



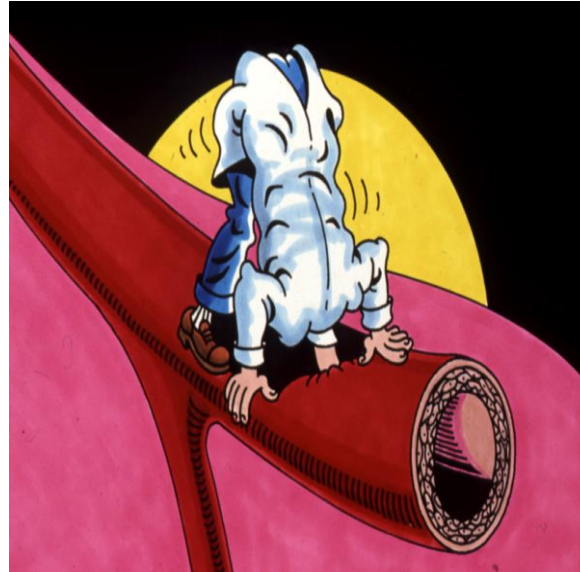
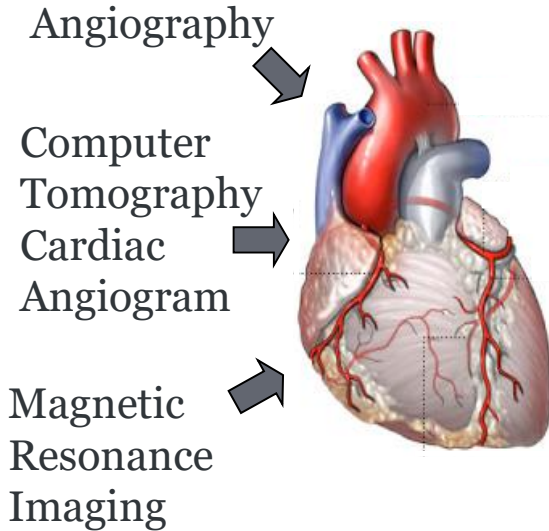
Dẫn nhập kỹ thuật chụp cắt lớp kết quang (Introduction to OCT imaging)

GS. TS. BS. VÕ THÀNH NHÂN

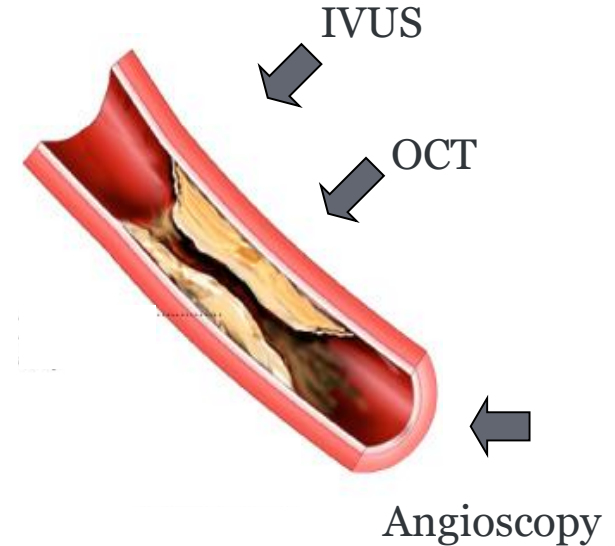
**Đại Học Y Dược – BV Vinmec Central Park – LC Hội Tim Mạch Can Thiệp
TP Hồ Chí Minh**

1. Principles of Optical Coherence Tomography

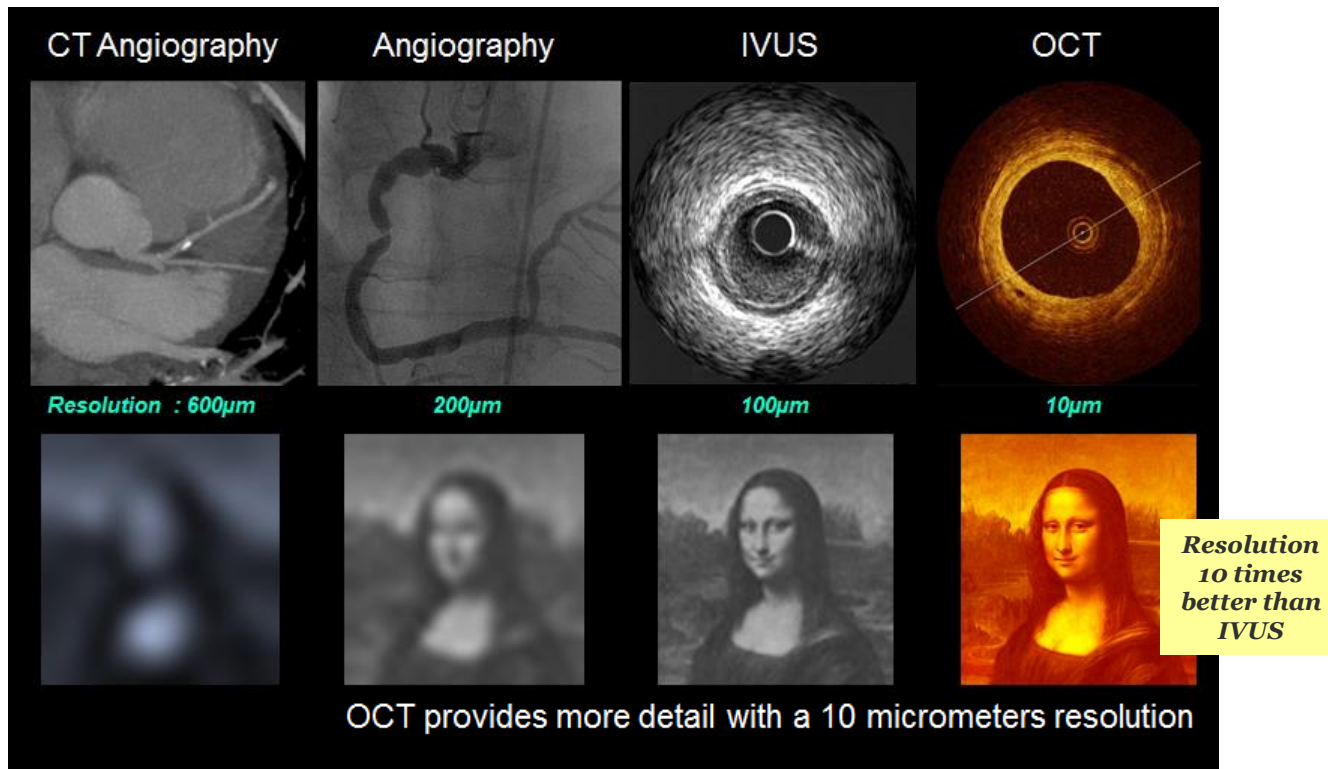
Vascular Imaging Modalities



Seeing from the Inside



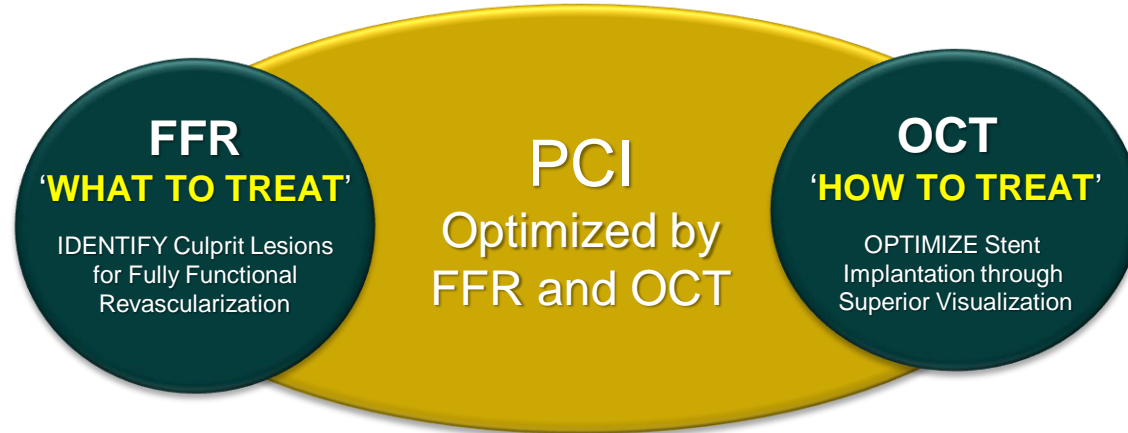
Time for High Resolution Imaging





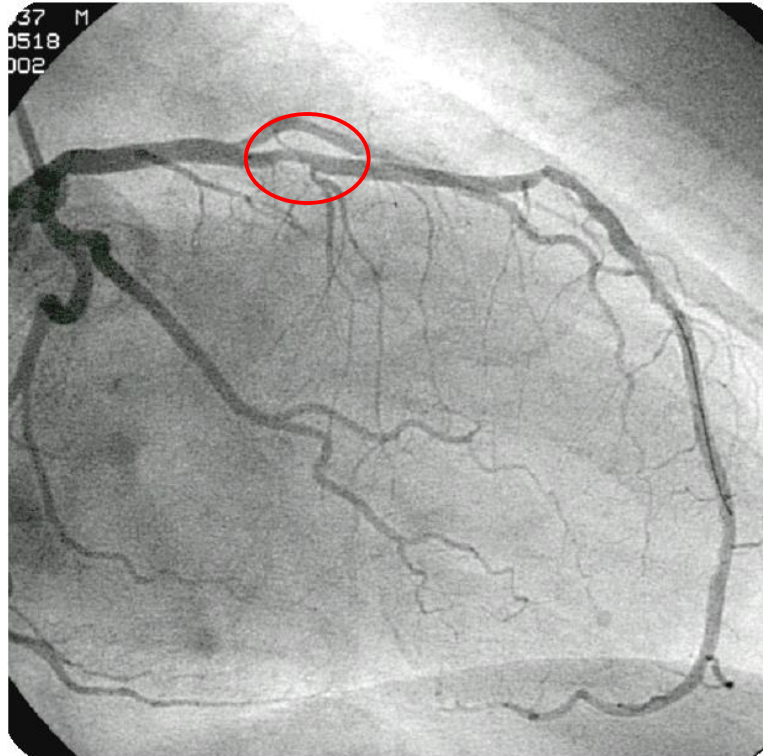
FFR + OCT = PCI Optimization

FFR guides PCI by **identifying culprit lesions** responsible for ischemia, **ensuring a fully functional revascularization**. Compared to PCI guided with angiography alone, FFR-guided PCI greatly improves outcomes.¹



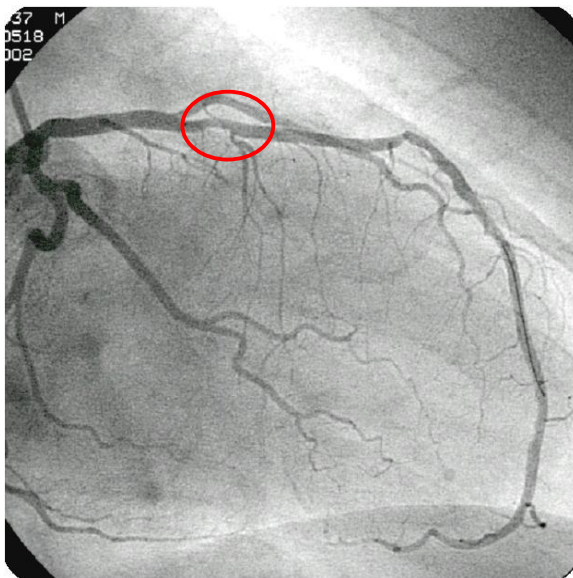
The ultra high resolution of **OCT** makes it the ideal tool to visualize vasculature, **optimize stent implantation, strut coverage, neointimal response and follow-up**.^{2,3}

Cine Angiography



Limitations of the Cine Angiography for Lesion Assessment

Coronary angiography is restricted to a 2-dimensional representation of the lumen silhouette without providing information about the vessel wall that is the substrate of atherosclerosis.



Irregular Plaque / Irregular Lumen

Cross-Section

RAO View

LAO View

A



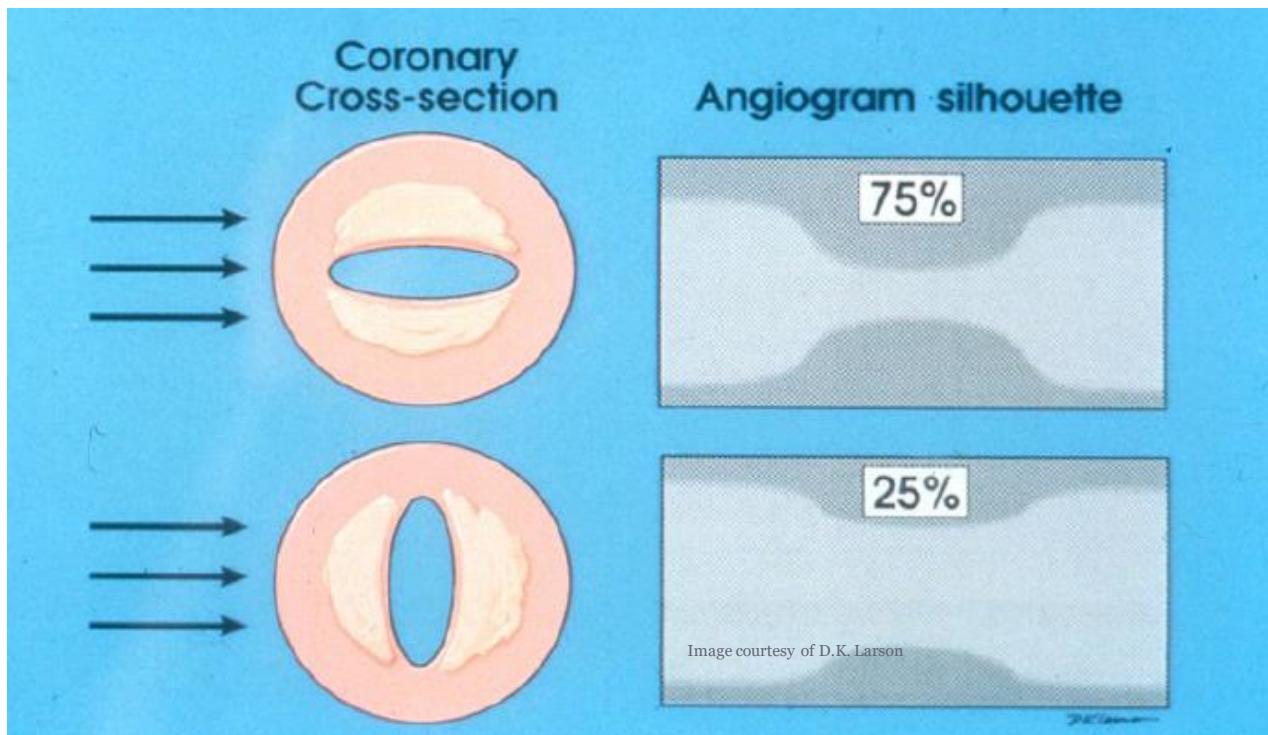
B



C



Limitations of Coronary Angiography

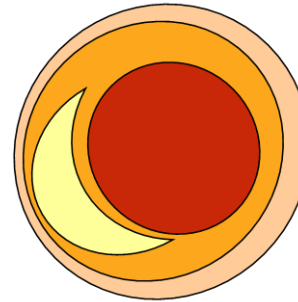
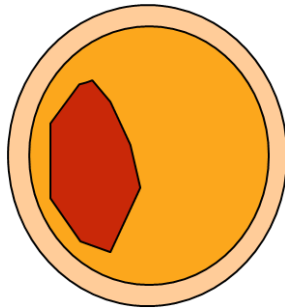
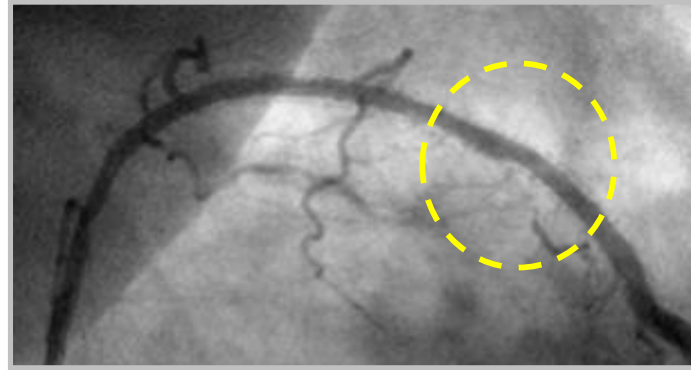
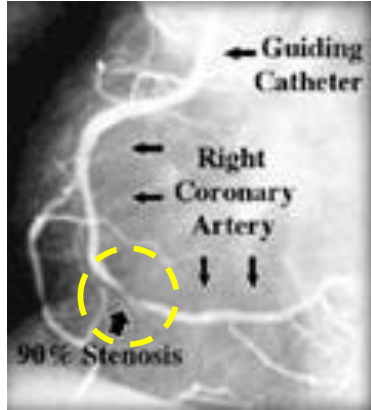


Limitations of the cine angiography for lesion assessment

Angiography has some other limitations in the assessment of the lesions:

- **Pre-treatment:** Does not give the components of the plaque
- **Post Treatment:** Does not say whether the stent or treatment is optimal

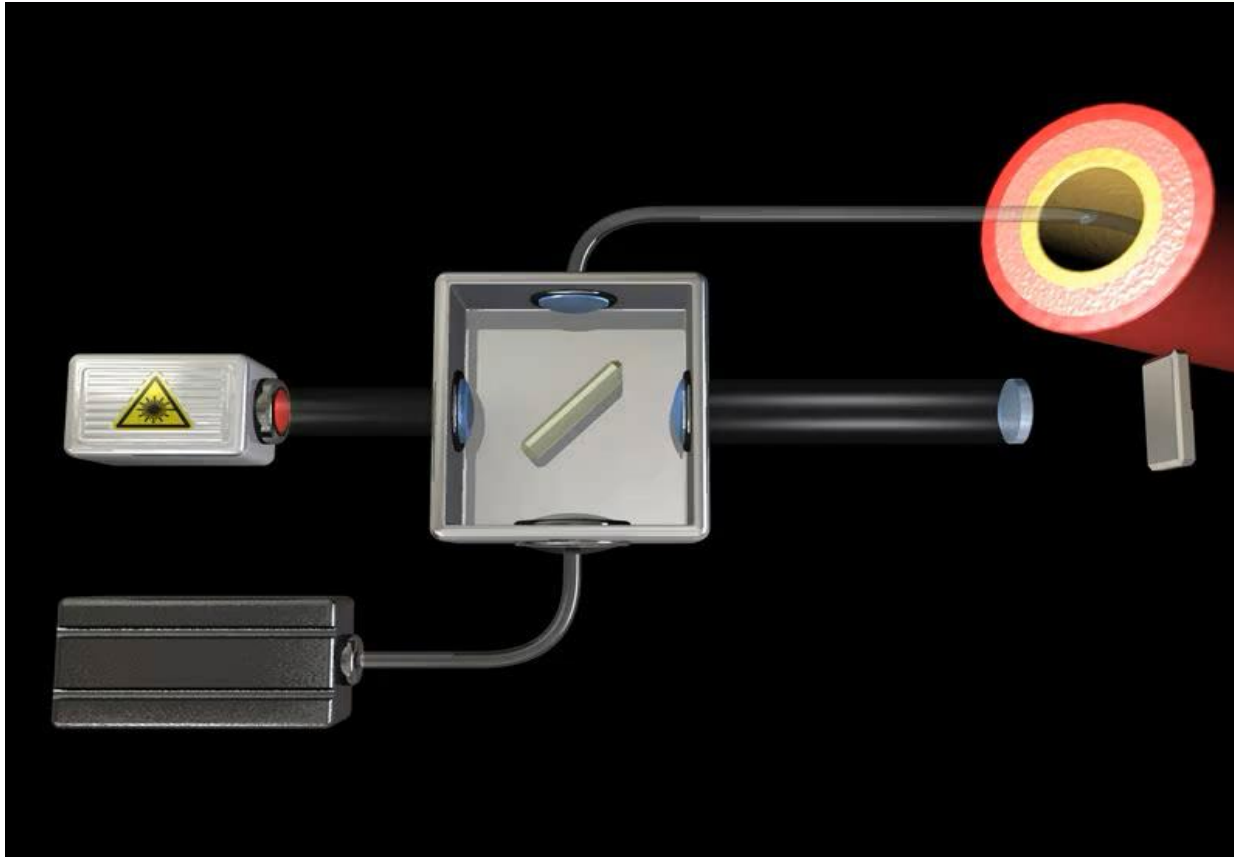
Coronary Artery Disease: THE DIAGNOSTIC CHALLENGE (FFR and likelihood of ACS)



What Is OCT?

- Optical coherence tomography (OCT) is an optical imaging modality that uses near-infrared light to create **high-resolution** images of **tissue microstructure**
- **Optical** → of or relating to light (visual)
- **Coherence** → a measure of the **correlation between phases of a wave or waves**
- **Tomography** → method of **producing images from a series of single planes or slices**

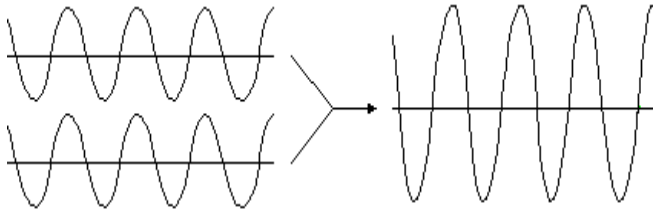
Frequency Domain OCT: sweeping laser signal, fixed mirror



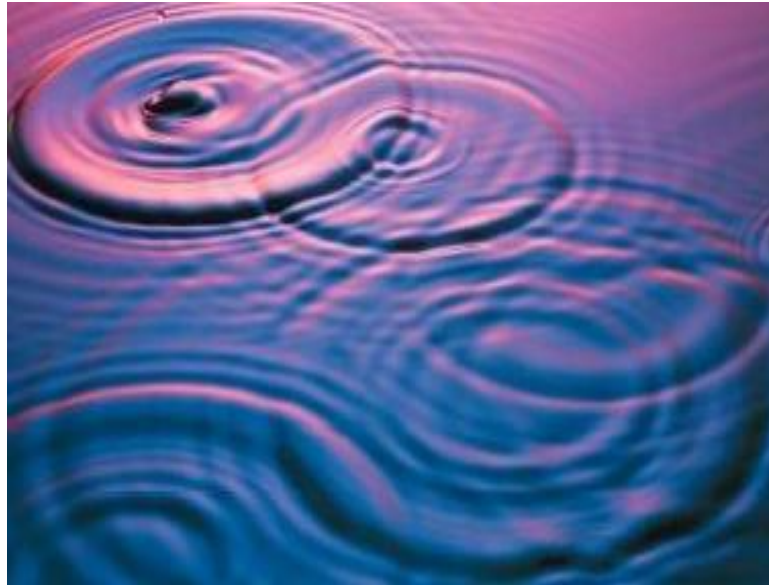
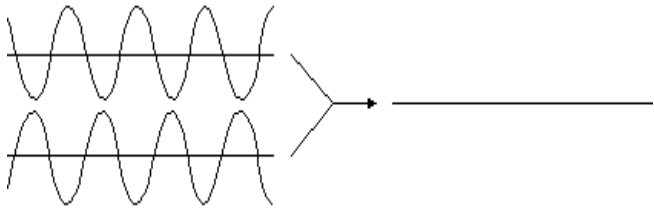
Physics of OCT

Interference of Light Waves

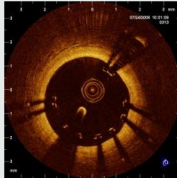
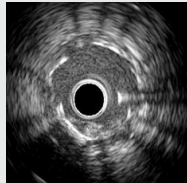
Constructive Interference



Destructive Interference



Performance Comparison: FD-OCT vs. IVUS

	ILUMIEN Optis	IVUS
		
Axial Resolution	Resolution 10 times better → 15 – 20 μm	100 – 200 μm
Lateral Beam Width	20 – 40 μm	200 – 300 μm
Frame Rate (Engine speed)	180 frames/s	30 frames/s
Pullback Speed	Pullback speed 40 times faster → 18mm/s to 36 mm/s	0.5 - 1 mm/s
Max. Scan Dia	10 mm (Max. vessel size 5.5) (coronary artery Avg 4 – 4.5 mm)	15 mm
Tissue Penetration	1.0 - 2.0 mm	4 to 8 mm
Lines per Frame	560	256
Blood Clearing	Required	Not Required

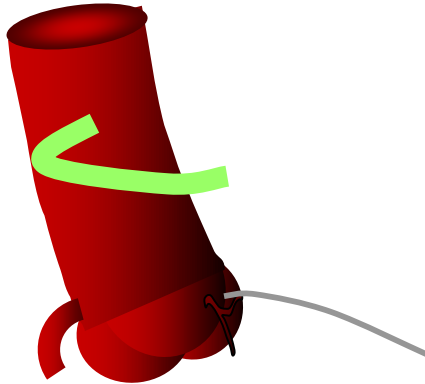
Ref. Gonzalo, N. *Optical Coherence Tomography for the Assessment of Coronary Atherosclerosis and Vessel Response after Stent Implantation*. Rotterdam, the Netherlands: Optima Grafische Communicatie; 2010.

Certain configurations of the devices within may not have been licensed in accordance with Canadian law. Information contained herein for DISTRIBUTION within Canada only
©2021 Abbott. All rights reserved. MAT-2108231 v1.0

Intravascular OCT

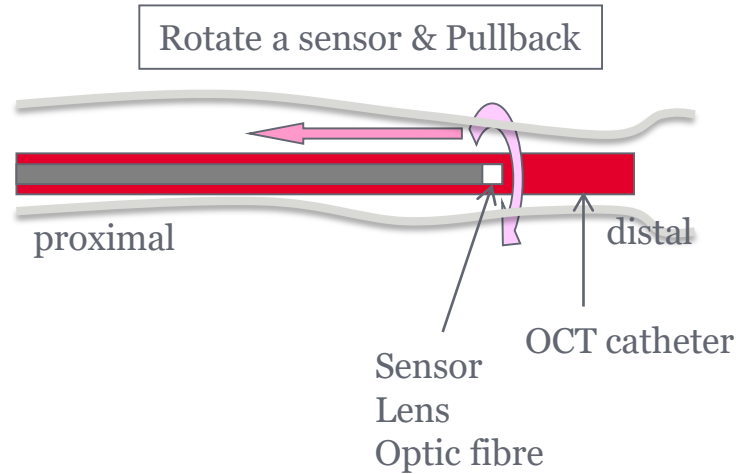
Catheter with fibre-optic core used for light delivery

- Fibre rotates to create image frames
- Fibre-optic core pulls back to map vessel segment
- During the pullback, blood clearing is required to get a good image quality.



Better image quality by:

- (1) Faster rotation
- (2) Slower pullback





Pullback longitudinal view

- One pullback → 375 frames to 540 frames
- 150k lines to more than 300k lines
- A pullback image is generated by acquiring a series of frames and “stacking” them up

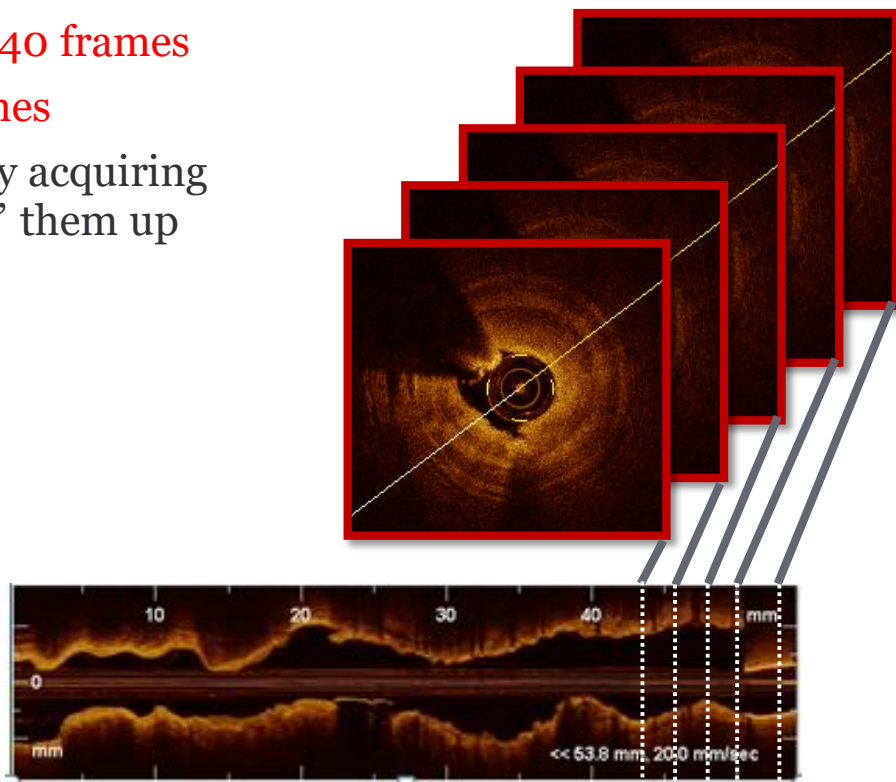


Image Display

Shown on the OCT system display are two simultaneous views:

Cross-sectional view: **B-mode**

Longitudinal view: **L-mode**

“B-Mode”
cross-sectional view



“L-Mode”
longitudinal view

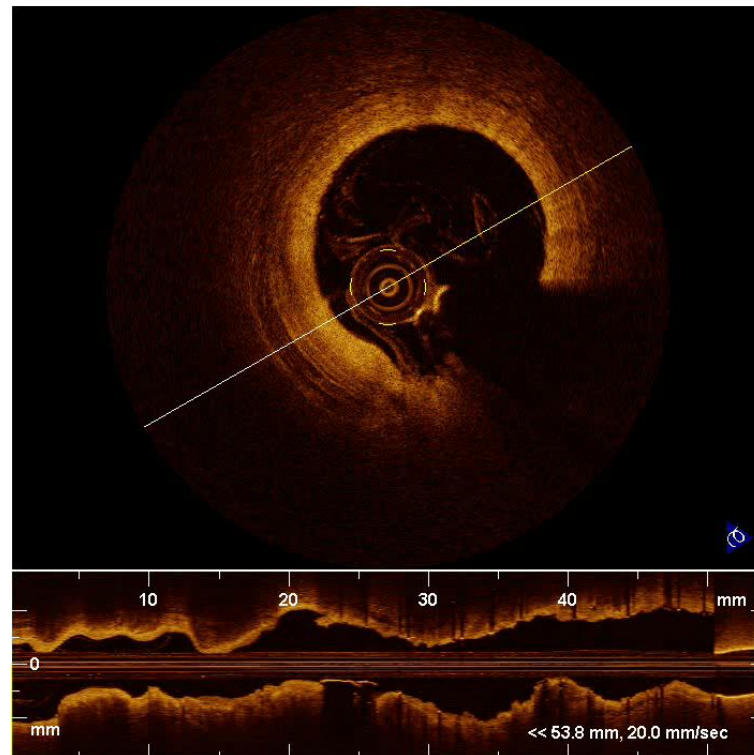


Image courtesy Professor Stephen Lee, Queen Mary Hospital, Hong Kong, 2016

More Control. Less Risk.

OCT enables the physician

- To comprehensively evaluate a coronary lesions, plan an optimal intervention:
 1. Anatomical consideration
 2. Lesion morphology
 3. Landing area
 4. Stent diameter, length, type
- To assess the intervention results and conduct accurate long-term follow-up
 1. Immediate post-stent evaluation
 2. Acute finding:
 - Malapposition
 - Expansion
 - Edge dissection

ILUMIEN™ OPTIS™ PCI Optimisation Tools

- **New Pullback Settings**
 - Survey mode: 75 mm pullback (5 frames/mm)
 - High-resolution mode: 54 mm pullback (10 frames/mm)
- **Lumen Profile Display**
 - Area and Mean Diameter display
 - Automatic minimum lumen area (MLA)
 - Stent planning workflow
- **Real-time 3-dimensional Display**
 - Navigation view
 - Segmented lumen

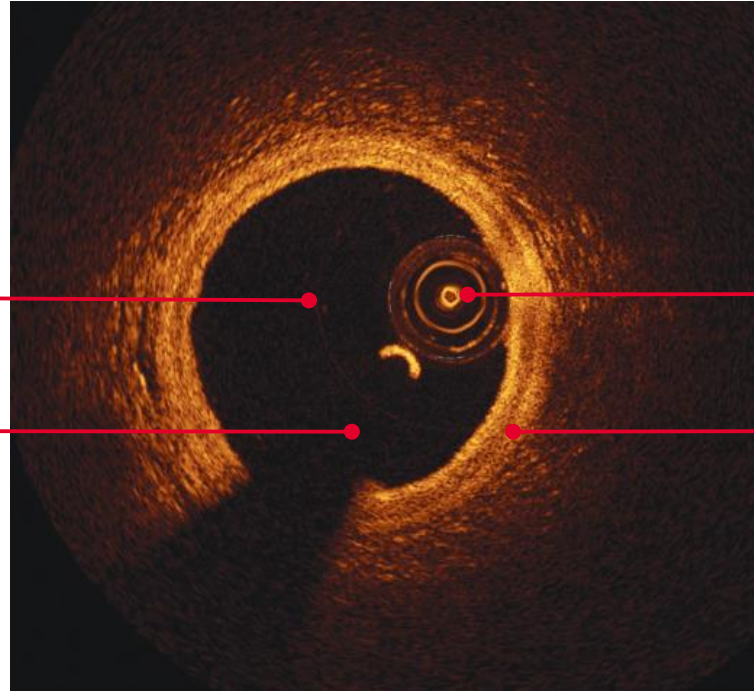


2. OCT Image Interpretation

Image Orientation—Radial Cross-sectional View

Lumen—cleared
of blood

Guide wire
shadow—“Meteor”



Imaging catheter

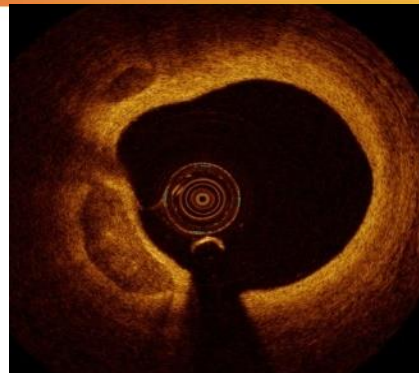
Vessel

Microstructure Imaging—Simple to Complex

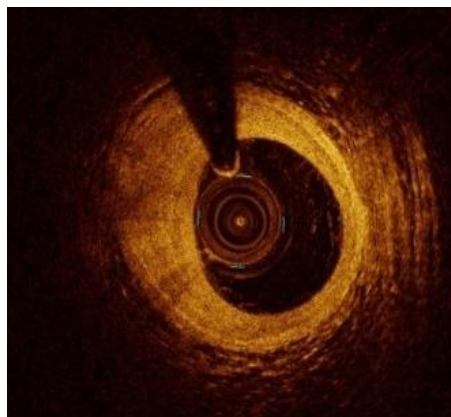
OCT helps to identify different microstructures as well as tissue and plaque morphologies

- **Calcific plaque**
- **Fibrous tissue**
 - Intimal thickening
- **Lipid pools**
- Thrombus
 - Red
 - White
- TCFA
- Plaque ruptures/erosions
- Cholesterol crystals
- Macrophages

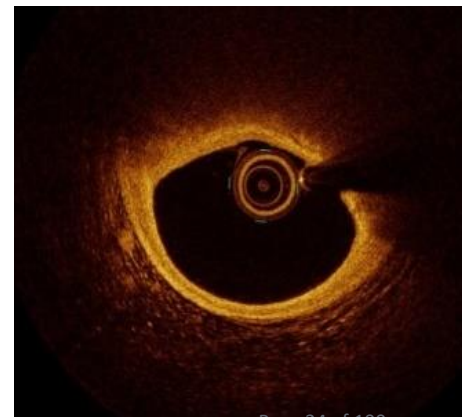
“The Big 3”



Calcific Plaque



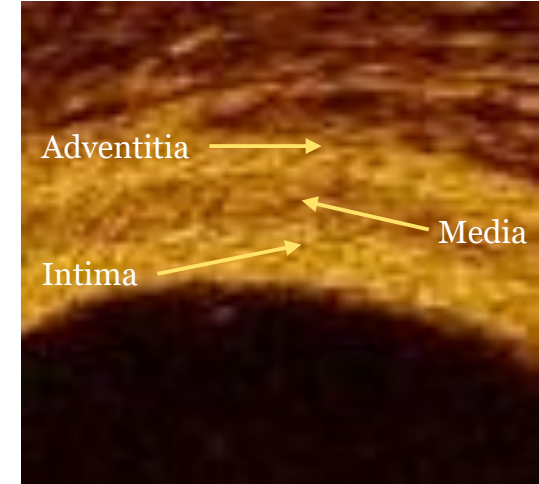
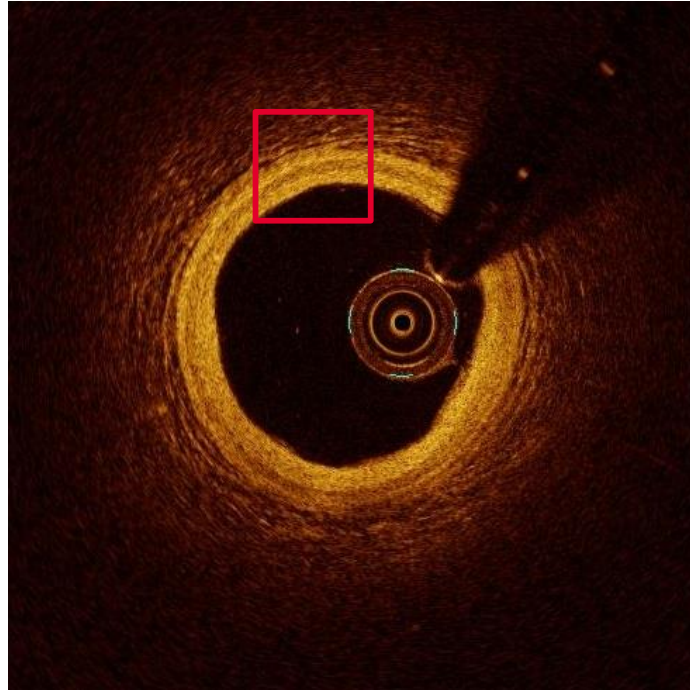
Fibrous Tissue



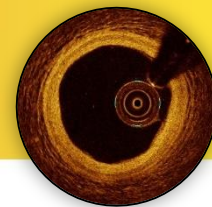
Lipid Pools

Normal or Non-diseased Coronary Anatomy

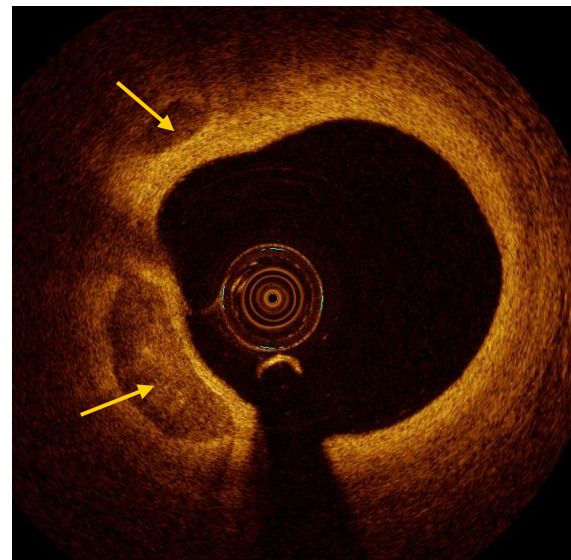
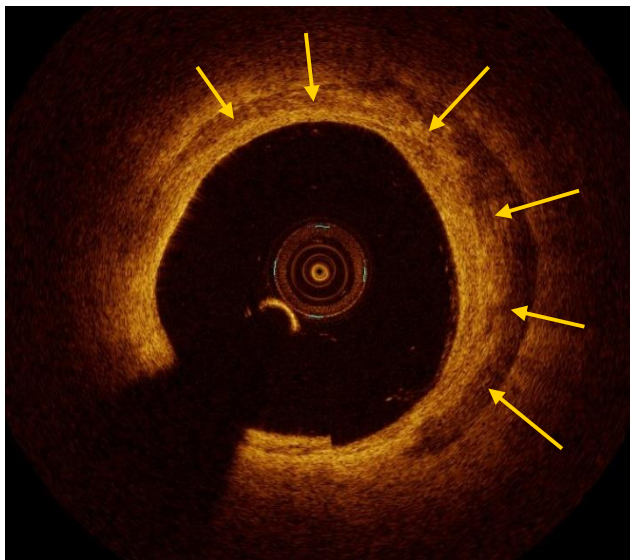
- If there is minimal to no atherosclerosis, the **three layers** of the artery should be visible
- The **Media** appears as a **slightly darker band** than the other two layers



Calcific Plaque



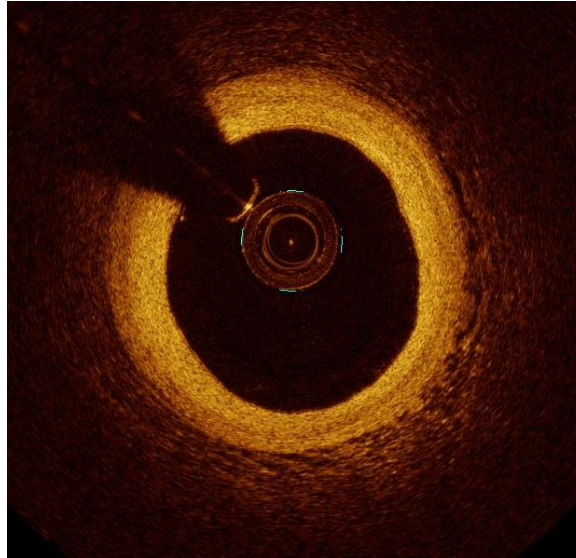
- Heterogeneous appearance
- Low backscatter and low attenuation
- Clear, delineated edges
- “Islands”



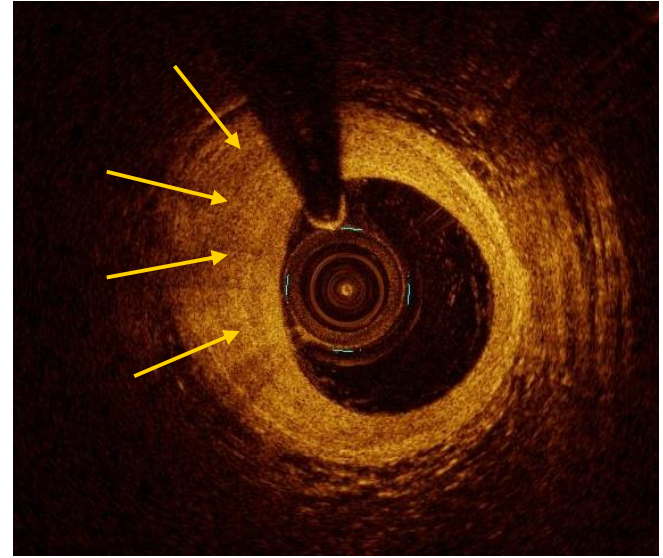
Fibrous Tissue



- Homogeneous appearance
- High backscatter and low attenuation

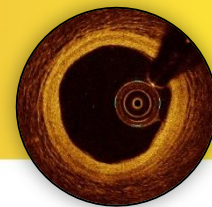


Intimal Thickening

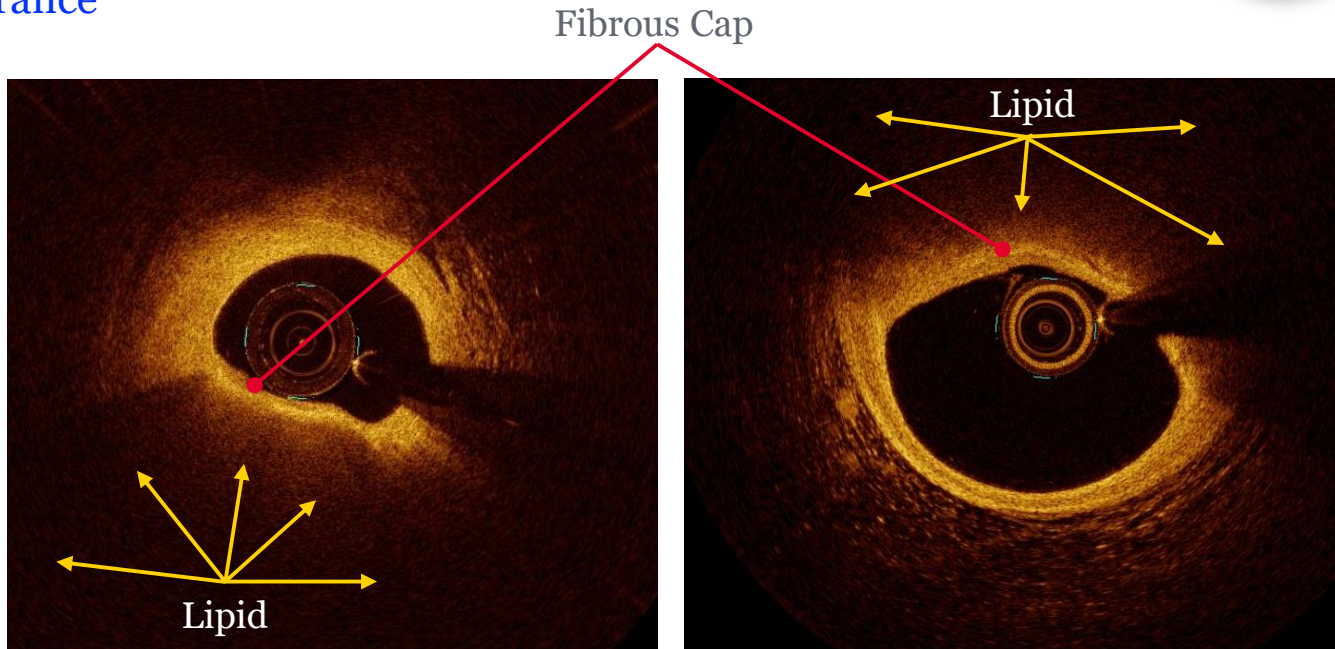
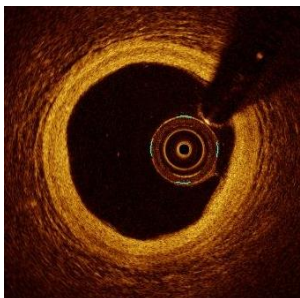


Fibrotic Plaque

Lipid Pool/Core—Fibrofatty Plaque

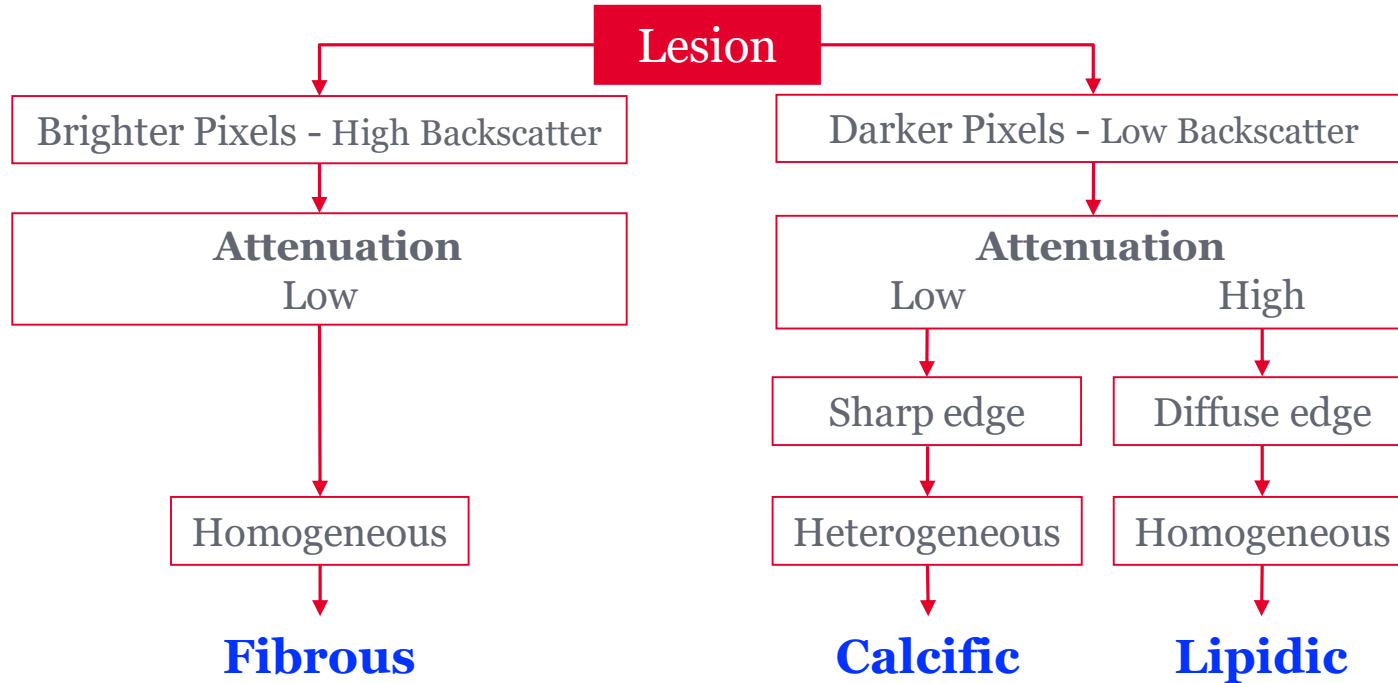


- Homogeneous appearance
- Low backscatter and high attenuation
- Diffuse, “shadowy” edges
- “Murky Water”



Tearney, G., et al., Consensus Standards for Acquisition, Measurement, and Reporting of Intravascular Optical Coherence Tomography Studies A Report From the International Working Group for Intravascular Optical Coherence Tomography Standardization and Validation. JACC Vol. 59, No. 12, 2012.

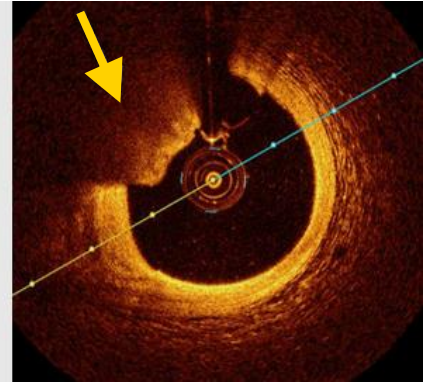
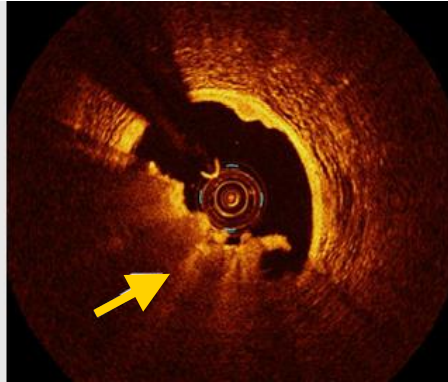
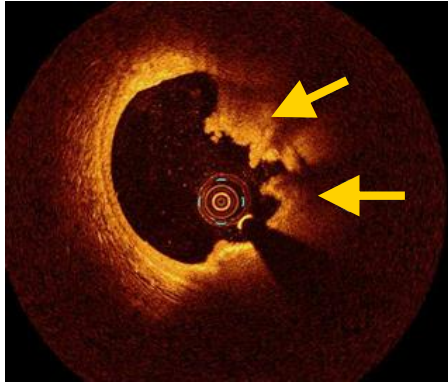
Major Plaque Characteristics—“The Big 3”



Red Thrombus



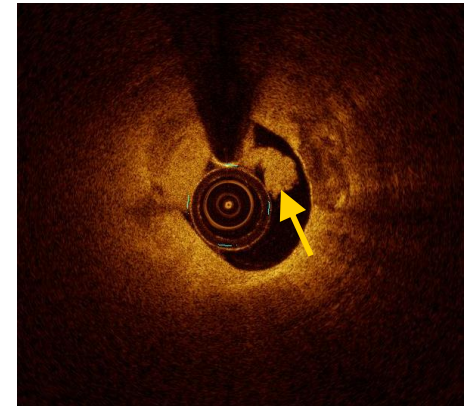
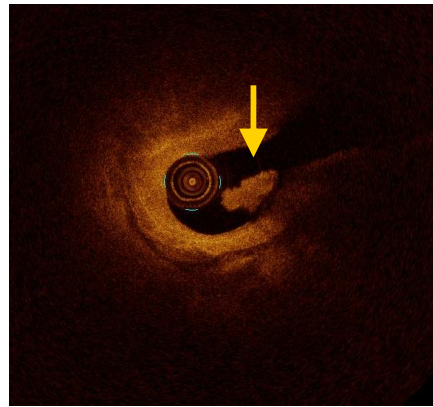
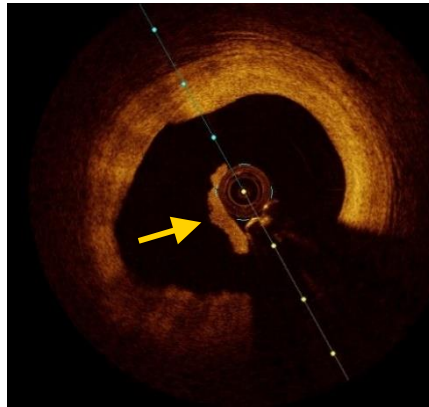
- Red blood cells and fibrin
- More acute thrombus
- Absorbs light
- High backscatter at leading edge and high attenuation beyond leading edge



White Thrombus



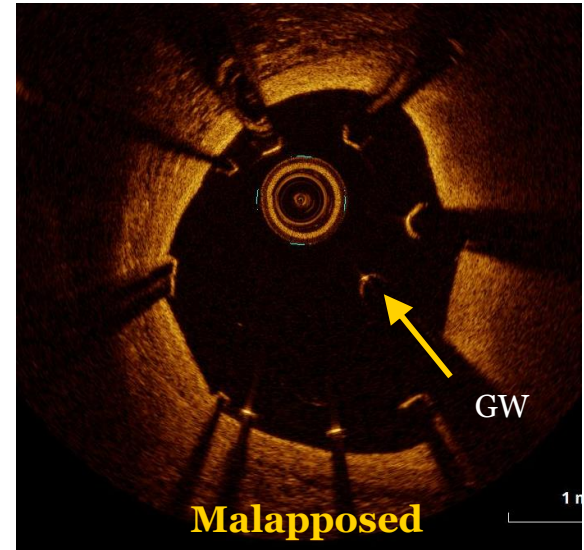
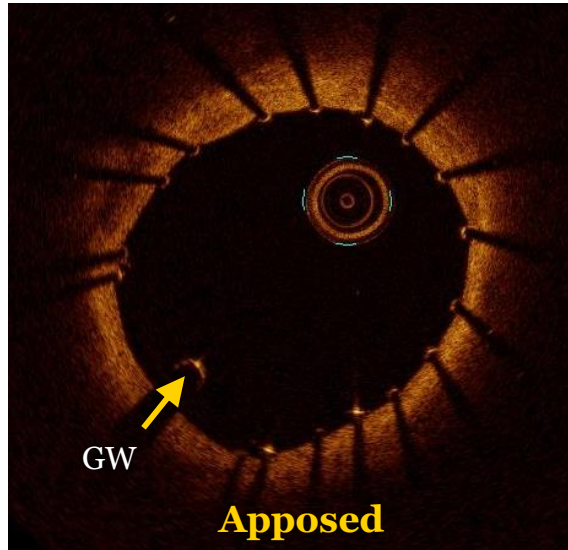
- Platelet rich
- More chronic thrombus
- Homogeneous appearance
- High backscatter throughout and low attenuation



Metallic Stents



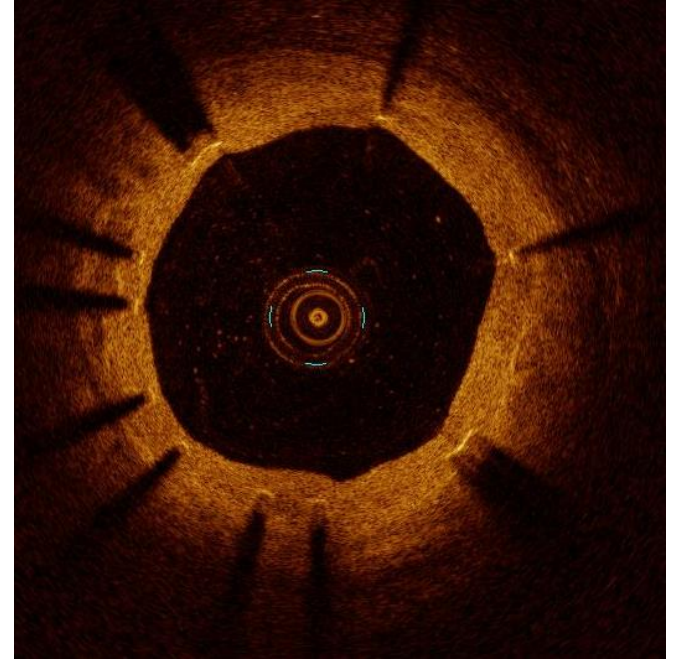
- Similar to the guide wire, each strut has **high backscatter** at the leading edge and a **shadow trailing** it
- GW = Guide wire



Metallic Stents—Endothelialized



- Neointimal growth over stent struts
- Too much endothelialization or neoatheromas can lead to ISR



3. IVUS and OCT Comparisons

IVUS vs OCT



IVUS

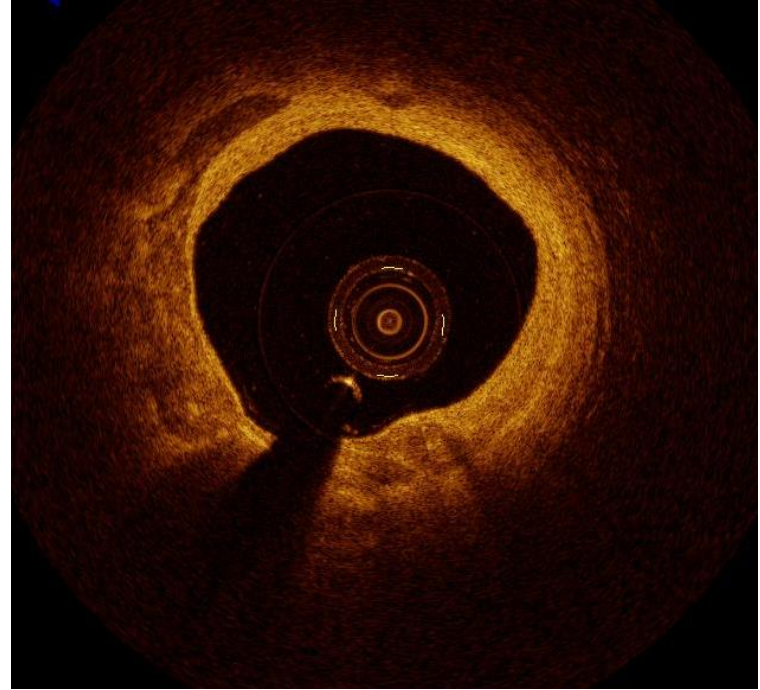
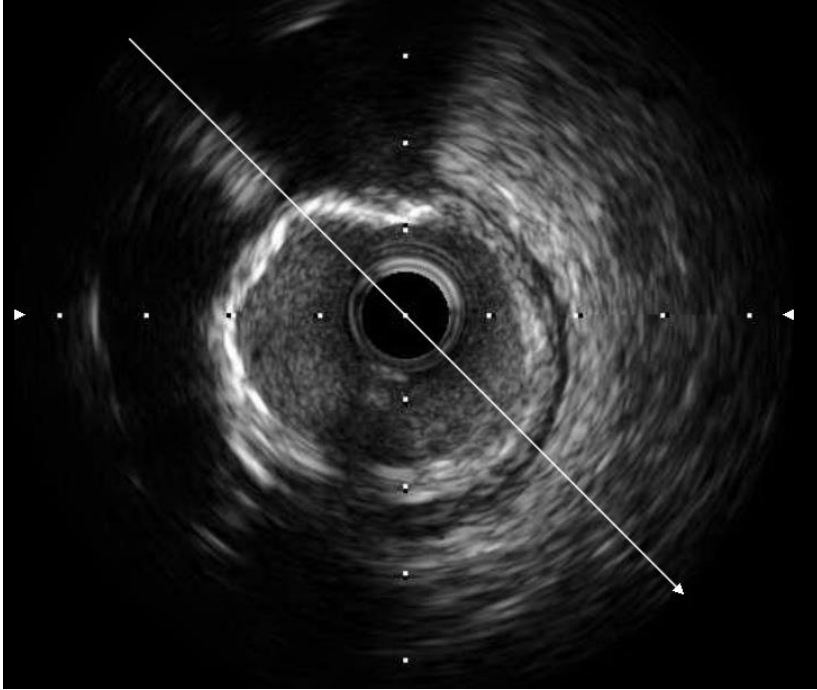
- Deeper penetration
- Ostial lesion
- Independent to catheter engagement
- Distal lesion
- During CTO-PCI SVG
- Spontaneous coronary dissection



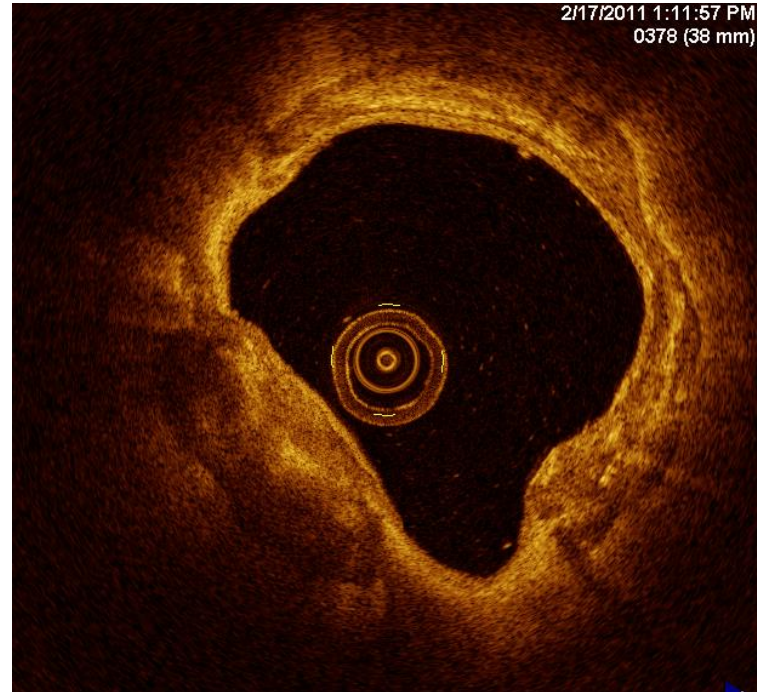
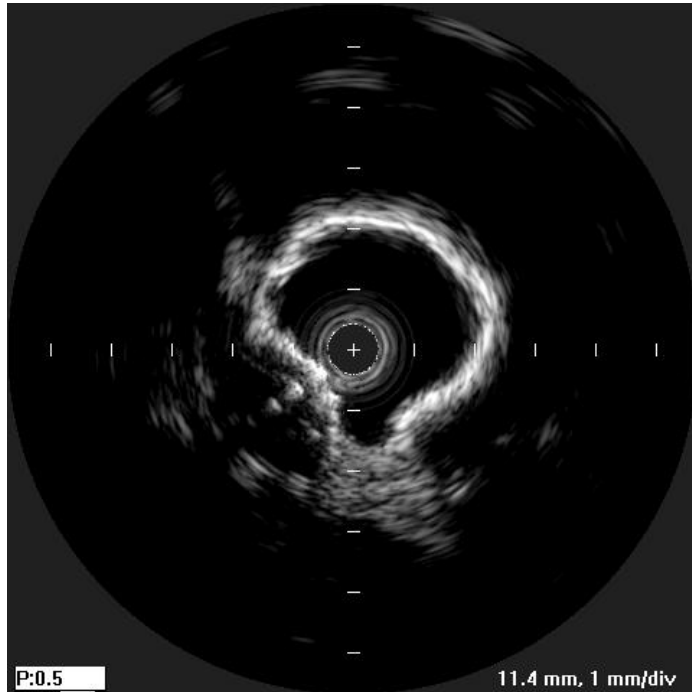
OCT

- Fine resolution to see inner luminal side (10-15 μm)
- Very good for thrombus
- Stent apposition
- Tissue prolapse
- Overlap stent
- TCFA
- Calcium nodule
- Intramural/adventitial hematoma

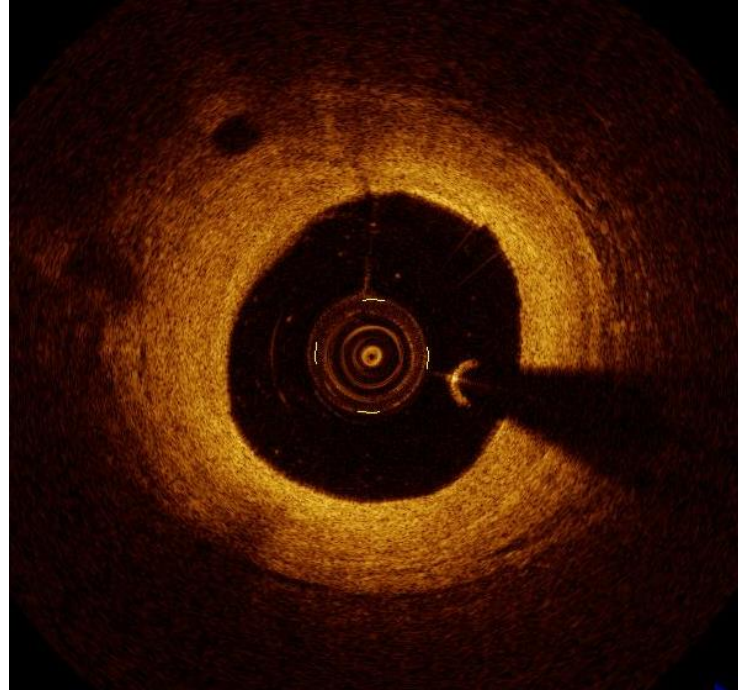
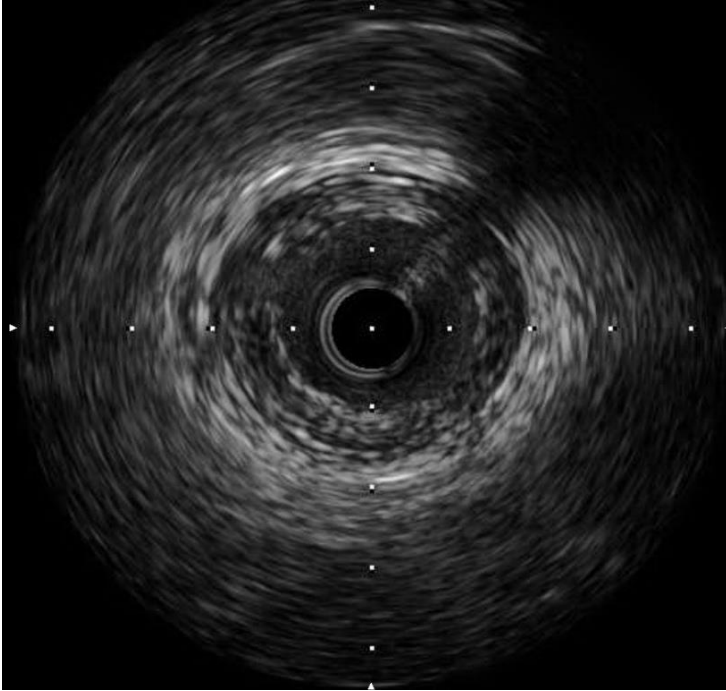
Calcific and Fibrotic Plaque



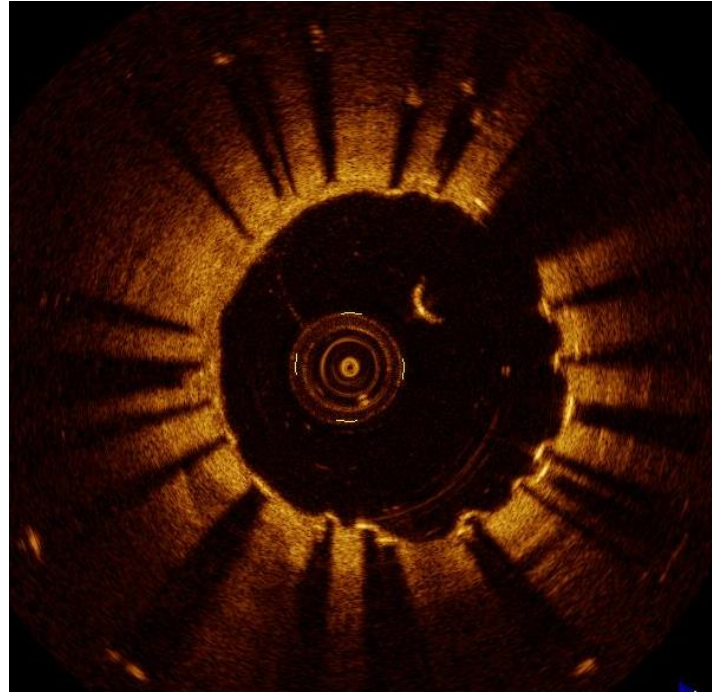
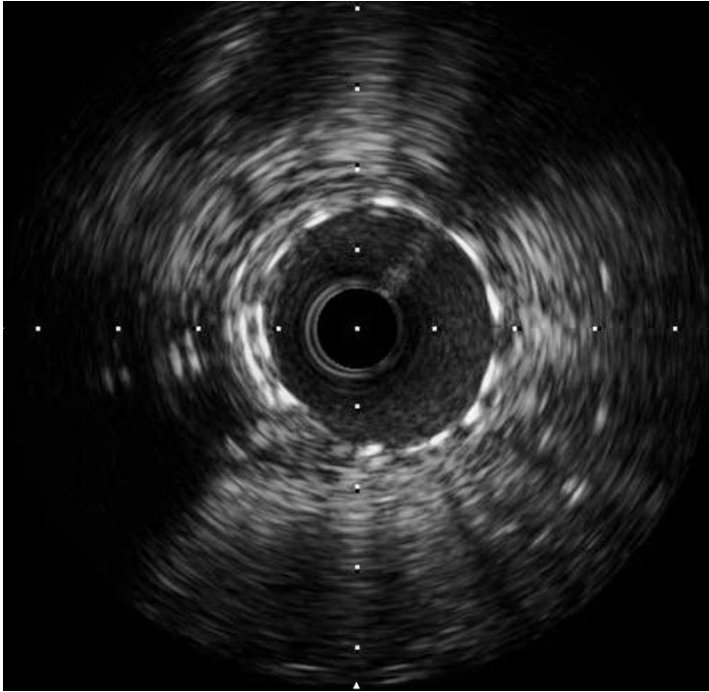
Calcific Plaque



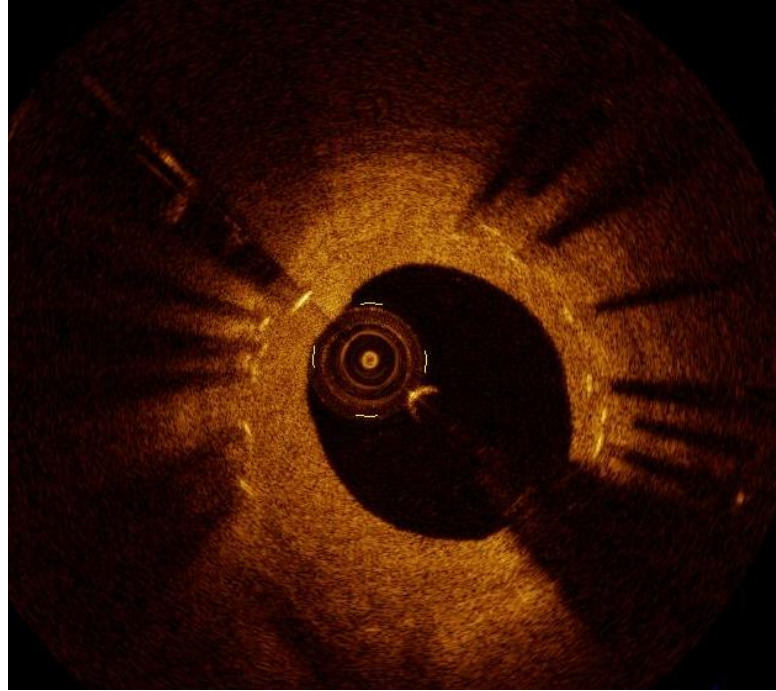
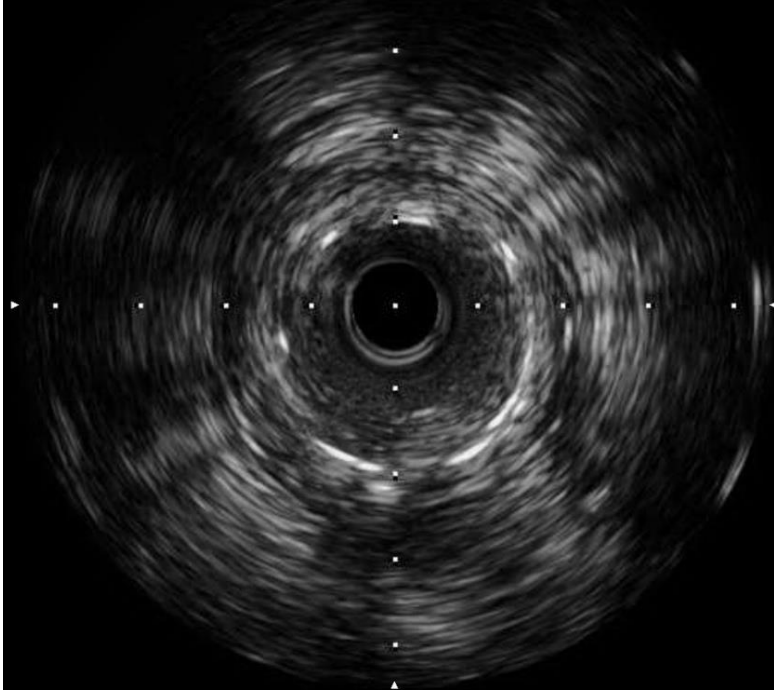
Fibrotic Plaque



Post-Stent Implantation—Overlapping Stents



In-Stent Restenosis



4. OCT Fundamentals for Good Imaging

Remember the 4 Ps

- **Position**

Ensure your target segment is between the Lens and Proximal markers

- **Purge**

Clear the blood from the catheter lumen, if present

- **Puff**

Inject a small amount of flush media through the guide catheter, during Live View, to ensure you are obtaining adequate clearance

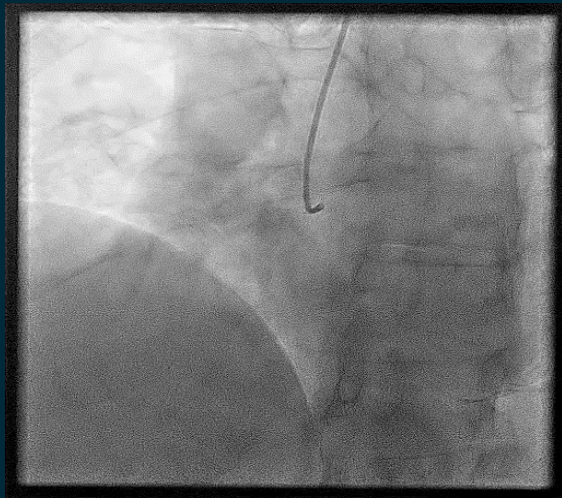
- **Pullback**

Enable to start the imaging process

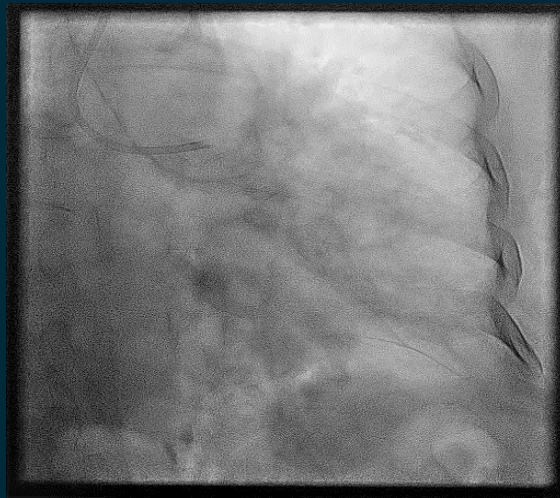
5. MLD MAX OCT Algorithm

Diagnostic Angiography

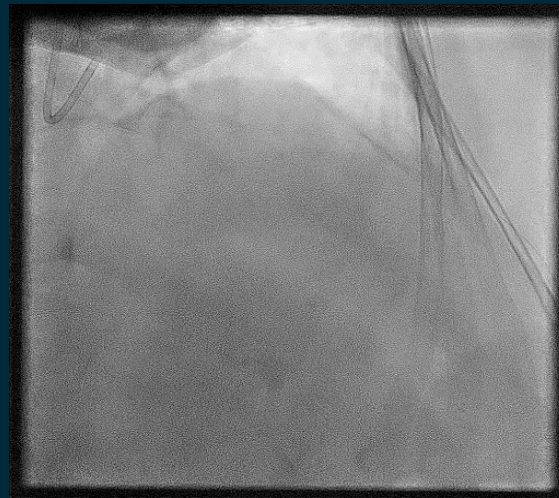
- Syntax Score 22 (MACCE CABG vs PCI, $P=0.43$)
- Patient elects to undergo PCI



RCA



Circumflex



LAD

Case courtesy of Dr. Ziad A. Ali

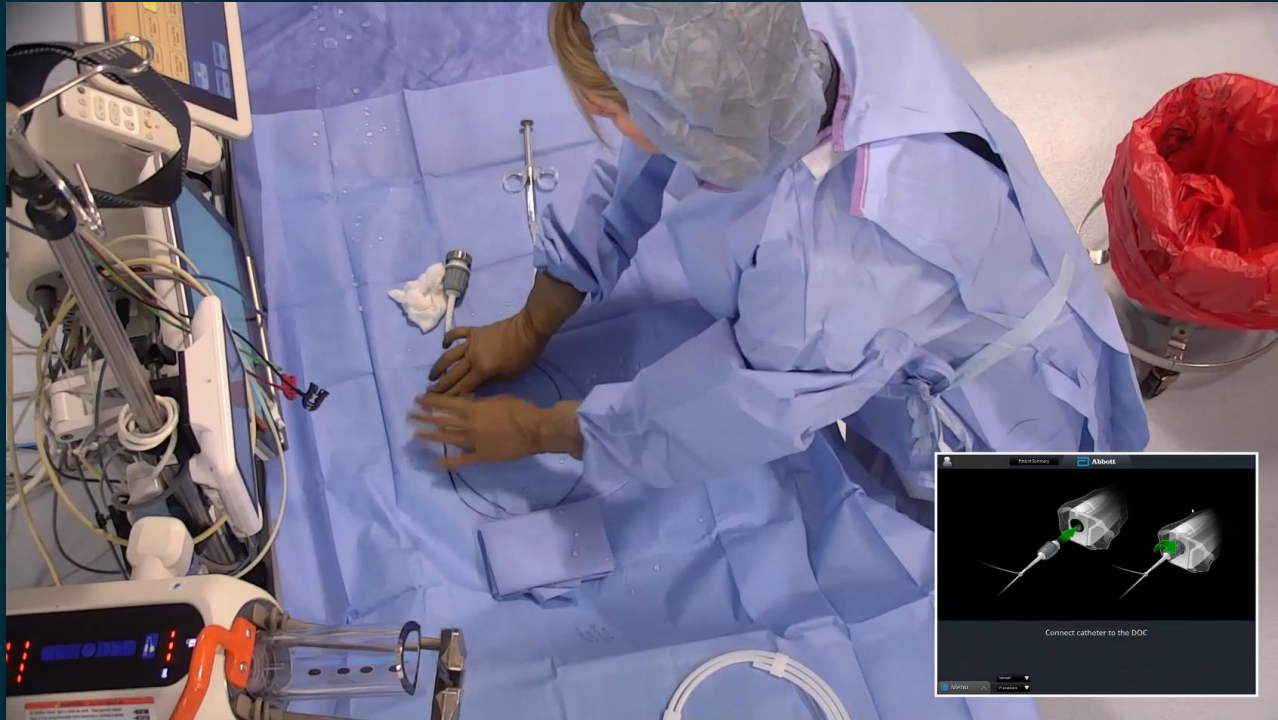
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT-Guided PCI: Setup

- Connect syringe
- Purge catheter
- Drape DOC
- Connect catheter



Refer to Instructions For Use (IFU) for additional information.

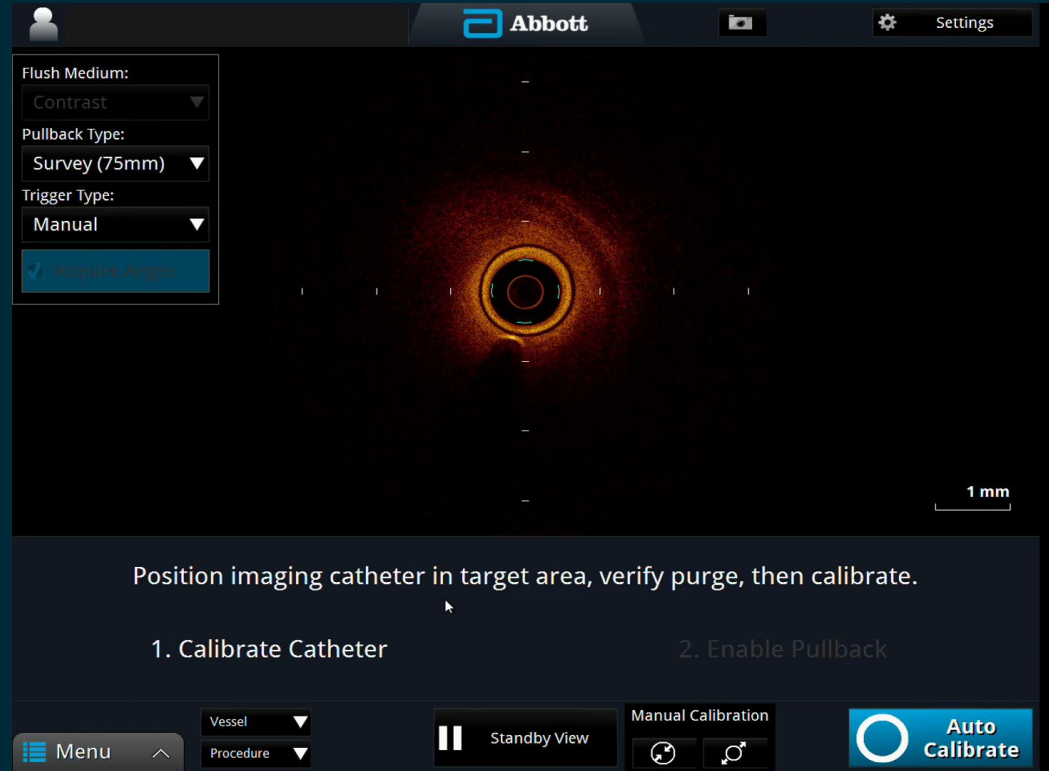
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

Pullback: The 4 P's

- **Position** – catheter distal to lesion
- **Purge** – catheter lumen
- **Puff** – to evaluate clearance
- **Pullback** – image acquisition



Refer to Instructions For Use (IFU) for additional information.

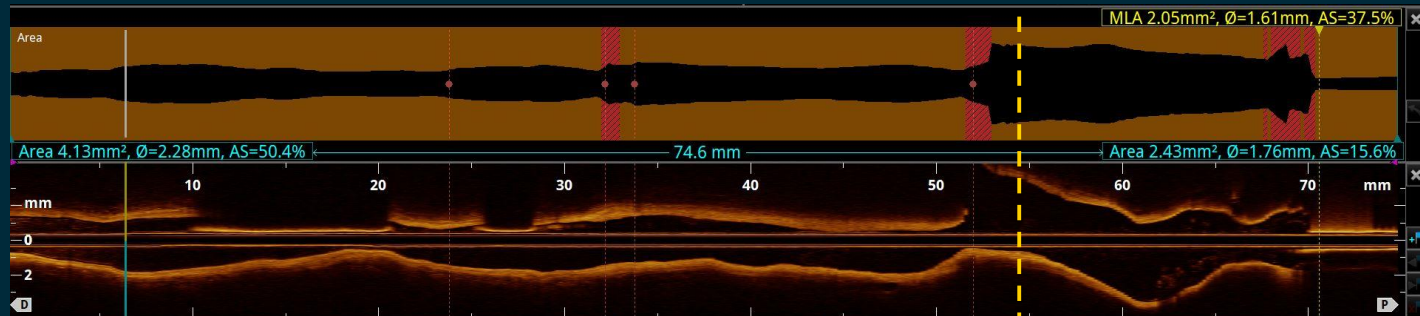
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

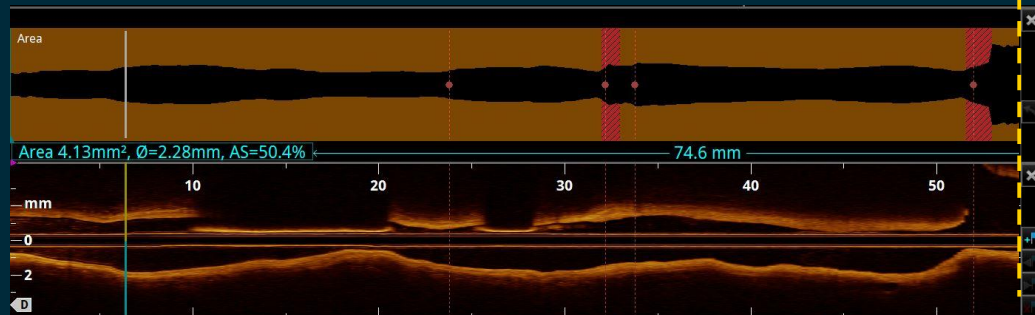
©2020 Abbott. All rights reserved. MAT-2002162 v2.0

Pullback Type

Survey-mode acquisition: 75 mm, 5 frames/mm - 2.1 Sec



High-resolution acquisition: 54 mm, 10 frames/mm - 3.0 Sec



Useful for:

- Bifurcation re-crossing
- Stent fracture assessment

Refer to Instructions For Use (IFU) for additional information.

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

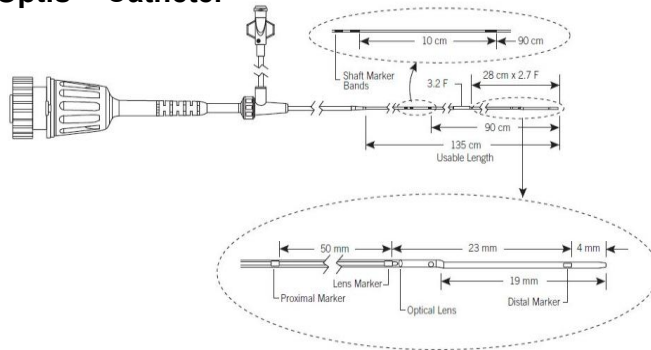
©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Catheter and Modes

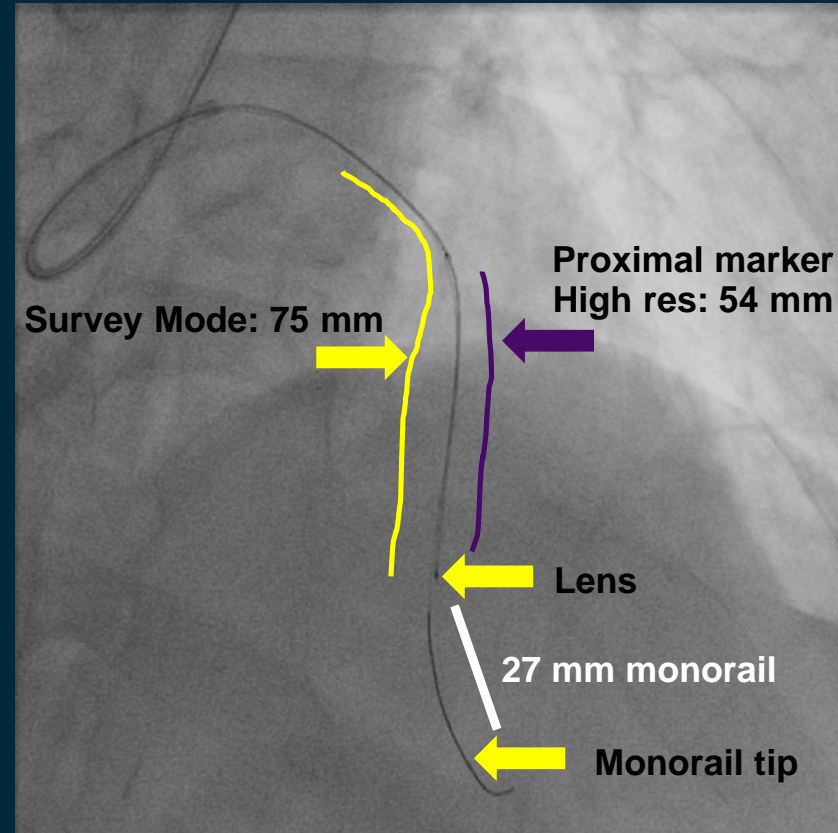
OCT Modes

- High res: 54 mm- 10 frames per mm
- Survey: 75 mm- 5 frames per mm
- Stationary

Dragonfly™ Optis™ Catheter

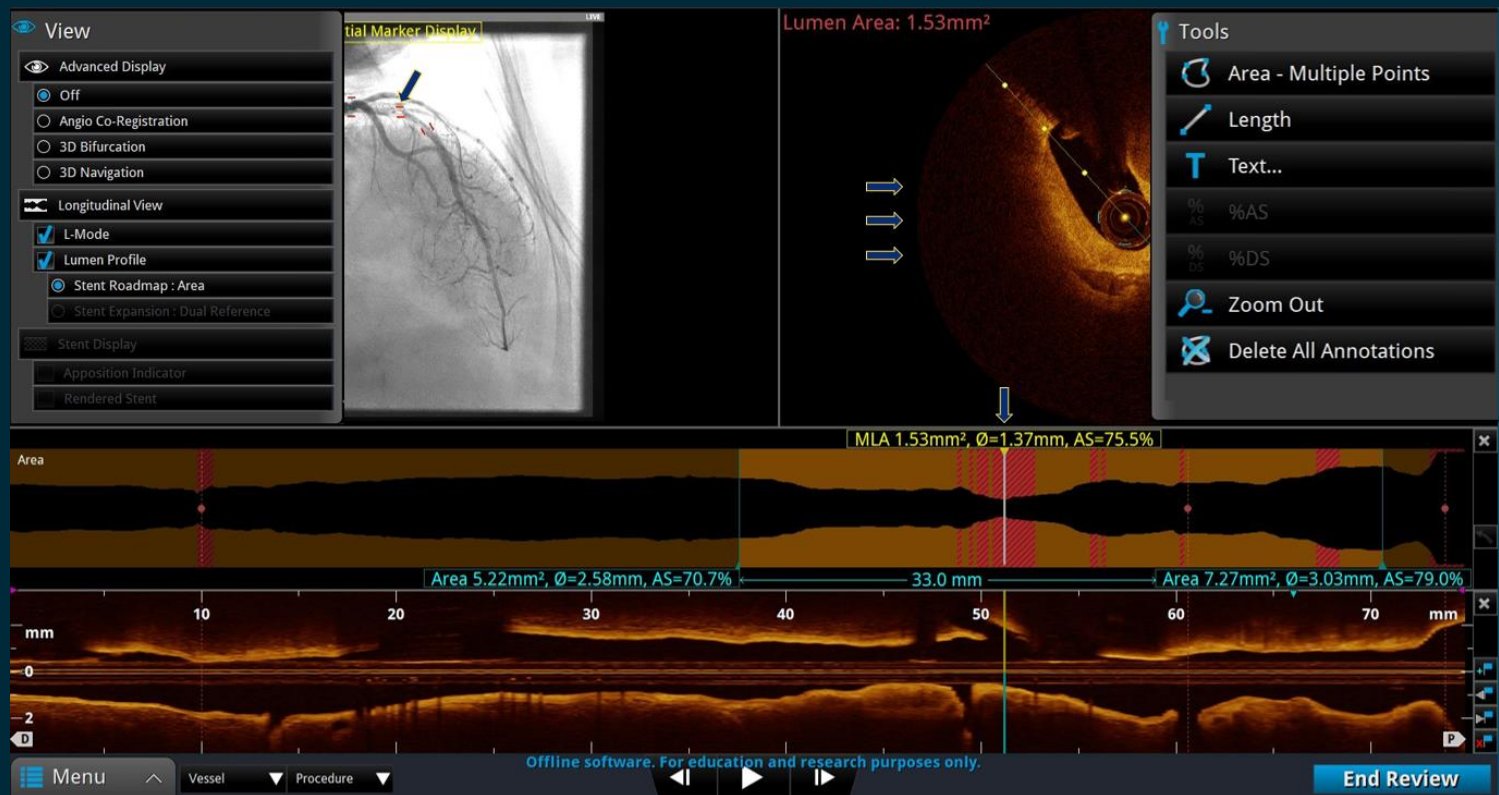


2.7F



Refer to Instructions For Use (IFU) for additional information.
See Important Safety Information referenced within.
Information contained herein for **DISTRIBUTION in the US ONLY.**
©2020 Abbott. All rights reserved. MAT-2002162 v2.0

User Interface



Refer to Instructions For Use (IFU) for additional information.
See Important Safety Information referenced within.
Information contained herein for DISTRIBUTION in the US ONLY.
©2020 Abbott. All rights reserved. MAT-2002162 v2.0

Modern OCT Guided PCI Workflow | MLD MAX

Each OCT run serves a separate purpose. The **pre-PCI run** helps determine the **PCI strategy**, and the **post-PCI run** allows for optimization of the stent as needed.

Pre-PCI OCT | Strategize

MMORPHOLOGY

LENGTH

DIAMETER

Post-PCI OCT | Optimize

MEDIAL DISSECTION

APPOSITION

EXPANSION

Pre-PCI OCT-Guidance

Pre-PCI OCT | Strategize

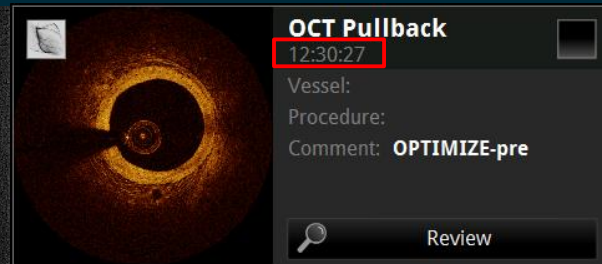
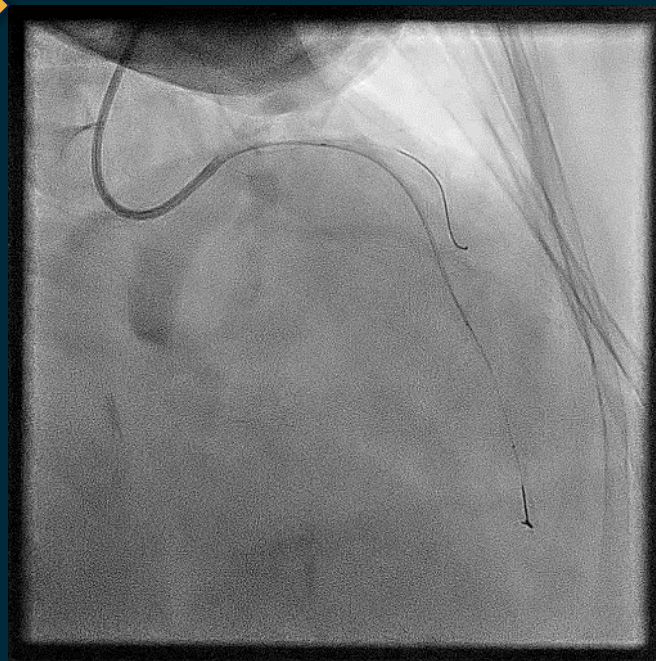
MMORPHOLOGY



LENGTH



DIAMETER



Case courtesy of Dr. Ziad A. Ali

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

SECTION 1

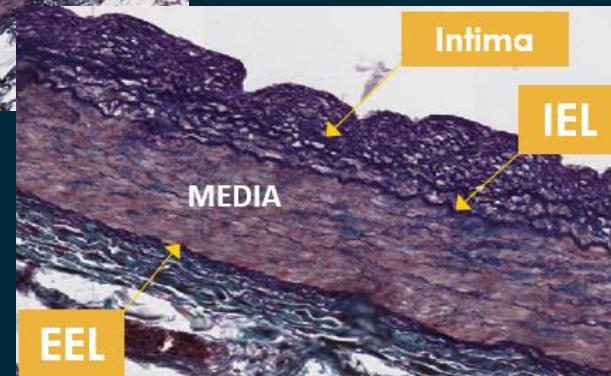
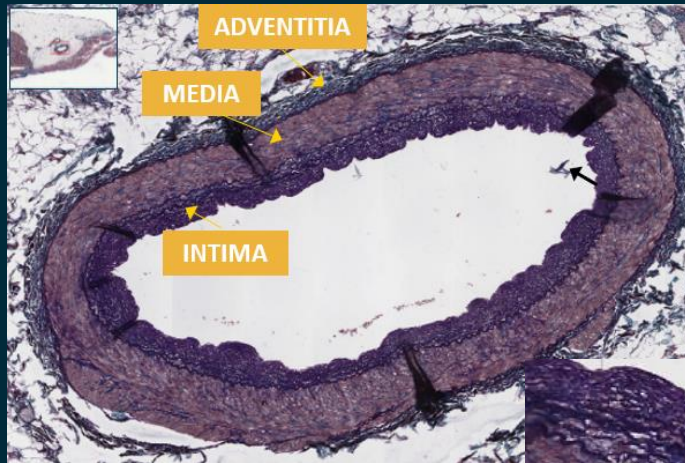
Morphology

See Important Safety Information referenced within.
Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

Normal Artery Morphology

- **Intima** = hard sponge
- **IEL** = rubber band
- **Media** = soft rope
- **EEL** = rubber band
- **Adventitia** = mesh



Shlofmitz, E. et al. Algorithmic Approach for OCT Guided Stent Implantation During PCI. Intervent Cardiol Clin 7 (2018) 329-344.

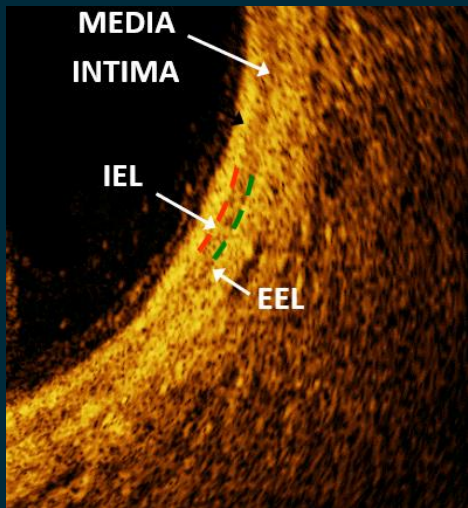
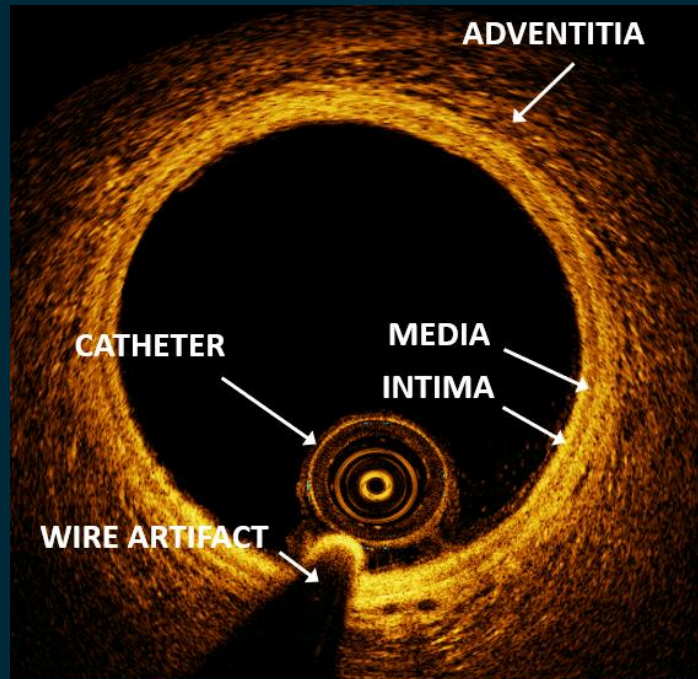
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

Normal Artery Morphology on OCT

- **Intima** = hard sponge
- **IEL** = rubber band
- **Media** = soft rope
- **EEL** = rubber band
- **Adventitia** = mesh



Shlofmitz, E. et al. Algorithmic Approach for OCT Guided Stent Implantation During PCI. Intervent Cardiol Clin 7 (2018) 329-344.

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Image Interpretation

Can the EEL (rope) and Adventitia (mesh) be visualized?

YES

Normal Artery
Fibrous Plaque

Lumen

High Attenuation
(light absorbed)

Red Thrombus

Low Attenuation
(light refracted)

White Thrombus

NO

Is the signal change in the lumen or the wall?

Wall

High Attenuation

Lipid

Low Attenuation

Calcium

Could you draw a line
around the signal change?

Shlofmitz, E. et al. Algorithmic Approach for OCT Guided Stent
Implantation During PCI. Intervent Cardiol Clin 7 (2018) 329-344.

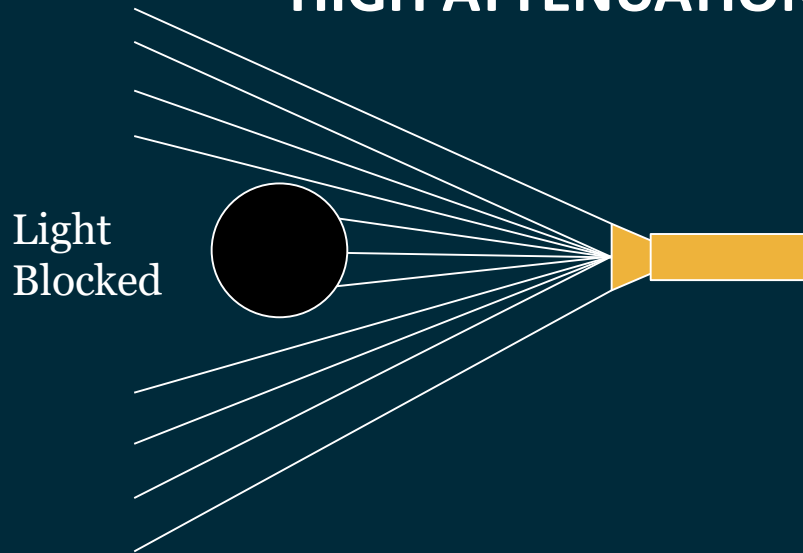
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

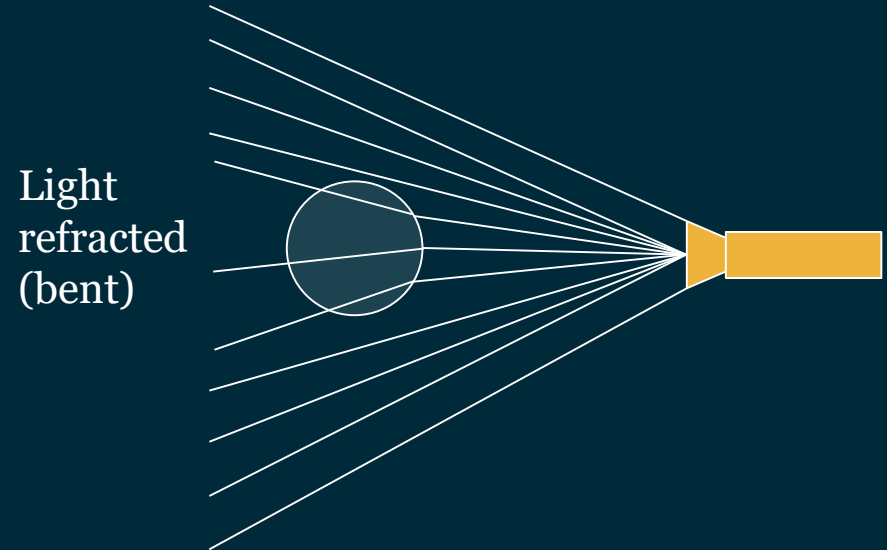
©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Signal Attenuation

HIGH ATTENUATION



LOW ATTENUATION



Courtesy of Dr. Ziad A. Ali

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

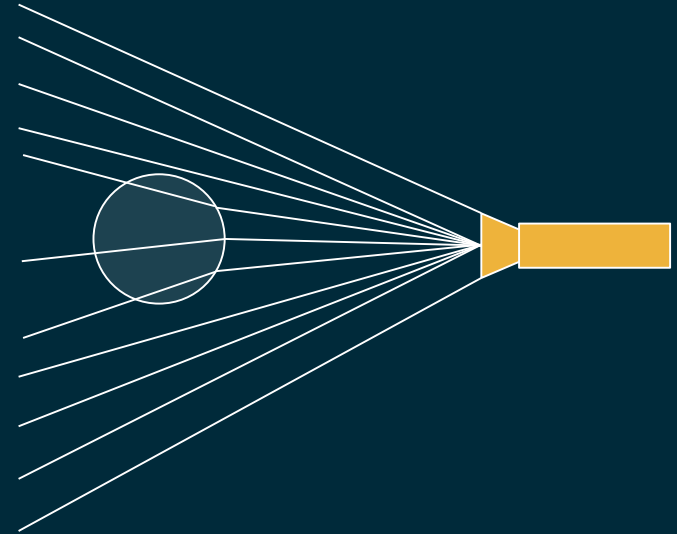
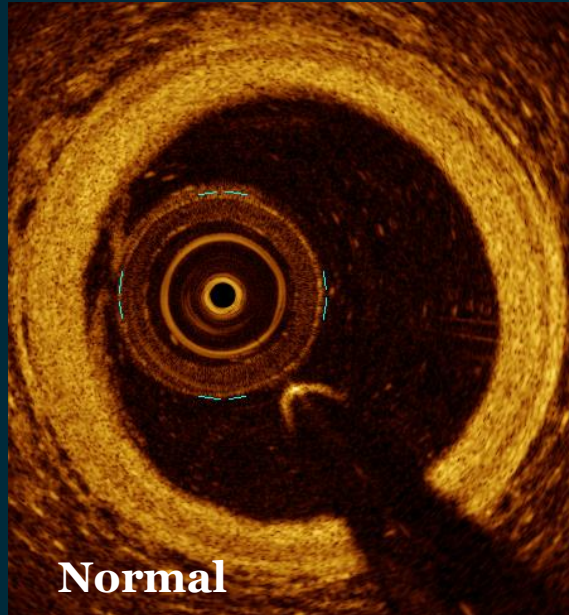
OCT Image Interpretation

Can the EEL and Adventitia be visualized?

Yes



Normal Artery
Fibrous Plaque



Courtesy of Dr. Ziad A. Ali

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

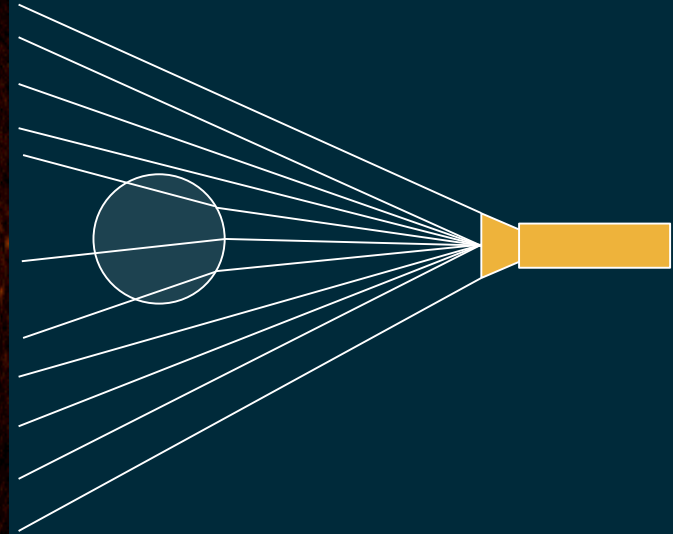
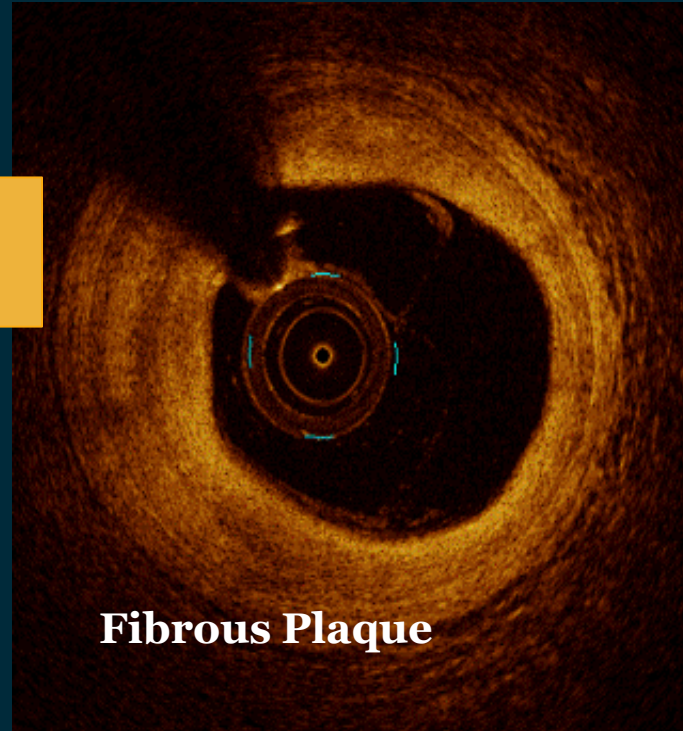
OCT Image Interpretation

Can the EEL and Adventitia be visualized?

Yes



Normal Artery
Fibrous Plaque



Courtesy of Dr. Ziad A. Ali

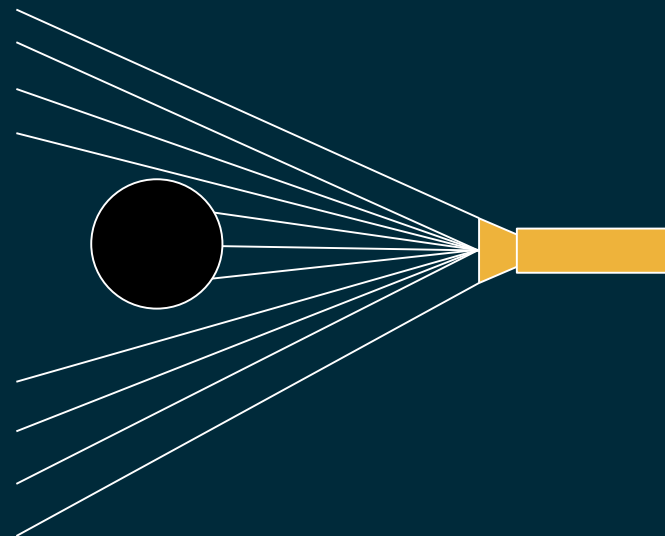
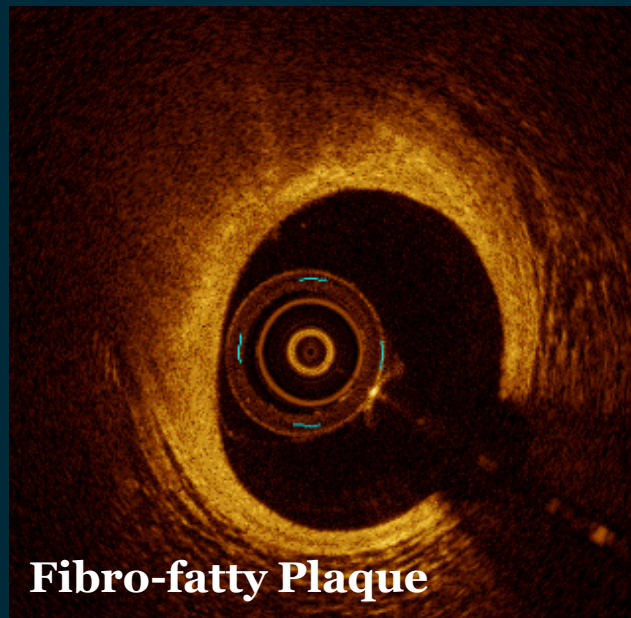
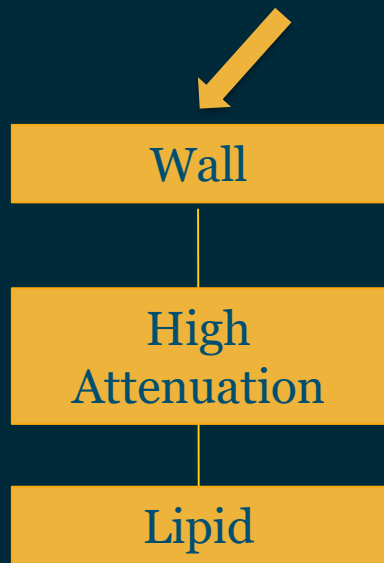
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Image Interpretation

Is the signal change in the lumen or the wall?



Courtesy of Dr. Ziad A. Ali

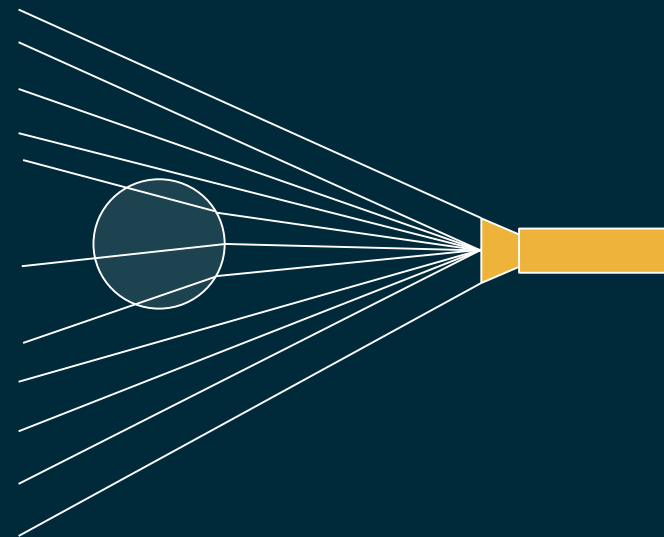
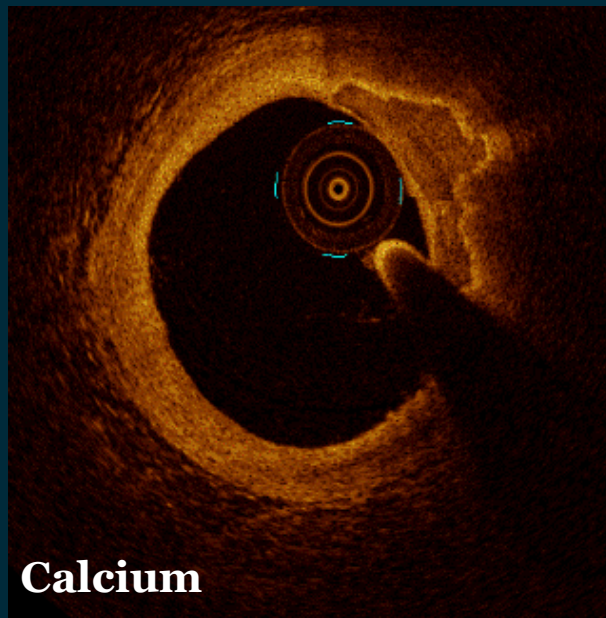
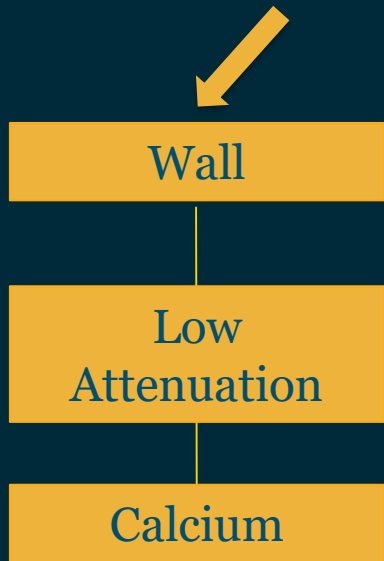
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Image Interpretation

Is the signal change in the lumen or the wall?



Courtesy of Dr. Ziad A. Ali

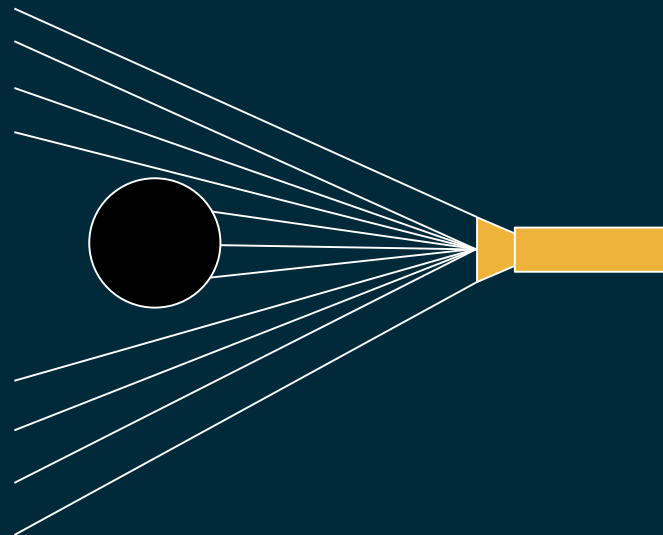
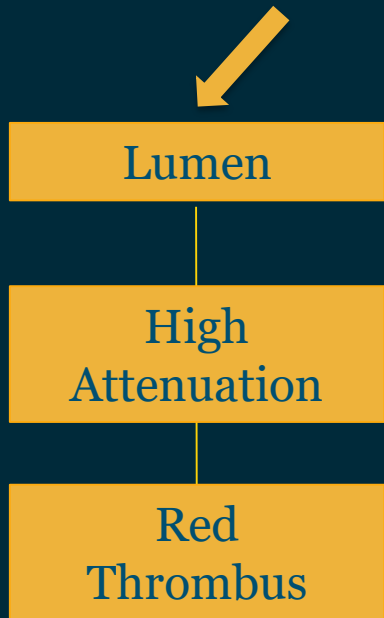
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Image Interpretation

Is the signal change in the lumen or the wall?



Courtesy of Dr. Ziad A. Ali

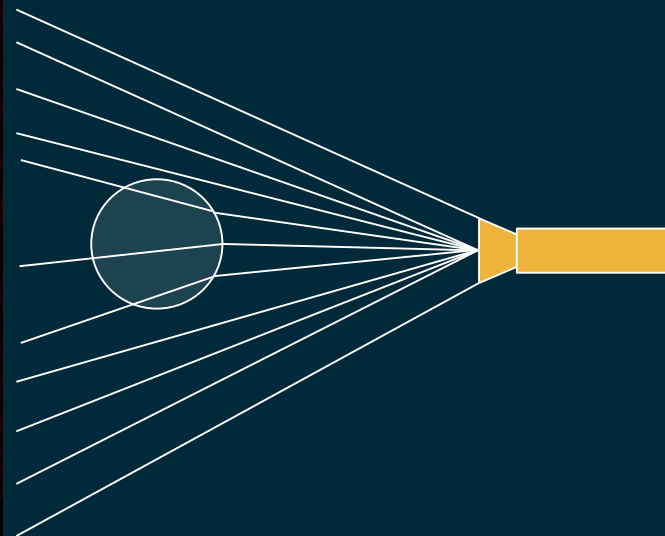
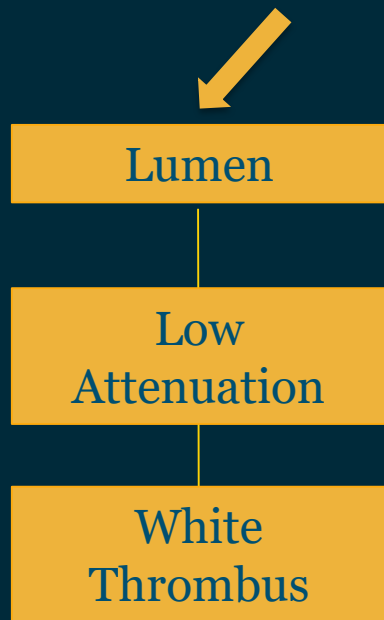
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Image Interpretation

Is the signal change in the lumen or the wall?



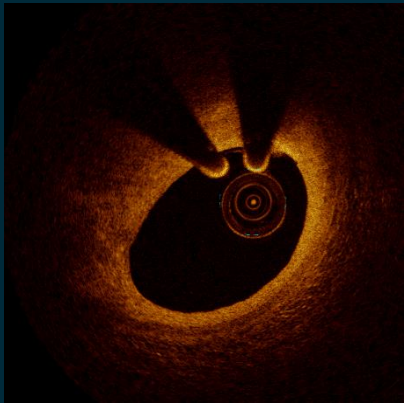
Courtesy of Dr. Ziad A. Ali

See Important Safety Information referenced within.

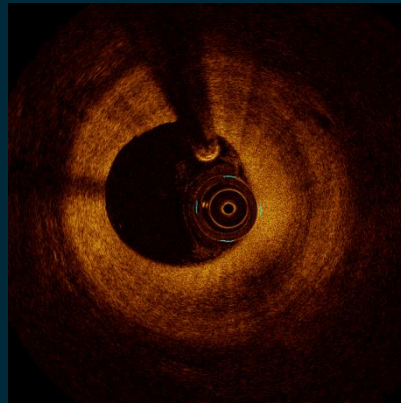
Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

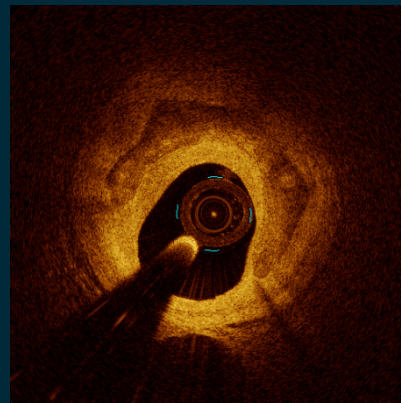
Morphology Guided Lesion Preparation



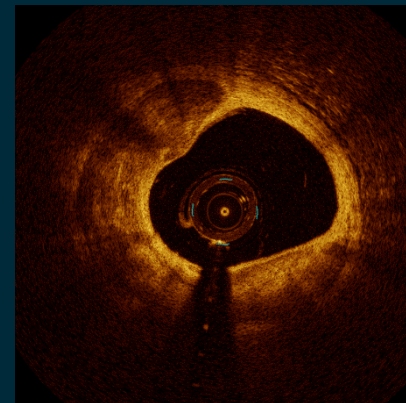
Lipidic



Fibrotic



Mild/Moderate Ca²⁺



Severe Ca²⁺

DIRECT STENTING¹

COMPLIANT BALLOON²

NON-COMPLIANT BALLOON³

ATHERECTOMY OR IVL⁴

1. Taylor, A., et al. Efficacy and Safety of Direct Stenting in Coronary Angioplasty, J. Invasive Cardiology, 2000; 12(11); 2. Romagnoli, E., et al. Drug Eluting Stenting, JACC Cardiovascular Interventions, 2008; 1(1): 21-31; 3. Seyithanoglu, B., Compliant vs Non-compliant balloons. A Prospective Randomised Study, 1998; 39(1): 45-54; 4. Tomey, M., Current Status of Rotational Atherectomy, JACC Cardiovascular Interventions, 2014; 7(4): 345-354.

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

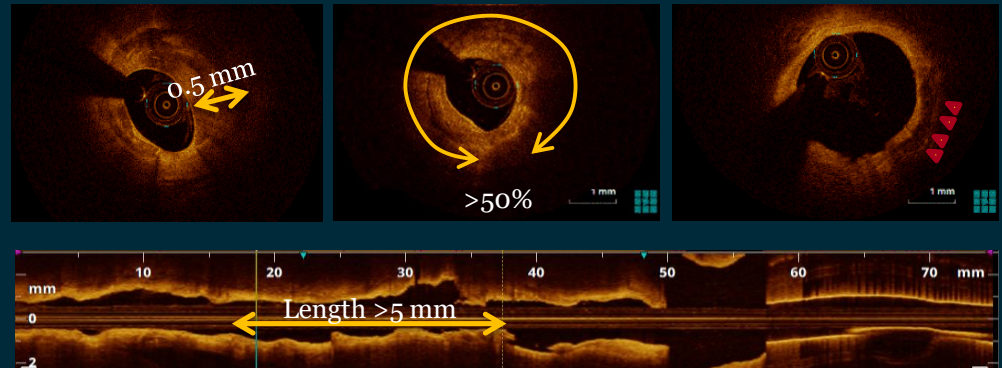
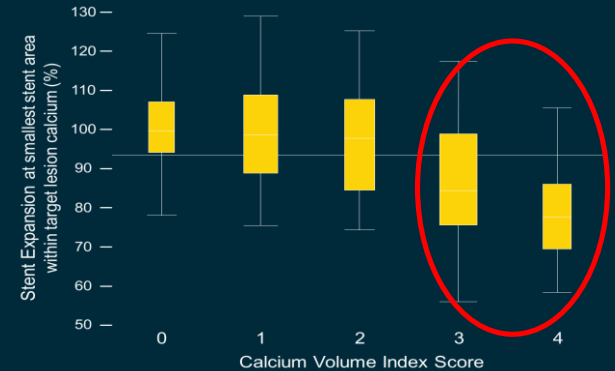
Influence of Ca^{2+} on Stent Expansion by OCT

OCT-Based Calcium Volume Index Score¹

1. Maximum Calcium Angle (°)	$\leq 90^\circ$ ▶ 0 point $90^\circ < \text{Angle} \leq 180^\circ$ ▶ 1 point $> 180^\circ$ ▶ 2 points
2. Maximum Calcium Thickness (mm)	$\leq 0.5 \text{ mm}$ ▶ 0 point $> 0.5 \text{ mm}$ ▶ 1 point
3. Calcium Length (mm)	$\leq 5.0 \text{ mm}$ ▶ 0 point $> 5.0 \text{ mm}$ ▶ 1 point
Total score	0 to 4 points

Rule of 5's

- 0.5 mm thickness
- 5.0 mm long
- 50% vessel arc



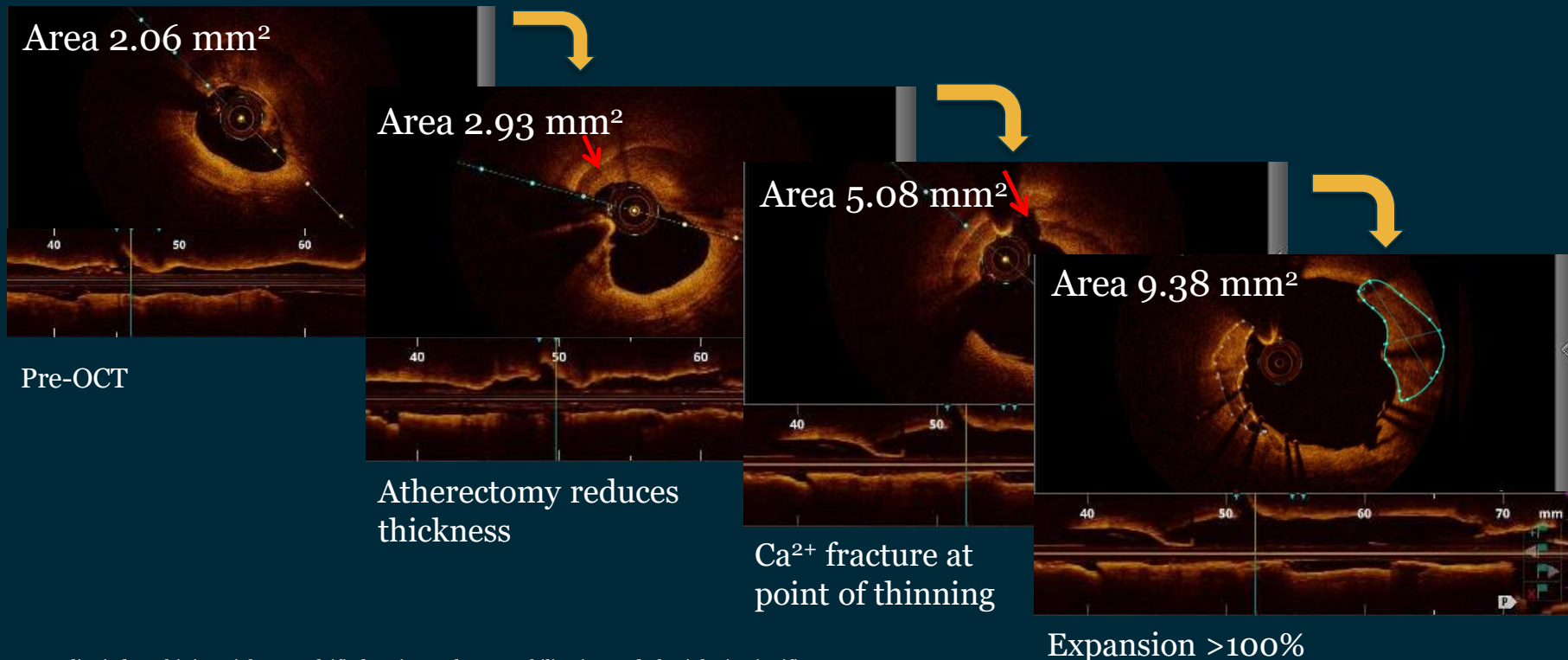
1. Fujino, A. et al. A new optical coherence tomography-based calcium scoring system to predict stent under expansion. *EuroIntervention*, April 2018; 13(18):e2182-e2189.

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

Ca²⁺-Dependent Lesion Preparation



Ali, Ziad A. Shining Light on Calcified Lesions, Plaque Stabilization and Physiologic Significance: New Insights from Intracoronary OCT. *EuroIntervention*, vol. 13, no. 18, 2018, pp. 2105–2108.

See Important Safety Information referenced within.

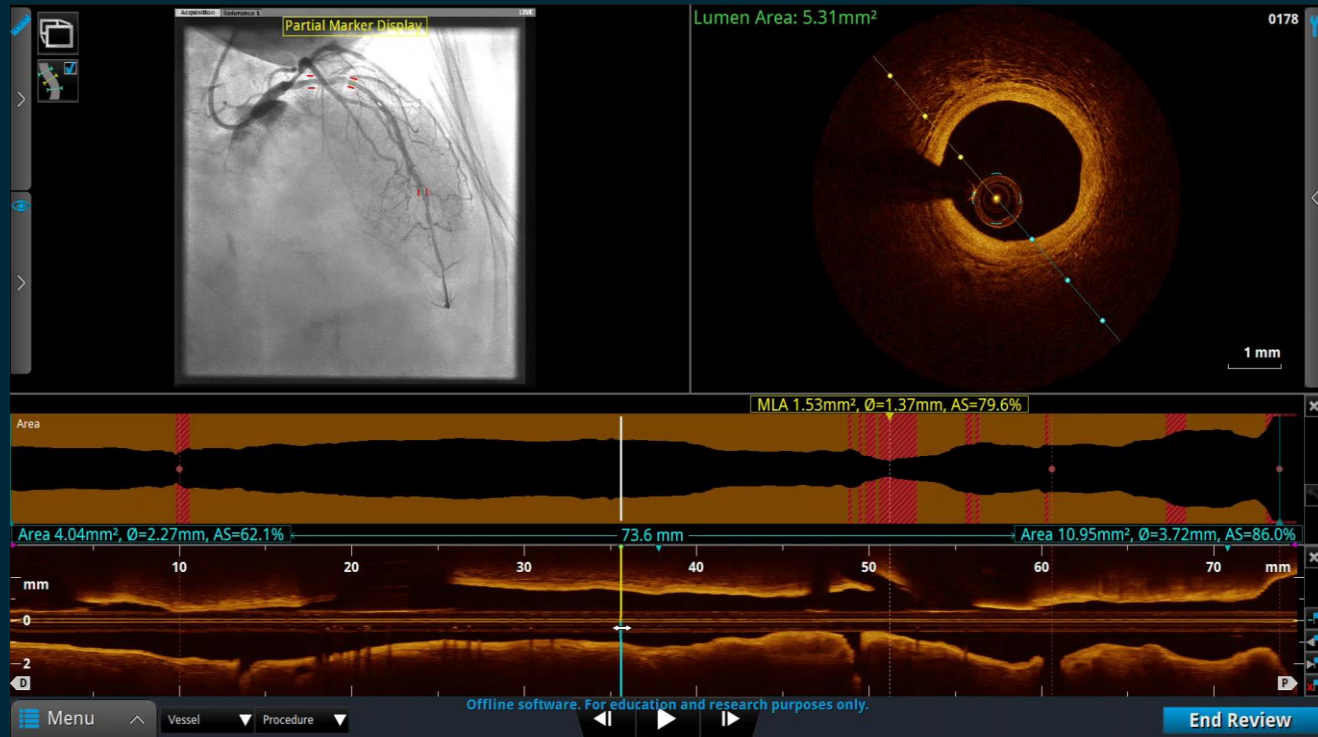
Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT-Guided Morphology Assessment

Identify:

- Normal or fibrous edges
- Severe Ca^{2+}



Case courtesy of Dr. Ziad A. Ali

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

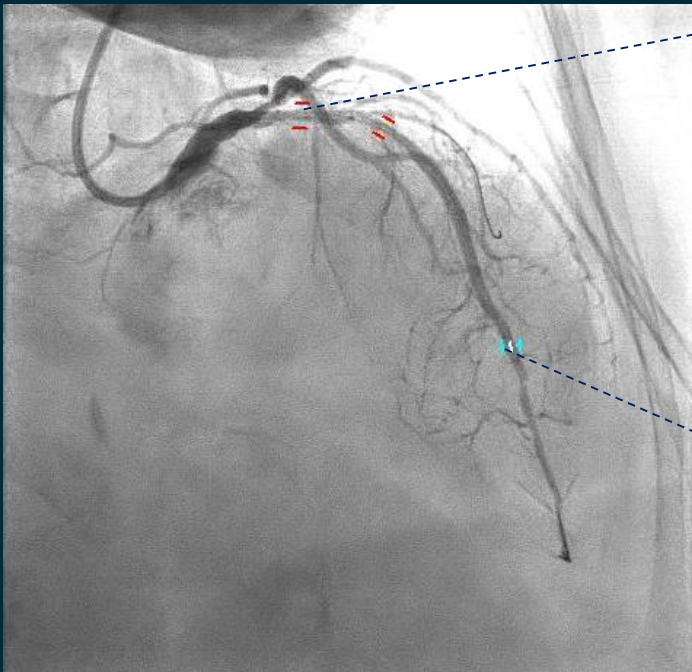
SECTION 2

Length

See Important Safety Information referenced within.
Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

Identify Landing Zones



Traditional 2-D Angiogram



OCT 3-D Lumenogram

Courtesy of Dr. Ziad A. Ali

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

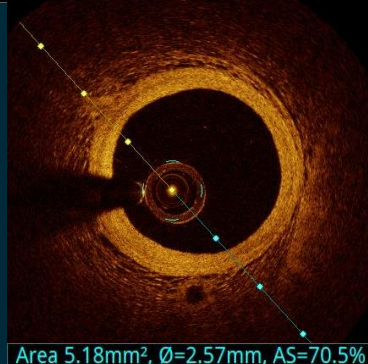
©2020 Abbott. All rights reserved. MAT-2002162 v2.0

Identify Landing Zones

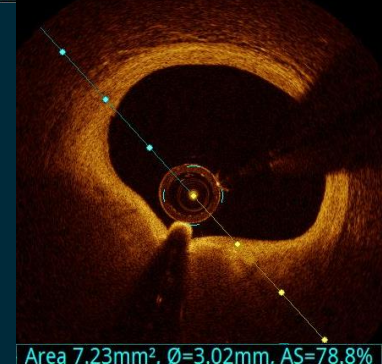
- 1) Scroll reference vessel markers to distal “normal” OCT lumenogram
- 2) Is this a safe place to land the distal stent edge?
The more visible the EEL the safer your landing zone
- 3) Scroll reference vessel markers to proximal “normal” OCT lumenogram
- 4) Is this a safe place to land the proximal stent edge?
The more visible the EEL the safer your landing zone



- 5) Adjust the length to an available DES size at the “more normal” reference



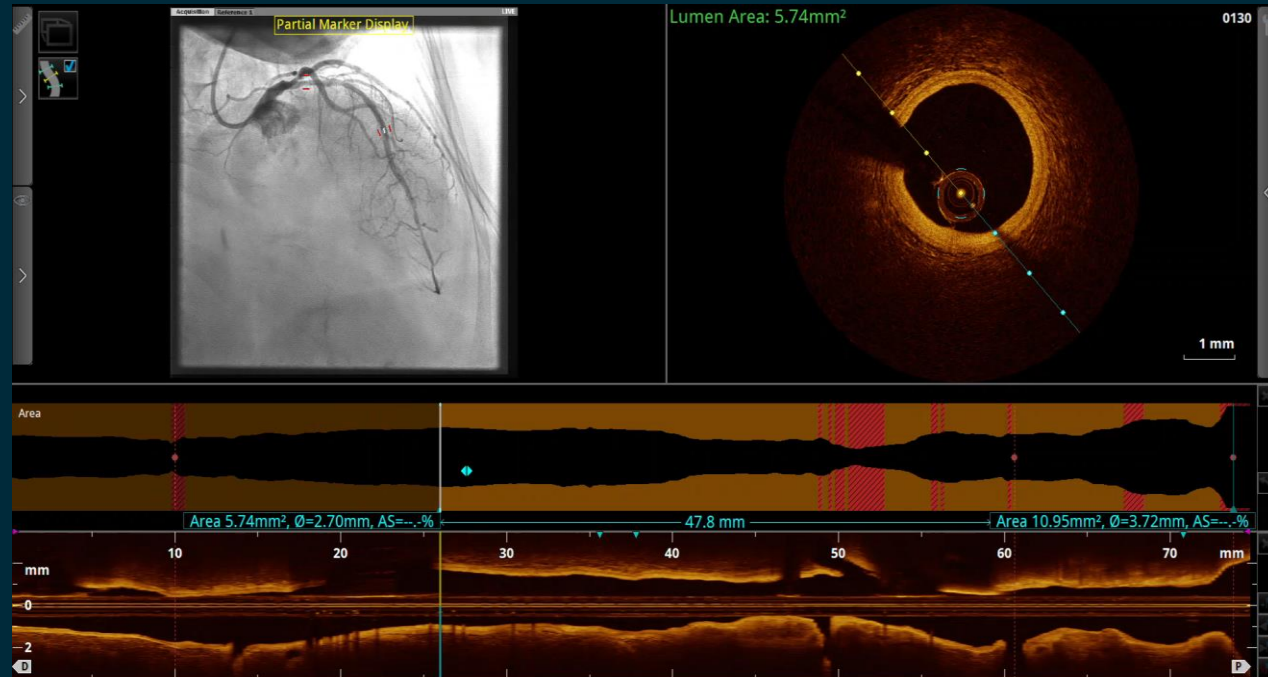
Lesion length 33 mm



OCT-Guided Length

Identify:

- “Normal” reference segments
- Adjusted DES size



Case courtesy of Dr. Ziad A. Ali

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

SECTION 3

Diameter

See Important Safety Information referenced within.
Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Stent Sizing Algorithm

PRE-PCI OCT



Can the EEL be identified at the **distal** reference segment to allow vessel diameter measurement?

YES

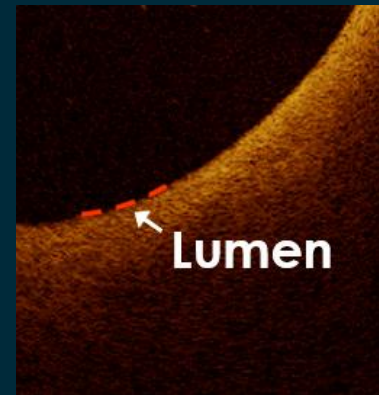
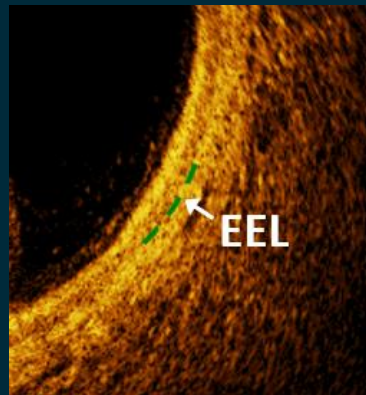
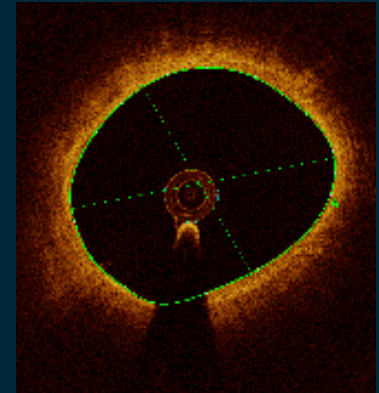
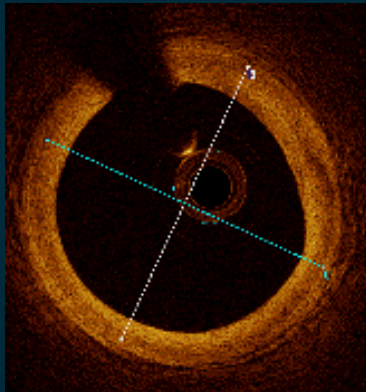


Stent diameter decided by OCT measurement of **mean EEL to EEL diameter rounded down** to nearest stent size¹

NO



Stent diameter decided by OCT measurement of **mean lumen diameter rounded up** to nearest stent size²



1. Ali, Z., et al., ILUMIEN III Study, Lancet Journal, 2016; 1-11. 2. Shlofmitz, E. et al. Algorithmic Approach for OCT Guided Stent Implantation During PCI. Intervent Cardiol Clin 7 (2018) 329-344.

See Important Safety Information referenced within.

Information contained herein for **DISTRIBUTION in the US ONLY.**

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Post-Dilatation Balloon Sizing Algorithm

PRE-PCI OCT



Can the EEL be identified at the **proximal** and **distal** reference segment to allow vessel diameter measurement?

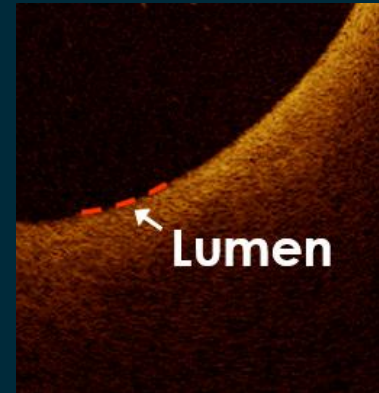
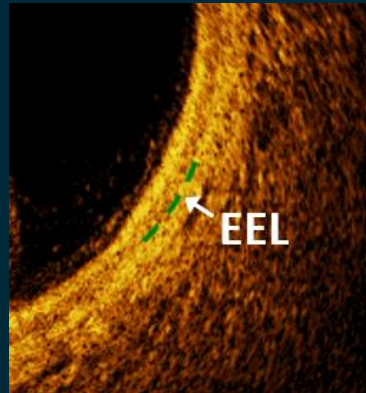
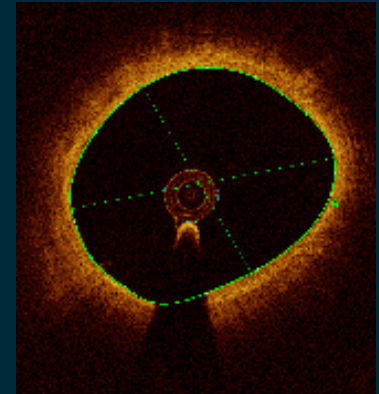
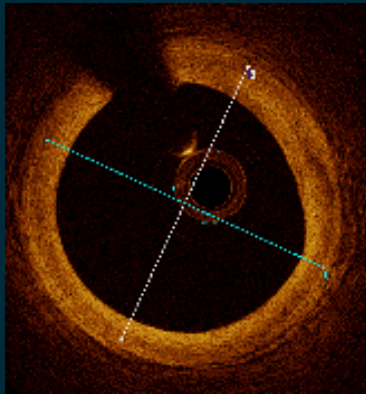
YES



Balloon diameter decided by OCT measurement of **mean EEL to EEL diameter rounded down** to nearest balloon size¹

NO

Balloon diameter decided by OCT measurement of **mean lumen diameter rounded up** 0.25-0.50 mm²



1. Ali, Z., et al., ILUMIEN III Study, Lancet Journal, 2016; 1-11. 2. Shlofmitz, E. et al. Algorithmic Approach for OCT Guided Stent Implantation During PCI. Intervent Cardiol Clin 7 (2018) 329-344.

See Important Safety Information referenced within.

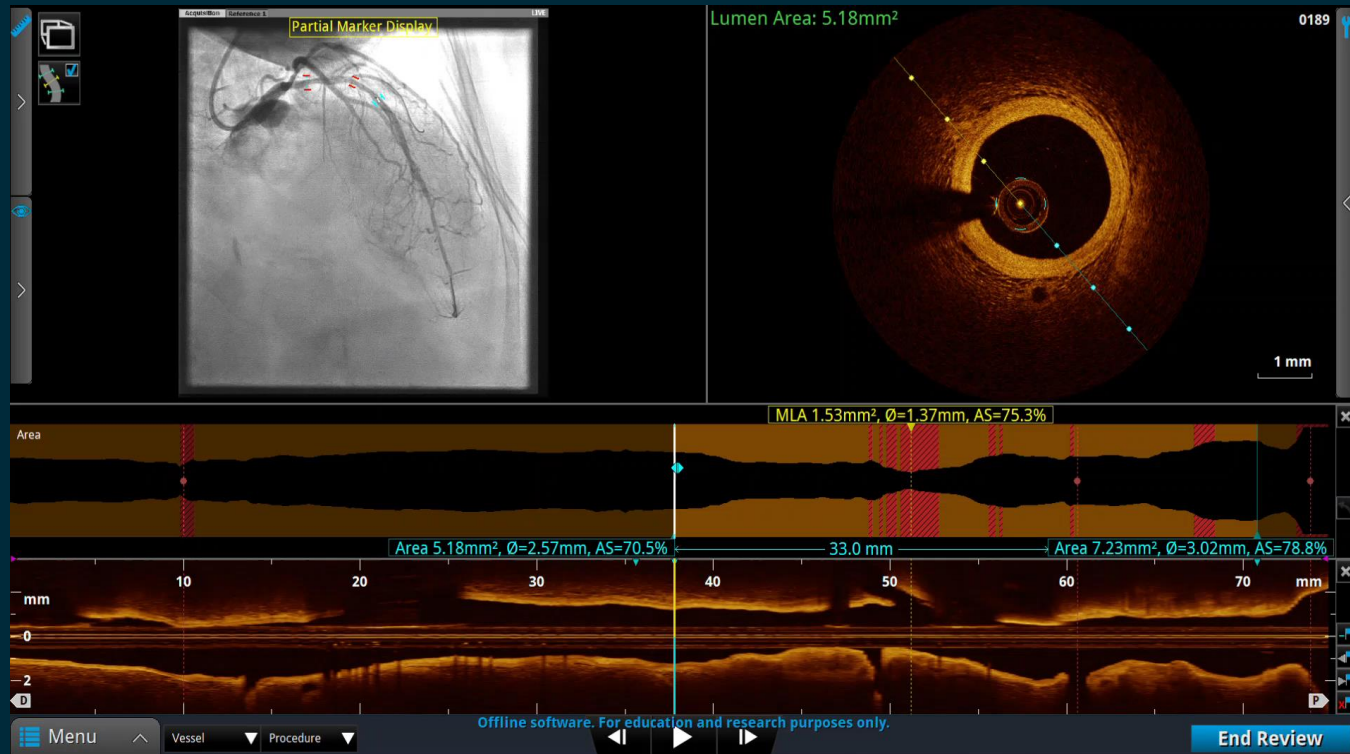
Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT-Guided Diameter

Measure:

- EEL-EEL, if possible
- Mean lumen diameter, if no EEL-EEL



Case courtesy of Dr. Ziad A. Ali

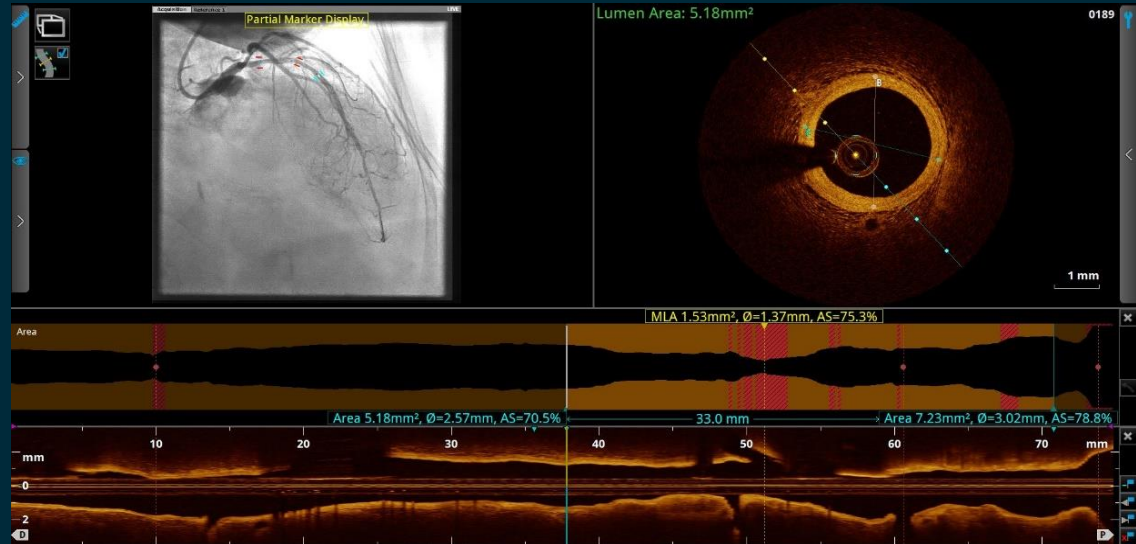
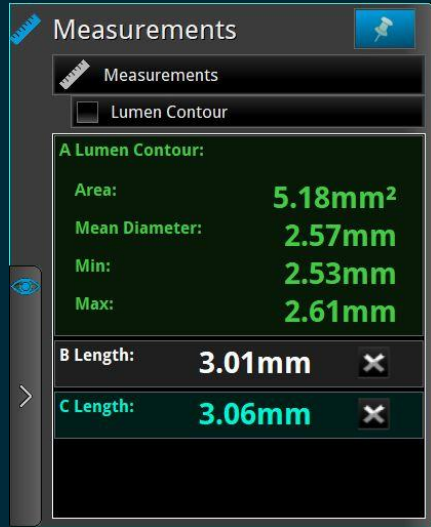
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Guided Stent / Balloon Sizing – Distal Reference

- At the LAD distal reference the vessel wall can be measured
- Mean EEL = 3.04 mm
- Round **down** to nearest stent size = 3.0 mm



Ali, Z., et al., ILUMIEN III Study, Lancet Journal, 2016.

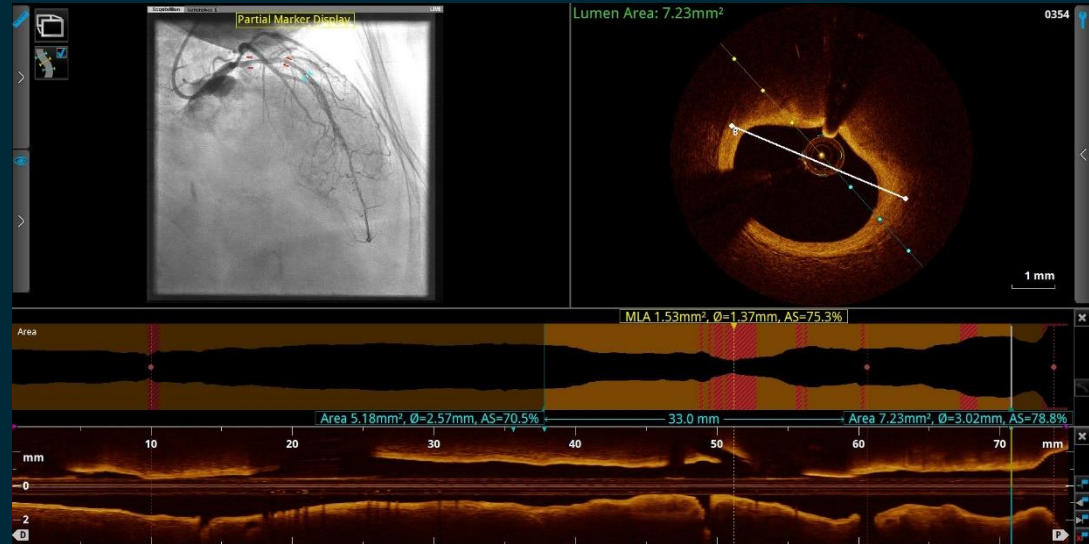
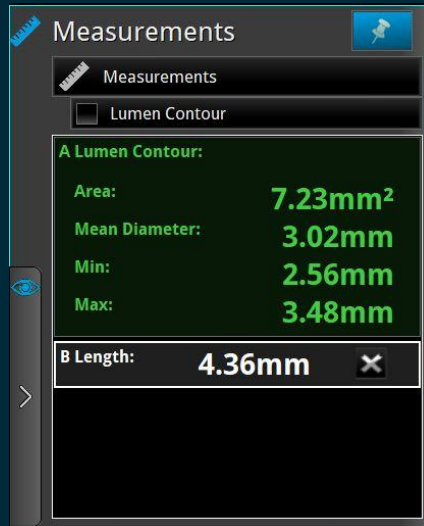
See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

OCT Guided Post-Dilatation Balloon Sizing - Proximal

- At the LAD proximal reference the vessel wall can be measured. EEL = 4.36 mm
- Round **down** to nearest balloon size for post-dilatation (if necessary) = 4.00 mm
- At the LAD proximal reference if the vessel wall can not be measured. MLD = 3.02 mm
- Round **up** to nearest balloon size for post-dilatation (if necessary) = 3.50 mm



Ali, Z., et al., ILUMIEN III Study, Lancet Journal, 2016.

See Important Safety Information referenced within.

Information contained herein for DISTRIBUTION in the US ONLY.

©2020 Abbott. All rights reserved. MAT-2002162 v2.0

XIN CẢM ƠN QUÝ ĐỒNG NGHIỆP.

