



A Teaching Affiliate  
of Harvard Medical School

# OCT: Pre- and Post- Intervention

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# HPI

64 M with recent onset DOE

CRFs: DM, hyperlipidemia, +FH

ETT: + ECG (3 mm STD)

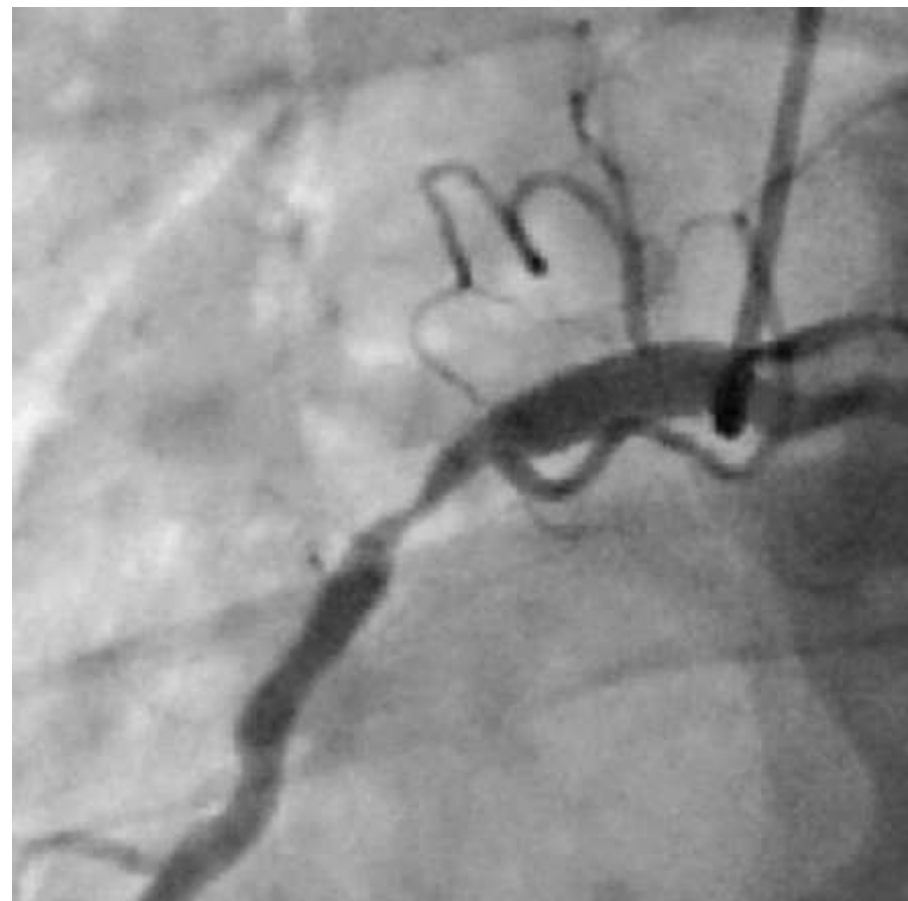
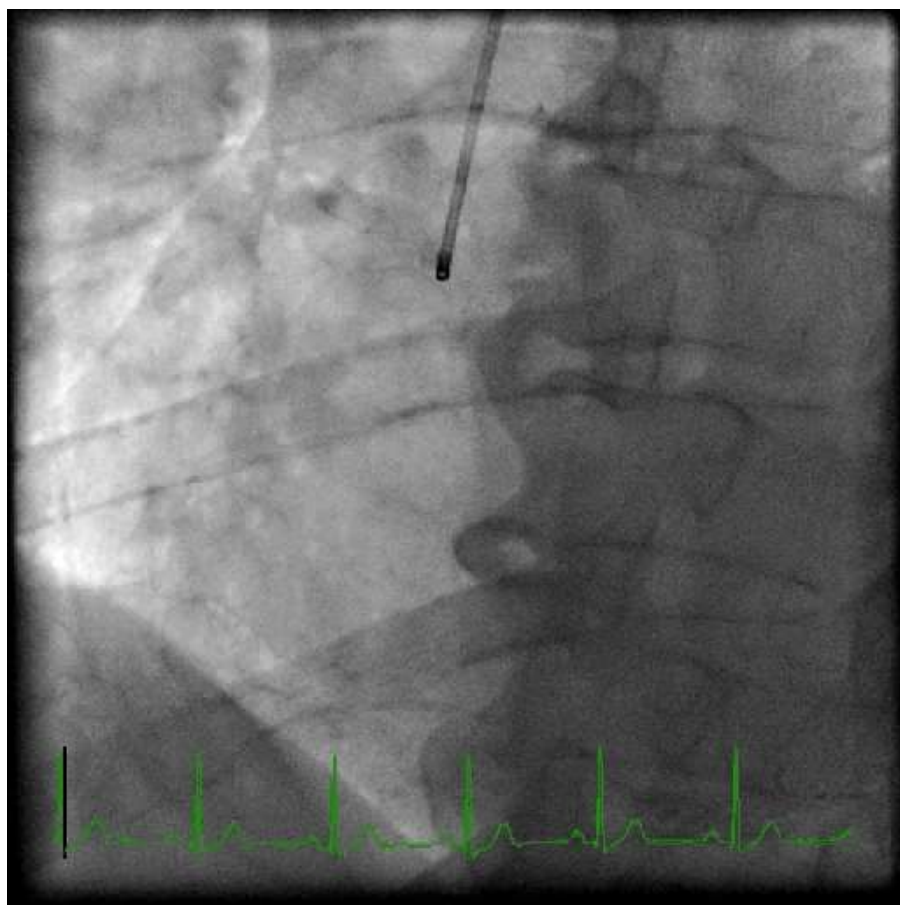


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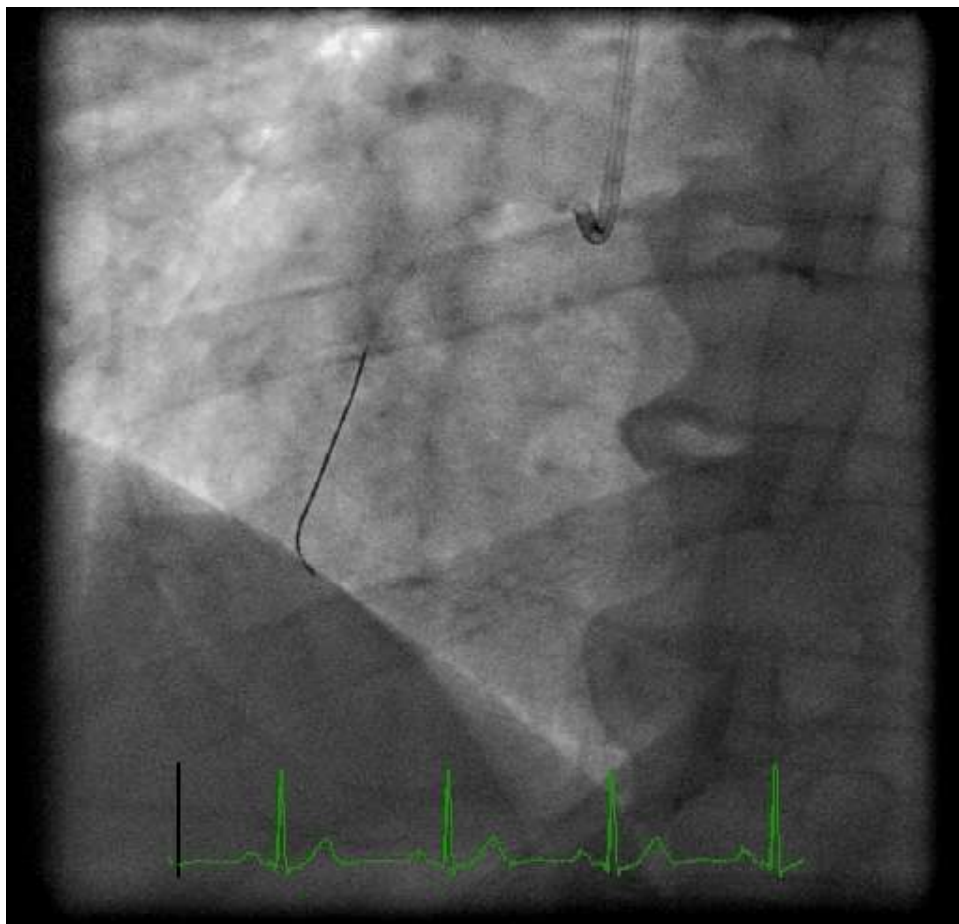
# Baseline Angio



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# FFR



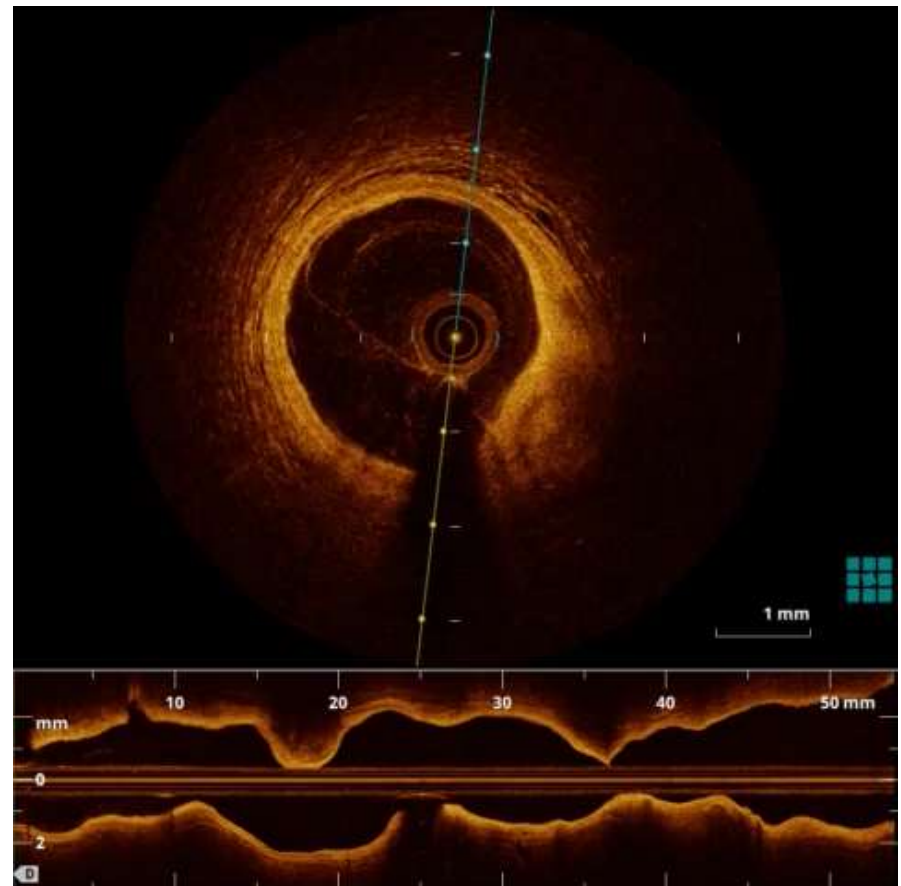
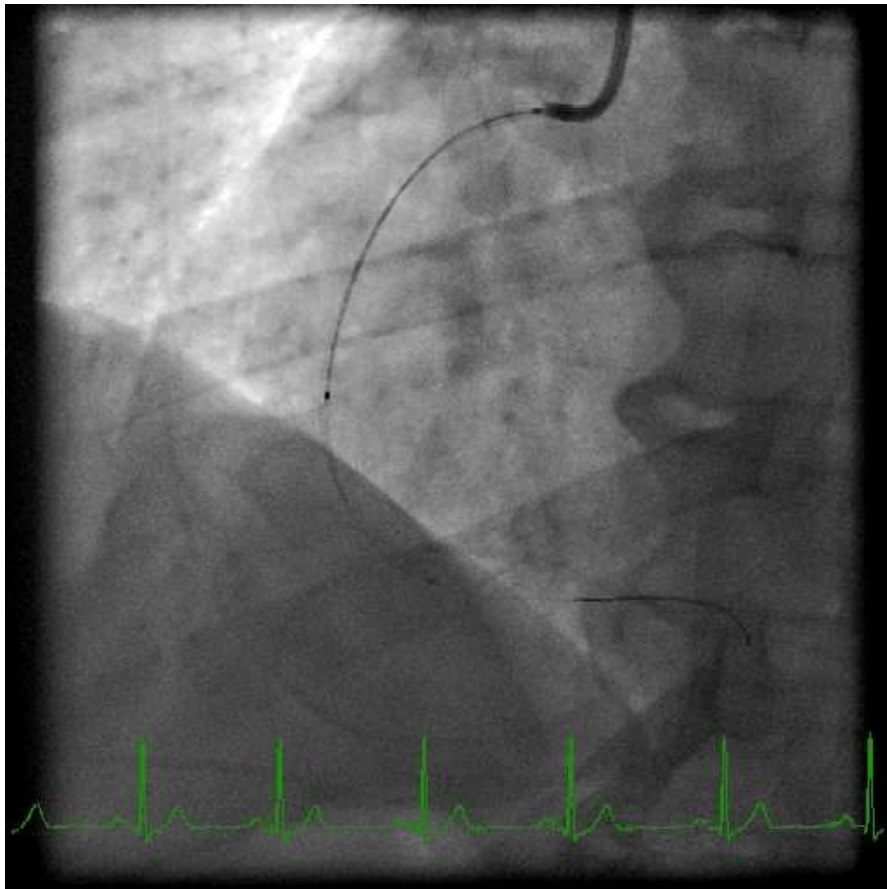
FFR: 0.77



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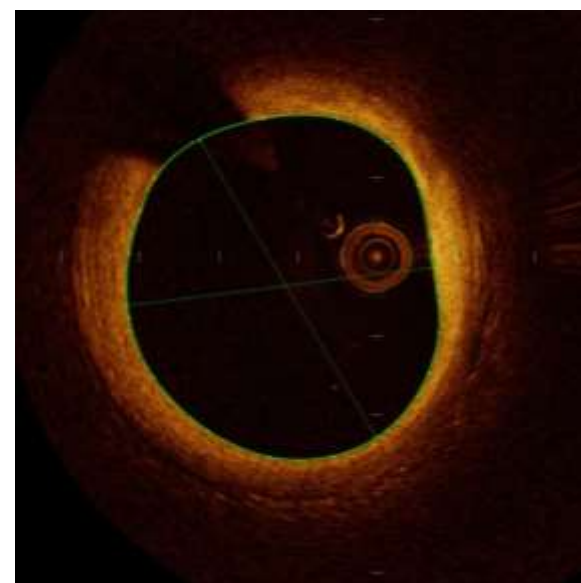
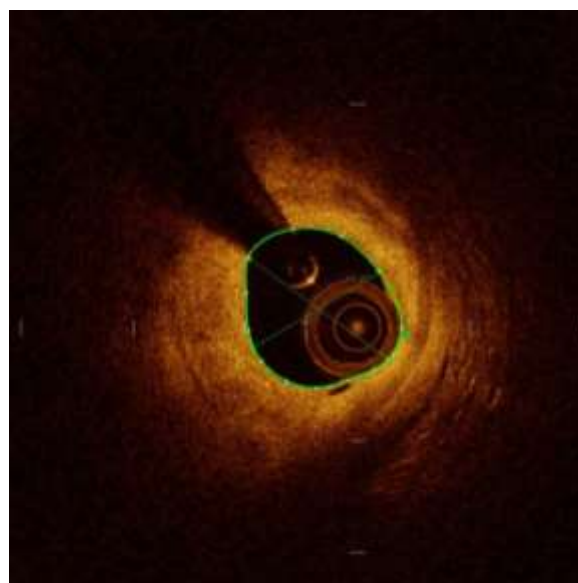
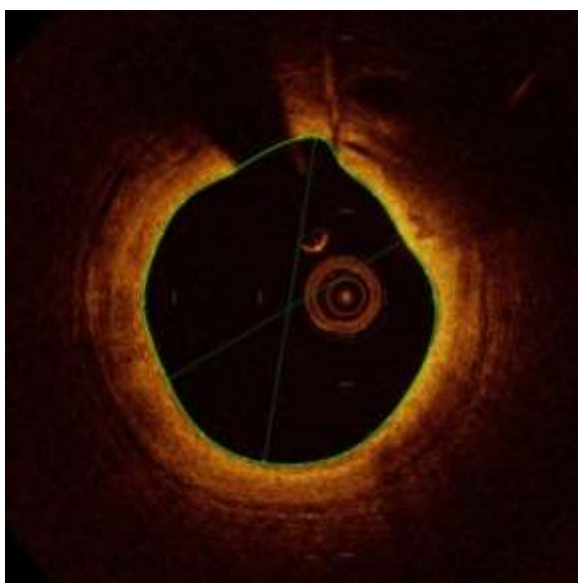
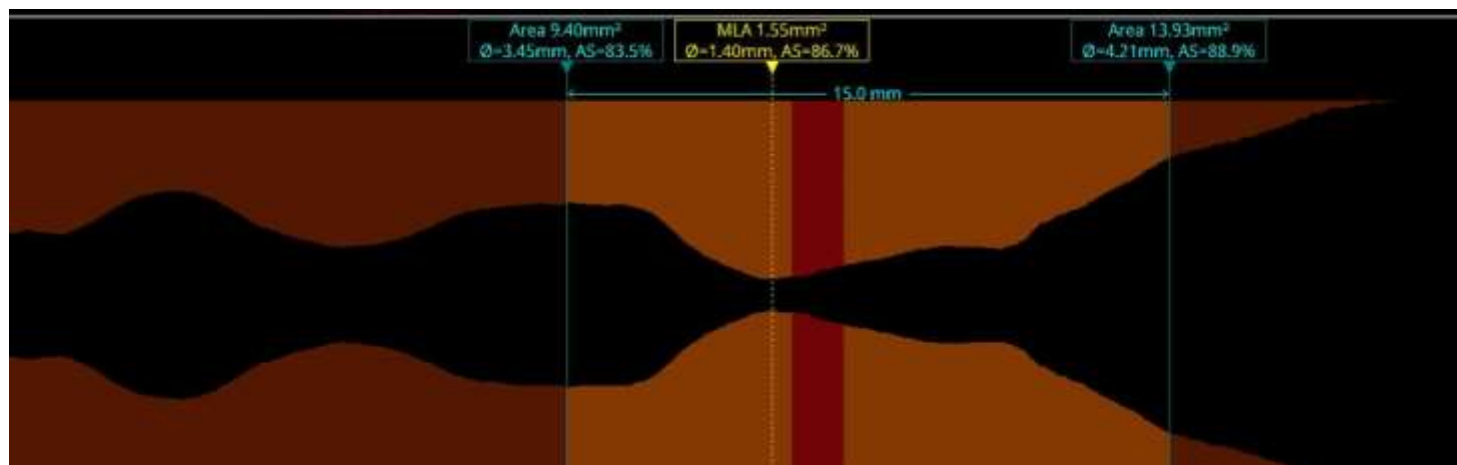
# Baseline OCT



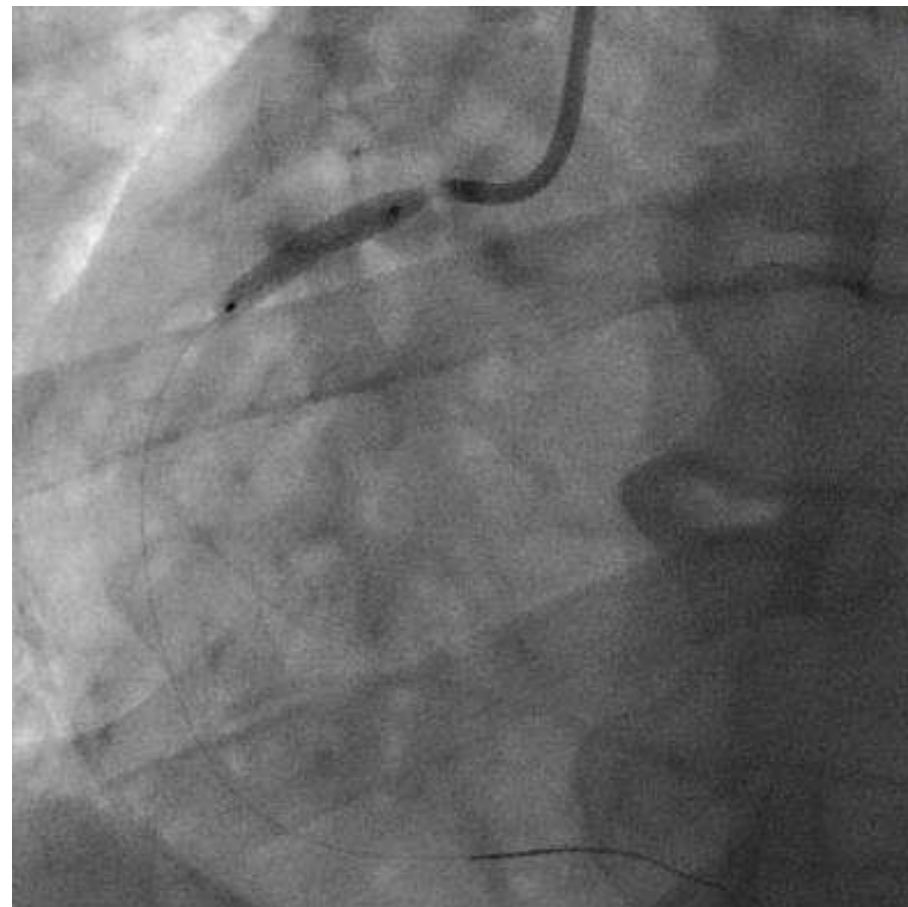
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# Baseline OCT



# PCI



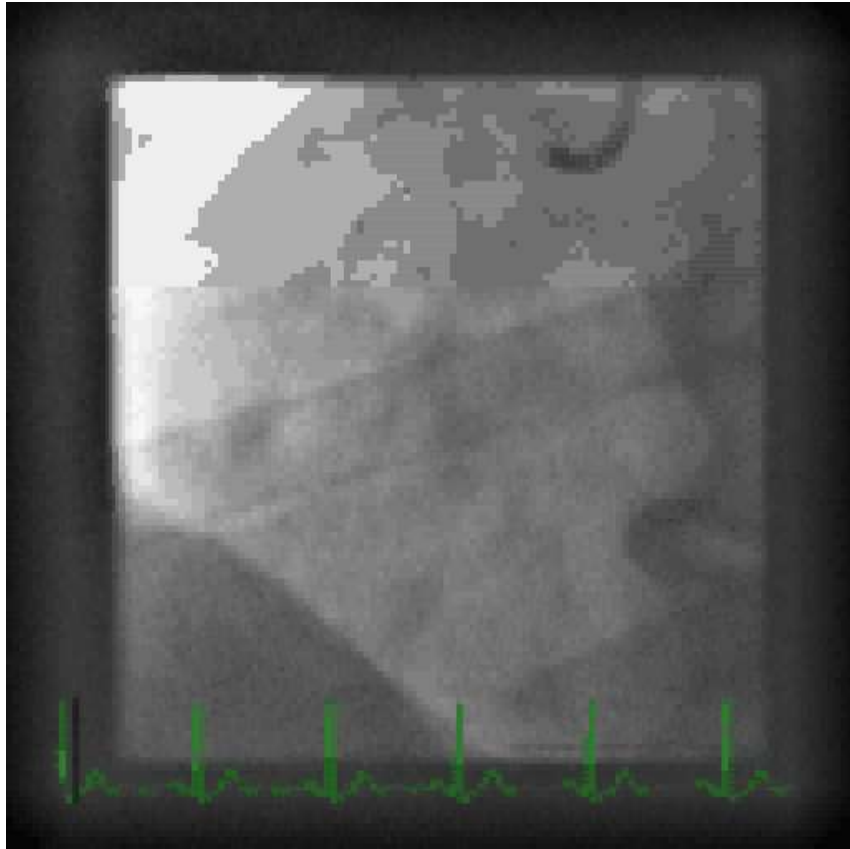
3.0x18 mm DES @ 18 atm



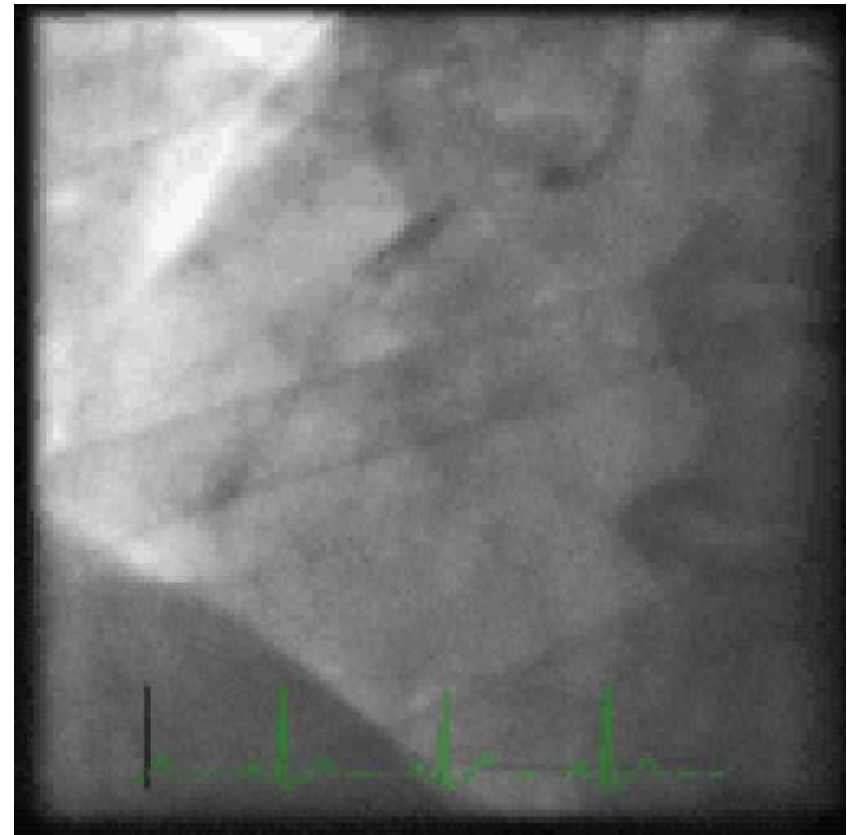
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# Postdilatation #1



3.5 mm NC @ 20 atm



4.0 mm NC @ 20 atm

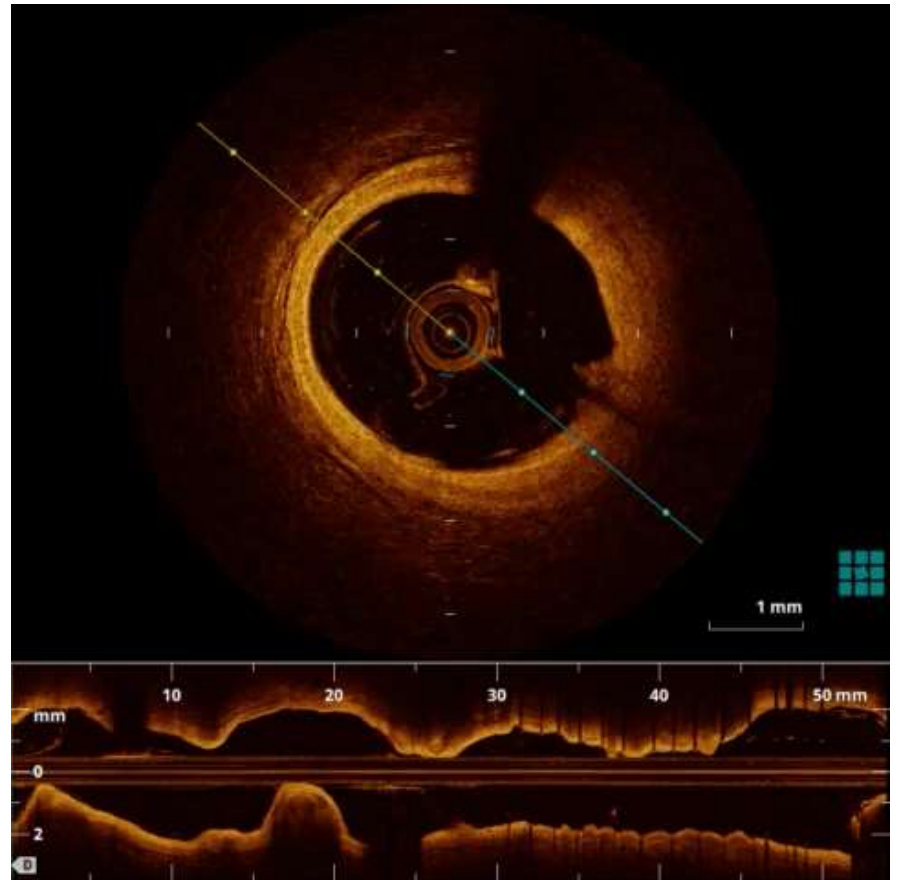
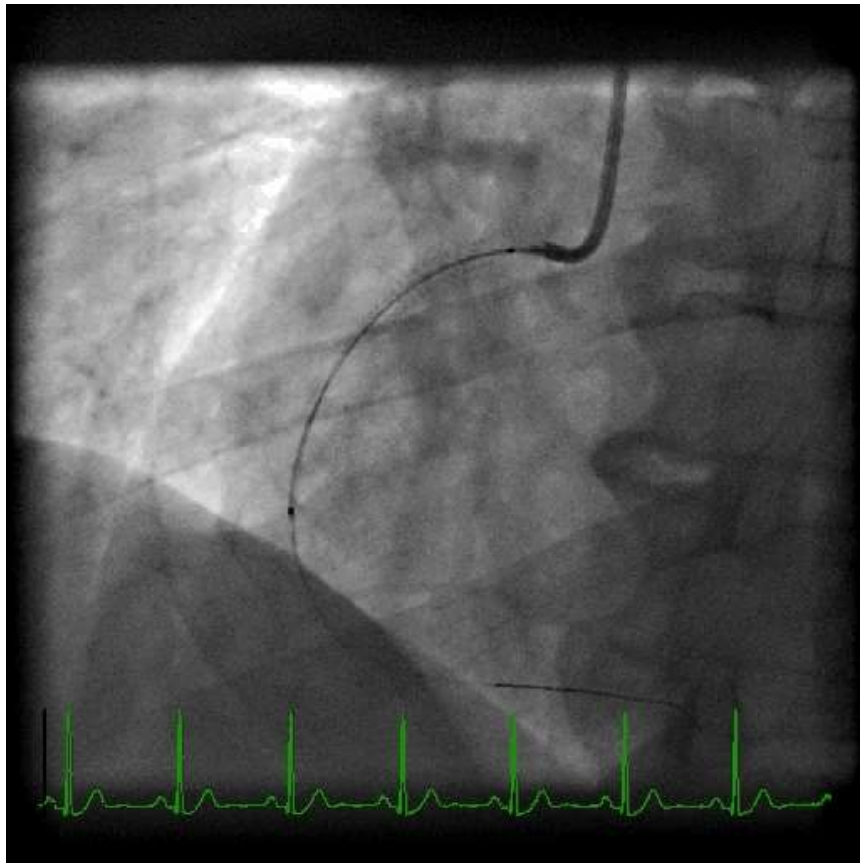


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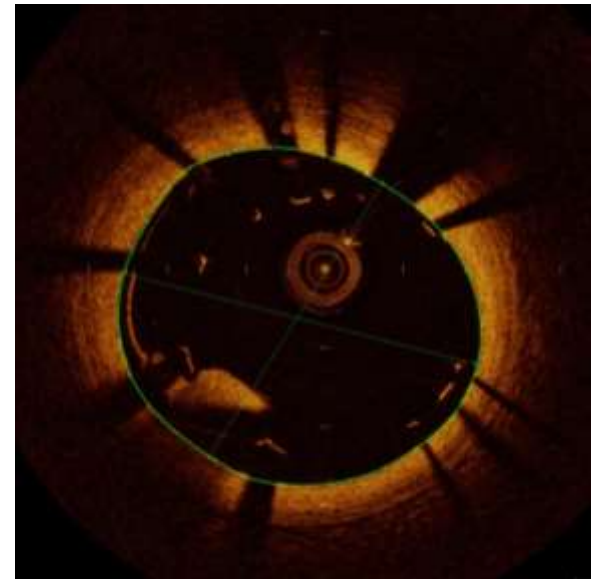
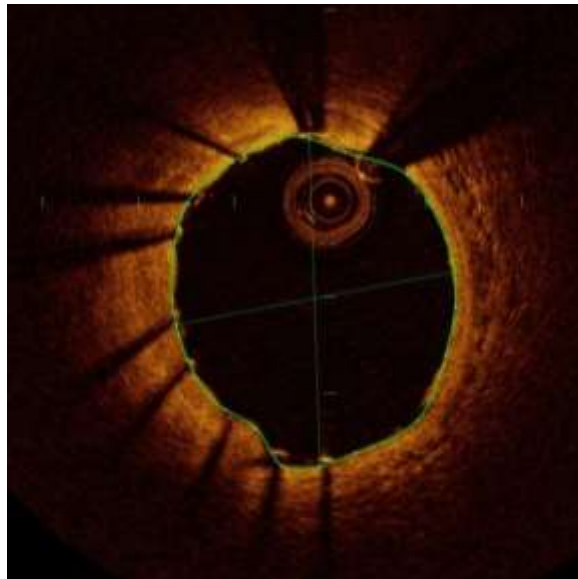
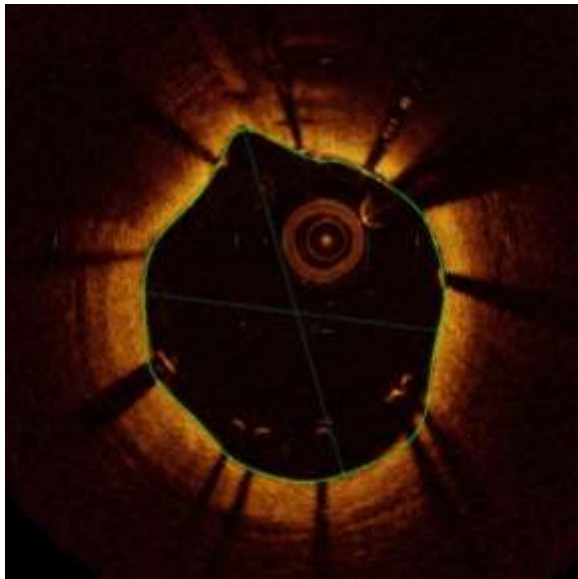
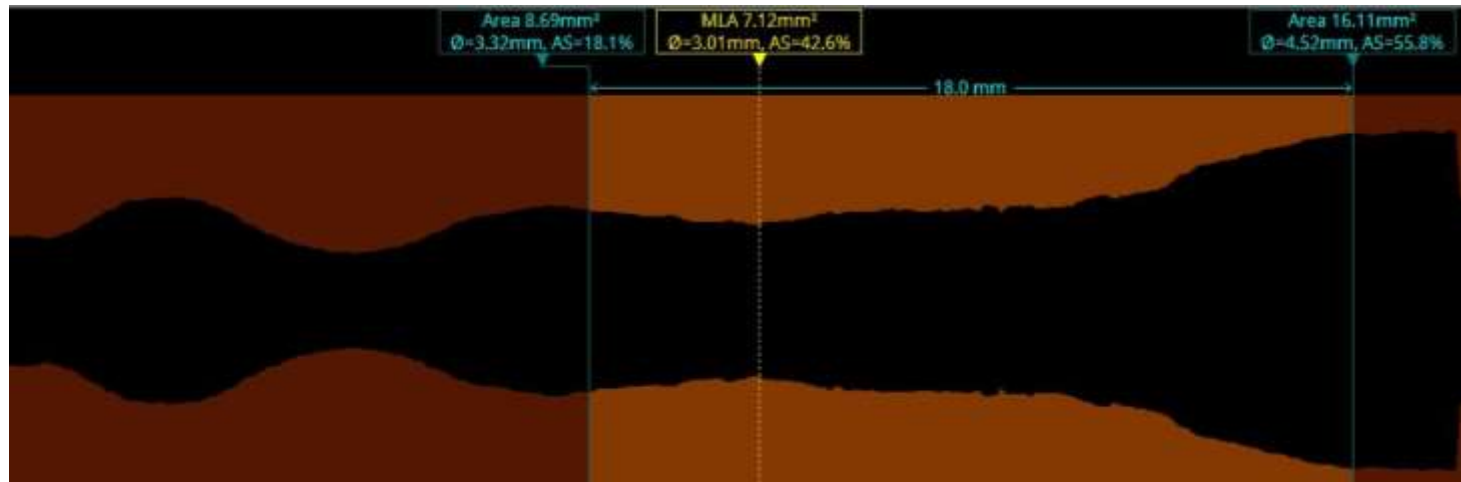
# Post-PCI OCT #1



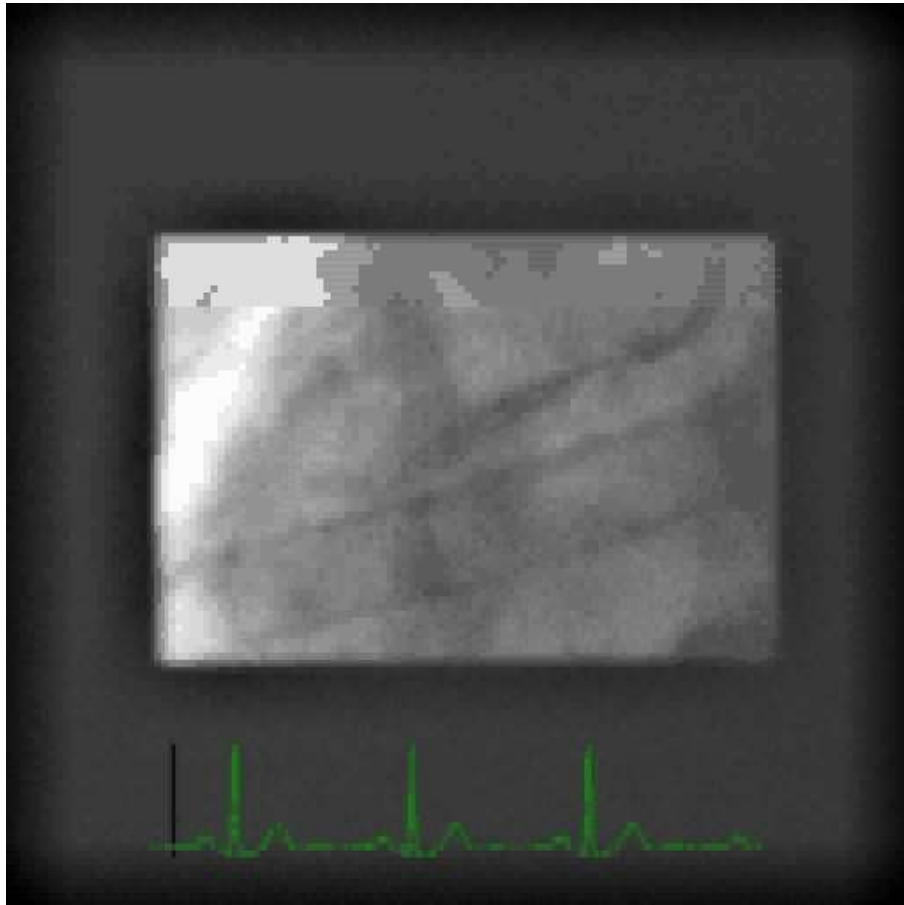
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# Post-PCI OCT #1



# Post-dilatation #2



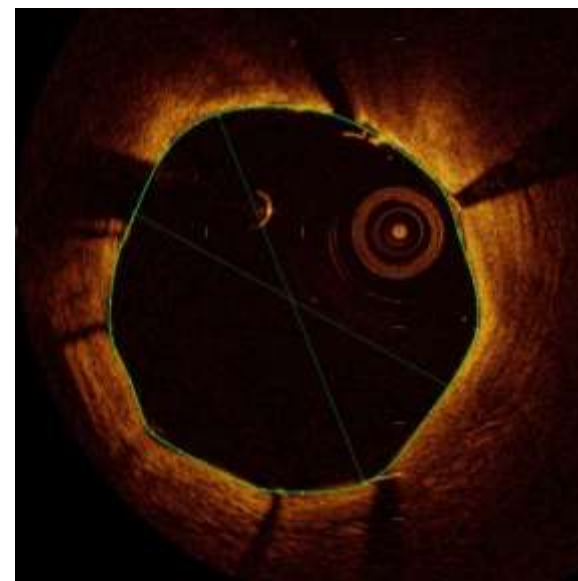
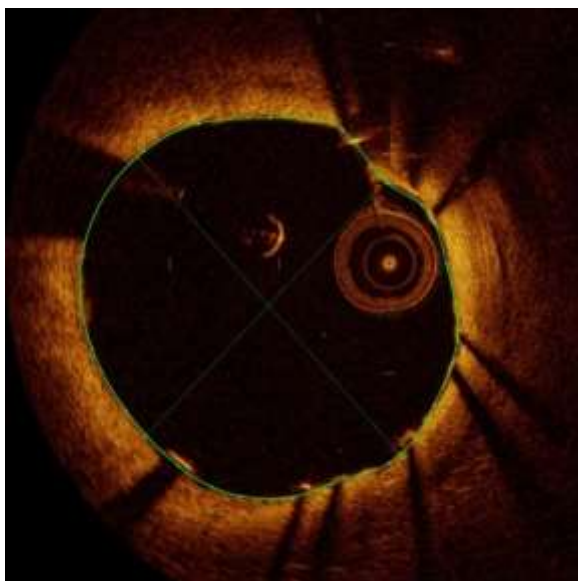
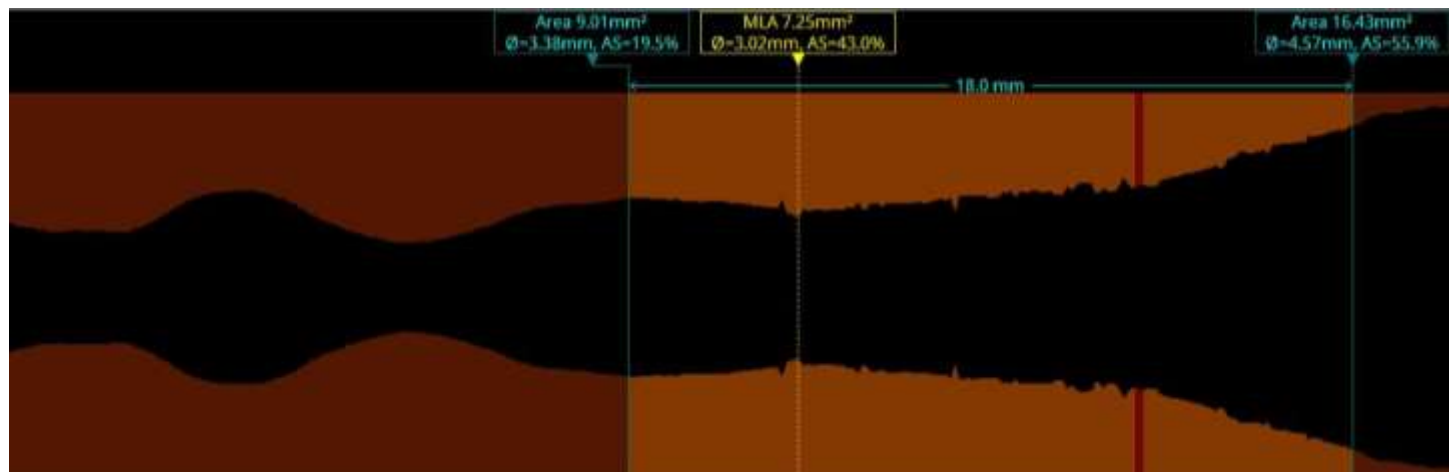
4.5 mm NC @ 20 atm



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# Post-PCI OCT #2



# When to use OCT

- To optimize PCI
  - (Not to guide a decision)
    - Develop pre-PCI strategy
    - Confirm post-PCI outcome
    - Bioabsorbable stent
- To define uncertain anatomy



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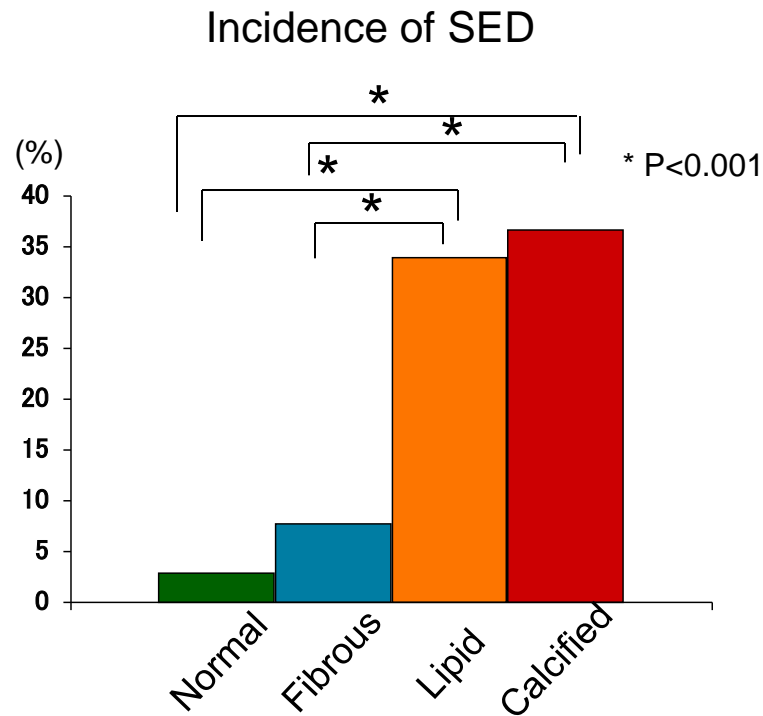
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# How to use OCT

- Pre-PCI strategy
  - Reference lumen diameter
  - Lesion length
  - Plaque characteristics
  - Thrombus
  
- Predilatation
- Balloon/stent size and length
- Pressure
- Thrombectomy



# Stent Edge Dissection



Soeda T. Circulation 2015



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# How to use OCT

- Post-PCI outcome
  - ✓ Expansion
  - ✓ Protrusion (Irregular)
  - ✓ Dissection
  - ✓ ISA



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# Acute Stent Complication

	Overall (n = 473)
Stent edge dissection	138 (29.2)
Proximal stent edge dissection	78 (16.5)
Distal stent edge dissection	77 (16.3)
Instent dissection	342 (72.3)
Incomplete stent apposition	172 (36.4)
Instent tissue protrusion	450 (95.1)
Smooth protrusion	443 (93.7)
Disrupted fibrous plaque protrusion	265 (56.0)
Irregular protrusion	261 (55.2)
Stent underexpansion	179 (37.8)



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# MACE at 1 year

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	DES (409 Pt)
MACE	15 (3.7%)
Death	0 (0%)
AMI	3 (0.7%)
Stent thrombosis	1 (0.2%)
TLR	13 (3.2%)

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# Predictors for MACE

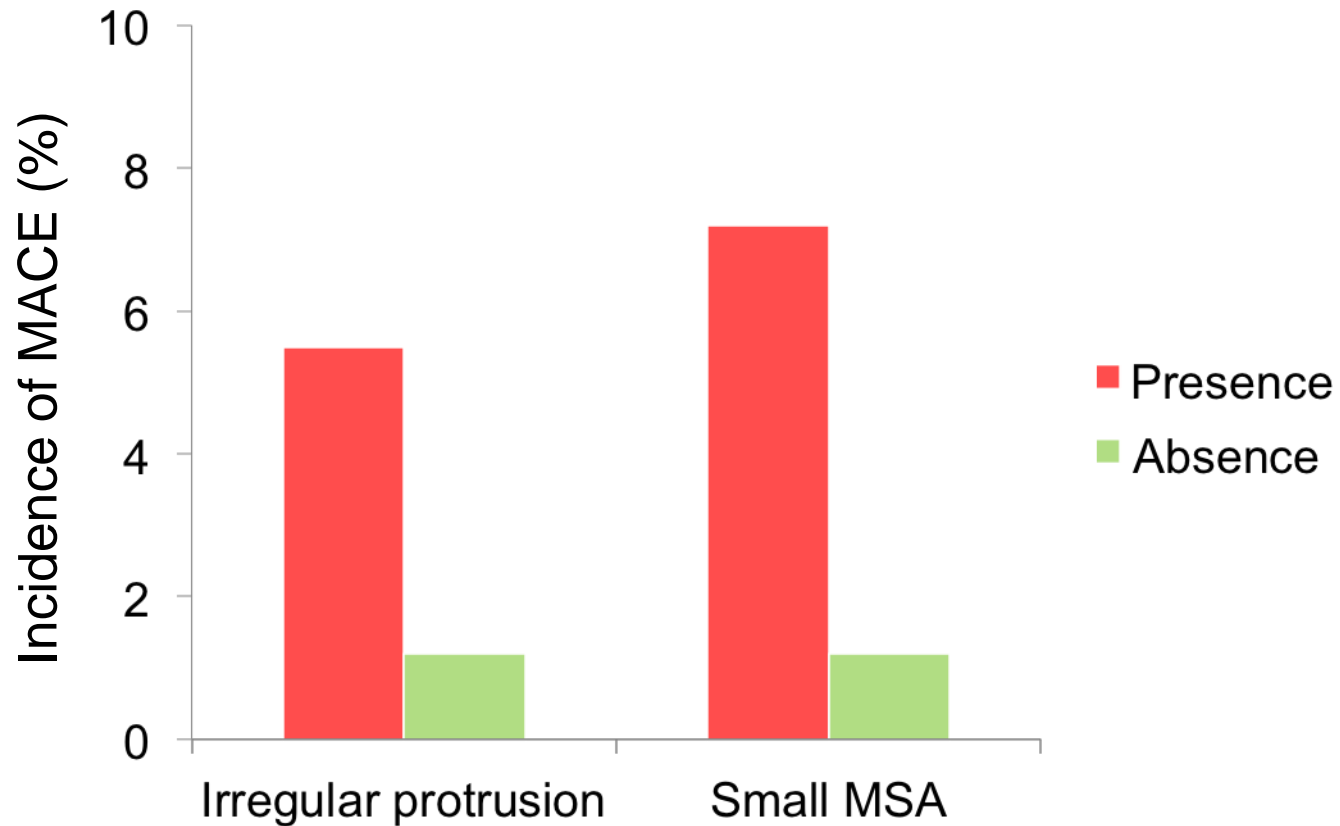
Predictor	Univariate models			Multivariate models		
	HR	95% CI	p value	HR	95% CI	p value
Stent edge dissection	1.23	0.42 – 3.59	0.710	0.45	0.12 – 1.70	0.237
Proximal SED	2.55	0.87 – 7.45	0.088			
Distal SED	0.81	0.18 – 3.61	0.953			
Instent dissection	1.64	0.46 – 5.80	0.445			
Incomplete stent apposition	1.42	0.45–4.48	0.548	1.24	0.42 – 3.70	0.699
Smooth protrusion	NA	NA	1.000			
Disrupted fibrous tissue protrusion	0.74	0.27 – 2.05	0.568			
<b>Irregular protrusion</b>	4.63	1.04 – 20.53	<b>0.044</b>	5.10	1.11 – 23.52	<b>0.037</b>
Thrombus	2.16	0.73 – 6.43	0.166			
Stent underexpansion	0.60	0.19 – 1.87	0.376			
<b>Small MSA</b>	6.93	1.96 – 24.57	<b>0.003</b>	6.87	1.83 – 25.76	<b>0.004</b>



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# Incidence of MACE



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    - Confirm post-PCI outcome
    - Bioabsorbable stent
- To define uncertain anatomy

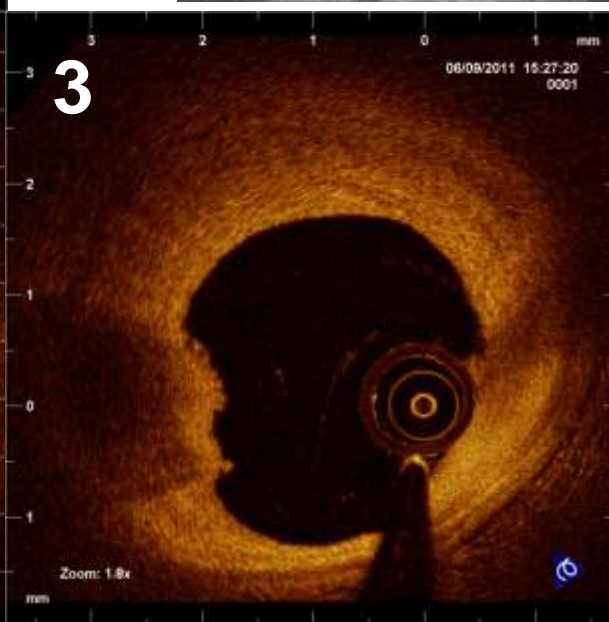
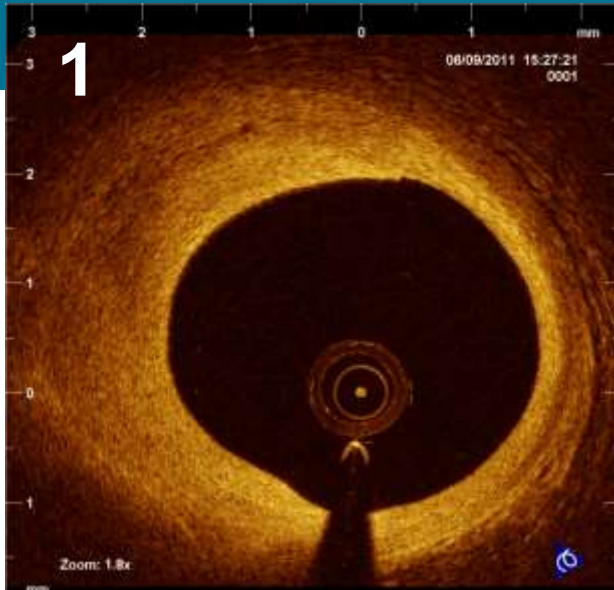
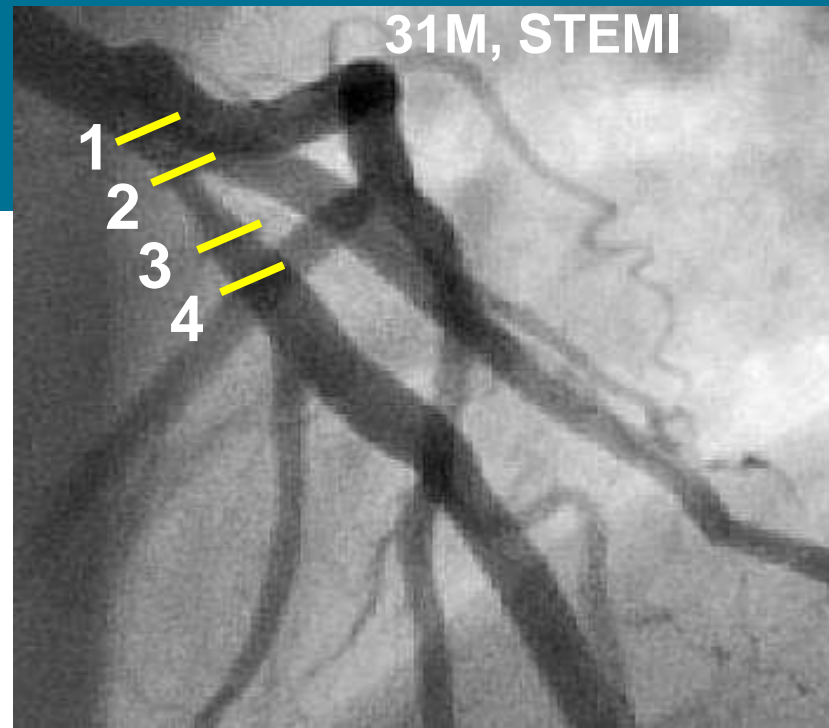


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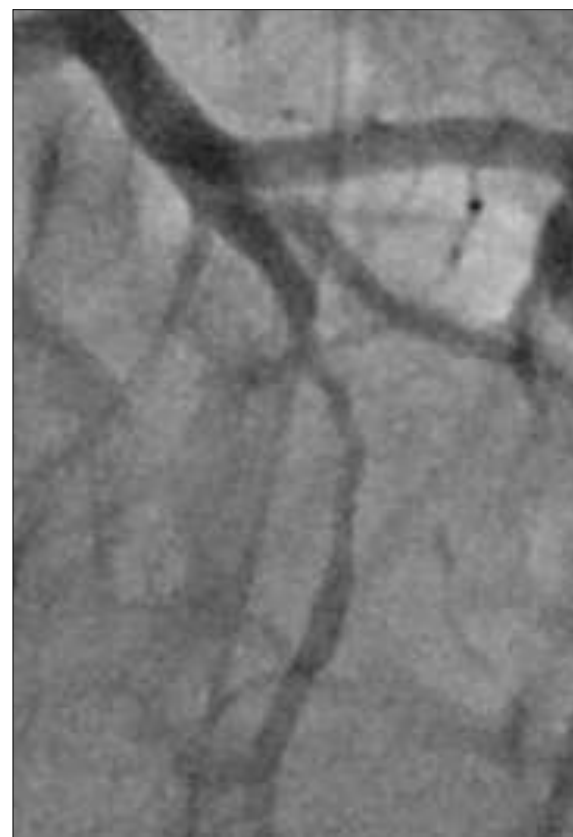
# Plaque Erosion



# Baseline CAG



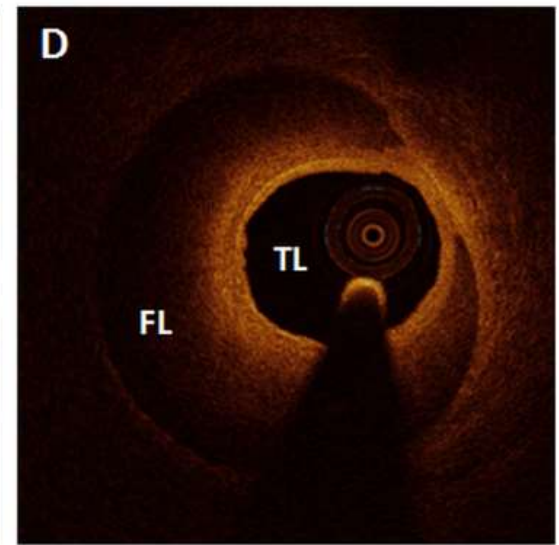
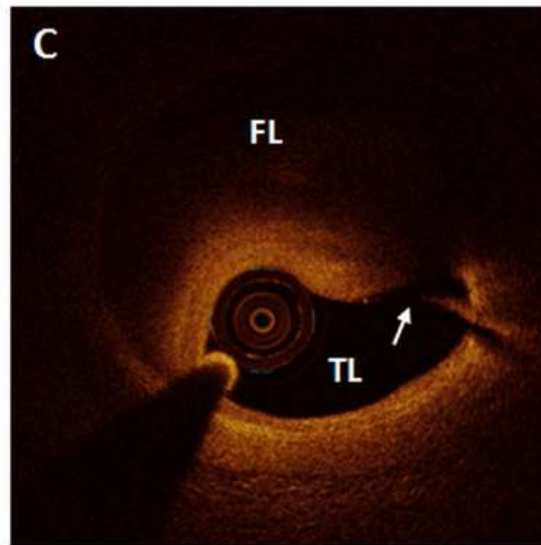
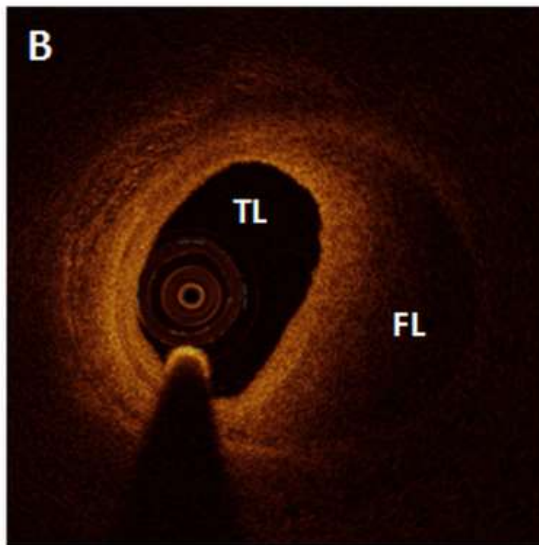
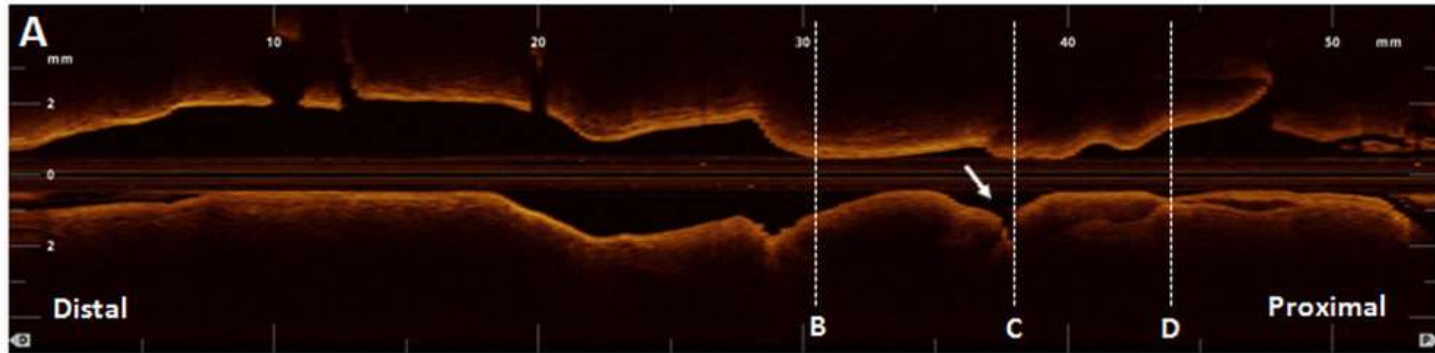
43 F with STEMI



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# OCT



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# My practice at MGH

- PCI optimization
  - IV imaging: 70%  
(80% OCT, 20% IVUS)
  - Pre-PCI imaging: whenever possible
  - Post-PCI imaging: almost always
  - Contrast (100% or 50/50 with an injector, Dextran with a syringe)



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# Thank You



## MGH history book to comm

AS PART OF the MGH's bicentennial celebrations, a commemorative book of MGH history will be published in 2011. "Something in the Ether, A Bicentennial History" was written by author and publisher Webster Bull. Much of the content was the result of countless hours of research of historical records and archival material. The book is available at the MGH General Store and select booksellers.

*(Continued on page 2)*



THE MGH AND HARVARD MEDICAL SCHOOL CIRCA 1853:  
In the 1800s, the Charles River extended to the hospital, allowing patients and supplies to be dropped off at the MGH wharf.



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