Case Blog

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Total Kissing Balloon: A Novel Technique to Treat Aneurysmal Left Main Coronary Artery

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Case Blog

An 84 years-old male was admitted for stable angina and an early positive treadmill test.

He presented an angiographic severe ostial stenosis of the left main (LM) with no other significant lesions. Intravascular ultrasound image (IVUS) showed a fibro-calcified plaque with a minimal luminal area (MLA) of 3.9 mm^2 (Figure1A-asterisk) and a reference diameter of 5.8 mm. A percutaneous coronary intervention (PCI) was scheduled the following day.

However, several hours later the patient presented intractable angina with diffuse ST depression and hemodynamic instability with severe hypotension that needed intravenous inotropic drugs. Thus, an emergent PCI was performed. Predilatation with a 4 × 8 mm balloon was performed and, due to the unavailability of a larger diameter drug eluting stent (DES), a 4 × 12 mm DES was implanted at ostial LM.

Under expansion and malapposition were observed so post dilatation with the largest available diameter balloon (5 mm) was performed. Although improved, no optimal apposition was achieved, so we performed a simultaneous inflation of two 3 × 10 mm non-compliant balloons placed at the same level of the LM without reaching the carina ("Total Kissing balloon") obtaining optimal stent apposition with a MLA of 21.7 mm^2 and without any distortion of its platform (Figure 1).

Large size LM PCI may be challenging due to the absence of DES or balloons that are large enough to reach the reference diameter of the vessel. Simultaneous inflation of two balloons contacting between themselves in their entire length and without involving a bifurcation is a variant of the kissing-balloon technique [1]. This "Total Kissing-Balloon" technique, which to our knowledge has not been described in this setting, could be useful in this scenario.

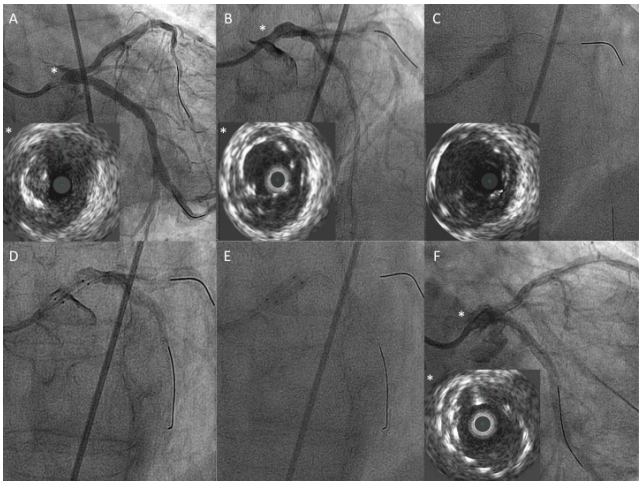

Figure 1: A: Angiographic severe ostial stenosis of the left main (LM). Intravascular ultrasound (IVUS) image of a fibro-calcified plaque with a minimal luminal area (MLA) of 3.9 mm^2 (asterisk) and a reference diameter of 5.8 mm. B: Under expansion and malapposition of a 4 × 12 mm drug eluting stent (DES) (asterisk). C: Suboptimal apposition after post-dilatation with a 5 mm non-compliant balloon (asterisk). D-E: Simultaneous inflation of two 3 × 10 mm non-compliant balloons placed at the same level of the LM without reaching the carina ("Total Kissing balloon"). F: Final optimal stent apposition with a MLA of 21.7 mm^2 and without any distortion of its platform (asterisk).

References

1. George BS, Myler RK, Stertzer SH, Clark DA, Cote G, et al. (1986) Balloon angioplasty of coronary bifurcation lesions: the kissing balloon technique. Cathet Cardiovasc Diagn 12: 124-138.