Stress ‘Takotsubo’ Cardiomyopathy in a Postoperative Pre-menopausal Woman

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Introduction
Stress Cardiomyopathy is known by several synonyms, ‘Apical ballooning syndrome’, ‘Broken heart syndrome’ and ‘Takotsubo’ cardiomyopathy. It was described for the first time by Sato et al. in Japan in 1990.

Commonly seen in post-menopausal women, severe emotional or physiological stress is usually the trigger, these patients present with signs, symptoms and ECG changes consistent with an acute coronary syndrome (ACS). However, the coronary angiography would show normal epicardial coronaries and left ventriculogram reveals systolic apical ballooning, which usually resolves in weeks. We report a case of Stress ‘Takotsubo’ cardiomyopathy in a post operative pre-menopausal woman.

Case Report
A 48-years-old pre-menopausal lady, with no co-morbidities underwent elective surgery. While recovering in postoperative intensive care unit, she developed chest pain and breathing difficulty. Auscultation revealed bilateral basal crepitations and an S3gallop. 12 lead electrocardiogram (ECG) showed T inversion in the precordial chest leads and QT prolongation. Her cardiac enzymes were elevated. A bedside echocardiogram revealed, hypercontractile basal segments and apical dyskinesia, a global ejection fraction of 40%. She underwent emergency coronary angiogram (CAG) which revealed normal epicardial coronaries. Left ventriculography revealed systolic apical ballooning and hypercontractile basal segments with impaired LV systolic function (LVSF). With aggressive medical therapy, the patient’s symptoms improved. Left ventriculography after 10 days showed normalization of the systolic apical ballooning and the LVSF. When questioned, subsequently, the patient revealed that she had recently experienced severe emotional stress due to financial instability.

Discussion
Takotsubo Cardiomyopathy (TCM) is an acute condition, which mimics acute coronary syndrome and causes LV systolic dysfunction, which is reversible. “Takotsubo” in Japanese means “octopus pot,” which is a fishing jar with a narrow neck and wide base used to trap octopus and this resembles the shape of left

Highlights
A 48-years-old, pre-menopausal lady, with no co-morbidities underwent elective surgery. While recovering in postoperative intensive care unit, she developed chest pain and breathing difficulty. Auscultation revealed bilateral basal crepitations and an S3gallop. 12 lead electrocardiogram (ECG) showed T inversion in the precordial chest leads and QT prolongation. Her cardiac enzymes were elevated. A bedside echocardiogram revealed, hypercontractile basal segments and apical dyskinesia, a global ejection fraction of 40%. She underwent emergency coronary angiogram (CAG) which revealed normal epicardial coronaries. Left ventriculography revealed systolic apical ballooning and hypercontractile basal segments with impaired LV systolic function (LVSF). With aggressive medical therapy, the patient’s symptoms improved. Left ventriculography after 10 days showed normalization of the systolic apical ballooning and the LVSF. When questioned, subsequently, the patient revealed that she had recently experienced severe emotional stress due to financial instability.

Keywords: Stress Cardiomyopathy; Postoperative; Premenopausal woman

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ventricle during systole.2

The exact etiology of takotsubo cardiomyopathy (TCM) is not known, proposed mechanisms include multi-vessel coronary artery spasm, impaired cardiac micro vascular function, acute coronary syndrome with reperfusion injury, and catecholamine-induced myocardial injury.2

The most commonly discussed mechanism for this condition is stress-induced catecholamine release. Wittstein et al.,3 showed that stress-induced cardiomyopathy patients have higher levels of catecholamines than patients with myocardial infarctions, despite experiencing similar episodes of emotional stress. These elevated levels may cause myocardial stunning in TCM patients.

Researchers have reported that approximately 1.7-2.2% of patients with suspected acute coronary syndrome were subsequently diagnosed with takotsubo cardiomyopathy (TCM).4,5 Nearly 90% of the reported cases of TCM are postmenopausal women.6

Most widely used diagnostic criteria are the modified Mayo Clinic criteria. All cases must have all the below mentioned features for diagnosis of TCM.7

- Acute ECG abnormalities either ST-segment elevation and/or T-wave inversion with modest elevation in cardiac troponin level
- Transient akinesis or dyskinesis of the left ventricular mid segments, with or without apical involvement; the regional wall-motion abnormalities extending beyond a single epicardial vascular distribution
- On coronary angiography, absence of obstructive coronary disease or evidence of acute plaque rupture
- Absence of pheochromocytoma or myocarditis.7

As it is difficult to differentiate between ACS and TCM at presentation, most of them are treated as ACS unless proven otherwise and are treated with anti platelets, b-blockers, angiotensin-converting enzyme inhibitors, intravenous diuretics if needed.8 Singh et al reported that the annual recurrence rate is nearly 1.5%,9 with low in-hospital mortality of 1-3.2% and no increased risk of long-term morbidity or mortality.10 The prognosis in takotsubo cardiomyopathy (TCM) is excellent, with nearly 95% of patients experiencing complete recovery of LV function within 4-8 weeks.6,10

Conclusion

As TCM is a rare and new entity, much is not known about the etiology, but it is being increasing diagnosed now, probably because of, either greater awareness about the illness or that we are living in a more stressful environment than before. TCM should be one of the differentials along with ACS in female patients presenting with acute onset chest pain, especially post-menopausal females.

Declarations of Interest:

The author declares no conflicts of interest.

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The author states that he abide by the “Requirements for Ethical Publishing in Biomedical Journals”,11

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