

“Side-Flap Technique” for the Management of an ostial IS- CTO in an Overhanging Stent

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"Side-Flap Technique" : From Experimental Bench Testing to Real-World Clinical Application

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Excessive Ostial Stent Protrusion: Evaluation of Management Strategies and Clinical Outcomes of the Side Flap Technique

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ABSTRACT

Backgrounds: Accurate stent positioning in aorto-ostial lesions remains challenging due to complex three-dimensional anatomy, lack of optimal fluoroscopic projections, and high rates of geographic miss. Stent overhang impairs guide catheter re-engagement and complicates future revascularization. Despite its frequency, no standardized approach exists for managing excessive stent protrusions.

Aims: This study systematically evaluated management strategies for excessive aorto-ostial stent protrusion, integrating comprehensive bench testing with clinical case experience, and assessed the feasibility, mechanics, and outcomes of the Side Flap technique.

Methods: Bench experiments assessed multiple corrective strategies in two scenarios, guidewire crossing through the central stent lumen and through a side cell, across contemporary DES platforms. Mechanical feasibility, force transmission, stent deformation and expansion, and structural integrity were evaluated using high-pressure ballooning, catheter-assisted maneuvers, and intracoronary imaging. A retrospective multicenter series provided complementary real-world clinical outcomes of the Side Flap technique.

Results: Longitudinal stent compression using guide catheters, large balloons, or telescoping maneuvers proved mechanically ineffective and frequently produced severe stent deformation or malapposition. In contrast, intentional side-cell recrossing with creation of a neo-lumen was consistently feasible, structurally stable, and reproducible. All DES platforms tolerated large-diameter side-cell expansion without strut fracture, yielding circular neo-lumens with excellent apposition on OCT. Clinically, the Side Flap technique achieved high procedural success with no technique-related adverse events during follow-up.

Conclusions: The Side Flap technique offers a controlled and reproducible alternative strategy when true-lumen access is not achievable or fails, and represents a valuable addition to the interventional armamentarium. Longitudinal stent crush techniques are unreliable for managing excessive aorto-ostial protrusion.

Potential conflicts of interest

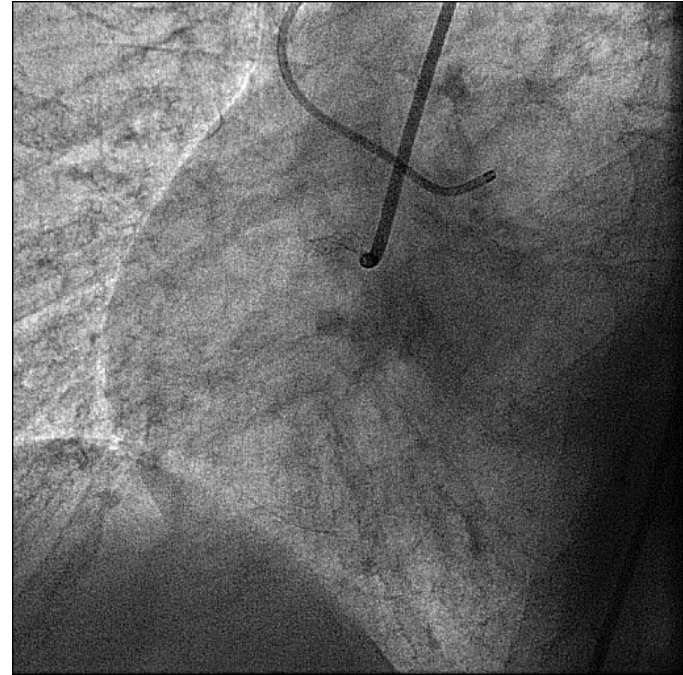
Speaker's name: **Anastasios Barmpas**

☐ I do not have any potential conflict of interest to report

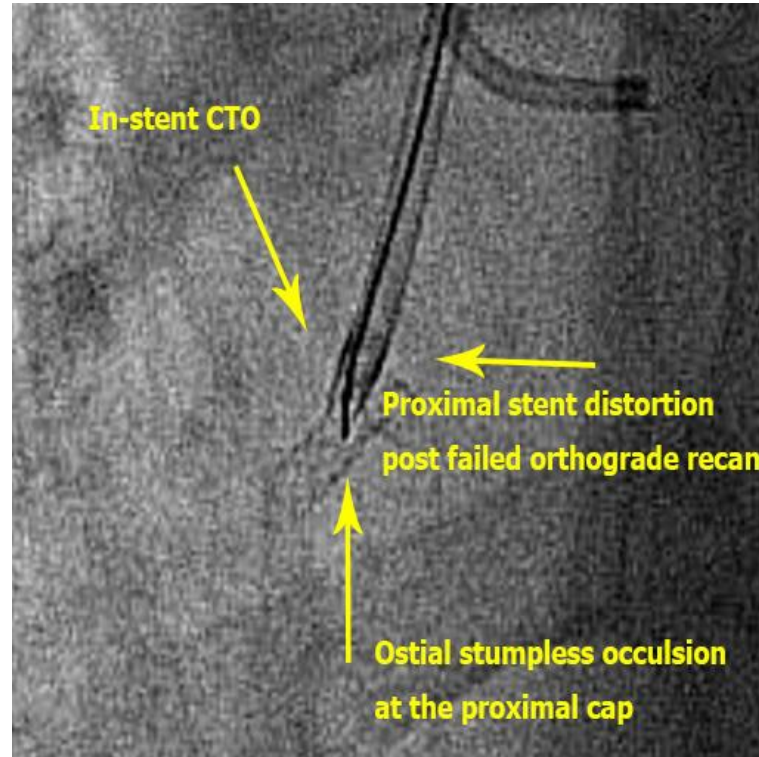
Case Presentation

- 60 year old –Female
- Insulin-dependent DM
- Prior-PCI of an Ostial and Proximal RCA lesion 4 years ago at another institution
- Recent relapse of Angina pectoris
- Echo: LVEF 45%, inferior wall hypokinesis, no vitium cordis.
- Myocardial perfusion Scintigraphy: Inferior wall >10% ischemia
- CAG
 - **Aorto-Ostial RCA In-Stent CTO**

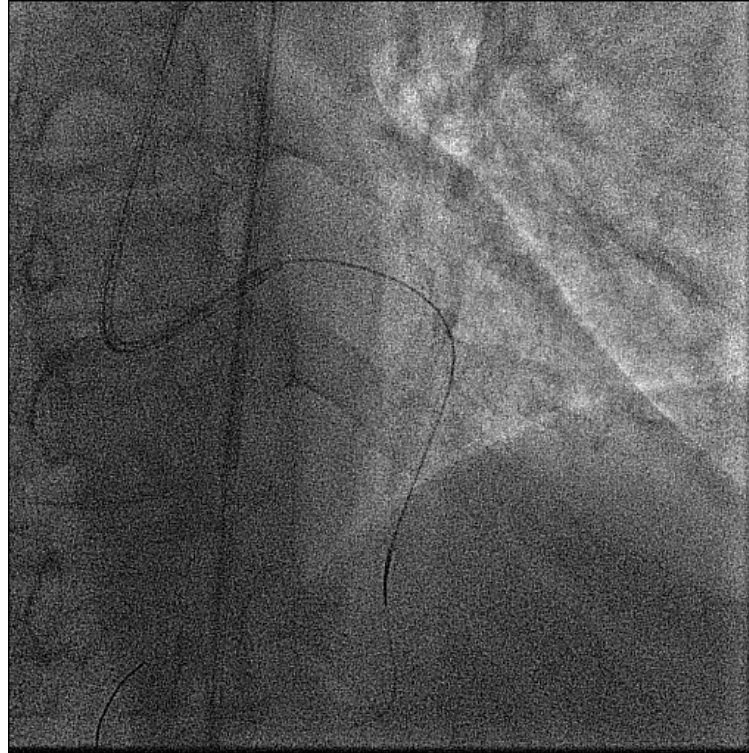
IS-CTO in an Overhanging RCA Stent
Distortion of its proximal part, because of a prior failed antegrade recanalization attempt



Distortion of the proximal part of the previously - placed stent at the ostium of the RCA, impossible engagement of the ostium with a GC.



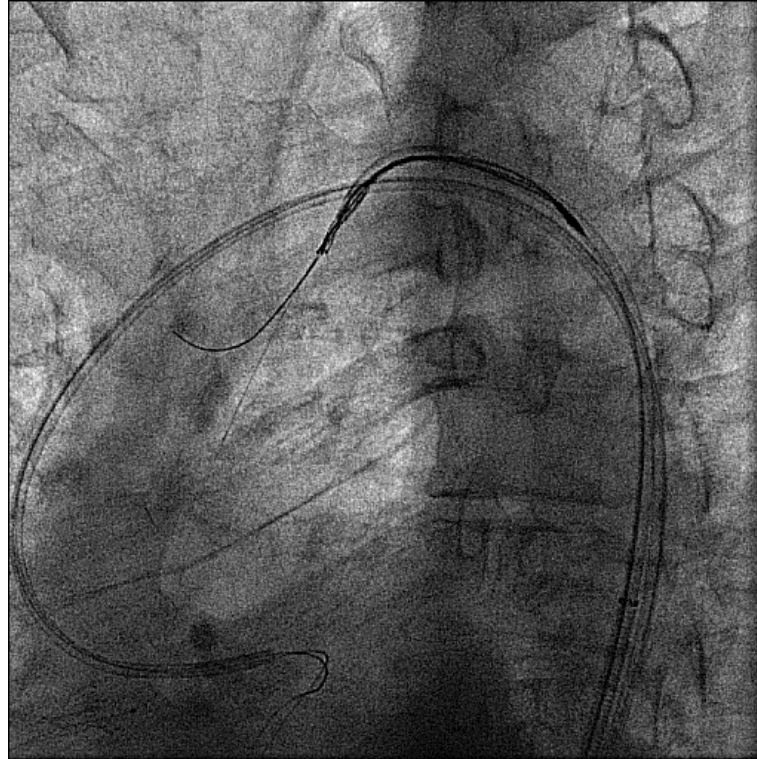
Septal Collateral Tracking
ASAHI Corsair Pro XS exchanged with Finecross MC
Blockage of Sion Black at the distal cap



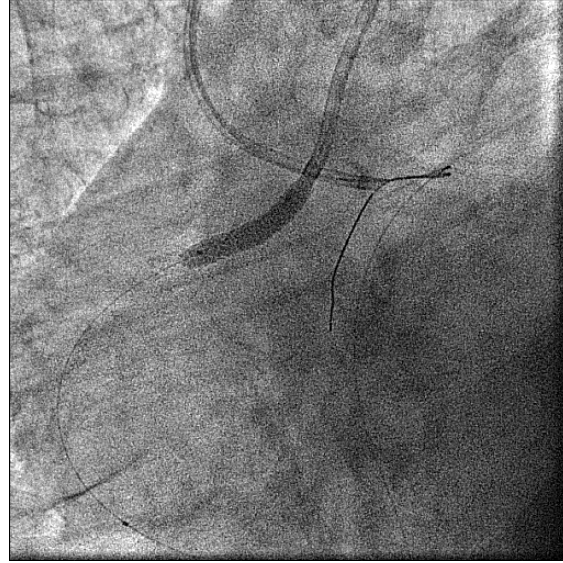
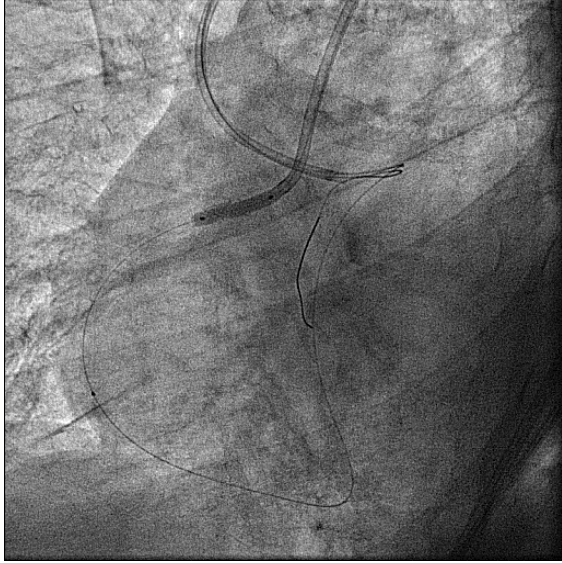
"True to true" retrograde guidewire puncture into the aorta
MC navigated through the side part of the stent extending into the
aorta



“Snaring” of the retrograde wire

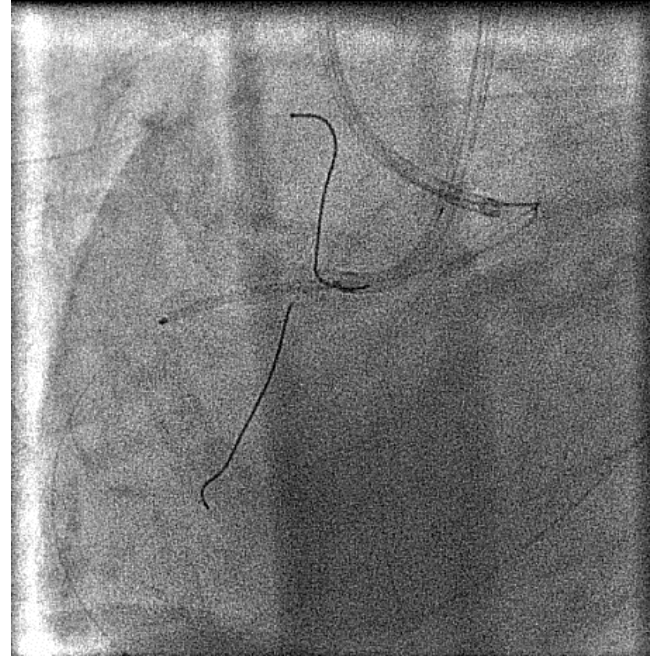
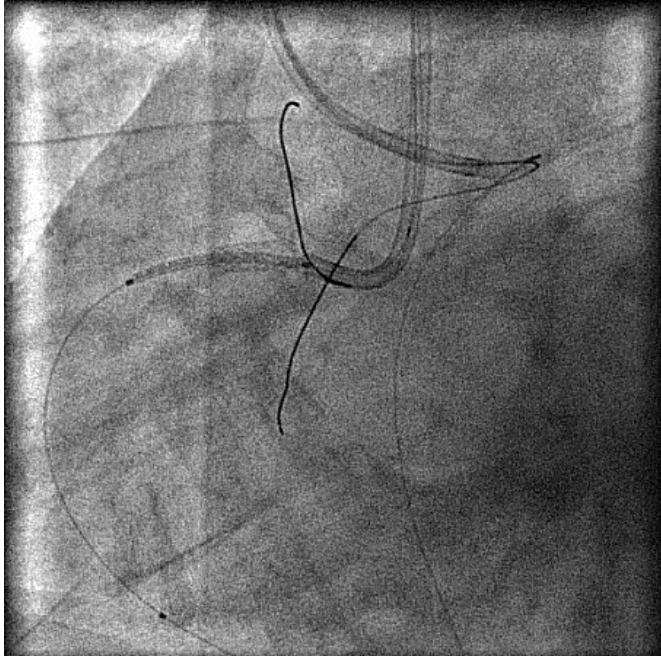


"Side Flap" Technique



the “Separ Technique”

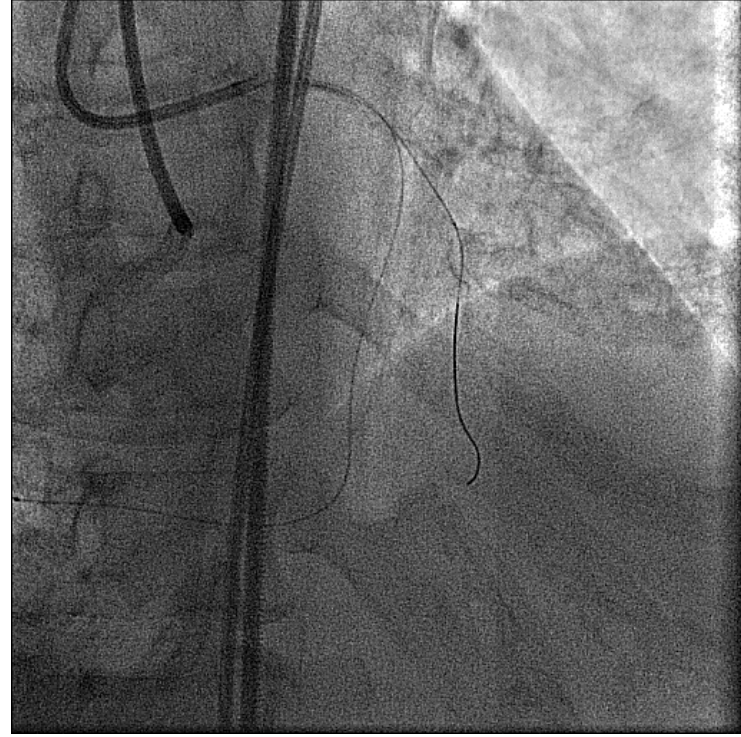
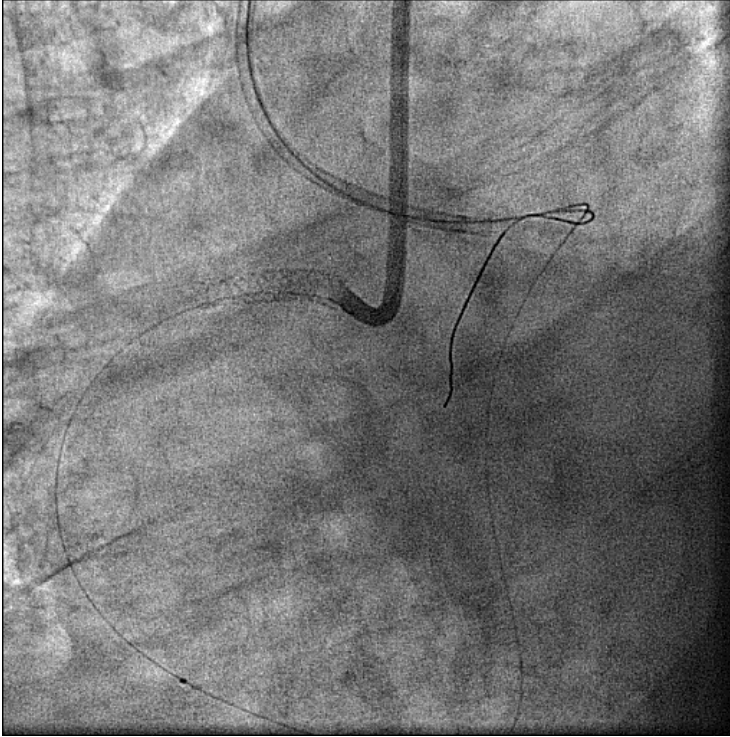
Stenting the Neo Ostium using a Floating Wire



Unobstructed GC Cannulation via “Neo-Ostium” IVUS Interrogation

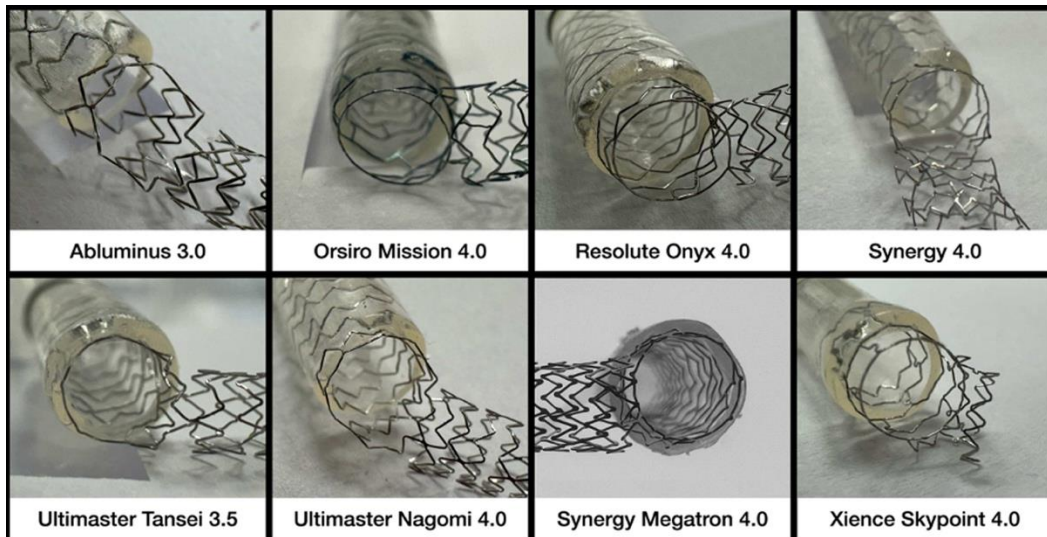


Final Angio



TAKE HOME MESSAGE

- **“Side Flap” Technique** is efficient and effective in addressing excessive ostial stent protrusion at the ostium of any coronary artery or even a venous graft, and it can be performed either in an antegrade or retrograde fashion with very satisfactory results. The safety and efficiency of this technique were confirmed through benchmark testing and retrospective clinical analysis of contemporary stent platforms by our team.



Primary retrograde approach is considered necessary for the management IS-CTO in overhanging deformed Stents , targeting for retrograde guidewire puncture into the aorta, through the side part of the protruding stent, using the “Side Flap Technique” and followed by snaring and externalization.