Intravascular Ultrasonic Imaging of Vulnerable Plaque in a Bare Metal Stent 10 Years After Implantation

Kanae Hasegawa, MD; Masahiro Ito, MD; Masato Oda, MD; Satoru Hirono, MD; Takuya Ozawa, MD; Komei Tanaka, MD; Hiroaki Obata, MD; Makoto Kodama, MD; Yoshifusa Aizawa, MD

A 77-year-old woman was admitted to our hospital with unstable angina pectoris. She was previously diagnosed as having both mitral valve regurgitation and aortic valve stenosis and underwent surgery for replacement of both valves when she was 61 years of age. At 66 years of age, she was admitted to our hospital for angina pectoris and underwent implantation of a bare metal stent (BMS; 3.5×15 mm, Multilink, Guidant, Santa Clara, Calif) at the proximal left anterior descending coronary artery. Her coronary angiogram 5 years after BMS implantation showed no restenosis, and her clinical course was uneventful thereafter. As coronary risk factors, she had hypertension, dyslipidemia, and diabetes mellitus, which had been controlled well with medication, including statin.

After admission, coronary angiography revealed in-stent restenosis in the left anterior descending coronary artery. Intravascular ultrasound (Atlantis SR Pro², Boston Scientific Corp, Natick, Mass) (the Figure, A through G) showed that the stent was fully expanded without malapposition. Inside the stent, intravascular ultrasound demonstrated crescent-shaped vulnerable plaque consisting of a large lipid core with a thin fibrous cap (the Figure, C and D, and Movie I in the online-only Data Supplement). At the distal edge of the plaque, there was a ruptured plaque accompanied by a mural thrombus (the Figure, E and F). Coronary balloon angioplasty was performed with a cutting balloon, resulting in protrusion of the contents of the plaque and dissecting flaps, which were bailed out with the deployment of an additional stent.

Neointimal proliferation within BMS generally reaches its peak around 6 months after implantation. Once the stent is covered with neointima, the stented target lesion remains clinically stable. Here, we described a patient with unstable angina pectoris caused by the rupture of vulnerable plaque that had formed within the BMS 10 years after implantation. Of note, her coronary angiography 5 years after stenting demonstrated no restenosis. Neointima inside the stent can become a substrate for an atherogenic process, which may lead to a cardiovascular event even a long time after BMS implantation.

Disclosures

None.

Figure. Coronary angiography and intravascular ultrasound imaging inside BMS. A pullback system from the distal coronary artery showed neointima. A, Proximal edge of the stent. B through D, Vulnerable plaque with a fibrous cap. E and F, Site of plaque rupture accompanied with a mural thrombus. G, Distal edge of the stent.
Intravascular Ultrasonic Imaging of Vulnerable Plaque in a Bare Metal Stent 10 Years After Implantation

Kanae Hasegawa, Masahiro Ito, Masato Oda, Satoru Hirono, Takuya Ozawa, Komei Tanaka, Hiroaki Obata, Makoto Kodama and Yoshifusa Aizawa

Circulation. 2010;122:1341
doi: 10.1161/CIRCULATIONAHA.110.969840

Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2010 American Heart Association, Inc. All rights reserved.
Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/122/13/1341

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation is online at:
http://circ.ahajournals.org//subscriptions/