PLACE

PLATFORM OF LABORATORIES FOR ADVANCES IN CARDIAC EXPERIENCE

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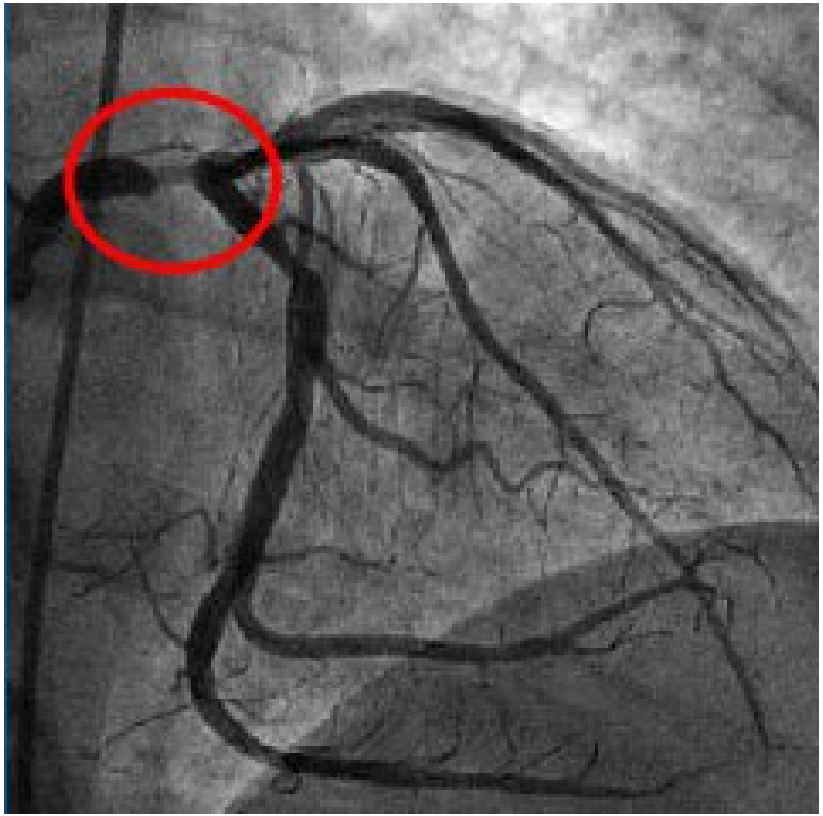
COMPLEX PCI & PATIENT INTERACTIVE SYMPOSIA - IL TRATTAMENTO DEL TRONCO COMUNE

L'IMPORTANZA DELLE TECNICHE DI IMAGING NEL TRATTAMENTO DEL TRONCO COMUNE

Alfredo Ricchiuto



Left Main PCI: what's the issue?

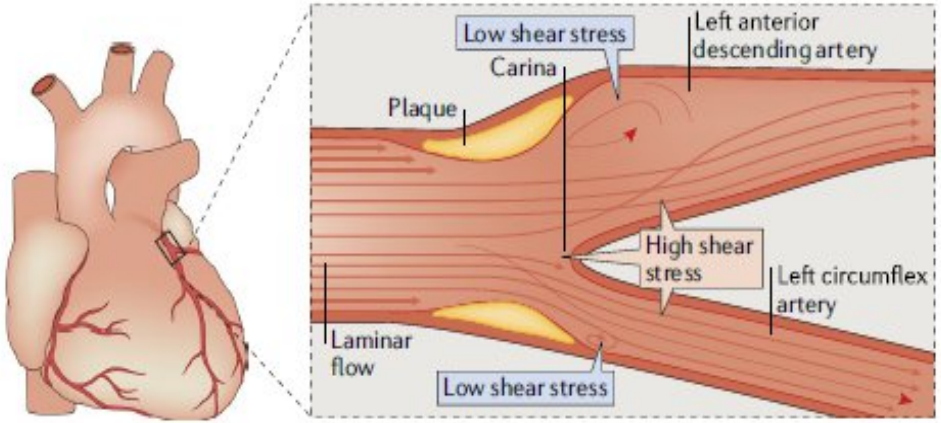
Left Main PCI: what's the issue?

Large amount of myocardium supplied – >75% of the blood flow to the left ventricle

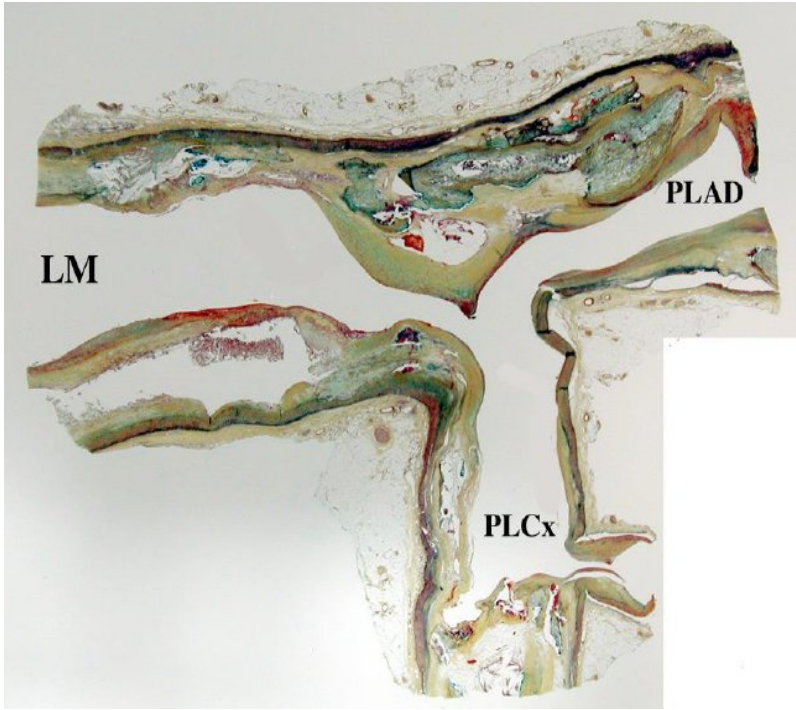
Complications may lead to rapidly progressive hemodynamic instability

Anatomic complexity – peculiar shear forces and plaque distribution

Challenging diagnosis and evaluation – important limitations of angiography



Collet et al. Left main coronary artery disease: pathophysiology, diagnosis, and treatment. Nat Rev Cardiol 15, 321–331



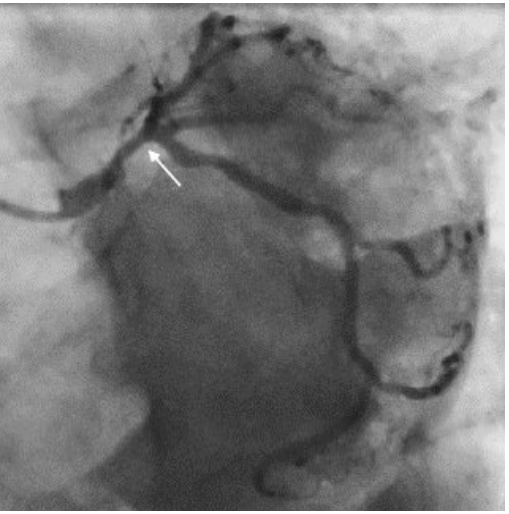
Virmani R, LM/CTO Summit 2011

Angiographic assessment of the LMCA can be difficult

- Two-dimensional shadowgraphic nature
- Not accurate evaluation of the extent of disease or insight into the vessel-wall characteristics
- Lack of a well-defined reference
- Angiographically silent calcific disease
- Involvement of the bifurcation

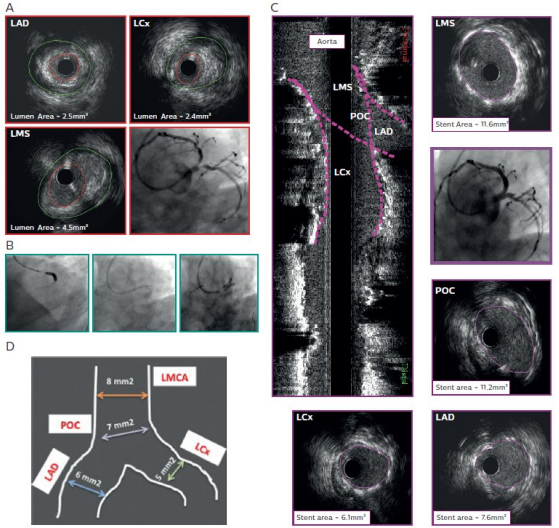
IMAGING GUIDANCE IS CRUCIAL

DIAGNOSIS → INTERVENTION



ASSESSMENT – GUIDANCE – OPTIMIZATION

1. To treat or not to treat ☾ **MLA**
1. How to treat? ☾ Distribution of disease, vessel size and territory of LCX
1. Proper vessel preparation
1. Post-PCI stent optimization

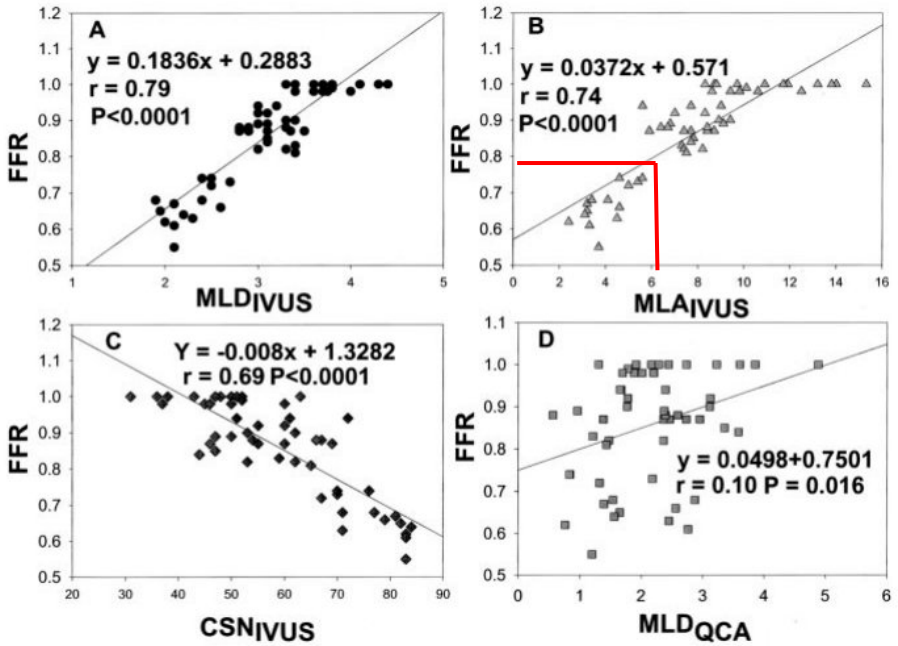


Adrian P Banning, Giovanni Luigi De Maria, Use of Intravascular Ultrasound Imaging in Percutaneous Coronary Intervention on Left Main Coronary Artery Disease, RadcliffeCardiology.com, November 2017

1. Lumen size - IVUS MLA correlates with FFR (cut-off 6 mm2)

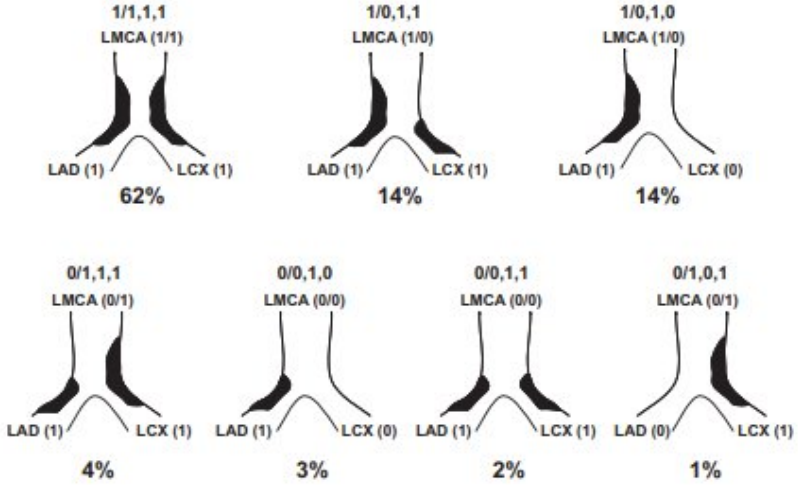
Prospective Application of Pre-Defined Intravascular Ultrasound Criteria for Assessment of Intermediate Left Main Coronary Artery Lesions

Results From the Multicenter LITRO Study

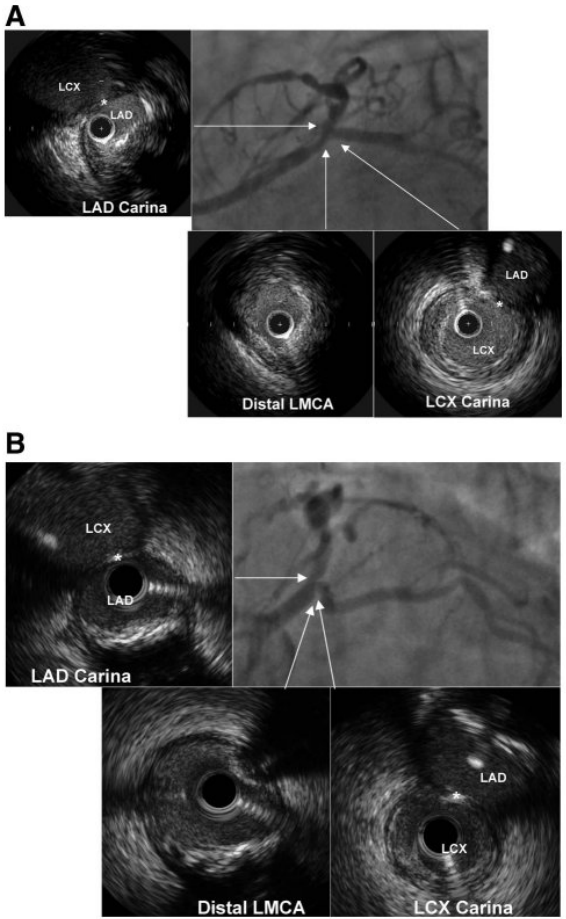


V. Jasti et al. Correlations between fractional flow reserve and intravascular ultrasound in patients with an ambiguous left main coronary artery stenosis Circulation., 110 (2004), pp. 2831-2836

2. Precise evaluation of disease distribution

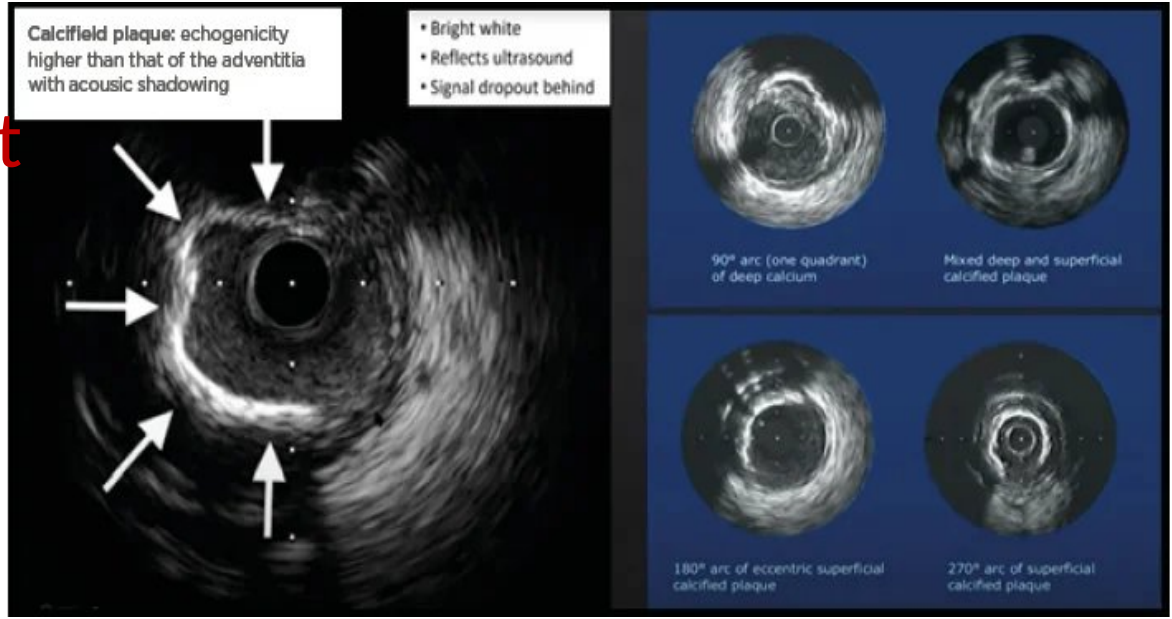


Oviedo et al. Intravascular Ultrasound Classification of Plaque Distribution in Le Main Coronary Artery Bifurcations. Circ Cardiovasc Interv. 2010;3:105-112

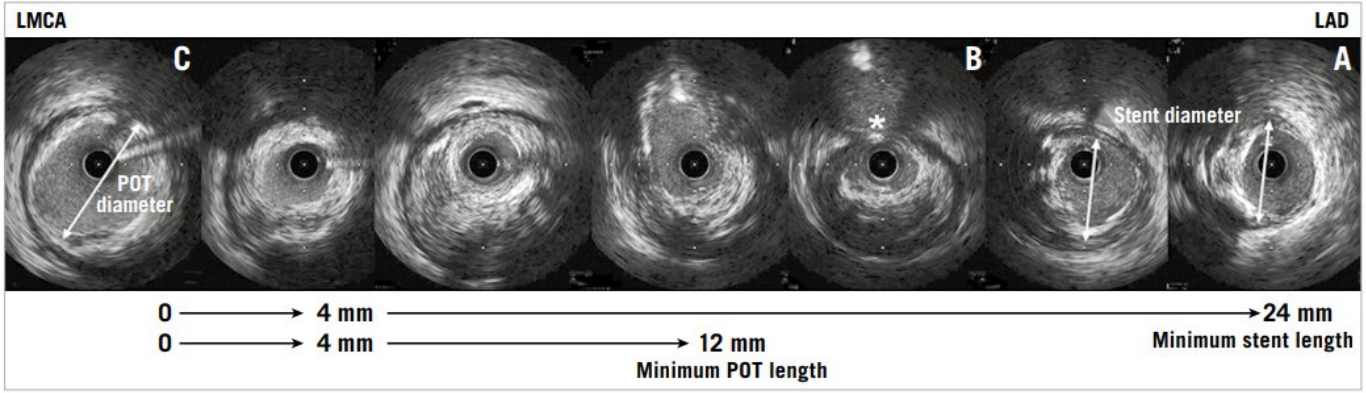


3. Vessel preparation - Qualitative assessment of lesion calcium

Determining when lesion modification is needed to decrease complications and stent underexpansion



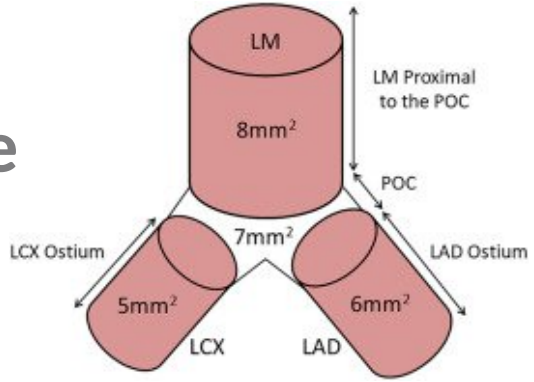
Nicola Humphry, Contemporary Techniques to Treat Coronary Calcification EMJ Int Cardiol. 2022;10[Suppl x]:2-9.



Mintz GS et al. Intravascular ultrasound in the evaluation and treatment of left main coronary artery disease: a consensus statement from the European Bifurcation Club. EuroIntervention. 2018 Jul 20;14(4):e467-e474.

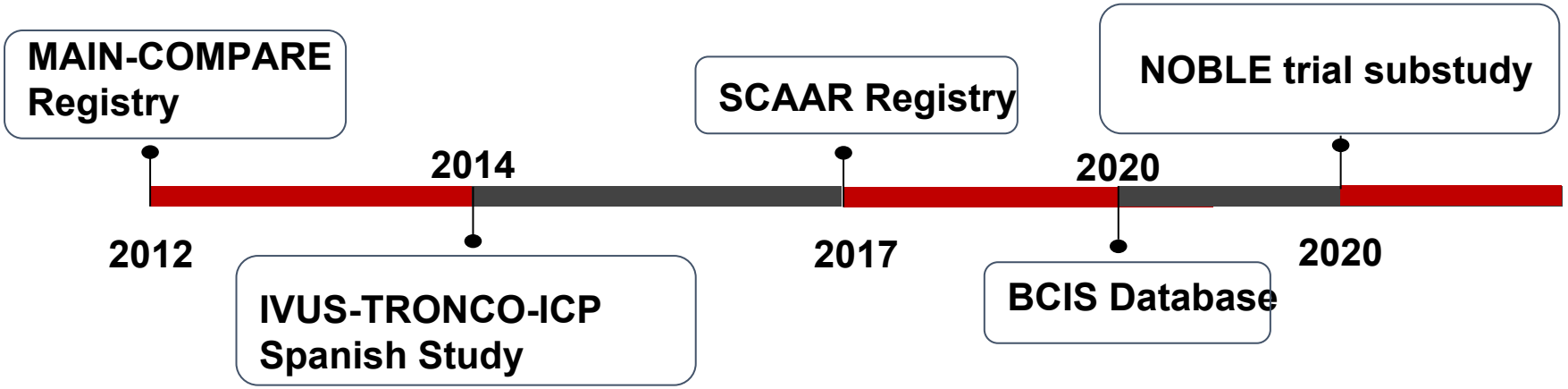
4. Stent sizing and optimization - One-Stent Versus Two-Stent Strategy

5-6-7-8 Rule

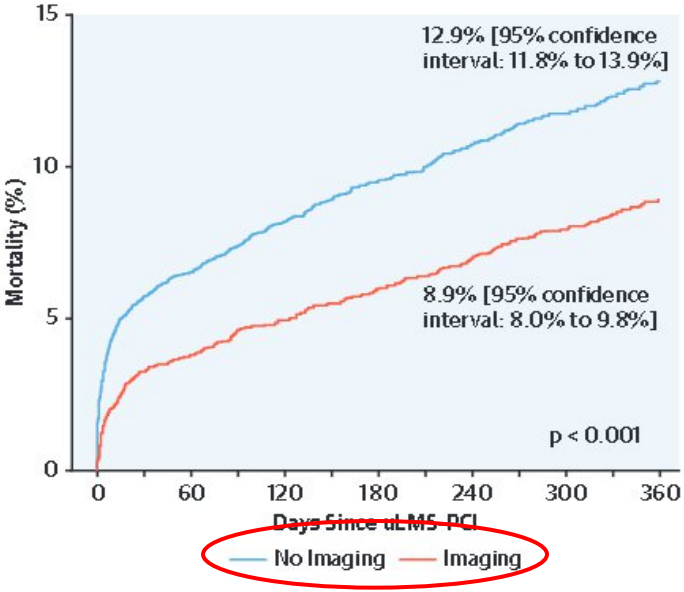


S.J. Kang et al. Comprehensive intravascular ultrasound assessment of stent area and its impact on restenosis and adverse cardiac events in 403 patients with unprotected left main disease
Circ Cardiovasc Interv., 4 (2011), pp. 562-56

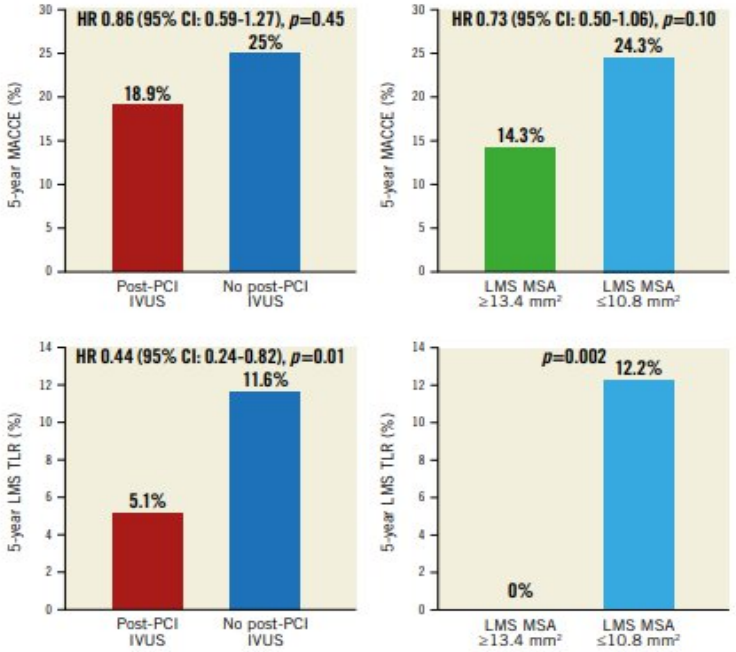
Clinical Outcomes Using IVUS for LMCA PCI



CENTRAL ILLUSTRATION Survival by Intravascular Imaging Use After uLMS PCI in England and Wales From 2007 to 2014



Kinnaird T et al. Intravascular Imaging and 12-Month Mortality After Unprotected Left Main Stem PCI: An Analysis From the British Cardiovascular Intervention Society Database. JACC Cardiovasc Interv. 2020;13:346-57.

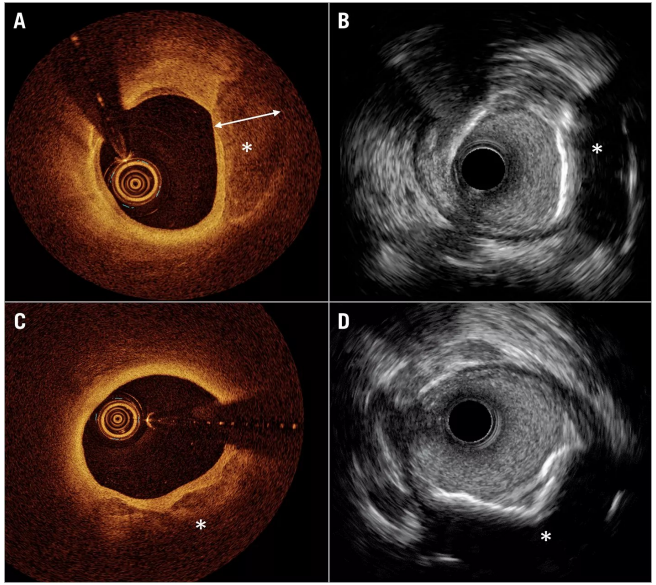


Ladwiniec A et al. Intravascular ultrasound to guide left main stem intervention: a NOBLE trial substudy. EuroIntervention. 2020;16:201-9.

LM imaging = IVUS?

A “new” player takes the field

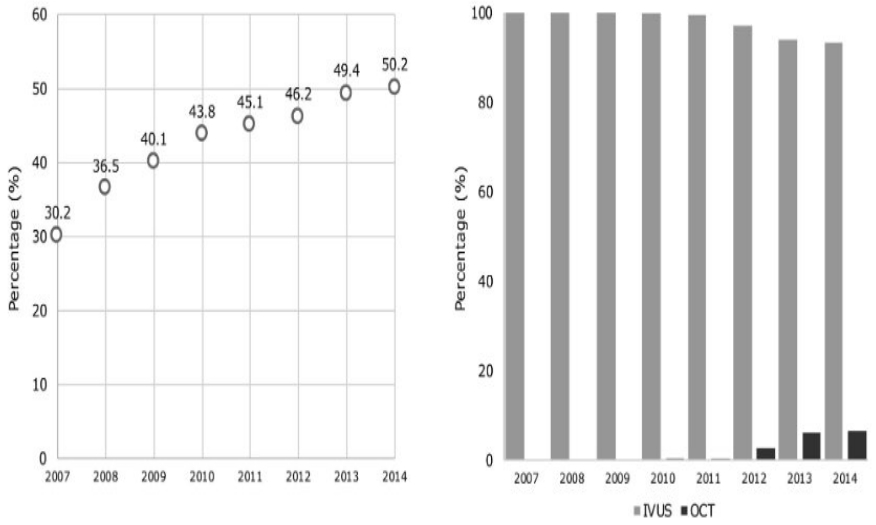
IVUS should be considered to assess the severity of unprotected left main lesions.[35–37]	IIa	B

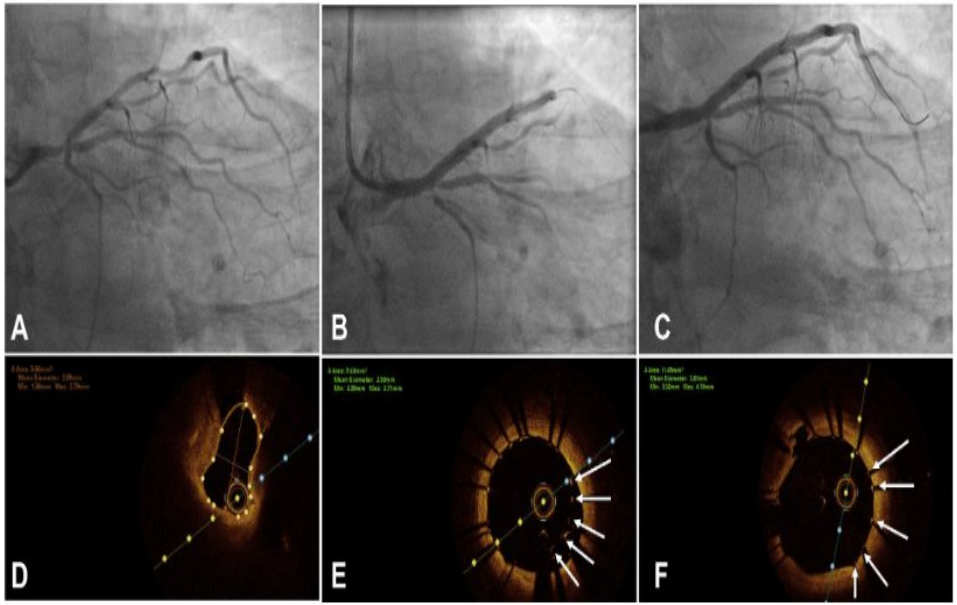


Ziad A. et al. Intracoronary optical coherence tomography: state of the art and future directions EuroIntervention 2021;17:e105-e123.

A song of sound and light

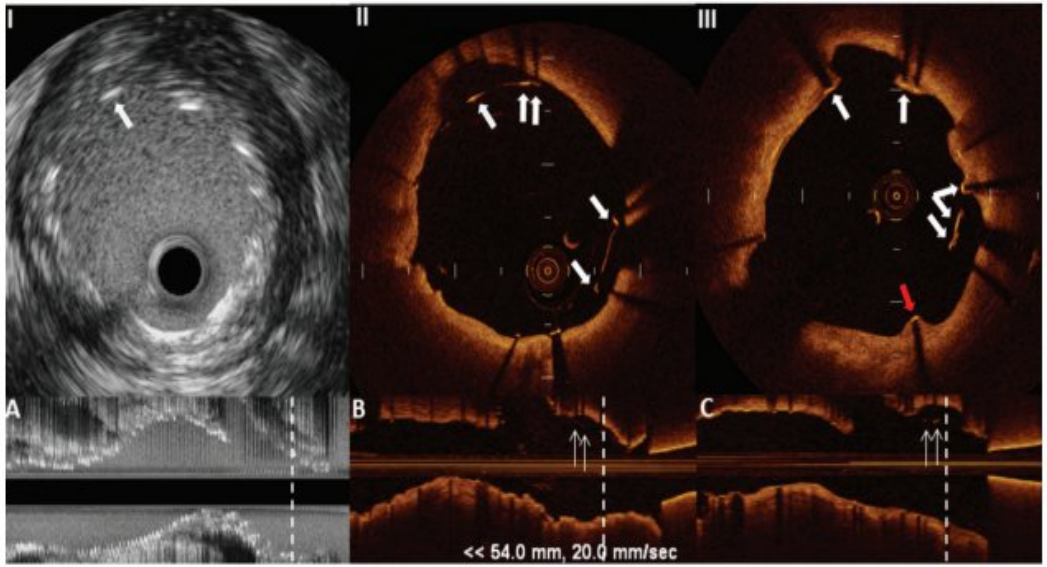
FIGURE 1 Trends in Imaging for ULMS PCI in England and Wales From 2007 to 2014

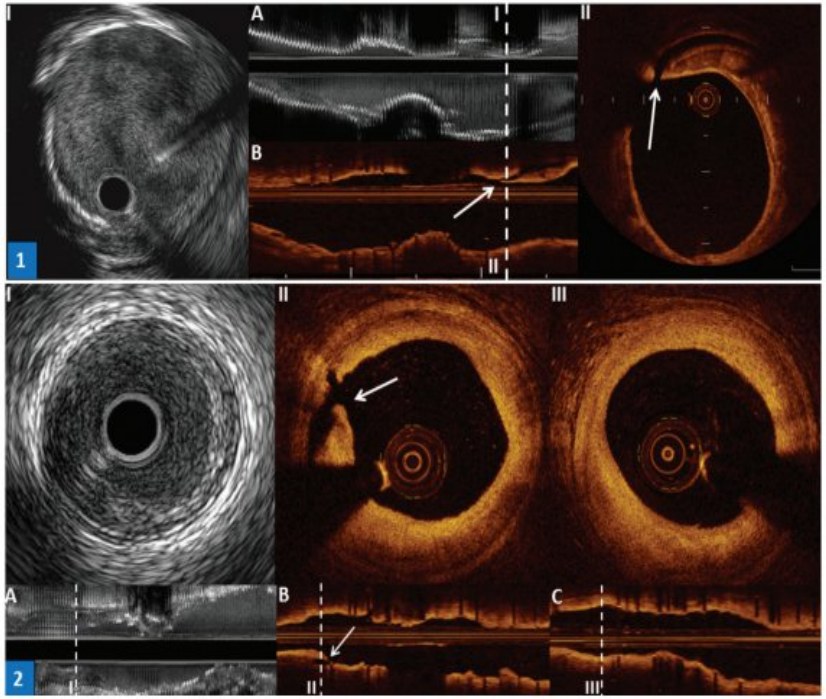




Kinnaird T, Johnson T, Anderson R, et al. Intravascular Imaging and 12-Month Mortality After Unprotected Left Main Stem PCI: An Analysis From the British Cardiovascular Intervention Society Database. JACC Cardiovasc Interv. 2020;13(3):346-357.

OCT>>IVUS in spatial resolution





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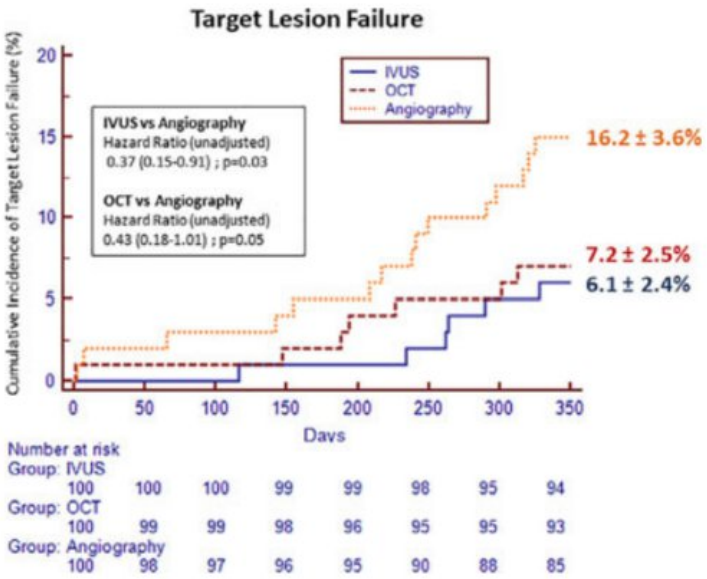

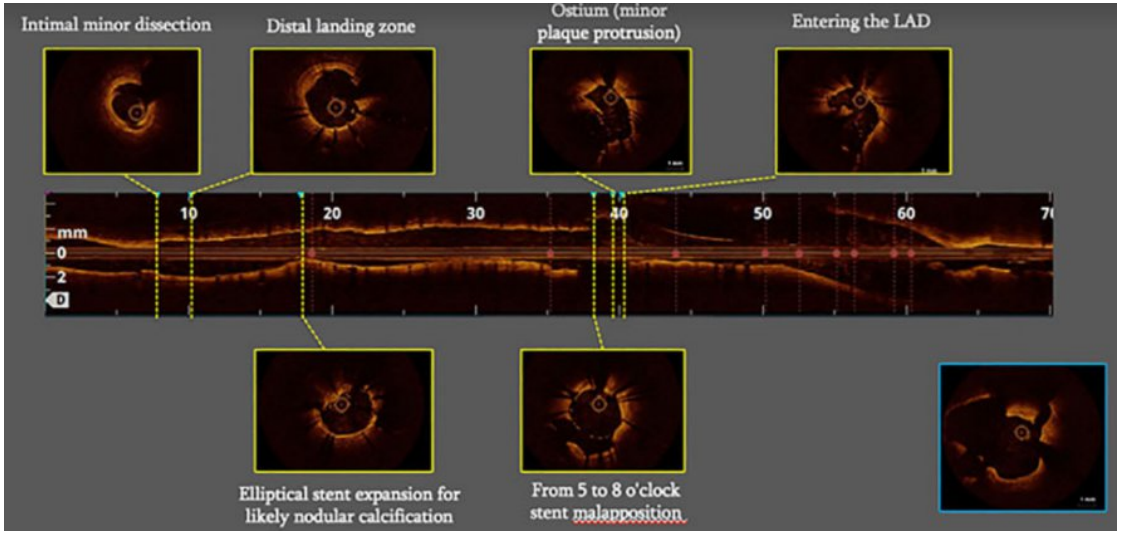

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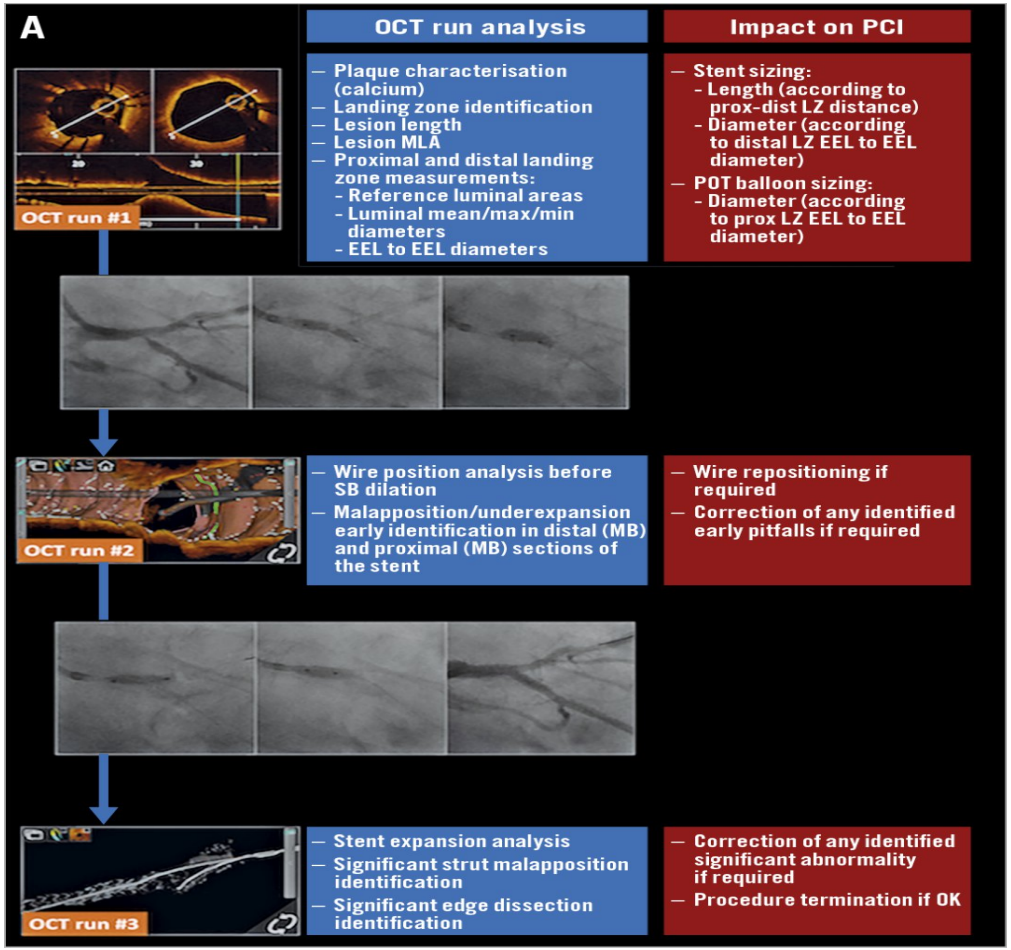

Amabile N et al. Optical coherence tomography to guide percutaneous coronary intervention of the left main coronary artery: the LEMON study. EuroIntervention. 2021;17(2):e124-e131. Published 2021 Jun 11.

Conclusions - Imaging matters

- Accurate assessment of LMCA lesion is crucial
- Imaging provides more reliable information than angiography on lesion characteristics
- It is helpful to achieve optimal stent area
- Benefits in terms of outcomes
- IVUS or OCT? Choose one and make it yours

Thank you for the attention!