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The evaluation on acute coronary syndrome with optical coherence tomography

¹Matsue Red Cross Hospital

Fumiyo Tsunoda¹, Nobuo Shiode¹, Kinya Shiota¹, Yasuko Kato¹, Mai Fujiwara¹

Background: The most common cause of abrupt occlusion of a coronary artery is the rupture of a vulnerable plaque. Several intravascular ultrasound (IVUS) studies have reported the incidence of plaque rupture in the acute coronary syndrome (ACS) patients. The high resolution of optical coherence tomography (OCT) may allow us to assess the more precise mechanism of abrupt occlusion of coronary artery in ACS patients. **Method:** March 2008 and July 2009, 32 ACS patients underwent emergent coronary intervention. The culprit lesions were observed with OCT just after thrombectomy by aspiration catheter. The plaque rupture in culprit lesion was observed in 19 patients (19 lesions) (group A) but was not observed in 12 patients (13 lesions) (group B). **Results:** In baseline patient characteristics, dyslipidemia and smoking were more prevalent in group A. The intracoronary thrombus was observed in more than 90% of patients in both groups. The thin-cap fibroatheroma (TCFA) in culprit lesion tended to be observed more frequently in group A than group B (68% vs. 39%). The multiple plaque rupture was observed in 32% of group A. **Conclusion:** TCFA were observed more frequently in ACS patients with plaque rupture, which suggested that another plaque rupture might cause ACS. OCT allowed us to assess intravascular information in detail such as small plaque rupture and TCFA.