The Role of Dual Lumen Microcatheters During CTO Recanalization;

A EuroCTO Club Consensus Document

Kambis Mashayekhi

Heartcenter Lahr, Germany

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CORONARY INTERVENTIONS
CONSENSUS

Dual lumen microcatheters for recanalisation of chronic total occlusions: a EuroCTO Club expert panel report

Stylianos A. Pyxaras[1], MD, PhD; Alfredo R. Galassi[2], MD, PhD; Gerald S. Werner[3], MD, PhD; Alexander Avran[4], MD; Roberto Garbo[5], MD; Omer Goktekin[6], MD, PhD; Nicolas Boudou[7], MD; Alexander Bufe[8], MD; Georgios Sianos[9], MD, PhD; Gabriele L. Gasparini[10], MD; Alessio La Manna[11], MD; Joachim Weber-Albers[12], MD; Thierry Lefèvre[13], MD; Gorgulu Sevket[14], MD; David Hildick-Smith[15], MD; Javier Escaned[16], MD, PhD; Markus Meyer-Gessner[17], MD; Leszek Bryniarski[18,19], MD, PhD; Carlo Di Mario[20], MD, PhD; Kambis Mashayekhi[21]*, MD

Pyxaras et al. EuroIntervention 2021;17:e966-e970

Overview of MCs and techniques

Twin-Pass

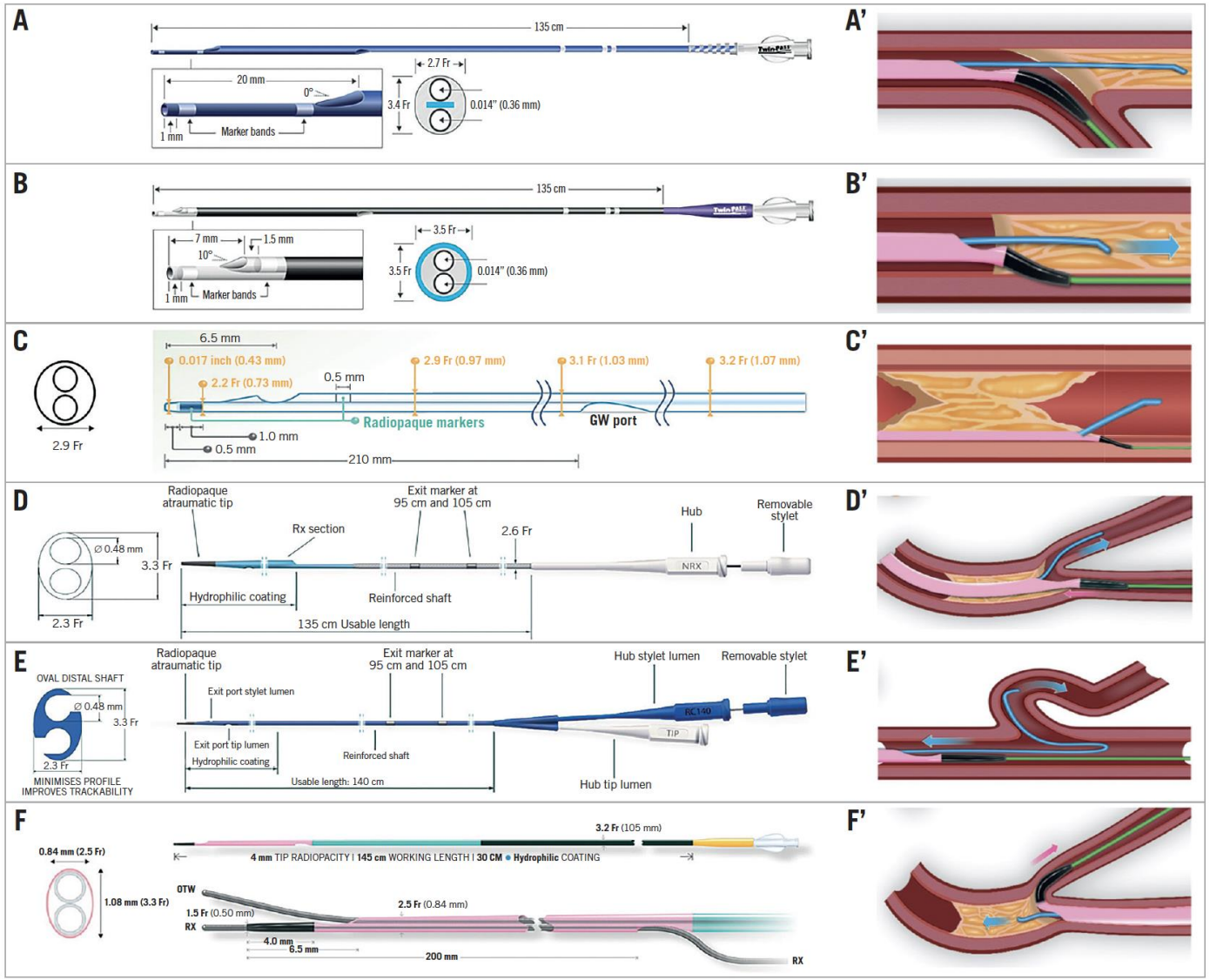
Twin-Pass Torque

Fine Duo/ Crusade

Nhancer

Nhancer RX

Sasuke



Pyxaras et al. EuroIntervention 2021;17:e966-e970

Overview of specific dual-lumen microcatheters

Table 1. Dual lumen microcatheters – dimensional/positional characteristics.

	Length (cm)	Proximal O.D. (Fr)	Dual lumen O.D. (Fr)	Tip entry O.D. (Fr)	Distal marker distance from tip (mm)	Inner lumen O.D. (in.)	Distal tip length* (mm)	Distance of OTW lumen port from tip (mm)	Hydrophilic coating length (cm)	Guiding catheter compatibility	Guiding catheter minimal luminal dimensions for trapping
Twin-Pass	135	2.9	3.4×2.7	2.0	1	0.016 in. (RX) 0.0165 in. (OTW)	20	20	18	6 Fr	7 Fr
Twin-Pass Torque	135	3.1	3.5×3.5	2.1	1	0.015 in. (RX) 0.0155 in. (OTW distal) 0.0165 in. (OTW proximal)	7	7	25	6 Fr	7 Fr
Fine Duo/ Crusade	140	3.2	3.1**	1.3	0.5	0.014 in.	1.5	6.5	21	6 Fr	7 Fr
NHancer Rx	135	2.6	3.3×2.3	1.5	0 (radiopaque tip)	0.019 in. tip and shaft lumen	5	6.5	18	6 Fr	6 Fr
ReCross	140	3.4×2.6***	3.3×2.3	1.5	0 (radiopaque tip)	0.019 in. tip and shaft lumen	5	8/12	25	6 Fr	7 Fr
SASUKE	145	3.2	3.3×2.5	1.5	0 (radiopaque tip)	0.016 in. (tip) 0.017 in. (shaft)	4	6.5	38	6 Fr	6 Fr

*Defined as length of the distal tapered part of the microcatheter. ** The FineDuo/Crusade is circular, not oval, and as such has only one dimension. *** The ReCross dual lumen microcatheter has a proximal cross-section which is oval, therefore two dimensions are used. O.D: outer diameter; OTW: over-the-wire; Rx: rapid exchange

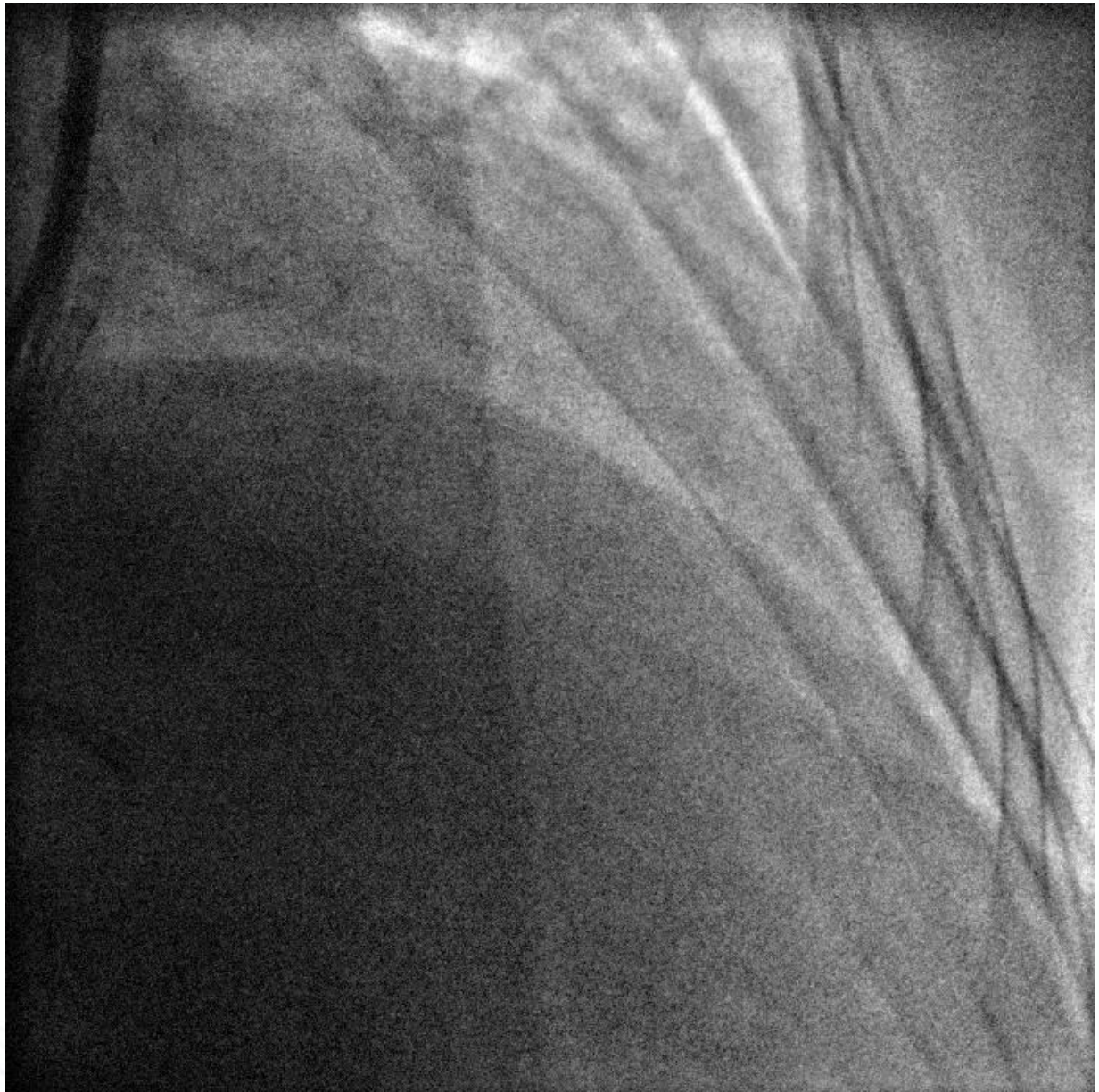
Pyxaras et al. EuroIntervention 2021;17:e966-e970

Recommendations of use, clinical indications and techniques

- **MAJOR SIDE BRANCH NEAR THE PROXIMAL CTO CAP**
- **PARALLEL WIRE TECHNIQUE**
- **DISTAL RE-ENTRY**
- **ACCESS OF THE SB AT THE DISTAL OCCLUSION CAP**
- **SELECTIVE ENGAGEMENT OF ANGULATED COLLATERALS**
- **RETROGRADE CROSSING AND RETROGRADE PUNCTURE OF THE DISTAL CTO CAP**

MAJOR SIDE BRANCH NEAR THE PROXIMAL CTO CAP

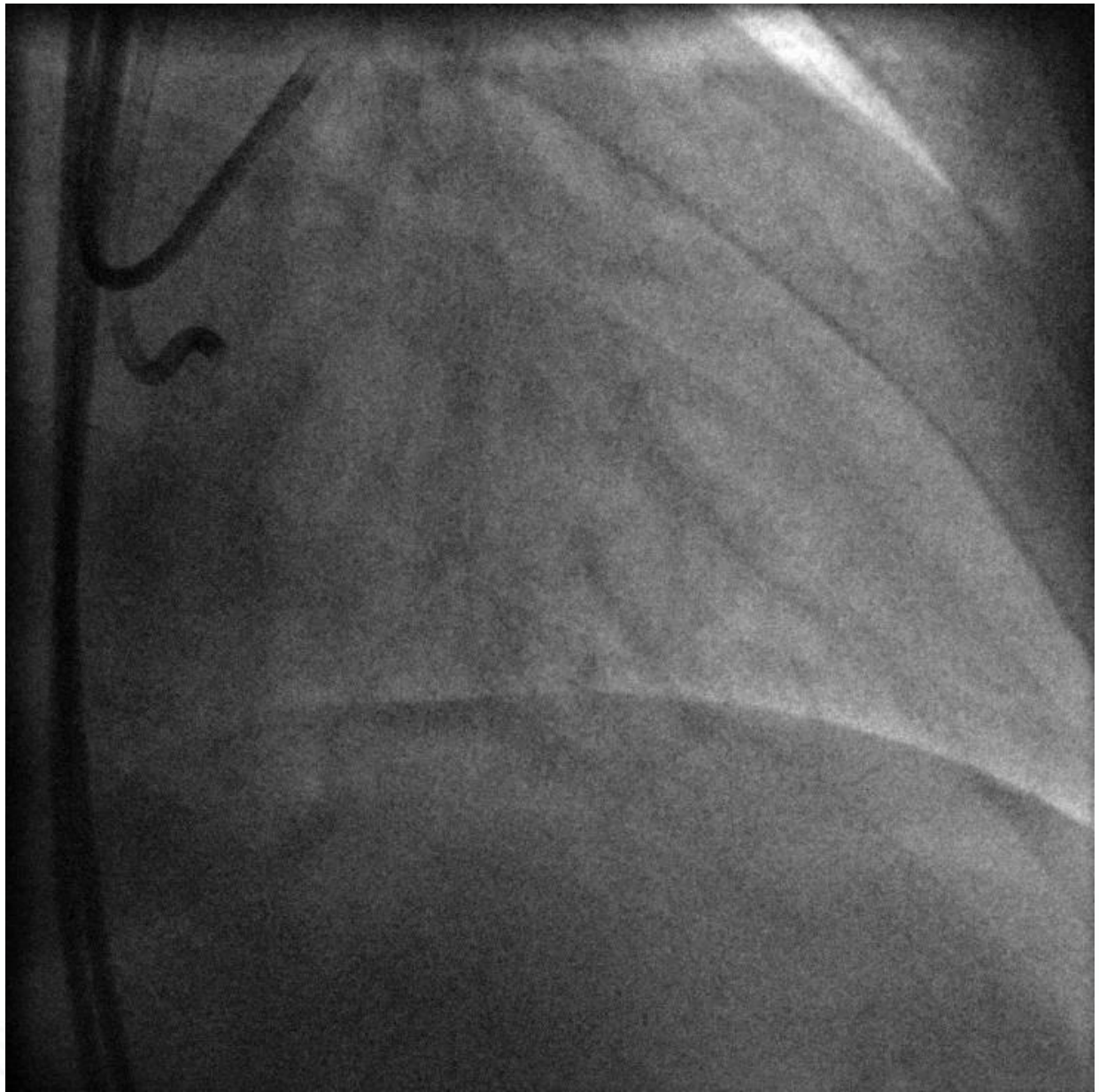
- **Blunt**
- **bending at CTO-entry >45º**
- **calcified**
- **>20mm**
- **Redo from an expert**



J-CTO 5

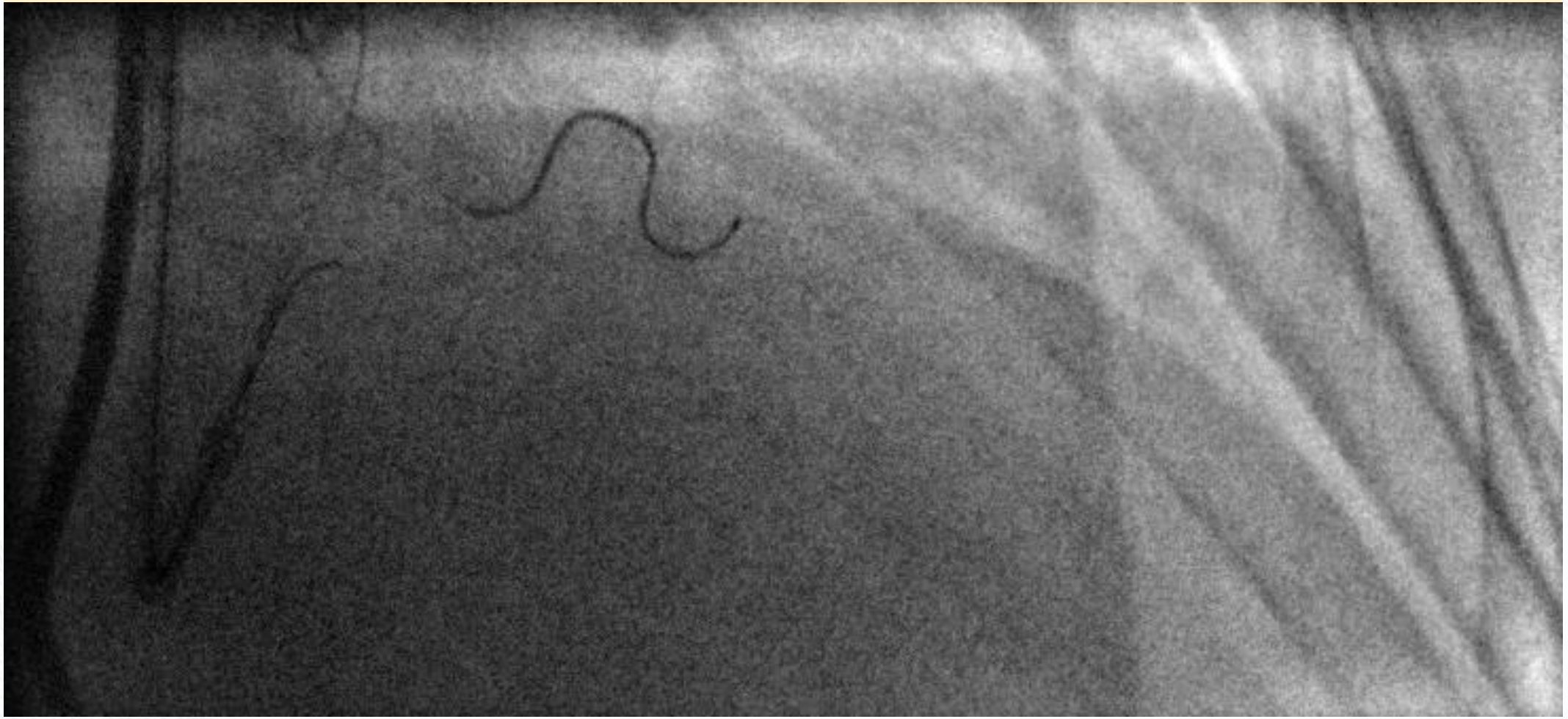
with

Faint landing zone



MAJOR SIDE BRANCH NEAR THE PROXIMAL CTO CAP

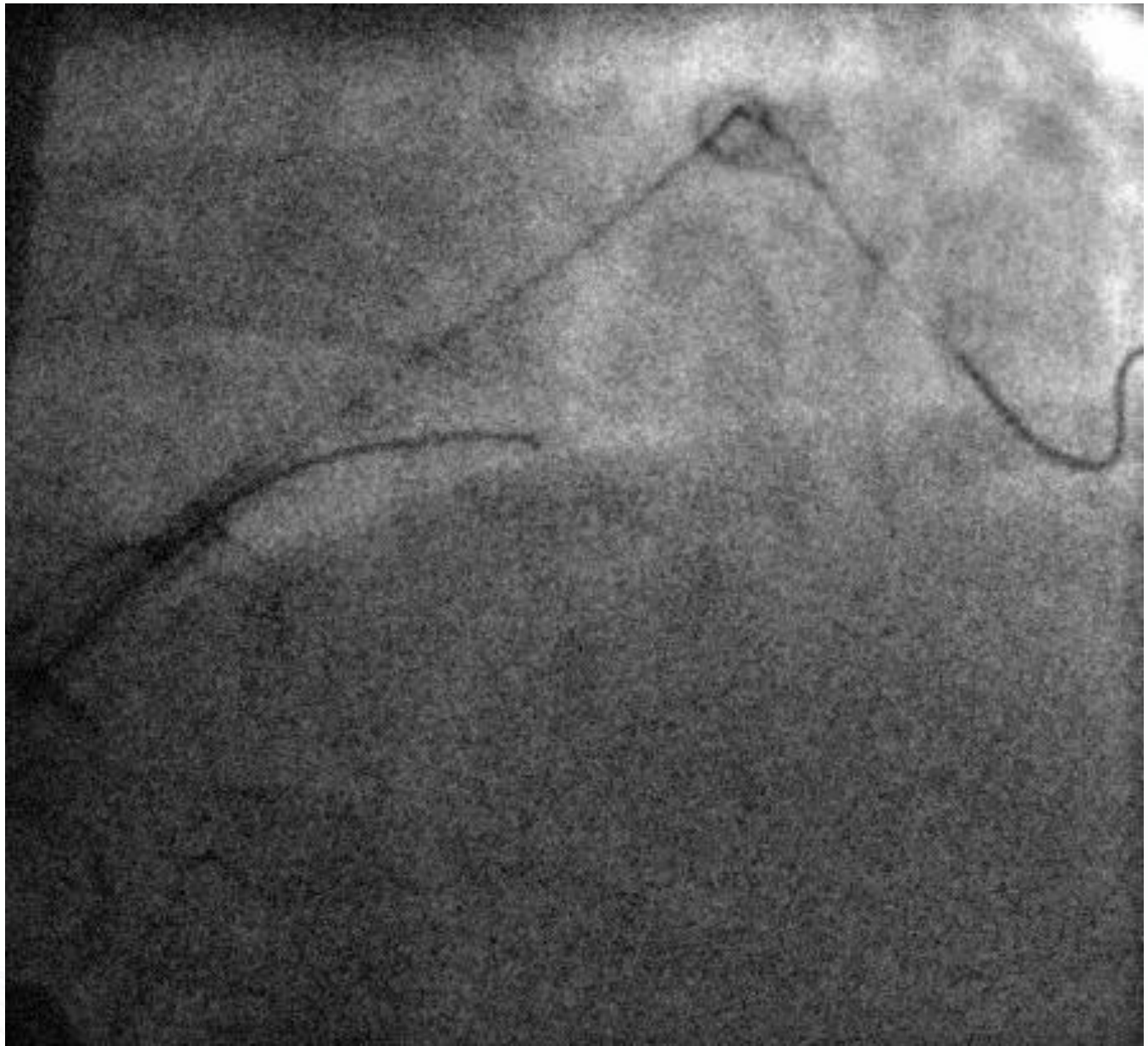
Dual lumen MC for puncturing: Increases penetration force



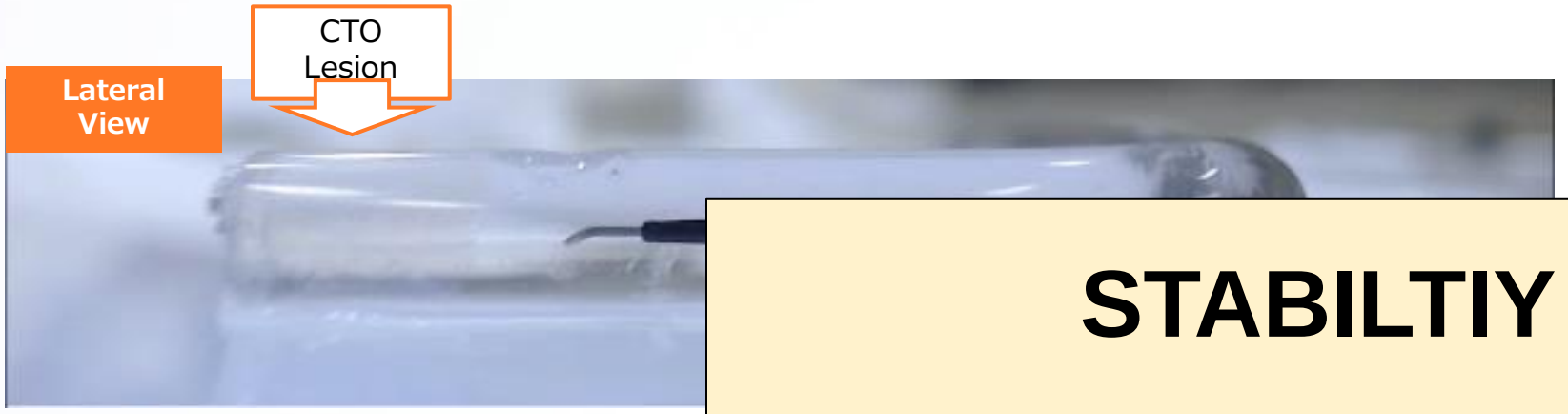
MAJOR SIDE BRANCH NEAR THE PROXIMAL CTO CAP

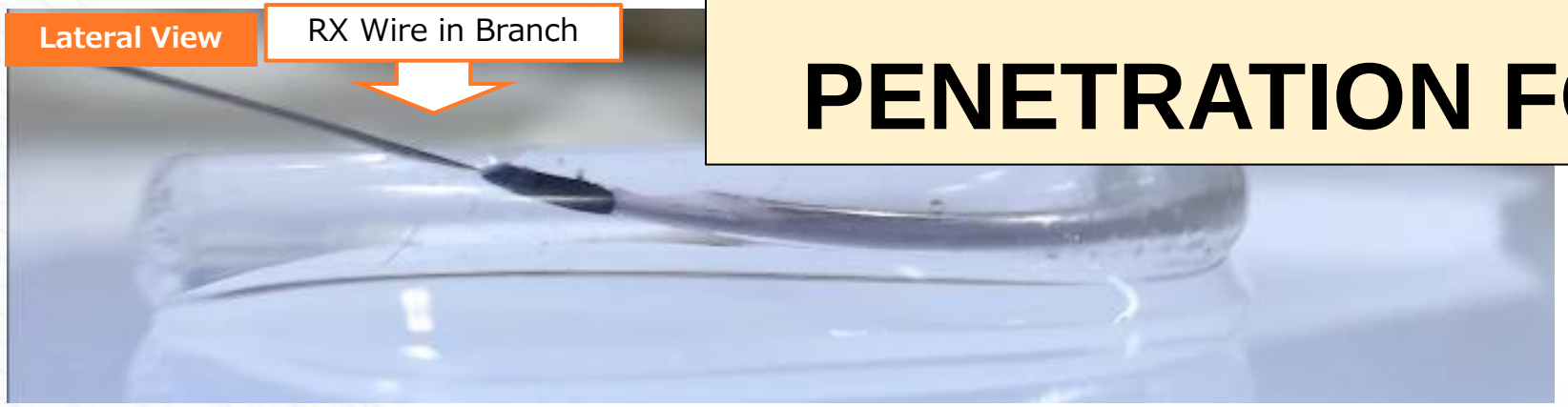
High tip load wire

12g



Wire control with dual lumen microcatheter





STABILTIY

CONTROLLABILITY

PENETRATION FORCE

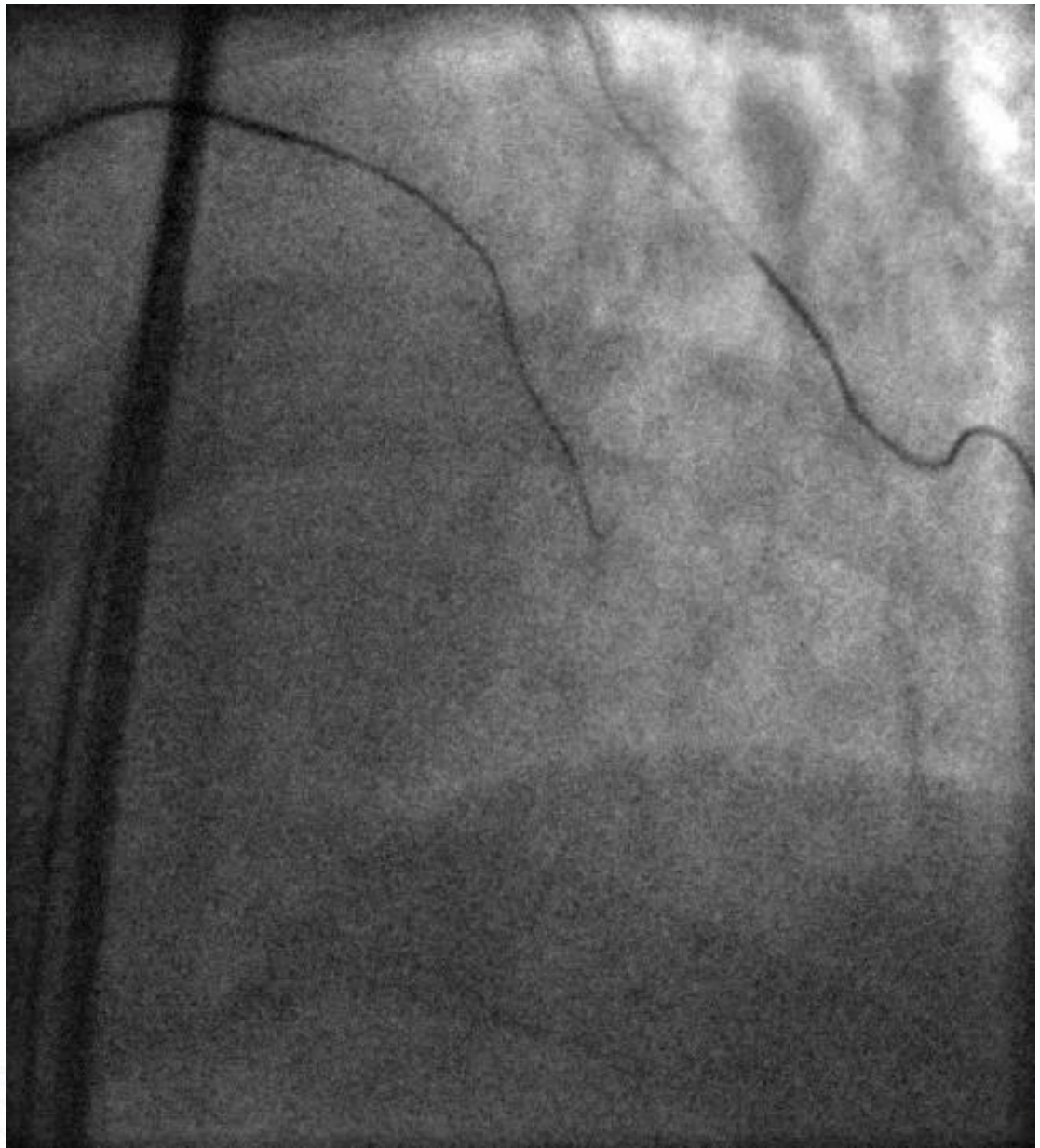
l microcatheter

dual lumen
microcatheter

PARALLEL WIRE TECHNIQUE

Corsair to penetrate the antegrade cap

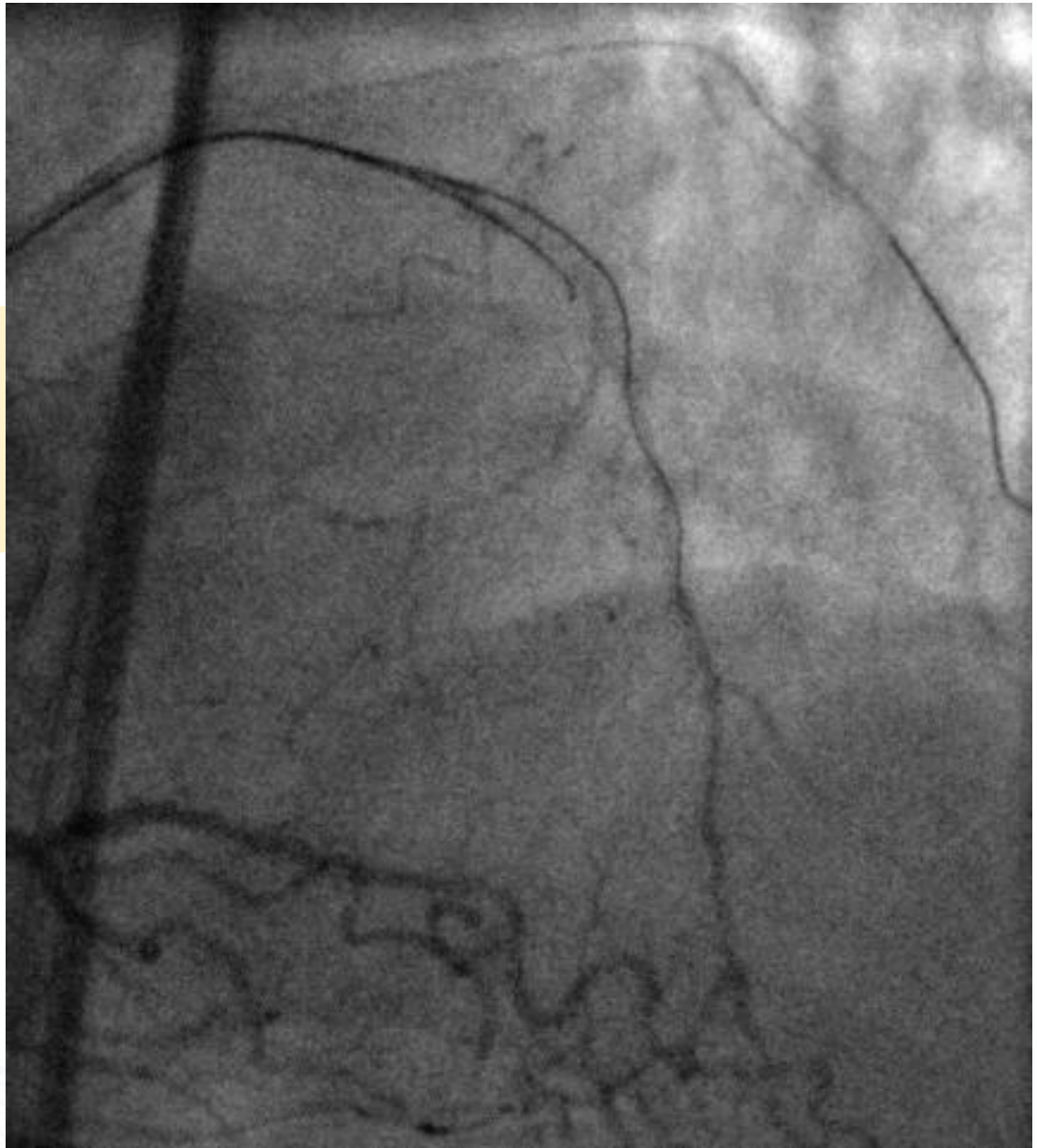
Subintimal wire position



PARALLEL WIRE TECHNIQUE

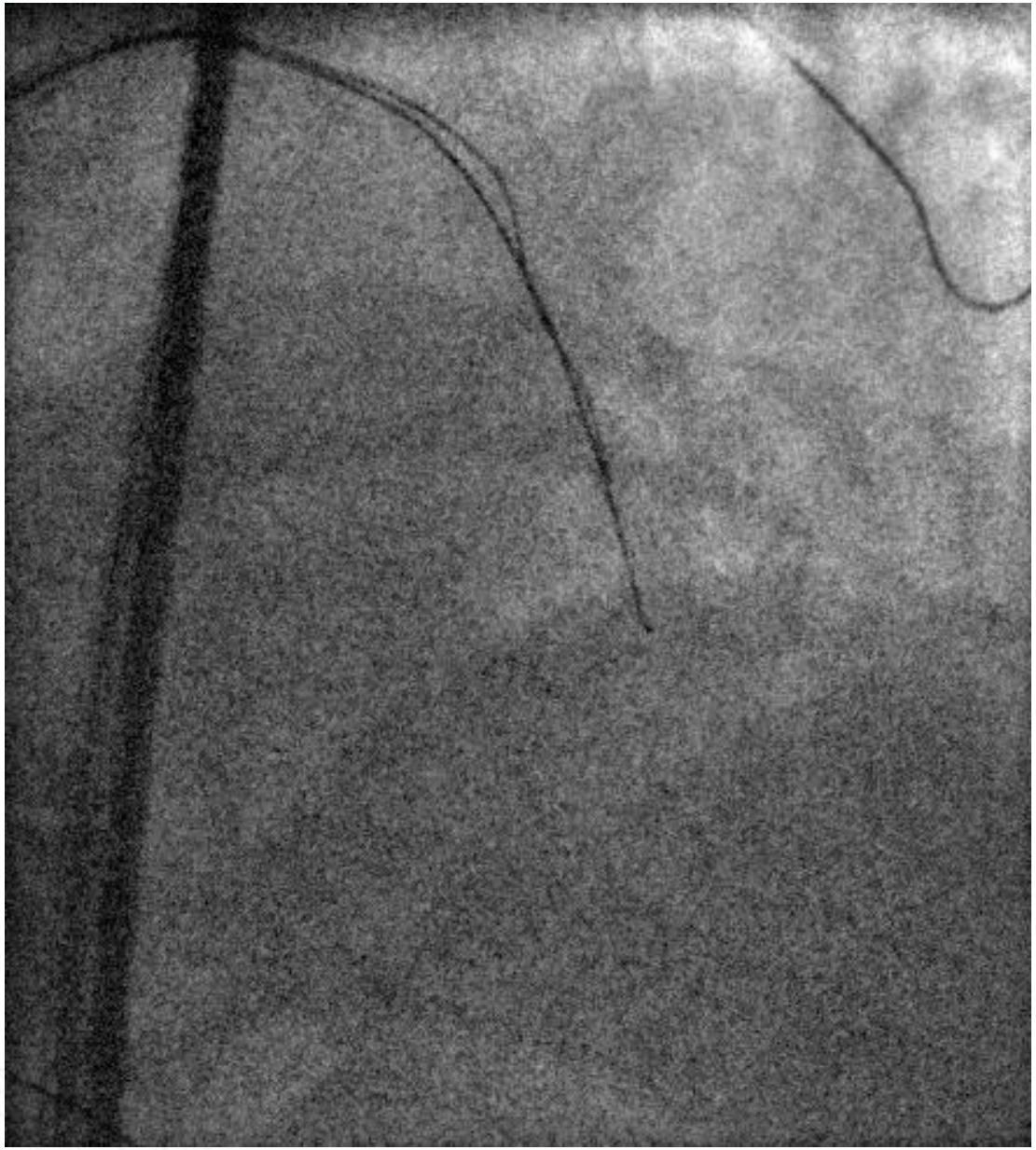
Dual lumen assisted
parallel wire

with Gaia 3rd



PARALLEL WIRE TECHNIQUE

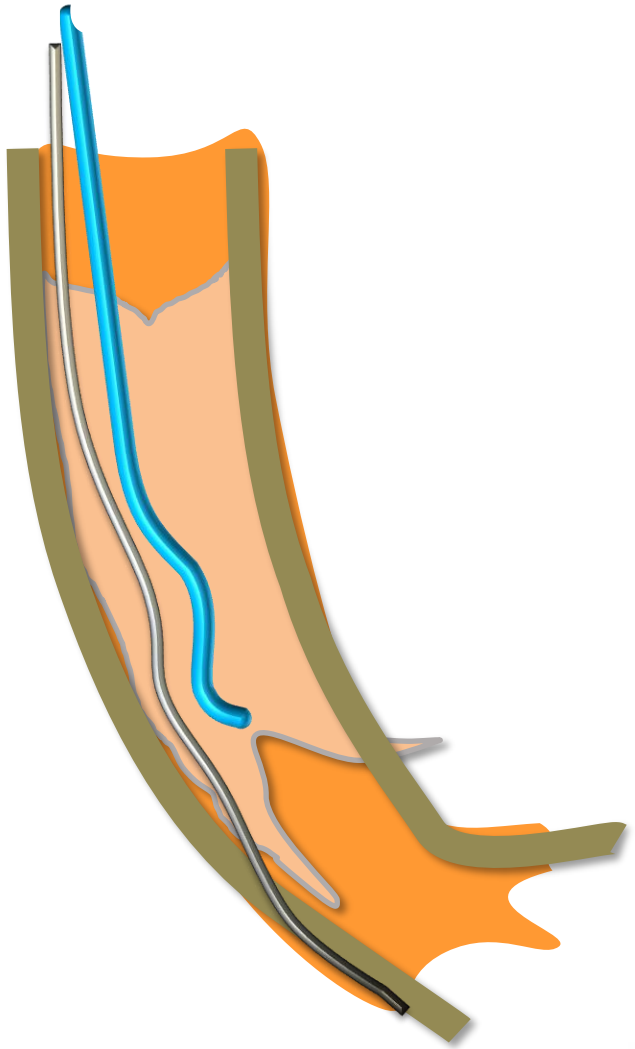
Gaia 3rd – true lumen



PARALLEL WIRE TECHNIQUE

Direct wiring:

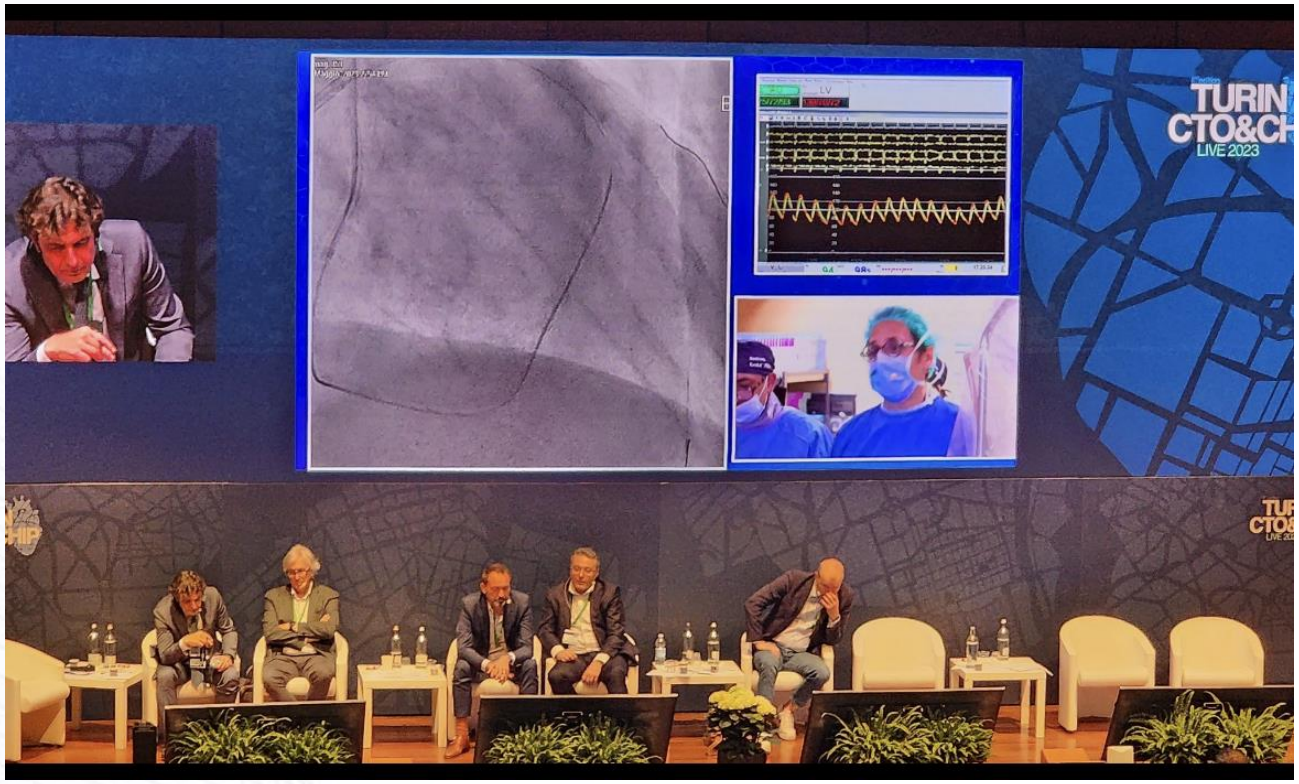
Check in 2 plans before puncturing the cap



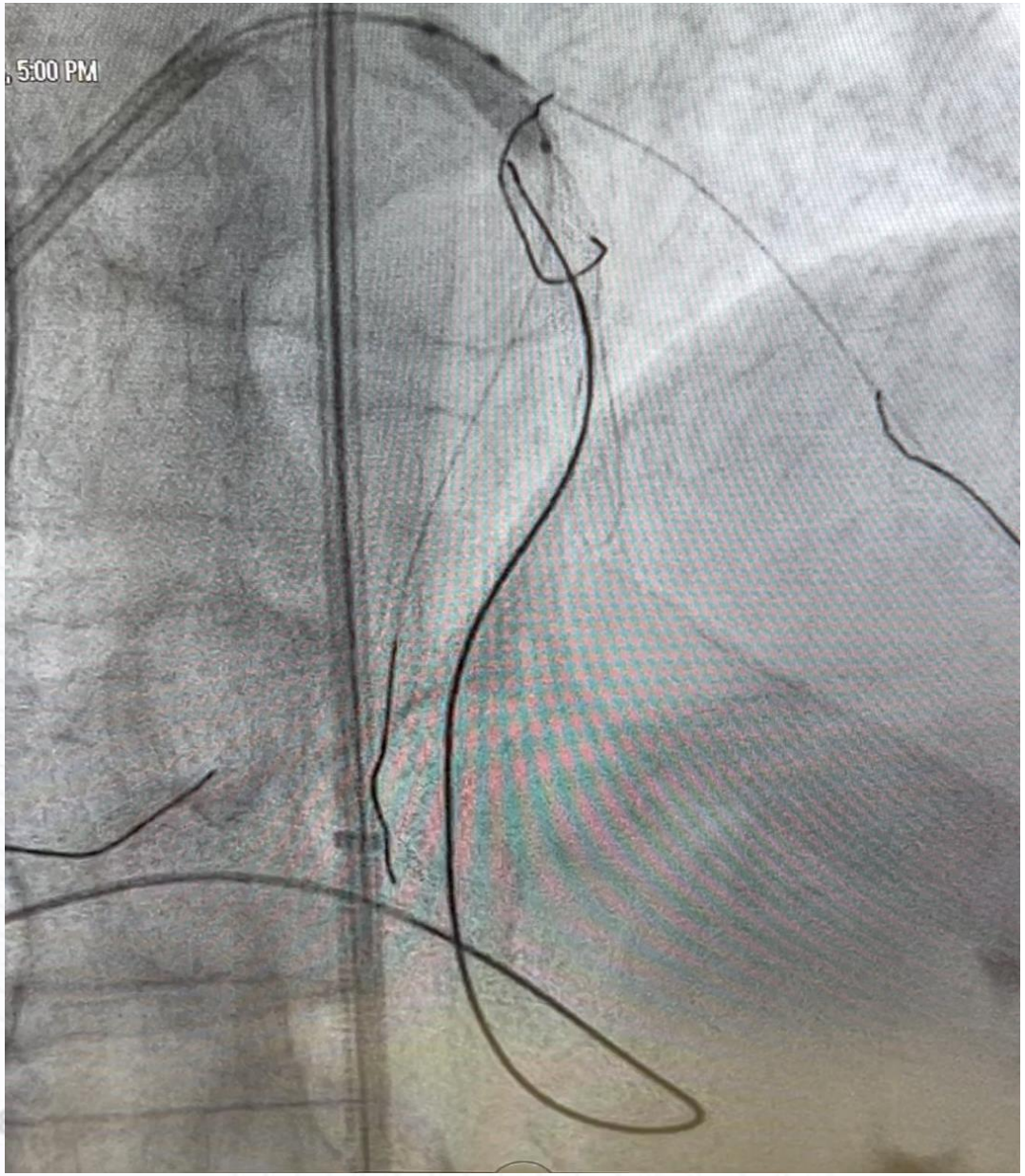
Parallel wire:

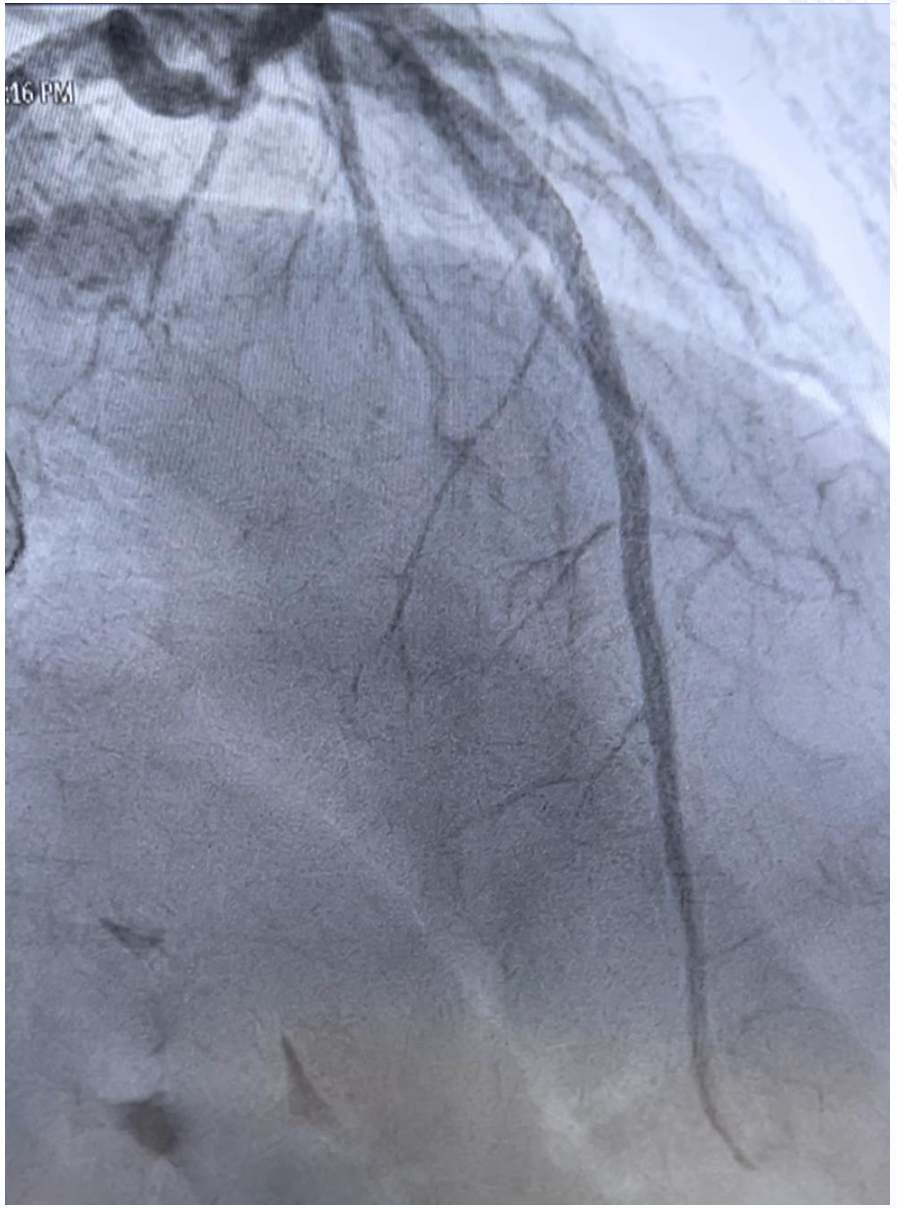
The subinitimal wire shows you where you should not go

LIVE CASE – this week in Turin



LIVE CASE – impenetrable cap - BASE





Summary

There is growing interest in the application of DLMC, especially in CTOs with proximal or distal caps at large bifurcations, and for parallel wiring. A systematic approach is required to exploit all the potential of this important addition to the CTO armamentarium.