Temporary at-Rest Myocardial Perfusion Defect: A Possible Case of Takotsubo Syndrome

Broken-heart syndrome is an uncommon nonischemic cardiomyopathy with temporary myocardial infarction-like symptoms and signs with normal angiography but presumably coronary microvasculature abnormalities. The condition is a transient dysfunction and stunning of the mainly apical segments of the myocardium of the left ventricle. A major stressor is detected in the majority of the patients, who are predominantly postmenopausal females. The functional abnormalities tend to completely improve within days to months. There are metabolic changes in the myocardium confirmed by 18F-fluorodeoxyglucose positron emission tomography (18F-FDG PET), indicating the cellular dysmetabolism of glucose without significant ischemia. The underlying cause could be adrenergic denervation assessed by iodine-123-metaiodobenzylguanidine single-photon emission computed tomography (123I-mIBG SPECT). The ischemic component of the condition has been suggested by myocardial perfusion imaging (MPI) in a few cases.

We performed a 2-day stress and rest MPI with technetium sestamibi (99mTc-MIBI) for a diabetic woman aged 52 years. She was consulted for cardiac risk assessment. The stress was performed pharmacologically via a slow infusion (4 min) of 0.56 mg/kg of dipyridamole for the first-day study. There was no remarkable abnormality at stress MPI, with normal myocardial motion and contractility and a normal left ventricular ejection fraction. On the next day, rest MPI presented significant perfusion defects at the anterior, anteroseptal, and apical myocardial walls (Figure 1). The

Figure 1. Myocardial perfusion single-photon emission computed tomography of a 52-year-old patient with temporary at-rest perfusion defects (Takotsubo syndrome); normal stress (dipyridamole), perfusion defect at the anterior, anteroseptal, and apical myocardial walls at rest (99mTc-MIBI) and normal 1 week’s delayed repeat rest images (Tl-201).
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