Expect the (un)expected: a hazardous cause of tako-tsubo cardiomyopathy

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A 67-year-old female was admitted to our hospital exhibiting chest pain and dyspnea that occurred immediately after an exercise-induced syncope. A priori the clinical symptoms, ECG (Panel A), and myocardial biomarkers were indicative for an acute coronary syndrome (troponin I: 7.35 ng/mL). Coronary angiogram ruled out both coronary artery disease and coronary vasospasm. Surprisingly, however, an abnormal origin of the left main coronary artery (LMCA, arrowheads), arising from the right coronary sinus, sharing a common ostium with the right coronary artery (RCA), became apparent (Panel B1, Supplementary material online, Video S1). Left ventricular (LV) angiogram (Panel B2, and Supplementary material online, Video S2) and magnetic resonance imaging (MRI; Supplementary material online, Video S3) demonstrated apical ballooning and basal hyper-contractility (Panel C); ejection fraction (EF) of 40%. Magnetic resonance imaging further uncovered an apical LV thrombus (Panel C, *) and showed no myocardial late gadolinium enhancement. Computed tomography unravelled the course of the LMCA, sharing an ostium with the RCA, running between the posteriorly aorta (Ao) and anteriorly pulmonary trunk (PT) (Panels D1 and D2). Complete normalization of LV function (EF 60%) was documented 2 weeks after admission, confirmed by MRI. Owing to the well-known severe prognosis of this coronary anomaly, exhibiting an increased risk for sudden cardiac death, coronary artery bypass grafting was successfully performed. Global myocardial ischaemia by exercise-induced mechanical compression of the LMCA along its course between the PT and ascending Ao might be a hazardous, ‘non-idiopathic’ cause of tako-tsubo cardiomyopathy other than stress-induced, catecholamine mediated coronary vasospasm.

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