Broken heart syndrome

Introduction

A 56-year-old woman presented to the medical admissions unit with acute heart failure. Electrocardiogram and cardiac enzymes suggested a myocardial infarction, but a left ventriculogram confirmed the diagnosis of Tako–Tsubo syndrome.

Discussion

Tako–Tsubo syndrome, also known as broken heart syndrome, is characterized by hypokinesia or akinesia of the left ventricular apex. Patients present with chest pain or dyspnoea with a picture of left ventricular failure (Pezzo et al, 2009). Electrocardiogram and cardiac enzymes mimic acute myocardial infarction findings but there is no obstructive coronary atherothrombosis on angiography. A left ventriculogram shows ballooning of the apex as a result of hypokinesia or akinesia giving a typical Tako–Tsubo appearance – Tako–Tsubo is a Japanese octopus trap with a wide base and a narrow top (Chen et al, 2006). This syndrome is often seen in postmenopausal women (Movahed and Donohue, 2007). The Mayo clinic proposed four criteria for diagnosis of Tako–Tsubo syndrome (Abdulla and Ward, 2007):

1. Transient, reversible akinesis or dyskinesis on left ventriculography
2. Absence of obstructive coronary artery stenosis
3. New electrocardiographic abnormalities consisting of ST segment elevation or T-wave inversion
4. Absence of recent head trauma, intracranial bleeding, phaeochromocytoma, obstructive epicardial coronary artery disease, myocarditis or hypertrophic cardiomyopathy.

The aetiology of this syndrome is not well understood but sudden emotional stress is the most common trigger, as there is typically a history of a precipitating stressful event such as the death of a loved one, public speaking or non-cardiac surgery (Tarkin et al, 2008). Suggested management of Tako–Tsubo cardiomyopathy includes the use of β-blockers and angiotensin-converting enzyme inhibitors, aspirin and diuretics. Short-term anticoagula-

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Figure 1. Electrocardiogram showing deep T-wave inversions in the anterolateral and inferior leads.

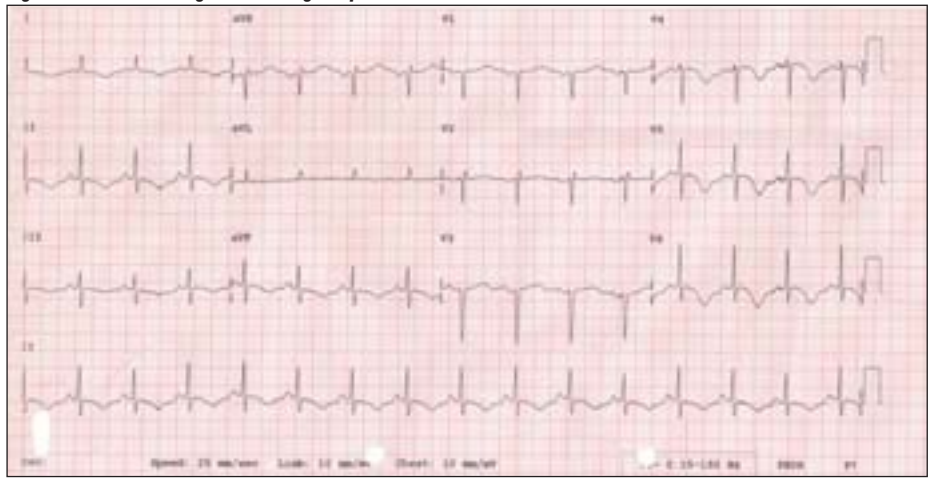

Figure 2. Right coronary angiogram showing normal coronary arteries.

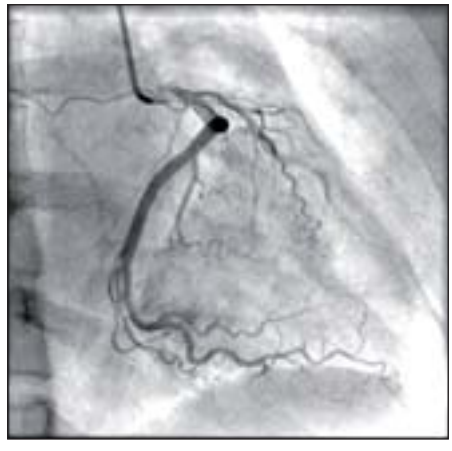

Figure 3. Left coronary angiogram showing normal coronary arteries.

Case Report

A 56-year-old Asian woman presented with severe shortness of breath and chest tightness for 4 days. Her past medical history included well-controlled type 2 diabetes mellitus and hypertension. She was a non-smoker. On examination, she was afebrile with a blood pressure of 160/90 mmHg, a pulse of 90 beats per minutes, and a respiratory rate of 30 breaths per minutes with a PaO_2 of 7.4 kPa on air. Auscultation of the chest revealed bi-basal crackles and expiratory rhonchi. Cardiac examination was normal. Chest radiograph showed pulmonary congestion with normal heart size. Electrocardiogram (*Figure 1*) showed deep T-wave inversions in the anterolateral and inferior leads. Her troponin T level was raised at 0.243 ng/ml (normal <0.03 ng/ml).

The patient was treated as having an acute coronary syndrome with supplemental oxygen, low molecular weight heparin, aspirin and clopidogrel. She was referred to a tertiary cardiothoracic centre for percutaneous coronary intervention. Bedside echocardiography showed reduced ejection fraction. Angiogram showed normal coronary arteries (*Figures 2* and *3*), and left ventriculography showed extensive anterior and inferio-apical areas of dyskinesia (*Figures 4* and *5*), consistent with Tako–Tsubo syndrome. With supportive therapy (aspirin, nitrate and diuretics), she made a good recovery. Her left ventricular function was normal on follow-up echocardiography 6 weeks later.

Figure 4. Left ventriculography showing extensive anterior and inferio-apical areas of dyskinesia.

tion to prevent mural thrombus has been suggested by some (Chen et al, 2006).

Figure 5. Left ventriculography showing extensive anterior and inferio-apical areas of dyskinesia.

Short-term outcomes are excellent, with complete resolution in all reported cases. However, there are no data in the literature regarding long-term outcome in patients who have experienced Tako–Tsubo cardiomyopathy (Tarkin et al, 2008). **BJHM**

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