Mid-ventricular Takotsubo syndrome ‘lockdown’-related during coronavirus disease 2019 outbreak: a case report

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Takotsubo syndrome was first described in Japan in 1990 as an acute, reversible form of cardiomyopathy characterized by apical ballooning not due to coronary artery disease. Mid-ventricular and basal-ventricular variants are less common and remain poorly understood. We report an unusual case of mid-ventricular ballooning Takotsubo syndrome with an ‘out-of-the-ordinary’ emotional trigger.

A 64-year-old woman presented to our emergency room complaining of compressive chest pain. Her medical history included hypertension and dyslipidemia on appropriate medical treatment. In particular, she denied recent intense psychological stresses such as strong emotions or conditions producing fear, panic, fright or mourning. On physical examination no signs of lung congestion were found and heart evaluation was unremarkable. The laboratory showed an elevated troponin T level of 147 ng/l (normal values: <14 ng/l). Twelve-lead electrocardiography displayed regular sinus rhythm with nonspecific ST-segment alterations in the inferior leads. She was then admitted to our cardiology division because of the suspicion of non-ST-elevation myocardial infarction. A comprehensive transthoracic echocardiography was performed and, although with some technical limitations related to the quality of the patient’s acoustic window, revealed possible hypokinesia of the left ventricle (LV) mid segments with normal apical and basal contraction resulting in mild reduction of LV ejection fraction (Fig. 1). Coronary angiography and left ventriculography demonstrated normal epicardial coronary arteries and confirmed mid-ventricular ballooning with normal contraction of basal and apical segments, that is mid-ventricular Takotsubo syndrome (Fig. 2). A subsequent more accurate interrogation of the patient revealed that symptoms began just after the enforcement by the Italian government of the lockdown measures, following the coronavirus disease 2019 (COVID-19) pandemic outbreak in the Veneto Region by the middle of March 2020. Indeed, the patient acknowledged that she was feeling very anxious and worried by the risk of the COVID-19 contagion and the limitations of daily living and social activities. Therapy with beta blockers and angiotensin-converting enzyme inhibitors was introduced and supportive psychological counselling was established. A partial recovery of mid-ventricular contractility was observed early on echocardiogram just before discharge. At 6-week follow-up the patient was asymptomatic with full recovery of LV function (Fig. 3).

We report a Takotsubo case with mid-ventricular pattern in a postmenopausal woman following an unconventional stressor. The prompt recognition of this uncommon variant of Takotsubo is mandatory since it might be associated with life-threatening complications such as...
ventricular septum perforation. Nowadays, ventriculography, showing the little-known hallmark of ‘hawk’s beak’, is still essential in the differential diagnosis with the classic form of Takotsubo syndrome. The role of emotional triggers is well known in the pathogenesis of this syndrome probably due to catecholamine-induced cardiotoxicity and microvascular dysfunction, especially in postmenopausal women, as in the patient described herein. The COVID-19 pandemic has become a global health emergency and severe acute respiratory syndrome coronavirus 2 infection can eventually also affect the cardiovascular system. In this regard, several cases of COVID-19-infected patients developing Takotsubo syndrome have been reported. Furthermore, the risk of infection represents an undoubt-able stressor, which should be kept in mind in patients presenting with Takotsubo syndrome. Moreover, the public health measures of social distancing, freedom limitations, quarantine and work lockdown enforced by many governments facing the COVID-19 pandemic emergency may per se cause emotional distress, mainly in the most vulnerable patients. Indeed, a classical Takotsubo variant correlated with the pandemic anxiety in the USA has been recently published. To the best of our knowledge, this is the first case of a mid-ventricular Takotsubo form described in this historical setting in Europe. Cardiologists and healthcare providers should, therefore, be trained and sensitive regarding the psychosocial consequences of the COVID-19 pandemic.

Conflicts of interest
There are no conflicts of interest.
References