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Introduction

Takotsubo cardiomyopathy is an acute stress-related transient cardiac dysfunction characterized commonly by dyskinesia or akinesia of the left ventricle, typically with apical ballooning. This syndrome is generally described in post-menopausal women over the age of 50. It can be triggered by a wide variety of events including but not limited to acute illness and both physical and emotional stressors. It presents similarly to ACS and is of an unknown etiology.

Objectives

We introduce a 63-year-old female who presented to the Emergency Department following a motor vehicle collision. During the course of her subsequent workup the patient was found to have elevated cardiac biomarkers triggering a workup for ACS, which ultimately revealed an atypical presentation of Takotsubo stress cardiomyopathy.

Case Presentation

This is a 63-year-old female patient presenting to the ED after an MVC. In the ED the patient was found to be in acute withdrawal secondary to Narcan administration in the field. Signs of trauma were present, and ultimately the patient was intubated for agitation refractory to medication. Radiography was negative save for concern for occult temporal bone fracture. Her UDS was positive for cocaine, benzodiazepines, and opiates. A high sensitivity troponin collected in the ED was elevated, with a subsequent ECG displaying NSR with mildly elevated QTC. The patient was extubated and admitted to medicine.

Over the course of her admission she had progressively increasing serum troponin levels and serial ECGs showed ST changes concerning for lateral ischemia. An echocardiogram was performed on the third day following her accident which displayed hypokinesis of the mid inferolateral & anterolateral, and apical lateral myocardium with possible hypokinesis of the mid inferior myocardium. Systolic EF was borderline and a small right to left atrial shunt was also observed. The patient was taken emergently to the Cath lab wherein coronary arteries were found to be without any obstruction, however a LV gram displayed lateral ballooning with clear aneurysmal deformity of the anterolateral and lateral myocardium as well as a hyperdynamic apex.

After the patient returned to the room, subsequent ECG and serum troponin studies showed resolution of the stress cardiomyopathy.

Discussion

Takotsubo cardiomyopathy has an uncertain etiology but strong evidence has supported that it is likely linked to the sudden release of adrenergic modulators such as the catecholamines epinephrine and norepinephrine. Although Takotsubo is deemed a generally benign reversible disease, complications can be life-threatening and it is an important differential in the trauma patient with ACS signs and symptoms.¹

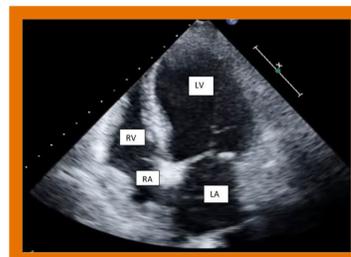


Image 1 shown to the right, demonstrates the typical echocardiogram findings in Takotsubo cardiomyopathy. In a video form, one would see diffuse hypokinesis in the left ventricle.

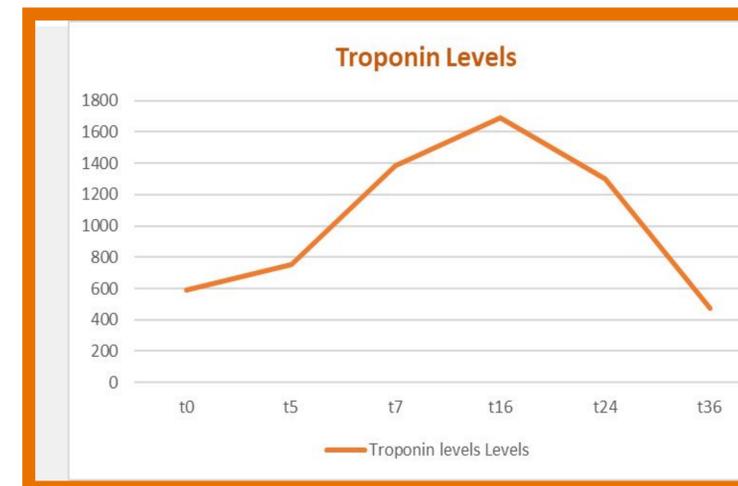


Figure 1 above, shows serial high sensitivity troponin values for the patient described in the report. This trend is typical of the transient, stress-induced cardiomyopathy observed here.

Conclusions

The patient described displayed a transient and resolving cardiomyopathy consistent with the criteria for Takotsubo cardiomyopathy.

This is demonstrated by the patient's lab values, specifically the transiently elevated troponin, in addition to the echo and LV gram findings.

In this instance, the syndrome is likely to have been secondary to the trauma suffered in the MVC.

A definitive diagnosis is difficult in the setting of concurrent cocaine wherein unwitnessed transient vasospasm is not able to be ruled out. This syndrome has been previously described in the setting of acute trauma and may be underdiagnosed. Increased awareness and testing of patients may result in an increased annual incidence.

References

- ¹ (Ghadri et al. 2018); ²Ghadri, Cammann, Napp 2016; ³ Arora et al 2006