Pain, a Four-Letter Word: Reducing Cognitive Bias in the Setting of Chronic Back Pain

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Introduction

Acute myocardial infarction (AMI) is a can not miss diagnosis in the Emergency Department (ED). AMI account for 12.8% of deaths globally and cause 1 death every 42 seconds in the United States[10, 11]. While screening methods in the ED are effective, AMI is often missed and in one study was not listed as a diagnosis in 33% of AMI related in-hospital deaths[1]. Therefore, recognizing atypical presentations of MI is vital in the ED setting. This case describes an atypical presentation of AMI in a 73-year-old female with initial normal EKG that presented with acute on chronic back pain after running out of oxycodone.

Case Description

A 73-year-old ED walk-in who presented with worsening upper back pain that began hours ago after running out of her oxycodone yesterday. The patient suffers from chronic back pain, fibromyalgia, takes daily oxycodone, and reports several similar prior episodes of pain. Patient expressed this episode was of greater intensity and seemed to occasionally radiate to the chest. She reports further hx of HTN, DM, HLD, and obesity. ROS otherwise negative at the time.

Physical Exam

Vitals: SpO2 99% RA, BP 158/67, Temp 37, HR 80, RR 20.
General: Awake and alert, appearing in pain.
CV/Resp: RRR, no murmur, no edema, distal pulses palpable and equal. Lung sounds clear bilaterally. Normal work of breathing.
MSK: Diffuse upper para-vertebral thoracic tenderness on palpation. No thoracic midline tenderness.
Neuro: No neurological deficit.

Differentials

- ACS
- Aortic dissection
- Pulmonary embolism
- Musculoskeletal pain
- Functional/neuropathic pain
- Pneumonia

Initial Clinical Findings

- Initial EKG: non-specific ST depressions in lateral leads, <1mm ST elevation in V1 and V2. No significant changes compared to prior EKG. STEMI Criteria not met (Fig. 1).
- POC troponin was negative.
- CBC and CMP were with in normal limits.
- CXR unremarkable (Fig 6.).
- CTA of the chest showed **no** evidence of aortic dissection or pulmonary embolism (Fig 5.).

Interval ED Course

- Two hours into ED course, the patient developed persistent substernal chest pain, new onset SOB, and became tachycardic to 120-130s. Serial EKGs showed dynamic changes with new fascicular block (Fig 2.), sinus tachycardia, and no STEMI criteria. Cardiology was consulted and recommended admission for evaluation of ACS.
- Minutes after initial status change, patient went into sustained V-tach (Fig 3.) and became altered and hypotensive. Synchronized cardioversion was emergently performed and return to NSR. Cardiology was contacted and the decision was made to intubate patient and send for PCI. EKG s/p PCI revealed anterior STEMI.

Figures: Clinical Data

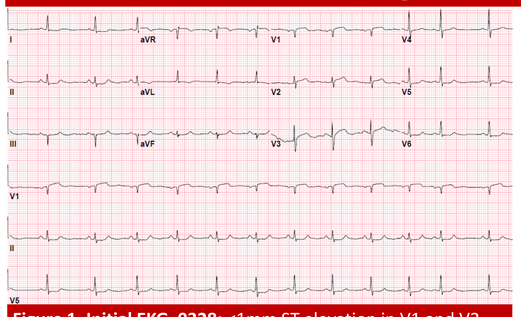

Figure 1. Initial EKG, 0328: <1mm ST elevation in V1 and V2. No significant changes when compared to prior EKG. **Does not meet STEMI criteria**

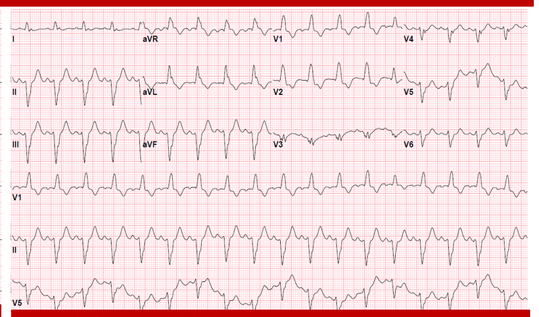

Figure 2. Repeat EKG, 0536: Sinus tachycardia with incomplete right bundle branch block

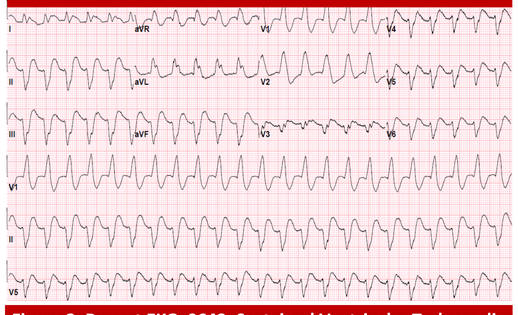

Figure 3. Repeat EKG, 0642: Sustained Ventricular Tachycardia

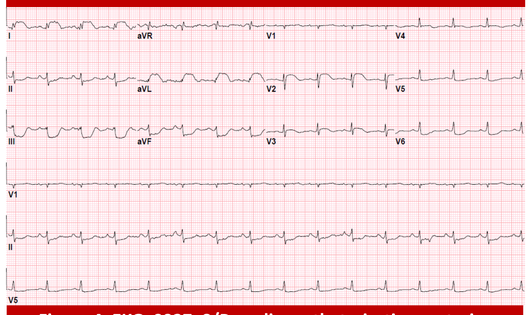

Figure 4. EKG, 0927: S/P cardiac catheterization: anterior STEMI

Figure 5. CTA chest w/ no evidence of aortic dissection or PE

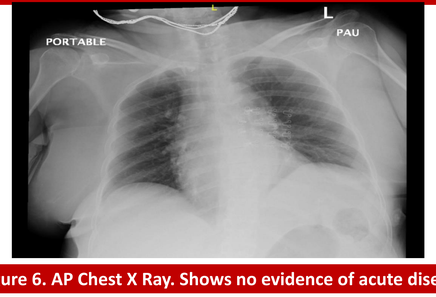

Figure 6. AP Chest X Ray. Shows no evidence of acute disease

Hospital Course

- Emergency catheterization resulted with 99% proximal LAD stenosis and 80% mid-RCA stenosis. Patient recovered in ICU s/p stent placement and was discharged 5 days after initial presentation.

Learning Points

- Importance of identifying patients' high risk for cognitive bias
- Chronic pain can potentially mask atypical presentation of acute MI.
- Dynamic EKG changes in the appropriate clinical setting is concerning for ACS until proven otherwise.
- 1mm elevation in lead aVR (Fig 1.) may have been early sign of AMI.
- Be a patient advocate when talking to specialists. Cardiology was consulted on 4 occasions with concern for ACS, eventually agreed to bring to cardiac catheterization lab.

Discussion

- Atypical presentations of AMI are most prevalent in the elderly, females, pts with depression, diabetes, and nociceptive pain disorders,[8] carrying 3.3 greater risk of 1-yr mortality compared with typical MI presentation[8].

Important considerations for the patient with chronic pain

Chest wall/MSK pain as most common primary disease presentation[12]	Are at increased risk for developing CAD[14]
More likely to display "healthcare seeking behavior" [2,4]	At risk for impaired LV function [5]
5x more likely to have received multiple pain control medications[2]	Increased risk for developing SVT and Afib[13]

Conclusion

- **Acute** central chest pain is responsible for 20-30% of ED visits, but less than 50% are cardiac in etiology,[7] emphasizing the importance of maintaining a high index of suspicion for ACS in acute and chronic pain.
- While this patient's initial presentation was clinically suspicious for MSK/chest wall etiology, prompt CTA imaging and exceptional patient advocacy were essential for early revascularization.

References

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