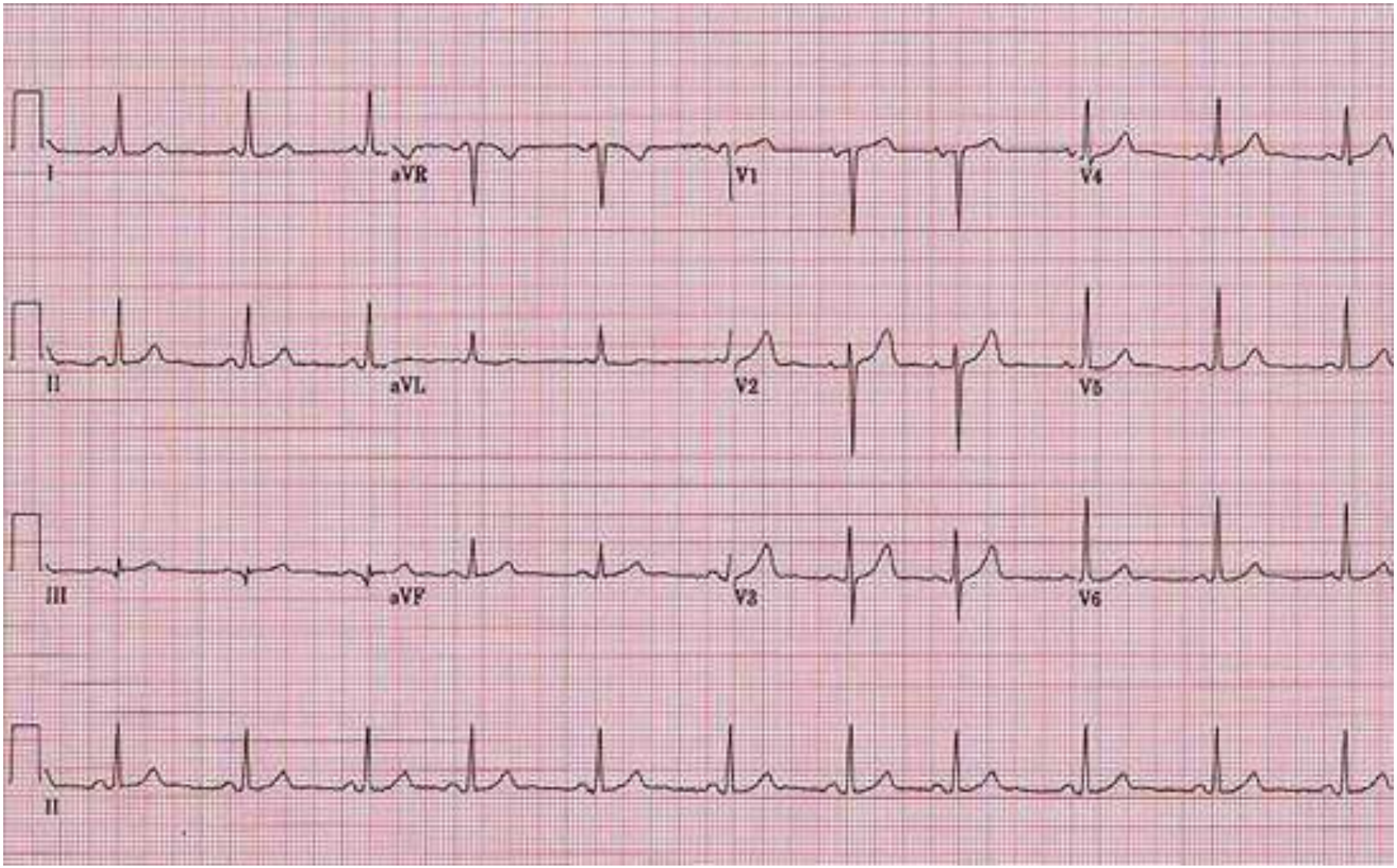
Annual Cardiac Arrhythmia Meeting
Division of Cardiology, University of Toronto

12th Annual
Collingwood, Ontario
February 6-8, 2015

Case 1

- 27F. Presents with palpitations, anxiety, “sense of dread”, mild dyspnea, pre-syncope
- Has fear of heights and is going for a hot-air balloon ride tonight with her boyfriend
- Fainted once in a hot classroom in high school
- Palpitations have resolved; feel ok now. ECG done in ER:

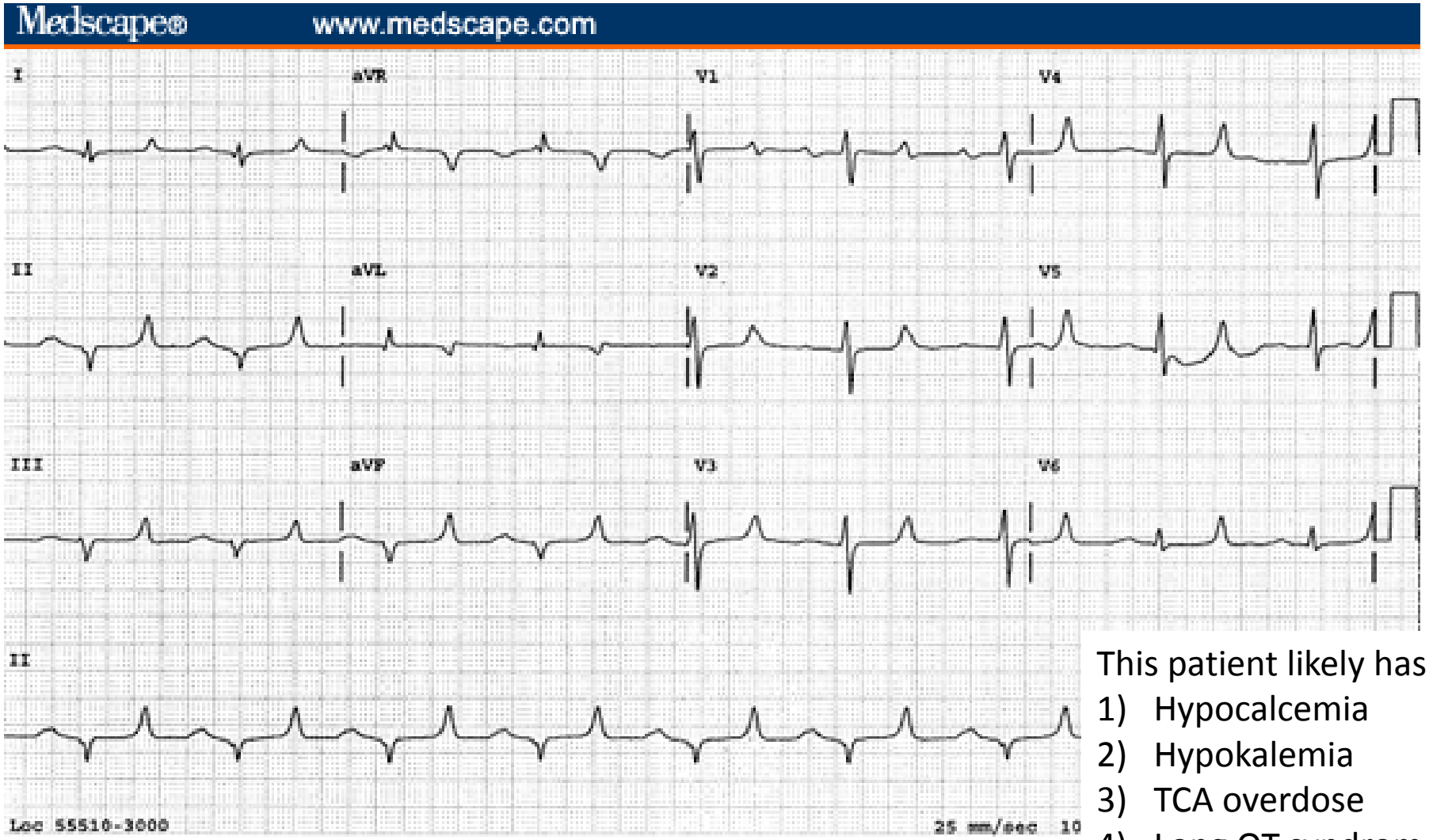
Case 1



NORMAL!

- Probably the hardest ECG to read
- This case is from last week's The Bachelor (Britt Nilsson's 1-on-1 date)

Case 2

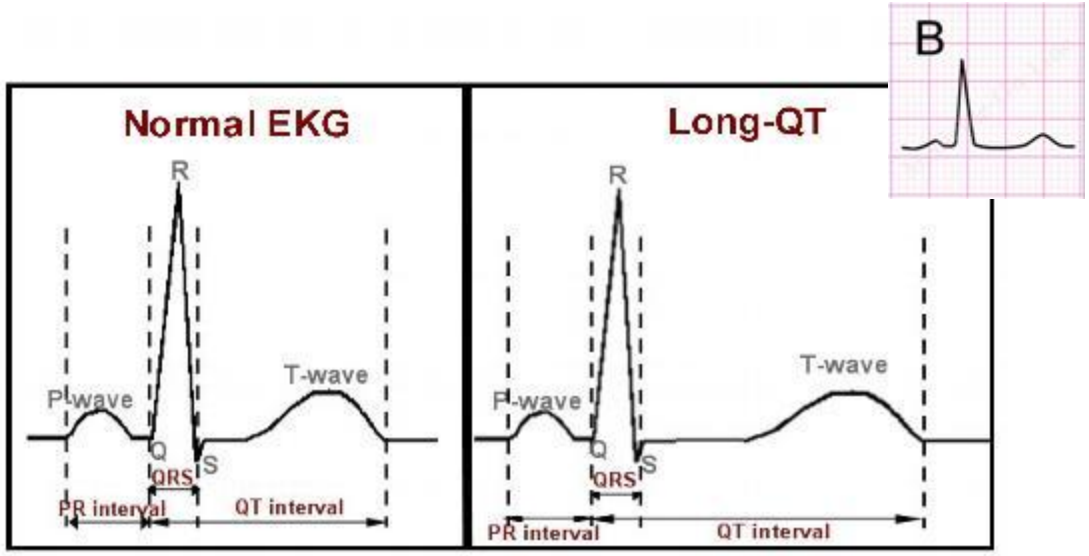


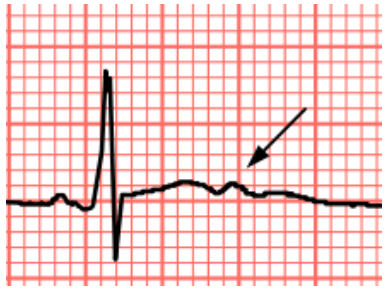
This patient likely has:

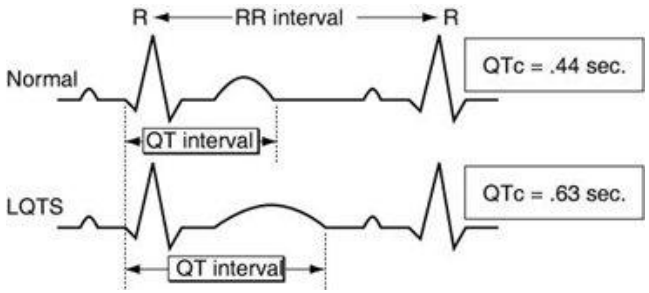
1) Hypocalcemia
2) Hypokalemia
3) TCA overdose
4) Long QT syndrome

Case 2

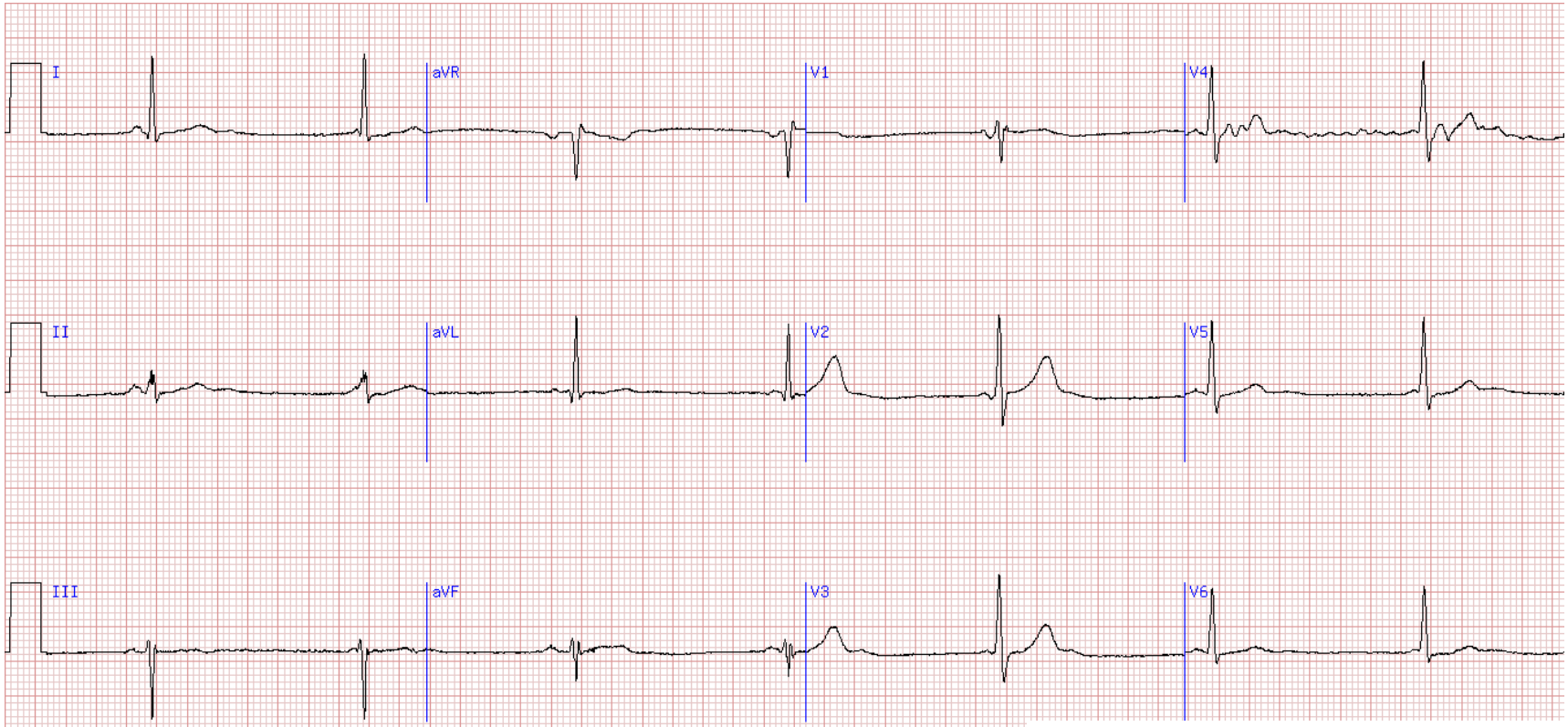
- Hypocalcemia
  - Prolonged QT but not due to longer T waves or U-waves
  - Normal shaped T-wave here, normal ST segment







Case 3

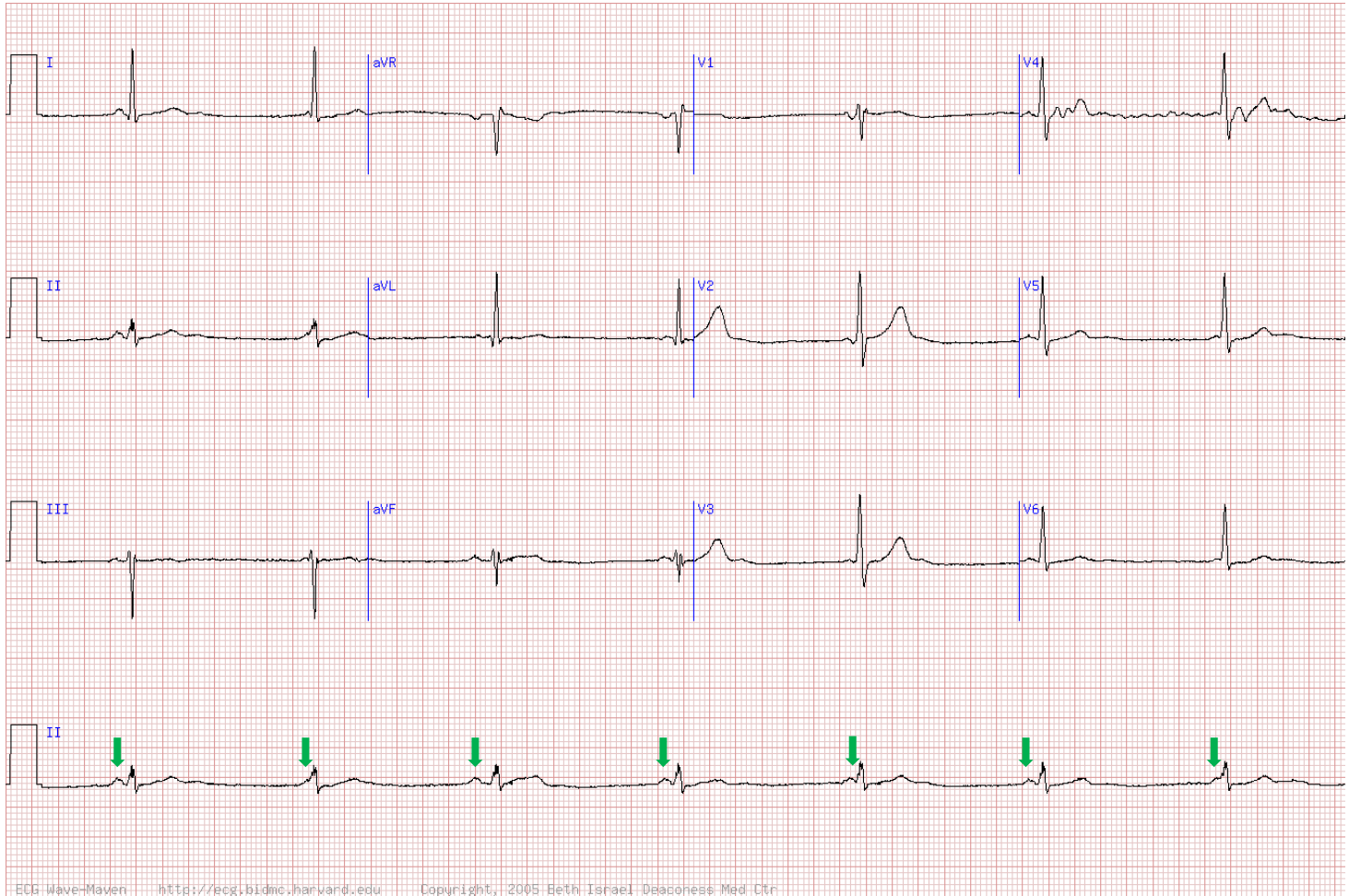


The rhythm is:

1) WPW/delta waves
2) Sinus
3) Complete Heart Block
4) None of the above

Case 3

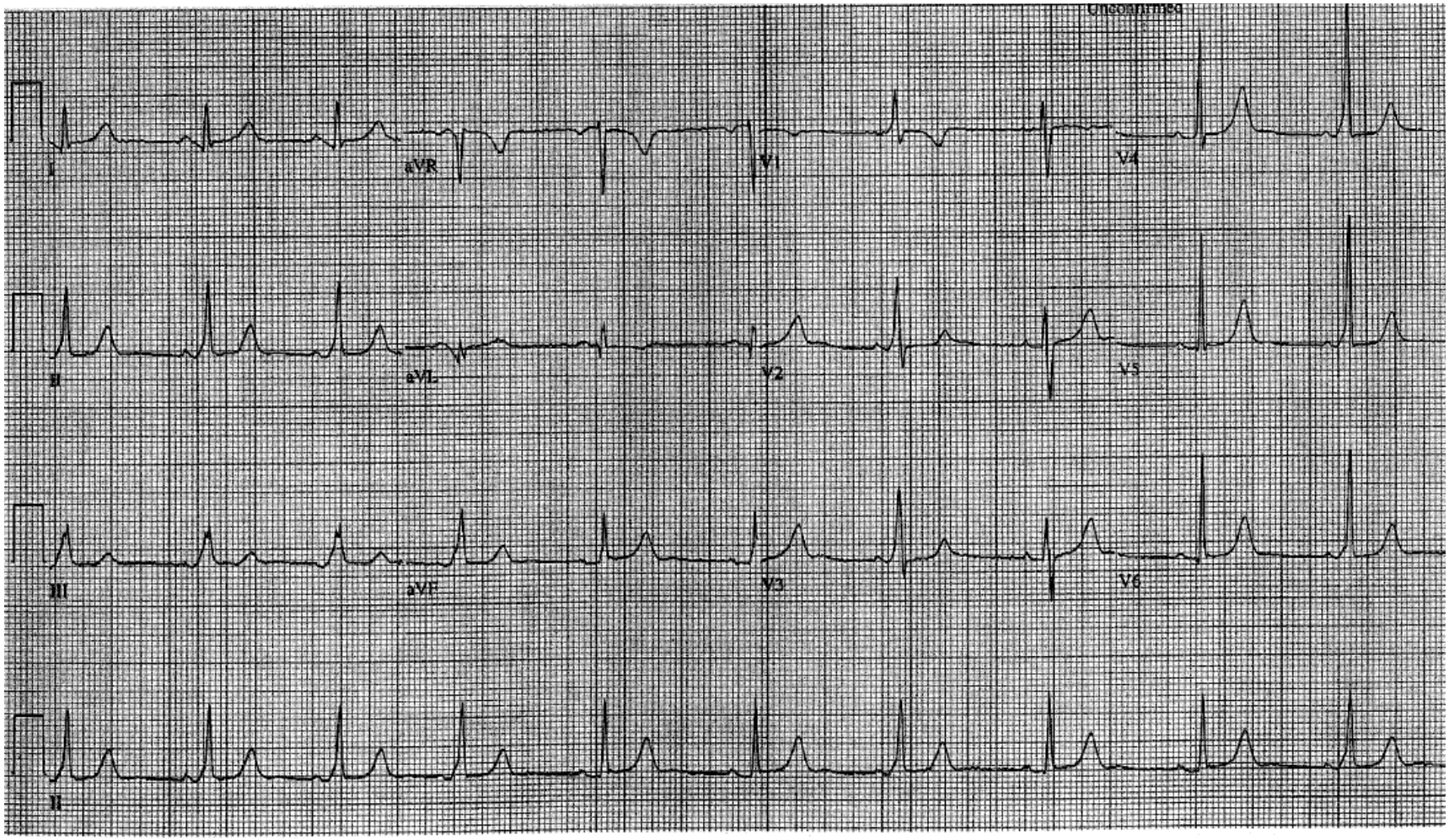
- Isorhythmic dissociation



Case 3

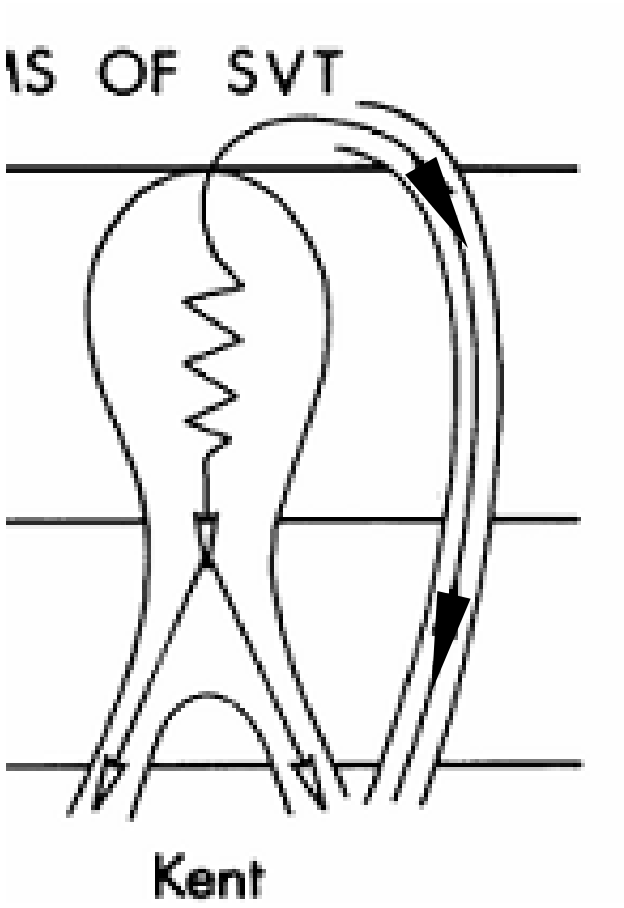
- Isorhythmic dissociation vs. heart block
  - Heart block implies A dissociated from V because of AVN/His block
  - Isorhythmic dissociation is when A rate slower than V rate
    - Extreme example: VT
    - Another example: sinus bradycardia with accelerate junctional escape

Case 4



Case 4

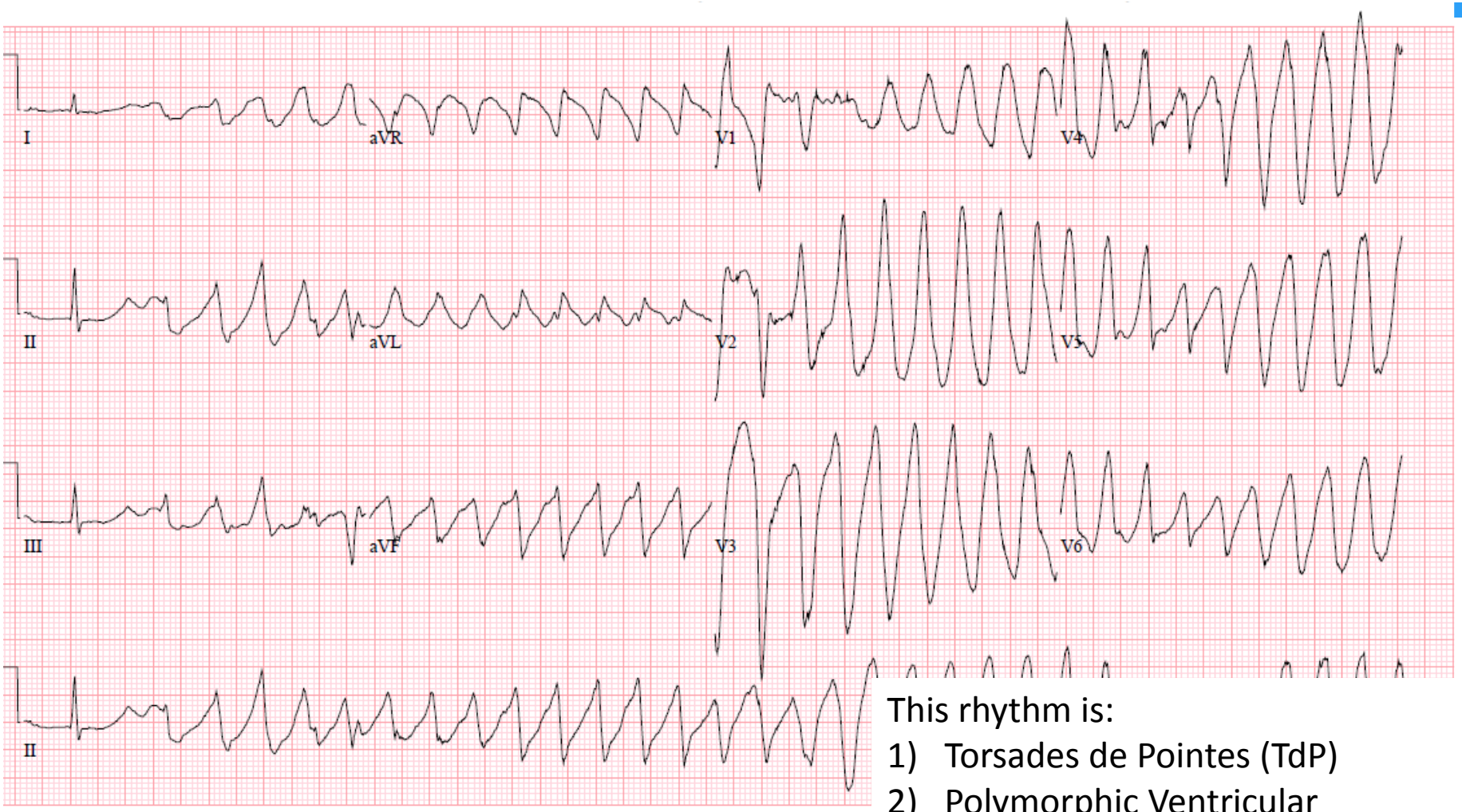
- Intermittent pre-excitation
- Differing amount of antegrade conduction via AVN results in changing amounts of pre-excitation
  - Affected by vagal tone, etc



Case 5

- 78F. History of “epilepsy”
- Comes to ER with recurrent seizures

Case 5

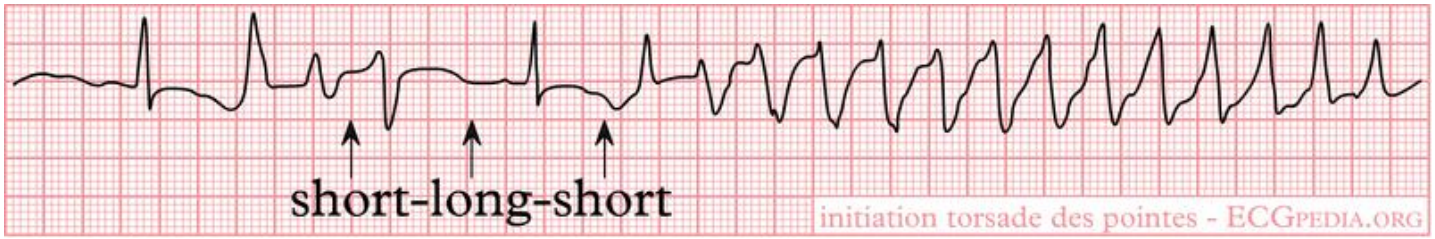


This rhythm is:

1) Torsades de Pointes (TdP)
2) Polymorphic Ventricular tachycardia
3) Pre-excited atrial fibrillation

Case 5

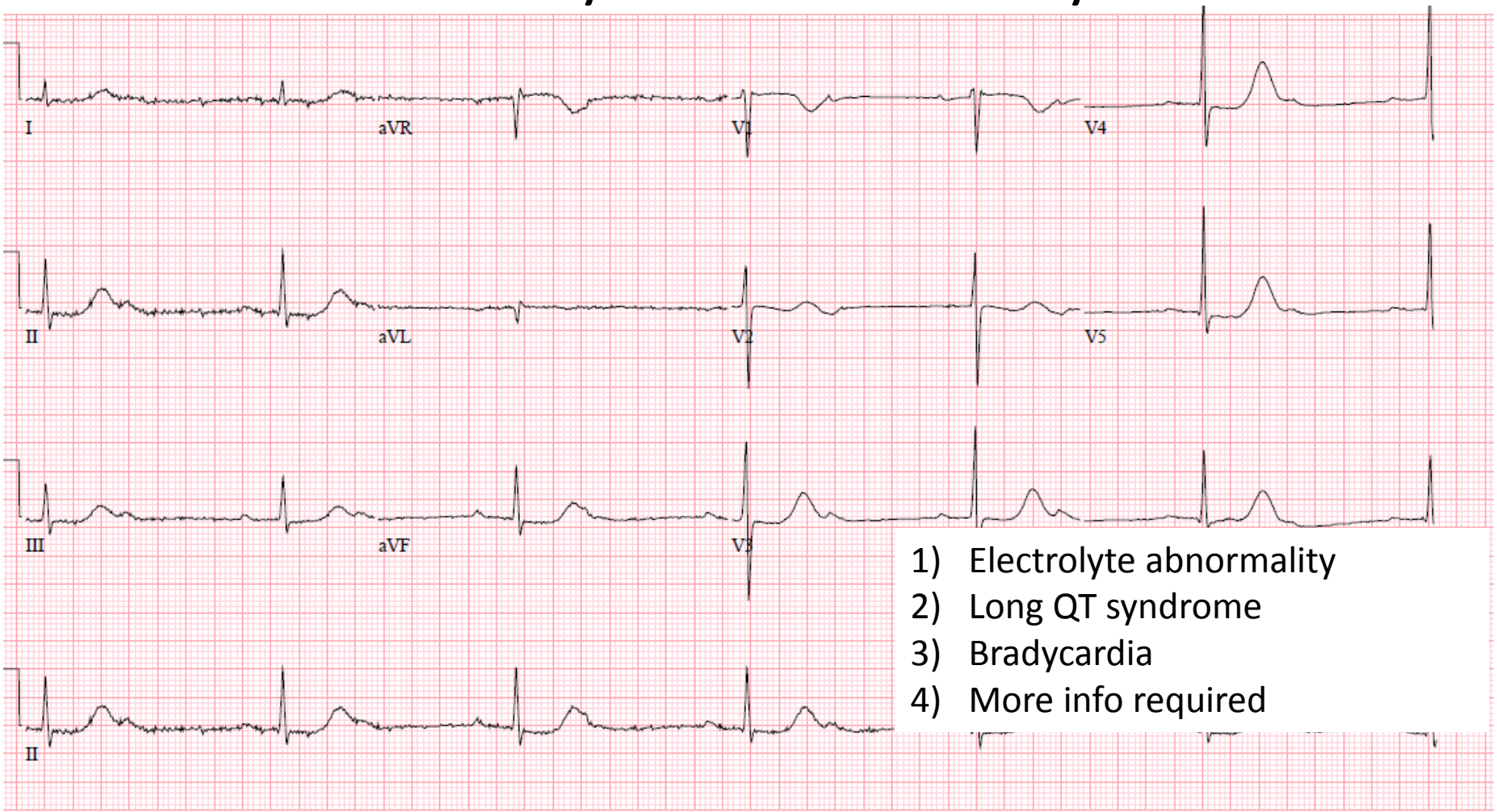
- Technically can only say polymorphic VT
- Torsades de Pointes:
  - Classically, looking for short-long-short initiation



- Causes for polymorphic VT?
  - Ischemia
  - Long QT
    - Acquired: drugs, bradycardia, lytes, etc.
    - Congenital

Case 5

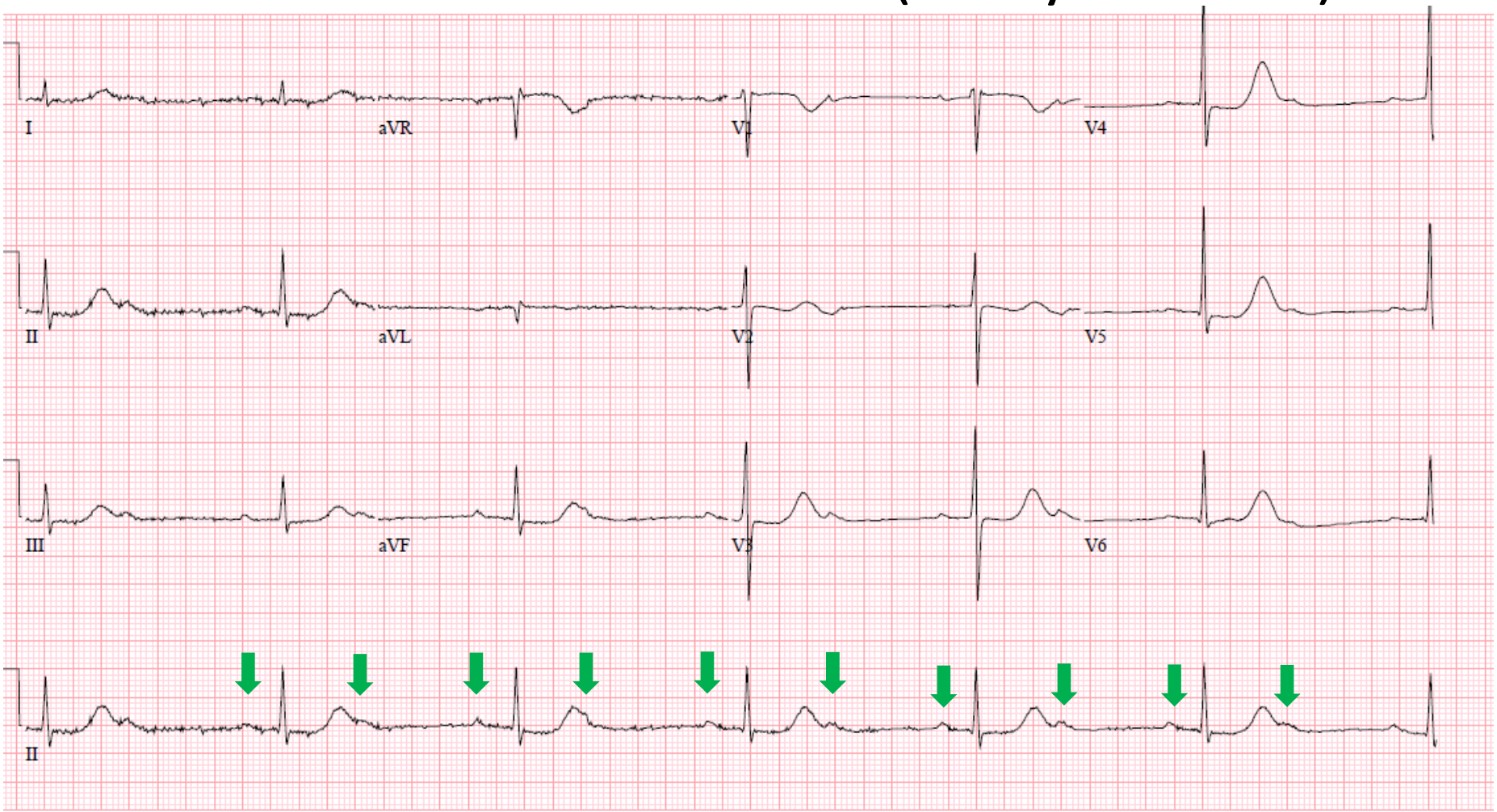
- What is the likely cause in our lady?



1) Electrolyte abnormality
2) Long QT syndrome
3) Bradycardia
4) More info required

Case 5

- 2:1 Heart block at baseline (brady-induced)

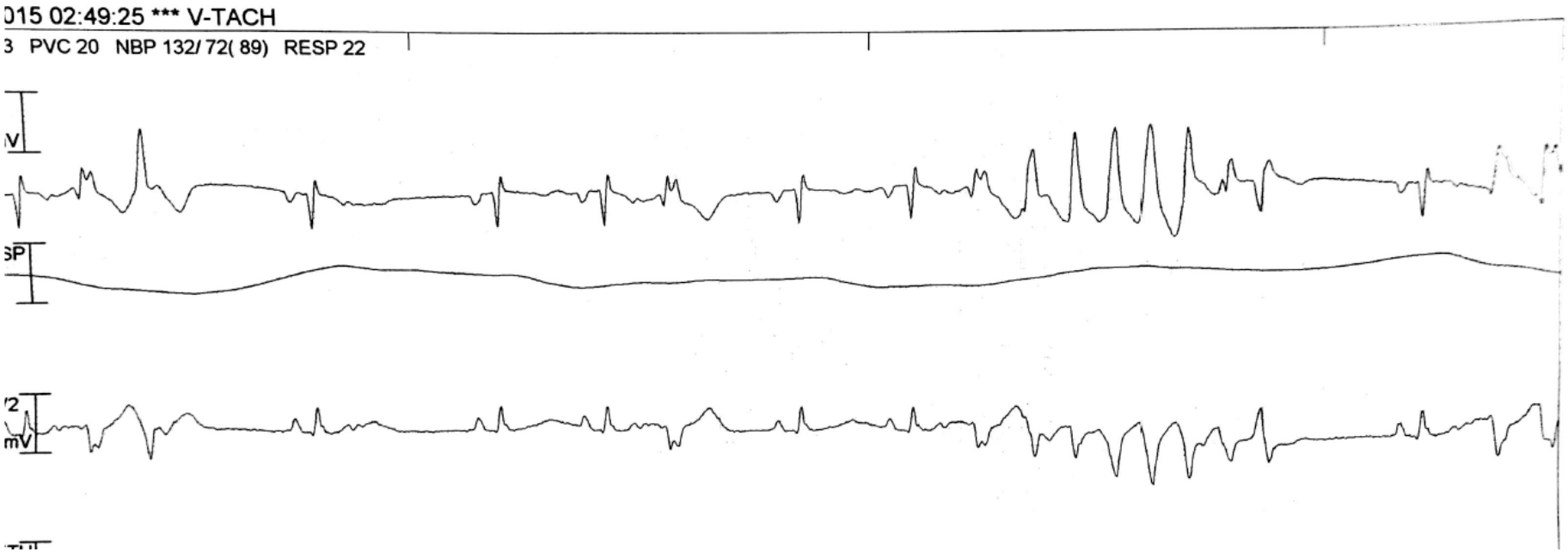


Case 5

- Management (acute): cardiovert, isuprel, Mg/K, temporary wire
- Long term: dual chamber pacemaker; DDD 70

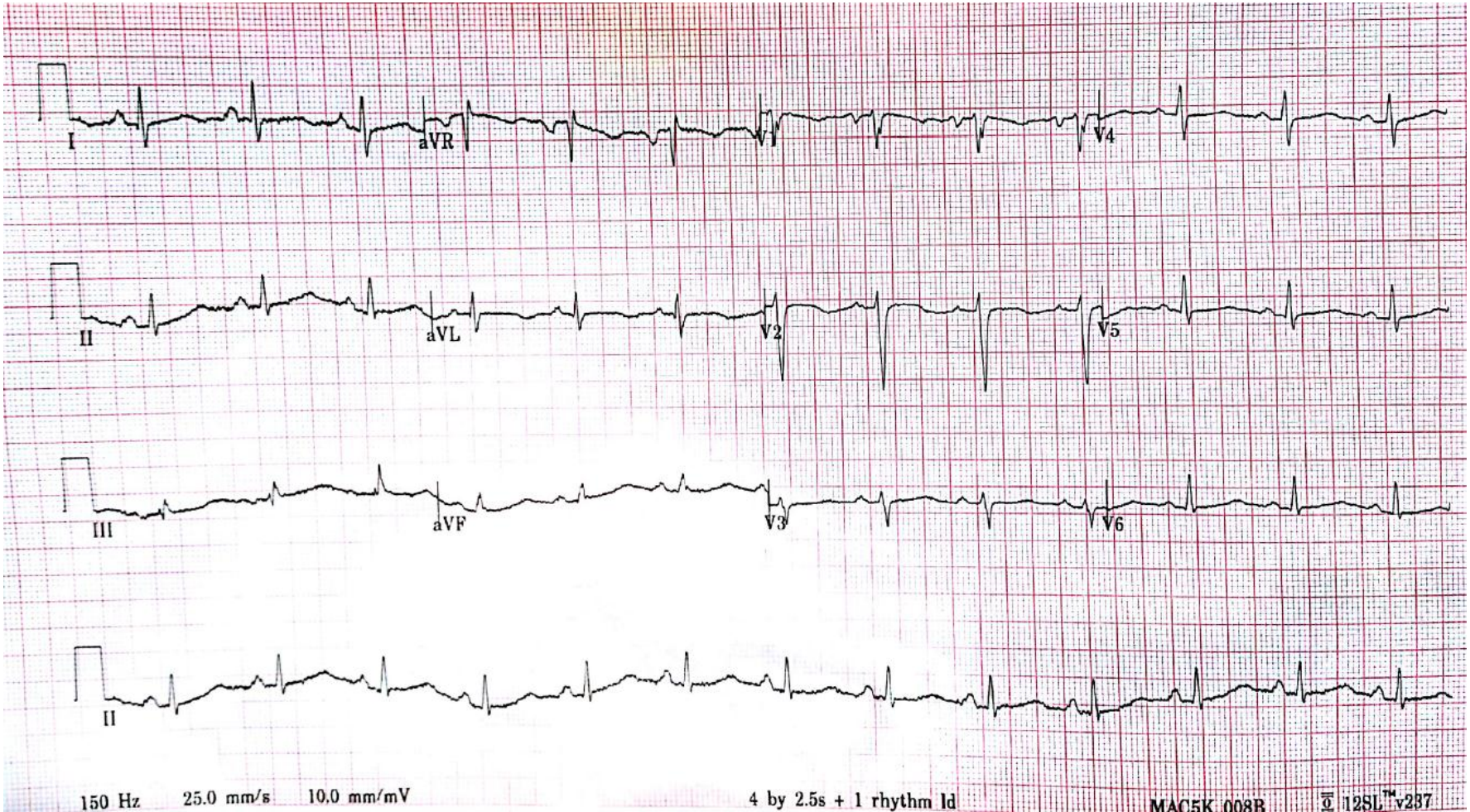
Case 5

- Another example (52M; ?EtOH withdrawal and seizures).



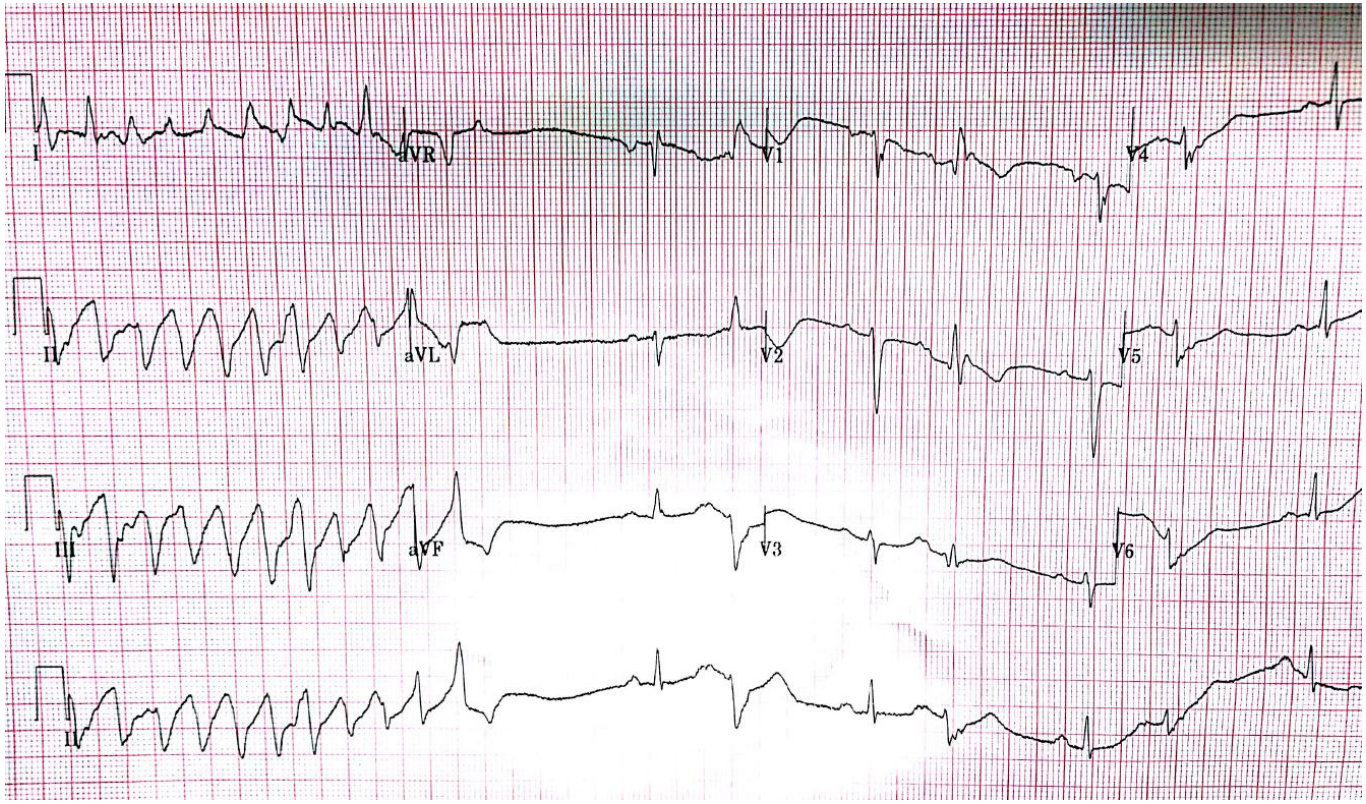
Case 5

- Baseline ECG



Case 5

- Frequent runs of non-sustained and sustained PMVT
- ++ ventricular ectopy likely playing a role

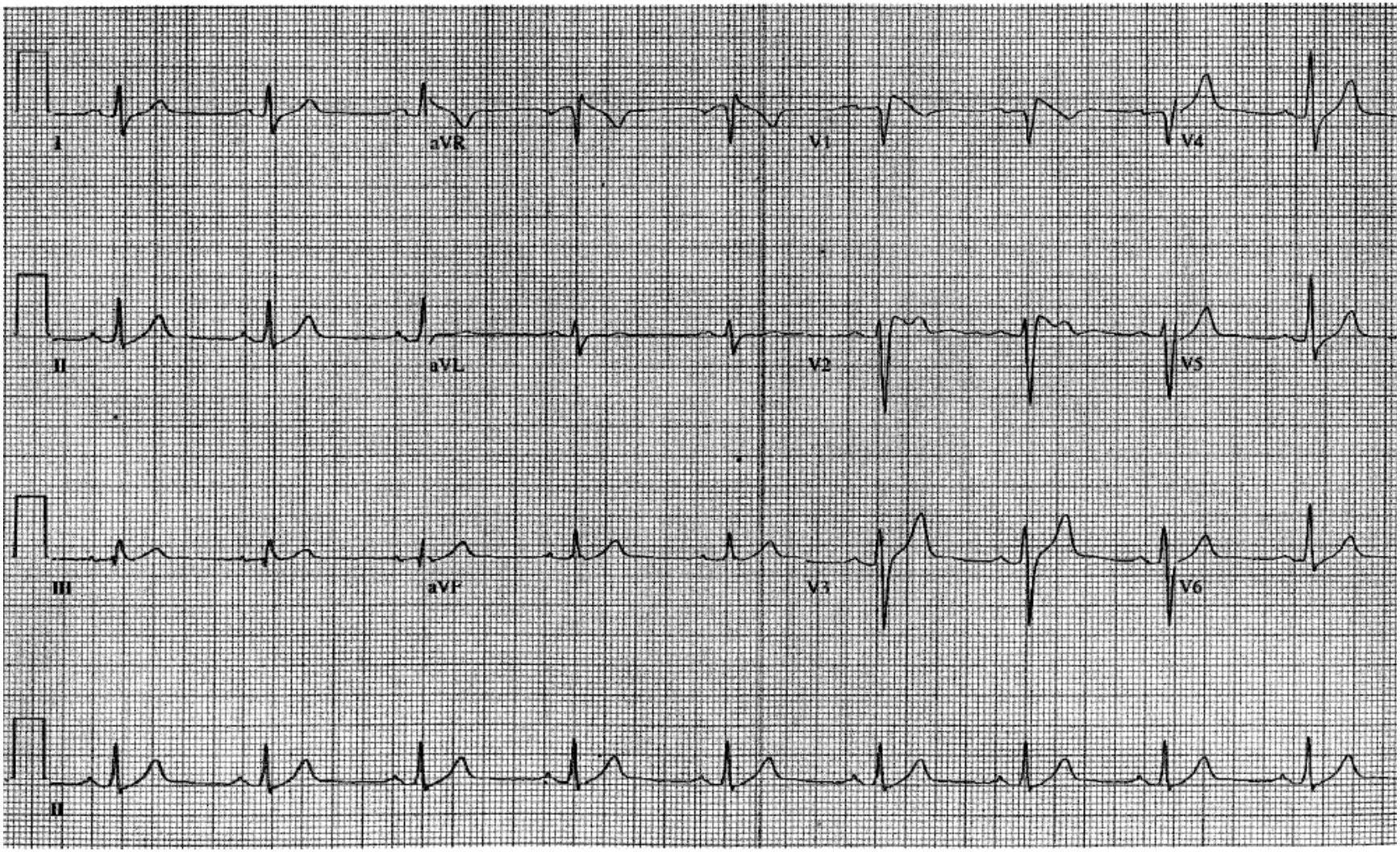


Case 5

- Causes of LQT in this patient:
  - Possibly congenital (no history; no baseline ECG prior to all this)
  - K was 2.9 (?related to EtOH abuse, diet)

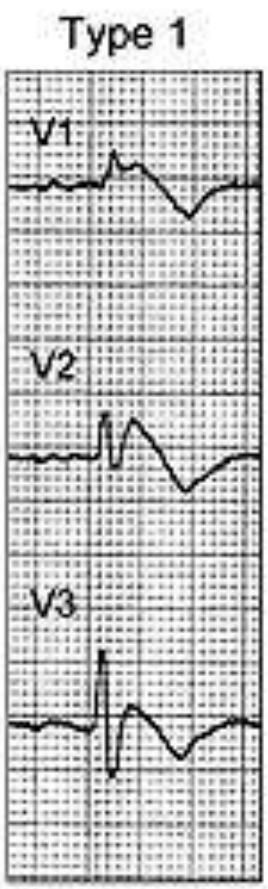
- Acute management:
  - Replace Mg/K
  - Cardiovert as necessary
  - Amiodarone, AVN blockers to try and suppress PVCs
  - Overdrive pacing
  - Sedation/intubation – remove sympathetic stimulation

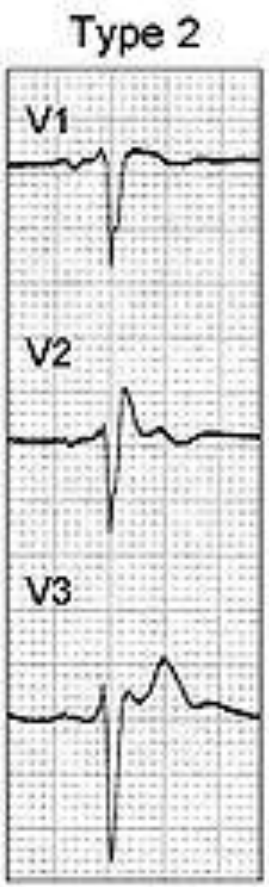
Case 6



Case 6

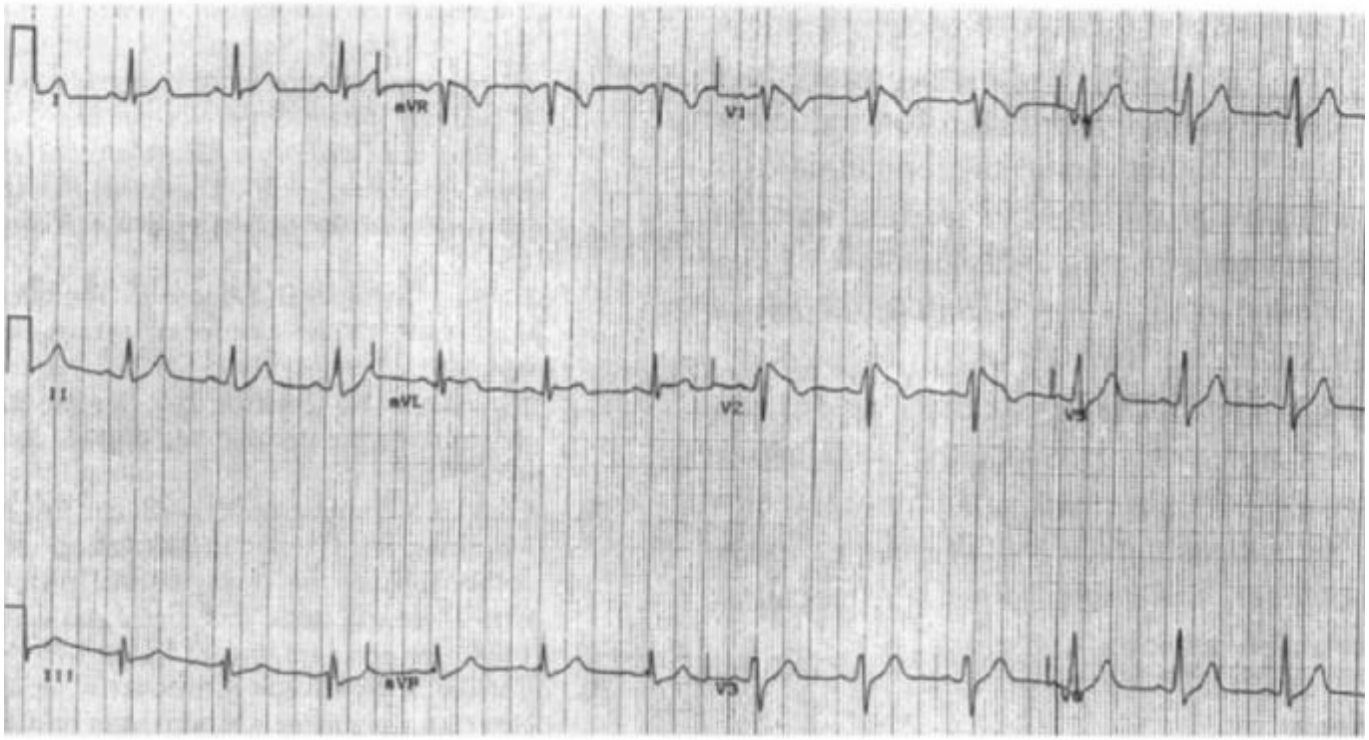
- Brugada





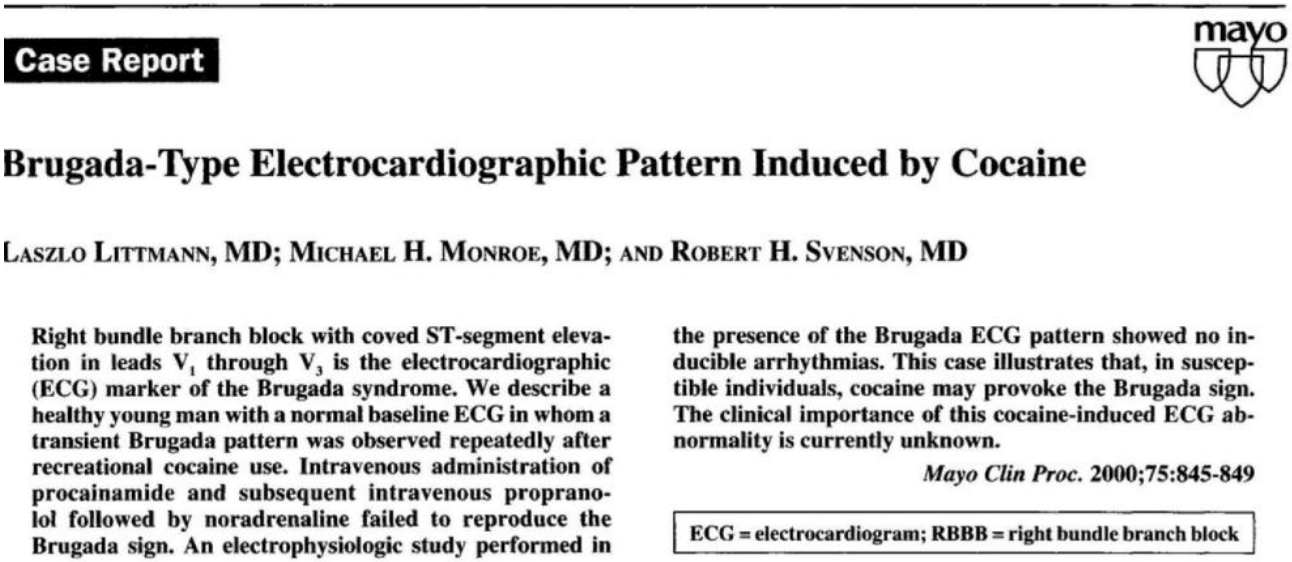
Case 6

- Other causes of Brugada pattern?



Case 6

- Sodium channel blockers
  - Class I agents (procainamide, etc)
  - Also, in theory, cocaine!



Case Report

mayo

Brugada-Type Electrocardiographic Pattern Induced by Cocaine

LASZLO LITTMANN, MD; MICHAEL H. MONROE, MD; AND ROBERT H. SVENSON, MD

Right bundle branch block with coved ST-segment elevation in leads V_1 through V_3 is the electrocardiographic (ECG) marker of the Brugada syndrome. We describe a healthy young man with a normal baseline ECG in whom a transient Brugada pattern was observed repeatedly after recreational cocaine use. Intravenous administration of procainamide and subsequent intravenous propranolol followed by noradrenaline failed to reproduce the Brugada sign. An electrophysiologic study performed in the presence of the Brugada ECG pattern showed no inducible arrhythmias. This case illustrates that, in susceptible individuals, cocaine may provoke the Brugada sign. The clinical importance of this cocaine-induced ECG abnormality is currently unknown.

Mayo Clin Proc. 2000;75:845-849

ECG = electrocardiogram; RBBB = right bundle branch block

Case 6

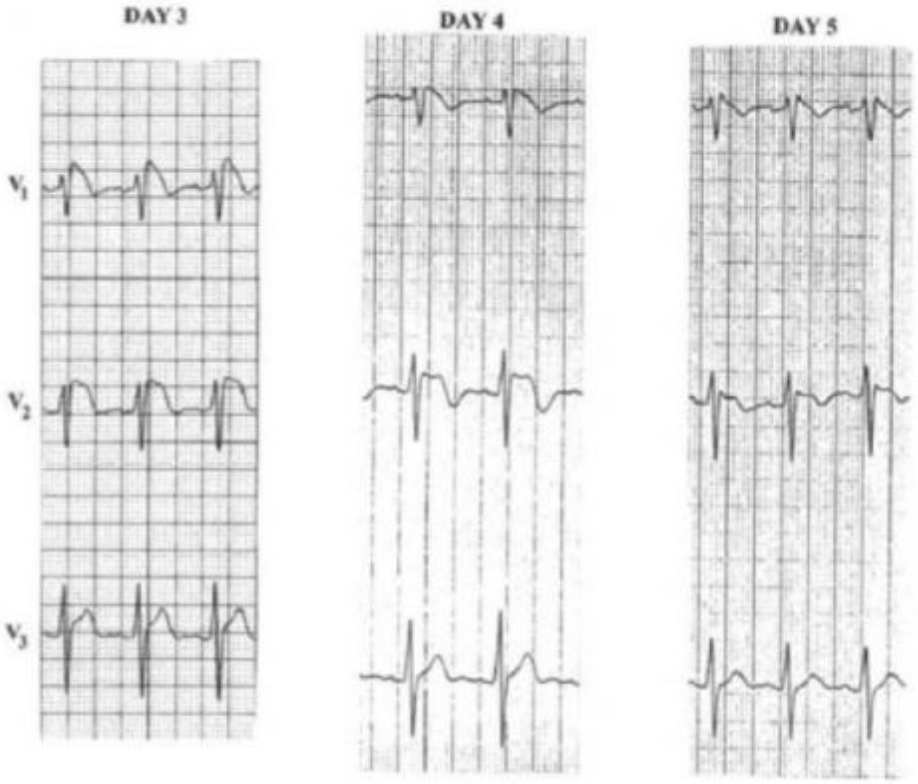
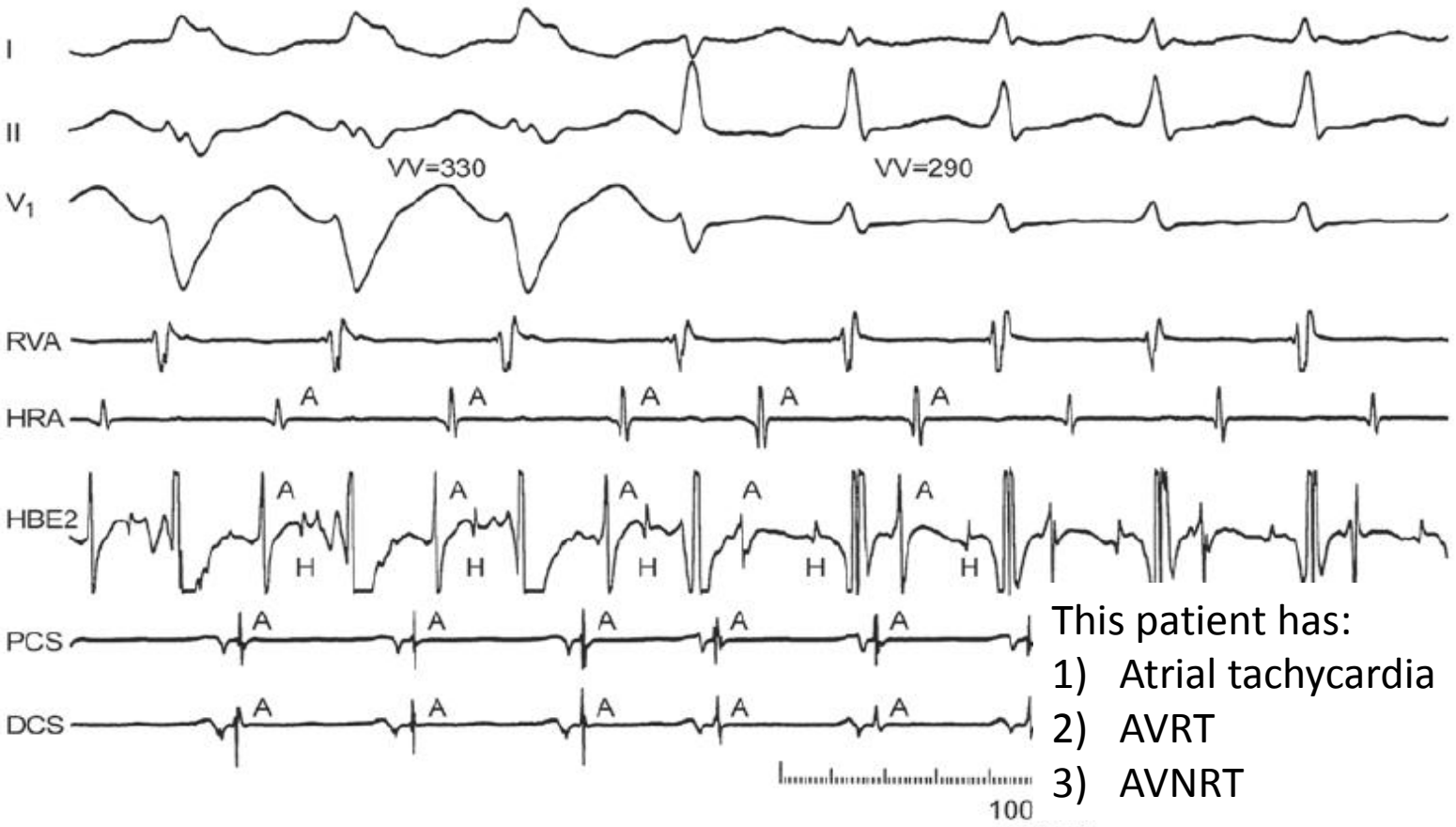


Figure 2. Gradual resolution of the Brugada pattern over several days after cocaine use. Recording on day 3 is the same as that in Figure 1.

Case 8



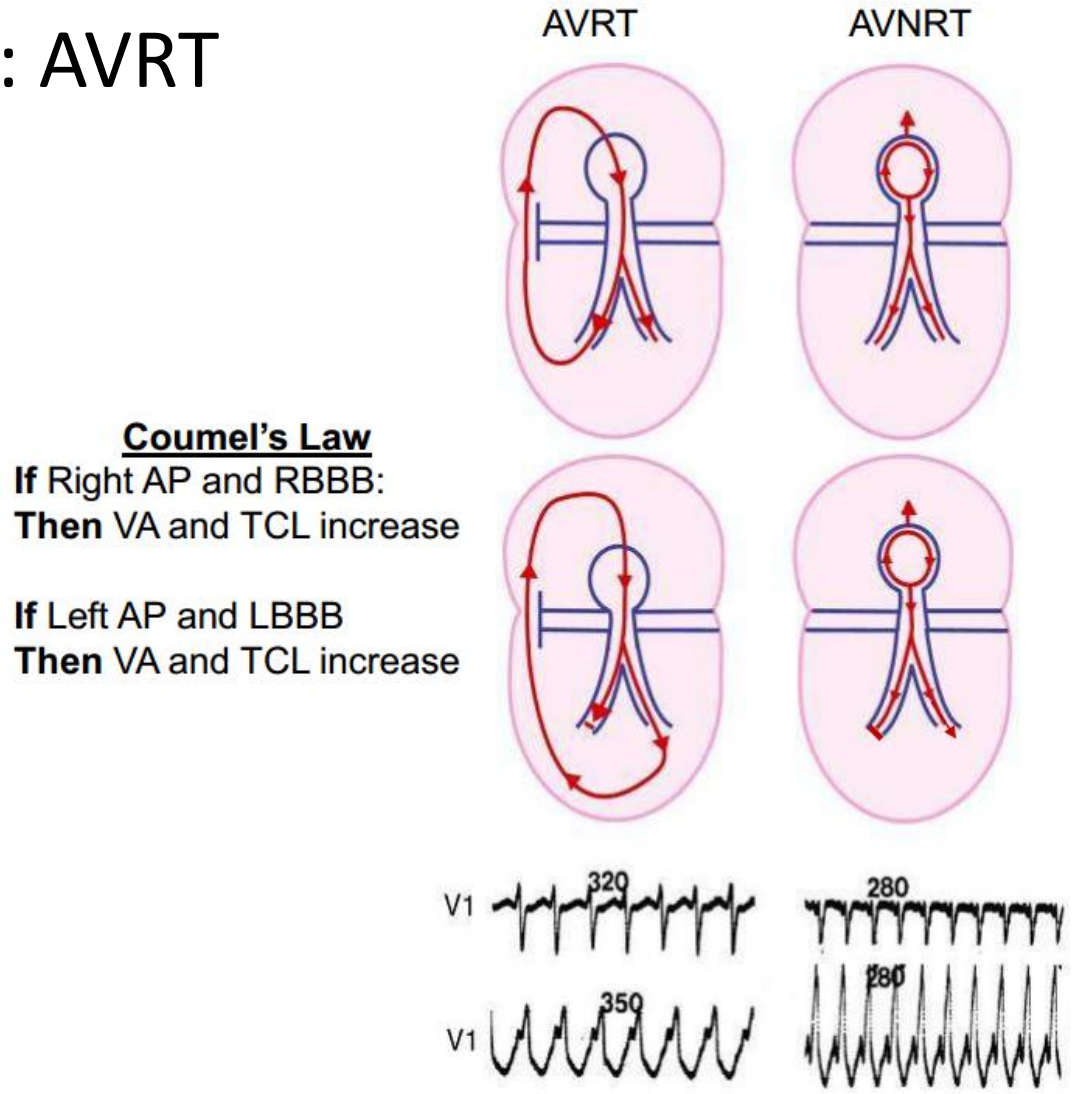
This patient has:

1) Atrial tachycardia
2) AVRT
3) AVNRT

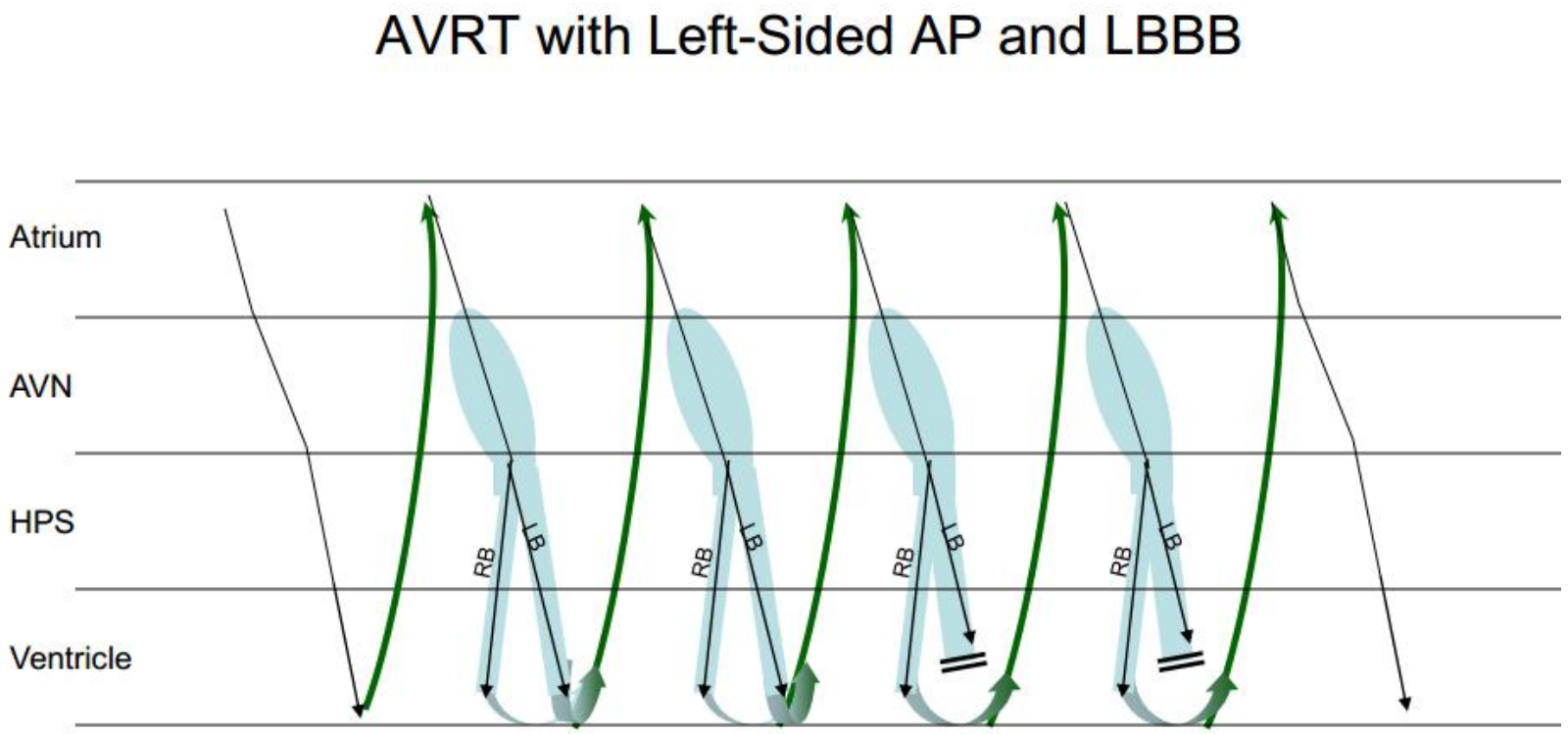
Case 8

Case 8

- Answer: AVRT



Case 8



•When an a bundle branch block develops ipsilateral to the site of an AP (in this case a left bundle [LB] branch block in the presence of a left-sided AP) the VA interval increases with or without an increase in the SVT rate

Case 8