Complex Situations in Bifurcation Interventions

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Introduction

• Bifurcation lesions are among the most frequently approached and challenging coronary lesions for percutaneous coronary intervention

• Rewiring and Kissing-balloon (KB) inflation is mandatory in any two-stent strategy to optimize stent apposition, correct stent deformation or distortion, reduce angiographic side-branch (SB) (re) stenosis, and improve outcomes
Complex Situations in Bifurcation Interventions

**Comorbidities**
1. Acute coronary syndrome
2. Prior CABG
3. Heart failure
4. Atrial fibrillation
5. Advanced age
6. Diabetes
7. Renal failure
8. COPD
9. Peripheral vascular disease
10. High bleeding risk
11. Frailty

**Hemodynamics**
1. Low ejection fraction
2. High filling pressures

**Anatomy**
1. CTO
2. Left Main
3. SVG
4. Thrombus
5. Calcification
6. Ostial lesions
7. Multi-vessel disease
8. Small vessel
9. Diffuse disease

**Complex Situations in Bifurcation Interventions**
Procedure-Related Difficulties

.Rewiring, Recrossing and Kissing Issues

.Calcifications

.CTO

.Ostial lesions

.Thrombus

.High angle
Steps to cross balloon into side branch

- Proksimal Optimisation Technique (POT)
- Using low-crossing profile balloon (1.2 or 1.25 mm)
- Use of Extra support wire in the side branch
- Rewire sidebranch (SB) and access through a different stent strut
- Use of angled microcatheter
- In-Stent Anchoring (ISA)
- Buddy Balloon Technique
LAD-Diagonal bifurcation lesion
POT after side branch stenting (short balloon)
After POT
***Predilation of side branch should be avoided if rewire is needed
Side branch predilation?
***Balloon support or angled MC catheter can be used for difficult rewiring
Venture may help
***Rewire should be done through the distal stent strut in provisional and culotte technique

***Rewiring should be done through mid stent strut in minicrush or DK crush technique and distal strut should be avoided.
LAD-Daigonal Bifurcation
After crushed wire in place during crush
Wire in place
Rewire should be done through mid of the ostium
Difficult Recross with Balloon

• In stent anchoring can be done

• Never do anchoring for 1.25 mm or 1.5 mm low profile balloon since there is risk of substrut course

• If low profile balloon does not cross the side branch then a second wire should be used to cross different strut

• Buddy balloon technique can be used

• Mother and child technique for better support may be needed
LAD-Diagonal provisional Stenting
Kissing after LAD stenting
After kissing, dissection of the side branch
Rewiring after reverse mini crush (crossing mid struts)
Balloon does not cross into side branch
Ancoring with short balloon helps the crossing of the side balloon
Kissing with using anchoring balloon
"CHILD IN MOTHER" TECHNIQUE
Calcified CX-Om bifurcation
Guideliner was needed for inserting the stent
Same guideliner was used for crossing balloon
Retrograde wiring of CTO with guidance of IVUS
Minicrush technique was used
Rewiring with help of Balloon
Deep wiring to have extreme support of the wire
Anchoring and good support of the wire is not enough for inserting the balloon
Guideliner did not help
Final result
Calsified bifurcation lesion
What should be the plan?
NC balloons and Cutting balloon
Shockwave (Litotripsy)
Minicrush technique
Thank you for your attention.