A 73-year-old diabetic man underwent multislice computed tomography (MSCT) and noncontrast T1-weighted (T1W) magnetic resonance imaging (MRI) for the evaluation of atypical chest discomfort after an exercise ECG was nondiagnostic. The MSCT demonstrated a low-density positive remodeling plaque and spotty calcification without significant stenosis in the proximal segment of the right coronary artery (Figure 1A and 1B). Noncontrast T1W MRI, using a 1.5-T MR system (Intera, Philips Medical Systems, Best, the Netherlands), revealed a hyperintense plaque (HIP) in the right coronary artery in an area corresponding to the plaque visualized by MSCT (Figure 1C and 1D). With clear evidence of atherosclerotic disease, the patient was given glimepiride and voglibose with recommendations for strict diet therapy for treatment of diabetes mellitus; he continued to take aspirin. One year after these examinations, the patient presented with sudden-onset crushing chest pain at our emergency room. Despite the modifications to his medications, his coronary risk factors had not improved (hemoglobin A1c, 7.1–6.4%, low-density lipoprotein cholesterol, 124–110 mg/dL; high-density lipoprotein cholesterol, 34–32 mg/dL). On admission, an ECG showed ST-segment elevation in leads II, III, and aVF. Emergent coronary angiography revealed an obstructive lesion in the proximal segment of the right coronary artery in a region corresponding to the HIP previously identified by MRI (Figure 2A). Intravascular ultrasound confirmed extensive attenuation (Figure 2B) at that segment, and a bare metal stent was successfully implanted with a distal protection device. After stent implantation, a large amount of debris was collected.

Recently, Kawasaki et al1 reported that the presence of HIP on noncontrast T1W MRI is associated with positive coronary remodeling, low CT density, and ultrasound attenuation by MSCT or intravascular ultrasound. However, it is unknown whether HIP has a greater potential for plaque rupture and subsequent acute coronary syndrome. To our knowledge,
this is the first report documenting the progression of HIP to acute coronary syndrome. Thus, HIP detected by noncontrast T1W MRI has the potential to identify vulnerable coronary lesions.

Disclosures

None.

Reference

Hyperintense Plaque With Noncontrast T1-Weighted Magnetic Resonance Coronary Plaque Imaging Leading to Acute Coronary Syndrome

Atsushi Tanaka, Tomohiro Kawasaki, Teruo Noguchi, Shoichi Koga, Yoshihiro Hiramatsu, Takaya Fukuyama and Nobuhiko Koga

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