PCI in Very High Risk ACS Patient Complicated with Cardiogenic Shock and Recurrent VT/VF

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Background

- Early revascularization → reduced Mortality cardiogenic shock in AMI
- Up to 80% patients → multivessel coronary artery disease
- Guidelines → there is no agreement between guidelines

Patient Profile

- Name : Mr. SP
- Age : 53 y.o
- Risk Factor CAD : Smoking

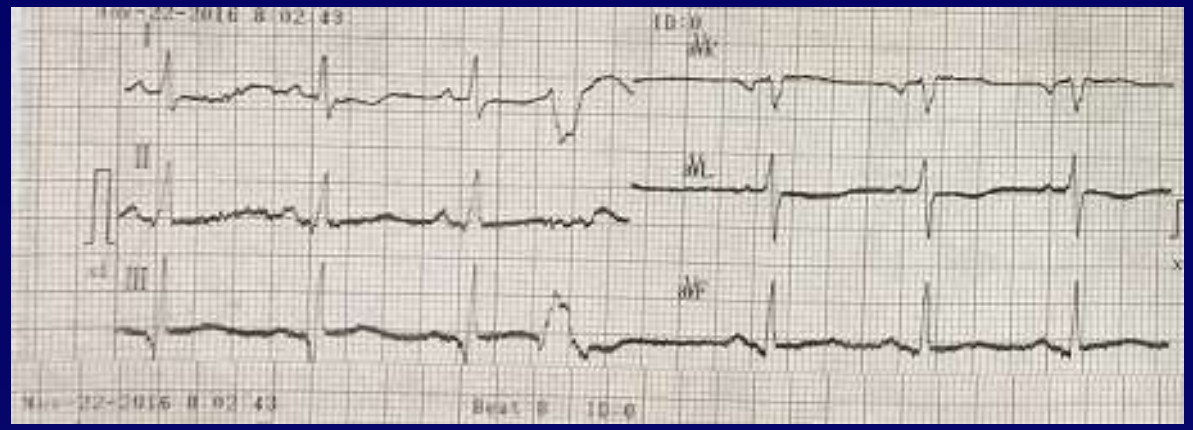
Case Profile

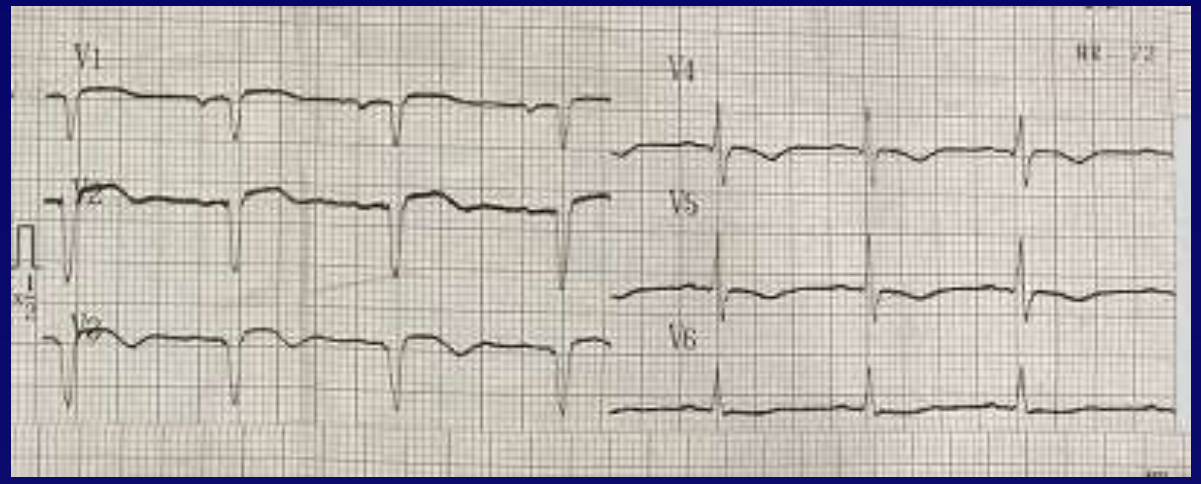
- Chief complain : dyspneu
- Primary diagnosis : STEMI Anterior Late Onset
- Complications :
  - Recurrent VT/VF 7x → CPR + DC-Shock
  - Cardiogenic shock → IABP
  - Respiratory failure → Ventilator

Echocardiography

- LV dilatation
- Akinetic apical, mid anterior, and mid septal, other hypokinetic
- LVEF : 17% (teich), 14% (simpson)
- Mild MR

Electrocardiography





Coronary Angiography
(On Ventilator and IABP)

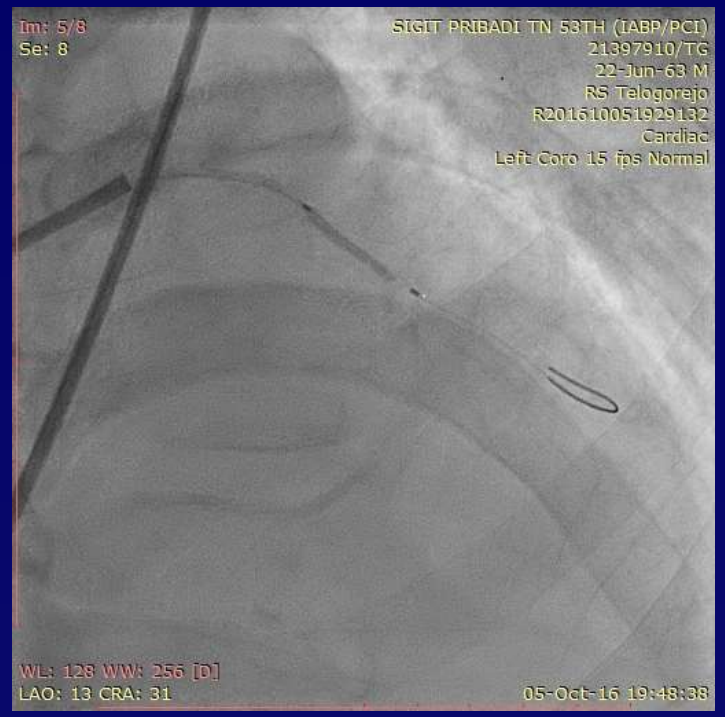
RCA

LCA

- Stenosis 70-90% from proximal -bifucartion of RV branch
- Conus branch supply collaterals to proximal-mid LAD

- LM : Normal
- LAD : Diffuse disease from proximal, stenosis 95% before D1, distal slow flow
- LCx : Stenosis 80% before bifurcation, stenosis 99% after bifurcation

Coronary Intervention of LAD
(On Ventilator and IABP)



BP: 74/46 mmHg
HR: 96x/ mnt

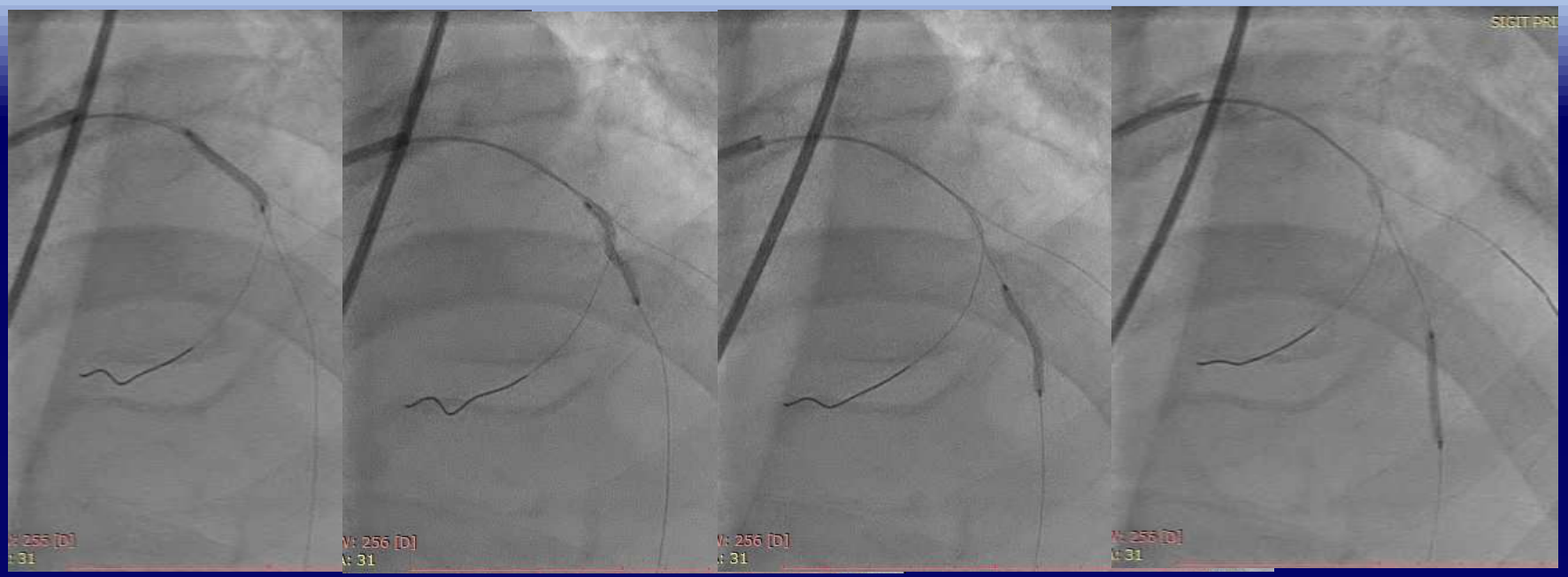
Dobutamin 5 ug/kg/mnts

GC: XB 3.5-7 Fr

First dilatation with ballon 2.0 x 20 mm, 8 atm at proximal LAD

flow to distal LAD improved

Predilatation Proximal – distal LAD

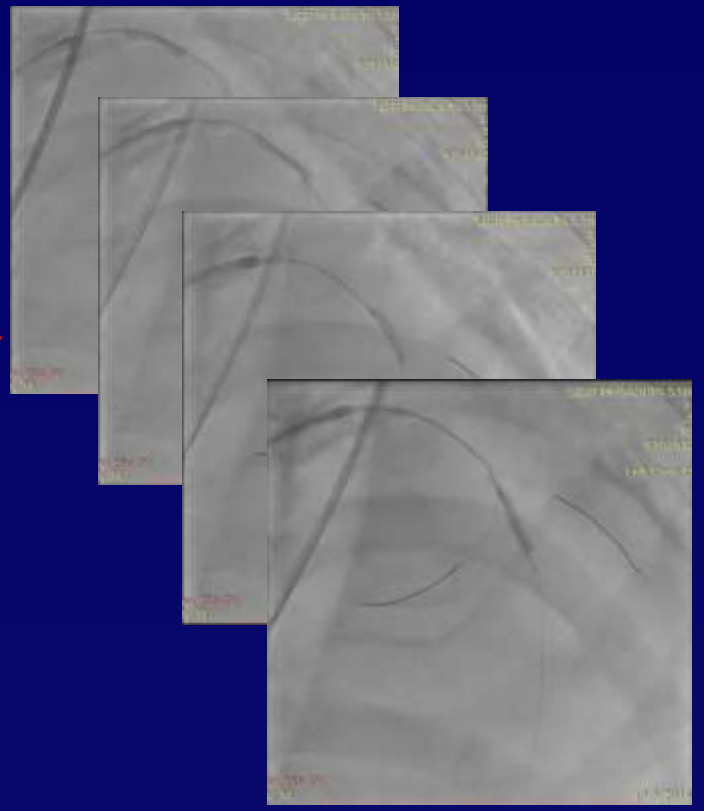


First dilatation with ballon 2.0 x 20 mm, 8-16 atm at proximal-distal LAD

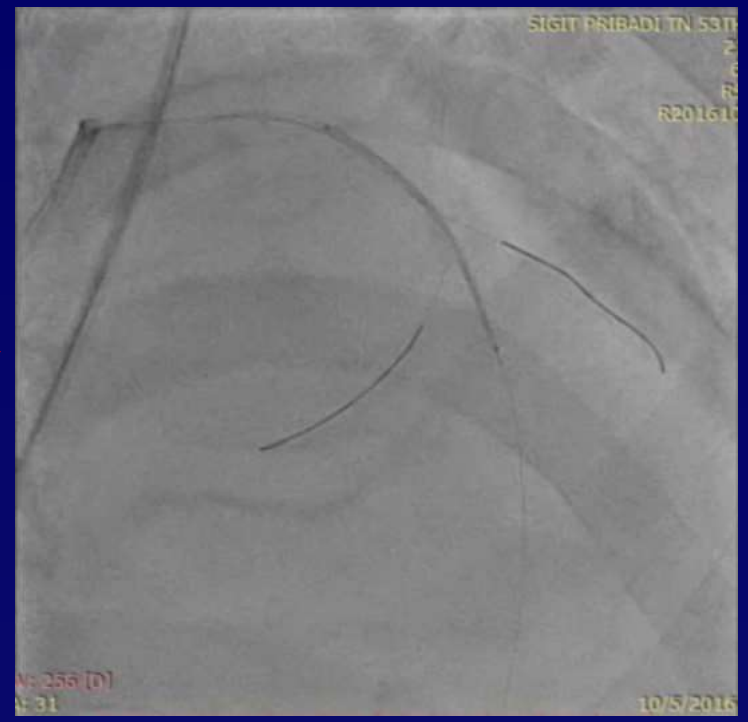
Second dilatation with scoring ballon 2.0 x 20 mm, 6-13 atm at proximal-distal LAD

Coronary Intervention of LAD
(On Ventilator and IABP)

Stent DES 2.5x38mm (***can't cross the lesion at mid***)



Repeated dilatation with bigger scoring ballon 2.5 x 24 mm distal-proximal LAD



Stent DES 2.5x38mm (***can't cross the lesion at distal LAD***)

What should I do ?

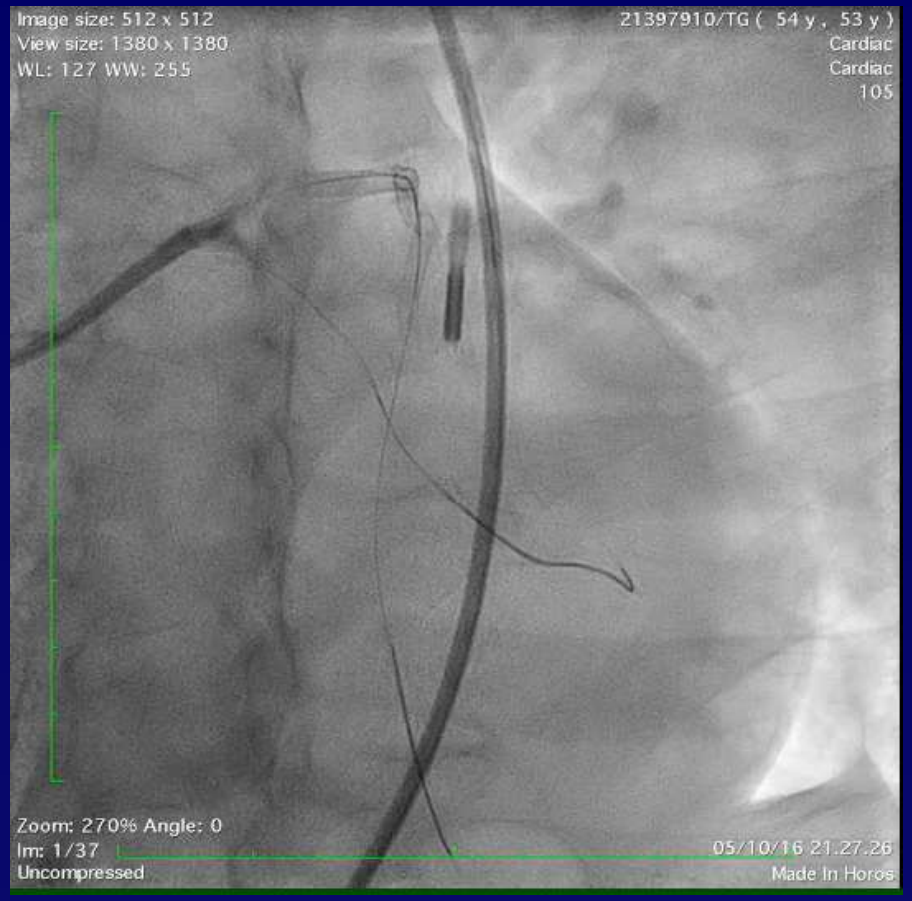
1. Rotabalate the lesion ?
2. More predilatation with bigger scoring balloon ?
3. Low dose nitro and change with shorter stent ?
4. Other manoeuvre?

Coronary Intervention of LAD
(On Ventilator and IABP)

Stenting at LAD :

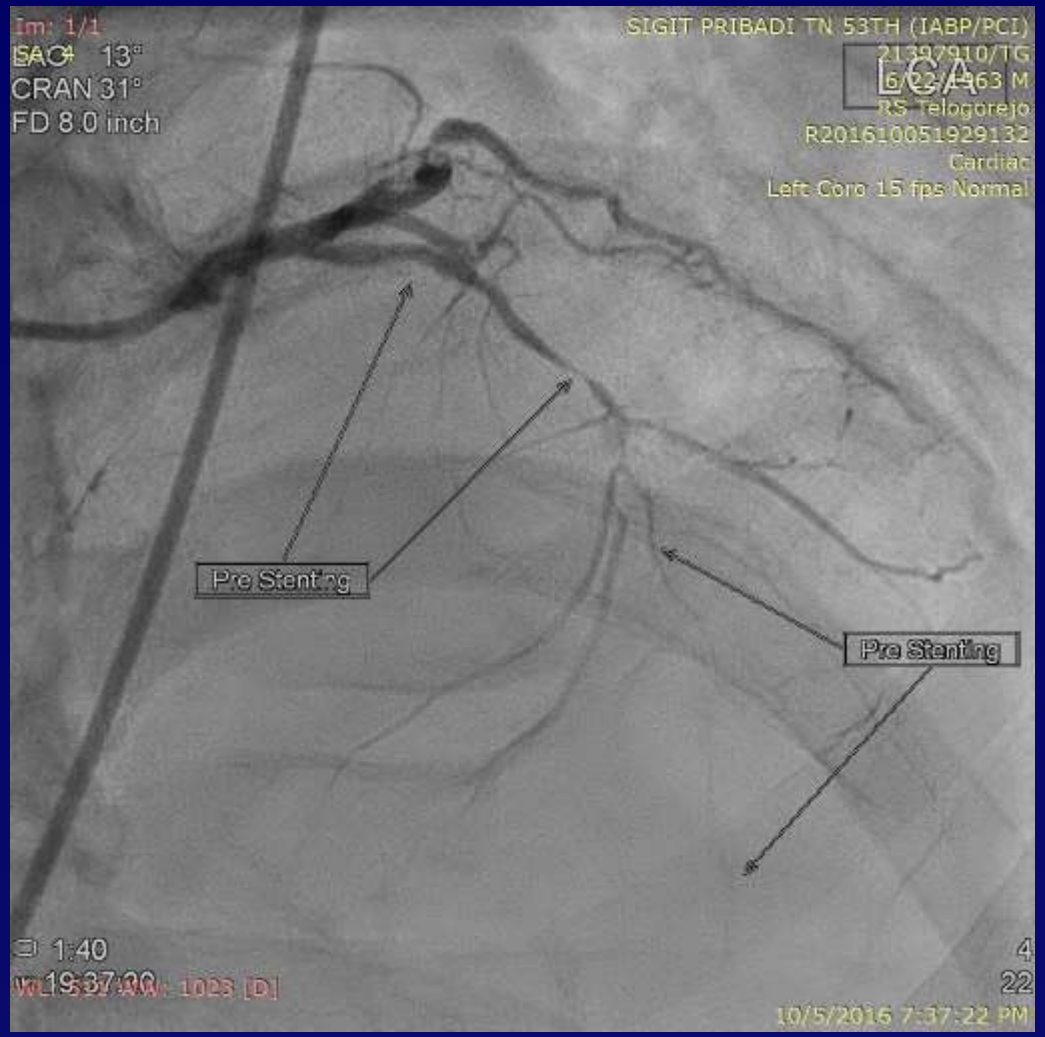
1st → **2.5x24 mm, 12-17 atm (distal LAD)**
2nd → **2.5x38mm, 16 atm (mid-distal LAD)**
3rd → 2.75x28 mm, 18-20 atm (ostial-proximal LAD)

Stenting at LCx

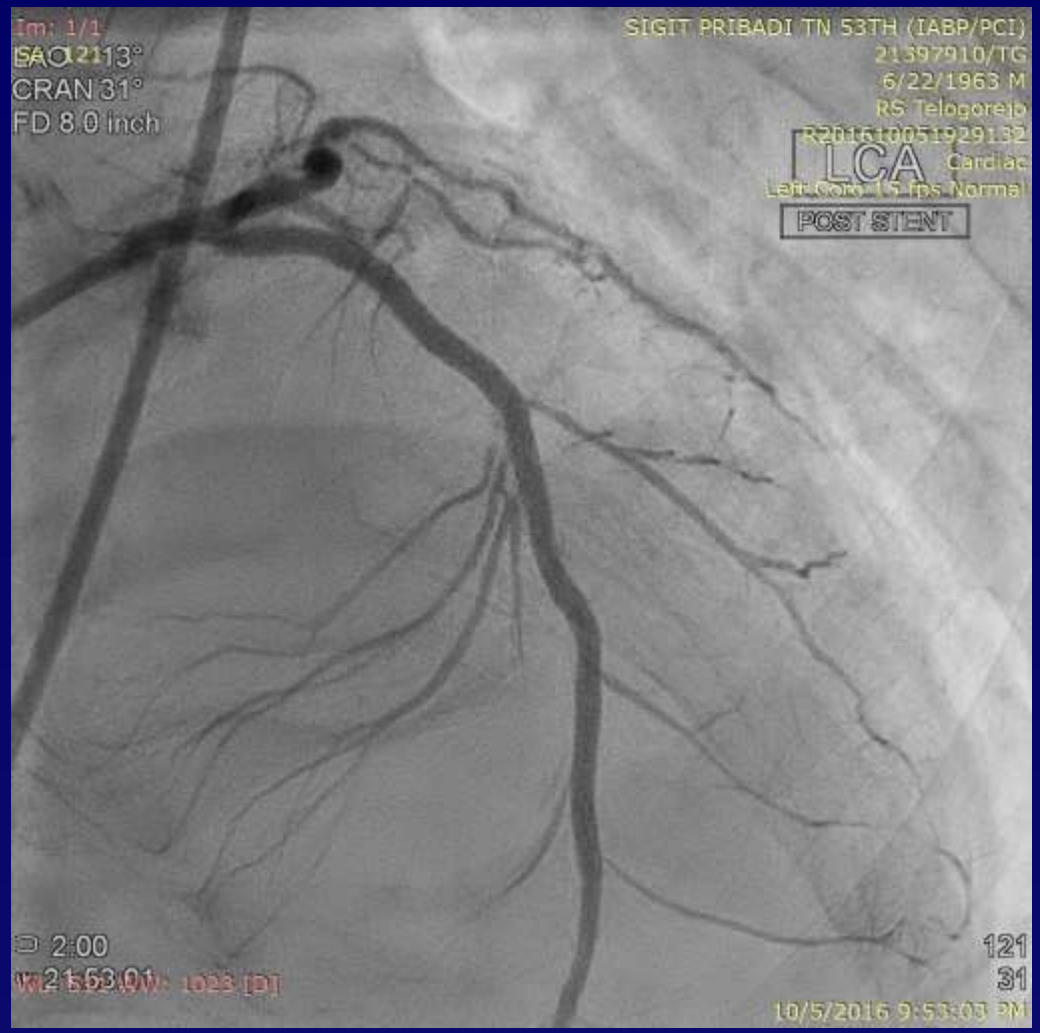


Predilatation with scoring ballon 2.0x15mm 11-15 atm (mid LCx)
Stenting (DES) : 2.5x20mm, 13 atm (mid LCx)

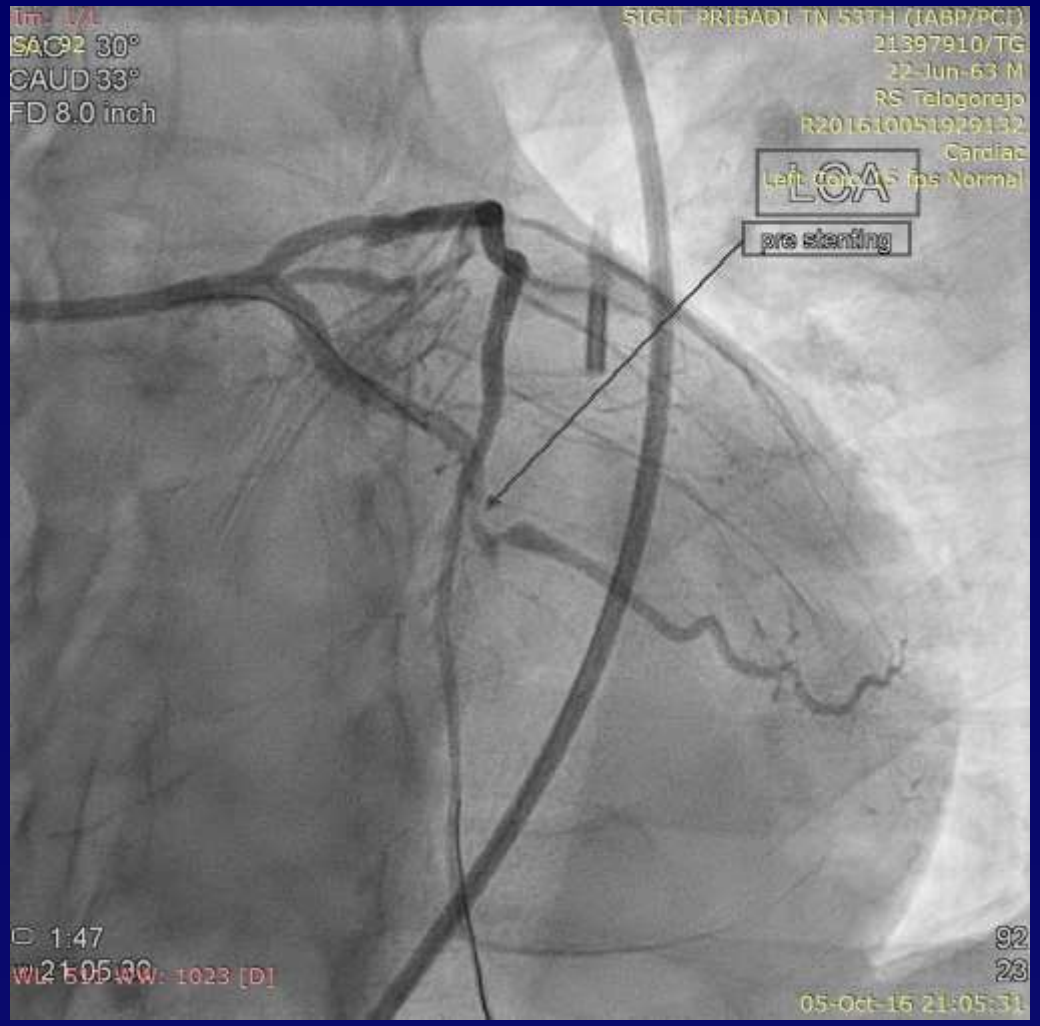
Before Stenting



After Stenting

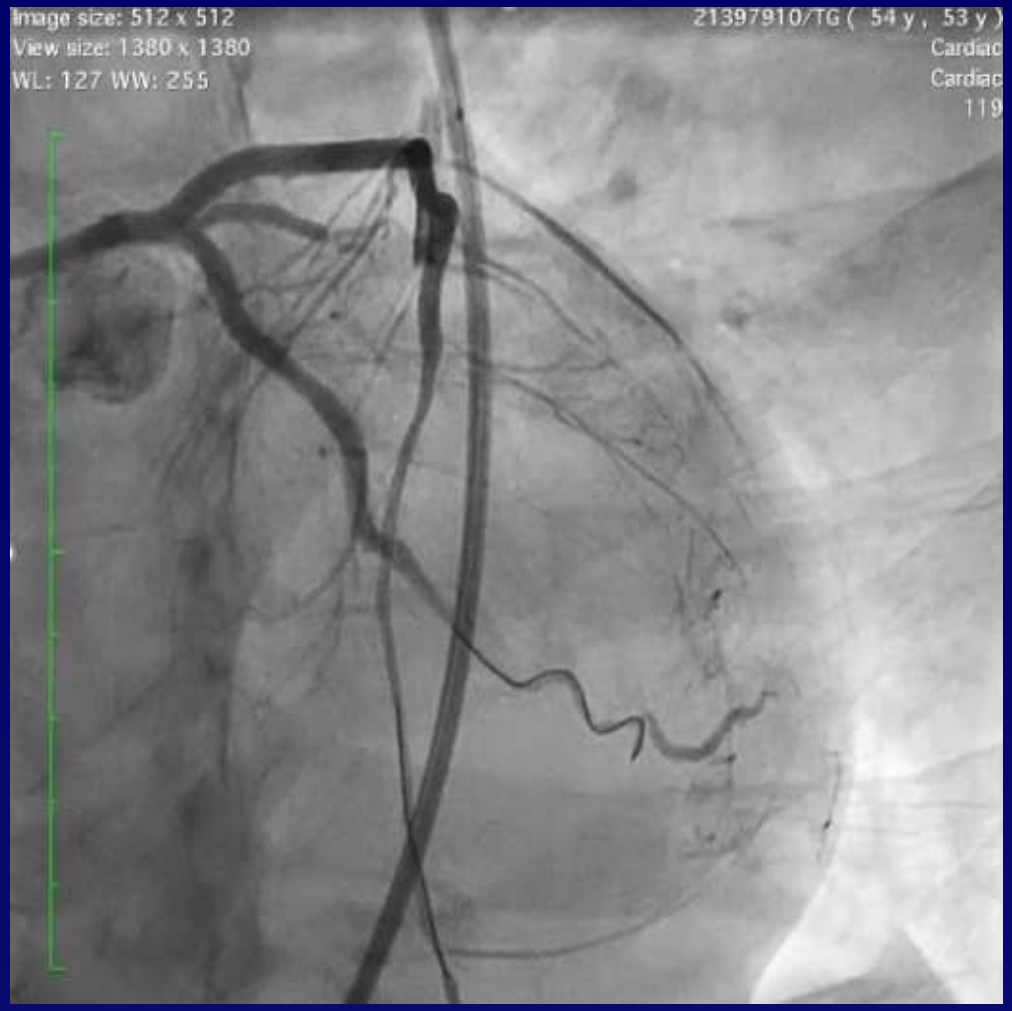


Before Stenting



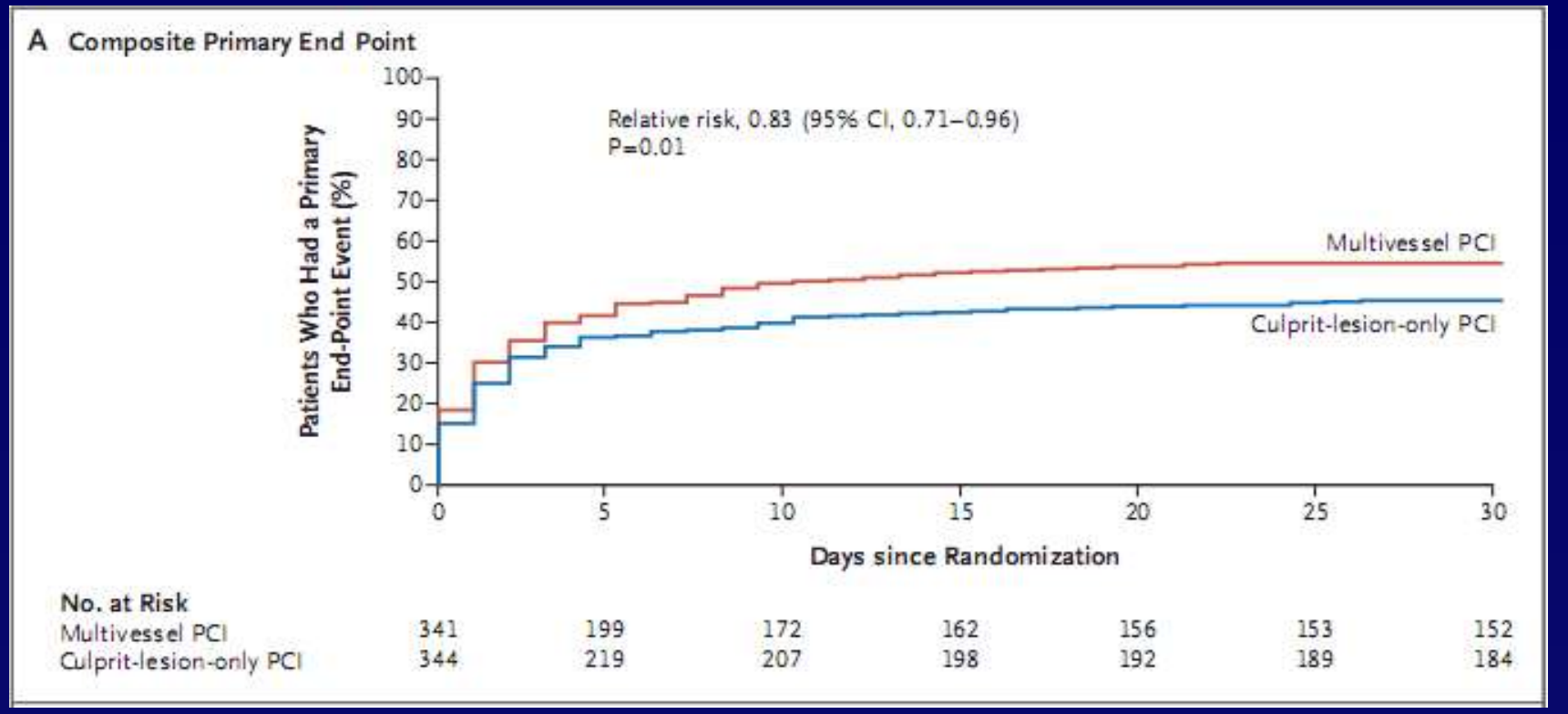
BP: 74/46 mmHG
HR: 96x/mnt

After Stenting



BP: 104/59 mmHG
HR: 88x/mnt

- PCI Strategies in Patients with Acute Myocardial Infarction and Cardio genic shock (Culprit-Shock Trial). Thiele. H, et.al., 2017



Composite end point : death from any cause dan renal replacement therapy

Among patients who had multivessel CAD and AMI with cardiogenic shock, the 30-day risk of a composite of death or severe renal failure leading to renal-replacement therapy was **lower** among those who initially underwent PCI of the culprit lesion only than among those who underwent immediate multivessel PCI.

Guidelines

ESC

- Guideline STEMI 2017

Recommendations	Class[a]	Level[b]
Immediate PCI is indicated for patients with cardiogenic shock if coronary anatomy is suitable. If coronary anatomy is not suitable for PCI, or PCI has failed, emergency CABG is recommended.[248]	I	B
Complete revascularization during the index procedure should be considered in patients presenting with cardiogenic shock.	IIa	C

AHA

- Guideline STEMI 2013 dan 2015

2013 Recommendation	2015 Focused Update Recommendation
Class III: Harm	*Class IIb*
PCI should not be performed in a noninfarct artery at the time of primary PCI in patients with STEMI who are hemodynamically stable (11–13). (*Level of Evidence: B*)	PCI of a noninfarct artery may be considered in selected patients with STEMI and multivessel disease who are hemodynamically stable, either at the time of primary PCI or as a planned staged procedure (11–24). (*Level of Evidence: B-R*)

- Appropriatness criteria PCI in ACS

Succesful treatment of the culprit artery by Primary PCI followed by immediate revascularization of 1 or more nonculprit arteries during the same procedure : cardiogenic shock (A)

Medication during hospitalization:

- Dobutamin 5 meq/kg/min
- NTG low dose
- ISDN 3x5 mg
- Carvedilol 2x6.25 mg
- Candesartan 1x8 mg
- Ticagrelor 2x90 mg
- Aspilet 1x1
- Cordarone 1x100 mg
- Trimethazidine 2x1
- Spironolactone1x25 mg
- Ivabradine 2x5 mg
- Furosemide 1x20 mg iv

→ Several months ago patient came to my outpatient clinic and reported that he was able to do bycycling > 10 km !!!

Take Home Messages

- Early revascularization with IABP support is the best option in very high risk STEMI patients complicated with unstable hemodynamic and severe arrhytmia
- Early PCI in culprit lesion only (+ other significat/critical, but simple, lesion) → is a reasonable approach
- Scoring balloon is may be useful in moderately calcified and diffuse disease to prepare the lesion and keep the branches open
- Choose a shorter stent (less resistanance) to be implanted at distal lesion in diffusely disease