





# High risk PCI of LM bifurcation with poor LVEF

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#### Disclosure

• I (Thanawat Suesat MD) DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.



# (T) 1991

## 89 y/o woman, ICU nurse 's mother

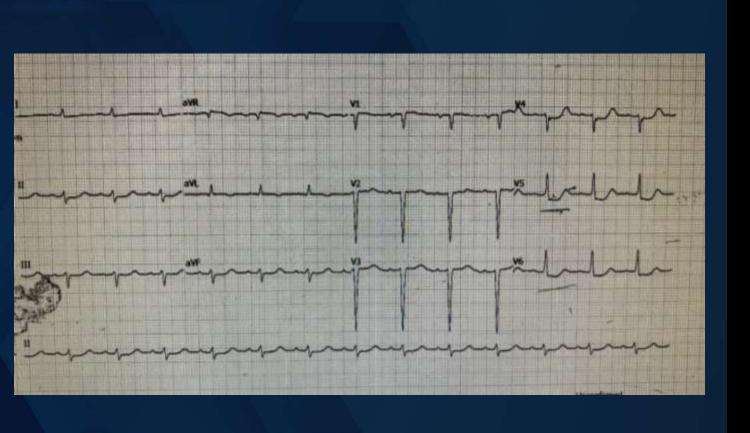
- chest pain and dyspnea for 1 day BP150/90 , RR 26 , HR 86 BW 45 kg
- Recurrent CHF 4 times in 6 month
- ESRD on regular HD 3/week
- COPD,DM,HT
- DCM/ ICM EF = 22 % with global hypokinesia, Mild MR, TR and AR
- previously refused to CAG
- and only medical Rx @CHF clinic





# **ECG** and Echo









#### **LAB**

#### **Medication**



- BUN 56 Cr 5.94
- Hct 22 % , WBC 10,200 , plt 100,300
- K = 4.6
- serum albumin 3.3
- Trop T 307 ng/L

• DX. NSTEMI with CHF ICM ESRD

ASA, clopidogrel Entresto Bisoprolol

Atorvastatin

**ISDN** 

Sodamint ,folic

Lasix

Enoxaparin

Calcium tab

Bronchodilator

Insulin

















## **Coronary angiogram**

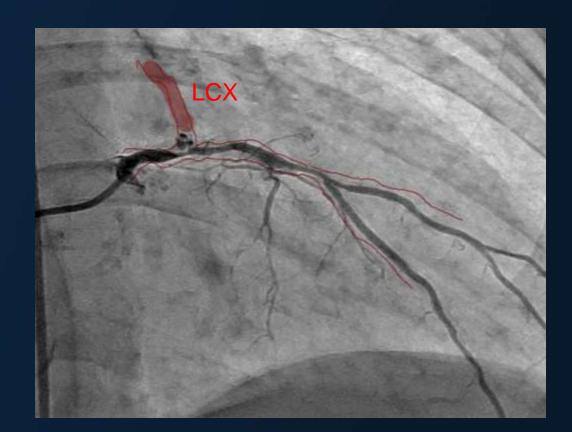
LM: calcification, 90 % distal LM stenosis (medina 1,1,1)

LAD: calcification, 80 % ostial LAD, 70 % mid LAD stenosis

LCX: calcification, 100 % ostial LCX minimal bridging collateral

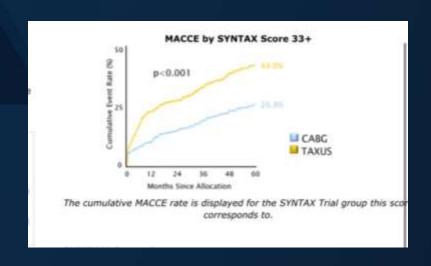
RCA: non significant stenosis

LVEDP = 30 mmHg



# High SYNTAX and High STS score

#### SYNTAX Score I Lesion 1 (segment 5): 6x2= Bifurcation Type: Medina 1,1,1: Length >20 mm Heavy calcification 17 Sub total lesion 1 Lesion 2 (segment 6): 3.5x2= Length >20 mm Heavy calcification Sub total lesion 2 Lesion 3 (segment 7): 2.5x2= Length >20 mm Heavy calcification Sub total lesion 3 Lesion 4 segment number(s) 12.5 (segment 11): 2.5x5= Age T.O. is yes + Blunt stump the first segment beyond the T.O. visualized by + sidebranch: Yes, all sidebranches >=1.5mm Bifurcation Type: Medina 1,1,1: Heavy calcification 19.5 Sub total lesion 4 TOTAL: 54.5

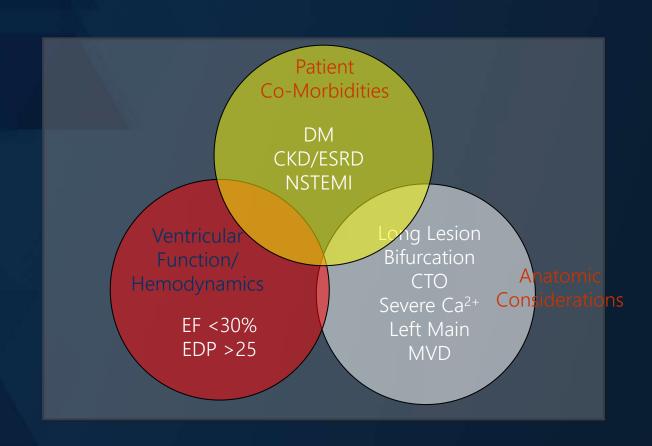


SYNTAX 54.5 STS SCORES 54.92 % STS Adult Cardiac Surgery Database Version 4.20 **RISK SCORES** Procedure: Isolated CAB CALCULATE Risk of Mortality: 54.920% Renal Failure: NA Permanent Stroke: 3.355% Prolonged Ventilation: 88.470% DSW Infection: 0.312% Reoperation: 18.324% Morbidity or Mortality: 90.048% Short Length of Stay: 0.778% Long Length of Stay: 75.303% CLEAR PRINT Details of Selected Field:











#### Heart team conference



- octogenarian, 89 year old, frailty
- multiple underlying disease (DM,HT,COPD, ESRD)
- VIP ( our ICU nurse 's mother )
- poor LVEF
- Complex LM bifurcation
  - calcified lesion
  - CTO ostial LCX with ambiguous
- → Surgical turndown
- → very high risk to PCI
- refused to Sx and PCI by daughter



#### 2 weeks later



Re admission again with NSTEMI and CHF

Patient 's daughter changed decision to angioplasty

cardiac MRI show LVEF = 21.4 %, viable all myocardial segment (7/7 segmennt)



### plan



PCI + LM , LAD +/- LCX (if fail LCX → sacrifice of LCX )

Heavy calcified: Atherectomy or cutting or scoring balloon? → may be

Hemodynamic support ? Low LVEF + CHF only IABP available



#### Case Planning: Hemodynamic support?

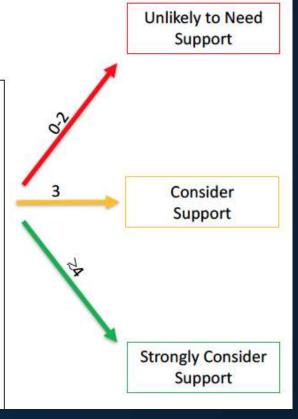


### Protected PCI Algorithm

LVEF <50%: Evaluate Algorithm

#### LVEF <40%: Recommend RHC prior to PCI

- +2 Cardiac Index < 2.0 or PA sat < 55%
- +1 Syntax score ≥ 22
- +1 EF < 25%
- +1 Systolic < 100mmHg at baseline
- +1 ACS presentation
- +1 Planned Revascularization ≥ 2 territories
- +1 Likely Prolonged Ischemia
  - Retrograde CTO
  - Atherectomy
- +1 Severe mitral regurgitation
- +1 Decompensated state
  - LVEDP > 20
  - · Significant new orthopnea
- -1 High risk vascular injury / significant bleeding
- -1 Hemoglobin < 8



Score: 6

- SYNTAX 54
- EF < 25
- Plan revas > 2 territory
- Plan artherectomy
- ACS
- LVEDP > 20 mmHg

Courtesy of Dr. Jame M.McCabe

A Practical Approach to Mechanical Circulatory Support in Patients Undergoing Percutaneous Coronary Intervention

Pre-Shock/Shock

IABP

**Risk Mode** An Interventional Perspective Cardiogenic Shock Cardiac Arrest Severe Shock ROSC NO - ROSC SBP <100mmHg 58P <90mmHg SBP < 90mmHo HR 70-100 HR >100 bpm HR >120 Normal Lactate Lactate >2 Lactate >4 Normal Mentation Altered mental status Obtunded Cool Extremities Cool Extremities **Cool Extremities** CI 2-2.2 CI 1.5-2.0 CI <1.5 PCWP 420 PCWP >20 PCWP >30 LVEDP <20 LVEDP >20 LVEDP >30 CPO >1W CPO «TW CPO < 0.6 W Vasoactive **Vasoactive Medications** Vasoactive Medications 1 moderate-high dose Medications O or 1 law dose

YES

YES

Biventricular Impella

YES

Impella RP or Tandem RVAD

P+CP) or TandemHeart

tion -Heart Failure, Intensive Care

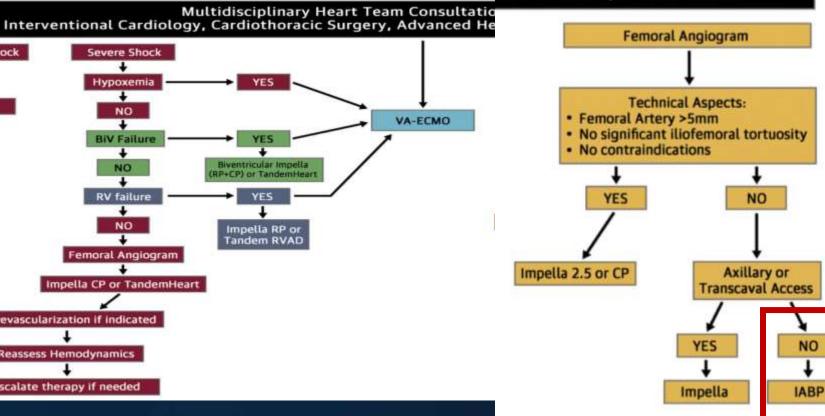
High Risk PCI

UPLMN

Last patent vessel EF <35%

Complex 3VD

Comorbidities - severe AS/MR





Severe Shock

Hypoxemia

NO

**BiV Failure** 

NO

**RV** failure

NO

Femoral Angiogram

impella CP or TandemHeart

Proceed with revascularization if indicated

Reassess Hemodynamics

Escalate therapy if needed



<sup>2,</sup> McCabe, J. CTO PCI in patients with low EF: When to Consider Hemodynamic Support. Presented at CRF CTO Conference, February 2018.



#### PCI to LM-LAD-LCX



 hyper K + bradycardia @ ICU → off BB, Temp pacemaker +extra hemodialysis one day before PCI

#### Day of PCI

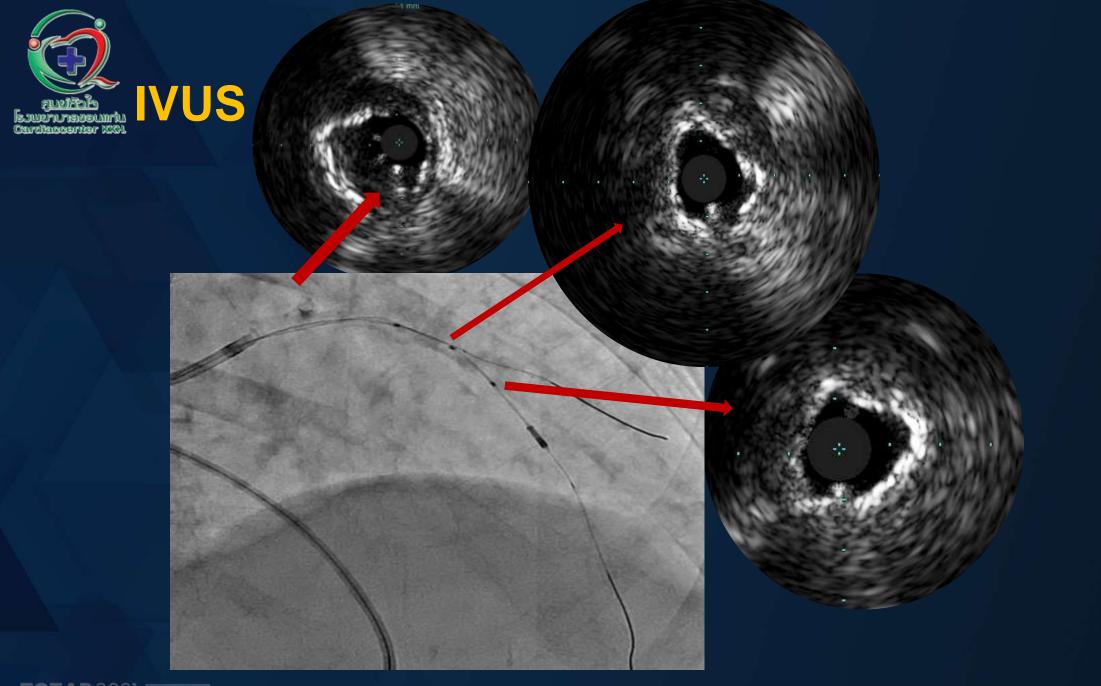
- premed with heparin 100 U/kg
- RFA . 7F EBU 3.5 side hole GD
- LVEDP = 32 mmHg
- IABP via LFA, for hemodynamic supported
- Sion to LAD and DG to LAD and DG



















exchange to rota floppy

Rotablator 1.5 burr 180,000 rpm x 3 run

follow by NSE alpha scoring balloon 3.0 x 13 @ 14atm



# NSE 3.0 x 13 @ 14atm

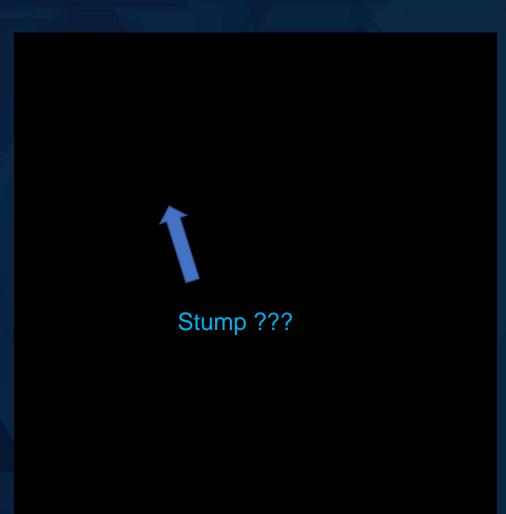






# Try to open LCX





Pilot 50 + Finecross → failed

Pilot 200 + Crusade type R double lumen MC







Injection from MC

Sequential dilated with

Balloon SC 1.5 x 15
Balloon SC 2.0 x 15
Balloon NC 2.5 x 15



# After dilated LCX + IVUS







## Patient was dysnea with agitation



- 50 minutes passed
- crepitation both lung
- on ET tube
- Lasix 80 mg V
- dye 70 ml



# Stent mid LAD ZES 3.0 x 18 overlapped position with ZES 3.5 x 24

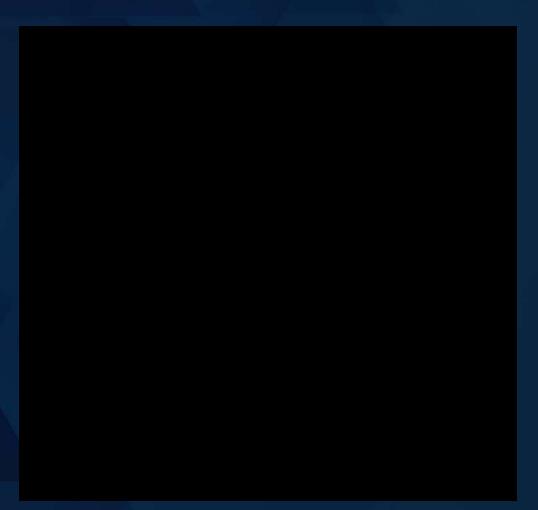




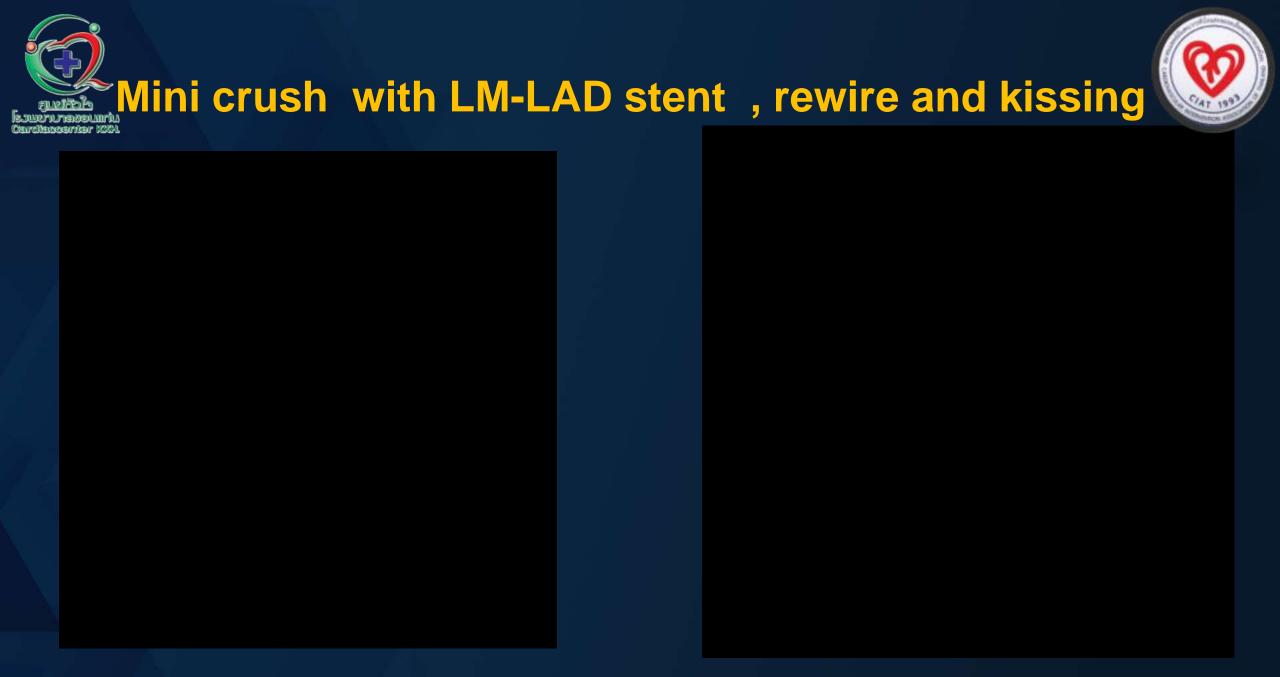


# Position LCX stent and deployed mini crush technique





position LCX stent with ZES 3.0 x 14 ( with Guidezilla guide extension )

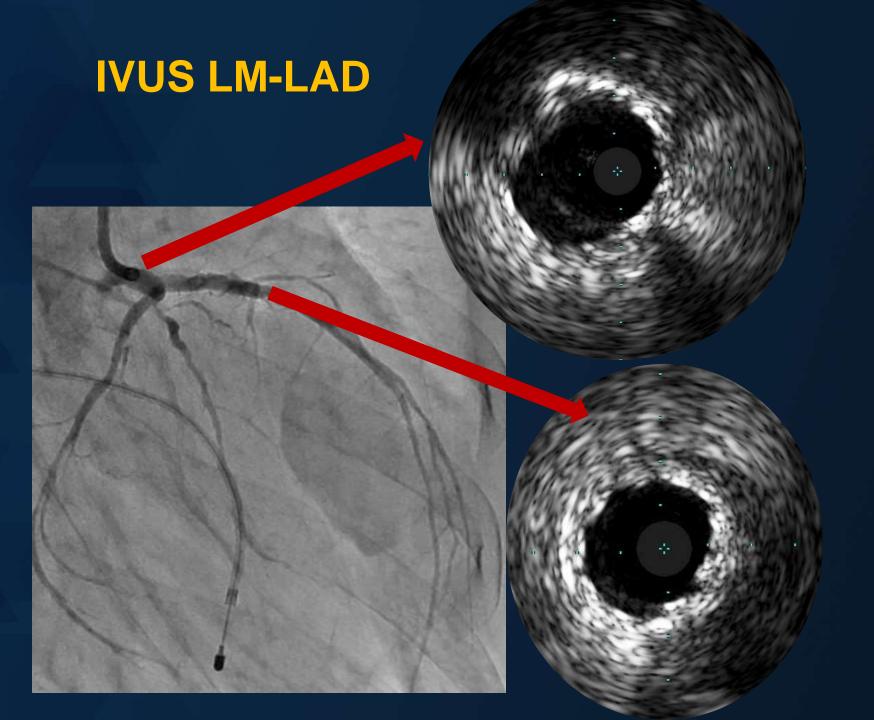




# POT NC with NC 4.0 x 8 and final angiogram



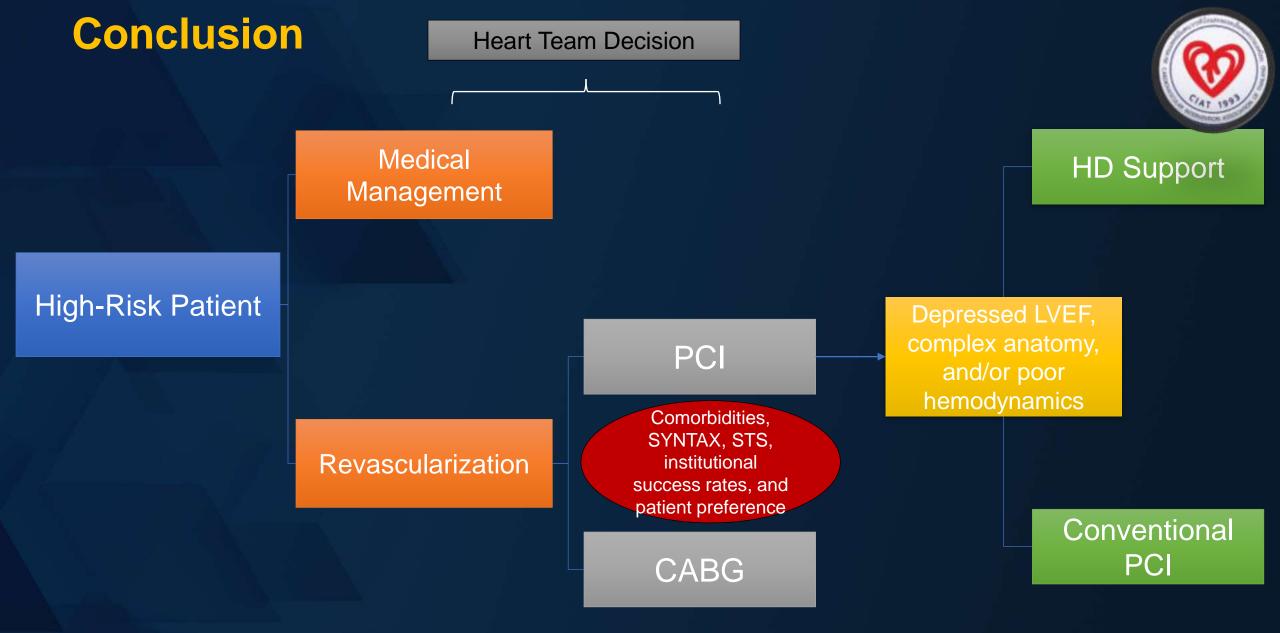






### After procedure

- contrast 100 ml
- 80 minutes procedure time
- off IABP 6 hr after PCI
- Off ET tube 24 hr later
- D/C 3 days after PCI
- Improve symptoms, No cheat pain
- Follow up regular at CHF clinic without readmission for 6 months
   Improve LVEF to 42 %



Approch to CHIP case in my center



# Thank you for your attention



