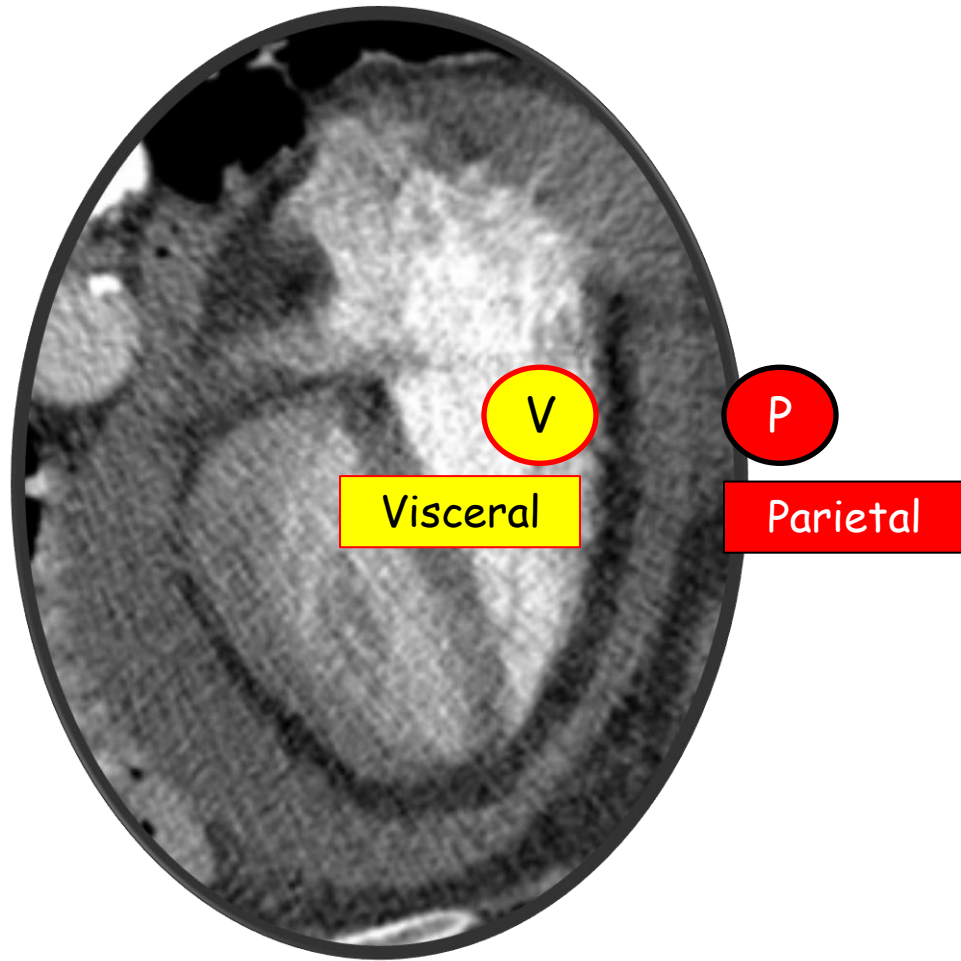




Cardiology: Diseases of the Pericardium for USMLE Step One

Howard J. Sachs, MD
www.12DaysinMarch.com



Pericardial Disorders

Acute
Pericarditis

(Cardiac)
Tamponade
Physiology

Constrictive
Pericarditis

Pericardial
Effusion

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Pericardial
Effusion

- Not really tested as a stand alone condition
- Associated with a number of diseases:
 - Autoimmune (e.g. SLE, RA)
 - Infection, Tumor
- May be a clue or described in context of other disease processes

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- Virtually all patients will be described with positional chest pain
- '3-phase' friction rub

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- Virtually all patients will be described with positional chest pain
- '3-phase' friction rub

If these are not present, you should be thinking about another diagnosis

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Constrictive
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- Shock
- Pulsus Paradoxus

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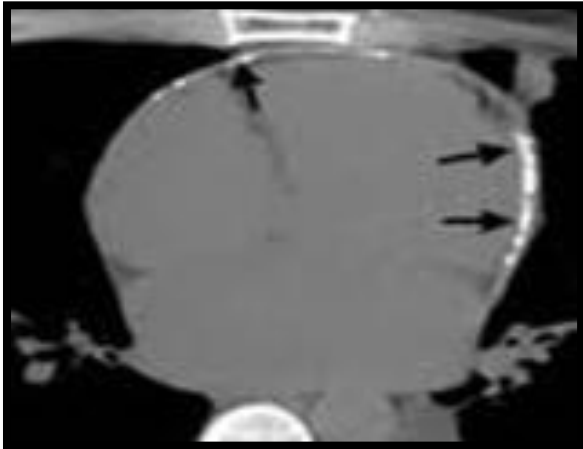
- Pericardial Knock/Pericardial Calcification
- Predisposing condition (e.g. Radiation Therapy)
- Kussmaul's Sign

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The Language of Pericardial Disorders

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- Shock
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- Pericardial Knock/Pericardial Calcification
- Predisposing condition (e.g. Radiation Therapy)
- Kussmaul's Sign

Acute Pericarditis

(positional chest pain, friction rub)

- When to Suspect?
 - Viral Infection
 - Acute MI (days 1-3)
 - Post-Cardiac Injury (~4-12 weeks; Dressler's syndrome)

Acute Pericarditis

(positional chest pain, friction rub)

- When to Suspect?
 - Viral Infection
 - Coxsackie (exposure): Hand-Foot-Mouth disease
 - Acute MI (days 1-3)
 - Post-Cardiac Injury (~4-12 weeks; Dressler's syndrome)

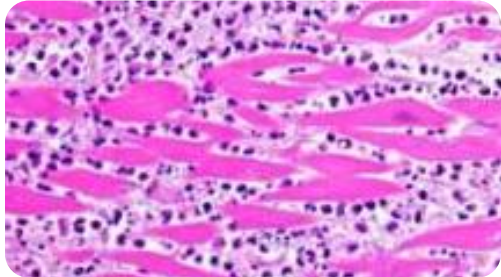


Coxsackie virus:
Non-polio enterovirus
Picornavirus (pico = small)
Naked, SS, RNA

Acute Pericarditis

(positional chest pain, friction rub)

- When to Suspect?
 - Viral Infection
 - Coxsackie (exposure): Hand-Foot-Mouth disease
 - Acute MI (days 1-3)
 - Neutrophilic phase (transmural MI)
 - Post-Cardiac Injury (~4-12 weeks; Dressler's syndrome)

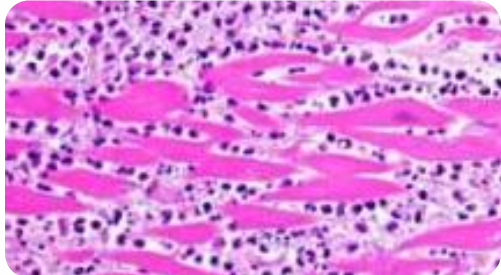


Fibrinous Pericarditis

Acute Pericarditis

(positional chest pain, friction rub)

- When to Suspect?
 - Viral Infection
 - Coxsackie (exposure): Hand-Foot-Mouth disease
 - Acute MI (days 1-3)
 - Neutrophilic phase (transmural MI)
 - Post-Cardiac Injury (~4-12 weeks; Dressler's syndrome)



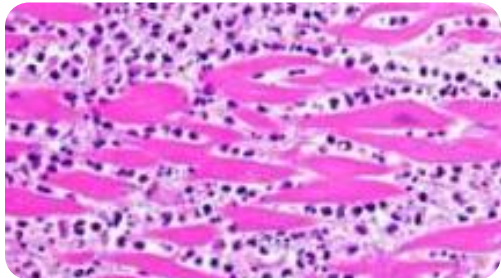
Fibrinous Pericarditis

FYI...
Myopericarditis: the epicardium may manifest injury

Acute Pericarditis

(positional chest pain, friction rub)

- When to Suspect?
 - Viral Infection
 - Coxsackie (exposure): Hand-Foot-Mouth disease
 - Acute MI (days 1-3)
 - Neutrophilic phase (transmural MI)
 - Post-Cardiac Injury (~4-12 weeks; Dressler's syndrome)



Immune complex mediated
reaction to Myocardial Antigens

Acute Pericarditis

(positional chest pain, friction rub)

- What are the 'must knows?'
 - Pericardial Friction Rub
 - EKG lacks reciprocal changes

Acute Pericarditis

(positional chest pain, friction rub)

- What are the 'must knows?'
 - **Pericardial Friction Rub**
 - Best heard sitting forward
 - End expiration
 - Three Phase or Scratchy
 - Not a murmur; these are sounds
 - EKG lacks reciprocal changes



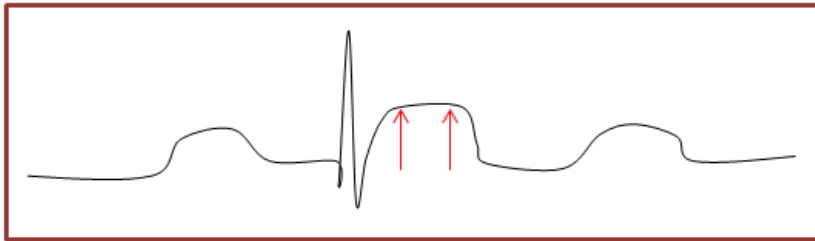
Fibrinous Pericarditis

Acute Pericarditis

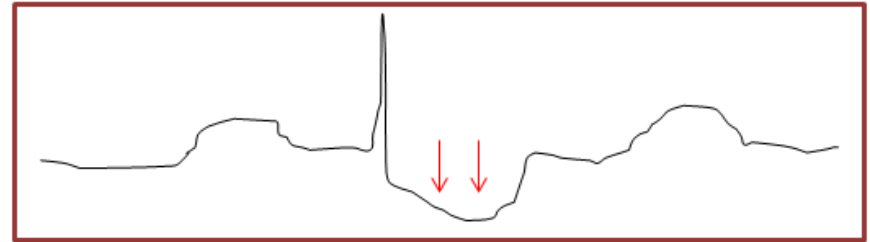
(positional chest pain, friction rub)

- What are the 'must knows?'
 - Pericardial Friction Rub
 - **EKG lacks reciprocal changes**

Front (Anterior) Wall

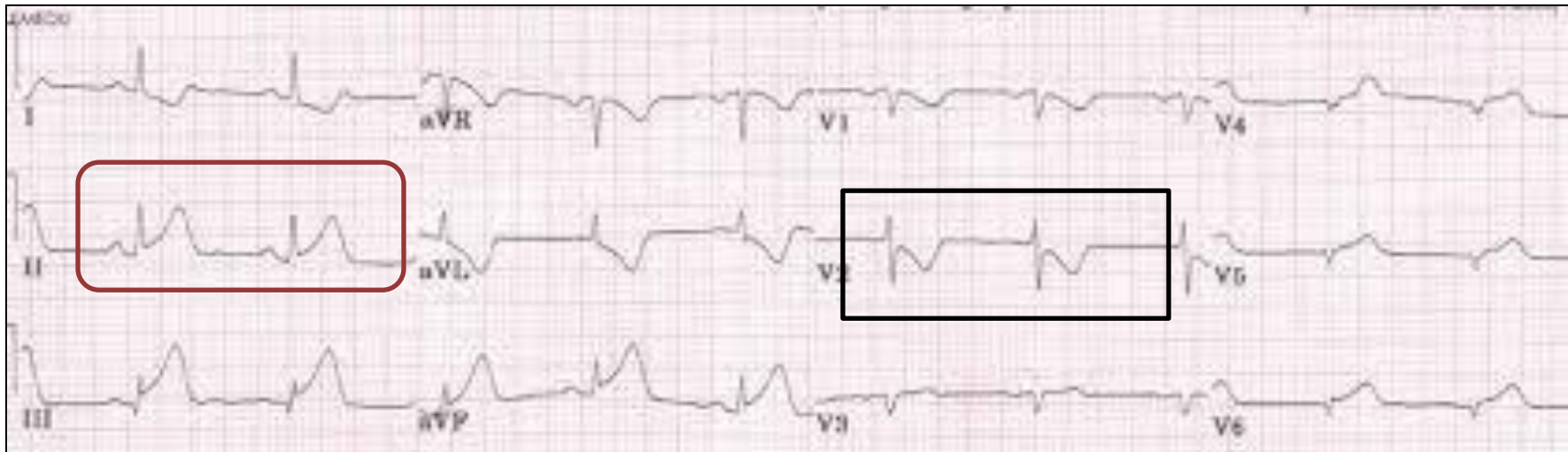


Back (Posterior) Wall

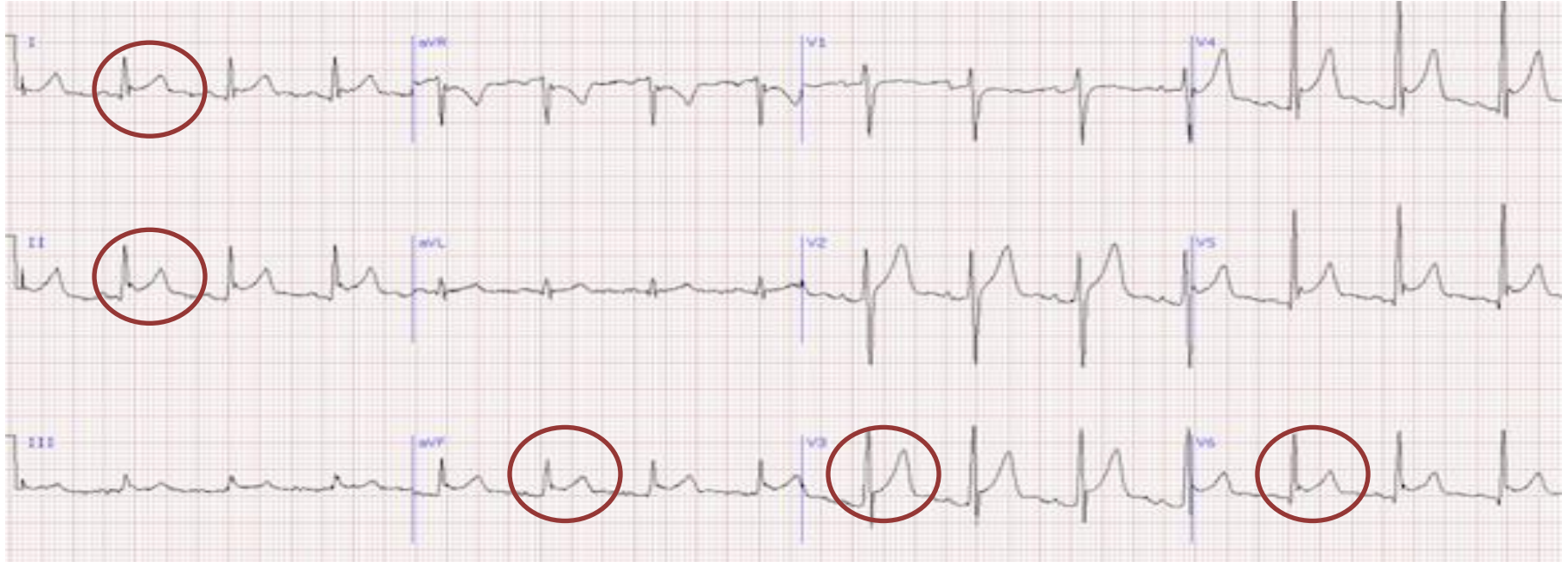


Normal Reciprocal Changes in Myocardial Ischemia



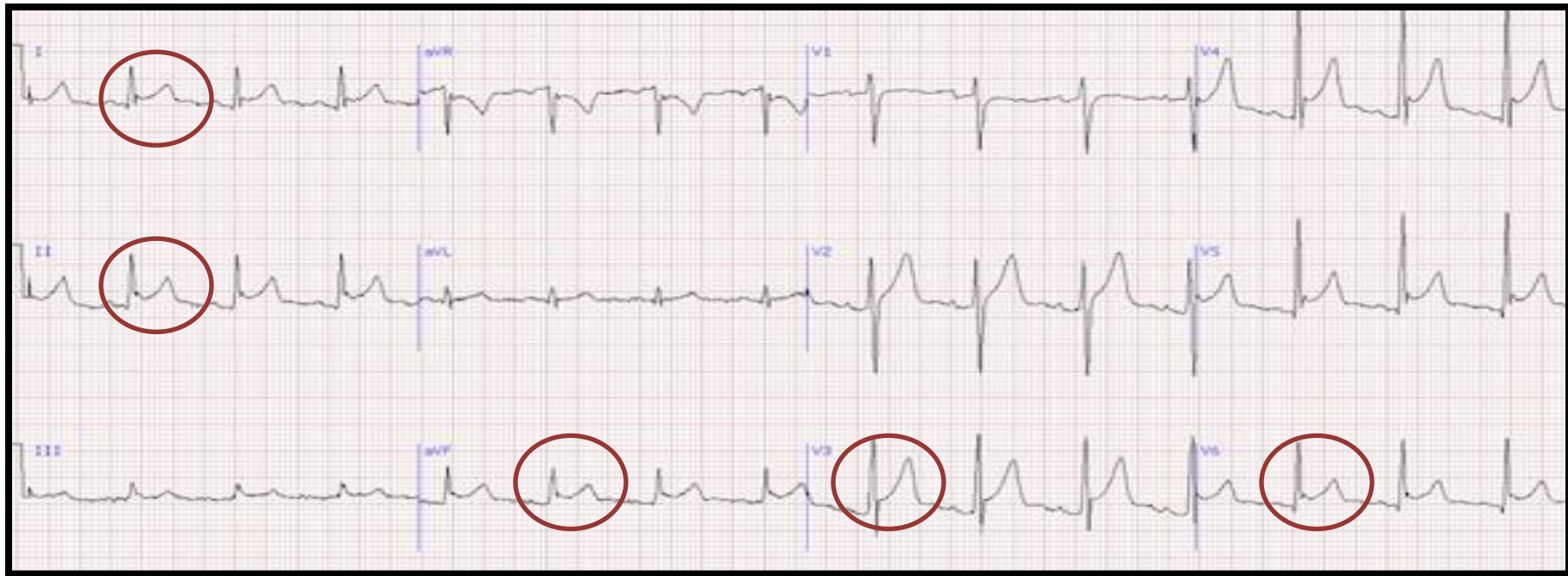


What is wrong here? Elevated ST segments w/o reciprocal Δ ?

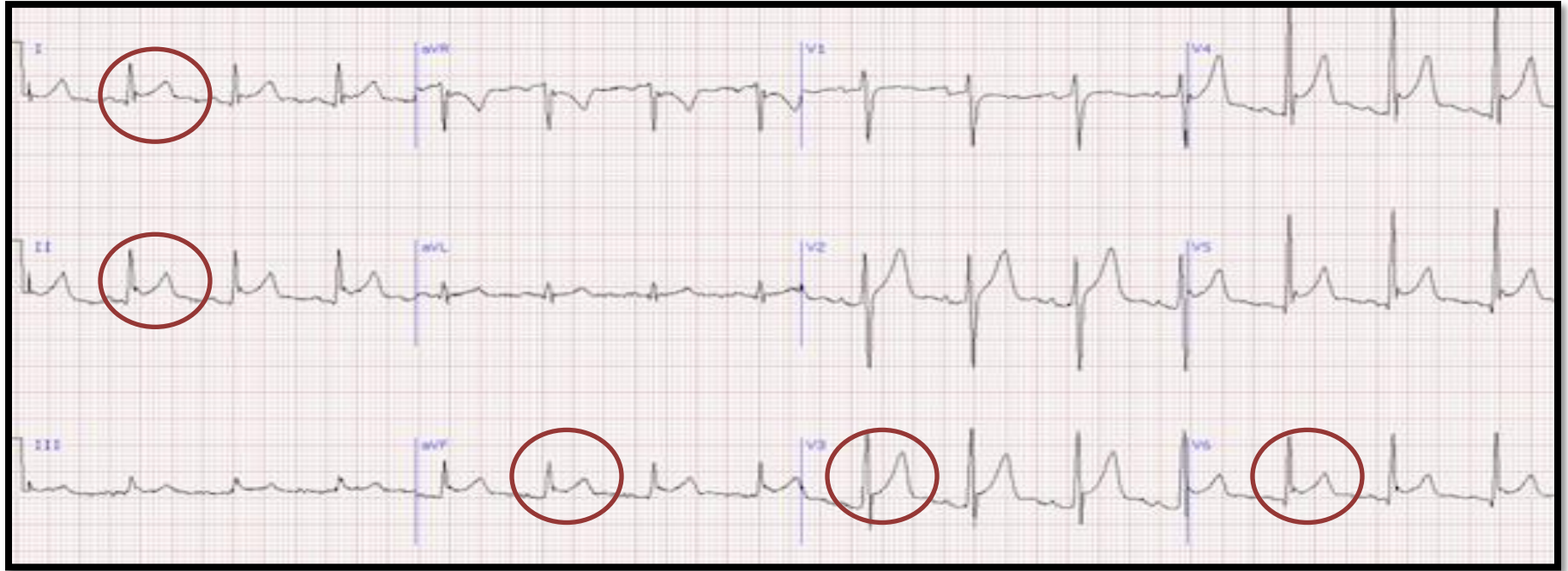


Inferior, Lateral and Anterior wall **elevations**?
We have ST segment elevations everywhere?
What's up with that???

EKG Language of Acute Pericarditis: ST segment elevations lacking reciprocal changes



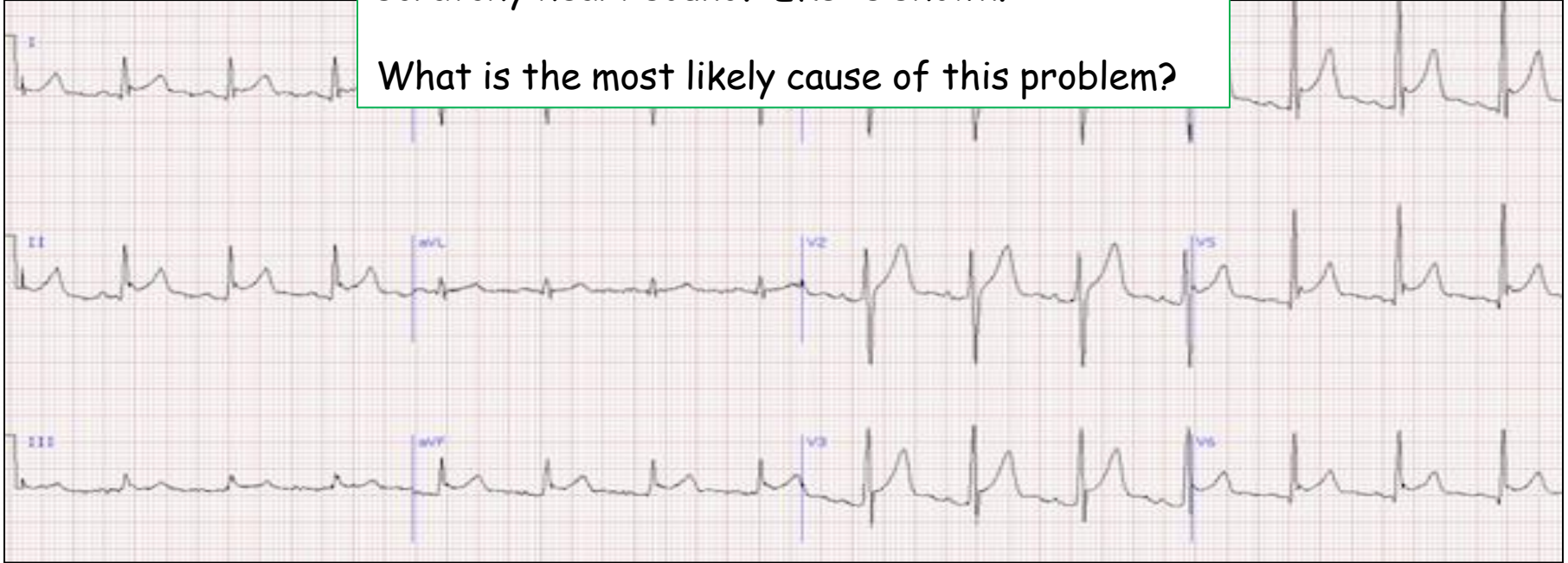
EKG Language of Acute Pericarditis: ST segment elevations lacking reciprocal changes



Place this one in your file of EKGs to know for Step One

Patient presents with acute chest pain. Can't lie back due to pain. (+) fever, myalgia. PE: 3 phase scratchy heart sound. EKG is shown.

What is the most likely cause of this problem?

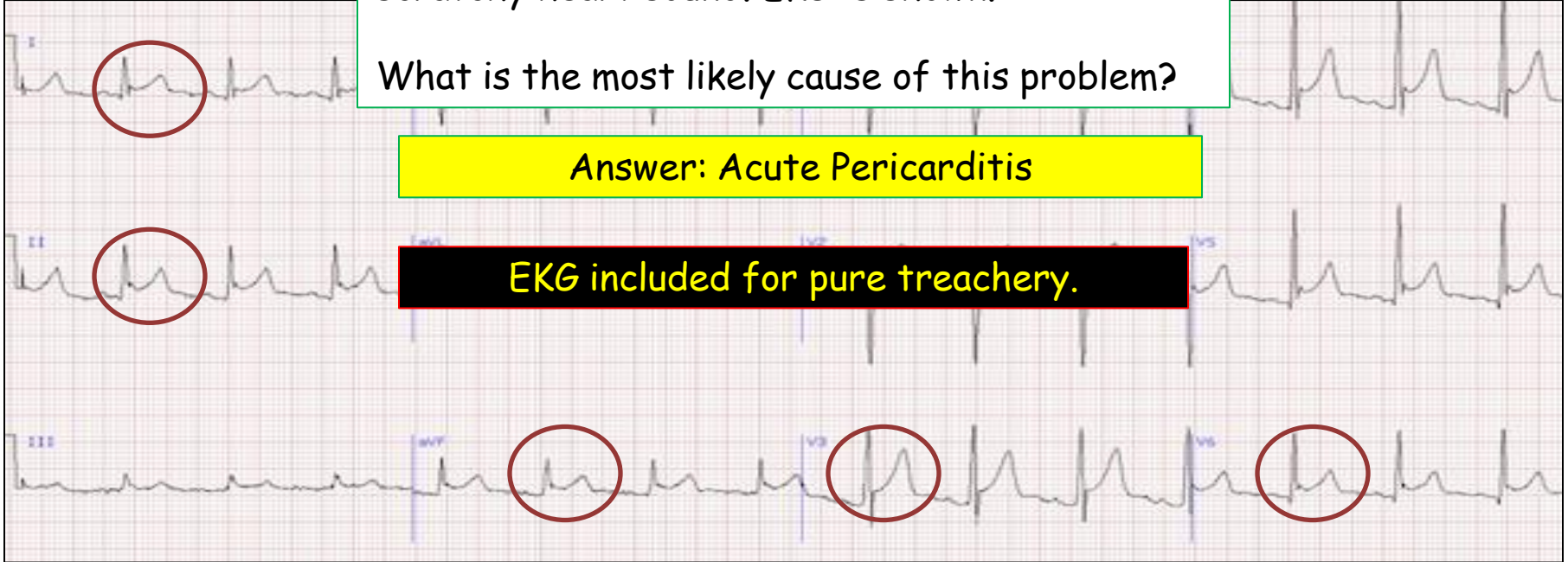


Patient presents with acute chest pain. Can't lie back due to pain. (+) fever, myalgia. PE: 3 phase scratchy heart sound. EKG is shown.

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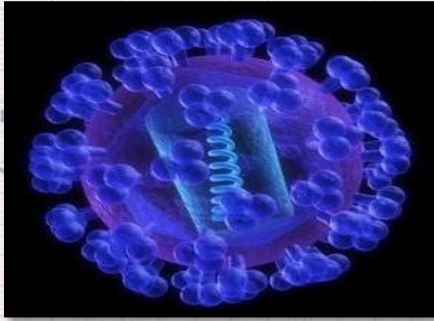
Answer: Acute Pericarditis

EKG included for pure treachery.



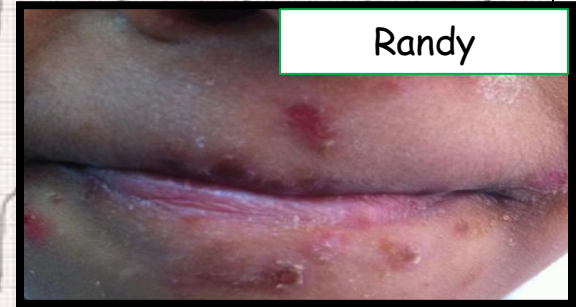
Patient presents with acute chest pain. Can't lie back due to pain. (+) fever, myalgia. PE: 3 phase scratchy heart sound.

What is the most likely cause of this problem?



No envelope

1. **Naked, RNA virus**
2. Naked, DNA virus
3. Enveloped, RNA virus
4. Enveloped, DNA virus



Randy

Hand-Foot-Mouth

Coxsackie virus:
Picornavirus (pico = small)
Naked, RNA

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- Virtually all patients will be described with positional chest pain
- '3-phase' friction rub
- Post-infarction (early and late) or Viral (Coxsackie)
- Fibrinous Pericarditis
- EKG with diffuse involvement lacking reciprocal changes

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