FINAL PROXIMAL POST-DILATATION IS NECESSARY AFTER KISSING BALLOON IN BIFURCATIONS STENTING

I2 Poster Contributions
Ernest N. Morial Convention Center, Hall F
Sunday, April 03, 2011, 10:00 a.m.-11:15 a.m.

Session Title: PCI - Bifurcations
Abstract Category: 8. PCI - Bifurcations
Session-Poster Board Number: 2502-575

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Background: Based on clinical observations by Optical Coherence Tomography (OCT), we hypothesized that Kissing-Balloon (KB) post-dilatation in bifurcations, despite its usefulness in optimizing the ostium of the Side Branch (SB), can produce significant detrimental stent distortion in the proximal Main Vessel (MV) and may fail to ensure full apposition of the stent struts.

Methods: Commercially available drug eluting stents (Xience 3.0 and Taxus Liberte 3.0, n=14) were deployed in a silicone model of a coronary bifurcation (MV=3.5 mm, SB = Main branch (MB) = 2.5mm) using a provisional stenting approach. After SB dilatation and KB inflation, we investigated the benefits of using a non compliant balloon sized to post-dilate only the proximal segment of the stent in the MV, thereby taking into consideration the natural diameter ratio between vessels in a bifurcation according to the Murray's law.

Results: From 3D micro-CT quantification, the percentage of malapposed struts in the proximal part of the vessel was reduced from 33.4 % with final KB to 0.6 % with the proposed Final Proximal Correction (FPC) (p=0.02). FPC ensured circular expansion of the stent and the Minimum stent area proximal to the SB was also increased from 6.8 mm2 after KB to 8.5 mm2 after FPC (p < 0.0001).

Conclusion: Final proximal dilatation of stents with an appropriately sized separate balloon achieves, unlike kissing balloon dilatation only, full strut apposition in the main vessel and optimizes the outcome of bifurcation stenting.