

Supplemental Material Online

This Supplementary data has been provided by the authors to give readers additional information about their work.

Supplemental Table 1. Adjusted QCA values (target diameters) of the reference segments derived from the QCA measurements

Supplemental Figure 1. Representative case of QCA-guided PCI

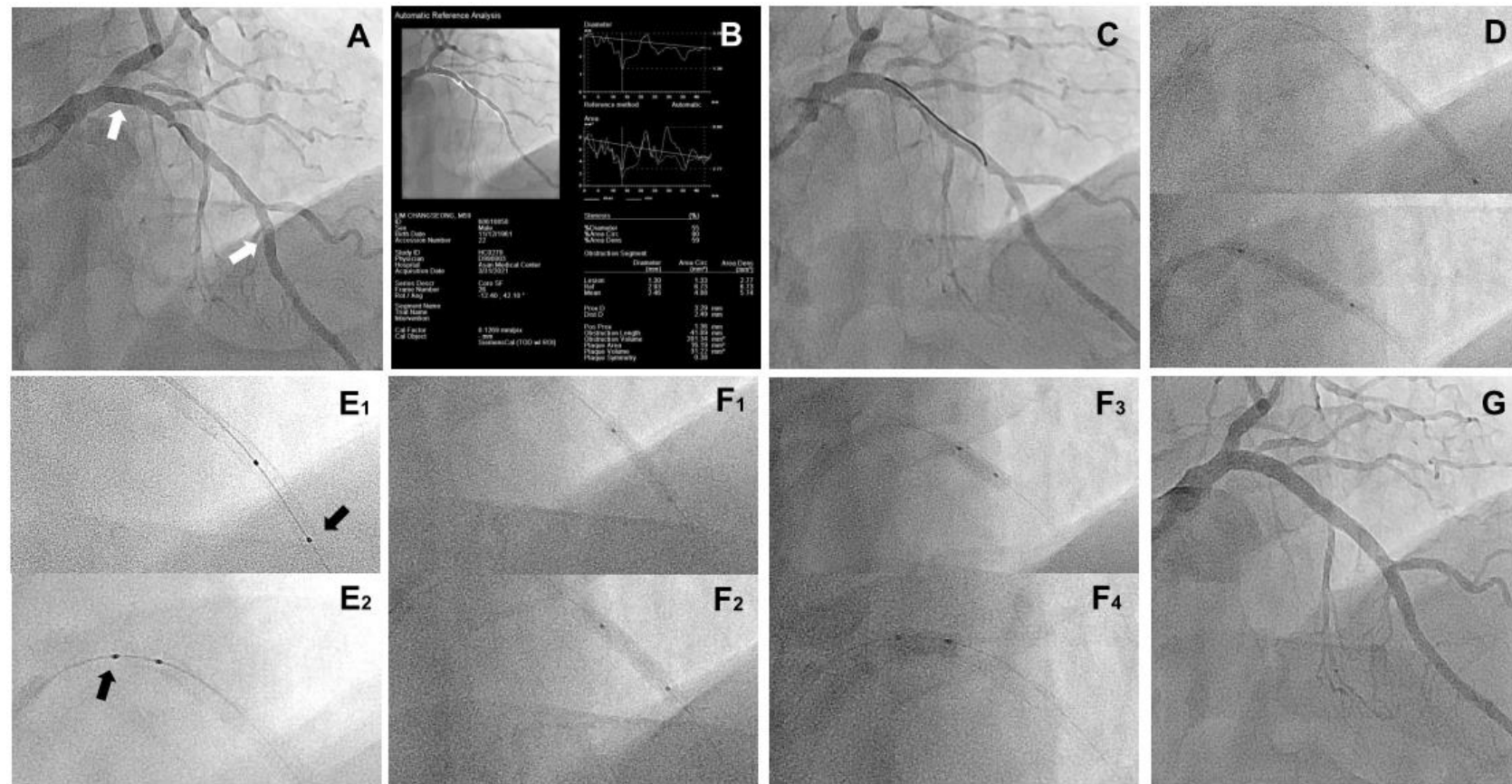
Supplemental Figure 2. Estimation of the main branch size without normal-looking area

Supplemental Figure 3. Stent edge optimization

Supplemental Table 1. Adjusted QCA values (target diameters) of the reference segments derived from the QCA measurements

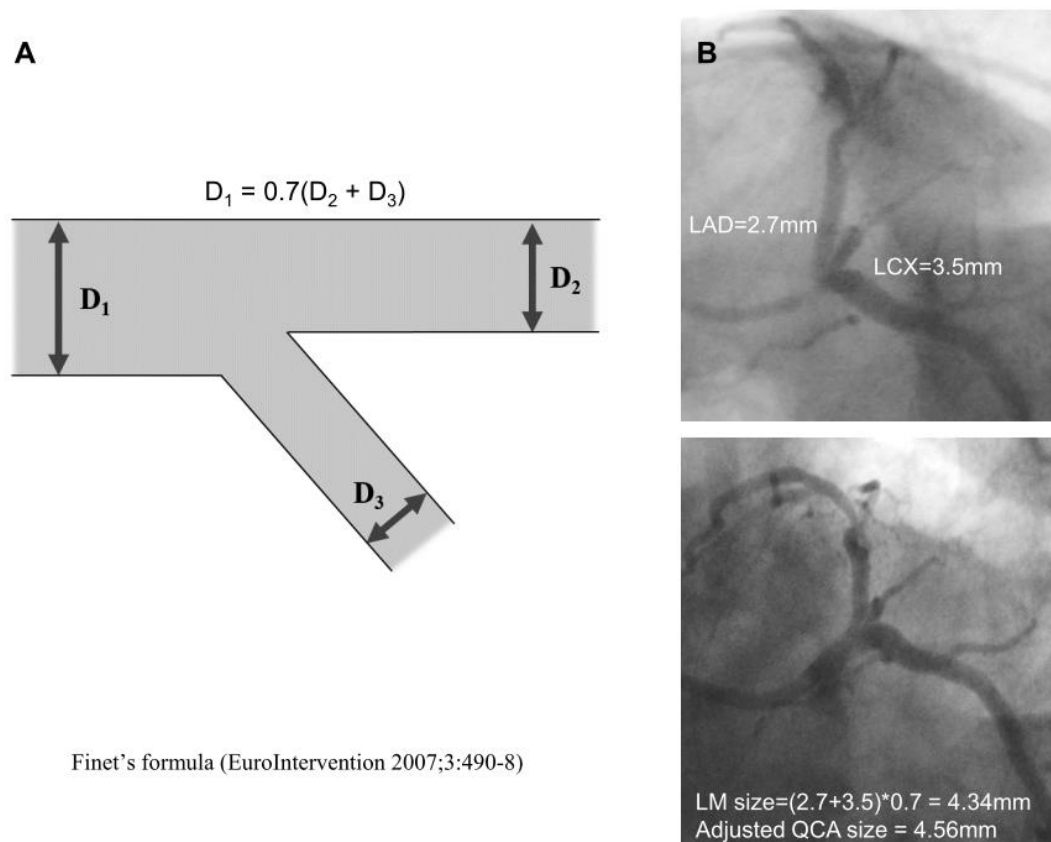
Measured value	Target diameter		Measured value	Target diameter
$\leq 3.5\text{mm}$	+ 10%		3.6–3.9mm	+ 6~9%
2.0	2.2		3.6	3.92
2.1	2.31		3.7	4.0
2.2	2.42		3.8	4.07
2.3	2.53		3.9	4.13
2.4	2.64		$\geq 4.0\text{mm}$	+ 5%
2.5	2.75		4.0	4.2
2.6	2.86		4.1	4.31
2.7	2.97		4.2	4.41
2.8	3.08		4.3	4.52
2.9	3.19		4.4	4.62
3.0	3.3		4.5	4.73
3.1	3.41		4.6	4.83
3.2	3.52		4.7	4.94
3.3	3.63		4.8	5.04
3.4	3.74		4.9	5.15
3.5	3.85		5.0	5.25

Supplemental Figure 1. Representative case of QCA-guided PCI



A) Baseline angiogram and identification of the distal and proximal reference segments (arrows), B) QCA measurement of reference diameters (distal reference 2.49mm, proximal reference 3.29mm) and calculation of the adjusted QCA sizes (target diameters: distal reference 2.74mm, proximal reference 3.62mm), C) Estimation of lesion length using 30mm radiopaque tip of the guidewire (about 49mm), D) Stent selection (Orsiro Mission 2.5×26mm stent, Orsiro Mission

3.0×26mm stent) and delivery, followed by balloon inflation up to target diameter of the distal reference segment (distal stent, ballooning up to 2.76mm at 15atm; proximal stent, ballooning up to 3.34mm at 16atm), E) Positioning the radiopaque marker of noncompliant balloons over stent edges guided by stent boost imaging (arrows: E1, distal stent edge; E2, proximal stent edge), F) Multiple high-pressure balloon dilation using NC balloons to achieve minimal residual stenosis guided by stent boost imaging: distal stent edge (F1: FORCE™ NC [2.75×15mm], ballooning up to 2.75mm at 12atm), in-stent (F2: FORCE™ NC [2.75×15mm], ballooning up to 3.11mm at 26atm; F3: NEON™ NC [3.5×10 mm], ballooning up to 3.44mm at 10atm), and proximal stent edge (F4: NEON™ NC [3.5×10 mm], ballooning up to 3.65mm at 18atm), G) Final angiogram with minimal residual stenosis and smooth transition between the stent edges and the reference segments. Atm, atmosphere; NC, noncompliant; PCI, percutaneous coronary intervention; QCA, quantitative coronary angiography.

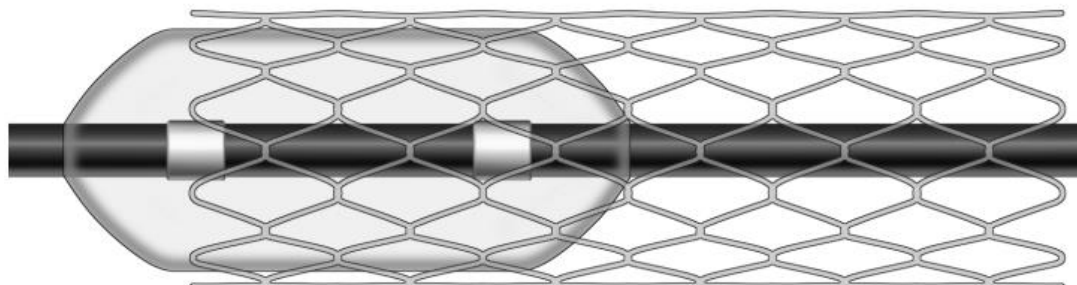
Supplemental Figure 2. Estimation of the main branch size without normal-looking area

A) If there is no reference zone of the main branch at a bifurcation site, its size is estimated by Finet's formula. B) Angiograms estimating diameter of the LM coronary artery without normal-looking area: distal LM diameter = (diameter of the proximal LAD + diameter of the proximal LCX) \times 0.7. Right upper panel, LM coronary artery stenosis without normal-looking area. Right lower panel, angiogram after LM coronary artery stenting based on the adjusted QCA size.

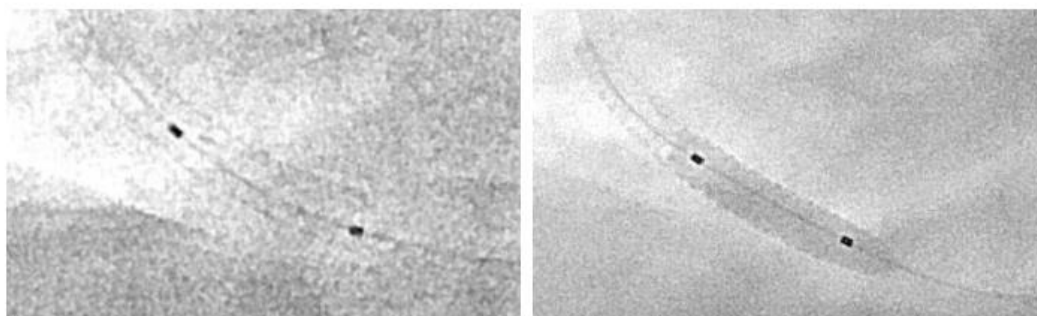
D, diameter; LAD, left anterior descending coronary artery; LCX, left circumflex coronary artery; LM, left main; QCA, quantitative coronary angiography.

Supplemental Figure 3. Positioning the radiopaque marker of noncompliant balloon over stent edge for optimization of the stent edges

A



B



A) Schematic illustration, B) Stent boost image. Post-dilations of the proximal and distal stent edges are separately performed up to each target diameters using high-pressure noncompliant balloons.