Atypical Variants of Takotsubo Cardiomyopathy: Twin Case Reports

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Abstract

Takotsubo cardiomyopathy (TTC) is a well-known entity. We present two rare presentations of the same. Our first patient was diagnosed to have hypertrophic cardiomyopathy with ventricular tachycardia (VT), for which an ICD had been implanted. He later developed acute TTC with a large left ventricular (LV) apical thrombus. Our second patient was a 59 year old lady diagnosed to have TTC 2 years ago, from which she had recovered completely. She recently developed a recurrence of the same.

Introduction

Takotsubo cardiomyopathy (TTC) is a disease exhibiting an acute left ventricular apical ballooning which takes on the shape of a ‘takotsubo’ (Japanese octopus trap), with contraction abnormality mainly in the left ventricle and involvement of the right ventricle and a dynamic obstruction of the left ventricular outflow tract (pressure gradient difference, acceleration of blood flow, or systolic cardiac murmurs) being observed.¹,² The trigger for TTC can be emotional or physical and in a significant number of cases (28.5% of patients), no specific trigger can be attributed. In this context, we present two atypical cases of TTC in which the patients had rarer etiologies.

Case 1

A 64-year-old man was diagnosed with non-obstructive hypertrophic cardiomyopathy during a routine health check-up in 1997 and underwent regular follow-up for its management. In 2011, the patient had an unexplained episode of syncope, which was evaluated by a 24-hour Holter monitoring which showed multiple non-sustained ventricular tachycardia (VT) events. An electrophysiology study was performed, which revealed inducible monomorphic ventricular tachycardia and a dual chamber implantable cardioverter defibrillator (ICD) was implanted for its treatment. The patient was prescribed tab amiodarone 200 mg daily in addition to atenolol 50 mg since then.

The patient’s condition remained stable till 2013, with periodic ICD interrogation revealing several episodes of ventricular tachycardia which had been terminated by anti-tachycardia pacing (ATP). In February 2013, the patient had mild fever while travelling overseas and mid-flight the patient experienced multiple ICD shocks due to which the flight was aborted and he was admitted in a hospital in Dubai. The ICD interrogation had revealed multiple VT episodes. The patient was stabilized and he subsequently returned to Mumbai. Over the next few months, the patient experienced multiple episodes of VT storm and based on the evaluation, the patient underwent bilateral endoscopic thoracic (T1-T4) sympathectomy in November 2013. Following the procedure, the VT episodes reduced and became sparse with the patient experiencing no ICD shocks after February 2014.

These events had resulted in the patient developing a morbid fear of flying. However, by May 2015, the patient gathered courage to overcome this fear and traveled by air. During the two hour flight journey, the patient was very uneasy and the next day after travel the patient felt increasingly breathless and was admitted with pulmonary edema. The echocardiogram showed akinesia of the apex with ballooning and a large LV apical clot (Figure 1). The patient was stabilized and started on heparin and warfarin. A repeat echocardiogram after 2 weeks showed only mild LV apical hypokinesia.

Fig. 1: 4-chamber view in diastole showing a large thrombus at the apex of the left ventricle. Also note the markedly thickened interventricular septum

Fig. 2: (a) 12-lead ECG with ST coving and T inversions in the precordial leads (b) Echocardiogram showed apical ballooning and akinesia, with hypercontractility of the basal segments
Case 2

A 59-year-old woman with a history of diabetes was admitted to the hospital with sudden onset of dyspnea and chest pain radiating to the left arm. The initial ECG was normal while the Troponin T was elevated (1.2 ng/ml). The next day the ECG showed ST coving with T inversions in the precordial leads (Figure 2a). The echocardiogram showed apical ballooning and akinesia, with hypercontractility of the basal segments (Figure 2b). The coronary angiogram was normal. She was started on metoprolol, ramipril and frusemide. She improved rapidly and after 1 week the echocardiogram was normal.

Discussion

Takotsubo cardiomyopathy was initially reported by Sato et al in 1990. The pathophysiology of TTC is not well established, but several possible theories on mechanisms with this disorder have been proposed such as catecholamine cardiotoxicity, metabolic disturbance, coronary microvascular impairment, multivessel epicardial coronary artery spasm. Patients with TTC have a mean age of around 66 years, with more than 85% of the patients being women.

The trigger for TTC can be emotional or physical, with physical triggers being more common as compared to emotional triggers (36.0% vs. 7.7%). However, in a significant number of cases (28.5% of patients), no specific trigger can be attributed. The recurrence of TTC has been observed to range from 3 to10%. The prognosis of TTC is generally excellent, with most of the patients typically recovering normal LV function within 1-4 weeks. Acute complications include arrhythmias, pulmonary edema and cardiogenic shock.

Conclusion

One must be alert for unusual etiologies or associations of TTC, especially when there is an atypical presentation.

References