

## Takotsubo Cardiomyopathy: A Case Report

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### Abstract

**BACKGROUND:** Takotsubo cardiomyopathy, a rare form of left ventricular failure in which all the segments become akinetic except the base, which will be seen on echocardiography.

**CASE STUDY:** A 45yr old male who presented with confusion, was admitted and put on alcohol detox. later developed seizures and desaturation, accelerated hypertension sudden drop of BP was present. ECG showed flattening of T waves present. ECHO showed global akinesia except at base, after ECHO provisional diagnosis of takotsubo cardiomyopathy was made.

**CONCLUSION:** Based on ECG and clinical presentation acute coronary syndrome was suspected to confirm the diagnosis ECHO was done which later based on patient chronic alcohol history final diagnosis of stress induced cardiomyopathy that is takotsubo cardiomyopathy was made.

## 1. Introduction:

The specific form of acute LV dysfunction known as takotsubo cardiomyopathy, often also called as stress-induced cardiomyopathy where there transient LV apical ballooning, this was first identified in Japan 1. The LV is identified on echocardiography by its peculiar appearance, which is modelled by the shape of takotsubo, a traditional Japanese pot used to capture octopus. Although it is a fairly rare cardiomyopathy, more cases have recently been reported.

## 2. Case Study

### HISTORY:

A 45-year-old male was brought to emergency room with altered sensorium which was predominantly alcohol-induced. He was put on an alcohol detox programme after being admitted. The patient experienced seizures during his treatment that resembled alcohol withdrawal seizures. As a result of that, his sensorium worsened, his oxygen saturation decreased to 83% @ room air, his blood pressure dropped from 160/90mm

Hg to 70/0 mm Hg, and his pulse decreased from 130 beats per minute. His mental status eventually returned to normal after many hours of what was first thought to be a seizure related to alcohol withdrawal, but he remained hypotensive. A typical sinus tachycardia with a cardiac axis of 0 degree was on ECG, along with Lead III showed a mild S-T elevation, and leads V3–V6 showed deep symmetric T-wave inversions that were novel compared to earlier electrocardiography findings. T-wave flattening in Lead II, aVF, III was also seen. After that, the patient was shifted to critical care unit for more testing.

When compared to the radiograph from earlier in the day, the chest radiograph taken in the ICU revealed a fresh right basilar infiltration. According to laboratory results, troponin was 1.3 (normal: 1.5), creatine kinase was 121, MB was 6.5 (normal: 3.9), and relative index was 5.0 (normal: 2.0).

Transthoracic echocardiography revealed that the whole left ventricle (LV) had global akinesia, with the

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exception of the base of each wall, which was functioning properly. It was calculated that the overall ejection fraction was under 15%. There was some mild mitral regurgitation. The pulmonary artery's systolic pressure was calculated to be 48 mm Hg. Based on the echocardiographic findings, a provisional diagnosis of takotsubo cardiomyopathy was made, and the electrocardiographic results suggested acute coronary syndrome.

Due to the patient's unstable condition, coronary angiography was postponed at that time. The patient's family decided to move him to an academic hospital where the results later showed normal coronary angiography. Subsequent follow-up echocardiograms revealed that the LV function was improving and that the wall-motion anomalies had completely disappeared after three weeks.

### 3. Discussion

Takotsubo cardiomyopathy patients typically exhibit acute myocardial infarction symptoms, such as chest discomfort, S-T alterations, and raised cardiac markers, in a situation when the patient will be subjected to intense emotional stress. Precipitating events that happened just before the patients' cardiac symptoms began to manifest include learning of a sudden death, taking part in a heated debate, going to the morgue, witnessing a robbery, or even attending a surprise party.

As in our patient, Suzuki et al.<sup>4</sup> describe a case of takotsubo cardiomyopathy that developed during alcohol abstinence. In these documented incidents, women predominate in a noticeable way.<sup>5</sup>

These patient's coronary angiography will not reveal any signs of obstruction in coronary arteries. Repeat echocardiogram also shows full recovery of the LV dysfunction with a normal ejection fraction and nil regional wall motion anomalies, typically within 2 to 4 weeks.<sup>3</sup> Thus, the following 4 crucial clinical parameters strongly support takotsubo cardiomyopathy: LV failure with function maintained at the base and akinesia of all other segments on echocardiography, together with (1) an environment of acute emotional stress, (2) symptoms and evidence indicative of acute coronary syndrome, and (3) LV function is returned to normal within a few weeks of the symptoms starting.<sup>6</sup>

It is unclear what exact process leads to this particular kind of LV dysfunction. According to a recent study, which showed the plasma catecholamine levels in people with takotsubo cardiomyopathy were between 7 to 34 times higher than reported normal values and 2 to 3 times higher than those in those with classic myocardial infarction.<sup>3</sup> Theoretical reasons include direct myocyte harm from catecholamine exposure and microvascular spasm resulting in myocardial ischemia.<sup>3, 7</sup>

Fortunately, the outlook is good for takotsubo cardiomyopathy patients who manage their symptoms and receive supportive care after the initial episode of severe heart failure. Within a few weeks, the left ventricular systolic function returned to normal.

### 4. Conclusion

Based on ECG and clinical presentation acute coronary syndrome was suspected to confirm the diagnosis ECHO was done which later based on patient chronic alcohol history final diagnosis of stress induced cardiomyopathy that is takotsubo cardiomyopathy was made.

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