



#FullPhysiology

In Daily Practice

DCB and complex PCI: Functional assessment makes it easier

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Clinical Presentation



- Age: 48 y.o.
- Cardiovascular Risk Factors:
 - Hypertension 
 - Former smoker 
 - Family history of CAD

- Past medical History:

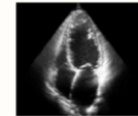
GERD



New onset effort angina



Echo: normal EF, mild IM



Recent medical History:

Coronary CT: significant stenoses of LAD, D2 and IVP



Drugs: PPI, ARBs, Amlodipine





Coronary Artery Angiography



RCA



LCx



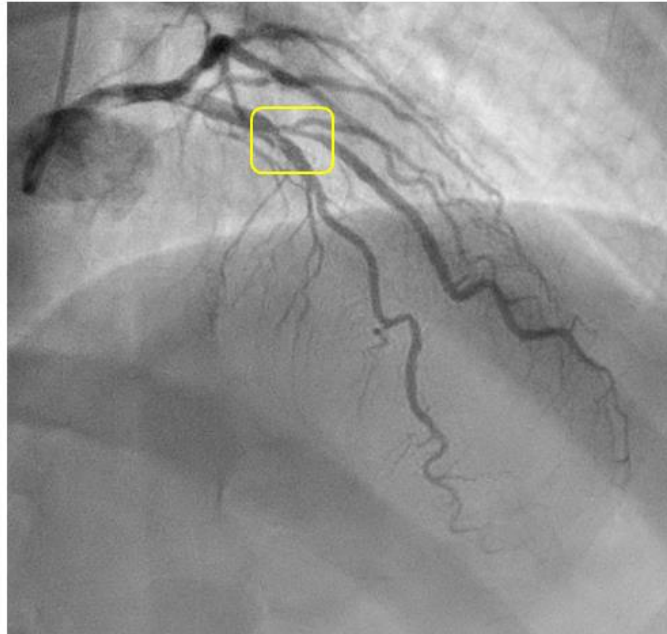
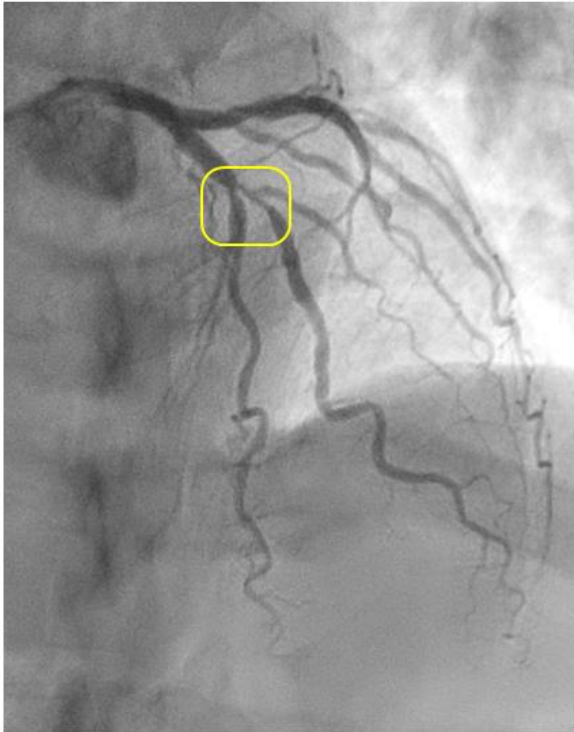
LAD



LAD



Coronary Artery Angiography



- ✓ Dual LAD anatomy: comparable vessels size
- ✓ Bifurcation lesion: Medina 0.1.1
- ✓ Bifurcation angle $< 70^\circ$
- ✓ Long and severe disease

How to perform PCI ?

Single vs Double stent technique?





What is #FullPhysiology assessment

1

Epicardial disease assessment

- NHPR (≤ 0.89)
- cFFR (≤ 0.83)
- FFR (≤ 0.80)



2

Microvascular disease assessment

- IMR (> 25)
- CFR (< 2.0)
- RRR (< 2.0)*

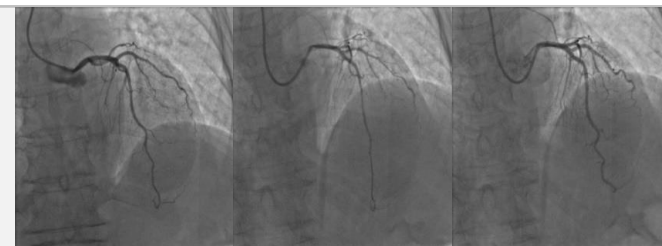
$$*Resistive\ resistance\ ratio = \frac{T_{rm} * P_{dr}}{T_{hm} * P_{dh}}$$



3

Vasomotor testing

- Ach

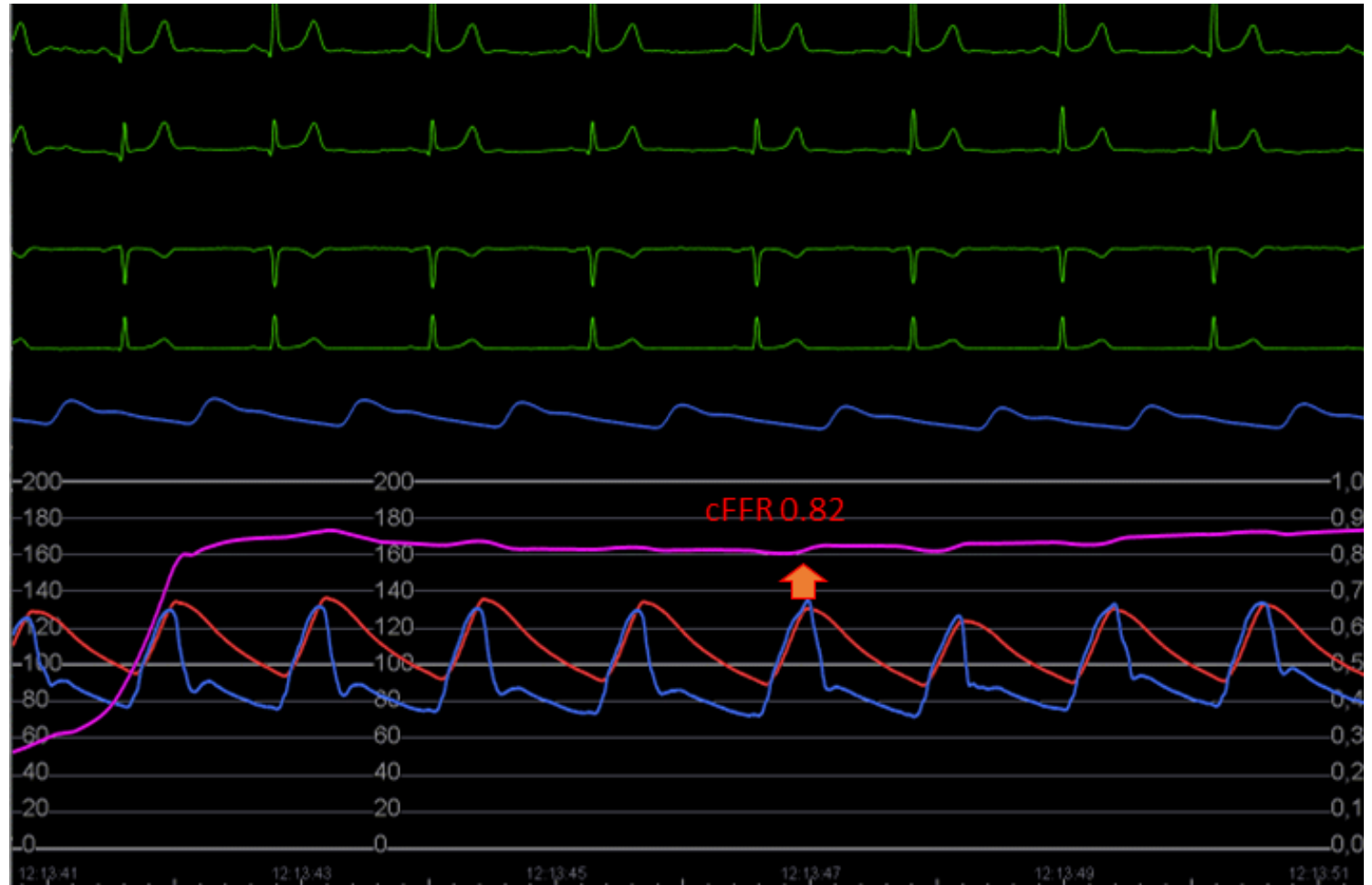
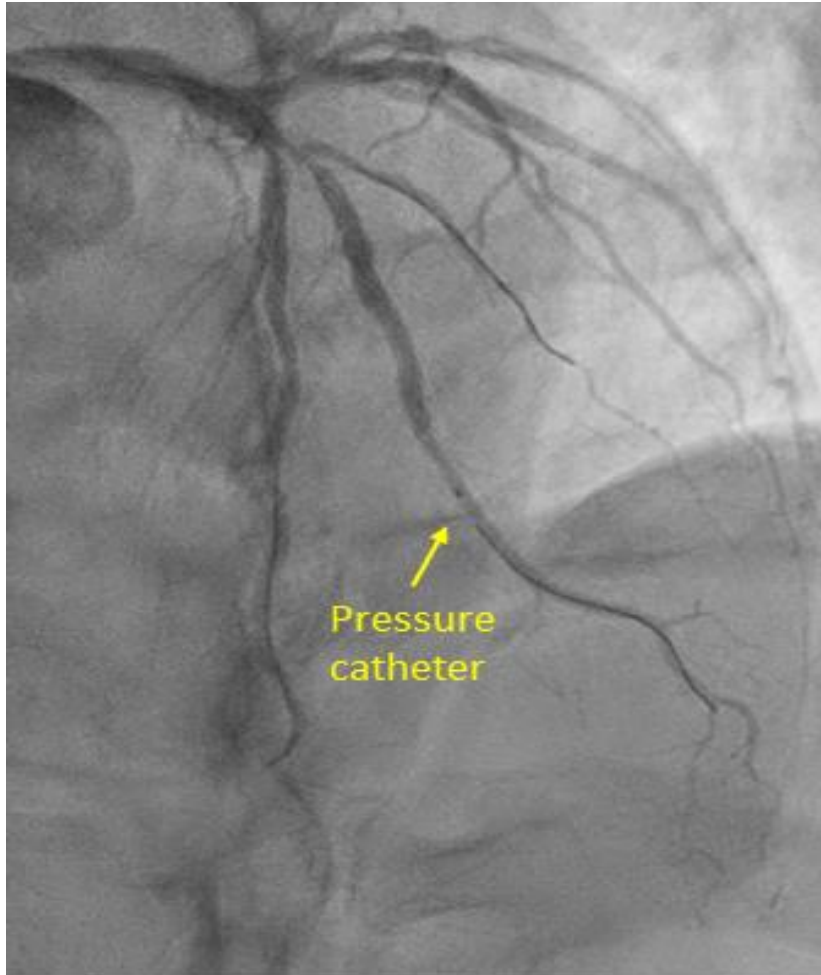


4

Post PCI repeated assessment if applicable



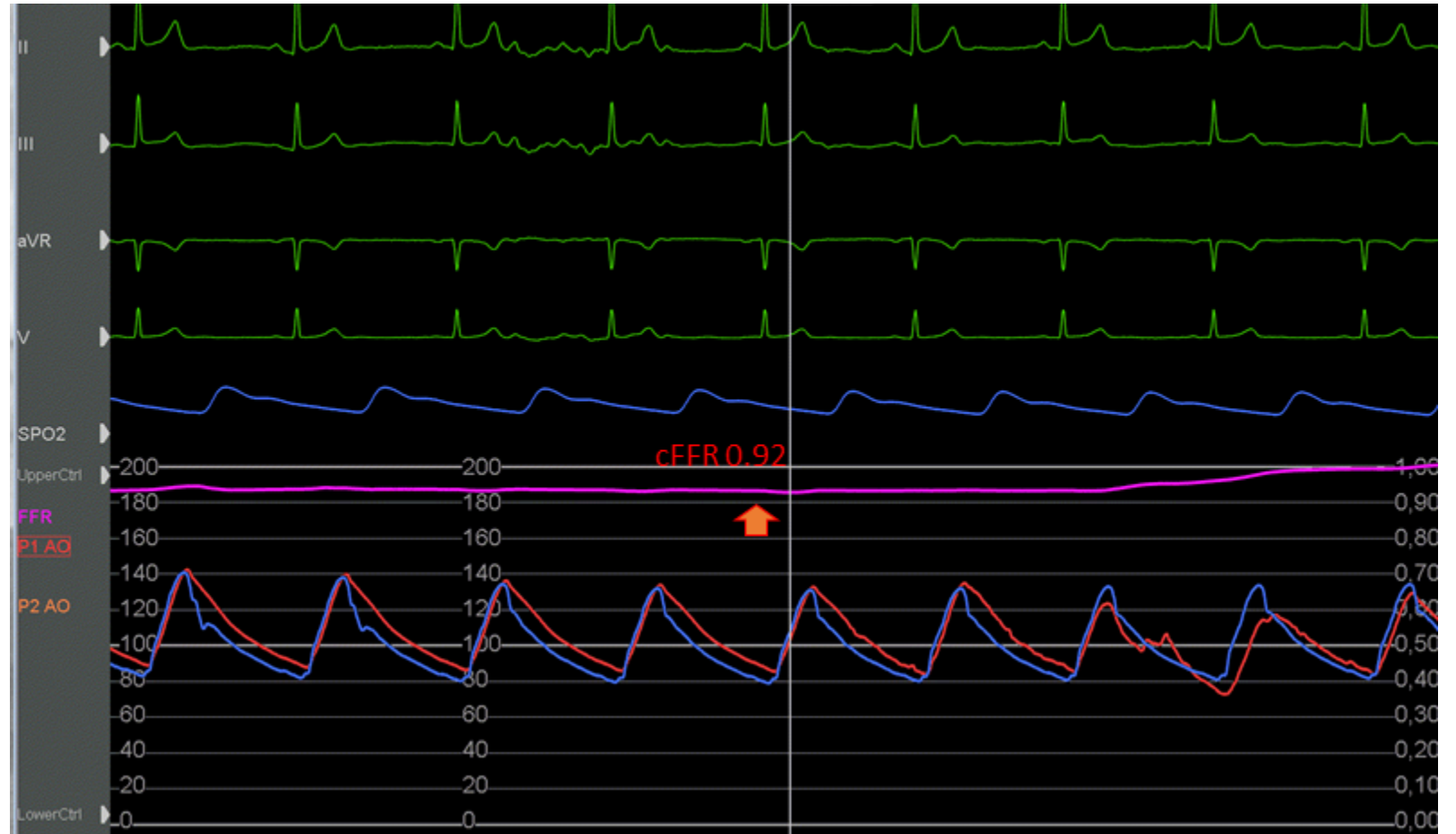
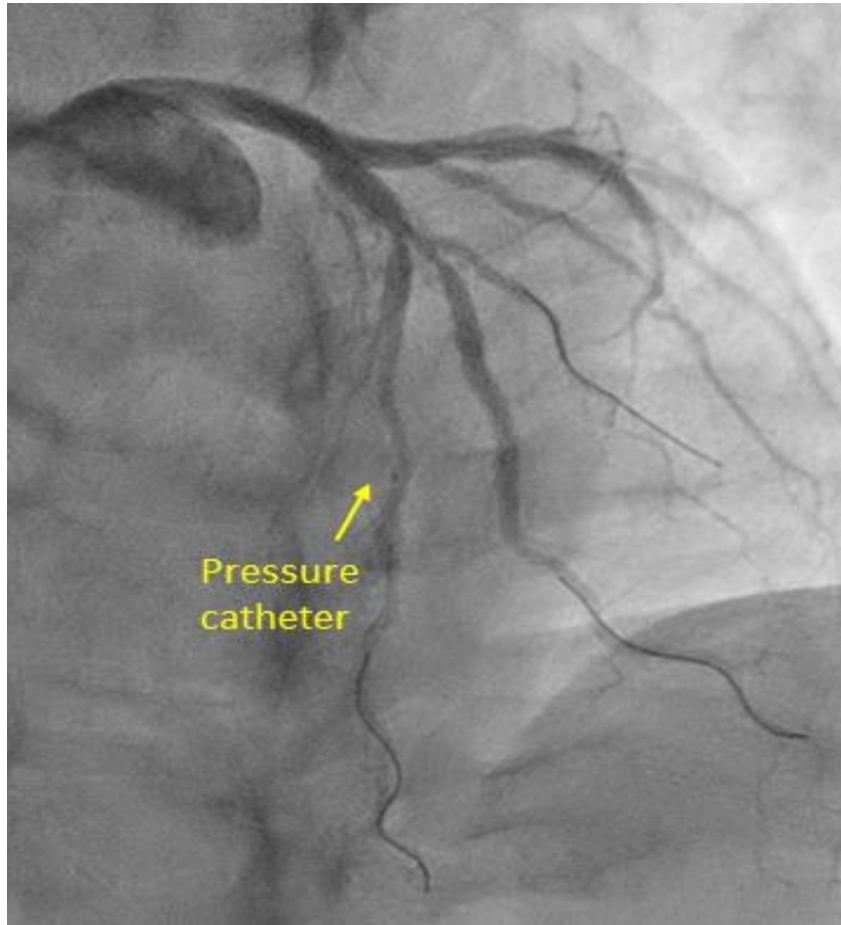
First diagonal (D1)-Functional assessment



Epicardial Flow-limiting stenoses



LAD-Functional assessment



No-Epicardial Flow-limiting stenoses



Coronary Artery Angiography

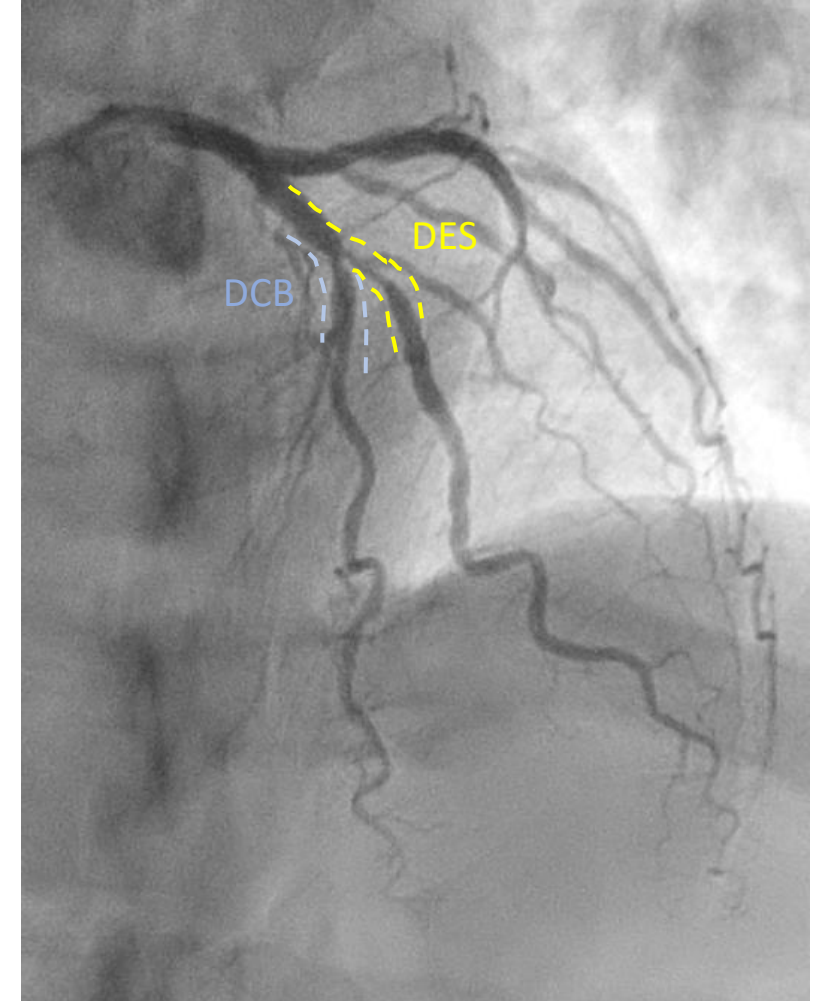
- ✓ D1 physiological assessment: cFFR 0.82 → flow-limiting stenoses
- ✓ LAD physiological assessment: cFFR 0.92 → no flow-limiting stenoses



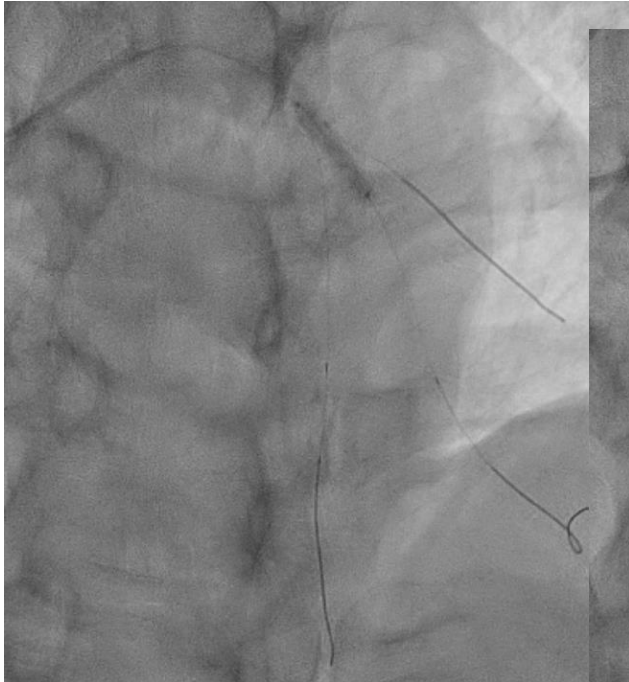
Single stent strategy

DCB on LAD

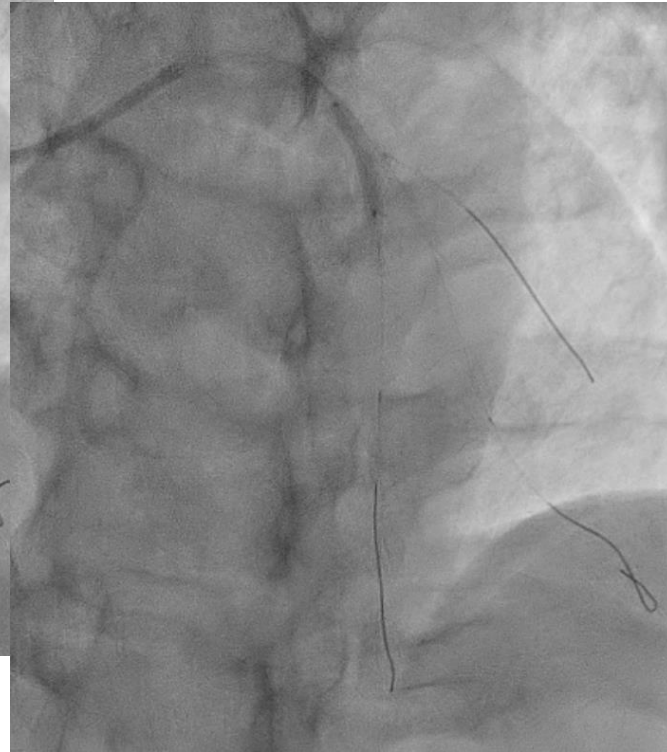
DES on D1



LESION PREPARATION

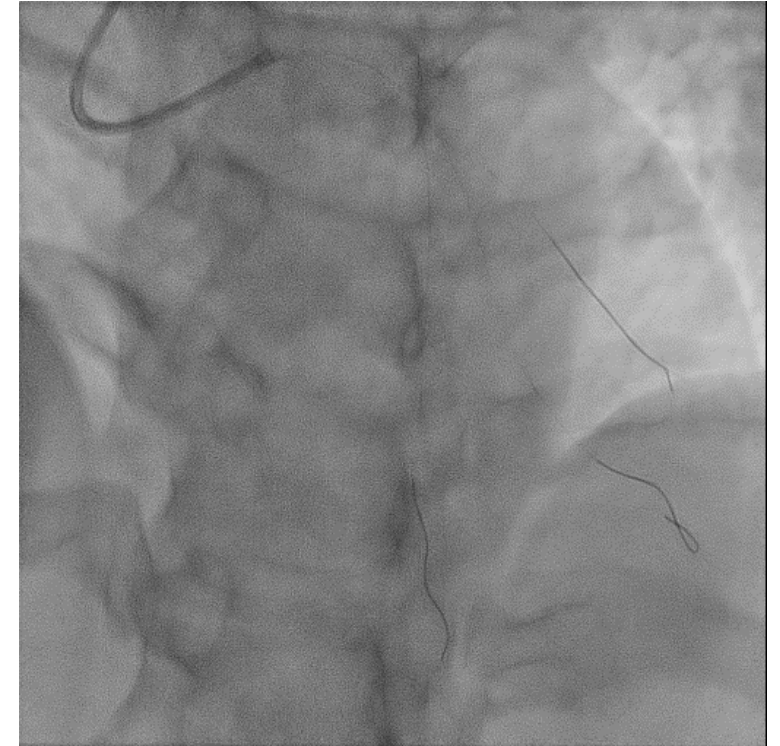


**Pre-dilatation
NC 3.0x20 mm**



**Pre-dilatation
NC 3.0x20 mm**

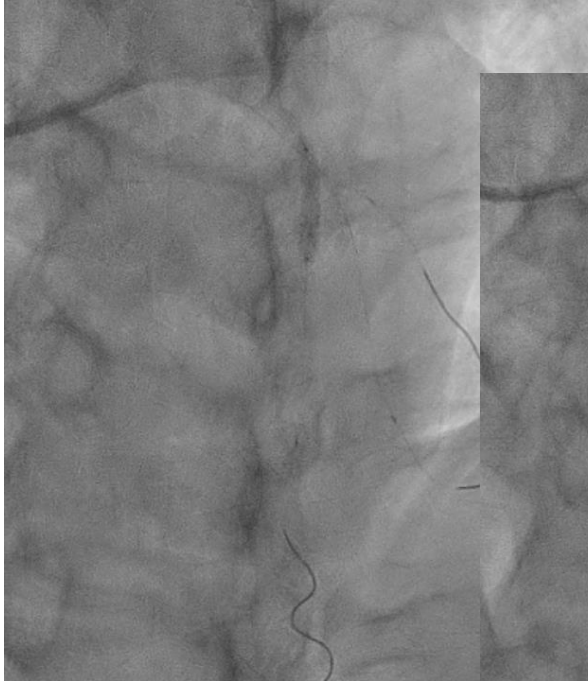
RESULT



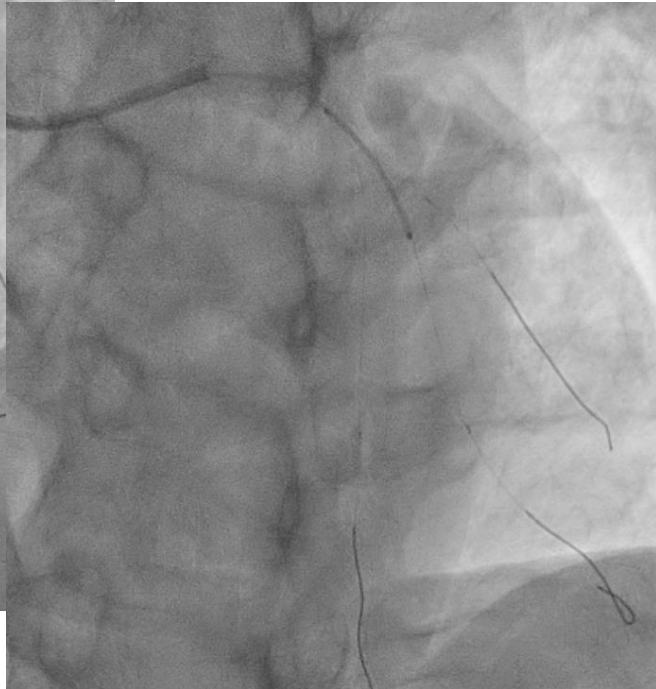
**No dissection
TIMI flow grade 3**



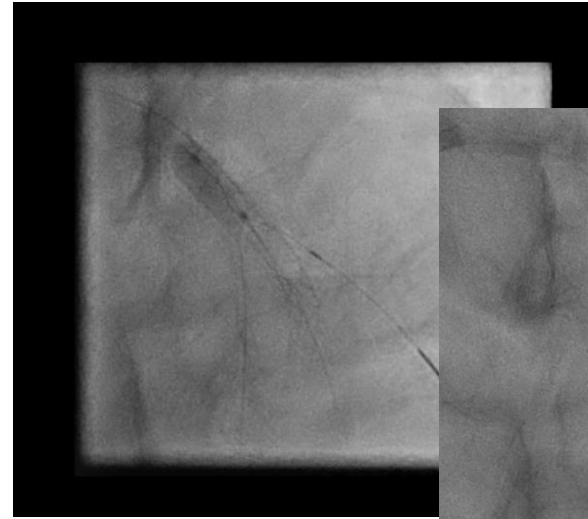
PCI



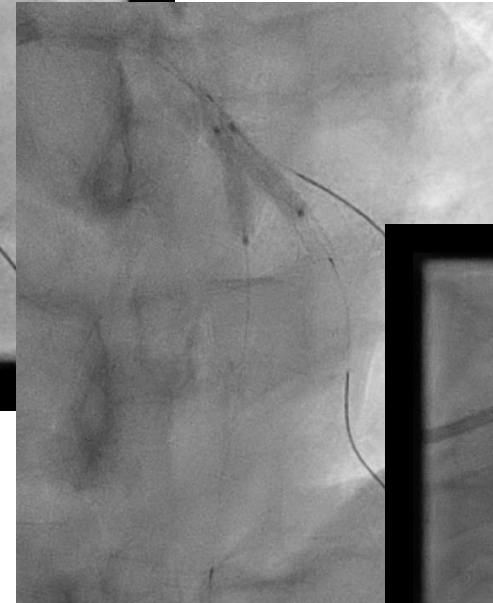
**Paclitaxel DCB
3.0x20mm**



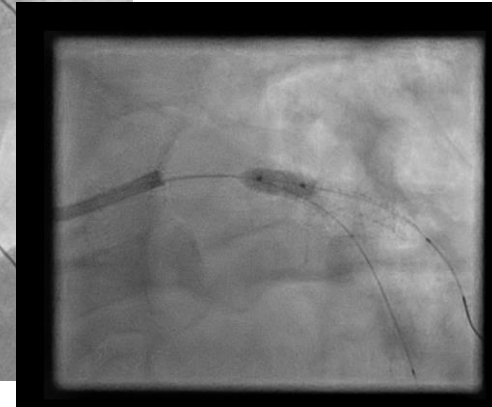
**DES
3.0x28 mm**



**POT
SC 3.75x8 mm**



**Kissing balloon
NC 3.0x15mm and SC 2.75x15mm**



**re-POT
SC 4.0x8 mm**

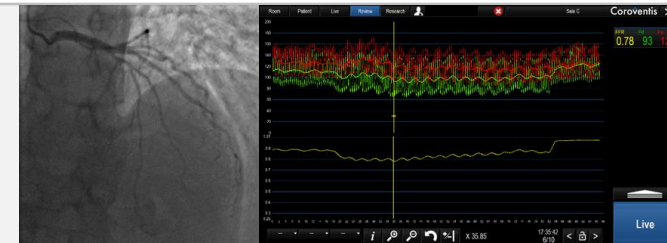


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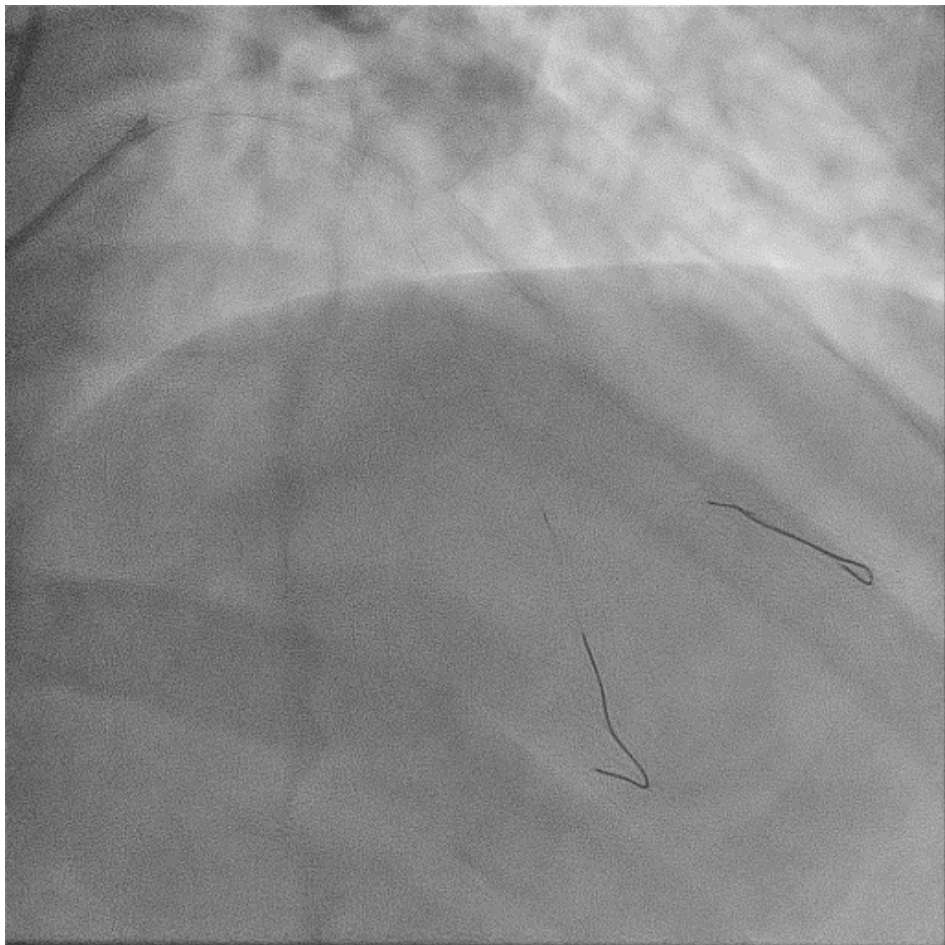
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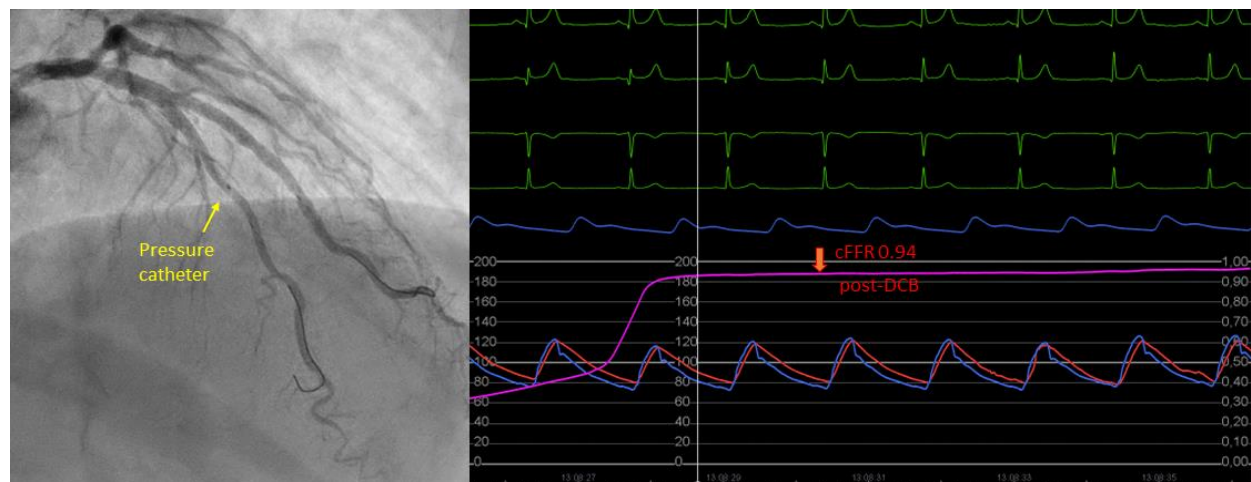
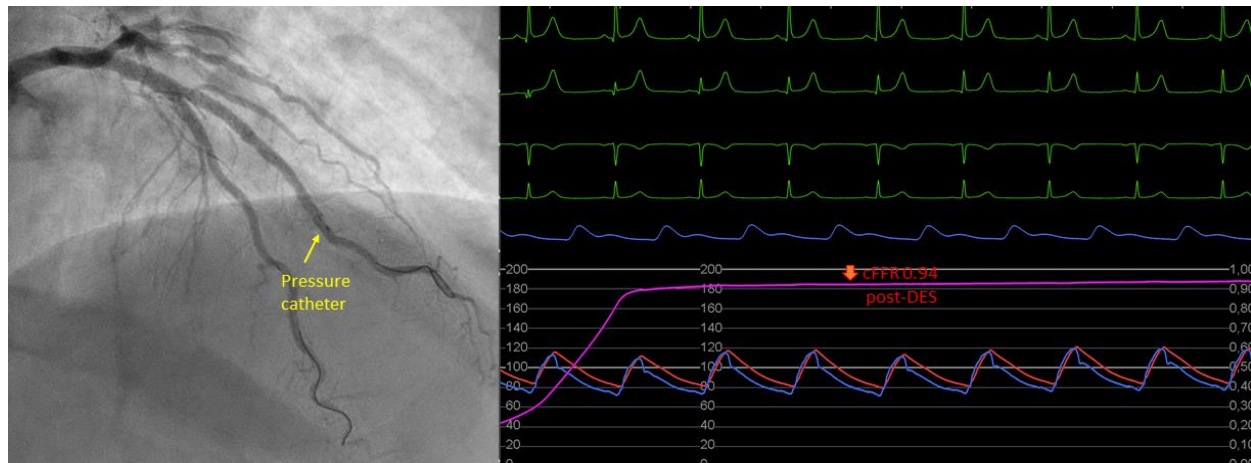


Final PCI result

Angiographic result



Physiological result





Take Home Message

- Physiological assessment of epicardial stenoses should be considered as mandatory in presence of intermediate and/or complex lesions as it significantly contributes to the procedural planning process.
- The use of DCB may be contemplated for complex PCI, with the aim of simplifying the procedure and enhancing clinical outcomes through a reduction in the number of implanted stents.
- In case of DCB-PCI, physiological assessment is useful to detect the presence of flow limiting residual stenosis/dissection and verify the effectiveness of the procedure.
- Pressure catheter could be considered safer than pressure wire reducing the risk of sub-intimal rewiring during the post-PCI assessment.



#Grazie