# Chest Pain and Anxiety

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# Objectives

1) **Describe the distinctions between anxiety and heart disease-related chest pain.**

2) **Describe a risk factor-based approach to evaluate potential cardiac causes of chest pain.**

3) **Summarize a clinical approach to evaluating outpatients who present with chest pain (including identification of patients who require tertiary care).**

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# Question 1

What percentage of patients who present with chest discomfort have a cardiac problem that is responsible for their symptoms?

A. 50%

B. 25%

C. 5%

D. 1%

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# Question 1

What percentage of patients who present with chest discomfort have a cardiac problem that is responsible for their symptoms?

A. 50%

B. 25%

C. 5%

D. 1%

# Question 2

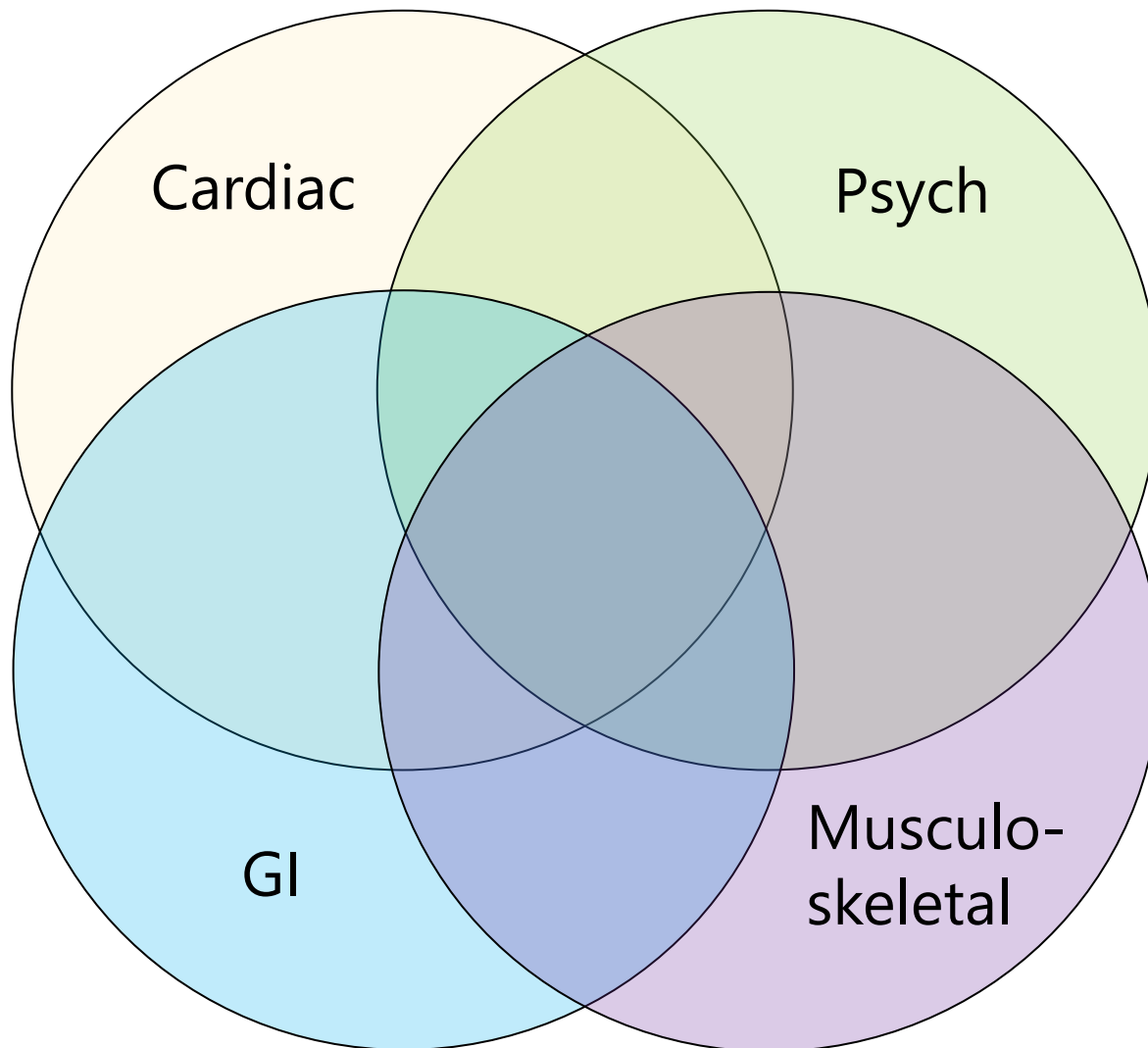Which of the following presentations of chest discomfort is least consistent with a cardiac etiology:

A. 27-year-old man with no risk factors who experiences intermittent chest discomfort but no symptoms with physical exertion.

B. 65-year-old man with HTN, DM2 who presents with chest discomfort while walking, palliated by rest.

C. 36-year-old woman with chest burning when she takes a deep breath.

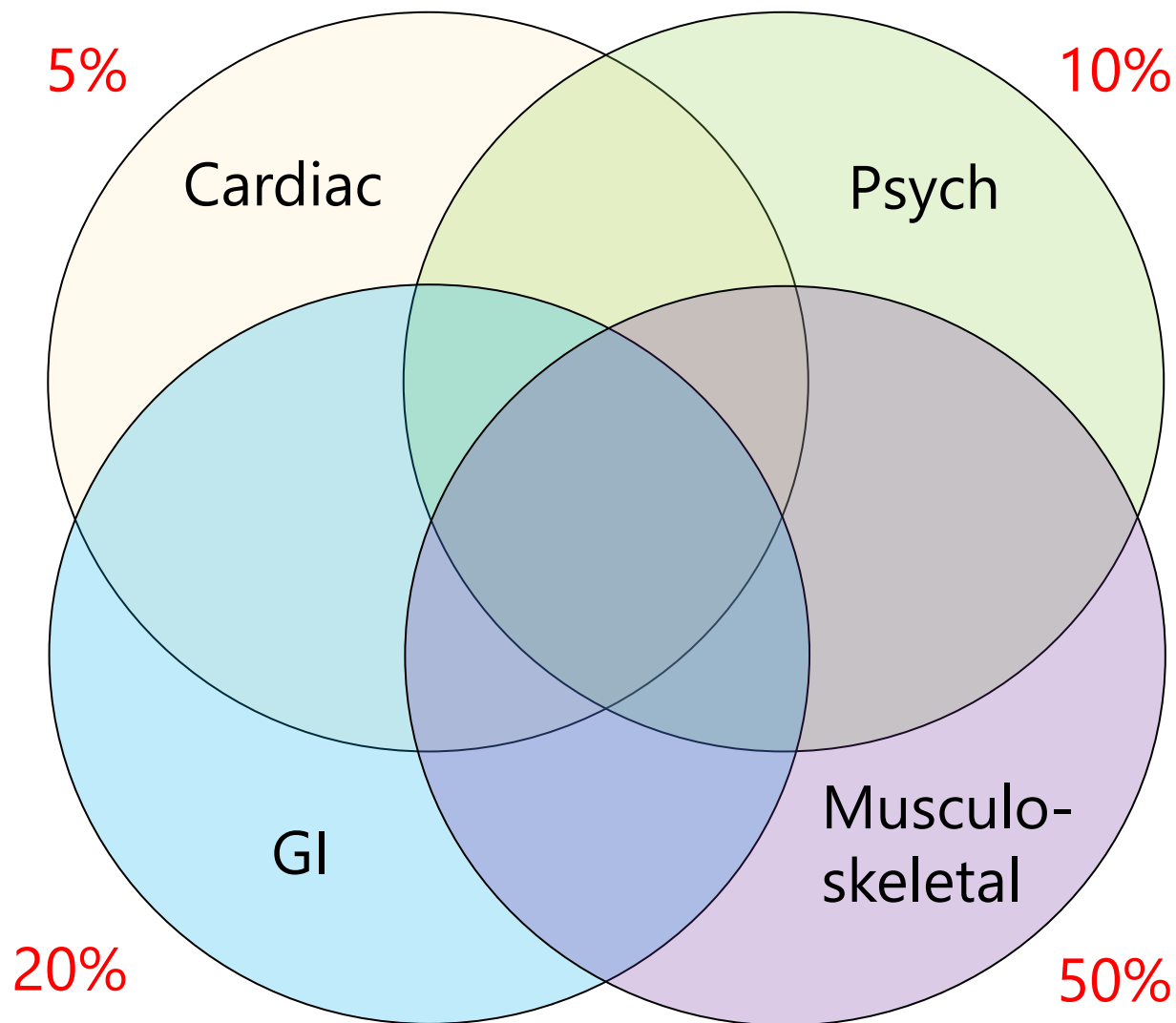D. 57-year-old woman with chest burning and palpitations.

# Question 2

Which of the following presentations of chest discomfort is least consistent with a cardiac etiology:

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B. 65-year-old man with HTN, DM2 who presents with chest discomfort while walking, palliated by rest.

C. 36-year-old woman with chest burning when she takes a deep breath.

D. 57-year-old woman with chest burning and palpitations.

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# Etiology of Chest Pain

# Etiology of Chest Pain



5%  Cardiac

10%  Psych

20%  GI

50%  Musculo-skeletal

# Question 3

Which of the following chest pain presentations is most likely to be due to an arrhythmia?

A. Chest discomfort provoked by a consistent exertion level (every time) and palliated by rest.

B. Chest discomfort only intermittently provoked by exertion and palliated by rest.

C. Chest discomfort that is intermittent and not clearly related to physical exertion.

D. Both B and C.

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D. Both B and C.

# Case 1

**HPI:**

61-year-old man who presents with a 30-year history of depressed mood and intermittent anxiety attacks (associated with chest pressure). New round of symptoms started around the anniversary of his wife's death.

**PMH:**

Depression and anxiety, since wife's death
Sick sinus syndrome with PPM implanted 2 years ago
Hypertension
Elevated BMI

**Exam:**

Ht 5'10" Wt 276 lbs T 98 BP 138/90 HR 72 RR 12
General: breathing comfortably, blunted affect
JVP: 6cm
Lungs: clear
Card: reg S1S2 no S3S4 no rubs or murmurs
Abd: benign
LE: no edema

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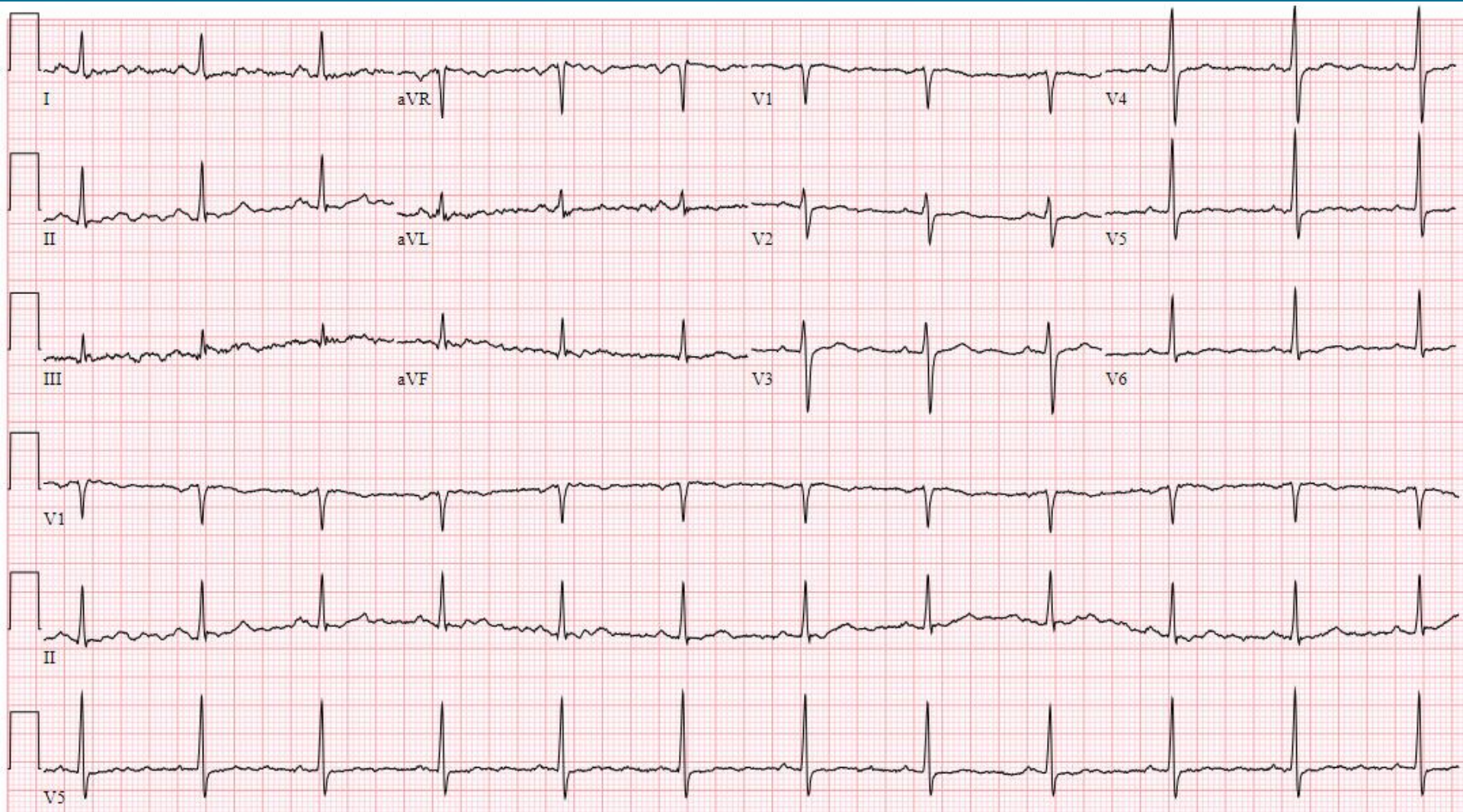CORRIGAN MINEHAN HEART CENTER

# Case 1

**TTE, 2 years prior:**
LVEF 65%, no LVH or WMA
No hemodynamically significant valvular disease


**Stress test, 2 years prior:**
LVEF 60%, heterogeneous perfusion attributed to body habitus

# Case 1

# Assess Cardiac Risk Factors

*Case 1: 61-year-old man with chest pain*

What findings are consistent with a cardiac etiology?

What findings are consistent with a non-cardiac etiology?

What tests do I need to perform in order to confirm?

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# Assess Cardiac Risk Factors

*Case 1: 61-year-old man with chest pain*

What further evaluations could I perform in order to confirm my suspicion that this patient's chest pain is non-cardiac?

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# Assess Cardiac Risk Factors

*Case 1: 61-year-old man with chest pain*

What further evaluations could I perform in order to confirm my suspicion that this patient's chest pain is non-cardiac?

Physical exam - benign

Labs - ?

Other studies - ?

# Assess Cardiac Risk Factors

*Case 1: 61-year-old man with chest pain*

What further evaluations could I perform in order to confirm my suspicion that this patient's chest pain is non-cardiac?

Physical exam - benign

Labs - ?  $\longrightarrow$  Patient sent to ED

Other studies - ?

# Case 1: ED Course

**Exam:**
Unchanged

**Labs:**
CBC, BMP – normal
Troponin – negative
CK-MB – negative
NTpro-BNP – normal

**Stress test:**
LVEF 60%
No clear ischemia or infarction, heterogeneous tracer uptake attributed to body habitus (similar to prior)

**Discharged from ED:**
Started beta blocker empirically

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# Case 1: Post-ED Outpatient Follow-Up

- Return to EP Clinic

- Same symptoms reported (frequency/duration unchanged)

- No decline in exertional capacity overall but when he was feeling "down" or "panicky" he found that even minor activity produced significant fatigue and sometimes chest pressure

- Patient confirmed that this sensation was not new, just more frequent/intense than it had been in years

- No concerning or new findings on exam

# Case 1
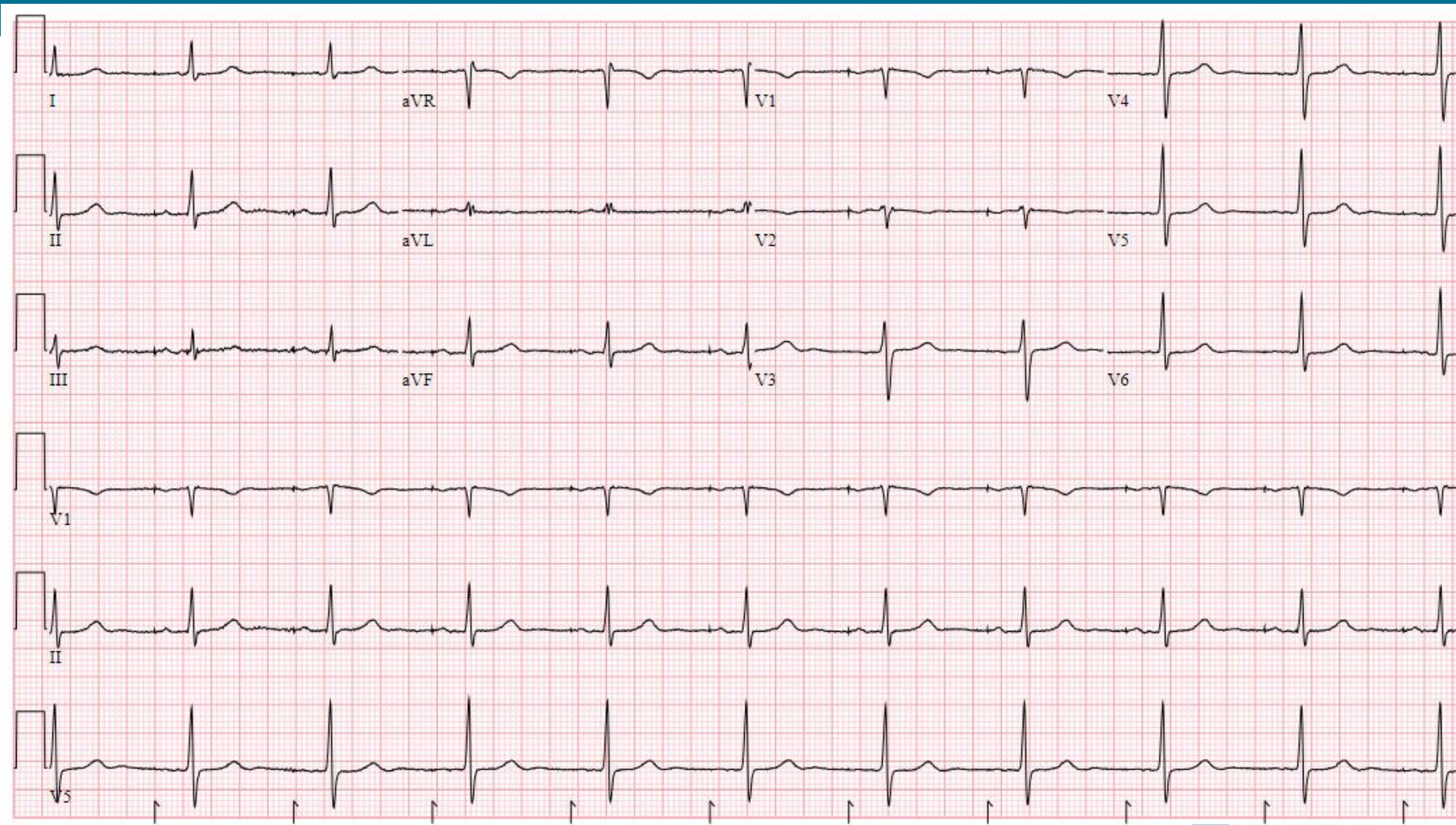
# Further Evaluation of Chest Discomfort

- CAD: no concerning findings on ED evaluation

- Musculoskeletal: benign exam

- GI: had been evaluated, no pathology found

# Further Evaluation of Chest Discomfort

- CAD: no concerning findings on ED evaluation

- Musculoskeletal: benign exam

- GI: had been evaluated, no pathology found

- Psych: confirms his current symptoms are just like his old panic attacks

Just because someone does not have structural heart disease does not mean the heart is exonerated...

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# Features Consistent with Arrhythmia

- Intermittent

- Not provoked by exertion

- Make exertion more challenging

- Resolve spontaneously

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# More Detailed History

**Asked the patient to provide me more information about his depression/anxiety symptoms:**

- Qualitative features

- Timing

# Pacemaker Log of Arrhythmia Events

Events Since: Last Reset

Event Type: All Events

*Maximum of 250 episodes shown*

| Event | Date/Time | Type | Summary | Duration hh:mm:ss |
|---|---|---|---|---|
| ATR-251 | Apr 03, 2017 23:22 | ATR | Avg V Rate in ATR: 0 bpm | In Progress |
| ATR-250 | Apr 03, 2017 23:22 | ATR | Avg V Rate in ATR: 101 bpm | 00:00:11 |
| V-98 | Apr 03, 2017 18:15 | NonSustV | Avg V Rate at Onset: 182 bpm | 00:00:12 |
| V-97 | Apr 03, 2017 18:15 | NonSustV | Avg V Rate at Onset: 181 bpm | 00:00:12 |
| V-96 | Apr 03, 2017 18:14 | NonSustV | Avg V Rate at Onset: 178 bpm | 00:00:17 |
| V-95 | Apr 03, 2017 18:13 | NonSustV | Avg V Rate at Onset: 159 bpm | 00:00:11 |
| V-94 | Apr 03, 2017 18:11 | NonSustV | Avg V Rate at Onset: 170 bpm | 00:00:14 |
| V-93 | Apr 01, 2017 15:58 | NonSustV | Avg V Rate at Onset: 156 bpm | 00:00:12 |
| V-92 | Apr 01, 2017 15:56 | NonSustV | Avg V Rate at Onset: 198 bpm | 00:00:14 |
| ATR-249 | Apr 01, 2017 15:55 | ATR | Avg V Rate in ATR: 106 bpm | 55:25:52 |
| V-91 | Apr 01, 2017 15:55 | NonSustV | Avg V Rate at Onset: 151 bpm | 00:00:23 |
| ATR-248 | Mar 25, 2017 20:56 | ATR | Avg V Rate in ATR: 64 bpm | 00:00:01 |
| ATR-247 | Mar 22, 2017 09:35 | ATR | Avg V Rate in ATR: 96 bpm | 14:57:25 |
| ATR-246 | Mar 22, 2017 06:17 | ATR | Avg V Rate in ATR: 87 bpm | 03:17:05 |
| ATR-245 | Mar 21, 2017 18:59 | ATR | Avg V Rate in ATR: 94 bpm | 11:17:23 |
| ATR-244 | Mar 21, 2017 18:59 | ATR | Avg V Rate in ATR: 75 bpm | 00:00:03 |
| ATR-243 | Mar 21, 2017 18:58 | ATR | Avg V Rate in ATR: 107 bpm | 00:00:48 |
| ATR-242 | Mar 21, 2017 18:57 | ATR | Avg V Rate in ATR: 118 bpm | 00:00:03 |
| ATR-241 | Mar 21, 2017 18:56 | ATR | Avg V Rate in ATR: 102 bpm | 00:00:14 |

V-1960: Jan 20, 2018 19:12, SVT (V<=A), A Rate: 368 bpm, V Rate: 179 bpm

**Detail**

**SVT (V<=A) Event Onset**

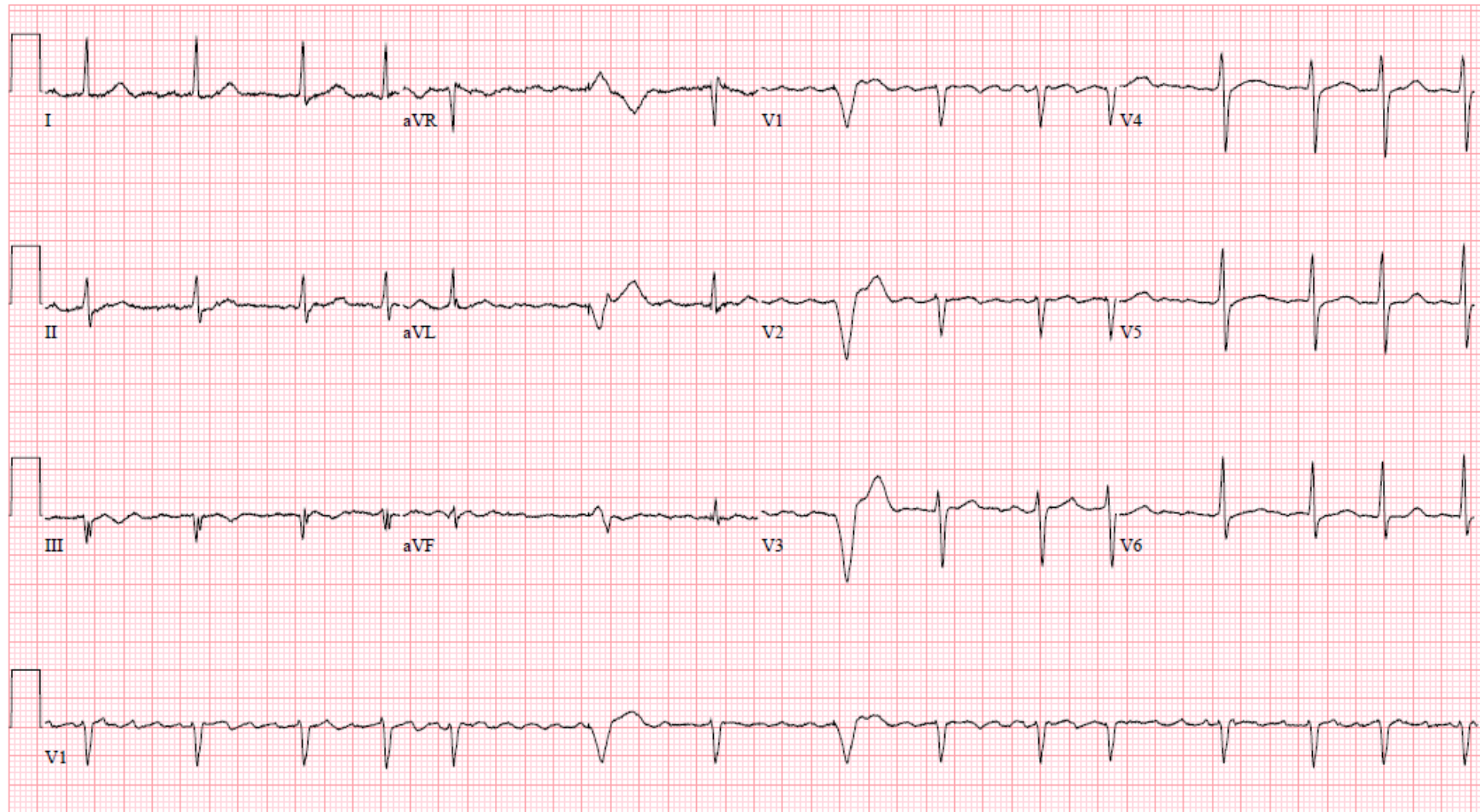| | |
|---|---|
| Avg A Rate | 368 bpm |
| Avg V Rate | 179 bpm |
| Event Ended | 00:00:21 |

**EGM displayed at 25mm per second**
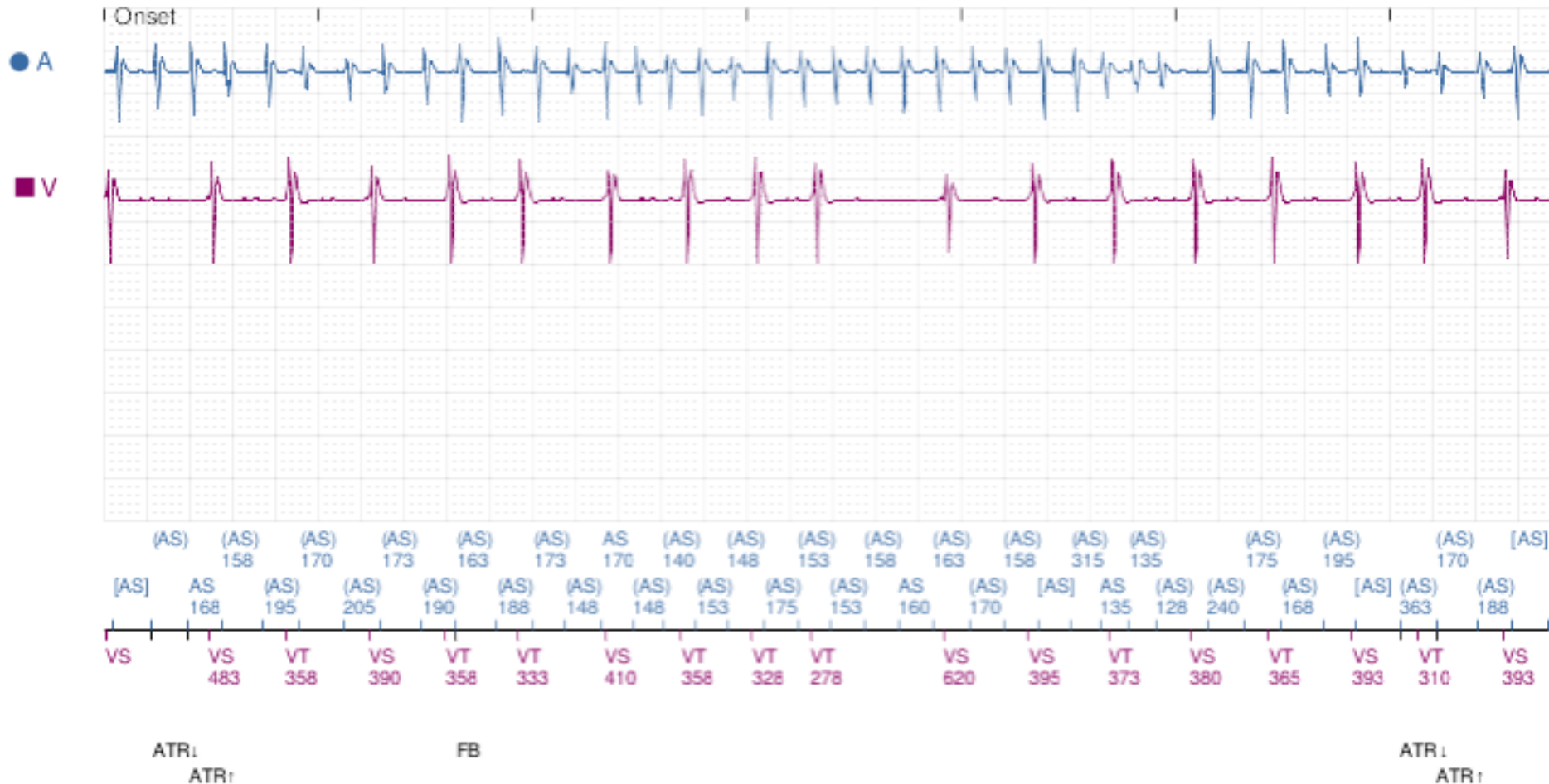
# Correlation of Symptoms with AF

- Suggested by timing of symptom recollections and PPM records

- Asked the patient to come into the office the next time he experienced symptoms

# Case 2

**HPI:**

62-year-old woman with known panic disorder who presents after a series of panic attacks following an argument with her husband. No prior exertional symptoms. Denies chest discomfort or dyspnea at any point.

**PMH:**

Cerebral palsy

Panic disorder

Type 2 DM, on oral meds (excellent control)

**Exam:**

Ht 5'1" Wt 126lbs BP 96/60 HR 90 RR 12
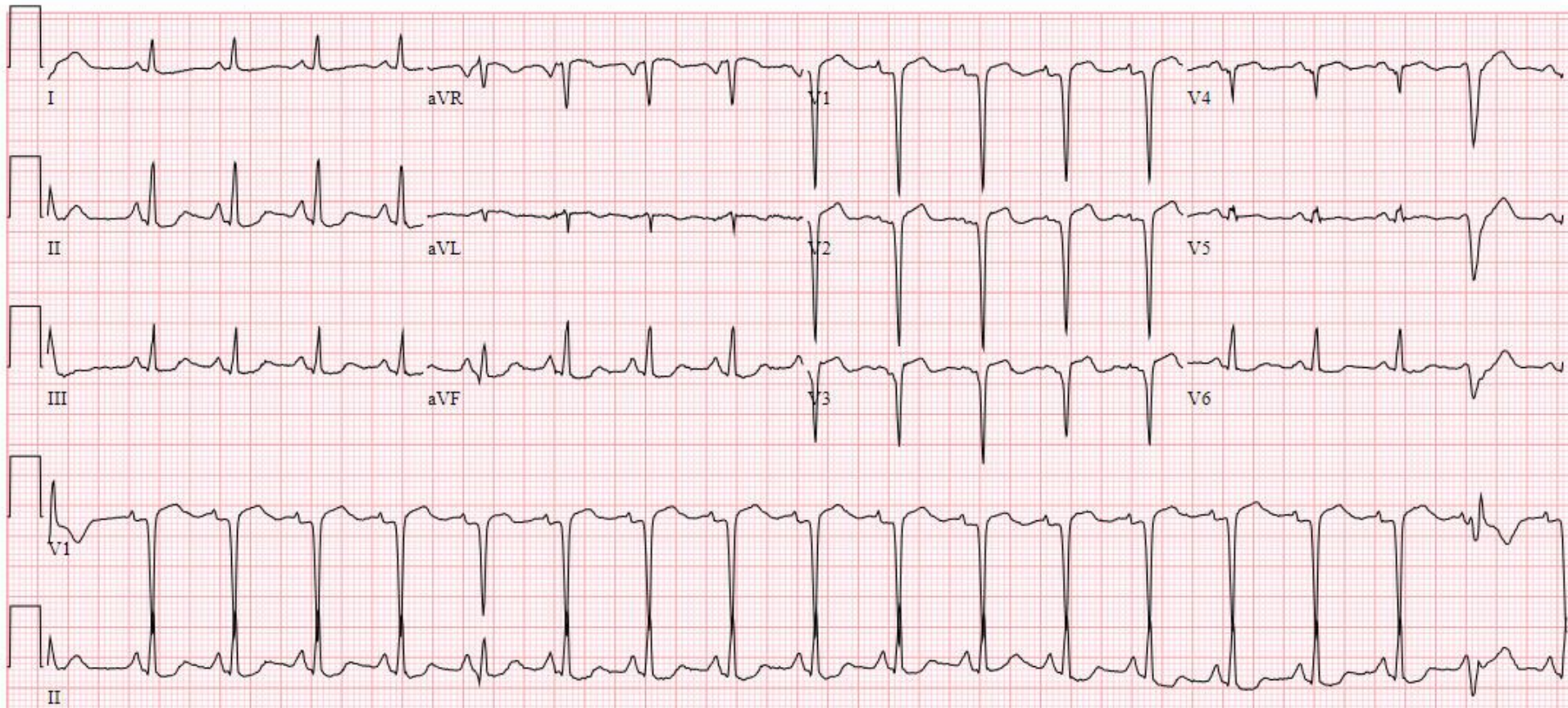
JVP: 9cm

Lungs: crackles at bases, good air movement

Card: reg S1S2 noS3S4 no rubs or murmurs

Abd: benign

Extr: +1 edema to ankles bilaterally

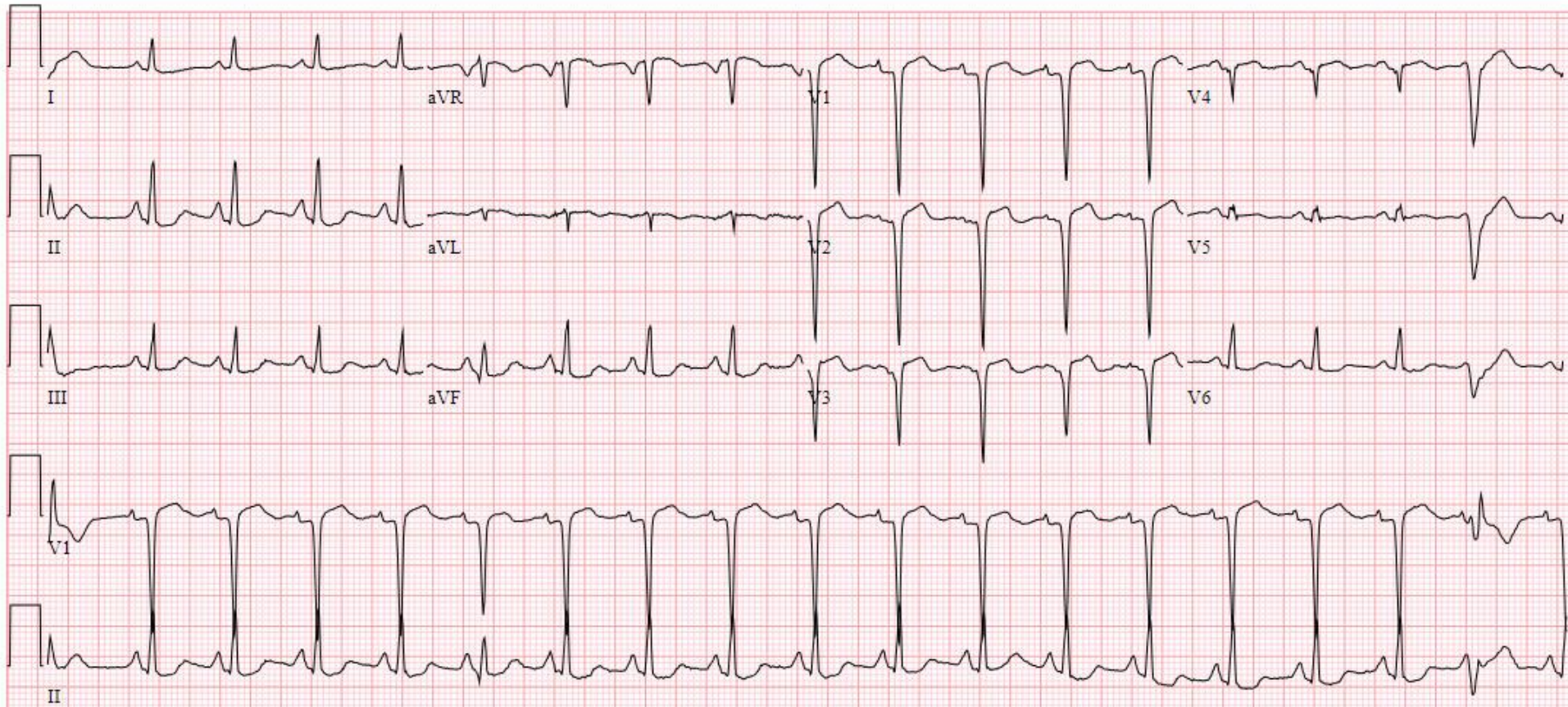MASSACHUSETTS
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# Question 4

Which of the following represents the most appropriate next step in the management of this patient:

A. Start aspirin and re-assess symptoms and repeat ECG.

B. Start aspirin and beta blocker and re-assess symptoms and repeat ECG.

C. Start aspirin and arrange for transfer to a tertiary care center.

D. Start aspirin and beta blocker and arrange for transfer to a tertiary care center.

# Question 4

Which of the following represents the most appropriate next step in the management of this patient:

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C. Start aspirin and arrange for transfer to a tertiary care center.

D. Start aspirin and beta blocker and arrange for transfer to a tertiary care center.

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# Case 2

# Case 2: ED Evaluation

**Exam and ECG:**
No significant change from prior

**Labs:**
```
CK              6756(H)
CK-MB           491.5(H)
TnI             17.51(H)

ALT/SGPT         54(H)
AST/SGOT         422(H)
ALKP             68
TBILI            0.2
DBILI            0.0
```
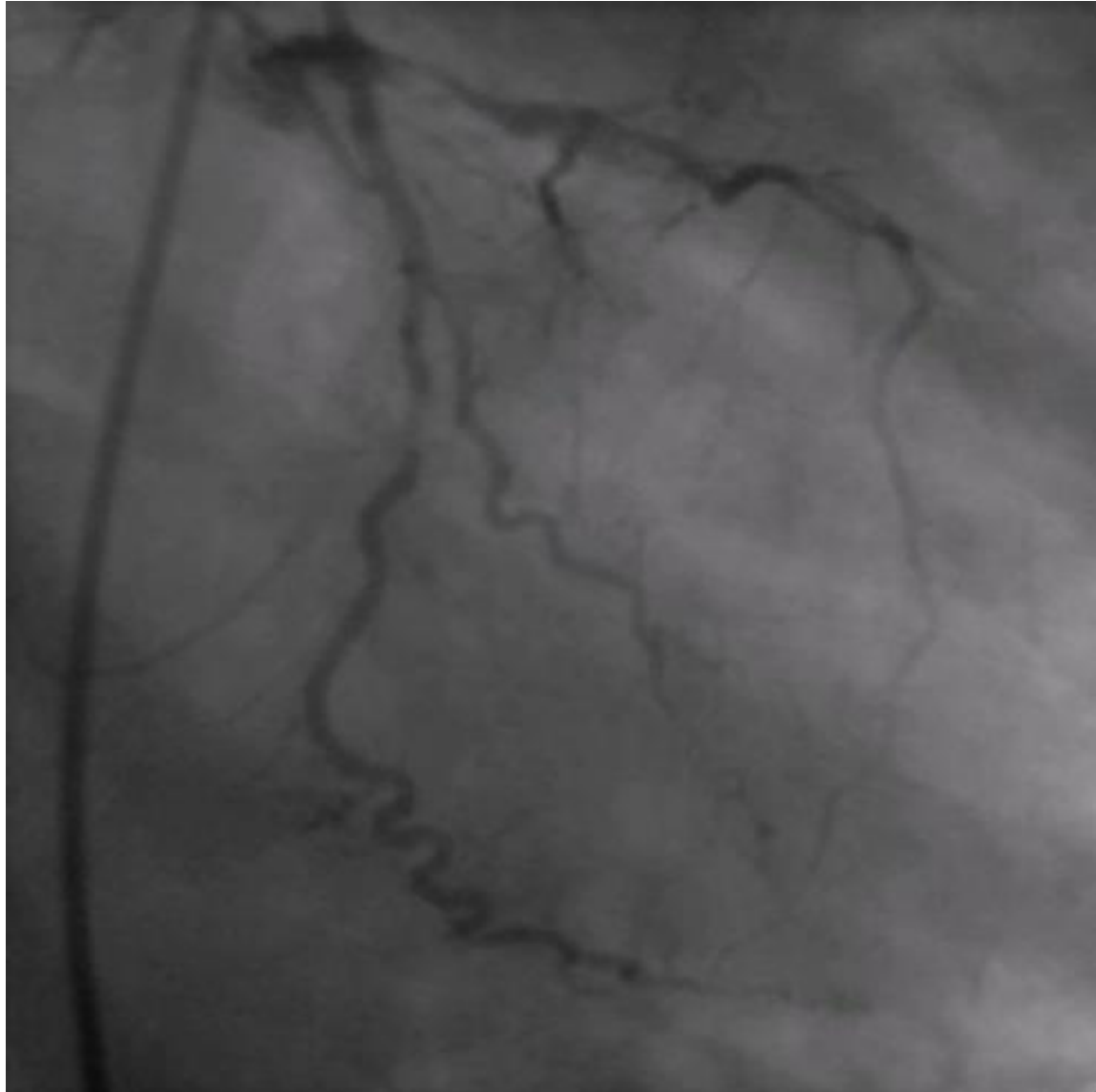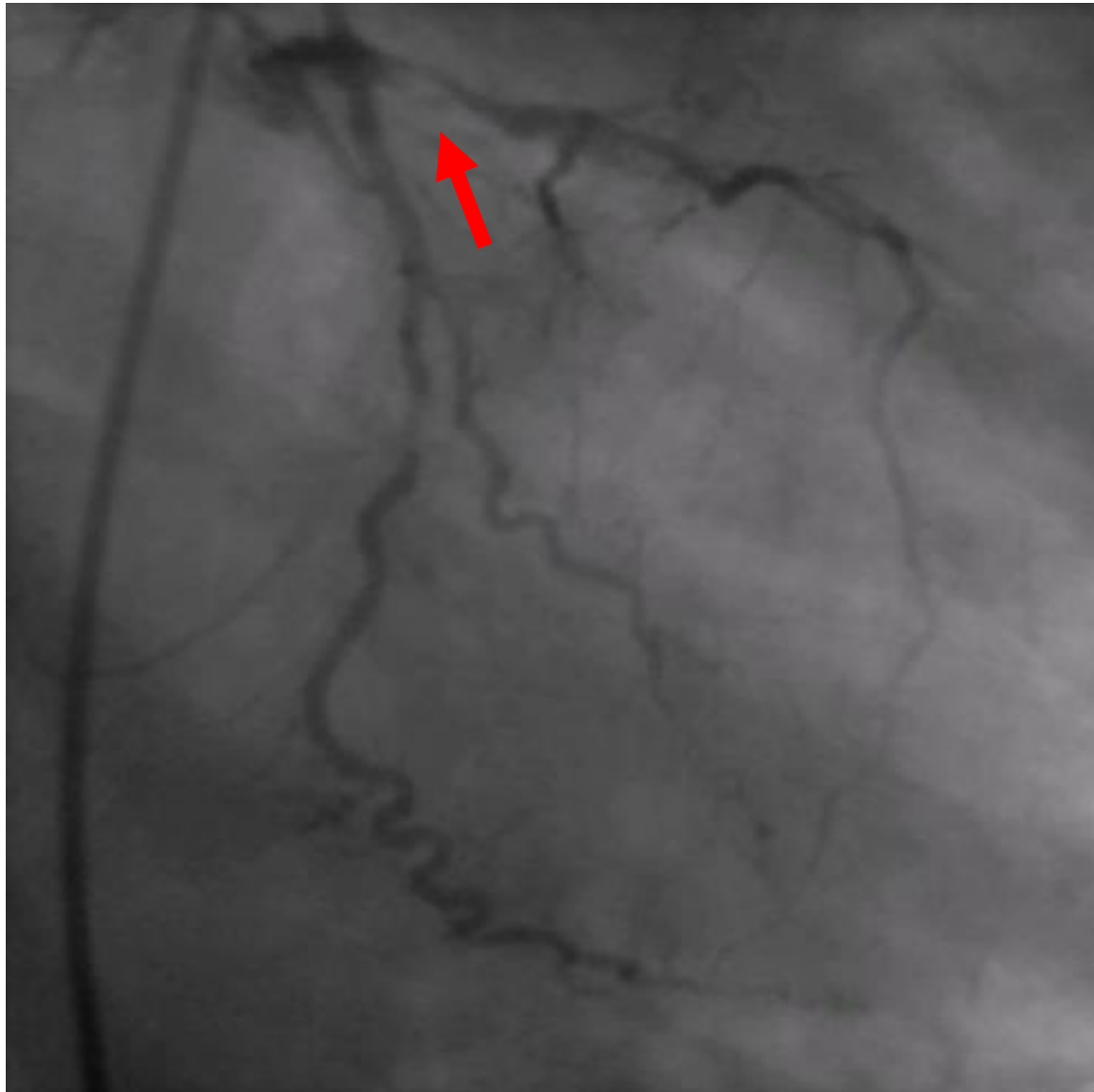
**TTE:**
LVEF 35% with anterior wall hypokinesis

# Case 2
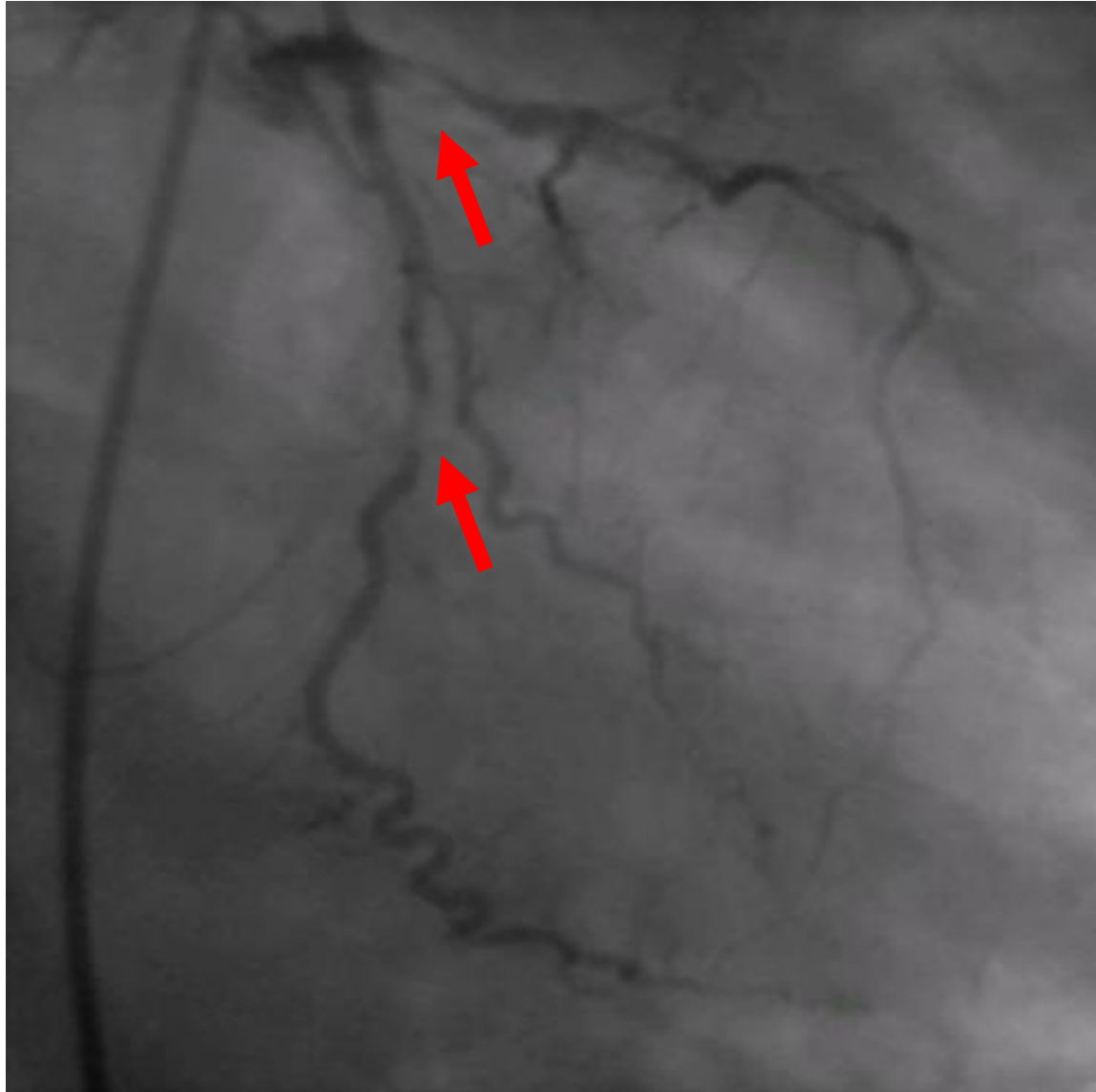
# Case 2

# Case 2

# Case 2

- PCI performed for the culprit lesion in distal left main / proximal LAD

- Improvement in symptoms noted

- ST segment abnormalities improved

- LVEF improved to 45% on repeat TTE

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# Etiology of Chest Pain

Thank you