Con il Patrocinio di

GISE
Società Italiana di Cardiologia Interventistica

Caso #2:
paziente diabetico con storia di PCI

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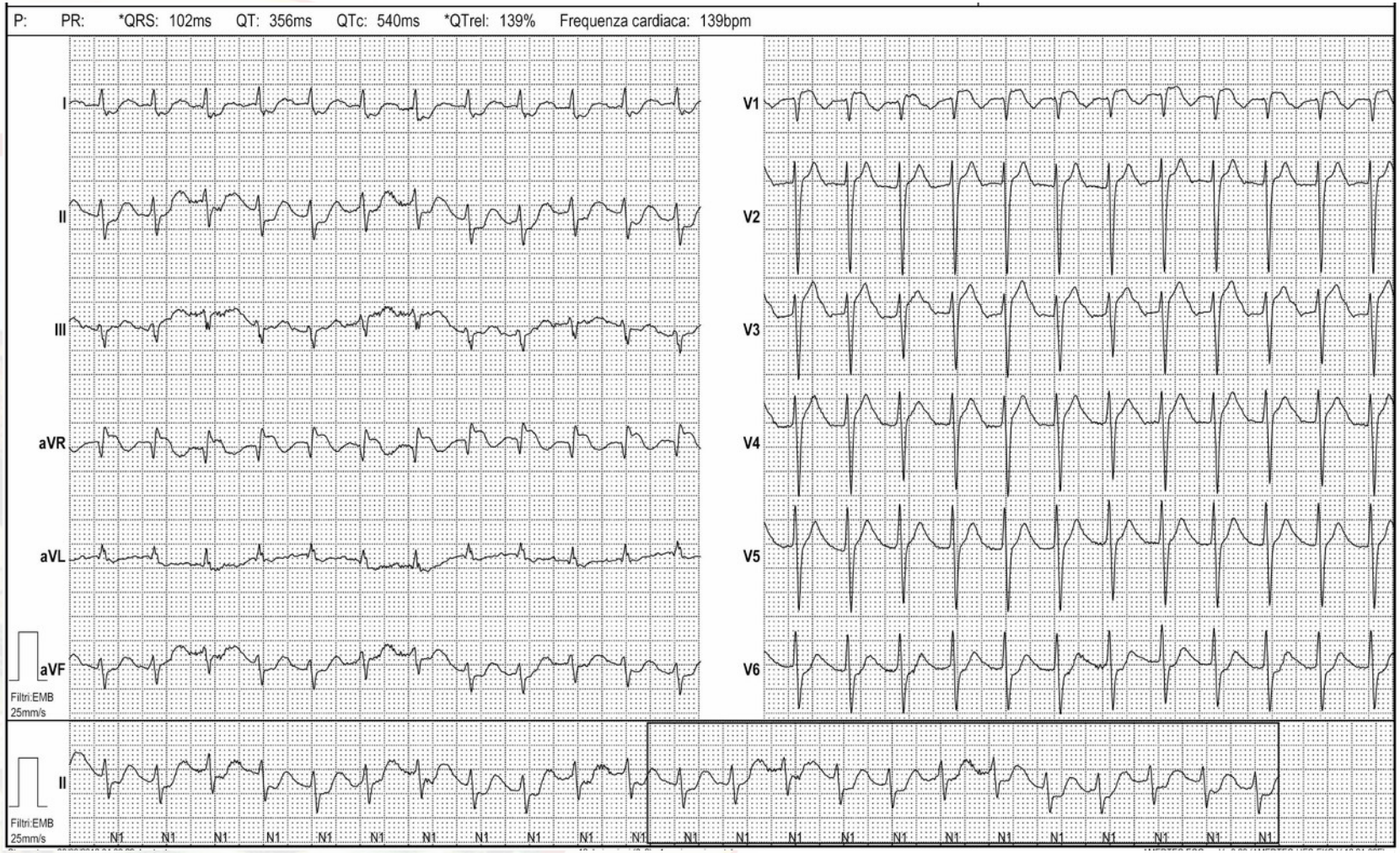
Malattia coronarica cronica in paziente già sottoposto a PCI: dallo studio Compass alla pratica clinica

Strategie vincenti nella gestione della terapia antitrombotica nel paziente con cardiopatia ischemica cronica

High-risk NSTEMI

- 78 yo man, active lifestyle, good clinical conditions
- CABG x 3 ~15 years ago
  - ℞ ASA + antidiabetic drugs
- Angina + dyspnea for 3 days
- Killip III, SO_2 80%
- SVT (SupraVentricular Tachycardia)
- GRACE score: 214

ECG at admission



High-risk NSTEMI

- Stabilization with medical therapy
  - O_2 Ventimask 60%
  - i.v. Furosemide
  - i.v. Digoxin
  - i.v. Amiodarone
  - s.c. Enoxaparin

- CK 1386 U/L
- CK-MB 215 U/L

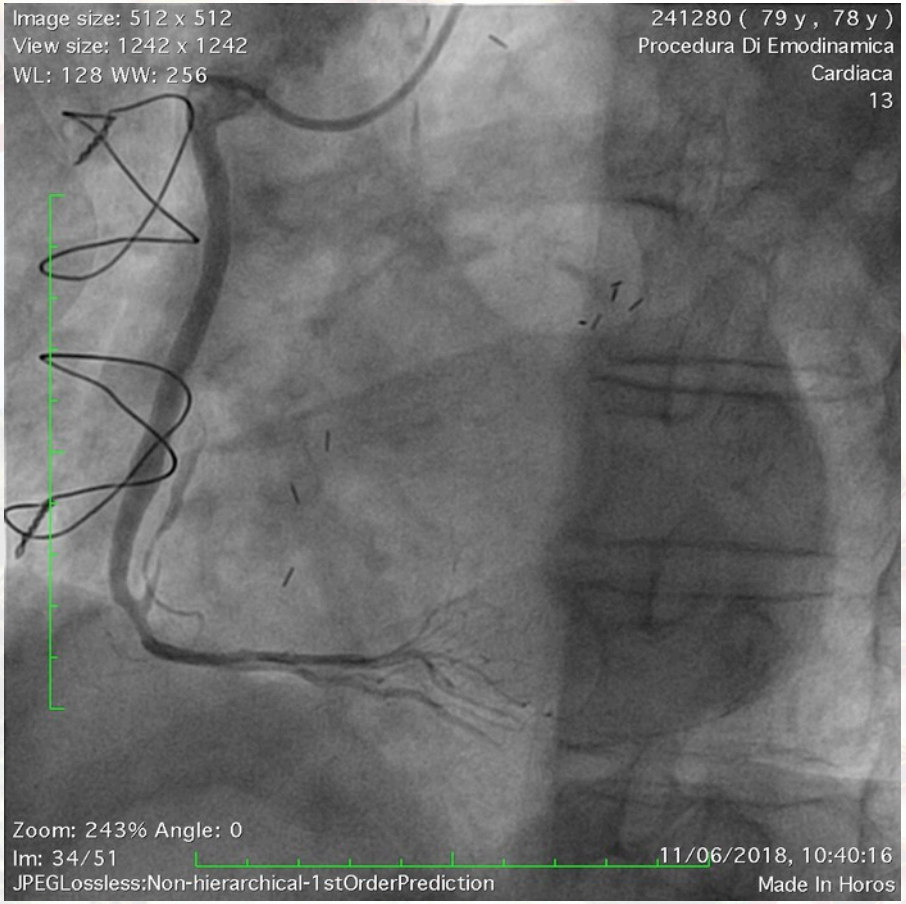
- **Hb 13.3 g%**
- **WBC 13500/mmc**
- **eGFR 55 mL/min**
- **LDL-C 101 mg/dL**

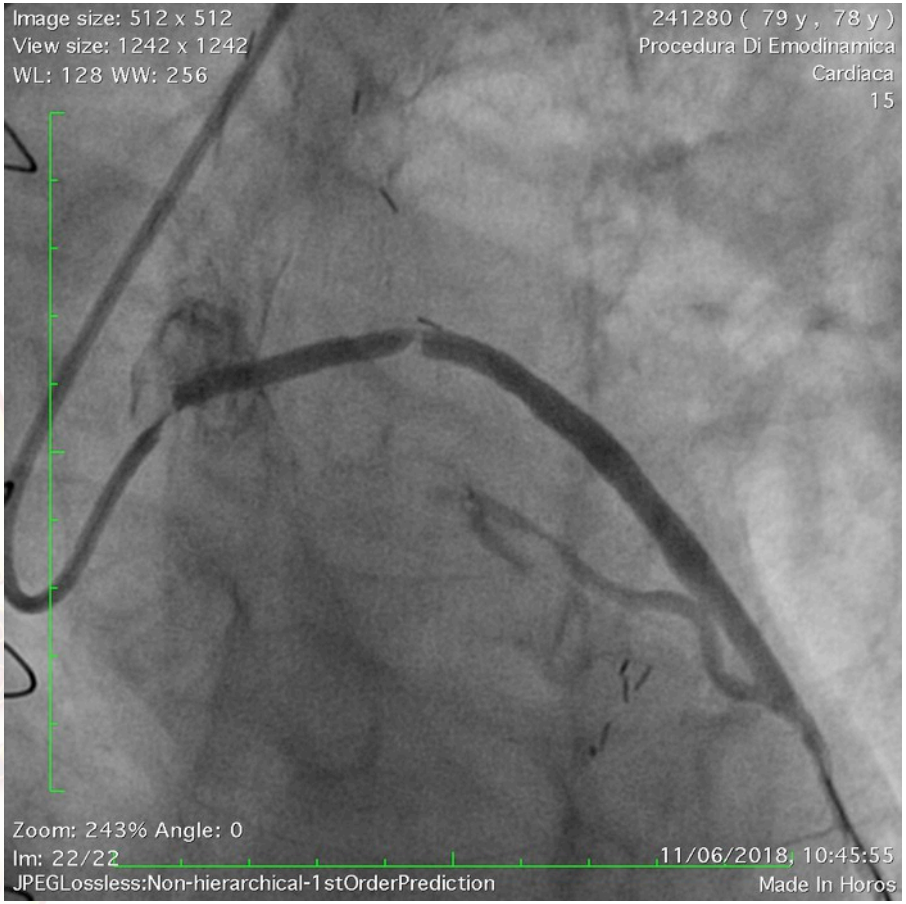
- EF 55%

ECG at angio

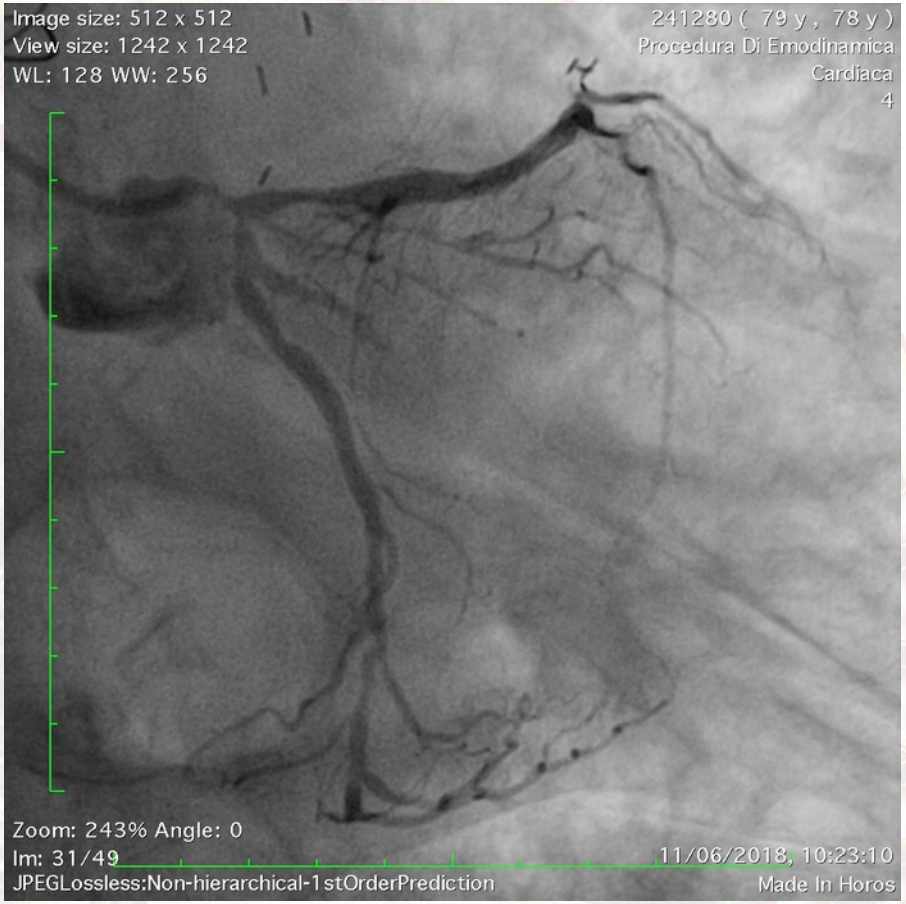

P: 12 ms *PR: 222ms QRS: 92ms QT: 378ms QTc: 463ms *QTrel: 119% Frequenza cardiaca: 90bpm
I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6
Filtri:EMB
25mm/s
II
Filtri:EMB
25mm/s
N1 N1 N1 N1 N1 N1 N1 N1 N1 N1 A N1 N1 N1 N1

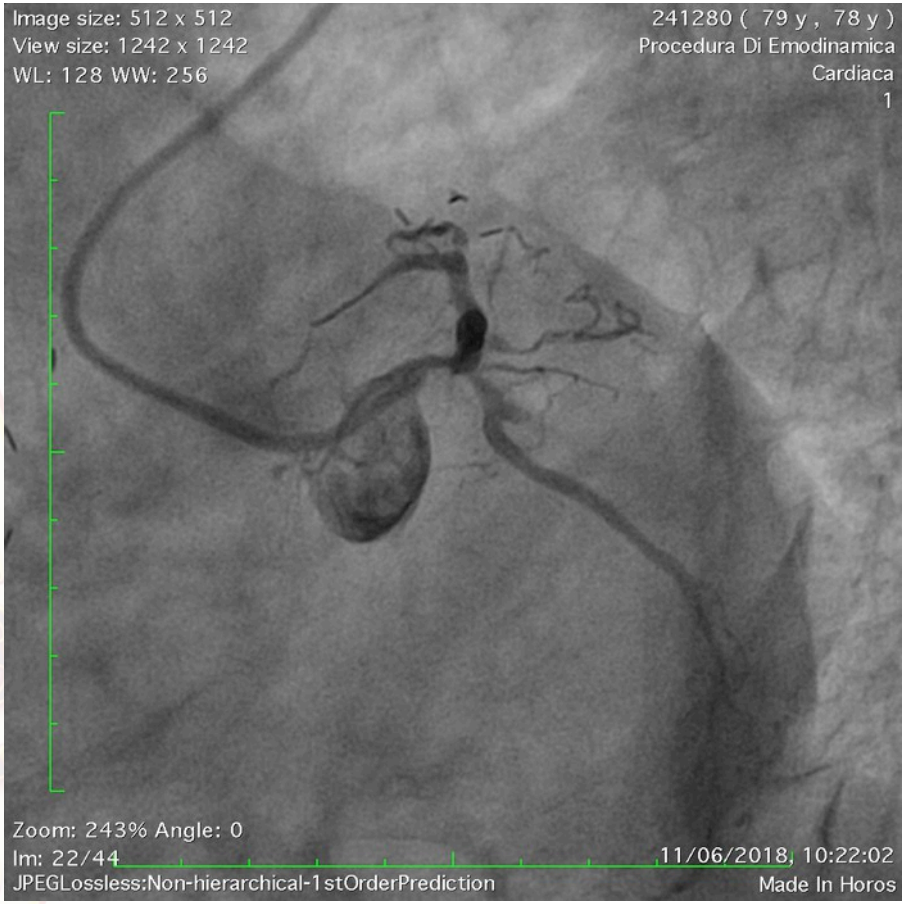
SVG ➔ RCA patent
SVG ➔ OM stenosis



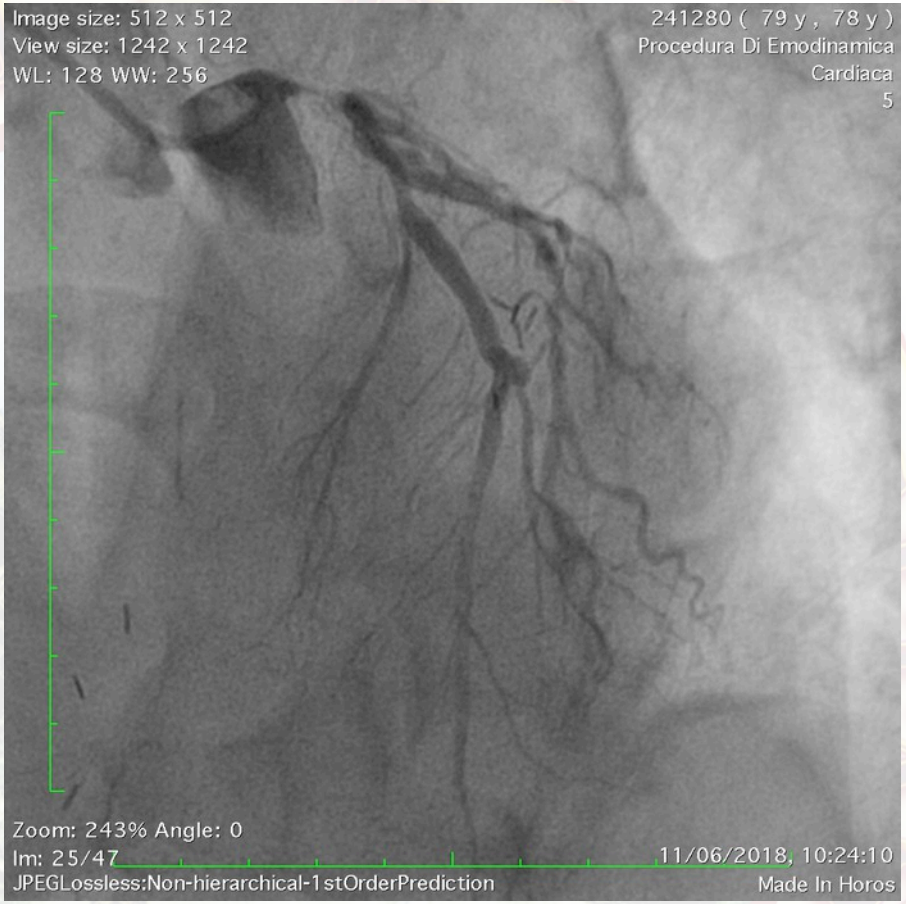


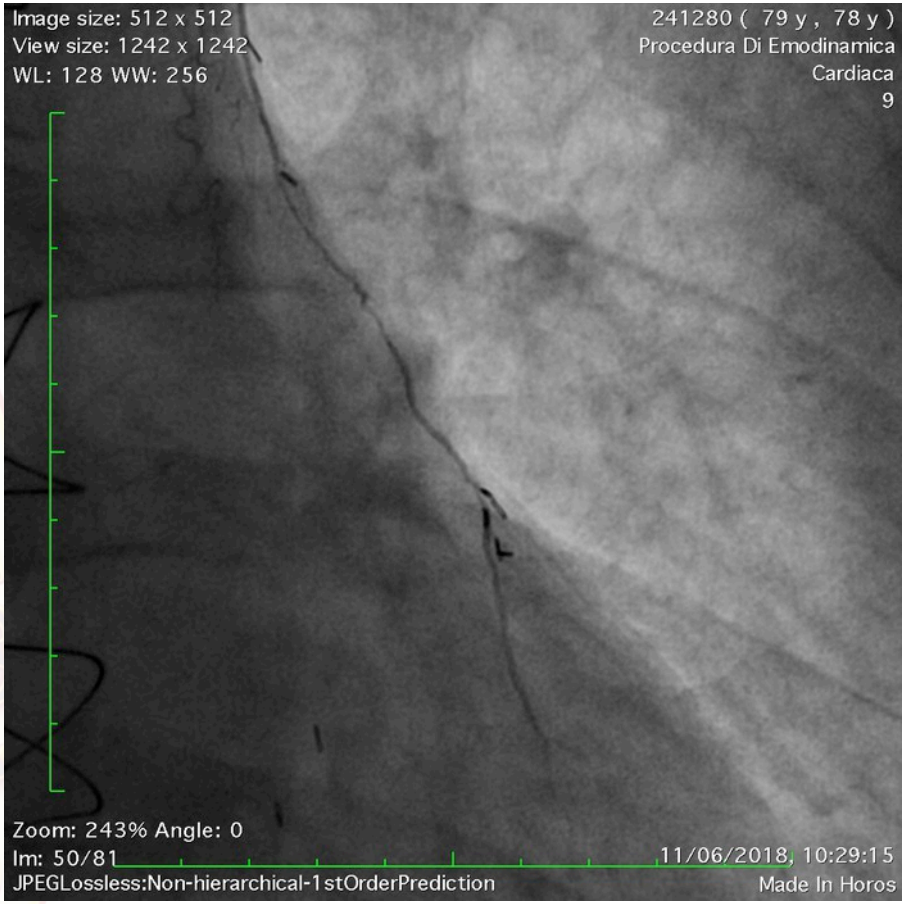
LM / LAD calcific stenosis





LIMA ➔ LAD failure





Summary of the case

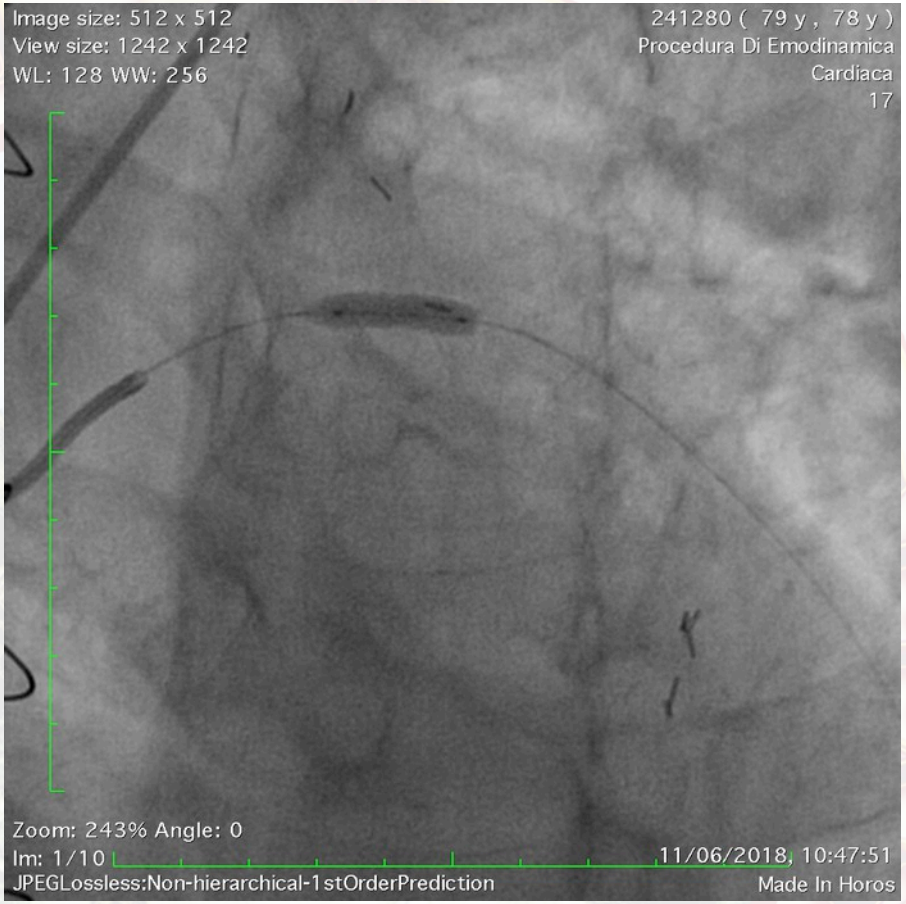
Diagnosis

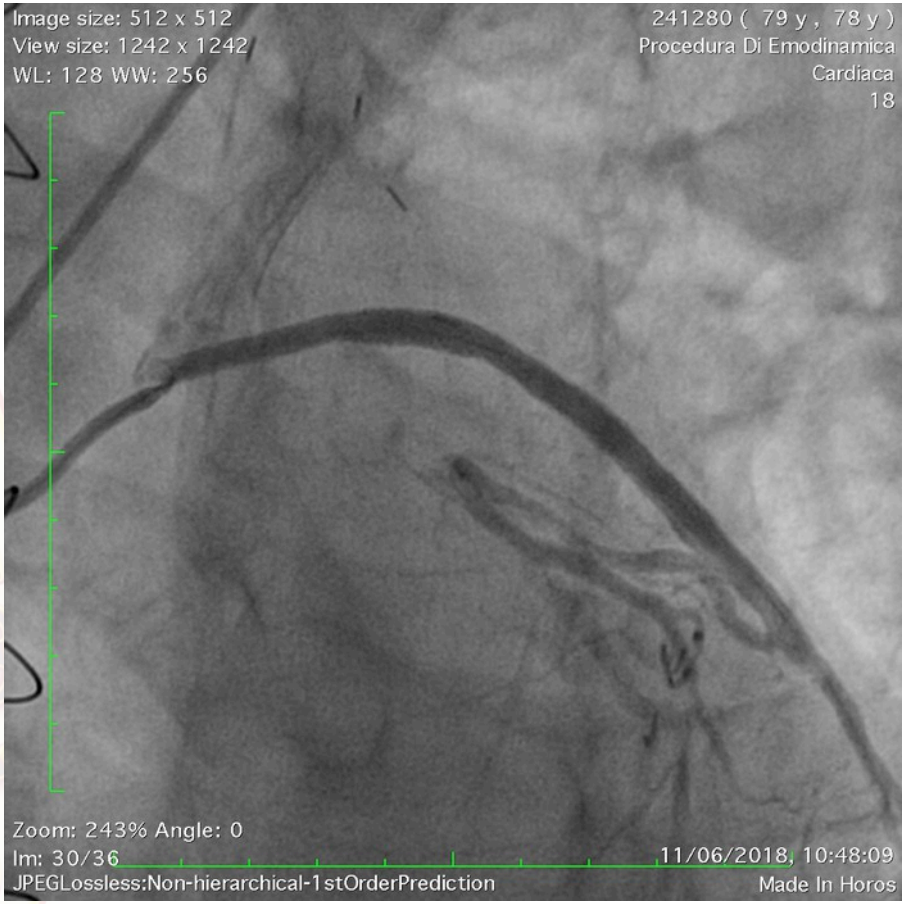
- 78yo diabetic man with previous CABG x 3
- High-risk NSTEMI, residual CAD
- Good LV function, moderate CKD

Indication

- PCI of SVG➔OM
- PCI of Calcific LM / LAD

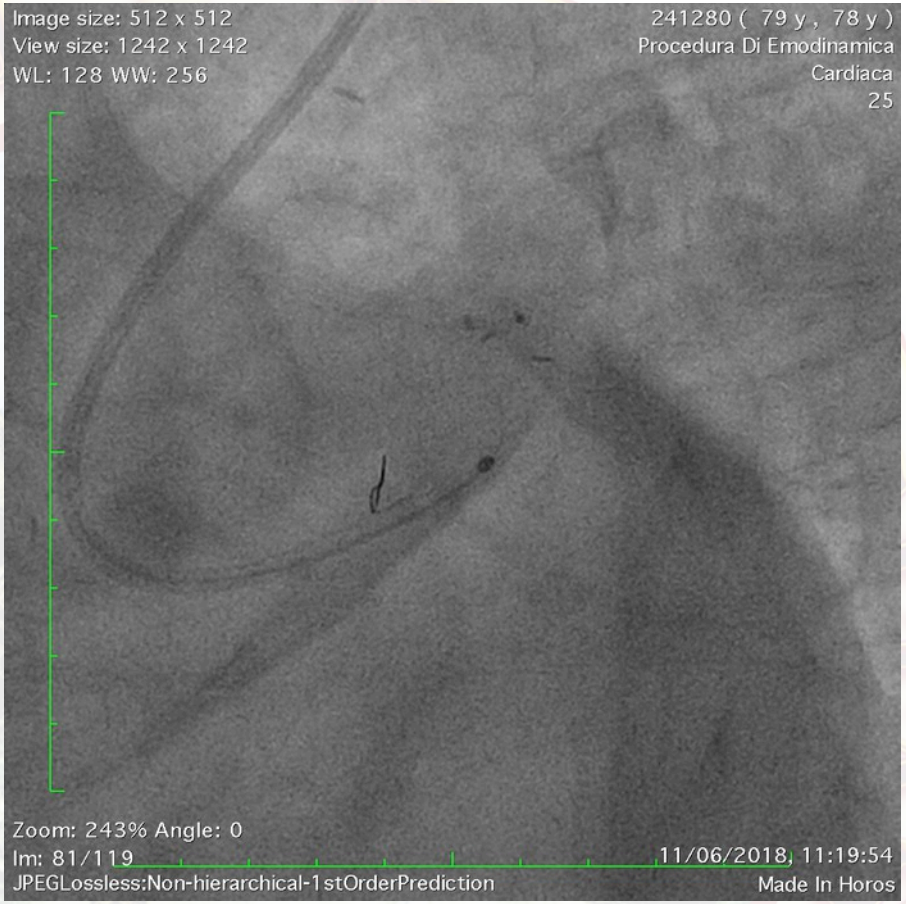
SVG ➔ OM direct stenting

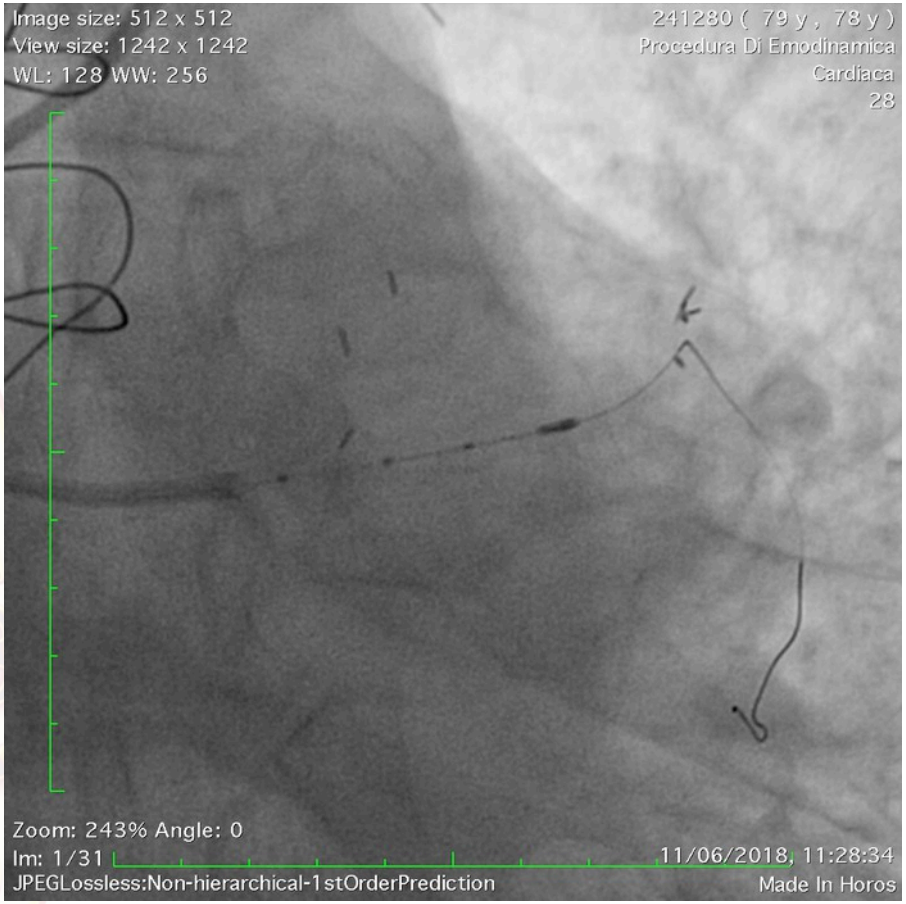




Resolute Onyx 4,0 x 12 mm
@ 18 atm

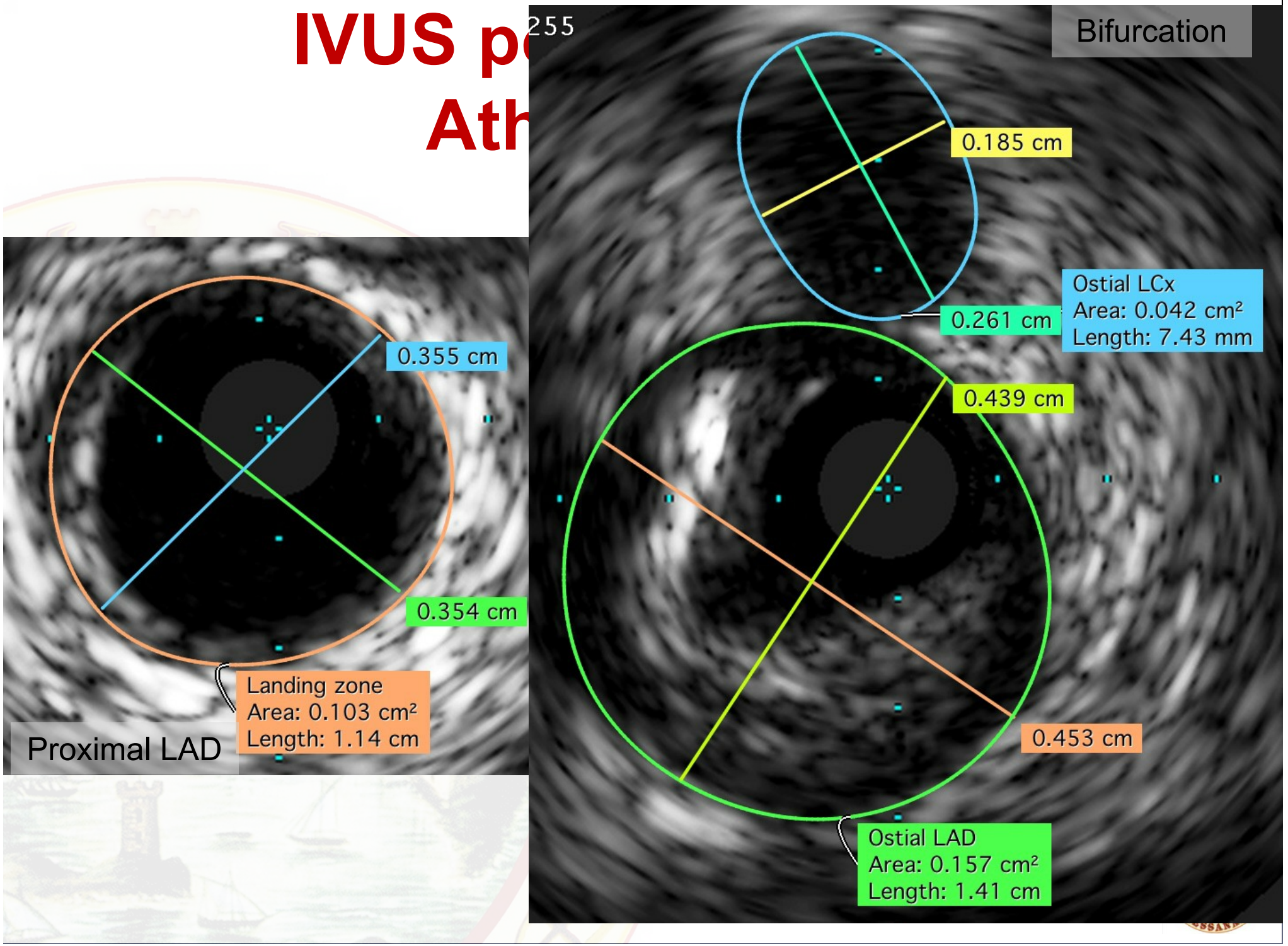
(Protected) Left Main Rotational Atherectomy + IVUS



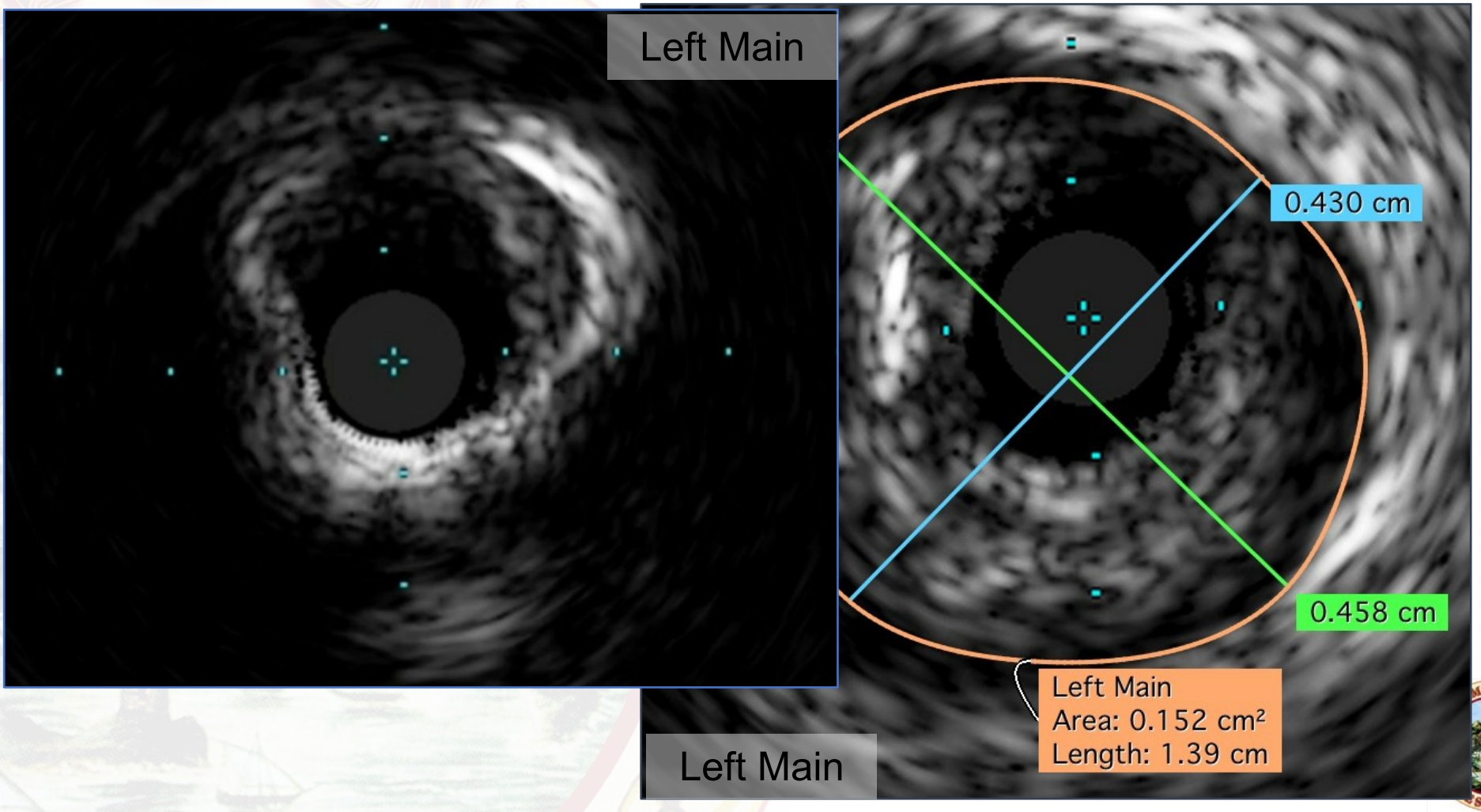


Rotalink burr 1,5 mm
@ 165.000 rpm x 3

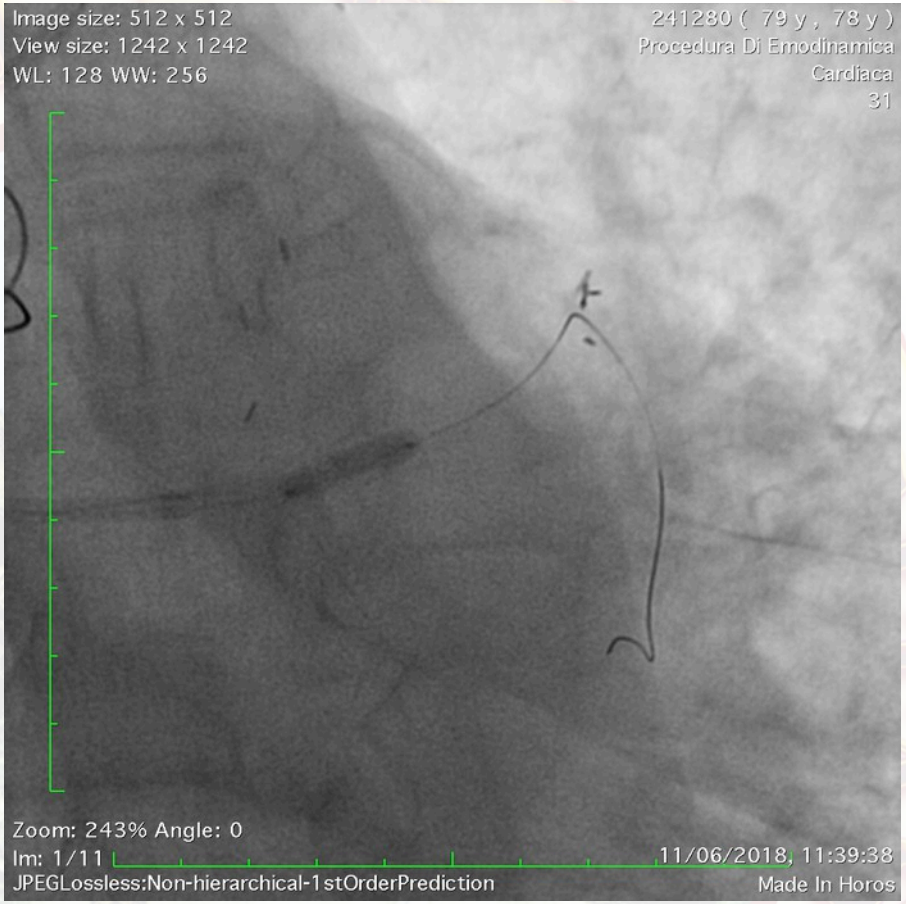
IVUS p
Ath

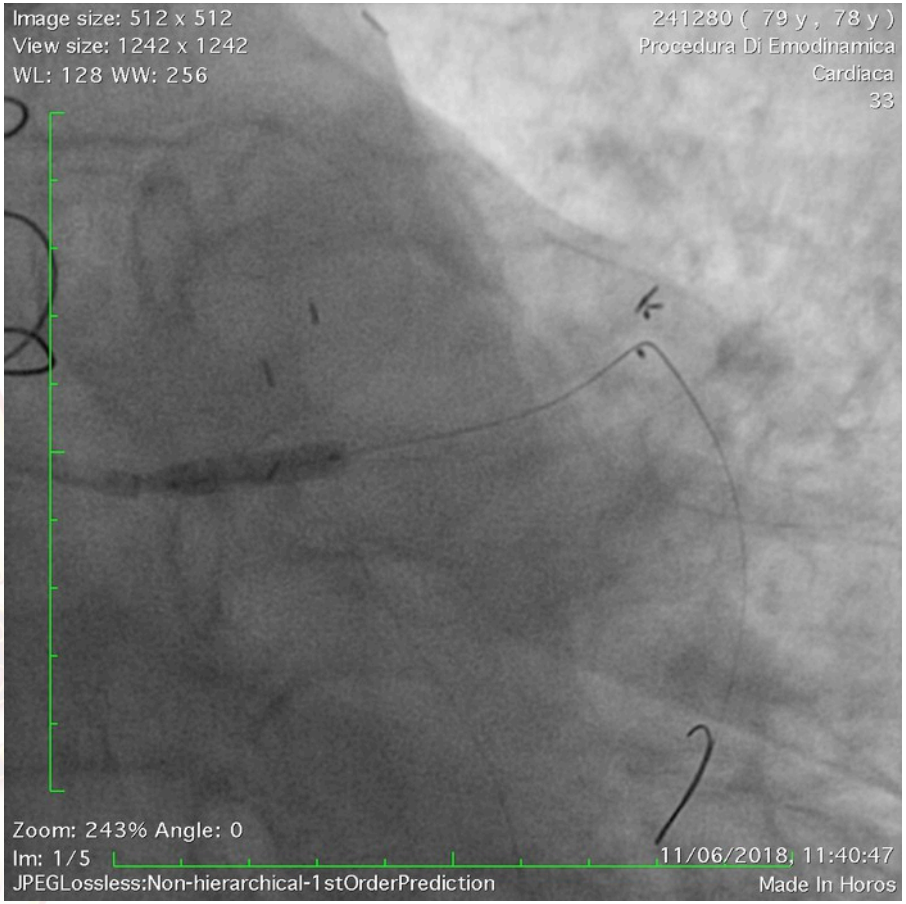

255
Bifurcation
0.185 cm
0.261 cm
Ostial LCx
Area: 0.042 cm²
Length: 7.43 mm
0.439 cm
0.453 cm
Ostial LAD
Area: 0.157 cm²
Length: 1.41 cm
0.355 cm
0.354 cm
Landing zone
Area: 0.103 cm²
Length: 1.14 cm
Proximal LAD

IVUS post Rotational Atherectomy



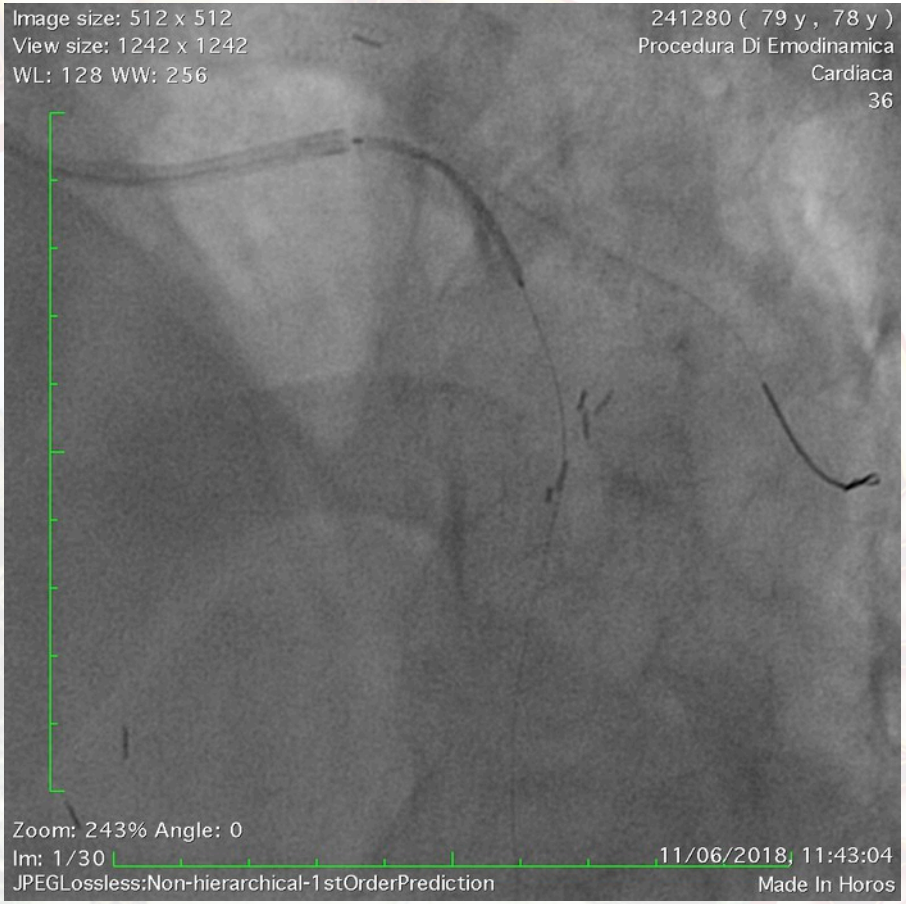
Predilatation

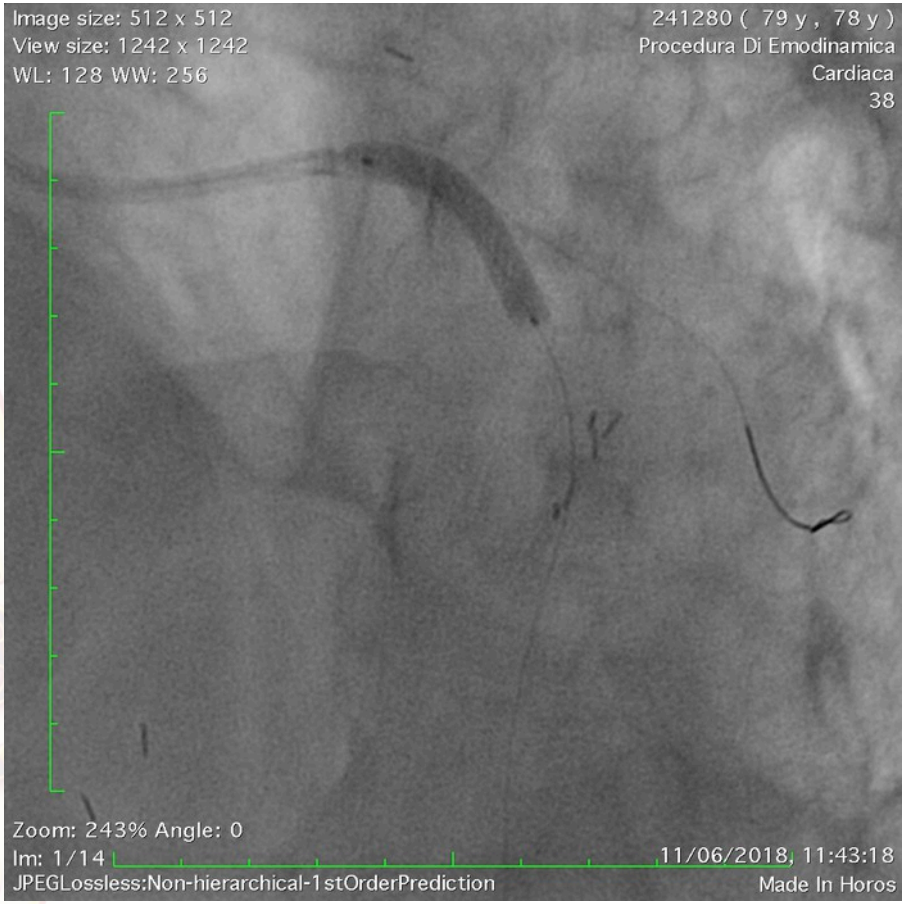




3,5 mm NC balloon LAD / LM

LM / LAD stenting

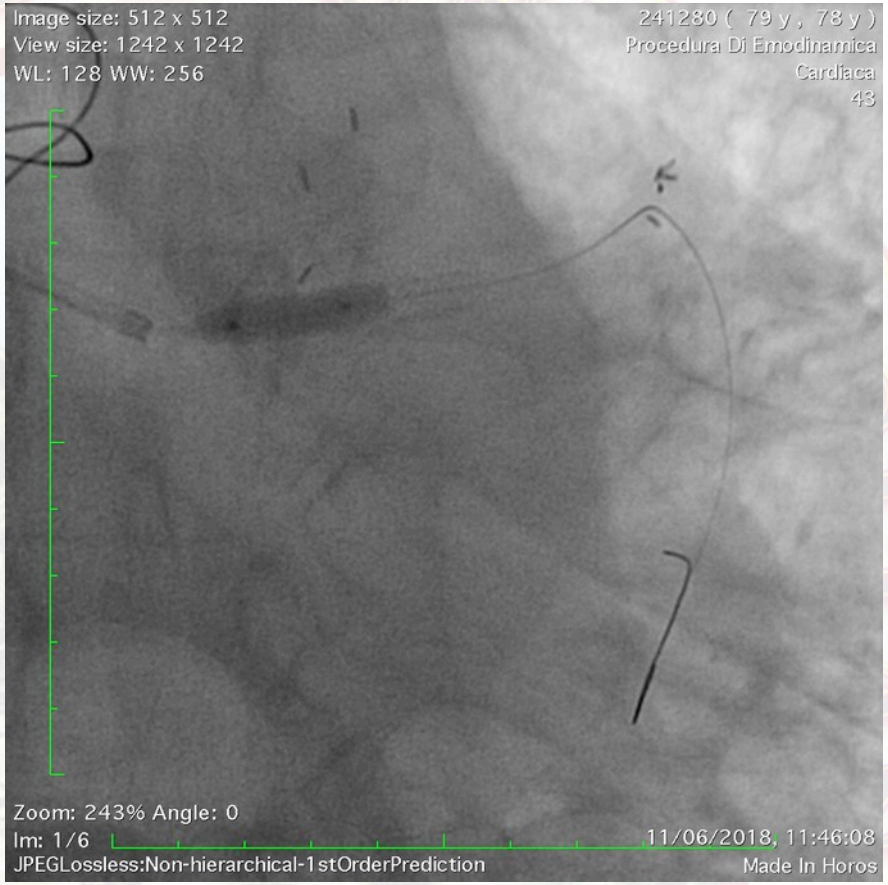




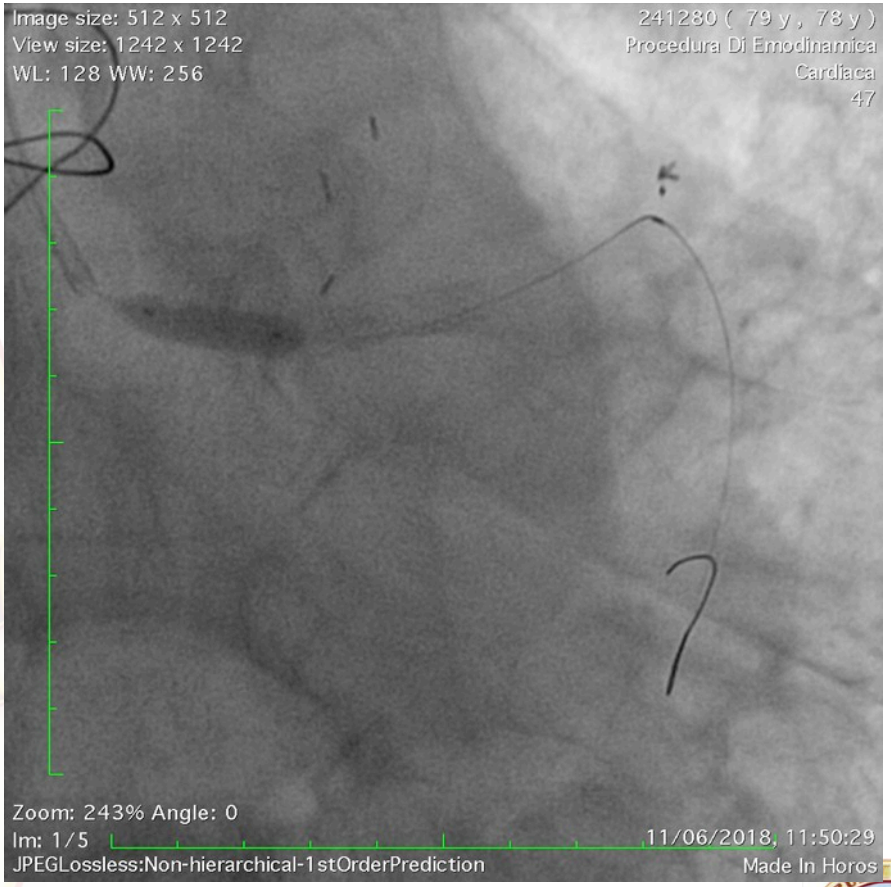
Resolute Onyx 3,5 x 22 mm
@ 18 atm

Stent optimization

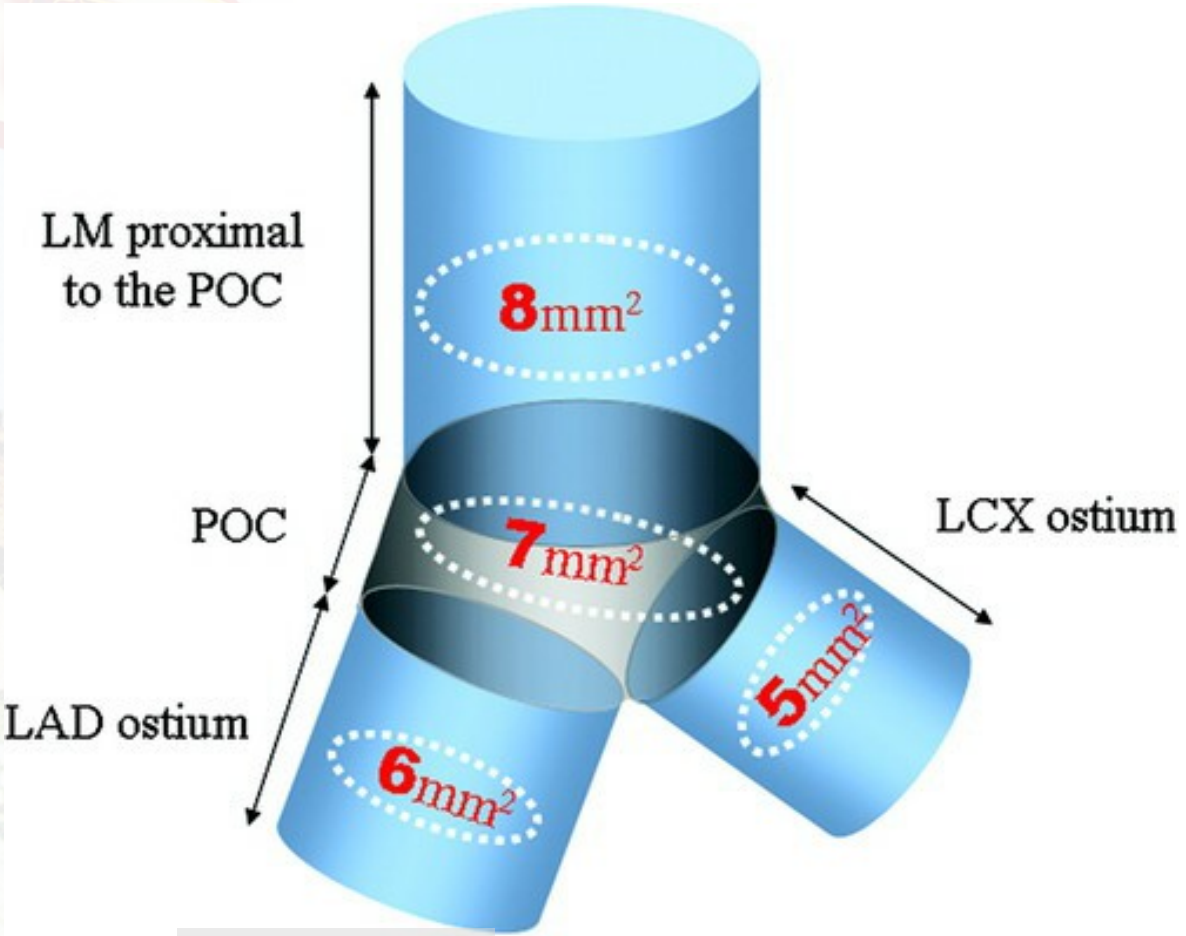
POT 4,5 mm NC @ 14 atm



POT 4,5 mm NC @ 18 atm



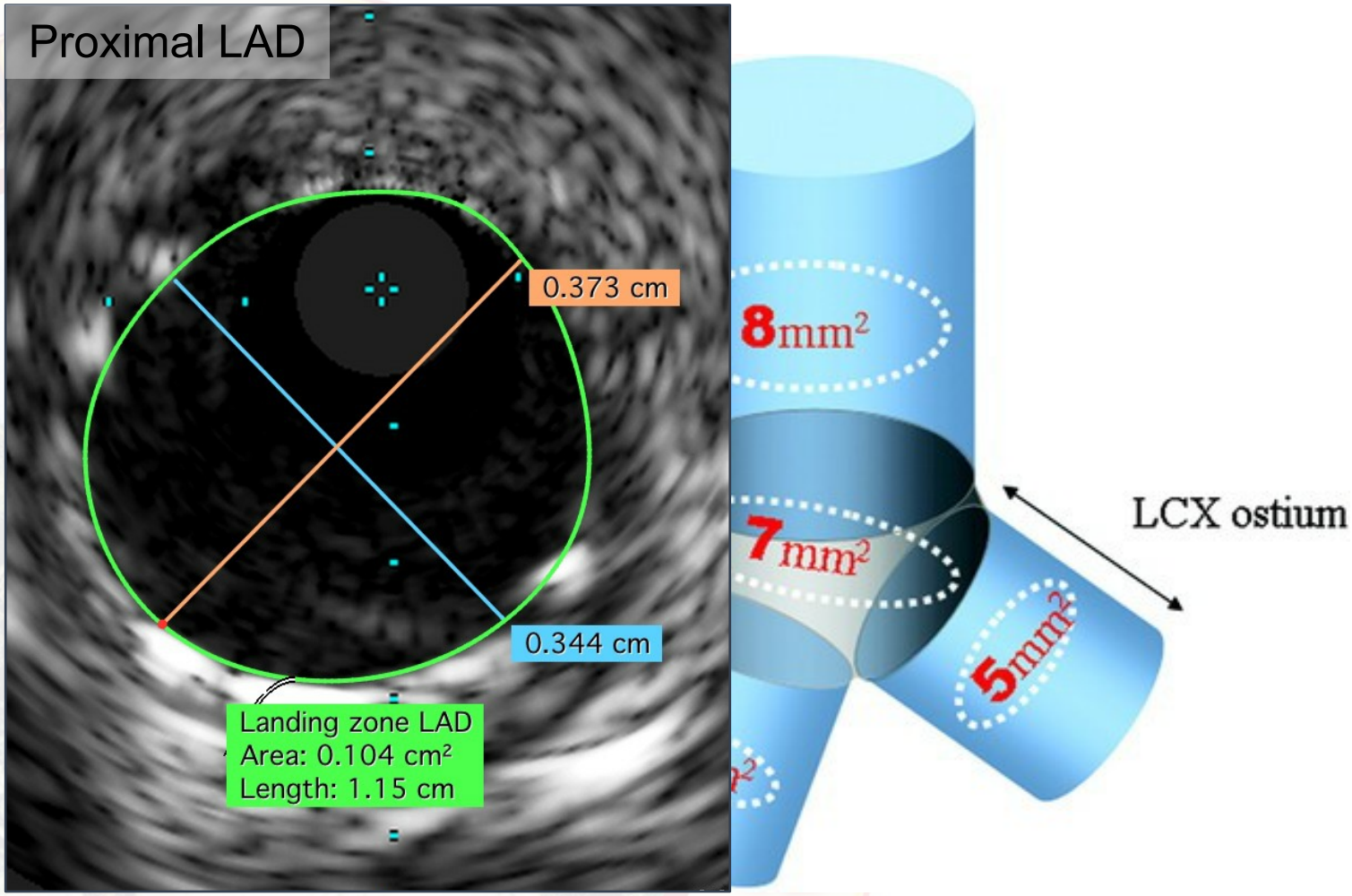
Final IVUS result



Bifurcation

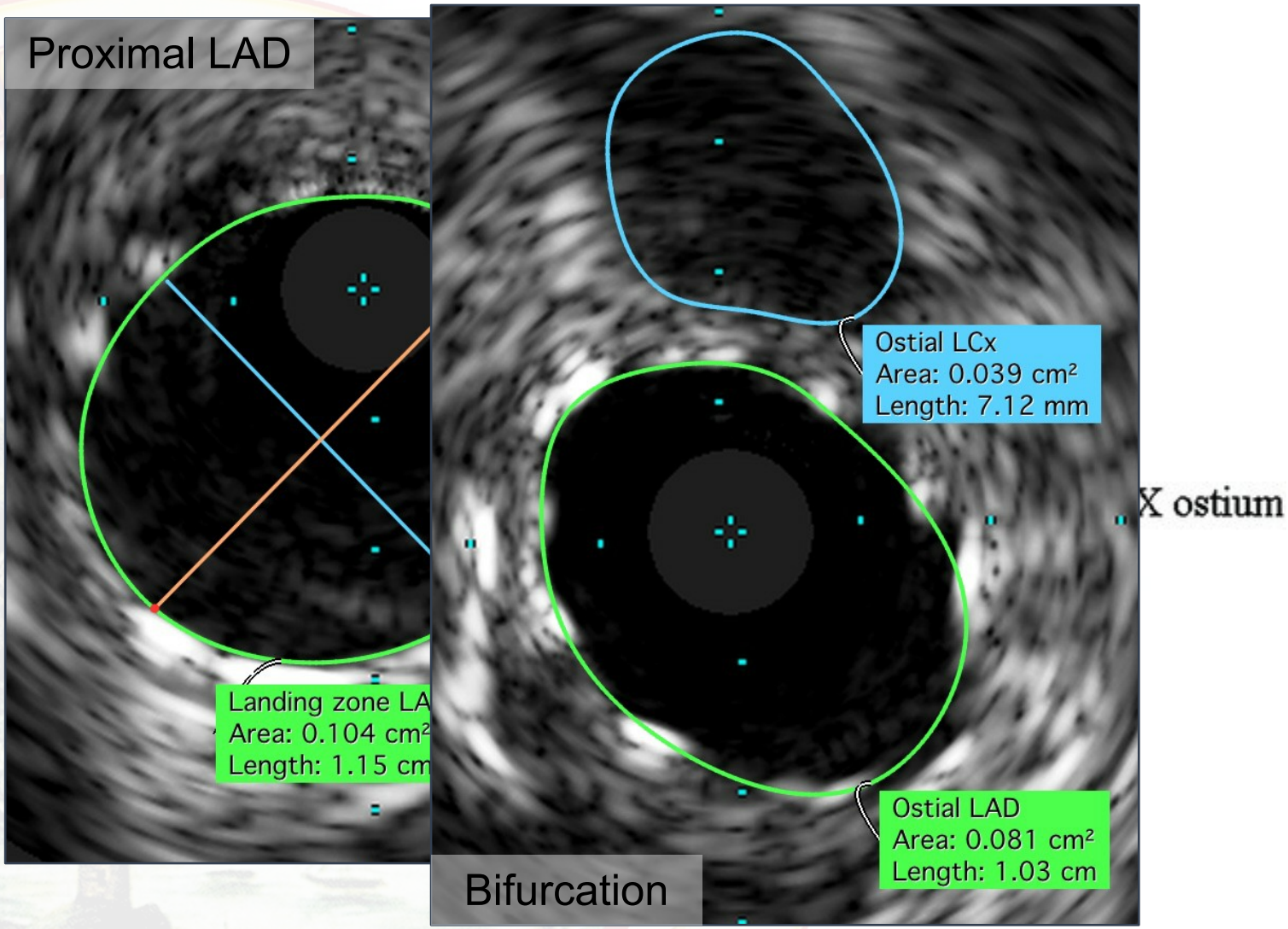
Kang Circ Cardiovasc Intv 2011

Final IVUS result



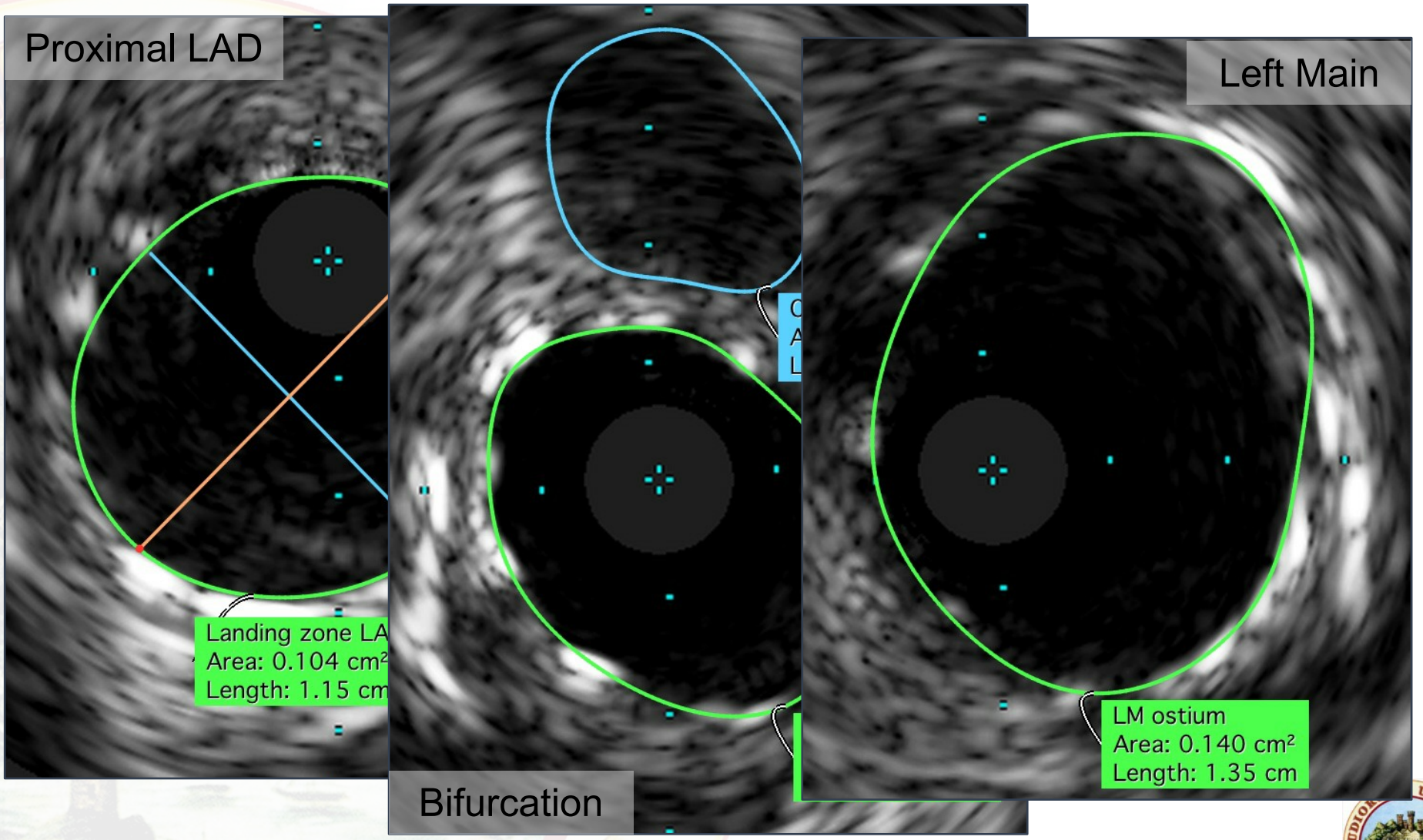
Kang Circ Cardiovasc Intv 2011

Final IVUS result



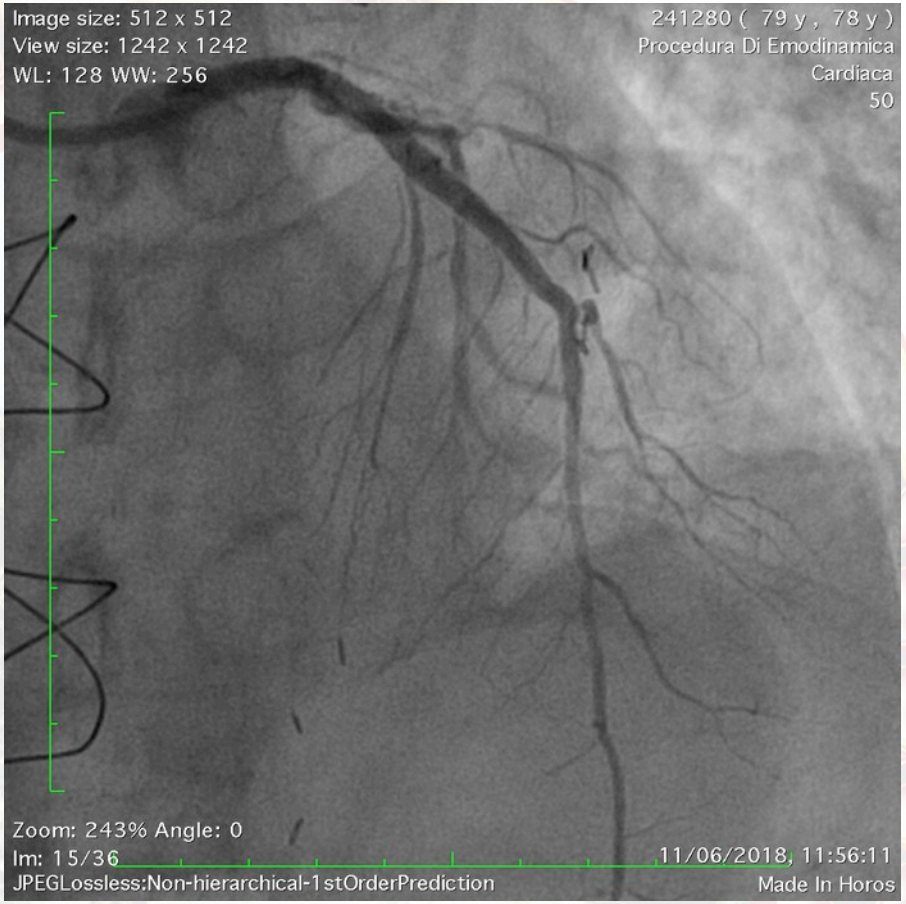
Kang Circ Cardiovasc Intv 2011

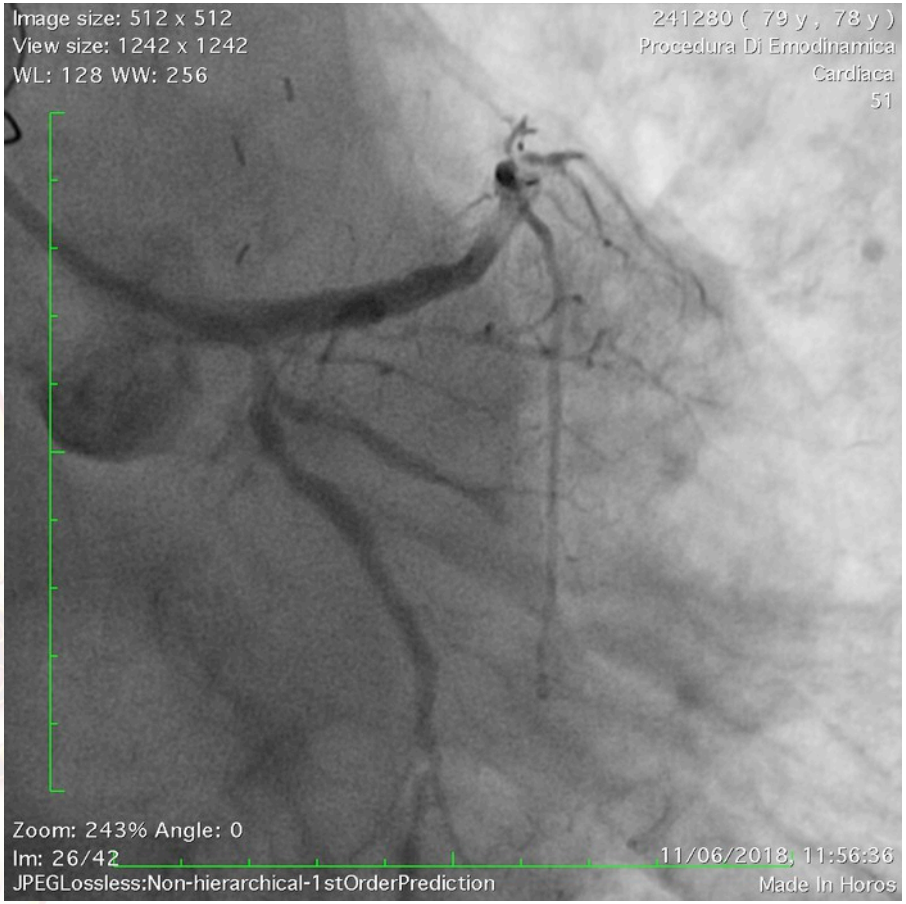
Final IVUS result



Kang Circ Cardiovasc Intv 2011

Final angiographic result





Post-procedural outcome

- Uneventful clinical course
- Discharge medications
  - ASA
  - Ticagrelor 90 bid
  - Atorvastatin 80
  - Bisoprolol 2.5
  - Enalapril 5
  - Furosemide 25 bid + Spironolactone 100
  - Antidiabetic drugs

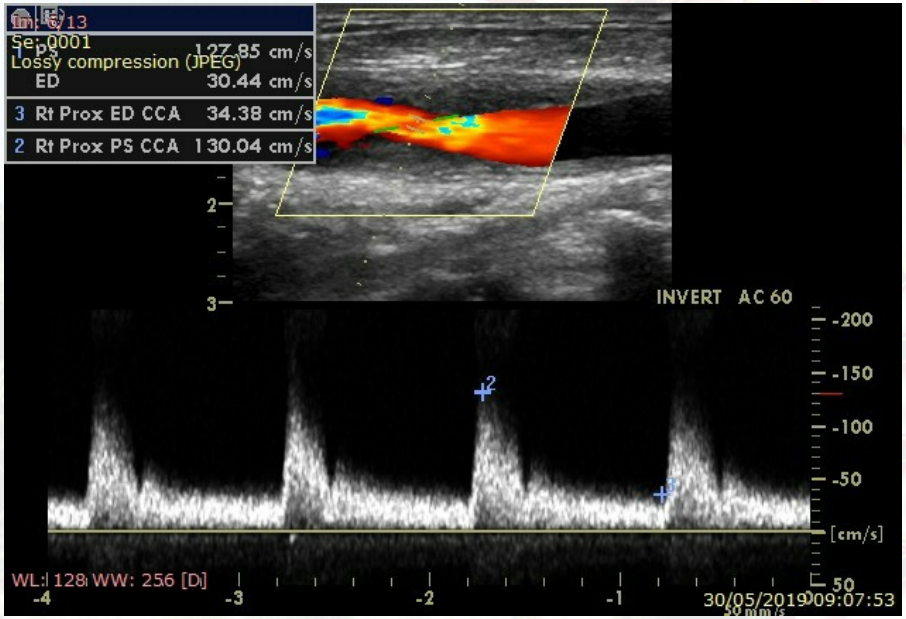
Routine office/clinic follow-up (12 months later)

- Aspirin 100 mg
- Ticagrelor 90 bid
- Pantoprazole 20 mg
- Bisoprolol 2.5 mg
- Atorvastatin 40 mg
- Metformin

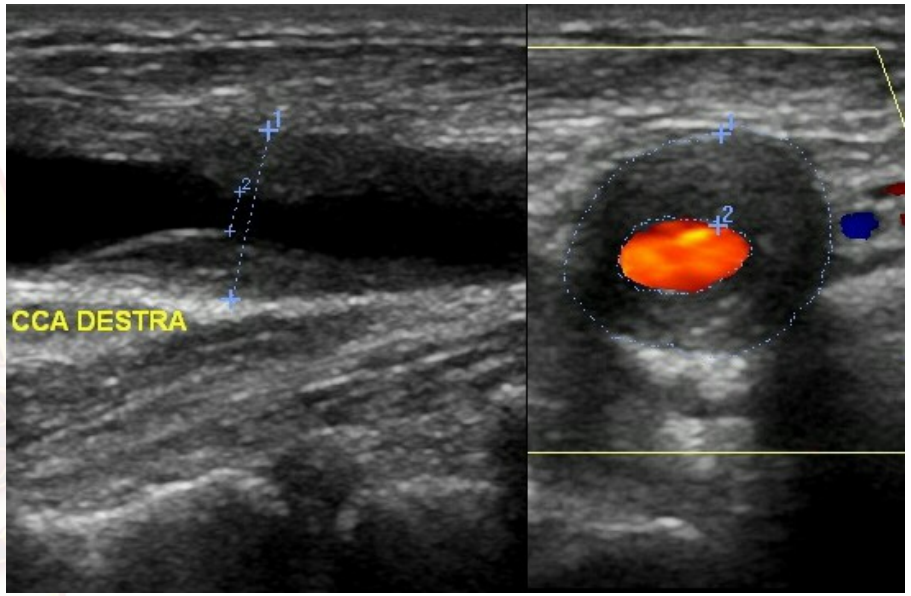
- Active lifestyle, no chest pain
- Negative scintigraphy (10/2018)
- Blood pressure: 120/60 mmHg
- Creatinine 1.53, eGFR 43 ml/min
- LDL-C 70 mg/dl (Atorva 40)
- HbA1c: 7.0%
- Carotid ultrasound: >50% stenosis of right CCA

Routine office/clinic follow-up (12 months later)

- PSV 1.3 m/s



- 77% Diameter Stenosis
- 83% Area Stenosis



Routine office/clinic follow-up (12 months later)

- Aspirin 100 mg
- Ticagrelor 90 bid
- Pantoprazole 20 mg
- Bisoprolol 2.5 mg
- Atorvastatin 40 mg
- Metformin

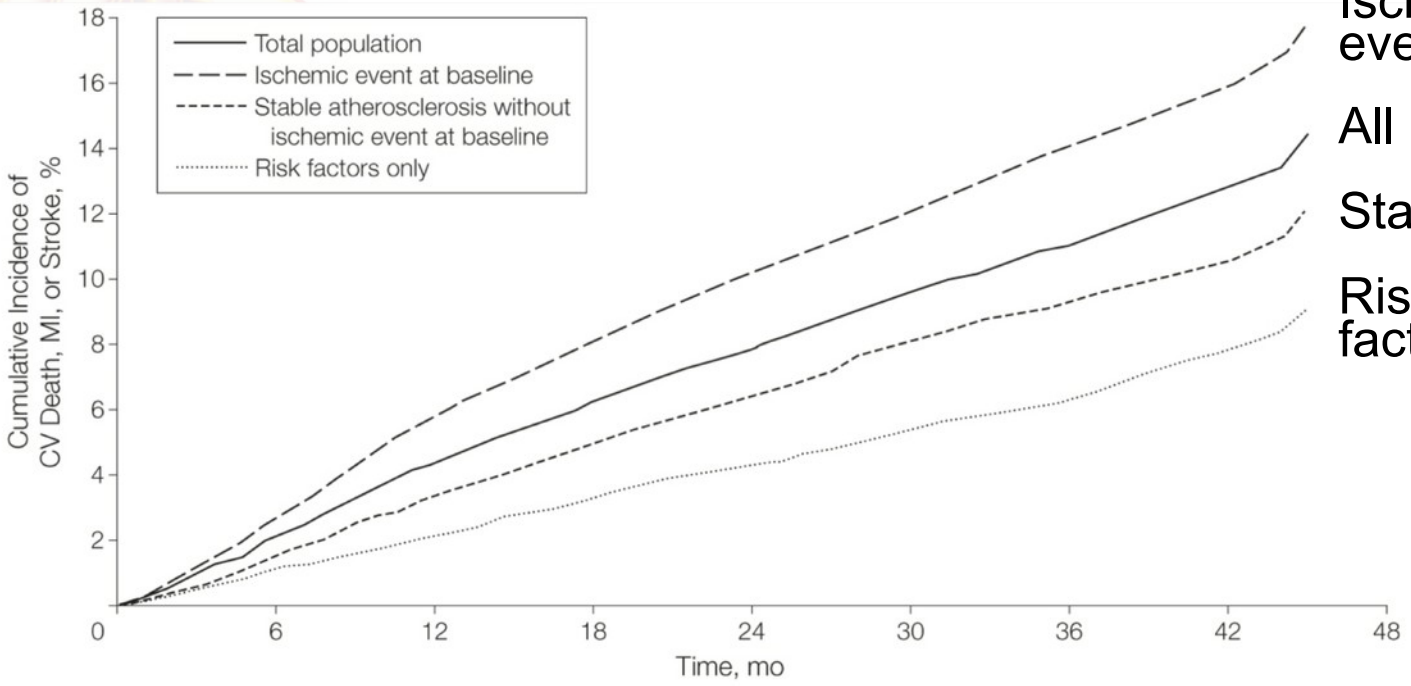
What is the residual risk of cardiovascular events?

- Active lifestyle, no chest pain
- Negative scintigraphy (10/2018)
- Blood pressure: 120/60 mmHg
- Creatinine 1.53, eGFR 43 ml/min
- LDL-C 70 mg/dl (Atorva 40)
- HbA1c: 7.0%
- Carotid ultrasound: >50% stenosis of right CCA

The High Lifetime Risk of Cardiovascular Events Among Patients with CAD Needs to be Reduced

Incidence of MACE according to history of ischaemic events in the REACH registry (Stable Outpatients at Risk of or With Atherothrombosis)

- **Diabetes**
- **Ischemic event in the previous year**
- **Polyvascular disease**



Ischemic event

All

Stable

Risk factors

No. at risk								
Total population	45227	44038	42252	40422	34666	32567	29338	25417
Ischemic event at baseline	21890	21159	20143	19220	16455	15498	13977	12210
Stable atherosclerosis without ischemic event at baseline	15264	14947	14402	13809	11910	11192	10103	8835
Risk factors only	8073	7932	7707	7382	6301	5877	5258	4372

4-year incidence of MACE in patients with a prior ischaemic event: 18.3%

Bhatt DL et al. *JAMA* 2010;304:1350–1357.

External validity of randomised controlled trials: “To whom do the results of this trial apply?»

- Relevance depends on external validity (or generalisability)—ie, whether the results can be reasonably applied to a definable group of patients in a particular clinical setting in routine practice.
- There is concern among clinicians that external validity is often poor, particularly for some pharmaceutical industry trials, a perception that has led to underuse of treatments that are effective.

Peter M Rothwell, FRCP, The Lancet 2005

CAD patients: consistent benefits irrespective of time since previous MI

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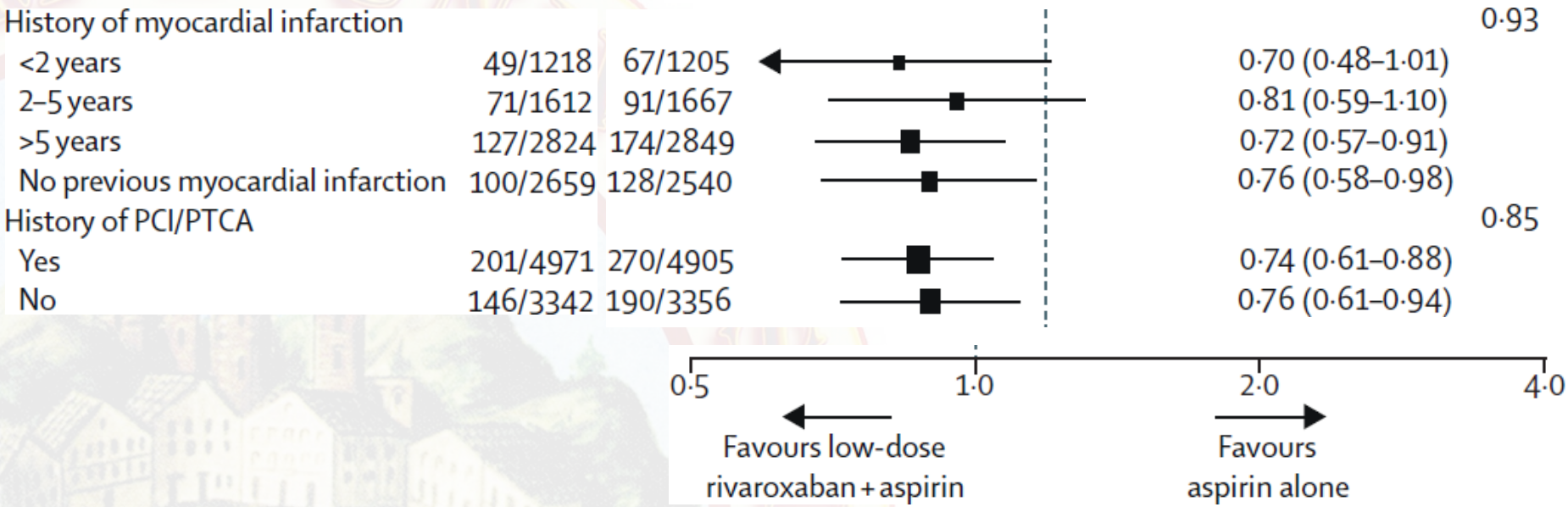
HEALTH THROUGH KNOWLEDGE



CAD, coronary artery disease; MI, myocardial infarction; PCI, percutaneous coronary intervention; PTCA, percutaneous transluminal coronary angioplasty.
Connolly SJ, *et al. Lancet* 2018; 391:205–18.

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Outcomes in DAPT post-MI trials vs COMPASS post MI

Population Health Research Institute
HEALTH THROUGH KNOWLEDGE

DAPT meta-analysis post MI (%)[1]	Trial	COMPASS post MI (%)[2]
-22	Primary endpoint	-26
-15	CV death	-32
-30	MI	-15 (NS)
-19	Stroke	-39
+73	Major bleeding	+61
-8 (NS)	All Cause Mortality	-27

CV, cardiovascular; DAPT, dual antiplatelet therapy; MI, myocardial infarction; NS, not significant.

1. Udell JA, *et al. Eur Heart J* 2016; 37:390–9; 2. Connolly SJ, *et al. Lancet* 2018; 391:205–18

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COMPASS in context of other proven secondary prevention therapies

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HEALTH THROUGH KNOWLEDGE

	Rivaroxaban + aspirin[1]	Lipid-lowering (1mmol/l)[2,3]	SGLT2 inhibitor (Empagliflozin)[4]	PCSK9 inhibitor (Alirocumab)[5]
Composite outcome	**–24%**	–21%	–14%	–14%
Death	**–18%**	–9%	–32%	–15%
Stroke	**–42%**	–15%	+18%*	–27%
MI	–14%*	–24%	–13%*	–12%

*Not significant.

MI, myocardial infarction; PCSK9, proprotein convertase subtilisin/kexin type 9; SGLT2, sodium glucose co-transporter 2.

1. Eikelboom JW, *et al. N Engl J Med* 2017; 377:1319–30;
2. CTT Collaboration. *Lancet* 2015; 385:1397–405; 3. Collins R, *et al. Lancet* 2016; 388:2532–61;
4. Zinman B, *et al. N Engl J Med* 2015; 373:2117–28;
5. Schwartz GG, *et al. N Engl J Med* 2018; 379:2097–107.

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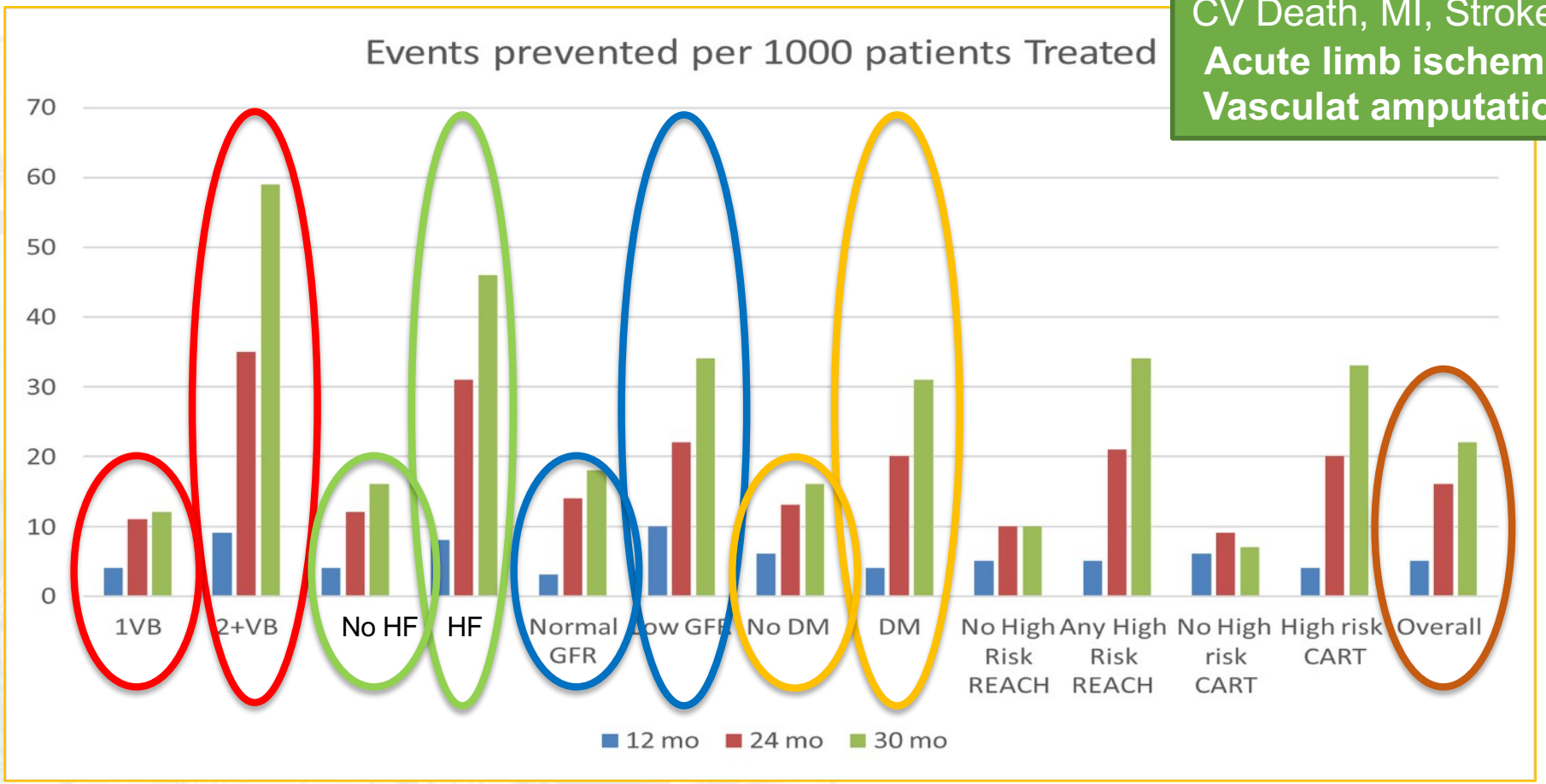
STABLE CAD: who derives the greatest benefit from the COMPASS regimen?

CV Death, MI, Stroke +
Acute limb ischemia
Vasculat amputation



CART, classification and regression tree; CV, cardiovascular; DM, diabetes mellitus; GFR, glomerular filtration rate; HF, heart failure; mo, months; VB, vascular beds.

Anand SS. J Am Coll Cardiol 2019;73:3271-3280

COMPASS

Population Health Research Institute
HEALTH THROUGH KNOWLEDGE

Closing remarks

- A substantial proportion of CAD patients have residual high risk of recurrent vascular events.
- Clinical descriptors («Enrichment criteria») can assist clinicians in identifying high-risk patients within the broad range of risk for outpatients with atherothrombosis.
- 1-year visit is the cornerstone to assess long-term risk and plan secondary prevention.
- Dual Pathway Inhibition with Rivaroxaban + Aspirin should be seen as part of the overall vascular protective strategy.
- The effects of different secondary prevention regimens may be addictive.