Orbital Atherectomy for Calcified Coronary Artery Lesions

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Case

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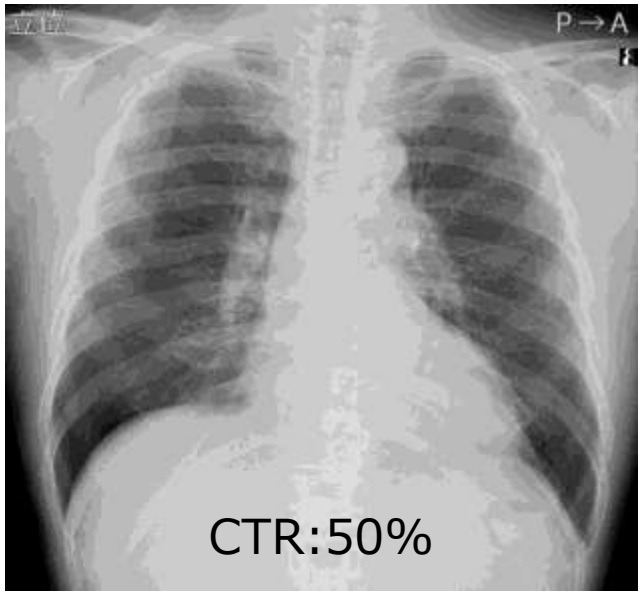
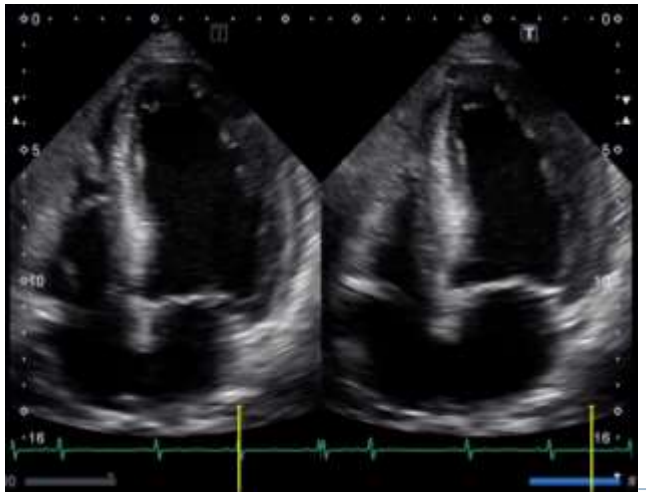
- A 67-year old male who has been getting dialysis for 3 years had developed heart failure. The patient's medical history included gl omerulonephritis, hypertension and dyslipidemia, and he was a previous smoker.

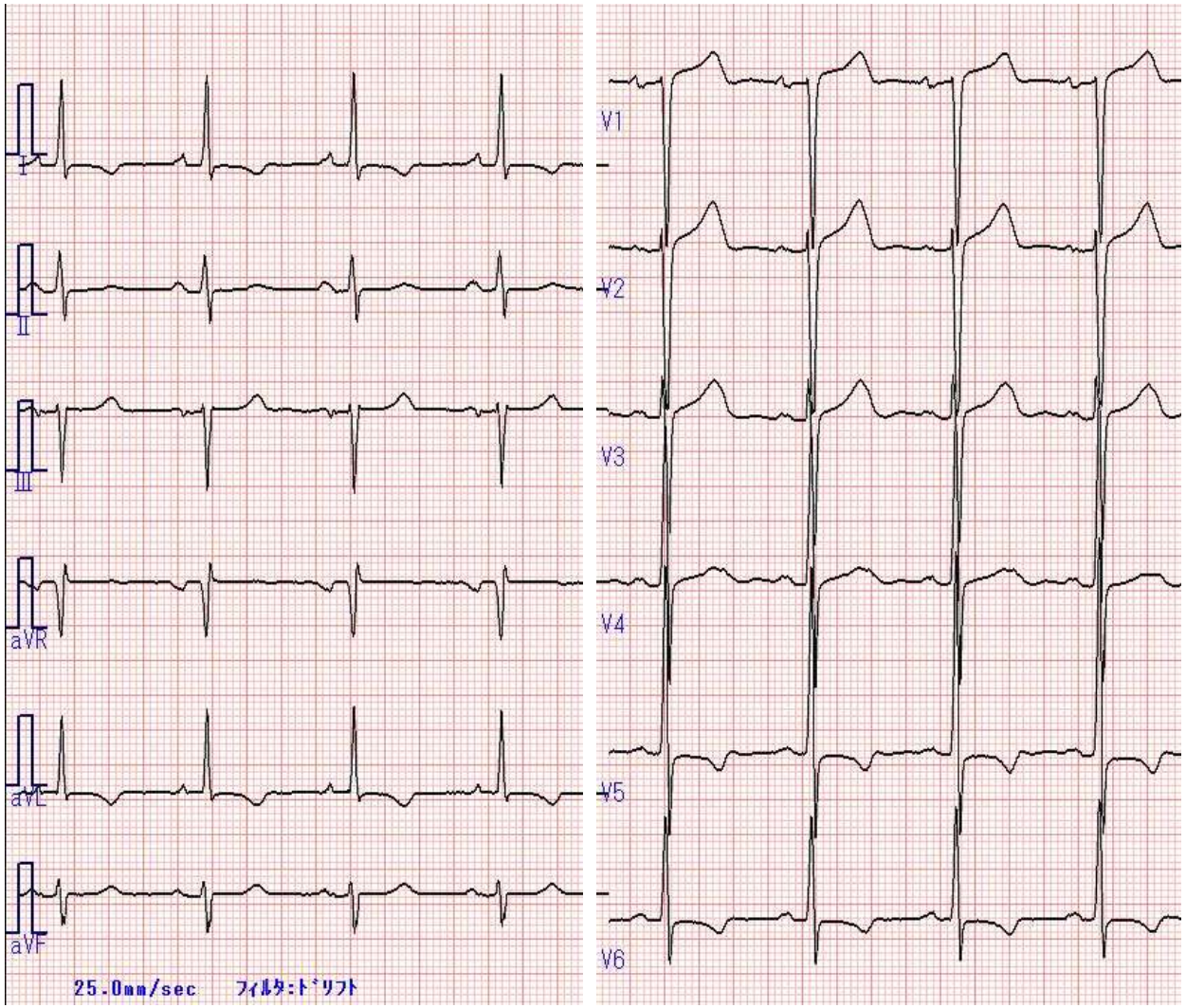
- His lipid profile was triglyceride 195 mg/dl, HDL-Cho 41 mg/dl, LDL-Cho 168 mg/dl.

CXR, ECG and Echocardiogram





LVDd 46mm, LVEF 35%,
inferoposterior hypokinesis,
diffuse hypokinesis,
mild AR, mild MR, mild TR



HR 70/min., NSR, NAD, I,aVL,V5,V6 negative T, LVH, strain pattern

CTCA

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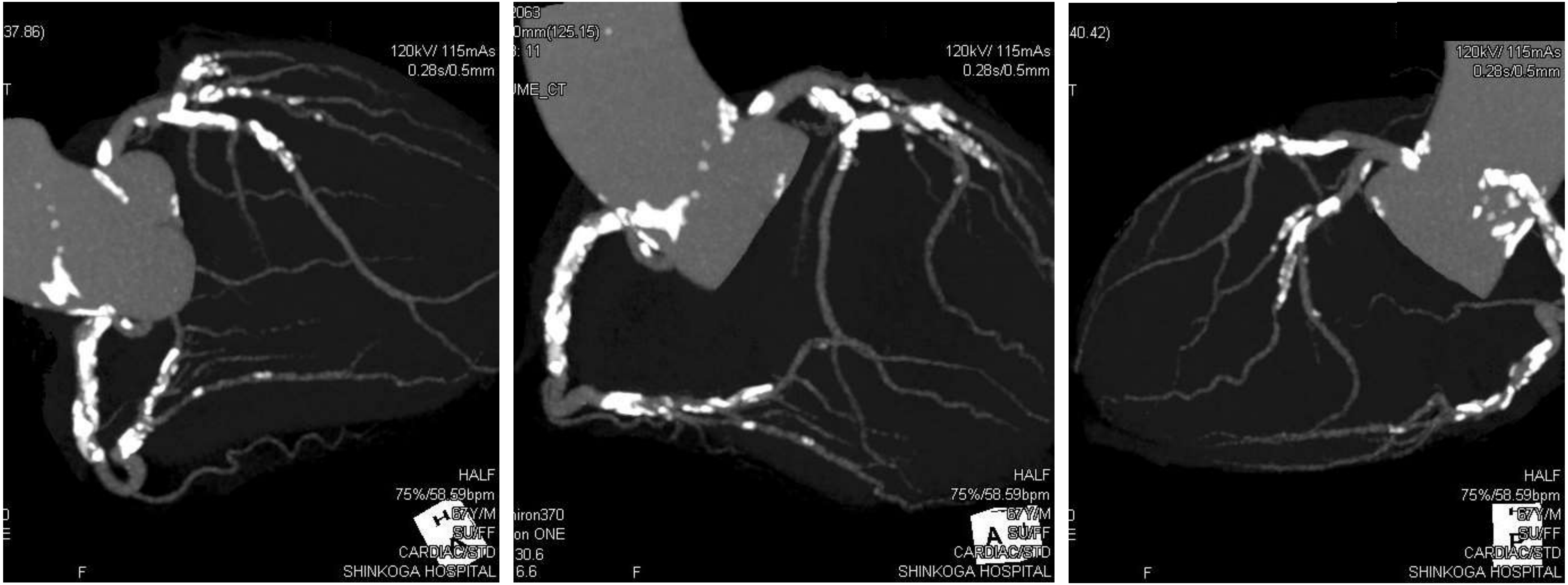
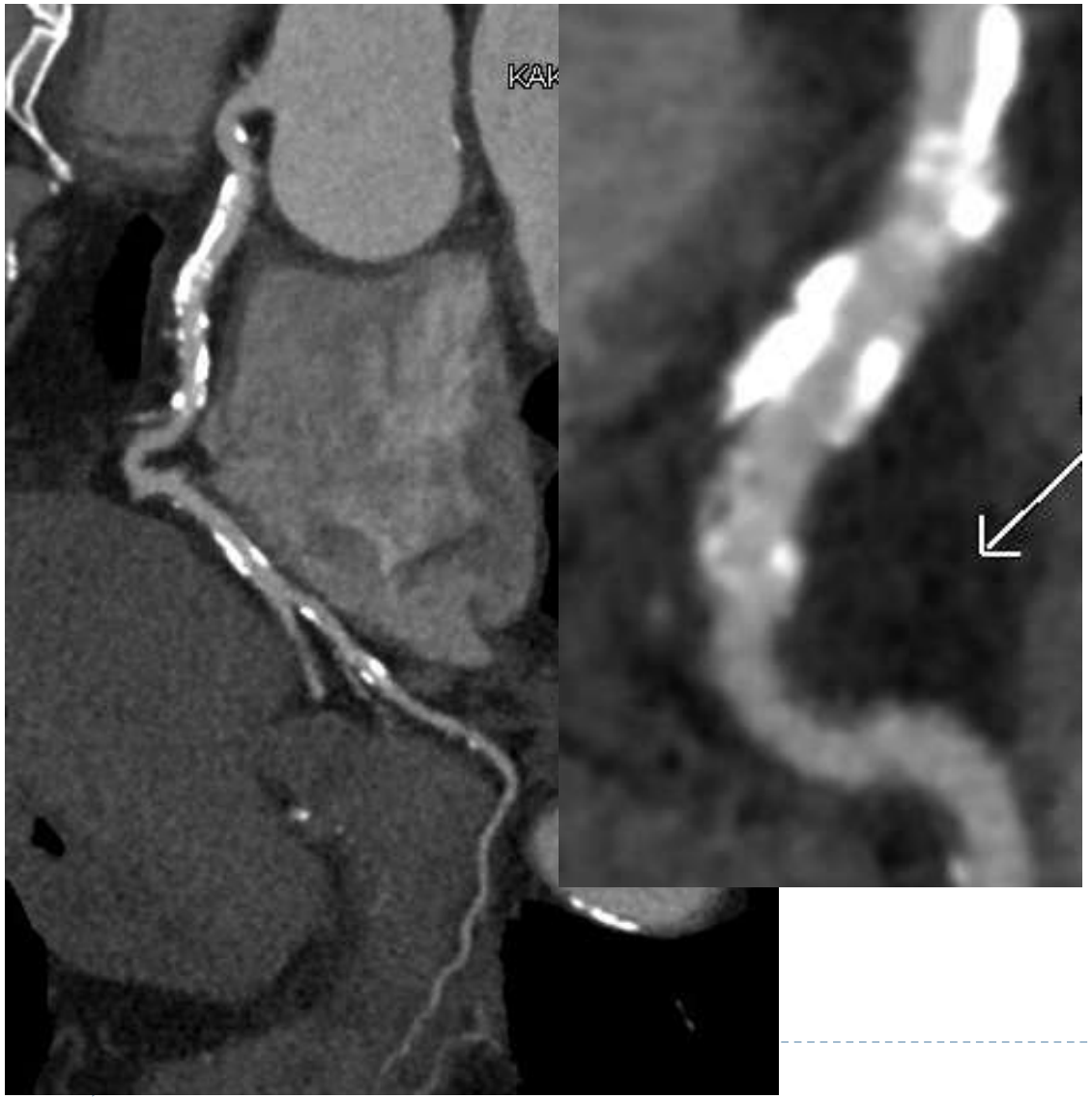
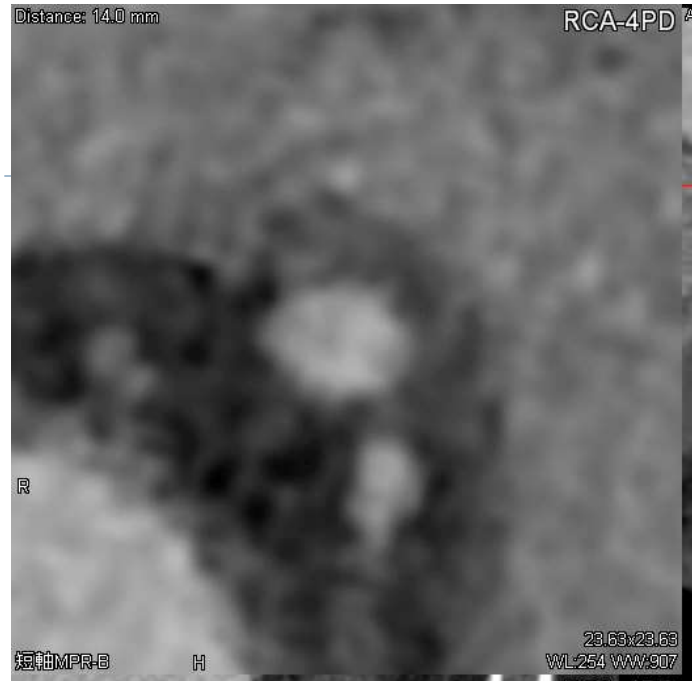


RCA seg1-seg2, seg3 severe calc. , LAD seg6-seg7 severe calc. seg7 severe stenosis, LCx seg13-14 severe calc. seg14 severe stenosis

- Agaston score (LAD) 989

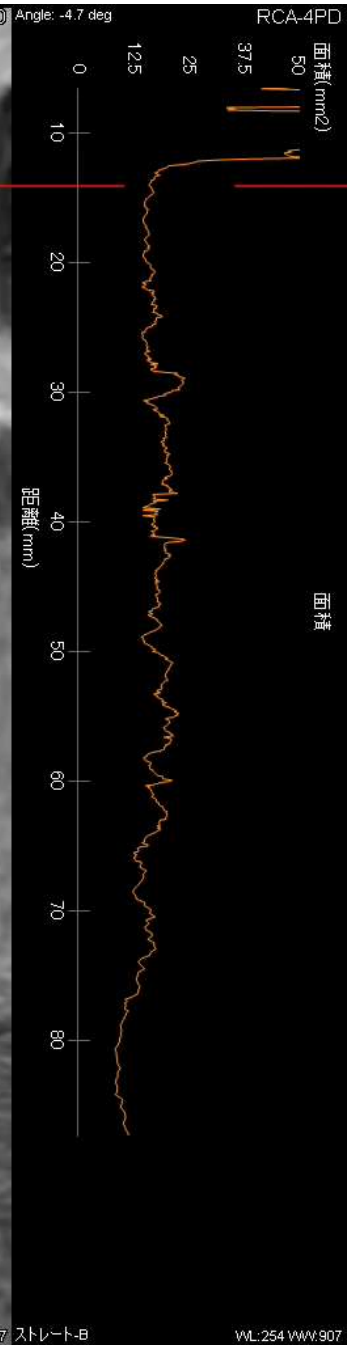
RCA



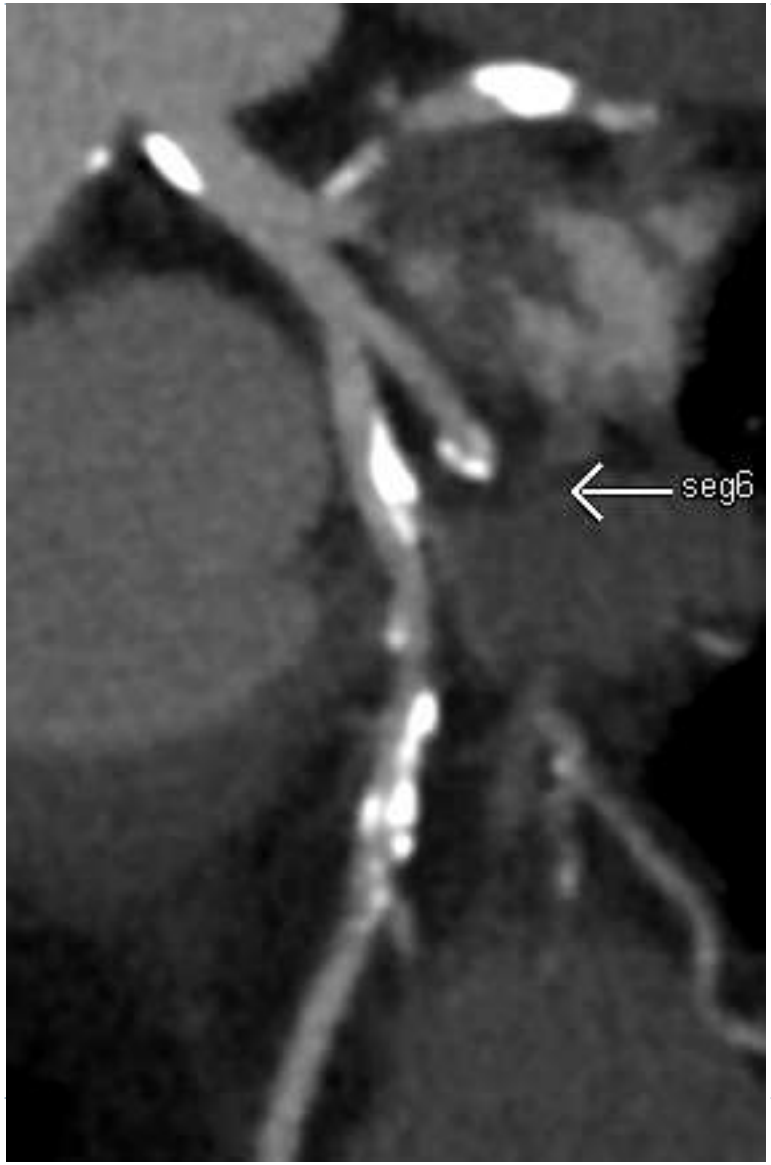

Distance: 14.0 mm
RCA-4PD
R
短軸MPR-B
H
23.63x23.63
WL:254 WW:907


RCA-4PD
CPR-A
WL:254 WW:907

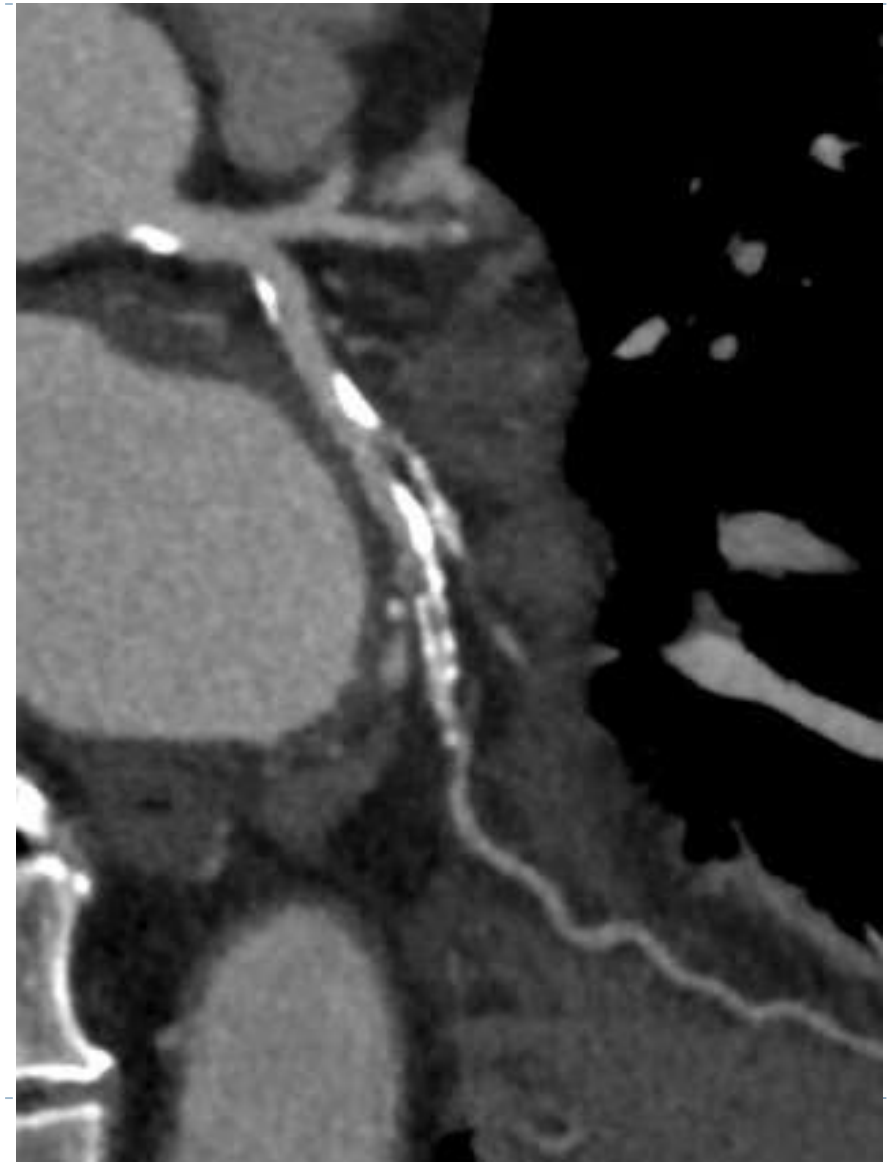

Angle: -94.7 deg
RCA-4PD
ストレート-A
WL:254 WW:907


Angle: -4.7 deg
RCA-4PD
面積(mm2)
0
12.5
25
37.5
50
10
20
30
40
50
60
70
80
距離(mm)
面積
ストレート-B
WL:254 WW:907

LAD



LCx



CAG (LCA)

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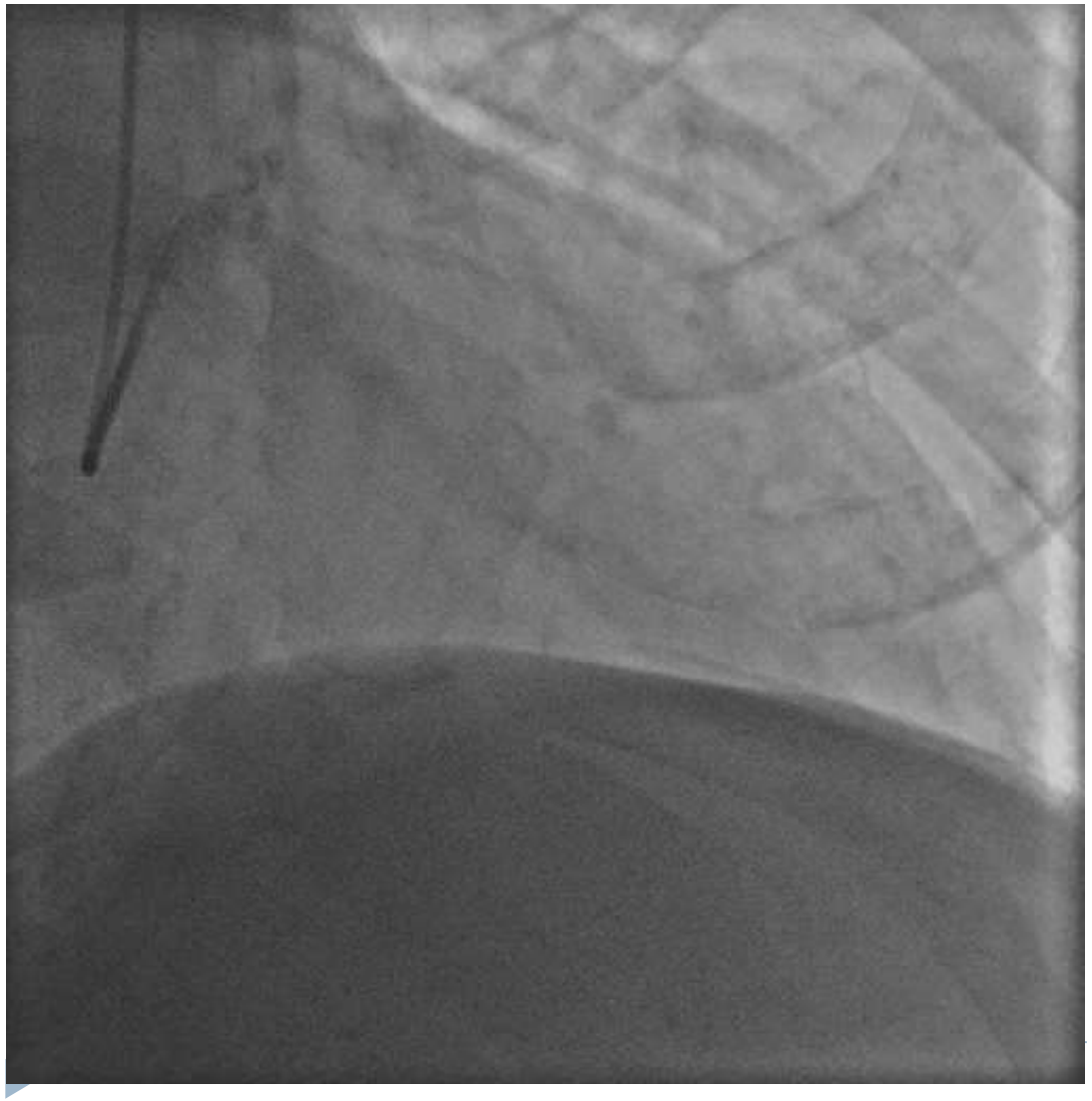

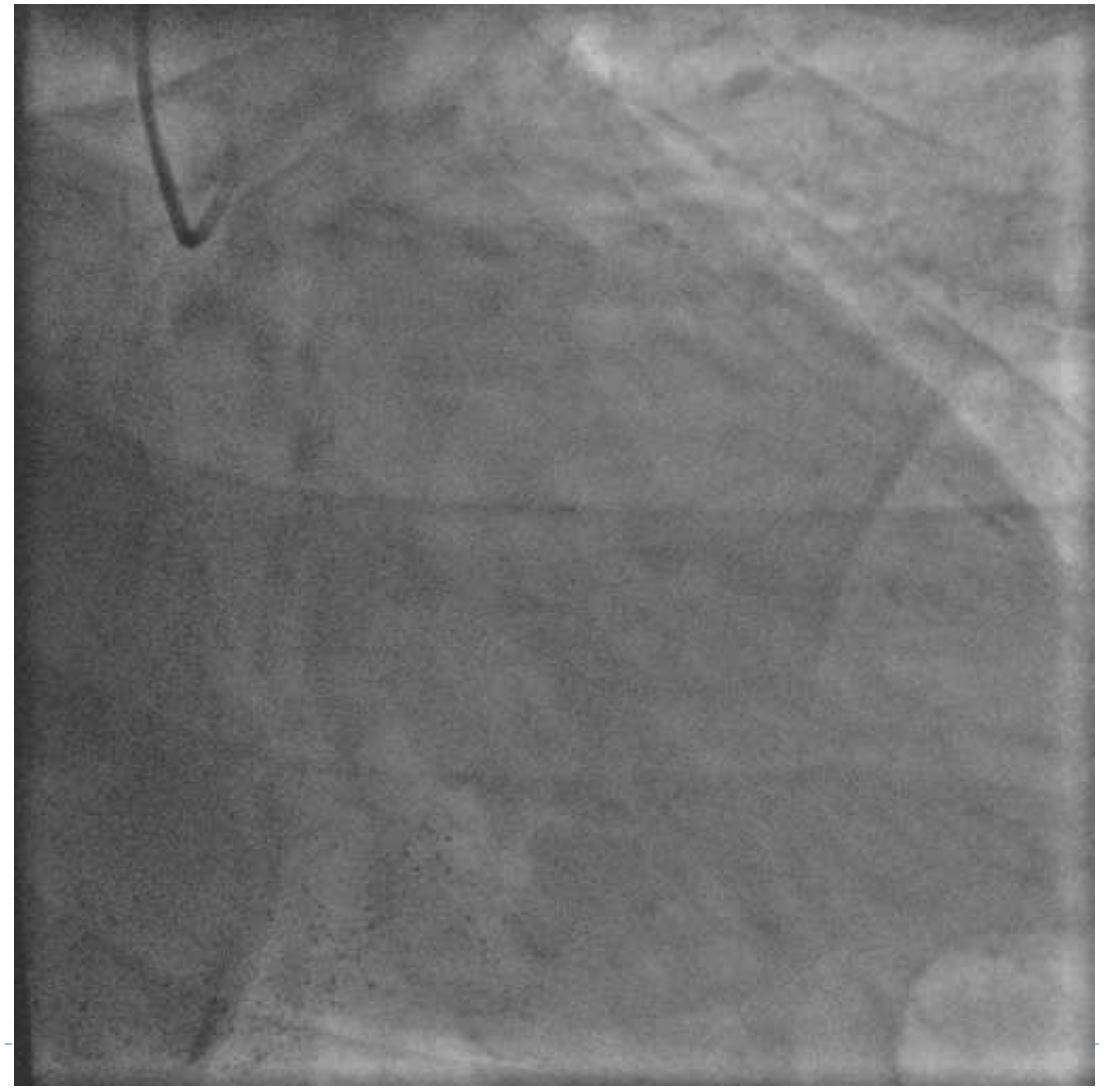

CAG (RCA)

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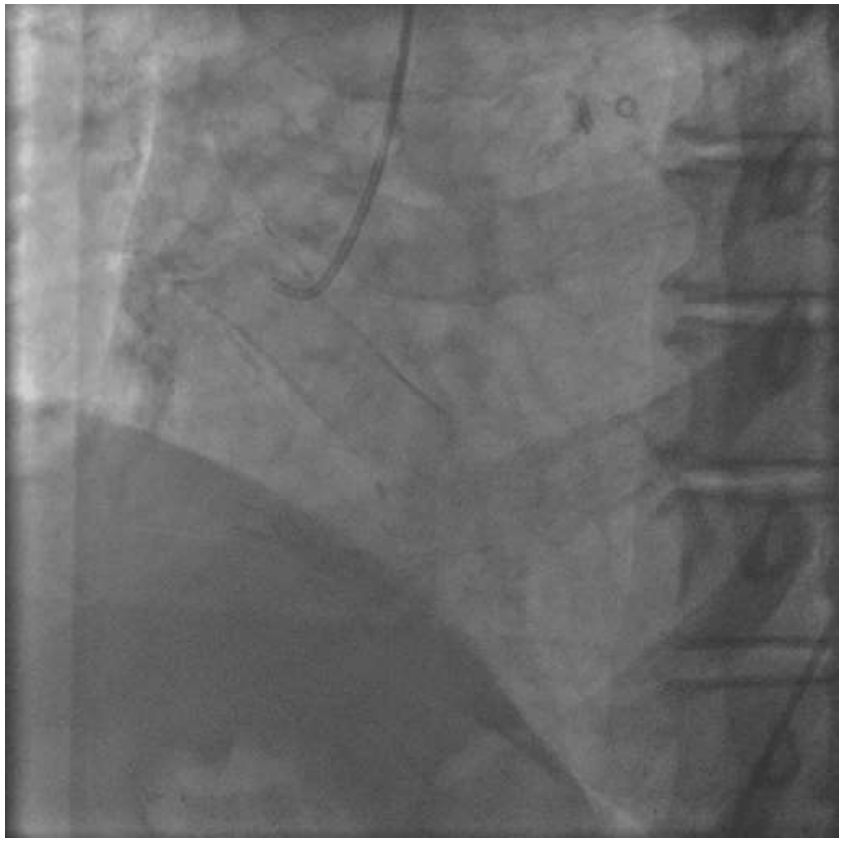
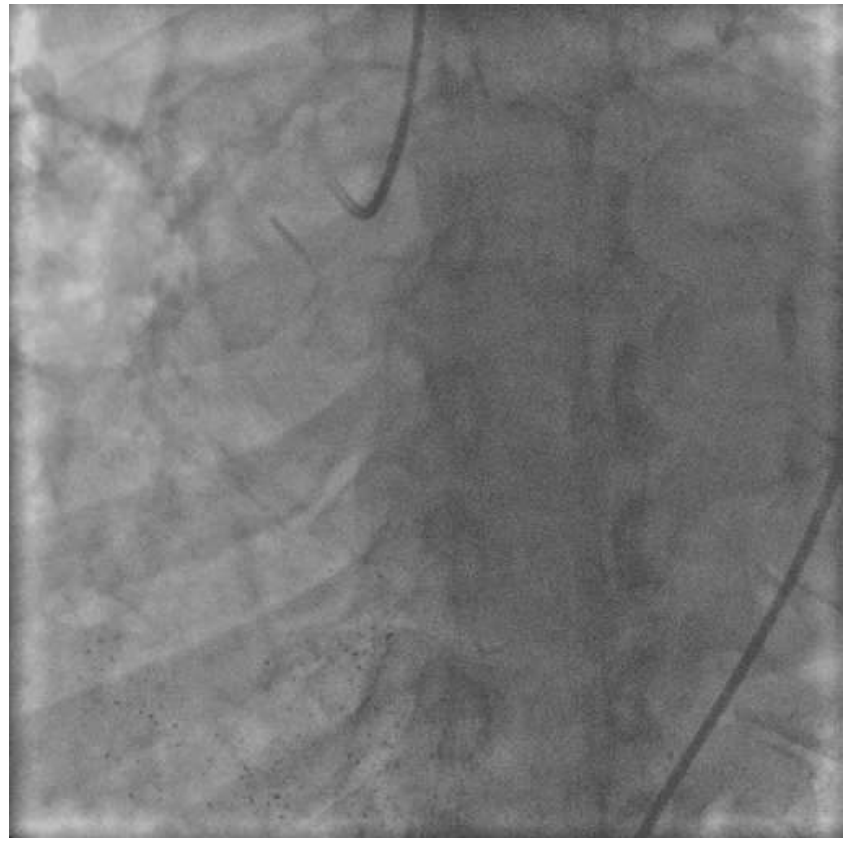
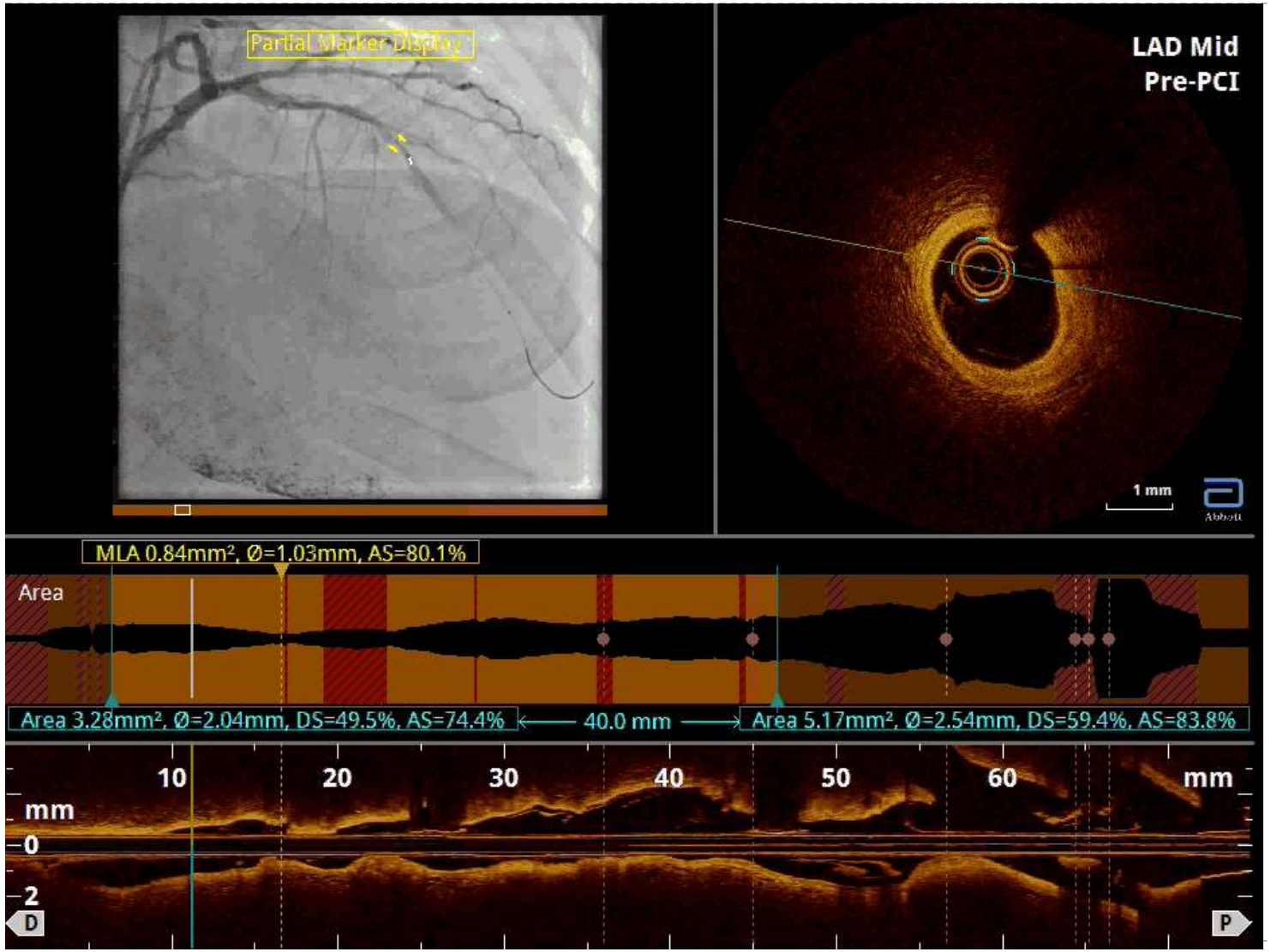




1st PCI (Ad Hoc PCI)

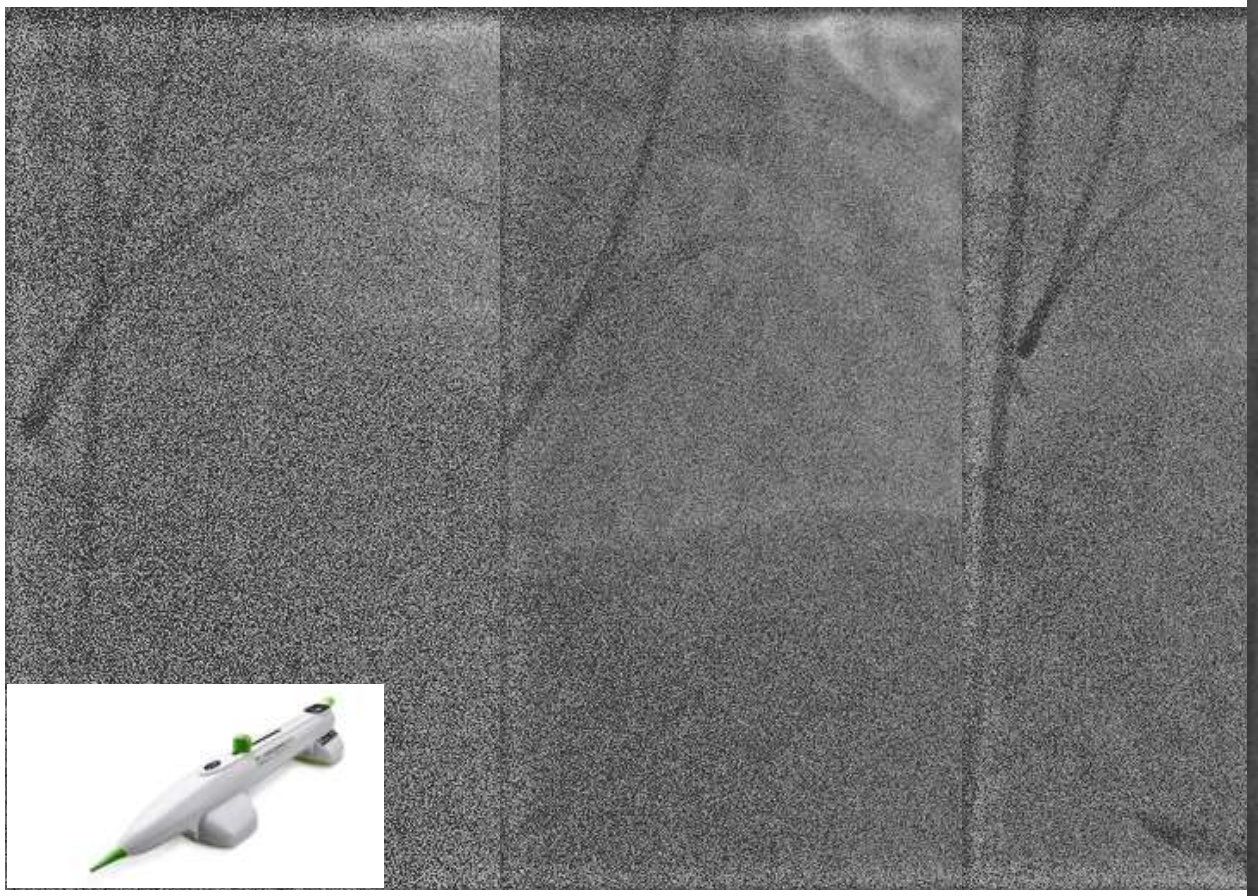
- Target lesion
  - Proximal LAD; seg7 75%, severe calcified lesion
- Strategy
  - Approach: right femoral artery 6F
  - Orbital atherectomy system: OAS
  - Stenting

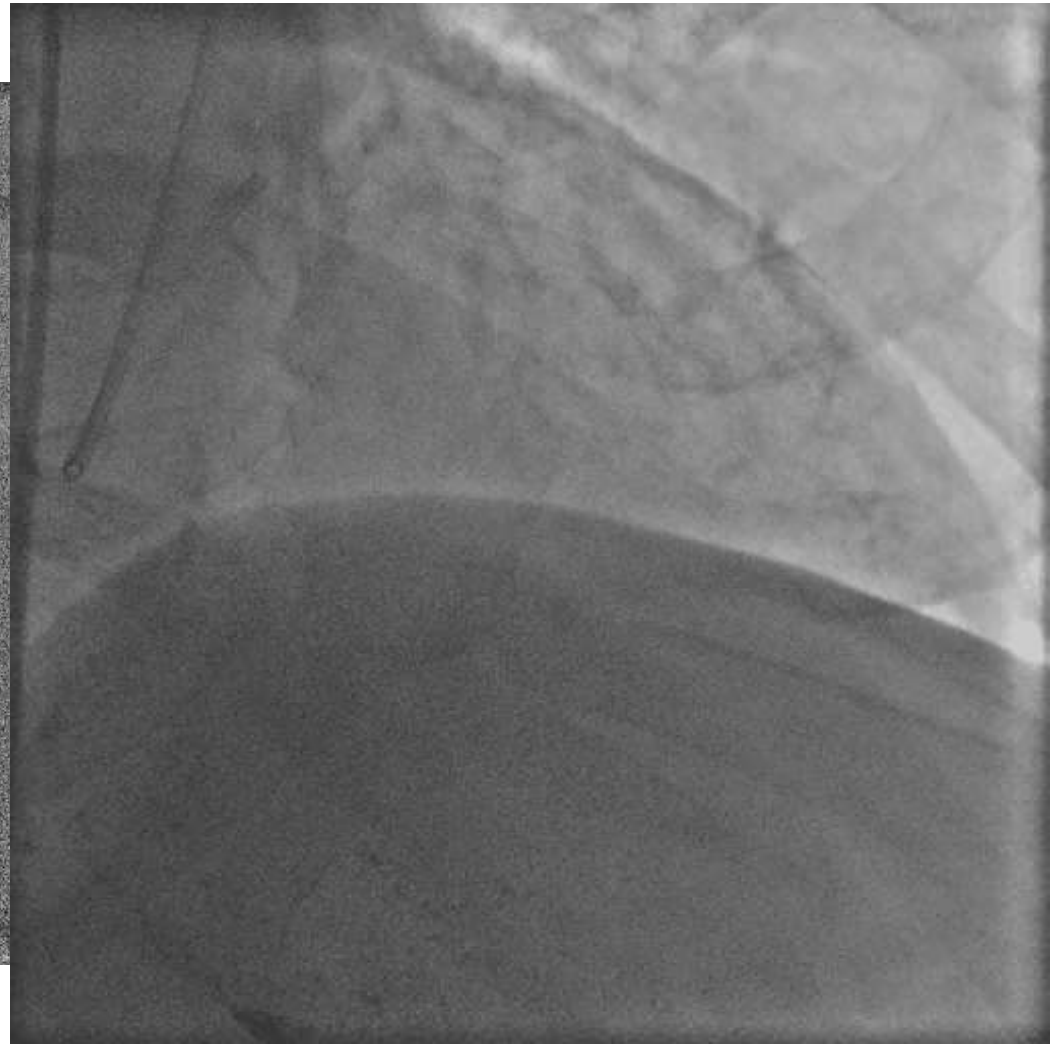
OCT (LAD, control)



	MLA(mm²)	MLD(mm)	AS%
Control	0.8	1.0	80

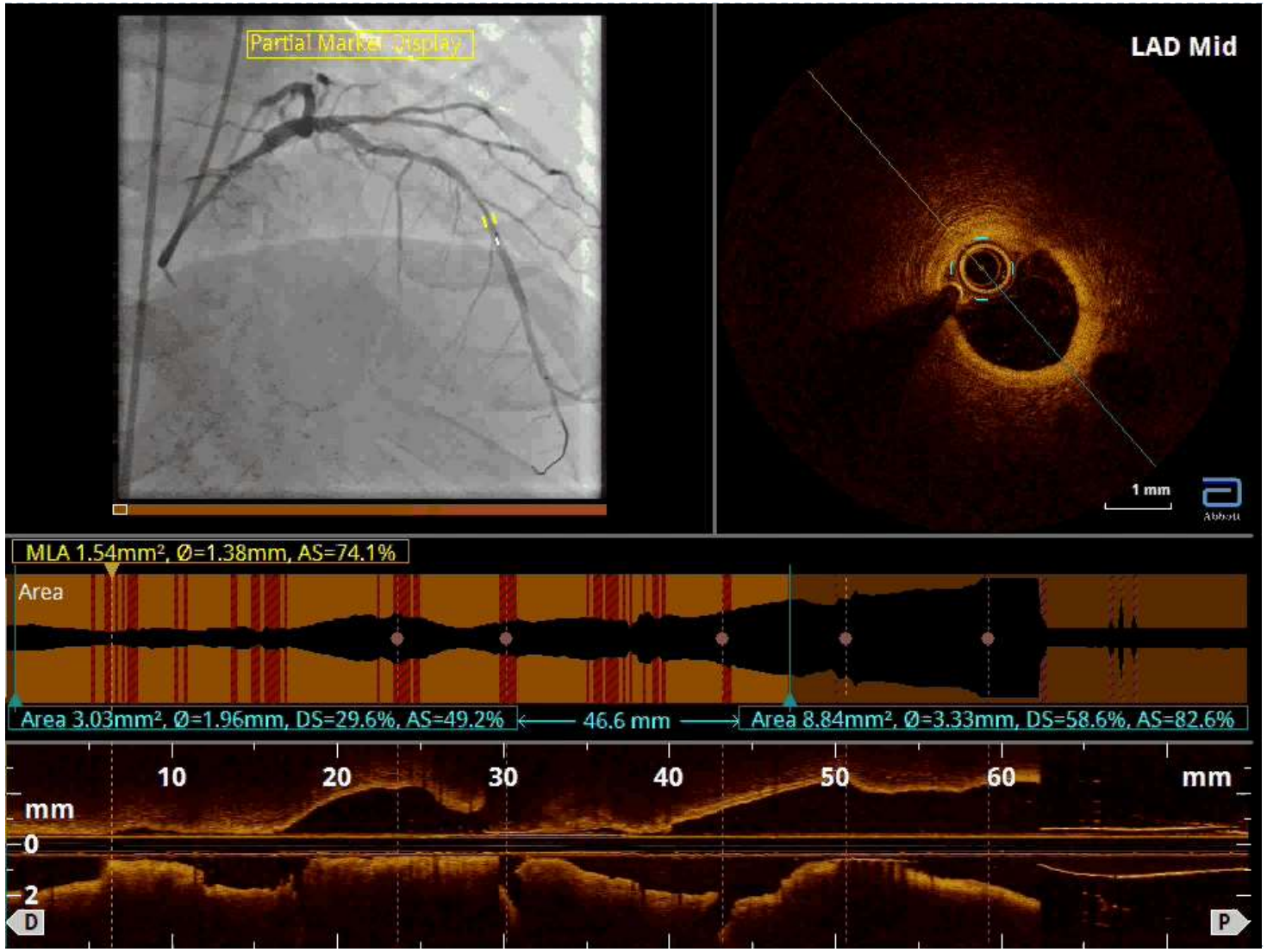
1st PCI (LAD)





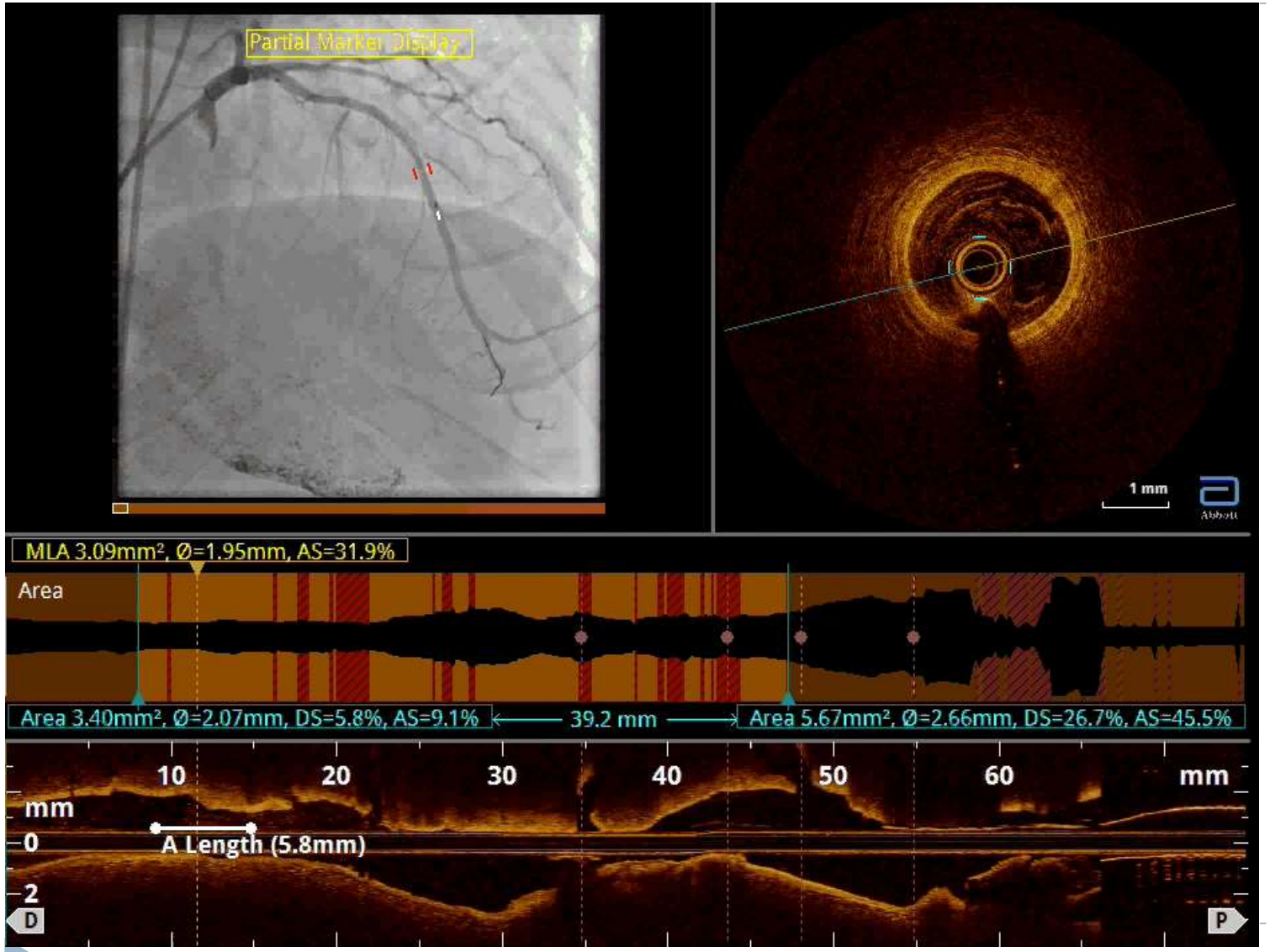
- OAS: Diamondback 360 (Classic Crown) 80krpm➡Cutting (Wolverine 2.5*10mm)➡Stenting (Orsiro 2.75*40mm)

OCT (post debulking)



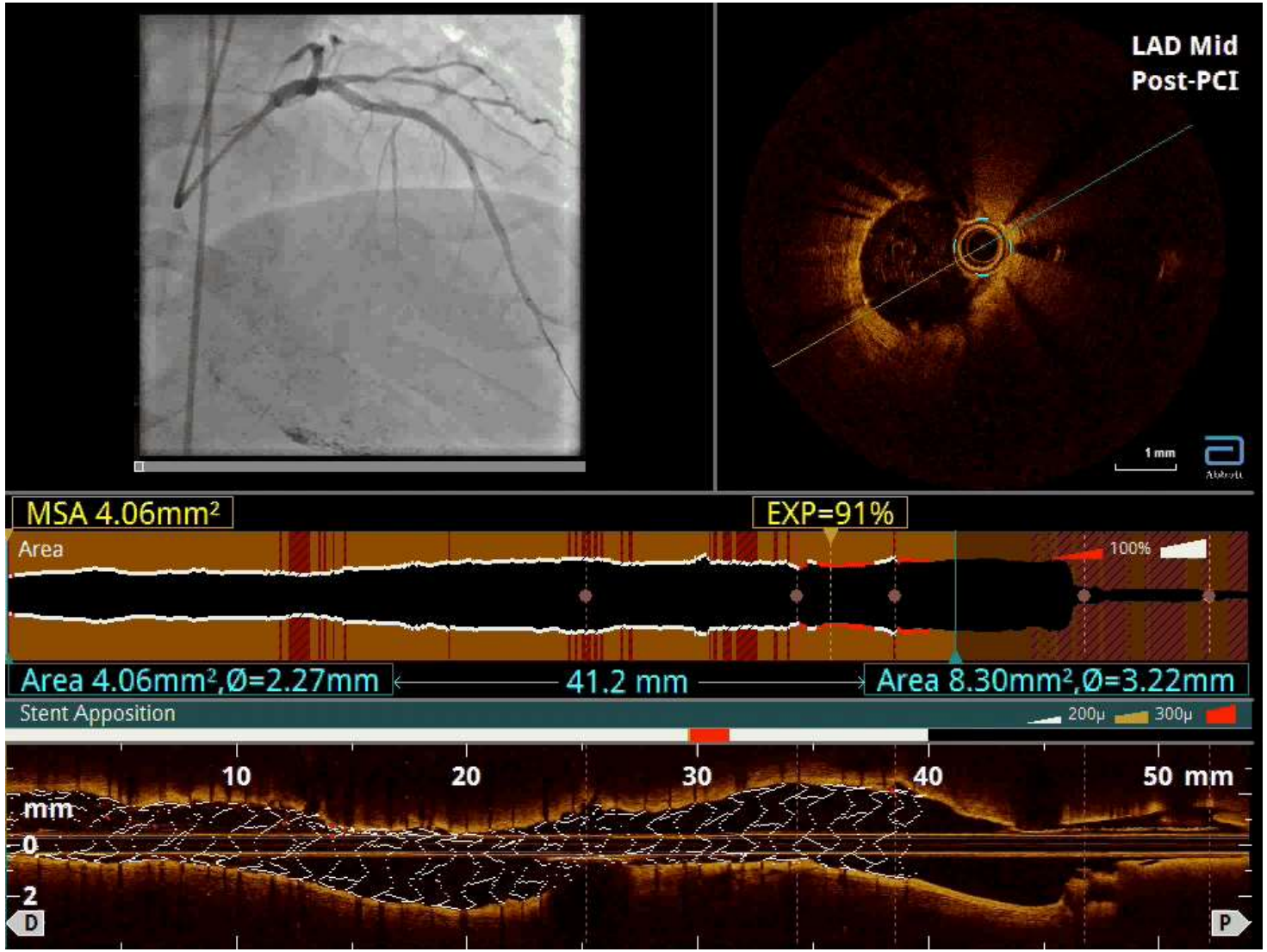
	MLA(mm^2)	MLD(mm)	AS%
Control	0.8	1.0	80
Post OAS	1.5	1.4	74

OCT (post cutting)



	MLA(mm²)	MLD(mm)	AS%
Control	0.8	1.0	80
Post OAS	1.5	1.4	74
Post cutting	3.1	2.0	32

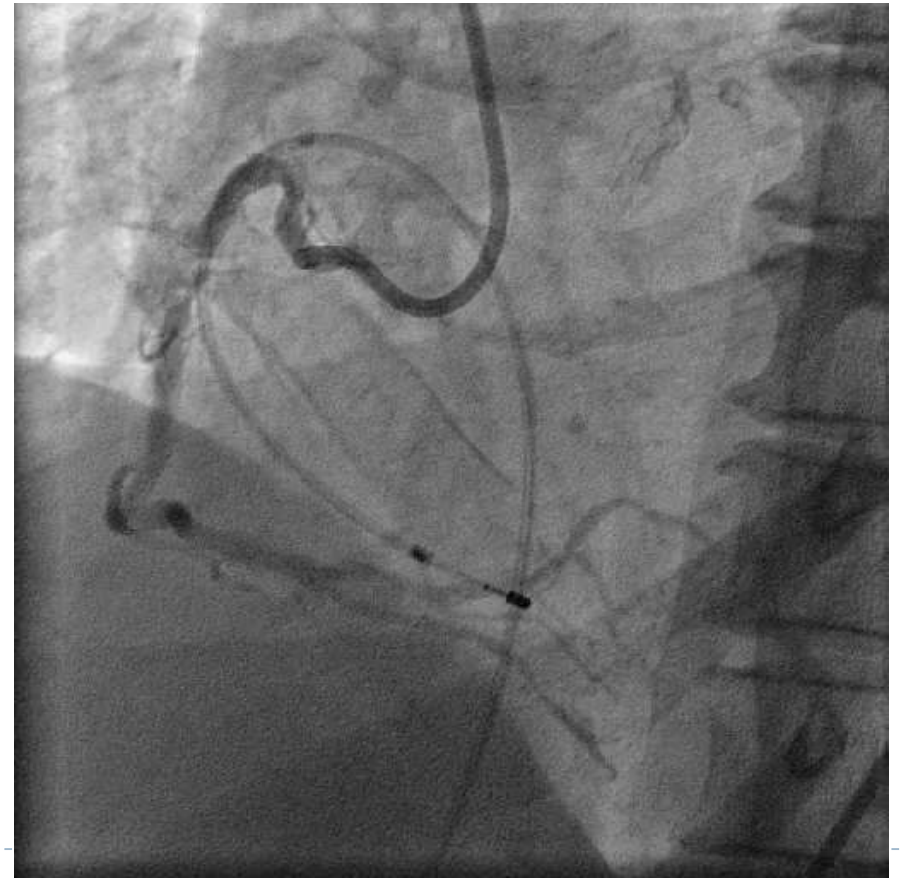
OCT (post stenting)



	MLA(mm²)	MLD(mm)	AS%
Control	0.8	1.0	80
Post OAS	1.5	1.4	74
Post cutting	3.1	2.0	32
Final	4.1	2.3	

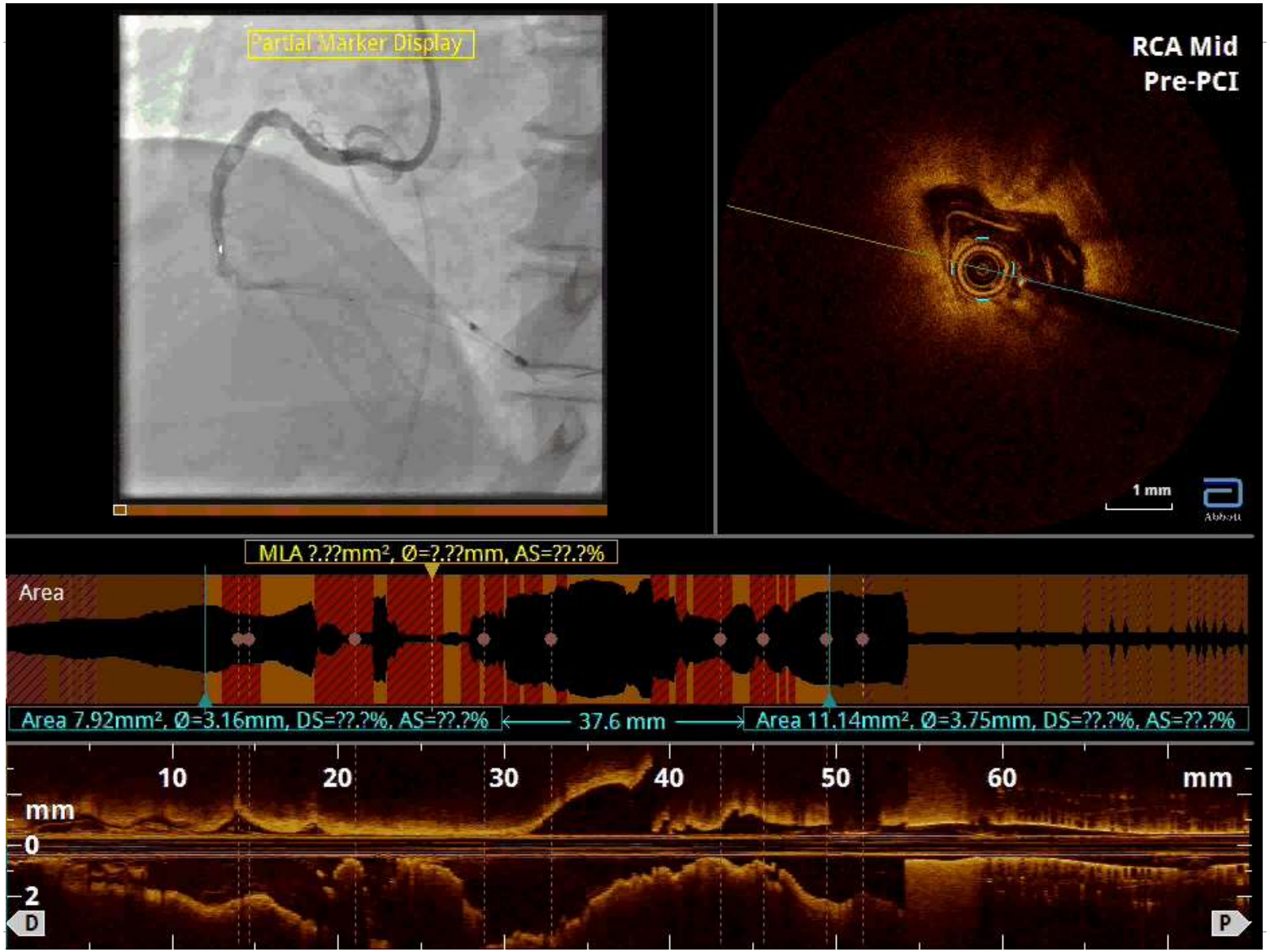
2nd PCI

- Target lesion
  - Proximal RCA; seg1 75%, seg2 75% nodular calcification
- Strategy
  - Rt.femoral a. 7F
  - OAS or Rota
  - Stenting required or not



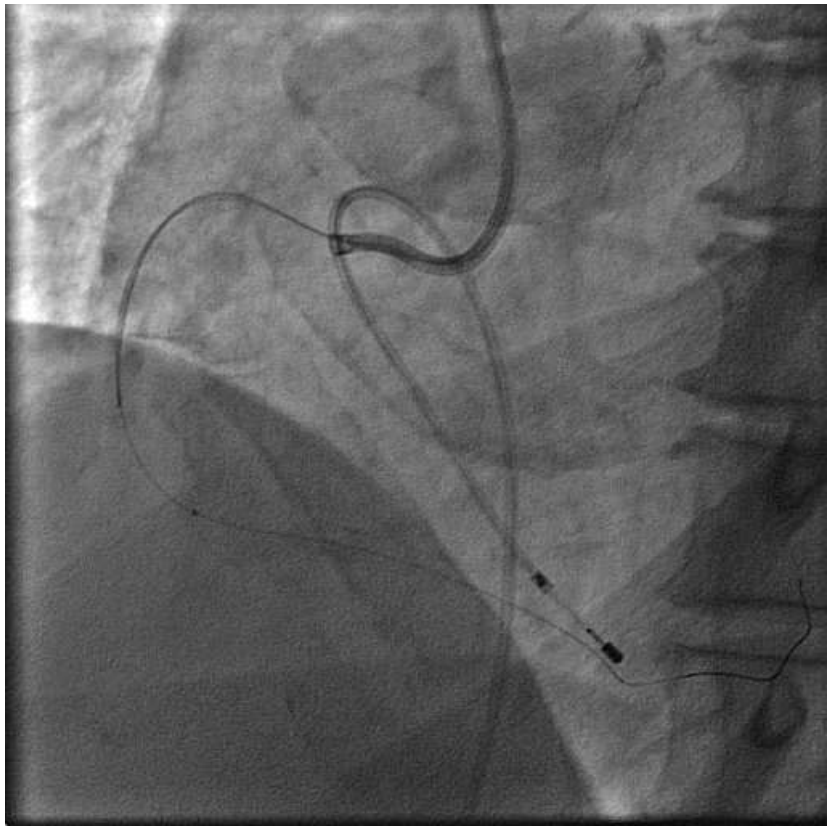
ALI 7F Hyperion

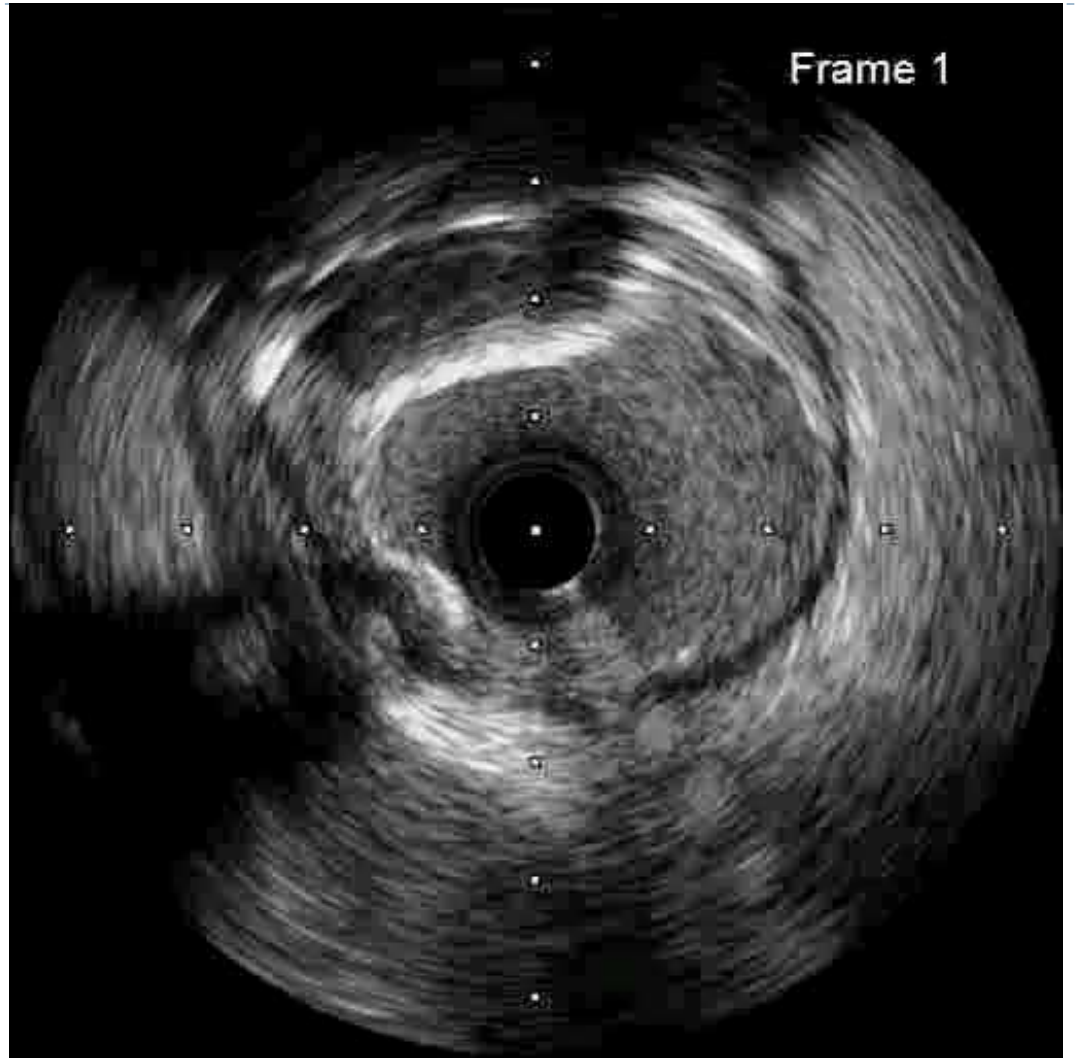
OCT1



AL1 7F Hyperion, VersaTurn, GUIDEPLUS 5F

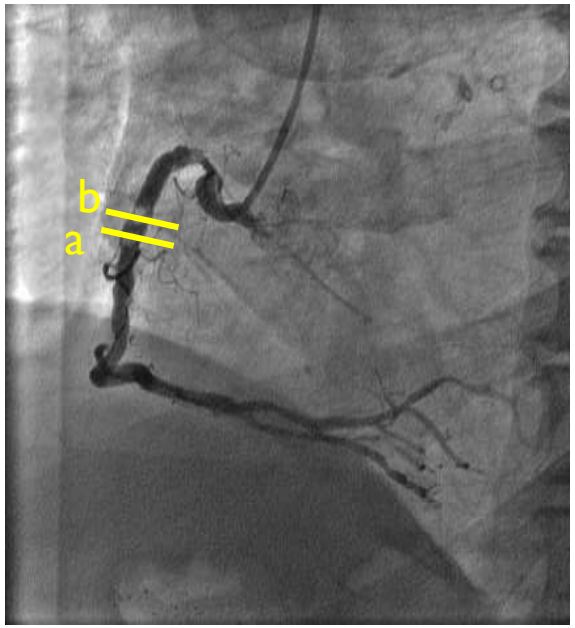
IVUS1



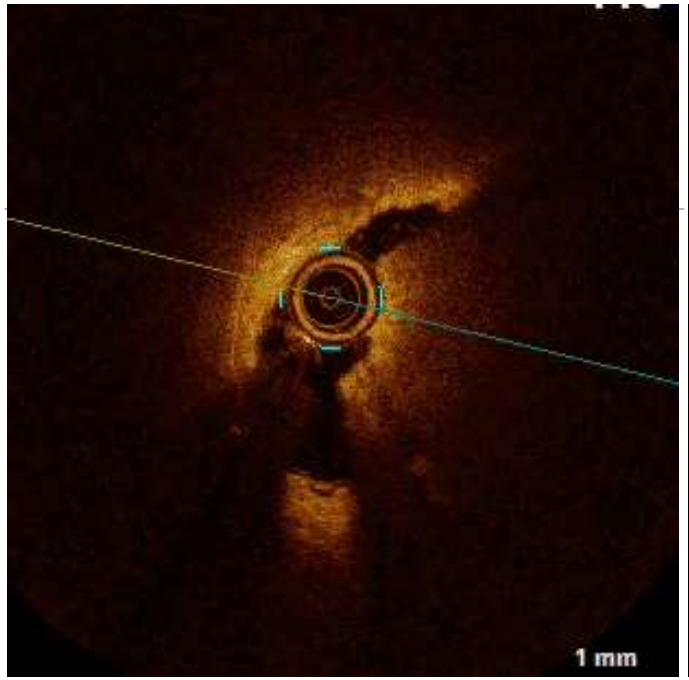


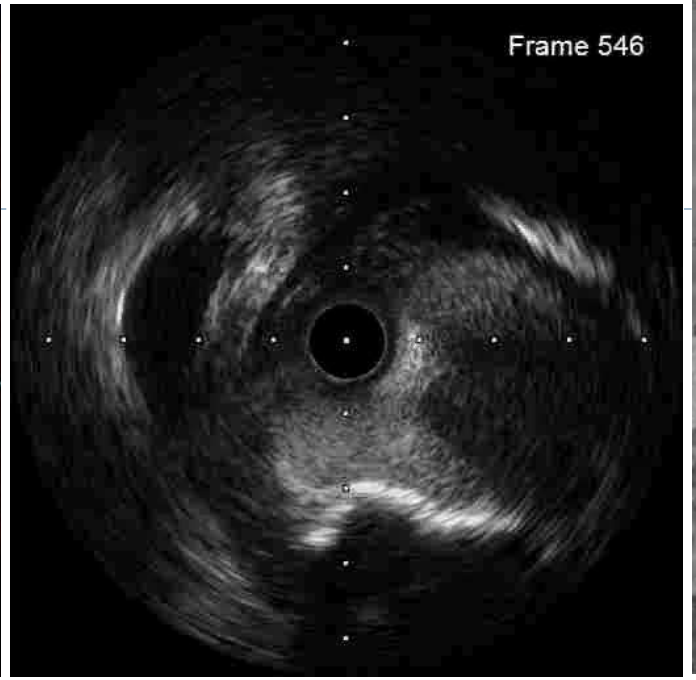
AL1 7F Hyperion, VersaTurn, GUIDEPLUS 5F, Opticross

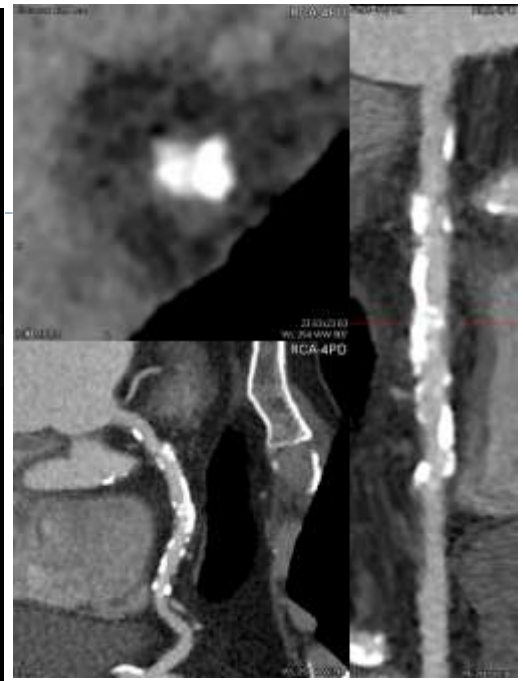
Seg2



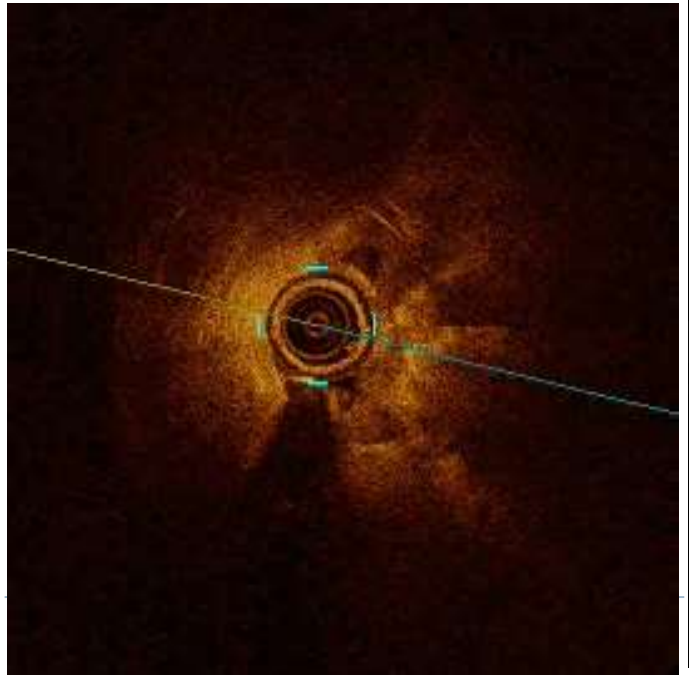
a

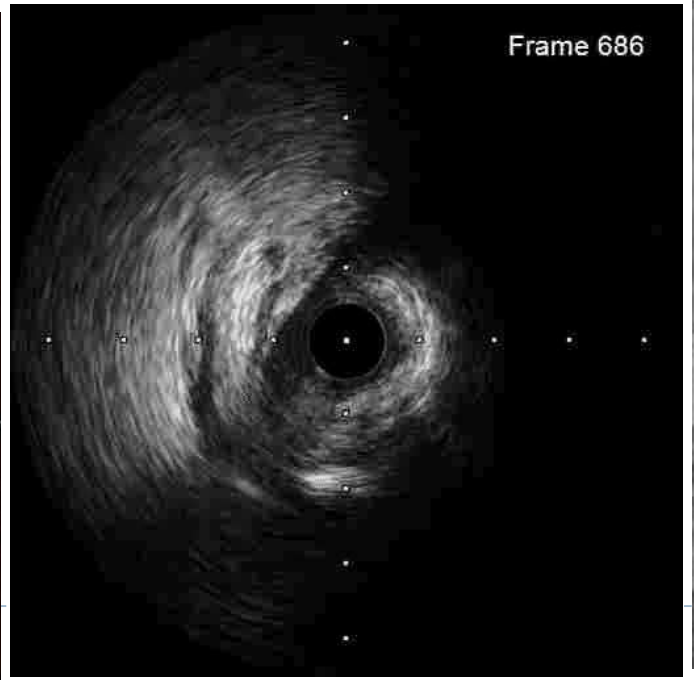


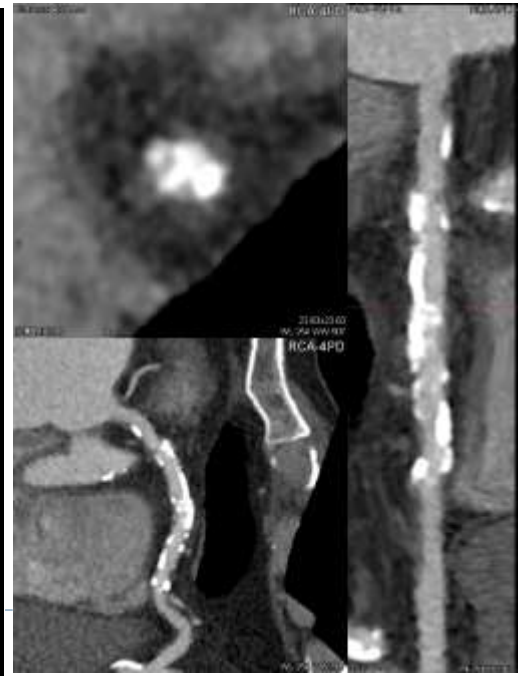




b



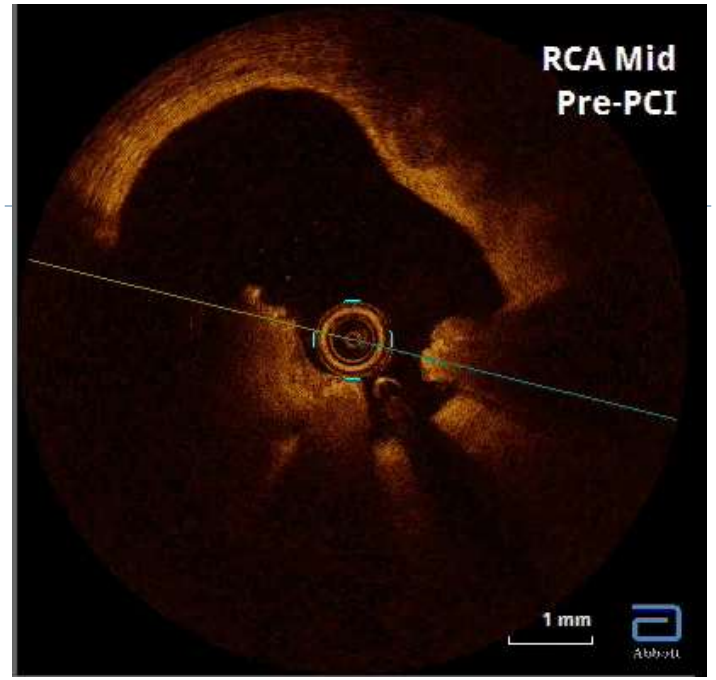




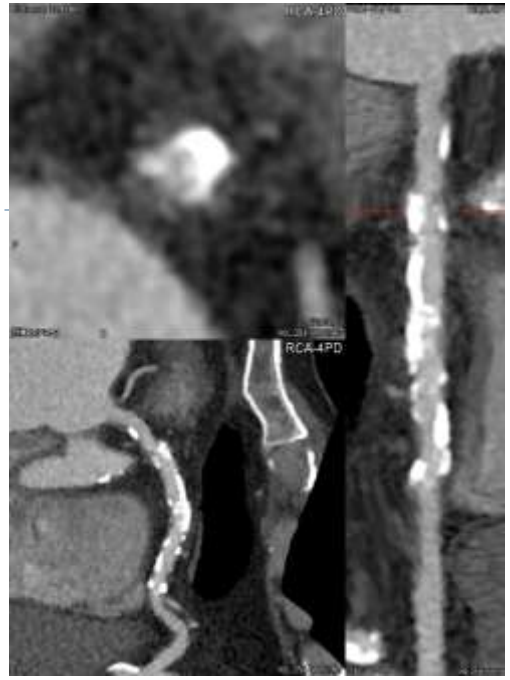
Seg1


a
b

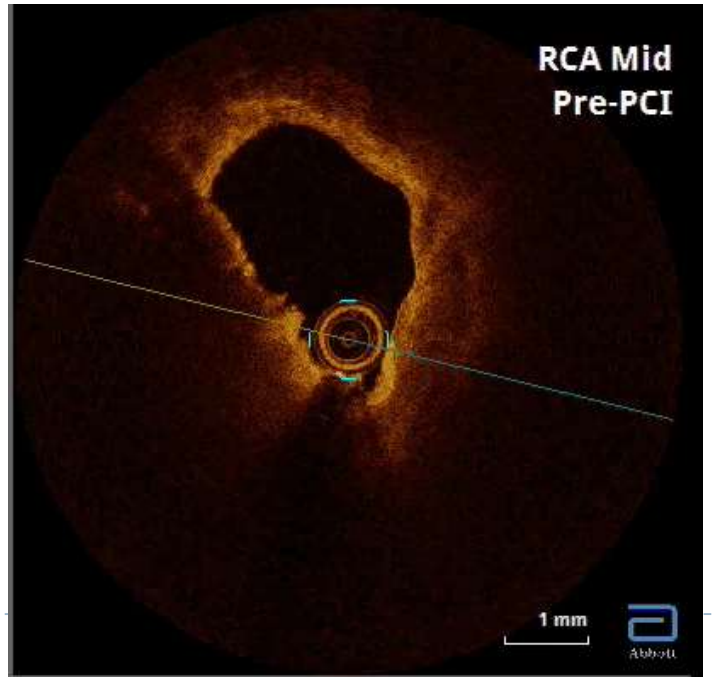
a

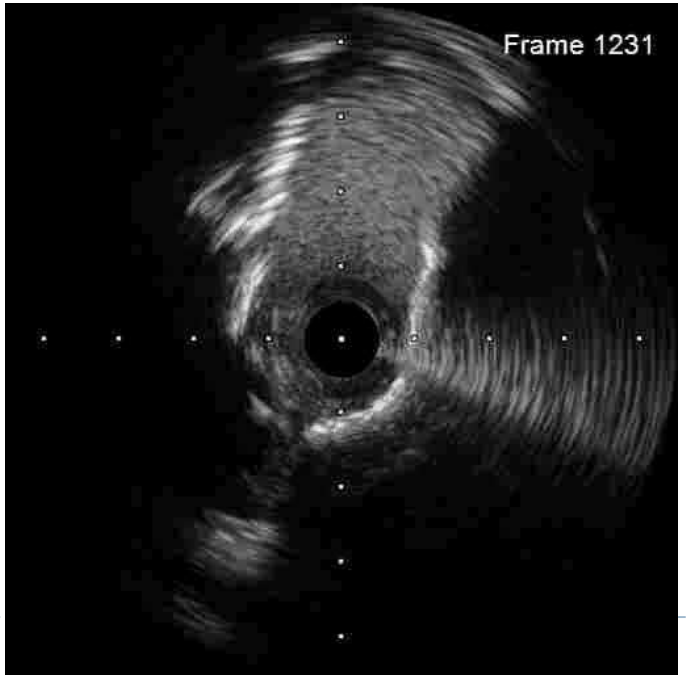

RCA Mid
Pre-PCI
1 mm

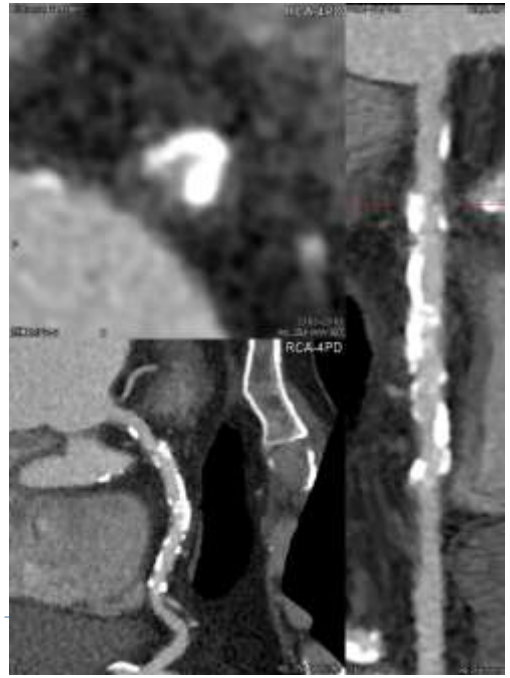

Frame 1111


RCA-4PD

b


RCA Mid
Pre-PCI
1 mm


Frame 1231


RCA-4PD

OAD for seg1

- ViperWire Advance, Classic Crown 80krpm

IVUS2

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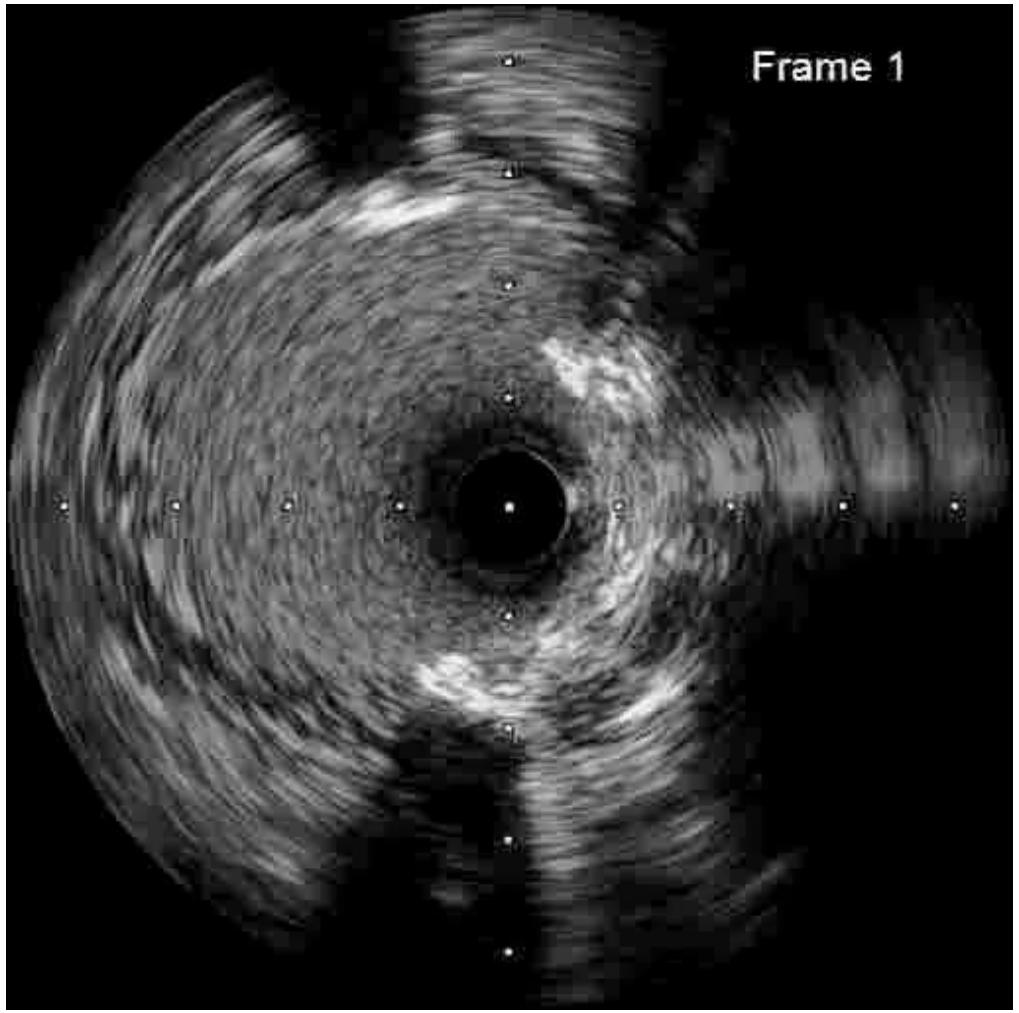
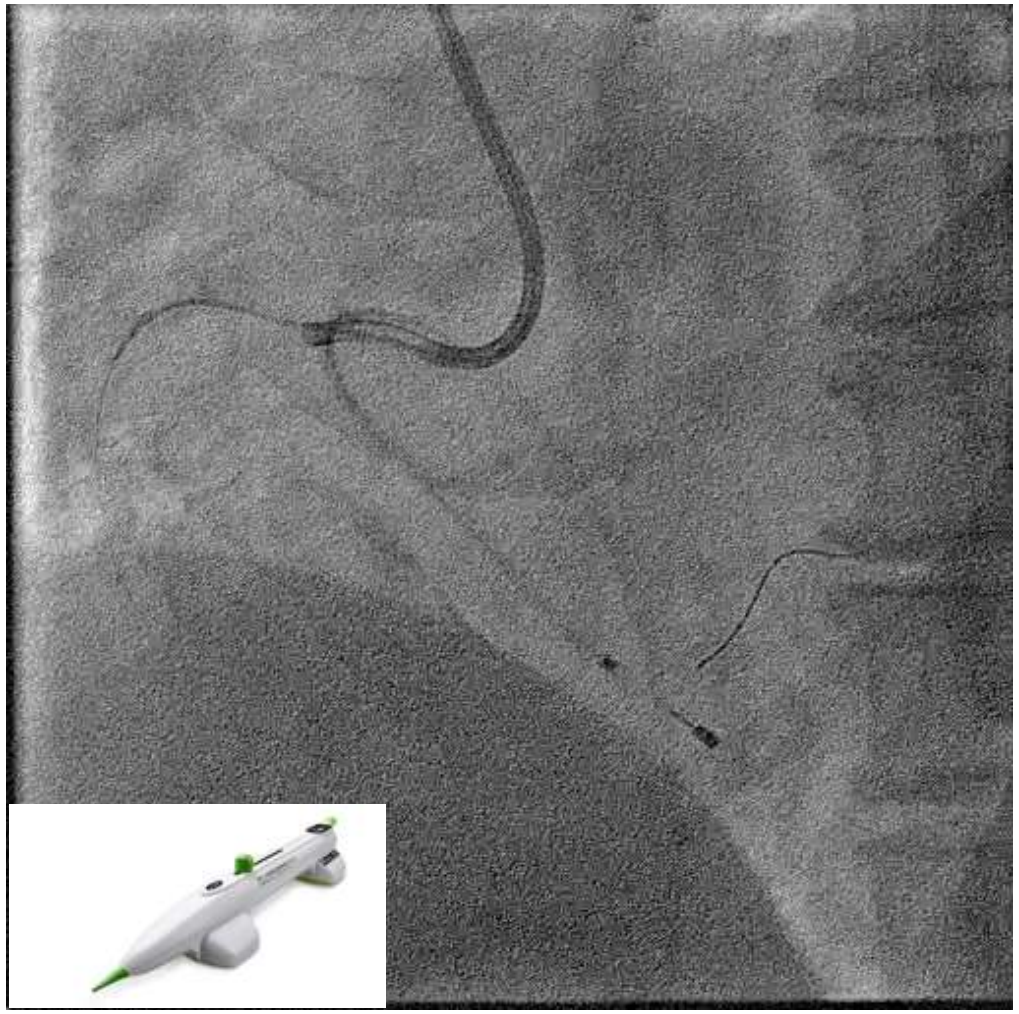
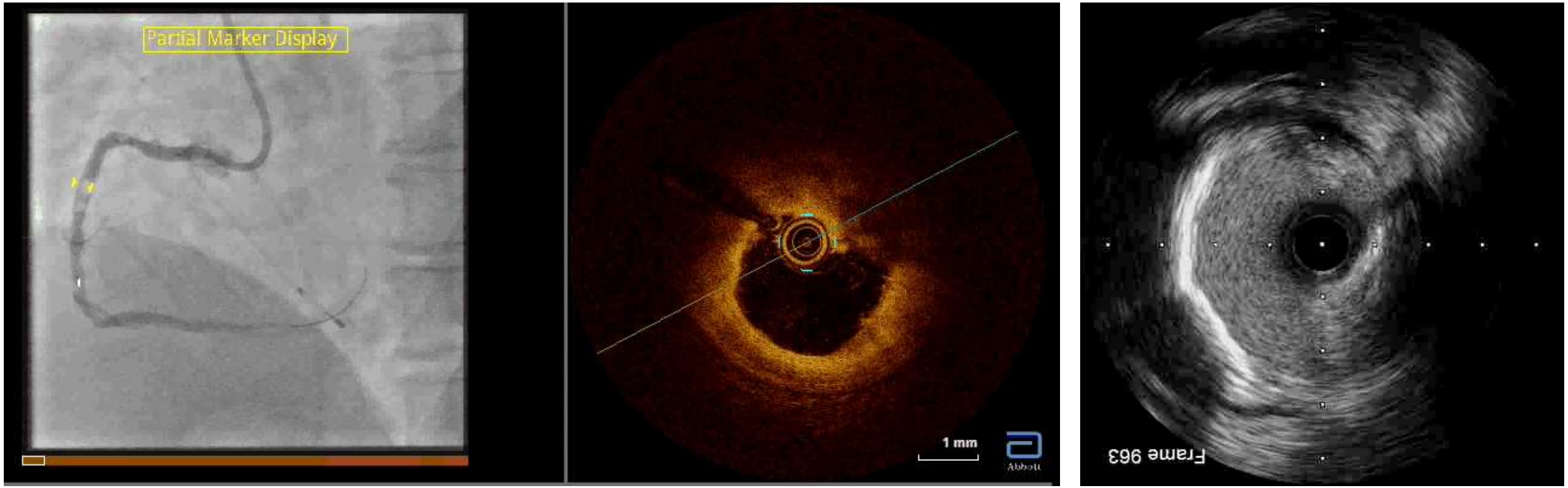


OAD for seg2



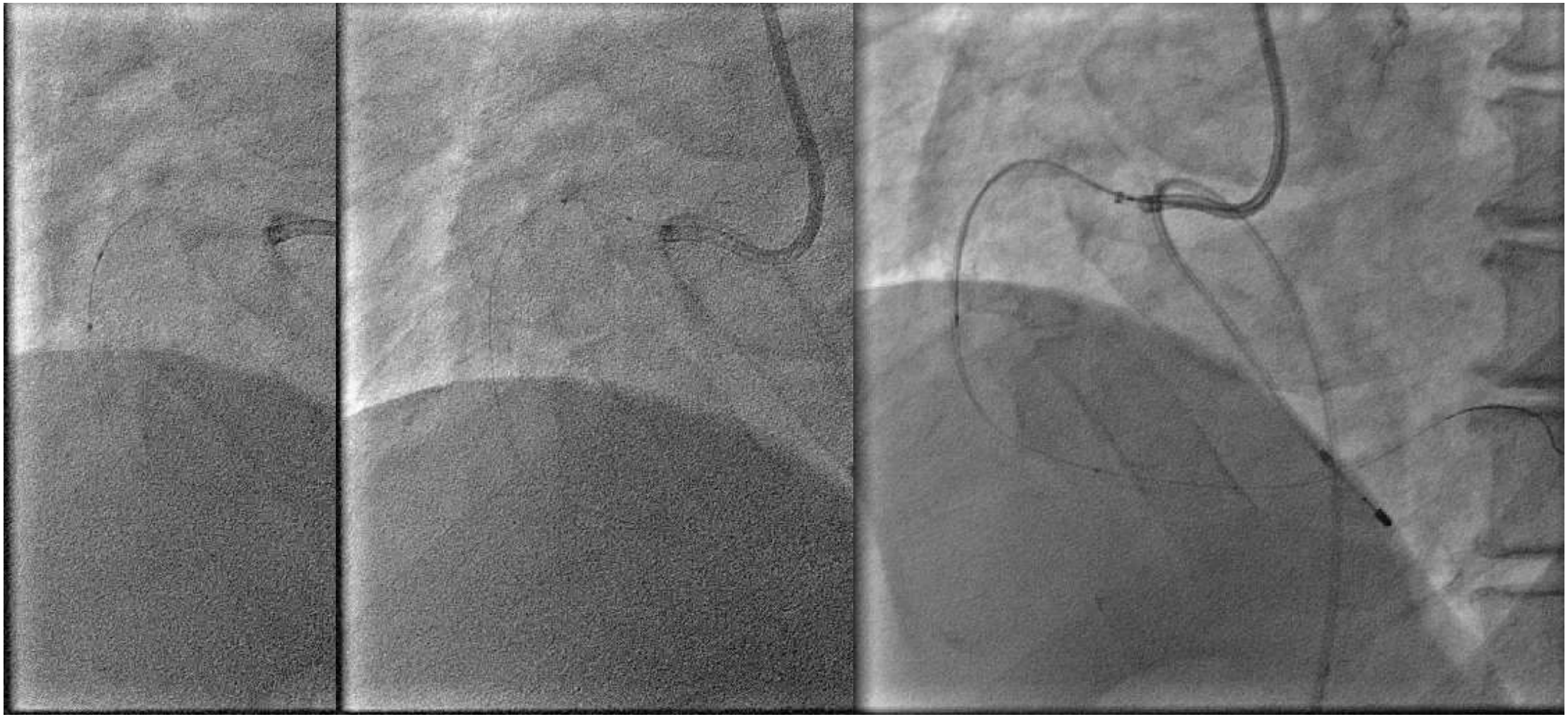
ViperWire Advance, Classic Crown 80krpm

IVUS3 & OCT (post debulking)



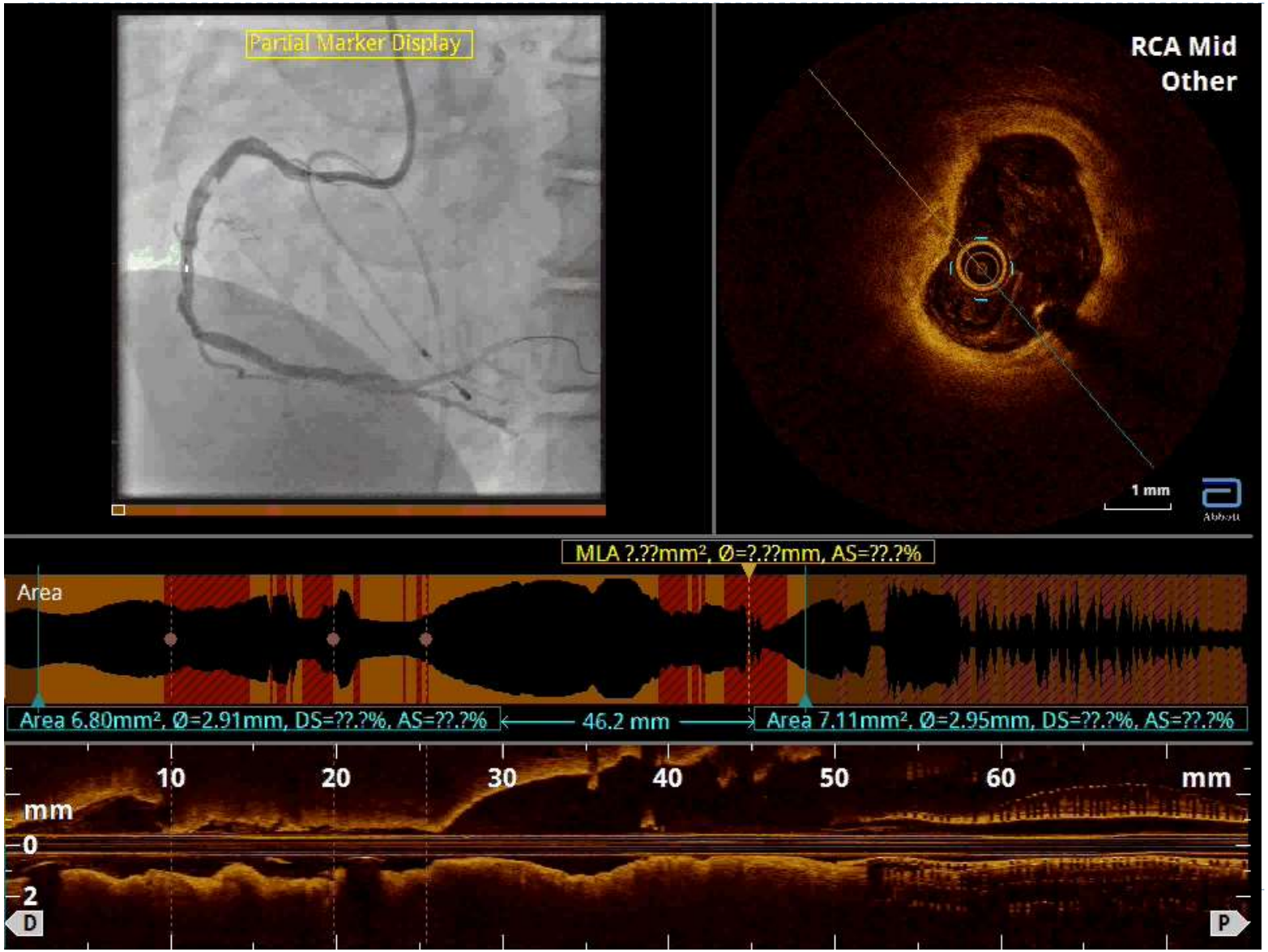
	MLA(mm^2)	MLD(mm)	AS%
Post OAS	1.5	1.4	81

Pre-dilatation



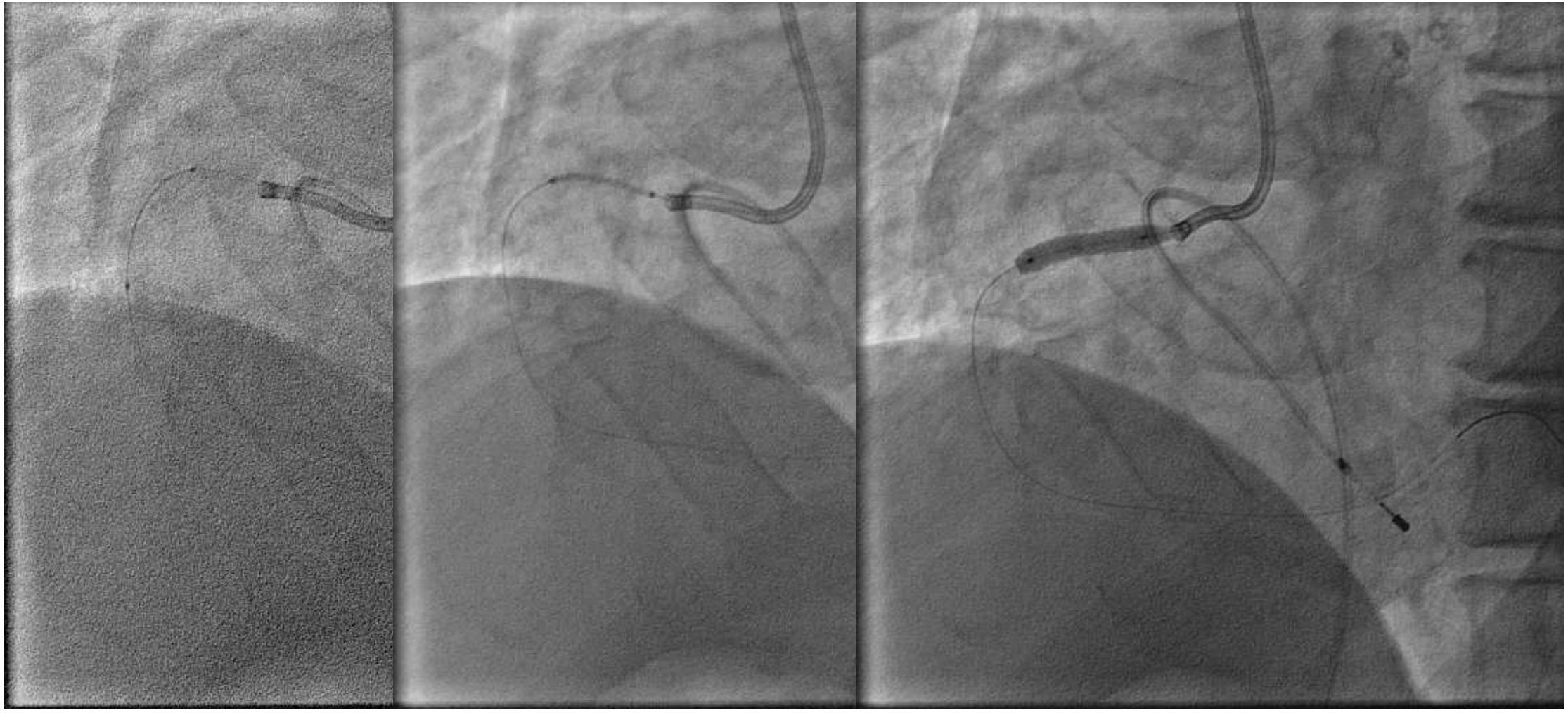
- NSE 3.75*13mm

OCT (post ballooning)



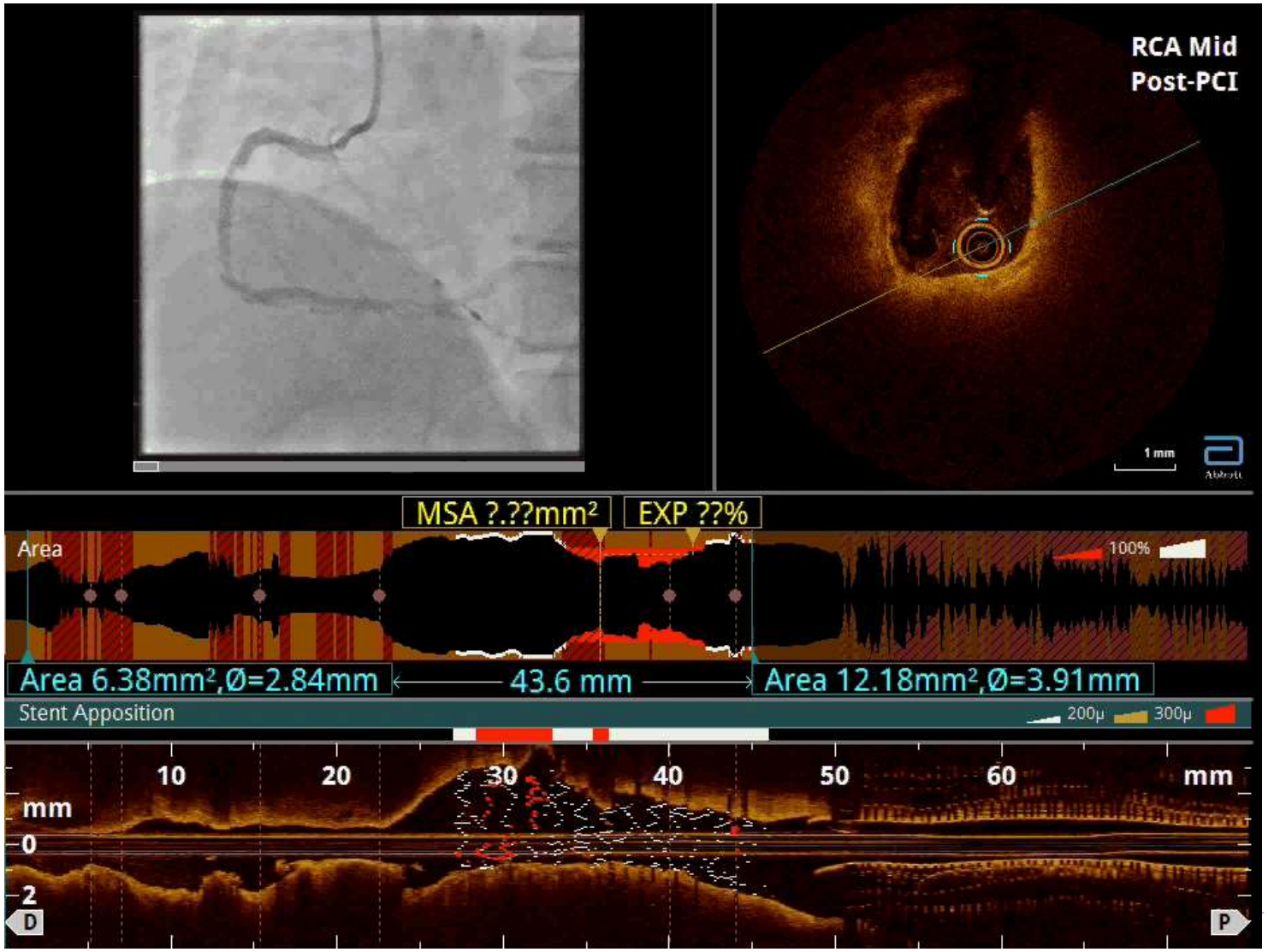
	MLA(mm^2)	MLD(mm)	AS%
Post OAS	1.5	1.4	81
Post balloon	4.2	2.3	

DCB, stenting



SeQuent Please 3.5*26mm, XIENCE Sierra 4*18mm

OCT (post DCB + stenting)



RCA final CAG

Summary

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- The patient was successfully performed PCI of 2 vessel severe calcified lesions using OAS.
-
- OAS is a useful tool in performing high-risk PCI effectively in a dialysis patient with severely calcified coronary lesions.