INSTITUT CARDIOVASCULAIRE PARIS SUD

Left Main: always one stent whatever IVUS findings?

B. Chevalier, MD, FESC, FACC, FSCAI,
ICPS, Massy, France

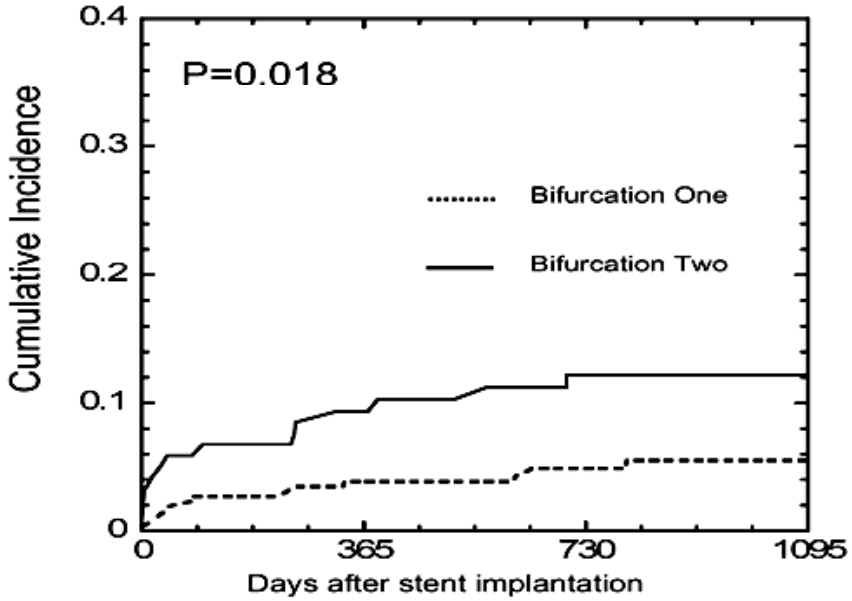
GÉNÉRALE DE SANTÉ

3Y Outcomes After SES Implantation for ULM Coronary Artery Disease: Insights From the j-Cypher Registry

Cardiac death and TLR in pts treated for ULMCA / distal bifurcation stenting strategy

A

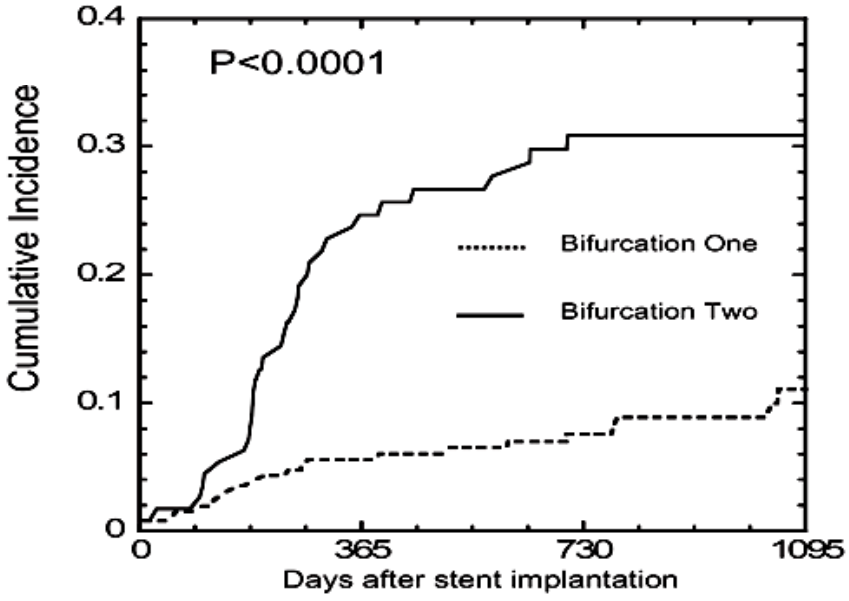
Cardiac Mortality



Day	0	365	730	1095
Bifurcation One				
Incidence (%)		3.9	4.9	5.5
No. at risk	261	242	180	86
Bifurcation Two				
Incidence (%)		9.4	12.2	12.2
No. at risk	119	105	86	52

B

Target Lesion Revascularization

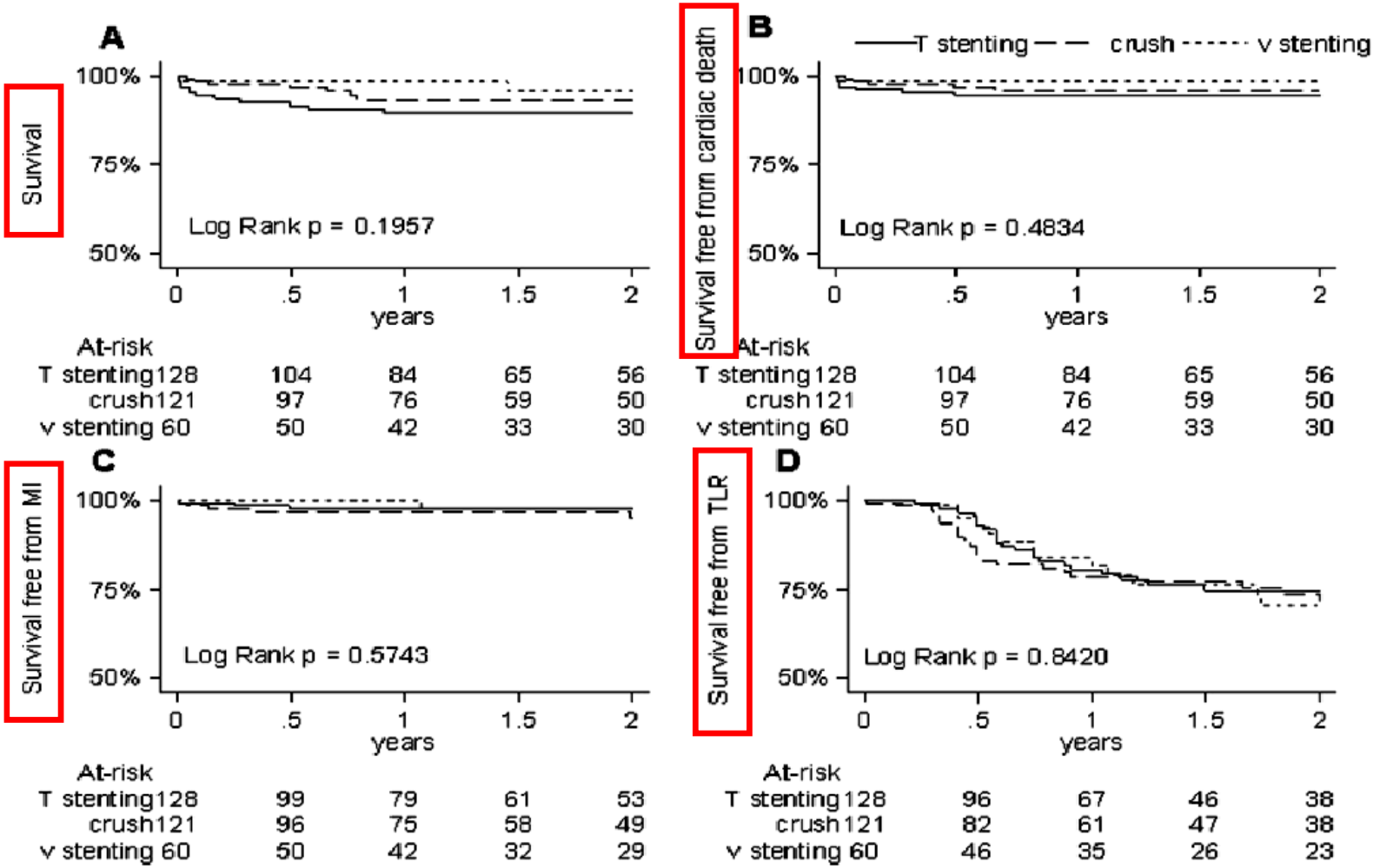


Day	0	365	730	1095
Bifurcation One				
Incidence (%)		5.6	7.6	11.1
No. at risk	261	229	161	76
Bifurcation Two				
Incidence (%)		24.6	30.9	30.9
No. at risk	119	81	62	37

Toyofuku Circulation 2009;120;1866-1874;

Impact of Bifurcation Technique on 2-Year Clinical Outcomes in 773 Pts With Distal ULM Stenosis Treated With DES

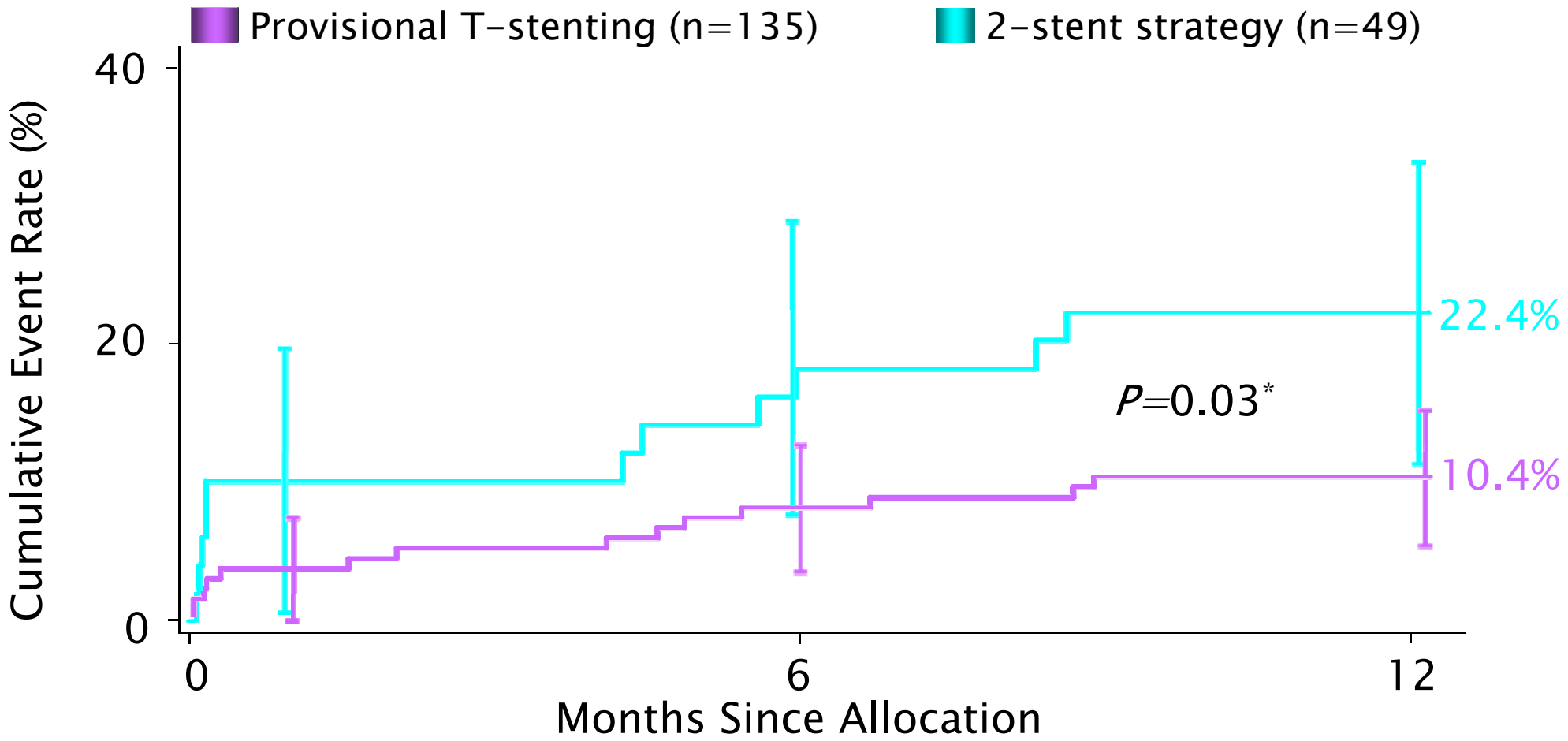
T-stenting, V-stenting, or crush stenting ?



Palmerini Circ Cardiovasc Interv 2008;1;185-192

SYNTAX, MACCE to 12 Months

LM PCI Subset



Event Rate ± 1.5 SE, *Fisher exact test

ITT population

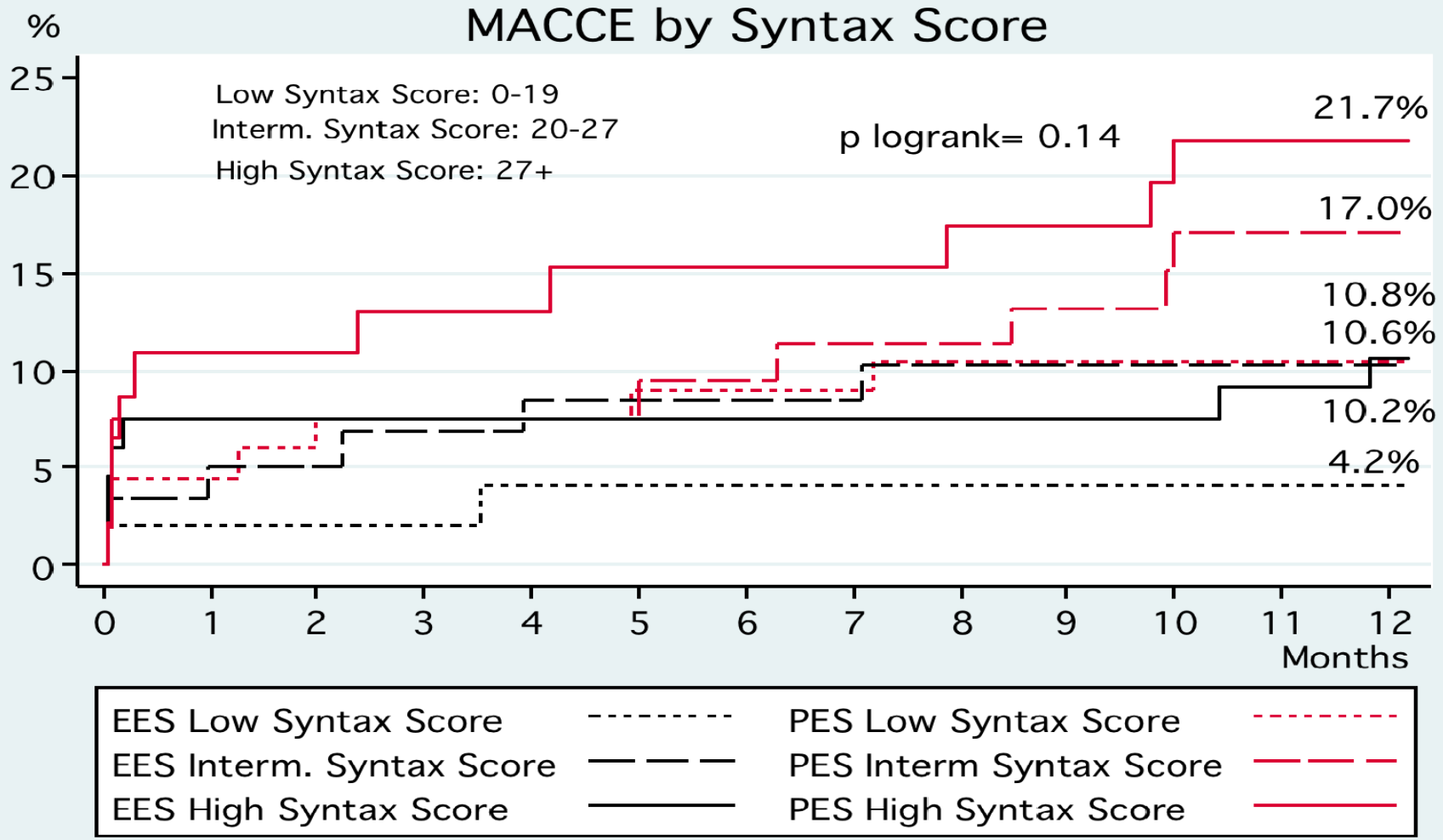
French Multi-center Left Main studies with DES

	Pilot Taxus* 2004	FRIEND** 2006	LEMAX 2008	
Nb patients	291	151	174	**= 616**
% distal lesion	78	69	81	
% 2 stents	42	↘ 26	↘ 19	
Mean LM stent diameter (mm)	3.44±0.39	↗ 3.59±0.49	↗ 3.63±0.33	
12 month TLR	5.9%	2.7%	2.3%	

*B. Vaquerizo et al. Circulation 2009;119:2349-56

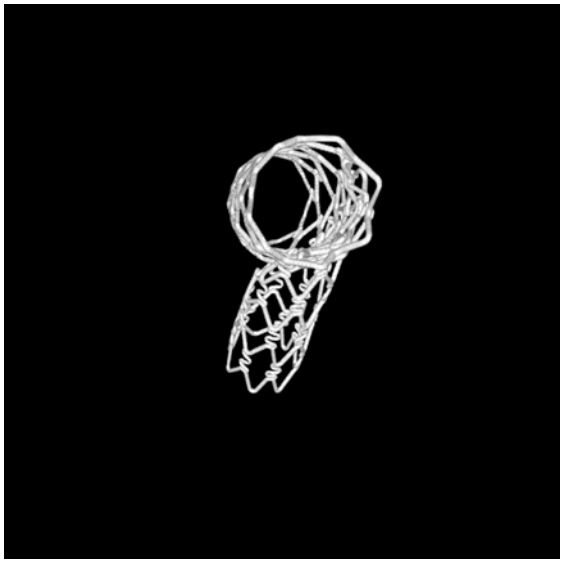
**D.Carrié et al., Eurointerv 2009;4:449-56

LEMAX and TAXUS LM registries

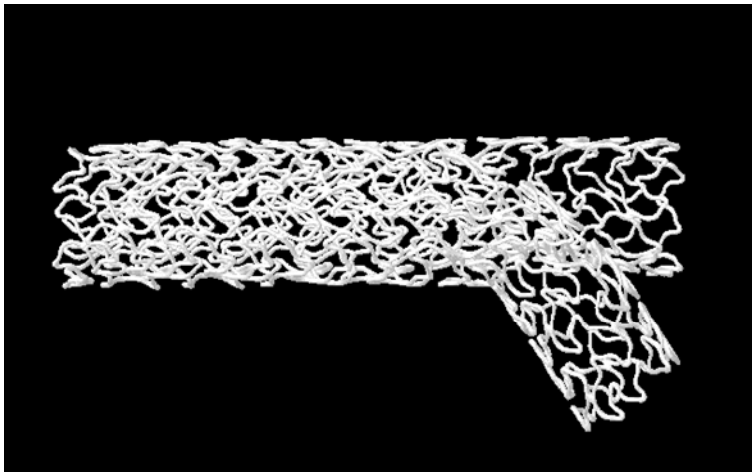


Complex techniques: to suppress the gaps at SB ostium

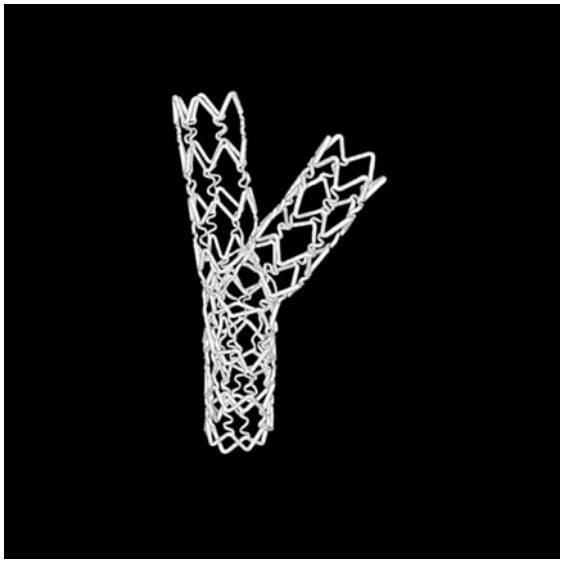
Crush



SKS



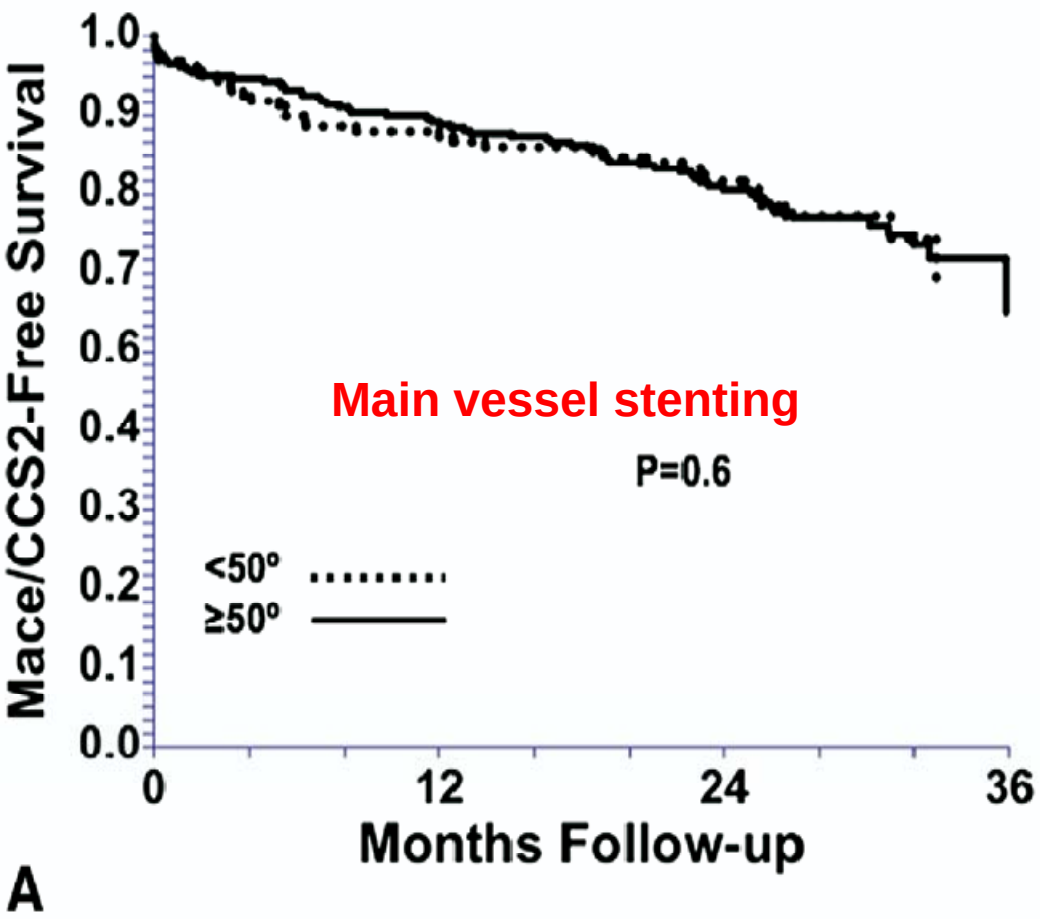
Culotte

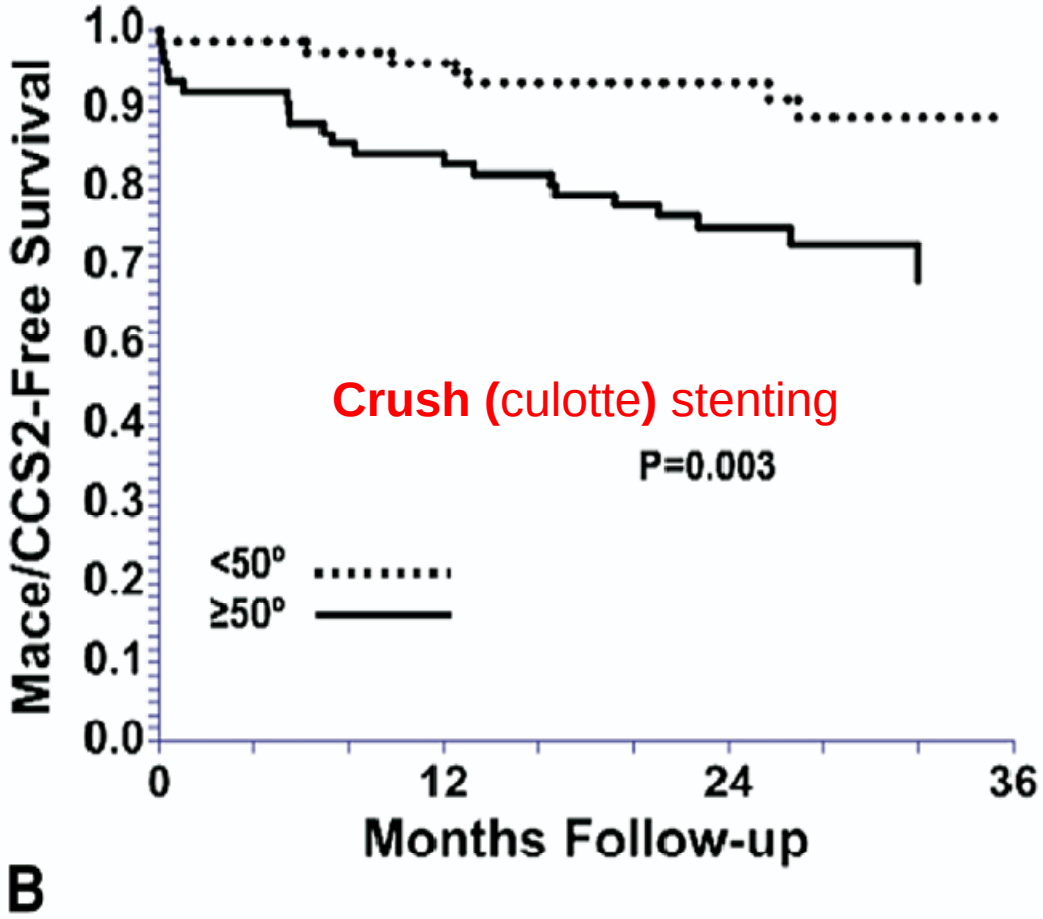


Video

Thanks to J.Ormiston and Y. Hikichi

Outcome After Bifurcation PCI: role of angle





Kaplan-Meier curves for MACE or CCS class 2 angina-free survival / bifurcation angle

Collins Am J Cardiol 2008;102:404–410

Culotte stenting : 1y dedicated QCA and clinical outcomes

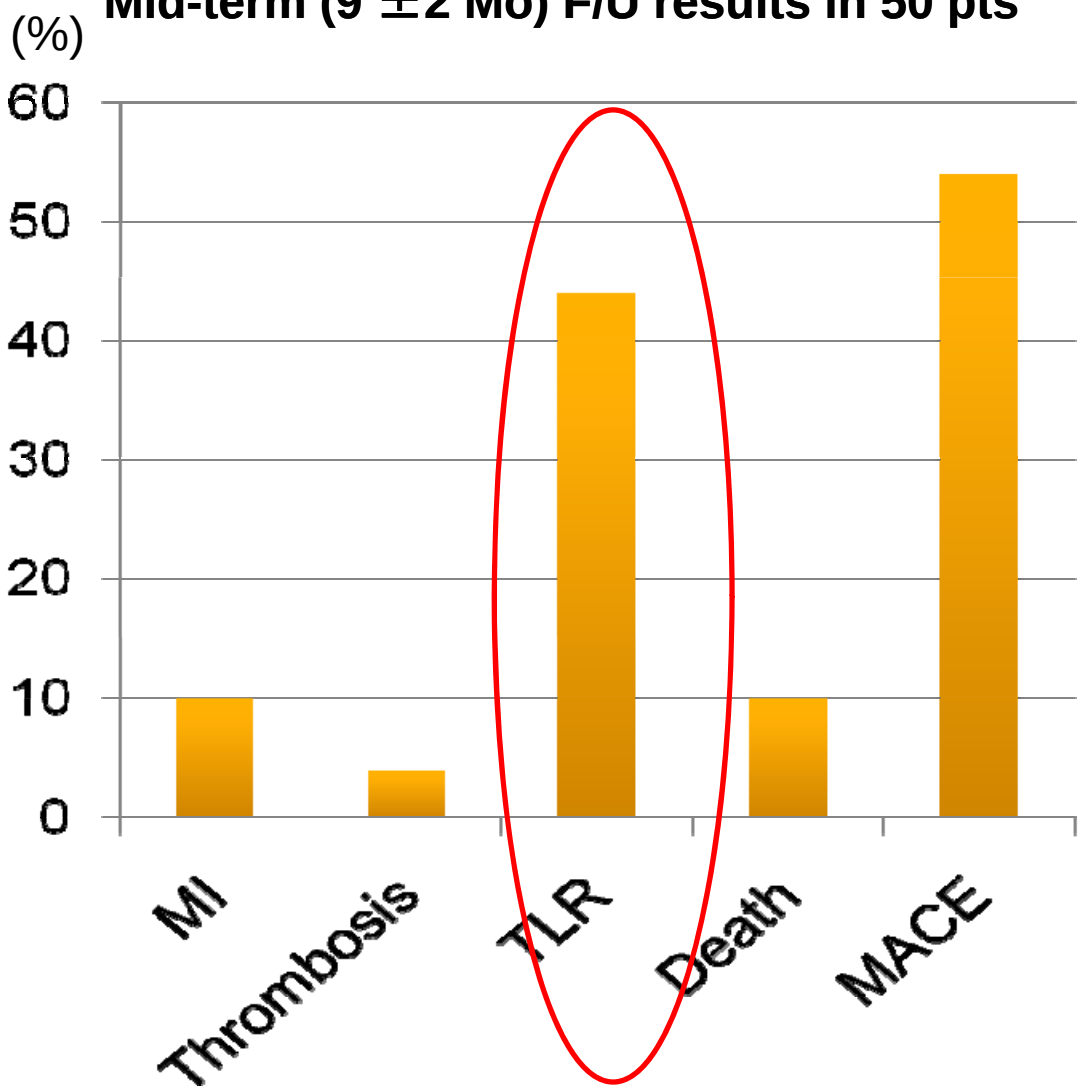
Predictors of binary restenosis

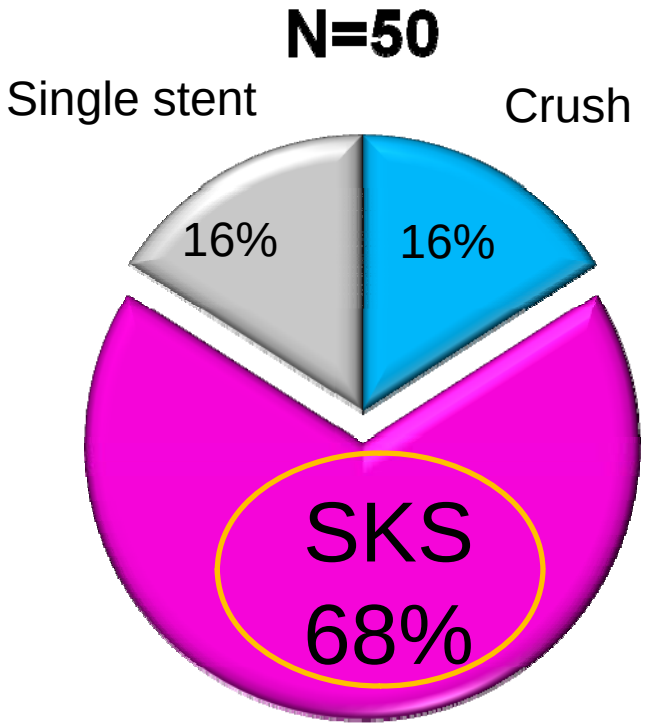
Variable	Odds ratio (95% CI)	P-value
Age increase by 10 years	2.38 (1.21–4.96)	0.01
Diabetes	3.43 (0.71–16.60)	0.13
Male sex	0.62 (0.15–2.53)	0.51
Medina classification	0.42 (0.13–1.32)	0.14
Restenotic lesion	0.52 (0.12–2.24)	0.38
Bifurcation angle increase by 10°	1.53 (1.04–2.23)	0.03
Calcified lesion	0.53 (0.12–2.24)	0.39
Proximal main vessel		
Reference vessel diameter decrease by 1 mm	4.55 (0.17–123.36)	0.37
Baseline stenosis increase by 10%	0.91 (0.67–1.23)	0.54
Distal main vessel		
Reference vessel diameter decrease by 1 mm	0.10 (0.00–3.17)	0.19
Baseline stenosis increase by 10%	1.47 (1.03–2.09)	0.03
Side branch vessel		
Reference vessel diameter decrease by 1 mm	31.83 (1.71–592.77)	0.02
Baseline stenosis increase by 10%	0.97 (0.82–1.15)	0.75
Kissing balloon post-dilatation	0.37 (0.13–1.10)	0.07

Adriaenssens EHJ 2008; 29: 2868–2876

Disappointing results of SKS for LMCA

Mid-term (9 ±2 Mo) F/U results in 50 pts





Price MJ. JACC 47, 2006.871

How I treat in practice

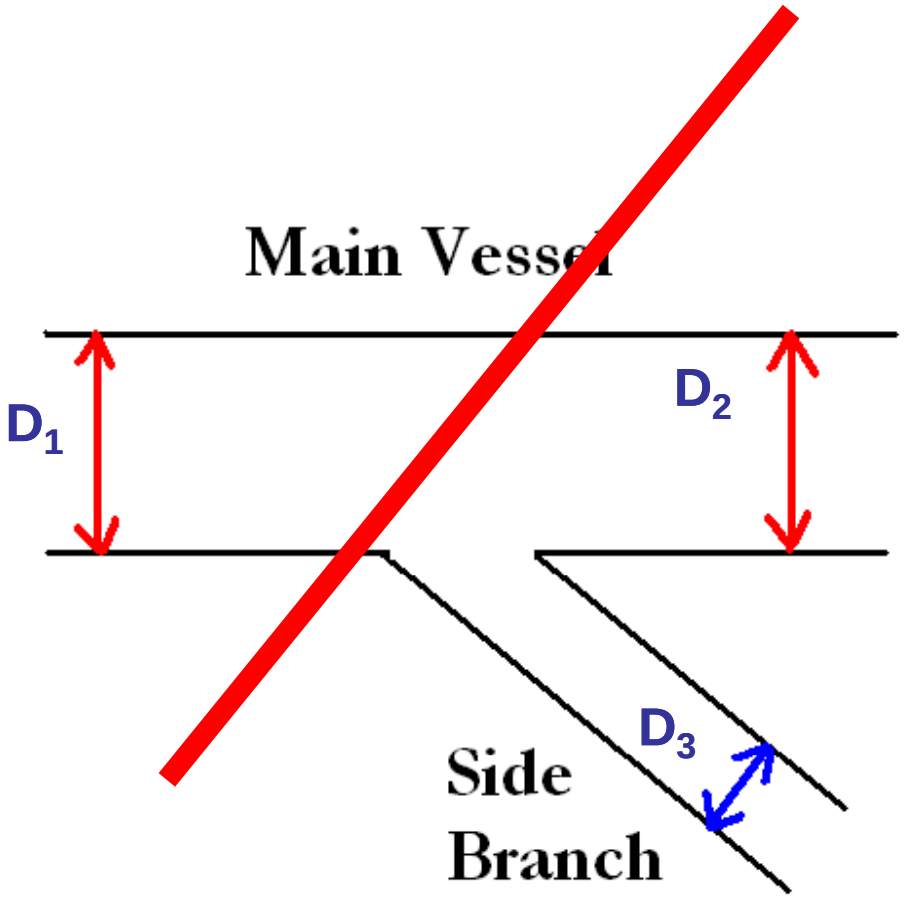
Bifurcation branching laws

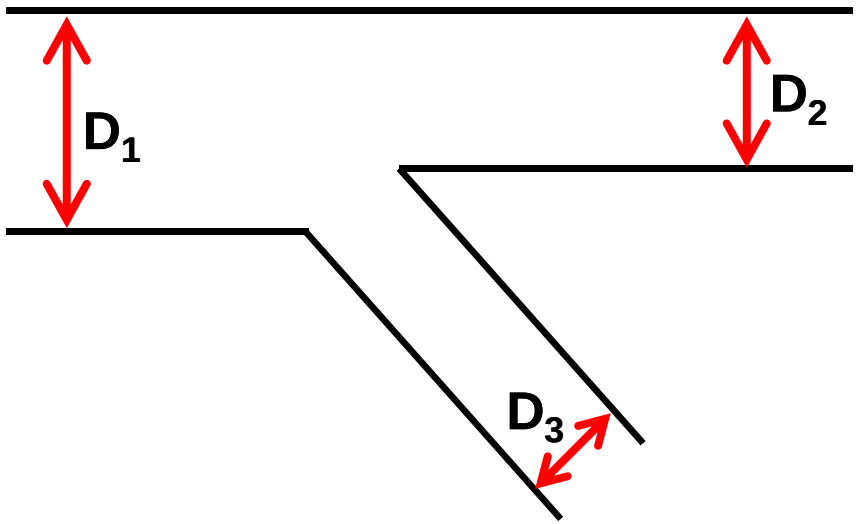
Murray's law

$D_1^{3*} = D_2^{3*} + D_3^{3*}$

Finet's law

$D_1 = 0.67(D_2 + D3)$





* 2.3

From Koo, EBC, 2008

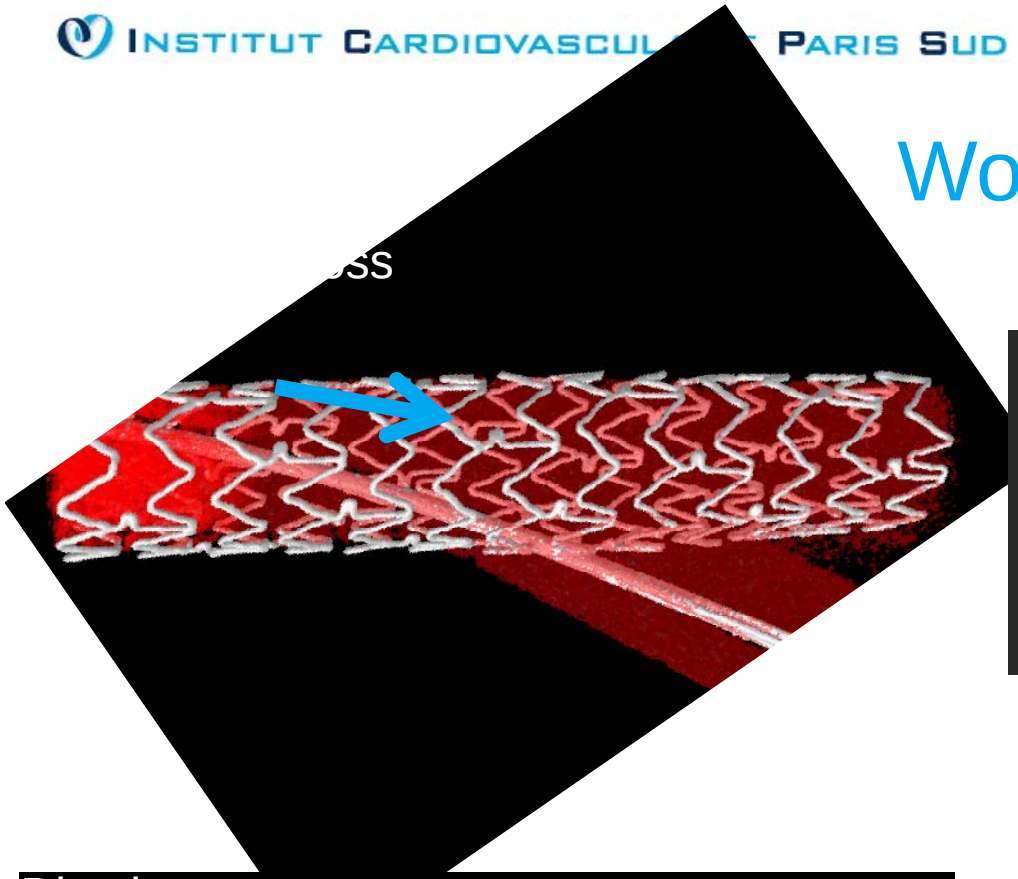
Plaque is shorter on Side Branch

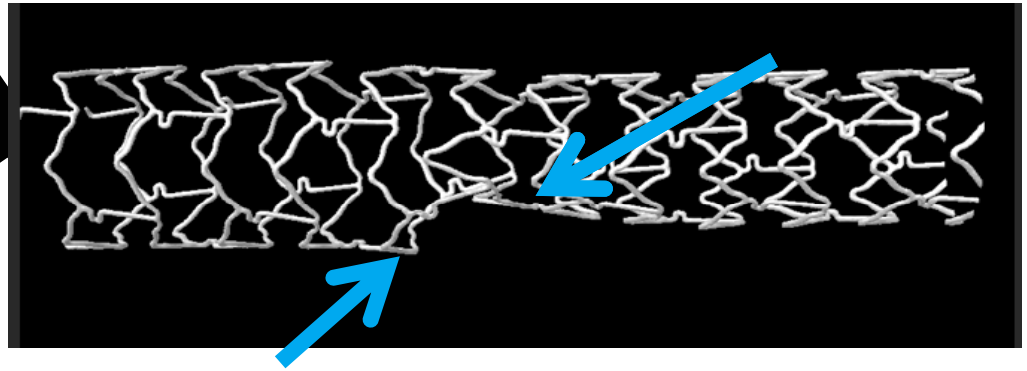
	Bestent[1]	TULIPE[2]	Sirolimus[3]	Sirolimus[4]
Patients (n)	105	187	85	47
Reference (mm)	2.7±0.4	2.3±0.5	2.1±0.3	2.1±0.5
Lesion length (mm)	5.6±4.2	3.7±3.3	5.3±4.2	4.5±3.0
Stenosis SB (%)	49±37	52±17	52±19	42±23

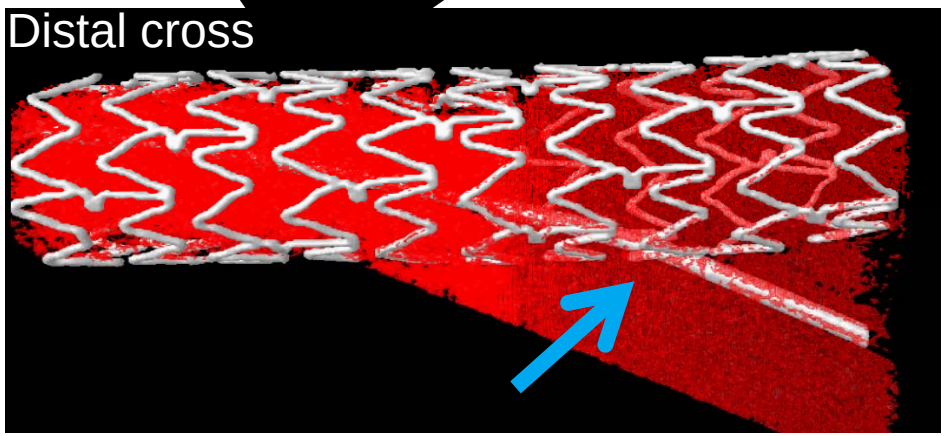
[1] Gobeil et al, Am J Cardiol 2001, [2] Lefèvre et al, Am J Cardiol 2003 (abst. supp.)

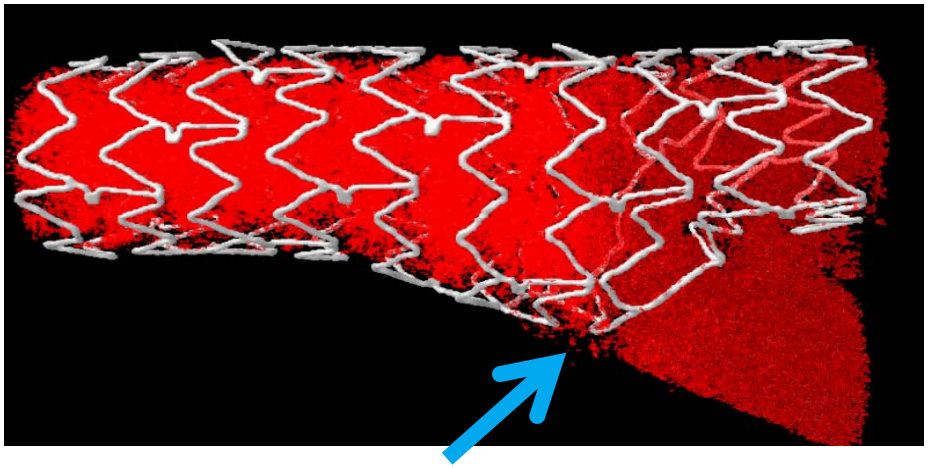
[3] Colombo et al, Circulation 2004; 109: 1244-9, Sengotuvel et al, JACC 2004 (abst.supp.)

Working with Distal Strut



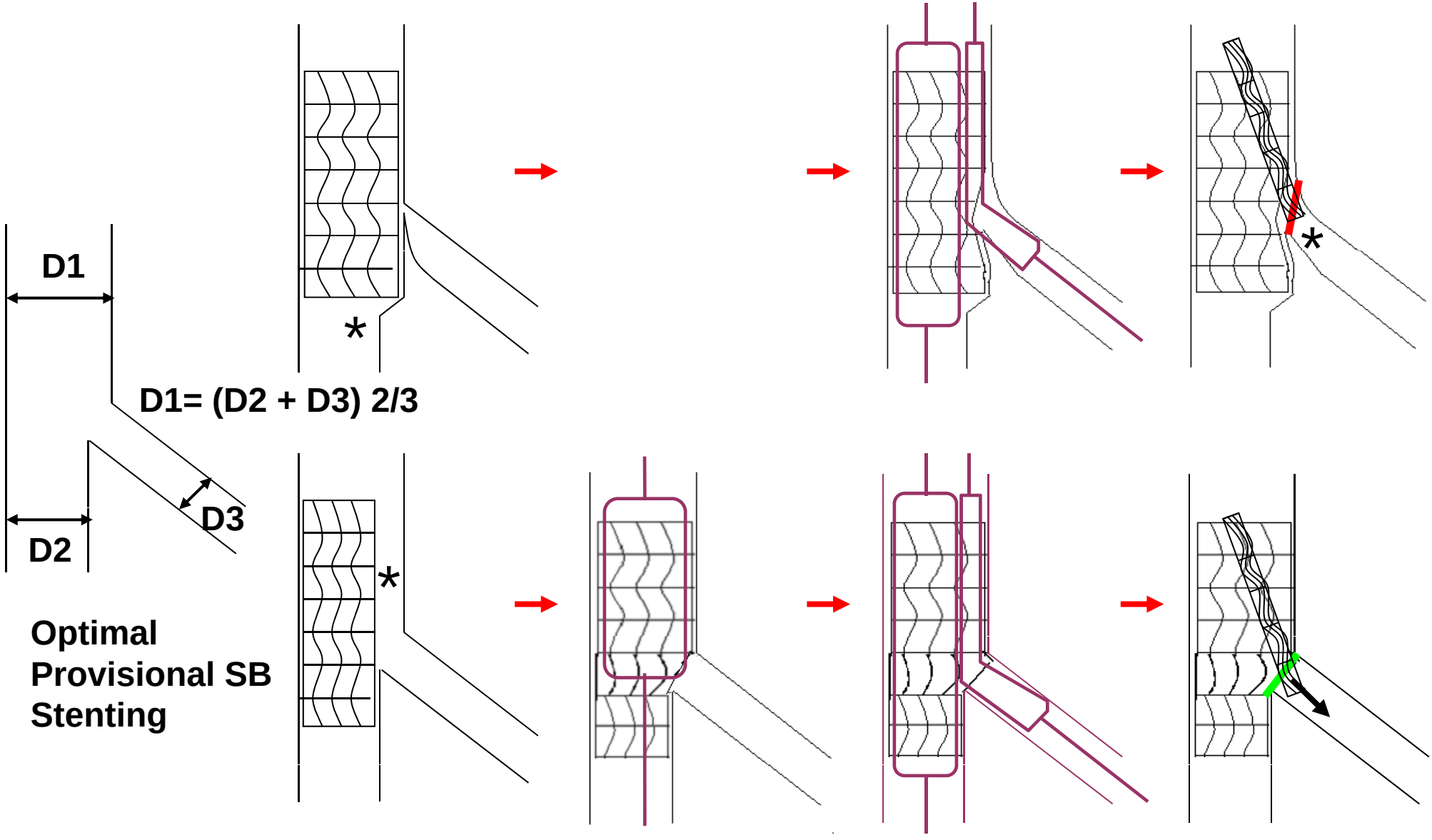


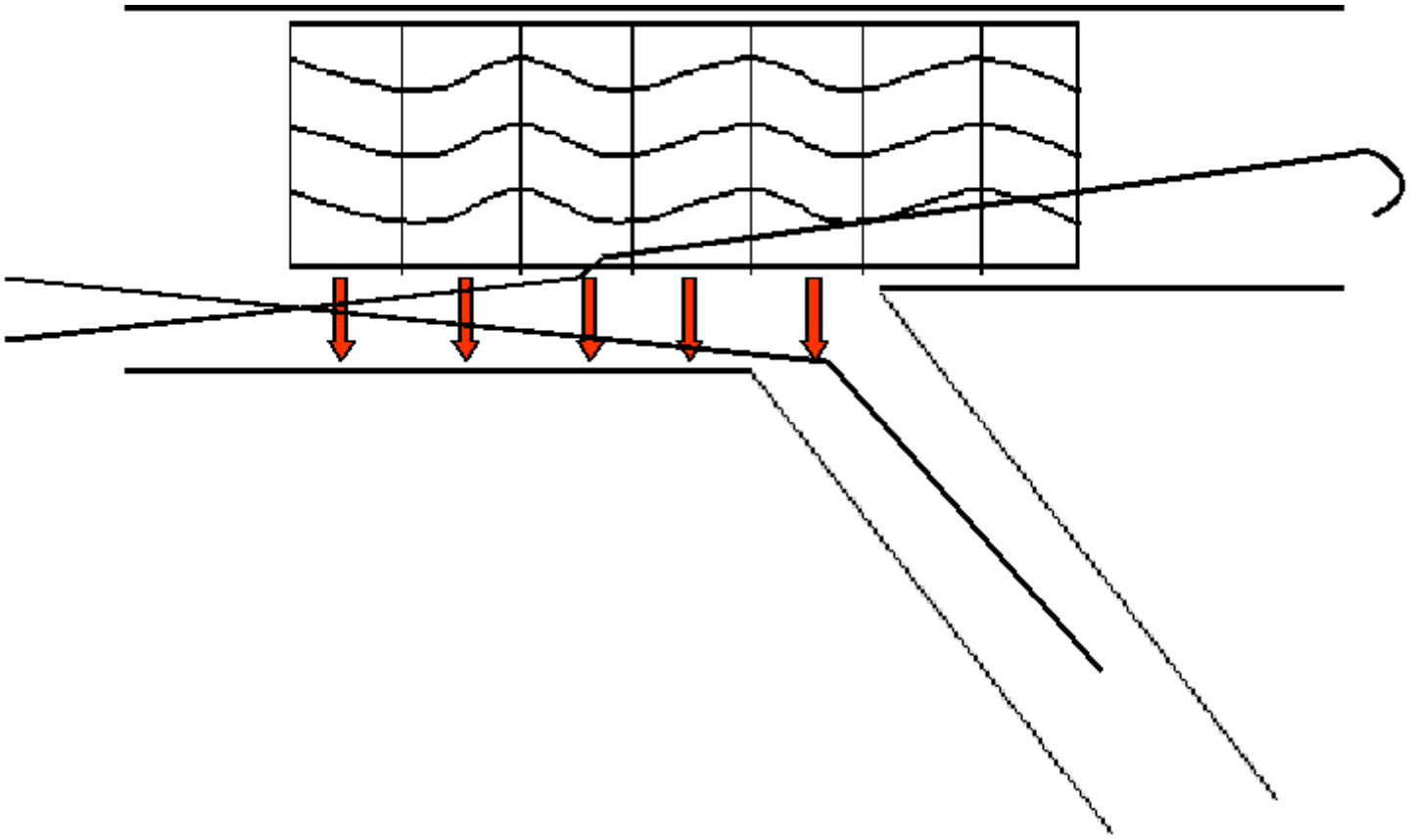


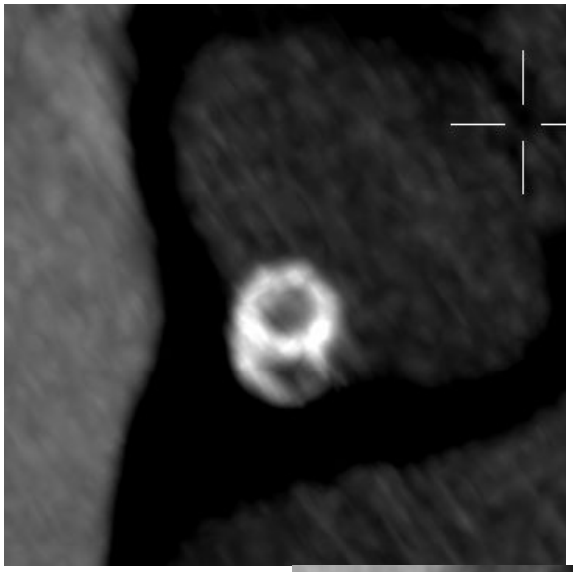


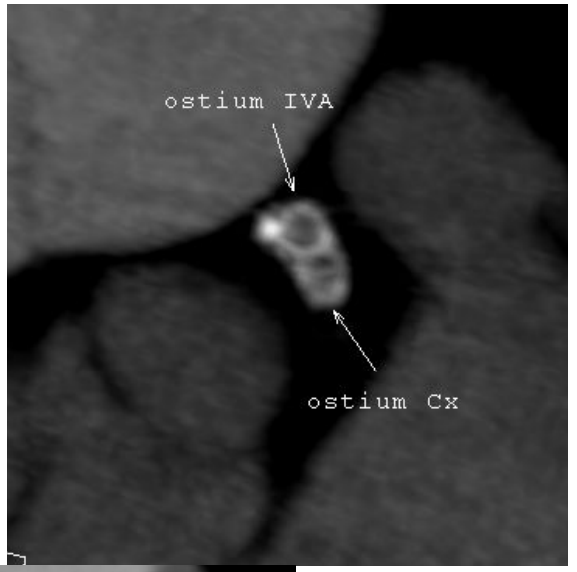
Courtesy of John Ormiston

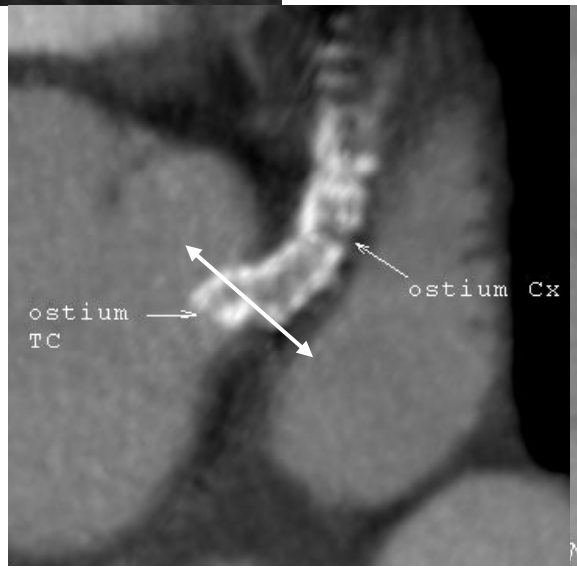
Optimal Provisional SB Stenting

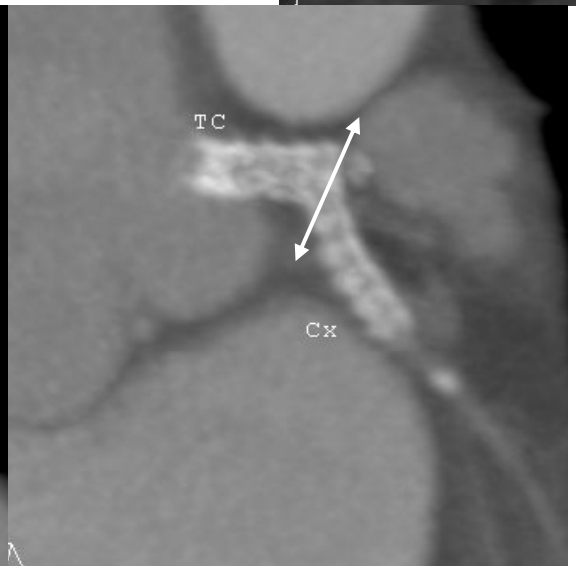




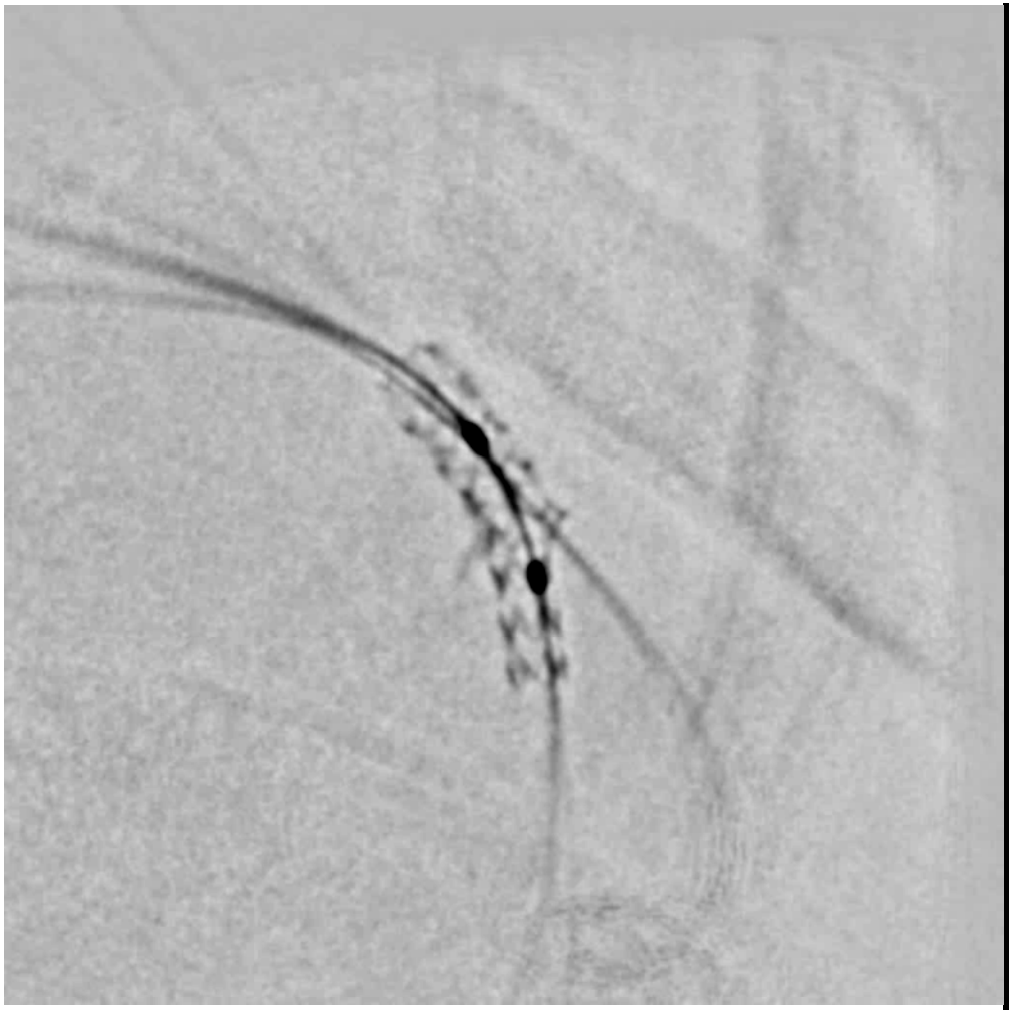


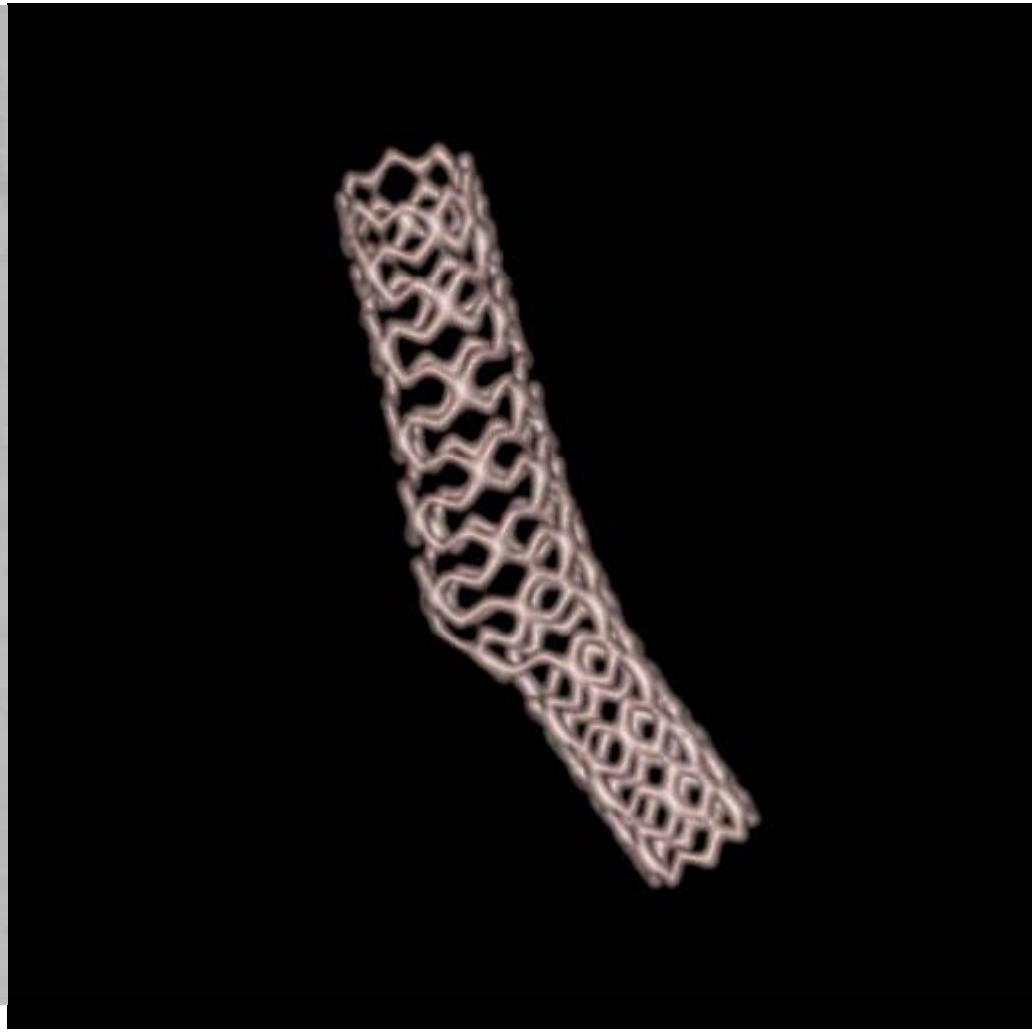

ostium IVA
ostium Cx


ostium
TC
ostium Cx

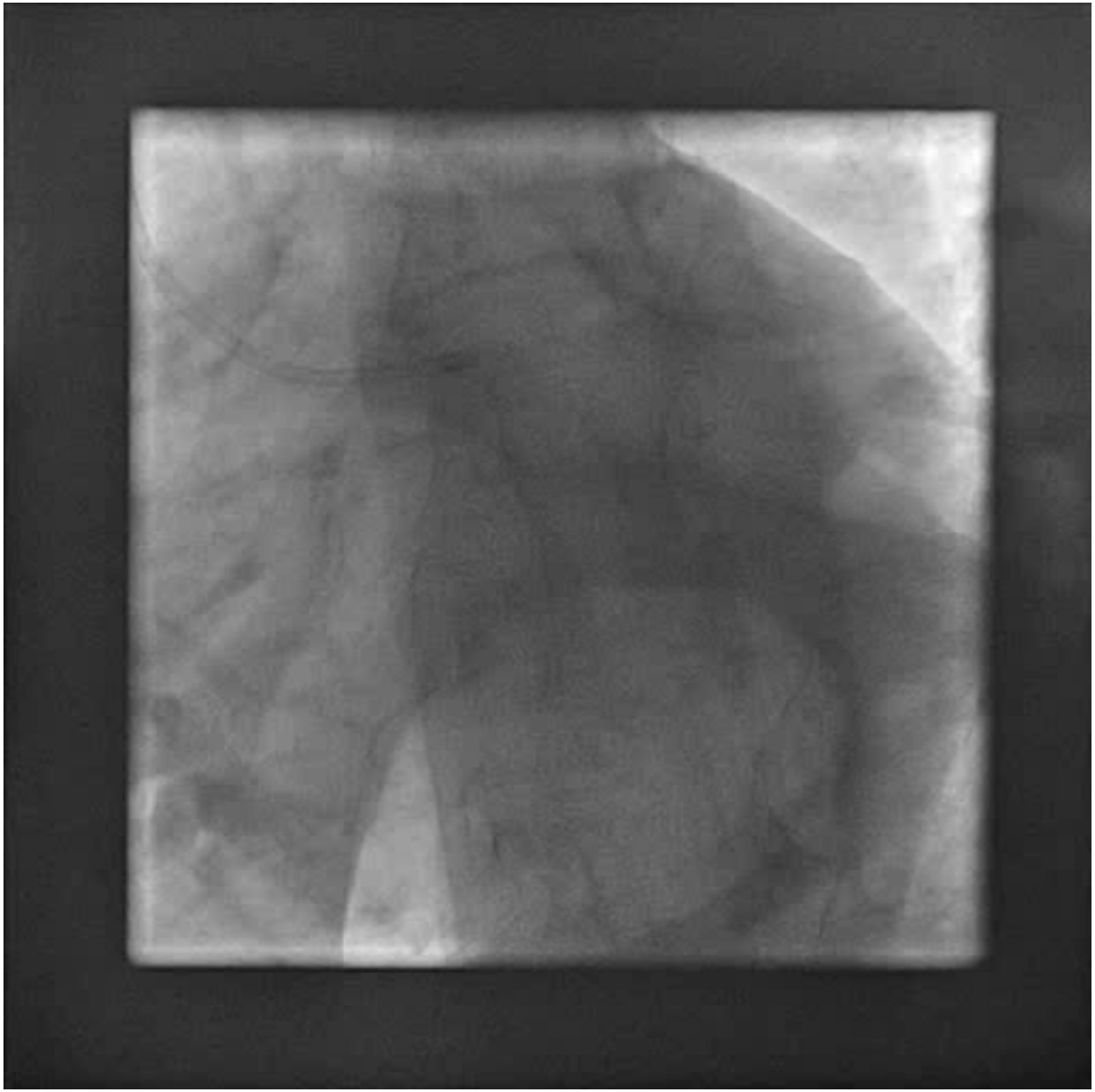

TC
Cx

Optimal aspect for provisional stenting

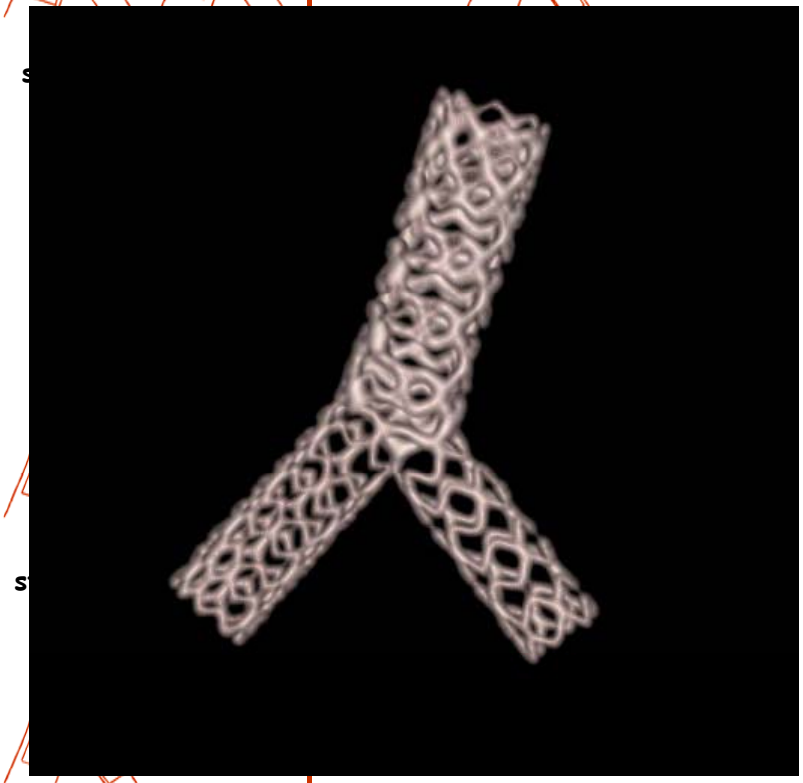




Distal LM POT



	M Main prox. first	A Main Accross side first	D Double	S Side branch first
1st stent	PM stenting	MB stenting across SB		
After balloon	Skirt	MB stenting + SB balloon	MB stenting + kissing	
2 stents	Skirt + DM; Skirt + SB	Elective T stenting; Internal crush; Culotte; TAP		
3 stents	Extended V		Trouser legs and seat	



Y. Louvard, CCVI 2008; 71: 175-83

LM & Bifurcation stenting with DES

- Provisional SB stenting strategy is very effective even for distal LM stenting (20% of second stenting)
- As for other techniques it is essential to remember that LM diameter is bigger than both distal branches
- POT technique before wire exchange is essential
- Randomized comparisons of techniques ? Too late?