Day 6 SA, AV Blocks & Dissociations

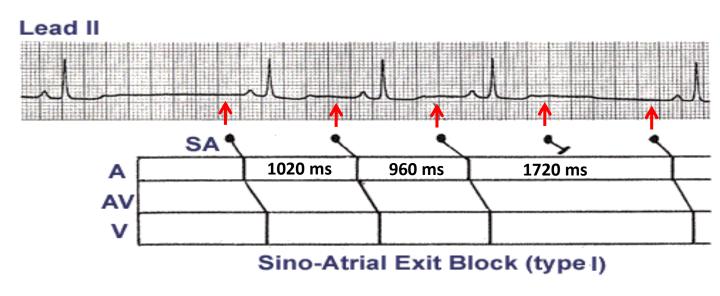
Blocks & Dissociations

Reading Assignment (p47-52 in 'Outline')

Objectives

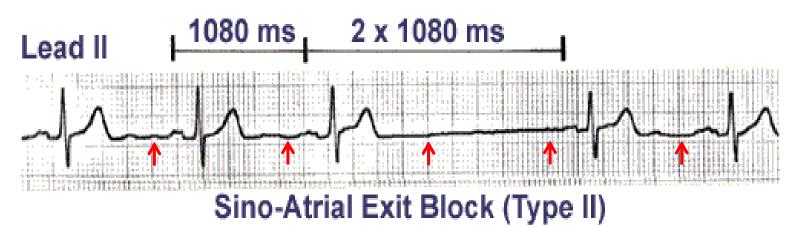
- Who are Wenckebach and Mobitz?
 - Review SA and AV Blocks
- AV Dissociations: learning who's the boss and why

2nd degree SA Block: type I vs. type II *Does it matter?*

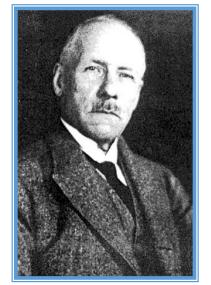


SA Wenckebach 'Rules'

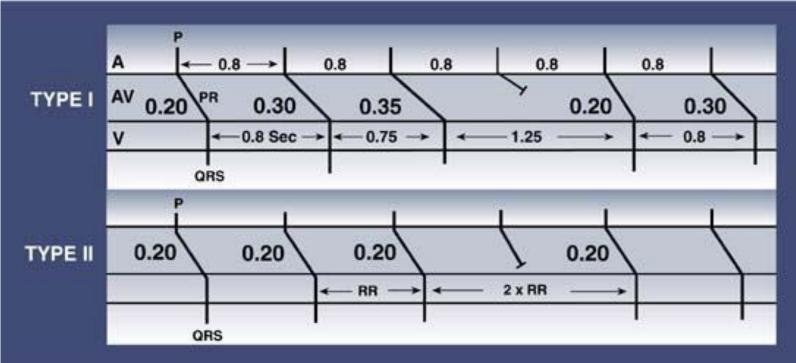
- PP shortens up to the pause
- PP of pause < any 2 preceding PP
- PP after pause > PP just before pause



Answer is: No!



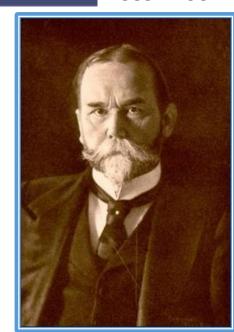
1864 - 1940



1889 - 1951

Questions:

- 1. How did Wenckebach first detect 2nd degree AV block? (aka 'Type 1'); hint: it was before ECG was 'invented'.
- 2. What advantages did Mobitz have in detecting Type '11' 2nd degree AV block?
- 3. Why does it matter to differentiate Type I from II AV block but not SA block?

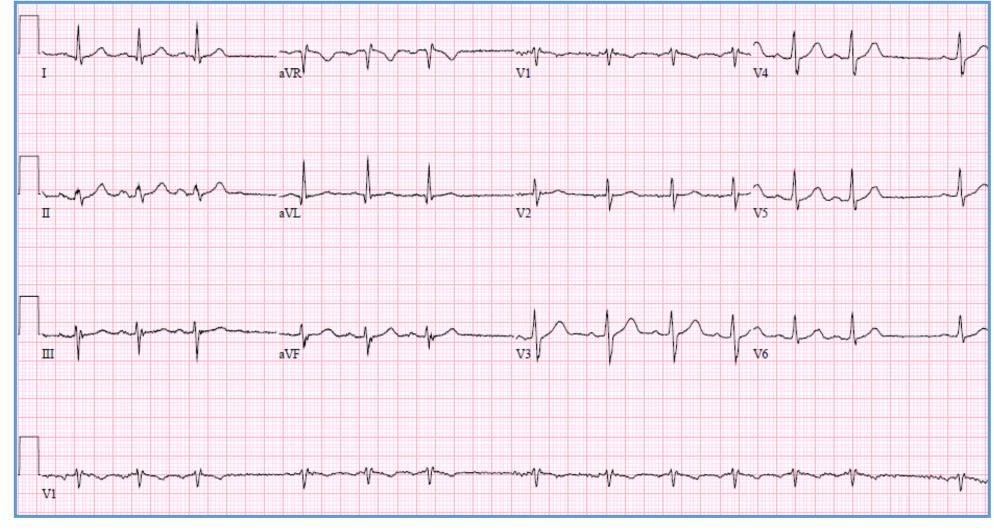


The "5-Step Method"

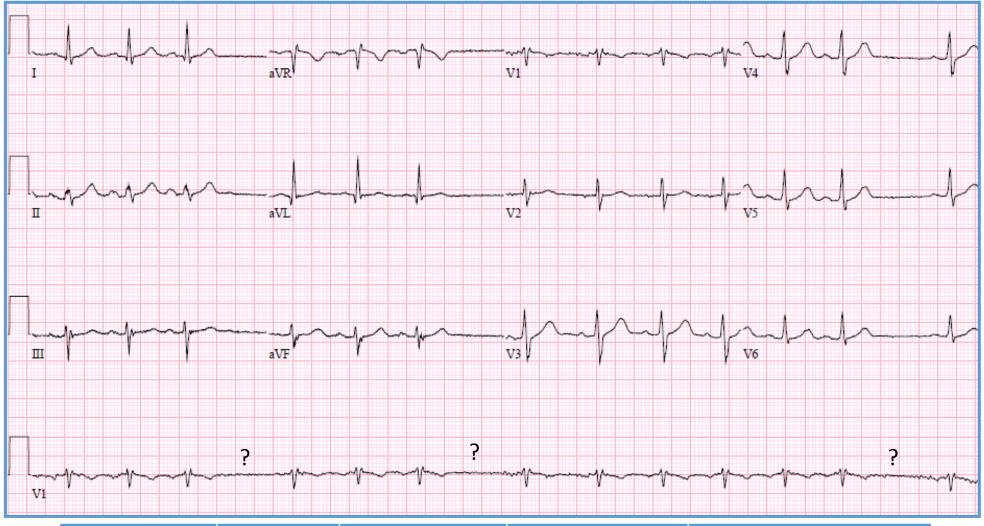
ECG #:

Mearurements:	Rhythm (s):	Conduction:	Waveform:	Interpretation:
A= V=				
PR=				
QRS=				
QT=				
Axis=				

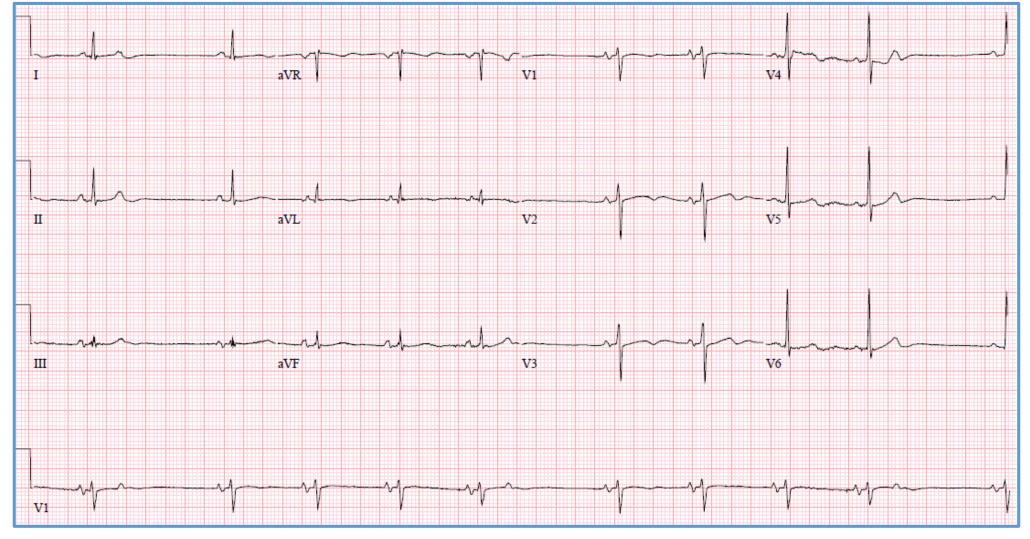
- 1. Compute the 5 basic measurements: HR, PR interval, QRS duration, QT interval, Axis
- 2. What's the basic rhythm and other rhythm statements (e.g., PACs and PVC's)
- 3. Any conduction abnormalities (SA blocks, AV blocks (Types I or II), and IV blocks
- 4. Waveform abnormalities beginning with P waves, QRS complexes, ST-T, and U waves
- Final interpretations: Normal ECG or Borderline or Abnormal ECG (list final conclusions)



72 y.o. woman; lightheaded



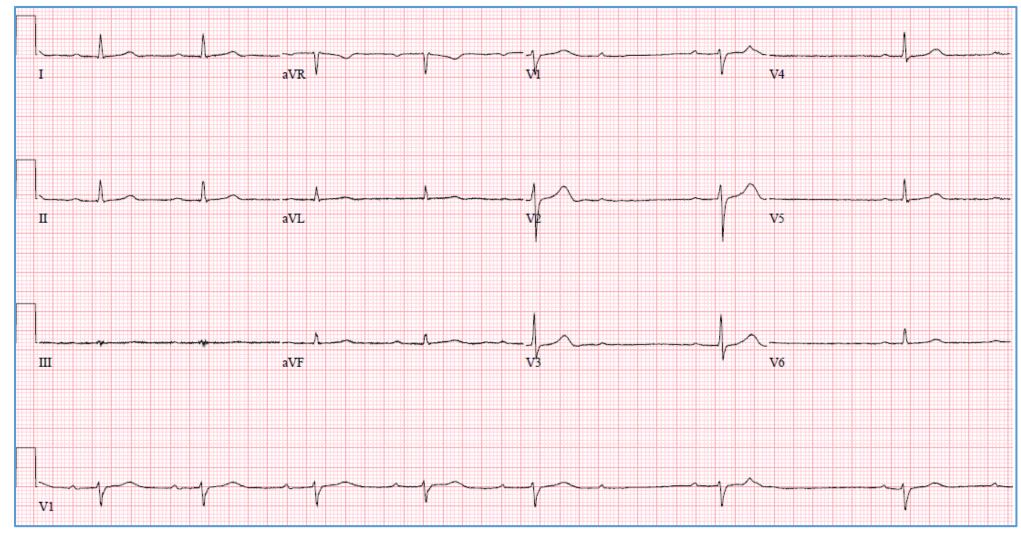
Mearurements:	Rhythm (s):	Conduction:	Waveform:	Interpretation:
A=85 V=85 PR=190	Sinus rhythm	 2nd degree SA block Normal AV, IV Note: each pause has a missing P wave (?) suggesting the sinus fires but it doesn't conduct to the atria. 	 rSr' in V1 (normal variant) Normal P, QRS, ST-T 	Abnormal ECG: 1. 2nd degree SA block (this can be a manifestation of sick sinus syndrome and usually indicates need for a pacemaker)
QRS=100				
QT=360				
Axis= -10				



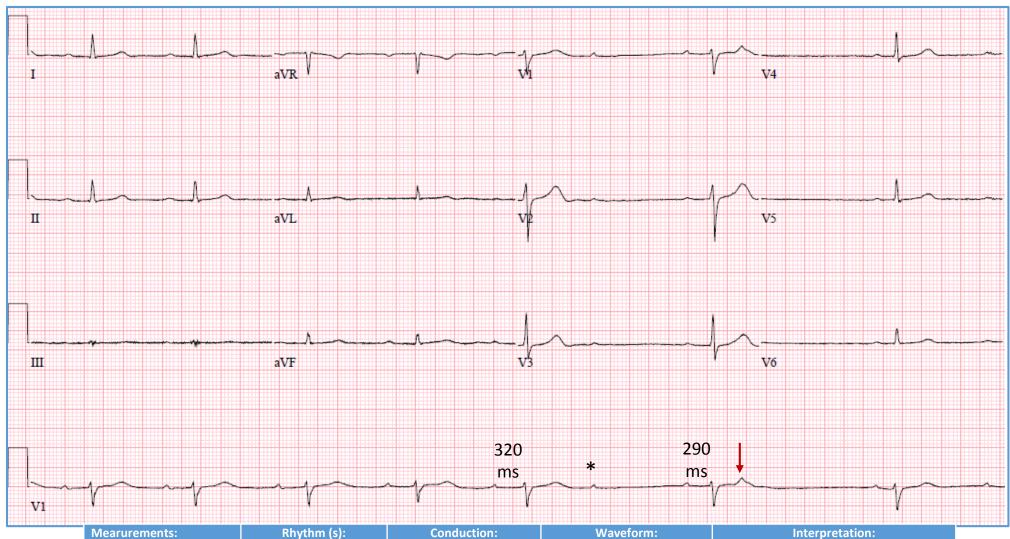
GS: Age 62.... Taking a pause once in awhile!



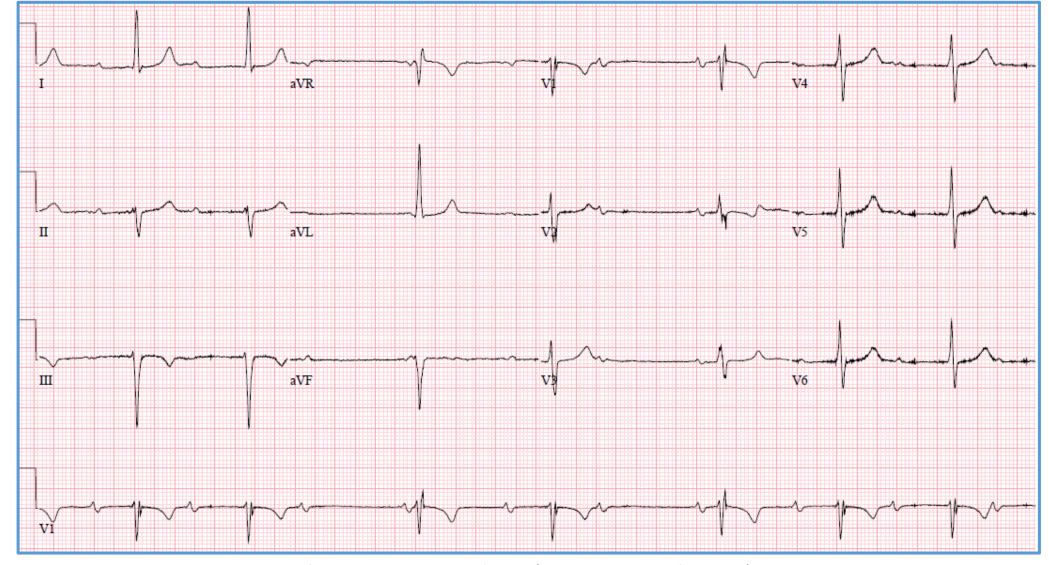
Mearurements:	Rhythm (s):	Conduction:	Waveform:	Interpretation:
A= 70 V= <70	Normal sinus rhythm with three nonconducted PACs	Normal SA, AV, and IV	Normal P and QRS; minor T wave abnormalities	Abnormal ECG: 1. Rhythm (PACs)
PR=150	(arrows)	The PACs are nonconducted because		Nonspecific minor T wave abnormalities
QRS=80		they occur too early; this does not indicate		Note: the most common <i>cause</i> of an
QT=400		abnormal AV conduction		unexpected <i>pause</i> in the rhythm is a nonconducted PAC.
Axis= +30				



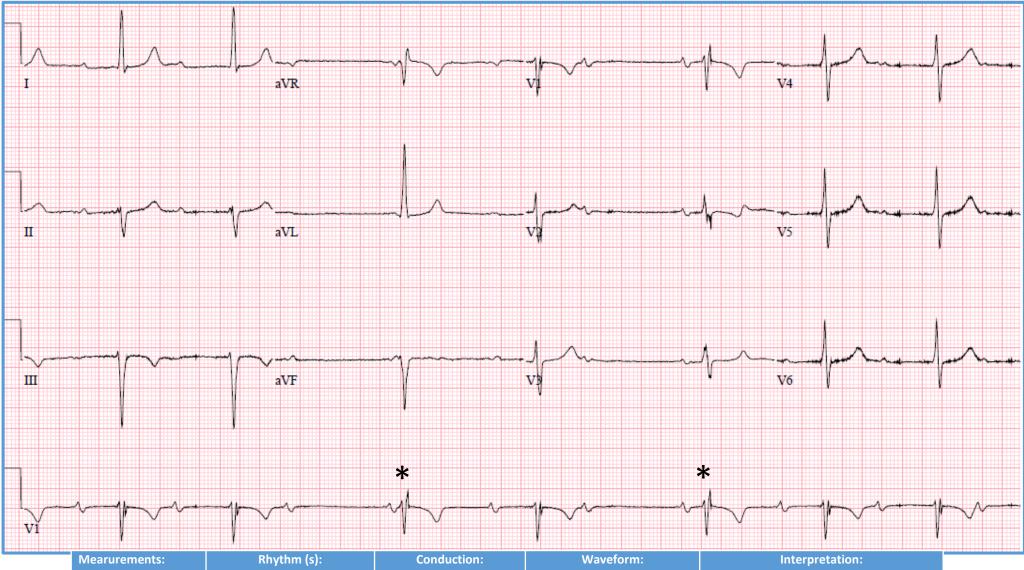
80 year old man with pauses; (differential diagnosis of unexpected pauses?)



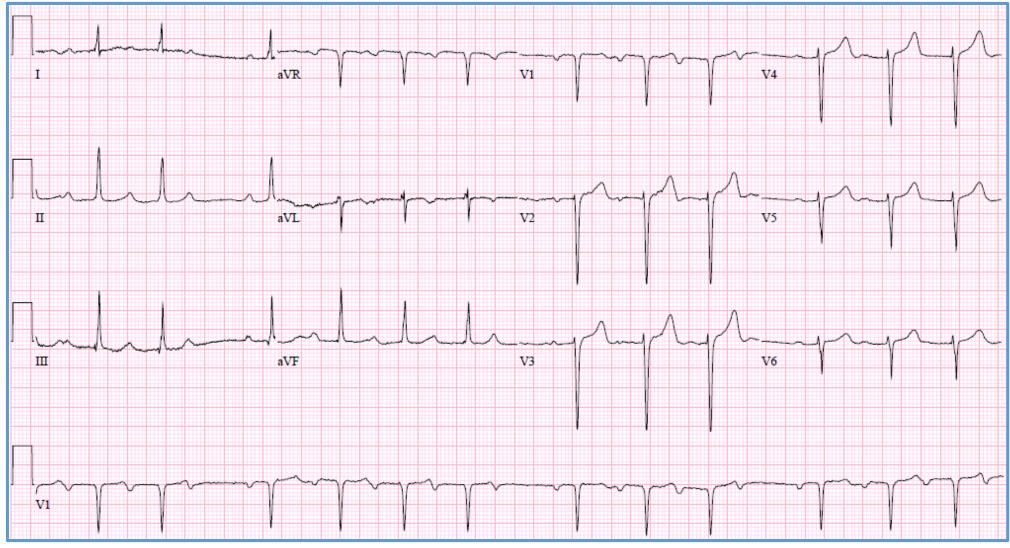
Mearurements:	Rhythm (s):	Conduction:	Waveform:	Interpretation:
A=55 V= 40-55 PR=230 - 320 QRS=80 QT=430 Axis= +30	Sinus rhythm with one nonconducted PAC (arrow)	2nd degree AV block (type I, Wenckebach)	Normal P, QRS, ST-T	Abnormal ECG: 1. 2nd degree (type I) AVB; note the PR after the nonconducted P (*) is shorter that the PR before – indicating type I 2° AV block) 2. Nonconducted PAC (arrow)



44 year old man; history of atrial septal defect. (What type of ASD?)

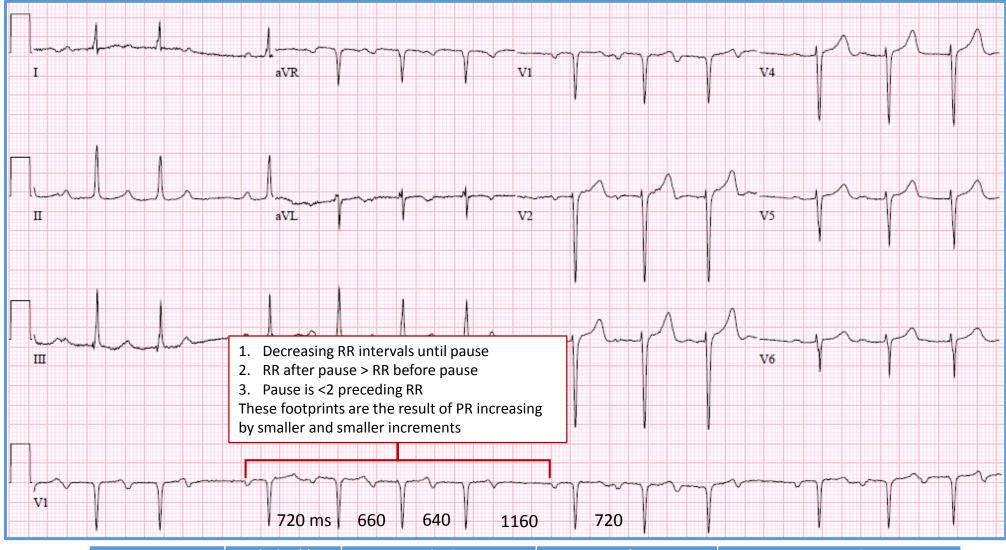


Mearurements:	Rhythm (s):	Conduction:	Waveform:	Interpretation:
A=60 V= ~50	Sinus arrhythmia with 2 junctional escapes (*); note	 2nd degree AV block (type I, Wenckebach) 	 Normal P Small q in aVL; S_{III} > S_{II} 	Abnormal ECG: 1. Type I 2nd degree AVB
PR= varies	slightly different QRS.	 Left anterior fascicular block 		2. Left anterior fascicular block
QRS=100	Note: junctional escapes are			LAFB is seen in <i>ostium primum</i> ASD;
QT=440	a normal response to long RR cycles (in this case due			junctional escapes often have slightly altered QRS morphology compared to
Axis= -45	to the AV block)			sinus beats.



86 y woman; recent CVA; hx hypertension, diabetes, hyperlipidemia

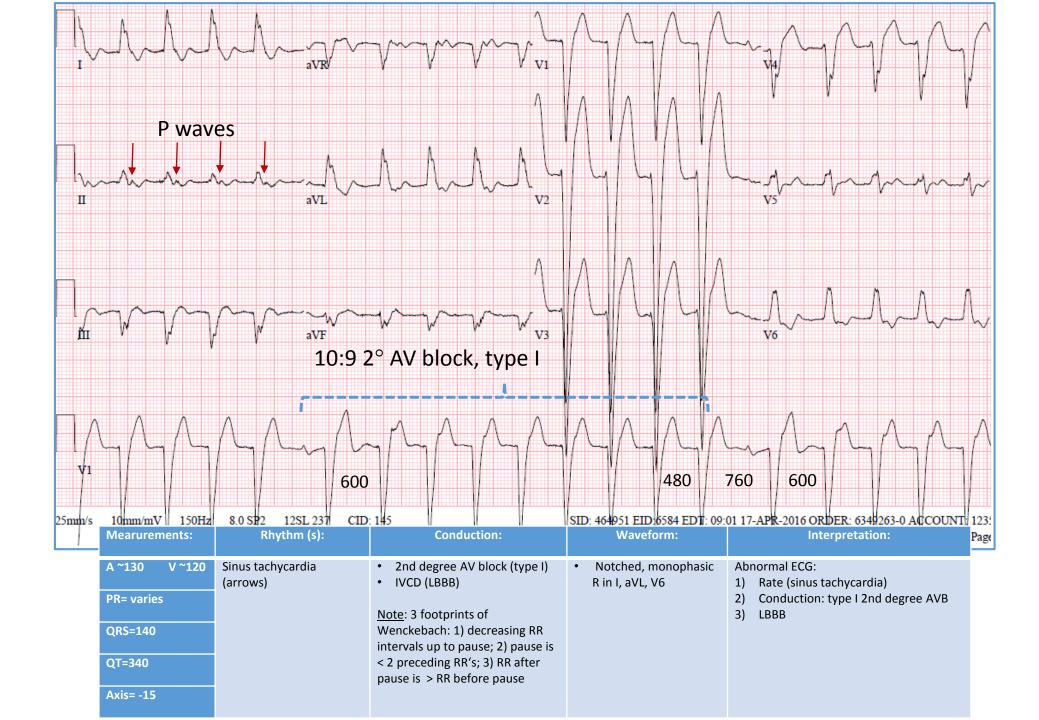
What are the "Footprints of Wenckebach"?

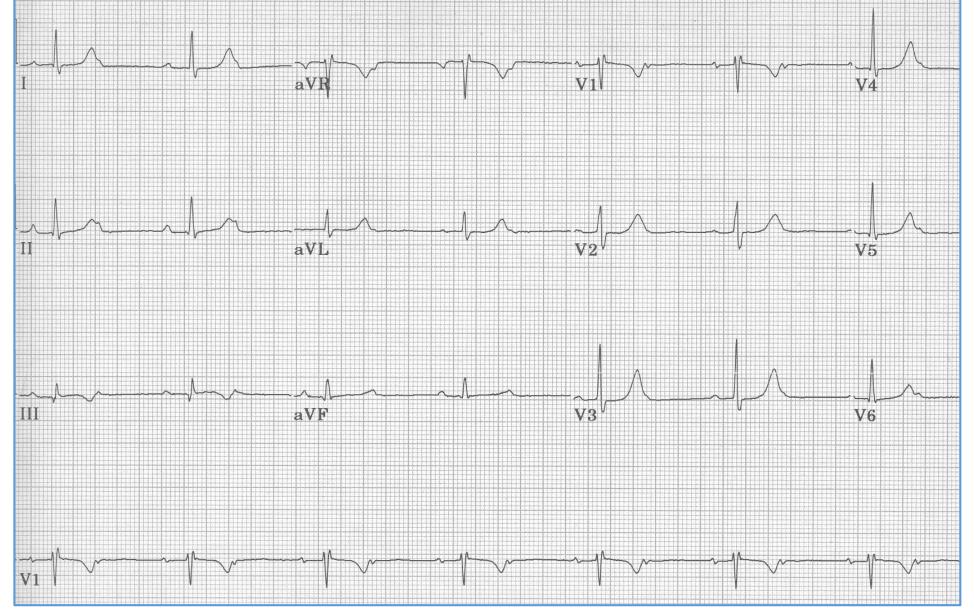


Mearurements:	Rhythm (s):	Conduction:	Waveform:	Interpretation:
A= 90 V= ~80 PR= varies	Sinus rhythm	2nd degree AV block (type I) Classic Wenckebach <i>footprints</i> (see above RR intervals)	 Normal P, ST-T Poor R wave progression V1-6 	Abnormal ECG:1. 2nd degree (type I) AV Block2. Poor R-progression (cause unknown)
QRS= 89 QT=380 Axis= +75		Note: footprints work best when the sinus intervals (PP intervals) are regular; they don't work if there is sinus arrhythmia (varying PP's)		

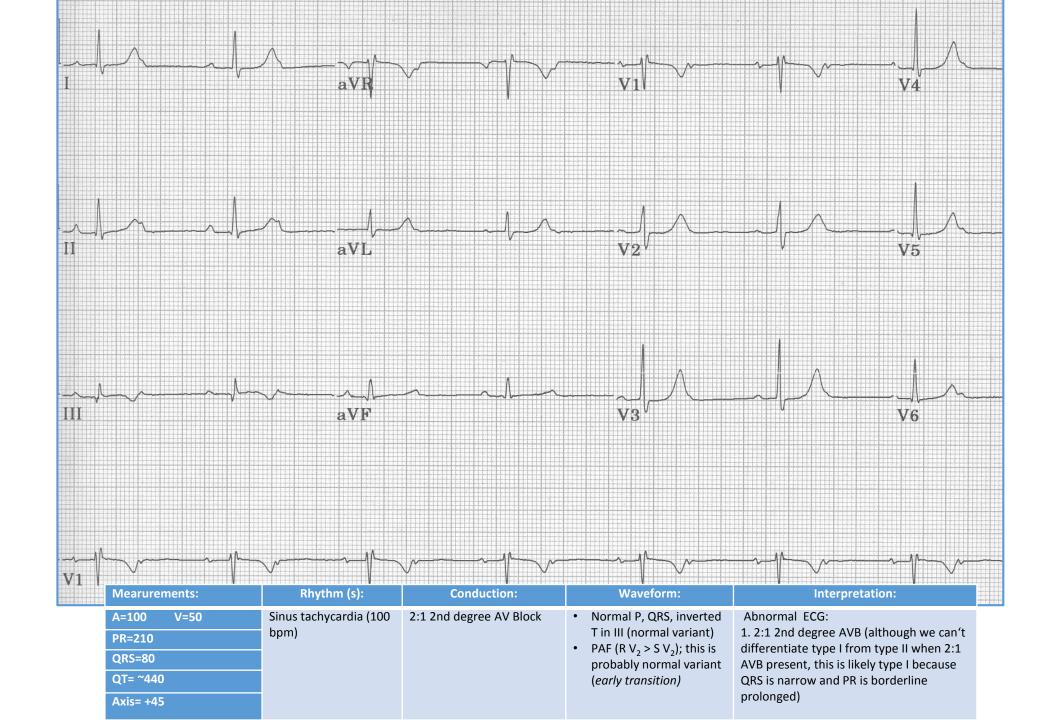


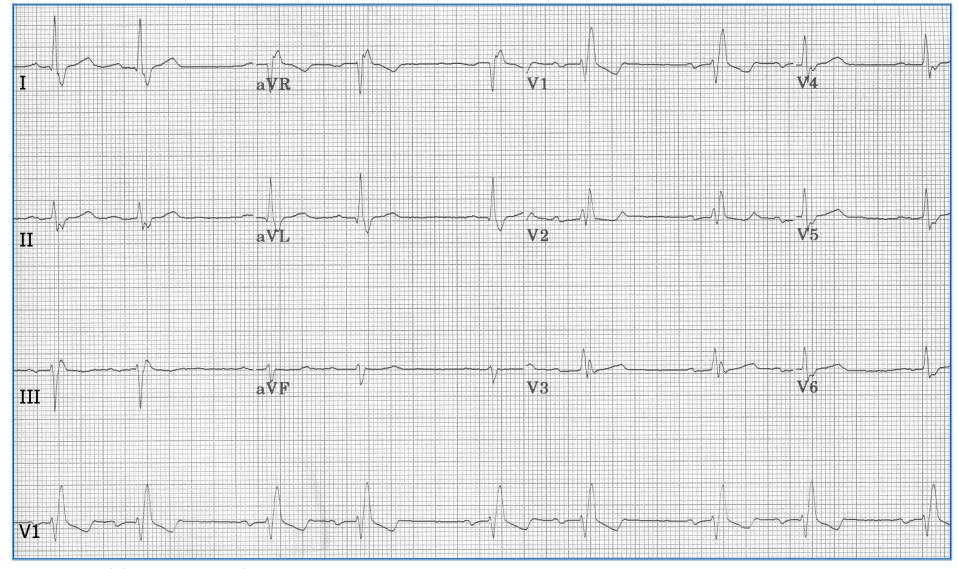
RH: 84 year old man admitted with sepsis; history of CAD, pulmonary fibrosis



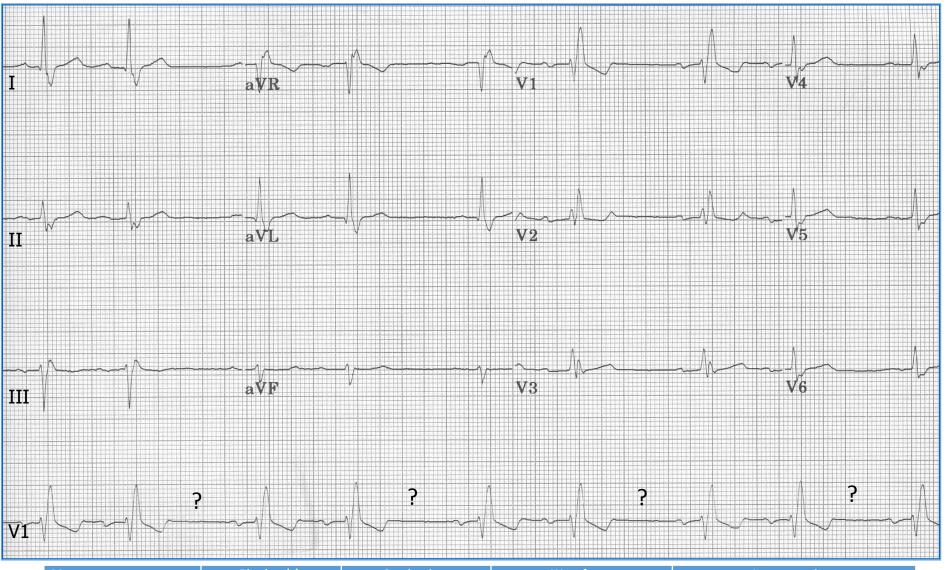


Young man with more P's than QRS's

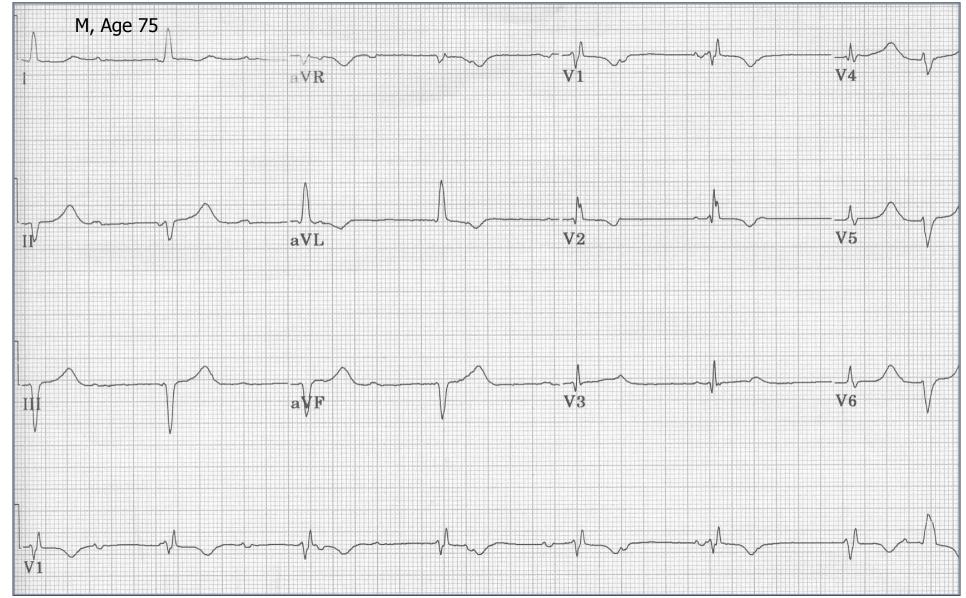




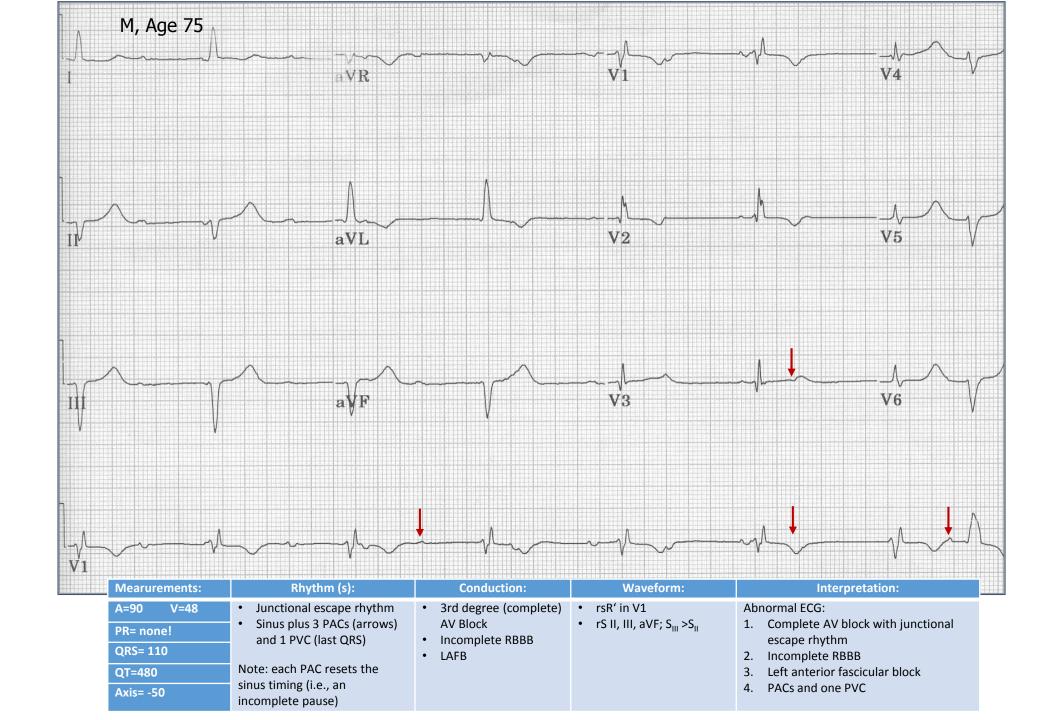
87 year old woman with presyncope

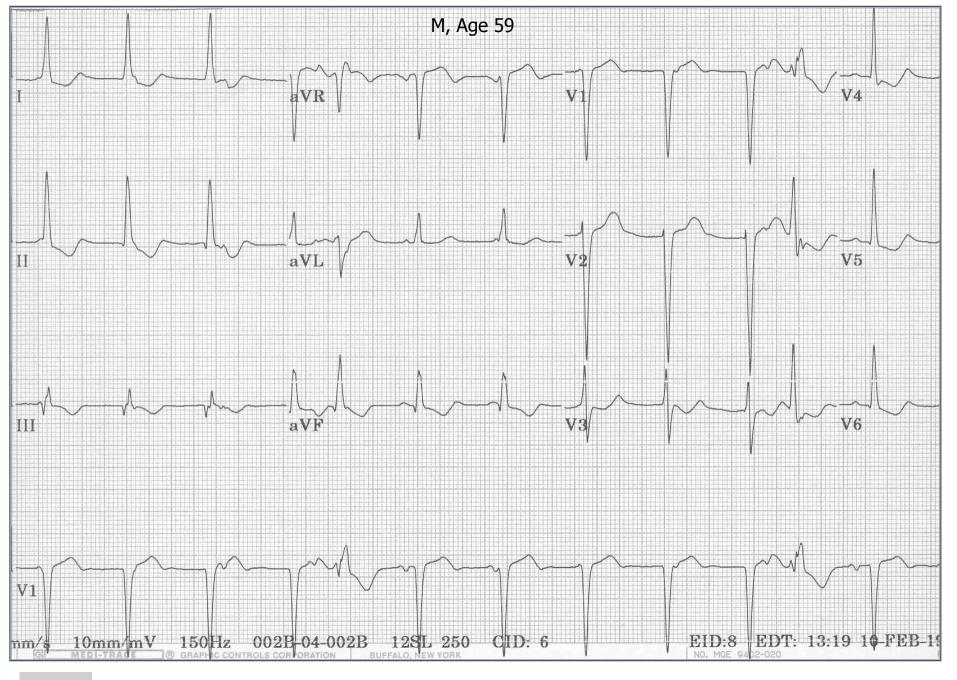


Mearurements:	Rhythm (s):	Conduction:	Waveform:	Interpretation:
A=75 V= ~60 PR=220-240 QRS=140 QT=380 Axis= -20	Sinus rhythm	1st degree AV block3:2 sino-atrial blockIVCD (RBBB)	rSR' in lead V1 with late S in I, aVL, V6	Abnormal ECG: 1. 2nd degree (3:2) SA block 2. RBBB In the elderly, conduction 'disease' often occurs in more than one location. In this
AXIS= -20				case there is SA, AV, and IV block.



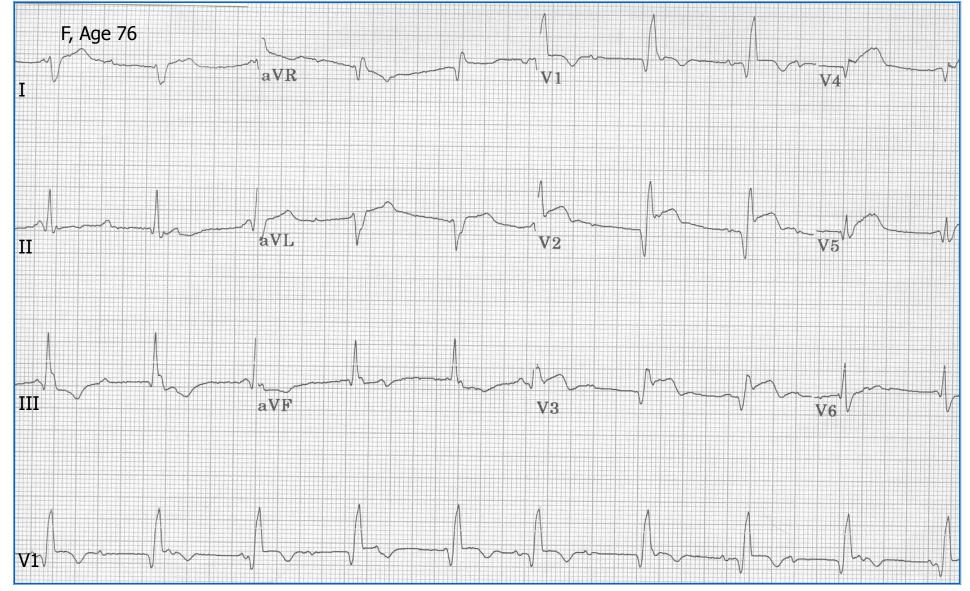
Provide 4 rhythm statements and 3 conduction statements... plus whatever else catches your eyes.



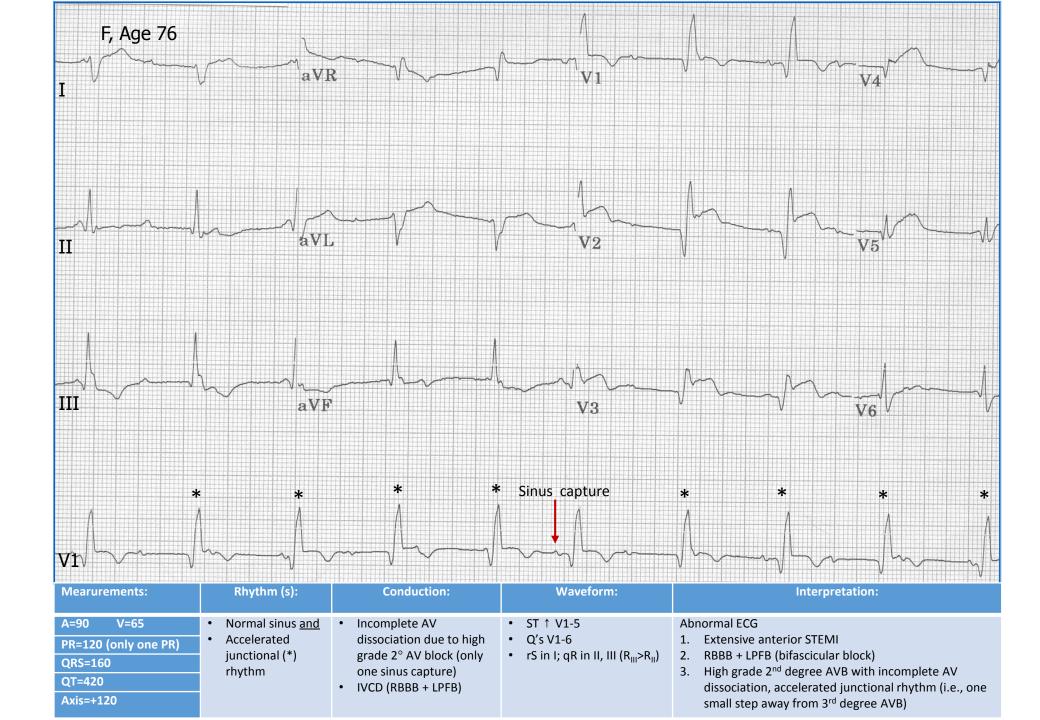


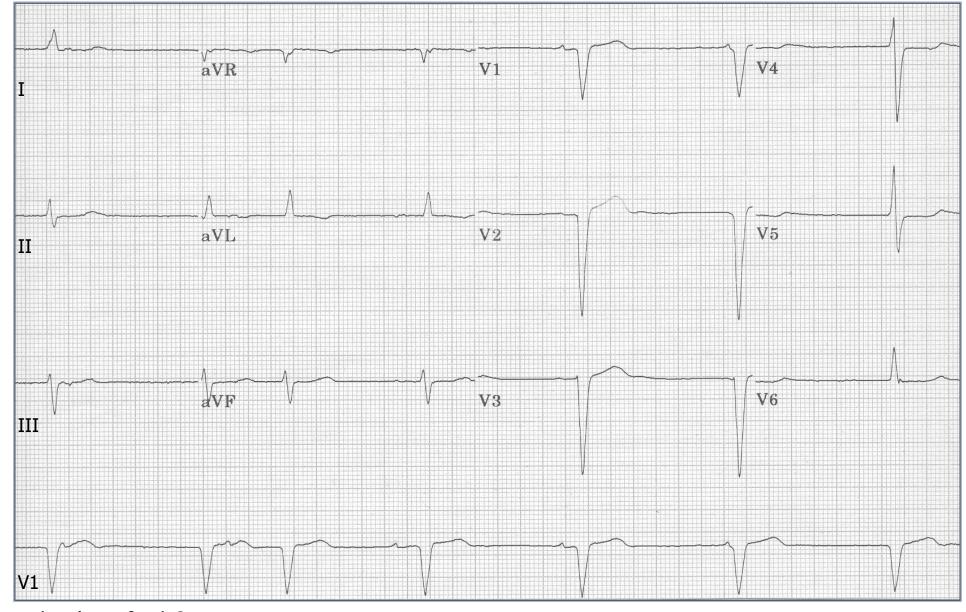
6-10 Who is the boss?



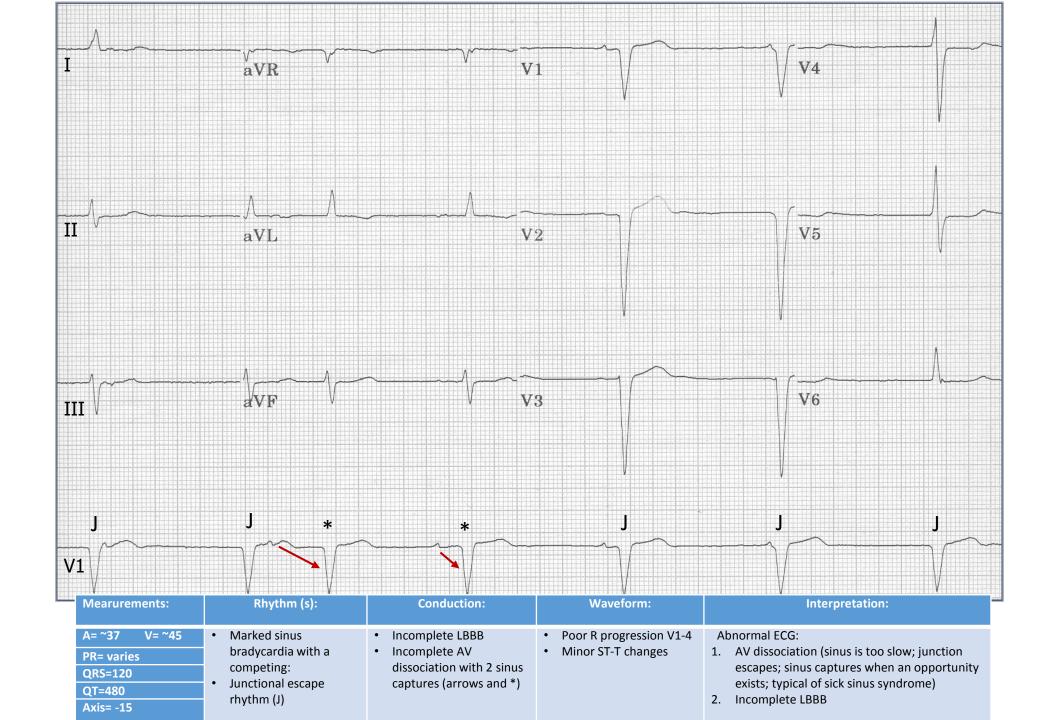


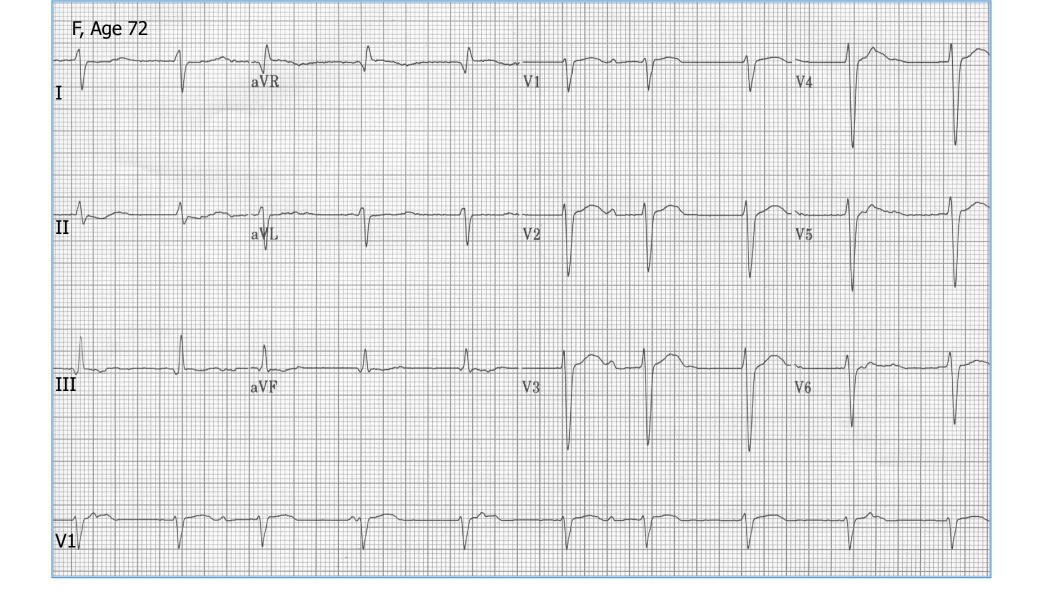
What's the clinical diagnosis?

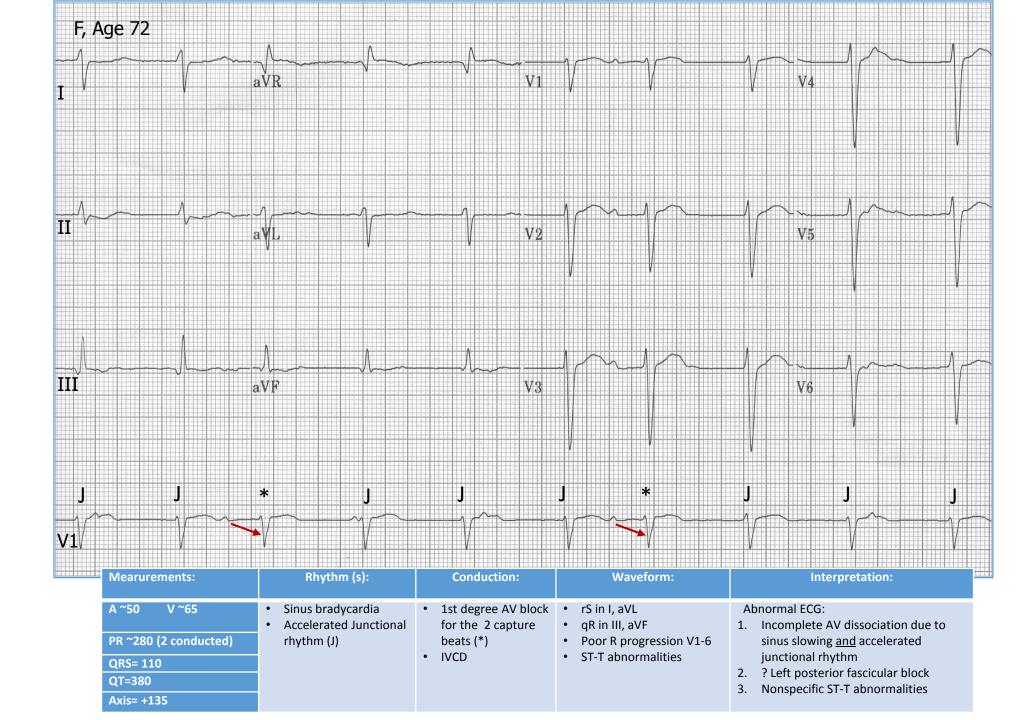


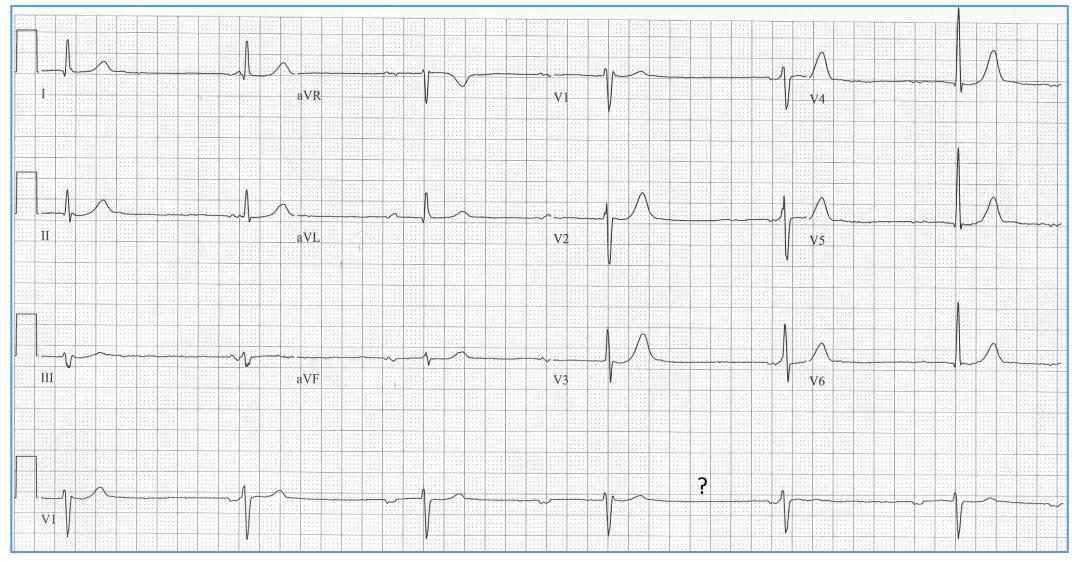


What's at fault?

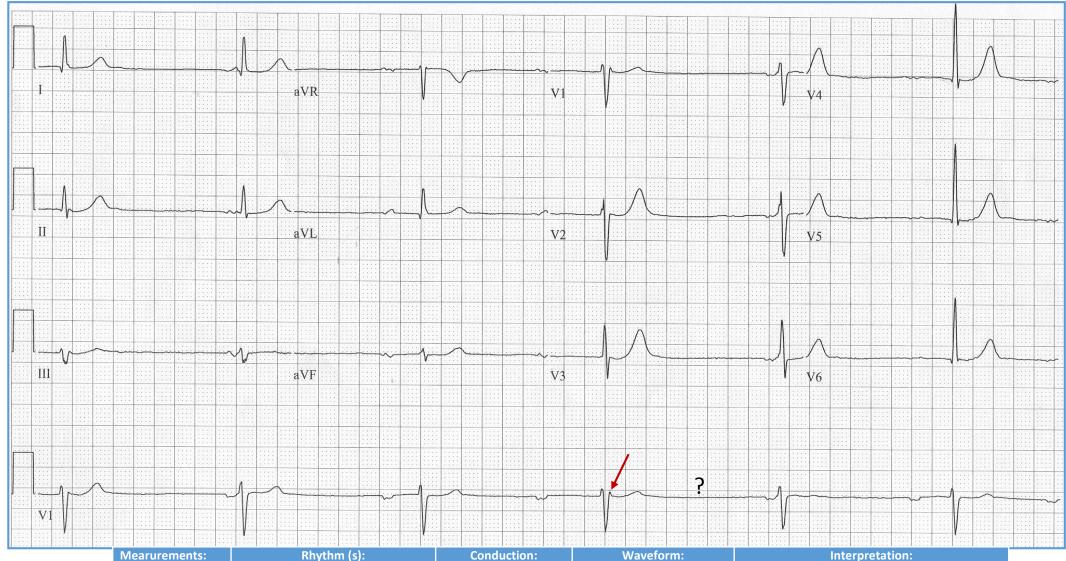




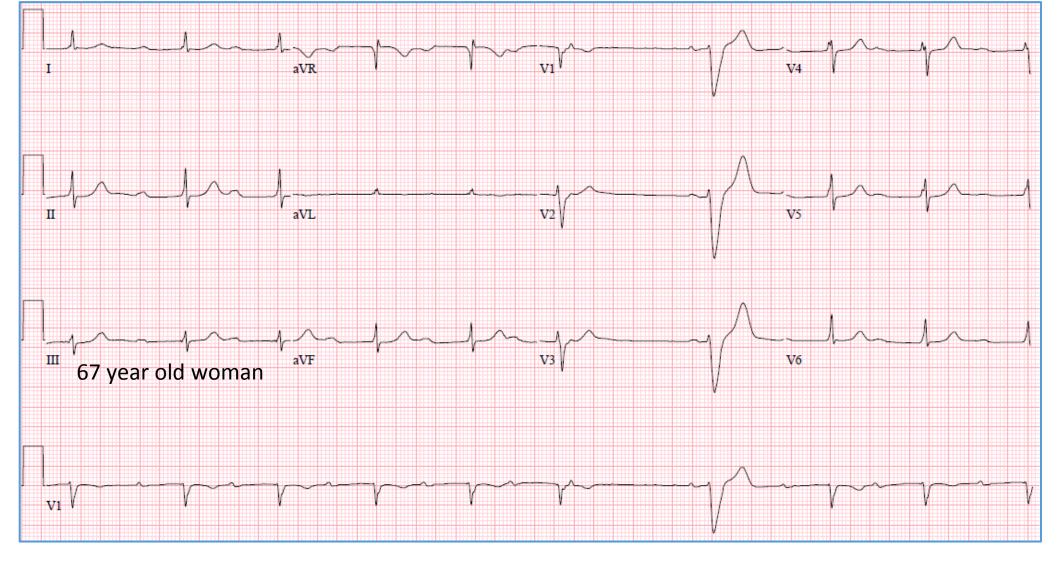




82 year old man with an unanswered question.



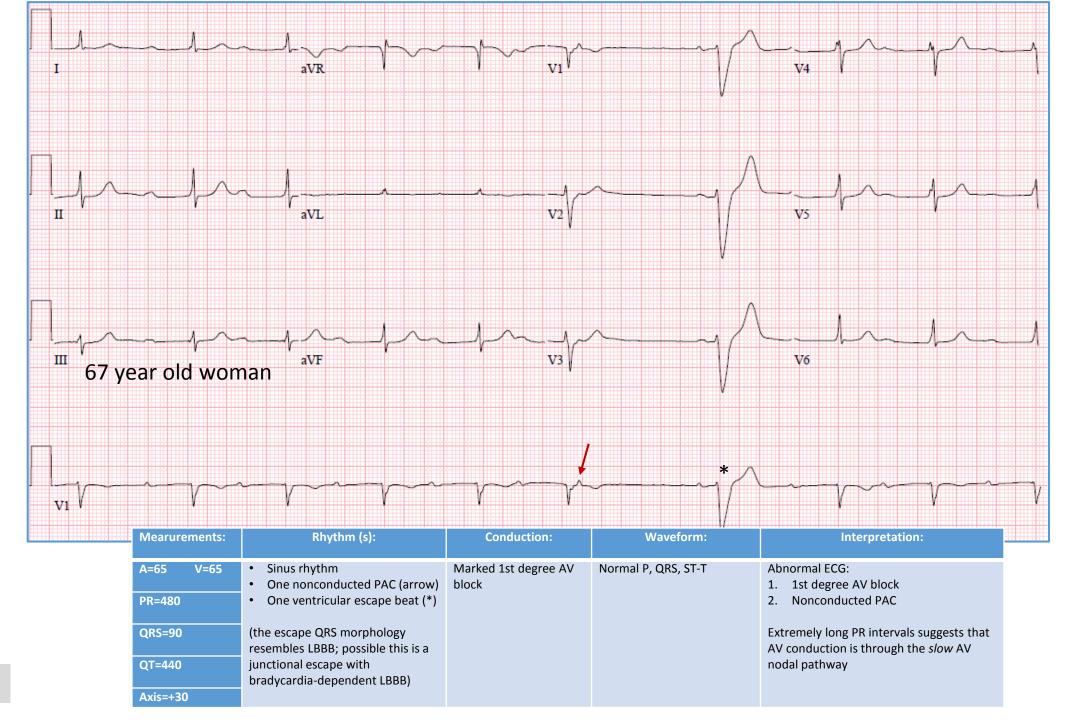
Mearurements	Rhythm (s):	Conduction:	Waveform:	Interpretation:
A=40 V=30	Marked sinus bradycardiaJunctional escape rhythm	3rd degree AV block	Normal P, QRS, and minor ST-T changes	Abnormal ECG: 1. 3 rd degree AVB
PR= none	 One nonconducted PAC (arrow) that resets the sinus clock 			2. Rare PAC
QRS=80				The '?' refers to the unexpected pause in the sinus rhythm; the answer is a nonconducted
QT=460				PAC hidden in the previous QRS (arrow); this resets the sinus timing.
Axis= 0				resets the sinus tilling.

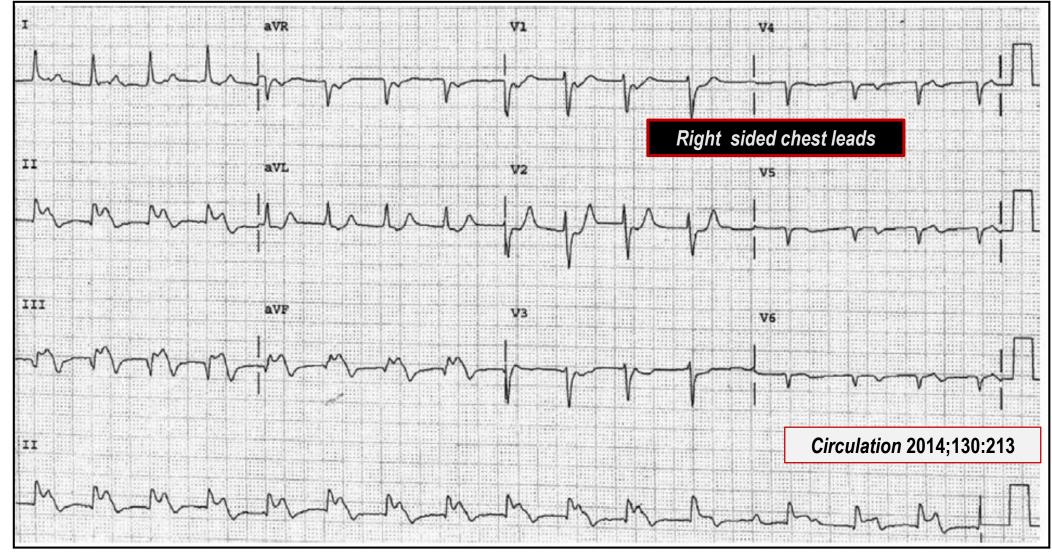


Official

ECG Interpretation:

Sinus rhythm Second degree AV block, type I (Wenckebach) with occasional Aberrant conduction
Nonspecific intraventricular conduction delay
Abnormal ECG

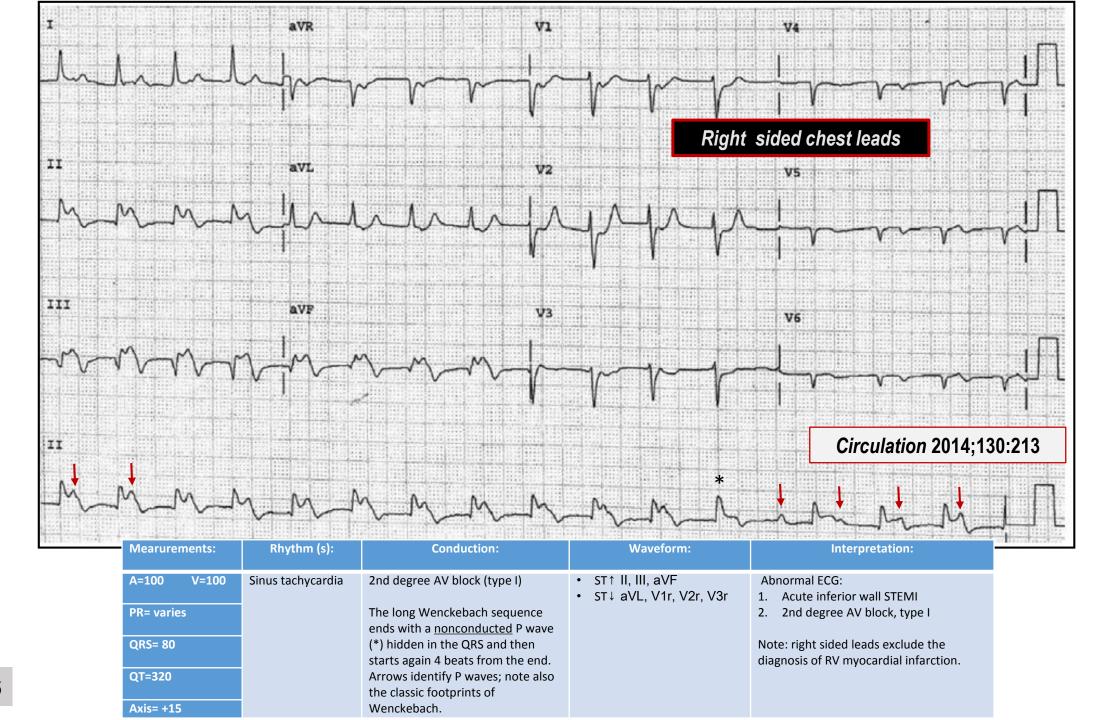


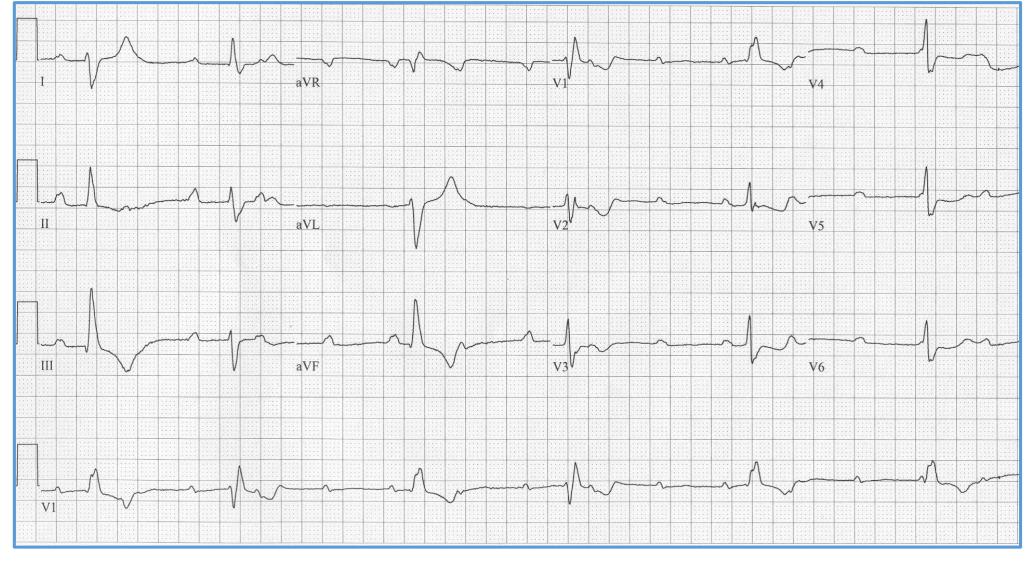


76 y old man in ER 4 hrs. after onset of substernal chest pain

Enough already?

...or just one more ?





so many P's.....

