Efficacy of Magnetic Resonance Coronary Angiography

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A 70-year-old man was diagnosed with transient ischemic attack, and a vulnerable plaque was observed in his carotid artery; hence, he was considered a vulnerable patient. Cardiac magnetic resonance angiography (MRA; Philips 3T Ingenia Elition X) was performed because the patient's electrocardiogram findings revealed an abnormal Q wave without any chest symptoms. The patient's cardiac MRA showed severe stenosis in the left circumflex branch (**Figure A**). Furthermore, non-contrast T₁-weighted images (black blood) revealed high-intensity plaques (**Figure B**). The plaque-to-myocardial signal intensity ratio (PMR) was 4.00. Computed tomography (CT) of the heart at the same site revealed severe stenosis and positive remodeling. Later, coronary angiography demonstrated severe stenosis of the left circumflex branch (**Figure C**).

Cardiac magnetic resonance imaging (MRI) is a non-invasive technique that can be expected to produce images comparable to those of cardiac CT,¹ and can identify

vulnerable plaques. It has been reported that the rate of development of acute coronary syndrome within 2 years is 11% for patients with a PMR of ≥ 1.4 .² In the present case, the region of interest value was almost the same on cardiac CT, and plaque instability could not be identified; however, this suggests that MRI examinations are beneficial.

References

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Figure. (A) Cardiac magnetic resonance angiography images. Severe stenosis is observed in the left circumflex branch (arrowheads). (B) Non-contrast T₁-weighted image (black blood) findings. Note the high-intensity plaque. The plaque-to-myocardial signal intensity ratio was 4.00. (C) Cardiac computed tomography images showed severe stenosis at the left circumflex artery (arrowheads).