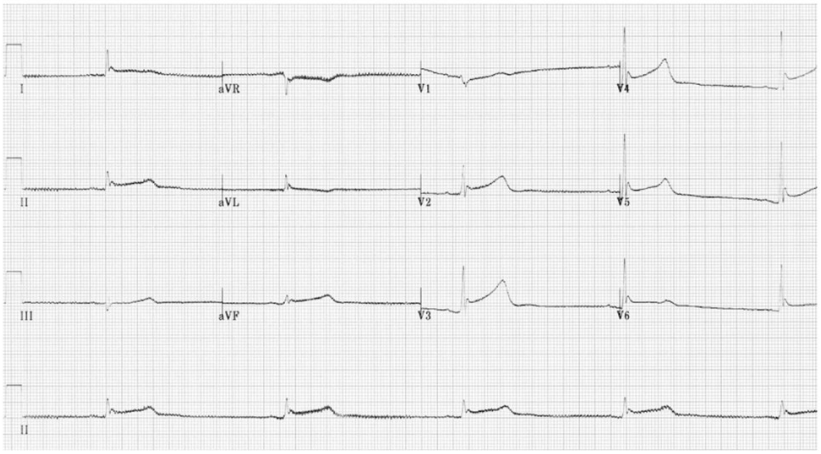
# Dane County EMS Newsletter

February, 2025

## February Viz Quiz

What is the most likely diagnosis based on this ECG alone? Assume it is a 34-year male living in the Madison area in the current time of year.

A. Beta Blocker Overdose
B. Hyperkalemia
C. Pericarditis
D. Hypothermia
E. STEMI

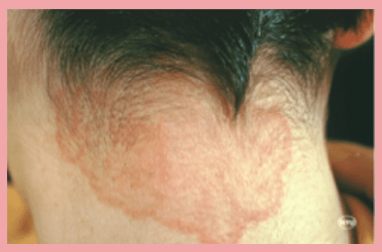



Submit your answer at https://www.surveymonkey.com/r/9X7LWFM

## January Viz Quiz Answer

**Answer**: C. Tinea Capitis

- Tinea capitis is a fungal infection of the scalp that most often presents with pruritic, scaling areas of hair loss. Trichophyton and Microsporum species of Dermatophyte fungi are the major causes of tinea capitis. The infection is often contracted from another human or an animal through direct contact.
- Tinea capitis primarily occurs in children. The most common clinical findings are single or multiple scaly patches with alopecia and patches of alopecia with black dots at follicular orifices that represent broken hairs. Other presentations include widespread scaling with subtle hair loss; a boggy, edematous, painful plaque called a kerion; and favus, which characteristically exhibits multiple cup-shaped, yellow crusts (scutula).
- Tinea capitis is a dermatophyte infection. Dermatophytes are filamentous fungi in the genera *Trichophyton, Microsporum,* and *Epidermophyton* that infect keratinized tissue of skin, hair, or nails. Organisms in the *Trichophyton* and *Microsporum* genera generally cause tinea capitis. Tinea capitis due to *Epidermophyton* species is rare.
- Potential complications of dermatophyte infection include secondary bacterial infection, tinea incognito, Majocchi's granuloma, and id reactions.
- Secondary infection - Secondary bacterial infection can occur in association with dermatophyte infections, particularly in moist or occluded skin areas (eg, the feet). Patients who exhibit significant erosions, ulceration, pain, or malodor in the affected area should have a Gram stain and culture to evaluate for secondary bacterial infection.



Congratulations to Dale from Fitch-Rona EMS for winning the January Viz Quiz!

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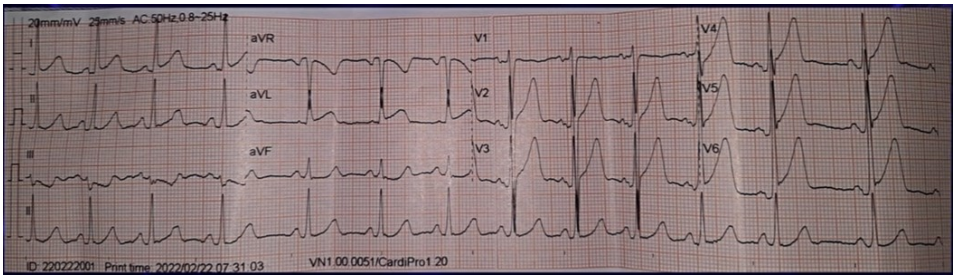
## *Case Study*

**CASE:** You are called to a 24yr male who is having chest pain, ongoing intermittently for the past couple of days but has gotten worse over the past 1-2 hours. You find him diaphoretic, pale, and short of breath. His vitals are unremarkable. ECG shows this strip. His only "medical history" is that he smokes 1 pack of cigarettes a day. He has had a runny nose and cough the past couple of weeks but otherwise is reportedly healthy. What is your interpretation of this ECG? Are you worried? How are you managing this patient?



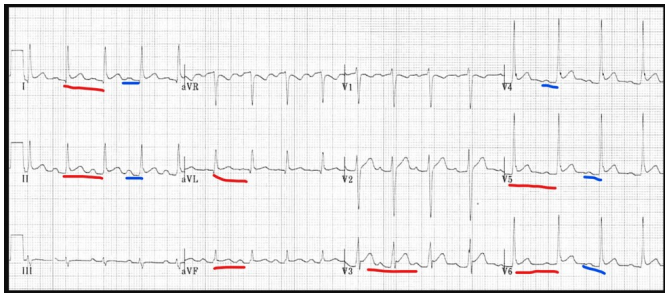

**Pericarditis or STEMI?**

It is cold and flu season; the viruses are running rampant! In addition to causing inflammation of the respiratory system, these pesky buggers can cause inflammation of the pericardial sac (the lining around the heart) and result in pericarditis. Pericarditis is an inflammation of the pericardium, the sac-like membrane surrounding the heart. It can be caused by a variety of factors, including infections (viral or bacterial), autoimmune conditions, trauma, and post-surgical events.

**Pericarditis Key Features**

Pain Characteristics and Other Symptoms:

- Sharp or stabbing chest pain
- Often worsens with deep breaths (pleuritic) or coughing
- Pain may improve when sitting up and leaning forward
- Fever, dyspnea (difficulty breathing), and fatigue may accompany the pain
- A pericardial friction rub may be heard on auscultation



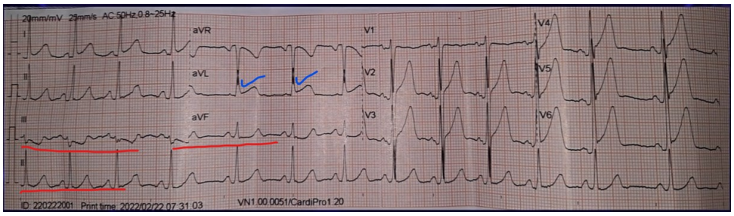
**ECG Findings**:

- **Diffuse ST-segment elevation** (most prominent in leads I, II, V2-V6) but without the reciprocal changes typical of a STEMI. One exception: you may see STD in V1 and avR
- **PR-segment depression** may also be seen, which is a hallmark of pericarditis and can have differentiate it from STEMI. One exception: you may see PR elevation in V1 and avR

**When pericarditis is LESS likely**: Do not assume a young person with chest pain and resulting STE on ECG is pericarditis. The assumption should be STEMI until proven otherwise. ECG features that are more concerning and should be treated as a STEMI include: Reciprocal changes - STD in leads other than V1 and avR is a STEMI; STE in III > II; Horizontal or convex STE; Check mark sign / straightening of RT segment.

**Back to the Case**

Looking back at this ECG there are STD in II, III, and avF and the worried check mark sign which makes this more concerning for a STEMI rather than pericarditis. This 24-year-old was taken to the cath lab and found to have a 99% blockage of his LAD.



**Learning Points:**

- Pericarditis is inflammation of the protective sac around the heart that causes chest pain and characteristic ECG findings that should be scrutinized closely
- These patients should be considered STEMIs until proven otherwise
- Young people can have MI's!

Helpful References:
ECG Weekly
Life in the fast lane

*Thank you for reading! For questions, comments, or feedback you can contact the DCEMS office at dcems@danecounty.gov or by calling 608-335-8228. All other staff contact information can be found at em.countyofdane.com/EMS/contactus.*