A 47-year-old man came to Siriraj hospital with anginal pain for 2 days. ECG showed ST elevation in leads V1-V4. He had no post myocardial infarction (MI) angina and no other MI complications. Coronary angiogram was performed in this patient and the result showed 90% occlusion of mid left anterior descending artery (LAD) just after origin of first diagonal branch. Cardiac magnetic resonance imaging (MRI) to assess myocardial viability of LAD territory. Delayed-enhancement cardiac MRI (Figure 1) demonstrated transmural scar of septum at apical and mid levels and inferior wall at apical level. Scar from delayed-enhancement technique was white due to delayed wash-in and wash-out of gadolinium and increased volume of distribution of gadolinium by impaired cell membrane permeability. The interesting finding was that there was hypoenhanced area within scar tissue in septal wall as shown by the black arrows. This hypoenhanced area reflected ‘No-reflow phenomenon’. This phenomenon resulted from microvascular obstruction. Moreover, it has been purposed as a mechanism of myocardial infarct extension, and has a negative prognostic impact in patients with acute MI. Delayed enhancement MRI has been demonstrated as the best method for infarct demonstration. There is also a very good correlation between microvascular obstruction and MRI, seen as hypoenhanced area due to absence of myocardial blood flow. The best MRI method for demonstration of no-reflow phenomenon is contrast enhancement technique. However, there is no definite data to identify the ideal delay time after contrast injection at present. Because microvascular obstruction decreases over time after contrast, the most appropriate time is 1 minute after contrast from many reports. Microvascular obstruction has significant impact in reperfused acute MI since 20-50% of acute MI patients treated with angioplasty develop this phenomenon with deleterious effects on prognosis (1-3).

References