Case Report

Treatment of Longitudinal Stent Deformation in the Left Main

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Abstract

Longitudinal stent deformation is a rare complication of coronary angioplasty; however, newer stents have thinner struts and fewer connectors, losing longitudinal strength, with more risk of this complication. We report a complex case of left main angioplasty that was complicated with LSD, describing the solution we applied, so it can help as an option for other interventional cardiologists in these cases.

CASE PRESENTATION

We report the case of an 82-year-old man, diabetic, hypertensive and former smoker, with progressive angina. Angiography showed severe coronary calcification, a severe stenosis in the distal left main (LM), affecting the ostium of left anterior descending (LAD) and the circumflex (LCX) (Medina 1-1-1, Figure 1, Panel A). The dominant right coronary artery (RCA) was chronically occluded. An echocardiogram showed severe left ventricular dysfunction (LVEF 28%), and moderate to severe mitral regurgitation. Given the unacceptably high surgical risk, patient was scheduled for PCI with intra-aortic balloon pump support. Rotational atherectomy towards the LCX was performed, and an everolimus eluting stent (Synergy™, Boston Scientific) was implanted in TCI-LCX (Figure 1, Panels B and C). A 5 mm non compliant balloon was advanced in order to perform postdilatation of the stent in the LM but at this moment a severe longitudinal stent deformation (LSD) was noticed letting the LM without stent coverage (Panel D, red arrowhead), that can be better appreciated with the device enhancement (Figure 2) of SyncVision® (Volcano Corporation). The most probable mechanism of the stent deformation was unnoticed deep intubation of the guiding catheter to the LM. We proceed to dilate the deformed portion with non-compliant balloons of increasing diameter (Figure 1, Panel E), obtaining an adequate longitudinal stent reexpansion and recovering the coverage of the LM (Figure 1, Panel F); the procedure was completed implanting another everolimus eluting stent in the proximal LAD with TAP technique and performing kissing balloon (Figure 1, Panel G). A final postdilatation of the LM with a 5 mm balloon was performed (Figure 1, Panel H) with a good final result (Figure 1, Panel A; Figure 3).

Keywords

• Stent deformation
• Coronary angioplasty
• Angina

The evolution in stents design includes thinner struts and fewer connectors, withholding radial force but losing longitudinal strength of the platforms and increasing the risk of LSD [1]. The treatment of this complication is not established but it usually involves additional stent implantation [2,3]. The present case shows how progressive balloon dilatation was effective to achieve a complete longitudinal reexpansion avoiding the need of a second stent in the LM.

REFERENCES


Figure 2 Device enhancement image of the longitudinal stent deformation, with the Angio+™ system of SyncVision® (Volcano Corporation).

Figure 3 Device enhancement image of the final result, with the Angio+™ system of SyncVision® (Volcano Corporation) that shows a good stent expansion, without significant longitudinal deformation.

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