Case 3. (non-LM) Bifurcation

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Disclosure

- I, Do-Yoon Kang, DO NOT have a conflict of interest related to this presentation.

For non-LM Bifurcation, Everyone Says “Provisional”

- Supplying myocardium is small. It is not associated with survival.
- 2018 ESC Guideline recommends provisional as IA.

Recommendations	Class[a]	Level[b]
Stent implantation in the main vessel only, followed by provisional balloon angioplasty with or without stenting of the side branch, is recommended for PCI of bifurcation lesions.[654–658]	I	A

Neumann FJ et al. Eur Heart J. 2019;40(2):87-165.

For non-LM Bifurcation, Everyone Says “Provisional”

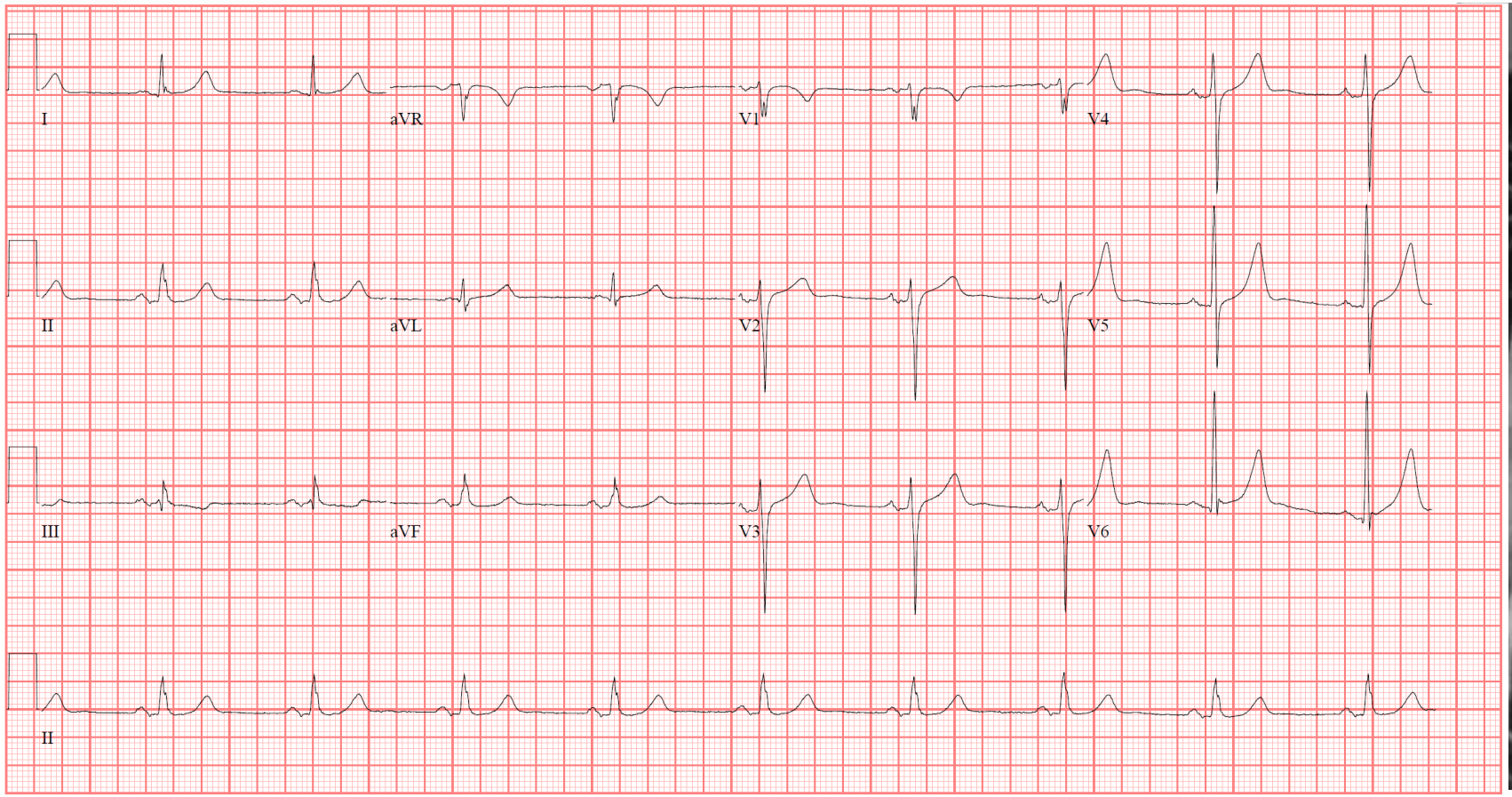
- Exceptions in Guideline: “Upfront SB stenting may be preferable” when,
  - **Large SB** diameter ≥ 2.75 mm with a long ostial lesion (> 5 mm)
  - Anticipated difficulty in accessing SB after stenting MV

  → **High risk of acute side branch occlusion**

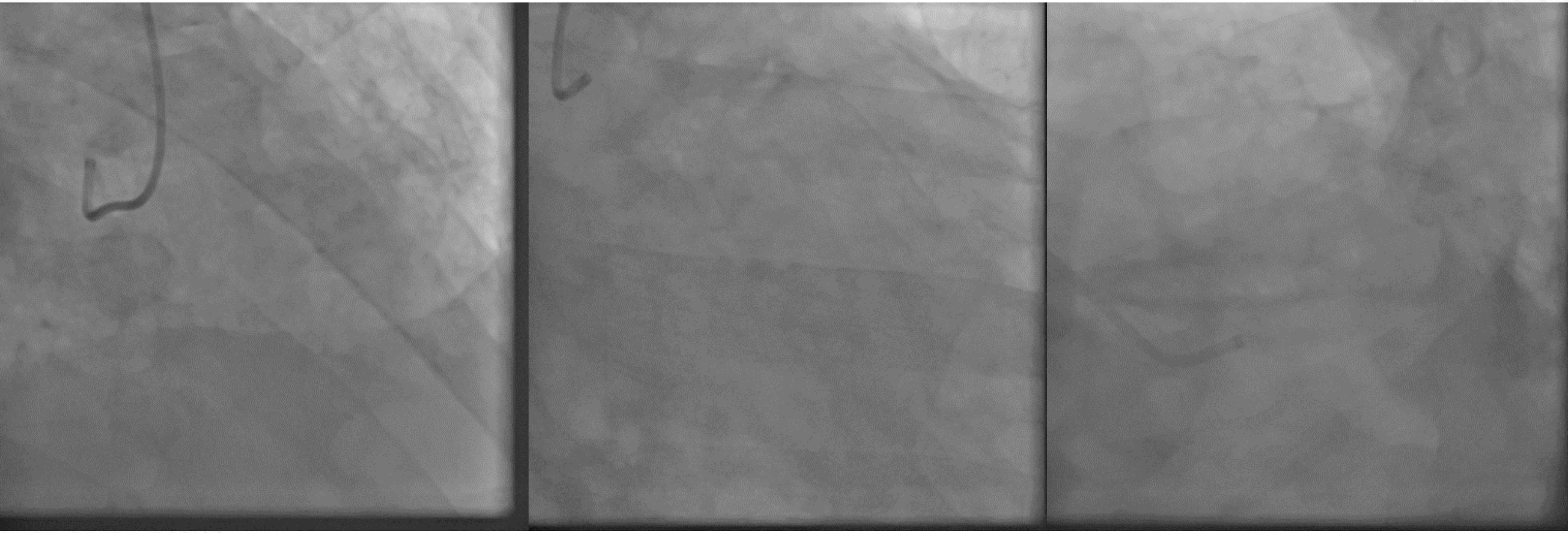
Neumann FJ et al. Eur Heart J. 2019;40(2):87-165.

73 / M, Effort angina CCS 2 since 2MA

- History of DM, HT, AF s/p RFCA

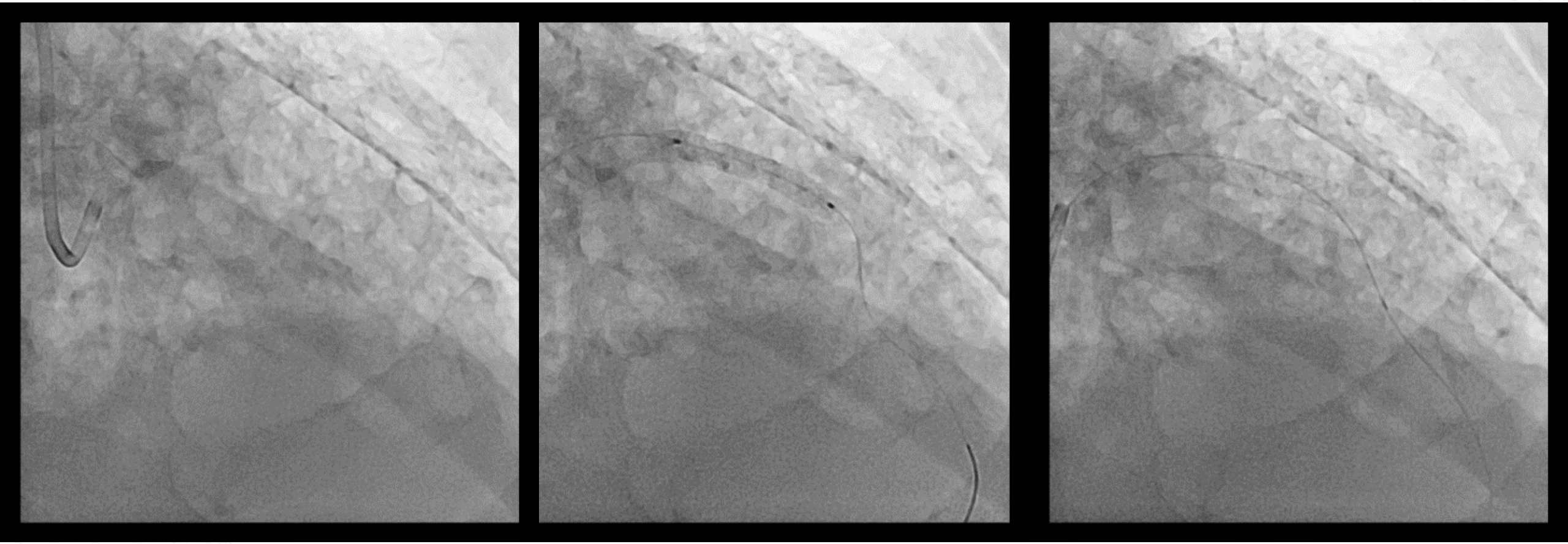


CAG



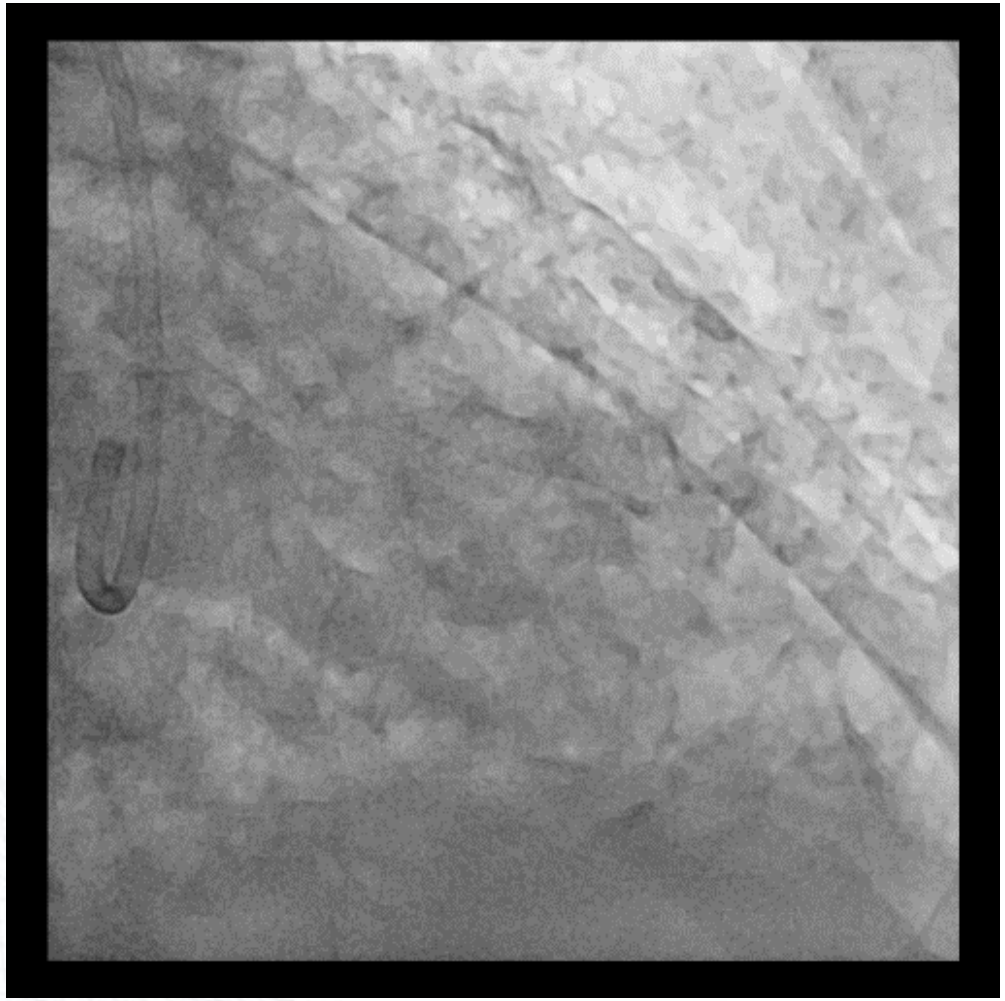
- LAD FFR 0.70

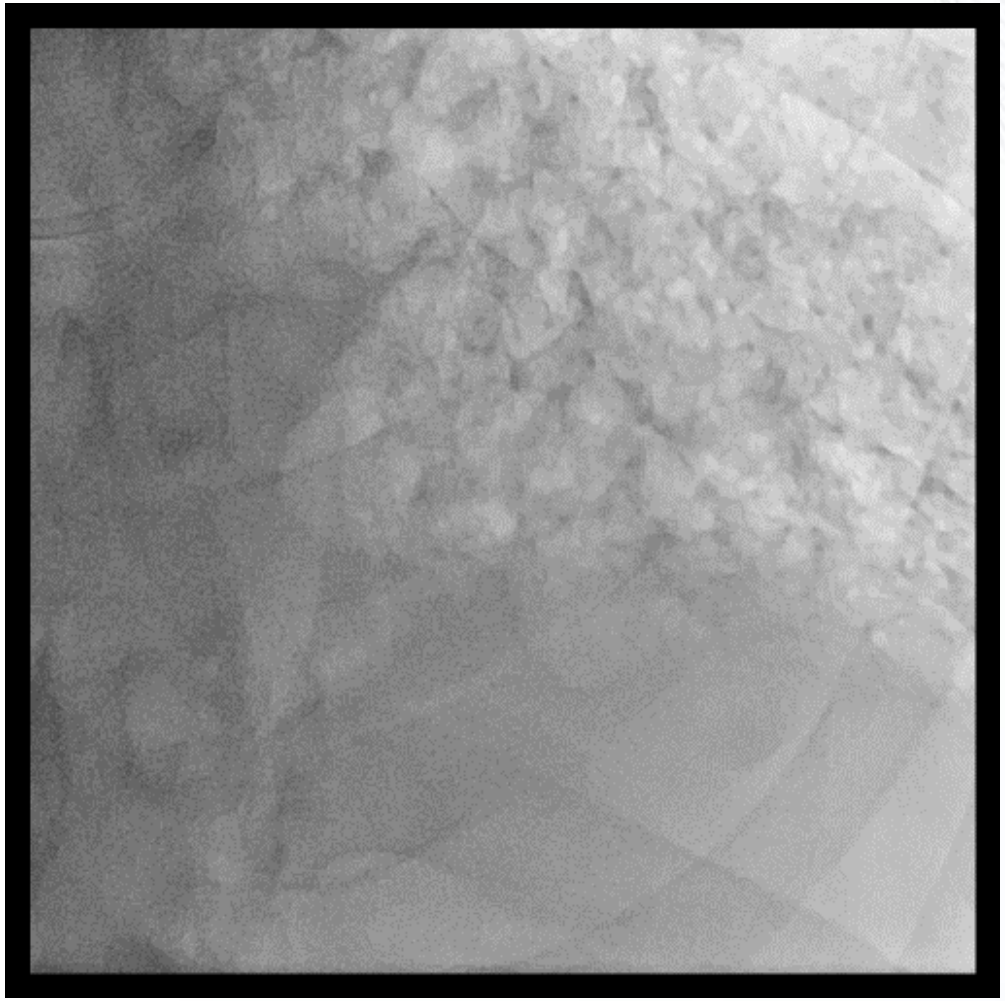
Crossover Stenting



DES 4*22 mm

Re-wiring at Jailed Diagonal branch Failed



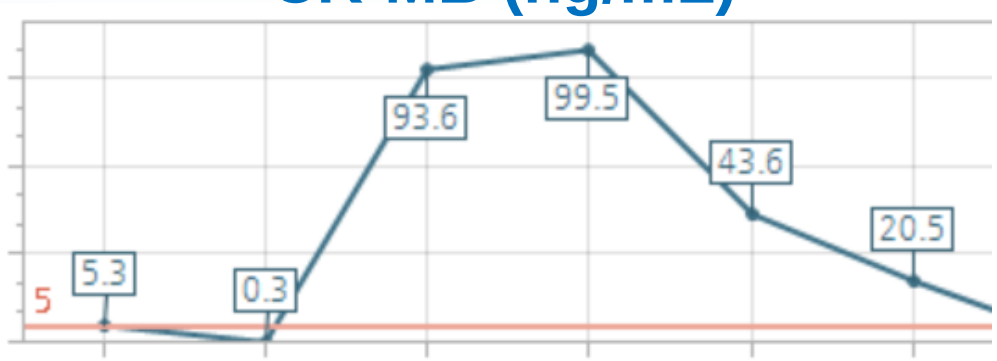


Chest pain (+), EKG change (-)

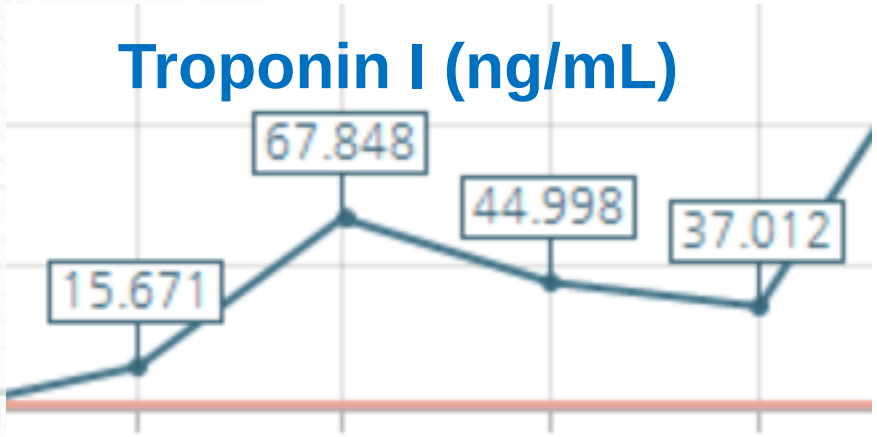
Post-Procedural Course

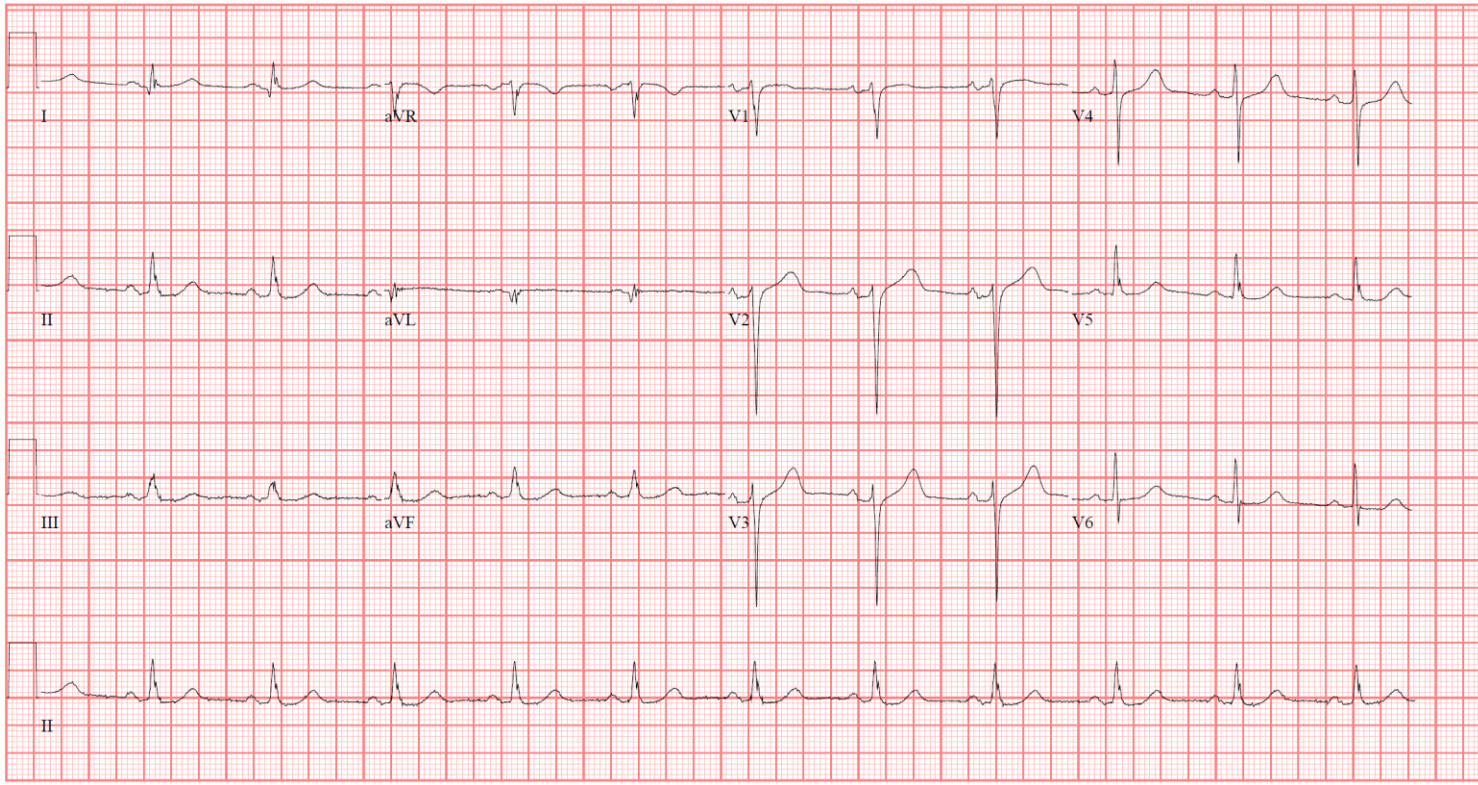
- Chest discomfort persist, discharge delayed.
- BB, CCB, Nitrate medication up-titrated.

CK-MB (ng/mL)



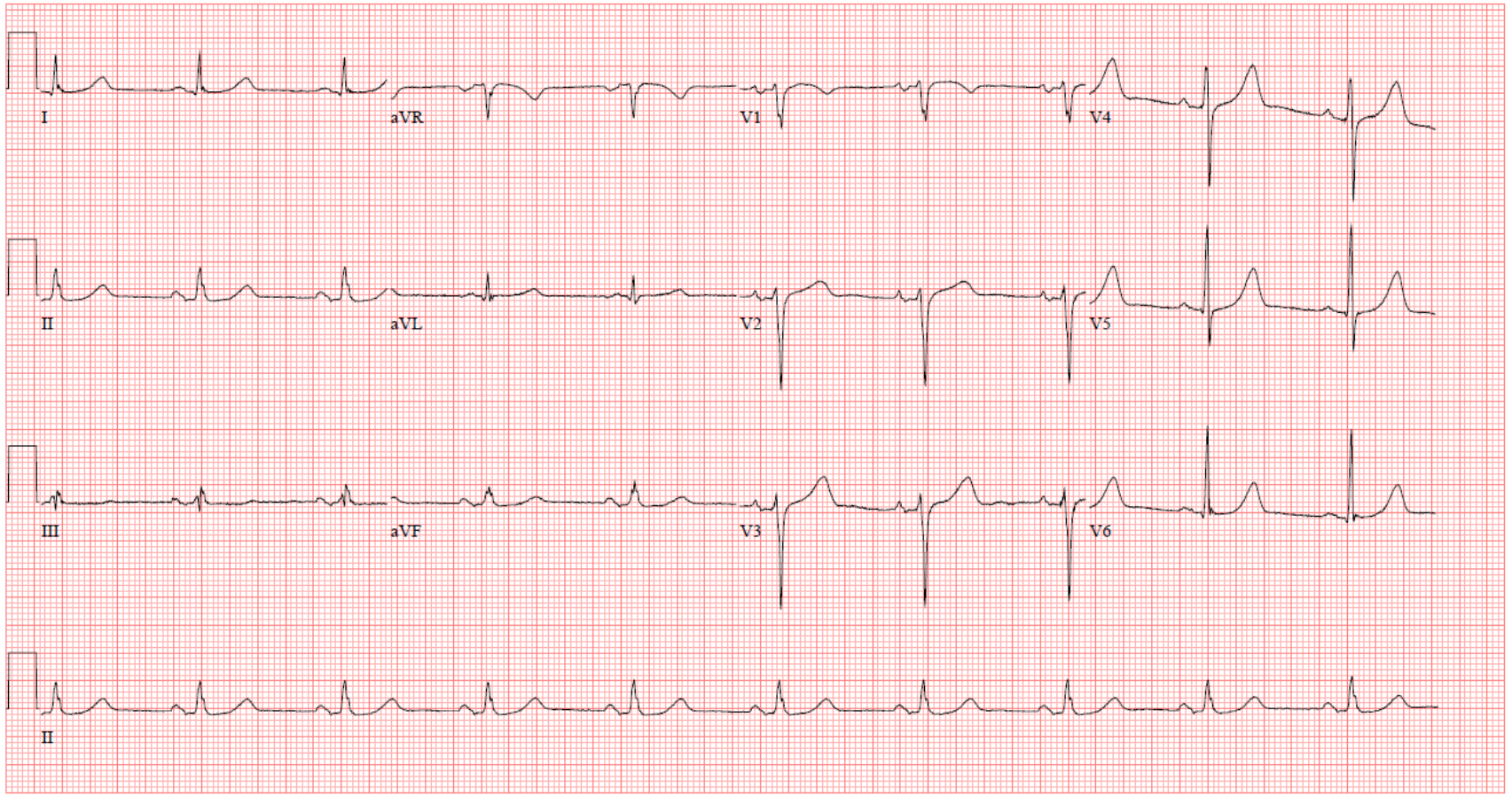
Troponin I (ng/mL)





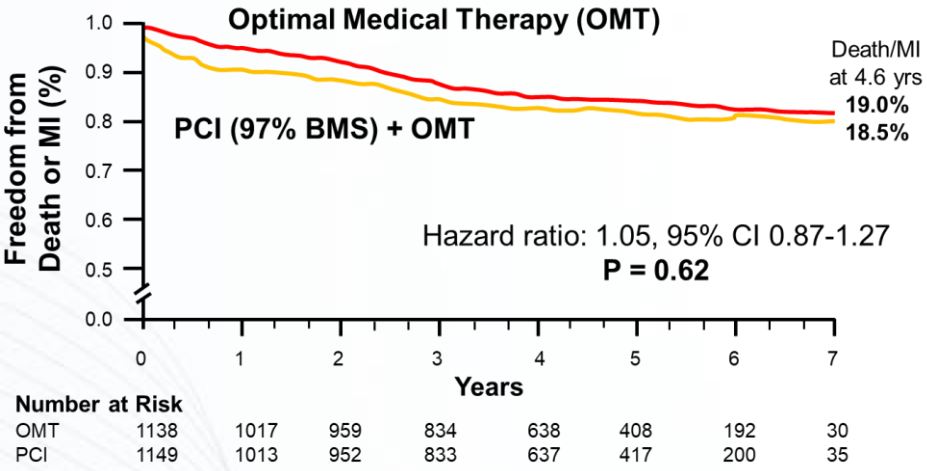
Outpatient Clinic

- Persist effort angina CCS 2 despite of full anti-angina medication
- Symptom improved at 1.5 years after PCI.



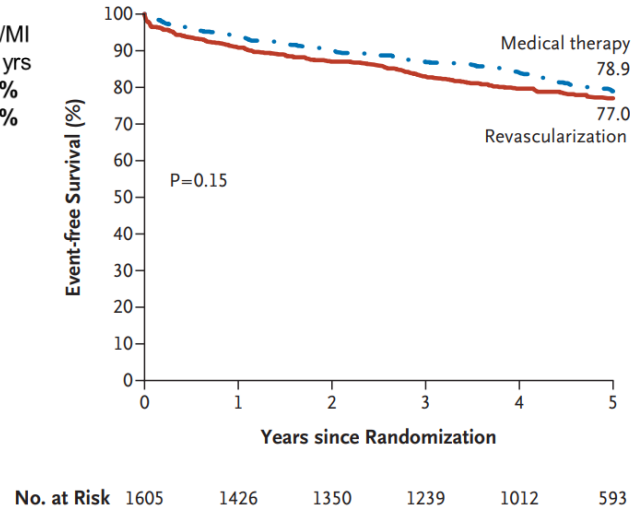
Role of PCI in SIHD is… Symptom Control !

COURAGE (2007)



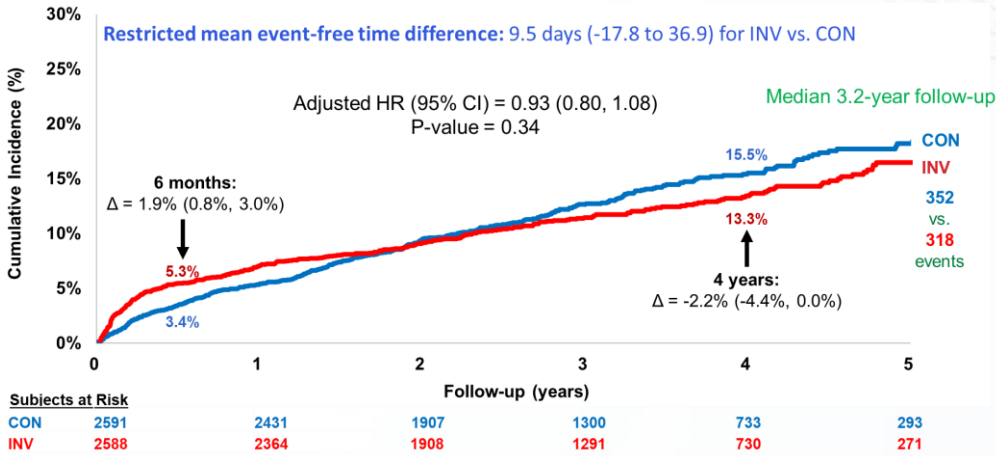
Boden WE et al. NEJM 2007;356:1503-16

BARI 2D (2009)



The BARI 2D Study Group.
NEJM 2009;360:2503-15

ISCHEMIA (2020)



Maron DJ et al. N Engl J Med. 2020;382:1395-1407

When do we need Upfront 2-stent in Non-LM Bifurcation?

- **Upfront 2-stent for Large SB with high occlusion risk**

  - Large size of SB vessel (about 20% of non-LM bifurcation)
  - Significant ostial lesion of SB vessel

➔ When there is a risk of inadequate symptom control !

Symptomatically Important Side Branch

- Angina
- EKG change
- Arrhythmogenic potential

Balloon Occlusion

	LAD	Diagonal	p Value
Chest pain and ECG parameters, n = 65			
VAS pain score	5 (0–7)	2 (0–4)	<0.0001
ST-segment elevation ≥1 mm	60 (92.3)	23 (35.4)	0.001
QTc interval, ms	454.0 ± 45.4	440.4 ± 35.7	0.07
QTc dispersion, ms	83.8 ± 39.2	70.7 ± 28.5	<0.0001
Coronary hemodynamic parameters, n = 47			
Pre-intervention FFR	0.67 ± 0.10	0.71 ± 0.11	0.02
Pw, mm Hg	21.0 ± 6.5	26.7 ± 9.4	<0.0001
Pw/Pa	0.22 ± 0.07	0.27 ± 0.08	0.001

Diagonal Br. Scoring

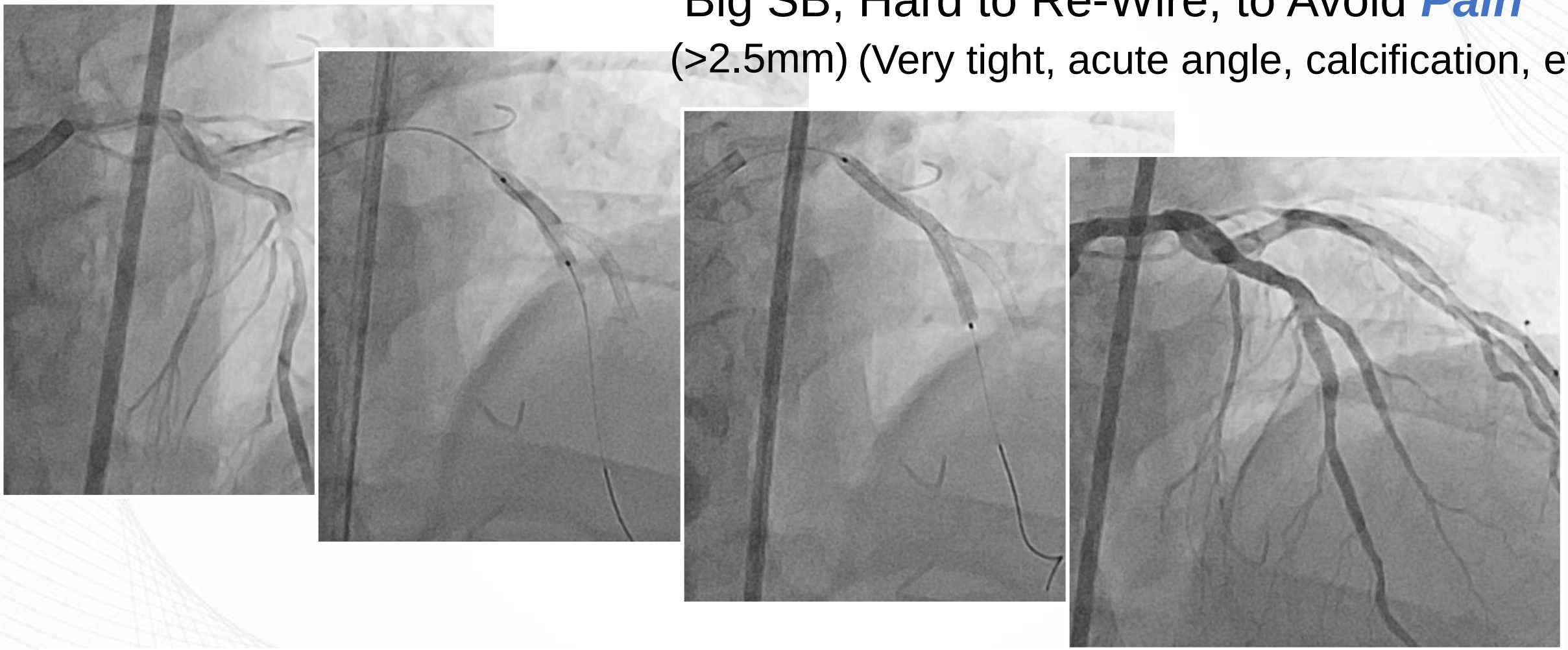
- *Vessel Size ≥ 2.5mm*
- *No. of Diagonal Br. ≤ 2*
- *No Branch Below*

Koo BK et al. JACC Cardiovasc Interv. 2012;5(11):1126-32.

When do we need Upfront 2-stent in Non-LM Bifurcation?

Big SB, Hard to Re-Wire, to Avoid ***Pain***

(>2.5mm) (Very tight, acute angle, calcification, etc)

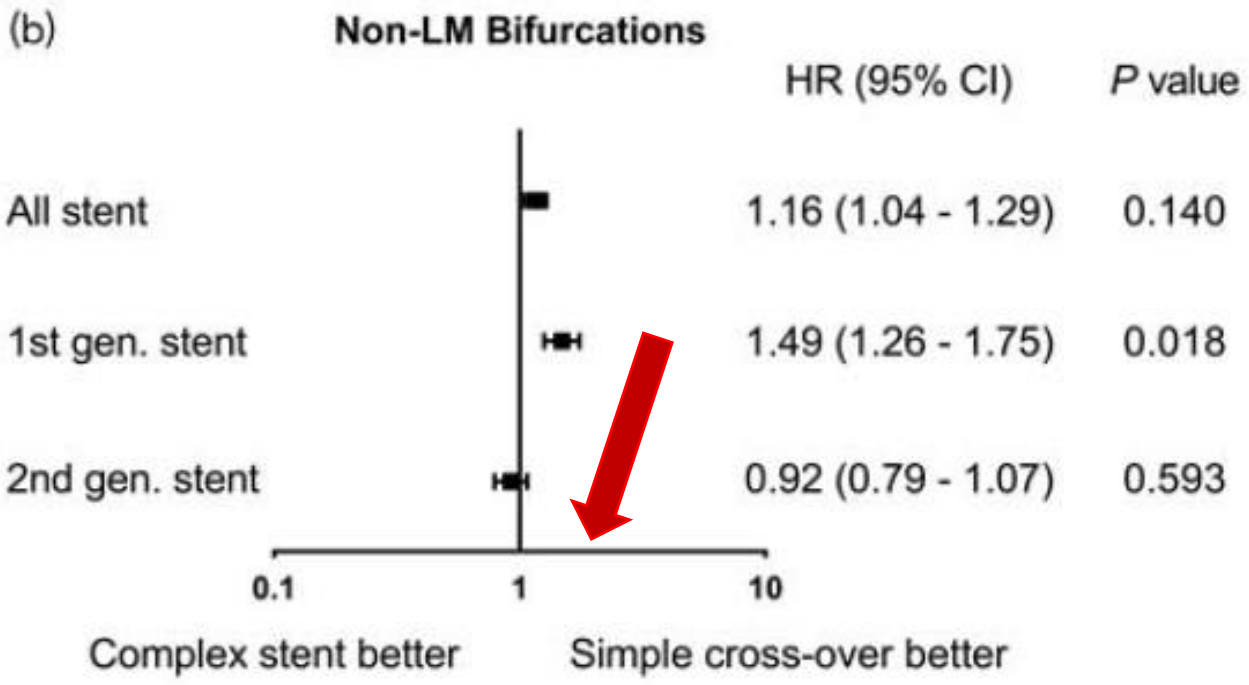


Not For Better Prognosis, But For No Pain during / after PCI

Because the Outcome of 2-Stenting Has Been Improved

Target-Vessel Failure in non-LM Bifurcation

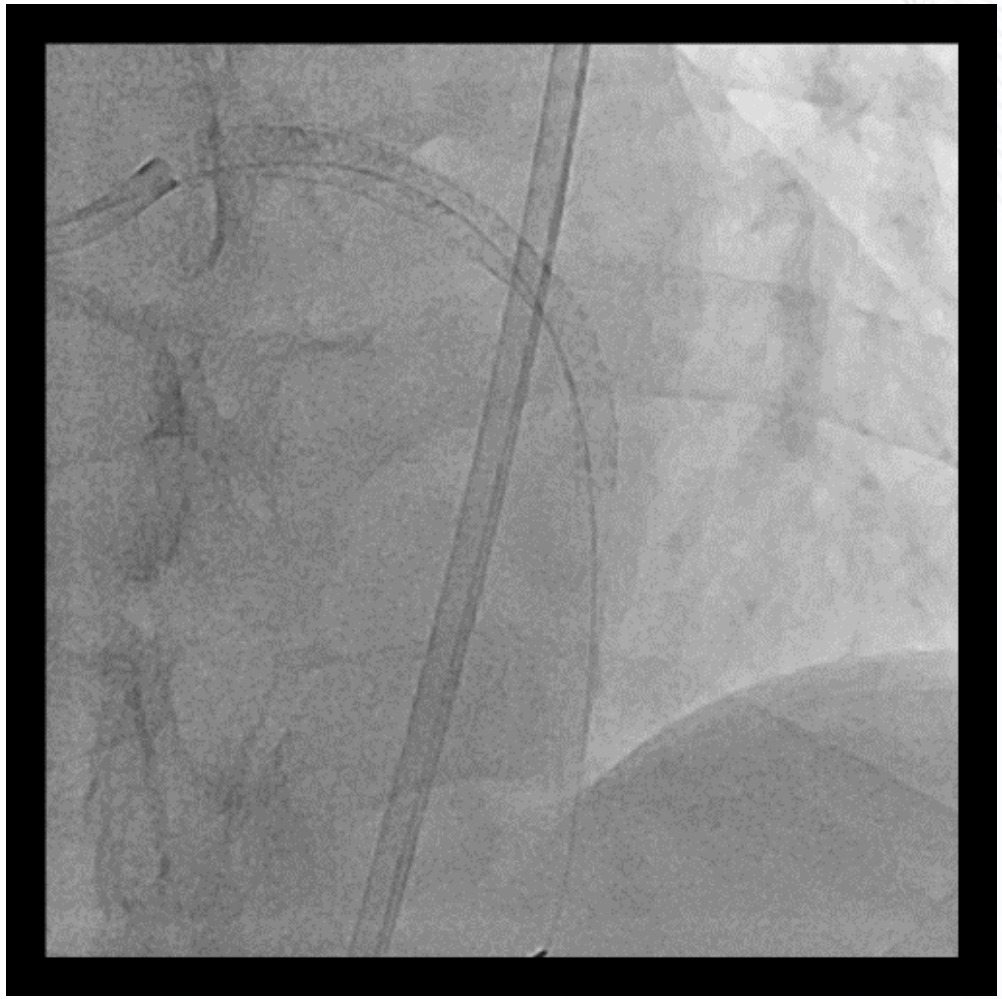
Data from IRIS-DES/IRIS-LM registry (N=2,232)



Kang SH et al. Coron Artery Dis. 2019;30(1):33-43

Wire Protection for Big & Risky Side Branch !!

Don’t Make Complicated Situations



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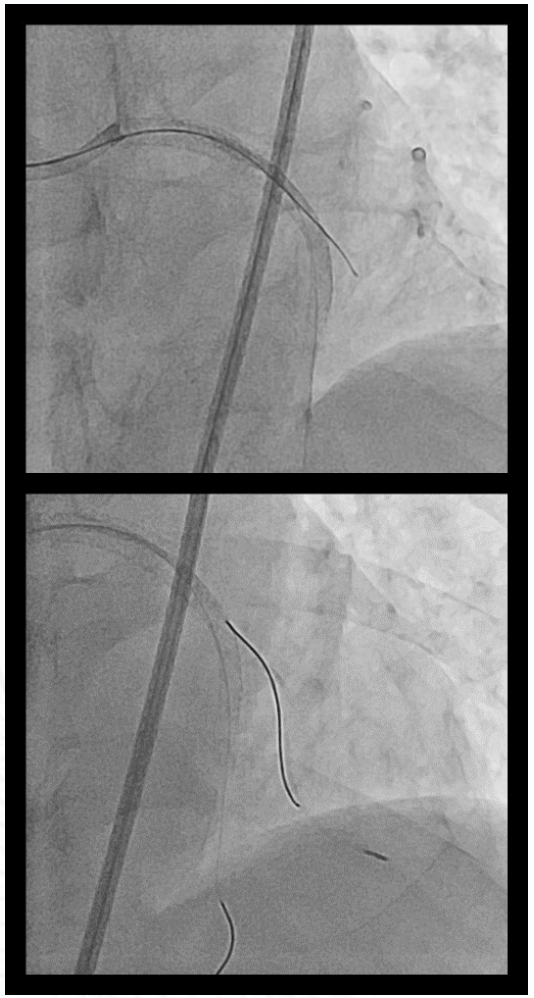

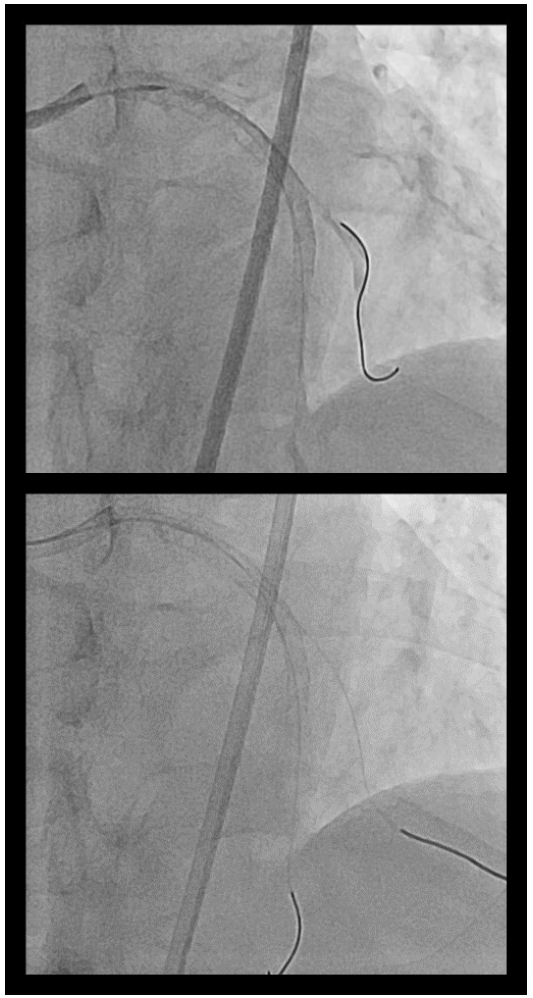

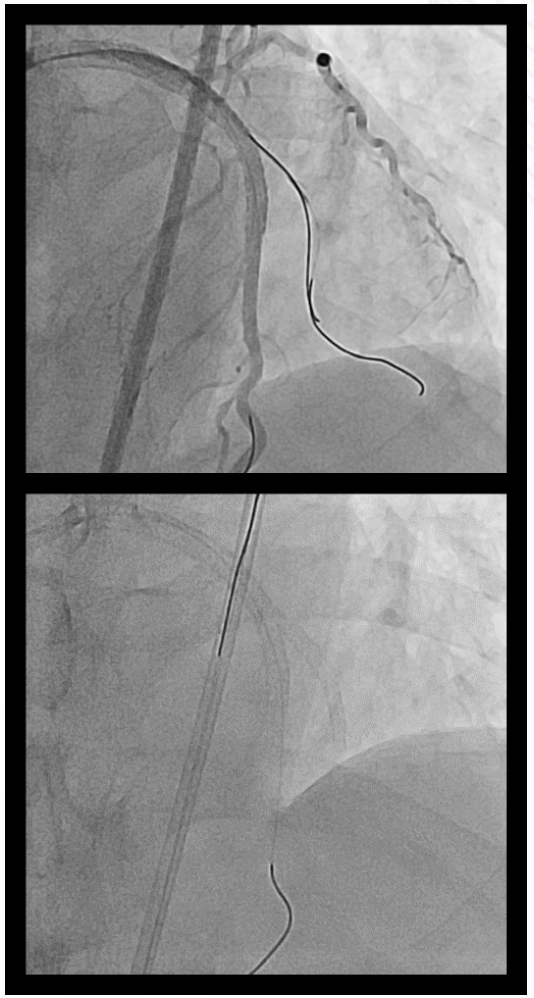

When do we Need 2-stent in Non-LM Bifurcation?

- **Urgent situations during PCI with 1-stent technique**
  - Large SB dissection
  - Persistent intra-procedural angina
  - Electrocardiographic changes
  - TIMI flow grade <3

➔ Sometimes, Simple crossover is NOT Simple.

Conclusion : non-LM Bifurcation

- Yes. Provisional approach is standard. SB occlusion is not associated with increased mortality.

- However, we should consider upfront 2-stenting in patients with high risk of large SB occlusion, expected inadequate symptom control.