Sequential coronary angiograms unveil the progression of an acquired coronary aneurysm

Gabriele Crimi*, Sandro Bellotti, Alessandro Iannone, and Paolo Rubartelli

SC Cardiologia, ASL3 Ospedale Villa Scassi, Corso Scassi 1, 16149, Genova, Italy

* Corresponding author. Tel: +39 010 8492488, Fax: +39 010 8492270, Email: gabrielecrimi@gmail.com

Few reports are available regarding the natural history of coronary aneurysms. The consensus is that they may enlarge overtime and eventually rupture. The possibility of a catastrophic evolution supports invasive management, but this is mostly based on autopsic reports.

We present the case of a 56-year-old male, smoker and affected by hypertension. He was admitted for an anterior ST-elevation myocardial infarction (STEMI) in three-vessel disease. Thrombotic occlusion of proximal left anterior descending artery (LAD) was apparent (Supplementary material online, Video S1). Successful percutaneous thrombus aspiration and bare-metal stent (BMS) implantation (3.5 × 23 mm) was performed (Supplementary material online, Video S2). A small residual plus image was visible proximal to the stent edge at the final angiogram (Panel A).

Four months later, the patient underwent a second elective percutaneous coronary intervention with two drug eluting stents (DES) on the right coronary artery (RCA) (Supplementary material online, Video S3–4). The development of an aneurysm was visible in proximal LAD (Panel B, Supplementary material online, Video S5–6). The maximum diameter was 6 mm by quantitative coronary angiography (QCA).

After 3 years, the patient underwent an abdominal elective resection of an aortic aneurysm. Few days after surgery, he was transferred to our cath-lab for a STEMI due to a very late DES thrombosis of the proximal RCA (Supplementary material online, Video S7). The left angiogram unveiled a further enlargement of coronary aneurysm on proximal LAD to a maximum diameter of 13 mm by QCA. (Panel C, Supplementary material online, Video S8–9). At that point, elective percutaneous aneurysm closure was programmed.

The procedure was performed by the right radial artery with a 6 French EBU #4 guiding catheter. First, a 3.0 × 20 mm balloon was inflated in proximal LAD for sizing and probatory sealing (Supplementary material online, Video S10). Secondly, a 3.0 × 26 mm Jostent GraftMaster (Abbot Vascular, Redwood City, USA) was carefully positioned (Panel D, Supplementary material online, Video S11) and inflated in proximal LAD (Panel E). Third, the stent graft was post-dilated with a 3.5 × 20 mm non-compliant balloon. The aneurysm was sealed (Panel F, Supplementary material online, Video S12) and after 1-year follow-up the result was well maintained (Supplementary material online, Video S13).

To our best knowledge, this is the first case clearly showing by sequential angiograms the progression of an acquired coronary aneurysm which doubled its diameter in 3 years. Although the differential diagnosis between ‘true’ and pseudo-aneurysm was not possible due to the unavailability of IVUS imaging, there is no evidence of different natural history or management of the two forms.

Final result after thrombus aspiration and BMS stent implantation in proximal LAD (Panel A). A small plus image was noticeable close to the proximal edge of the stent. Proximal LAD after 4-month follow-up, initial coronary aneurism formation (Panel B). Proximal LAD after 3 years follow-up, marked enlargement of coronary aneurism (Panel C). Jostent GraftMaster (3.0 × 26) positioning and inflation (Panels D and E). Final result with optimal sealing of coronary aneurysm (Panel F).

Supplementary material is available at European Heart Journal online.