

Evolving de Winter Presentation of AMI on ECG

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Introduction

de Winter ECG pattern first detailed in 2008 in a case series Diagnostic criteria

- Tall, prominent, symmetric T waves in the precordial leads
- Upsloping ST segment depression >1mm at the J-point in the precordial leads
- Absence of ST elevation in the precordial leads
- ST segment elevation (0.5mm-1mm) in aVR

Strongly correlated with acute LAD occlusion

de winter ECG pattern is considered STEMI equivalent as supported by existing research
de winter Morphology may present as an evolving case to **OR** from classic anterior STEMI before intervention

Figures: ECGs obtained 7 minutes apart

Fig. 1: Initial ECG performed by EMS at 3:28 P.M.

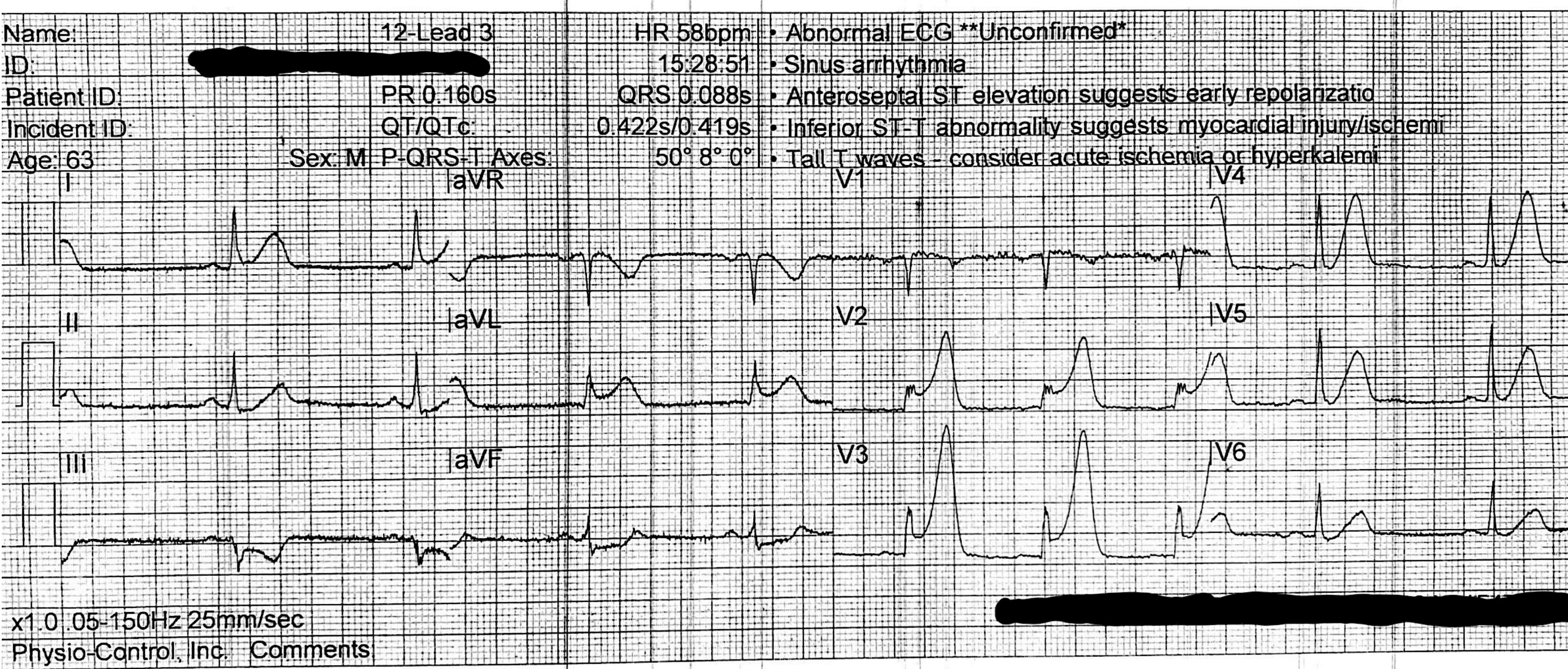
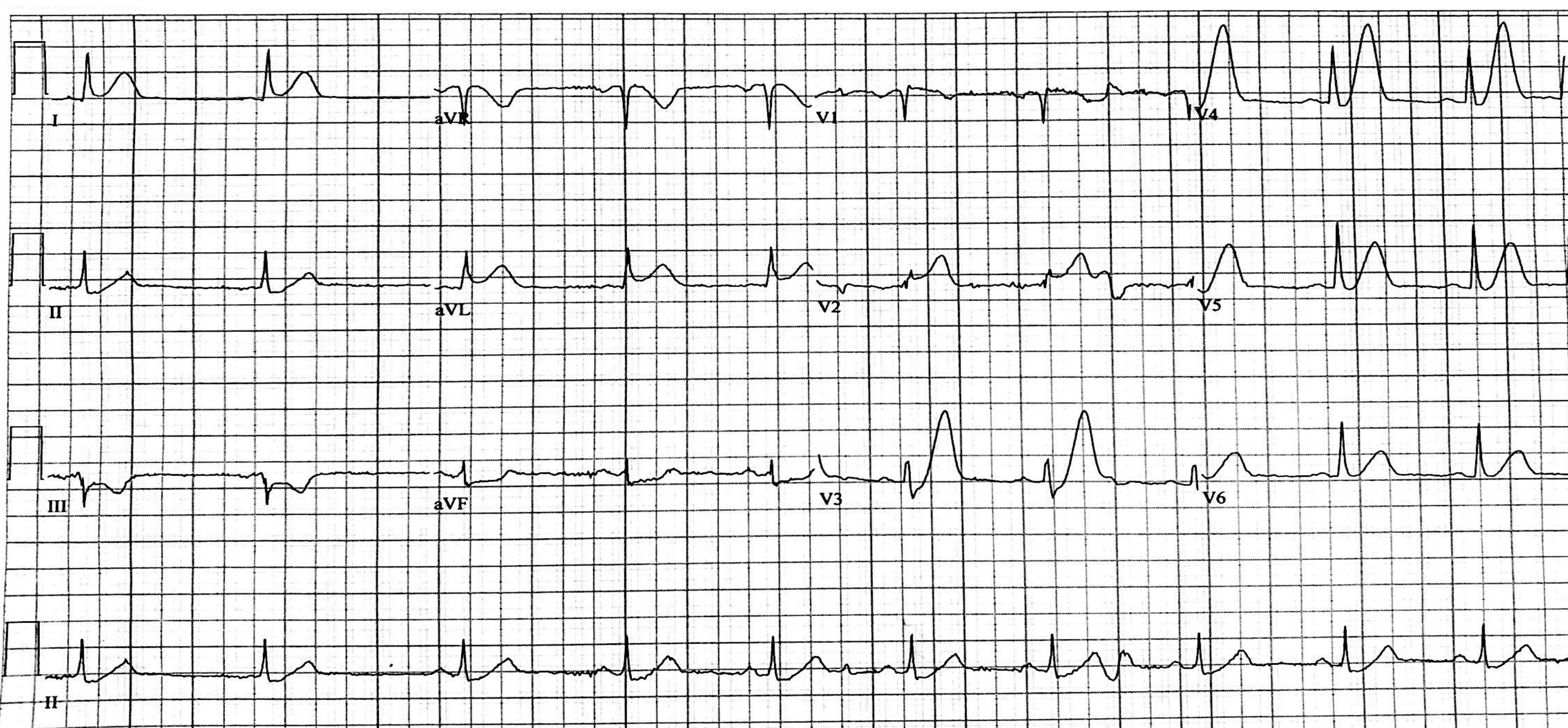


Fig. 2: Subsequent ECG obtained in ED at 3:35 P.M.



Case Presentation

63-year-old male with unremarkable PMH presents to ED via EMS as STEMI alert

Physical Exam

General/Constitutional

- Awake, alert, moderate distress, Cooperative

Respiratory/Chest

- Tachypneic, Breath sounds NL
- Breath: bilateral, no rhonchi/wheezing/ rales

Cardiovascular

- Bradycardic, regular rhythm, cap refill delayed
- Radial pulses equal bilaterally, no pitting or non-pitting pedal edema

Skin

- Generalized pallor, tacky/diaphoretic

Psych

- Anxious mood and affect

- Symptoms
- Severe, constant, left-sided, non-radiating chest pain after yard work in the afternoon
 - Nausea and vomiting
 - Diaphoresis

EMS EKG (Fig. 1)

- Acute STE in leads V2 and V3
- Hyperacute T waves in leads V4 and V5

Vital Signs in ED

- BP: 141/101 mmHg
- HR: 59 bpm
- RR: 22 bpm
- Temp.: 36.9°C

Medications received

- 324 mg chewable ASA
- 4 mg ondansetron IV
- IV nitro at 20 mcg
- 500 cc IVF

Discussion

de Winter ECG presentation for acute myocardial infarction is present in 2% of patients with proximal LAD occlusions. Compared with classic STEMI patients, de Winter is associated with younger age, male gender, hypercholesterolemia. Originally theorized that the de Winter ECG pattern did not evolve or change morphology until the blocked artery had been opened, but this has since been challenged by a series of recent case reports, including this one.

Case Conclusion

- Cardiac cath lab consulted and arrived immediately
- En route to the cath lab, the patient became unresponsive in ventricular fibrillation arrest in the hallway
- He was defibrillated once with 200 J, unsynchronized, and regained NSR
- Cardiac catheterization showed 100% occlusion of the left anterior descending (LAD) coronary artery, resulting in 2 drug-eluting stents
- Following catheterization, the patient was eventually discharged on aspirin, ticagrelor, a high dose statin, an ACE inhibitor and a beta-blocker after 4 days total admission

References

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- 3.Yang-Yi Lin, Y.-D. W.-L.-D. (2019). De Winter syndrome and ST-segment elevation myocardial infarction can evolve into one another: Report of two cases. World Journal of Clinical Cases, 3296-3302.
- 4.Yingchao Yang, M. Y. (2019). Atypical and delayed de Winter electrocardiograph pattern. Medicine (Baltimore), e15436.