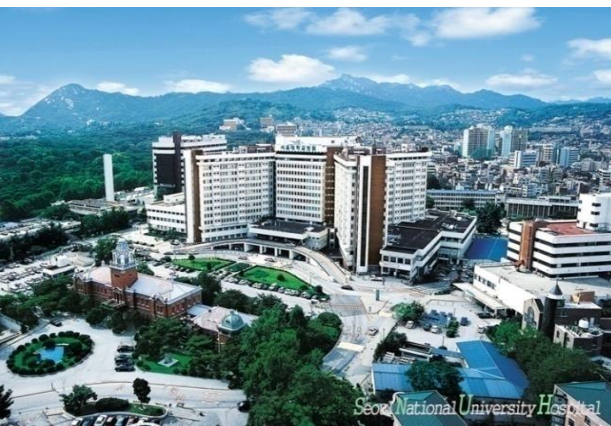


CASE

Physiology-guided PCI

Bon-Kwon Koo, MD, PhD

Seoul National University Hospital, Seoul, Korea



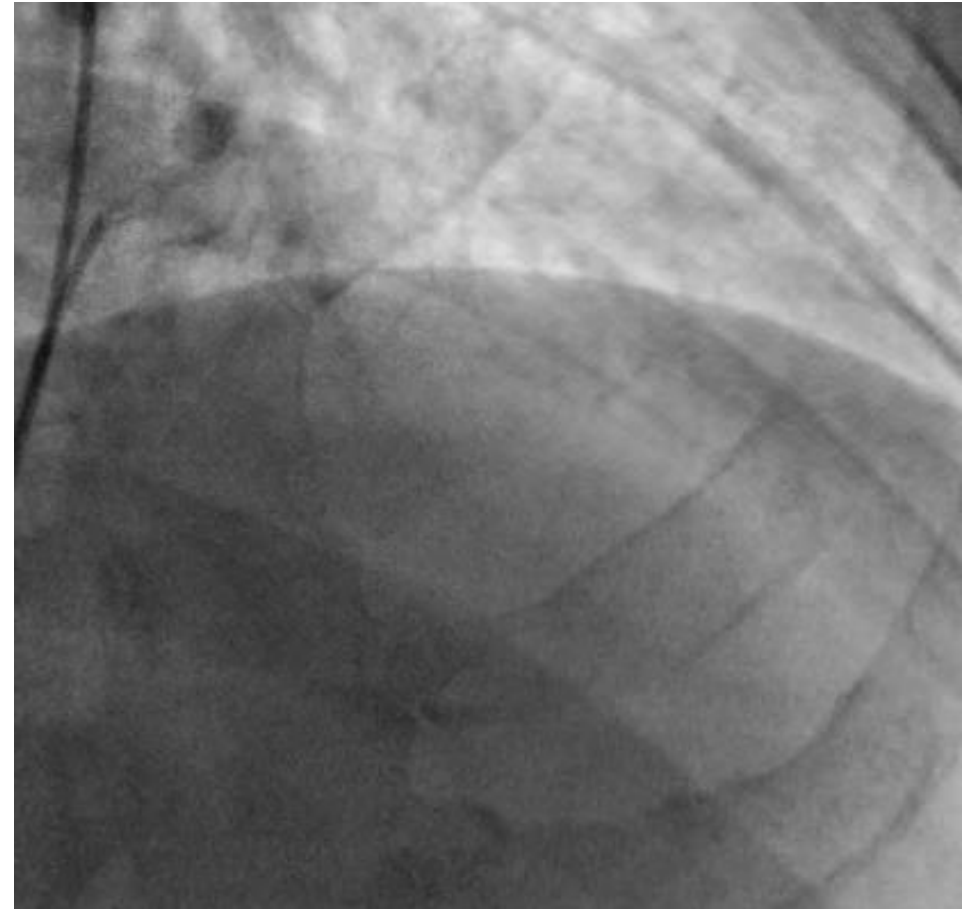
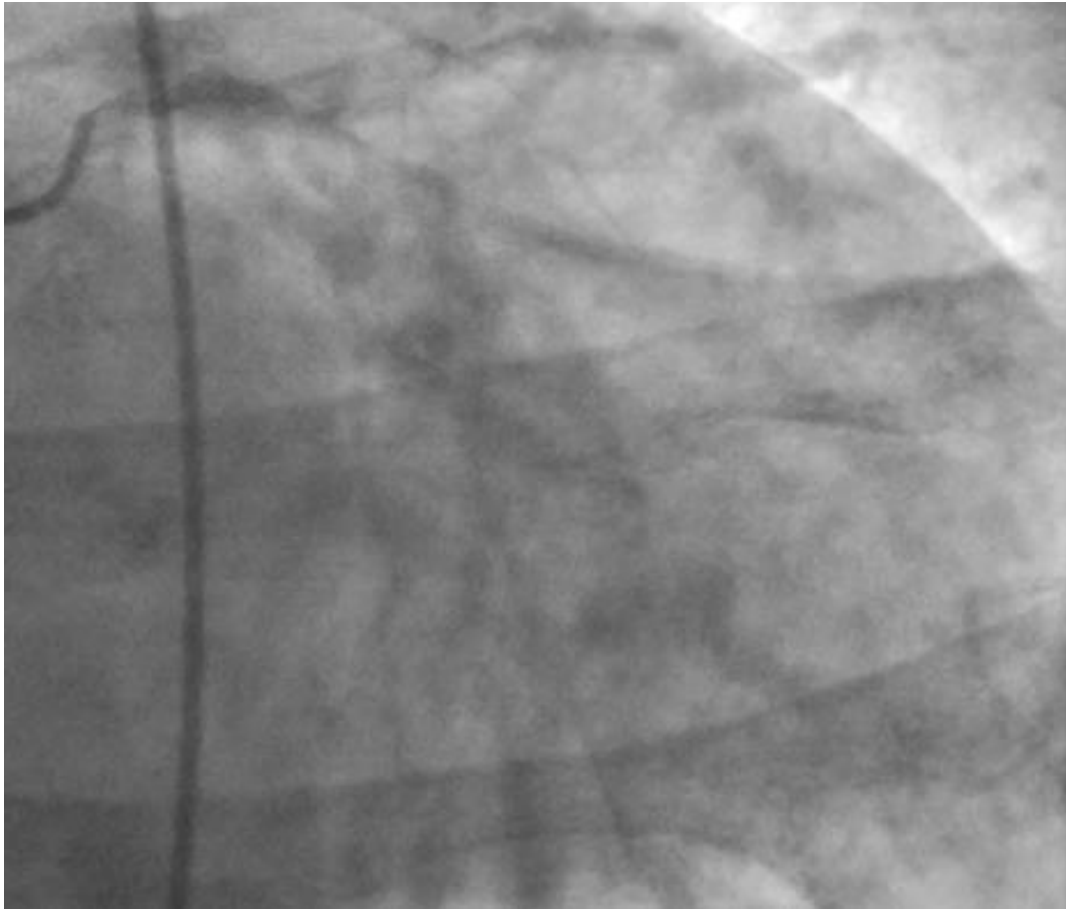
Disclosure Statement of Financial Interest

Within the past 12 months, I, [Bon-Kwon Koo] have had a financial interest/arrangement or affiliation with the organizations listed below:

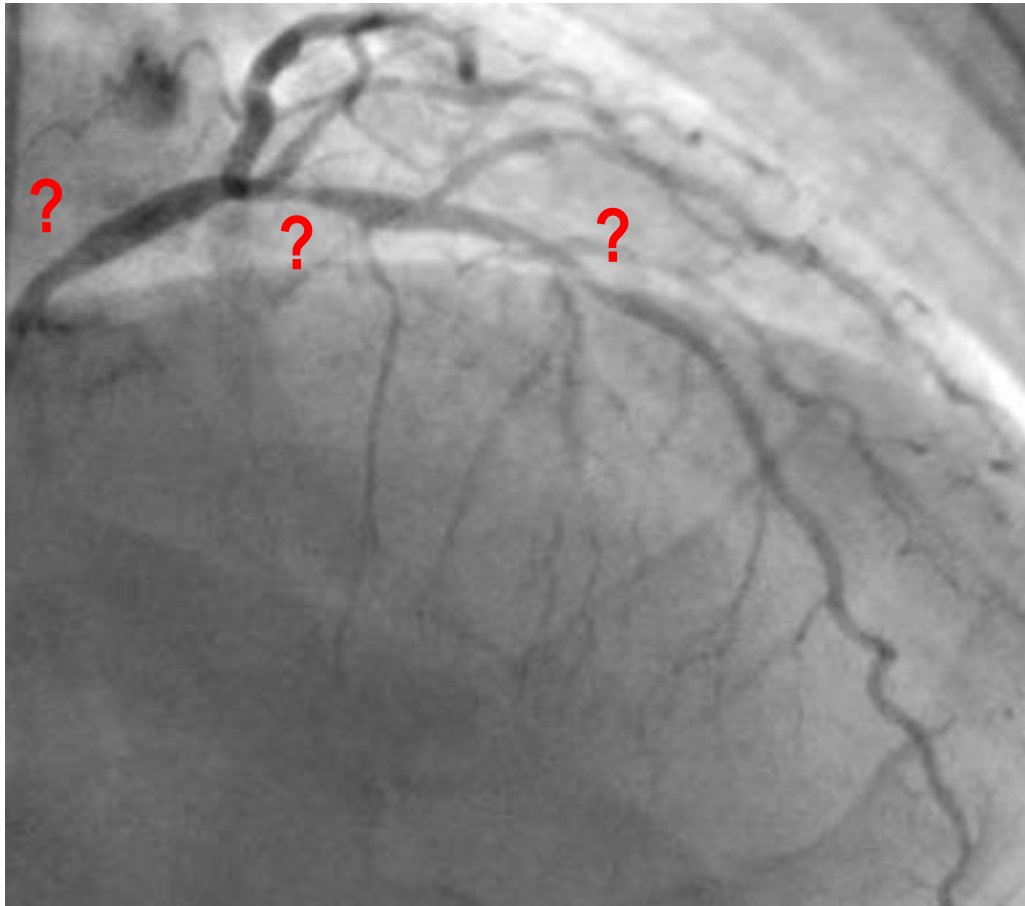
- Grant/Research Support: Institutional Research Grants from Abbott, Philips, and HeartFlow

CASE I M/66 Stable angina with recent aggravation

- Risk factor: hypertension, hypercholesterolemia
- Echo: normal LV function, no RWMA



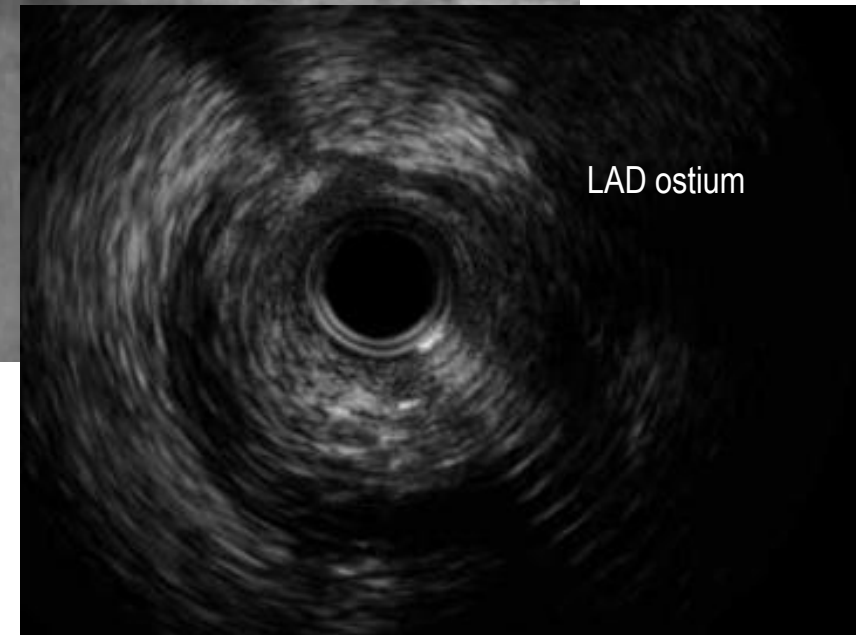
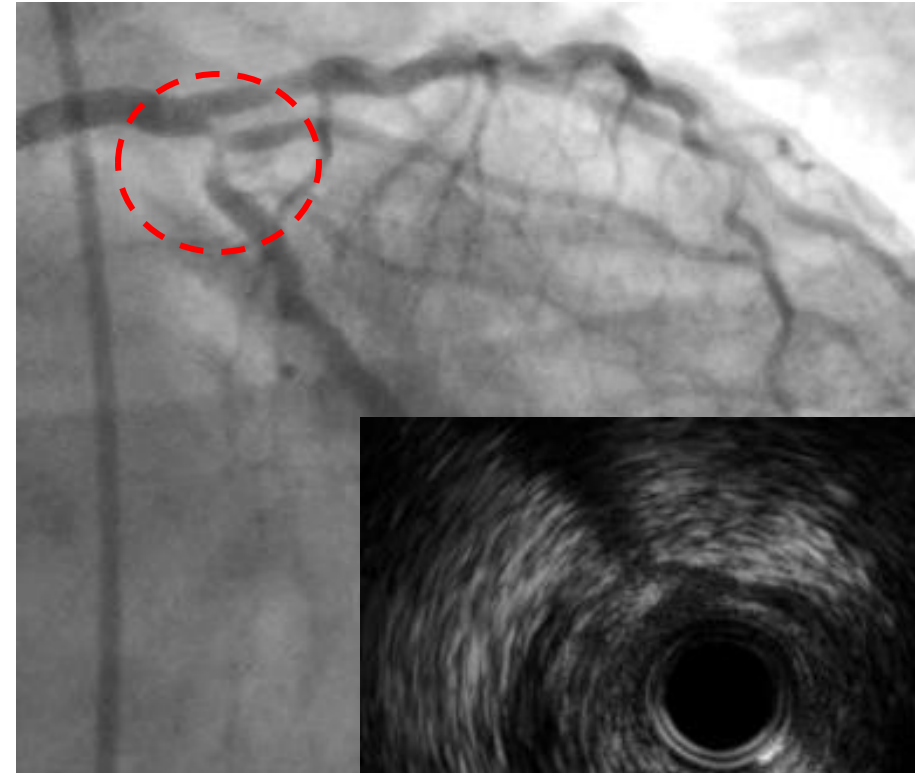
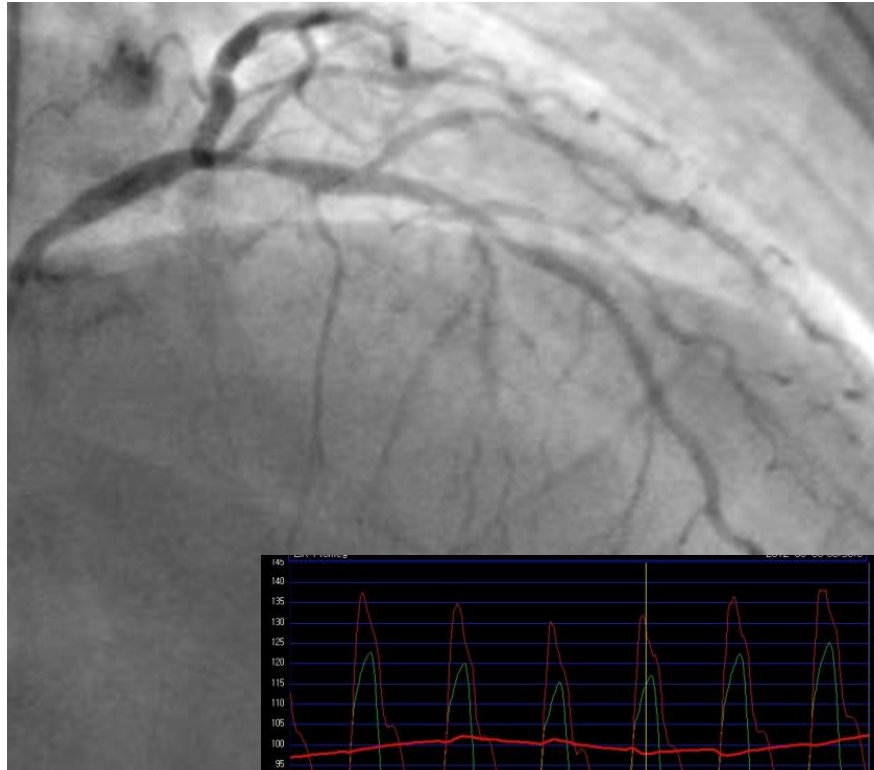
How to treat? How to assess?



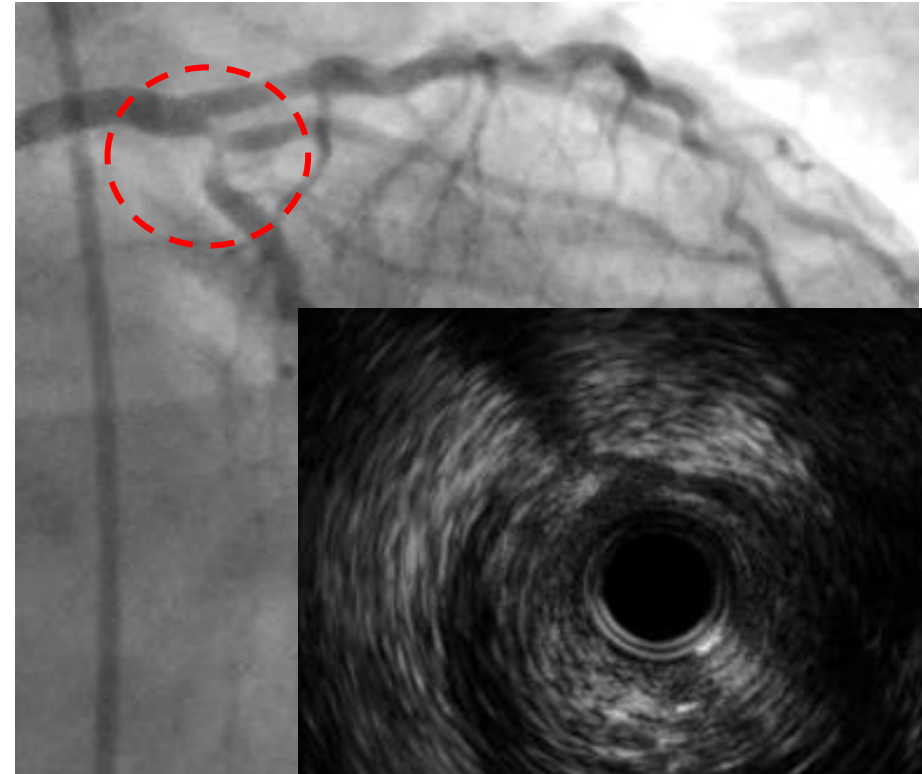
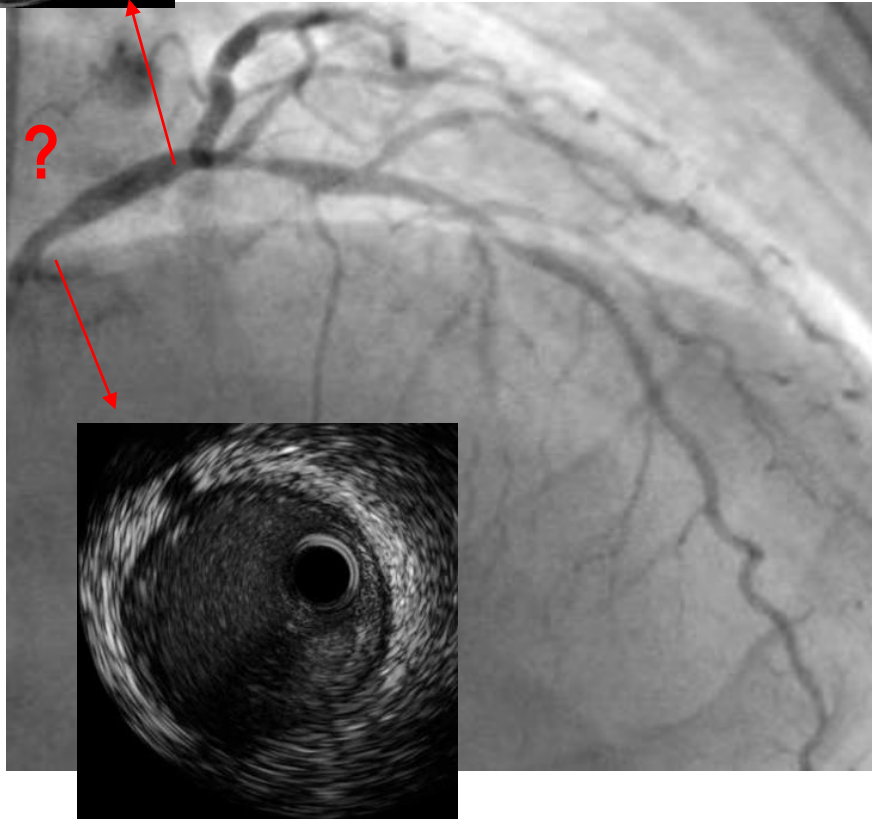
Functional SYNTAX score = 0

SYNTAX score: LM ostial + proximal
LAD + mid LAD bifurcation lesions = 28

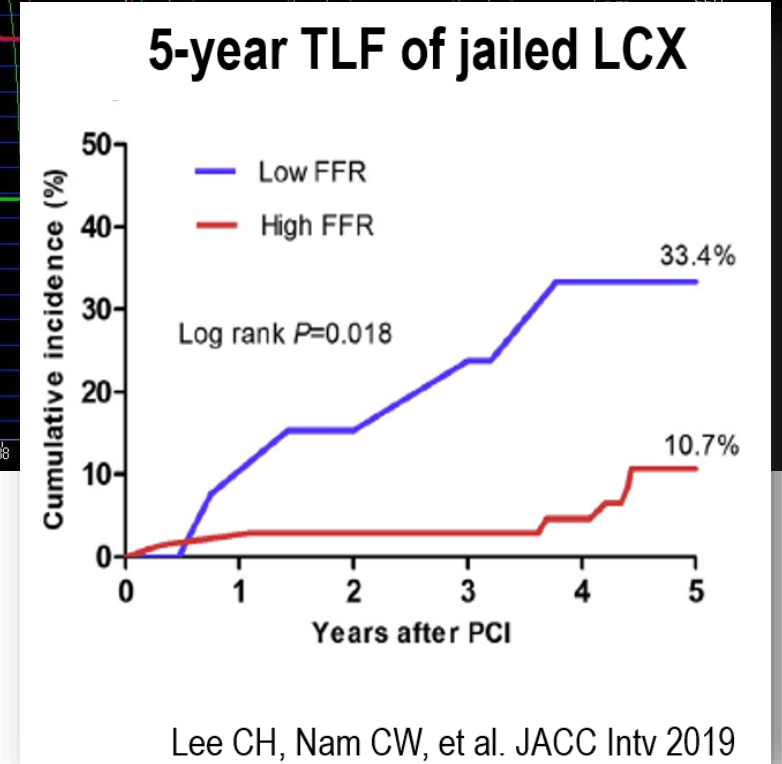
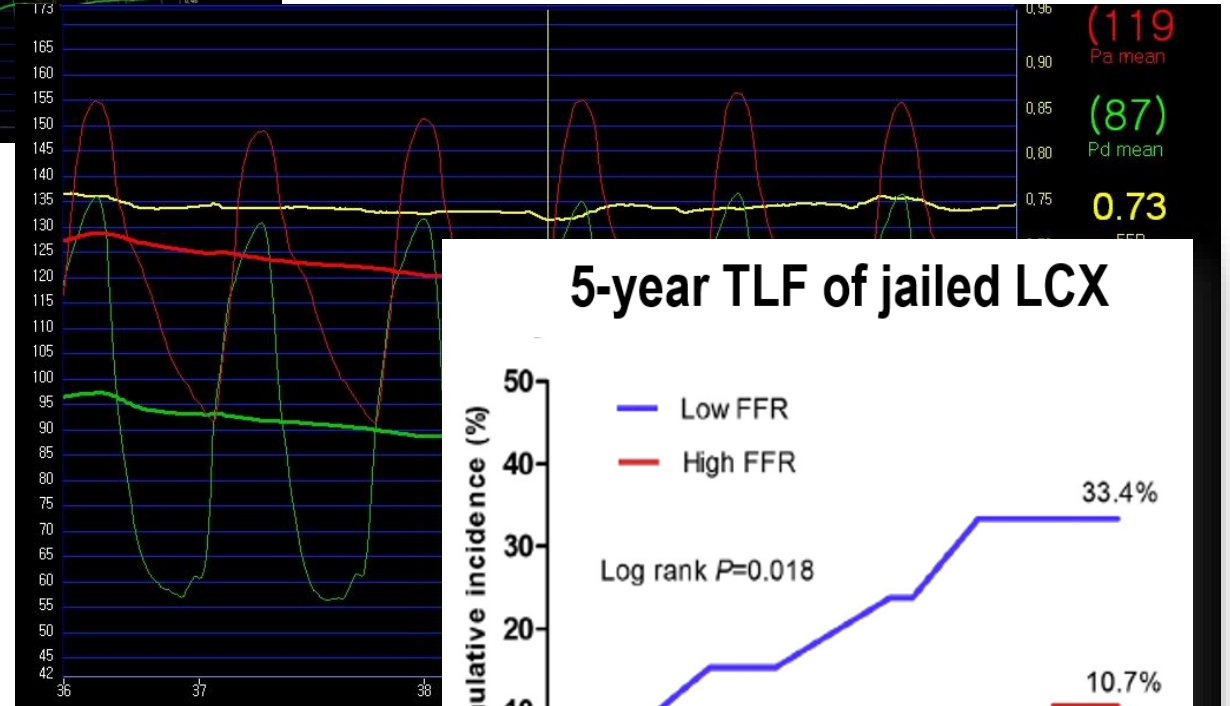
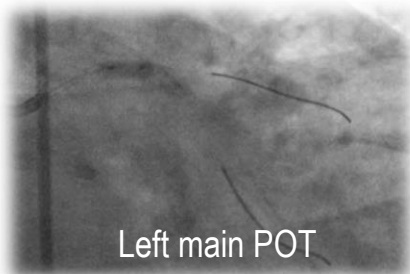
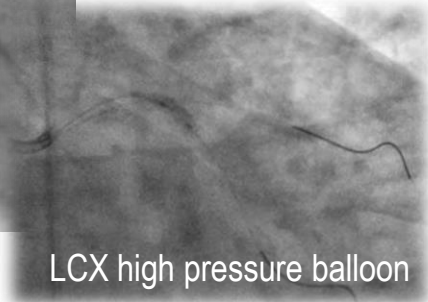
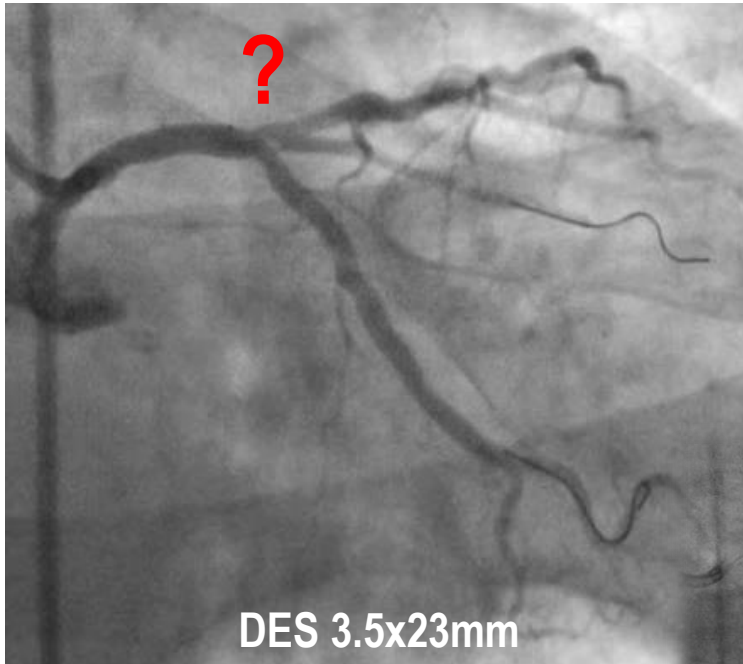
How to treat? How to assess?



How to treat? How to assess?

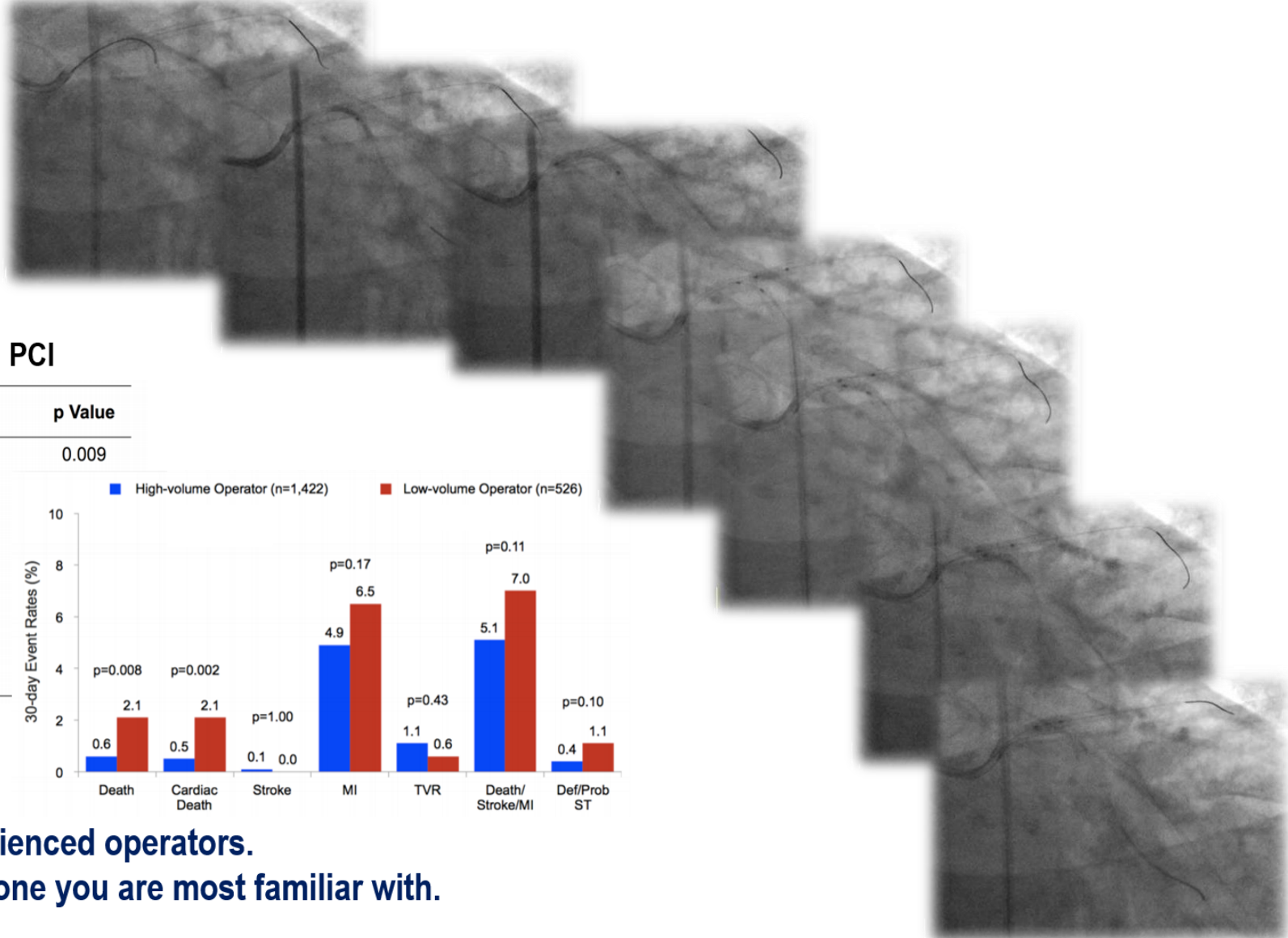
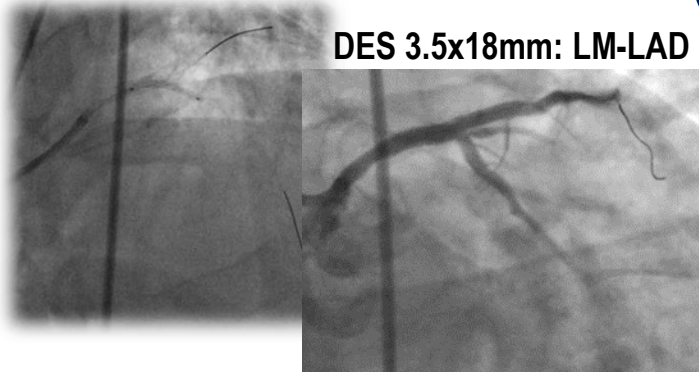


LM-LCX stenting



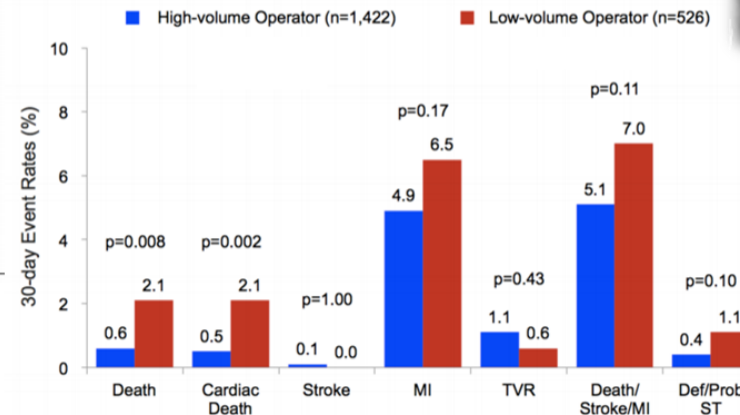
Culotte stenting

DES 3.5x18mm: LM-LAD



Predictors of 3-year cardiac death after left main PCI

	Adjusted Hazard Ratio (95% Confidence Interval)	p Value
Experienced operator	0.49 (0.29, 0.83)	0.009
Left ventricular ejection fraction	0.47 (0.35, 0.62)	
SYNTAX score	1.03 (1.00, 1.07)	
Previous myocardial infarction	1.79 (1.00, 3.22)	
Age (per 10 years)	1.19 (0.84, 1.67)	
Creatinine clearance (per 10 units)	0.95 (0.83, 1.09)	
Intravascular ultrasound use	0.62 (0.34, 1.14)	
Second-generation DES*	0.45 (0.18, 1.14)	

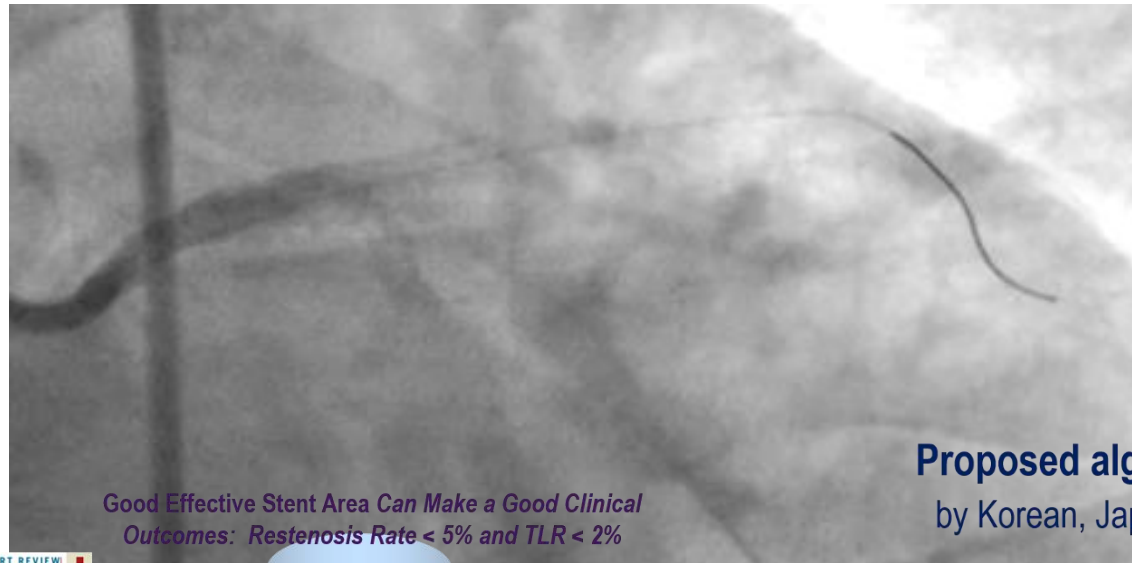


Xu B, et al. JACC interv 2016;2086-93

Learn from the experienced operators.

The best 2-stent technique is the one you are most familiar with.

After culotte stenting



Good Effective Stent Area Can Make a Good Clinical Outcomes: Restenosis Rate < 5% and TLR < 2%

Proposed algorithm for physiological approach by Korean, Japanese, and European Bifurcation Clubs

CORONARY INTERVENTIONS
EXPERT REVIEW

Joint consensus on the use of OCT in coronary bifurcation lesions by the European and Japanese bifurcation clubs



Yoshinobu Onuma¹, MD, PhD, Yuki Katagiri², MD, Francesco Barzotta³, MD, Niels Ramsing Holm⁴, MD, Nicolas Amabile⁵, MD, PhD, Takayuki Okamura⁶, MD, PhD, Gary S. Mintz⁷, MD, Olivier Darremont⁸, MD, Jens Flensted Lassen⁹, MD, PhD, Thierry Lefevre¹⁰, MD, Yves Louvard¹¹, MD, Goran Stankovic¹², MD, PhD, Patrick W. Serruys¹³, MD, PhD

Intravascular ultrasound in the evaluation and treatment of left main coronary artery disease: a consensus statement from the European Bifurcation Club



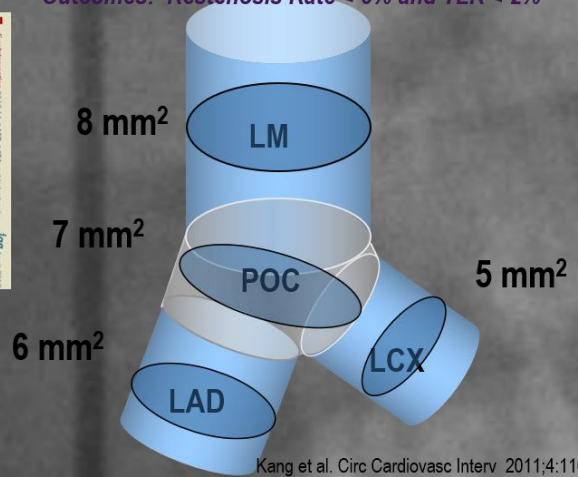
Gary S. Mintz¹, MD, Thierry Lefevre², MD, Jens F. Lassen³, MD, Luca Testa⁴, MD, Manuel Pan⁵, MD, Jag Singh⁶, MD, Goran Stankovic⁷, MD, Adrian P. Banning⁸, MD

Clinical use of intracoronary imaging. Part 1: guidance and optimization of coronary interventions. An expert consensus document of the European Association of Percutaneous Cardiovascular Interventions



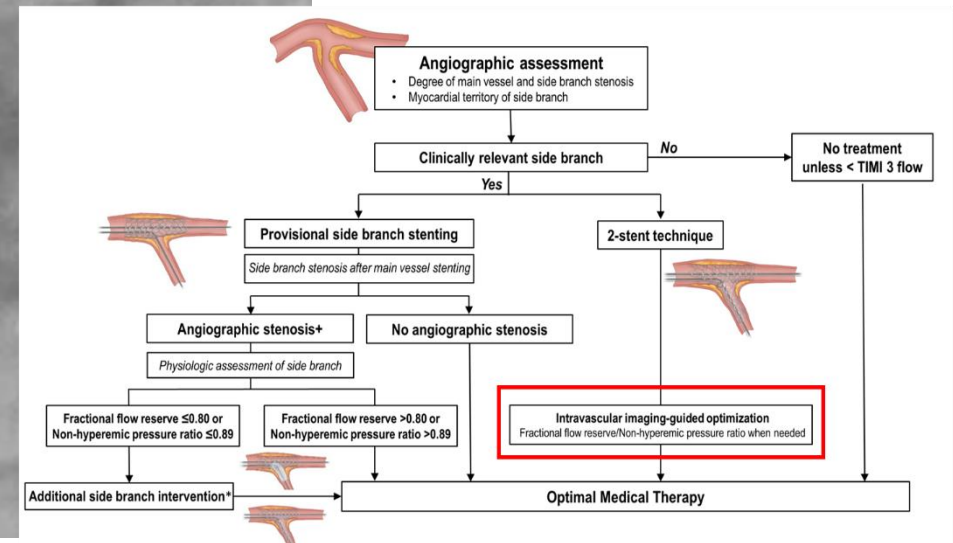
Lorenz Räber¹, Gary S. Mintz², Konstantinos C. Koskinas³, Thomas W. Johnson⁴, Niels R. Holm⁵, Yoshinobu Onuma⁶, Maria D. Rada⁷, Michael Joner⁸, Bo Yu⁹, Haibo Jia¹⁰, Nicolas Meneveau¹¹, Jose M. de la Torre Hernandez¹², Javier Escaned¹³, Jonathan Hill¹⁴, Francesco Prati¹⁵, Antonio Colombo¹⁶, Carlo Di Mario¹⁷, Evelyn Regar¹⁸, Davide Capodanno¹⁹, William Wijns²⁰, Robert A. Byrne²¹, Giulio Guagliumi²²

EXPERT REVIEW
CORONARY INTERVENTIONS



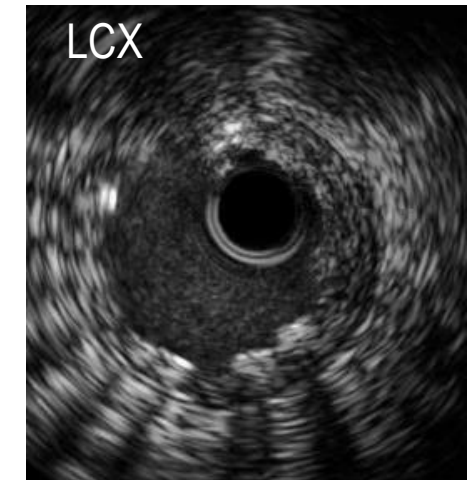
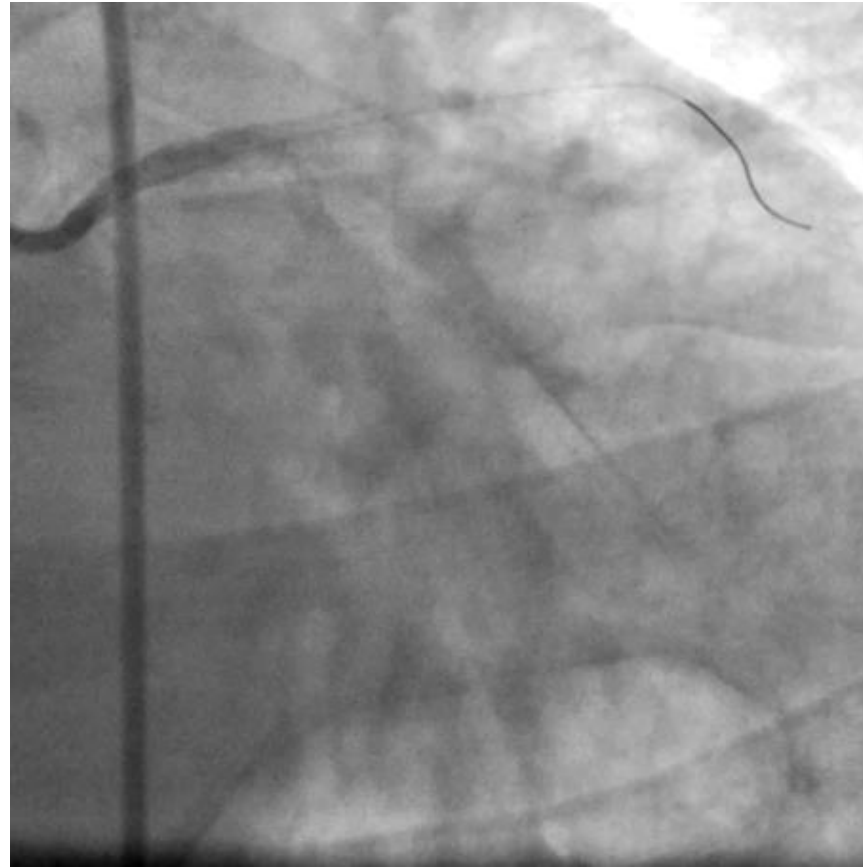
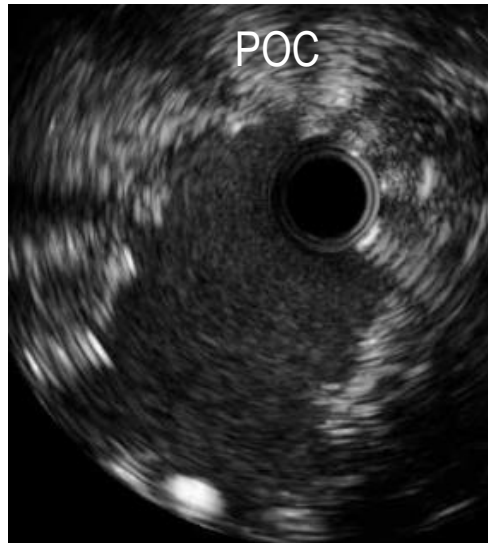
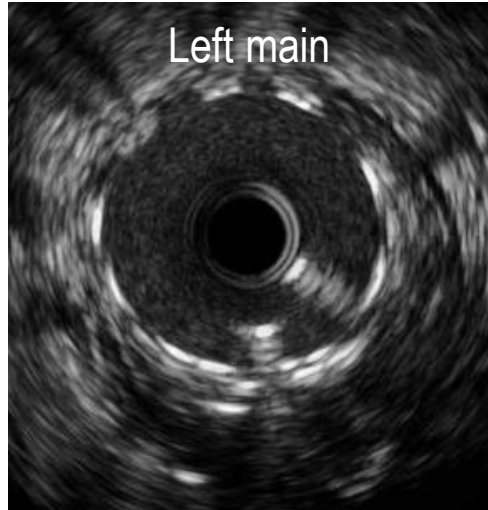
Kang et al. Circ Cardiovasc Interv 2011;4:1168-74

Maintain enough stent area, respect the fractal ratio, and minimize overlap and malapposition!

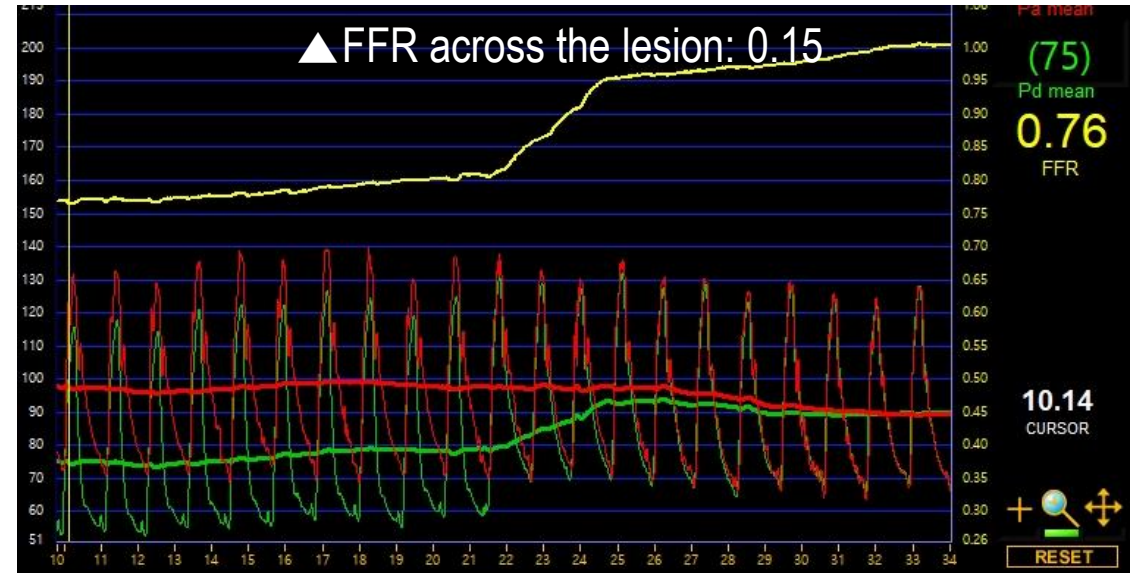


Lee HS, Kim U, ..., Koo BK. JACC intervention 2022

After culotte stenting

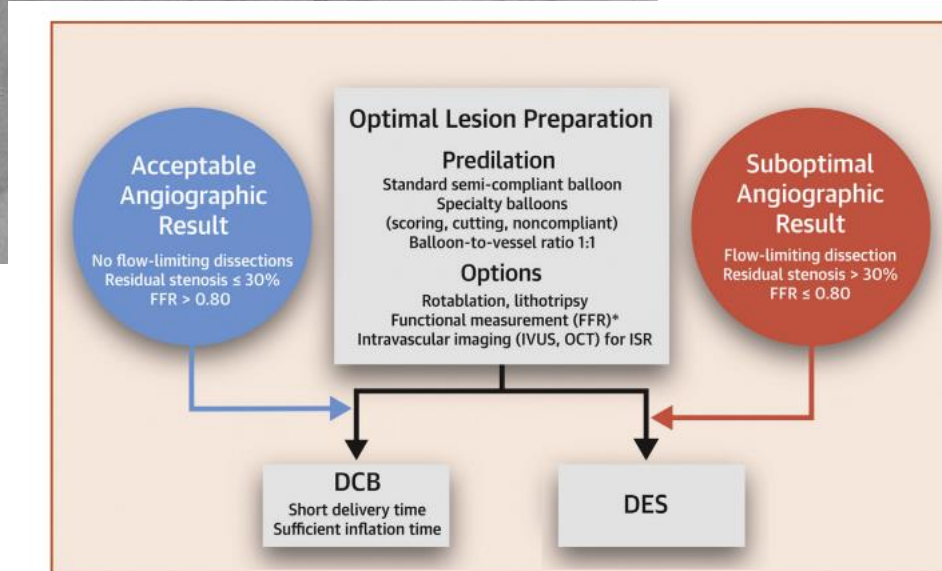
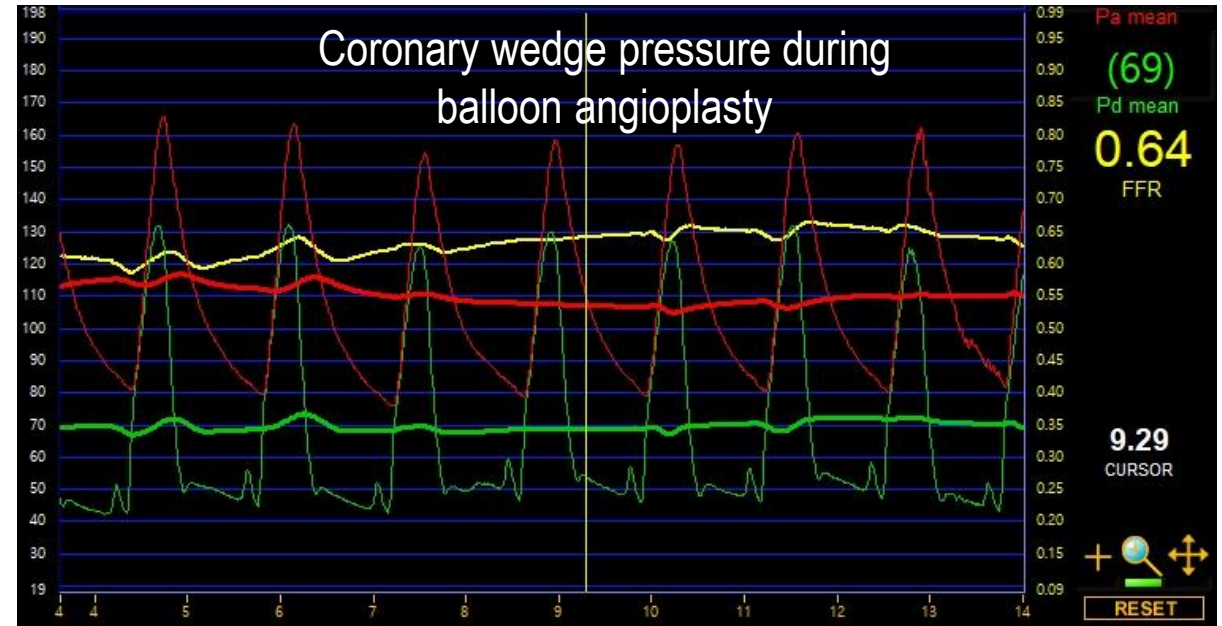
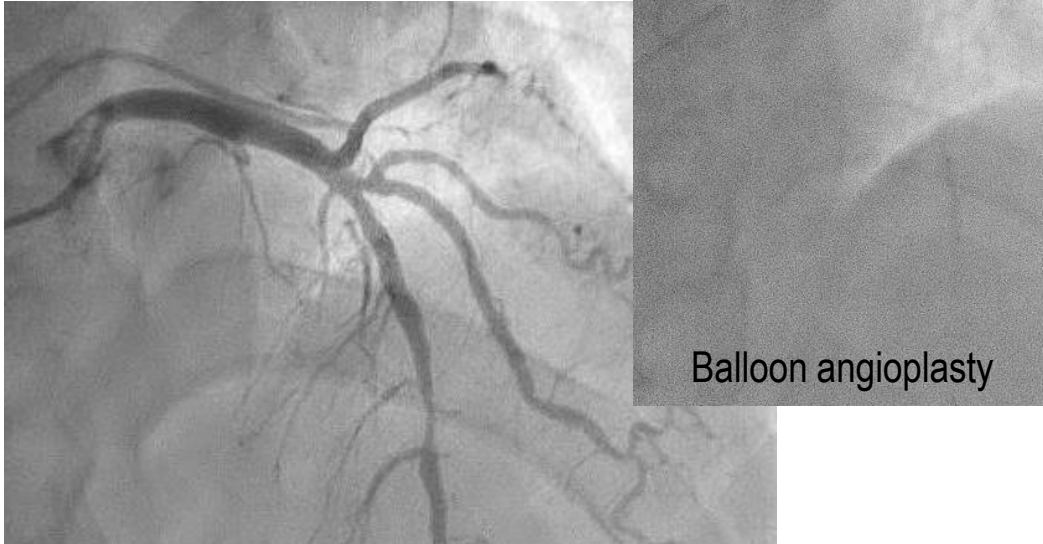


CASE II M/59 Recent angina, CKD

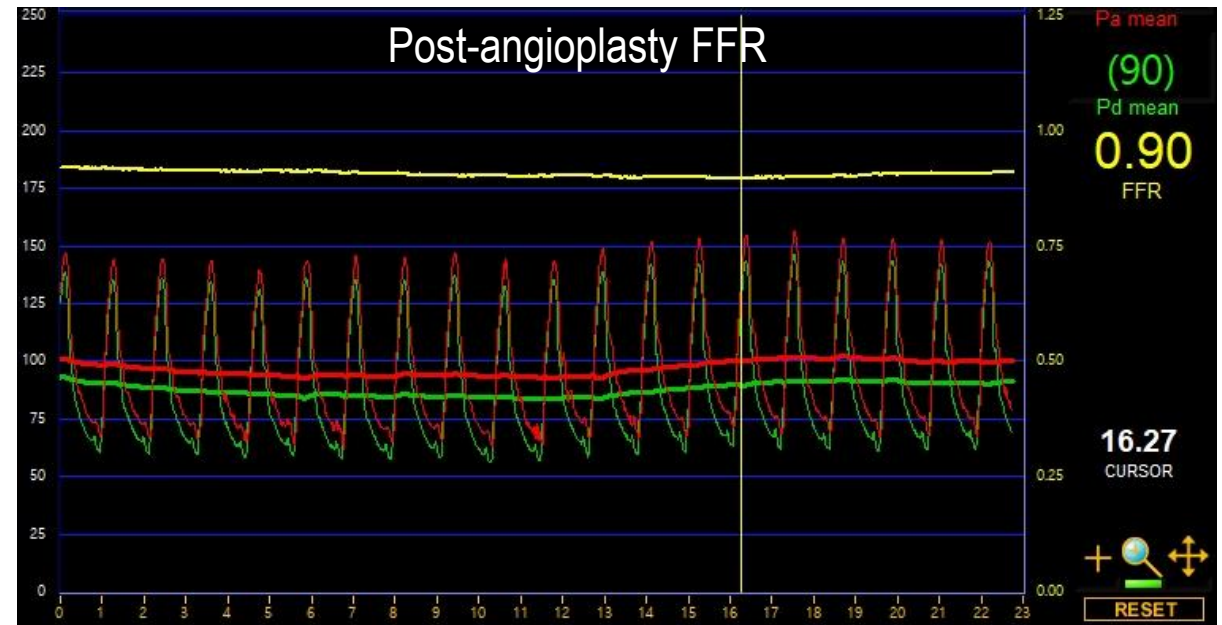


- **Assessment**
 - Functionally significant lesion
 - Physiologically focal lesion
- **Treatment plan**
 - CKD: Minimal contrast → Direct stenting?
 - Relatively young → Treatment without metal?

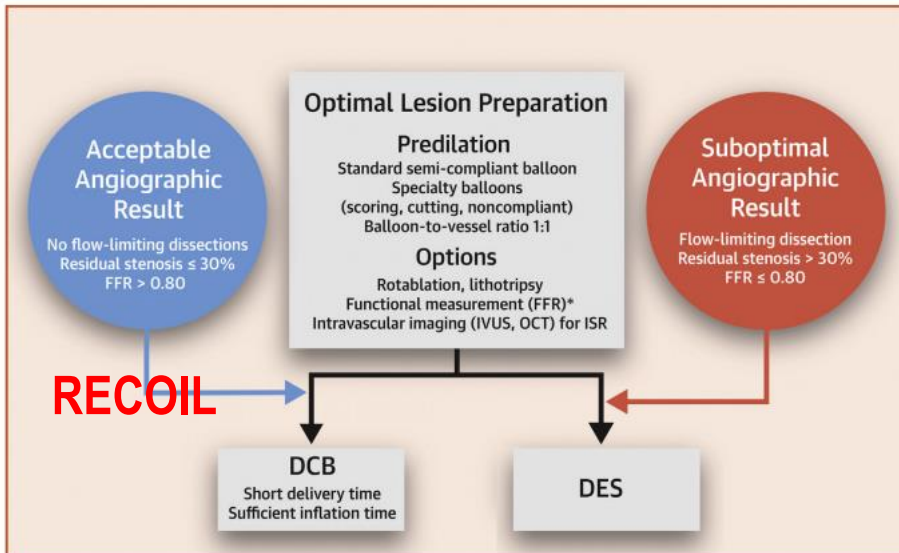
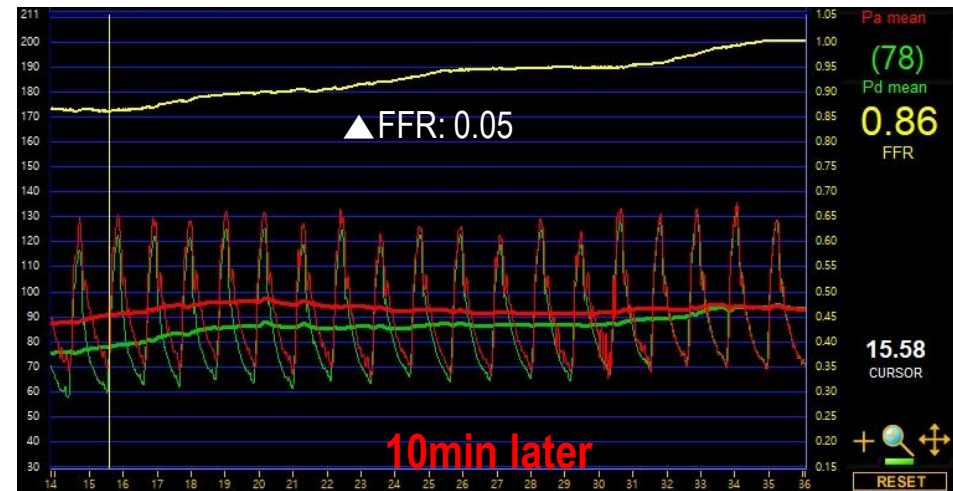
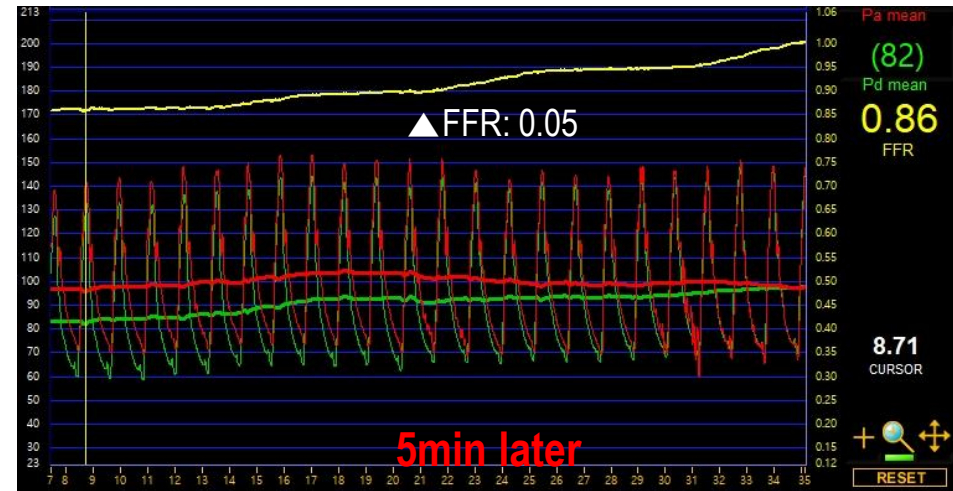
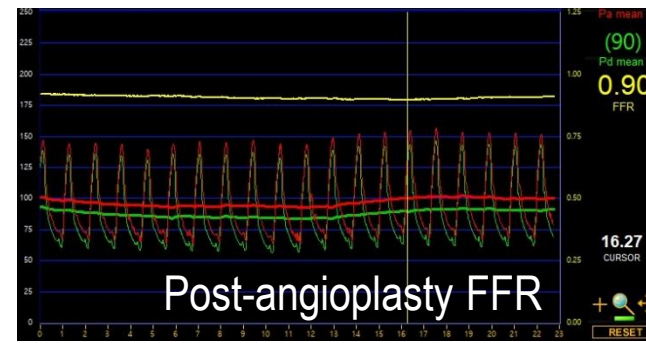
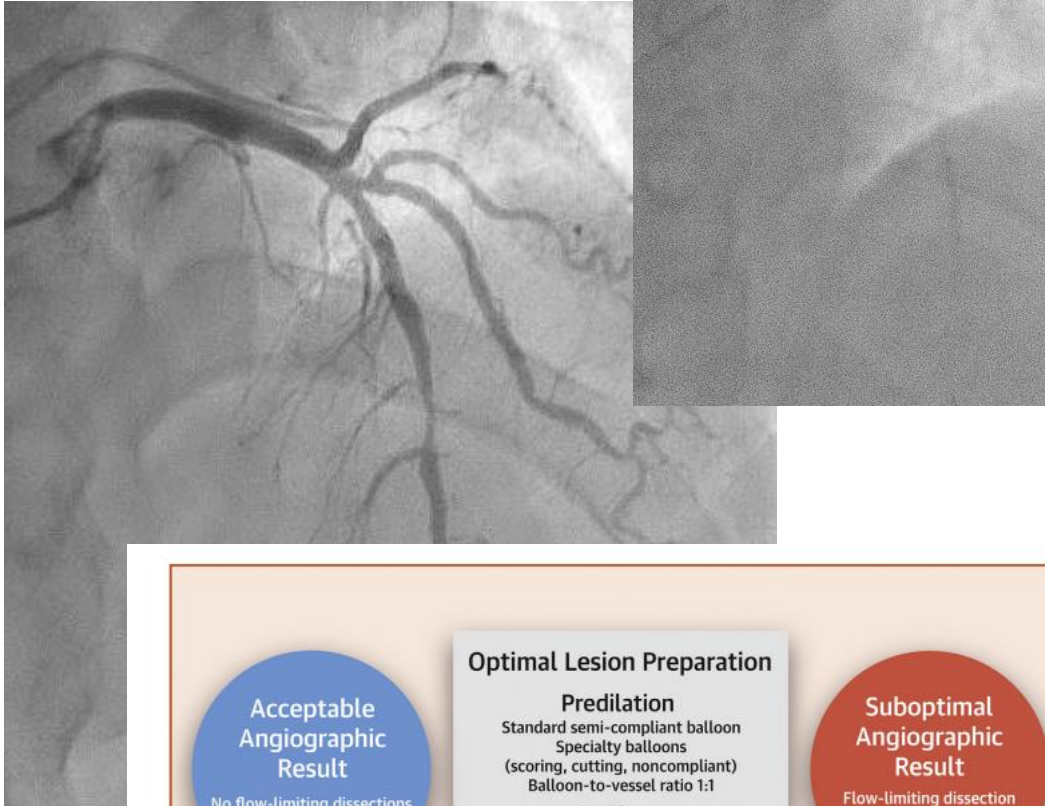
CASE III M/59 Recent angina, CKD



Jeger, R.V. et al. J Am Coll Cardiol Intv. 2020;13(12):1391-402.

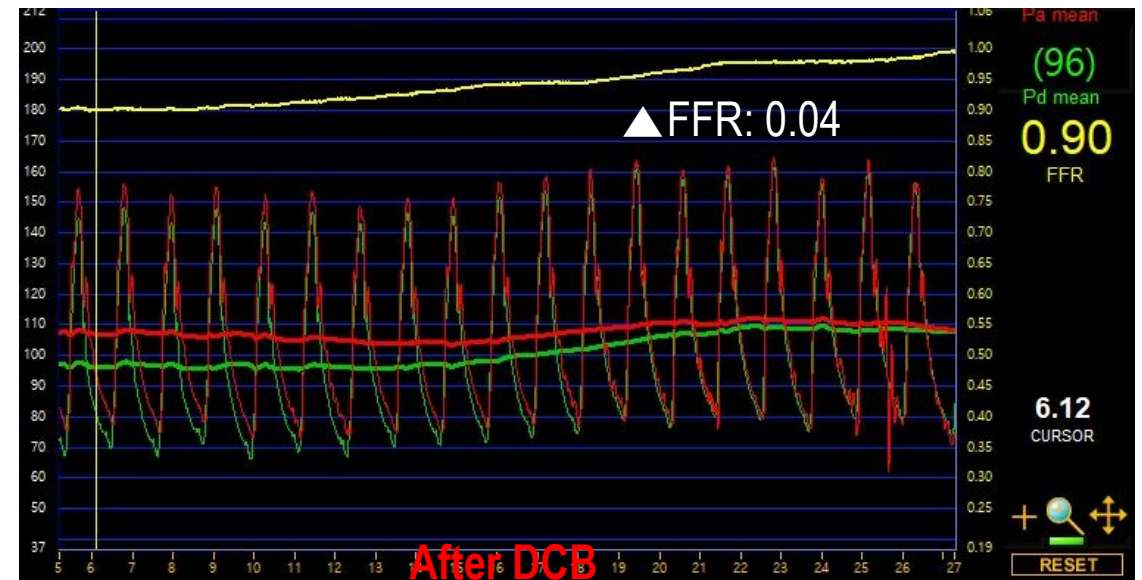
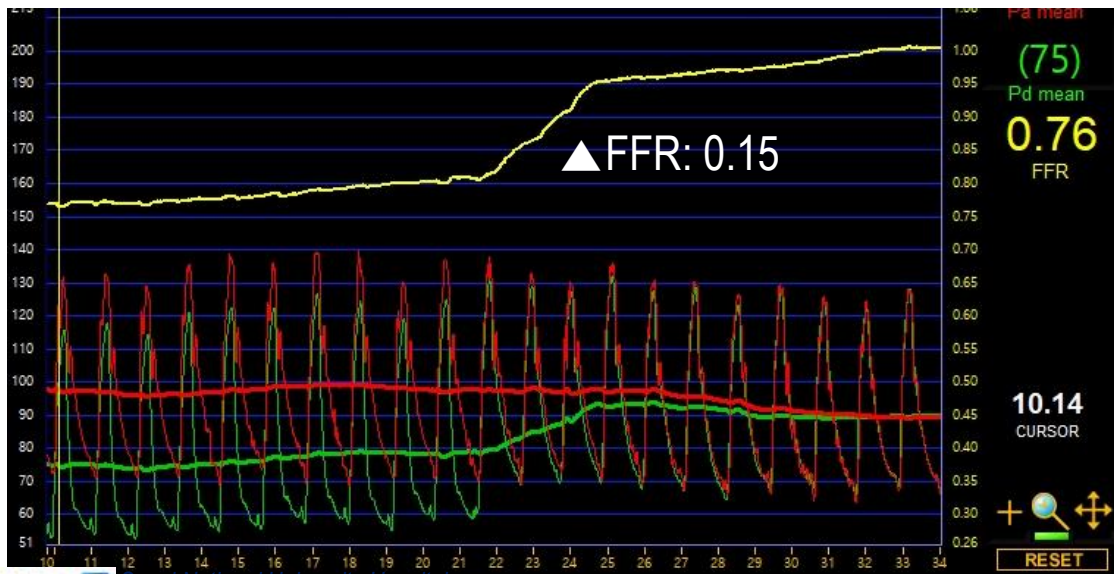
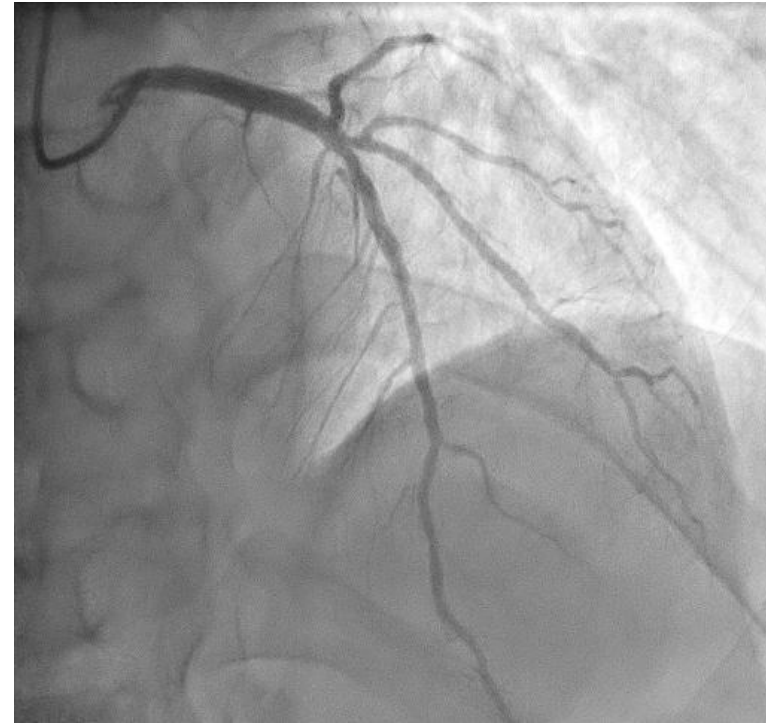


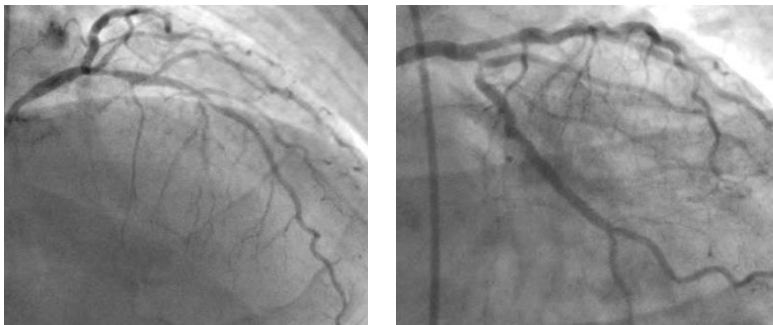
CASE III M/59 Recent angina, CKD



Jeger, R.V. et al. J Am Coll Cardiol Intv. 2020;13(12):1391-402.

CASE III M/59 Recent angina, CKD





Physiology-guided PCI



- Physiologic indexes can help operators in PCI decision, procedural planning and optimization.
- However, the operators should recognize their strengths and weaknesses in different clinical situations.
- Therefore, it is crucial to prioritize **practice and education** for **physiology-guided PCI** in patients with complex CAD.