Recurrent Takotsubo Syndrome with Variant Ballooning Pattern

Pedro Llerena, MD1*, Francisco Besoain, MD1, José Luis Winter, MD2 and Christian Dauvergne, MD3

1Cardiology Resident, School of Medicine, Universidad del Desarrollo, Clínica Alemana de Santiago, Chile
2Cardiology Service, Clínica Alemana de Santiago, Chile
3Chief on Cardiac Catheterization Laboratory, Section of Cardiology Service, Clínica Alemana de Santiago, Chile

Abstract

Takotsubo Syndrome usually presents with normal coronary arteries and the typical pattern of apical ballooning on the left ventricle. We describe the case of a 58-year-old woman presenting with recurrent TTS, two different wall motion patterns in a period of nine years, triggered by a similar stressor factor.

Keywords
Cardiomyopathy, Acute coronary syndrome, Tako-Tsubo ballooning

Introduction

Takotsubo Syndrome (TTS), also known as Stress-induced Cardiomyopathy, is a transient left ventricle (LV) regional dysfunction without significant coronary obstruction or plaque rupture [1].

According to the modified Mayo Criteria, the diagnosis requires the presence of all four of the following: a) Transient hypokinesis, dyskinesis, or akinesis of the LV midsegments, with or without apical involvement; with wall-motion abnormalities that extend beyond a single epicardial vascular distribution; b) Absence of obstructive coronary disease or angiographic evidence of acute plaque rupture; c) Signs of ischemia with new ECG abnormalities (either ST-segment elevation and/or T-wave inversion) or modest elevation in the cardiac troponin level; d) Absence of pheochromocytoma or myocarditis.

 Clinically, four major anatomic patterns of regional wall motion abnormality have been recognized: Apical ballooning is the more frequent presentation that is present in approximately 81% of cases. Other variants have been described such as mid-ventricular (14%), basal or inverted (2%) and focal (1%).

Recurrence of this entity is uncommon, and most cases present with similar wall motion abnormalities on relapse [2,3].

We present the case of a 58-year-old patient that presents with TTS with two different ballooning patterns in two separated events.

Case Presentation

A 58-year-old woman with hypercholesterolemia, hyperuricemia and insulin resistance presented in the emergency room (ER) with 90 minutes of intense retrosternal chest pain, radiating to jaw and profuse sweating after a very stressful family event. She was hemodynamically stable without signs of heart failure on physical examination. ECG showed T wave inversion in V5 and V6 leads without changes on serial ECGs. Troponin T was 211 ng/L (normal value < 14 ng/L). Coronary angiography proved absence of significant stenosis, and ventriculography showed mid-ventricular hypokinesia with preserved ejection fraction (Figure 1). There was complete resolution of the wall motion abnormalities on follow up echocardiogram after 21 days. TTS was diagnosed.

Nine years later, after a stressful personal event, she presented again in the ER with 2 hours of chest pain. ECG showed no changes compared to her previous admission. Troponin T was 314 ng/L. Coronary angiography...
Figure 1: A) Coronary Angiogram demonstrating absence of obstructive disease in the LAD; B) Diastolic and; C) Systolic phases of the ventriculogram showing mid cavitary hypokinesis.

Figure 2: A-D) Coronary Angiogram demonstrating absence of obstructive disease in the LAD with OFDI of the corresponding segments of the vessel without signs of plaque rupture or erosion; E) Diastolic and; F) Systolic phase of the left ventriculogram with classical apical ballooning.

lography showed apical akinesia and hypercontractility of the remaining segments, suggestive of classic apical TTS (Figure 2). Plasma metanephrine levels were nor-
found, but the presence of high signal intensity areas in the T2-weighted sequences reveals frequent myocardial oedema. It seems that a search for such an oedema should be systematically performed in patients with suspected TTS [7].

Recurrent TTS is infrequent with reported relapse rates of 0.6 to 6%. Most of the patients relapse with similar patterns. Recurrent TTS with different patterns is a very uncommon situation that has been described in scarce case reports [7].

Conclusion

TTS diagnosis is a challenging situation, specially in the presence of atypical clinical variants. The diagnosis should be based on Modified Mayo clinic criteria. Primary TTS commonly affects postmenopausal elderly women. Echocardiography, coronary angiography and cardiac MRI are useful tools in the diagnosis of TTS. Prognosis of TTS is generally good in over 90% patients.

Infrequently, patients can have recurrences with different variants pattern as we shown in this case and the physicians must be familiar with this situation.

Conflicts of Interest

The authors have no conflicts of interest to disclose.

References

1. Bybee KA, Prasad A (2008) Stress-related cardiomyopathy syndromes. Circulation 118: 397-409.
2. Templin C, Ghadri JR, Diekmann J, Napp LC, Bataiosu DR, et al. (2015) Clinical features and outcomes of Takotsubo (Stress) Cardiomyopathy. N Engl J Med 373: 929-938.
3. Akashi YJ, Goldstein DS, Barbaro G, Ueyama T (2008) Takotsubo cardiomyopathy: A new form of acute, reversible heart failure. Circulation 118: 2754-2762.
4. Gupta S, Mohan M (2017) Takotsubo syndrome. Indian Heart J 70: 165-174.
5. Bathina J, Weiss S, Weintraub WS (2017) Understanding the pathophysiology of apical ballooning syndrome: a step closer. Expert Rev Cardiovasc Ther 13: 5-8.
6. Eitel I, Stiermaier T, Graf T, Moller C, Rommel KP, et al. (2016) Optical coherence tomography to evaluate plaque burden and morphology in patients with Takotsubo Syndrome. J Am Heart Assoc 5: 12.
7. Leurent G, Larralde A, Boulmier D, Fougerou C, Langella B, et al. (2009) Cardiac MRI studies of transient left ventricular apical ballooning syndrome (Takotsubo cardiomyopathy): A systematic review. Int J Cardiol 135: 146-149.