euro PCR
2021

Left main bifurcation PCI
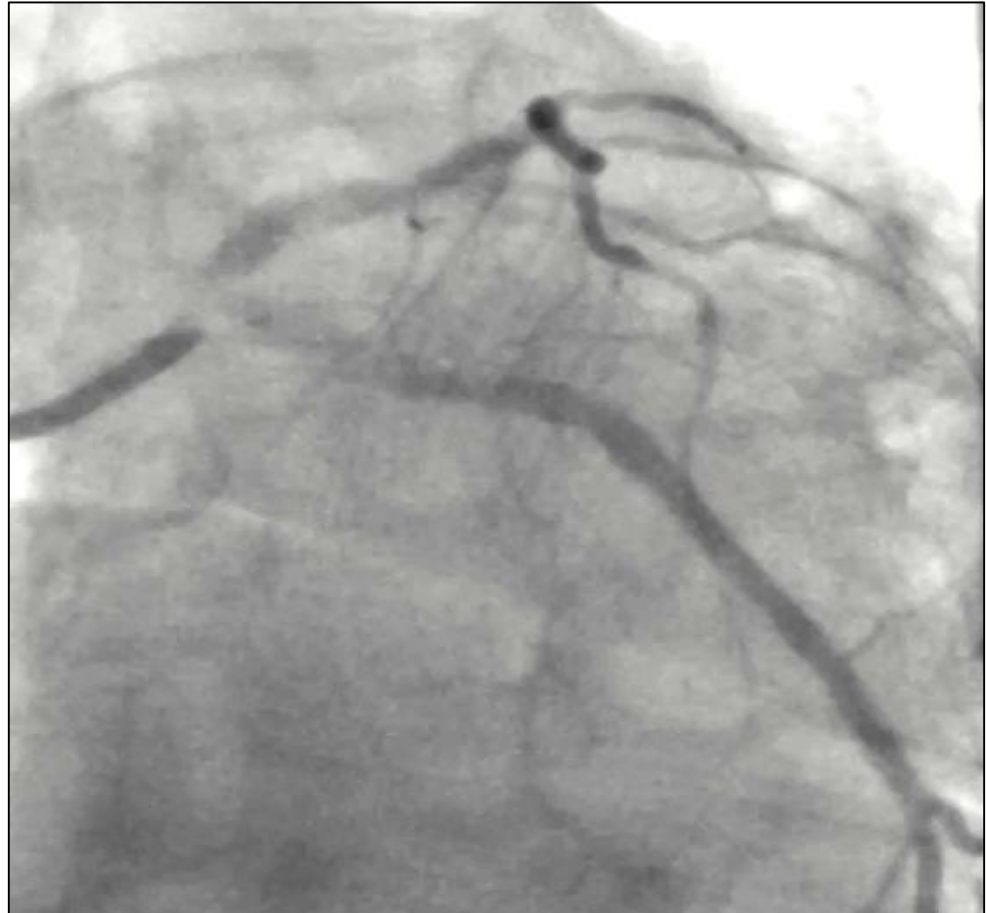## *OCT-guided DK Culotte strategy*

Gemina Doolub, Kalaivani Mahadevan, Tom Johnson

Bristol Heart Institute, United Kingdom

- Good left ventricular function
- Comorbidities:
  - Previous PCI to circumflex
  - Type 2 diabetes on insulin
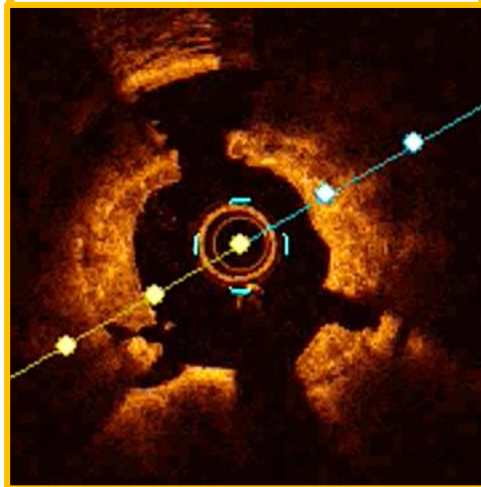 - Chronic renal impairment
  - Hypertension

MDT → CABG recommended

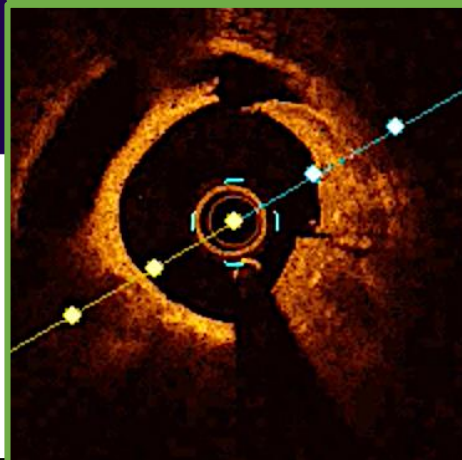Patient declined surgery
→ Left main bifurcation PCI
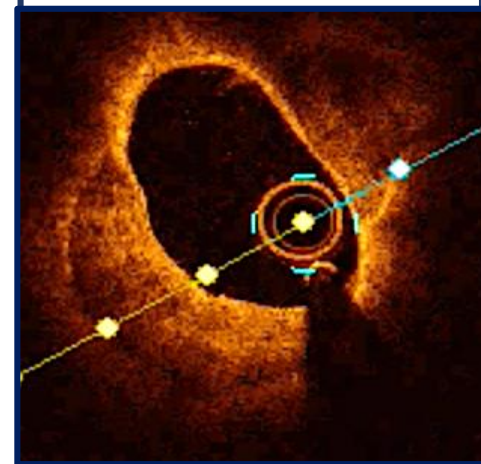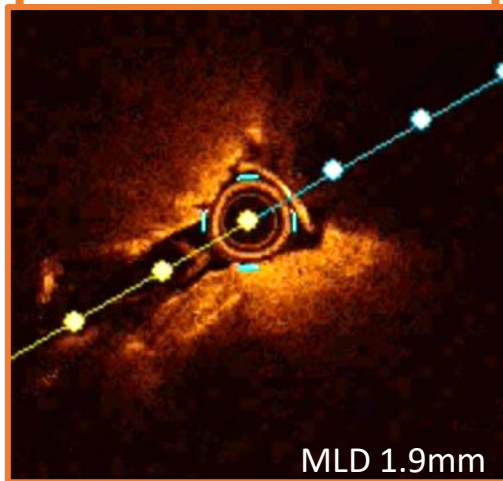
OCT of left anterior descending artery

Dissection post ballooning

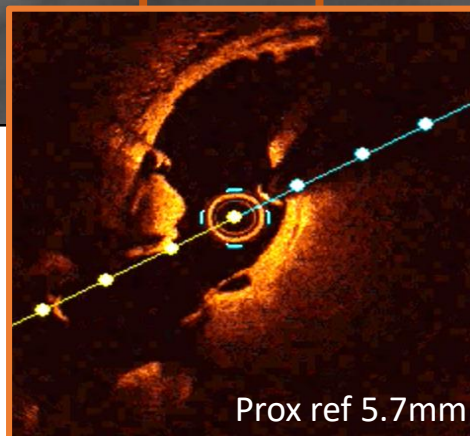**Calcium disruption**

Deep wall calcium with nodule

Ostial LAD

MLD 1.9mm

Distal LM

Prox ref 5.7mm

Distal LAD
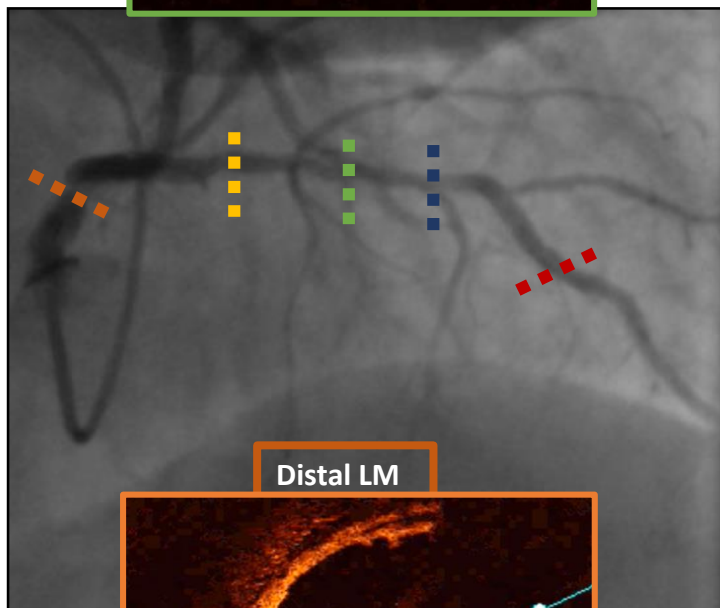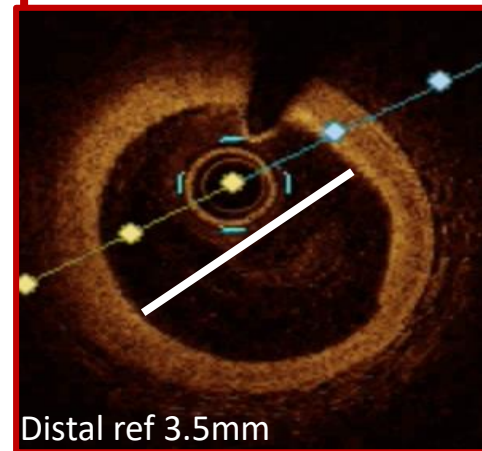
Distal ref 3.5mm

Calcium disruption post ballooning

Critical ostial circumflex disease
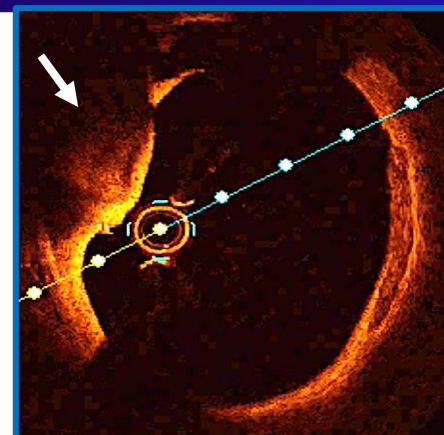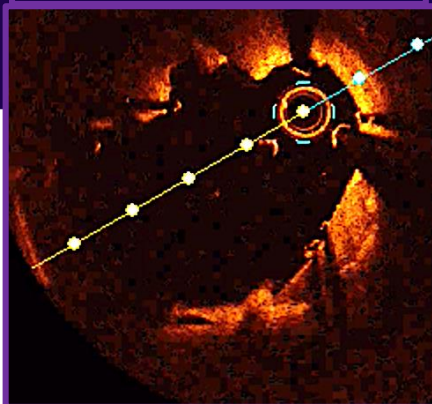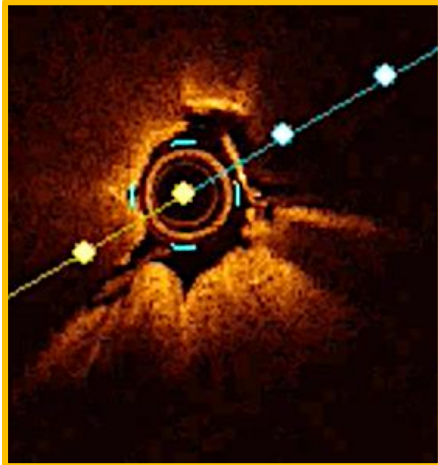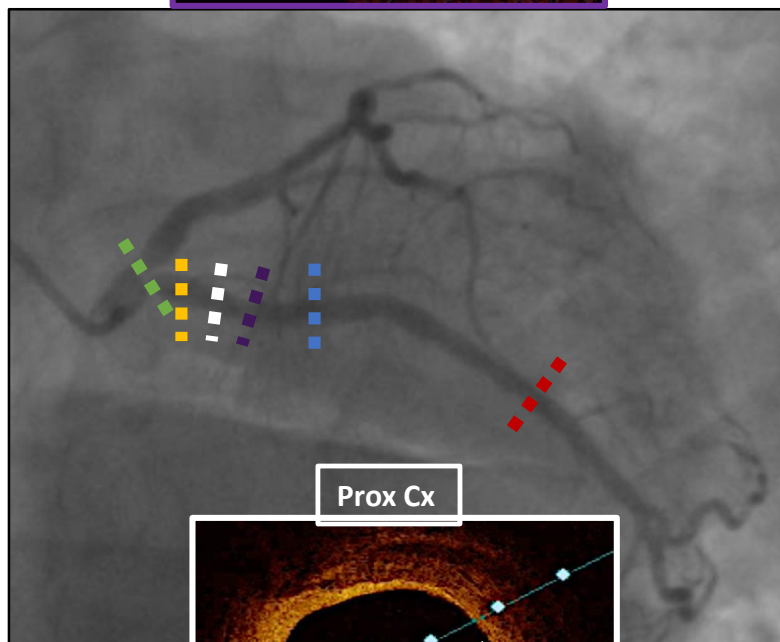
Nodule of calcium

Severe left main/circumflex bifurcation
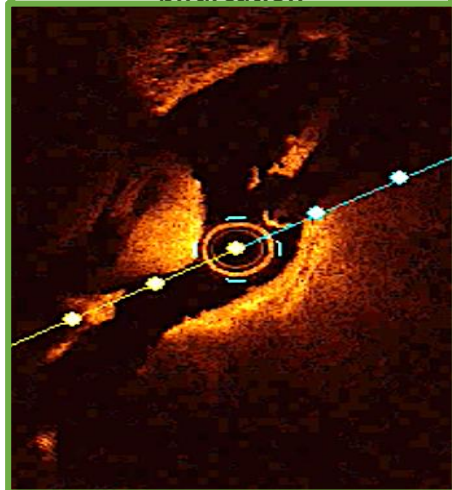
Prox Cx

Prox ref 4.5mm

Distal Cx
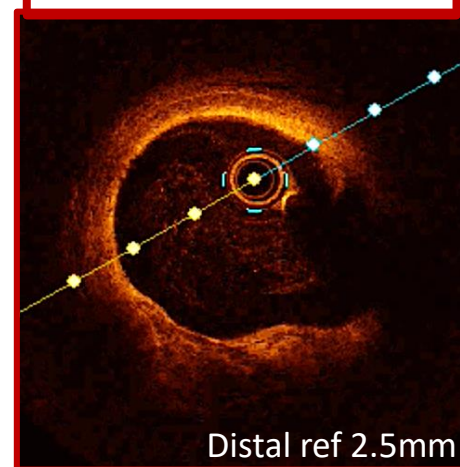
Distal ref 2.5mm

Adequate calcium disruption with pre-dilatation therefore no indication for rota/IVL. Further pre-dilatation to LAD/Cx with 3.5 NC balloon, then
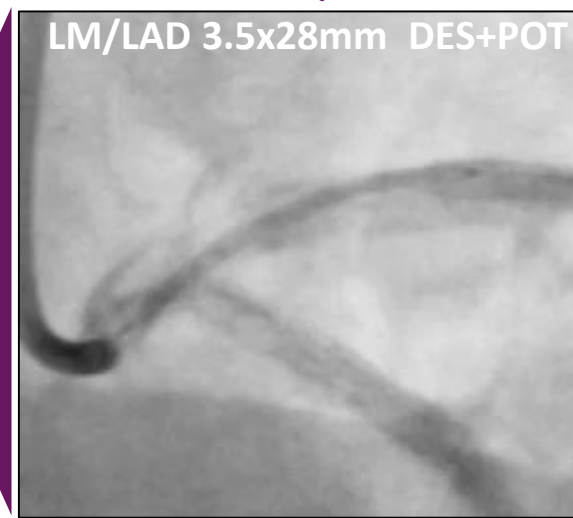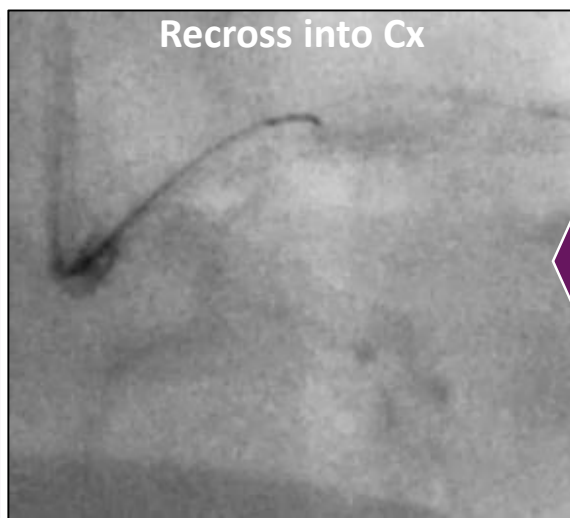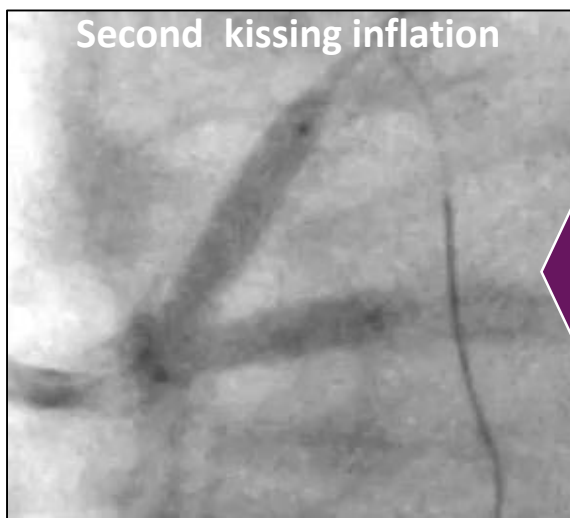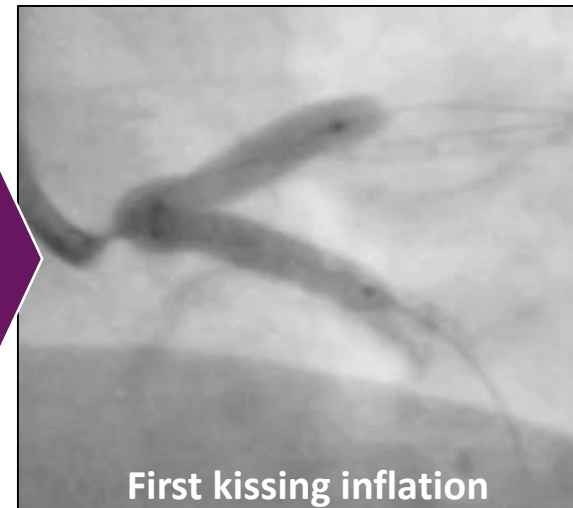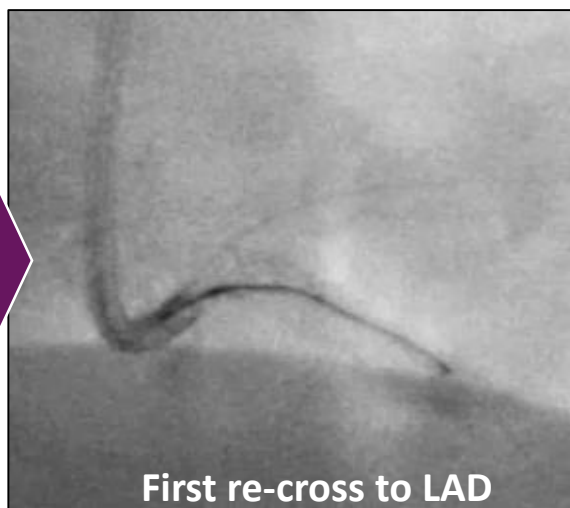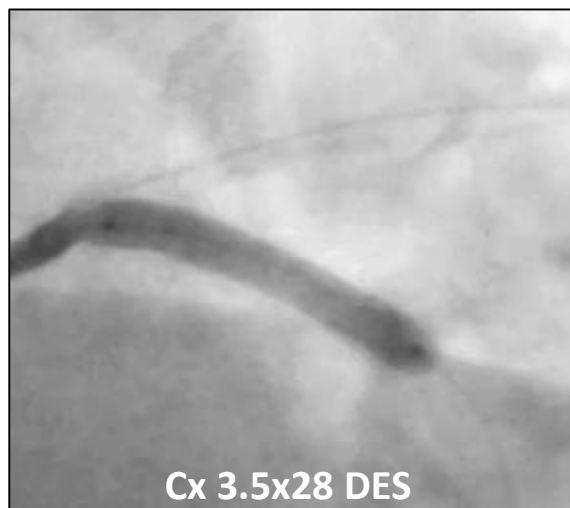
Cx 3.5x28 DES

First re-cross to LAD

First kissing inflation

Second kissing inflation

Recross into Cx

LM/LAD 3.5x28mm DES+POT

MSA 7.98mm², EXP = 81%

12.5 mm

Area 9.91mm²,Ø=3.54mm
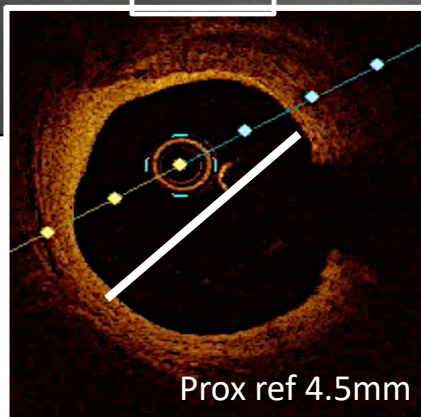
MSA 9.37mm², EXP = 98%

Area 9.52mm²,Ø=3.47mm ← 12.4 mm

10   20   30   40   50 mm

DISTAL
DISSECTION   A Length (4.6mm)   Covered with 3.0x9mm DES

Further 3.5NC
Postdilatation
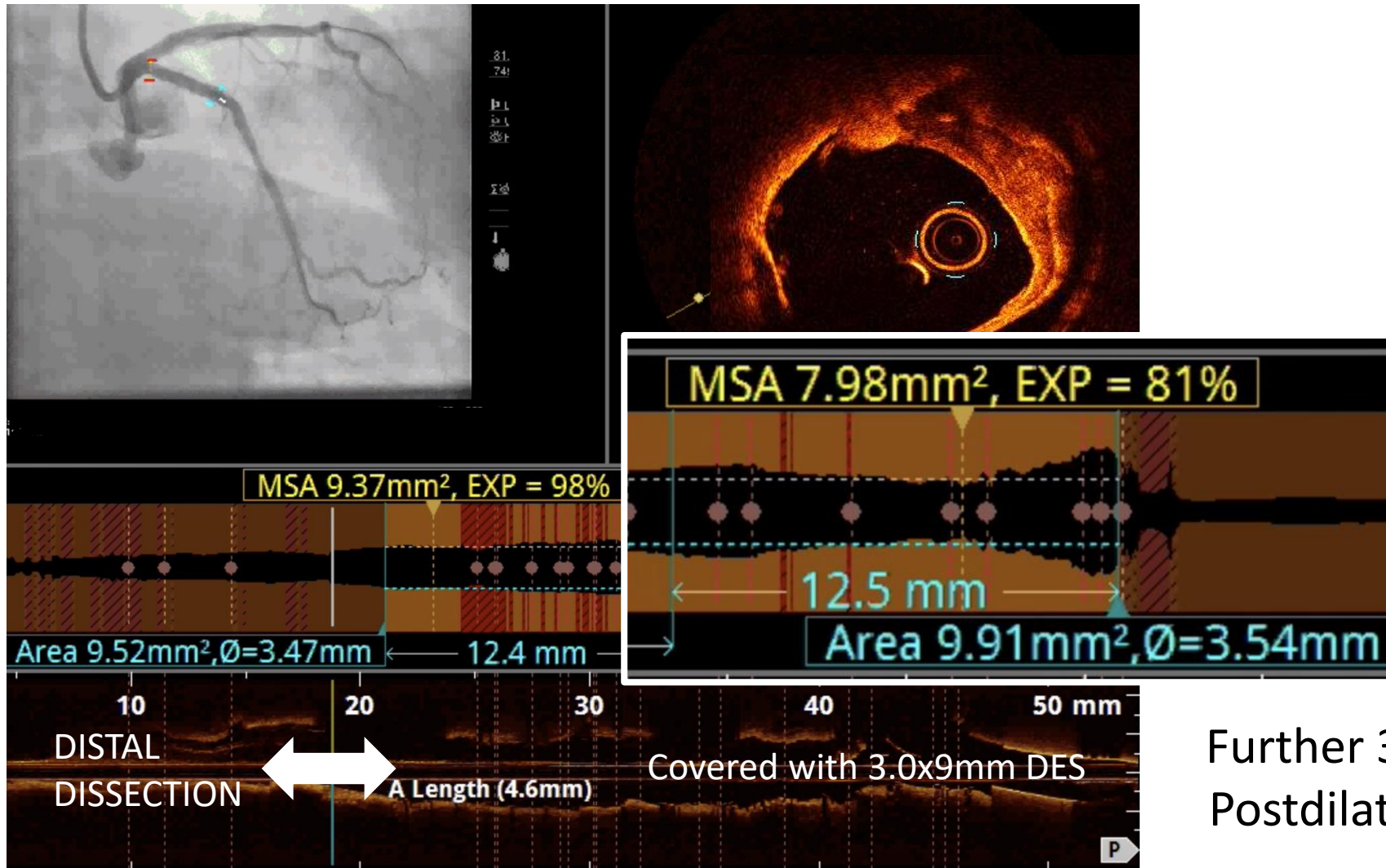
NOBLE IVUS post-hoc analysis – LMS MSA terciles

Low vs Intermediate: p=0.15
Low vs Upper: p=0.002

MSA ≤10.8mm^2

MSA 10.9-13.3mm^2

MSA ≥13.4mm^2

LMS TLR (%) — vertical axis: 0, 5, 10, 15, 20, 25

Follow-up (years) — horizontal axis: 0, 1, 2, 3, 4, 5

Number at risk						
Lower tertile	74	66	56	47	34	13
Intermediate tertile	73	71	62	43	32	13
Upper tertile	77	73	66	56	39	22

Tertiles: —— Lower —— Intermediate —— Upper

and

Ladwiniec et al. Euroint 2020 DOI: 10.4244/EIJ-D-19-01003
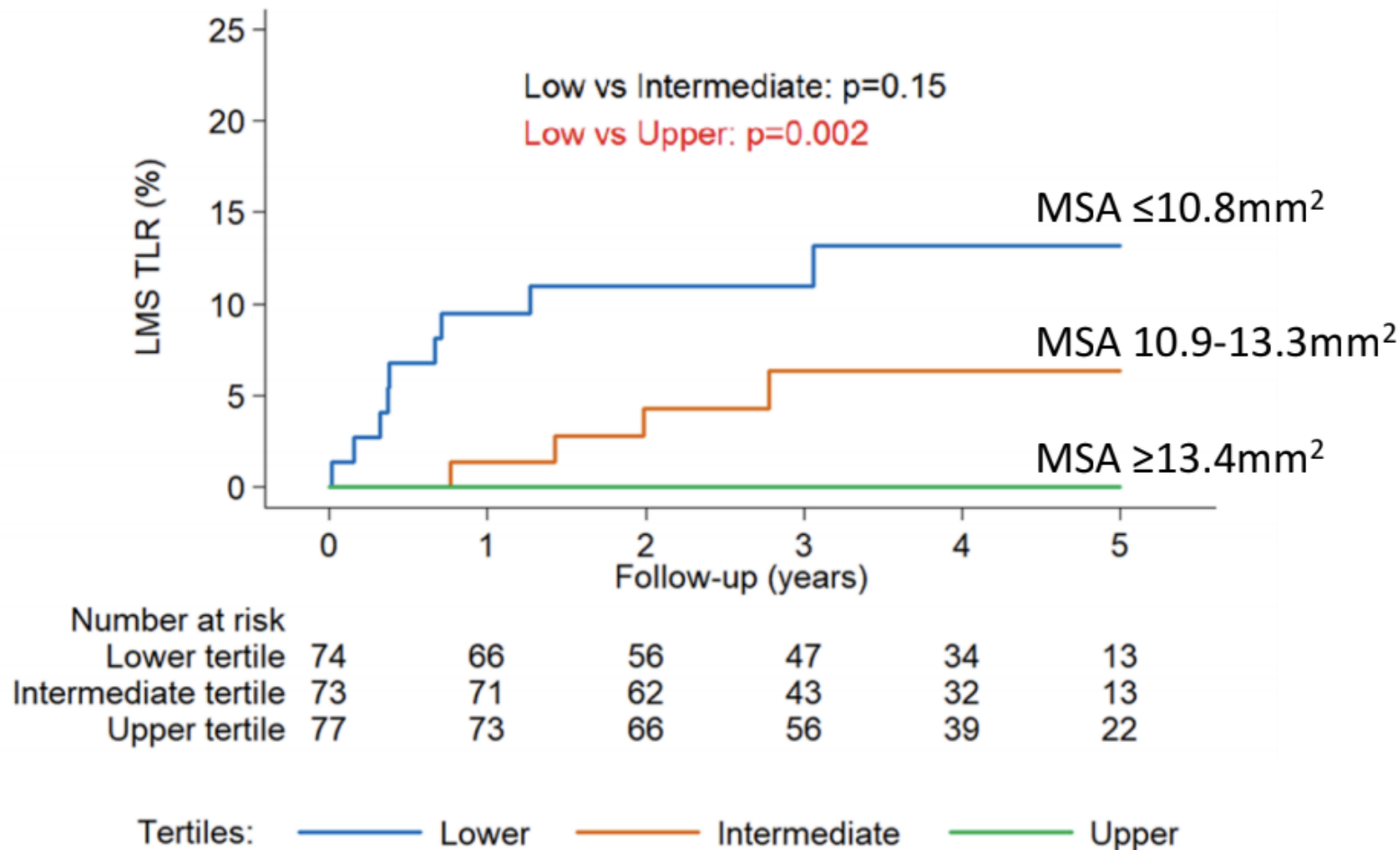
Dissection in left main ostium

...st dilatation

Repeat OCT although ide... ...rment and
contrast dose used (270m...
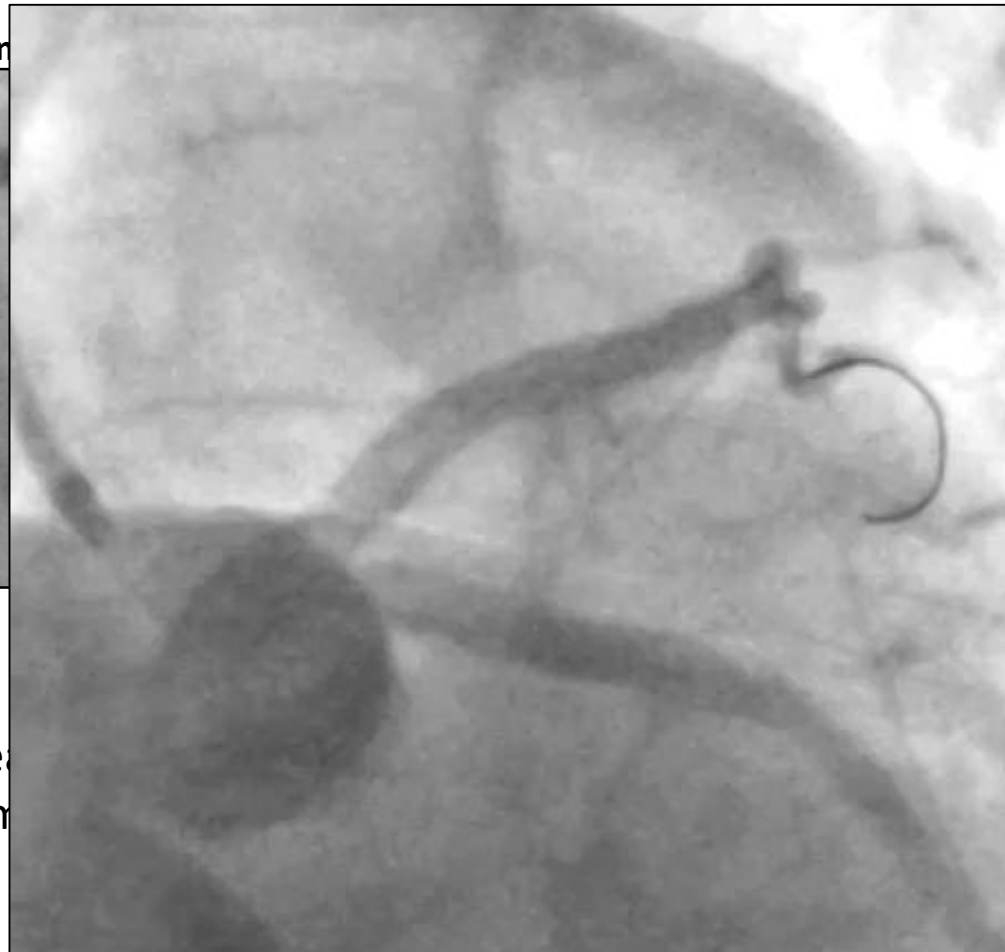
Reference optimal minimum luminal area MLA (mm^2)

LM proximal to the POC — 8mm^2

POC — 7mm^2

LCX ostium — 5mm^2

LAD ostium — 6mm^2
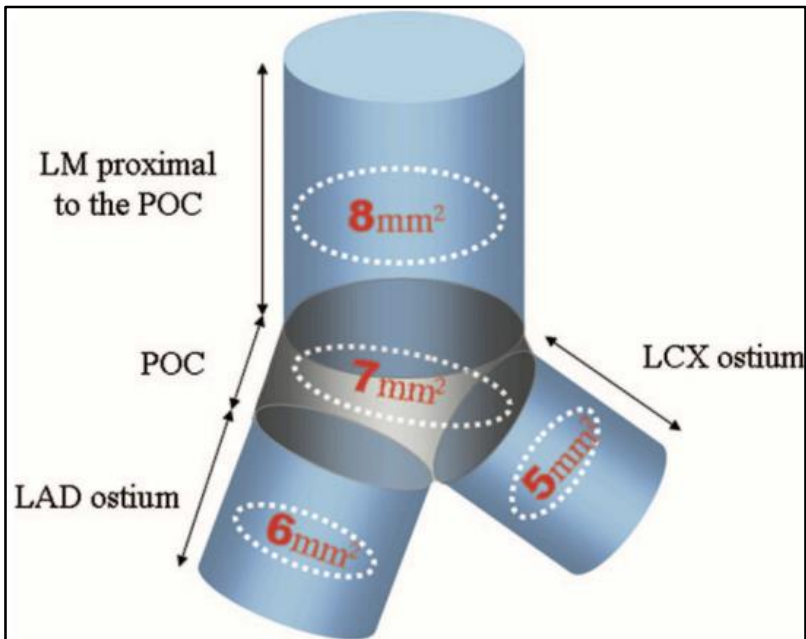
Kang et al. Circ CI 2011;4:562-569

Equivalent achieved minimum luminal area MLA (mm^2)

9
14
18
8
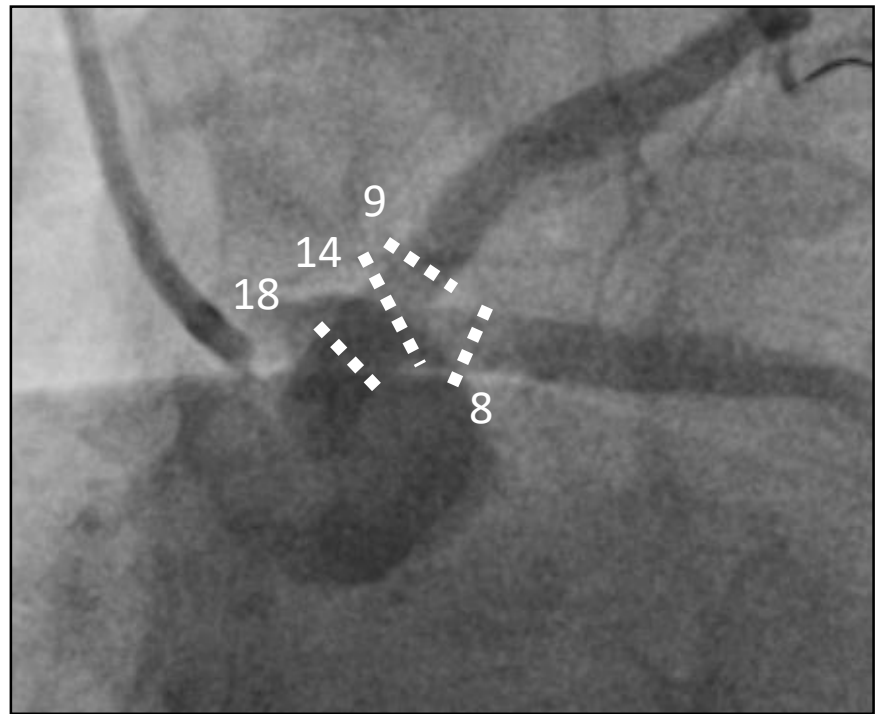
- DK culotte is a new iteration of the culotte strategy and can be used in 2-stent bifurcation technique

- *Imaging facilitates*:
  - Sizing of distal and proximal luminal reference diameter/area: traditional references may not be optimal in individual patients
  - Delineation of calcium
  - Stent optimization (apposition and expansion)
  - Evaluation of complications including edge dissections that may not be obvious angiographically