Multivessel PCI in STEMI: is it still controversial ?

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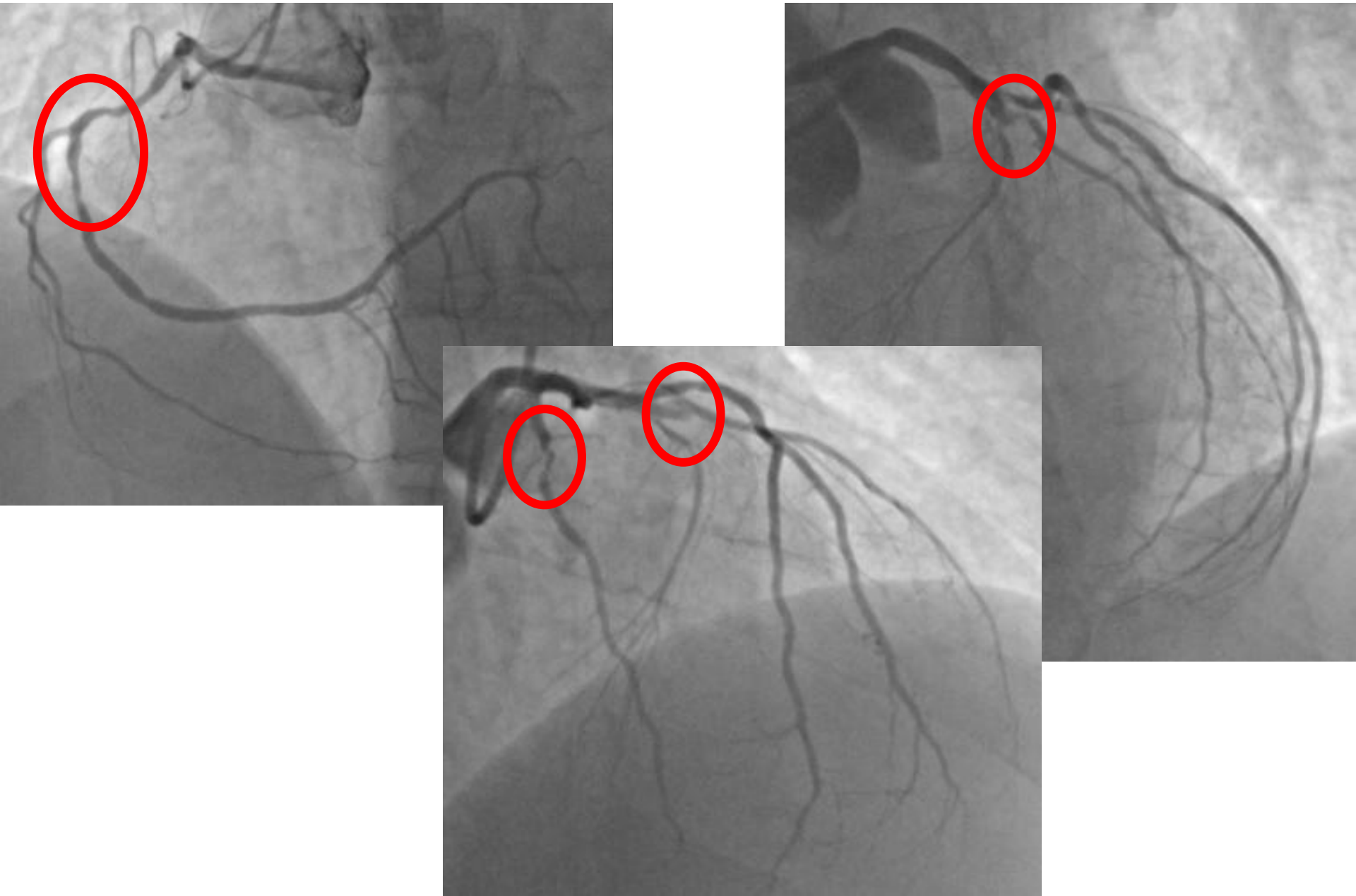
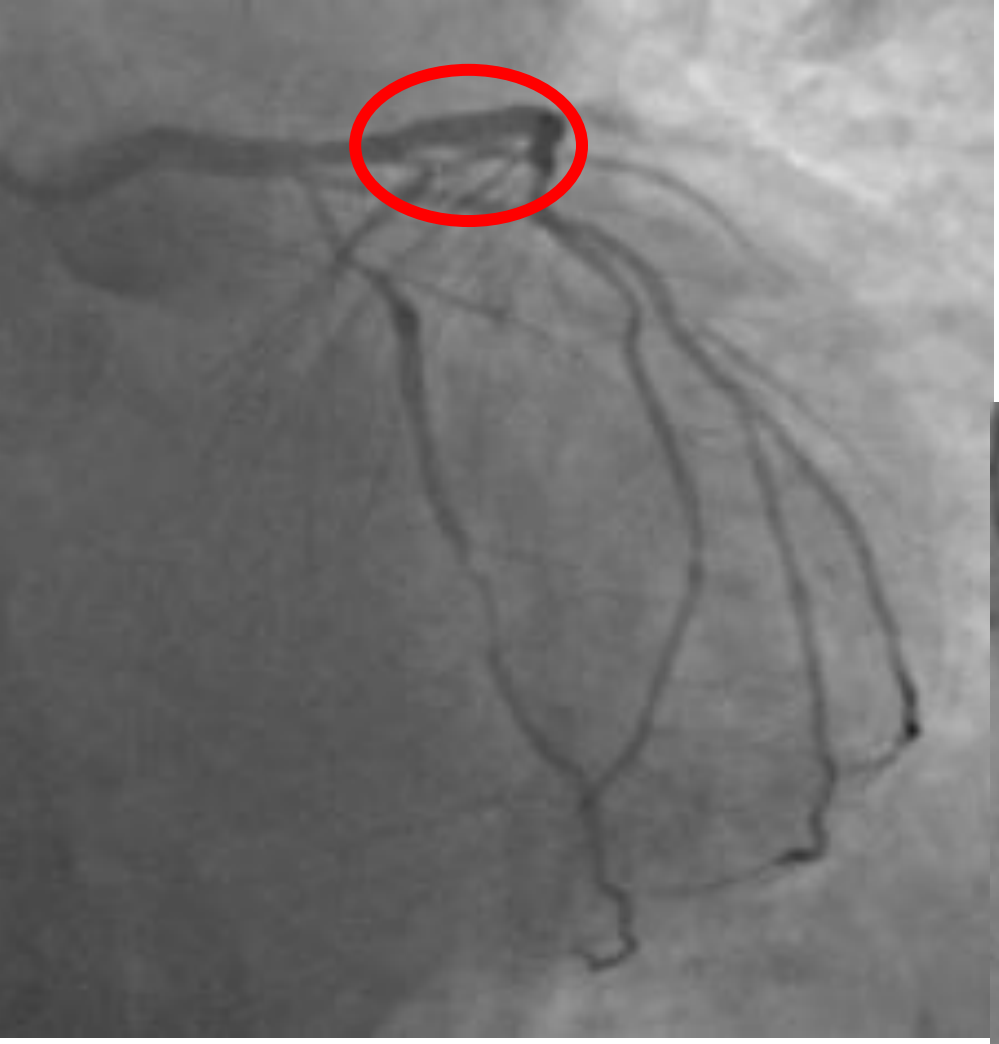
Background

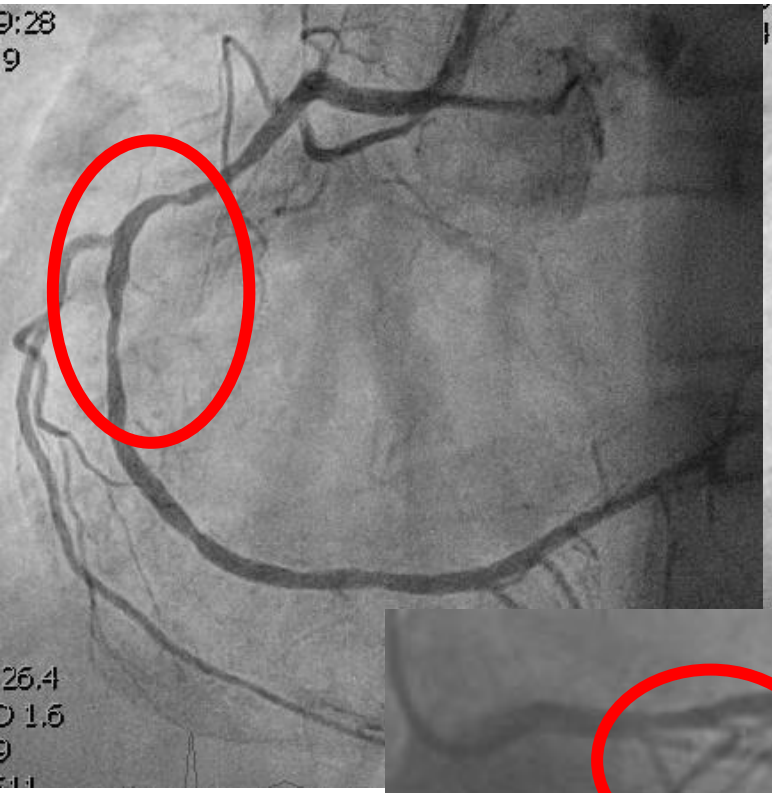
- MVD in 40-50% of STEMI (>50% of non-STEMI)
- Evidence supporting non-IRA PCI ic conflicting
- US registries: increased mortality in acute MV-PCI versus IRA PCI only

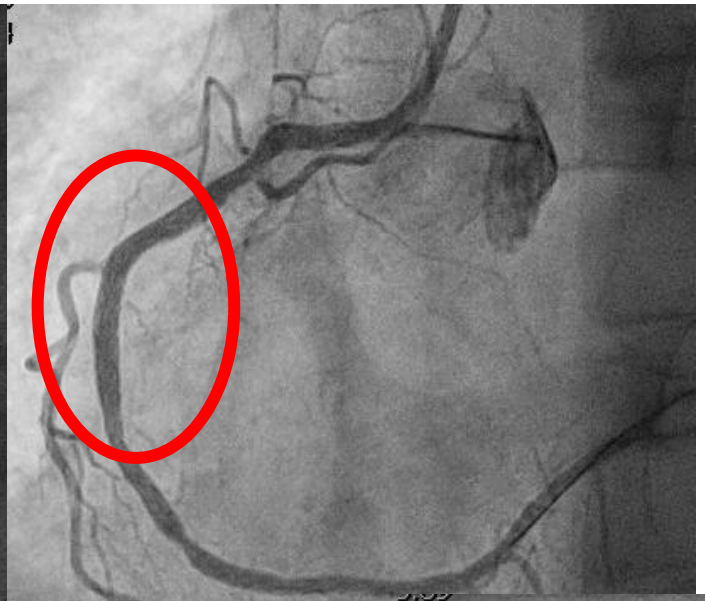
Case A, April 16: p-PCI on IRA only

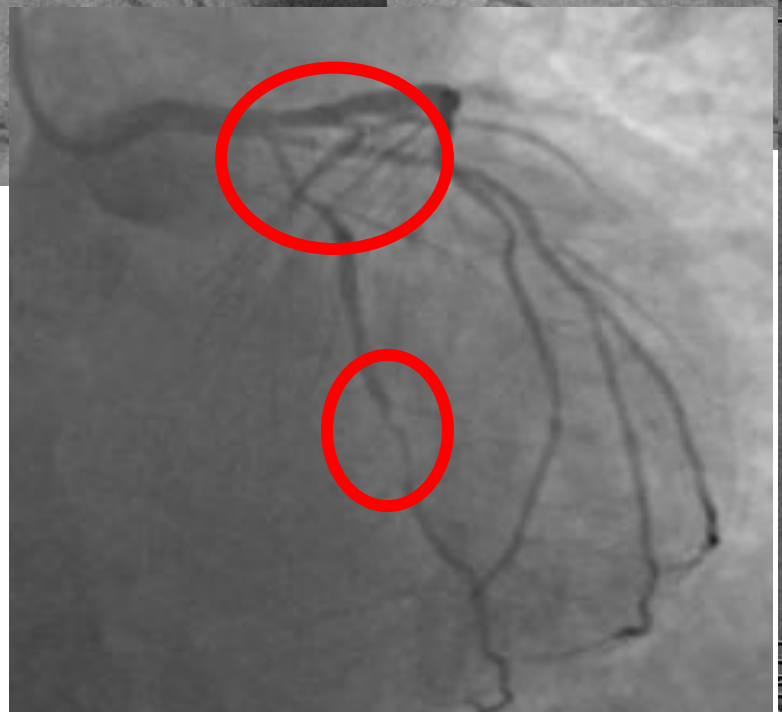


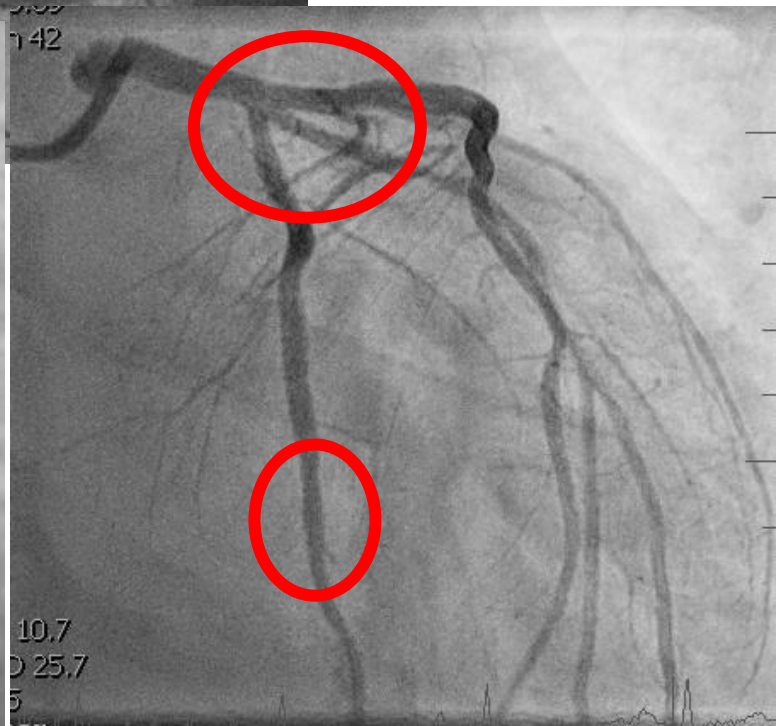


Case A, April 28: PCI on non-IRAs

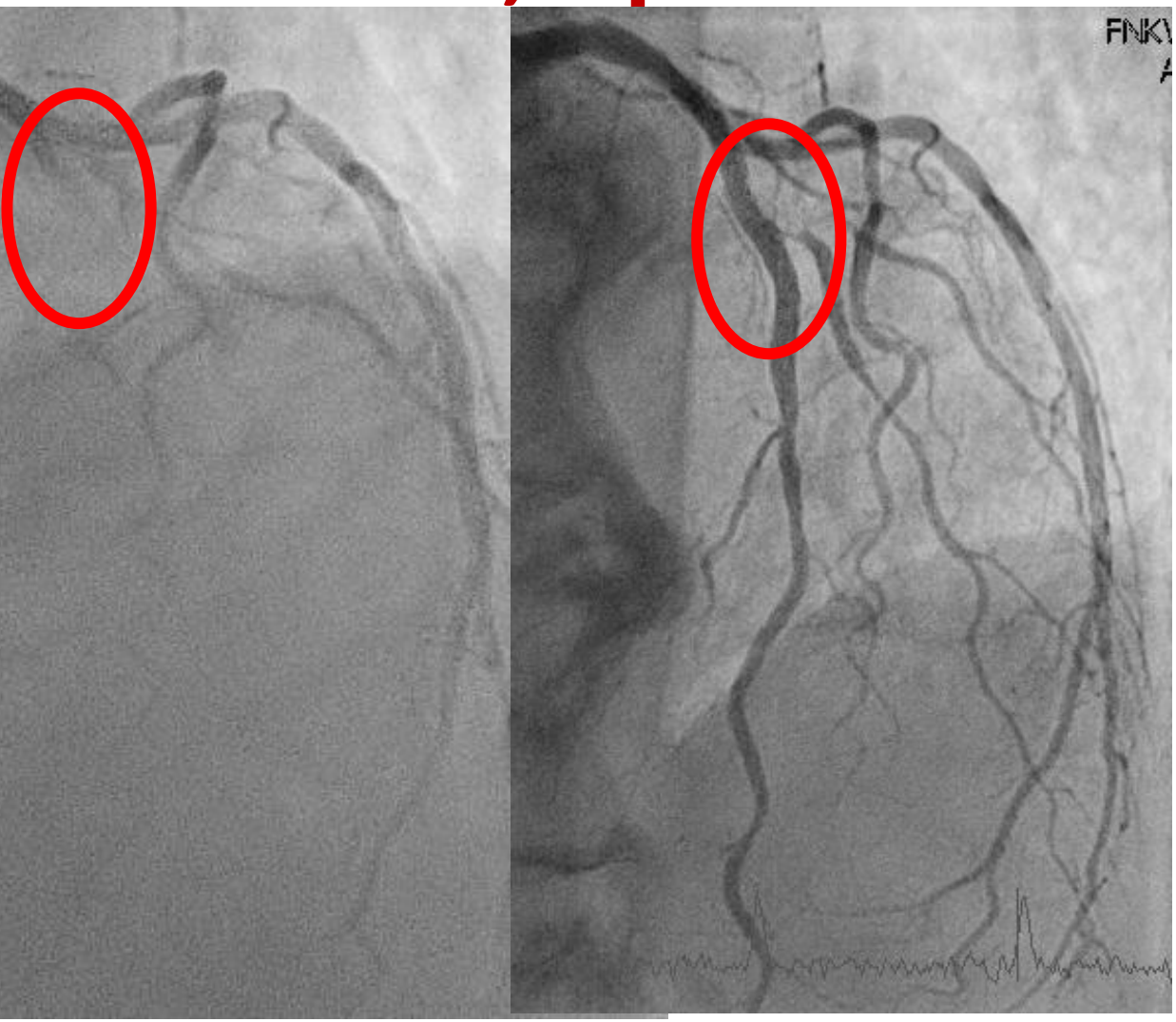


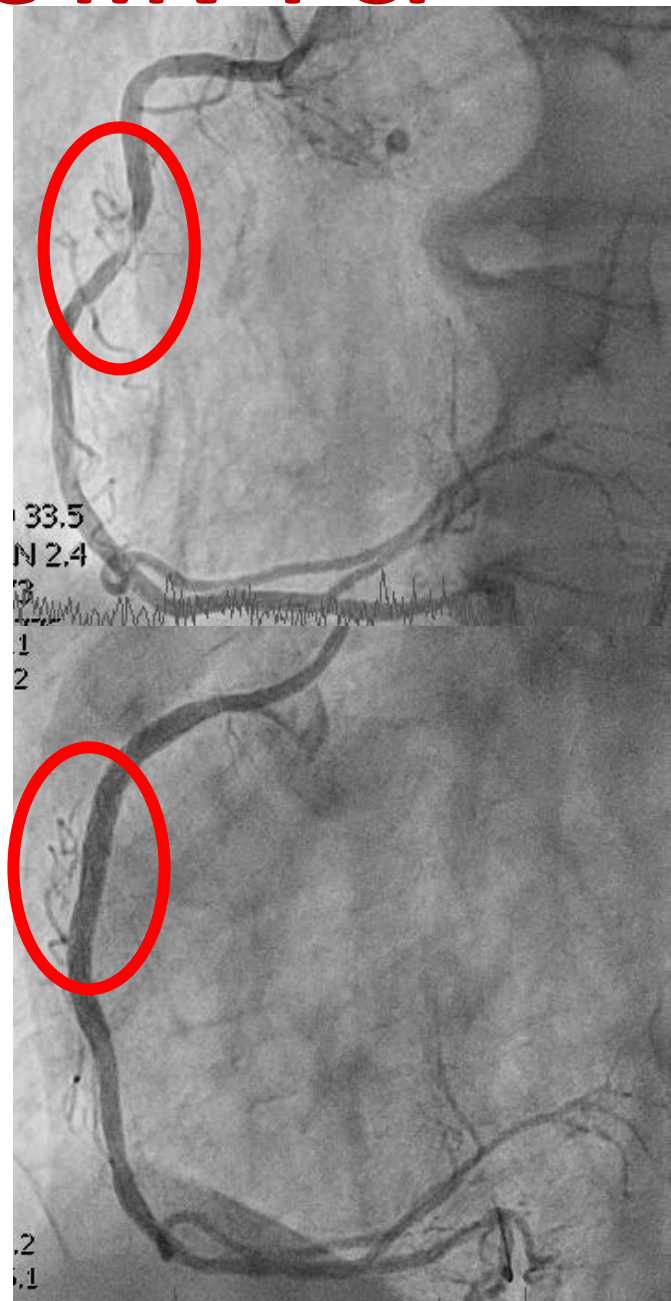






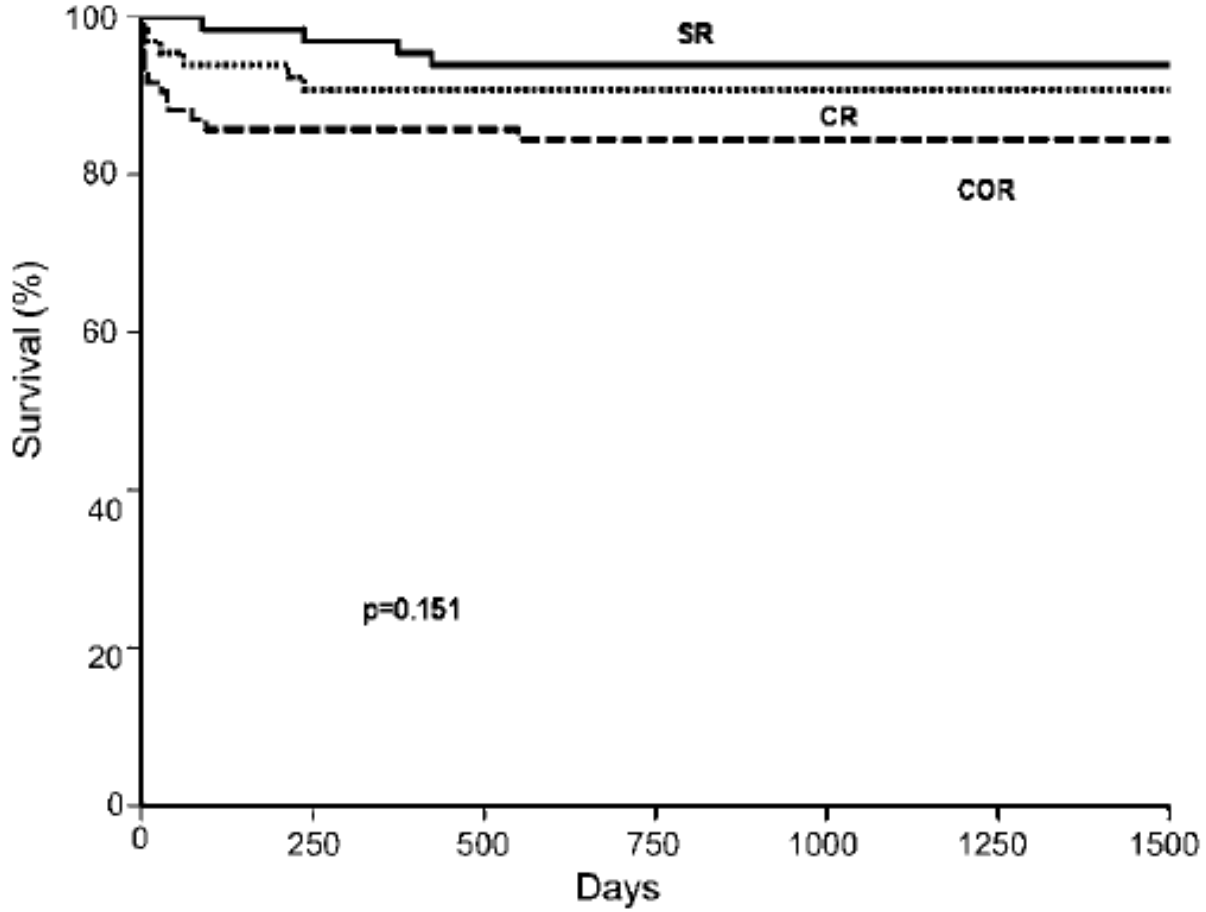
Case B, April 29: acute MV-PCI





Staged revascularization is the best strategy

Politi L et al., Heart 2010



SR = staged revascularization, CR = acute complete revascularization, COR = culprit only

PRAMI trial: acute MV-PCI is better than IRA-only PCI.

Wald DS et al., NEJM 2013

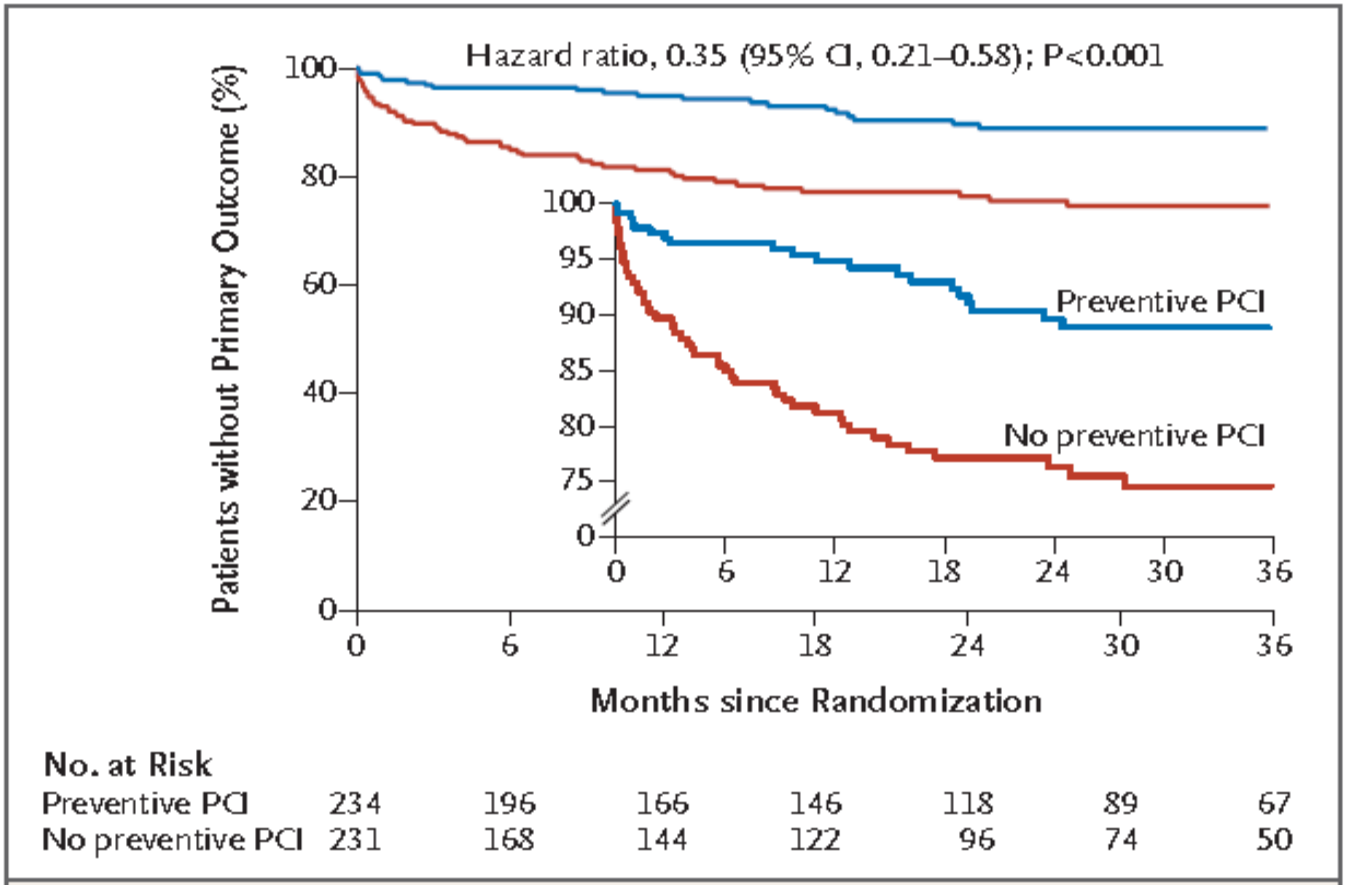
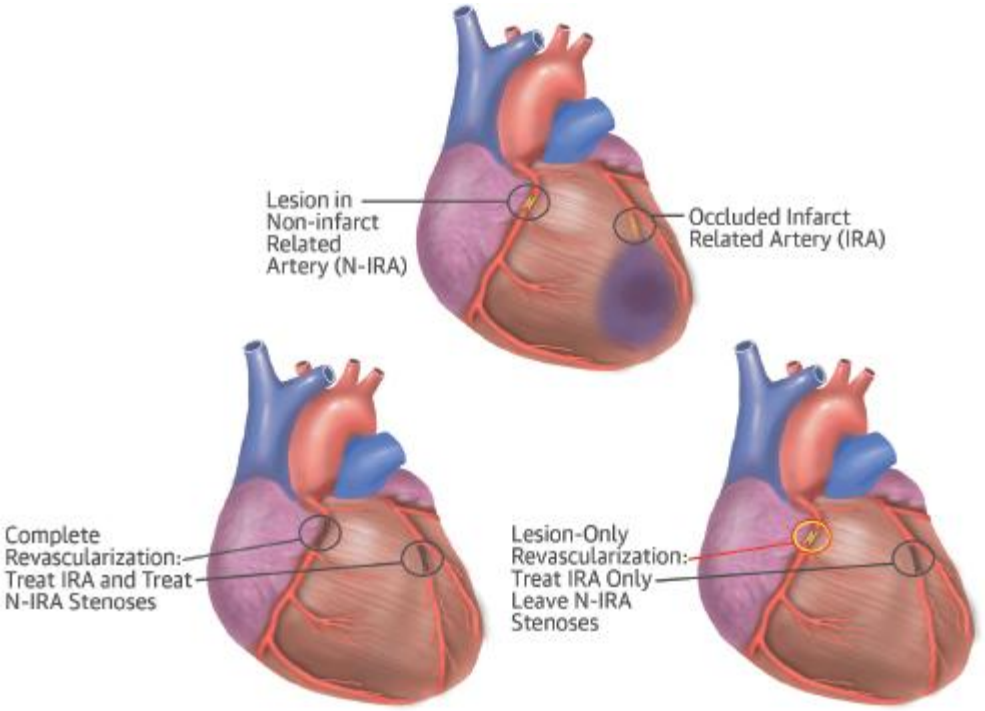


Figure 2. Kaplan–Meier Curves for the Primary Outcome.

The primary outcome was a composite of death from cardiac causes, nonfatal myocardial infarction, or refractory angina. The inset graph shows the same data on a larger scale. All patients in the trial underwent infarct-artery PCI immediately before randomization.

CvLPRIT trial: Staged pre-discharge non-IRA PCI is better than IRA-only PCI.

Gershlick AH et al., JACC 2015



Event	N = 150 (%)		N = 146 (%)	HR (95%)	P
Total MACE	15 (10.0)		31 (21.2)	0.45 (0.24, 0.84)	0.009
Mortality	2 (1.3)		6 (4.1)	0.32 (0.06, 1.60)	0.14
Recurrent MI	2 (1.3)		4 (2.7)	0.48 (0.09, 2.62)	0.39
Heart Failure	4 (2.7)		9 (6.2)	0.43 (0.13, 1.39)	0.14
Repeat Revascularization	7 (4.7)		12 (8.2)	0.55 (0.22, 1.39)	0.2

DANAMI-3-PRIMULTI trial: Staged pre-discharge non-IRA PCI is better than IRA-only PCI.

Engstrom et al., Lancet 2015

- **Primary endpoint in 22% IRA-only PCI vs. 13% FFR-guided pre-discharge complete revascularisation (HR 0·56, 95% CI 0·38–0·83; p=0·004).**
- **Complete revascularisation guided by FFR significantly reduces repeat revascularisations**
- **All-cause mortality and non-fatal reinfarction did not differ between groups.**

COMPARE-ACUTE trial: FFR-guided acute MV-PCI is better than IRA-only PCI.

Smits PC et al., NEJM 2017

- **885 STEMI pts with MVD**
- **FFR-guided complete revascularization of non–IRA (n=295)**
- **IRA-only PCI (n=590).**
- **Mortality: 1.4% vs. 1.7% (HR 0.80; 95% CI, 0.25 to 2.56)**
- **(re-)MI: 2.4% vs. 4.7% (HR 0.50; 95% CI, 0.22 to 1.13)**
- **Revascularization: 6.1% vs. 17.5% (HR 0.32; 95% CI, 0.20 to 0.54)**
- **Stroke: 0 vs. 0.7%.**
- **FFR-related serious adverse event occurred in 2 patients.**

Meta-analysis of 10 randomized trials.

Elgendy IY et al., JACC Interv 2017

- **2,285 patients**
- **Complete revascularization (any time) associated with a lower risk of MACE (RR: 0.57; 95% CI: 0.42 - 0.77)**
- **Lower risk of urgent revascularization (RR: 0.44; 95% CI: 0.30 to 0.66).**
- **All-cause mortality not significant (RR: 0.76; 95% CI: 0.52 to 1.12)**
- **Reinfarction not significant (RR: 0.54; 95% CI: 0.23 to 1.27)**
- **Risk reduction irrespective of the timing of nonculprit artery revascularization**

Summary

- **Revascularization of non-IRA lesions should be considered in STEMI patients with multivessel disease before hospital discharge.**
- **Staged MV-PCI and acute MV-PCI seem to be equivalent strategies, but their direct comparison was not done.**
- **Individualized decisions by experienced operator (based on patient clinical condition and CAG findings) should guide the timing of non-IRA PCI.**