ABSTRACT

Thin fibrous cap atheroma with a high lipid content is the most common morphological substrate for acute coronary syndrome. Lipid content can be reliably determined by near infrared spectroscopy (NIRS) imaging. Optical coherence tomography (OCT) is a commonly available morphological imaging method in the guidance of coronary interventions. In our study, we examined a single coronary lesion in patients with acute coronary syndrome using both OCT and NIRS. Based on OCT, we performed a detailed morphological analysis using semi-automated software. Using NIRS, we determined the lipid content of each lesion. In the first part of the study, we used noninvasive CT coronary angiography to detect the progression of atherosclerotic plaques between the first and second year after the initial examination and attempted to demonstrate that morphological characteristics and lipid content of plaques were risk factors for plaque progression. In the second part of the study, we assessed the ability of detailed morphological analysis based on OCT examination to identify the lipid content of plaques using NIRS as a reference method. We observed no significant linear correlation when assessing the relationship between morphological parameters and plaque volume progression. In the analysis of plaque lipid content, morphological parameters were strongly correlated with lipid content by NIRS. Our results show that detailed morphological analysis of coronary plaques can be reliably used to detect lipid content