

Let's Review the Ventricular Rhythms and PVCs



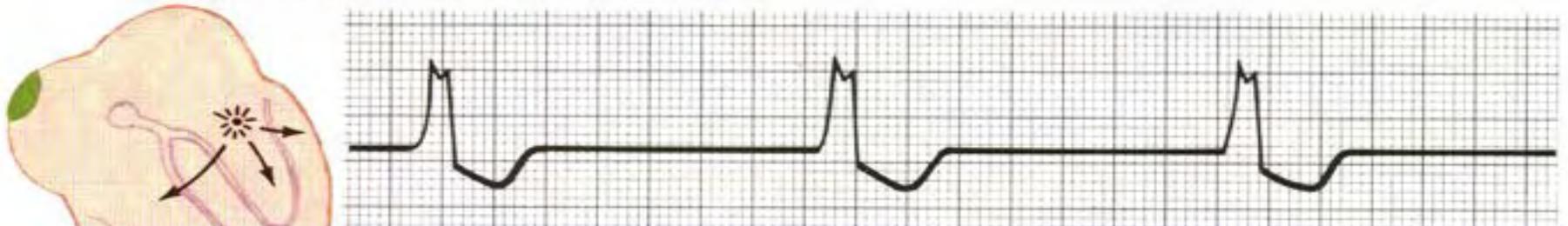
These are EASY to Identify!

New term: '**indioventricular**'
means pertaining to the
ventricles



IVR is the acceptable Name

Idioventricular Rhythm (IVR)

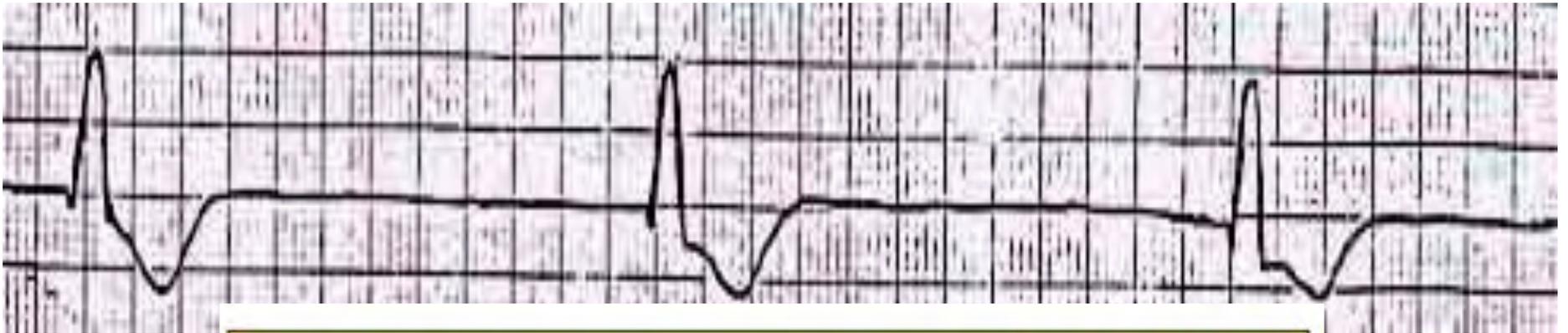


ST Elevation or Depression is **INHERENT** in these arrhythmias...do not call it.

- ★ Rhythm is ~ regular

- ★ **Rate: 20-40 bpm**

IVR



ST Elevation or Depression is INHERENT in these arrhythmias...do not call it.

HR = 25 bpm

★ **Rate: 20-40 bpm**

Verbal Quiz: What is this rhythm?

HR = 34 b/min



IVR

ST Elevation or Depression is **INHERENT** in these arrhythmias...do not call it.

AIVR is the acceptable Name

Accelerated Idioventricular Rhythm (AIVR)



ST Elevation or Depression is **INHERENT** in these arrhythmias...do not call it.

• QRS is wide, bizarre & no p waves (hidden)

★ Rhythm is ~ regular

★ **Rate: >40-100 bpm**

★ **Rate: >40-100 bpm**

R to R is 17 small boxes: **HR = 88 b/min**

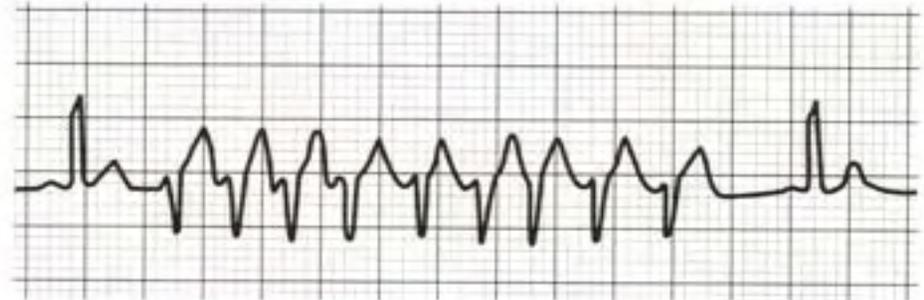
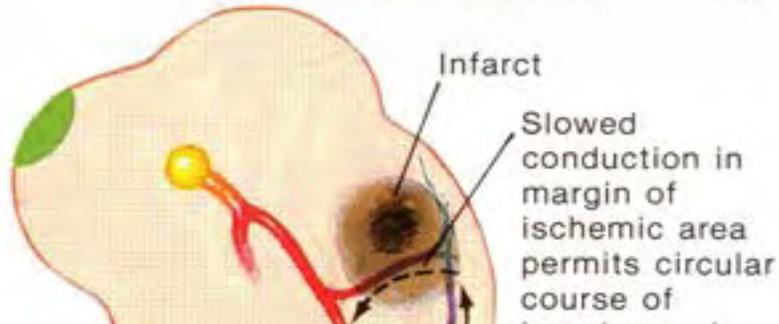


AIVR

ST Elevation or Depression is **INHERENT** in these arrhythmias...do not call it.

VT is the acceptable Name

Ventricular Tachycardia (VT)



ST Elevation or Depression is **INHERENT** in these arrhythmias...do not call it.

★ **Rhythm is ~ regular**

★ **Rate: > 100 bpm**

Ventricular Tachycardia (VT)



ST Elevation or Depression is INHERENT in these arrhythmias...do not call it.

★ **Rate: > 100 bpm**

Verbal Quiz: What are the RATES?

★ **IVR:**

★ **AIVR:**

★ **Ventricular Tachycardia (VT):**



Verbal Quiz: What are the RATES?

★ **IVR: 20 – 40 bpm**

★ **AIVR:**

★ **Ventricular Tachycardia (VT):**



Verbal Quiz: What are the RATES?

★ **IVR: 20 – 40 bpm**

★ **AIVR: >40 – 100 bpm**

★ **Ventricular Tachycardia (VT):**



Verbal Quiz: What are the RATES?

★ **IVR: 20 – 40 bpm**

★ **AIVR: >40 – 100 bpm**

★ **Ventricular Tachycardia (VT): >100 bpm**



PLEASE LEARN!

★ **IVR: 20 – 40 bpm**

★ **AIVR: >40 – 100 bpm**

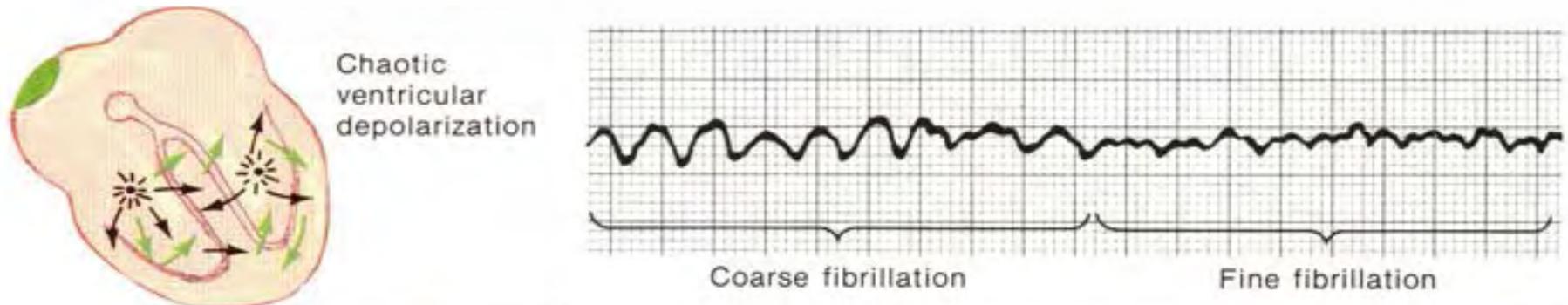
★ **Ventricular Tachycardia (VT): >100 bpm**

**This will definitely be
on the EKG Final!**



Vfib is the acceptable Name

Ventricular Fibrillation (Vfib)



- ★ **Chaotic electrical activity in ventricles**
 - ✘ No organized impulse or ventricular contraction
 - ✘ Multiple foci firing
- ★ **#1 cause of cardiac arrest**
 - ✘ no effective cardiac output
- ★ **“Coarse” or “Fine” ventricular fibrillation**

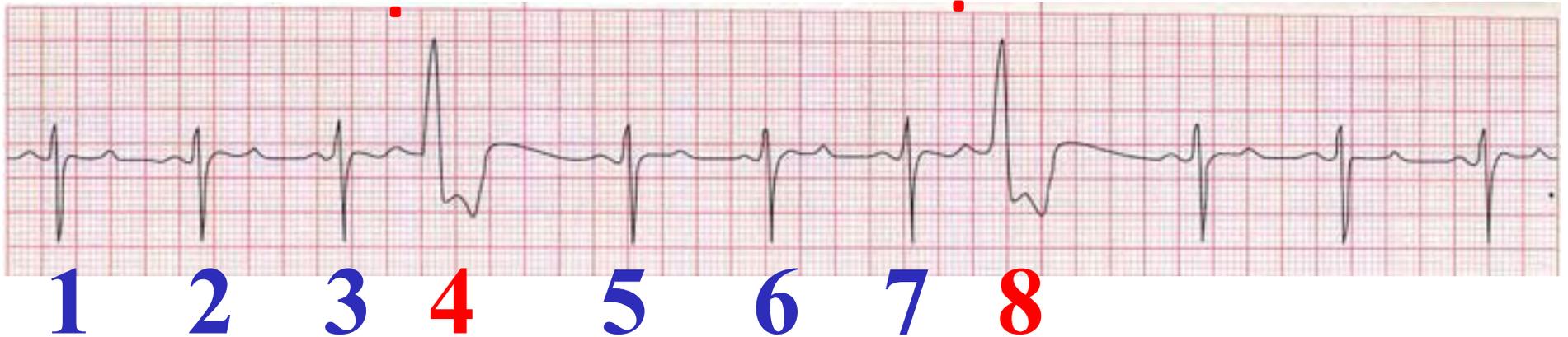
On WEB

Examples of Ventricular Fibrillation (Vfib)



Verbal Quiz: Where are the PVCs and What type?

NSR with Unifocal PVCs (4th and 8th complexes)

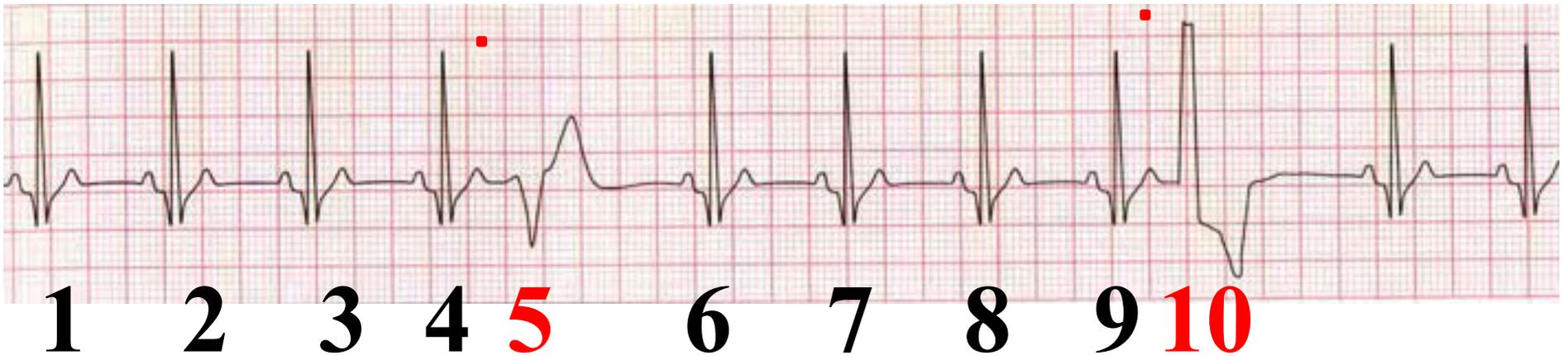


This is an NSR with...

**NSR with Unifocal PVCs
(4th and 8th complexes)**

Verbal Quiz: Where are the PVCs and What type?

NSR with Multifocal PVCs (5th and 10th complexes)



This is an NSR with...

**NSR with Multifocal PVCs
(5th and 10th complexes)**

Augustus Waller with his pet Jimmy

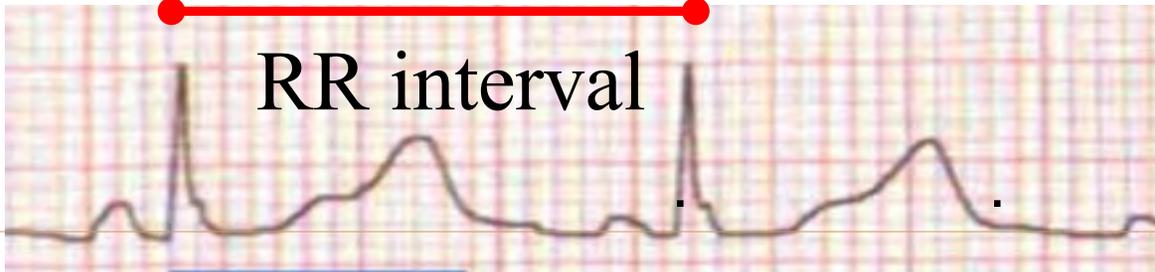


Hi EKG Students,
These Ventricular
Rhythms are easy
To recognize.
Your pet pal,
Jimmy

Let's Calculate

Calculate the QT Corrected (QTc) and classify

RR: $19 \times .04 = .76 \text{ sec}$



QT: $12.5 \times .04 = .50 \text{ sec}$

$$QTc = \frac{QT}{\sqrt{RR}} = \frac{.50}{\sqrt{.76}} = \frac{.50}{.871} = .574 \text{ or } .57 \text{ sec}$$

A normal QTc is $< 0.46 \text{ sec}$ in women and $< 0.45 \text{ sec}$ in men.

A QTc $> 0.50 \text{ sec}$ is 'dangerously' prolonged.

.57 sec is Dangerously prolonged

Quiz to Turn In: Please Calculate the QTc (& Classify)



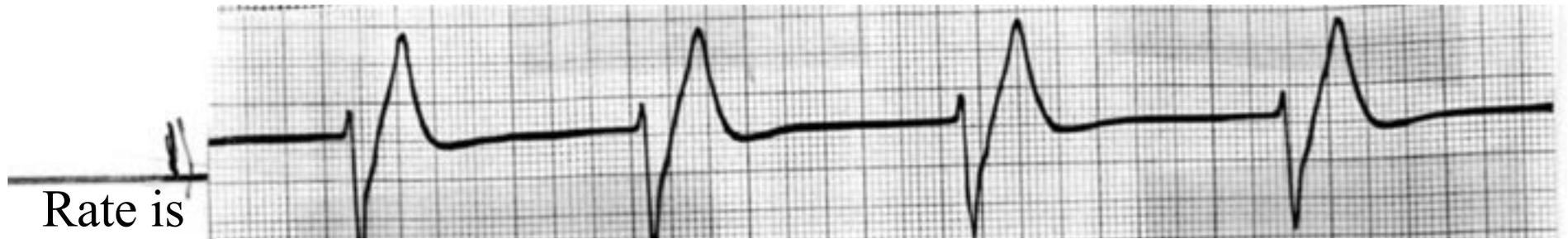
QT=16 small boxes
RR=32 small boxes

.57 sec, dangerously prolonged

$$QTc = \frac{QT}{\sqrt{RR}}$$

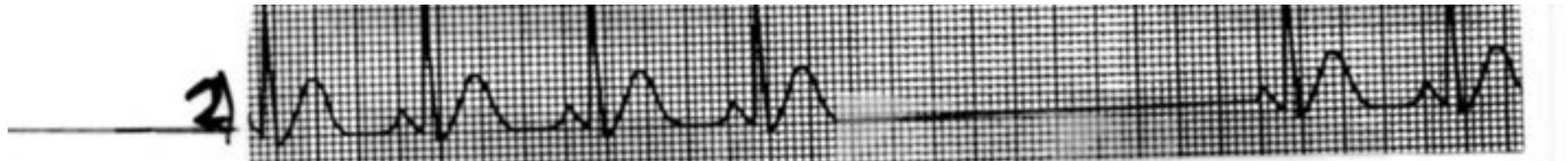
Please Complete Leads 1-5





Rate is
39 bpm

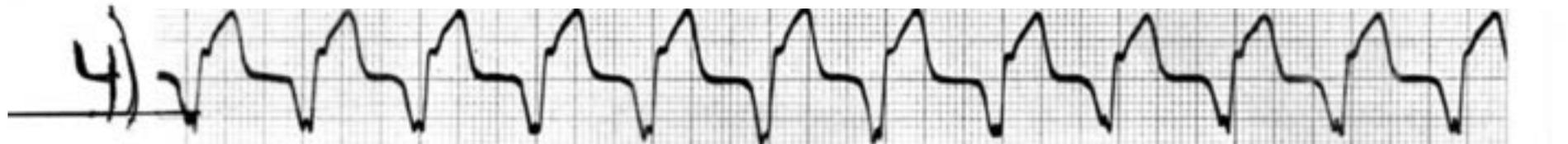
IVR



NSR with a Sinus Arrest



Ventricular Fibrillation (Vfib)



AIVR



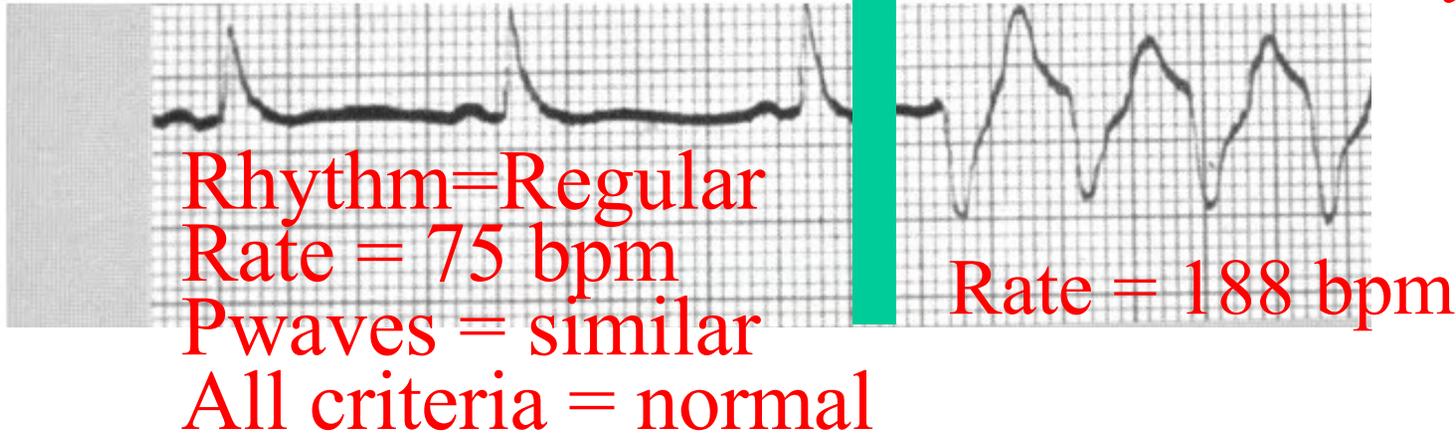
Ventricular Tachycardia (VT)

Let's Interpret this Rhythm Conversion



NSR

Ventricular Tachycardia (VT)



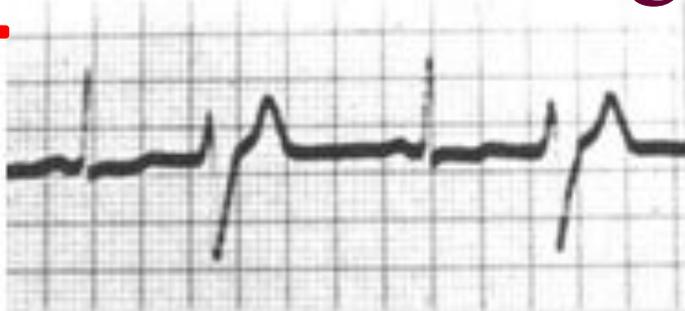
NSR into Paroxysmal VT

NSR into Paroxysmal Ventricular Tachycardia

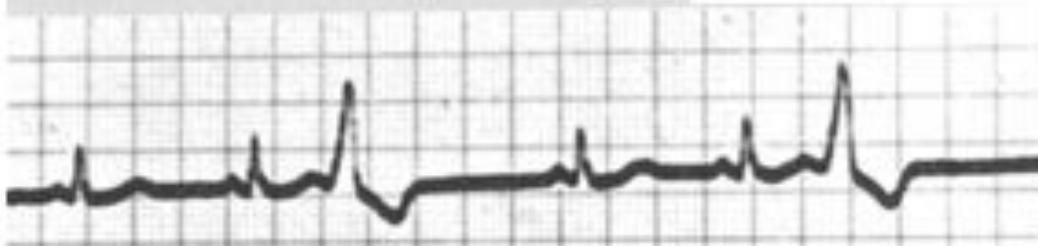
Please Name the Ventricular Patterning



PVC Patterning (on WEB)



Ventricular Bigeminy

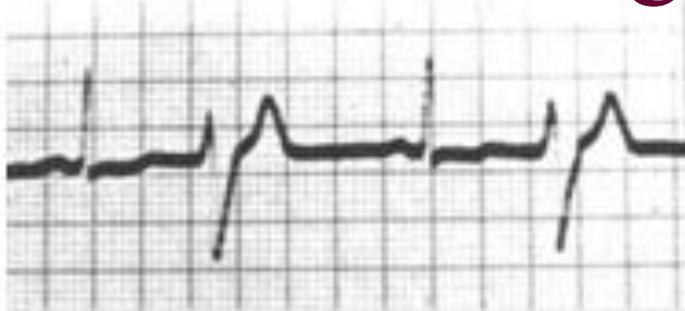


Ventricular Trigeminy

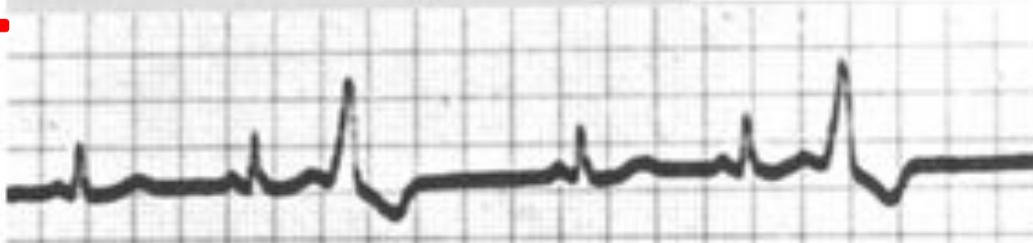


Ventricular Quadrigeminy

PVC Patterning (on WEB)



Ventricular Bigeminy

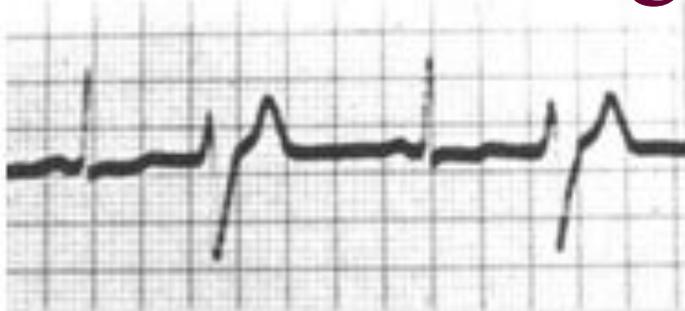


Ventricular Trigeminy

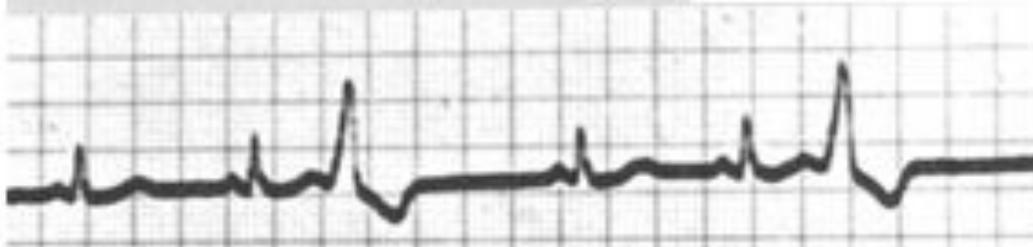


Ventricular Quadrigeminy

PVC Patterning (on WEB)



Ventricular Bigeminy



Ventricular Trigeminy



Ventricular Quadrigeminy

Name the PVC Patterning?



Ventricular Bigeminy



**Verbal Quiz: What PVC PATTERNING
Would You Call This?**

Verbal Quiz: What PVC
PATTERNING Would You Call This?



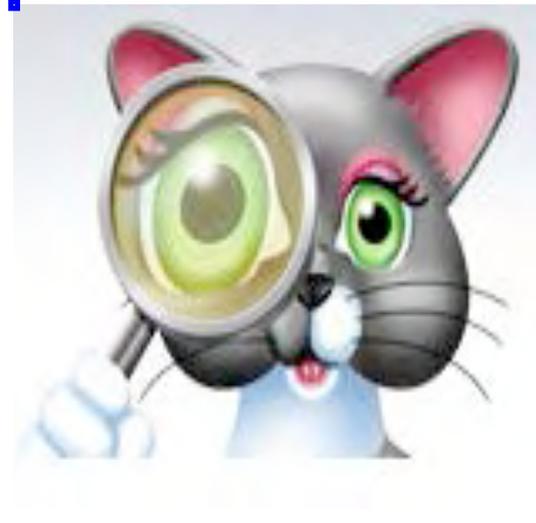
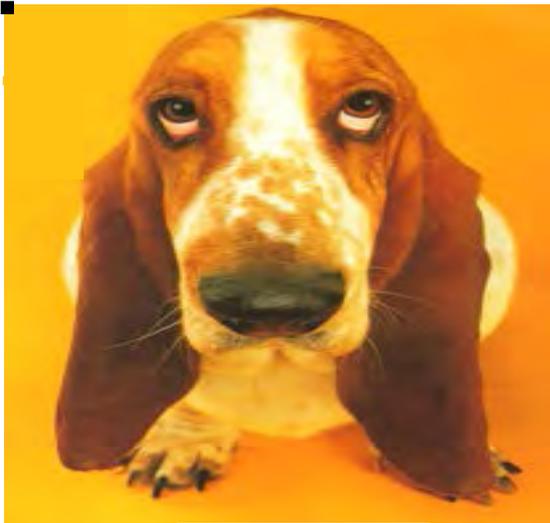
Ventricular Quadrigeminy

Verbal Quiz: What PVC PATTERNING
Would You Call This?

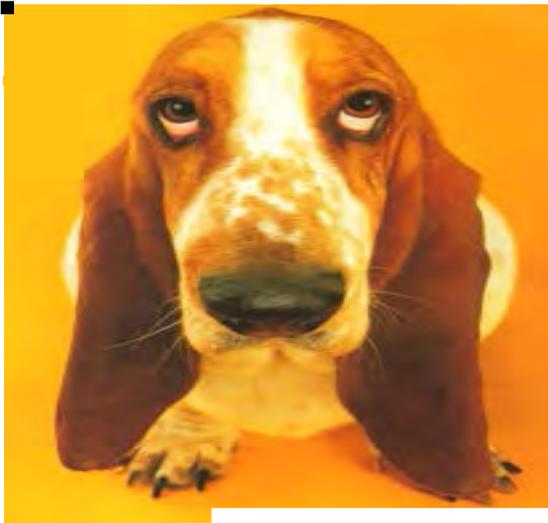


Ventricular Trigeminy

**3 or more PVC's in a row becomes
IVR, AIVR or Ventricular Tachycardia
(VT) (depending on its rate).**



**3 or more PVC's in a row becomes
IVR, AIVR or Ventricular Tachycardia
(VT) (depending on its rate).**

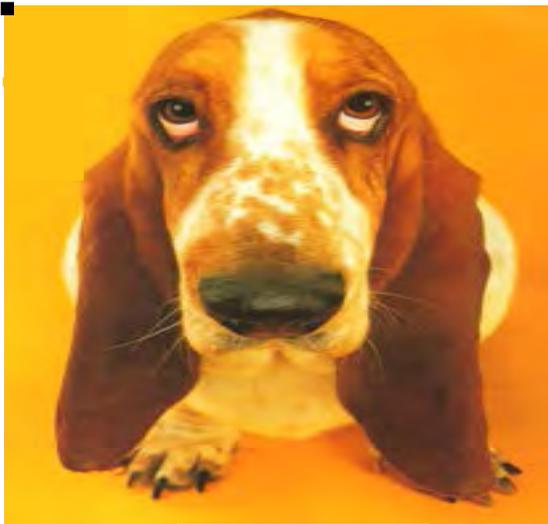


Rate = 176 b/min

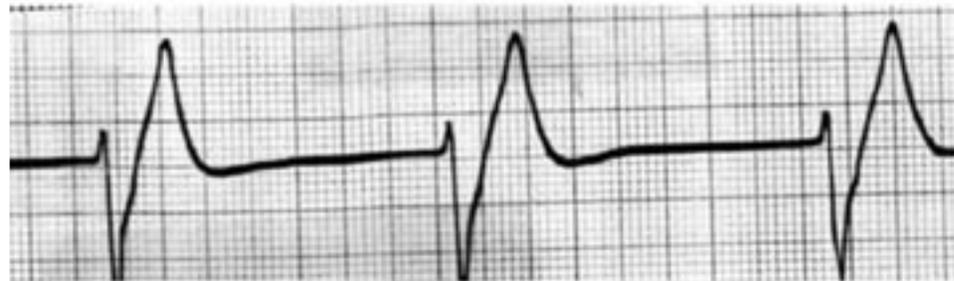


VT

**3 or more PVC's in a row becomes
IVR, AIVR or Ventricular Tachycardia
(VT) (depending on its rate).**

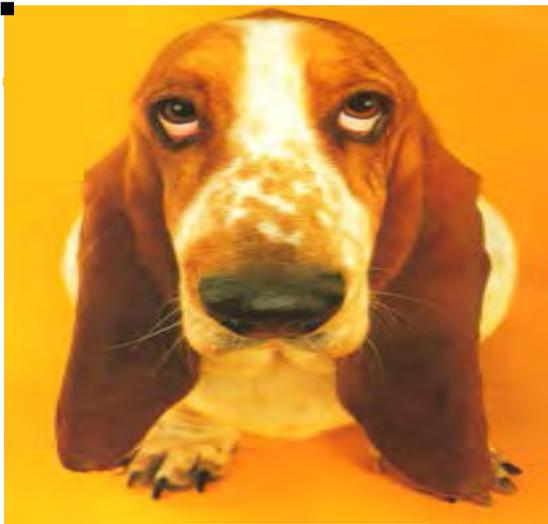


Rate = 39 b/min



IVR

**3 or more PVC's in a row becomes
IVR, AIVR or Ventricular Tachycardia
(VT) (depending on its rate).**



Rate =98 b/min



AIVR

Let's Interpret another Rhythm Conversion



NSR into AIVR

NSR

AIVR



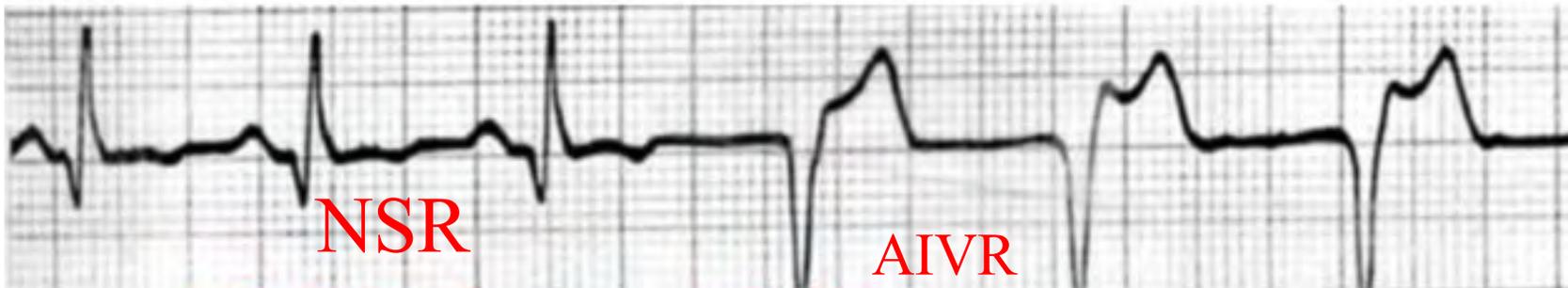
Rhythm=Regular
Rate = 94 bpm
Pwaves = similar
All criteria = normal

Rate is 75 bpm

NSR into AIVR

Look for some rhythm conversions on Final!

NSR into AIVR



Rate is 75 bpm

Reminder!

★ **IVR: 20 - 40 bpm**

★ **AIVR: >40 - 100 bpm**

★ **VT: >100 bpm**



Reminder!

★ **IVR: 20 - 40 bpm**

★ **AIVR: >40 - 100 bpm**

★ **VT: >100 bpm**



Reminder!

★ **IVR: 20 - 40 bpm**

★ **AIVR: >40 - 100 bpm**

★ **VT: >100 bpm**



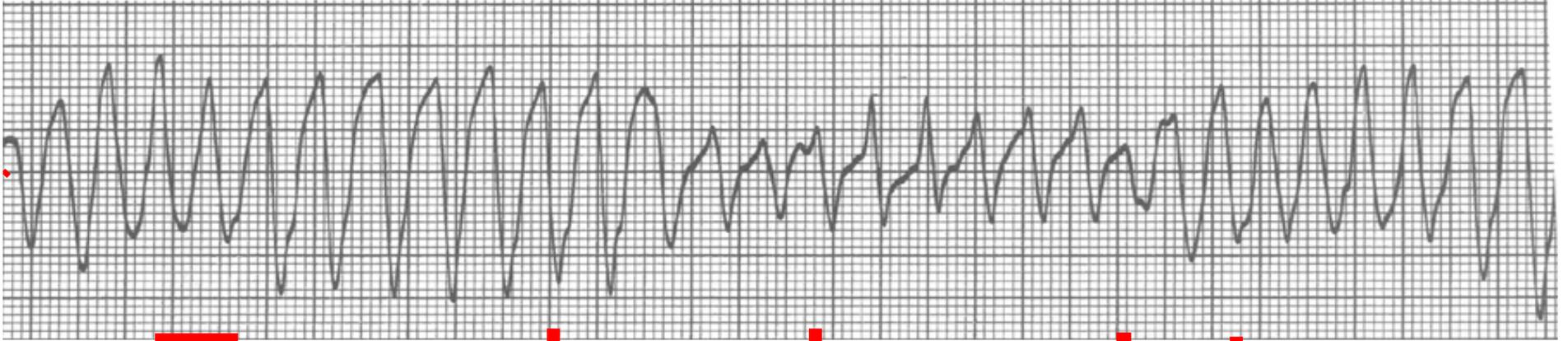
Please learn
these rates
for IVR,
AIVR and
VT
For the Final



Dr. Kravitz, Please Give Us a **Unique** EKG



What is this **new** rhythm?

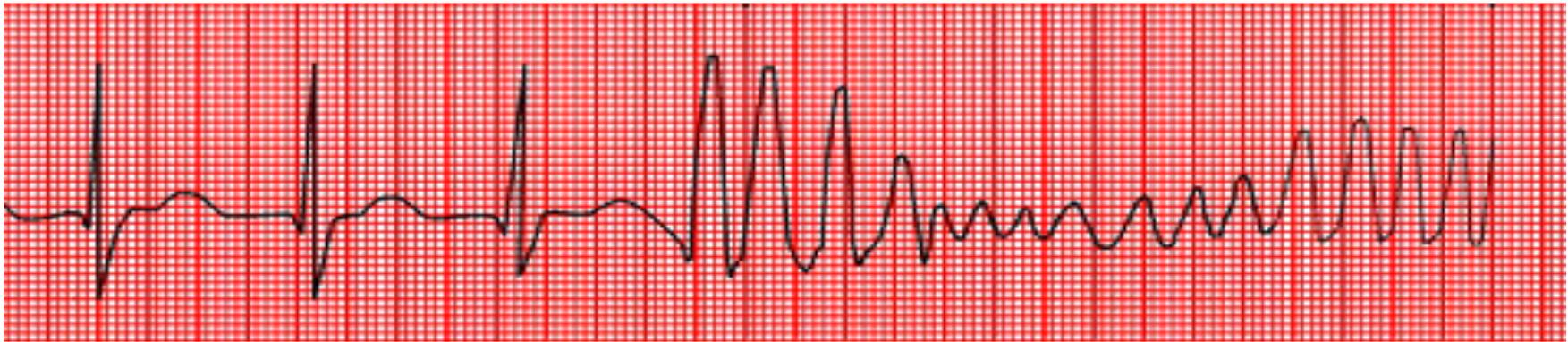


Torsades de pointes

“twisting of the points”



Let's draw this rhythm in your notes!
And write the name: Torsades de pointes



QTc = **.61 sec** (> .50 is dangerously prolonged)

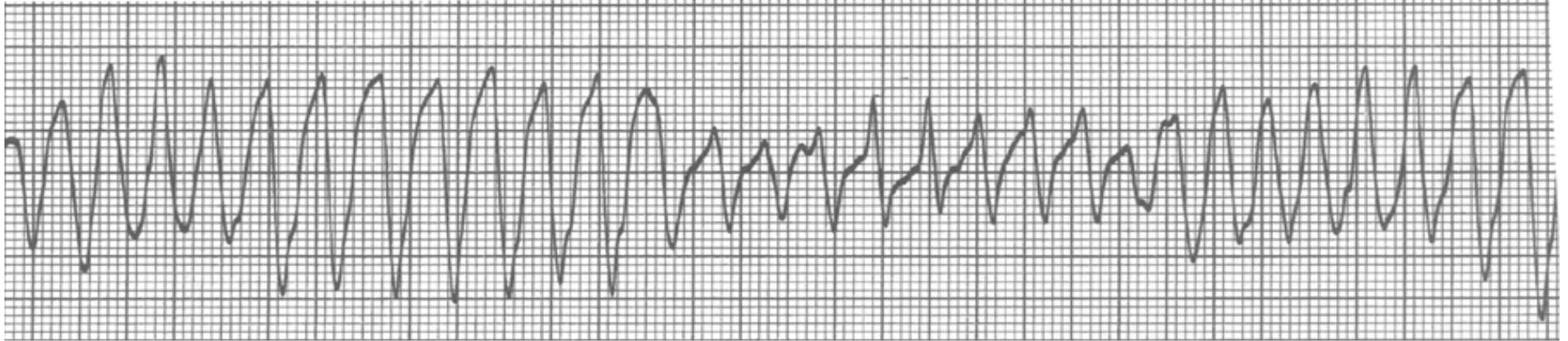
Torsades de pointes

"twisting of the point"

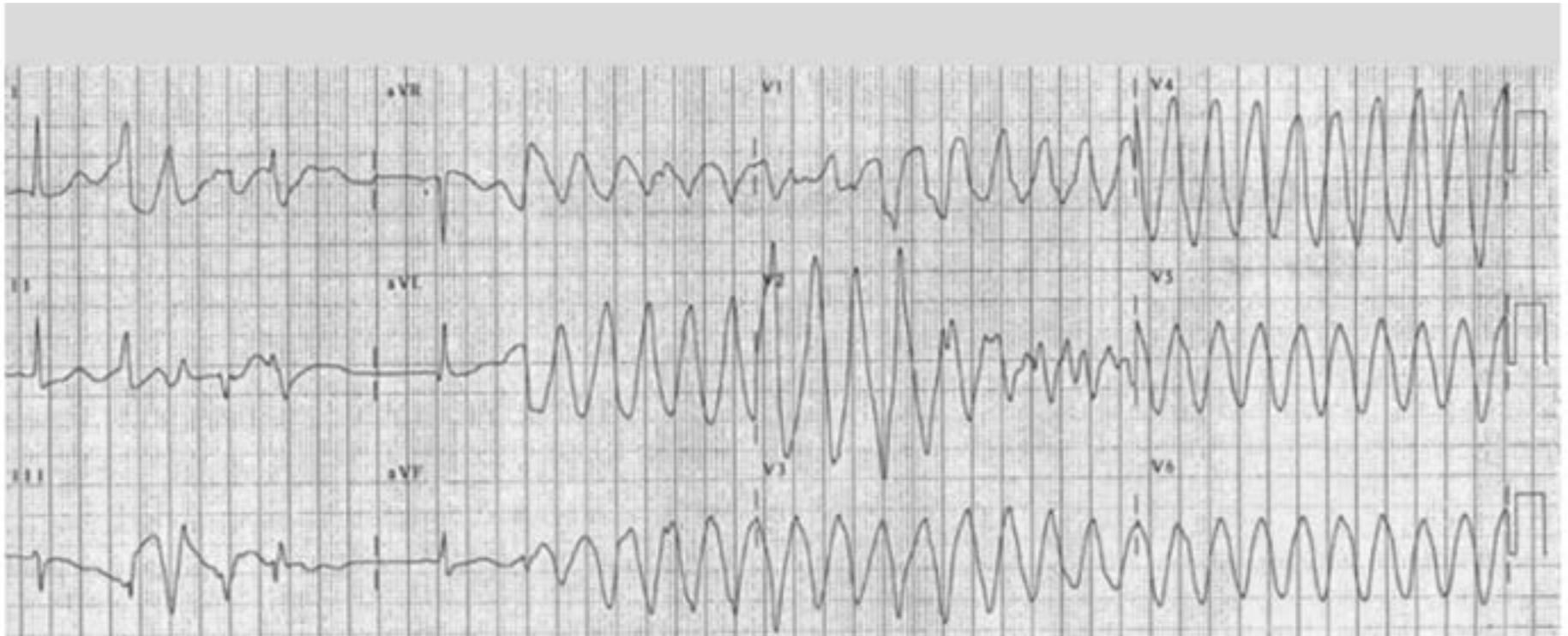
Often Occurs on end of T wave of prolonged QT interval
"Rwave on Twave phenomenon"

Dessertenne, F. (1966). "La tachycardie ventriculaire a deux foyers opposes variables." (in French). Arch Mal Coeur Vaiss. 59 (2): 263–72. PMID 4956181.





Torsades de pointes
“twisting of the points”



Torsades de pointes
“twisting of the points”

Name the PVC Patterning?



Ventricular Bigeminy



**Verbal Quiz: What PVC PATTERNING
Would You Call This?**

Verbal Quiz: What PVC
PATTERNING Would You Call This?



Ventricular Quadrigeminy

Verbal Quiz: What PVC PATTERNING
Would You Call This?



Ventricular Trigeminy

We are really learning a lot!



Quiz to Turn In! What are the Rates?

★ **IVR:**

★ **AIVR:**

★ **VT:**

And Please Draw and Write
Torsades de Pointes



Quiz to Turn In! What are the Rates?

★ **IVR: 20 to 40 bpm**

★ **AIVR: >40 to 100 bpm**

★ **VT: >100 bpm**

And Please Draw and Write
Torsades de Pointes



Go
EKG
Rock
Stars!



Mobitz II

Mobitz I