

Why, when and How to use 2-stent techniques for bifurcation lesions

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Strategies: Provisional vs two-stent

	CATUS	BBC-ONE	BBK	NORDIC I	DKCRUSH II
2-stent	crush	crush/culotte	T	all	DK
Pt No.	350	497	202	413	320
Core Lab	Yes	NO	Yes	Yes	Yes
CTO/LMd	Yes	NO	Y/N	NO	Yes
STEMI	NO	NO	NO	NO	Yes
IVUS	3.2%	NO	NO	NO	46%

Strategies: Provisional vs two-stent

	CATUS	BBC-ONE	BBK	NORDIC I	DKCRUSH II
SB LL	5.8	---	10	3.5 2.8 vs 10.3	15 (mm)
True Bif	68%	---	67%	50%	100%
SB-DS	62%	---	54%	40%	65%
MV-DS	68%	---	52%	44%	68%
F/U	6 m	9 m	6 m	6 m	12 m
MACE	15/15.8	8/15.2	11.9/12.9	2.9/3.4	17.3/10.3 (%)

PS vs two-stent

LL=lesion length, Colombo, DH, Ferenc, Theussen, Chen et al.

Inclusion criteria:

----SB diameter ≥ 2.5 mm

----Medina 1,1,1 or 0,1,1

----Prospective registry

----Multi-center

Study Flowchart

1550 patients between 2004 and 2006



To build criteria of lesions complexity



Criteria of lesions complexity

*To test these criteria in another 3660 patients
With bifurcation lesions*

Major and minor criterion

% for diagnostic value	Sensitivity	Specificity	P
CX-SB\geq70%, CX-LL\geq10mm	78	71	0.001
SB-DS\geq 90%, SB-LL\geq10mm	78	72	0.001
Minor criterion:	64	65	0.002
>mild calcification	68	60	0.007
Multiple bifurcation	66	64	0.002
thrombus-containing	57	66	0.010
MV-LL\geq 25 mm	50	55	0.010
Angle$<$45 or $>$70	52	57	0.010
MV-RVD\leq 2.5 mm			

For simple bifurcations: provisional stenting

For complex bifurcations: **2-stent approach**

In-hospital MACE	(5.0% vs. 8.4%)
1-year cardiac death	(5.3% vs. 2.8%)
2-stent vs	PS

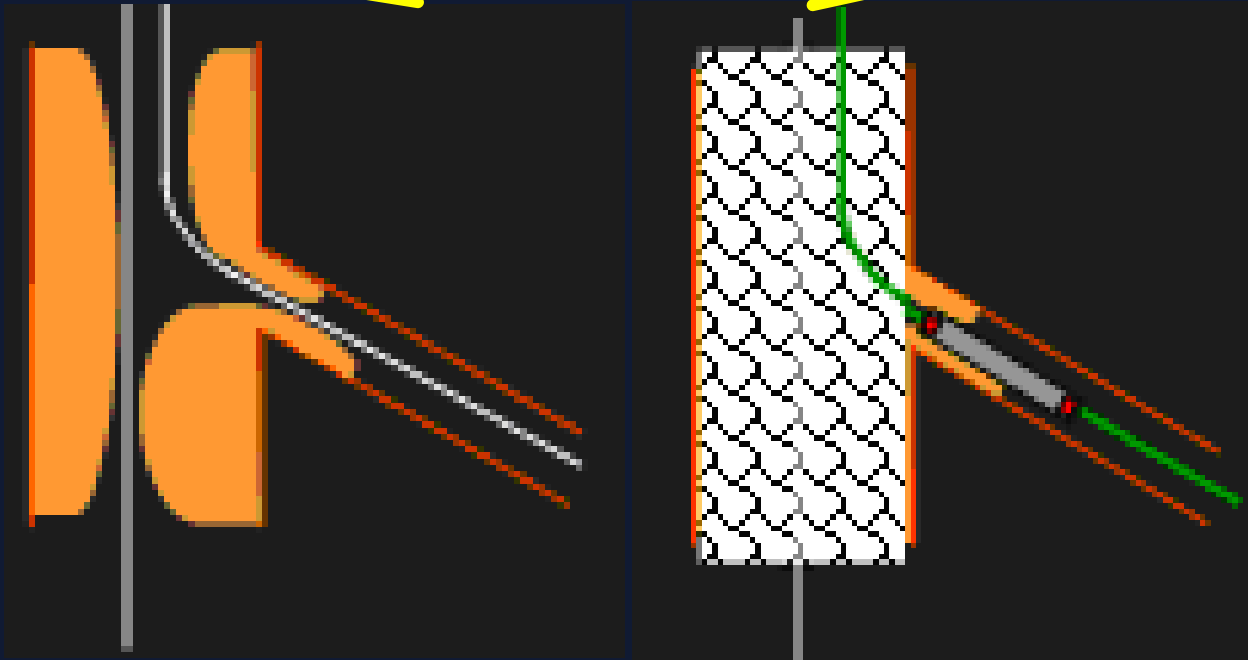
How to use two-stent ?

Provisional (Rescue) SB-stenting

Inner crush

T and Protrusion (TAP)

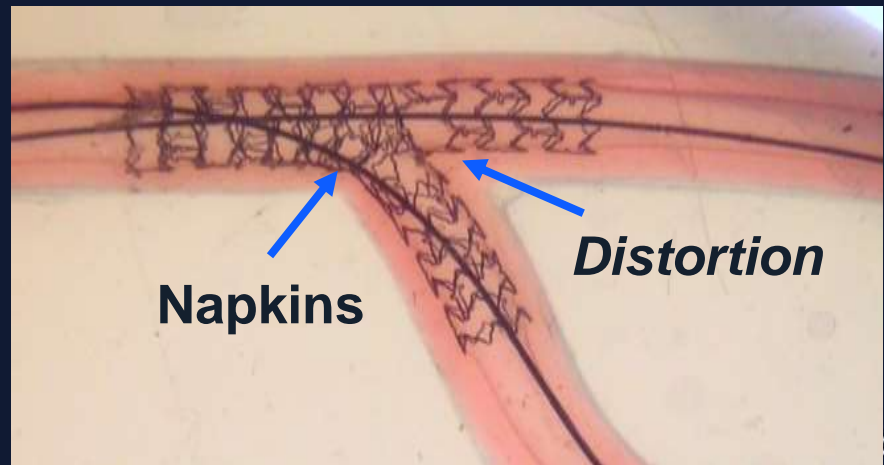
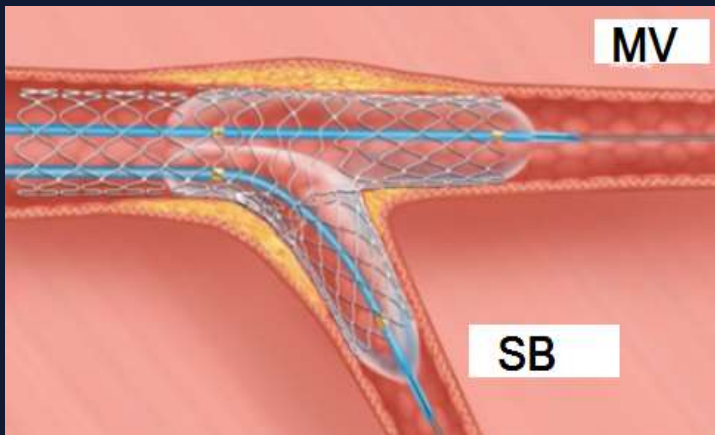
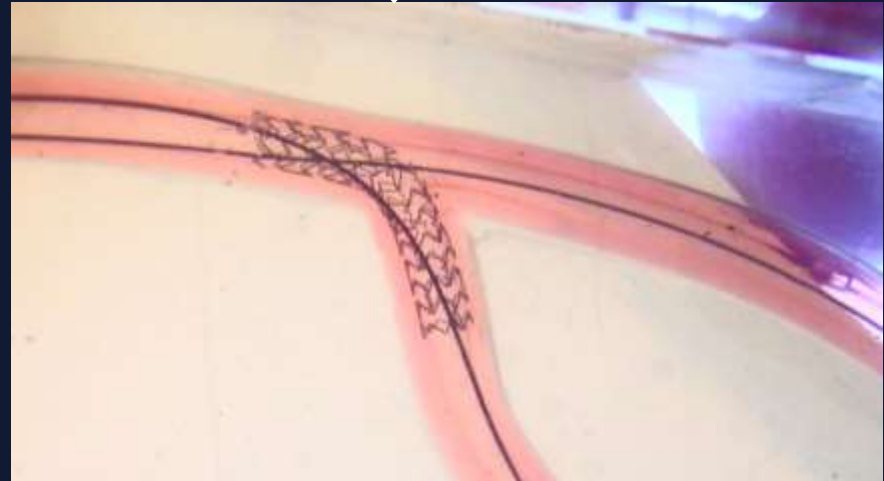
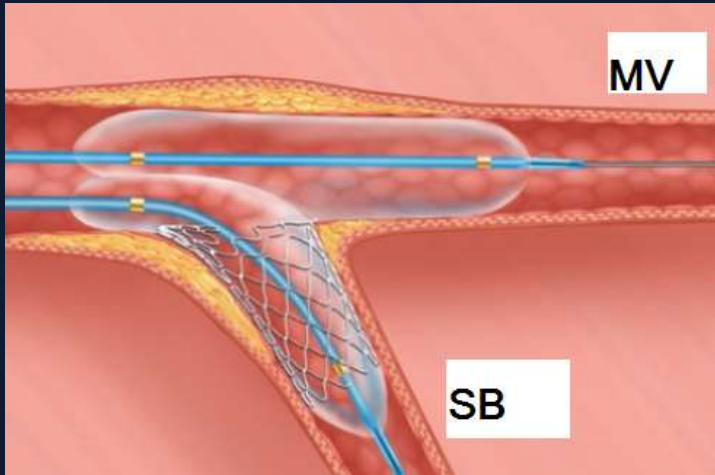
Culotte



DK crush: better 2-stent

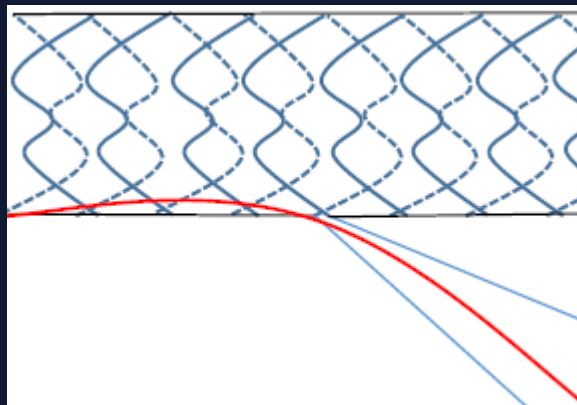
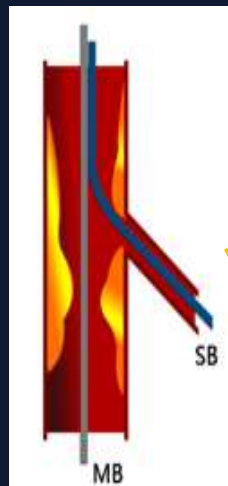


Culotte: reverse PS + longer protrusion



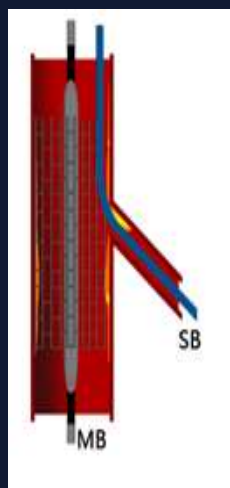
SB wire

Acute occlusion



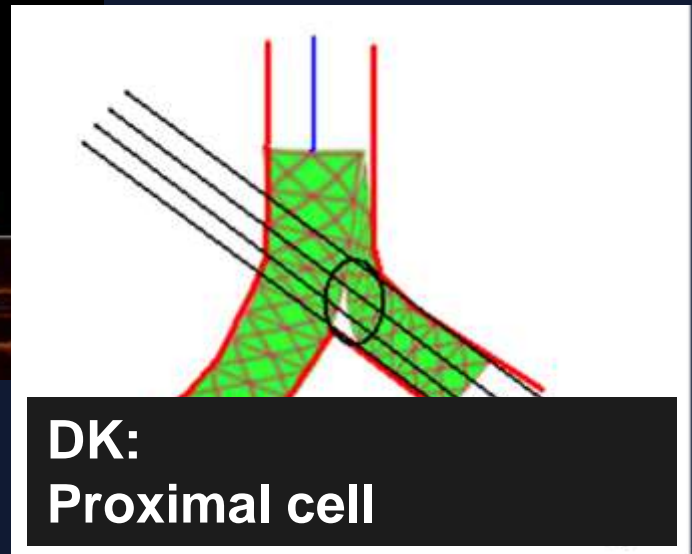
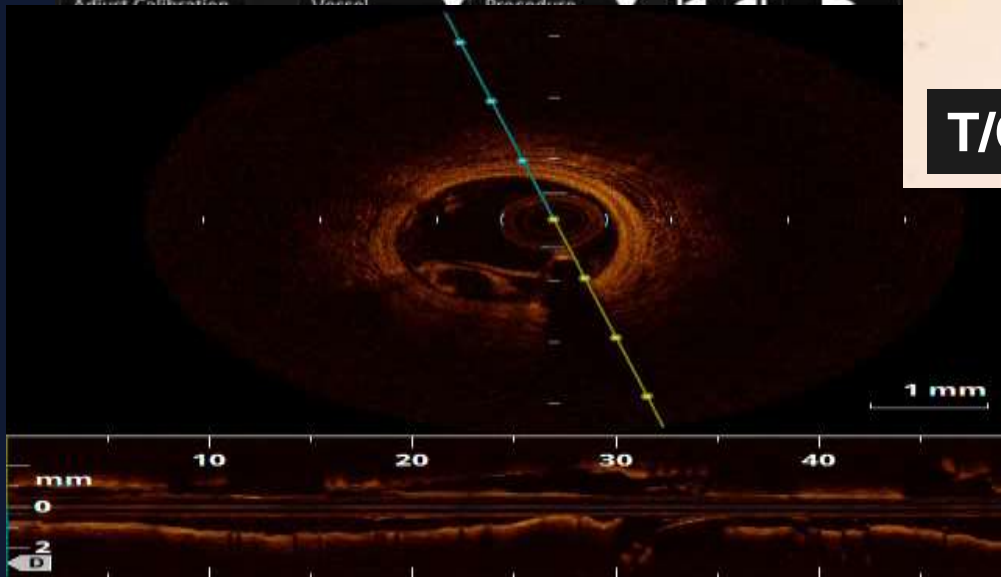
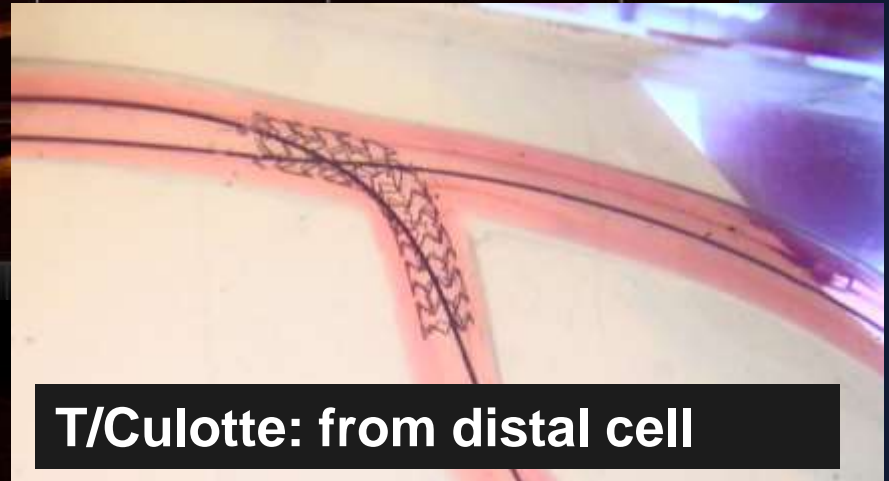
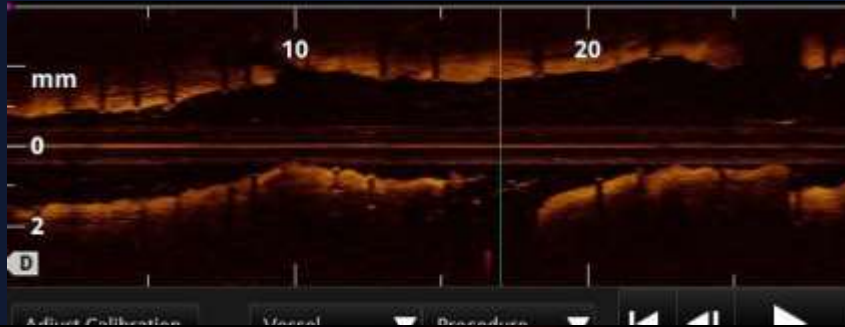
Jailed
Techniques

Keep it open



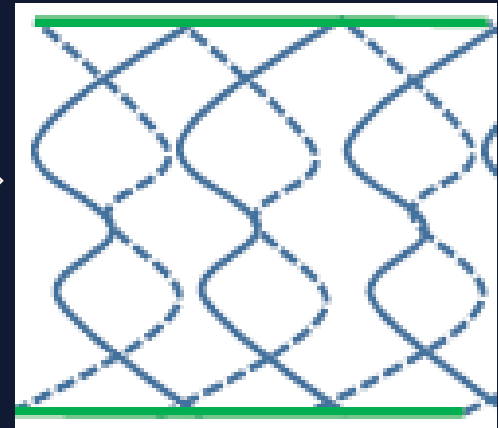
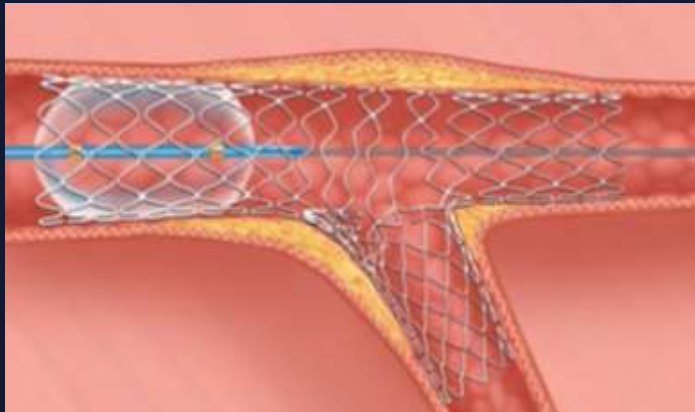
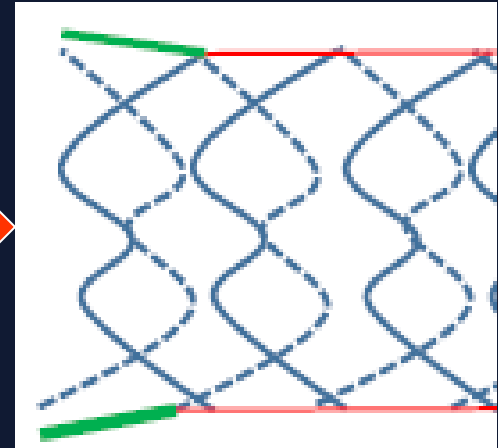
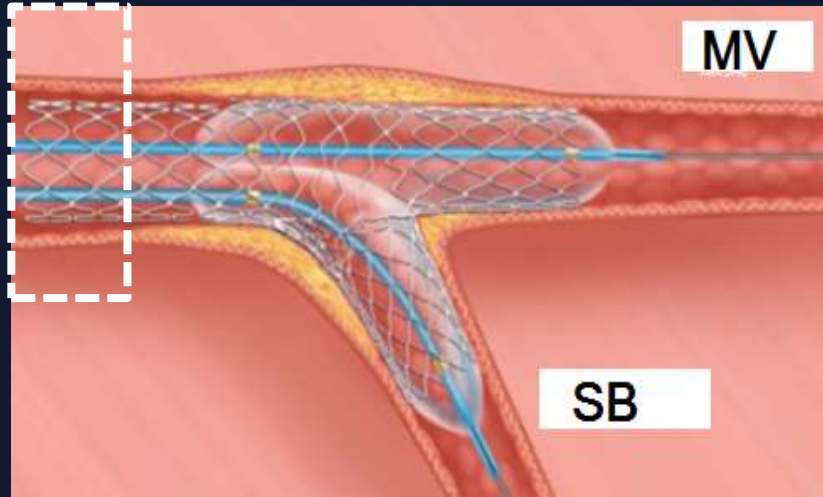
SB balloon

Access SB through MV struts

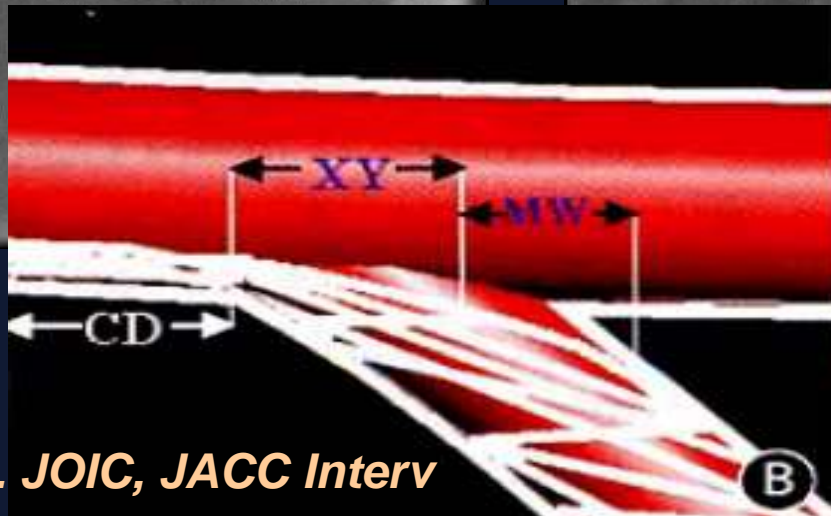
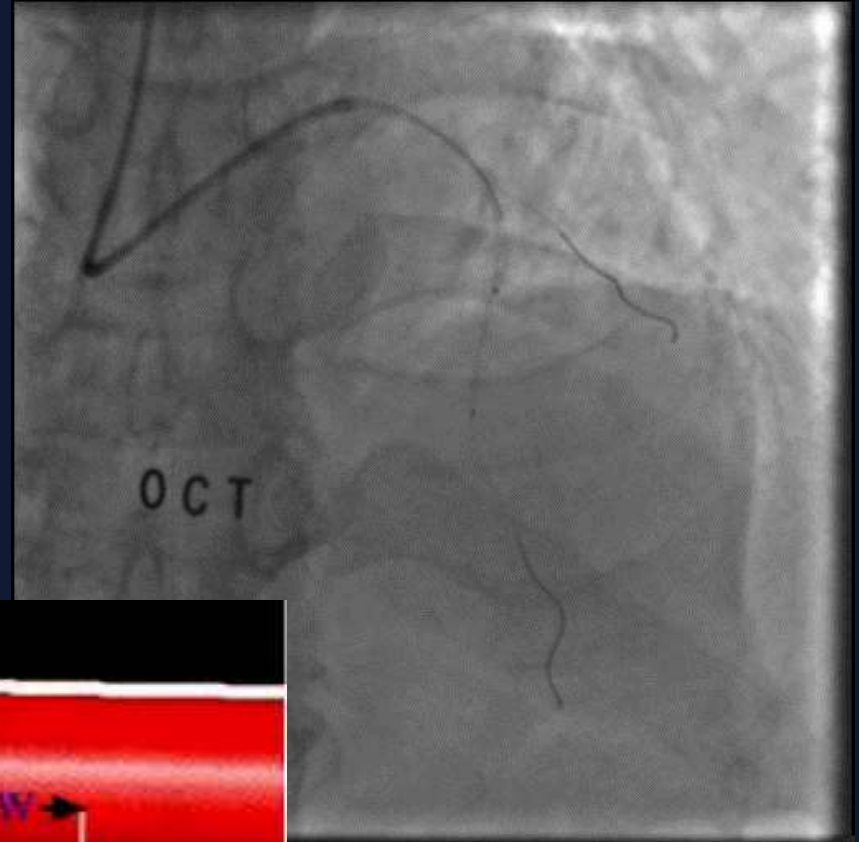
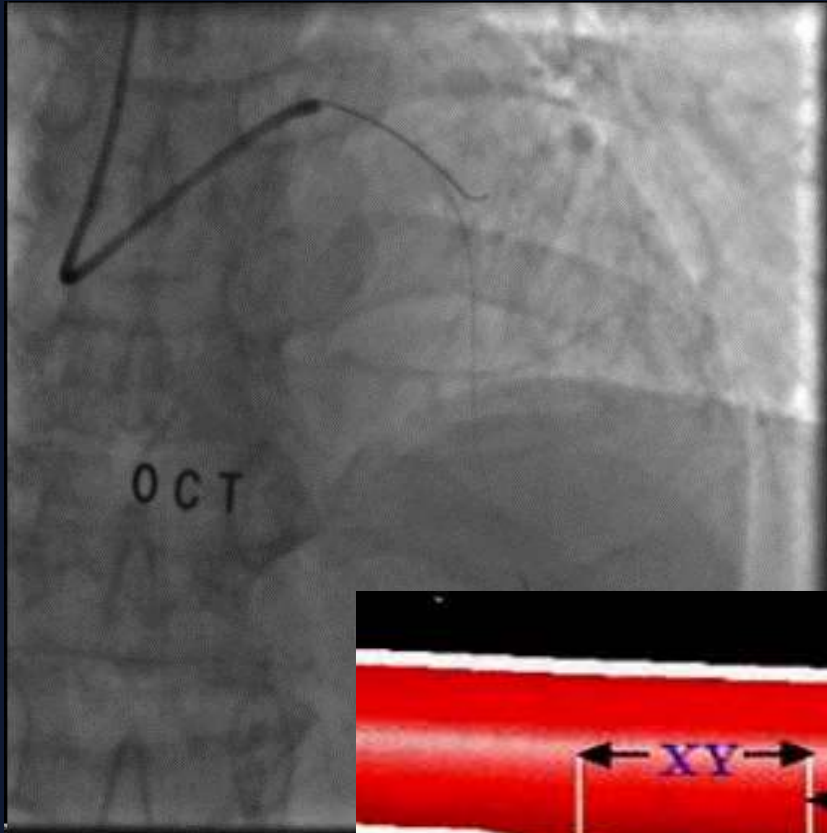


Zhang JJ, et al. Eurointervention 2015

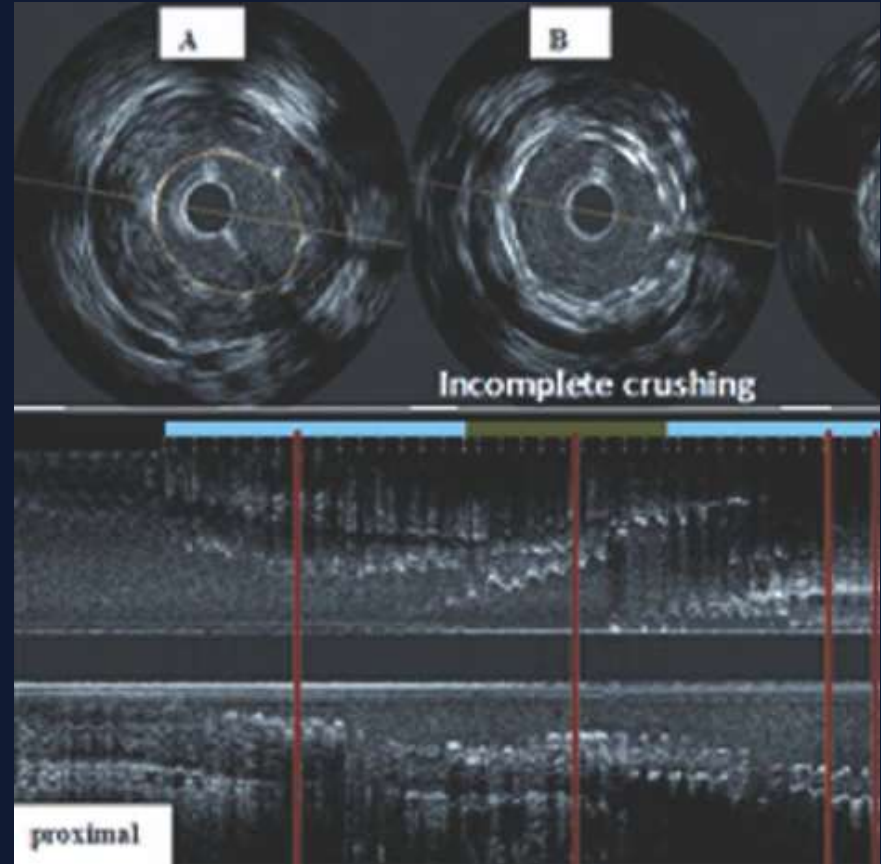
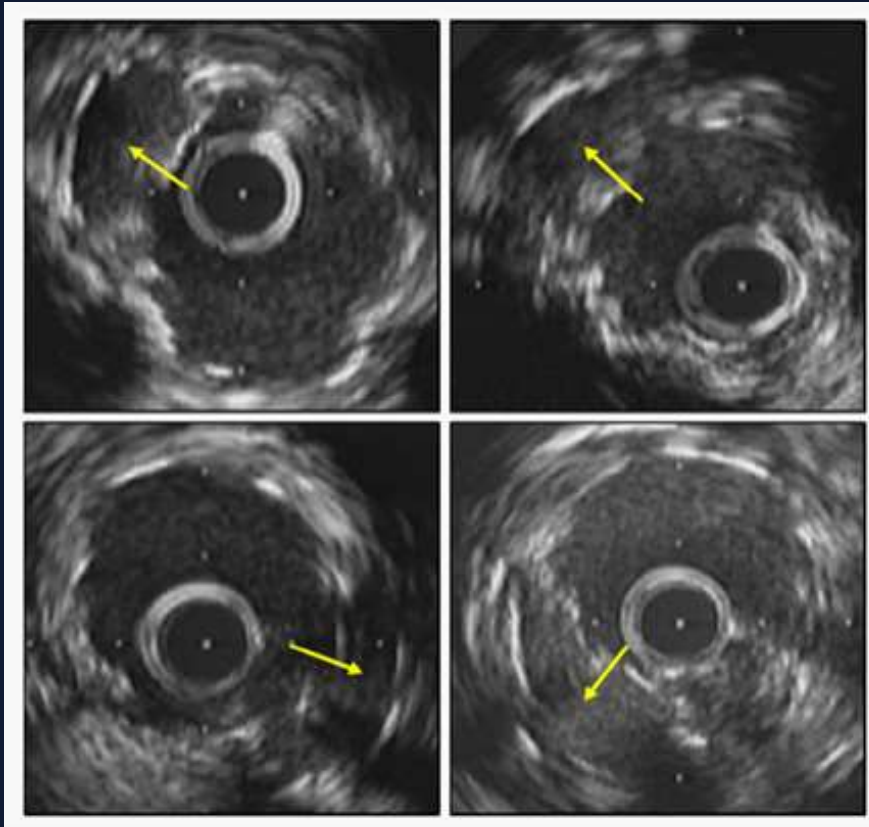
Kissing is always followed by a POT



Angio-guidance to access SB



Malaposition identified by IVUS



Conclusion

- Stratification for bifurcation lesions
- Two-stent for complex bifurcations
- Learning Curve for PS / two-stent
- IVUS/OCT guidance
- Tips of stenting techniques

Classical crush died in Europe, but it survives in China, as DK crush; Culotte is crying---By Antonio Colombo (JIM 2015)

Thanks for your attention!