

IMAGES IN INTERVENTION

Optical Coherence Tomographic Features of Unstable Coronary Lesions Corresponding to Histopathological Intraplaque Hemorrhage Evaluated by Directional Coronary Atherectomy Specimens



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Intraplaque hemorrhage (IPH) has been reported to be one of the causes of atherosclerotic plaque progression and acute coronary syndrome, in which intravascular ultrasound images showed greater plaque burden and echolucent region corresponding to histopathologic IPH (1). However, the typical appearance of IPH on optical coherence tomography is unknown.

The patient was a 54-year-old man diagnosed with unstable angina. Coronary angiography revealed a significant stenosis of the proximal left anterior descending coronary artery. Percutaneous coronary intervention was performed by using directional coronary atherectomy following multimodality intracoronary preprocedural imaging (Figure 1). Intracoronary images with 60-MHz intravascular ultrasound showed a superficial crescent-shaped echolucent plaque, which was distinguished from adjacent calcification. Optical coherence tomographic images also revealed a clearly bordered, crescent-shaped

low-signal region adjacent to the calcification. Pathological examination of the specimen including the aforementioned crescent-shaped region obtained with directional coronary atherectomy showed a hemorrhage with macrophage accumulation within fibrous tissue. Because pathological findings did not exhibit disintegration of neutrophil nucleus or hemosiderin deposition, this IPH was considered to be an early stage after hemorrhage.

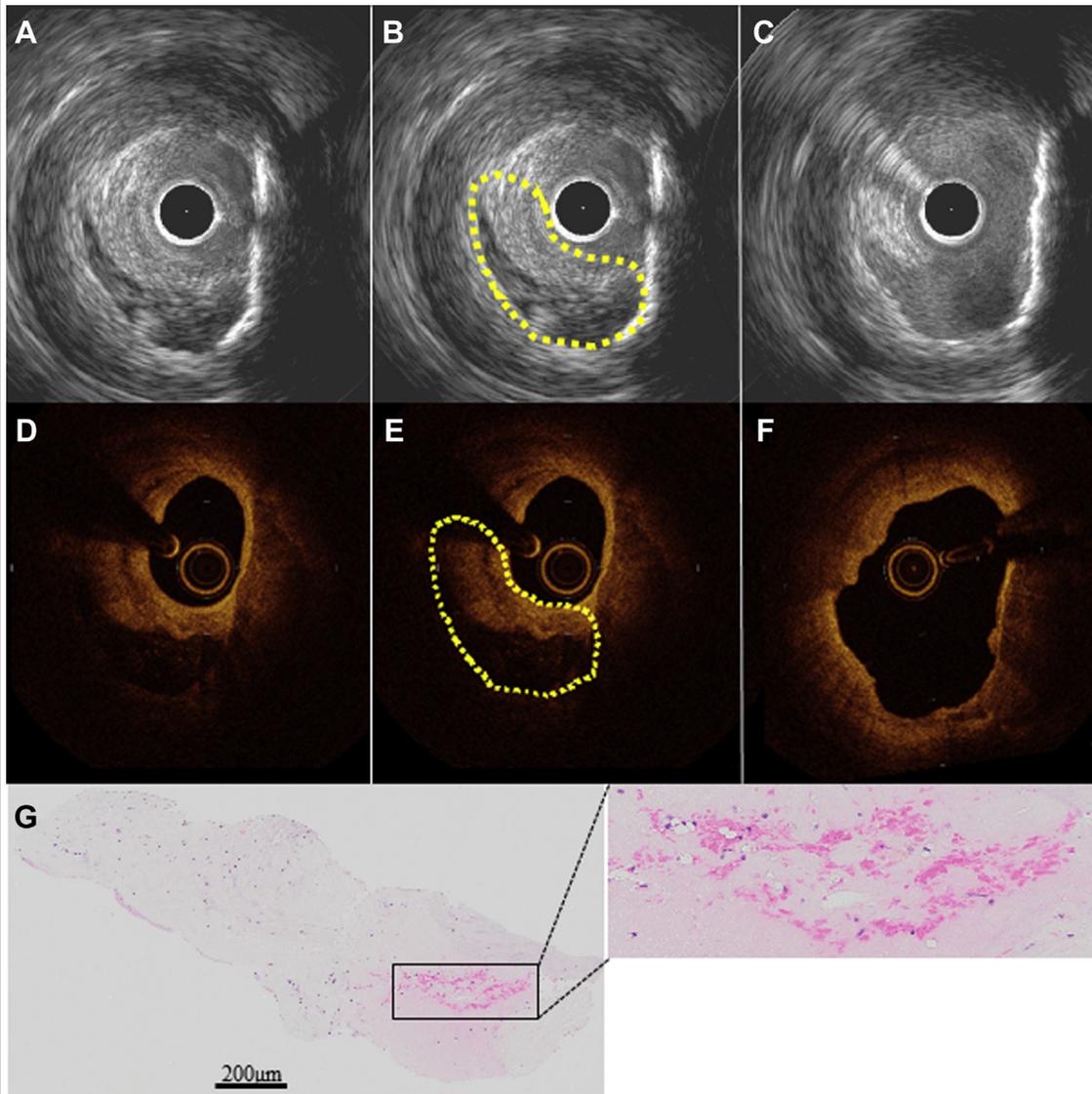
This is the first description of optical coherence tomographic assessment of IPH, which was validated by typical intravascular ultrasound features of an echolucent region and histopathologic IPH validation.

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FIGURE 1 Intraplaque Hemorrhage on IVUS and OCT Images Corresponding Pathological Images



(A) Pre-procedural 60-MHz intravascular ultrasound (IVUS) image. (B,E) Area of tissue removed by directional coronary atherectomy (DCA) (yellow broken line) on IVUS and optical coherence tomographic (OCT) images. (C,F) Images on IVUS and OCT imaging after tissue removal by DCA. (D) Pre-procedural OCT image. (G) Pathological findings of the specimen by DCA.

REFERENCE

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