

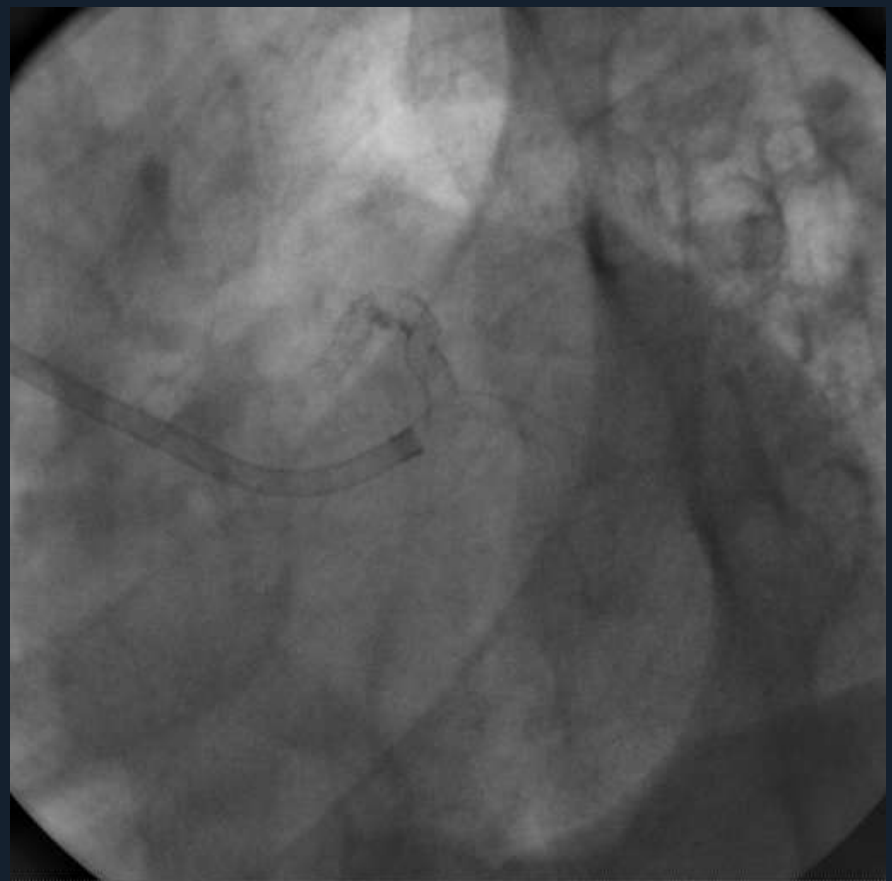
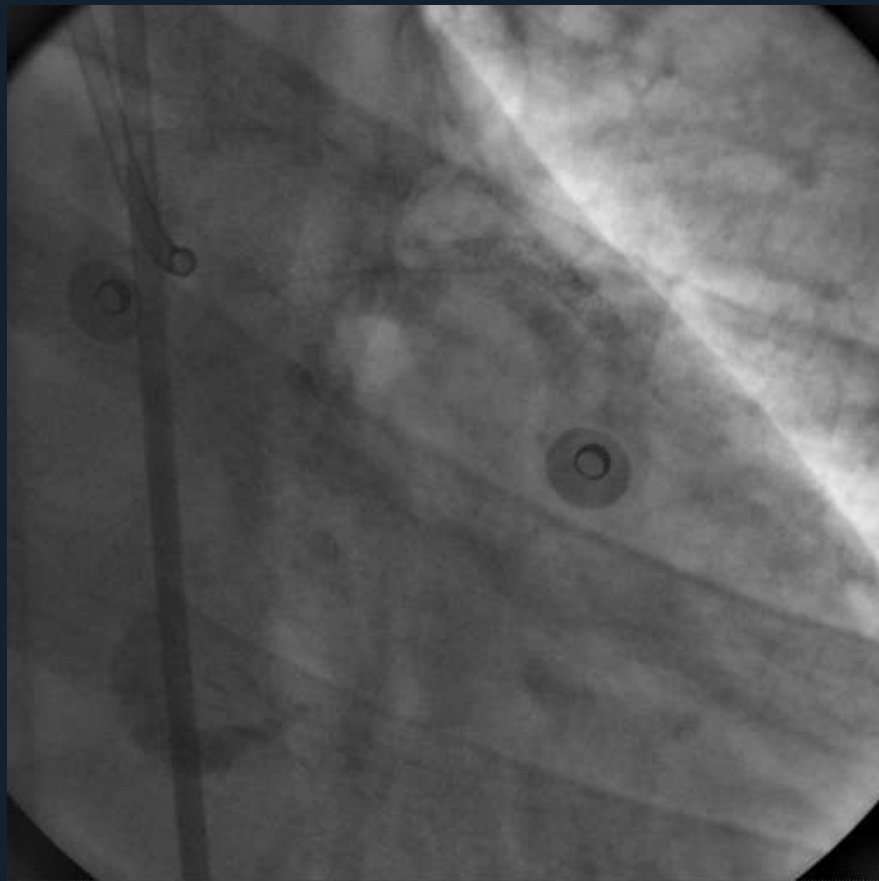
Treatment of DES Restenosis At Left Main

Young-Hak Kim, MD, PhD

Asan Heart Institute, University of Ulsan College of Medicine
Asan Medical Center, Seoul, Korea

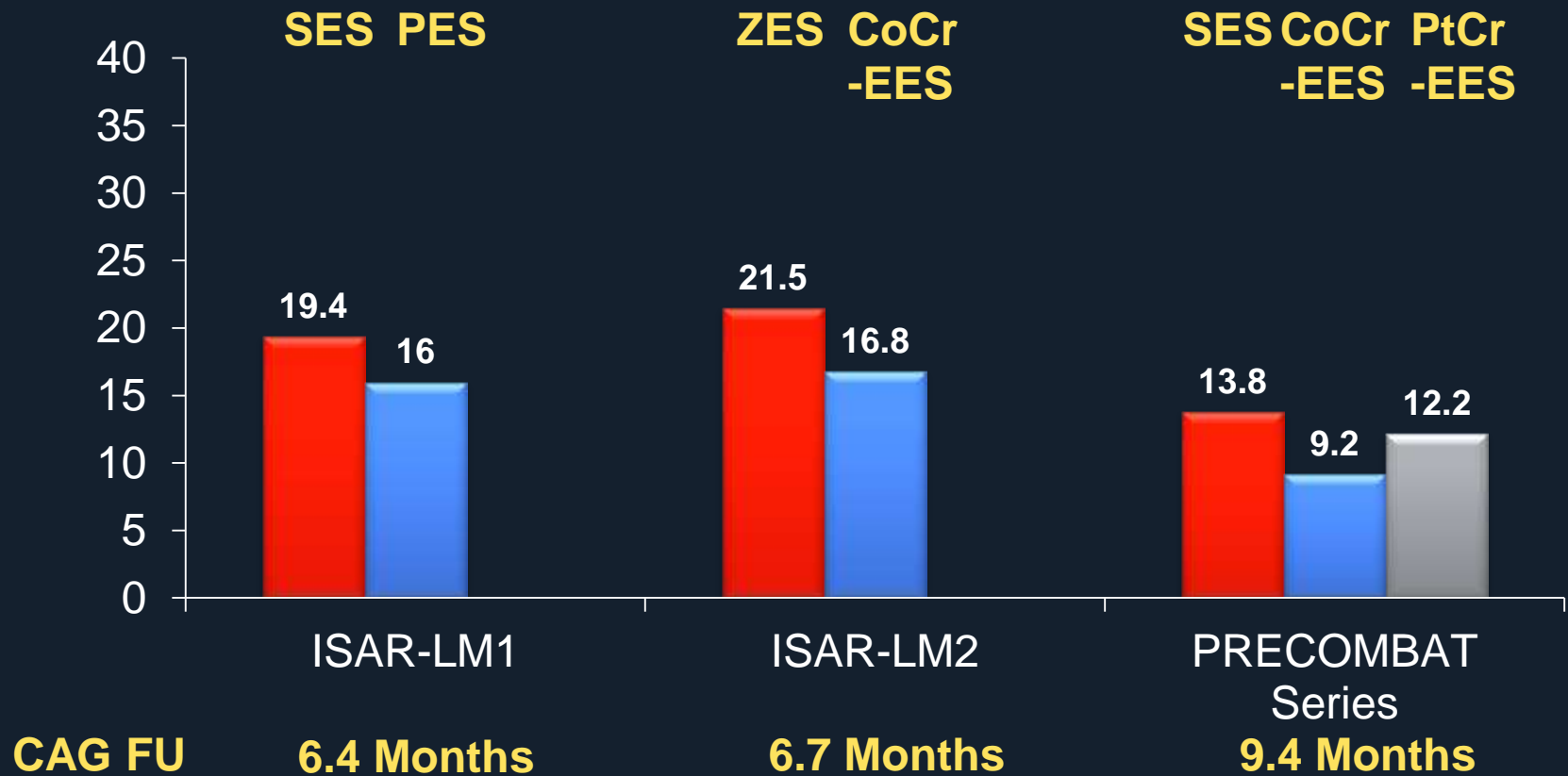
Case 1: DES ISR at 1 Year

Unstable diabetic, normal EF, normal RCA
Crush with FKB using 2nd-generation DES



Incidence of LM ISR

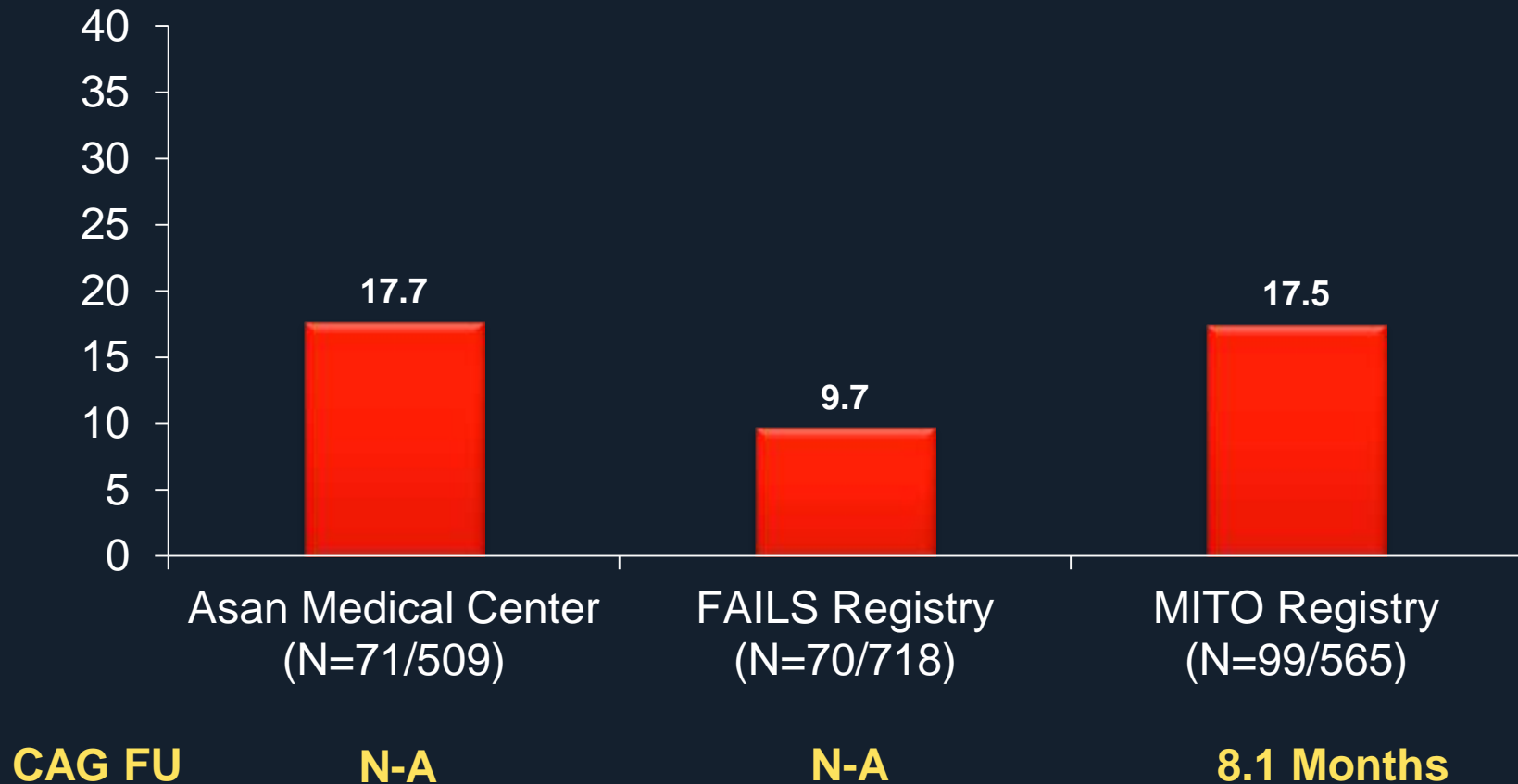
Angiographic ISR From Angiographic FU study



Incidence of LM ISR

10 ~20%

From LM ISR Registry



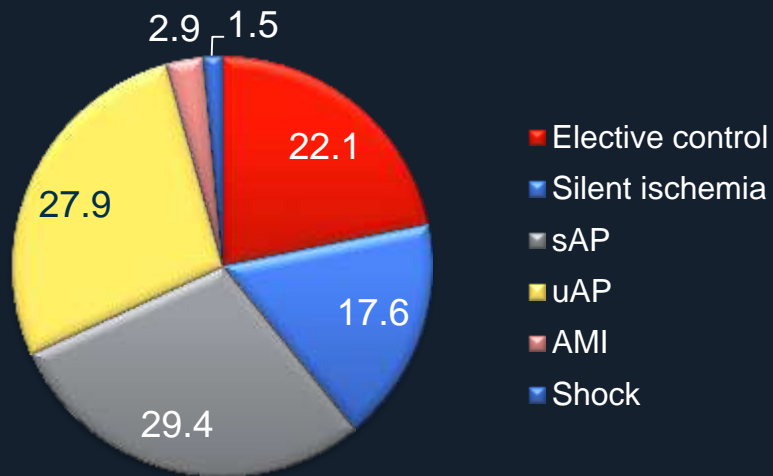
Sheiban et al. JACC 2009;54:1131-6

Lee JY et al. JACC 2011;57:1349-58

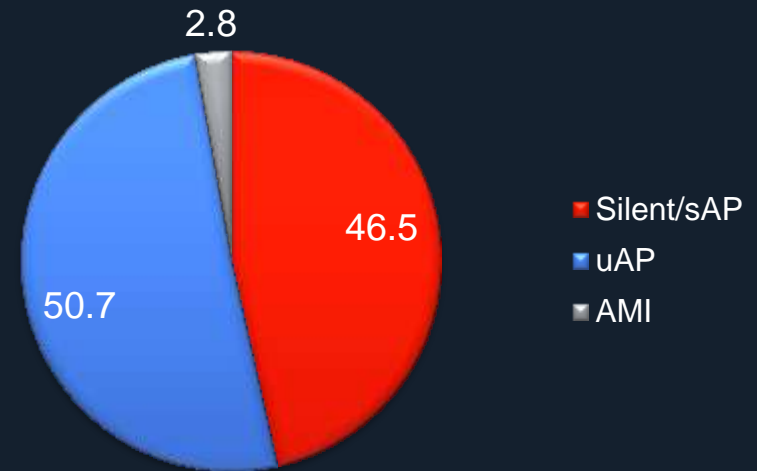
Tagaki et al. Circ Cardiovasc Interv. 2012;5:491-498

Clinical Presentation

FAILS Registry



AMC Registry



Sheiban et al. JACC 2009;54:1131-6

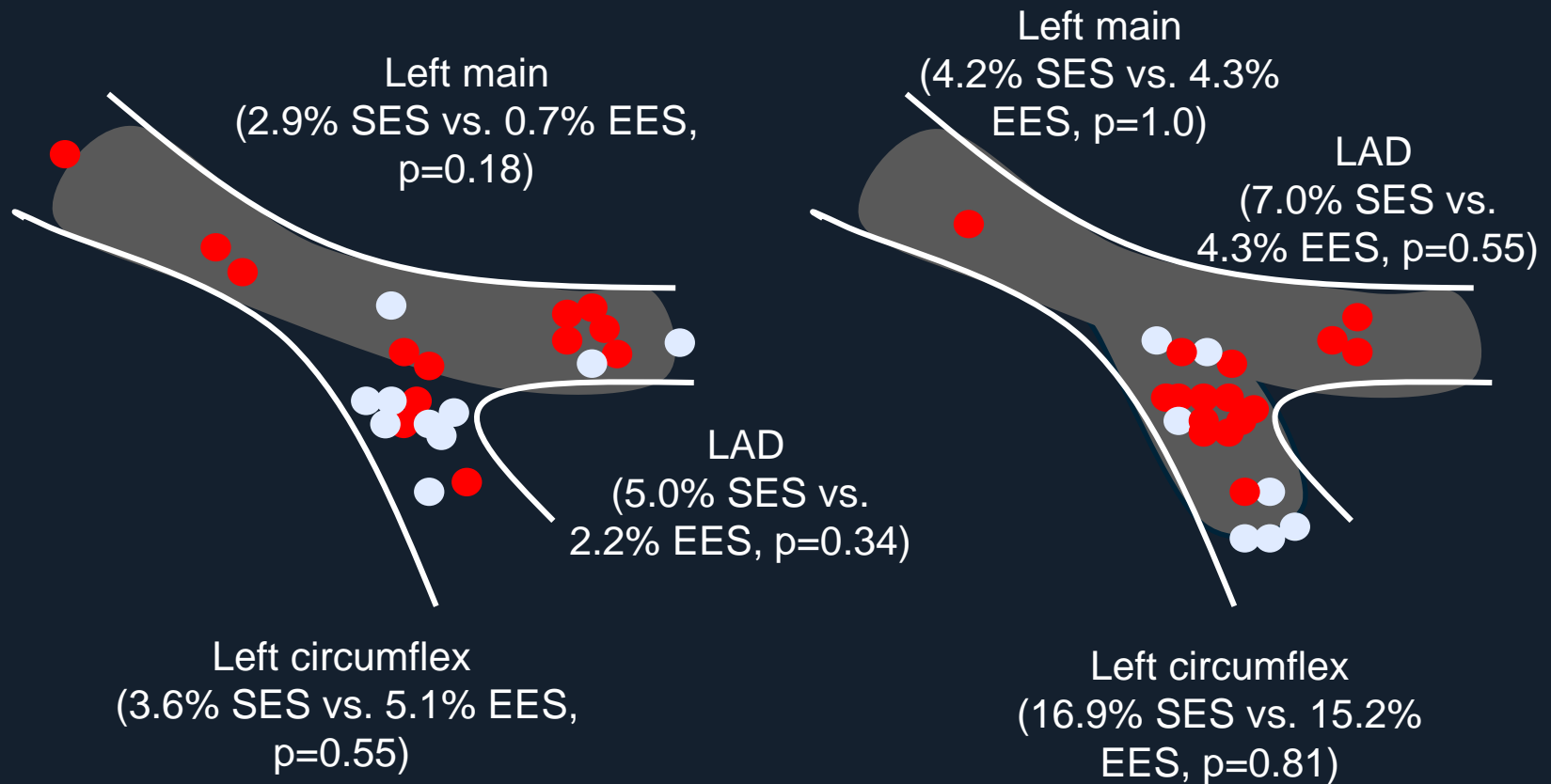
Lee JY et al. JACC 2011;57:1349-58

Location of LM ISR

PRECOMBAT-2

Single-Stent Technique
(N= 139SES, 138EES)

Two-Stent Technique
(N= 71SES, 46EES)



Treatment Decision

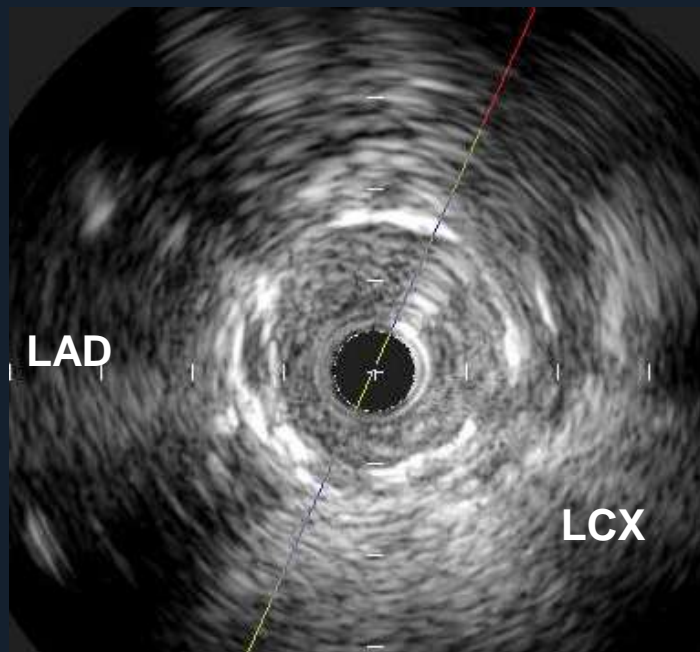
- No guideline
- Need of adherence to current guideline for de novo unprotected LM stenosis
- PCI feasible
 - Edge stenosis without LM bifurcation involvement
 - Ostial or shaft LM without big SB involvement
 - By experienced operators in high volume centers
 - **Bifurcation morphology ?**

Mechanism of LM ISR

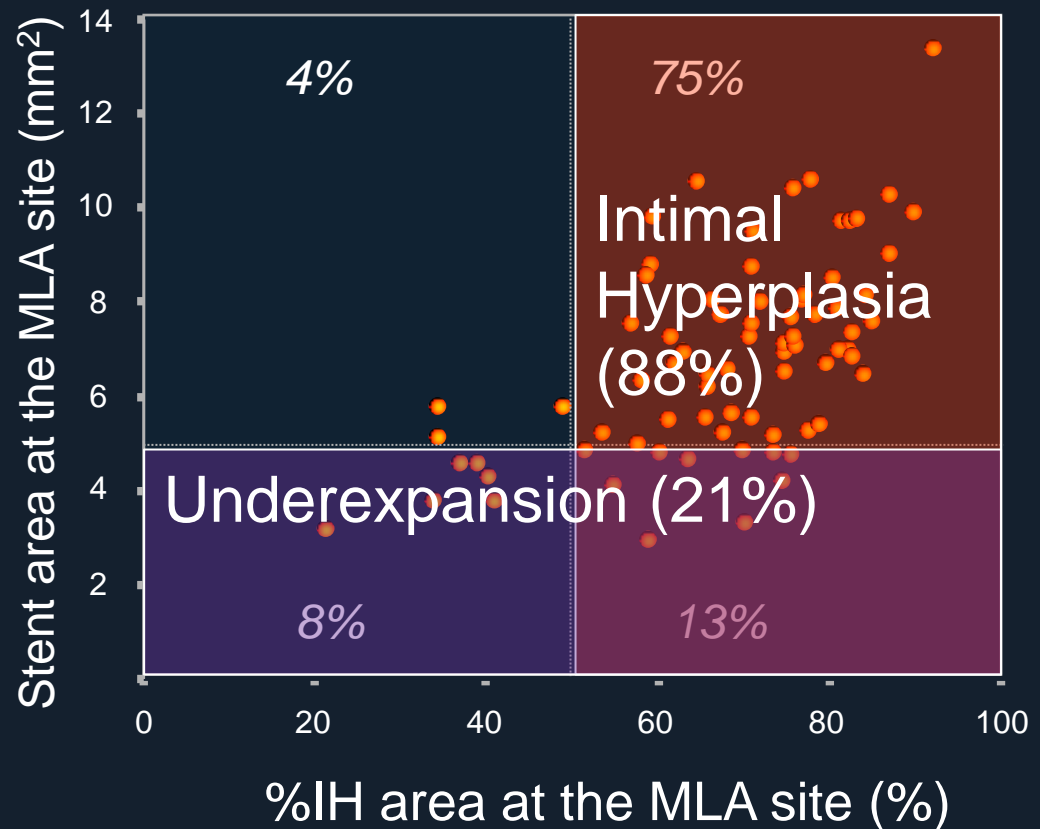
Asan LM Registry

Intimal Hyperplasia and Underexpansion

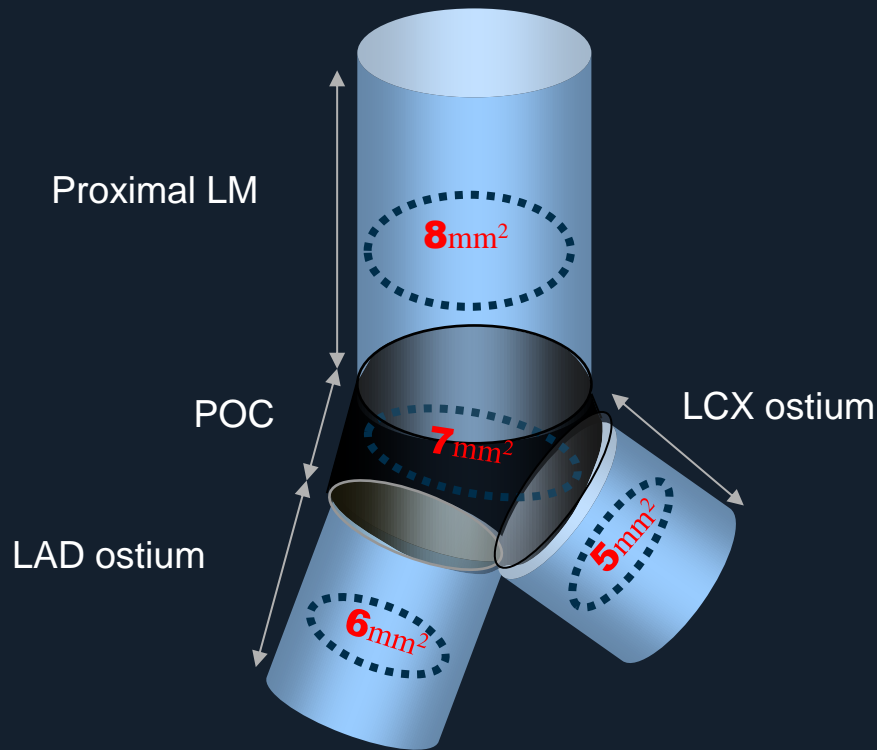
General Mechanism of ISR after DES Implantation



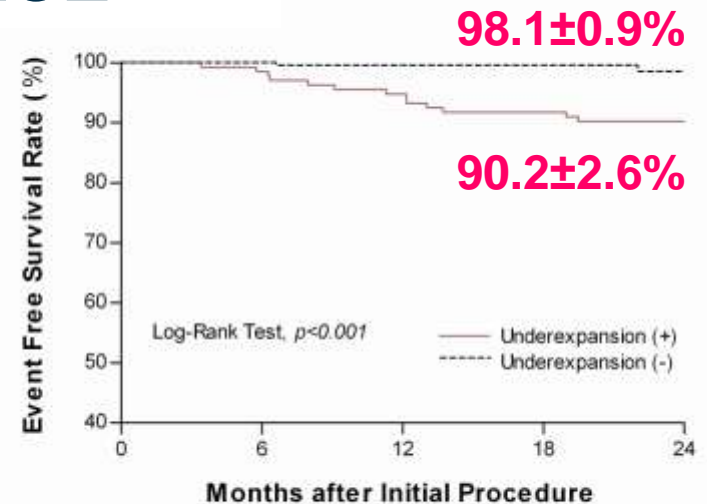
MSA: 4.6mm²



Mechanism of LM ISR



MACE

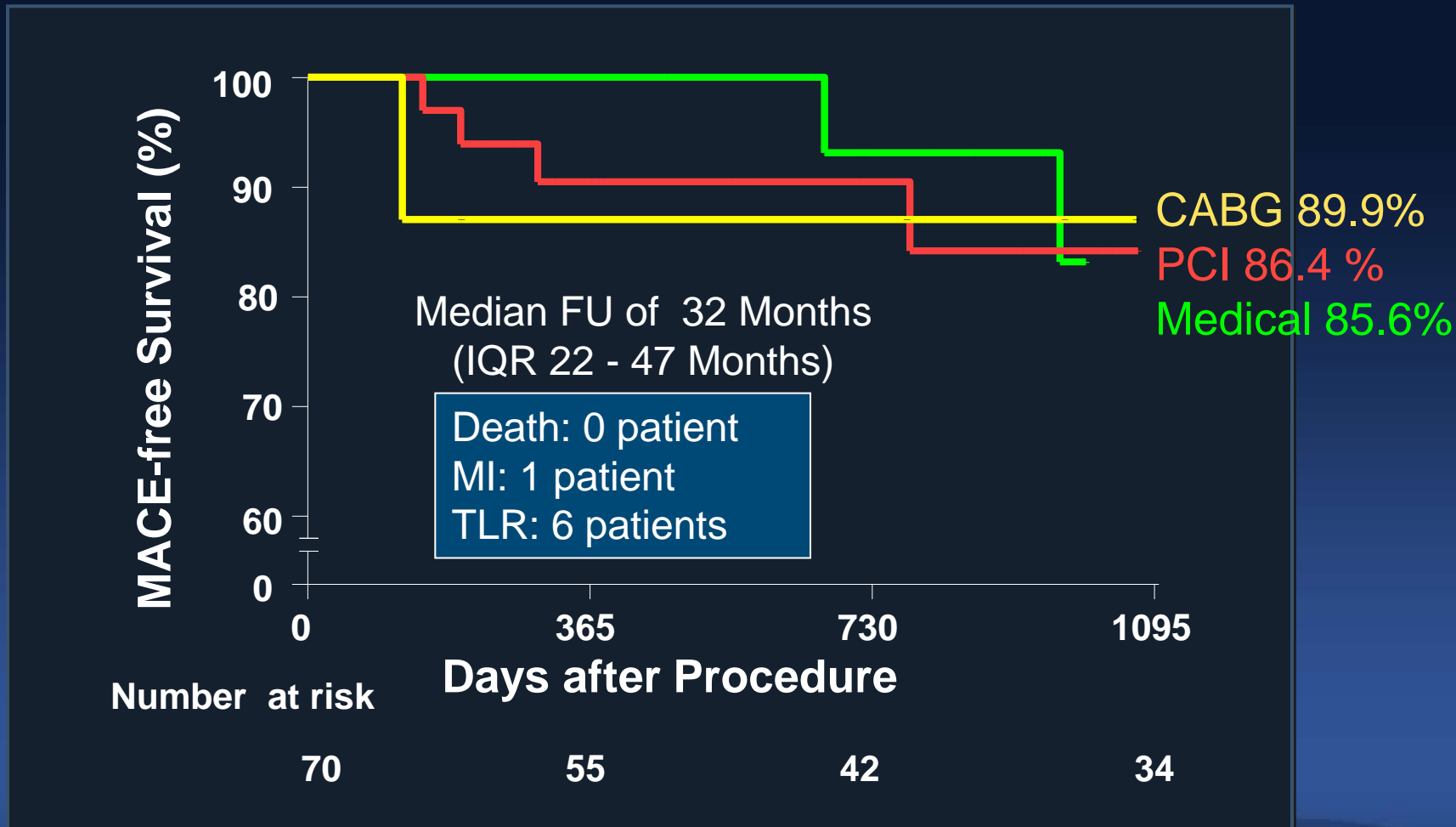


No. at risk

Underexpansion (+)	133	131	126	121	75
Underexpansion (-)	260	260	255	246	129

Clinical Outcomes of LM ISR

MACE free Survival

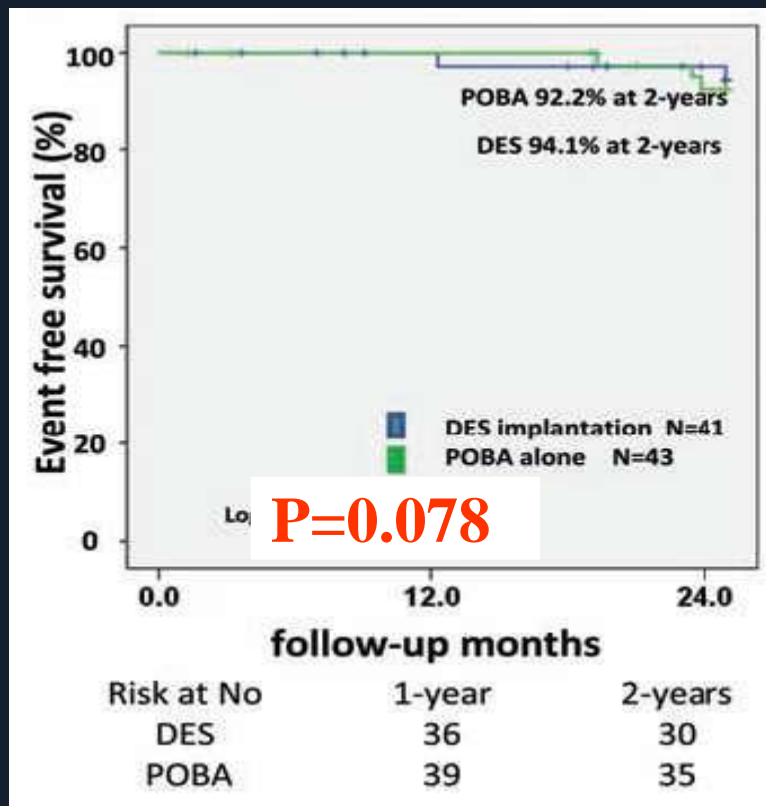


Lee JY et al. JACC 2011;57:1349-58

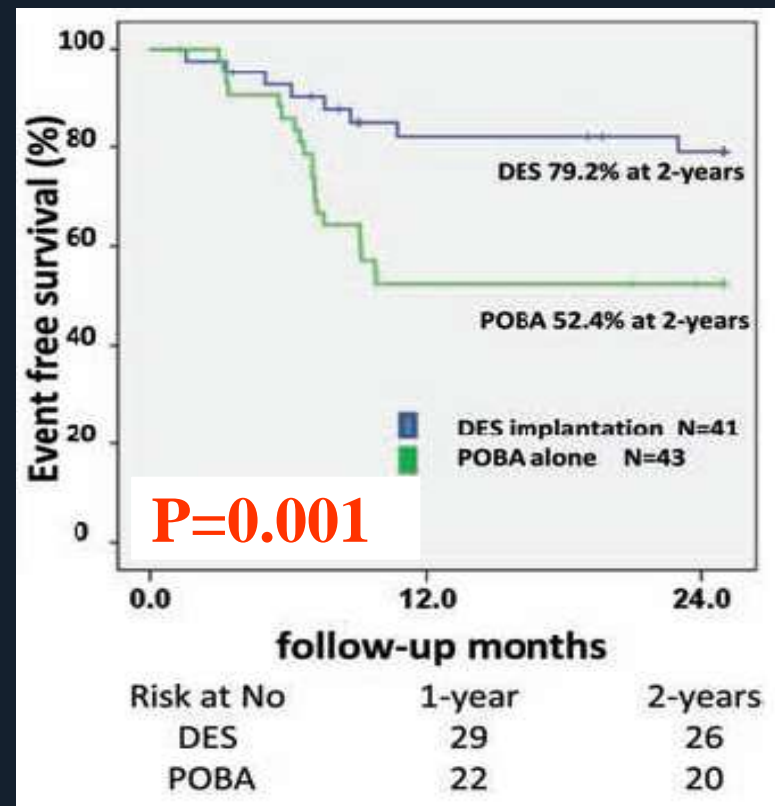
Clinical Outcomes of LM ISR

Repeat DES is better than POBA

Cardiac Death and MI



TLR



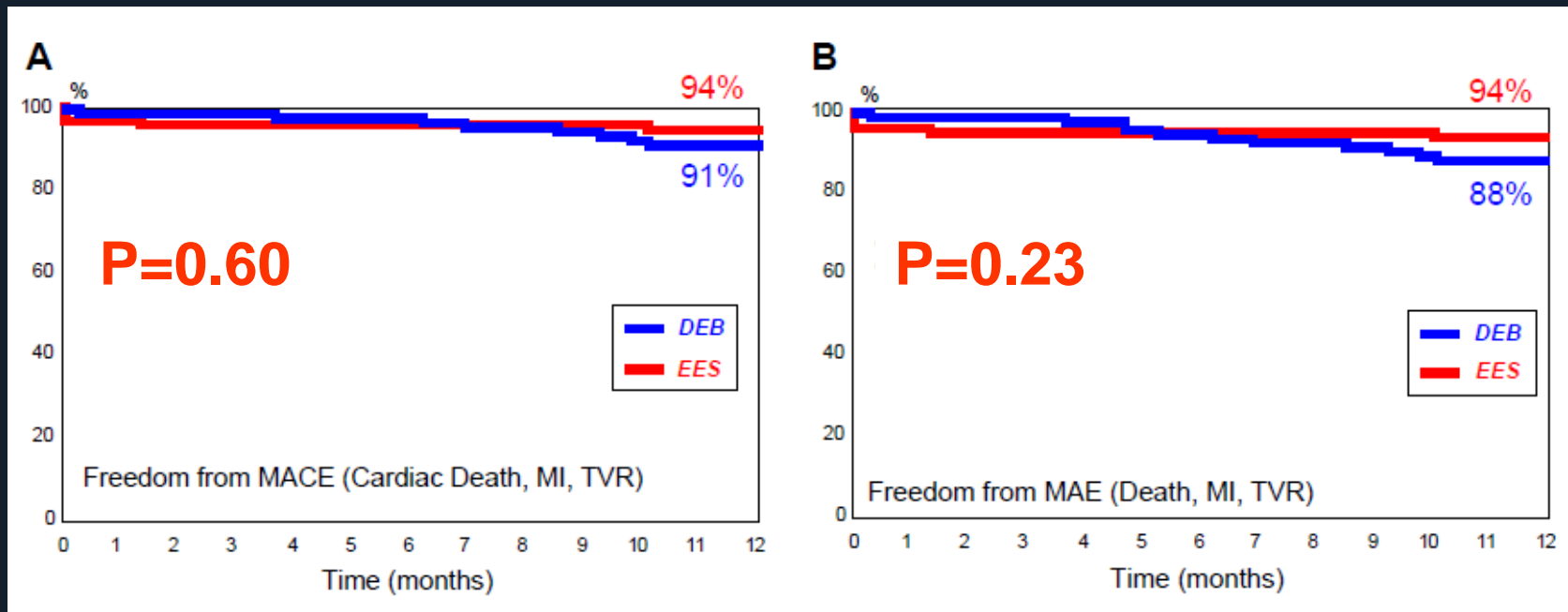
Clinical Outcomes of DES ISR

Drug-Eluting Balloon: Feasible

RIBS V Trial: DEB vs. EES for BMS ISR (No LM ISR was enrolled)

Cardiac death/MI/TVR

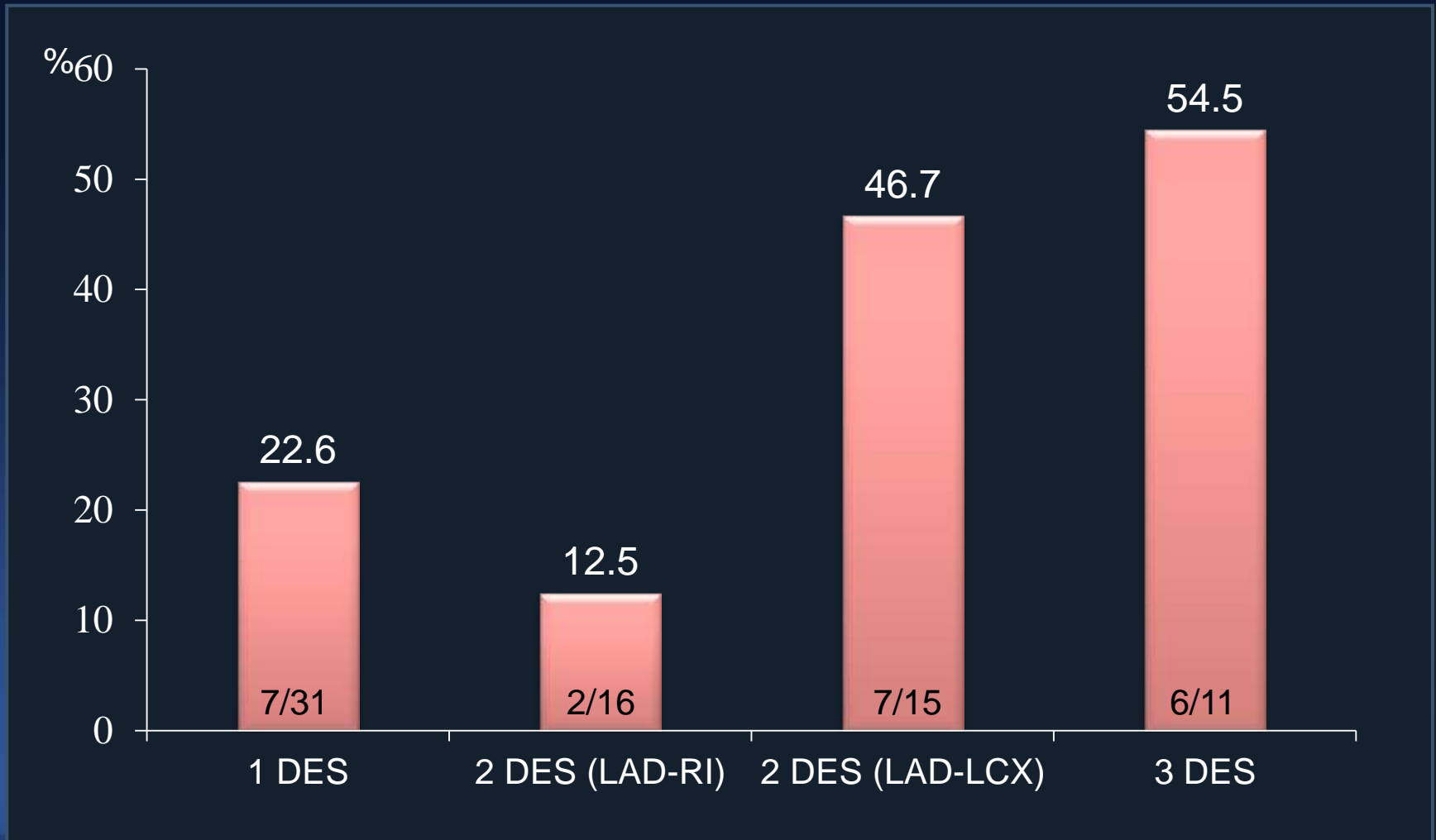
Death/MI/TVR



Alfonso et al. JACC 2014;53(14):1378-86

Outcomes of De Novo LM Trifurcation

Higher restenosis with triple stenting

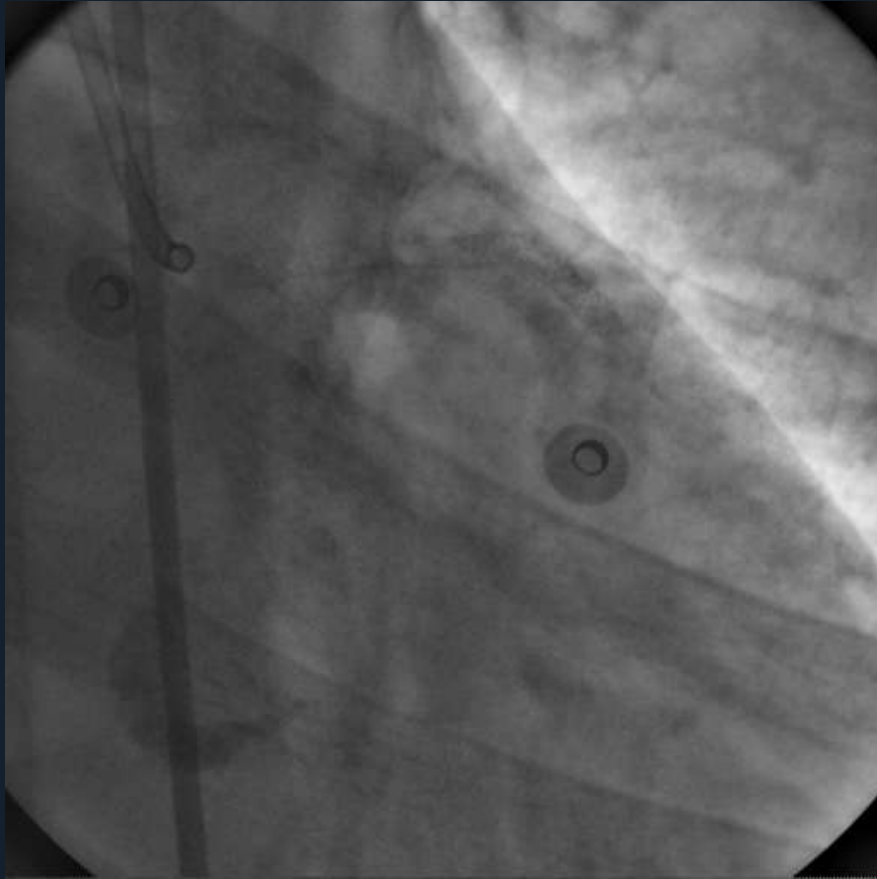


Alfonso Ielasi et al. CCI 2014;530

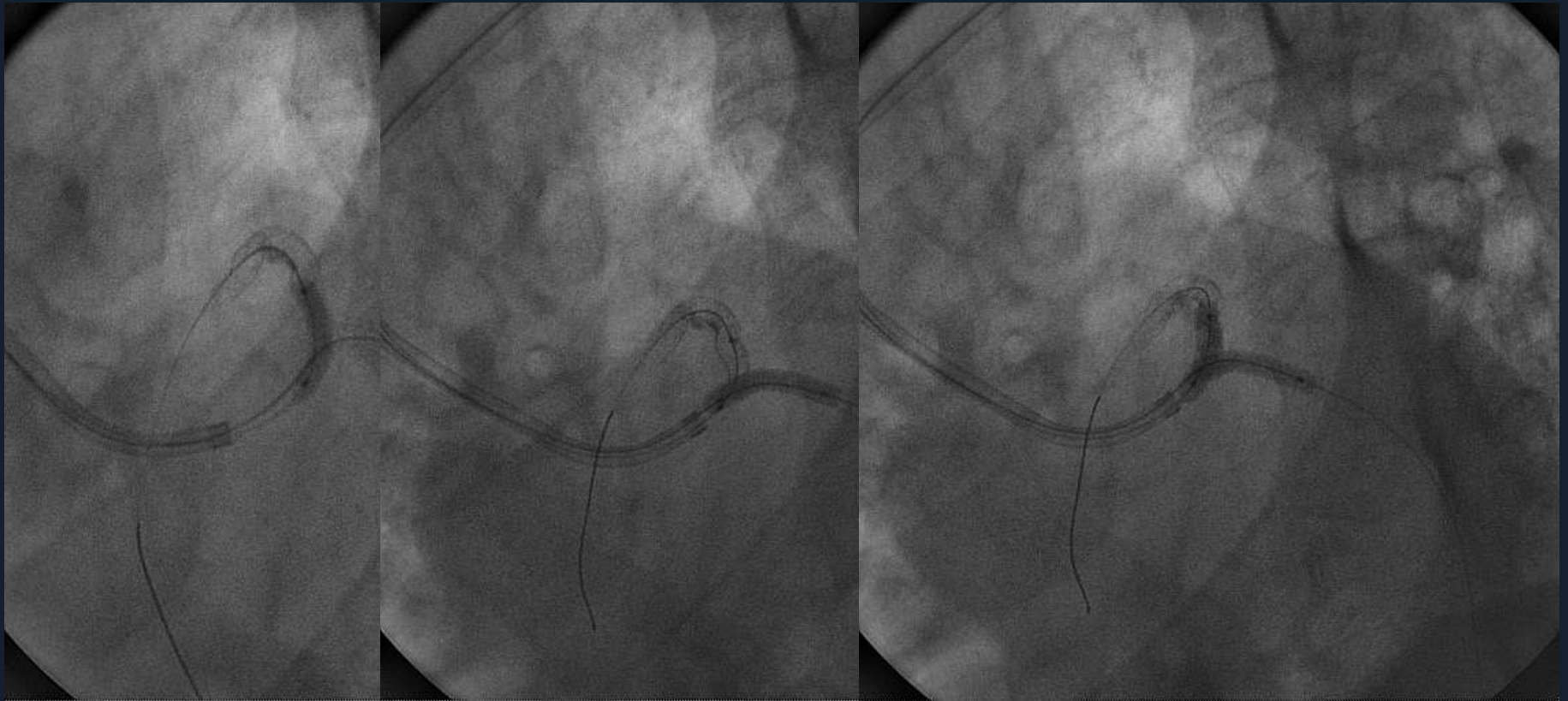
My Decision

- **PCI is feasible** if the lesion can be treated with ...
 - One additional DES for a branch
 - DEB(s) for one or both branches
 - No more than 3 layers of DESs at any segment
- **CABG is better** if the lesion requires ≥ 2 DES

How to Treat ?

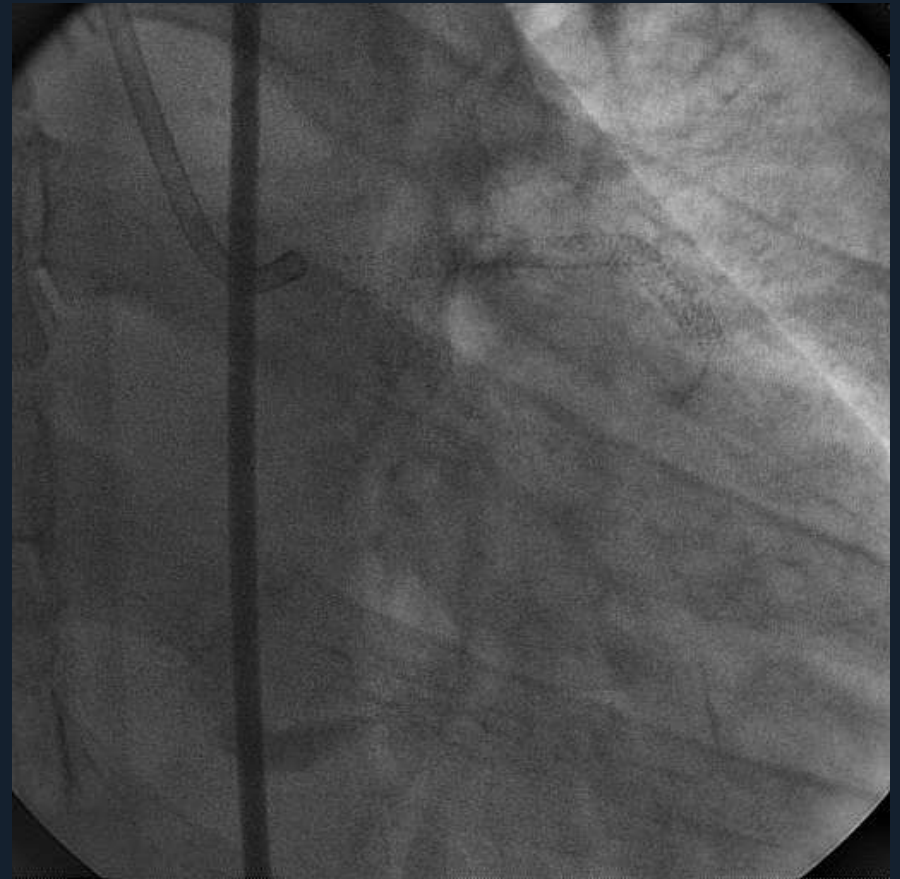
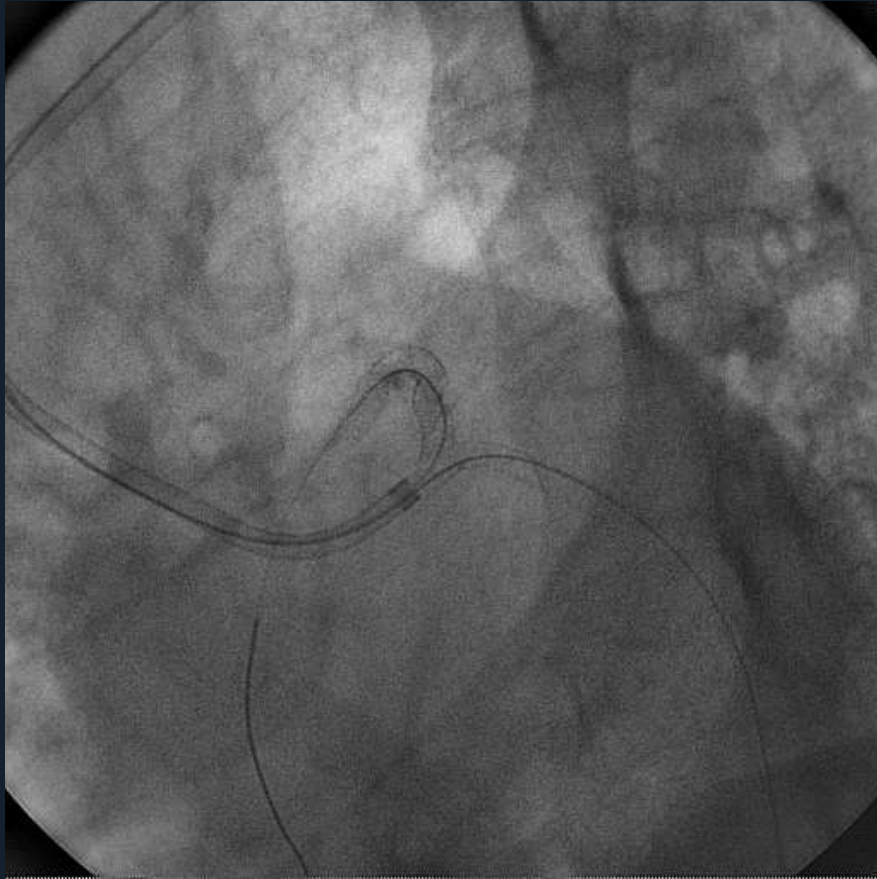


2 DEBs after NC Balloon Inflation

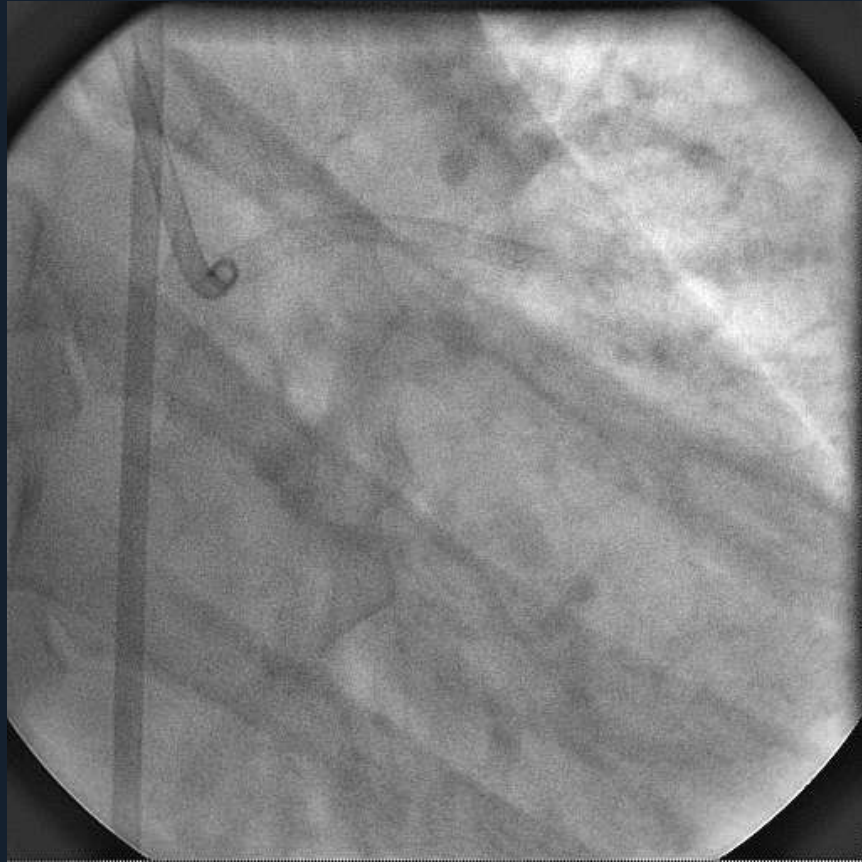


SeQuent Please 3.0(20) / 3.5(20)

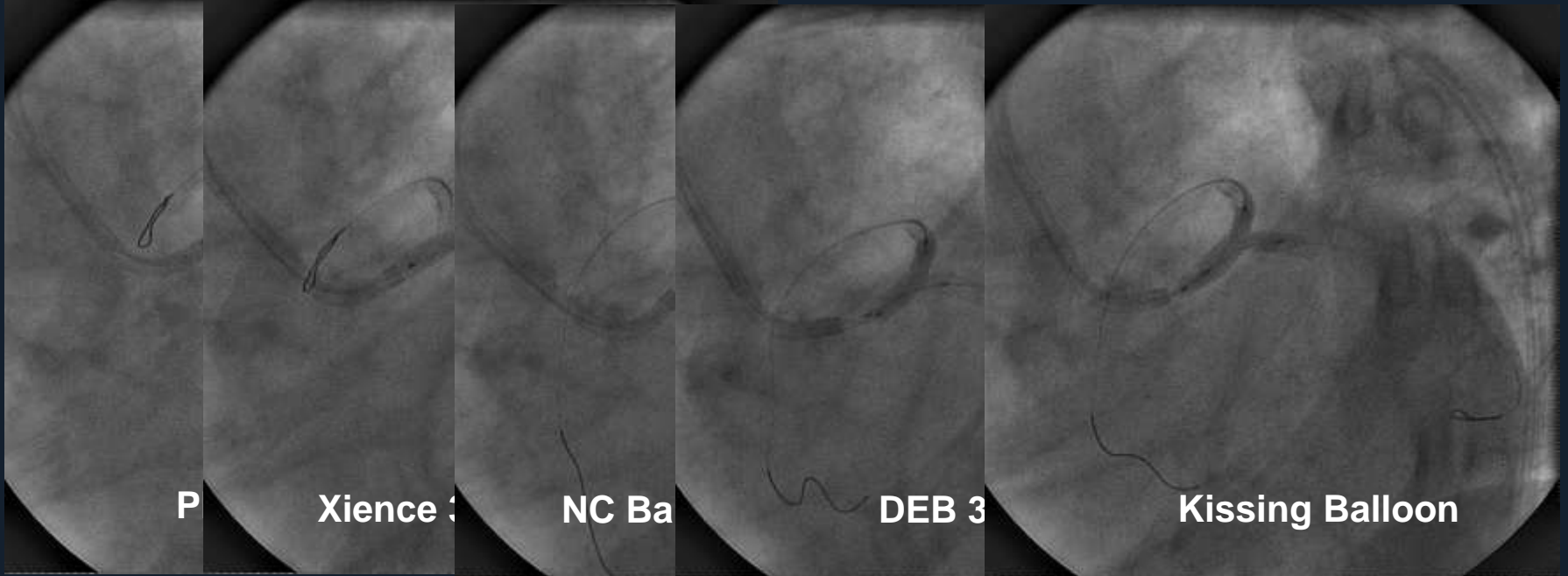
Final CAG



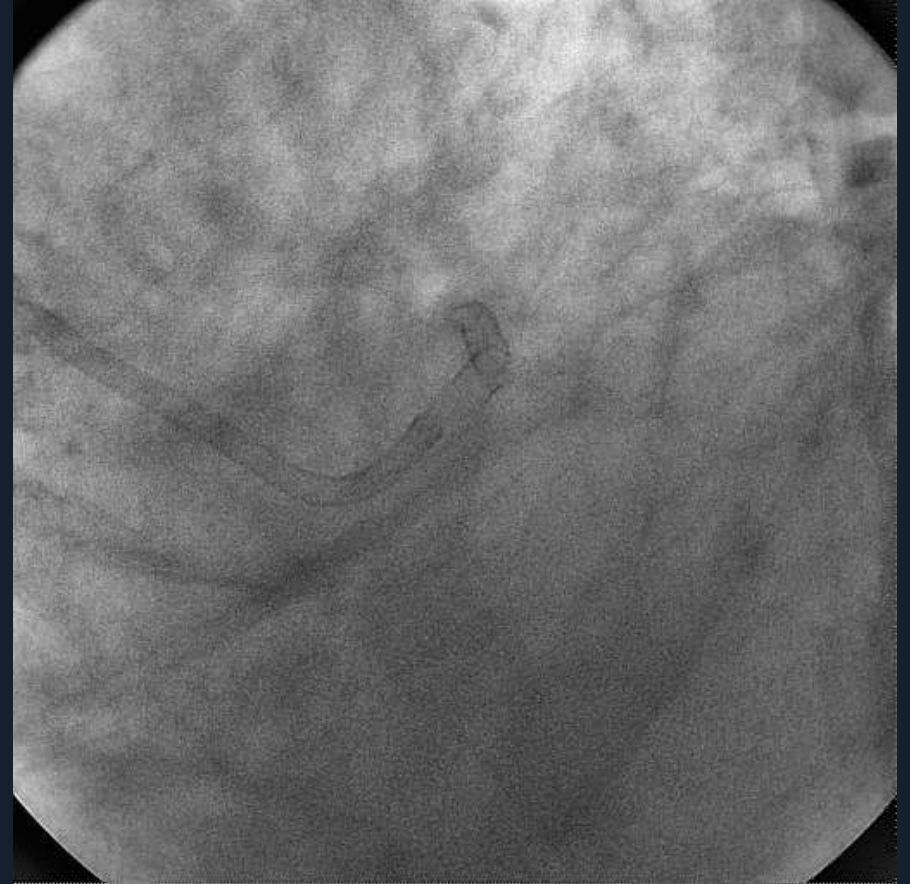
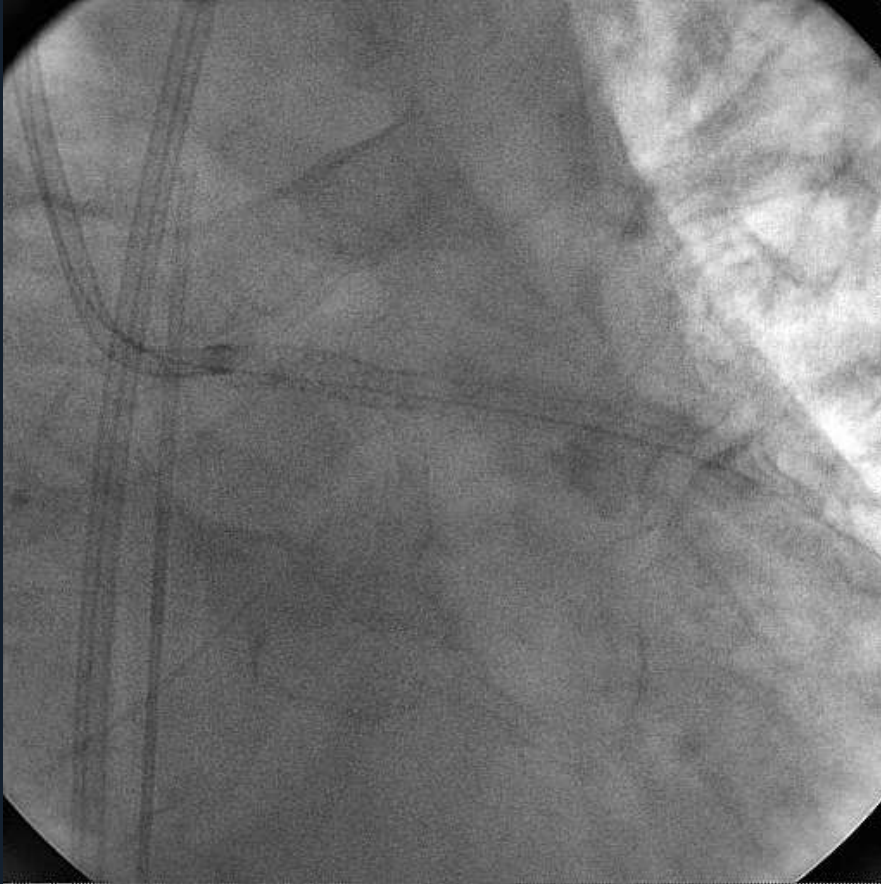
2nd Case: ISR after Cross-over with Single DES



One DEB for LM-LAD and One DES for LCX



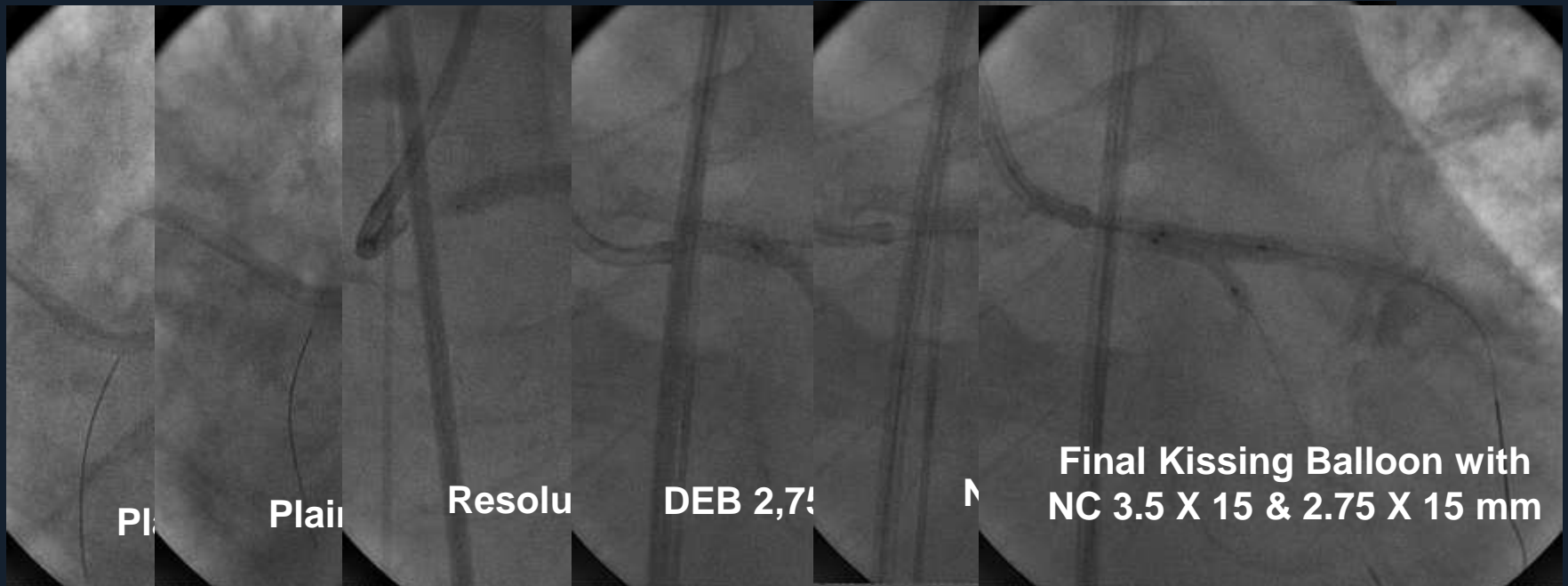
Final CAG



3rd Case: ISR after Provisional T stenting with Two DES



One DES for LM-LAD and One DES for LCX



Final CAG

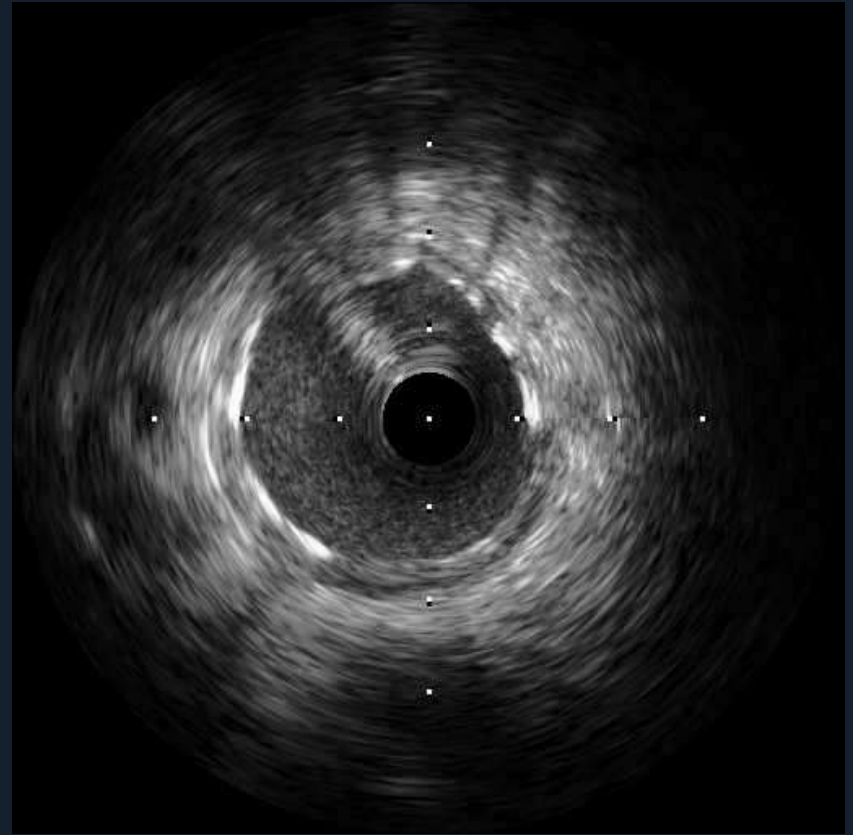


Final IVUS

From LAD



From LCX



Prognosis

All four patients are currently free of adverse events over 1 year

Treatment for LM ISR

- Avoidance of 'oculo-stenotic reflex'
- Repeat revascularization just for lesions with ischemic symptom and sign
- Decision-making of treatment strategy after careful imaging and physiologic evaluation
- PCI is viable for ISR treatable with one DES \pm DEB
- CABG for diffuse and multiple ISR requiring multiple DES