

Single Stent is The Rule, ... And There Are Bailout Strategies

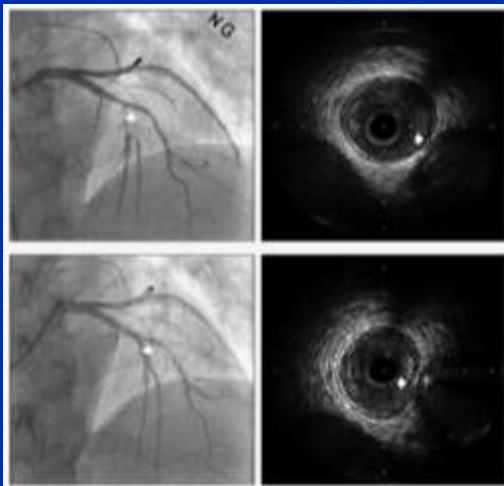


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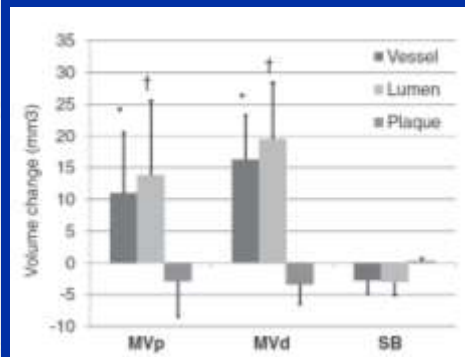
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Main Concern About Bifurcations— SB Obstruction



Reduction in side branch ostial lumen size is primarily driven by carinal shift (reduced vessel volume) and much less so plaque shift

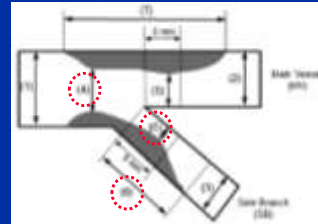


Predictors of SB Obstruction

COBIS II Registry

- 2227 bifurcation lesions
- SBO (i.e. TIMI flow <3) 8.4% (of which 1/3 was not restored)

Variable	Odds Ratio (95% CI) (range)	p Value
Pre-procedural %DS of the SB \geq 50%	2.34 (1.59-3.43)	<0.001
Pre-procedural %DS of the proximal MV \geq 50%	2.34 (1.57-3.50)	0.03
SB lesion length	1.03 (1.003-1.06)	<0.001
Acute coronary syndrome	1.53 (1.06-2.19)	0.02
Left main lesions (vs. non-left main lesions)	0.34 (0.16-0.72)	0.005



Hahn JY et al. J Am Coll Cardiol 2013;62:1654-9

Other Predictors

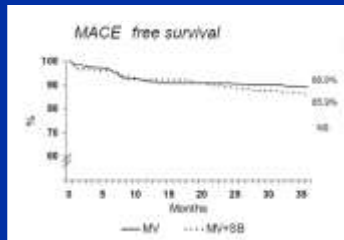
- Plaque burden in MV on side of SB ostium
- Calcification in MV opposite side of SB ostium
- Lipid-laden plaque in MV at site of SB origin
- Size of post-dilating balloon in distal segment of MV stent

So, Does That Mean We Need Two Stents?

NORDIC I BIFURCATION Study



* SB stent 4.3%, Final KBI 32%

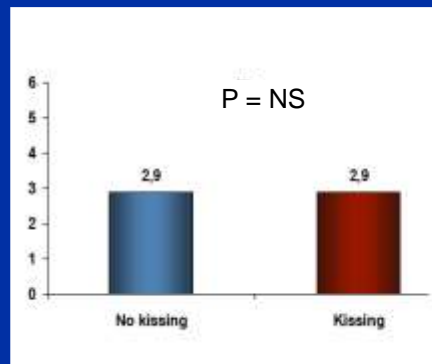
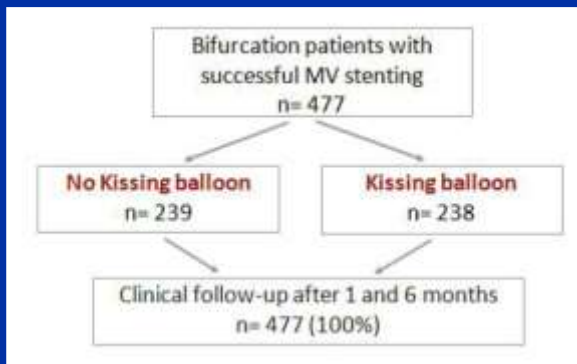


	MV n=207	MV + SB n=206	P value
6 months			
Cardiac death, n(%)	2 (1.0)	2 (1.0)	1.00
Total death, n(%)	2 (1.0)	3 (1.5)	0.61
MI, n(%)	0 (0.0)	1 (0.5)	0.31
TVR, n(%)	4 (1.9)	4 (1.9)	0.99
Stent thrombosis, n(%)	1 (0.5)	0 (0.0)	0.31
TLR, n(%)	4 (1.9)	2 (1.0)	0.36
36 months			
Total death (%)	2.9	5.8	0.15
Cardiac death (%)	1.4	1.5	1.00
MI (%)	3.0	3.6	0.78
TLR (%)	8.0	9.7	0.60
TVR (%)	9.5	11.7	0.52
Stent thrombosis (%)	2.5	1.0	0.45

Steigen TK et al. *Circulation*. 2006;114:1955-1961



NORDIC III BIFURCATION Study

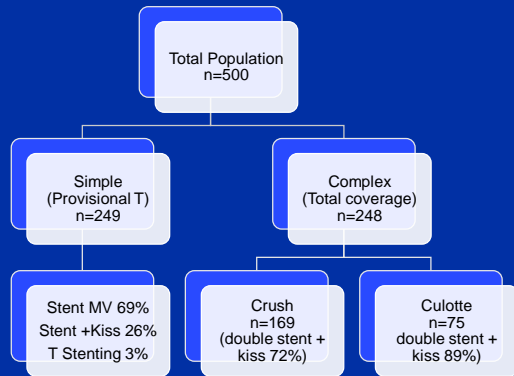


Primary Endpoint: cardiac death, index lesion MI, TLR, or stent thrombosis at 6 mons

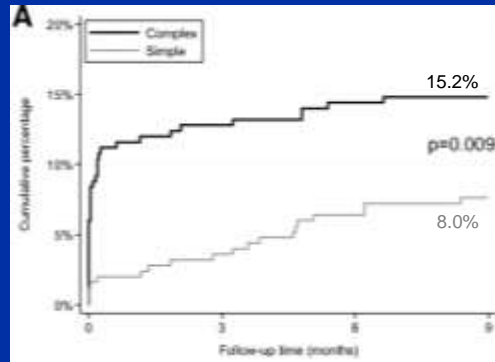
Niemelä M et al. *Circulation* 2011;123(1):79-86



British Bifurcation Coronary (BBC) Study



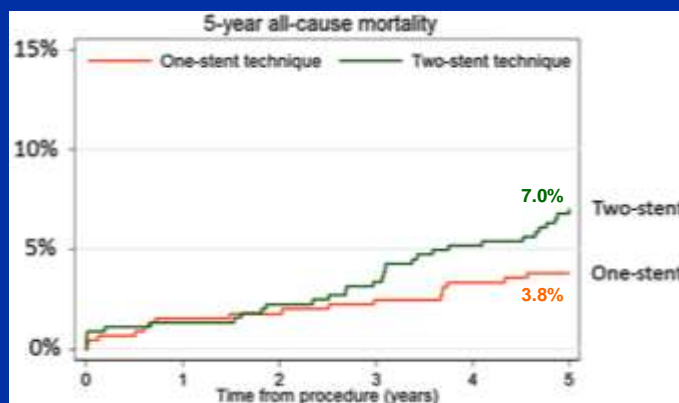
Primary Endpoint: Death, MI, TVF



David Hildick-Smith et al. Circulation. 2010;121:1235-1243



Five Year Mortality of NORDIC I and BBC ONE



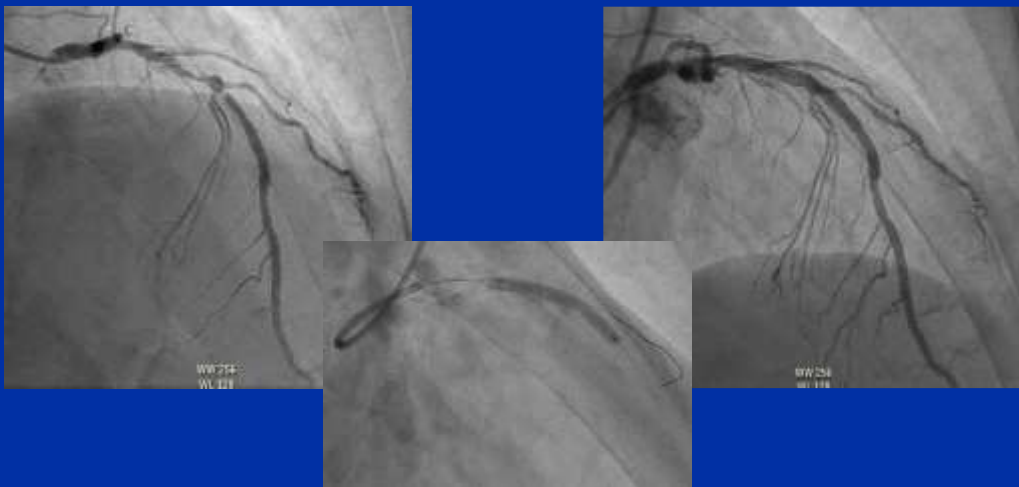
Behan MW et al. Eur Heart J. 2016;37(24):1923-1928



Provisional Single Stent Strategy

- Plan on one stent in MV crossing over SB
- Consider whether PTCA of the SB is needed
- Keep wire in SB even with stenting of MV
- Consider PTCA or stenting of the SB if TIMI flow <3
- Consider kissing balloon inflation

Provisional Single Stent Strategy



Provisional Single Stent Strategy



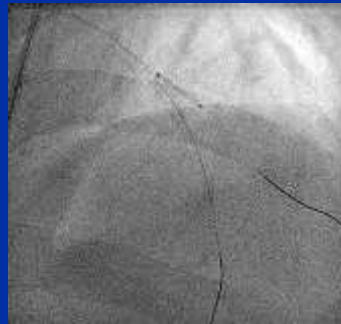
Bailout Stenting in Provisional Strategy

- Small percentage of cases
- With SB flow TIMI <3 and/or DS>70%
- Realistically, 2 technical options for SB after MV is stented
 - T or modified T stenting with minimal protrusion
 - Culotte technique
- Proximal optimization and kissing balloon inflations are mandatory

Modified T Stenting (T and minimal protrusion)



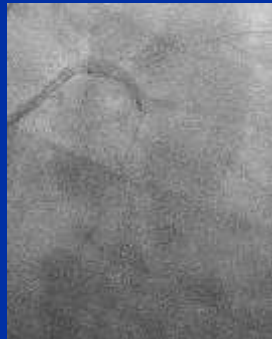
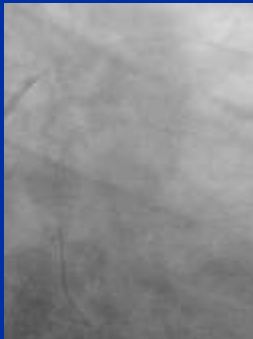
Modified T Stenting (T with min protrusion)



Modified T Stenting (T with min protrusion)



Culotte Stenting



Conclusions

- Provisional one stent strategy should be the default approach to most bifurcation lesions (simpler, less contrast, less radiation, similar success rates and better long term outcomes)
- Plans should be in place for possible 'bail-out' 2nd stent in case of SB compromise (TIMI flow <3 &/or DS>70%)
- In these situations, T- or modified T-stenting (TAP) or culotte techniques are the most likely to succeed

Thank You

