

To Kiss, or Not to Kiss, That Is the Question: Optimization of the 1-Stenting in Bifurcation PCI

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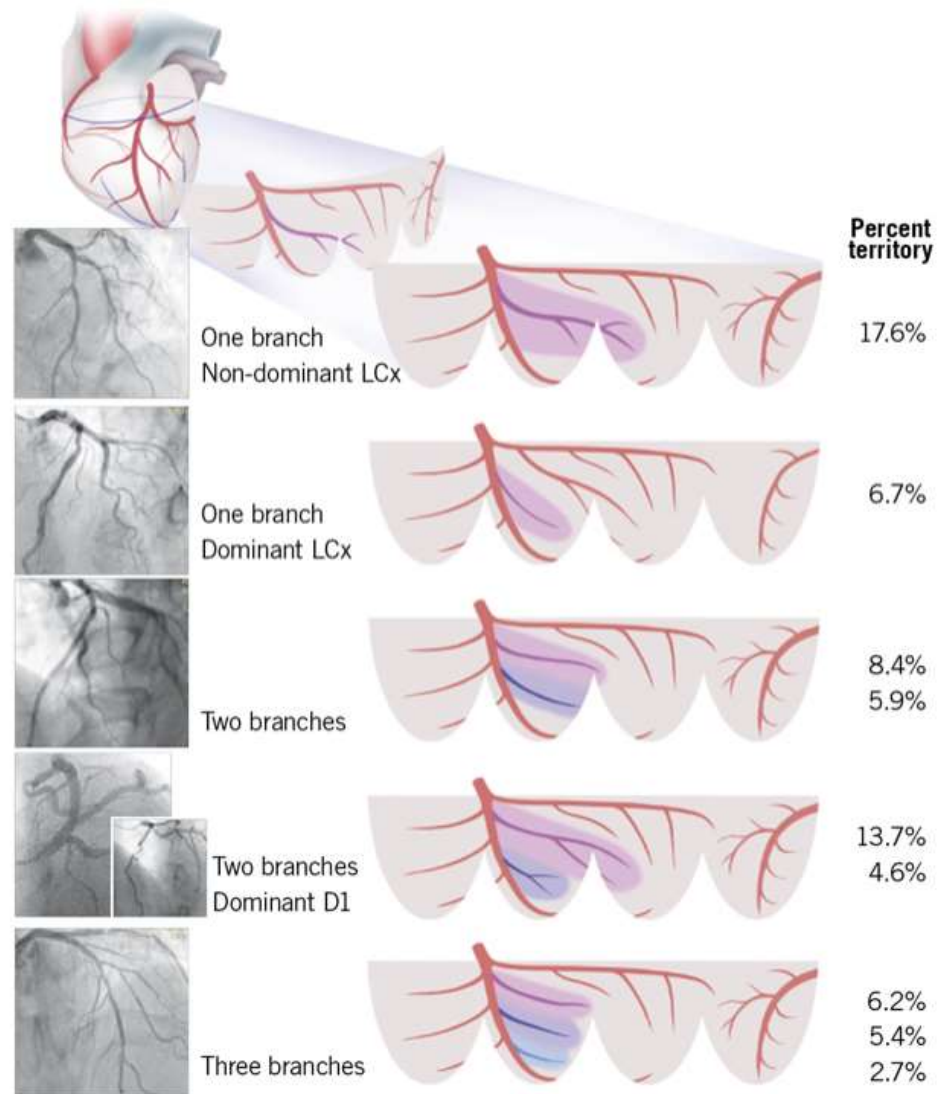
Importance of SB

Table 2. Angiographic attributes of diagonal branches and %FMM.

Attribute	Condition	%FMM <10%	%FMM ≥10%	p-value
Size	≥2.5 mm	126 (60.3)	83 (39.7)	<0.0001
	<2.5 mm	352 (99.2)	3 (0.8)	
Number	1 branch	41 (41.0)	59 (59.0)	<0.0001
	2 branches	273 (91.6)	25 (8.4)	
	≥3 branches	164 (98.8)	2 (1.2)	
D _{1/2} dominance	Yes	16 (44.4)	20 (55.6)	<0.0001
	No	257 (98.1)	5 (1.9)	
LCx dominance	Yes	166 (93.3)	12 (6.7)	0.0001
	No	312 (80.8)	74 (19.2)	
<p>The numbers in the two subgroups are expressed in n (%). D_{1/2} dominance denotes the presence of a dominant branch in case of 2 diagonal branches. %FMM: percent fractional myocardial mass; LCx: left circumflex artery</p>				



Importance of SB



Jeon et al Eurointervention

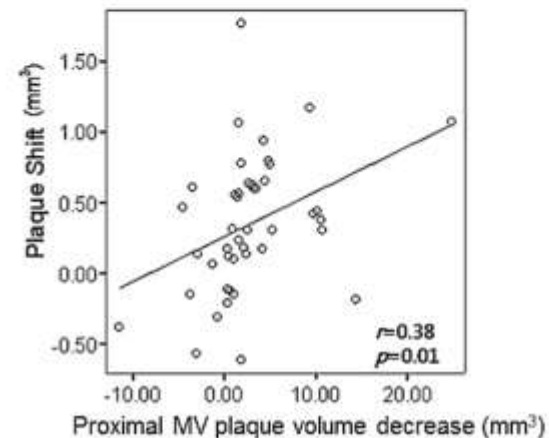
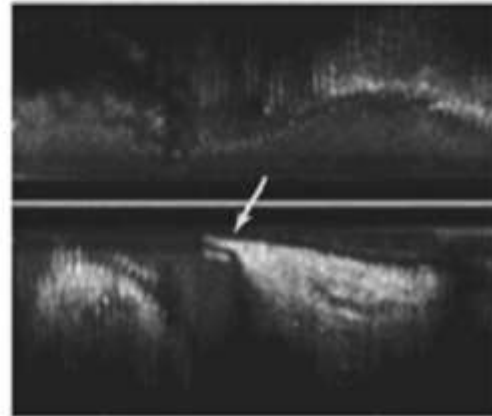


Kissing Balloon Inflation and POT

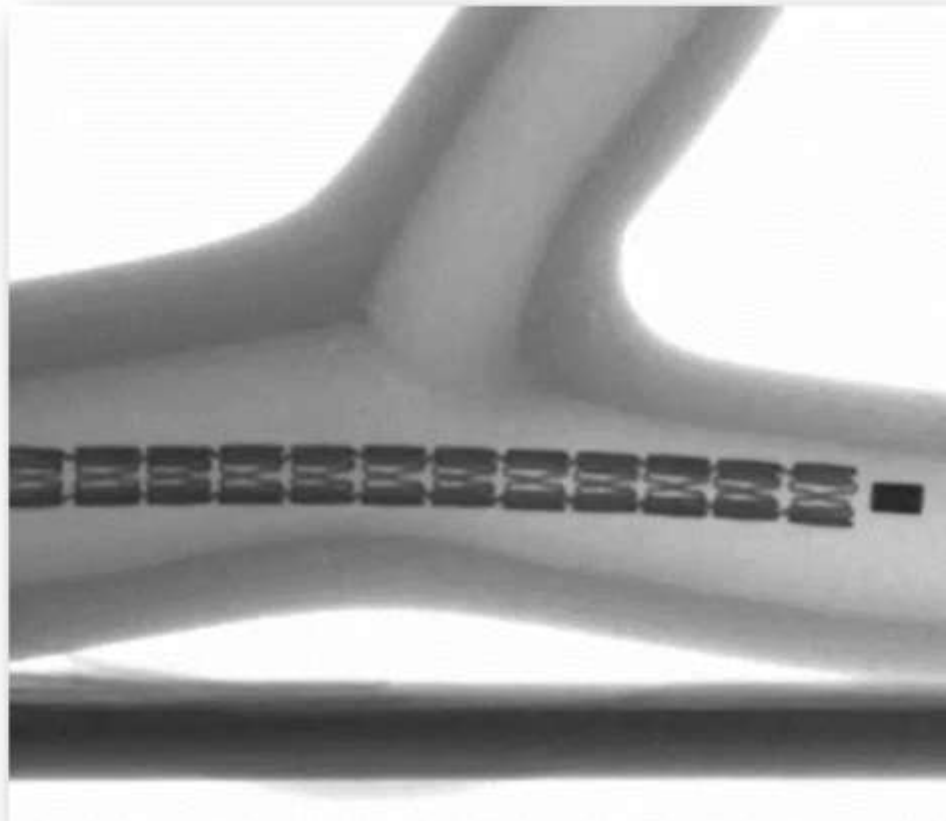
Both techniques are intended to limit the risk of side branch compromise

Two mechanisms

- Spiky carena shift (De Lezo Eurointervention 2012; 7:1147-54)
- Longitudinal plaque shift from proximal main vessel (Xu Circ CVI 2012; 5:657-62)

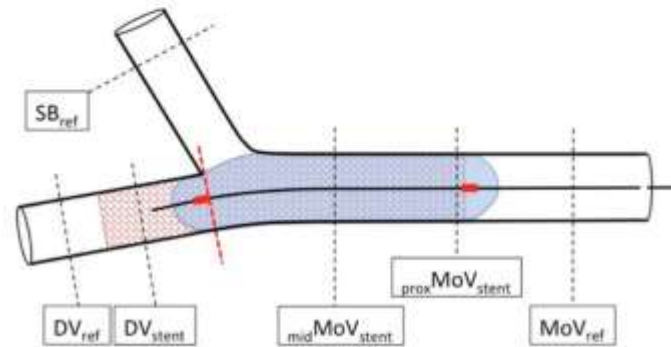


Distal MB sizing → no carina shift → need for POT



Key points for POT

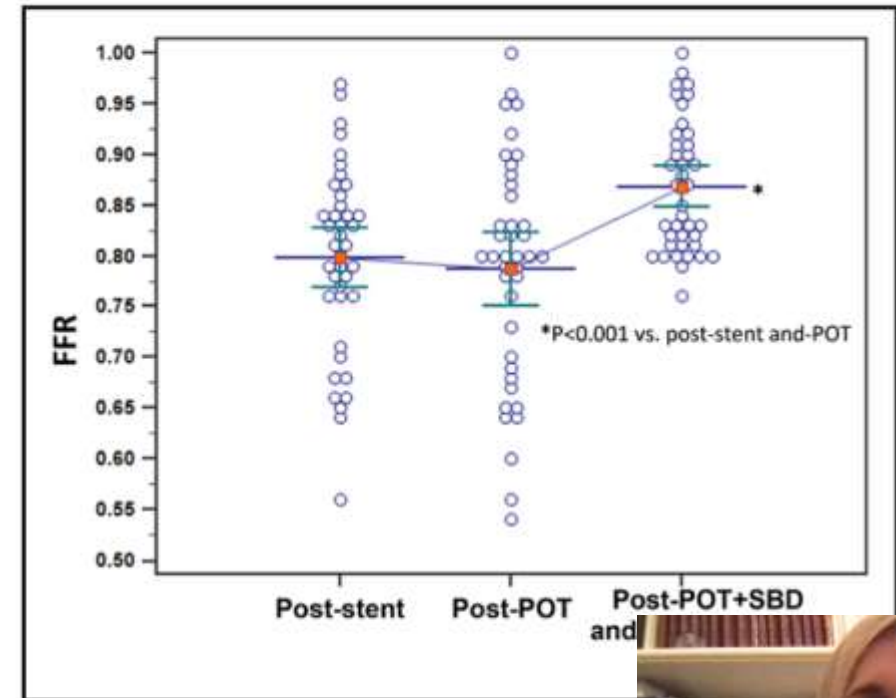
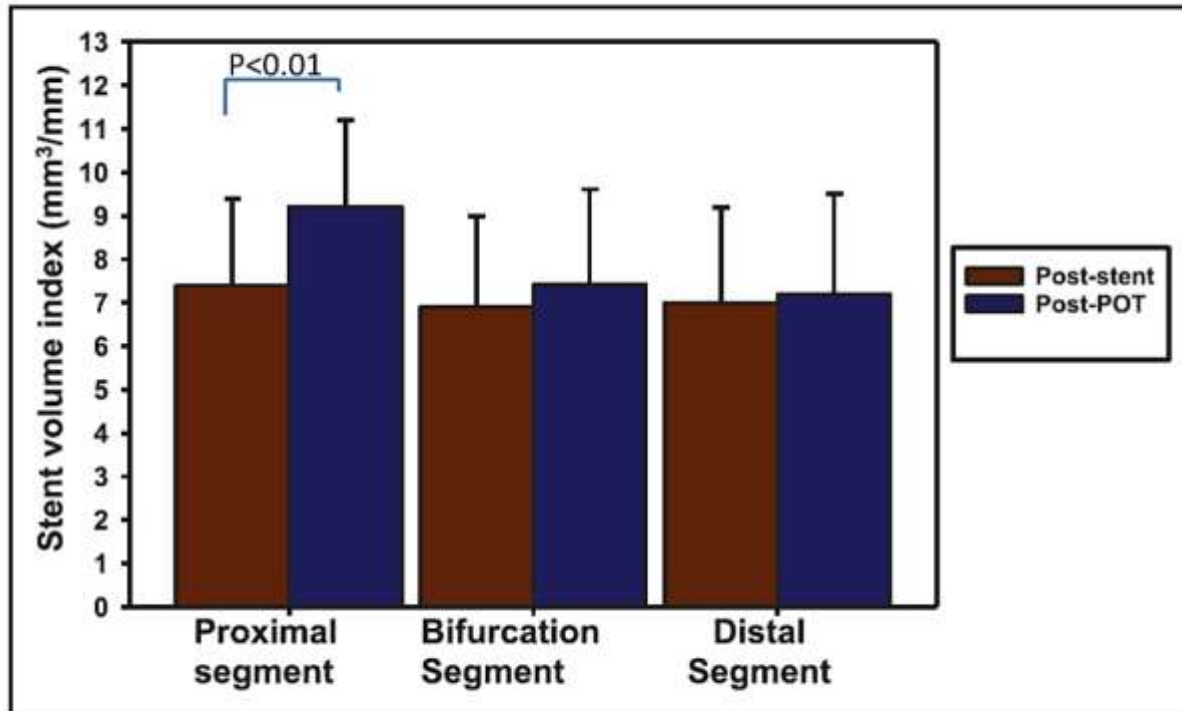
- Place the stent proximally enough (6 or 8 mm)
- POT before wire exchange
- Know your NC balloon (shoulder/marker)
- Sized to proximal reference (1:1) as calculated by: $D_{MV\ prox} = 0.67 \times (D_{MV\ distal} + D_{SB})$
- Distal marker at carina level.



- Select the view with maximal angle to avoid overlap



POT



COBIS II POT Study

Clinical outcomes

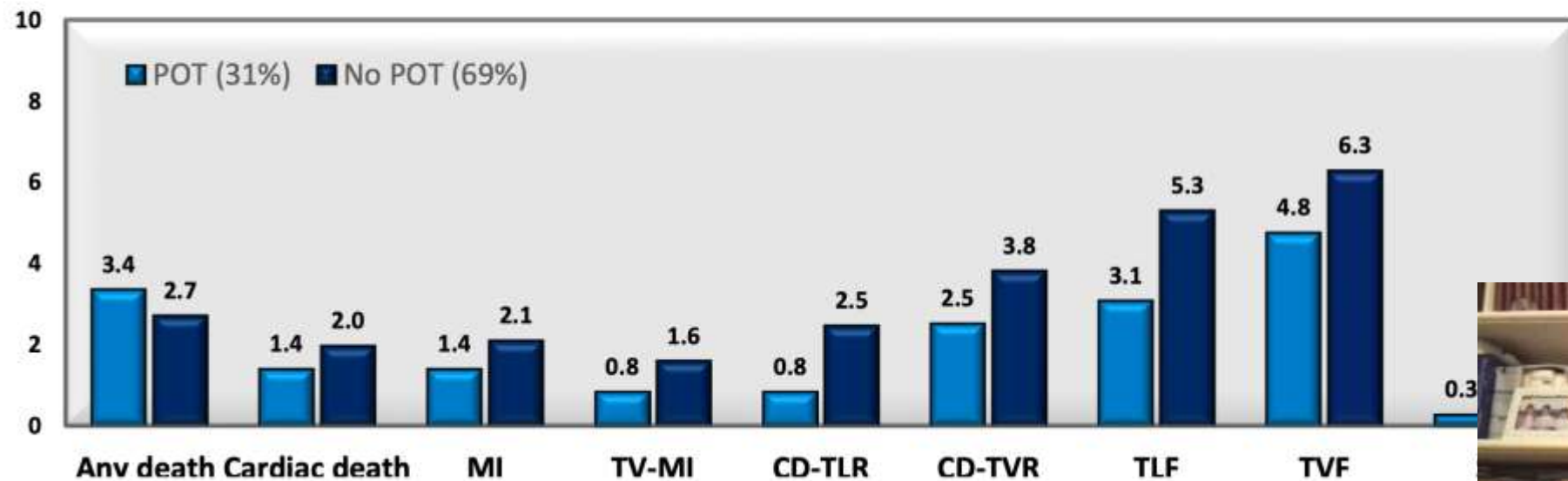
- Patients with **SB diameter ≥ 2.5 mm in QCA**
- **Propensity score-matching population (total 1901 pts)**

	POT (n=204)	No POT (n=665)	HR (95% CI)	p value
MACE	6 (2.9)	78 (11.7)	0.25 (0.11-0.60)	0.002
All-cause death	7 (3.4)	25 (3.8)	0.97 (0.41-2.33)	0.95
Cardiac death	1 (0.5)	9 (1.4)	0.37 (0.05-2.97)	0.35
Myocardial infarction	0	12 (1.8)	-	-
Stent thrombosis	2 (1.0)	8 (1.2)	0.98 (0.20-4.77)	0.98
TLR	5 (2.5)	61 (9.2)	0.27 (0.10-0.69)	0.006
MV, proximal	3 (1.5)	40 (6.0)	0.25 (0.07-0.82)	0.02
MV, distal	4 (2.0)	47 (7.1)	0.28 (0.10-0.80)	0.02
SB	4 (2.0)	35 (5.3)	0.37 (0.13-1.09)	0.07
Both vessels	5 (2.5)	48 (7.2)	0.34 (0.13-0.88)	0.03

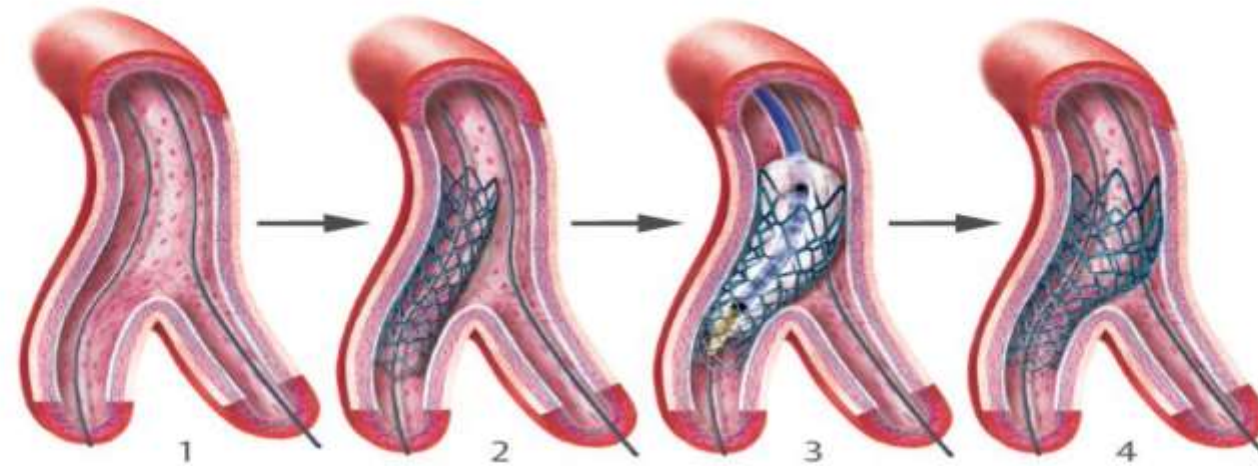


E-ULTIMASTER 1168 Bifurcations: Role of POT

1-year clinical outcomes



Provisional SB: Stand-alone POT



« NORDIC III spirit »

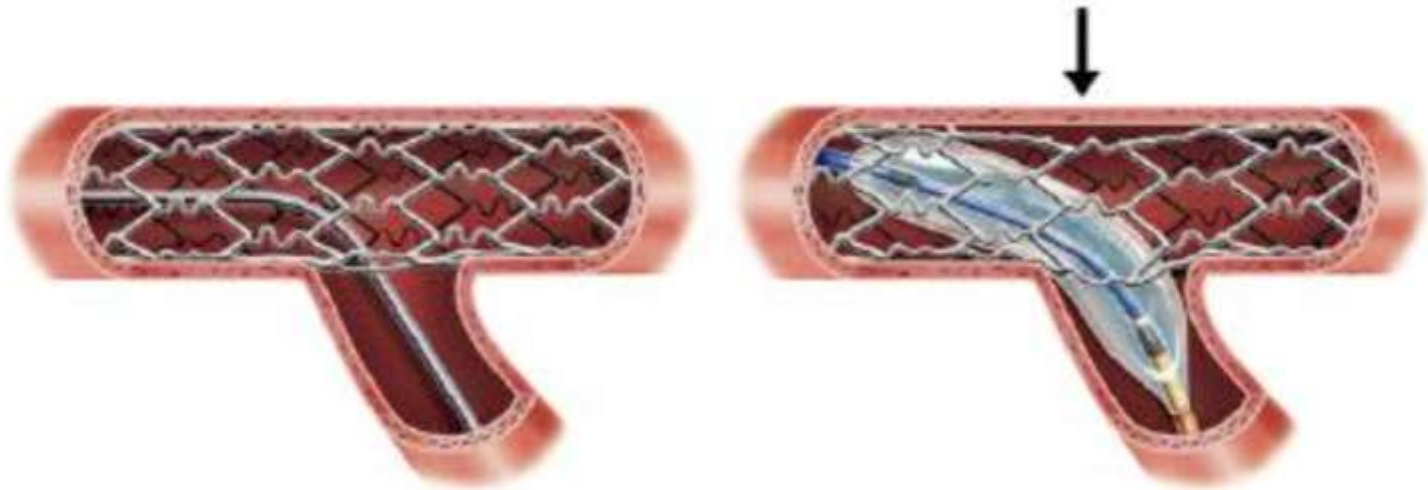


Potential benefits of SB opening

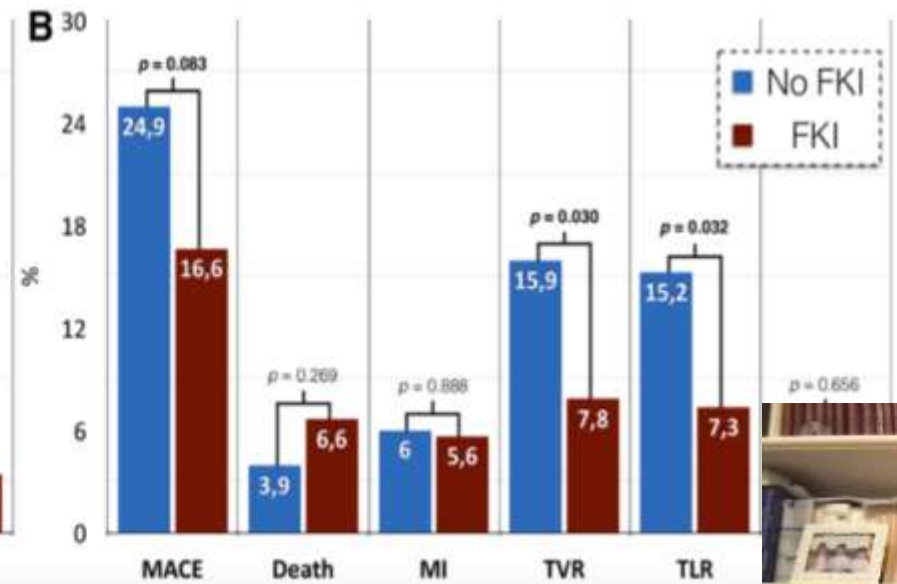
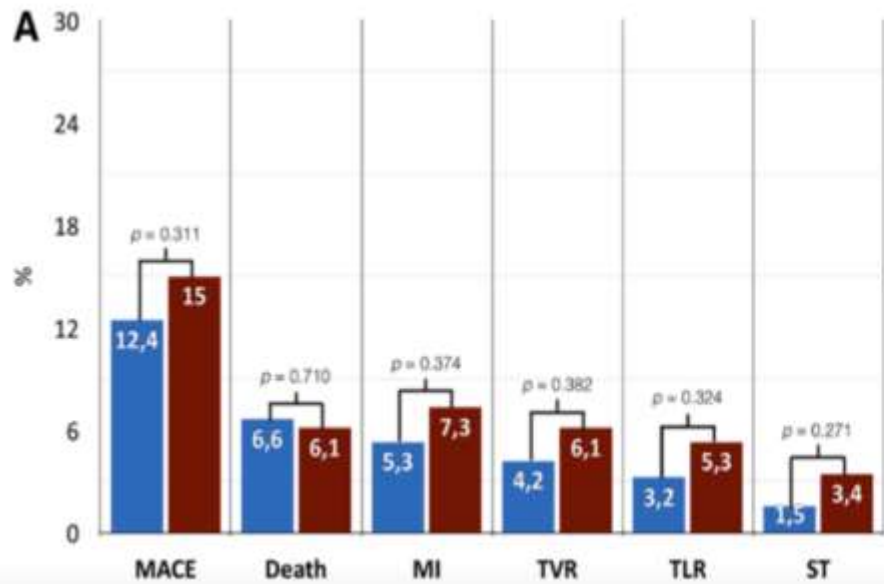
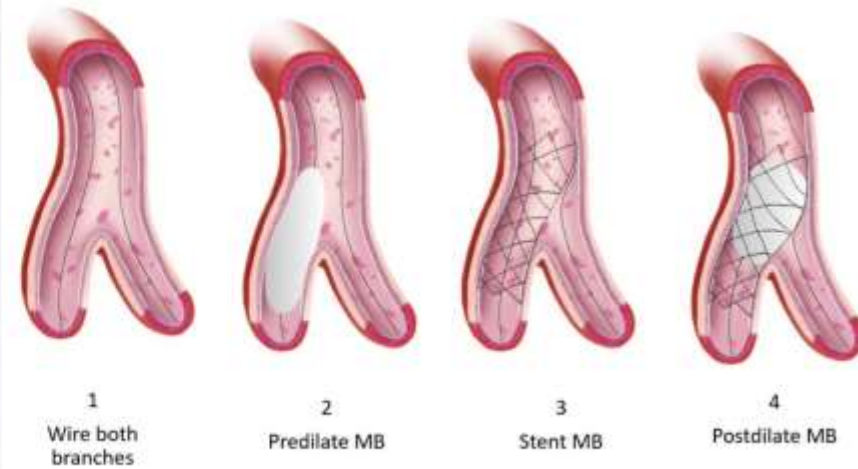
- Avoid peri-procedural occlusion → NonQ MI
- Relief of angina
- Keep access for future interventions



SB fenestration → Stent distortion → need for KBT



No doubt about 2 stents strategy



NORDIC III

	No FKBD (n=239), n (%)	FKBD (n=238), n (%)	<i>P</i>
Noncardiac death	0 (0)	1 (0.4)	0.49
Cardiac death	0 (0)	2 (0.8)	0.24
Index lesion MI*	3 (1.3)	1 (0.4)	0.62
TLR	4 (1.7)	3 (1.3)	1.00
CCS class ≥ 2 angina	29 (12.0)	28 (11.7)	1.00
Stent thrombosis	1 (0.4)	1 (0.4)	1.00

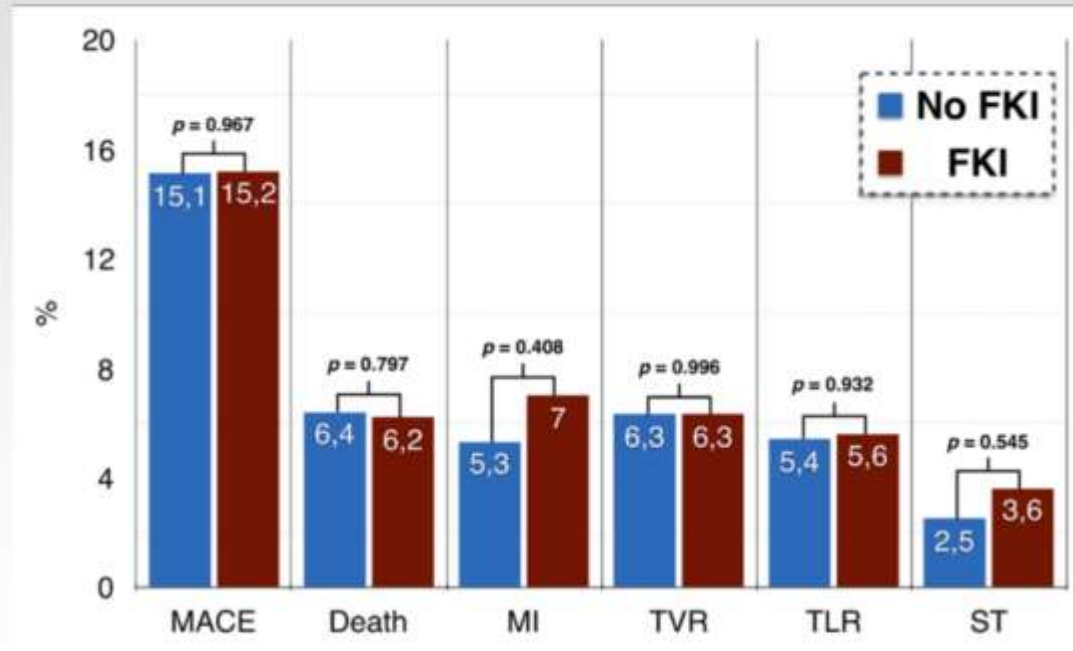


FKI vs No FKI

Study (N pts)	Technique	Death/MI	TLR	ST
THUEBIS (120)	simple	=	=	=
NORDIC III (477)	simple	=	=	=
CORPAL (244)	simple	=	=	=
Yamawaki (253)	simple	=	-	=
COBIS II (1901)	simple	=	++	=
Ge (181)	complex	=	+	=
TRYTON (745)	Complex	+	=	=



FKI vs No FKI



Impact of Kissing Balloon in Patients Treated With Ultrathin Stents for Left Main Lesions and Bifurcations

Gaido, Circ Inter 20

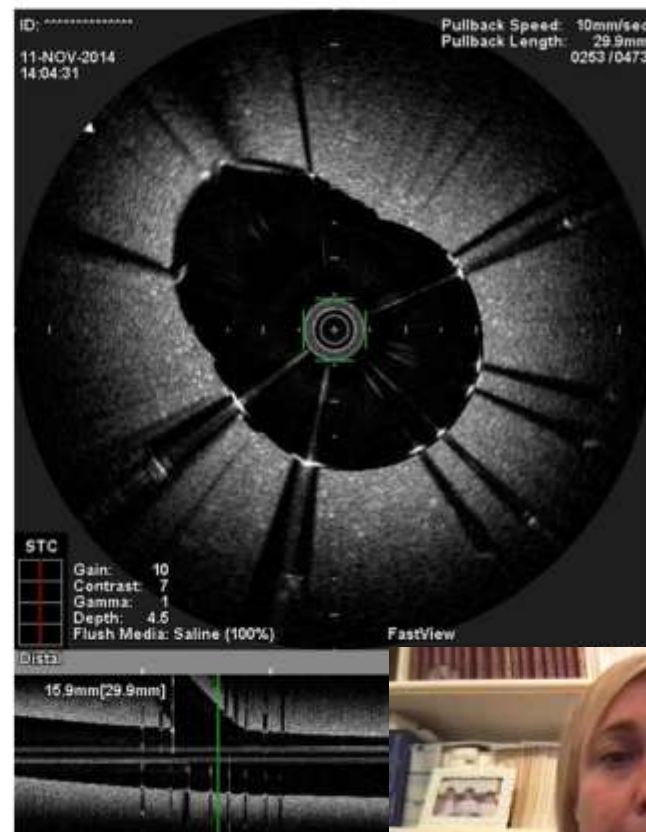
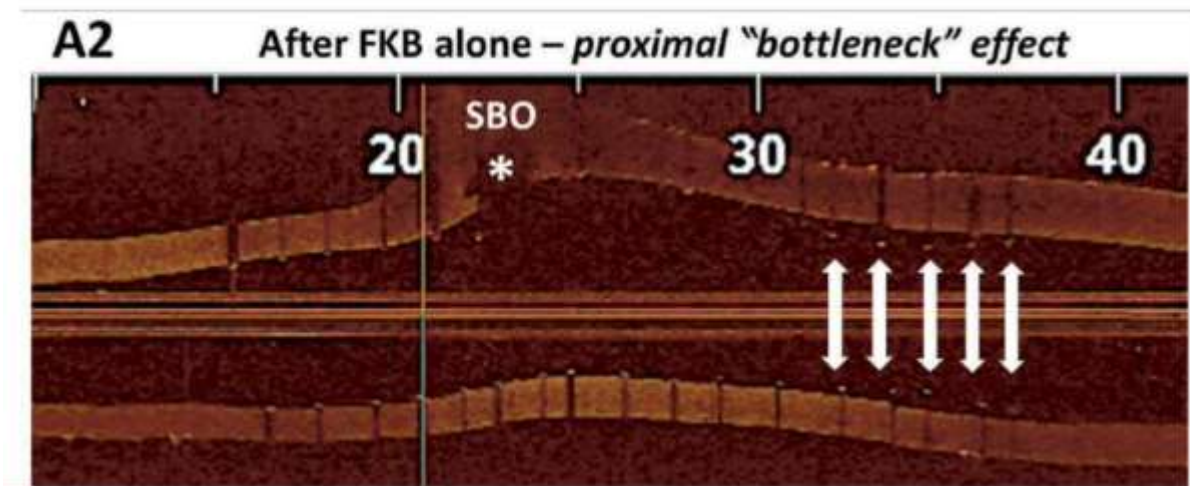
EBC 2020 - LIVE! - The XV

An Analysis From the RAIN-CARDIOGROUP VII Study



The « optimized » KBT

- Distal cell wring
- NC balloons sized to distal ref
- Minimal overlap



Asymmetrical KBT for less « bottle neck » effect

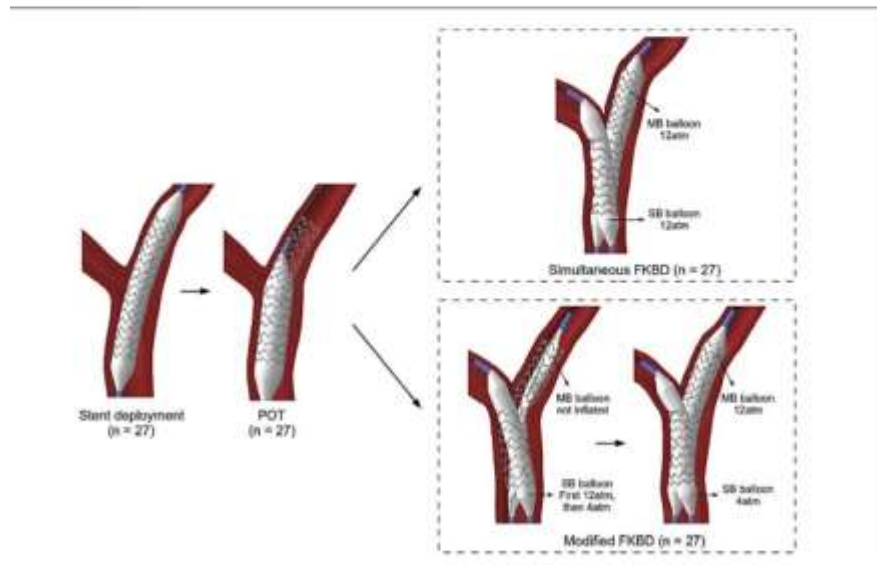


Table 1. Comparison of the Results Obtained Using the Simultaneous and Modified FKBD Strategies

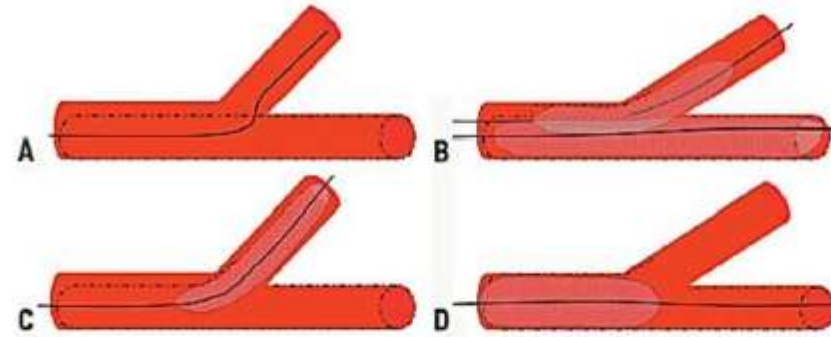
	Simultaneous FKBD	Modified FKBD	p Value
Ostial area stenosis	20 ± 11	15 ± 9	<0.001
Ellipticity index	1.36 ± 0.06	1.17 ± 0.05	<0.001
Malapposed struts	6.4 ± 3.4	6.3 ± 3.6	0.212

Values are mean ± SD. Modified FKBD results in less ostial stenosis and decreases elliptical deformation in the proximal main vessel. The amount of stent strut malapposition was similar with both techniques.

FKBD = final kissing balloon dilatation.



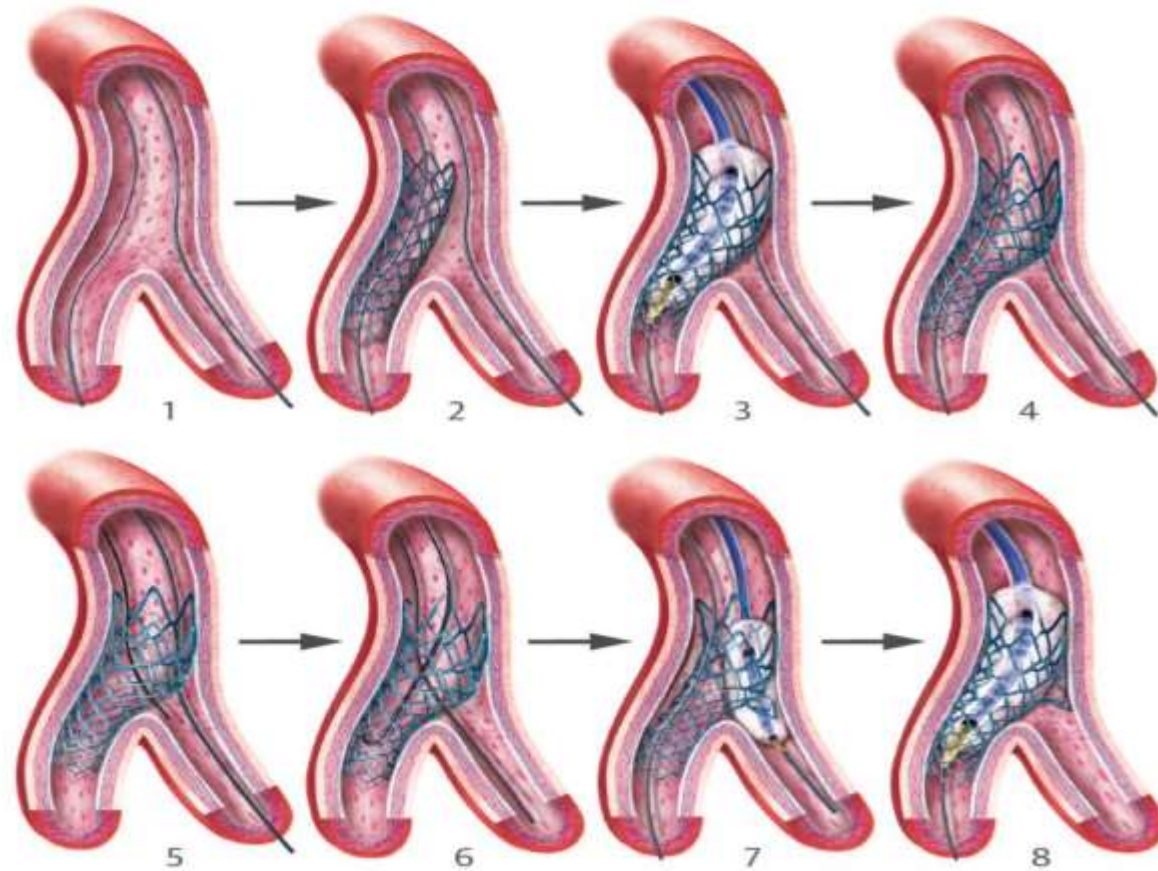
Final POT to eliminate final ellipticity



	After SB opening	After kissing balloon (KB)	After final proximal inflation (FPI)	<i>p</i> value (FPI vs. KB)	
% Malapposed struts proximal MV	69.4±24.3	33.4±37.6	0.6±2.3	0.02	*
MSA proximal (mm ²)	5.9±0.3	6.8±0.4	8.5±0.6	<i>p</i> <0.0001	***
MSA MB (mm ²)	3.7±0.9	6.0±0.7	6.2±0.5	0.50	ns
MLD proximal	2.7±0.0	3.0±0.1	3.3±0.1	<i>p</i> <0.0001	***
Max LD proximal	2.8±0.1	4.1±0.2	3.8±0.2	0.01	**
MLD ostium MB	2.1±0.3	2.7±0.2	2.7±0.2	1.00	ns
MLD distal MB	2.7±0.1	2.8±0.1	2.8±0.2	1.00	ns
Ratio dist/prox MLD	0.97±0.04	0.90±0.09	0.81±0.07	0.03	
Stent eccentricity Index	0.96±0.02	0.72±0.06	0.90±0.04	<i>p</i> <0.0001	
% Ostium stenosis	25.3±9.8	21.8±8.0	19.0±8.2	0.47	



POT/Side/POT: an alternative ?



Conclusions

- Bifurcation stenting should follow anatomy
- POT is useful in all bifurcation as distal vessel sizing limits carina shift : 1 stent-2diameters concept
- KBT may be useful after single stenting and necessary after double stenting but could be deleterious in XX0 lesions
- Bench & Virtual evaluations suggest:
 - A benefit from new kissing balloon technique
 - A need for final POT
 - A possible competition with POT/Side/POT (versus POT/Kiss/POT)
- Clinical validation of « optimized » KBT (on top of POT) is missing

