

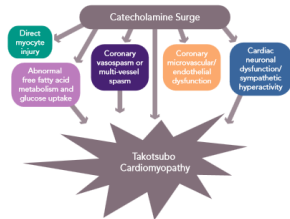
The Electrocardiographic Mystery of the Octopus Trap: Takotsubo Cardiomyopathy Masquerading as Acute Myocardial Infarction



Kingshuk Mazumdar, MD, MBA; Sina Salehi Omran, MD; Angelo Pedulla, MD
University of Rochester Medical Center

Introduction

Background: Takotsubo cardiomyopathy is a syndrome of transient ventricular dysfunction arising in the wake of significant physical or emotional distress.



Often presenting with chest pain and dyspnea, and at times with cardiac biomarker and ST-segment elevations, this condition may be clinically indistinguishable from ACS, necessitating left heart catheterization and coronary angiography for diagnosis.

Mayo Clinic Diagnostic Criteria

- Transient hypokinesis, akinesis, or dyskinesis of the left ventricular mid segments with/without apical involvement.
- Absence of obstructive coronary lesion or plaque rupture.
- New EKG abnormalities (ST-segment elevation or T-wave inversions) or modest elevation in cardiac troponin.
- Absence of pheochromocytoma or myocarditis.

Case Presentation

A 50-year-old woman with history of gastric bypass surgery, hypertension & alcohol use disorder in remission presented with acute progressive encephalopathy and sudden onset of shock physiology. High-sensitivity troponins were 30 times the upper limit of normal, though down-trending.

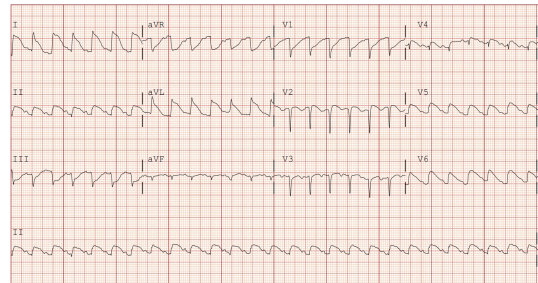


Figure 1. EKG demonstrating large R waves merging into diffuse ST-elevations with resultant formation of monophasic QRS-ST waves.

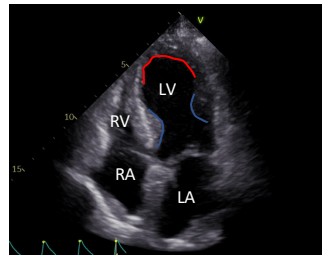


Figure 2. Echocardiogram with newly reduced ejection fraction (31%), apical segmental hypokinesis, and basilar hyperkinesis.

Clinical Course

Decision-Making: Given low probability of multi-vessel distribution occlusion (MVDO), angiography was deferred in favor of fluid resuscitation and beta-blockade. Blood cultures eventually grew methicillin-sensitive *Staphylococcus aureus* and *Escherichia coli*. The patient was initiated on antibiotic therapy with improvement in shock physiology.

Outcome: Nuclear stress imaging performed on discharge revealed recovery of ejection fraction, resolution of wall motion abnormalities, and return to baseline EKG.

Conclusions

- Takotsubo cardiomyopathy should be considered in the differential diagnosis for acute ST-segment elevation myocardial infarction.
- The presence of giant R waves and formation of monophasic QRS-ST complexes is not limited to the hyperacute phase of myocardial infarction.
- Assessment of patient risk factors for MVDO may guide decision regarding need for emergent catheterization.

References

Esha Sachdev, C Noel Bairey Merz, Puja K Mehta, Takotsubo Cardiomyopathy, *European Cardiology Review* 2015;10(1):25-30. <https://doi.org/10.15420/ecr.2015.10.01.25>.