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Letter to the Editor

Spontaneous resolution of multiple coronary aneurysms complicating drug eluting stent implantation

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Abstract

Recent reports of coronary aneurysm formation after drug eluting stent implantation have emerged. Although various treatment modalities have been proposed, minimal data is available relating to their natural history and optimal management. We present a case of aneurysm formation in the left anterior descending and right coronary arteries after stenting with paclitaxel-eluting stents. Coronary bypass grafting of the left anterior descending and circumflex coronary arteries was subsequently required. Repeat angiography (16 months later) showed complete resolution of both coronary aneurysms. Spontaneous resolution of potentially drug eluting stent-related coronary aneurysms is documented. This phenomenon may have therapeutic implications.

Keywords: Drug eluting stent; Coronary aneurysm; Malapposition

1. Case report

A 50 year old man underwent coronary angiography for unstable angina and was found to have significant stenoses in the mid-left anterior descending (LAD) (Fig. 1A), proximal first obtuse marginal (OM1) and mid-right coronary arteries (RCA) (Fig. 3A). The LAD artery was directly stented using a 6F 3.5 XB guiding catheter (Cordis, Miami Lakes, Florida, USA), a 0.014 inch Balance Middleweight (BMW) wire (Guidant Inc. Indianapolis U.S) and a 3.0 mm × 20 mm Taxus-Express (Boston Scientific, Natick, Massachusetts) stent deployed at 10 atm and post-dilated using a 3.0 × 8 mm Powersail (Guidant Corp., Indianapolis, Indiana) balloon at 14 atm (Fig. 1B). On the following day, the RCA lesion was stented using JR4 guiding catheter (Cordis, Miami Lakes, Florida, USA), a 0.014 inch BMW wire and 3.5 mm × 20 mm Taxus-Express stent (deployed at 12 atm) and post-dilated with a 4.0 mm × 8 mm Powersail balloon at 14 atm. A satisfactory result was obtained in both lesions with no residual stenosis, dissection or evidence of aneurysm formation (Figs. 1B and 3B).

The patient returned 4 weeks after his initial presentation for staged percutaneous intervention (PCI) to the OM1 lesion. Coronary angiography revealed an aneurysm within the LAD stented segment (Fig. 1C). Intravascular ultrasound (IVUS) examination of the LAD using a 2.9 Fr, 30 MHz UltraCross IVUS catheter (Boston Scientific/Scimed, Maple Grove, Minnesota) confirmed the presence of aneurysmal dilatation with a cross-sectional area of 19.7 mm^2 (compared to 7.1 mm^2 of the stented lumen). The aneurysm was confined to the stented segment (Fig. 1D). IVUS examination also confirmed moderate stenosis at the proximal edge of the LAD stent. Early aneurysm formation was also noted within the RCA stented segment (Fig. 3C). PCI to the OM artery was deferred mostly due to concern regarding a

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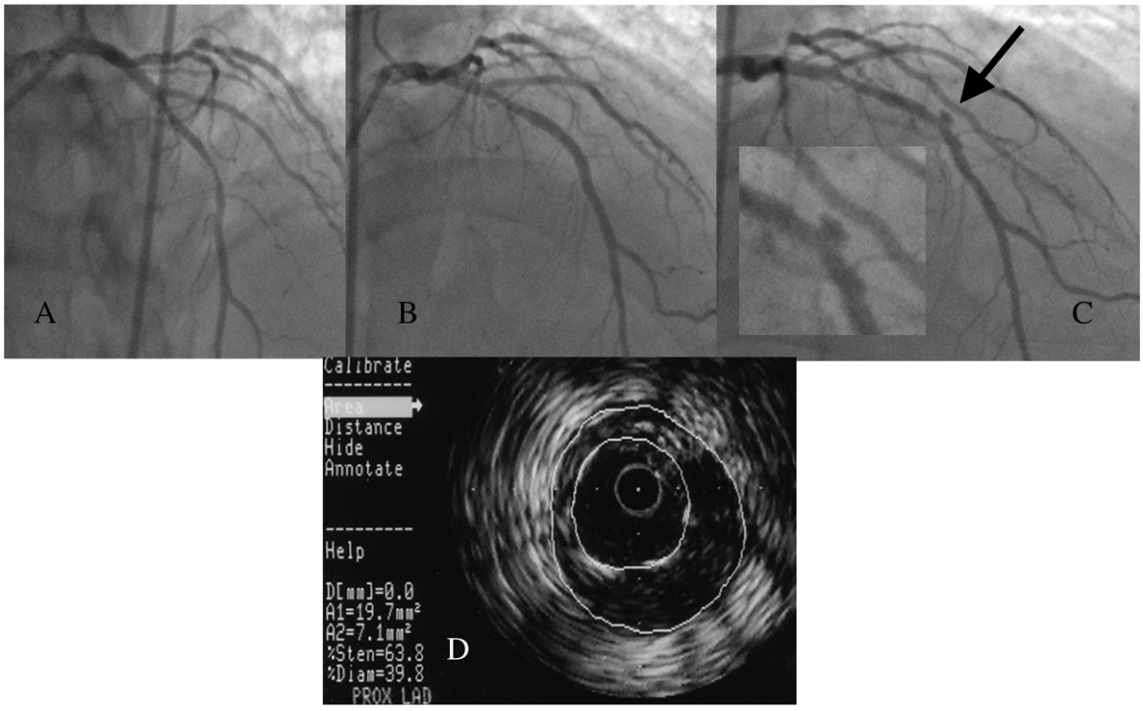

Fig. 1. Coronary angiography of the left anterior descending artery (A) — mid-vessel stenosis prior to intervention, (B) — mid-vessel following stenting, showing no residual stenosis, aneurysm or angiographic dissection, (C) — aneurysm formation within the stented segment (arrow), and (D) — intravascular ultrasound showing an aneurysm within the stented segment in the mid-left anterior descending artery. Cross-sectional area of aneurysm 19.7 mm^2, cross-sectional area of stented segment lumen 7.1 mm^2.

possible propensity to aneurysm formation and the patient continued medical management. He returned with recurrent angina 5 months later, and repeat coronary angiography revealed the aneurysms to be of similar appearance. The patient was referred for coronary artery bypass surgery in view of a) ongoing angina, b) coronary aneurysms in the LAD and RCA, c) IVUS confirmed stenosis in the LAD at the proximal stent edge and d) untreated lesion in the OM artery. He underwent off-pump bypass surgery and received a left internal mammary artery (LIMA) graft to the LAD artery with a right radial artery Y-graft to the OM artery. The LAD aneurysm itself was not treated and the RCA was not bypassed as per the surgeons' preference.

The patient re-presented 16 months later complaining of intermittent exertional chest discomfort suggestive of angina and was referred for repeat coronary angiography. A coronary graft study revealed patent LAD and RCA stents with only minor (<25%) angiographic in stent stenosis in

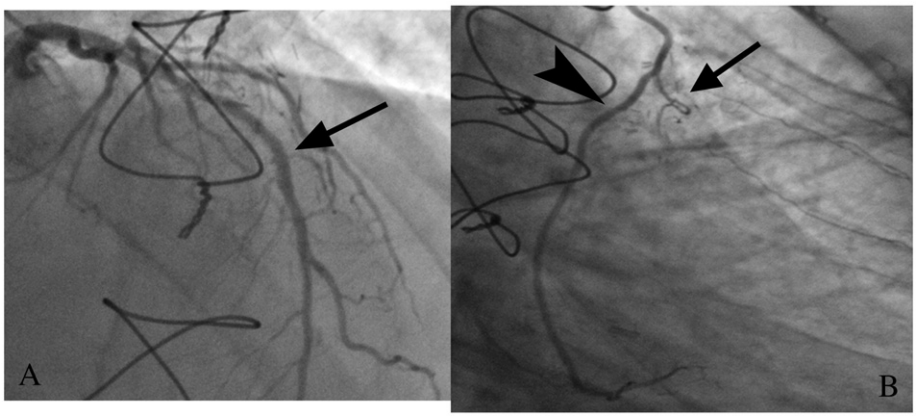

Fig. 2. Coronary angiography of the (A) — left anterior descending artery 16 months post-coronary artery bypass graft surgery, showing no residual aneurysm, (B) — left internal mammary artery and Y-graft radial to the obtuse marginal showing functional occlusion (string sign — arrow) to the stented left anterior descending, and patent flow to the obtuse marginal (arrowhead).