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Multiple coronary artery aneurysms seen five years after Absorb implantation during routine angiographic and OCT follow-up

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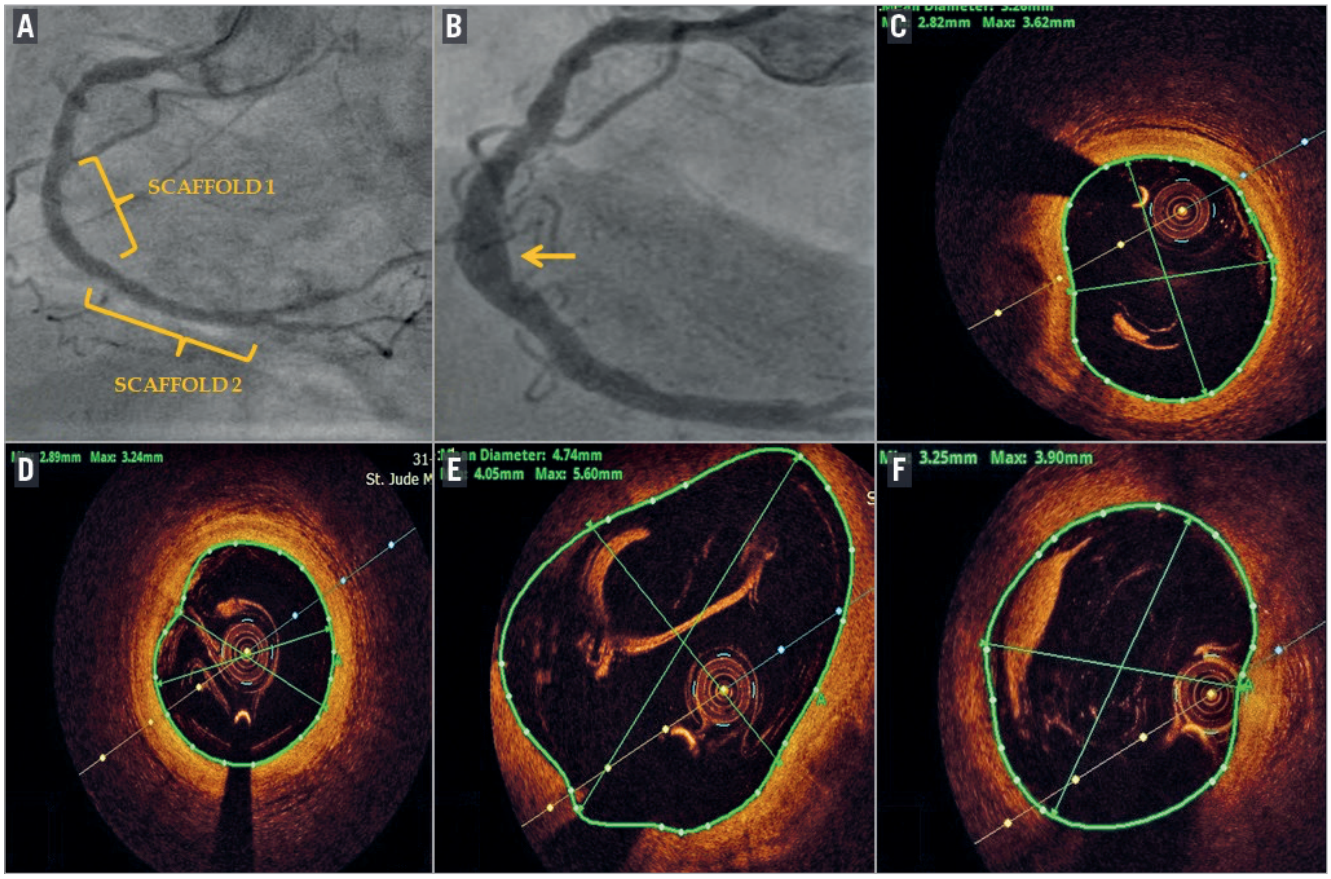

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Coronary artery aneurysm (CAA) is defined as coronary dilatation which exceeds the diameter of normal adjacent segments or the diameter of the patient's largest coronary vessel by 1.5 times[1]. The overall incidence of CAAs ranges from 1.5 to 5%, with a male preponderance and predilection for the right coronary artery[1]. We present a case report of iatrogenic CAAs which developed after Absorb™ bioresorbable vascular scaffold (BVS; Abbott Vascular, Santa Clara, CA, USA) implantation.

In 2013, a 65-year-old gentleman with hypertension, obesity, effort angina and positive stress test, underwent a coronary angiogram which revealed an occluded mid right coronary artery (RCA) and critical stenosis of the proximal left circumflex artery. Two overlapping Absorb BVS were deployed in the RCA **(Panel A)** and a staged PCI of the LCX with deployment of one Absorb BVS followed one month later. A coronary angiogram and OCT of the RCA were carried out five years later, as part of the study. This revealed an aneurysm in the mid RCA (**Panel B**, arrow) and LCX **(Supplementary Figure 1)**. OCT showed complete resorption of the Absorb scaffold, with areas of near normal segments in the proximal RCA, having a maximum lumen diameter of 3.6 mm and lumen area of 8.4 mm² **(Panel C)**. The mid RCA, after the aneurysmal segment, had a lumen diameter of 3.2 mm and area of 7.7 mm² **(Panel D)**. There was a significant aneurysmal dilatation of the mid RCA with a maximum diameter of 5.6 mm (area 16.89 mm²) **(Panel E)**. The distal RCA showed ectatic dilatation with an MLD of 3.9 mm (area 10.2 mm²) **(Panel F)**.

In case reports, the time to aneurysm formation in BVS varies from 6 to 32 months. The reasons are not clear but could be due to aggressive bed preparation with resultant deep dissections. The distinct morphological characteristics of the BVS – thicker struts and slower expandability – require higher pressures for balloon inflation, which could damage the arterial wall[2]. Late development of scaffold strut discontinuity and the resultant outward displacement of struts may result in aneurysm formation. The polymer and the antiproliferative drug could also play a role[3].

Conflict of interest statement

The authors have no conflicts of interest to declare.

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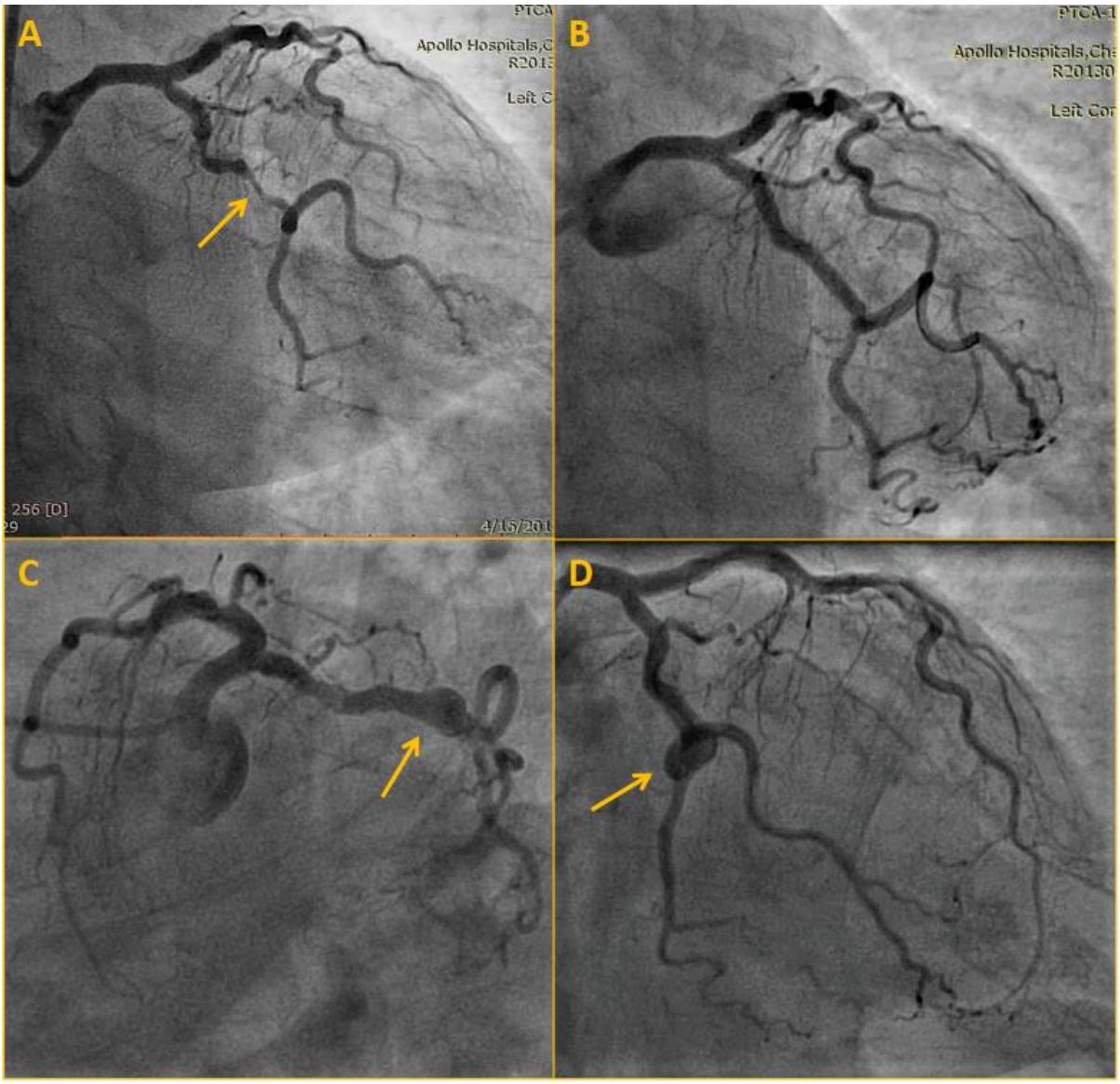
Supplementary data

Supplementary Figure 1. Left circumflex artery angiogram at scaffold deployment and at 5-year follow-up.

The supplementary data are published online at: www.asiaintervention.org

Supplementary data



Supplementary Figure 1. Left circumflex artery angiogram at scaffold deployment and 5-year follow-up.

A) Significant stenosis of left circumflex artery (arrow).

B) Result after PCI indicating Absorb scaffold location.

C) & D) Follow-up angiogram after 5 years showing aneurysmal dilatation (arrow).