

## THE NEWEST VARIANT OF STRESS CARDIOMYOPATHY

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**Introduction:** Stress-induced or Takotsubo cardiomyopathy, also known as broken heart syndrome, is a cardiomyopathy which is characterized by transient left ventricular dysfunction in the apical or mid-ventricular segments in the absence of any coronary artery stenosis or changes. Traditionally there have been 4 different variants of Takotsubo cardiomyopathy which include classical with apical ballooning, reverse with akinetic basal segments, mid-ventricular with akinetic mid segments, focal where only a focal area such as a wall is akinetic. Recently a fifth type of Takotsubo cardiomyopathy, reverse mid-variant, has been described in which the mid left ventricle is hyperdynamic and the apex and base are akinetic or hypokinetic.

**Case Report:** This is a case of a 59-year-old female with a past medical history significant for chronic obstructive pulmonary disease and hypertension who presented to the emergency department after being found down by a neighbor. EKG on admission was significant for sinus tachycardia with heart rate of 104bpm with premature atrial complexes, biatrial enlargement, right axis deviation, prolonged QT. Four minutes later another electrocardiogram was done which showed atrial fibrillation with rapid ventricular rate with heart rate of 147 bpm and prolonged QT. She was given one dose of IV 5mg metoprolol and started on an amioderone drip. In light of a CHADSVASC score of 4 she was also started on a heparin drip. Troponin on admission was found to be 9.115ng/mL.

The patient had a left heart catheterization seven months prior to admission which showed normal coronaries, ejection fraction 45% and apical hypokinesis. This led to her diagnosis of stress cardiomyopathy during that hospitalization. Five months after this event she had a transthoracic echocardiogram which showed a left ventricular ejection fraction of 34%, grade 2 diastolic dysfunction, regional wall motion abnormalities which included mid and apical akinesis with preserved thickening of the base.

During this hospitalization her troponin trended down to 1.494ng/mL. She had a transthoracic echocardiogram which showed left ventricular ejection fraction 55%, left ventricle apical thrombus measuring 0.95 x 0.7cm. It also showed regional wall motion abnormalities which included hypokinetic to akinetic basal myocardial segments, akinetic apex, hyperdynamic mid ventricular segments. These findings were consistent with mid-reverse variant Takotsubo cardiomyopathy. She was eventually discharged on aspirin, atorvastatin, metoprolol and eliquis.

**Discussion:** This case describes the newest and most unique form of Takotsubo cardiomyopathy, reverse mid-variant. This is the 2<sup>nd</sup> reported case of a mid-variant reverse Takotsubo cardiomyopathy to be reported in the literature. This case is also unique in that our patient presented with clinically significant cardiomyopathy during both admissions. During her first admission she had developed heart failure with reduced ejection fraction and during the second admission her heart failure had resolved, but she had developed atrial fibrillation with a left ventricle thrombus. These are all known complications of Takotsubo cardiomyopathy, but have yet to be reported in the reverse mid-variant.