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Optimal management of left main bifurcation disease with two-stent strategy

We have read with great interest the article by Mukhopadhyay *et al.*[1] entitled 'Fracture and plastering of distal left main stent during double-kissing Culotte technique: a case report'. We thank the authors for the successful management of this terrifying complication that occurred during stenting with the double-kissing Culotte (DKC) technique in a patient with a left main bifurcation disease. On the other hand, we believe that some significant drawbacks need to be addressed.

The DKC technique was previously introduced to the literature and characterized by stenting the side branch (SB) first, minimally protruding the SB stent into the main vessel, and performing a first kissing balloon inflation (KBI) before main vessel stenting, ending the procedure with a final KBI after stenting the main branch. Some concerns prevent this innovative technique from applying to complex bifurcation lesions in all cases. Although the bifurcation angle is not an absolute parameter in the selection of technique for bifurcation stenting, Culotte stenting and its modifications (e.g. DKC) are prioritized over the T and minimal protrusion technique in Y-shape (narrow-angle) bifurcation morphology.[2] Nevertheless, applying the DKC technique in wide-angle bifurcation lesions may pose risks including deformation of the SB stent, difficulty wiring, stent fracture (as in this case), and SB restenosis in the long-term follow-up. Another concern is that current-generation drug-eluting stents, which have fewer link connections and greater cell expansion capacity, may rarely cause napkin-ring formation in Culotte stenting and its iterations.[3] However, the alignment of smaller cells at the stent edge can be used in different stent marks, and when these smaller cells incarcerate the branch ostium, napkin-ring formation is likely to occur. Therefore, although it is recommended to minimize site overlap in two-stenting techniques, caution is needed to prevent these stents from being trapped by smaller cells. In this case report, operators preferred the DKC technique as the initial revascularization strategy. Hence, the readers may wonder why other two-stent techniques especially double-kissing crush[4] rather than DKC are not preferred for left main bifurcation disease.

Intravascular imaging namely intravascular ultrasound (IVUS) and optical coherence tomography (OCT) provides promising clinically relevant information in the assessment of coronary atherosclerosis, allowing precise planning and optimization of PCI compared to the gold-standard conventional angiography.[5] Additionally, IVUS lumen area and vessel diameter were larger than OCT (mean difference = 0.41 mm^2, 12.5%), and a difference that was greater in non-stented than stented segments.[5] In this case, consider the lesion and vascular structure evaluation by OCT, the use of a 3.5 mm diameter stent and the need for post-dilatation. The utility of IVUS would have been a more appropriate intravascular imaging modality or using a 4 mm size stent in the management of this complex case.

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Data availability

No new data were generated or analysed in support of this research.

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