"Broken Heart Syndrome" (Takotsubo Cardiomyopathy)

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A 58 year old woman was referred to our department for evaluation of chest pain. She did not smoke, have diabetes or obesity, and there was no family history of early sudden death of cardiac origin.

At the present admission, cardiac auscultation revealed no cardiac murmurs, and no signs of heart failure. Electrocardiography performed on admission [Figure 1] showed normal sinus rhythm with a P-pulmonale wave pattern, minimal QTc interval prolongation (471 msec), and 1 mm ST segment elevation in leads V3-V6. Troponin-I level was elevated (4.020 μg/L), but decreased the next day (1.920 μg/L). Total creatinine phosphokinase level was 439 IU/L (CPK-MB accounted for 16.4%) and dropped to 97 IU/L two days later.

Echocardiography, performed on day 2 of hospitalization, showed a normal-sized left ventricle, mild decrease in global contractility (despite a preserved ejection fraction of 45%), segmental apical akinesis, and ballooning [Figure 2, arrows]. Given the presence of chest pain accompanied by electrocardiographic changes and elevated troponin level, the initial tentative diagnosis was myocardial infarction.

However, the coronary cardiac topography angiogram demonstrated normal coronary arteries, and the calcium score was zero (indicating a high negative predictive value for a significant obstructive coronary artery disease in asymptomatic, but not in symptomatic patients) [1]. Furthermore, cardiac magnetic resonance imaging excluded myocarditis and older myocardial scars, but demonstrated left ventricular apical ballooning syndrome [Figure 3, arrows]. No other anatomic abnormalities or major pericardial abnormalities were observed.

On the basis of the classic findings of segmental wall motion dyskinesis and normal coronary arteries on MRI, a diagnosis of apical ballooning syndrome (Takotsubo cardiomyopathy) was made. Following supportive treatment, the patient was released on day 9 in good general condition with preserved myocardial function.

In postmenopausal woman, Takotsubo cardiomyopathy is a common cause of chest pain and ECG changes with elevated cardiac enzyme levels usually (but not always) following psychological

Figure 1. ECG on admission demonstrating minimal QTc prolongation and ST elevation in V3-V6

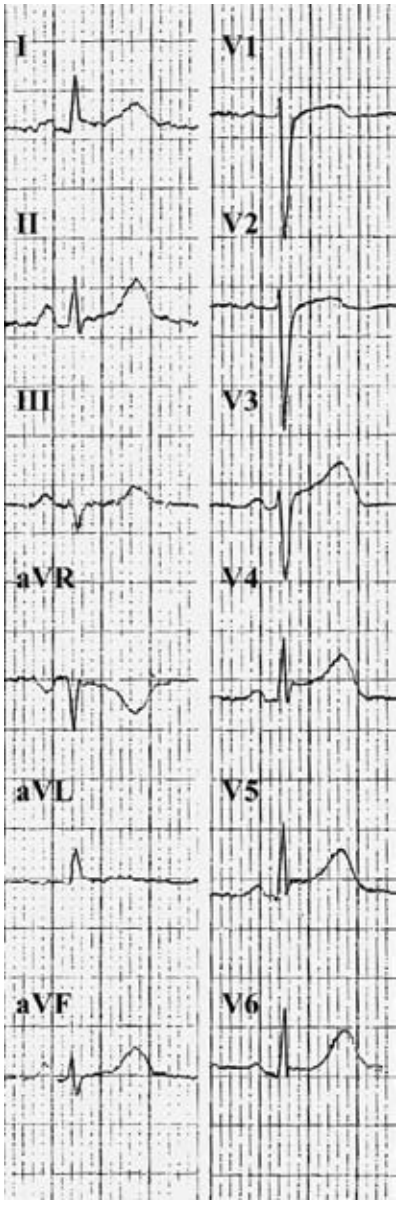


Figure 2. Echocardiograpy during end of systole demonstrating apical hypokinesis and ballooning pattern

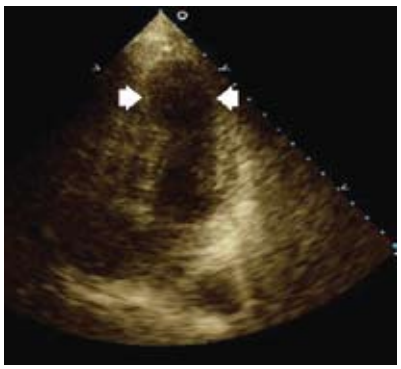
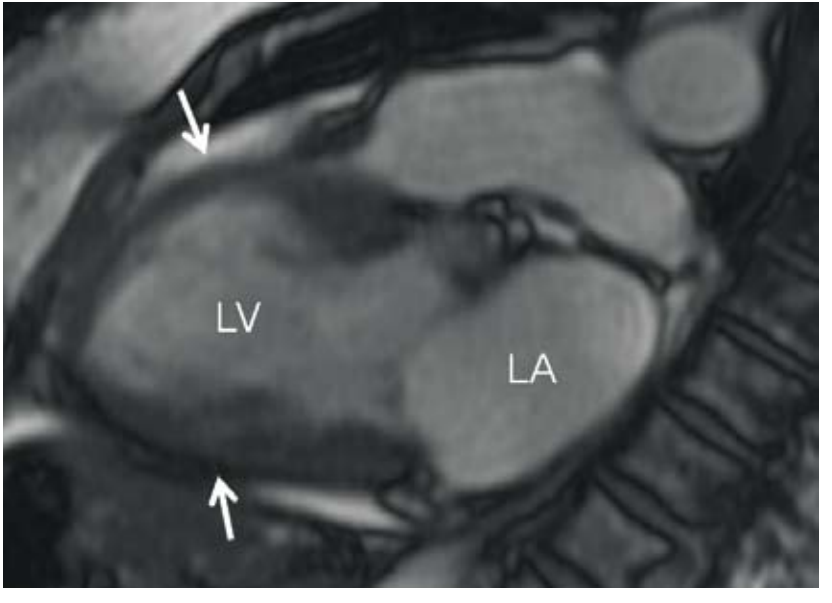


Figure 3. Steady-state free precession ("white blood") acquired in vertical long axis (two-chamber view) in end systole. Apical ballooning is demonstrated (white arrows), as compared to normal systole when the ventricle is contracted. LA = left atrium, LV = left ventricle.



or physiologic stress. Pathophysiology remains controversial. Unlike myocardial infarction, the prognosis is usually benign with full restoration of contractile functions [2, 3].

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