

# IVUS-Guided Decision-Making During PCI for LM Bifurcation

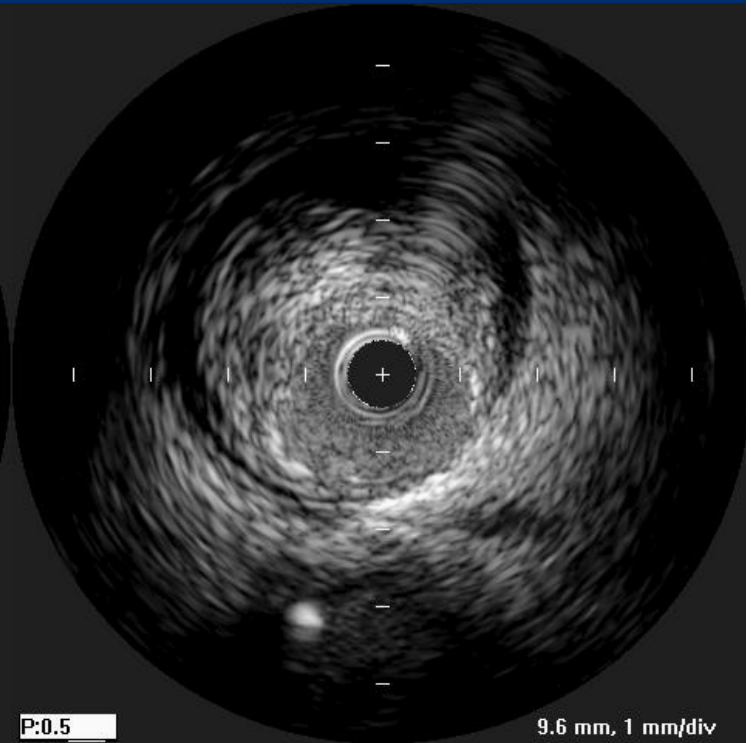
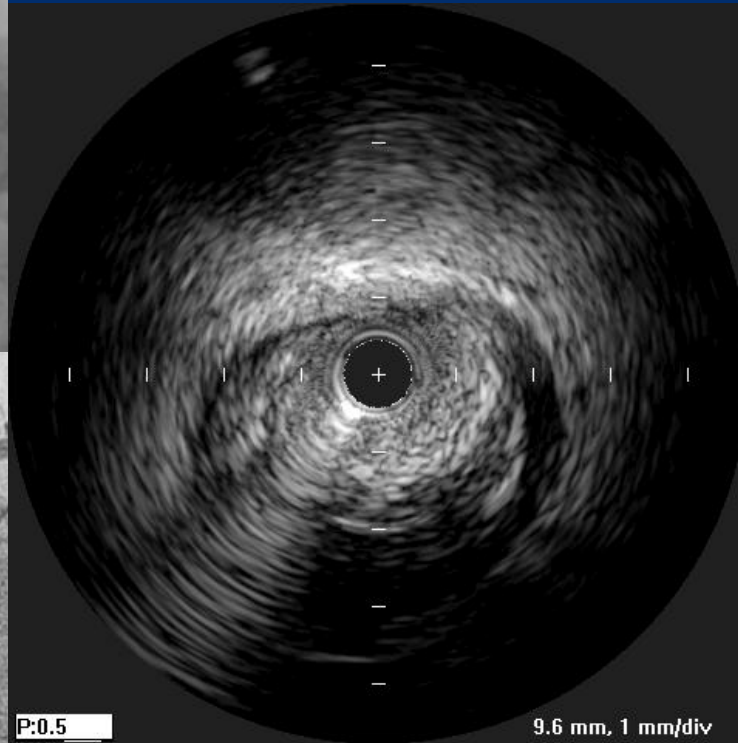
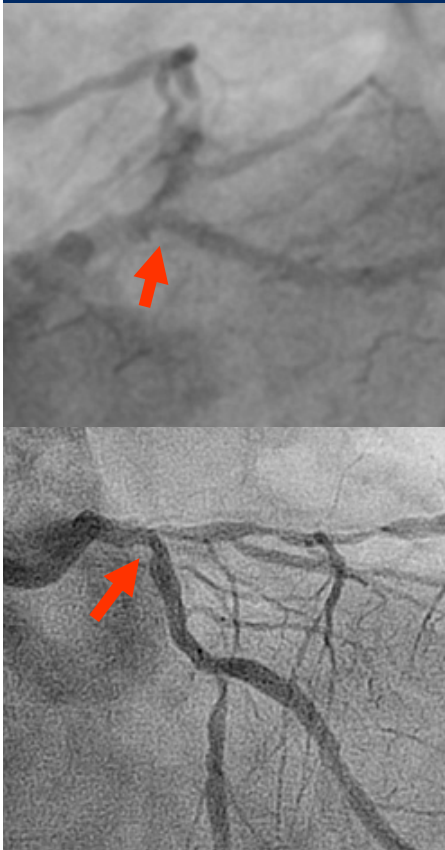
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Cardiac Center, University of Ulsan College of Medicine  
Asan Medical Center, Seoul, Korea

# Importance of SB Pullback for Accurate Assessment of Side Branch

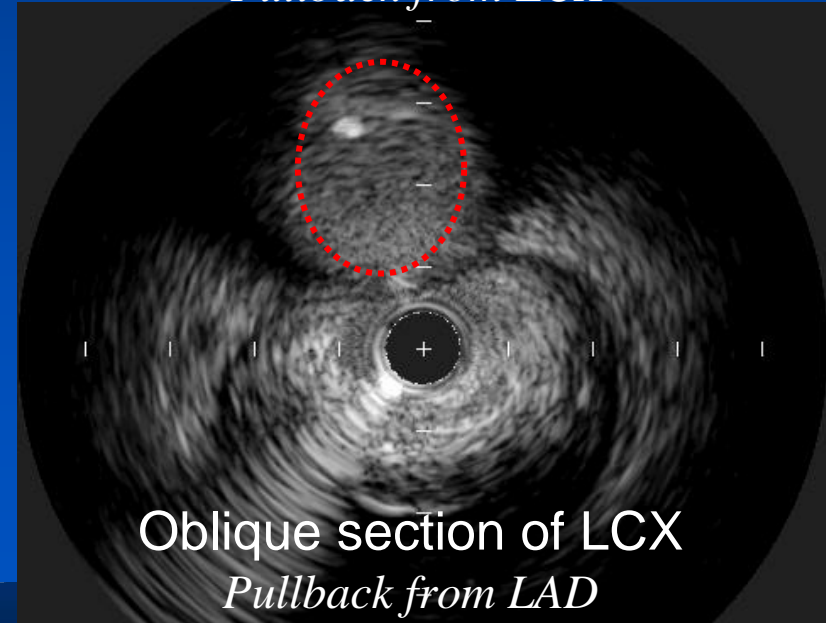
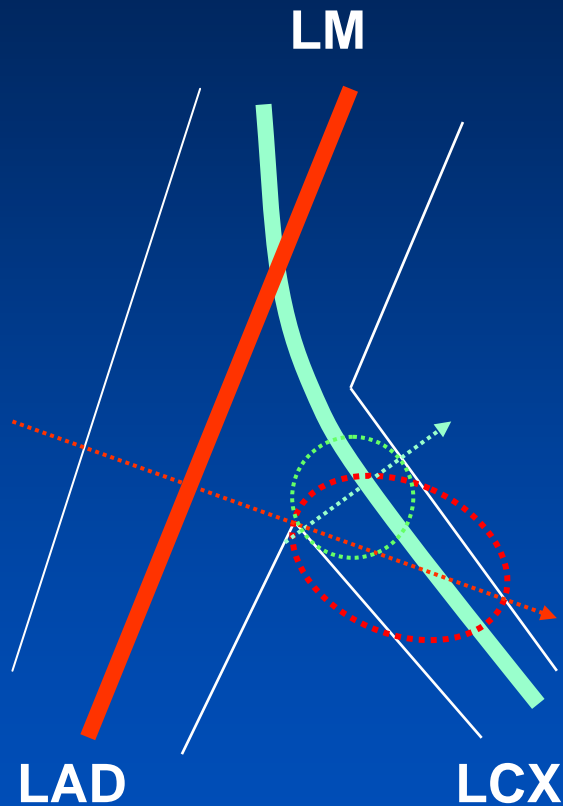
by LAD pullback

by LCX pullback



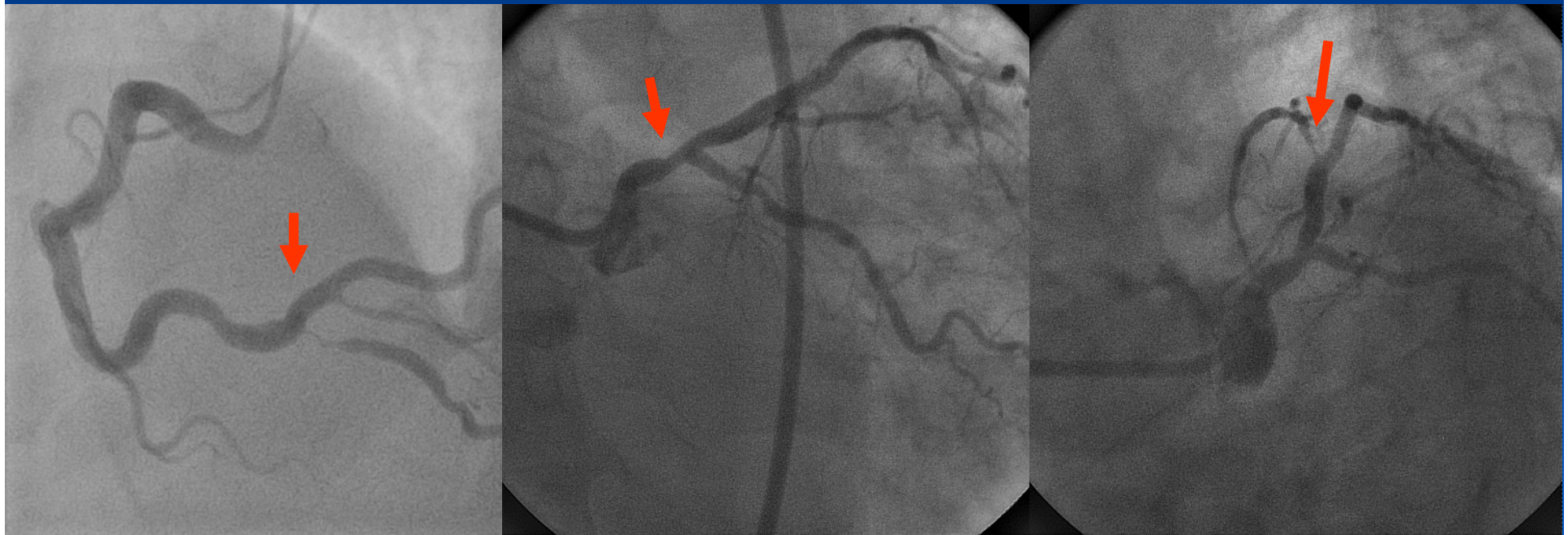
# Different Morphologies of Ostial LCX

***Both branches should be separately evaluated !***



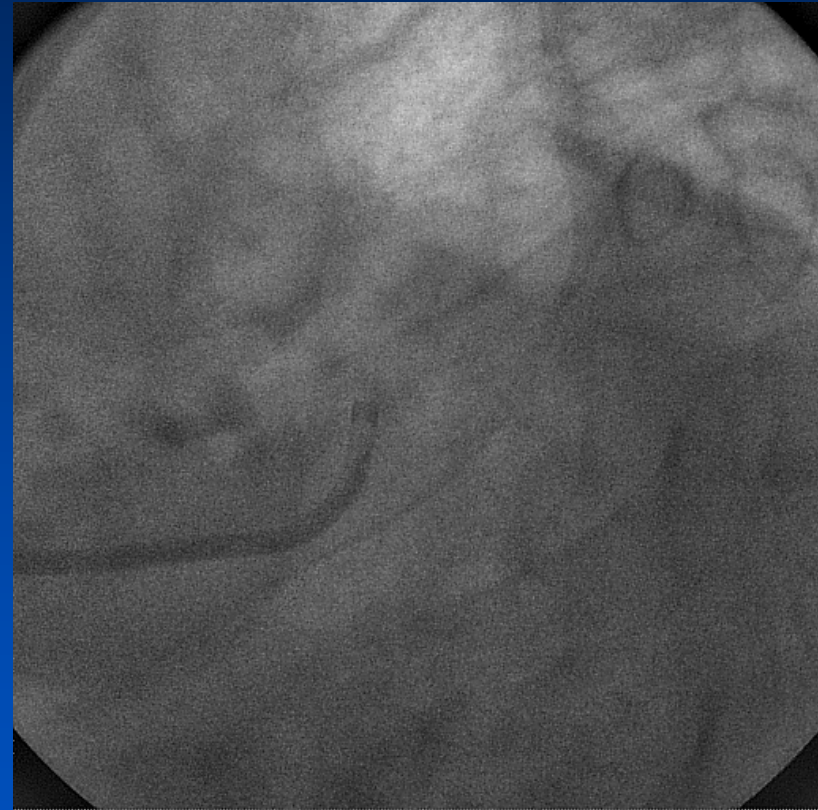
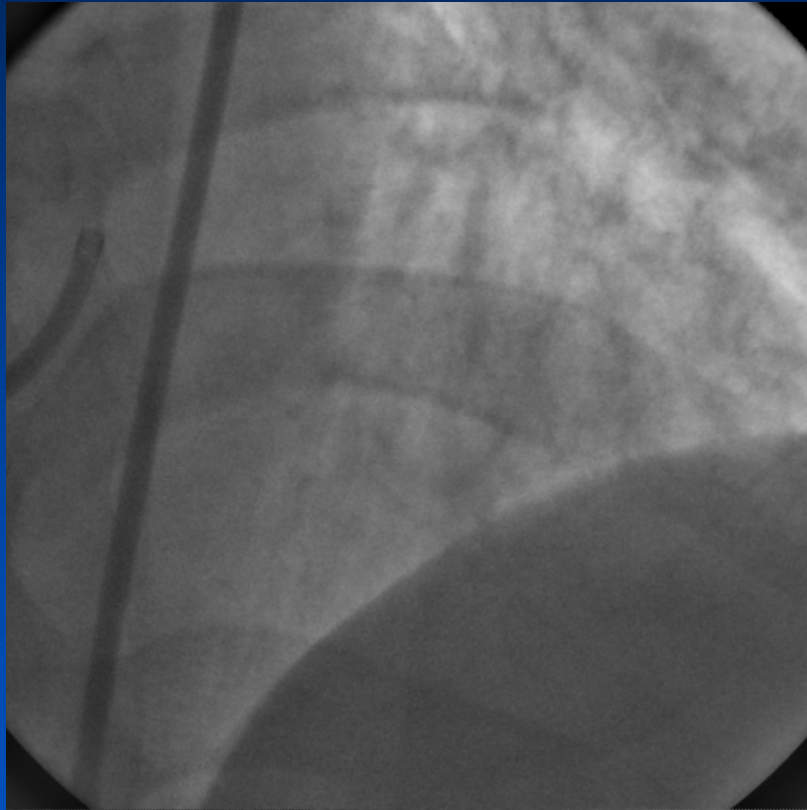
# CASE 1

- 60 year-old male
- Stable angina, hypertension
- had been scheduled to receive a surgery for ureter stone
- Thallium partially reversible large sized moderate decreased perfusion in apical-anterior, apical septum and anteroseptum



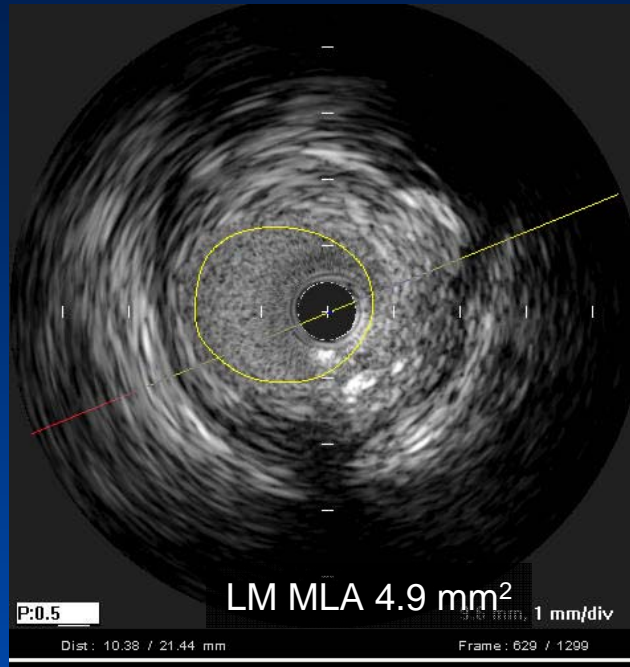


# Decision-Making of LM Lesion by Angiography



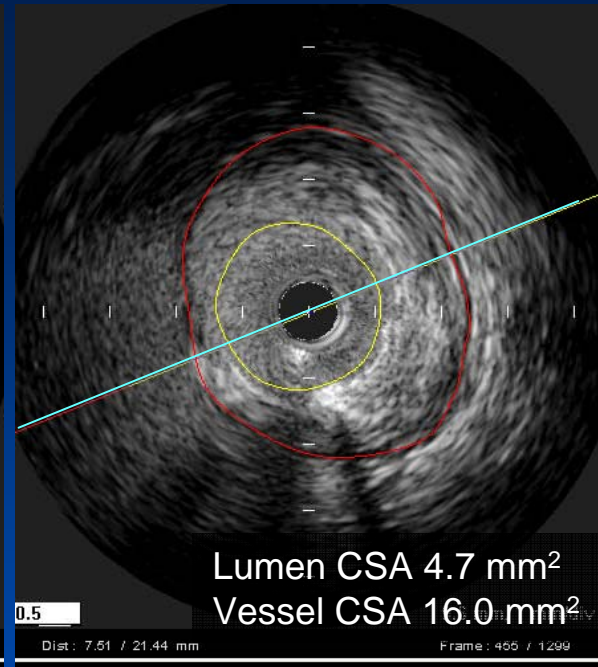
# Distal LM

*IVUS from LAD*



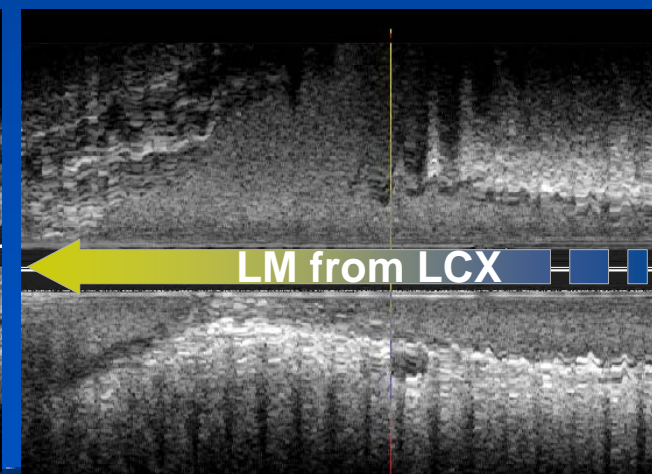
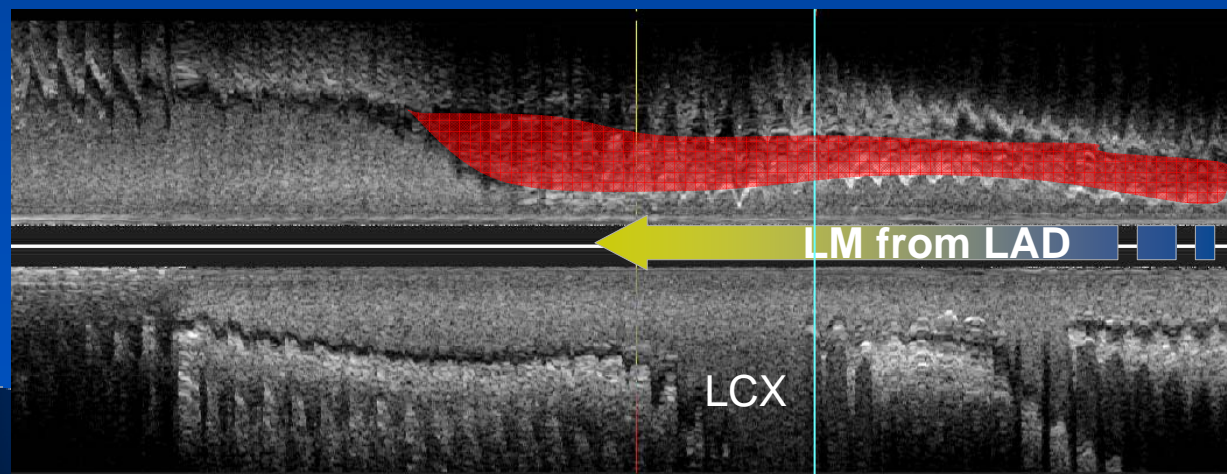
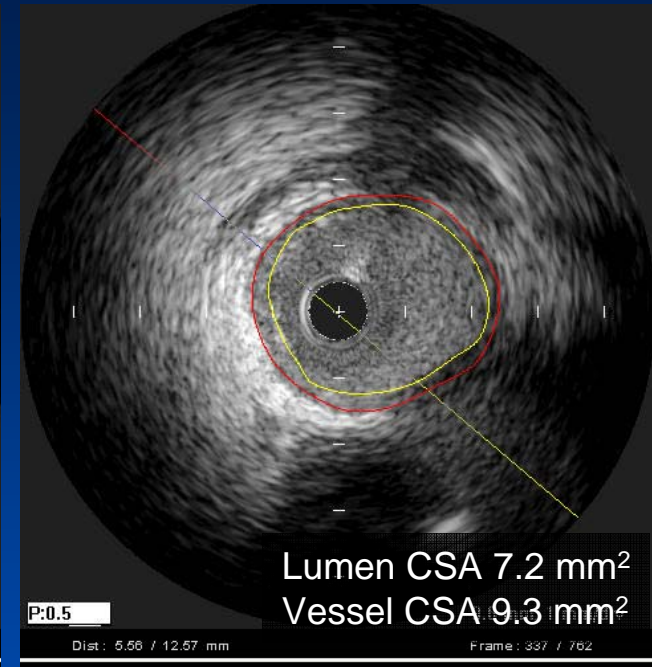
# Ostial LAD

*IVUS from LAD*



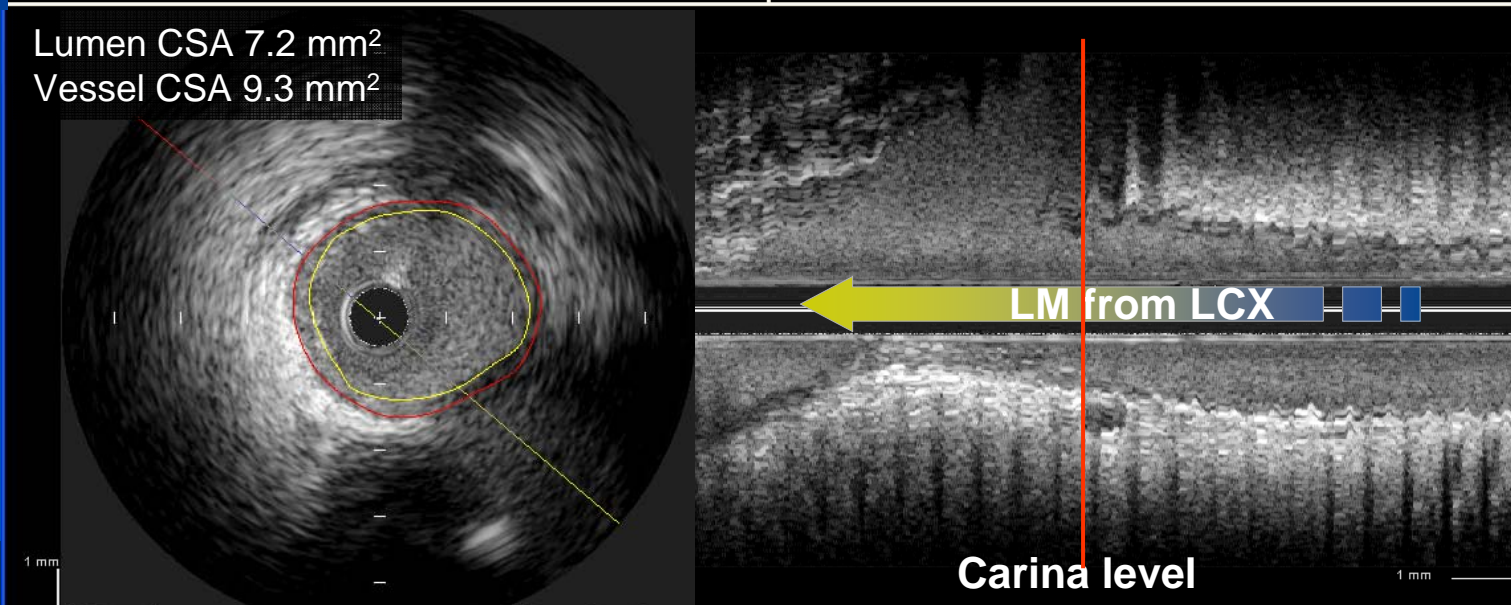
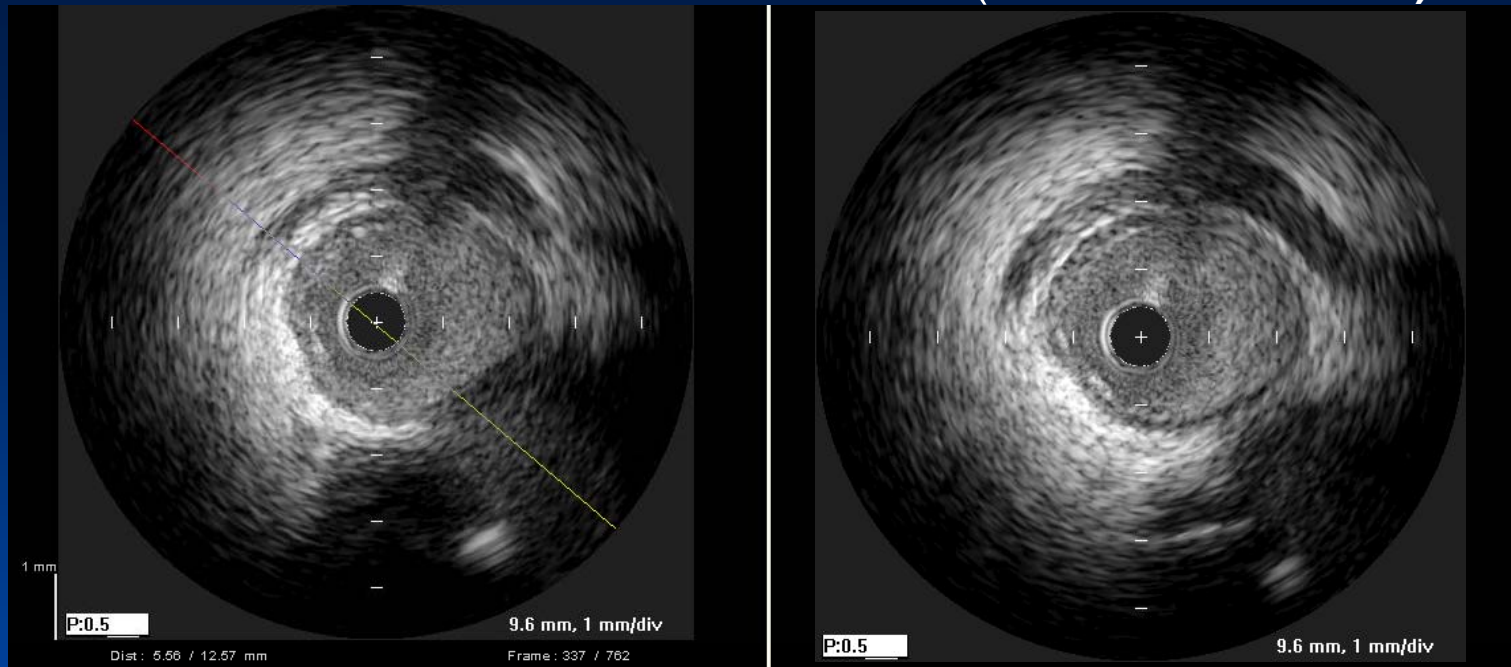
# Ostial LCX

*IVUS from LCX*

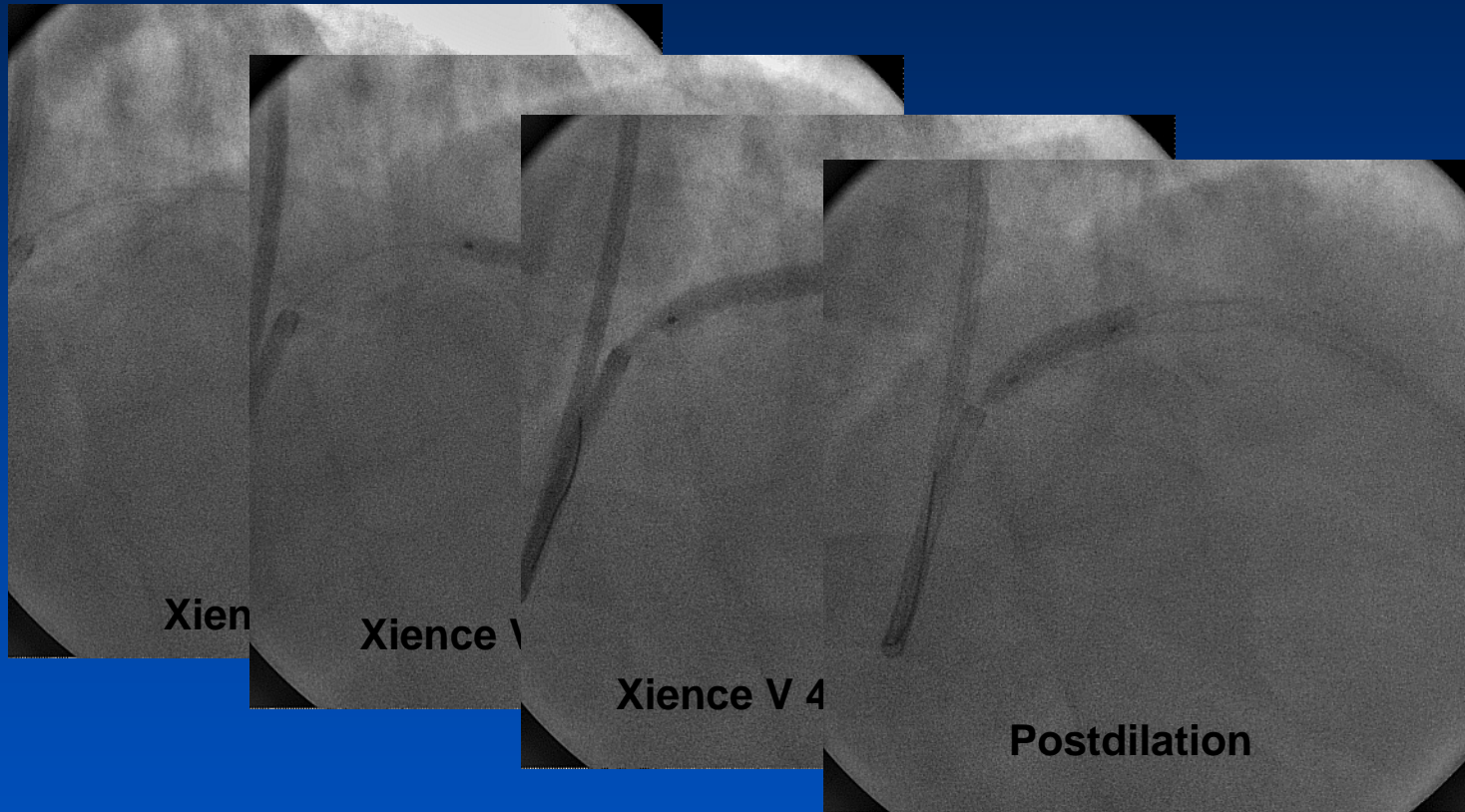




# Pre-IVUS at Carina Level (Pullback from LCX)

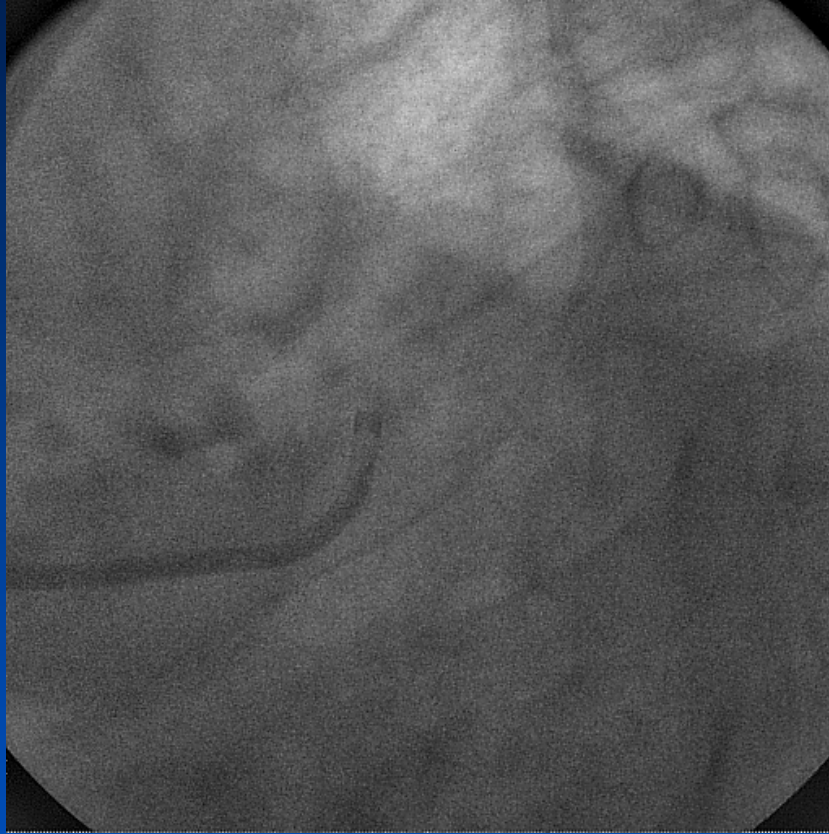


# Stenting with Cross-over Technique





# What happens in LCX?

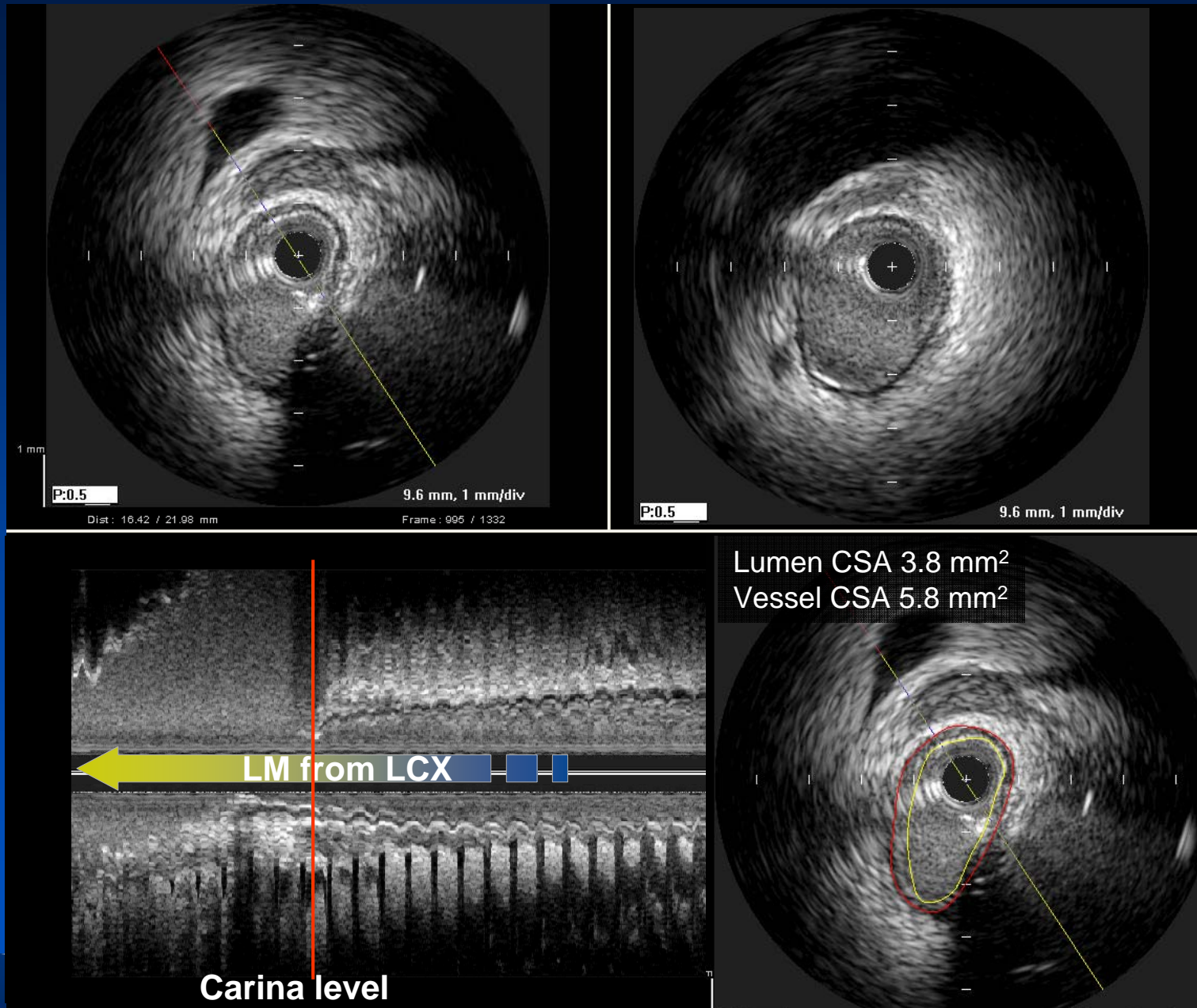


**Before Cross-over**

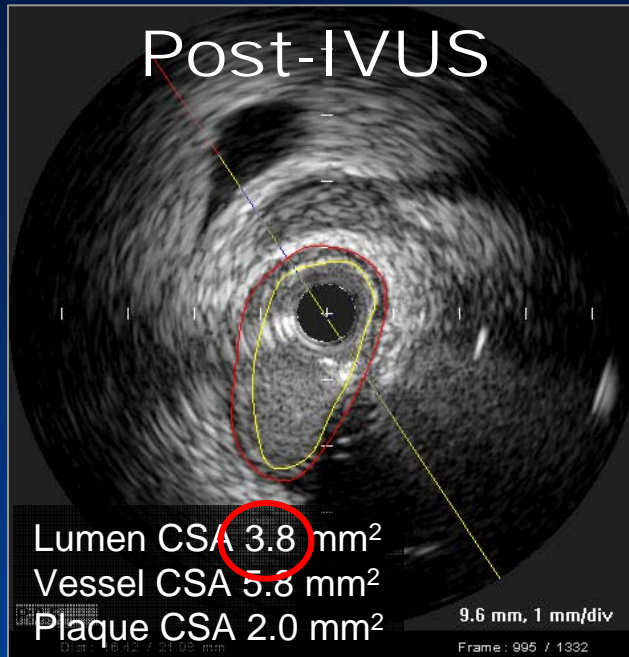
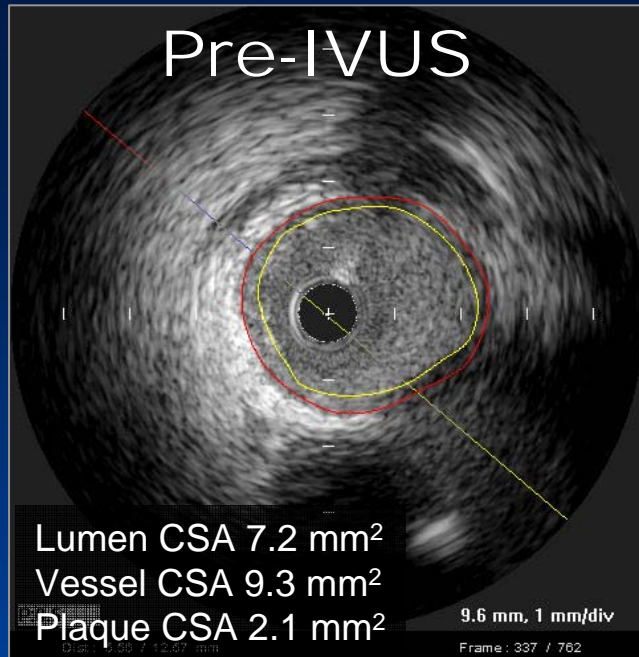


**After Cross-over**

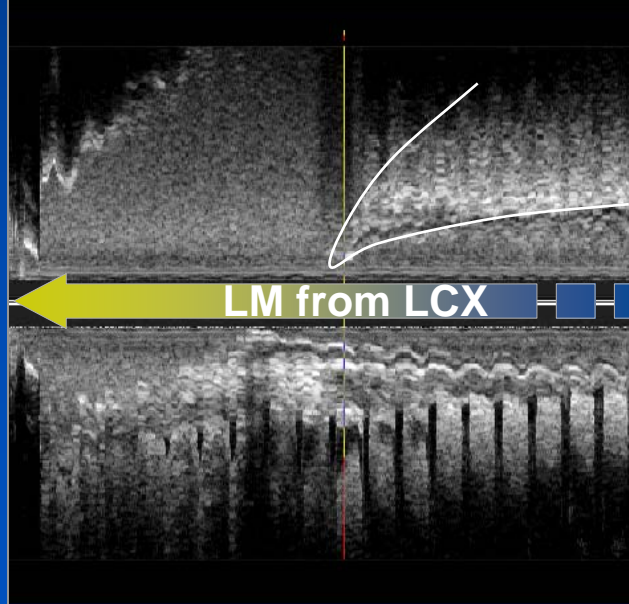
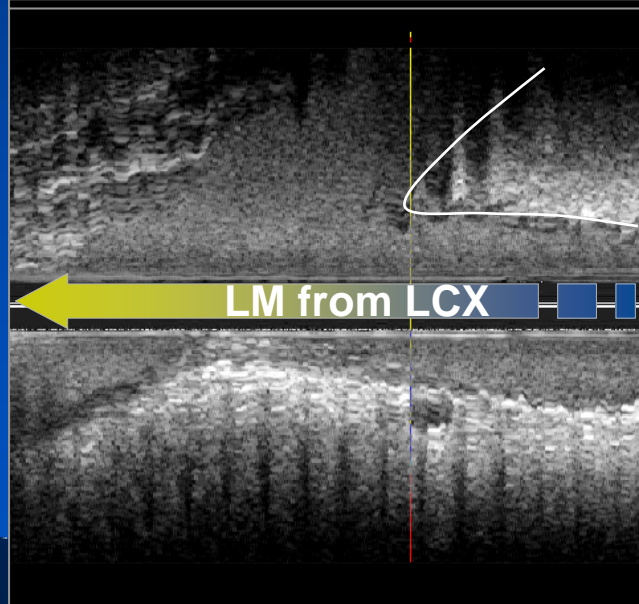
# Post-IVUS at Carina Level (Pullback from LCX)







Change in area	
$\Delta$ Lumen	-3.4 mm <sup>2</sup>
$\Delta$ Vessel	-3.5 mm <sup>2</sup>
$\Delta$ Plaque	-0.1 mm <sup>2</sup>



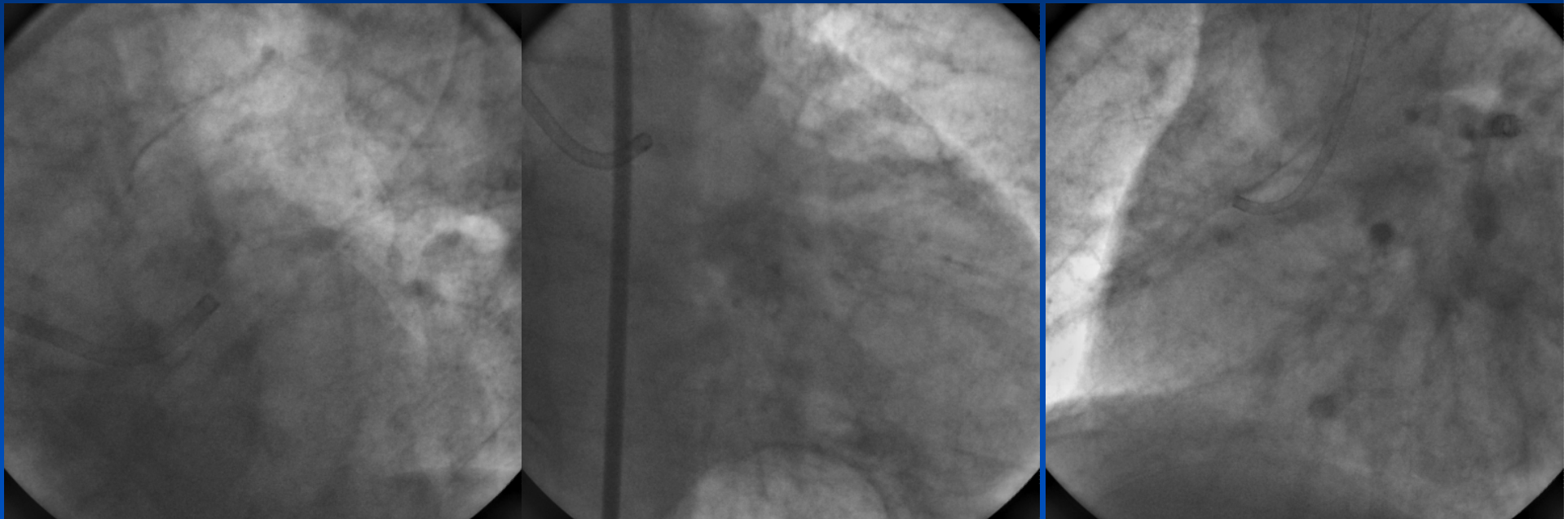


# Pressure Wire Monitoring after Cross-Over

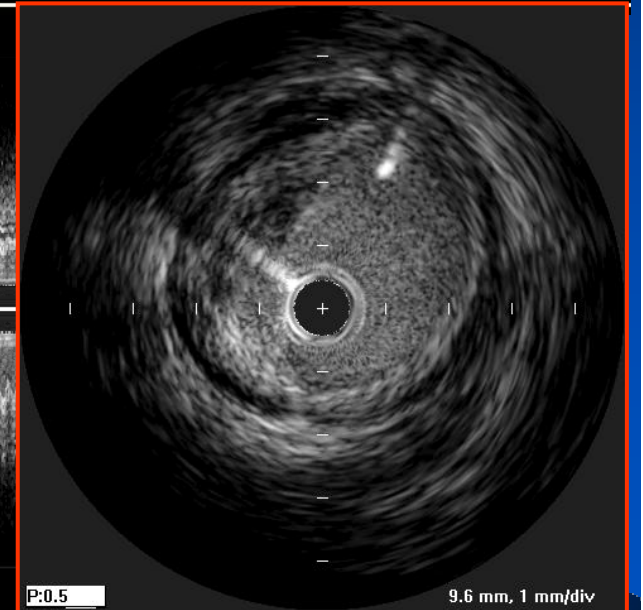
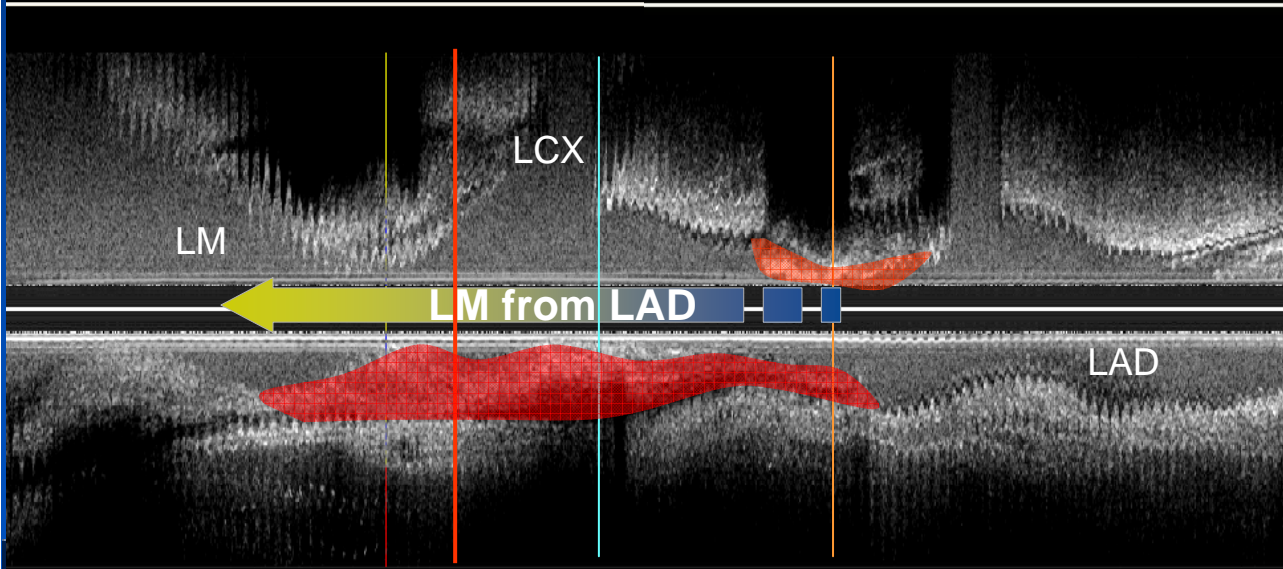
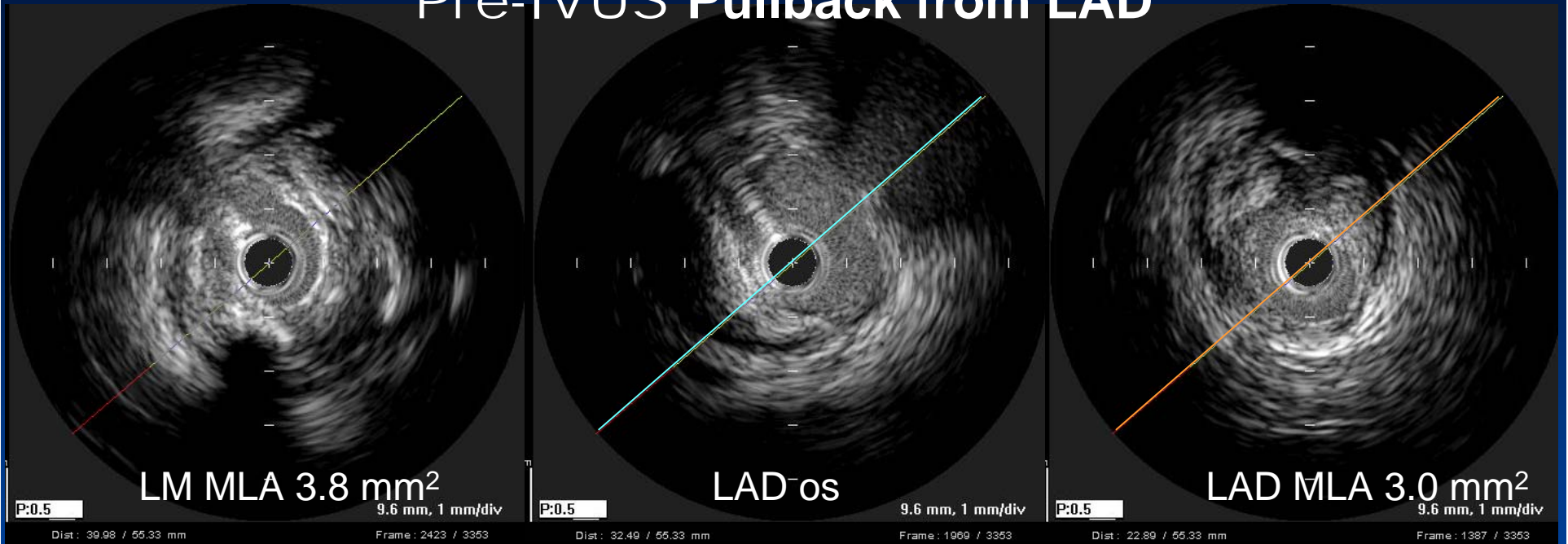
	Pre-adenosin	Intracoronary adenosin (84 $\mu$ g)
LAD	0.99	0.94
LCX	1.0	1.0

# CASE 2

- 73 year-old male
- DOE Fc II and resting chest pain for 2 weeks
- Hypertension (1YA), CVA (18YA)
- MDCT – significant stenosis at pRCA, LM-pLAD

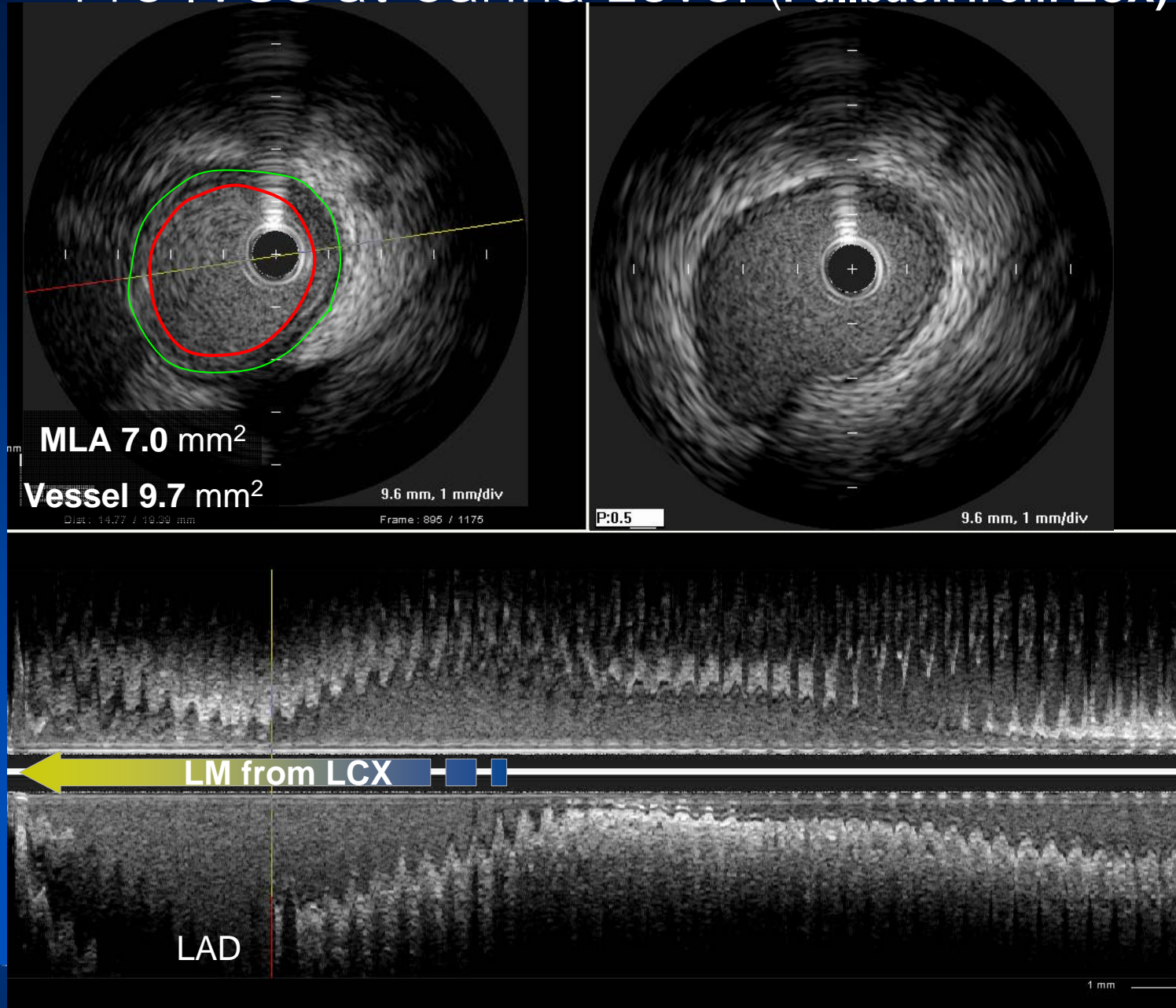


# Pre-IVUS Pullback from LAD

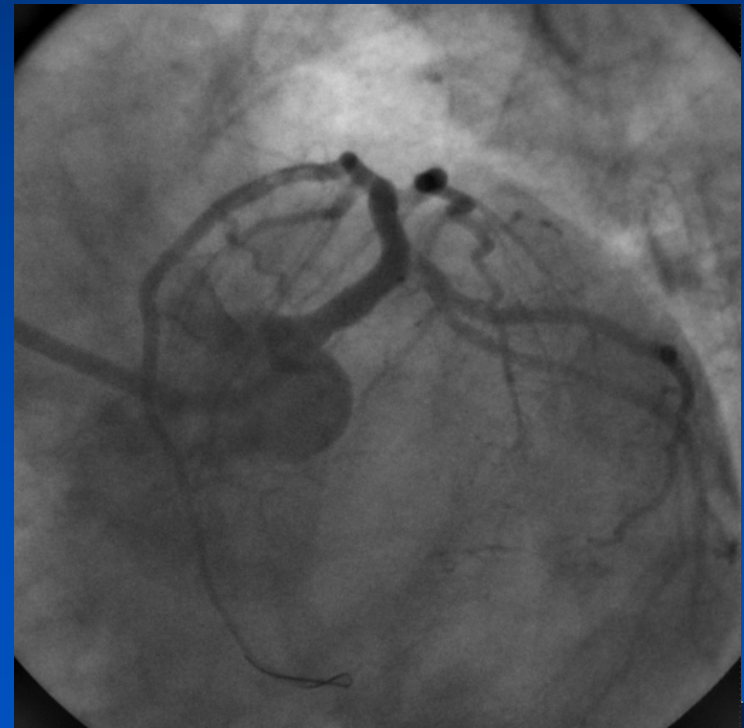
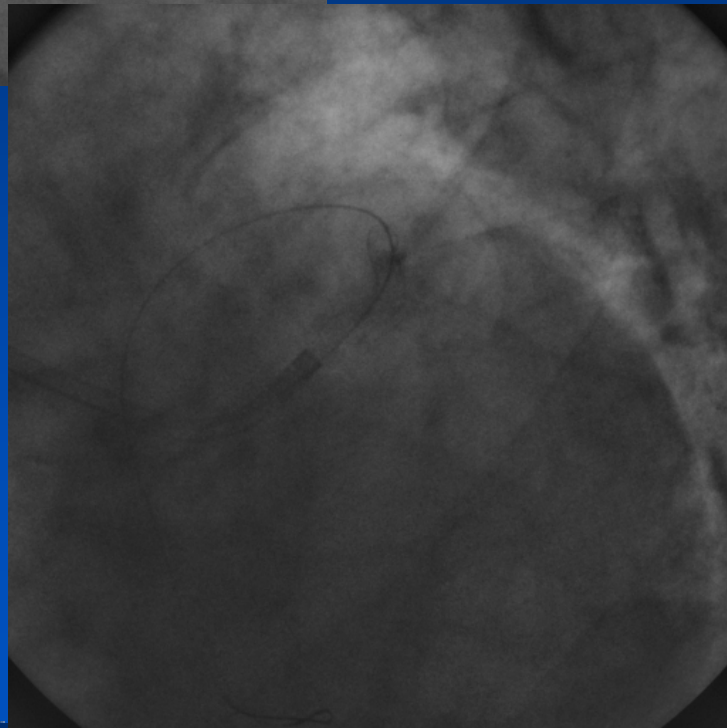
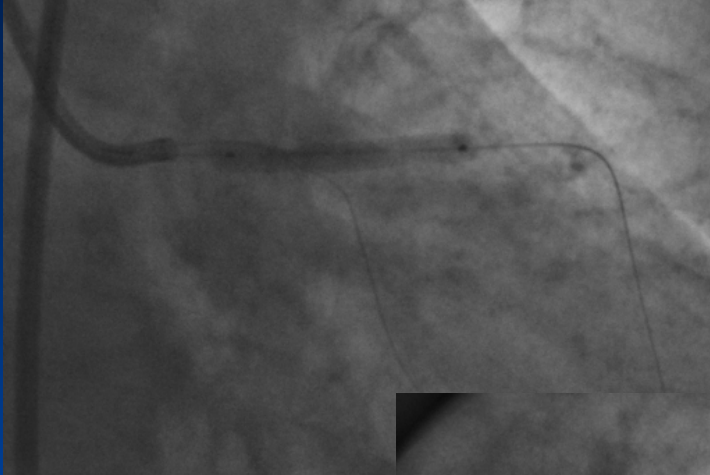




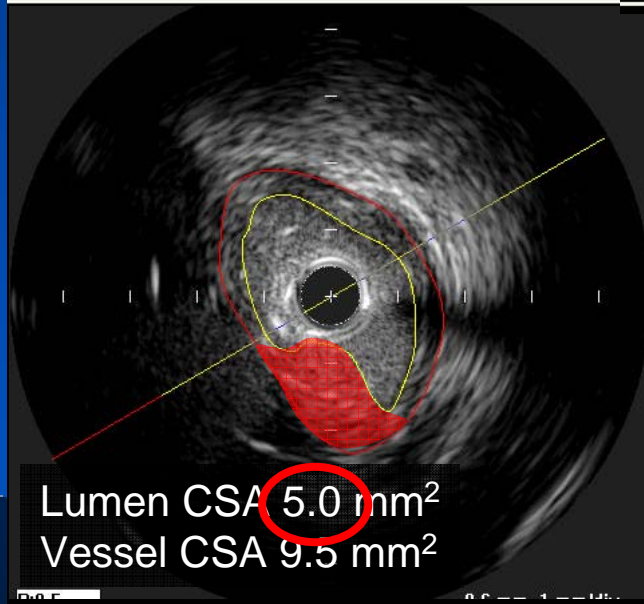
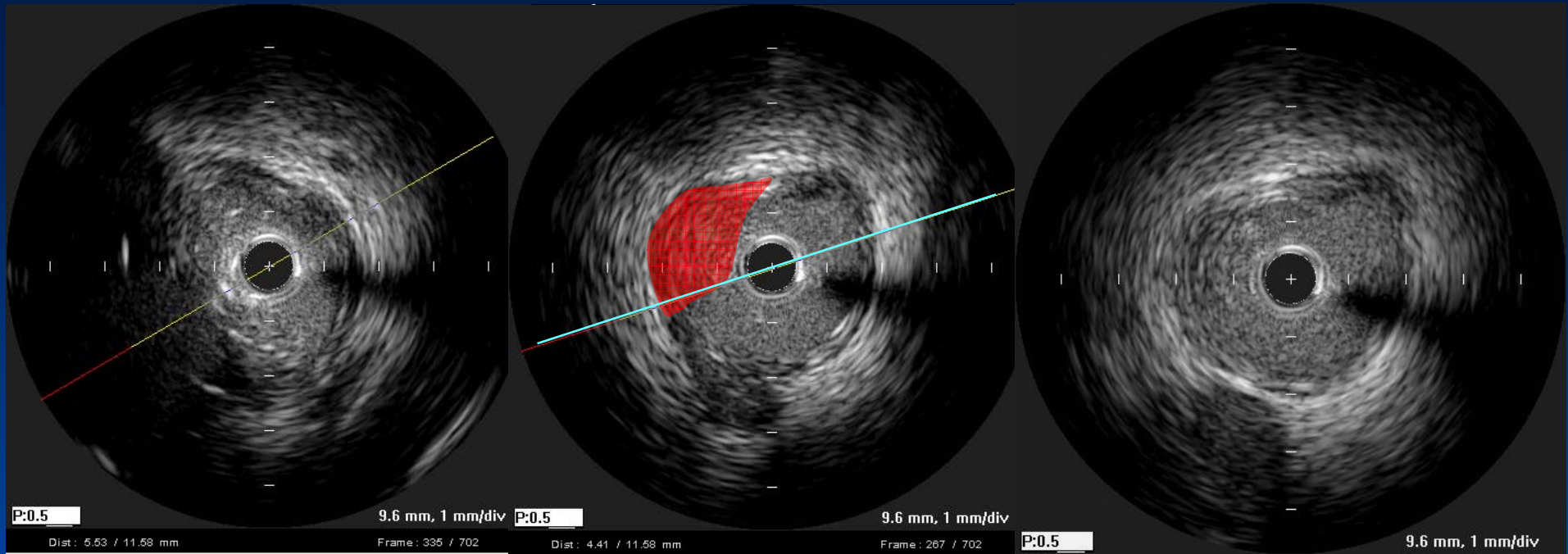
# Pre-IVUS at Carina Level (Pullback from LCX)



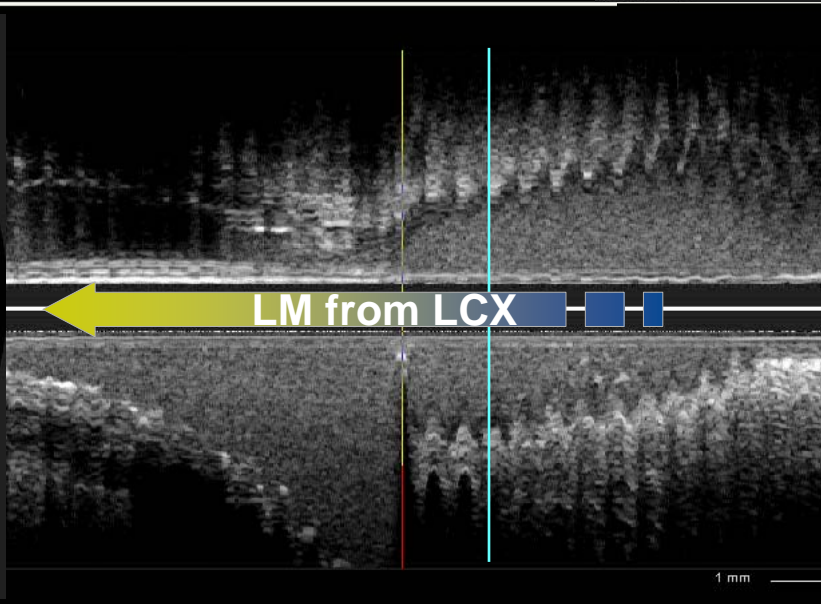
# Cross-Over Stenting at LM to pLAD with Xience V 3.5 (28 mm)



# Post-IVUS at Carina Level (Pullback from LCX)



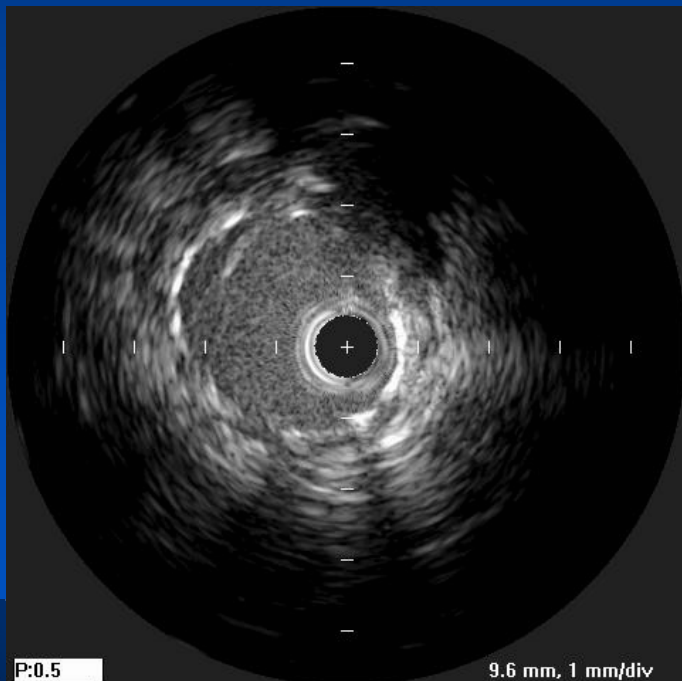
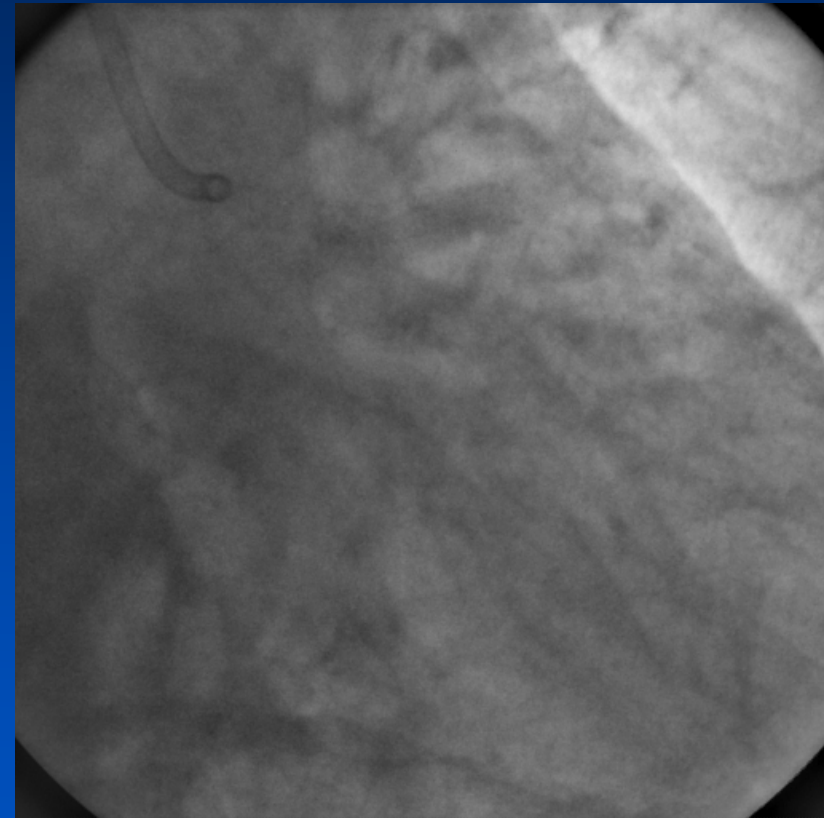
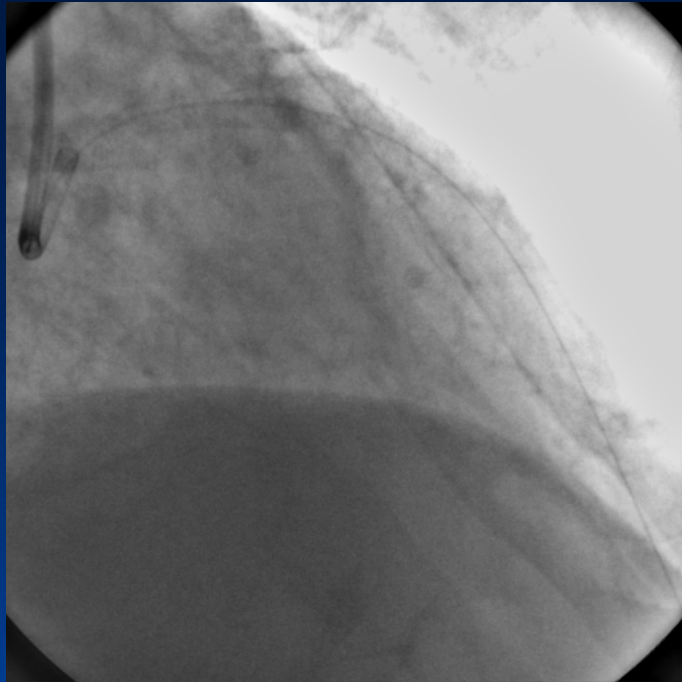
Lumen CSA **5.0 mm<sup>2</sup>**  
 Vessel CSA 9.5 mm<sup>2</sup>



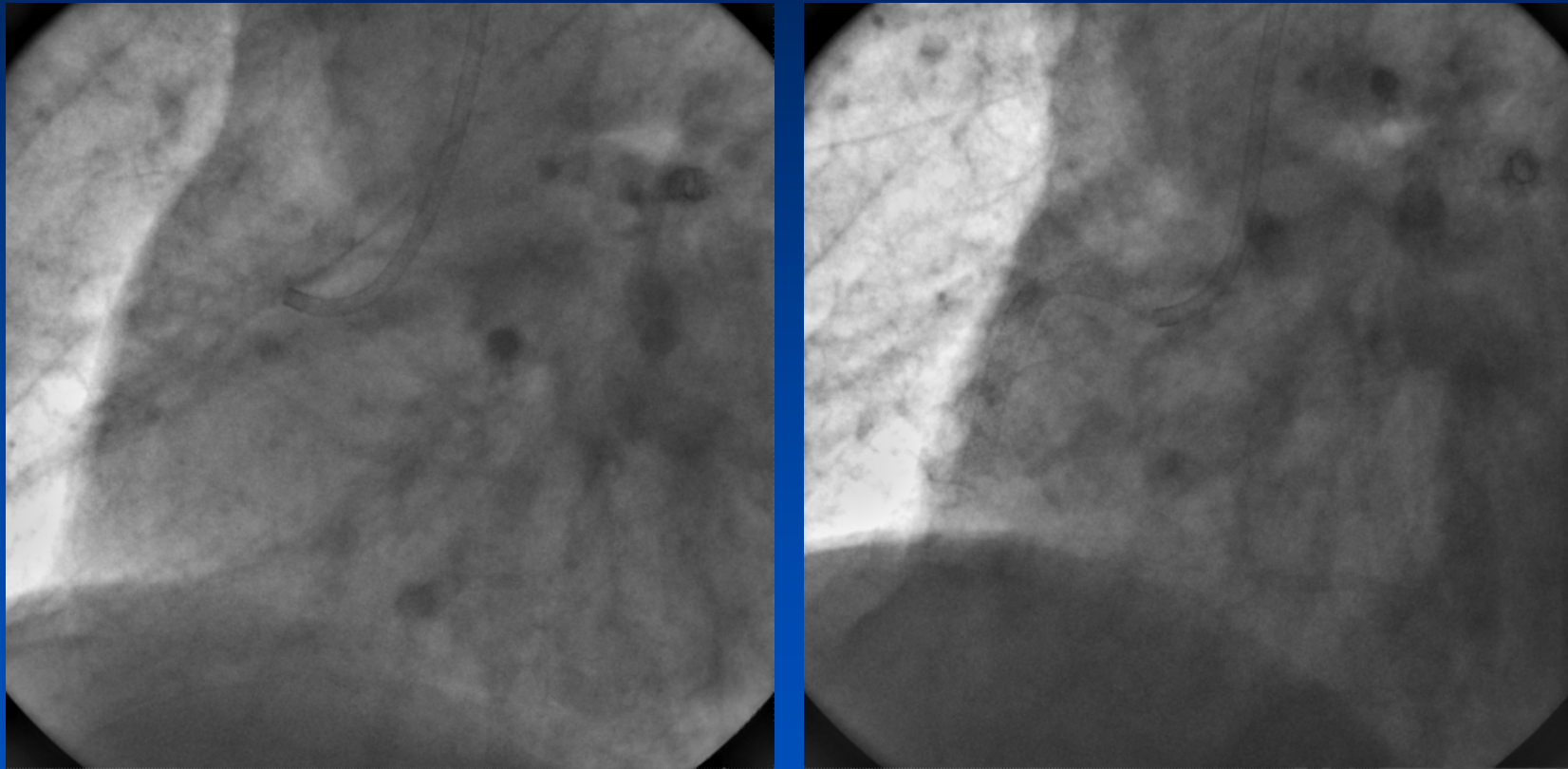
Change in area	
$\Delta$ Lumen	-2.0 mm <sup>2</sup>
$\Delta$ Vessel	-0.2 mm <sup>2</sup>
$\Delta$ Plaque	-1.8 mm <sup>2</sup>



## After thrombectomy



## Treatment of RCA lesion



# Summary

- Sometimes, IVUS gives us quite different information about SB compared with angiography
- For the evaluation of SB, direct pullback image from SB may be useful and different from MB pullback image
- In particular, IVUS evaluation of SB is mandatory to find the mechanism of SB occlusion (Carina vs. Plaque shift) after cross-over
- It is important to make an appropriate decision for the optimal treatment strategy during PCI for the bifurcation