

Coronary Plaque Erosion: In vivo Diagnosis and Potential Management Paradigm Shift

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Three major underlying mechanisms for acute coronary syndromes (ACS) and sudden cardiac death include plaque rupture, plaque erosion, and calcific nodule. Plaque rupture has been well characterized both ex vivo and in vivo. Although plaque erosion is responsible for 30-40% of these cases, an in vivo diagnosis had not yet been possible, partly due to the lack of a diagnostic modality. With the recent introduction of high-resolution intravascular optical coherence tomography (OCT), several studies have demonstrated that it is now possible to make a diagnosis of plaque erosion in patients with ACS.

Coronary plaque erosion has three unique characteristics: (1) vascular integrity is better preserved, (2) lumen is larger, and (3) platelets appear to play a critical role. Currently the majority of patients with ACS are treated with coronary stenting regardless of underlying pathology. This is against the current trend towards individualized and/or tailored therapy. On the basis of these recent findings, it is conceivable that effective antithrombotic therapy will be preferable over the current stenting approach.

Recent findings on longer term follow up of stenting on an eroded plaque and the results of a recently completed study will be discussed.