

EBC 2015

BRS in bifurcations (1)

T-stenting and small protrusion:
technical issues and its role in BRS era

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Potential conflicts of interest

Speaker's name: Azeem Latib

☒ **I have the following potential conflicts of interest to report:**

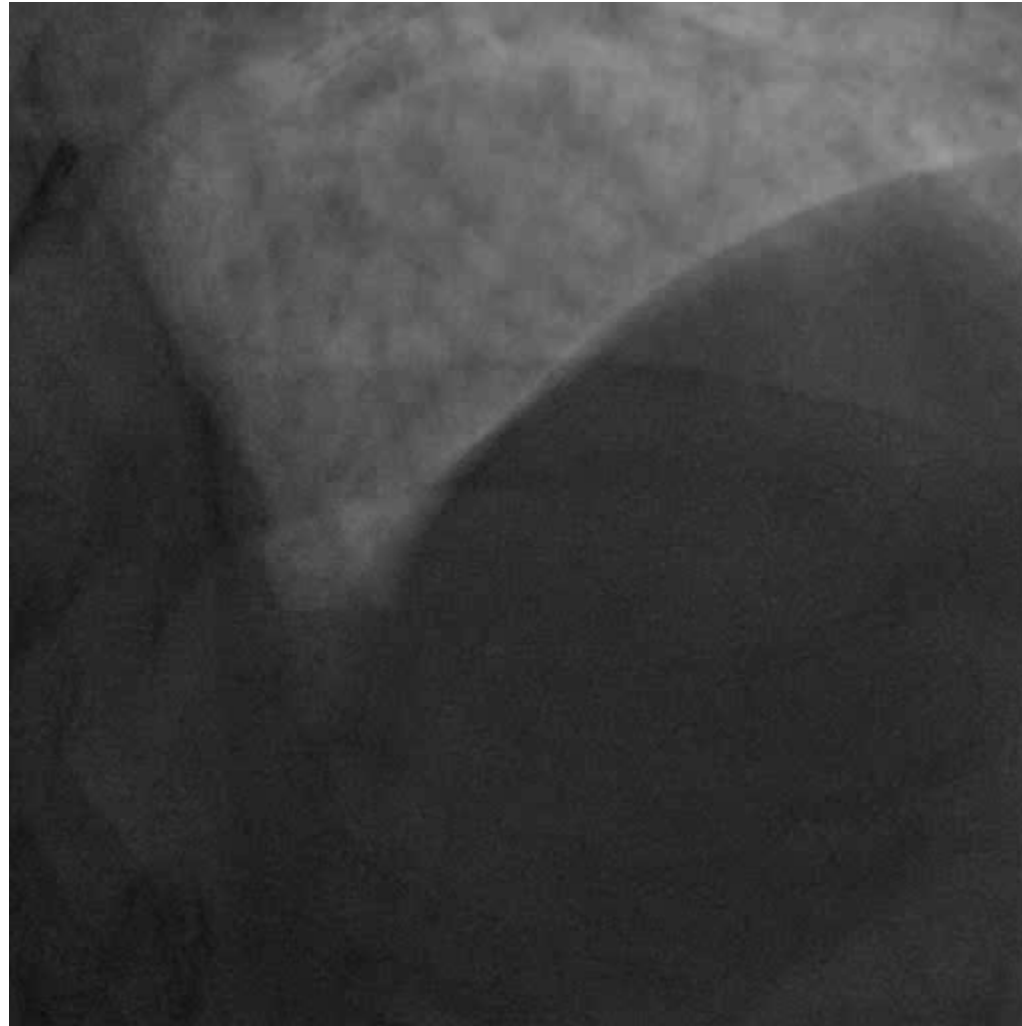
Consultant: 4-Tech, DIRECT FLOW MEDICAL, MEDTRONIC, MILLIPEDE

Honorarium: BOSTON SCIENTIFIC, ACIST MEDICAL, ABBOTT, SPECTRANETICS

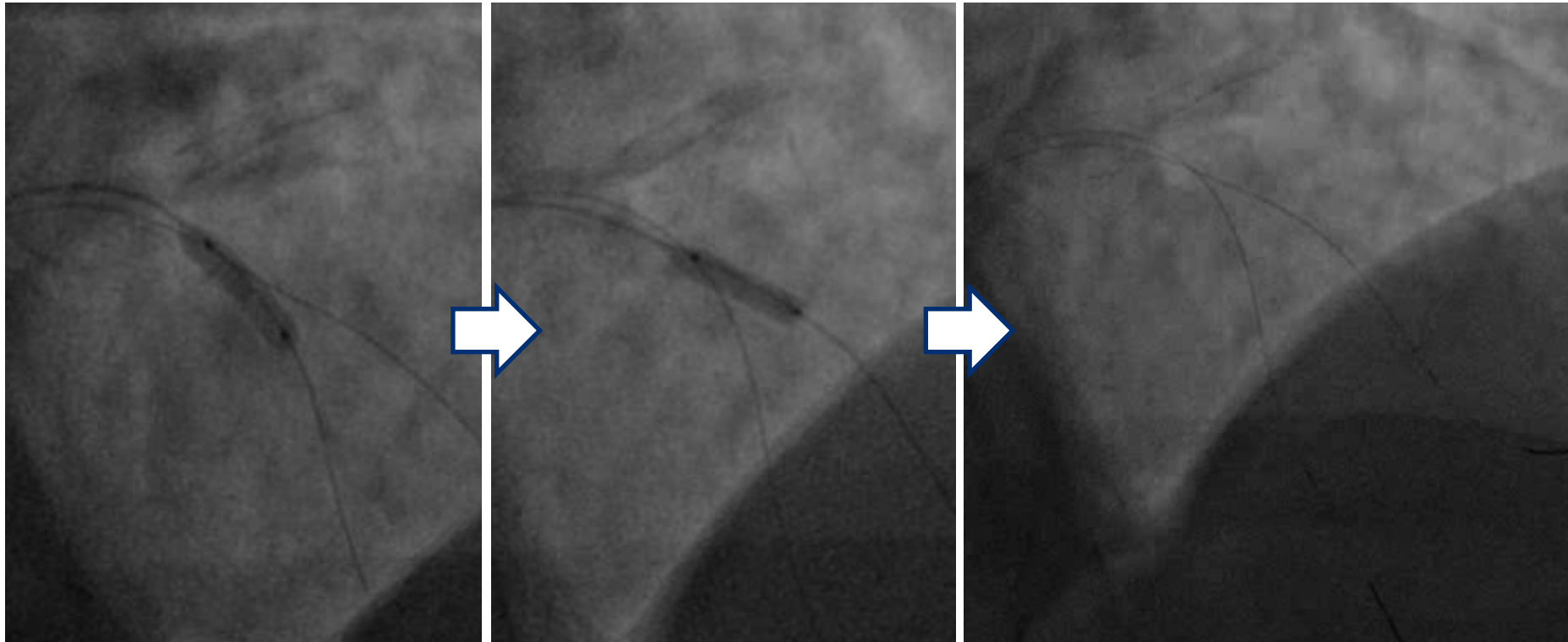
Clinical History

- 53 yr-old male
- CV risk factors:
 - Obesity (130kg, BMI=40)
 - Hypertension
 - Type 2 Diabetes on oral hypoglycemics
- Known with CAD
 - 1999: PCI of OM with BMS → occlusive ISR
- Presents with:
 - Effort-induced angina (CCS 3)
 - Stress test positive

Baseline Angiogram

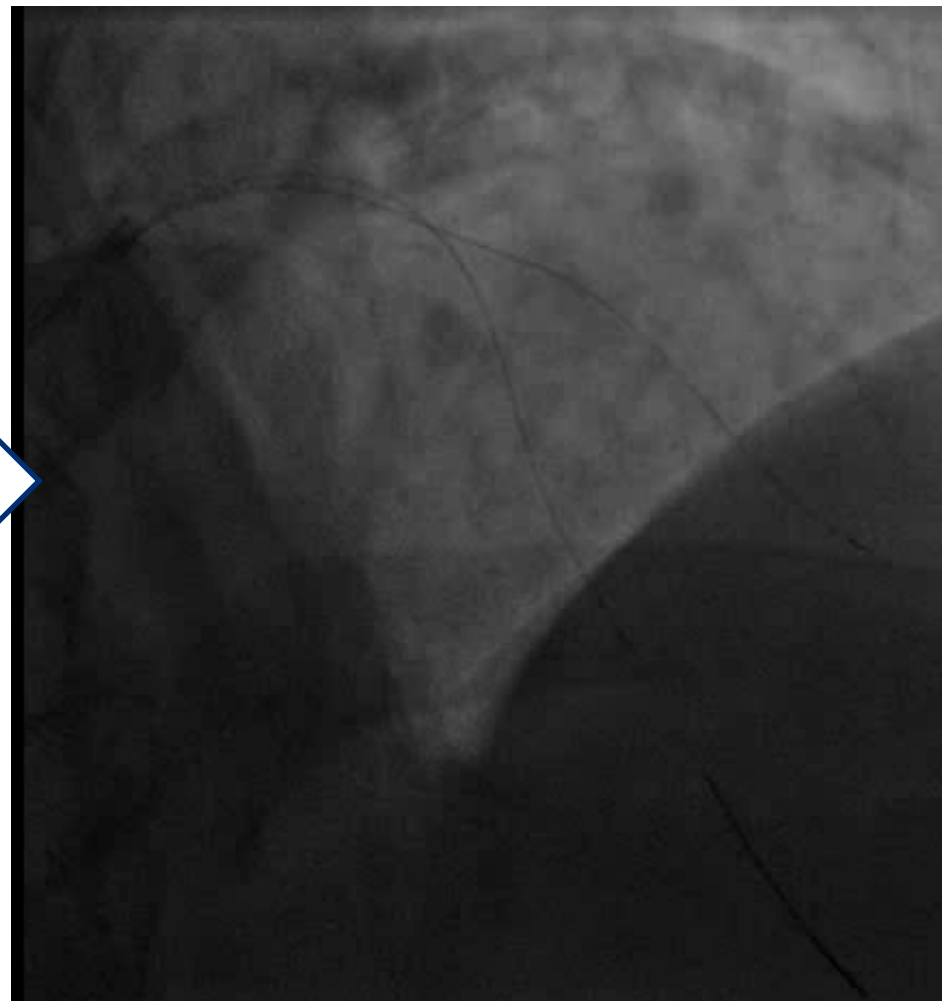
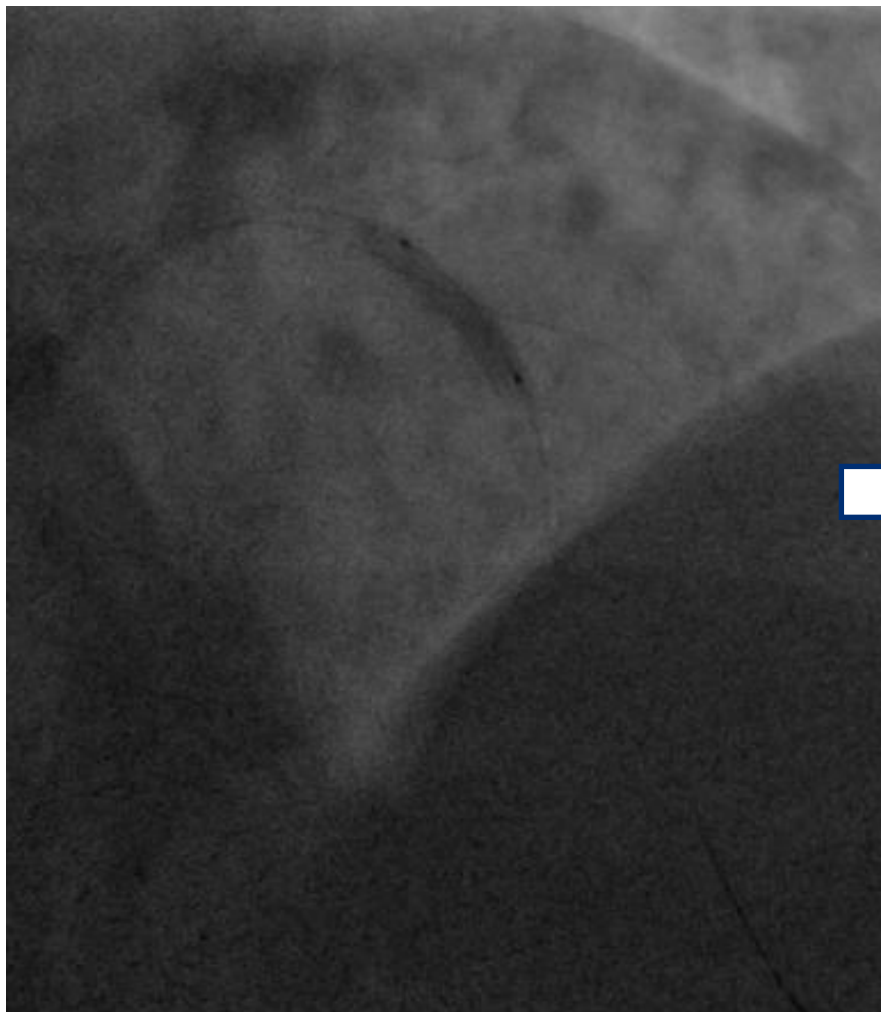


→ provisional single-stenting strategy?



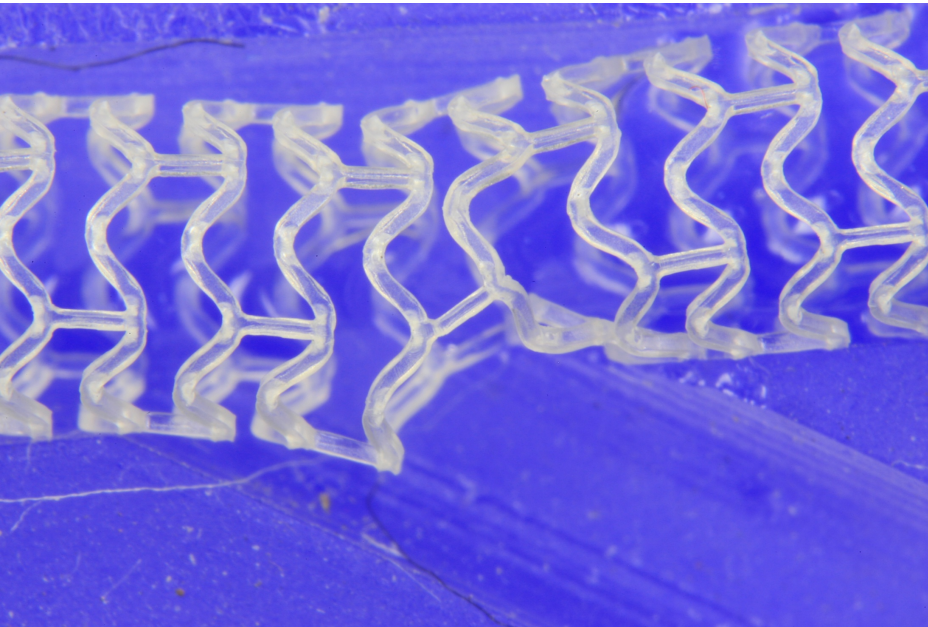
1. Pre-dilation with a 3.0mm NC balloon on LAD
2. Pre-dilation with a 3.0mm NC balloon on diagonal

BVS stenting on LAD

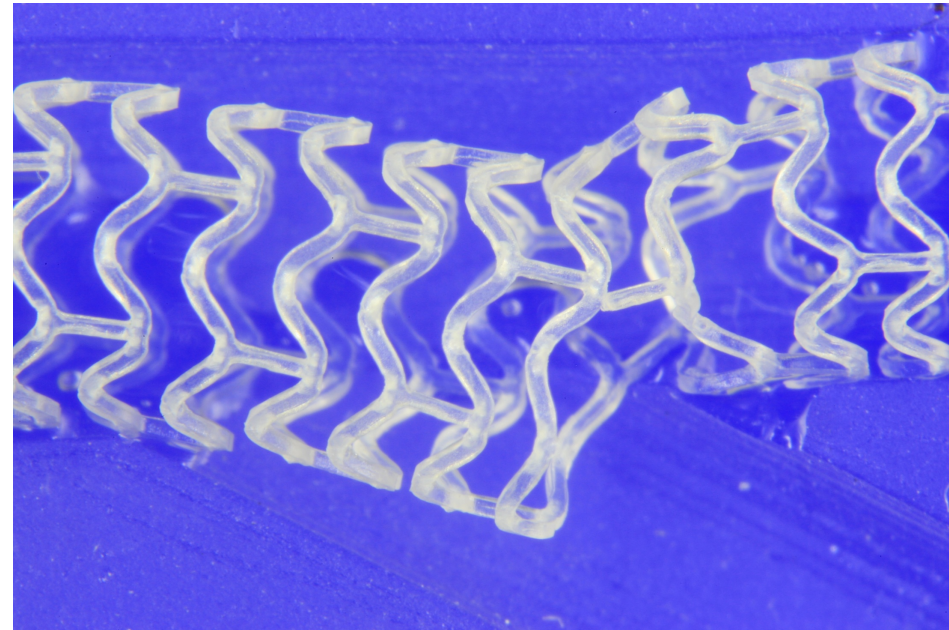


SB dilatation through MB-BVS

Effect of SB dilatation on a 3x28mm BVS

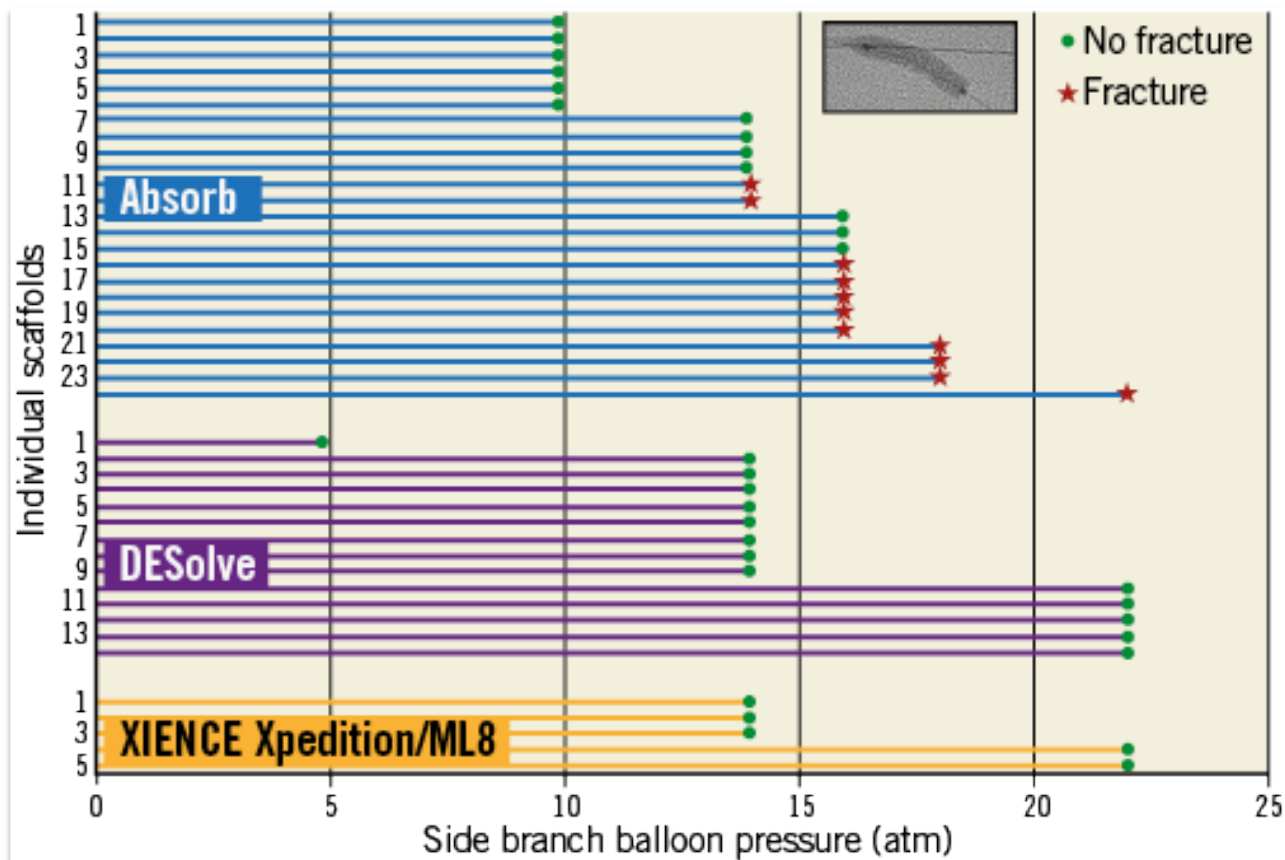


SB dilatation with 2.5mm balloon



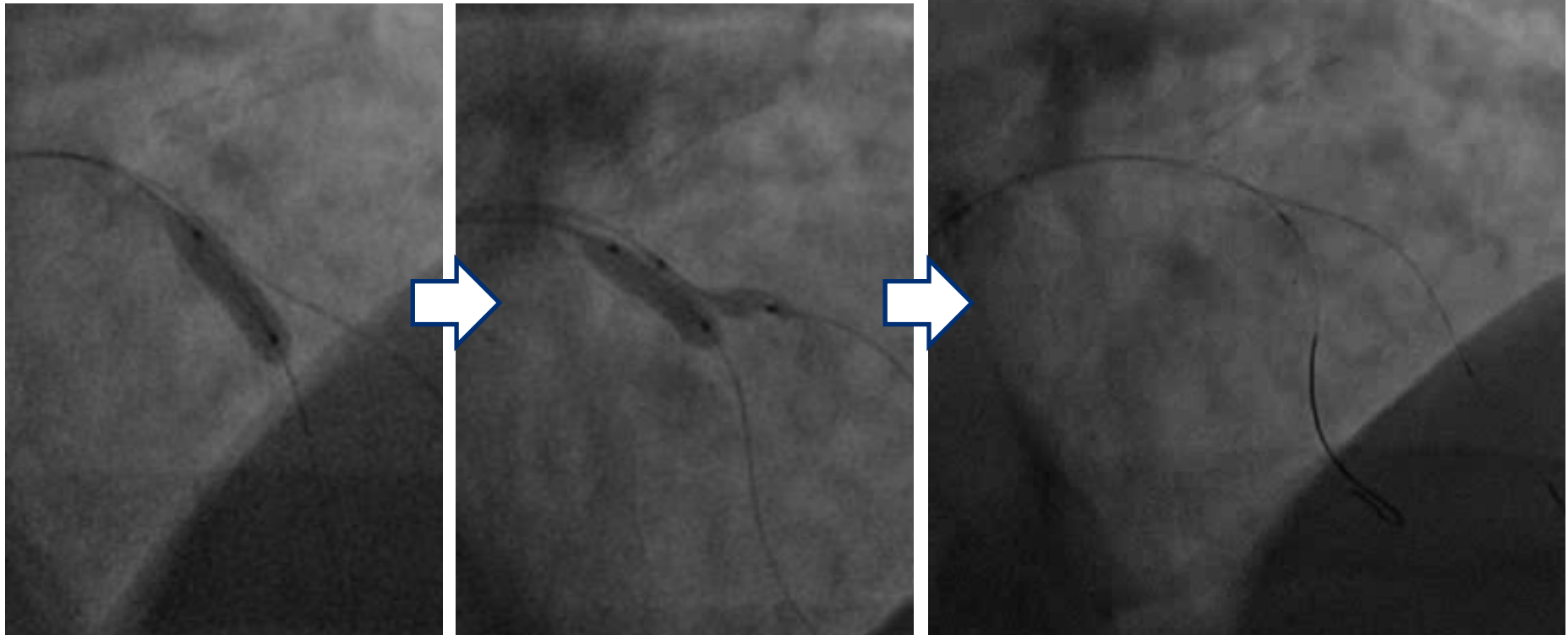
SB dilatation with 3.0mm balloon

Side Branch Dilatation



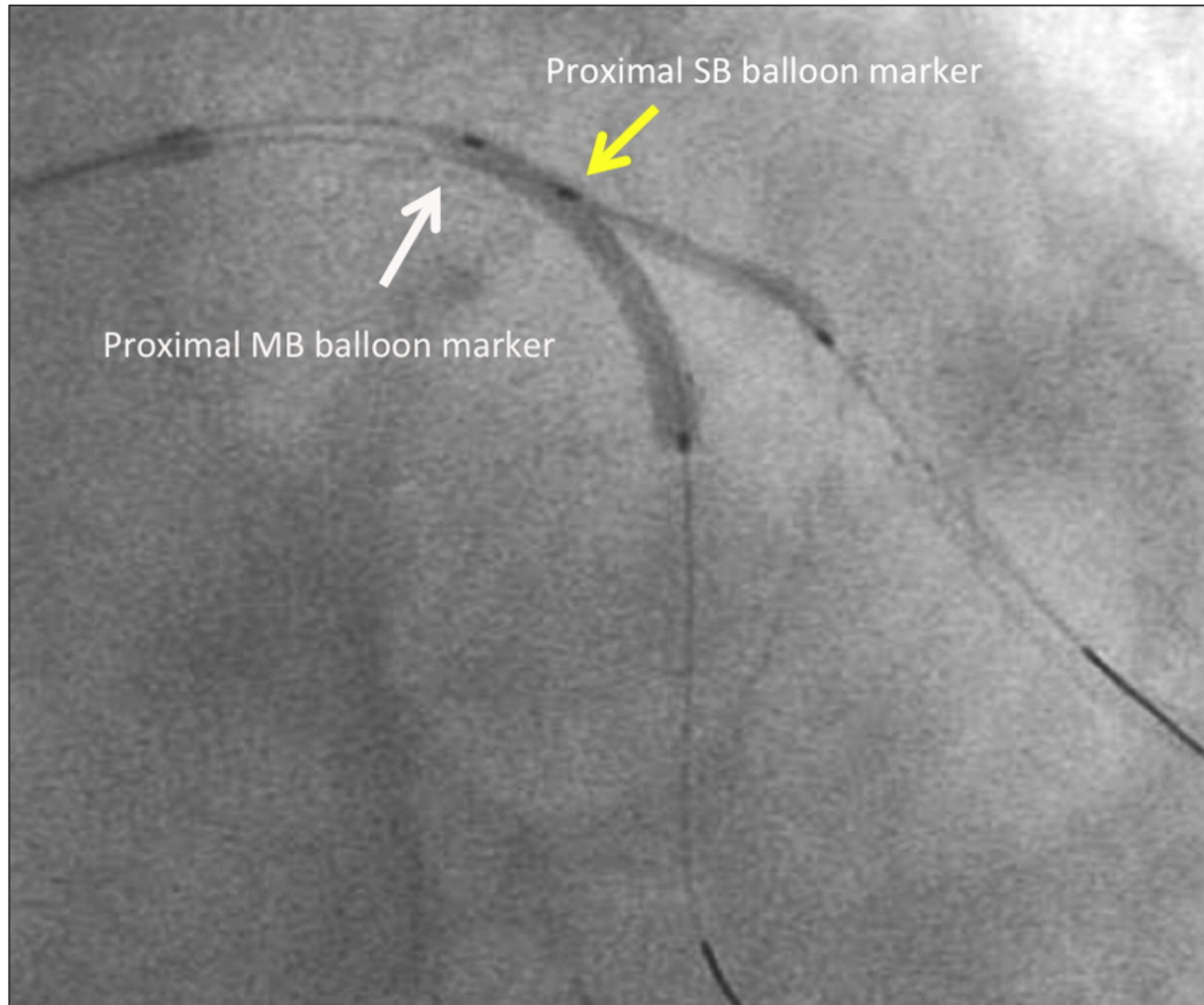
In 3.0mm Absorb BRS, the safe threshold without fracture was 10 atm for side branch dilatation with a 3.0mm NC balloon.

Post-dilatation on LAD followed by KBI

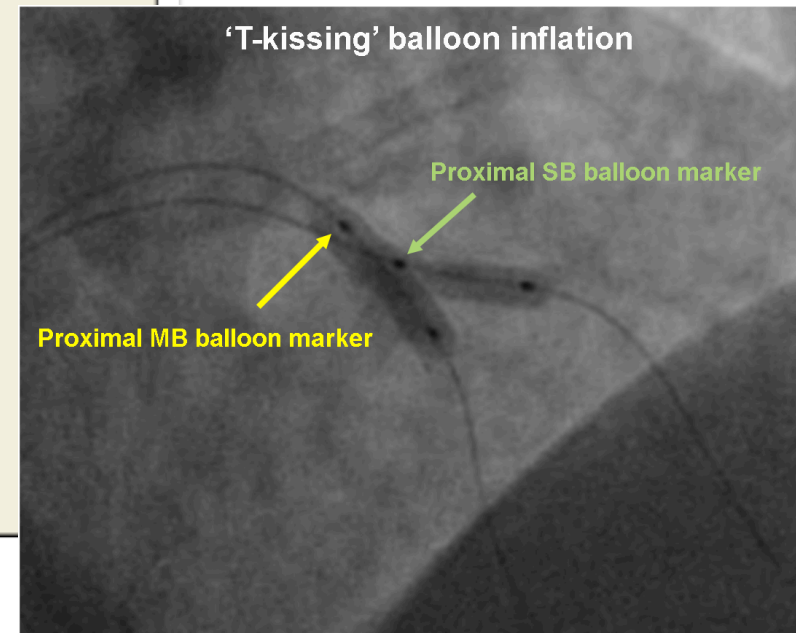
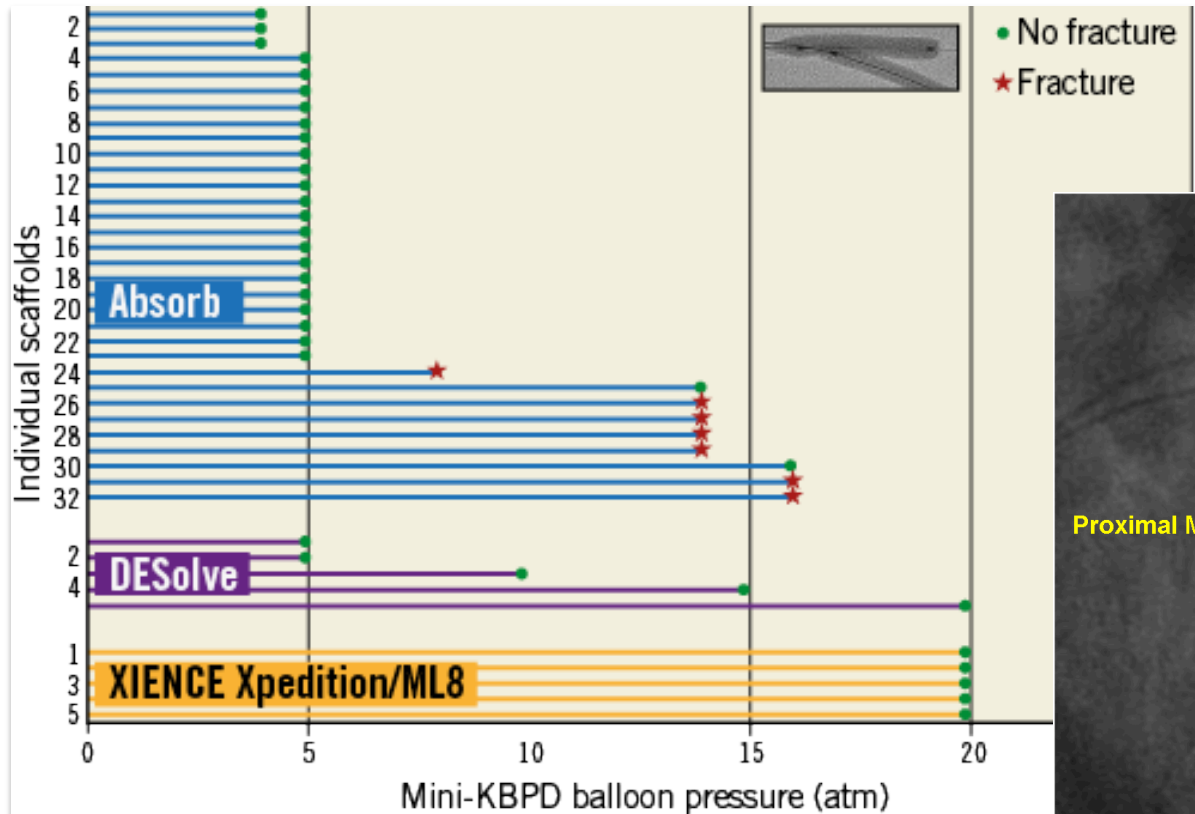


1. Post-dilatation with a 3.5mm NC balloon on LAD (24atm.)
2. KBI with 3.5/3.0mm balloons (small protrusion of SB-balloon)
3. Despite KBI, significant stenosis at diagonal ostium remains

“Hug-Snug” Kissing Balloon Inflation

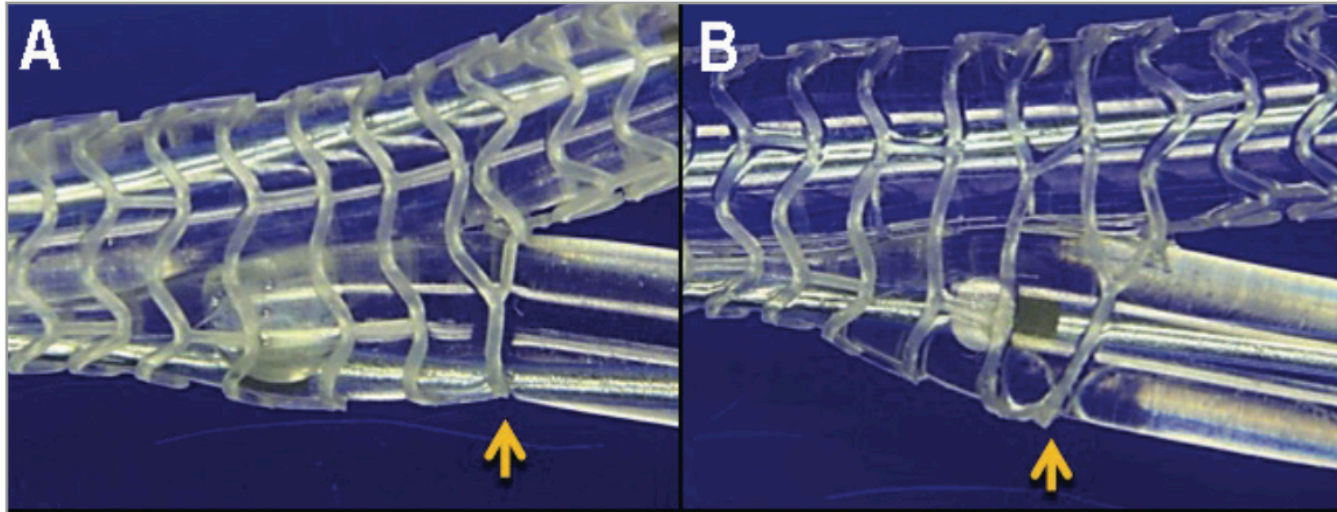


Kissing Balloon Inflation



The safe threshold for mini-KBT in 3.0mm Absorb BRS with 3.0mm NC balloons was 5atm.

Mini-KBPD: 3.0mm NC in 3.0mm Absorb

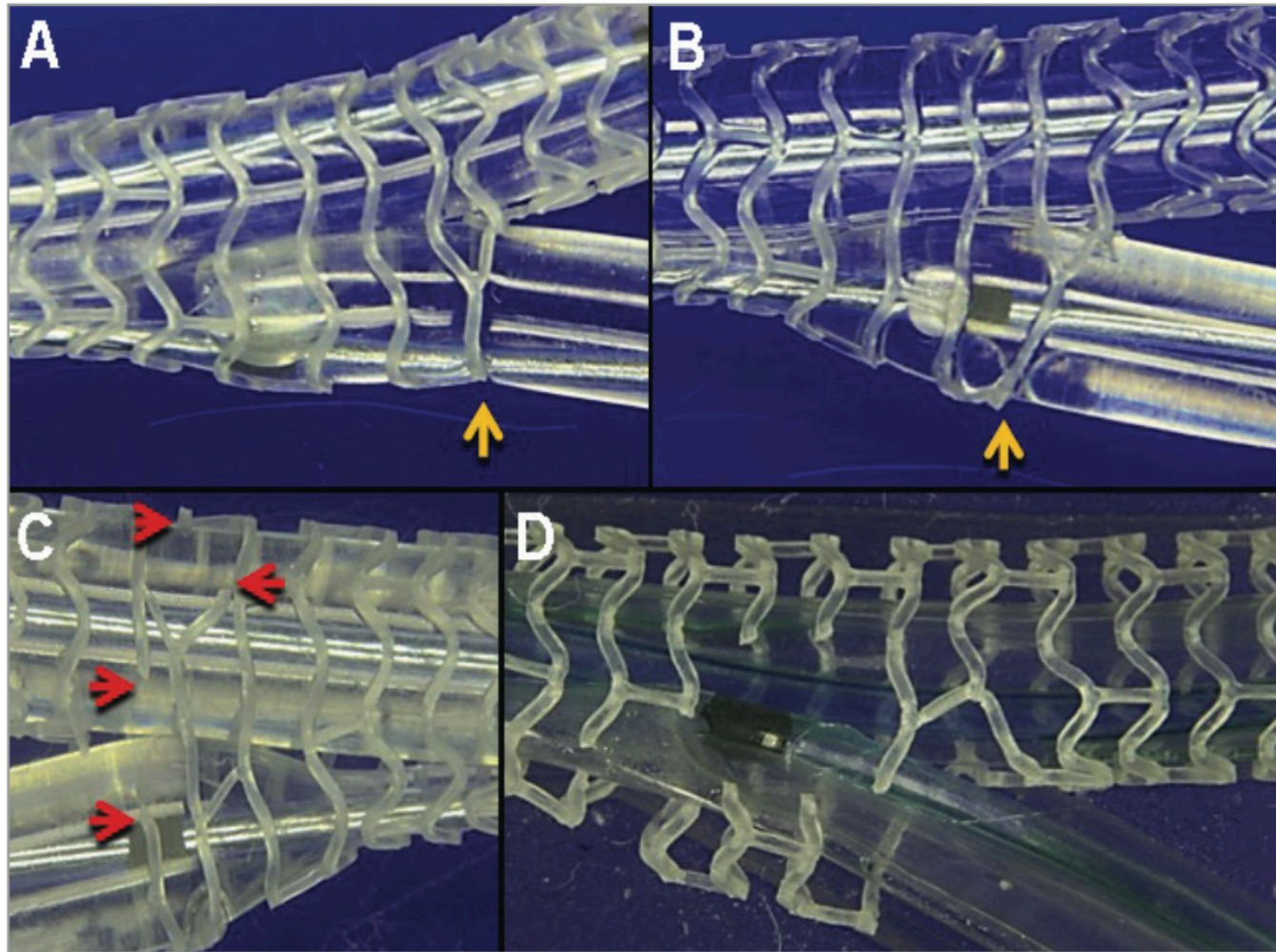


5atm

15atm

Ormiston J et al, EuroIntervention 2014

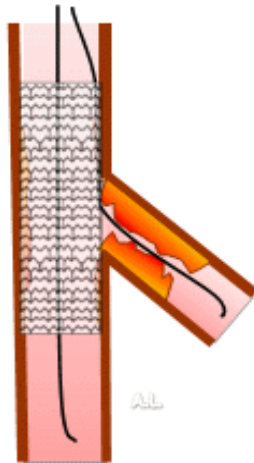
Mini-KBPD: 3.0mm NC in 3.0mm Absorb



Ormiston J et al, EuroIntervention 2014

Provisional Approach -requiring a 2nd stent in the SB

TAP



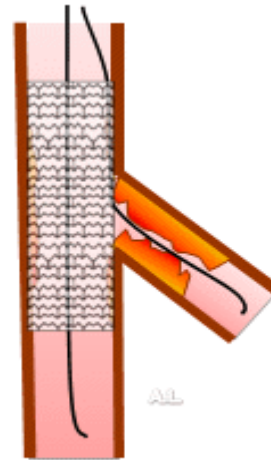
Advantages

Easy to perform
No recrossing

Disadvantages

Struts protruding into MB

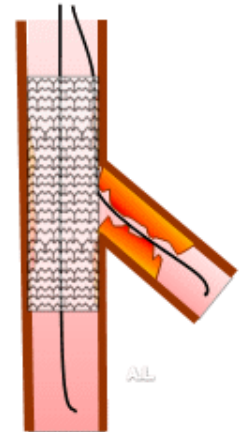
Reverse Crush



Complete coverage of ostium
Any anatomy

Recrossing into SB
3 layers of struts

Culotte



Complete coverage of ostium

More labourious
Rewiring both branches
Double stent layer

BVS in Bifurcations – Milan Experience

132 bifurcations
(SB ≥ 2.25 mm)

BVS only at
SB-ostium (n=9)
MB-ostium (n=1)

**Provisional
single-stenting**
(n=99)

**Systematic
double-stenting**
(n=23)

BVS on both MB
and SB (n=13)

- T-stenting (n=9)
- Mini-crush (n=3)
- V-stenting (n=1)

BVS on MB and DES on
SB (n=10)

- T-stenting (n=2)
- Mini-crush (n=7)
- Crush (n=1)

Dilate MB BVS struts toward SB
(total n=36, 27.3%) (≤ 8 atm. in SB)

Final kissing inflation
(n=8)

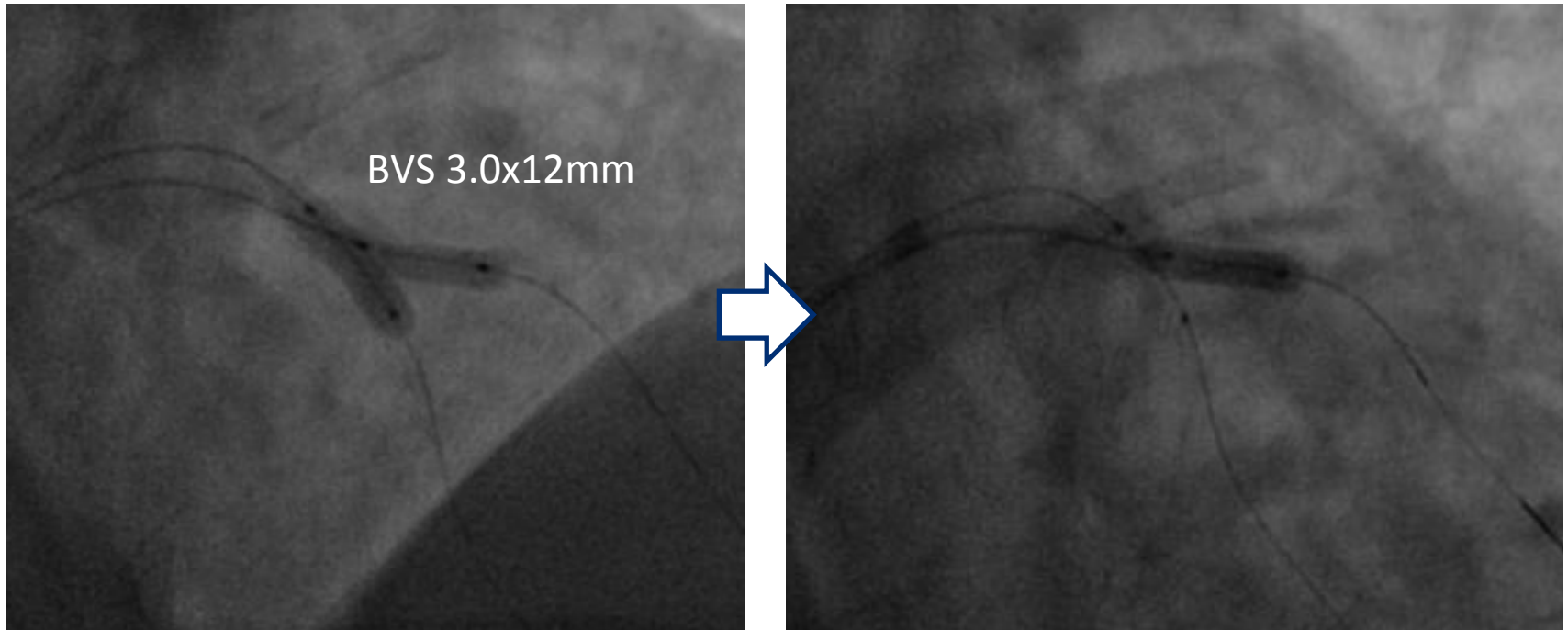
**Finish
procedure**
(n=71)

**T-stenting with
minimal protrusion**
(2 BVS or 5 DES on SB)
(n=7)

**Kissing inflation with
minimal protrusion of SB
balloon**
(n=14)

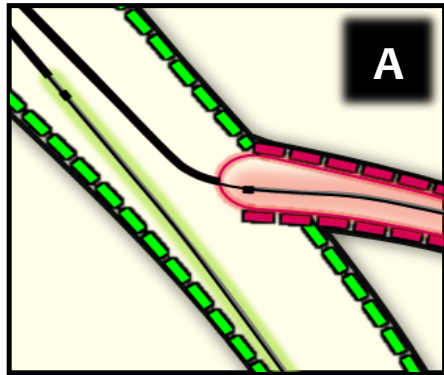
**Dilatation at
SB-ostium**
(n=7)

TAP technique

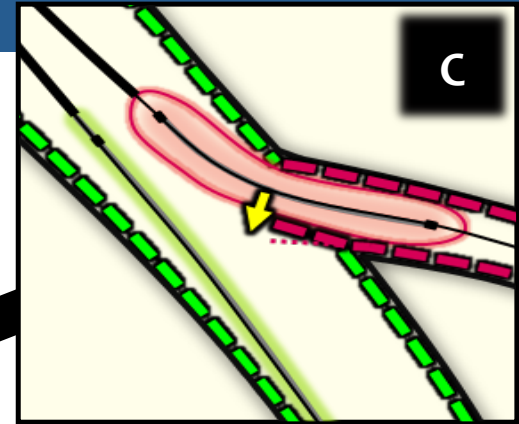
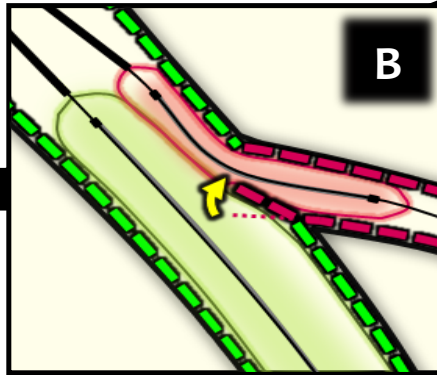


1. BVS 3.0 x 12mm on diagonal
2. KBI with 3.5/3.0mm balloons (small protrusion of SB-balloon)
3. Sequential deflation of balloons → deflate MB always first

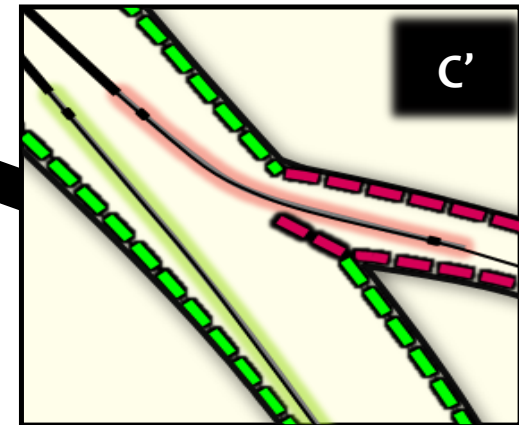
Importance of Sequential Deflation with the TAP technique



SB stent implantation



Deflate MB balloon first



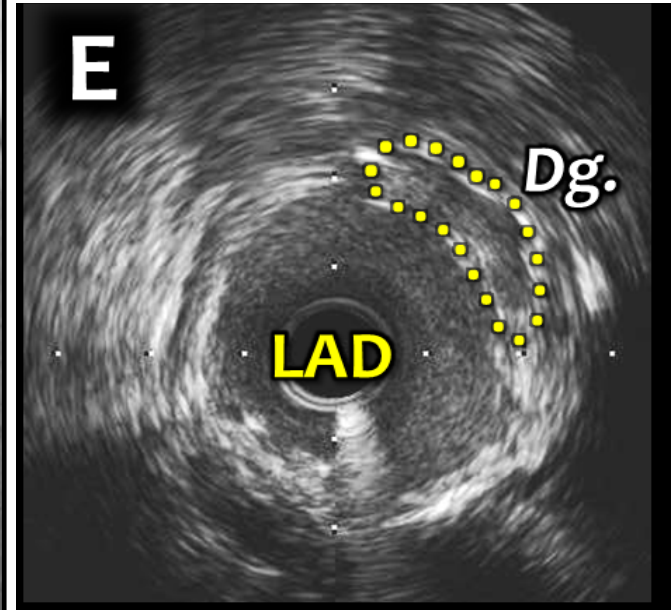
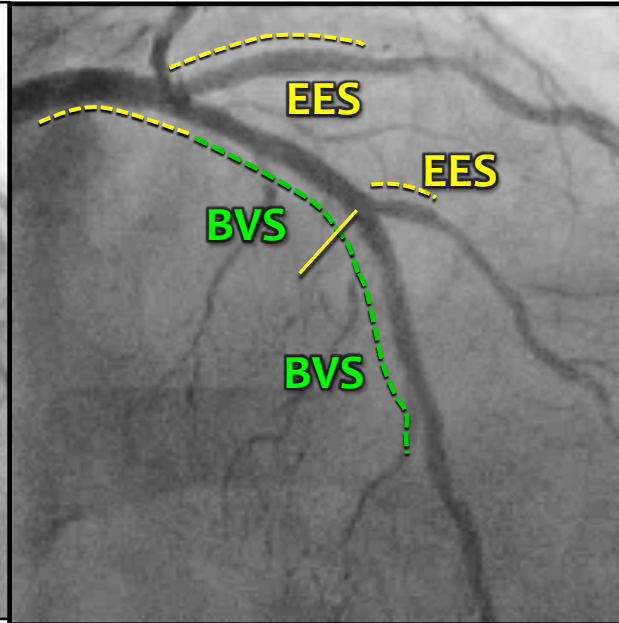
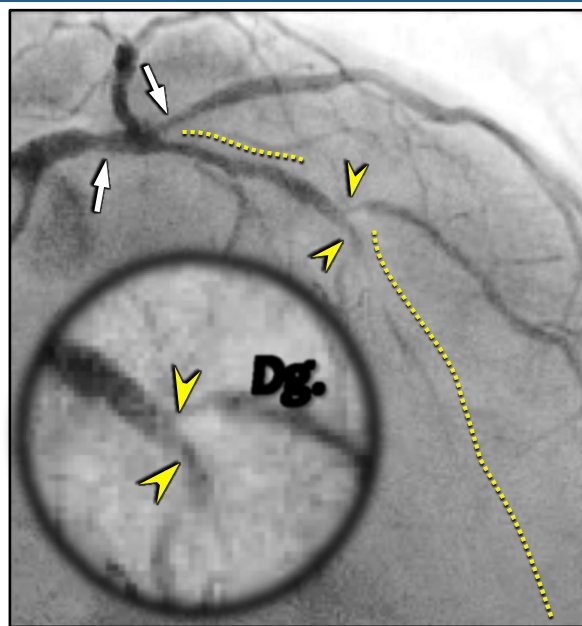
Don't deflate SB balloon first or both balloons together

Importance of Sequential Deflation with the TAP technique

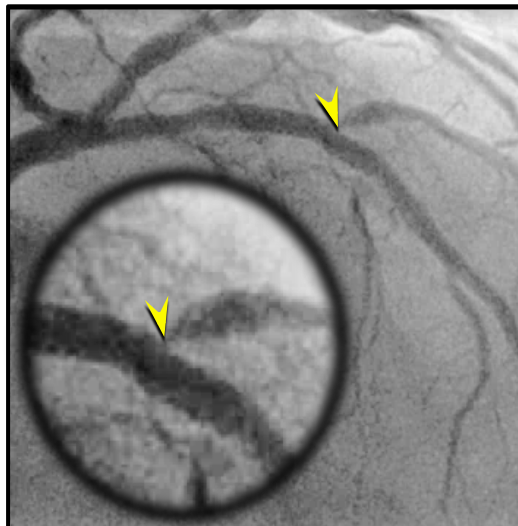
Baseline

Final result after TAP

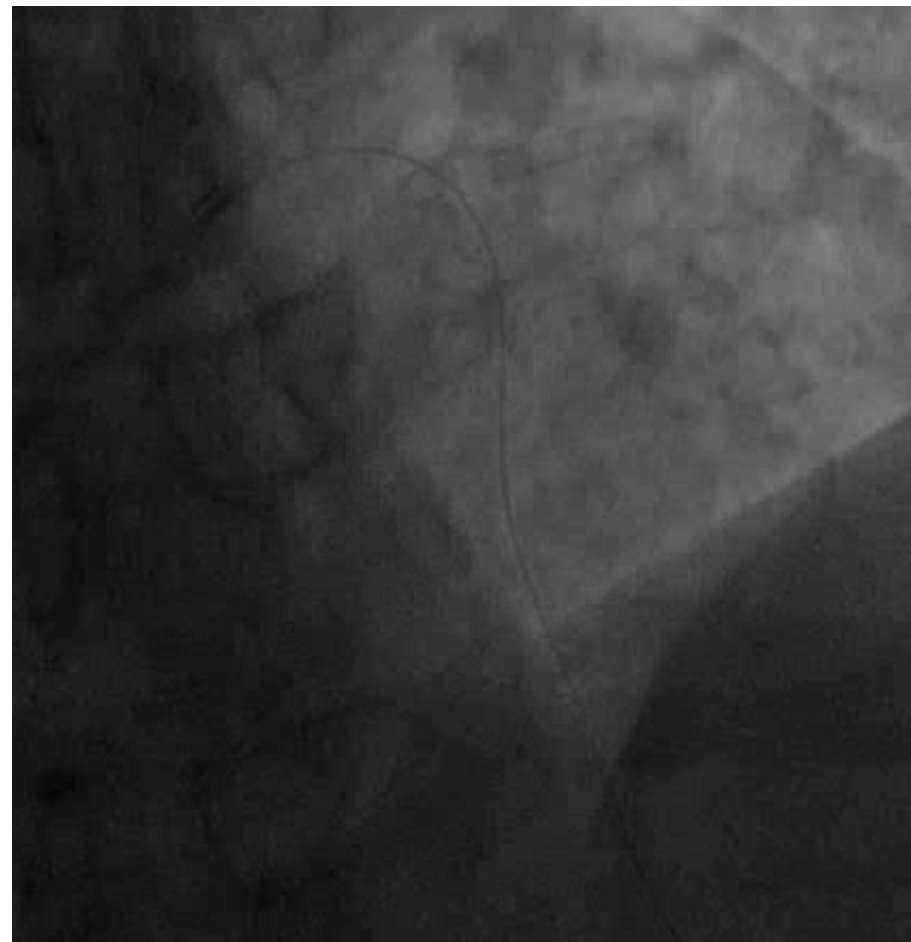
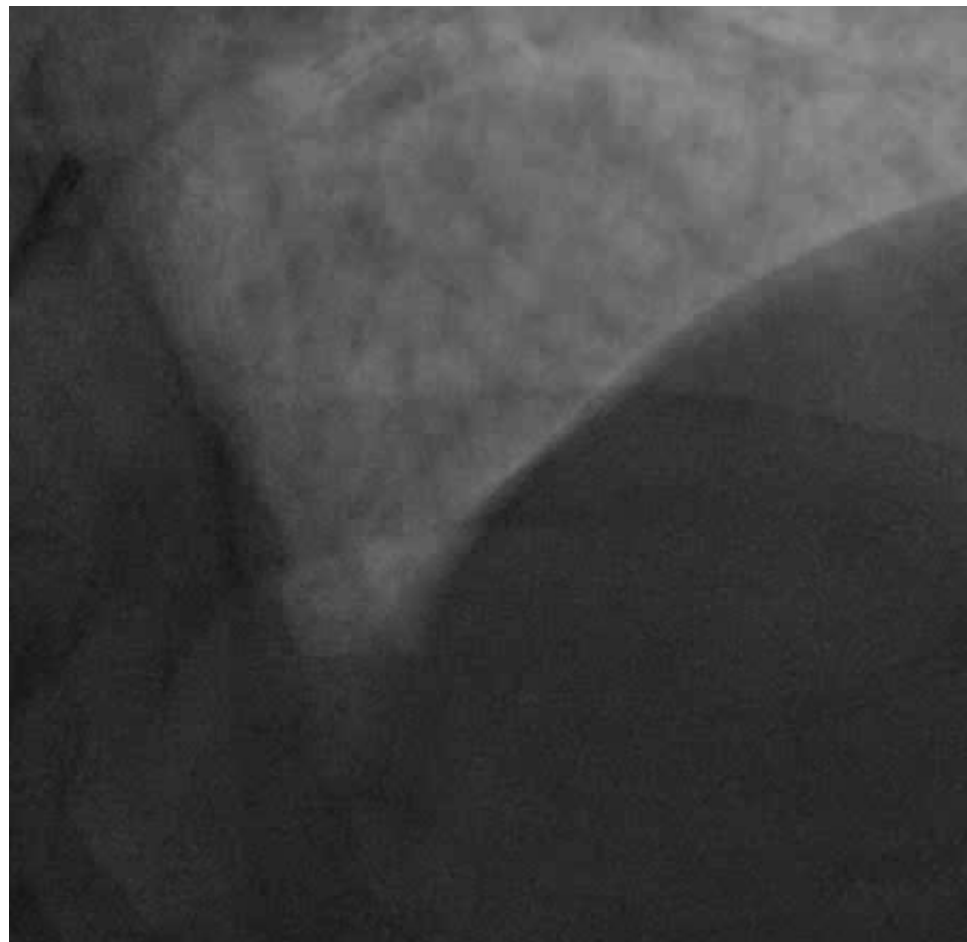
IVUS showing negative effect of not
deflating MB balloon first



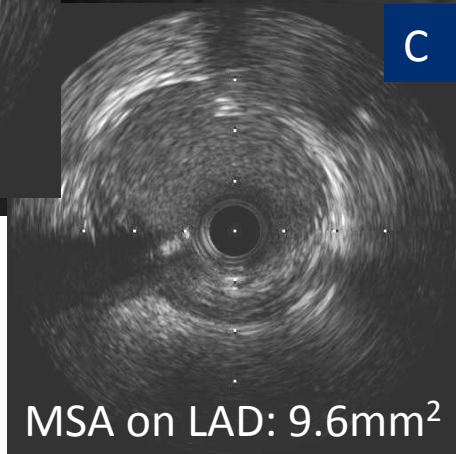
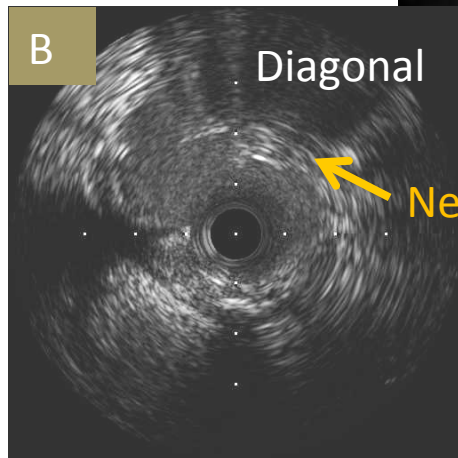
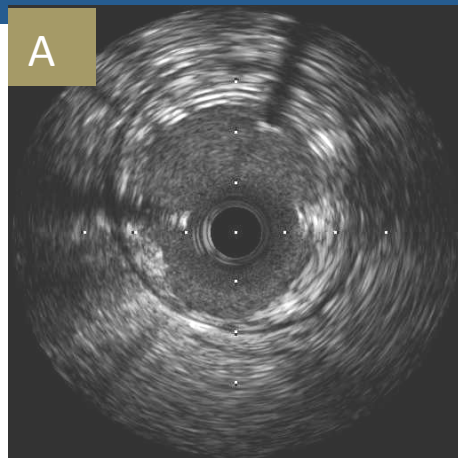
Follow-up showing focal
restenosis at ostium



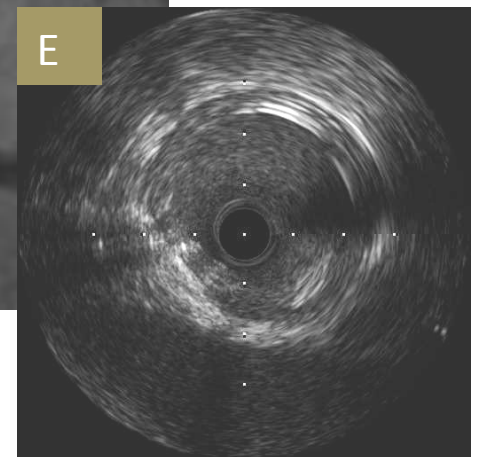
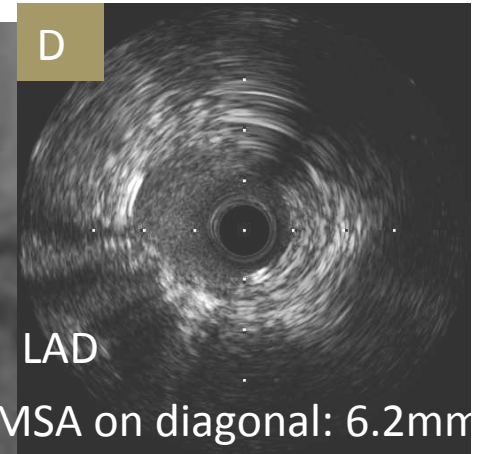
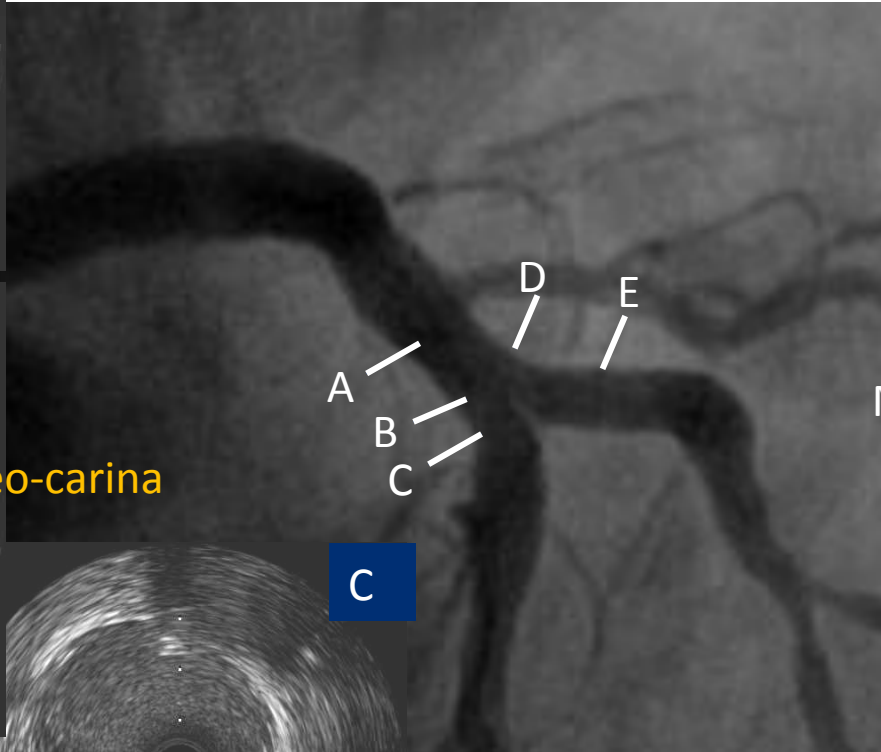
Initial and final angiograms



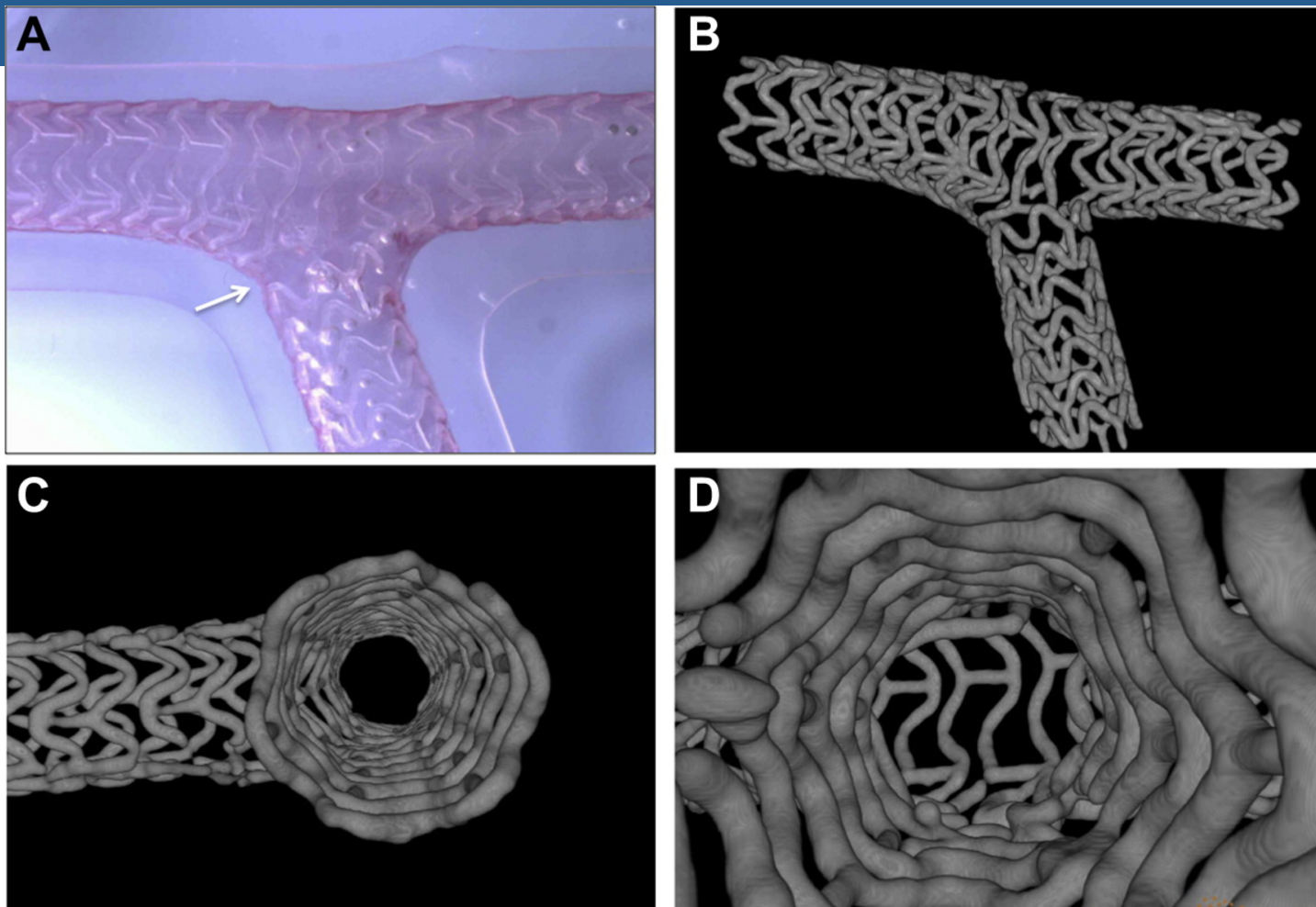
Final IVUS images



MSA on LAD: 9.6mm²



Bench Testing of TAP technique



T-stenting after deployment of a 2.5x18 mm BVS and at 12 atm through the dilated main vessel BVS struts, and after a FKB with 3.0x20 and 2.5x20 mm balloons, both inflated to 8 atms

Conclusions

- **TAP** is the preferred and easiest to perform technique to implant a stent in the SB after provisional
- True for DES and BRS
- Current BRS may be difficult to pass through MB BRS struts and we currently more often perform TAP with DES in SB
- Sequential deflation of balloons when performing FKBI is essential to maintain optimal final result