Very late active stent thrombosis: Contribution of optical coherence tomography

Thrombose très tardive de stent : apport de l’OCT

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A 42-year-old man was explored by angiography after non-ST-segment elevation myocardial infarction. A monolesion was treated by direct stenting (paclitaxel-eluting stent, $3.5 \times 20$ mm) on the proximal left anterior descending coronary artery (LAD) and a final kissing balloon on the LAD diagonal, with an excellent result. Clinical follow-up was good (under treatment with aspirin and clopidogrel) until the patient decided to stop all antiplatelet treatment 2 years after successful stent implantation. Ten days later he was admitted for acute anterior ST-segment elevation myocardial infarction complicated by cardiogenic shock 2 hours after onset of chest pain. Angiography showed late stent occlusion of the proximal LAD (Fig. 1A). Thromboaspiration on the LAD (Fig. 1B), followed by the first diagonal (Fig. 1C), restored thrombolysis in myocardial infarction (TIMI) flow grade 3. The patient presented reperfusion syndrome. It was decided to optimize medical treatment with glycoprotein Ilb/Ilia inhibitor perfusion. A control angiography was performed on D2: flow was TIMI-3 without angiographic visualization of a thrombus (Fig. 1D). Optical coherence tomography (OCT) showed a residual endoluminal image on a short segment immediately upstream of the bifurcation, obstructing one-third of the lumen area. The form and shadow cone of the structure were characteristic of a red thrombus. There was no dissection, malapposition or stent underdeployment. It was decided to continue medical treatment with dual antiplatelet therapy.

Abbreviations: LAD, left anterior descending coronary artery; MI, myocardial infarction; OCT, optical coherence tomography; TIMI, thrombolysis in myocardial infarction.

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Figure 1. Angiographic imaging of left anterior descending artery. A. Intrastent proximal LAD occlusion. B. TIMI-3 flow after LAD thrombus aspiration: 50% residual diameter stenosis of LAD, thrombus in first diagonal. C. Angiographic result after repeated thrombus aspiration in LAD. D. Angiographic follow-up at day 2: residual diameter stenosis < 10%. E. Optimal angiographic result at day 30.

Figure 2. Angiographic and OCT follow-up at day 2 (A) and day 30 (B). OCT long-view on LAD-diagonal bifurcation. Comparative images of the same OCT slices performed every millimetre from distal to proximal on either side of the bifurcation. At day 30, complete disappearance of the thrombus which, at day 2, had occupied more than one-third of the circumference (v, w, x). NB: After mechanical and medical resolution of thrombosis, certain struts of the stent implanted 2 years previously still remained non-covered (y').
Angiography and OCT were repeated at 1 month. The endoluminal image visualized on OCT and underestimated by angiography had disappeared. Continuation of antiplatelet therapy led to resorption of the thrombus, revealing stent struts that were still non-covered after 2 years on upstream slices (Fig. 2). The absence of any malapposition or plaque rupture upstream or downstream of the stent was confirmed.

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