

# Bifurcation PCI

- POT Is It That Simple?

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**Oxford Heart Centre**  
**Oxford**

# Disclosure

Participation in a company sponsored speaker's bureau

Medtronic, Miracor Medical Systems

Receipt of grants / research support to the institution:

Boston Scientific

Receipt of honoraria or consultation fees:

Abbott, Philips

# POT rePOT no POT ??? (sounds *potty*)



Some definitions

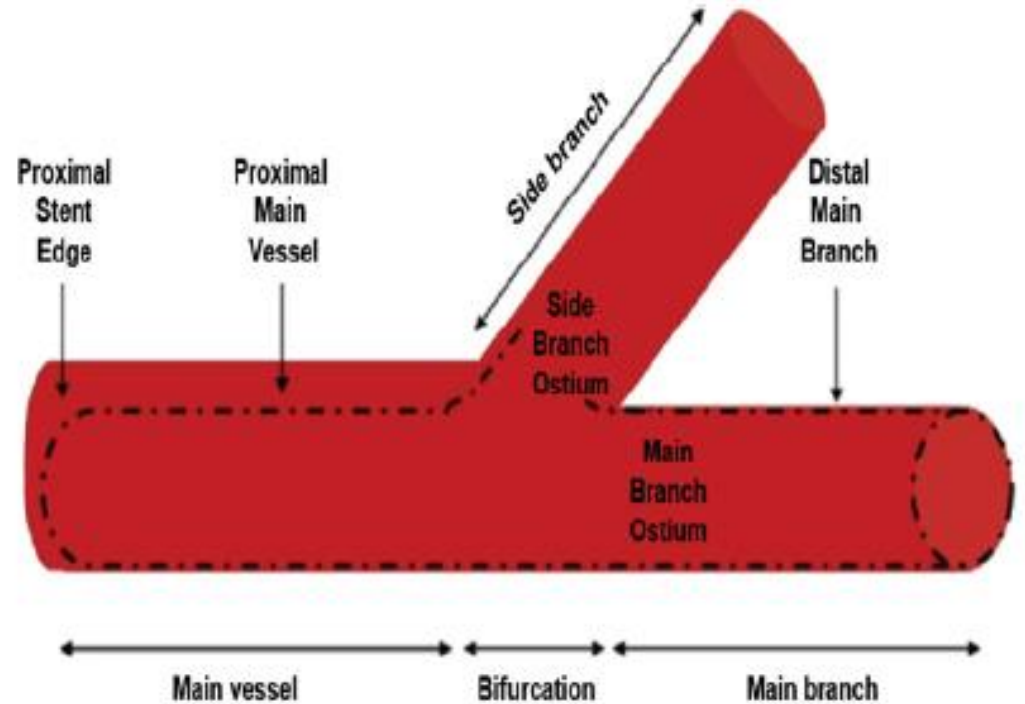
Final POT theory?

Single vs double stent

When and where to POT

Final vs Procedural

Whats rePOT?

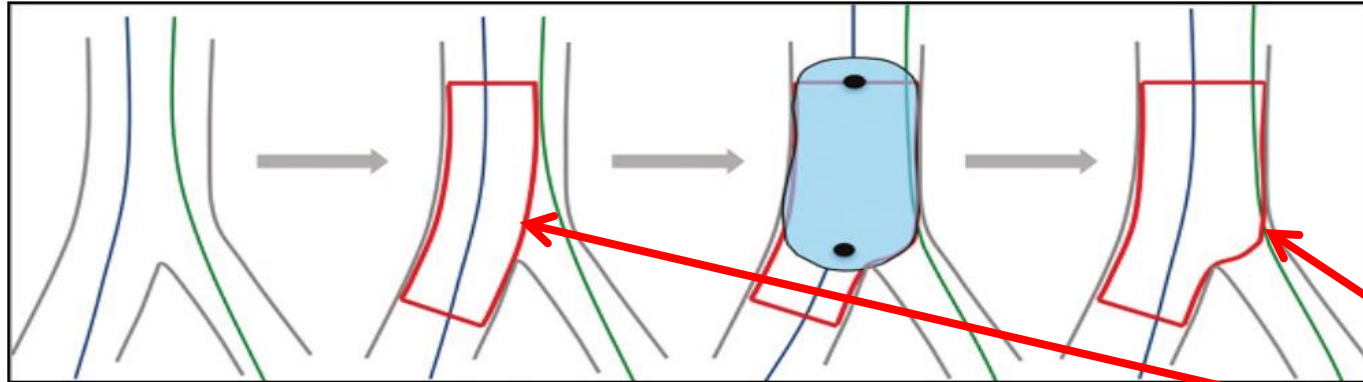


# What is POT



EuroIntervention

Proximal optimization technique (POT)



EuroIntervention 2018;13:1540-1553

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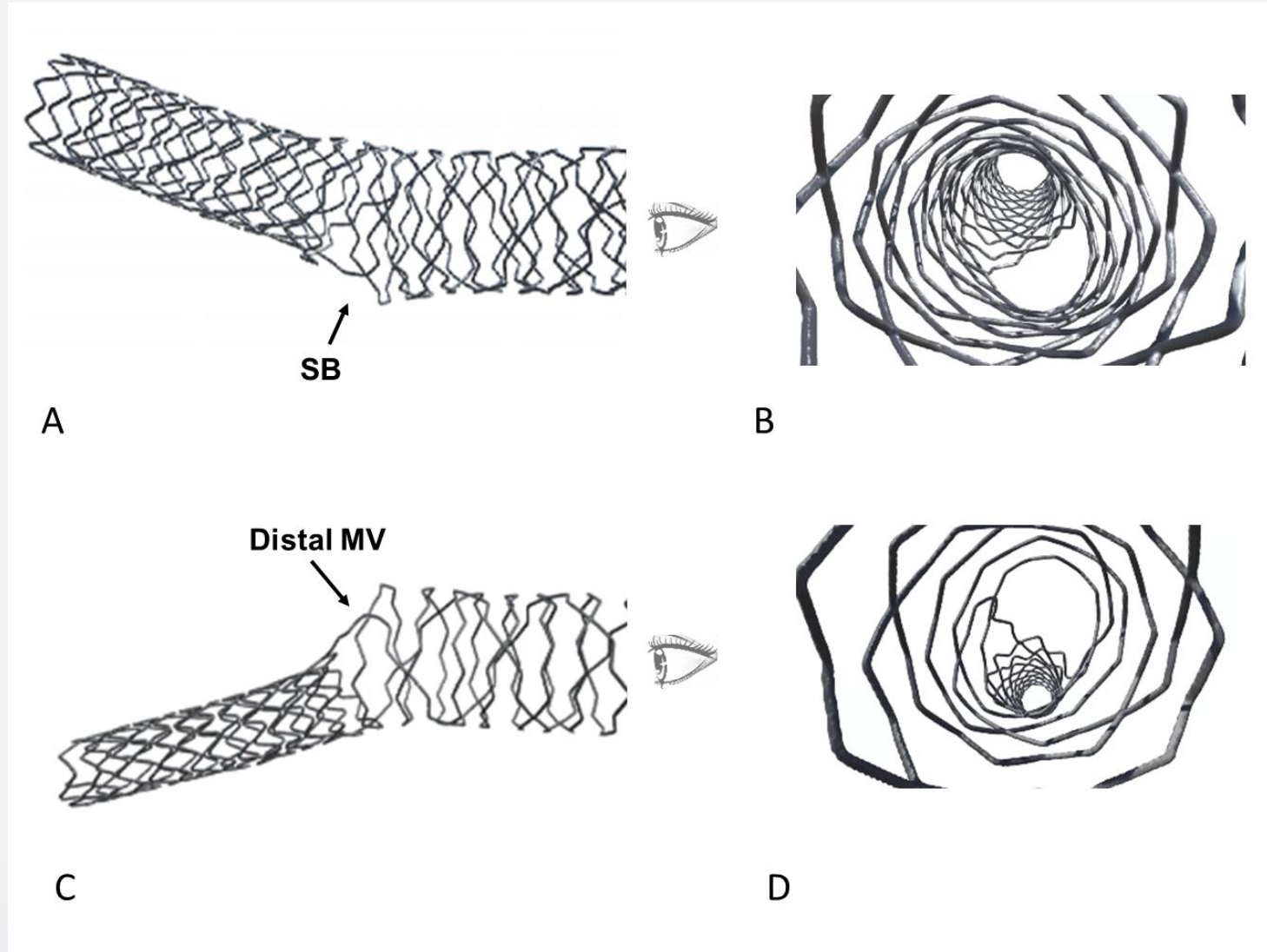
Inflation of an NC balloon *just proximal* to the carina designed to optimise expansion in the MB  
Push struts across the SB orifice

Move this edge of the stent to here

# POT - Why do it ?

- To optimise result in the main branch  
Both increase area and reduce malapposition
- Reduce obstruction to the side branch
- To prevent guide wire tracking behind your stent during recross  
Mechanism of longitudinal distortion

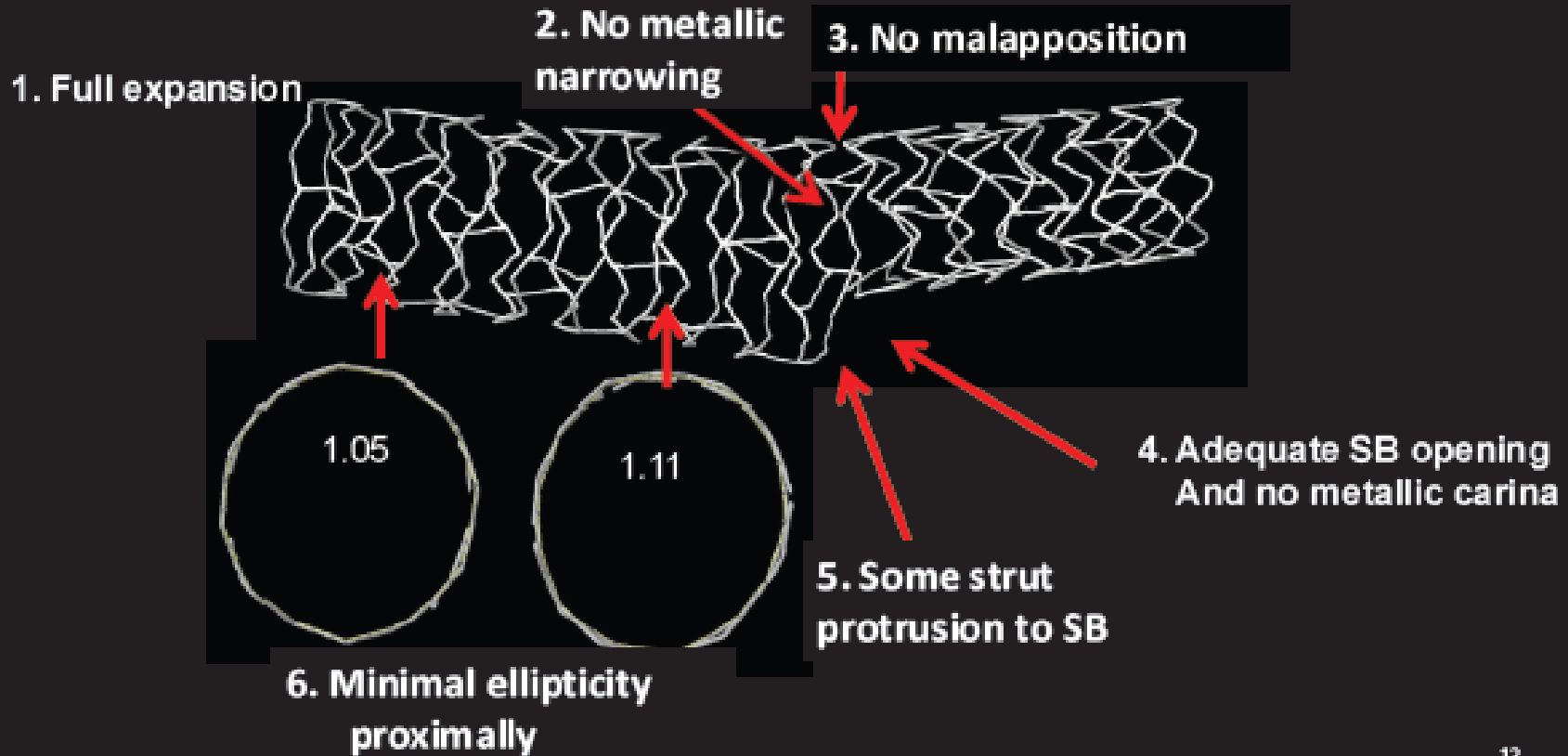
# What does POT look like ??



Thanks to  
F Burzotta

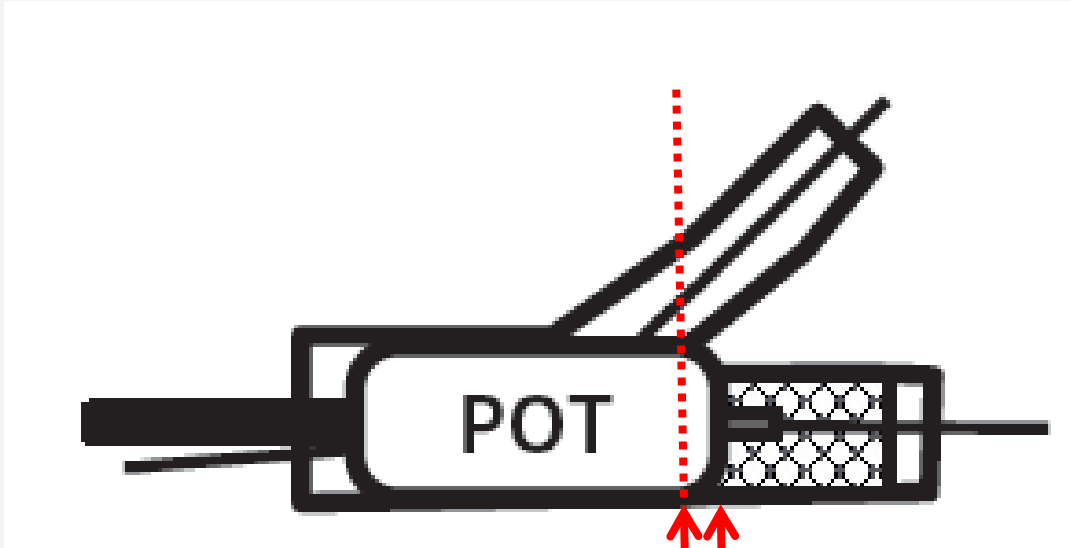
# Where to put the POT

## Optimal single stent deployment entails

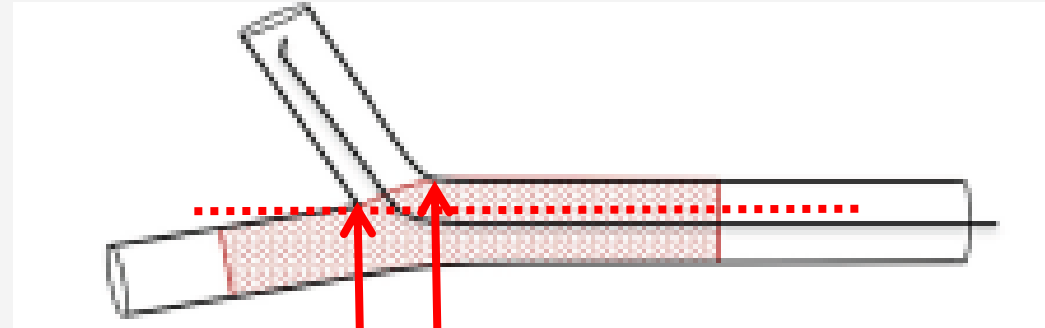


Ormiston

# Where should a POT balloon be placed



This is POT is too DEEP

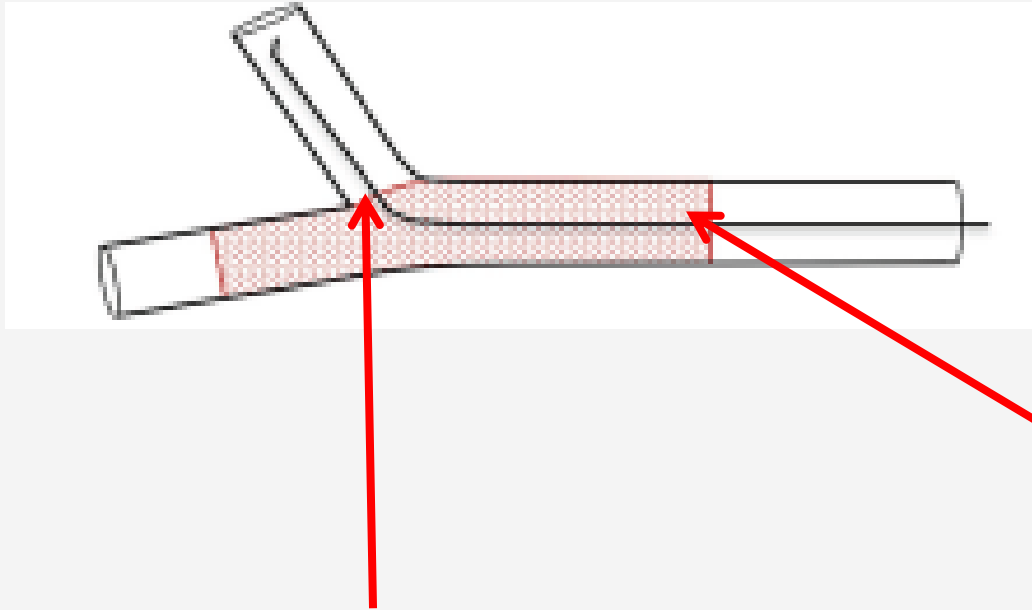


These diameters have to be different



# Where should a POT balloon be placed

If I cant decide where to place the POT on a cartoon....how do I expect to place it accurately in a 3D coronary artery



Make sure stent is long enough to allow POT (proximal to the bifurcation)

We commonly underdilate the MB proximally

Take home message 1 –  
Don't POT too distal...

# Procedural POT

How many POTs in an optimal cullotte ??

1, 2, 3 or 4



# POT : how often and when

Influence of the sequence of proximal optimisation technique and side branch dilation for the opening of jailed struts after coronary bifurcation stenting



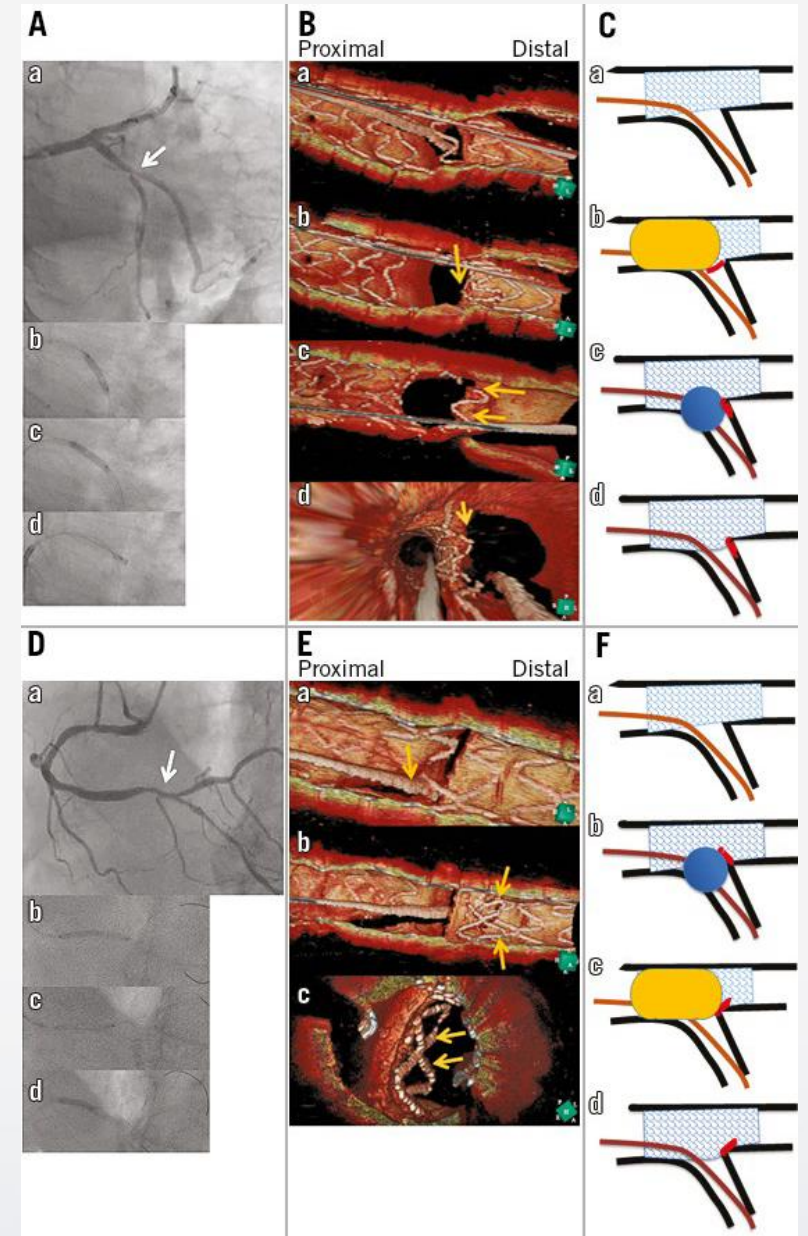
Yoshinobu Murasato<sup>1,2\*</sup>, MD, PhD; Takahiro Mori<sup>1,2</sup>, MD, PhD; Takayuki Okamura<sup>3</sup>, MD, PhD; Junya Shite<sup>4</sup>, MD, PhD

POT should be performed before SB dilatation

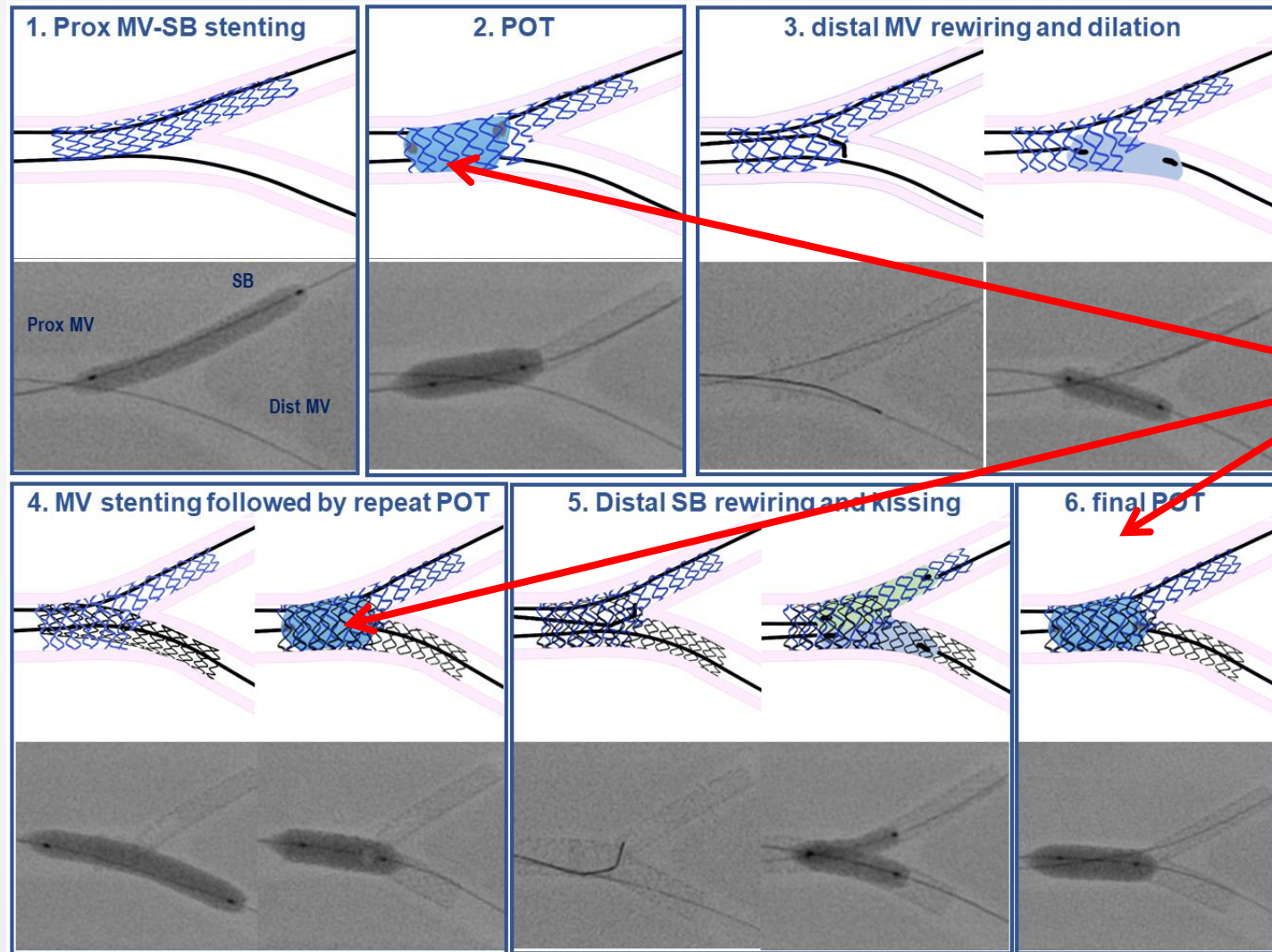
Importance of distal wire crossing

OCT imaging can help avoid deformation

■ **EuroIntervention** 2018;13:e1812-e1813



# How many procedural POTs in an optimal cullotte ??

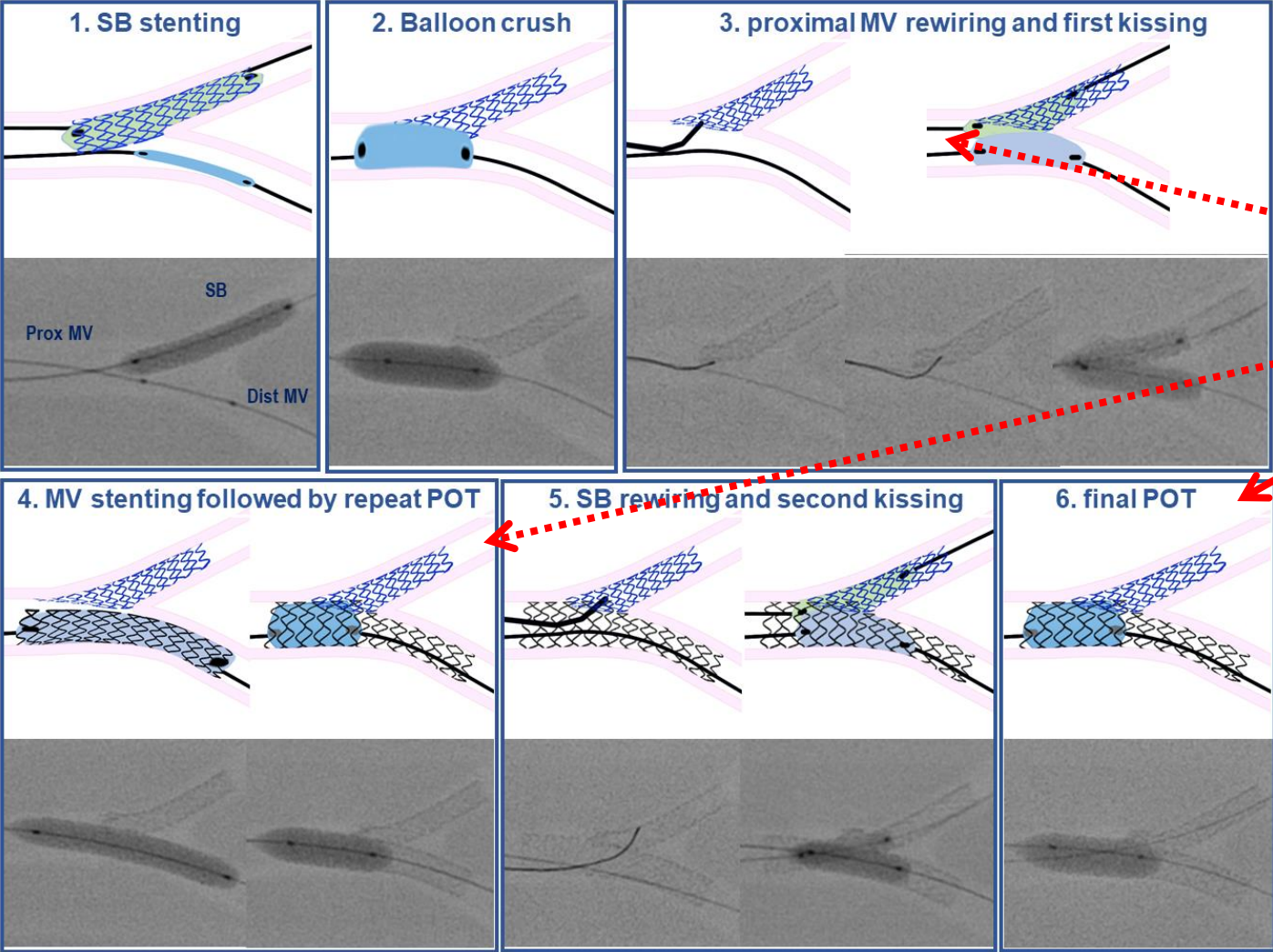


3

Thanks to  
F Burzotta



# 2 POTs in an “optimal” DK crush



2

Thanks to  
F Burzotta

So whats RePOT?

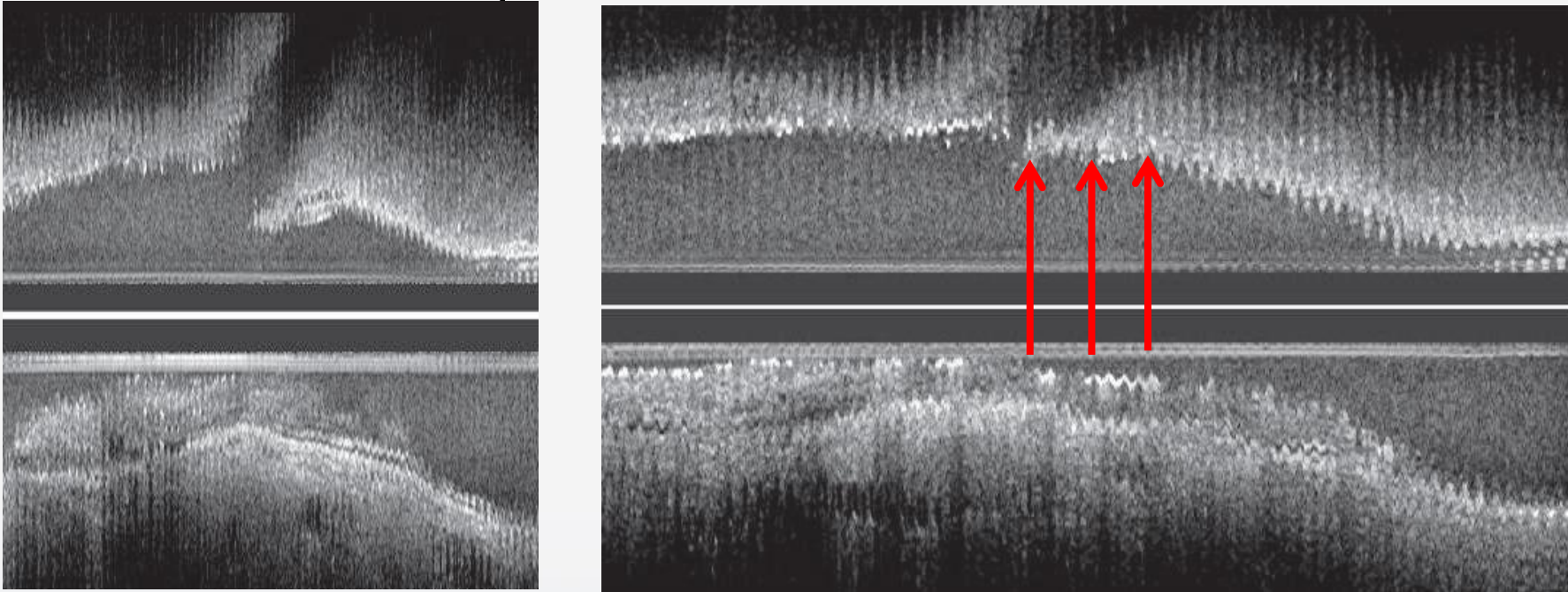
vs POT, final POT, procedural POT???



# We know why we kiss?

Apart from the obvious answer!

To recreate the carina and prevent carina shift



IVUS illustration Dr Koo BK



# Risk of aggressive kissing

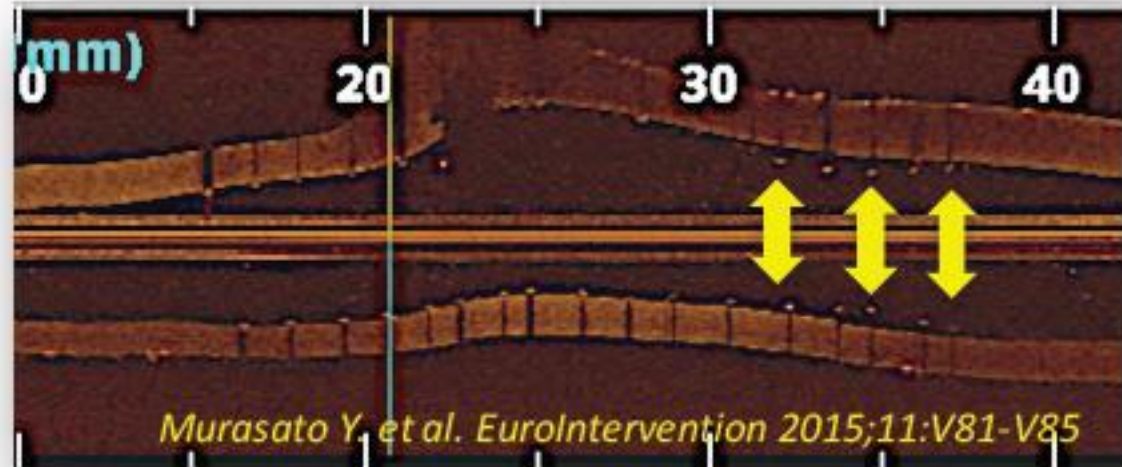


This snake had  
swallowed a  
porcupine

Bad idea!!



*Foin et al. EuroIntervention 2011.*



*Murasato Y, et al. EuroIntervention 2015;11:V81-V85*

**MV Proximal edge malapposition**



## Provisional Stenting of Coronary Bifurcations

Insights Into Final Kissing Balloon Post-Dilation and Stent Design by Computational Modeling

Peter Mortier, PhD,\*† Yutaka Hikichi, MD,‡ Nicolas Foin, PhD,§  
Gianluca De Santis, PhD,\*† Patrick Segers, PhD,† Benedict Verhegghe, PhD,\*†  
Matthieu De Beule, PhD\*†

After kissing there is  
Deformed MB lumen –  
overexpanded  
assymmetric overstretch

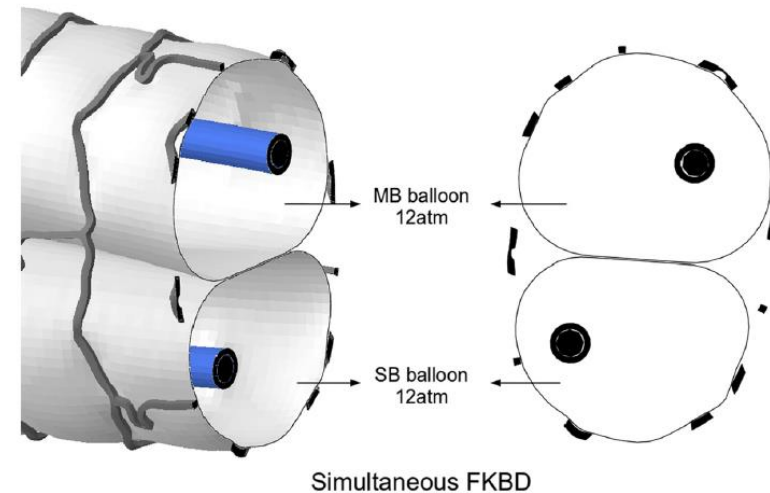
Oval MB lumen- not round with  
increased elipicity

Risk of proximal MB  
underexpansion

# Problems with final kissing

**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



**Benefit of a new provisional stenting strategy, the re-proximal optimisation technique: the rePOT clinical study**



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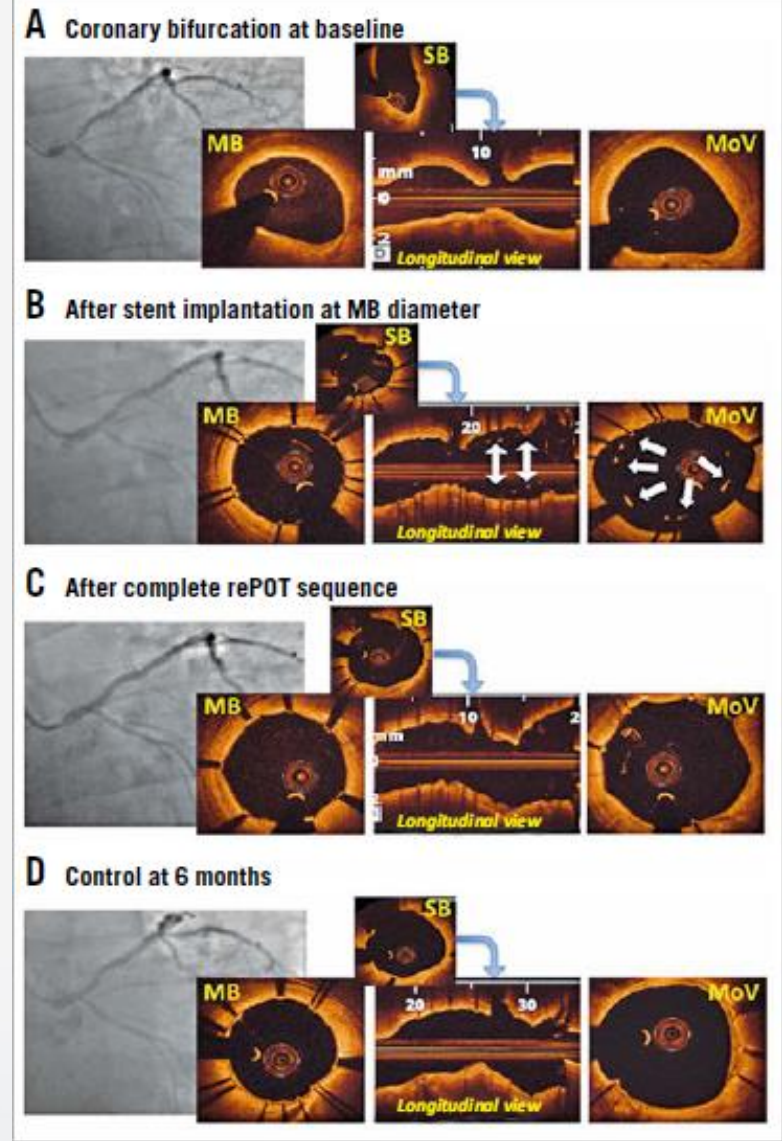
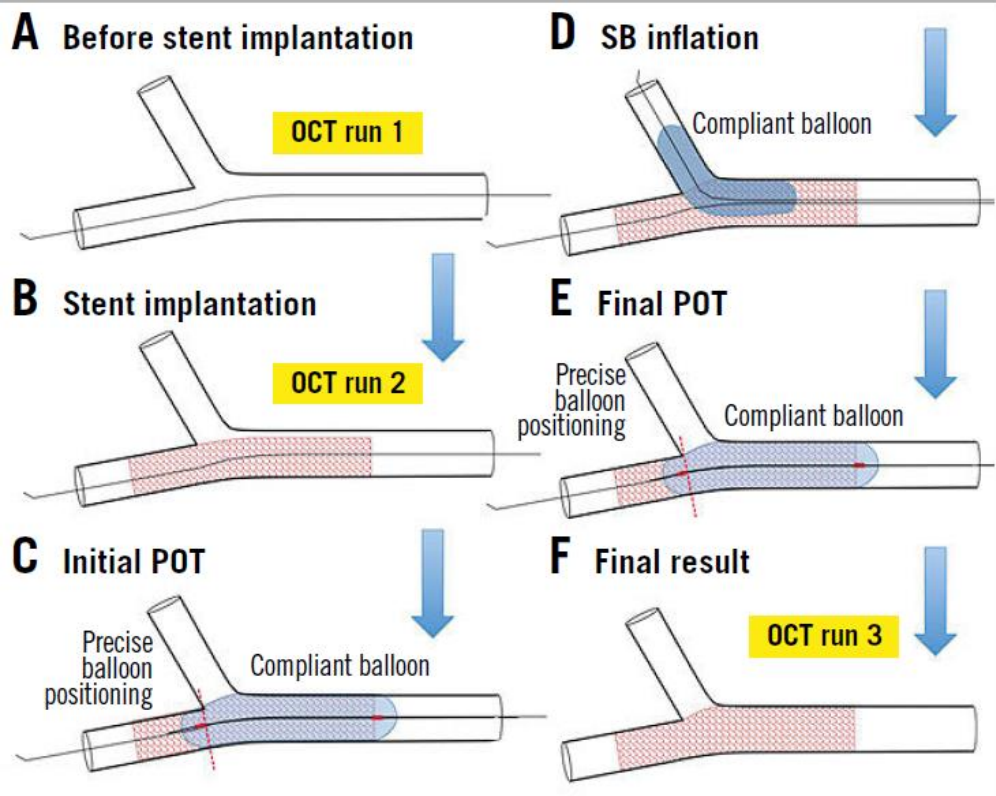
1. Department of Interventional Cardiology, Cardiovascular Hospital and Claude Bernard University and INSERM Unit 1060 CARMEN, Lyon, France; 2. Department of Cardiology, CHU Clermont-Ferrand, Clermont-Ferrand, France; 3. GCS ES Axiom Rambot, Aix-en-Provence, France; 4. Centre Hospitalier Universitaire de Charleroi, Charleroi, Belgium; 5. ACTION Study Group, Service de Cardiologie, Centre Hospitalier Universitaire de Nîmes, Université de Montpellier, Nîmes, France

# POT side rePOT

**106 patients with Bifurcation lesions (including LM) with intended provisional strategy with MB ≥ 2.5 mm SB ≥ 2.0 mm Stable patients or NSTEMI**

## POT / side / POT

Reduced SB obstruction  
Less malaposition  
Improved elipicity



# RePOT is it practical?

Coronary Artery Bifurcation Revascularisation without kissing balloon  
inflation by rePot Technique.  
**The CABRIOLET study.**

## CABRIOLET recruiting centers

### France:

- Hôpital cardiologique Louis Pradel, Lyon (Pr Finet)
- Hôpital Gabriel Montpied, Clermont Ferrand (Pr Souteyrand)
- Clinique Axiom, Aix en Provence (Dr Maillard)
- CHU Caremeau, Nîmes (Dr Lattuca)

### Switzerland:

- CHU Vaudois, Lausanne (Dr Adjedi)
- Hôpitaux Universitaires, Genève (Dr Iglesias)

### Belgium:

- CHU Marie Curie, Charleroi (Dr Aminian)

### Spain:

- Punta de Europa University Hospital, Algeciras (Pr Gutierrez-Chico)

### Italy:

- Ospedale S. Eugenio, Rome (Dr Sgueglia)



Active center ★

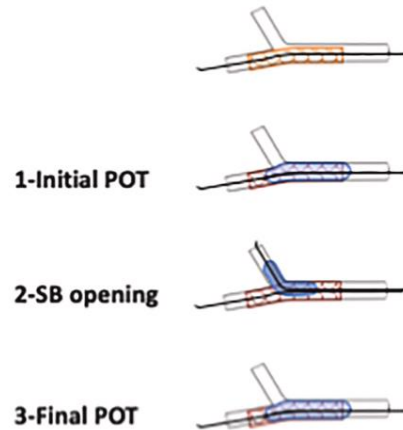
Multicenter Prospective Registry (goal= minimum of 500 patients, more?)  
Patients with bifurcation lesions and intended PS treated by rePOT technique  
Few exclusion criteria (ACS < 12h, HD instability, intracoronary thrombus,...)  
Procedural outcome and clinical FU (MACE) at 1 year (min) and up to 5 years  
October 2018: inclusion of 326 patients (LM 31.8%, true bif 35%)

# RePOT is it practical?

## CABRIOLET registry

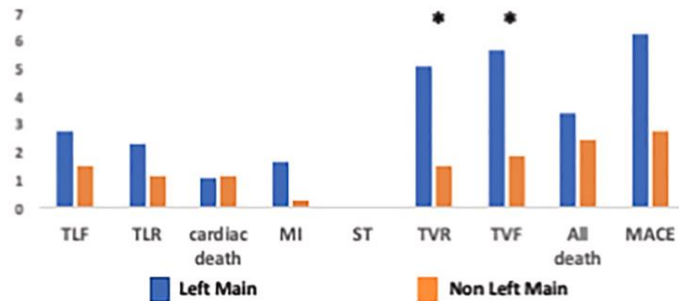
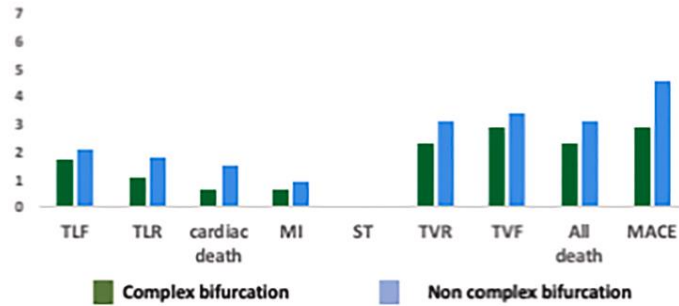
500 provisional bifurcation stenting  
(174 complexe bifurcation – 176 Left Main)

Re-POT or « P-S-P » technique



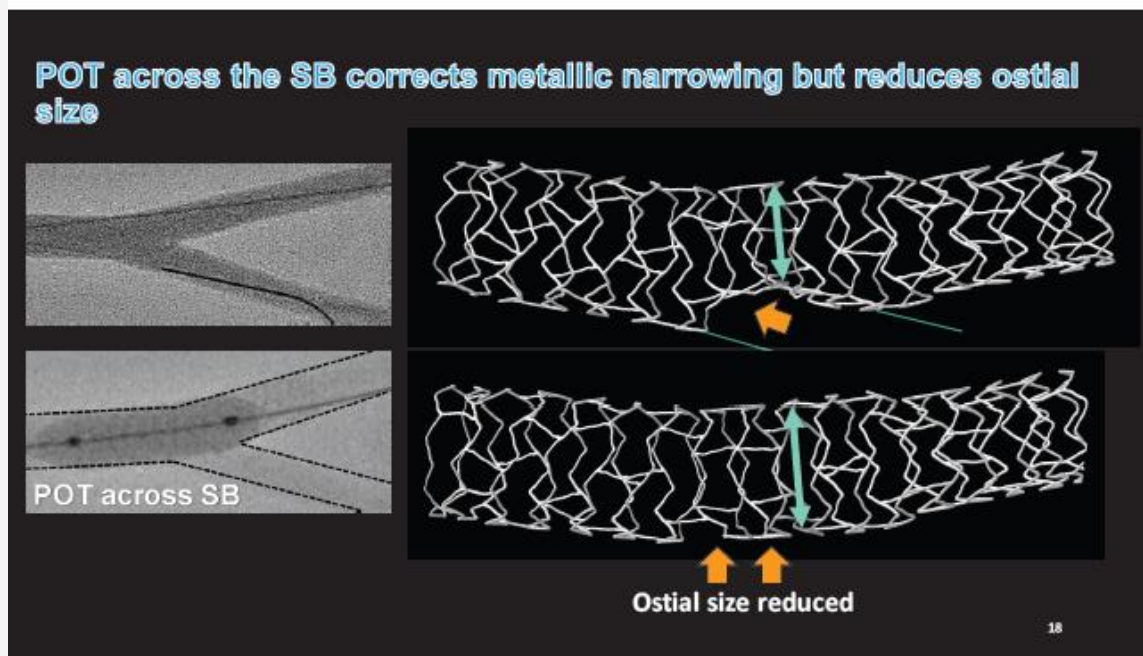
100% of complete re-POT technique  
Additional KBI 4.6%  
Additional SB stenting 5.0%

At 1 year:  
TLF 2.0% - TLR 1.6% - MACE 4.0% - TVF 3.2%

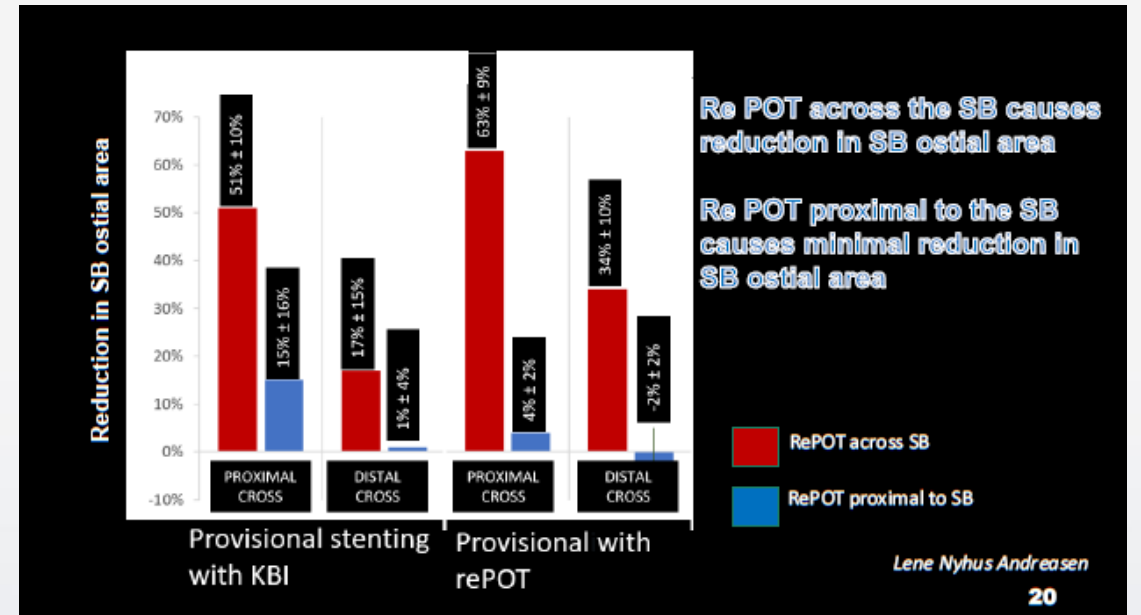




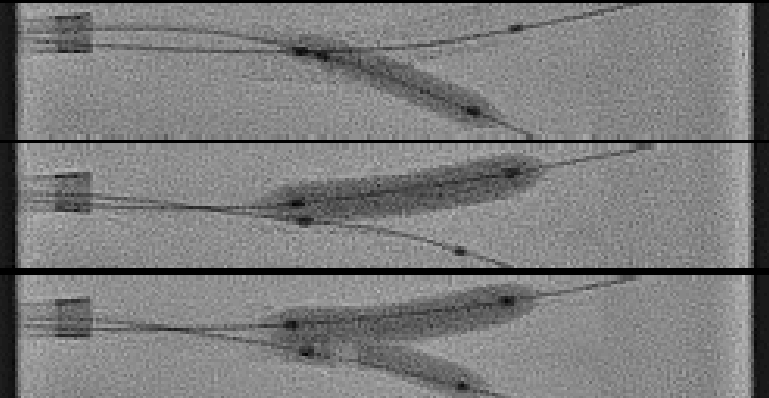
# Possible issues with distal rePOT



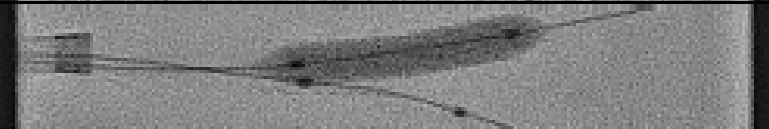
Slides from J Ormiston et al



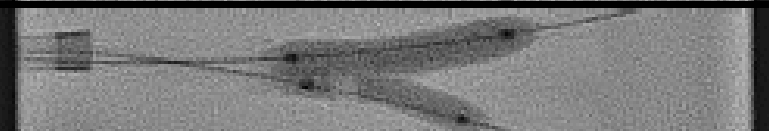
## Optimal strategy for provisional stent deployment in a bifurcation (cont)



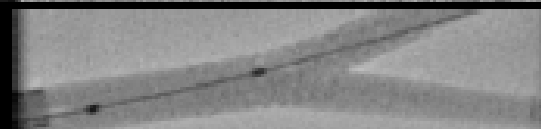
Inflate SB balloon sized to SB



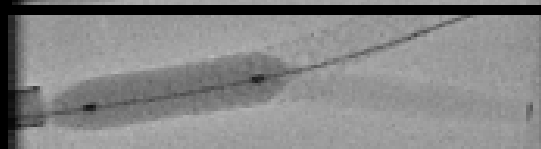
Inflate MB balloon sized to distal MB



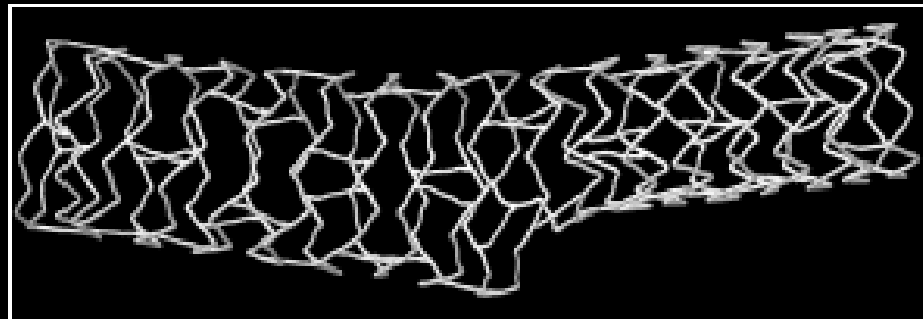
Kissing balloon post-dilatation. Deflate balloons simultaneously



Position re-POT balloon up to SB but not across



Inflate re-POT balloon proximal to SB



Stent fully expanded –no malapposition

No metallic narrowing distal to SB

Adequate SB opening

Some protrusion of struts to SB

Proximal re-POT has restored circularity of proximal MB stent



# And finally .....take home messages



The result in the MB is more important than the result in the SB

POT should be part of every bifurcation interventional technique (including single stent)... respect the fractal geometry

In any 2 stent technique procedural POT reduces risk of abluminal wiring- so do it

For final POT especially don't POT too distal ...POT proximal

