

Totally coronary revascularization in a nonagenarian with non-ST elevation myocardial infarction and decompensated heart failure

台北心臟醫學研究中心(THI) · 雙和醫院心臟內科
邱淳志

Chun-Chin, Chiu MD

Division of Cardiology,
Taipei Medical University · Shuang Ho Hospital
Taipei Heart Institute
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Conflicts of Interest: Financial Disclosure

- Speaker: Amgen, Astra-Zeneca, Boehringer-Ingelheim, Novartis, Pfizer, Sanofi, Sankyo, Symosa, Takeda and Tanabe.
- Grants or research projects: None
- Stocks: None



Patient Profile

- Mr. Lu, 93 y/o male
- A Retired farmer.
- Family denied systemic disease in the past except for mild dementia.
- Visited our ER on 2018-4-22 for shortness of breath.



Initial lab data (2018-4-22)

- WBC: 7400/ul (Seg 77%), Hb: 13.7g/dl, platelet: 162K/ul
- Cr: 1.44mg/dl, CPK: 236U/L, CK-MB: 9.4ng/ml, troponin-I: 2.11ng/ml, CRP: 4.4mg/dl
- BNP: 1647.9pg/dl



Initial EKG

Patient ID: 06441713

Order Number:

Age:

Sex: O

Name:

Comment:

2018/04/22 22:42:19

Vent rate: 102 BPM

PR int: 143 ms

QRS dur: 99 ms

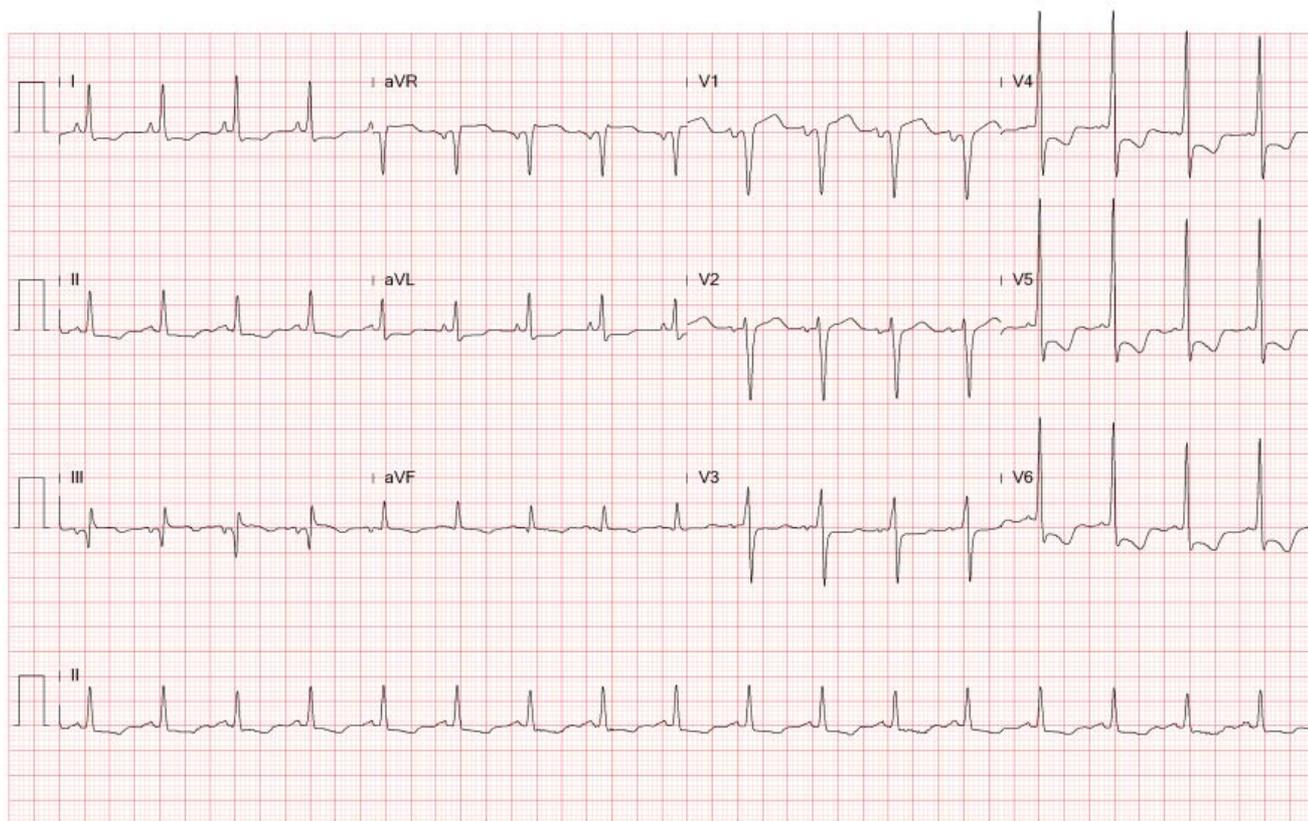
QT/QTc: 355 / 465 ms

P-R-T axes: 34 35 208

Age not entered, assumed to be 50 years old for purpose of ECG interpretation

Sinus tachycardia...rate> 99

LVH with secondary repolarization abnormality...multi-LVH criteria, abnrm ST-T



25mm/s 10mm/mV 40-0.5Hz



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Hospitalized Course

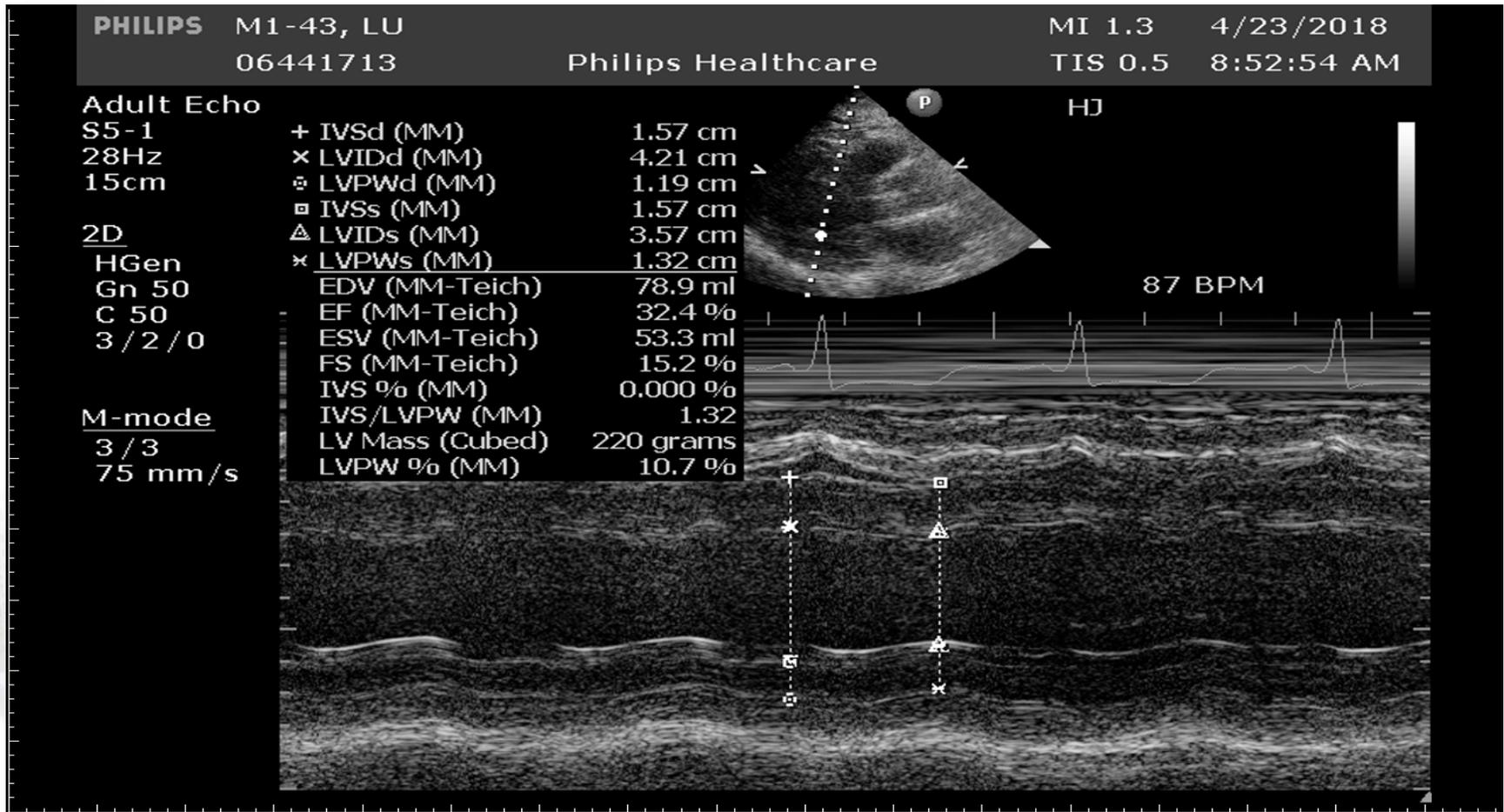
- Admitted to our ICU for NSTEMI and impending respiratory failure.
- Receive endotracheal intubation.
- Bedside echo showed global hypokinesis with systolic dysfunction, LVEF 32.4%.



CXR (2018-4-23)



Echo (2018-4-23)

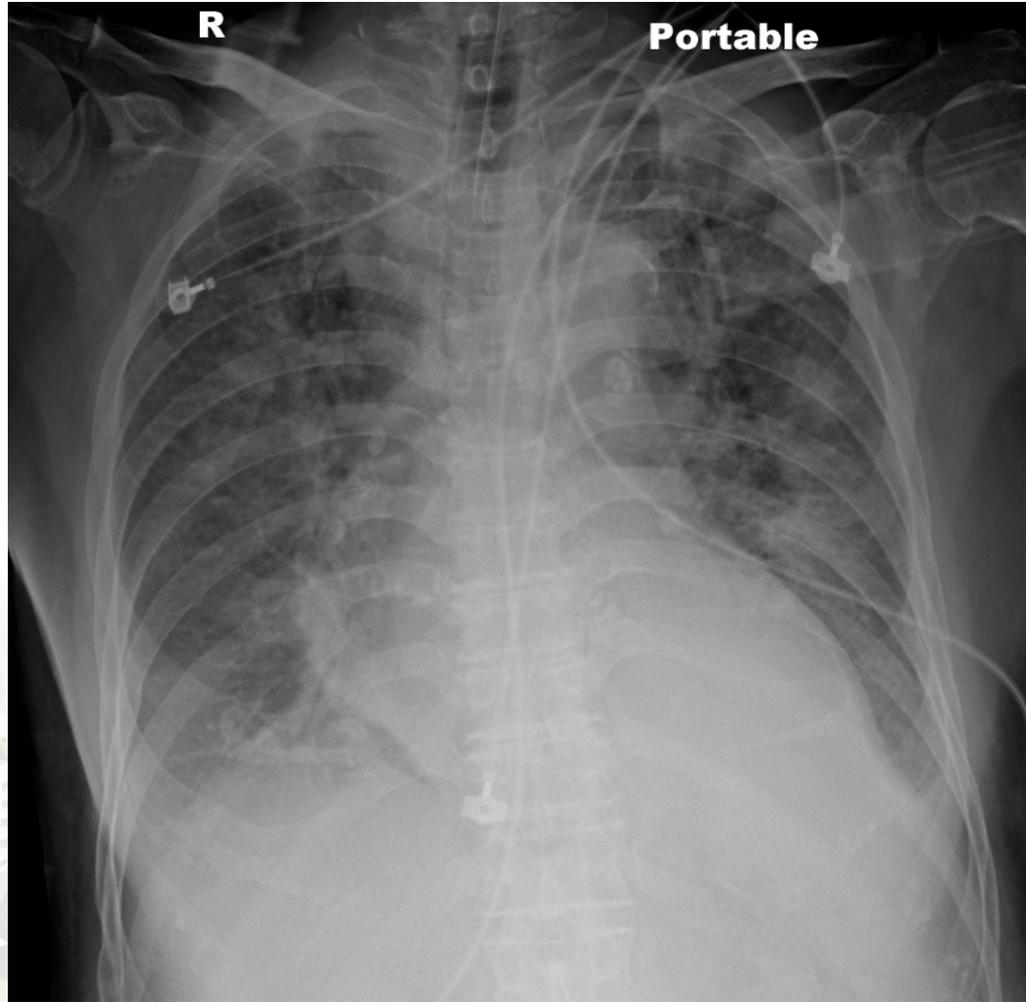


Hospitalized Course

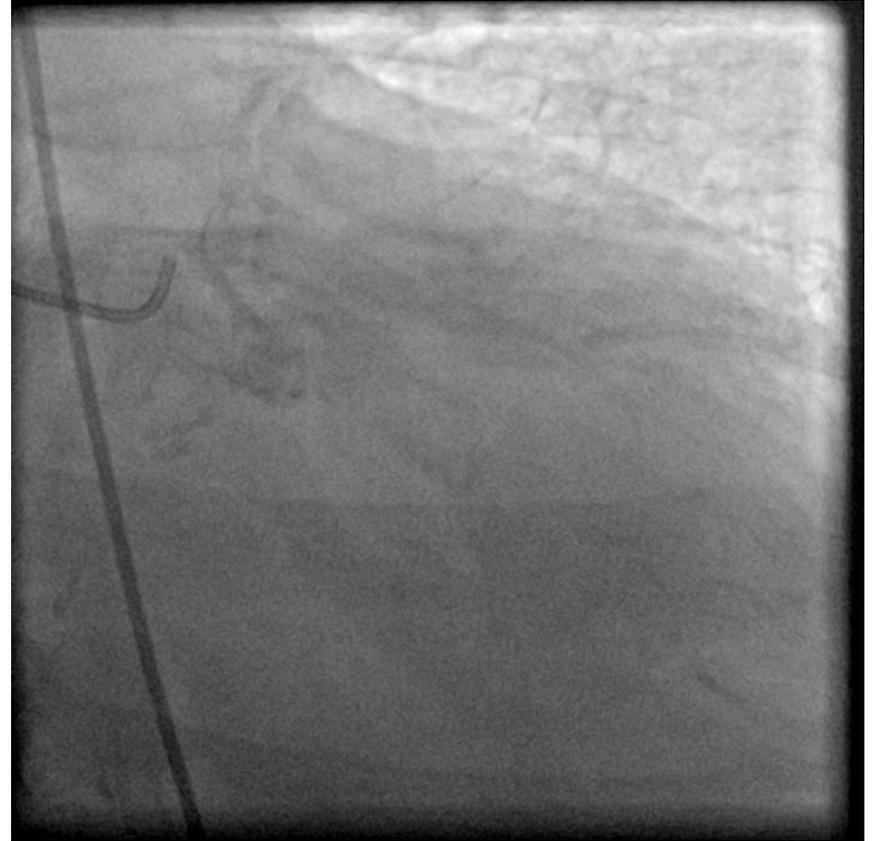
- Dual-antiplatelet with aspirin and ticagrelor, low-molecular heparin, furosemide and statin were prescribed
- Peak CK were 820 U/L.
- Therefore, pulmonary edema persisted despite use of diuretics and difficulty of weaning was noted.
- Family agreed with CAG after discussion with them.



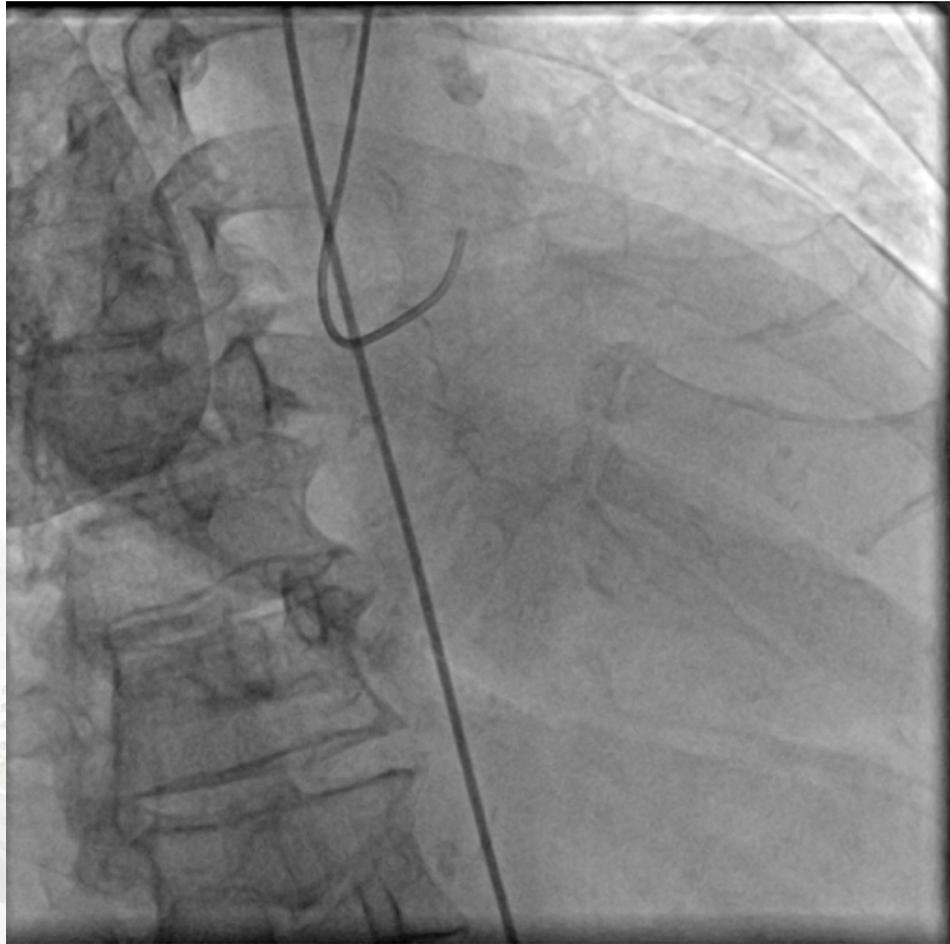
Difficulty of weaning (2018-4-26)



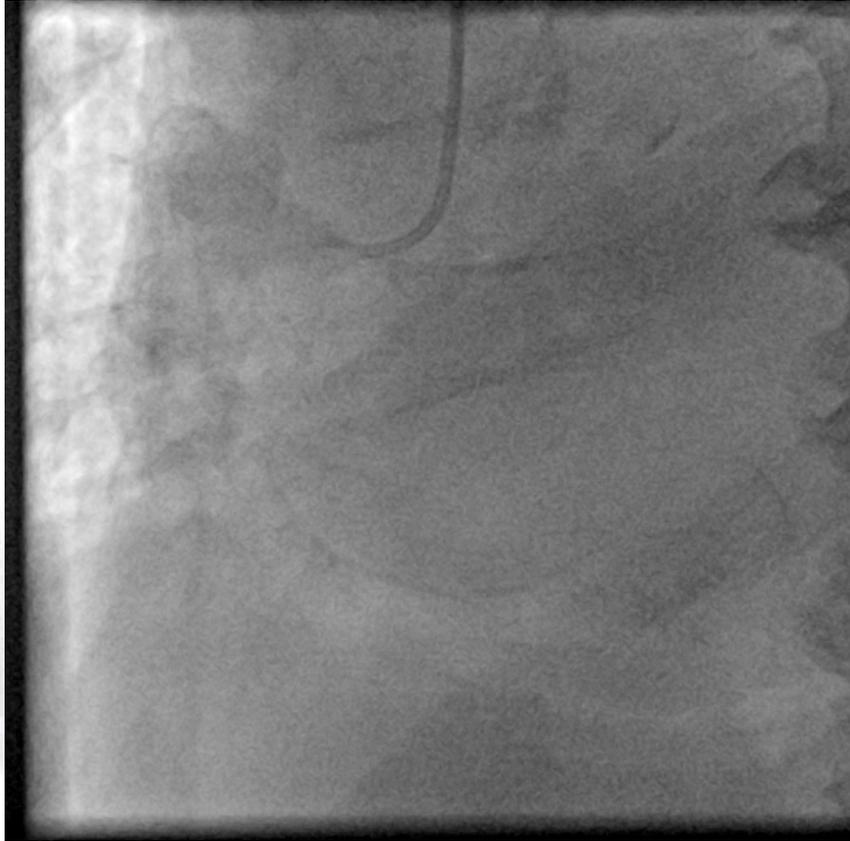
CAG (2018-4-26)



CAG (2018-4-26)



CAG (2018-4-26)



- CAG via 7Fr sheath from right femoral artery showed triple-vessel-disease.
- CABG is recommended.
- Therefore, family refused CABG after cardiovascular surgeon consultation.



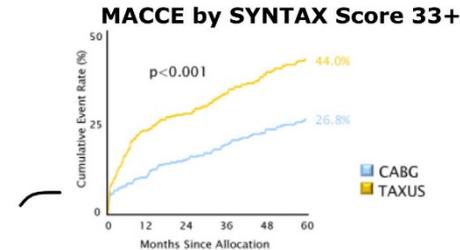
Options

- CABG
- PCI
- Optimal medical treatment with IABP support



Syntax score

- Syntax score I: 36
- Syntax score II
 - PCI: 62.8
 - CABG: 53.7



The cumulative MACCE rate is displayed for the SYNTAX Trial group this score corresponds to.

SYNTAX Score II

SYNTAX II

Decision making -between CABG and PCI- guided by the SYNTAX Score II to be endorsed by the Heart Team.

PCI

SYNTAX Score II: 62.8
PCI 4 Year Mortality: 66.9 %

CABG

SYNTAX Score II: 53.7
CABG 4 Year Mortality: 40.2 %

Treatment recommendation : CABG or PCI



Euroscore II

EuroSCORE II: 19.14% (but only 21 patients in study group >90y)

Patient related factors			Cardiac related factors		
Age ¹ (years)	<input type="text" value="93"/>	<input type="text" value="0.97"/>	NYHA	<input type="text" value="IV"/>	<input type="text" value=".5597929"/>
Gender	<input type="text" value="male"/>	<input type="text" value="0"/>	CCS class 4 angina ⁸	<input type="text" value="no"/>	<input type="text" value="0"/>
Renal impairment ² <i>See calculator below for creatinine clearance</i>	<input type="text" value="moderate (CC >50 & <85)"/>	<input type="text" value=".303553"/>	LV function	<input type="text" value="moderate (LVEF 31%-50%)"/>	<input type="text" value=".3150652"/>
Extracardiac arteriopathy ³	<input type="text" value="no"/>	<input type="text" value="0"/>	Recent MI ⁹	<input type="text" value="yes"/>	<input type="text" value=".1528943"/>
Poor mobility ⁴	<input type="text" value="no"/>	<input type="text" value="0"/>	Pulmonary hypertension ¹⁰	<input type="text" value="moderate (PA systolic 31-55 mmHg)"/>	<input type="text" value=".1788899"/>
Previous cardiac surgery	<input type="text" value="no"/>	<input type="text" value="0"/>	Operation related factors		
Chronic lung disease ⁵	<input type="text" value="no"/>	<input type="text" value="0"/>	Urgency ¹¹	<input type="text" value="urgent"/>	<input type="text" value=".3174673"/>
Active endocarditis ⁶	<input type="text" value="no"/>	<input type="text" value="0"/>	Weight of the intervention ¹²	<input type="text" value="isolated CABG"/>	<input type="text" value="0"/>
Critical preoperative state ⁷	<input type="text" value="yes"/>	<input type="text" value="1.086517"/>	Surgery on thoracic aorta	<input type="text" value="no"/>	<input type="text" value="0"/>
Diabetes on insulin	<input type="text" value="no"/>	<input type="text" value="0"/>			
EuroSCORE II <input type="text" value="19.14 %"/>					
EuroSCORE II					
Note: This is the 2011 EuroSCORE II					
<input type="button" value="Calculate"/>		<input type="button" value="Clear"/>			

Strategy

- Left coronary artery first.
- Right coronary artery first.
- Provision 1 stent or 2 stents for bifurcation lesions.



How did I treat

- Target lesions: LAD proximal to middle, LCX middle to distal, RCA proximal to middle
- Strategy: LAD and LCX with provisional one stent, then try RCA chronic total occlusion with antegrade approach.

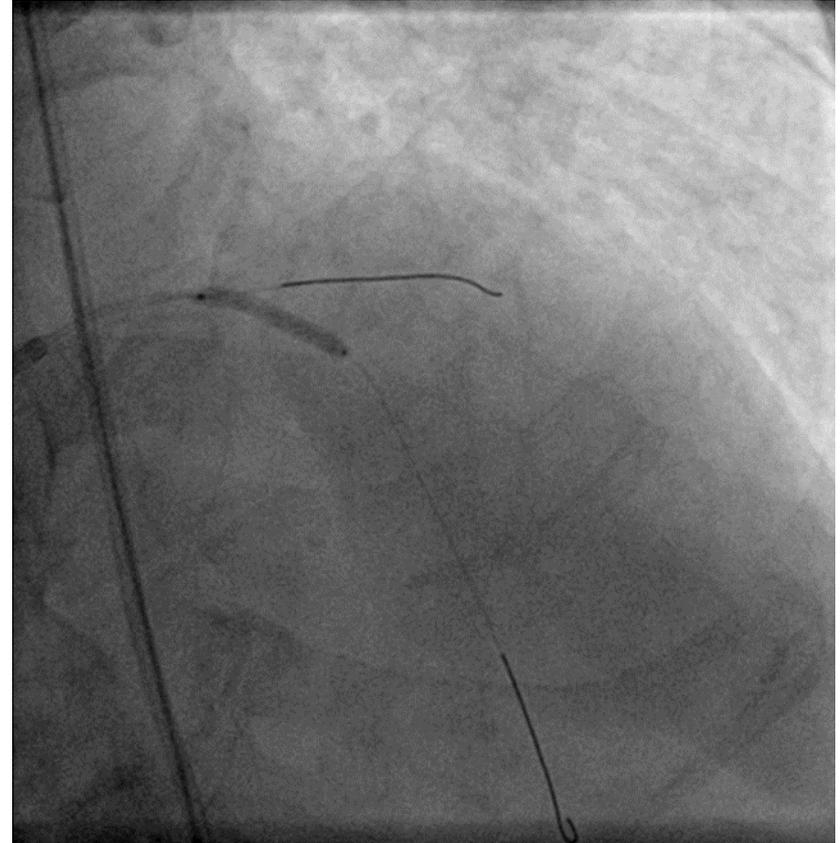
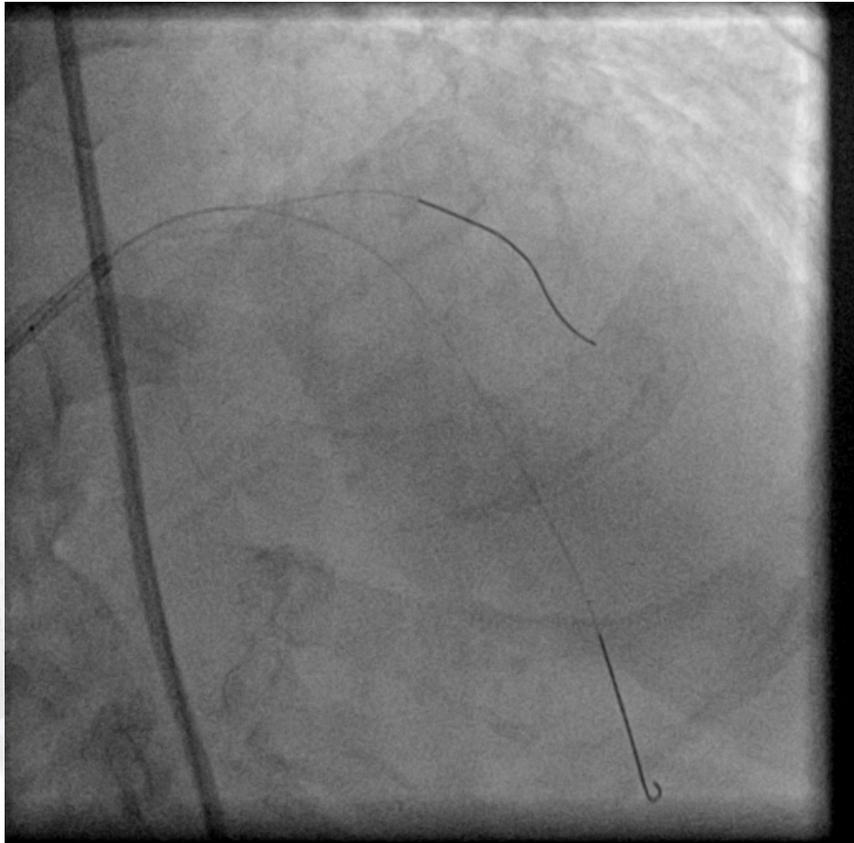


- EBU 3.5/7 GC for LCA lesions.
- Use guidewires with Sion, Sion Blue for main trunk and side branch protection
- DES*2 were deployed at LAD –P to –M, LCX –M to –D (2.5*18mm Biomatrix Neoflex, 2.5*38mm Ultimaster)

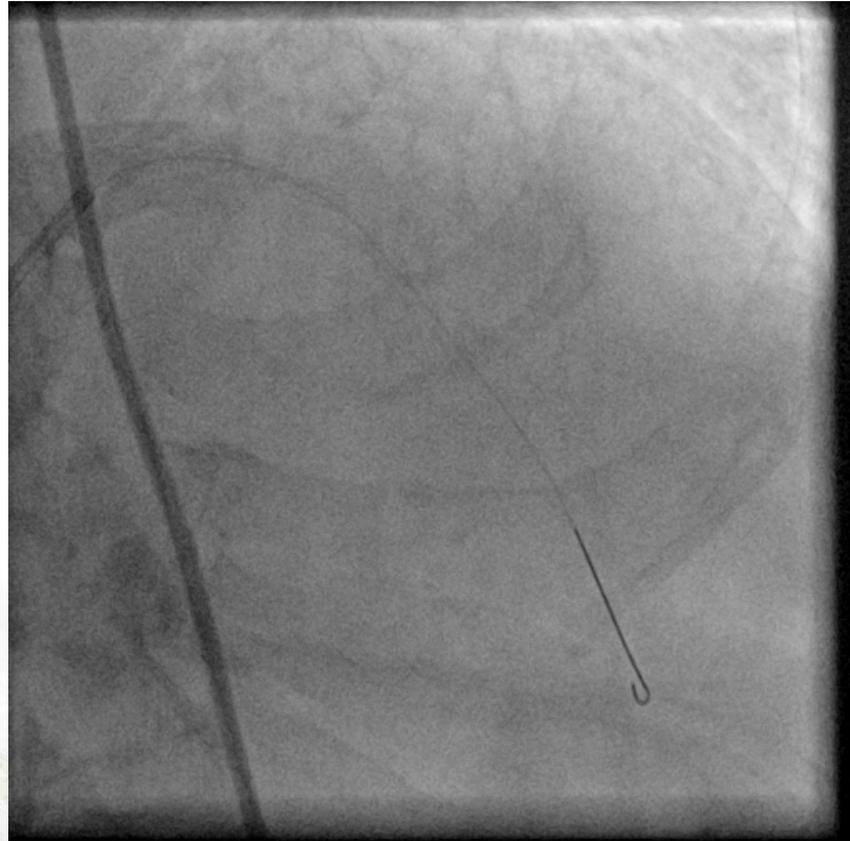


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PCI for LAD

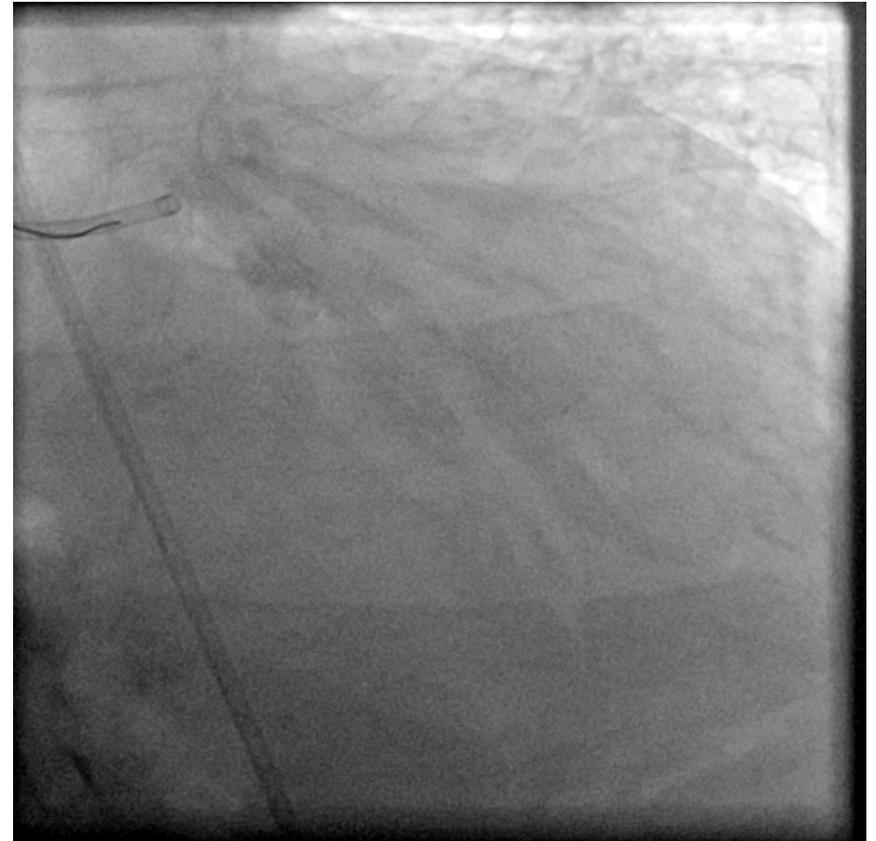
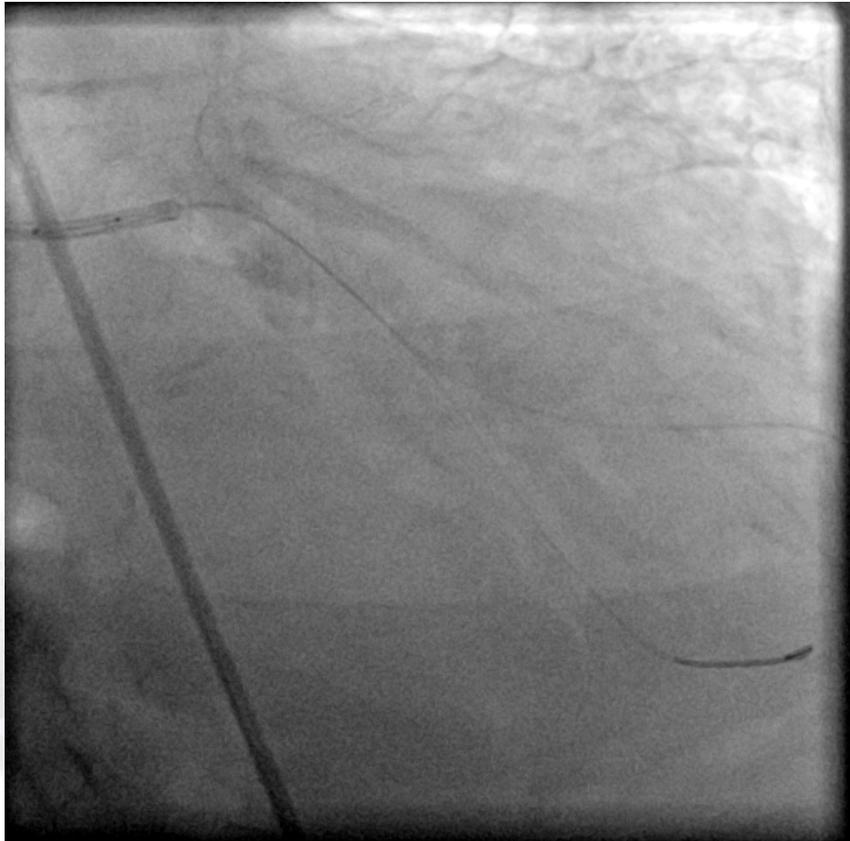


PCI for LAD



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PCI for LCX



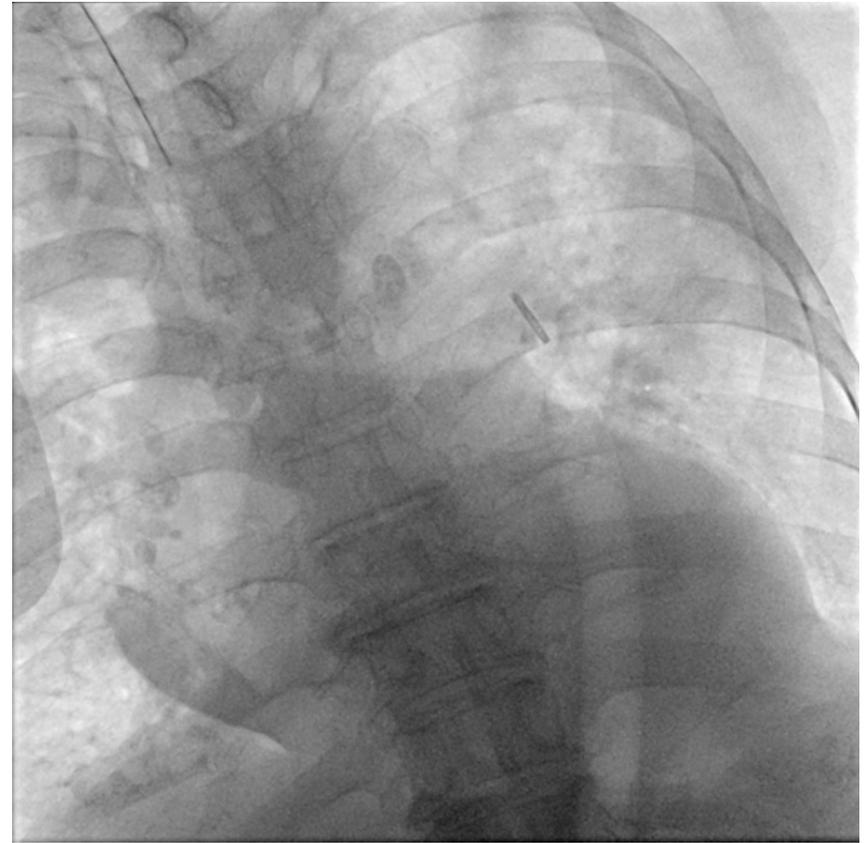
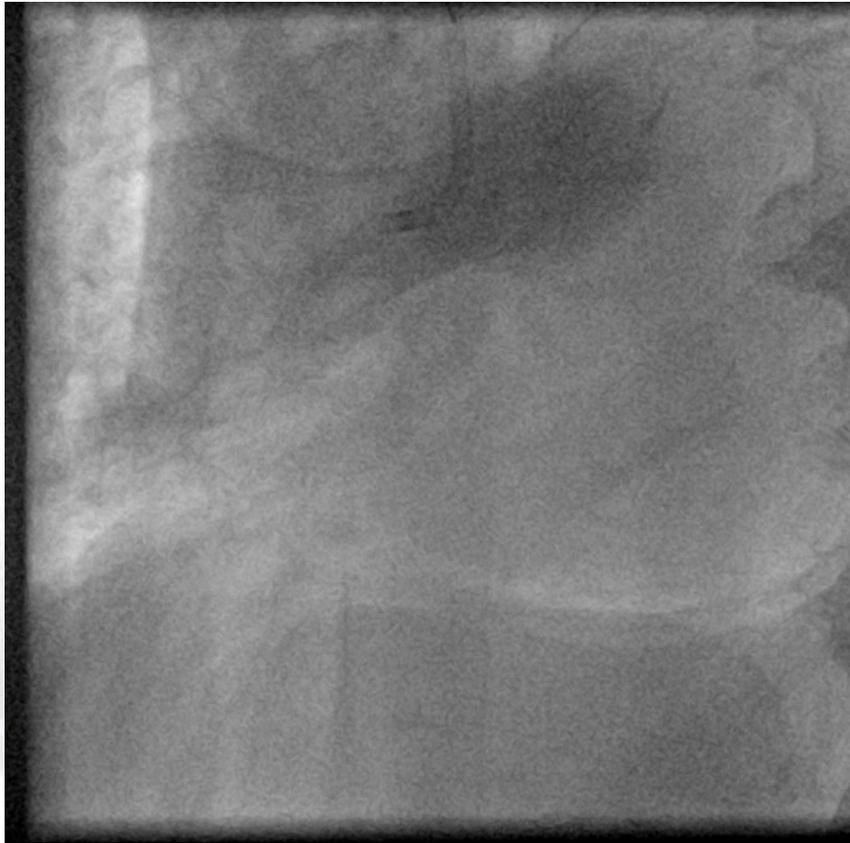
- JR 4/7 GC for RCA lesions.
- Use guidewires with 1.25mmOTW balloon.
- We crossed lesion with XT-A.
- DES*1 was deployed at RCA –P (3.0*18mm Ultimaster).
- IABP placed after total revascularization.



PCI for RCA



PCI for RCA and IABP



Summary

- Contrast use: 260ml.
- Procedure time: 103mins.

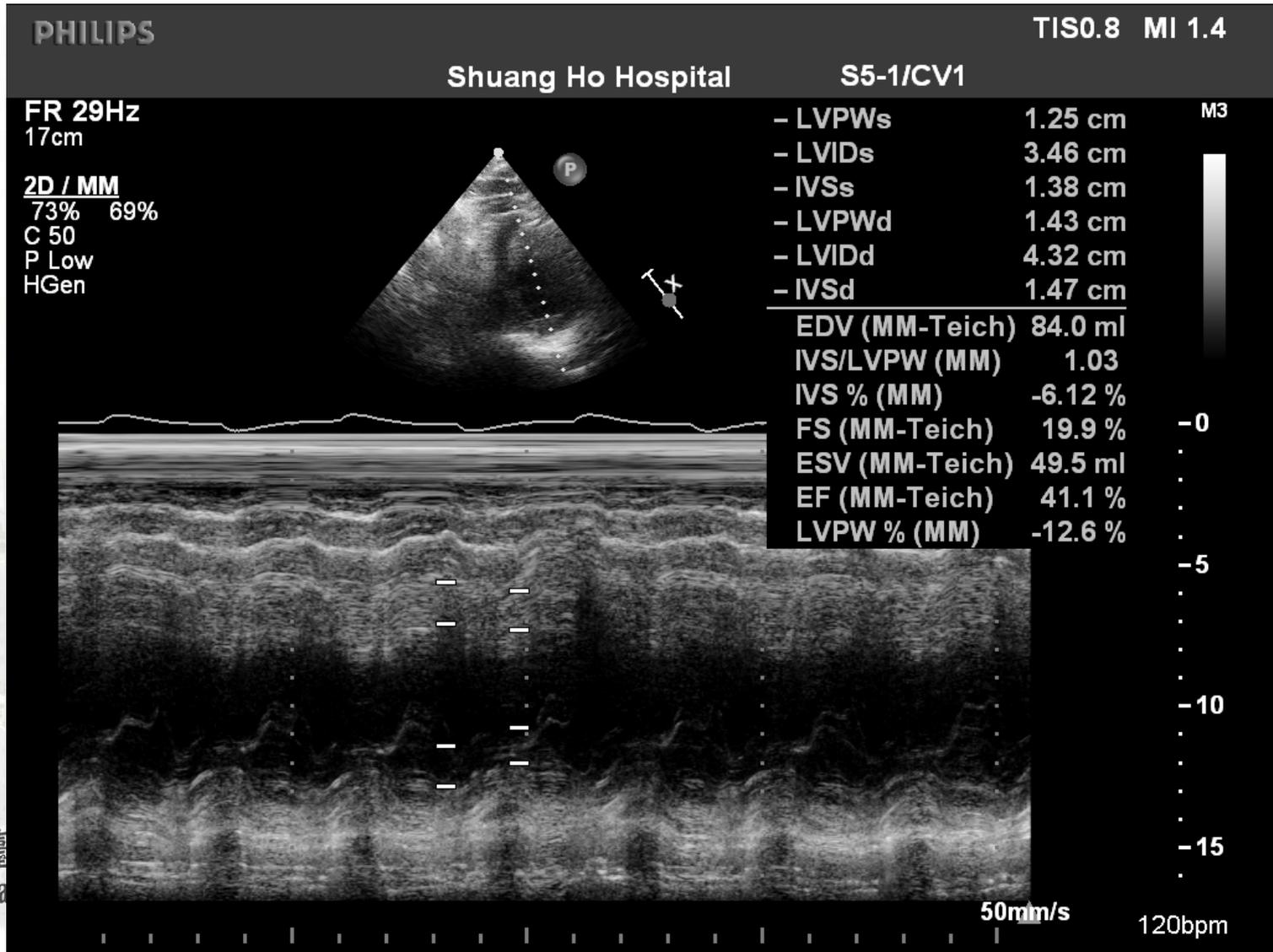


Hospitalized Course

- IABP removed on 2018-5-1. (6 days after procedure)
- Endotracheal tube removed on 2018-5-2.
- Transfer to ward on 2018-5-4.
- No need of hemodialysis.



Echo (2018-5-16)



CXR (2018-6-4)



- Discharged on 2018-6-4. No need of hemodialysis during admission.
- Followed up in CV OPD. O2 supplement is not needed at home.





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With permission of patient's family

- Treatment for nonagenarians with ischemic cardiomyopathy remained a clinical challenge because fragile status and limited evidence.
- In such complicated condition, totally revascularization may be an alternative treatment option to CABG after discussed with heart team.
- Operative risk of nonagenarians may needed further study due to aging population.



**Success is not final, failure is not
fatal: it is the courage to continue
that counts.**

Winston Churchill

 BrainyQuote®



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