



Case Report

Coronary angioscopic imaging of in-stent restenosis after biolimus-eluting coronary stent implantation



Shigenori Ito (MD, PhD, FJCC)*, Tomoaki Saeki (MD, PhD)

Division of Cardiology, Nagoya City East Medical Center, Nagoya, Japan

ARTICLE INFO

Article history:

Received 13 April 2015

Received in revised form 3 June 2015

Accepted 8 June 2015

Keywords:

Drug-eluting stent

Intravascular ultrasound

Optical coherence tomography

Coronary angiography

In-stent restenosis

Imaging

ABSTRACT

A 69-year-old man underwent repeat percutaneous coronary intervention for in-stent restenosis in the obtuse marginal artery 8 months after biolimus-eluting stent (2.5 × 28 mm Nobori stent, Terumo, Tokyo, Japan) implantation. Coronary angiography showed focal stenosis in the distal part of the stent. Intravascular ultrasound revealed low echoic heterogeneous intimal tissue. Optical coherence tomography also revealed a heterogeneous finding classified as a layered pattern. Coronary angiography detected a white mass with a paste-like appearance at the stenosis extending around the in-stent restenosis as a thin membrane where stent strut could be seen transparently. A small part of the mass was swinging in the blood stream. Coronary angioscopic imaging was beneficial for the understanding of the suspected mechanism and feature of the in-stent restenosis after second-generation stent implantation, which was apparently different from neointimal hyperplasia after bare-metal stent implantation.

<Learning objective: The learning objectives of this case report include understanding the mechanism of in-stent restenosis after second-generation drug-eluting stent implantation by showing the coronary angioscopic imaging beyond the other intravascular imaging. In particular, this case can make the general and interventional cardiologists learn that the mechanism of in-stent restenosis <1 year is different from that after bare-metal stent implantation.>

© 2015 Japanese College of Cardiology. Published by Elsevier Ltd. All rights reserved.

Introduction

The use of drug-eluting stents (DES) has dramatically decreased the restenosis rate. However, despite DES implantation, restenosis still occurs at an incidence rate of 5–10%. The mechanism of in-stent restenosis (ISR) might differ between DES and bare-metal stents (BMS) potentially because of the polymer or drug on the stent strut in DES. The mechanism of ISR after biolimus-eluting stent (BES) implantation, a second-generation stent, is not well known. We experienced a case of ISR 8 months after BES implantation that could be evaluated by coronary angiography (CAS) besides intravascular ultrasound (IVUS) and optical coherence tomography (OCT).

Case report

A 69-year-old man underwent coronary angiography for angina pectoris. His medical history included old anteroseptal and inferior

myocardial infarction, vasospastic angina, chronic atrial fibrillation, type 2 diabetes mellitus, and dyslipidemia. He had undergone percutaneous coronary intervention (PCI) for the coronary stenoses in the left anterior descending coronary artery (LAD) and obtuse marginal artery (OM) 8 months previously. A BES was implanted for a calcified lesion in the LAD after rotational ablation (Nobori 2.5 × 28 mm, Terumo, Tokyo, Japan) and for the tandem lesion in the OM after balloon pre-dilatation (Nobori 2.5 × 28 mm) (Fig. 1a and b). After 8 months the angina pectoris recurred and he underwent coronary angiography and an ISR was detected in the Nobori stent implanted in the OM. On angiographic examination, the ISR was morphologically eccentric and focal (lesion length 7.7 mm) in the distal part of the stent, where minimal lumen diameter (MLD) existed at baseline (Fig. 1c). No ISR was observed in the LAD. His medication included aspirin 100 mg, clopidogrel sulfate 75 mg, warfarin 2 mg, benidipine hydrochloride 4 mg, diltiazem hydrochloride R 100 mg, atorvastatin calcium hydrate 10 mg, isosorbide dinitrate 40 mg, sitagliptin phosphate hydrate 50 mg, and voglibose 0.9 mg per day at the time of PCI for ISR. Dual antiplatelet therapy was maintained after index PCI. Two months later, he underwent balloon angioplasty for the ISR by using a 2.5 × 13 mm cutting balloon followed by a paclitaxel-eluting balloon SeQuent Please® (2.5 × 26 mm; B. Braun, Melsungen,

* Corresponding author at: Division of Cardiology, The Junshukai Medical Foundation Higashiyama Clinic, 5-103 Higashiyama-dori, Chikusa-ku, Nagoya-shi, Aichi-ken 464-0807, Japan. Tel.: +81 52 781 1235; fax: +81 52 789 7000.

E-mail address: shigeito918@gmail.com (S. Ito).

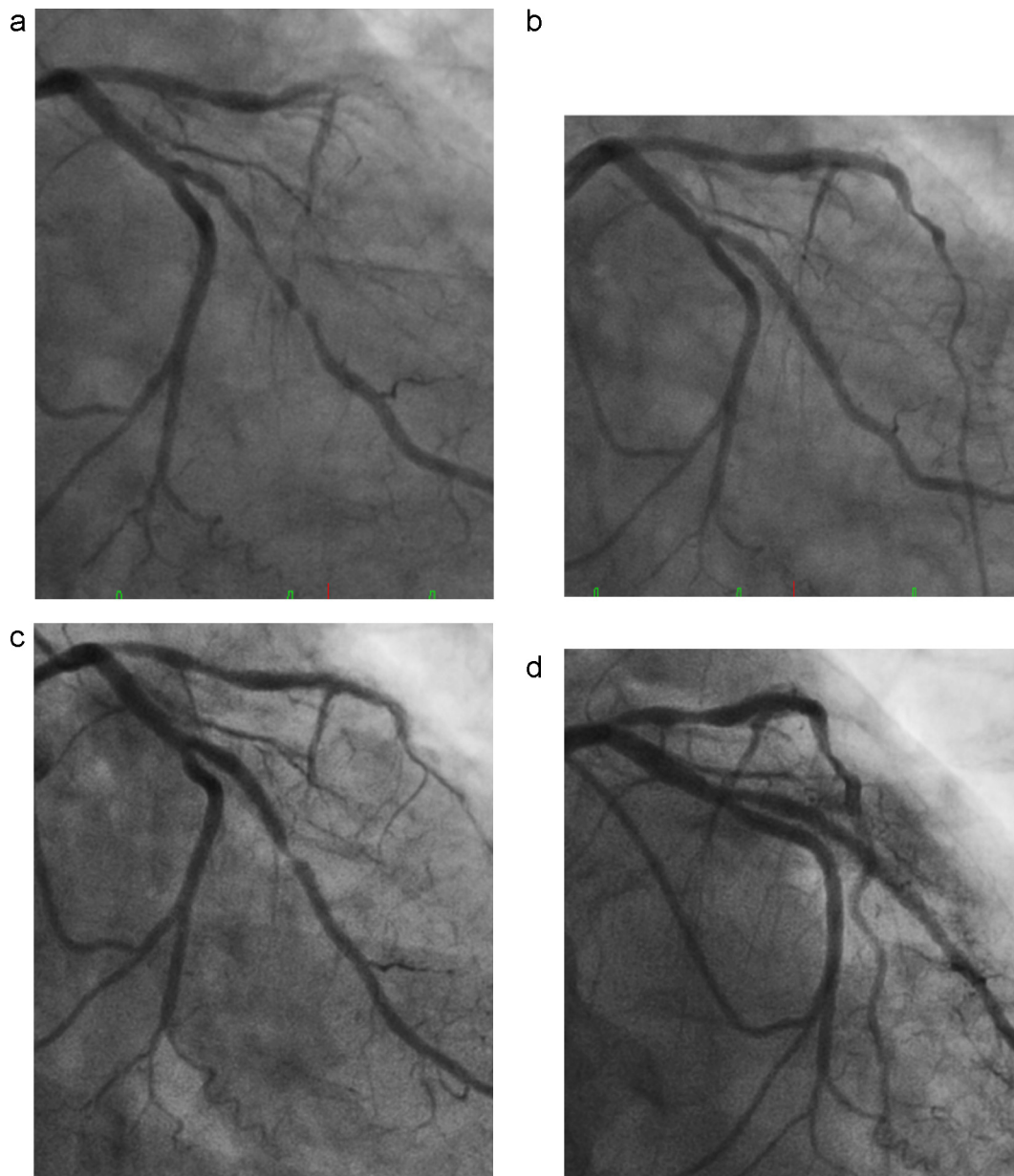


Fig. 1.

Coronary angiograms. (a) Before index percutaneous coronary intervention (PCI). A tandem lesion in the obtuse marginal artery was found. No calcification or thrombus was detected. (b) After index PCI. Good result was obtained after 2.5×28 mm Nobori stent implantation. (c) At follow-up. Focal in-stent restenosis was detected in the distal part of the previously deployed Nobori stent in a minimal lumen diameter site. (d) After cutting balloon dilatation followed by paclitaxel-eluting balloon OptiCross[®] (2.5×26 mm). Stent-like result was found with no dissection or thrombus.

Germany) under IVUS (OptiCross[™] coronary imaging catheter, Boston Scientific Corp., Natick, MA, USA), OCT (Ilumen[™] OCT Imaging System, St. Jude Medical Inc., St. Paul, MN, USA), and CAS guidance (Smart-i[™], iHeartmedical, Tokyo, Japan). No improvement in angiographic findings was observed in the follow-up angiography. IVUS revealed a heterogeneous low echoic plaque with a little lower echogenicity near the stent struts (Fig. 2a). OCT (Fig. 2b) revealed a heterogeneous intimal hyperplasia component (classified as layered [1]). Delayed healing and inter-strut halo in the stent were observed in the area without ISR (Fig. 2c). CAS showed a white mass that looked like paste extending around ISR as a thin membrane where stent strut could be seen transparently (Fig. 3a and b). A small part of mass was swinging in the blood stream (Fig. 3c). The intensity of the intimal hyperplasia on IVUS and OCT is apparently lower than that usually found in ISR after BMS implantation, which usually shows homogenous high

intensity. Neointimal tissue could be easily dilated at 6 atm. The OCT finding after cutting balloon dilatation showed no residual plaque or intimal flaps in the stent indicating that the plaque was detached and flown away distally after balloon dilatation (Fig. 2d). We decided to treat this lesion with a paclitaxel-eluting balloon SeQuent Please[®], not with a stent, based on its stent-like result. Final coronary angiograms showed excellent results without any residual stenosis or slow flow/distal embolism (Fig. 1d).

Discussion

In this case, we demonstrated an interesting CAS image suggesting the mechanism of ISR after BES stent implantation.

This finding in association with IVUS and OCT images is different from that of ISR after BMS implantation, where intimal

Download English Version:

<https://daneshyari.com/en/article/5984394>

Download Persian Version:

<https://daneshyari.com/article/5984394>

[Daneshyari.com](https://daneshyari.com)