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Angioscopic imaging one month after the implantation of a drug-eluting stent following drug-coated balloon treatment

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To the Editor:

A drug-coated balloon (DCB) is usually considered as a treatment option not only for in-stent restenosis but also for native coronary artery disease, with the aim to reduce the amount of metal within the coronary wall. When the results of DCB are not acceptable due to factors such as flow-limiting coronary dissection or severe residual stenosis, stent implantation may be performed after DCB treatment. However, the implantation of a drug-eluting stent (DES) may increase fibrin deposition due to drug effects from both the DES and DCB [1,2]. We herein report the angioscopic findings at one month after DES placement following DCB treatment.

A 61-year-old man complaining of dyspnea was admitted to our hospital due to heart failure (NYHA class IV) with a reduced left ventricular function (ejection fraction = 17%). Coronary angiography revealed two-vessel disease in the left anterior descending artery (LAD) and right coronary artery (RCA). Due to the presence of diffuse coronary artery disease (Fig. 1A), we planned to treat the diffuse lesion in the proximal LAD using a DCB. Pre-dilatation with a cutting balloon (NSE® 2.5/9 mm) was tolerable without showing severe coronary dissection or residual stenosis. However, after DCB treatment (paclitaxel-coated balloon; Sequent Please® 2.75/26 mm, 2.5/15 mm) flow-limiting coronary dissection occurred in the mid-segment of the LAD (Fig. 1B). Thus, an additional stent (everolimus-eluting stent; Xience Alpine® 2.5/28 mm) was implanted at the site of the coronary dissection. One month later, staged percutaneous coronary intervention (PCI) to the RCA was performed. After successful PCI, we additionally confirmed the

patency of the LAD by angiography (Fig. 1C). We also observed the proximal LAD by optical frequency domain imaging (OFDI) and angioscopy to evaluate arterial healing. The overlapping portions of the DCB and DES showed some degree of fibrin deposition by angioscopy (Fig. 1D and Supplement). The struts were not well-covered on OFDI observation (Fig. 1E).

As expected, the healing speed after DES + DCB seemed to be slower than that after DES alone [3]. In such cases, the duration of dual antiplatelet therapy (DAPT) should not be shorter than the duration recommended in the current guidelines although there is a trend regarding the shortening of the duration of DAPT after current-generation DES implantation [4,5].

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijcha.2018.10.007>.

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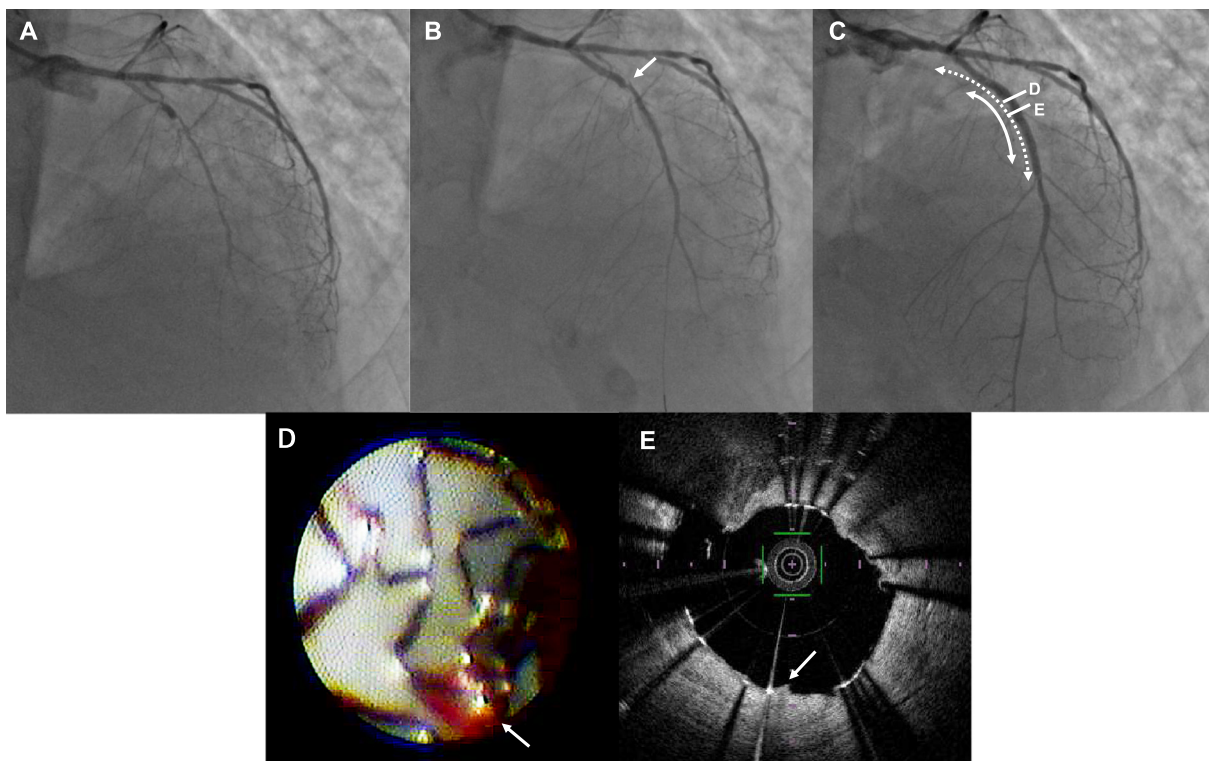


Fig. 1. A shows the findings of coronary angiography before stent implantation. B shows the findings of coronary angiography following DCB treatment. The arrow with a solid line shows the location of coronary dissection. C shows the coronary angiography findings one month after stent implantation. The double-headed arrow with a solid line shows the location of the stent, while the double-headed arrow with a dotted line shows the location of the drug-coated balloon treatment. D and E show the angioscopic and OFDI findings taken from the lined portion in C. Arrows in D and E suggest fibrin deposition.