



Too Hot to Handle? A Case of Takotsubo Cardiomyopathy from Hyperthermia

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Background

Takotsubo cardiomyopathy (TC) affects 1-2% of patients presenting with acute coronary syndrome (ACS). TC from hypothermia has already been described but there is no evidence of hyperthermia precipitating TC. The most common acute ECG findings are ST segment elevation in the precordial leads and T wave inversions in most leads.

Case

A 35-year-old male with a history of polysubstance abuse was admitted to the ICU after he was found unconscious for an unknown amount of time. The patient was intubated for airway protection in the emergency room. Further history could not be obtained due to patient condition.

Physical Exam:

Vitals: **Temp 109 F, Pulse 160/min and regular, Resp rate: 20/min on the ventilator, BP:108/64 mmHg**
General: Intubated and sedated
Cardiovascular: Tachycardic with regular rhythm. No murmur, rubs, gallop, edema or JVD
Pulmonary: Coarse breath sounds, on the vent
Abdomen: soft, non-tender, mildly distended, no palpable organomegaly

Labs

13.3	17.8	240	136	99	30	140
	44.6		4.6	19	3.31	

Troponin: >80 ng/mL (range 0.0-0.03 ng/mL)
BNP: 67 pg/mL (range 5-100 pg/mL)

Hospital Course

ECG on admission showed diffuse ST segment elevation without T wave inversions (Image 1). In the setting of elevated troponin and concern for ACS, the patient was intubated and actively cooled and was started on a heparin drip, beta blocker, statin and aspirin. Emergent coronary angiography showed no angiographically significant disease. Left ventricular (LV) end-diastolic pressure was elevated at 25 mm Hg. Two-dimensional echocardiography (2D Echo) showed apical dyskinesia of the LV, severe hypokinesia of mid LV segments and low-normal contraction of LV base consistent with TC (Image 2). His ECG progressed to low voltage sinus rhythm with marginal ST elevations and T wave inversions in the precordial leads (Image 3). He developed septic shock from an unknown source and died on day 18 of hospitalization.

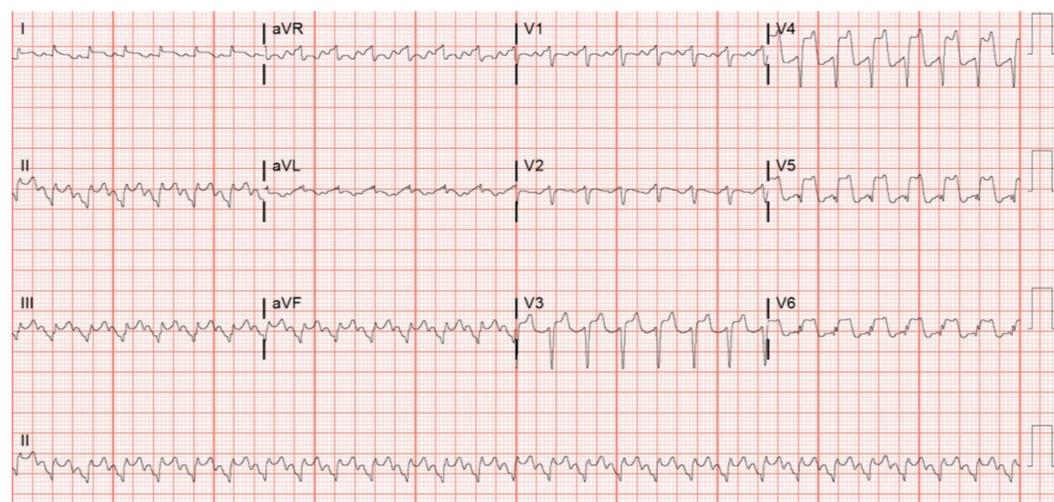


Image 1

ECG on admission showing diffuse ST segment elevations without any ST depressions or T wave inversions and a rate of 156/min

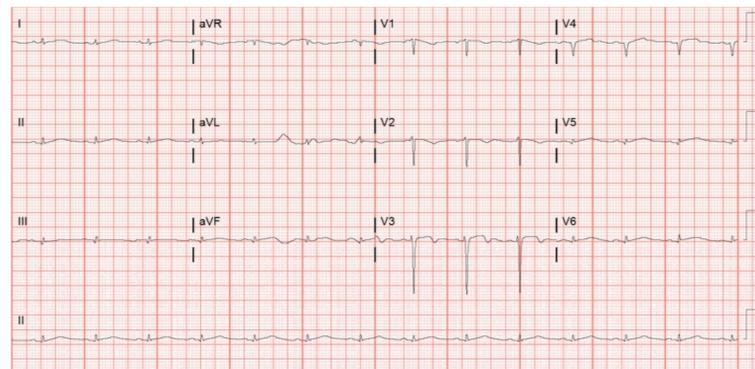
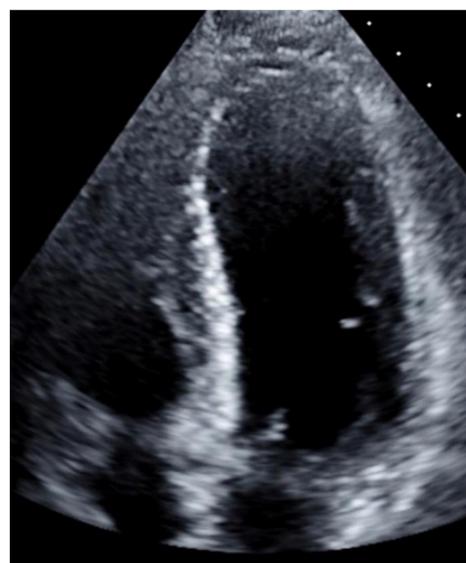


Image 2 (left): 2D Echo with changes consistent with TC

Image 3 (top): ECG on day 10 of hospitalization that had progressed to low voltage sinus rhythm with marginal ST elevations and T wave inversions in the precordial leads

Discussion

TC is more common in postmenopausal females following stressful stimuli. It is likely that severe hyperthermia from infection or methamphetamine use caused a large enough catecholamine surge to precipitate TC in our patient. Further, dynamic and diffuse T wave inversions are the most consistent ECG findings in TC and our patient presented with rather atypical ECG changes. We present this case to highlight severe hyperthermia as a potential cause of TC in a patient who did not fit the typical demographics of this condition, as well as recognizing ECG variants of TC.

Learning Objectives

- Recognize causes and typical demographics of TC
- Recognize typical as well as atypical ECG changes in TC
- Recognize hyperthermia as a potential cause of catecholamine surge that is severe enough to precipitate TC
- Review evolution of ECG changes over time in TC

References

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Disclosures

The authors have no financial disclosures or conflicts of interest