Late acquired incomplete stent apposition

Déploiement incomplet tardif de stent

Gregory A. Sgueglia*, Antonino Stipo, Edoardo Pucci

UOC Emodinamica e Cardiologia Interventistica, Ospedale Santa Maria Goretti, Via Canova, 3, 04100 Latina, Italy

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A 62-year-old man was admitted to our hospital because of a non-ST-segment elevation myocardial infarction. Two years earlier, he had undergone percutaneous coronary intervention at another institution; two sirolimus-eluting stents (2.75 mm in diameter) were implanted in the mid-LAD coronary artery. Coronary angiography showed mild disease of the proximal LAD and a bumpy scratchy image in the mid-vessel (Fig. 1A and B), resembling a caterpillar (Fig. 1C). A lateral view suggested persistence of contrast medium appearing as little lumps behind the stent structure during the run-off phase (Fig. 2A and B). IVUS revealed a large vessel and incomplete stent strut apposition to the arterial wall (Fig. 3). Also, the IVUS pullback sequence showed contrast lucent

Abbreviations: DES, drug-eluting stent; IVUS, intravascular ultrasounds; LAD, left anterior descending.
* Corresponding author. Fax: +39 0773 6556218.
E-mail address: g.a.sgueglia@gmail.com (G.A. Sgueglia).
Late acquired incomplete stent apposition 241

Figure 1. Coronary angiogram (cranial 40°, right anterior oblique 10°), showing a bumpy scratchy image in the mid-left anterior descending artery (arrow, panel A; and magnification, panel B), resembling a caterpillar (Zerynthia polyxena, panel C).

Echoes flushing from the vessel lumen towards an empty space beneath the stent structure (Video 1). To prevent relapsing events, the patient was discharged on indefinitely prolonged dual antiplatelet therapy with aspirin and clopidogrel.

Late acquired incomplete stent apposition is due to two possible mechanisms: regional positive remodelling with an increase in vessel area out of proportion to the increase in plaque area; or thrombus dissolution in case of primary angioplasty. Inflammatory changes in the intima and

Figure 2. Coronary angiogram (left anterior oblique 90°) acquired during the run-off phase, revealing persistence of contrast medium appearing as little lumps outside the stent structure (arrow, panel A; and magnification, panel B).
media triggered by hypersensitivity reactions towards polymers, with immune cells releasing proteases that weaken the vessel wall and lead to its remodelling, have been shown to play a significant role after DES implantation and account for the significantly increased incidence of this finding with DES compared with bare-metal stents. Incomplete apposition areas may serve as niches for thrombus formation and several studies have found a higher incidence of incomplete apposition in cases of DES thrombosis. Second generation DES have shown a lower incidence of late acquired incomplete stent apposition and could be considered as an alternative to first generation DES to avoid such a complication. The potential benefits and risks associated with correction of late incomplete stent apposition are unknown and only prolonged dual antiplatelet therapy could be recommended.

Disclosure of interest
The authors declare that they have no conflicts of interest concerning this article.

Appendix A. Supplementary data