



Basic EKG

Workshop



AAPA

prepared by

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EKG Waves



P WAVE

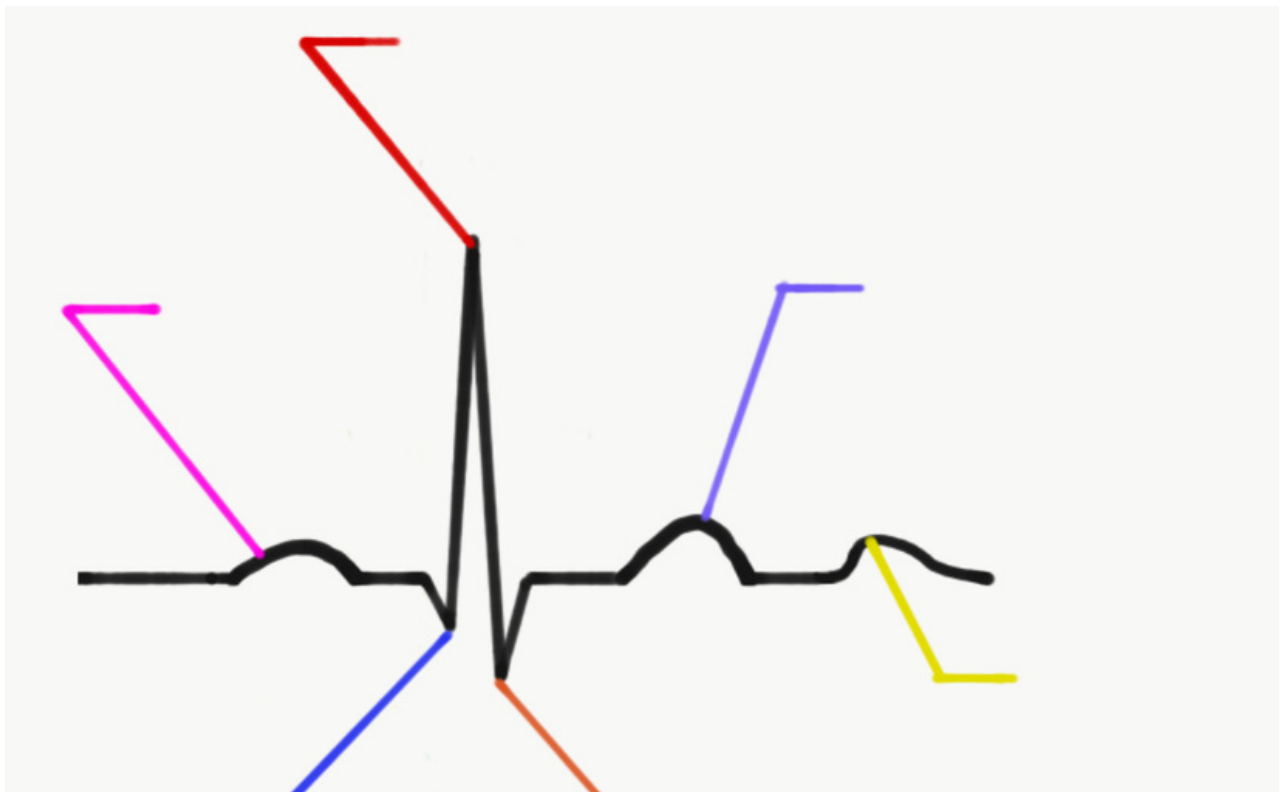
- Is a small deflection wave that represents left and right atrial depolarization and also corresponds to _____ contraction.

Q WAVE

- Is an initially _____ deflection of the QRS complex. It is normal if it is _____ of the height of the R wave.

QRS COMPLEX

- The three waves of the QRS complex represent _____ depolarization. The rule is: if the wave immediately after the P wave is an upward deflection, it is an R wave; if it is a downward deflection, it is a _____ wave.



R-WAVE

- Depolarization of the ventricles. This is the first _____ deflection.

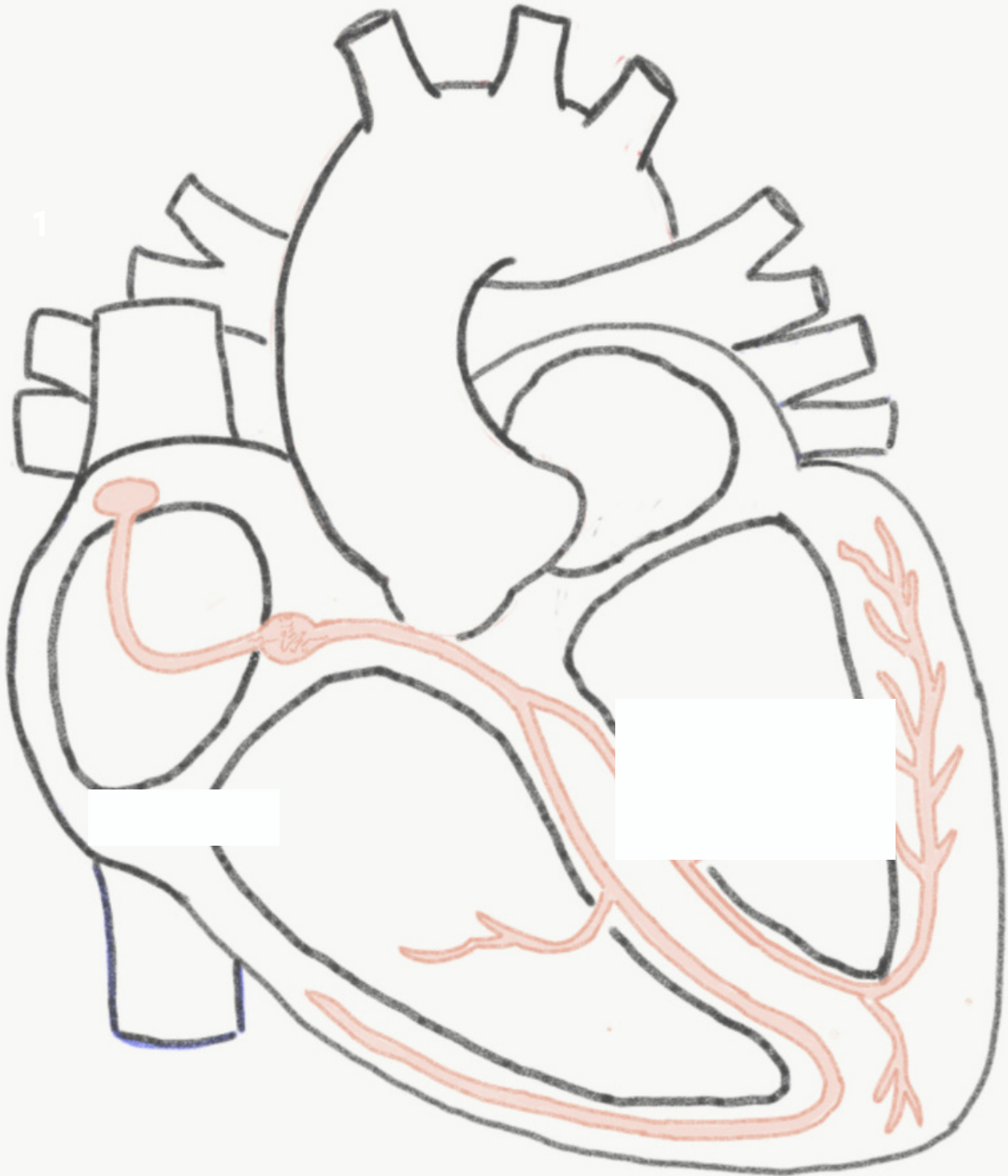
T WAVE

- It should be _____. It should be upright in all leads except _____ & _____.

Label Anatomy



Label the conduction system.



Foundations



U WAVE

- Is a small, rounded deflection sometimes seen after the _____ wave. One cause of U waves is _____ kalemia.

DELTA WAVE

- Is a slurred upstroke in the QRS complex often associated with a _____ PR interval. You will see these with _____.

PR - INTERVAL

-Is the distance from the _____ of the P-Wave to the beginning of the R Wave. PR-Interval should be between _____ ms and _____ms.

PR-SEGMENT

- The distance from the end of the _____ Wave and the beginning of the _____ Wave.

ST-SEGMENT

- Short segment from end of S-Wave to beginning of T-Wave. This is where we look for _____ and _____.

ST DEPRESSION

- Occurs when the J point is displaced below baseline. Multiple conditions associated with ST depression include _____ kalemia, cardiac _____, and medications such as _____.

QT-INTERVAL

- From beginning of Q-Wave to end of T-Wave. This is important because long qt can lead to _____.

RR-INTERVAL

- Distance between QRS-Complexes, or the distance between heart beats in a normal sinus rhythm. We use this to see if a rhythm is _____ or _____.

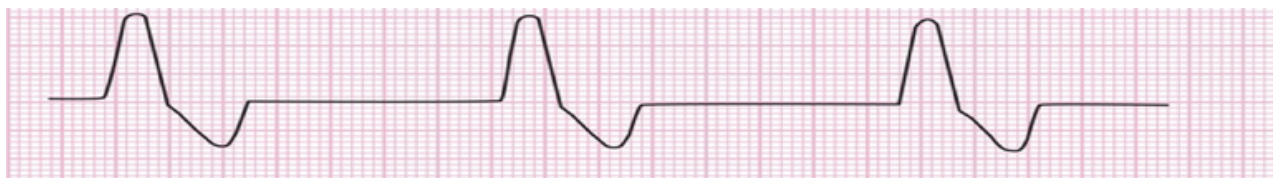
Arrhythmias



Label the rhythm: _____



Label the rhythm: _____



Label the rhythm: _____



Label the rhythm: _____

Basic 12 Lead

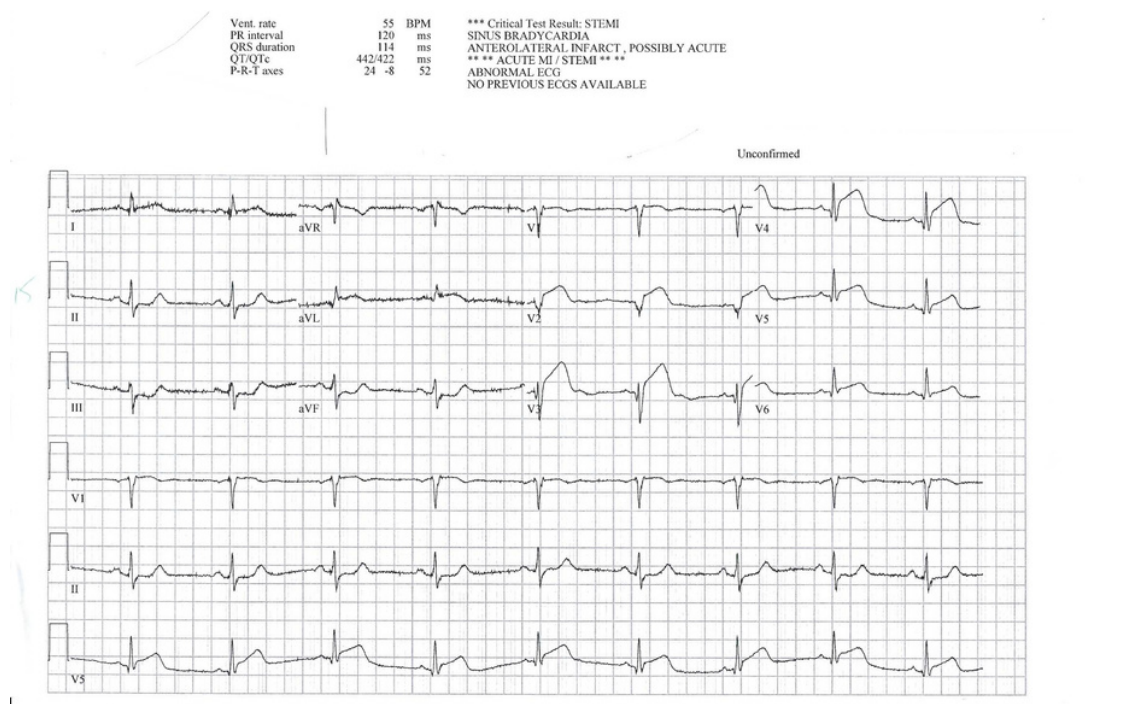


CONTIGUOUS LEADS

- The leads that are fed by the _____ artery anatomically speaking.

RECIPROCAL CHANGES

- ST-segment depression occurring on an ECG which also has ST-segment elevation in at least 2 leads. "You need to have _____ up and _____ down."



INFERIOR LEADS

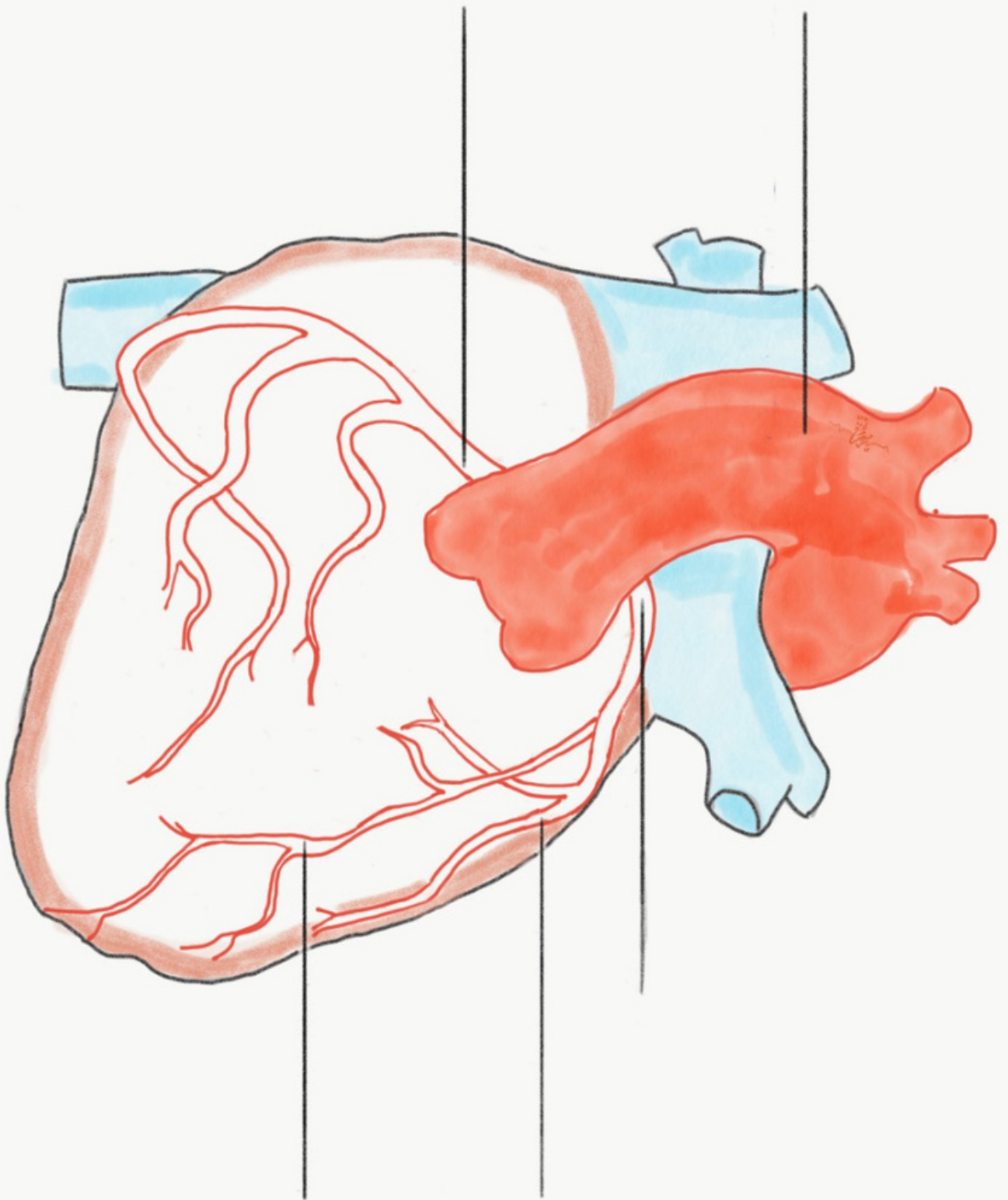
- Are _____, _____ and _____. They are fed by the _____ artery.

ANTERIOR LEADS

- Are _____, _____, _____ and _____. They are fed by the _____ artery.

LATERAL LEADS

- Are _____, _____, _____, _____ and are fed by the _____ artery.



10 STEP SYSTEM

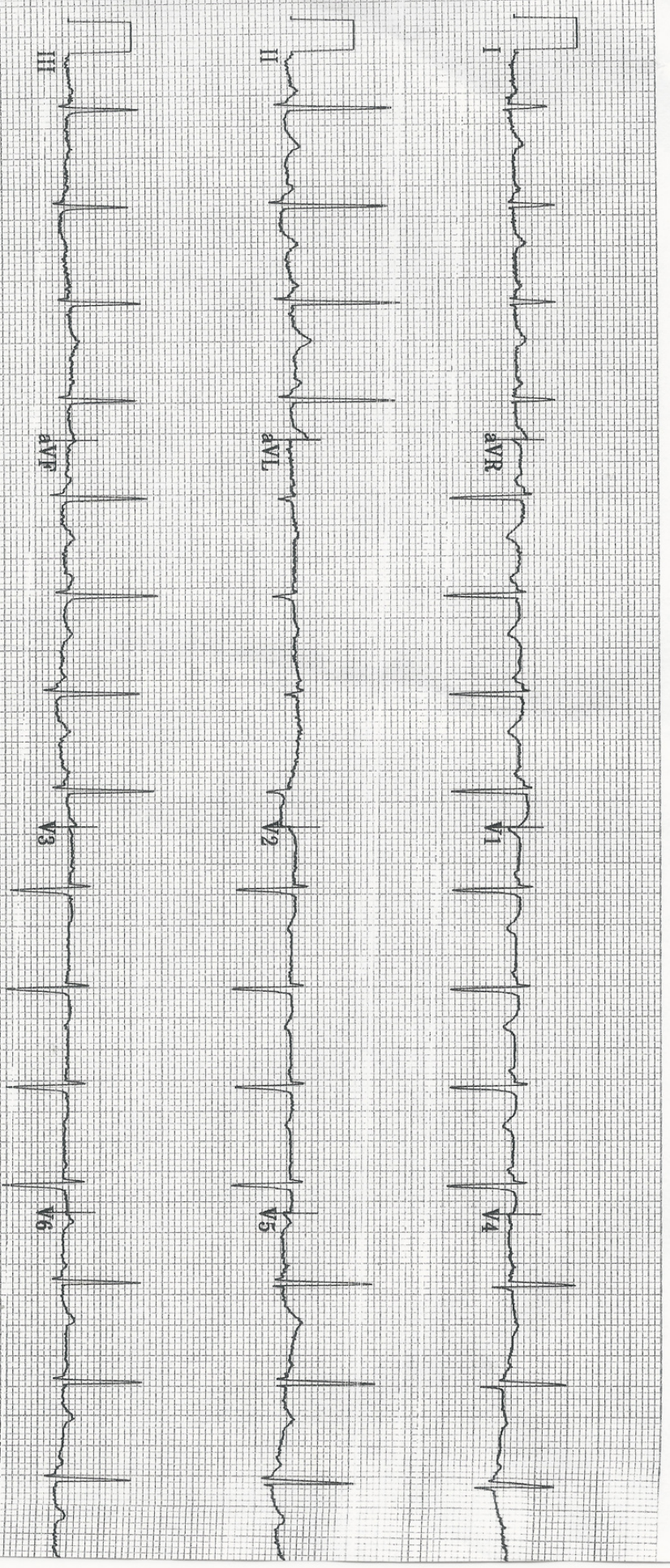


10 Step Approach to Reading EKG

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Vent. Rate 94 bpm
PR interval 116 ms
QRS duration 78 ms
QT/QTc 366/457 ms
P-R-T axes 46 66 35

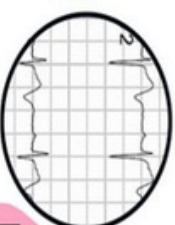
Normal sinus rhythm
Normal ECG



Non specific ST wave Changes



Depression in v2, v3
Isolated



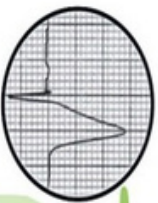
Biphasic T wave Changes
in v2 v3



ST depression in V3 v4
with Hyperacute T waves

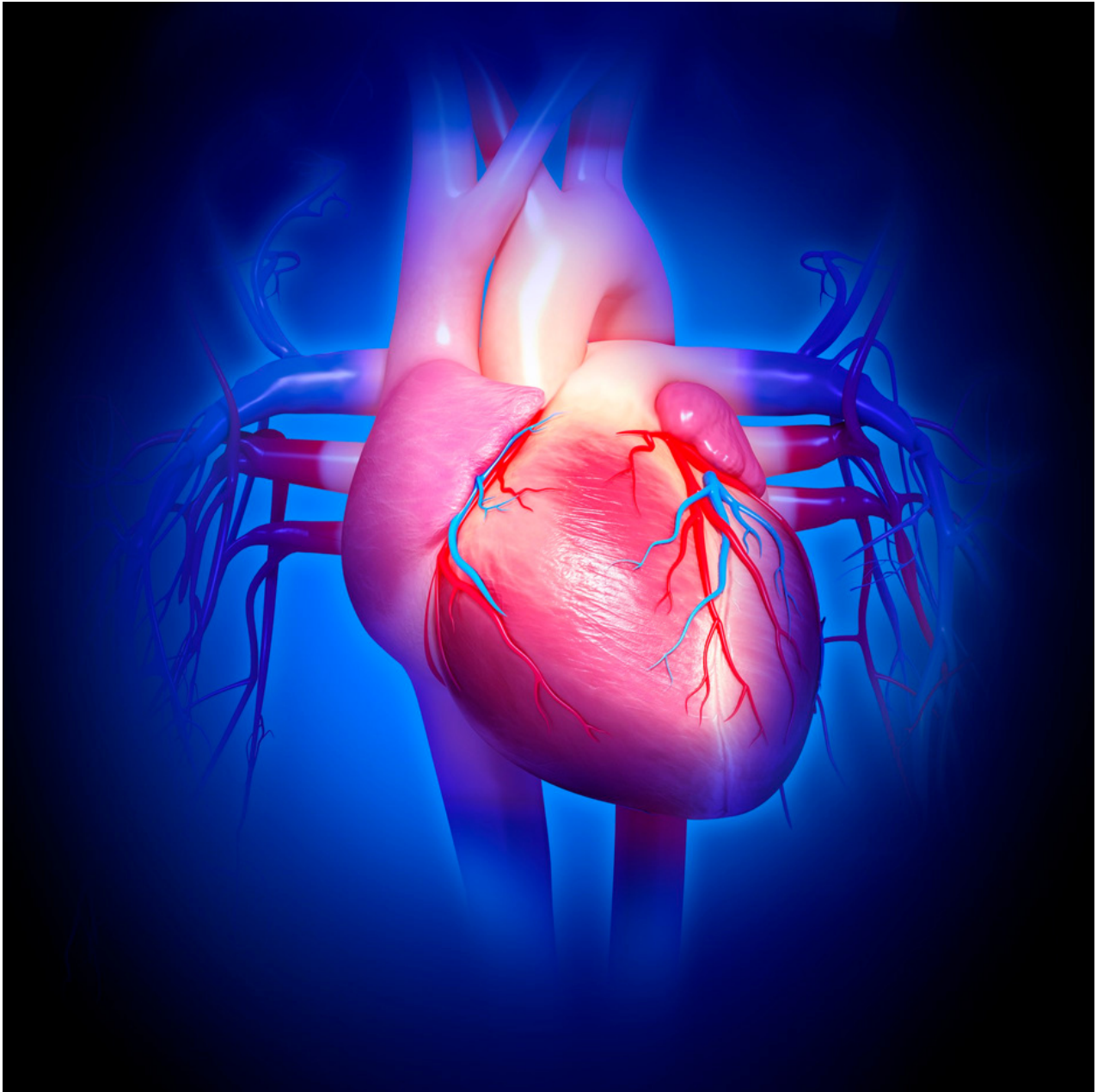


1 mm elevation in aVR
plus widespread
ST depression



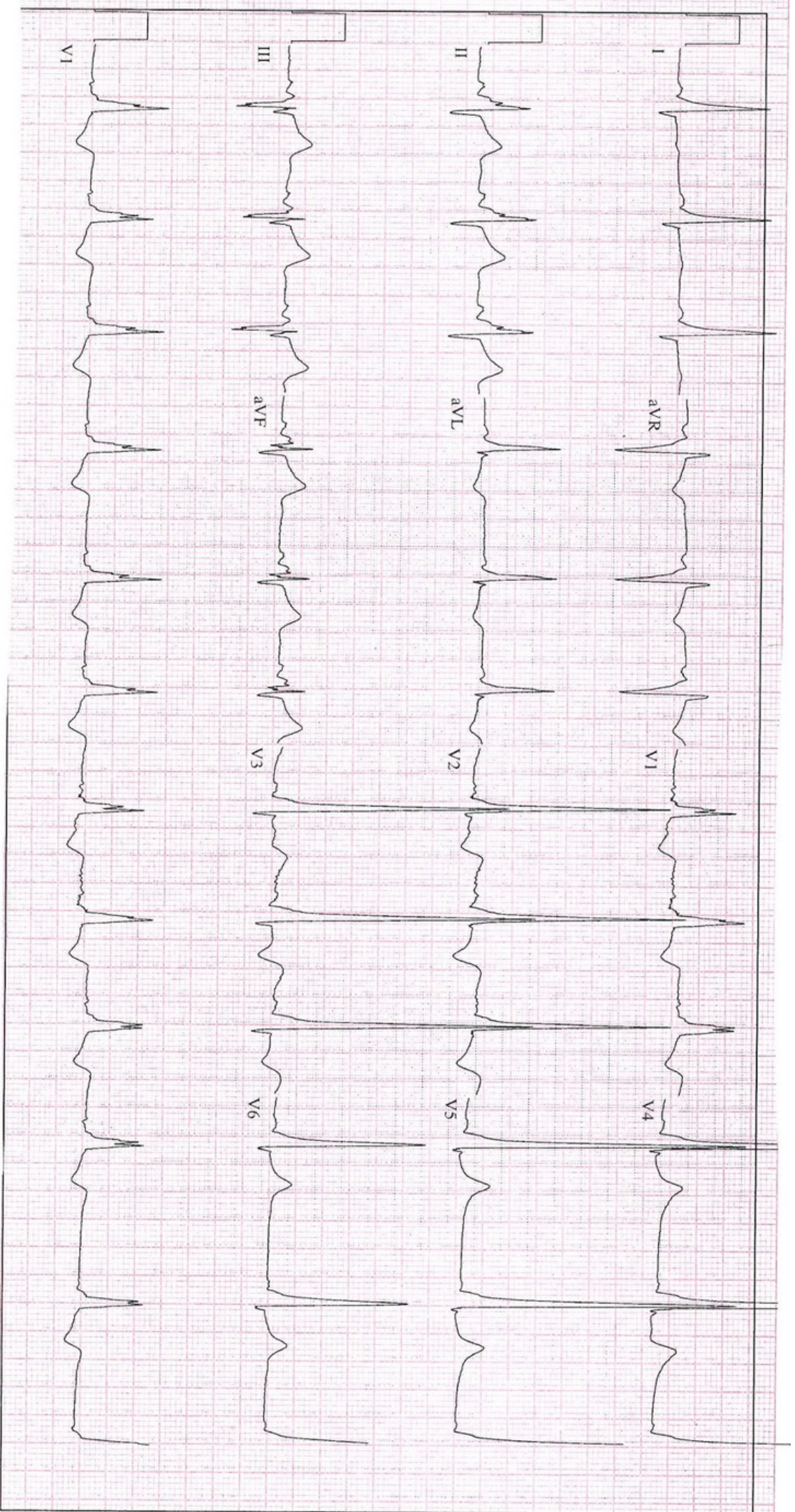
Large T waves that are
almost as big as the QRS

Basic 12 Lead Practice

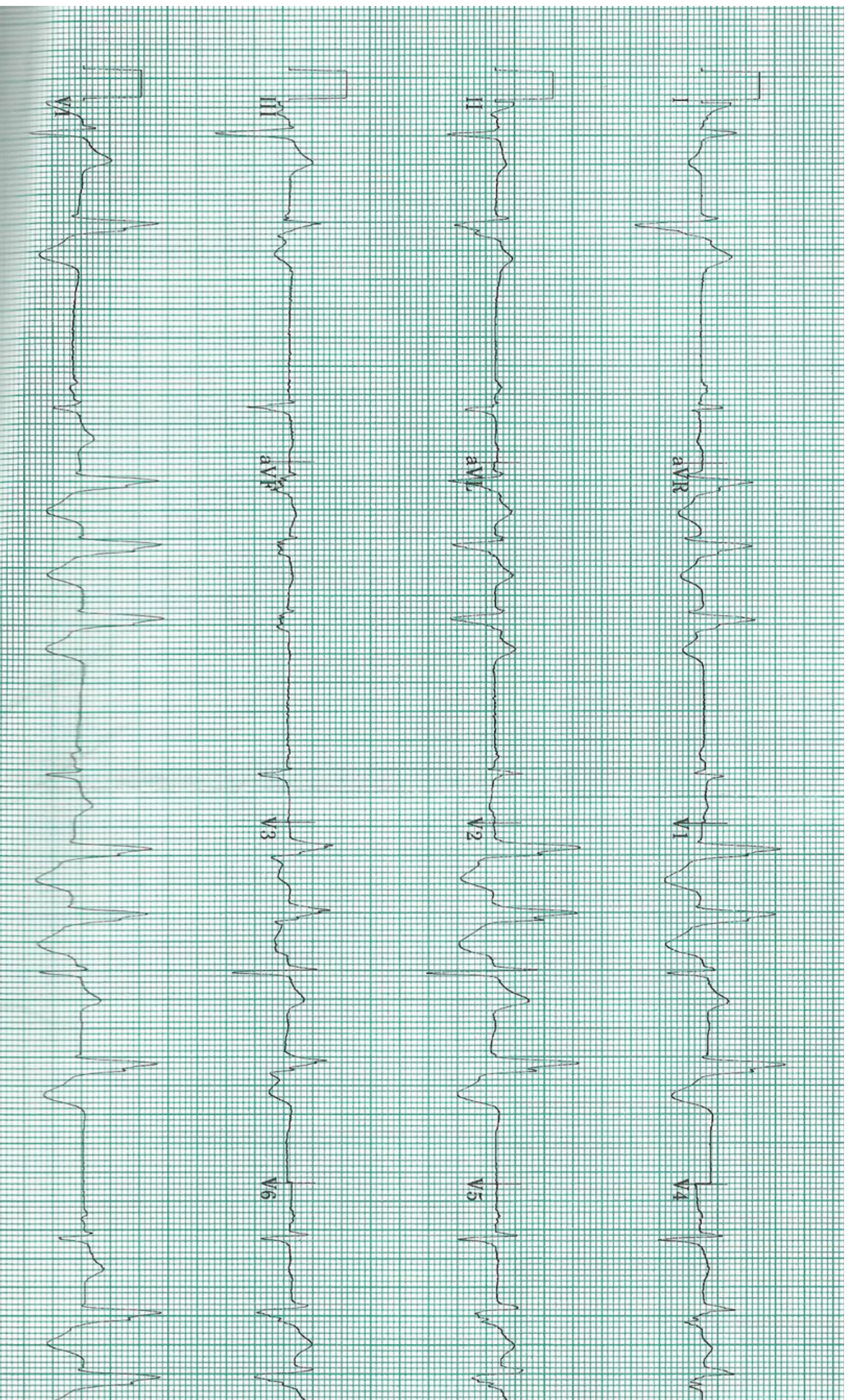


LET'S GO!

27 y.o F with anxiety



46 y.o M with a cough



67 y.o F with chest

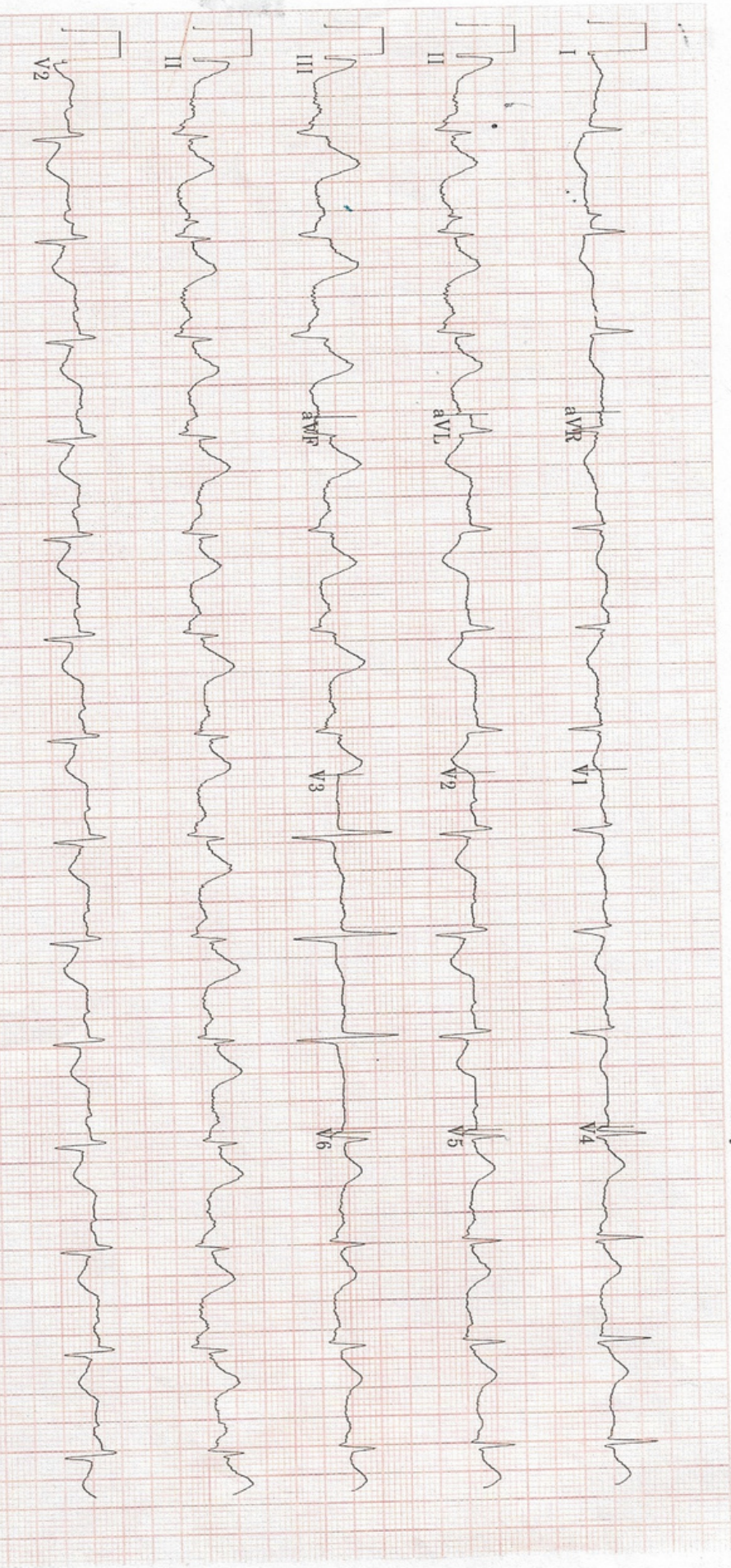
pain

Vent. rate 85 bpm
PR interval 186 ms
QRS duration 92 ms
QT/QTc * -402/478 ms
P-R-T axes 75 25 99

Normal sinus rhythm
Inferior infarct, possibly acute
Lateral injury pattern
*** ACUTE MI / STEMI ***
Consider right ventricular involvement in acute inferior infarct
Abnormal ECG

#2

Reviewed by:

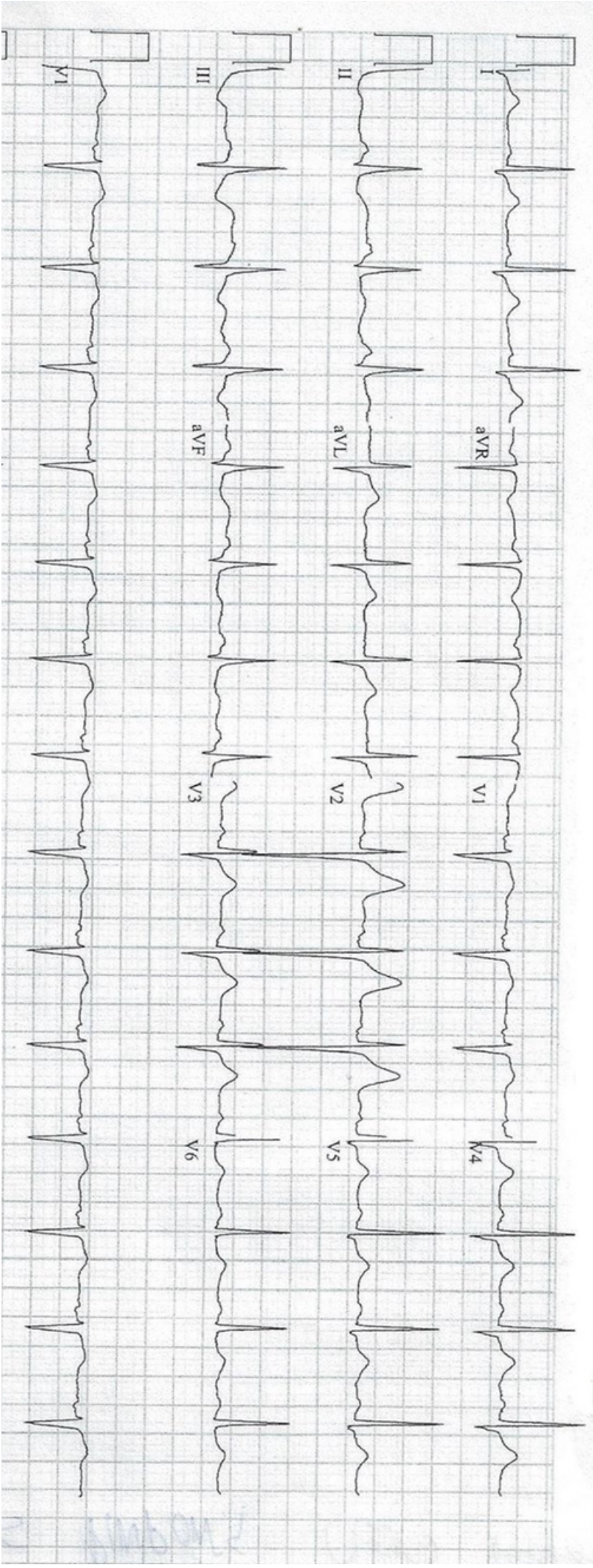


58 y.o F feels weak

Vent. rate 89 BPM
PR interval 138 ms
QRS duration 100 ms
QT/QTc 382/464 ms
P-R-T axes 59 45 -2

NORMAL SINUS RHYTHM
POSSIBLE INFERIOR INFARCT, AGE UNDETERMINED
ABNORMAL ECG
NO PREVIOUS ECGS AVAILABLE

4

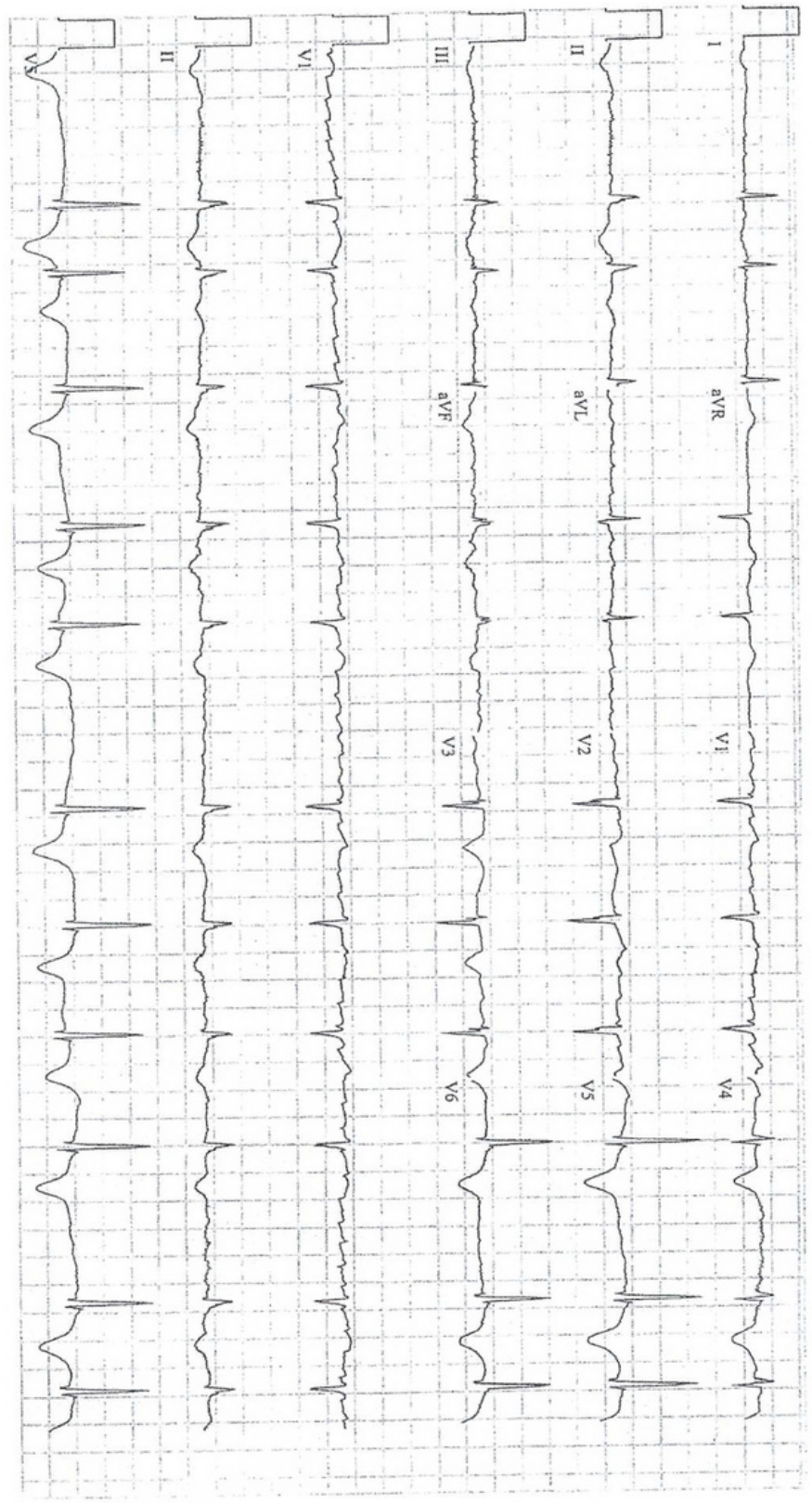


89 y.o chest pain

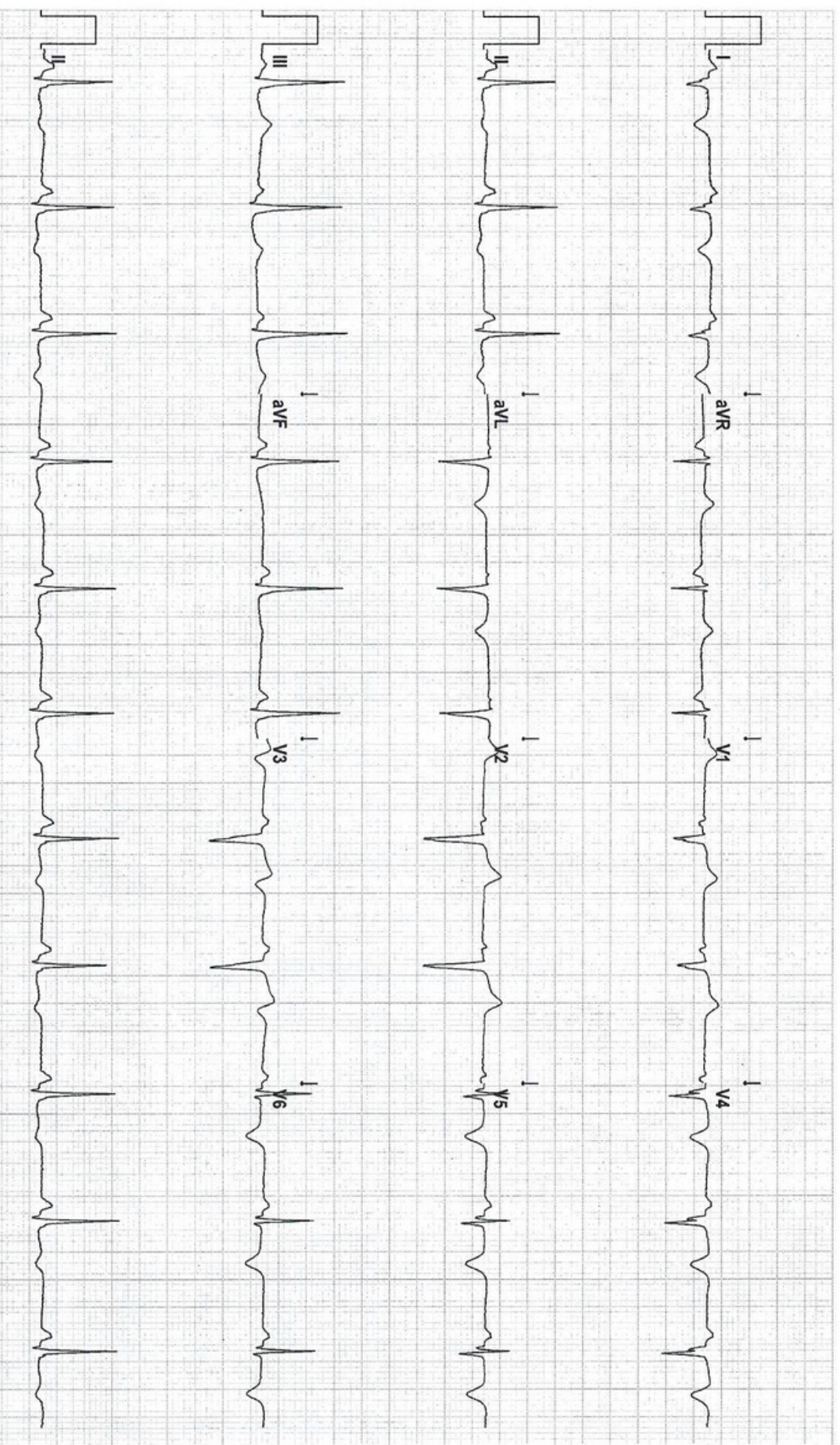
(2)

VENT. RATE 70 BPM
PR INTERVAL * 84 ms
QRS DURATION 452/488 ms
QT/QTc * 34 ms
P-R-T axes 247

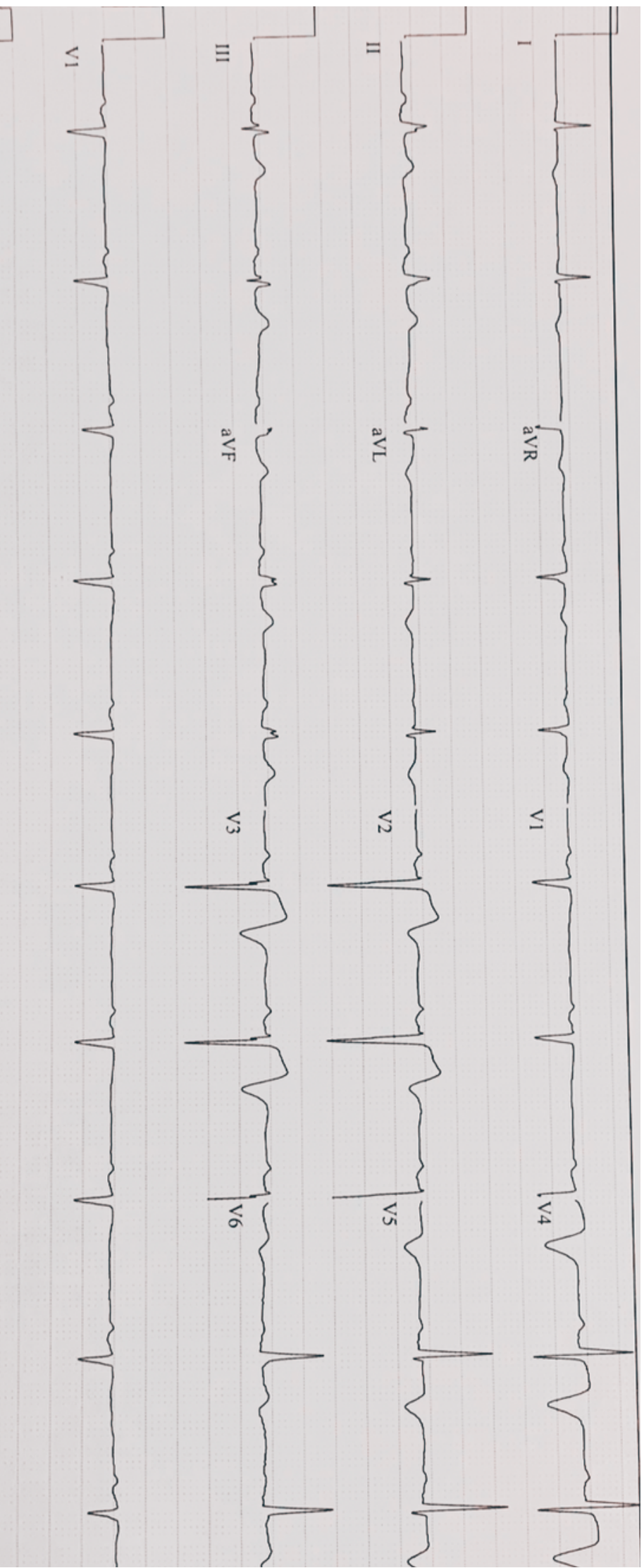
ATRIAL FIBRILLATION
ST AND T WAVE ABNORMALITY. CONSIDER ANTEROLATERAL ISCHEMIA
WHEN COMPARED WITH ECG OF 06-SEP-1992 23:06
ATRIAL FIBRILLATION HAS REPLACED SINUS RHYTHM
T WAVE INVERSION NOW EVIDENT IN ANTEROLATERAL LEADS



52 y.o sudden cardiac arrest

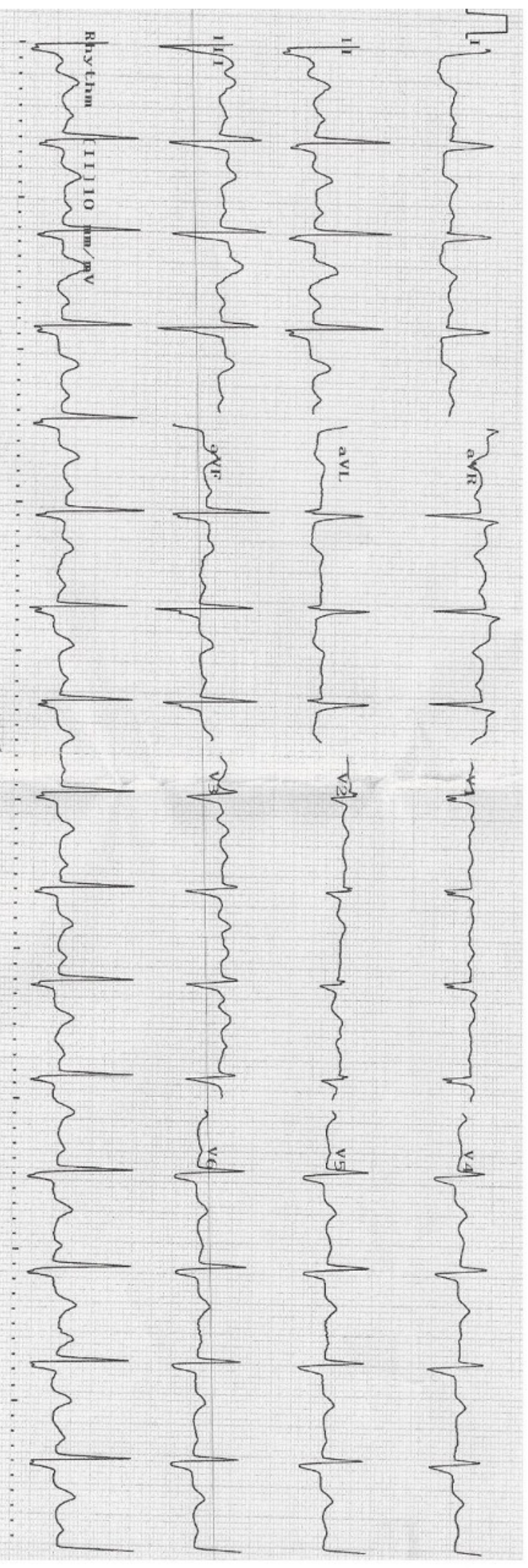


60 y.o sudden chest pain



78 Y.O M SHOULDER PAIN

"When I work out at the gym"



Ordering Pt:
Referring Ph:
Attending Ph:

QRS : 80 ms
QT / QTcBaz : 348 / 428 ms
PR : 144 ms
P : 122 ms

RR / PP : 658 / 659 ms
P / QRS / T : 47 / 89 / 32 degrees

Normal sinus rhythm
Possible Left atrial enlargement
ST & T wave abnormality, consider lateral ischemia
Abnormal ECG



Symptomatic (w/over)
waves US V6 S1 II
ST depression

