Mitral annular disjunction – one more cause of myocardial infarction with non-obstructive coronary arteries?

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Introduction: Mitral annular disjunction (MAD) is a structural abnormality defined as the separation of the ventricular myocardium between the mitral valve annulus and the left atrial wall during systole. Multiple studies have demonstrated a high prevalence of MAD in the setting of myxomatous mitral valve disease. MAD has exceedingly variable clinical course that patients may present with. It has been associated with a risk of malignant ventricular arrhythmias and sudden cardiac death, consequently recognition of this diagnosis and risk stratification are greatly important.[1,2]

Case report: 23-year-old male with a history of myxomatous mitral valve disease was admitted to Cardiology Department because of 90 minutes long chest pain. High-sensitive troponin was mildly elevated (307 ng/L), same as NTproBNP (1077 n/L). Inflammation parameters and D-dimer were normal. CT coronary angiography excluded obstructive coronary artery disease (CAD). A transthoracic echocardiogram (TTE) showed normal left ventricular ejection fraction and evidence of Barlow disease with a mild to moderate mitral regurgitation (MR). Additionally, cardiac event monitoring showed no ventricular arrhythmias. Hospitalisation was uneventful, and he was discharged with a diagnosis of myocardial infarction with non-obstructive coronary arteries (MINOCA) with an instruction to do a heart CMR (myocarditis was suspected). CMR showed no signs of oedema or myocardial fibrosis, but it did describe a few crypts in the basal inferoseptal segments of the left ventricle (**Figure 1**). The missing puzzle was found one year later, when an evaluation TTE described moderate bileaflet mitral valve prolapse (MVP) and prominent MAD, measuring 8 mm in end-systole, together with earlier known mild-moderate MR (**Figure 2**). On outpatient follow-up, he has no therapy and has not had further chest pain.

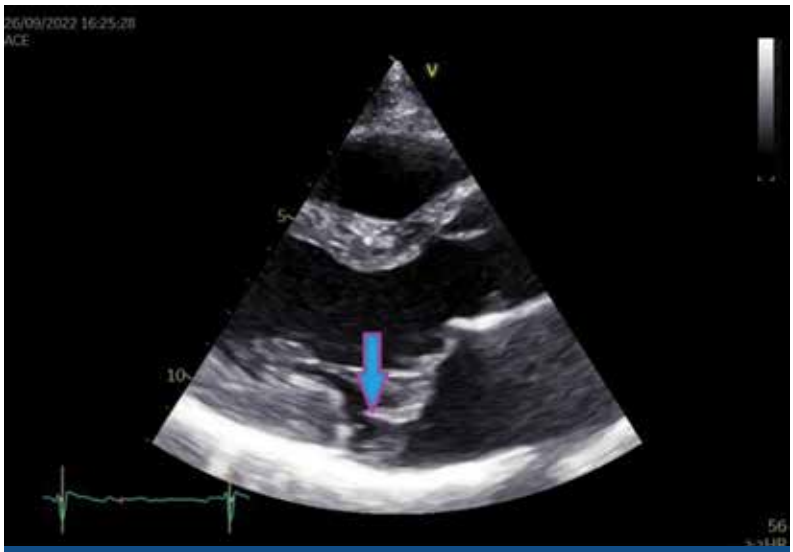

FIGURE 1. TTE parasternal long axis demonstrating scallop billowing and mitral annular disjunction (blue arrow).

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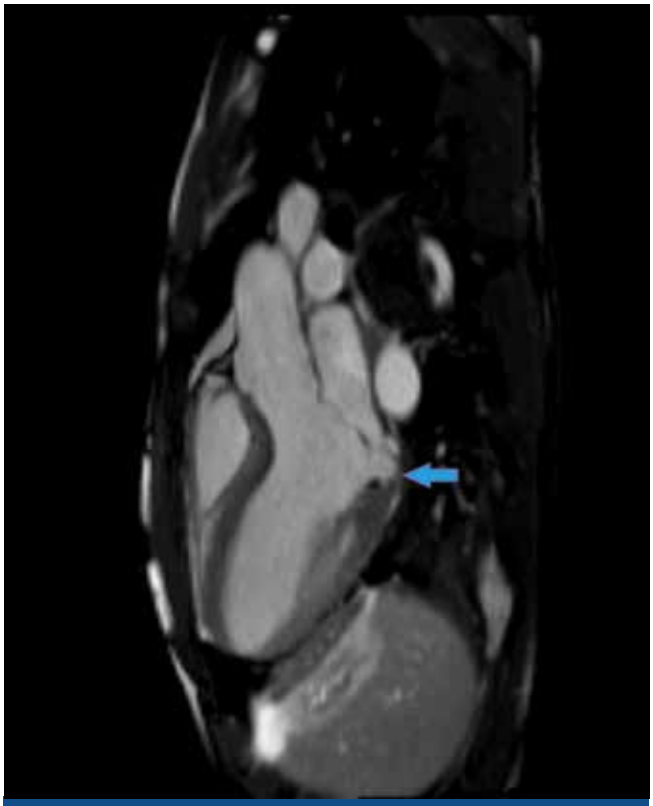

FIGURE 2. Steady-state free precession cine sequence, 3ch view. Separation of posterior mitral valve leaflet insertion and left ventricle myocardium of >5 mm. Mitral annular disjunction (blue arrow).

Conclusion: Although MAD is easy to diagnose, it can be overlooked in daily practice, like it happened in our case. The authors speculate that MVP and MAD were aetiology of MINOCA, and it should be considered in the work-up. The current guidelines recommend implantable cardioverter defibrillator (ICD) for secondary prevention, but the role of primary prevention ICD in MVP and MAD is unclear and decisions should be made on an individual basis.[3] Providing the case, we wanted to increase the awareness of this anatomic variation of the mitral valve.

LITERATURE

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