

Reverse wiring and other special techniques for true bifurcation lesions

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PCI for complex true bifurcation lesions remains to be an important issue in contemporary PCI. Stenting strategy for true bifurcation with well preservation of both branches could be challenging and has attracted much attention in the past years. In addition to the challenge in stent technique, wiring could also be difficult in some bifurcation lesions. Conventional wiring technique is sometimes impossible for approaching branches with extremely acute take-off. The wire tends to be prolapsed to the non-targeted branch of the bifurcation when the wire is advancing. Reverse wire technique could be the only solution for this scenario. This technique use a hydrophilic wire with a precise tip shape to fit the anatomy of bifurcation and a reverse bend at the opposite direction at 2-3 cm away from the wire tip. With the support of a double-lumen Crusade microcatheter, the wire is delivered with the distal segment reversely bent to the non-targeted branch with the wire tip distal to the ostium of the targeted branch. After pulling back the Crusade catheter, the wire is pulled back slowly and torqued gently to have the wire tip engage the ostium of the targeted branch. Then the wire can be advanced by pulling the wire gently. This technique is very effective and highly reproducible if the tip curve and the bend are carefully made to fit the anatomy.

Simple stent crossover with provisional stenting for the side branch has been demonstrated to be a preferred strategy for bifurcation lesions if feasible. However, it takes risk of losing side branches after main vessel stenting. The jailed balloon technique is developed to secure the side branch. By placing a small size balloon in the side branch during main vessel stenting, the uninflated balloon is jailed under the stent struts and occupied a space to reduce both carina shift. If the flow of side branch is preserved after stenting, the jailed balloon is removed. If the side branch becomes occluded, the jailed balloon may be used as a marker and may modify the angle to facilitate rewiring. If rewiring is failed, then the small size balloon may be inflated to restore SB flow and facilitate rewiring. Kissing balloon inflation must be performed to correct stent deformation or malapposition if the balloon is inflated.