

Difficult Wiring, Tips and Tricks

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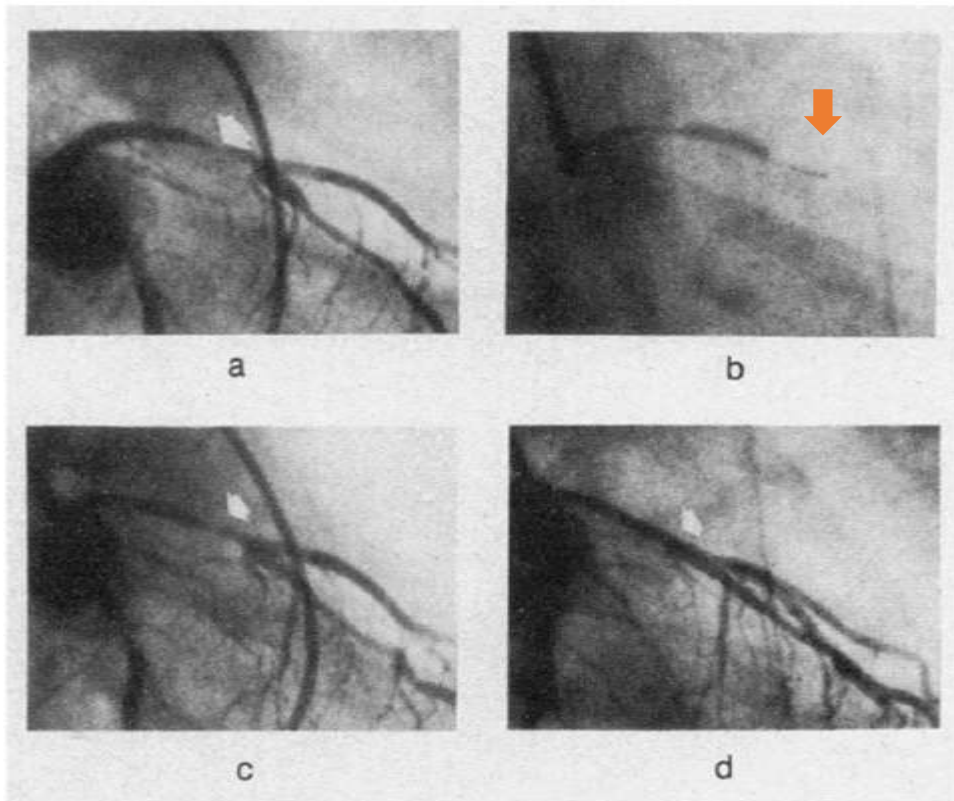
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Coronary Wire

First Coronary Angioplasty By Gruntzig

First Reported By John Simpson



A New Catheter System for Coronary Angioplasty

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A new catheter system has been designed for percutaneous transluminal coronary angioplasty. An independently movable, flexible-tipped guide wire within the balloon dilation catheter facilitates selection of the involved vessel. This guide wire can be passed slowly and carefully beyond the coronary stenosis, permitting safe advancement of the balloon catheter. After testing in animal and cadaver hearts, this system was used in 53

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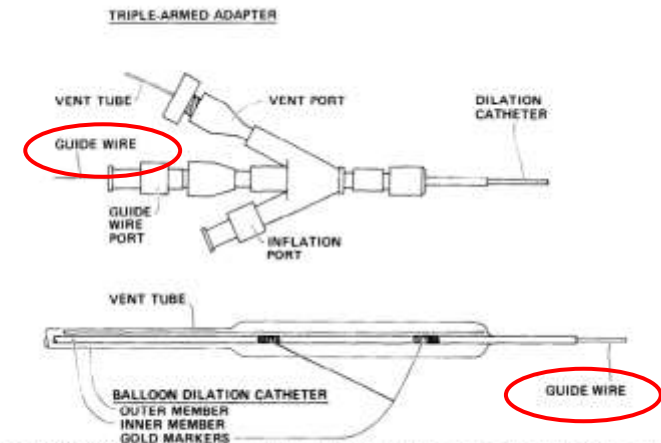


FIGURE 2. Diagram of balloon dilation catheter with components labeled. (The vent tubing is removed after the catheter is filled with contrast medium and before it is inserted into the guiding catheter.)

Short Guidewire Attached To Balloon Catheter

Purpose of Wire

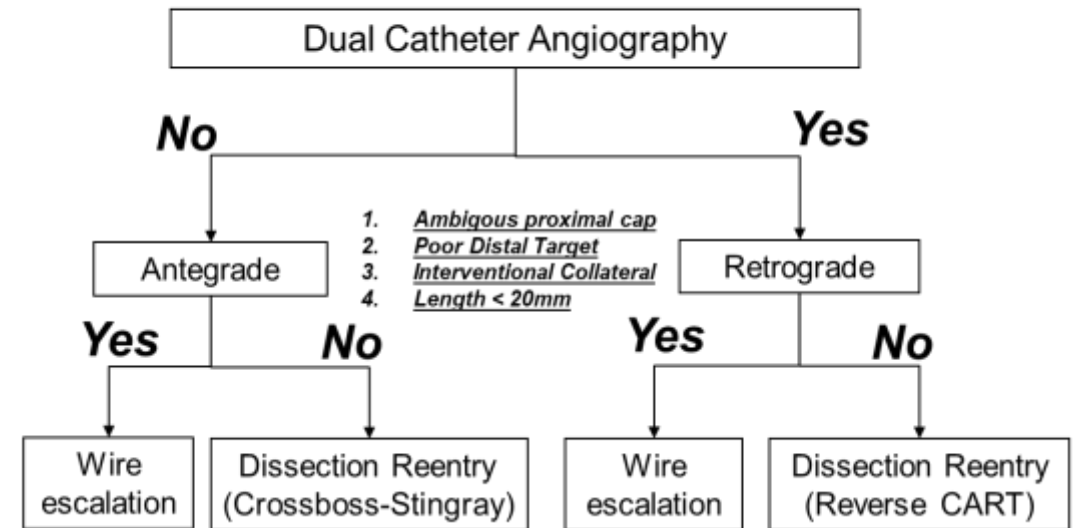
Alpha and Omega

- To Reach Far End of the Vessel
- To Rail the Devices Into Coronaries
- To Access the Lesion
- To Cross the Lesion Atraumatically
- To Provide Support For Interventional Devices
- To Perform Measurements (ex. FFR)

Innovation of Coronary Wire and Technique in CTO

	Composite core (Dual coil)	Tip load (g)	Tip taper	Hydrophilic coating	Polymer jacket
Fielder FC	-	0.8	-	+	+
Fielder XT	-	0.8	+(0.009")	+	+
Fielder XT-R	+	0.6	+(0.010")	+	+
Fielder XT-A	+	1.0	+(0.010")	+	+
SION	+	0.7	-	+	-
SION BLUE	+	0.5	-	+(uncoated distal 15mm)	-
SION BLACK	+	0.8	-	+	+
Gaia 1st	+	1.5	+(0.010")	+	-
Gaia 2nd	+	3.5	+(0.011")	+	-
Gaia 3rd	+	4.5	+(0.012")	+	-
Miracle	-	3,6,12	-	-	-
Conquest pro	-	9,12	+	+(uncoated tip)	-

The Hybrid Algorithm for CTO PCI



Workhorse Wire

1. Nitinol

- BMW
- Turntac/Versaturn
- Runthrough, Minamo

2. Composite Core

- Sion Blue, Suoh 03

3. Dual Coil

- Samurai RC

4. Stainless Steel

- HT Floppy

The Advantage of “Old Friend”

BMW wire

Atraumatic Tip

The Ability to Retain Tip Configuration

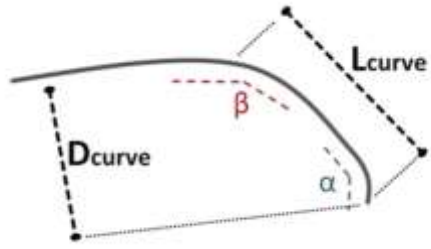
The Dis-advantage

Calcified Lesion

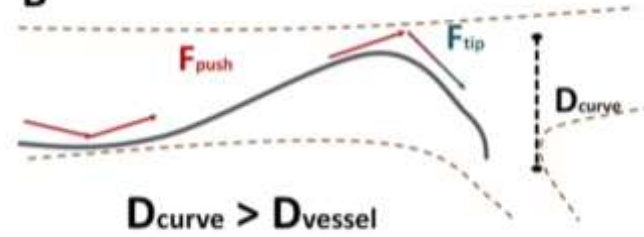
Tortuous and Long Lesion

Tip Shape

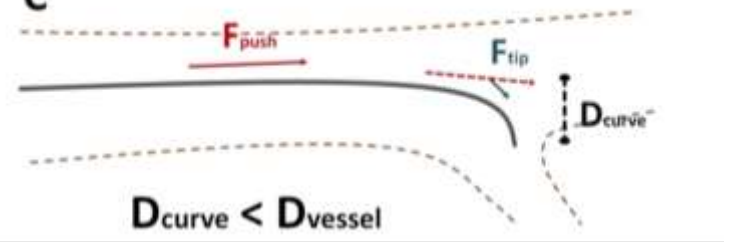
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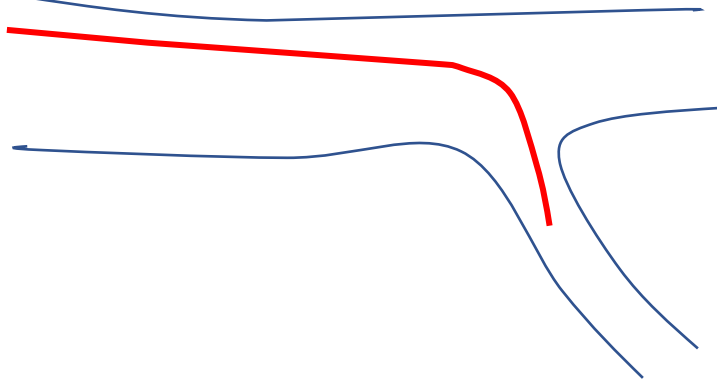
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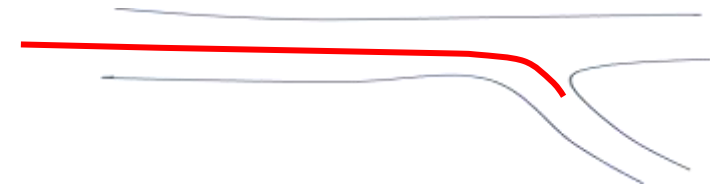
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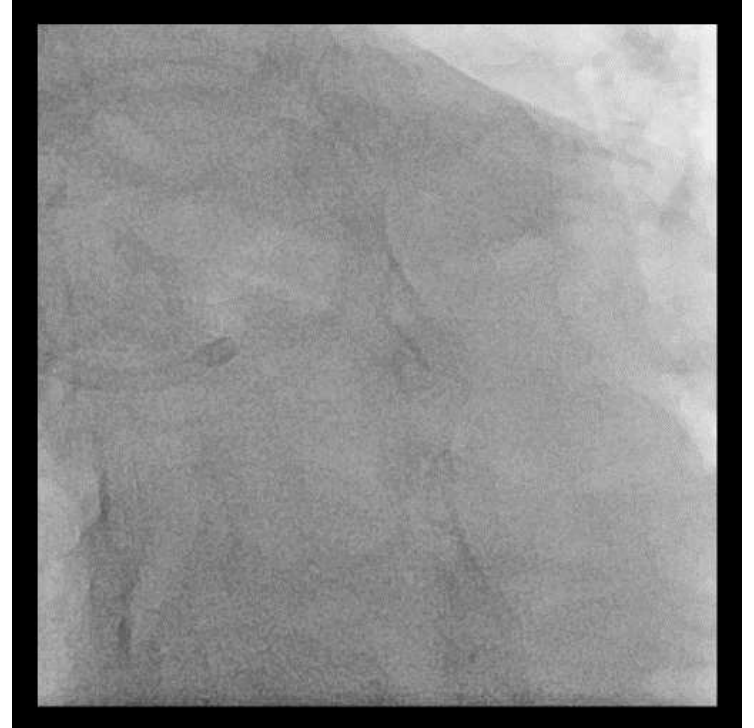
Larger Vessel Larger Curve



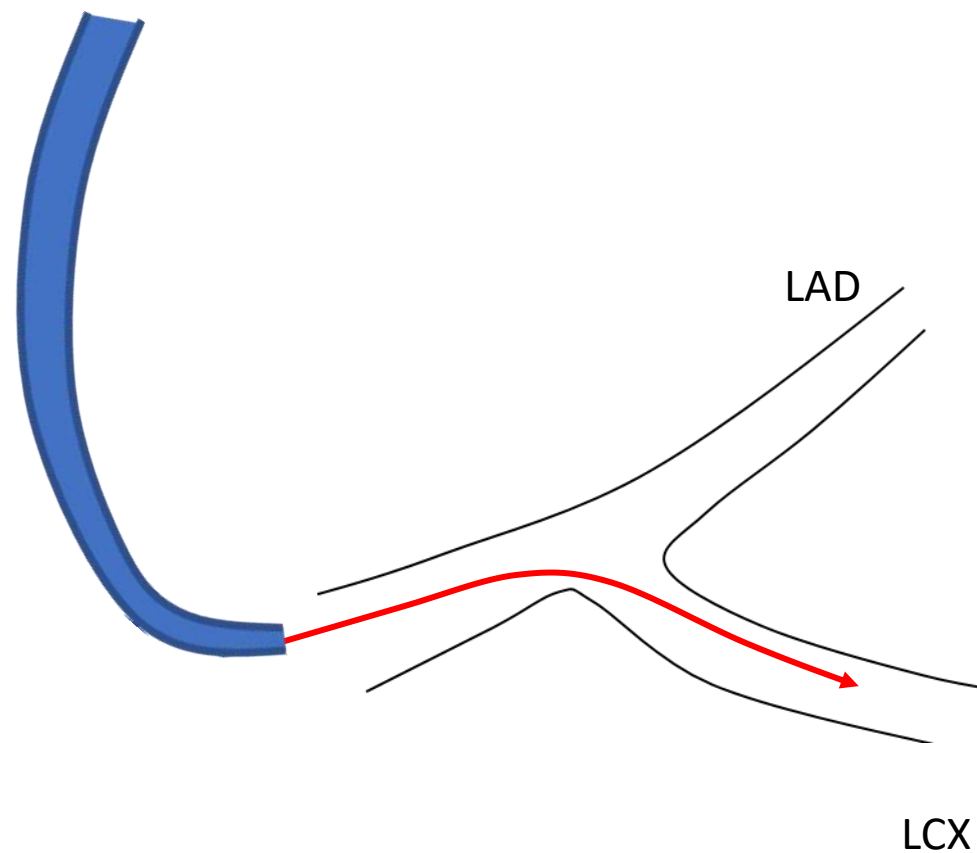
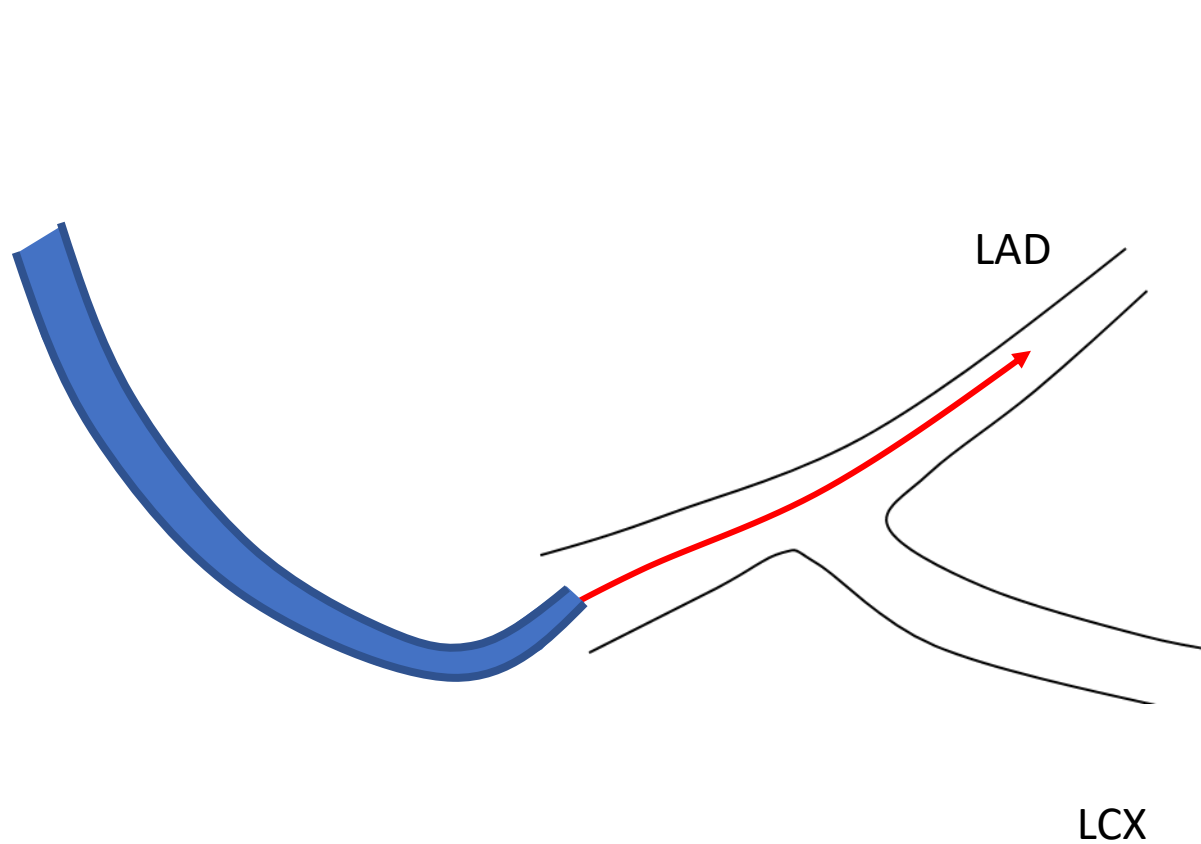
Smaller Vessel Smaller Curve



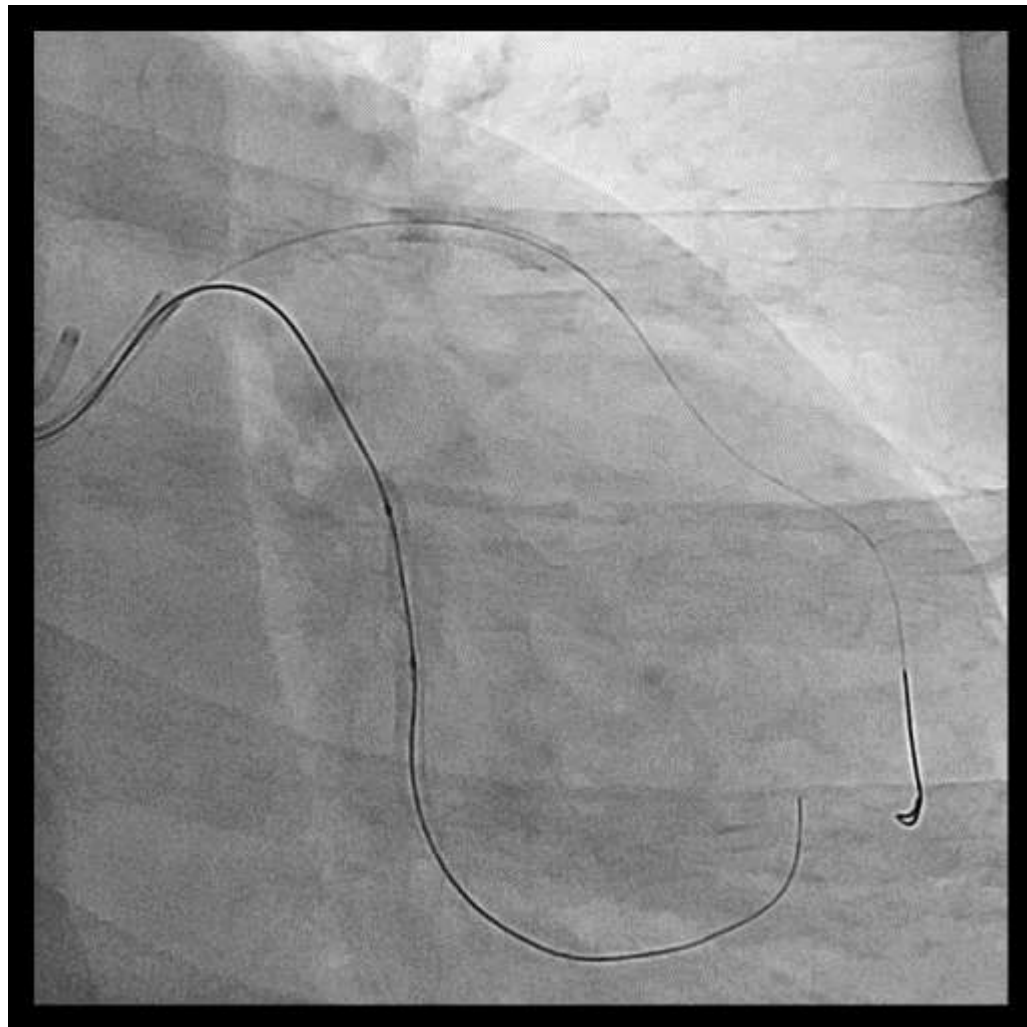
Best View



Guiding Manipulation

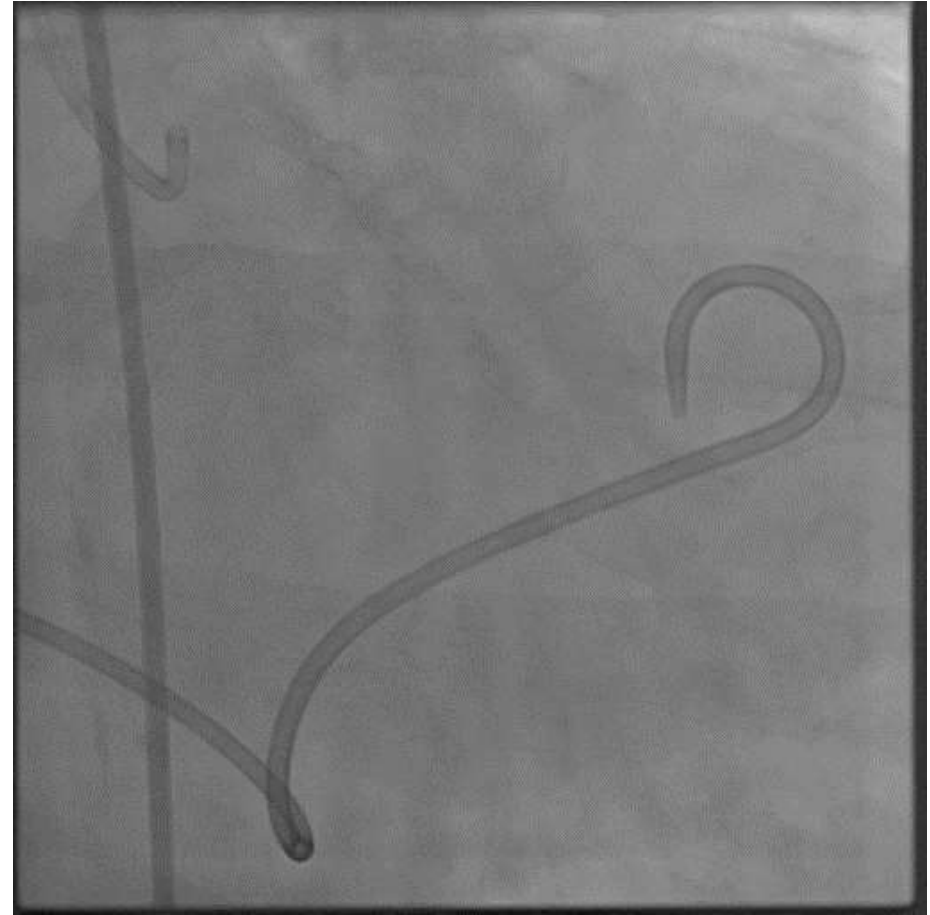
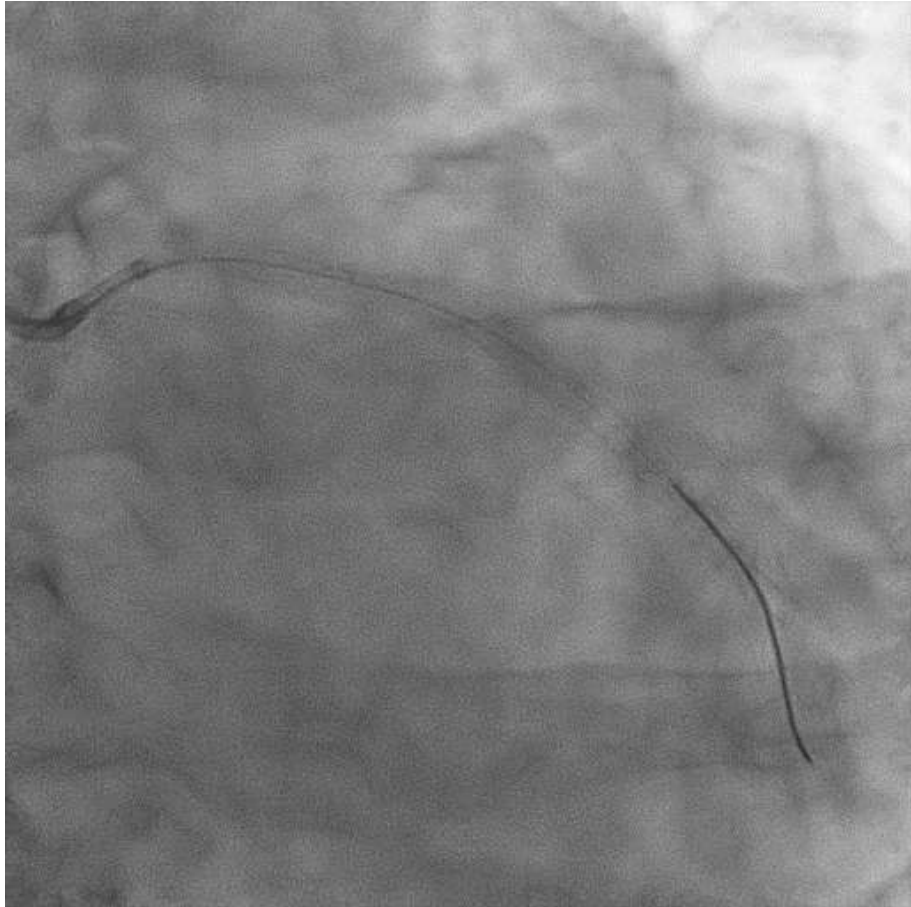


Stable Wire Position



Looping Tip

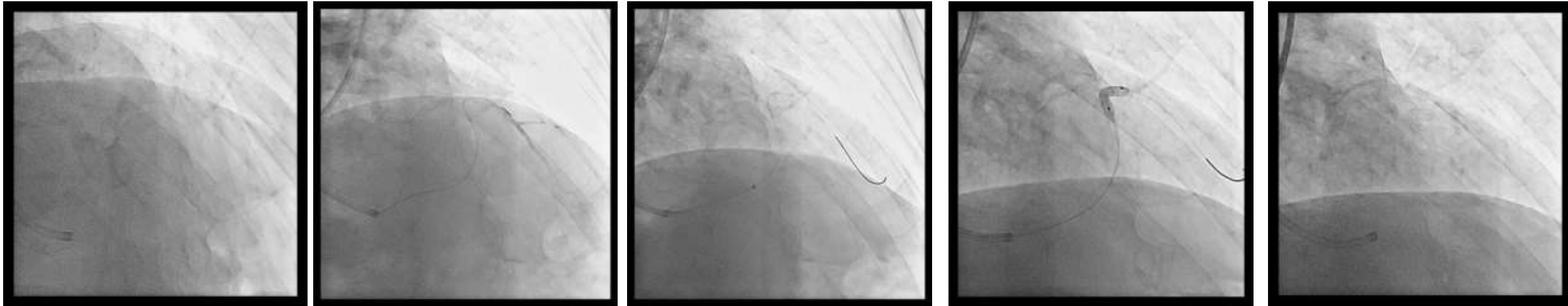
Perforation due to “RUN THROUGH” Wire



Successful Embolization by Gelfoam

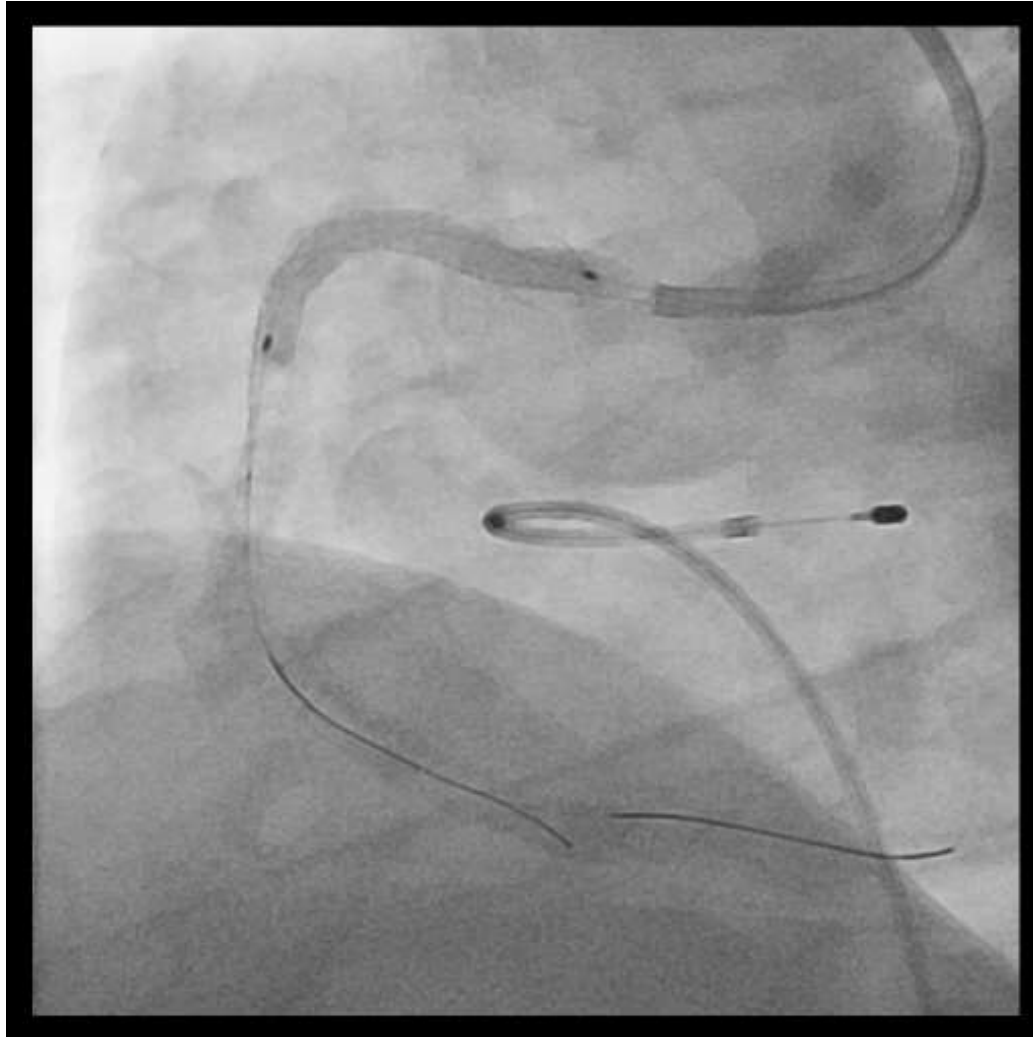
Very Tortuous Vessel

Abnormal Origin of LAD



Daughter Catheter plus Strong Backup Wire

Buddy Wire



Cause of Failure To Cross The Lesion

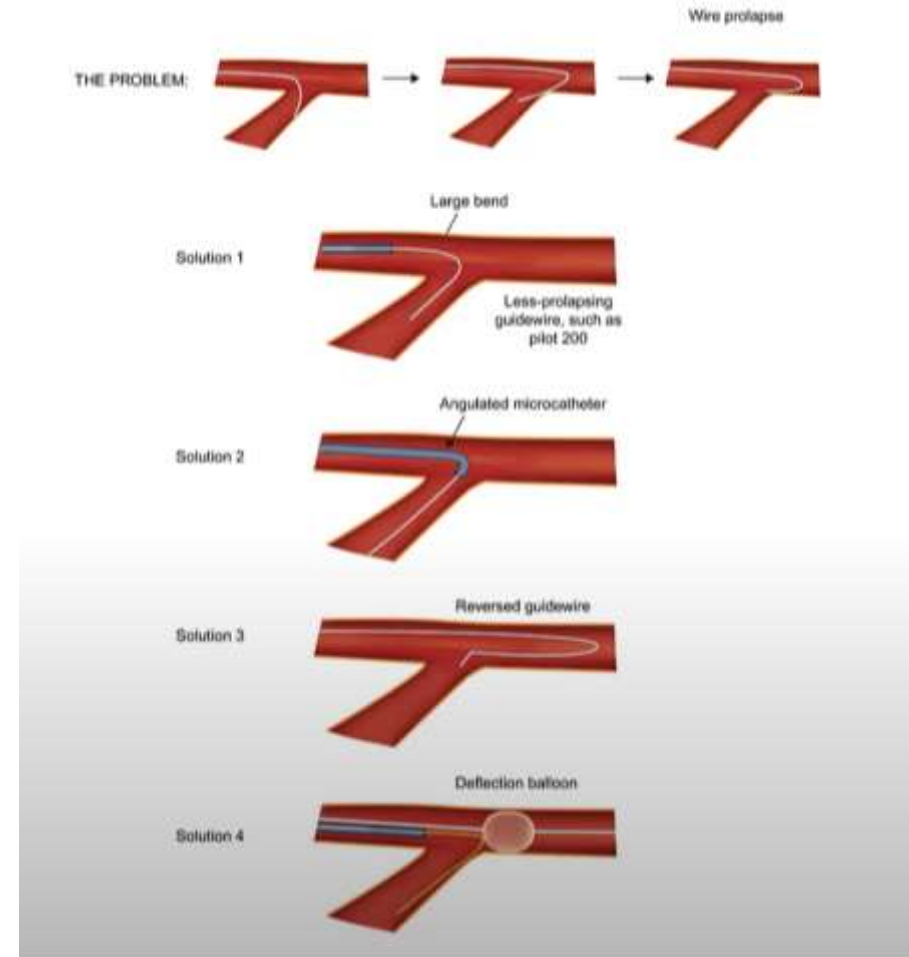
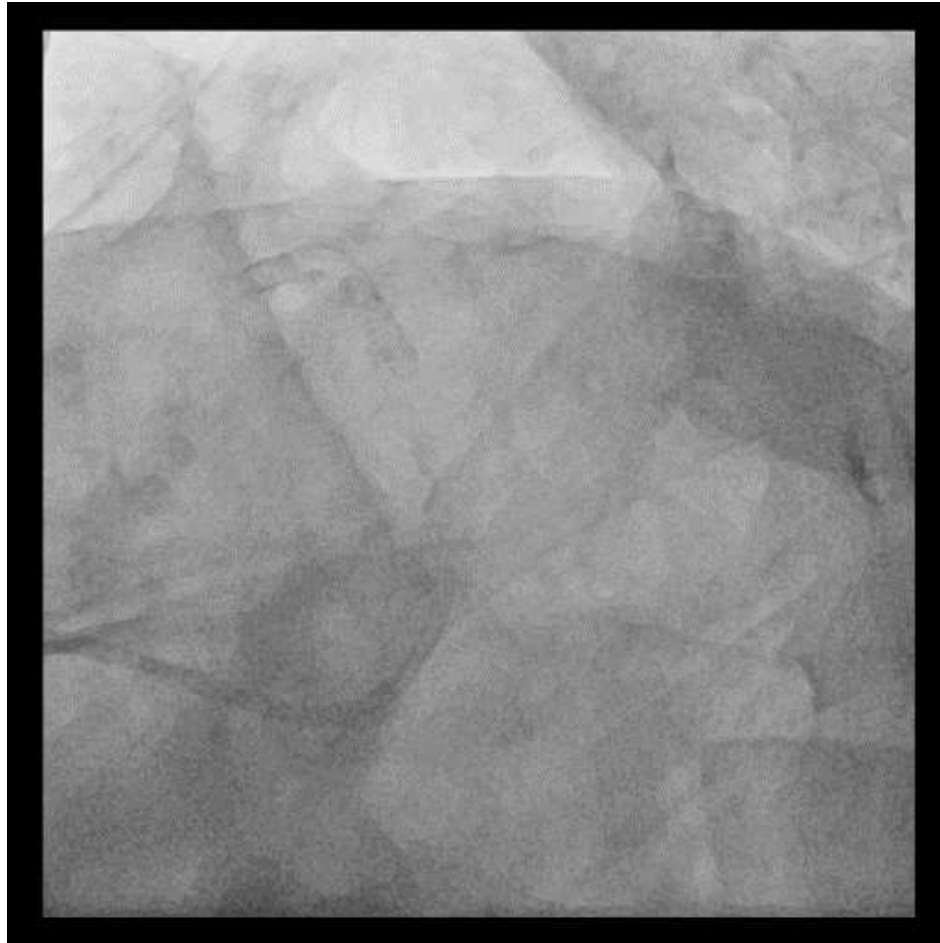
Cause

- Highly Stenotic/Calcified
- Suboptimal Guidewire Tip
- Tortuosity
- Poor Support

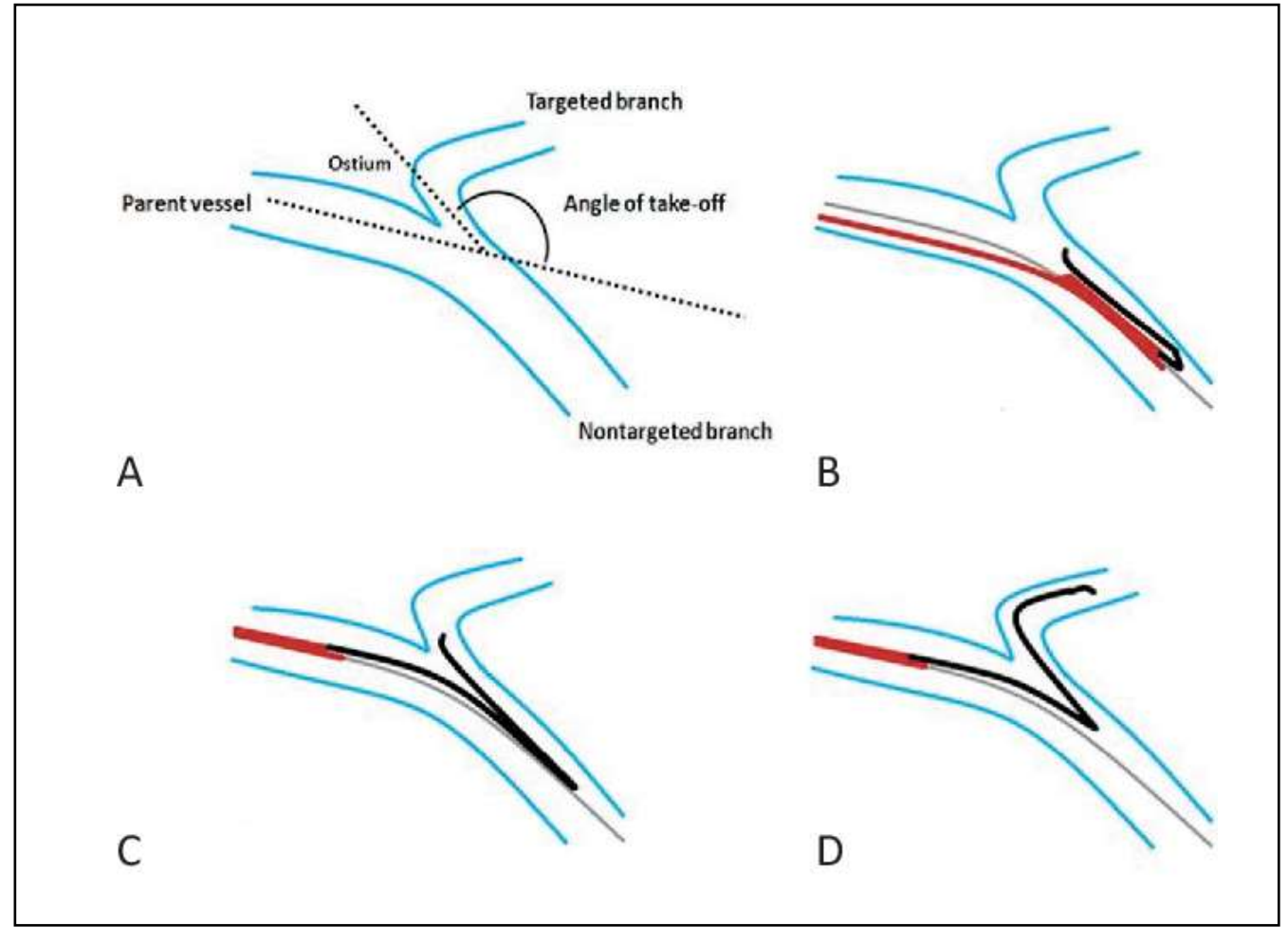
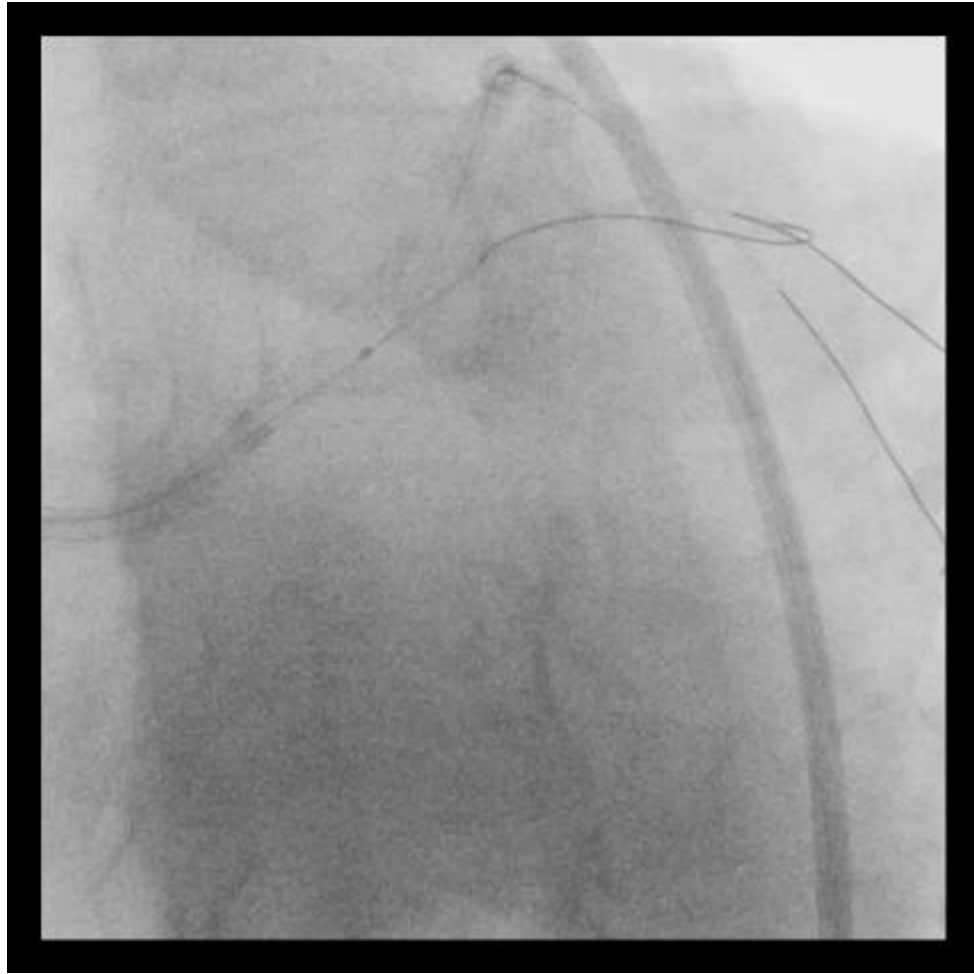
Solution

- Change Tip Shape
- Different Guide-wire
- Microcatheter

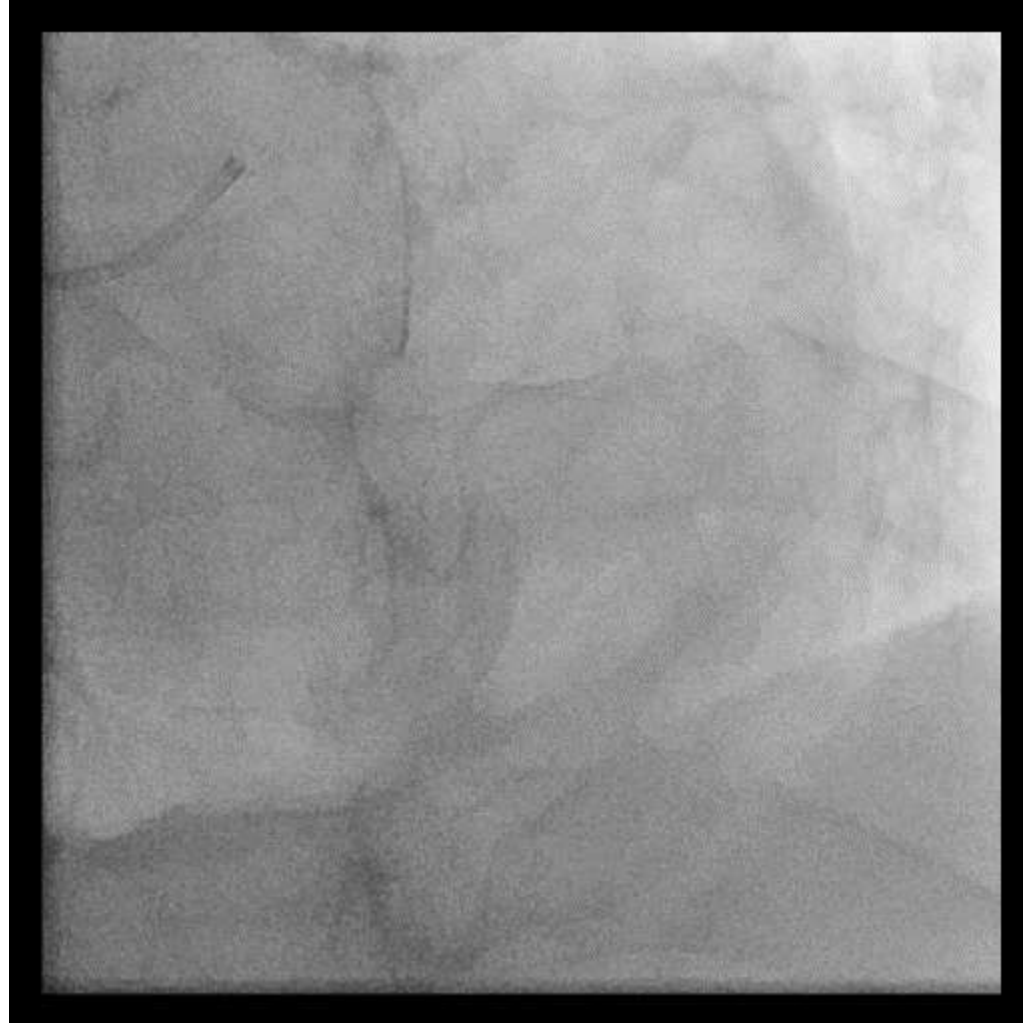
Wiring Through Angulated Bifurcation



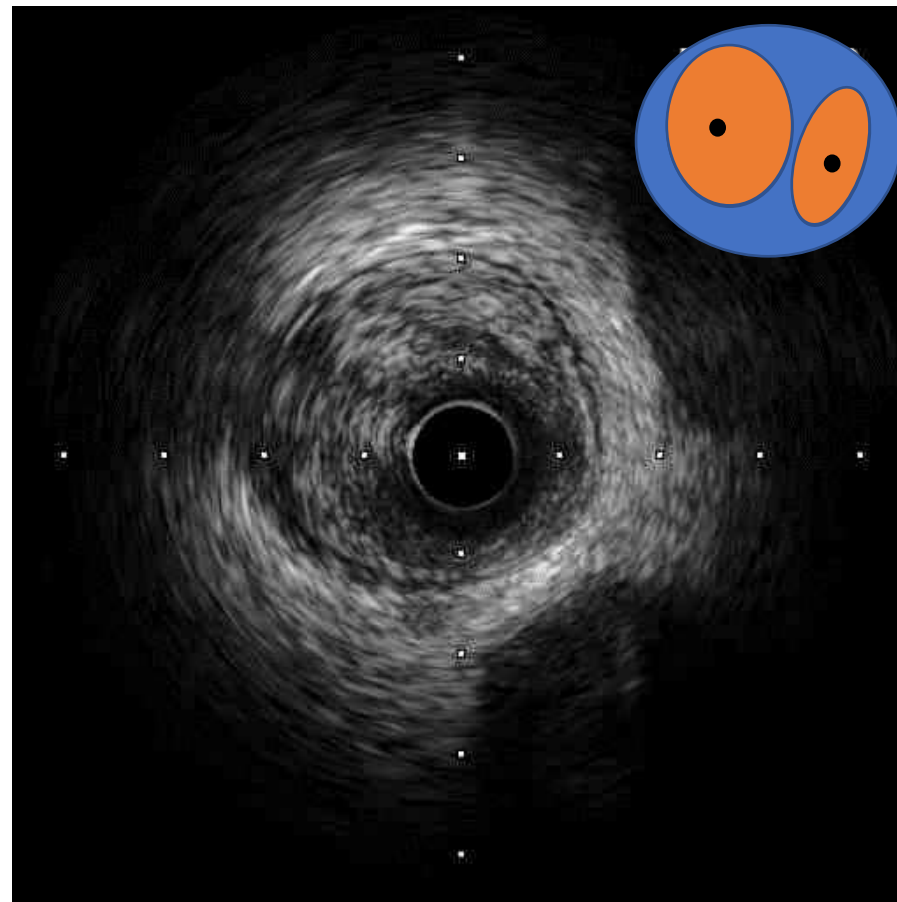
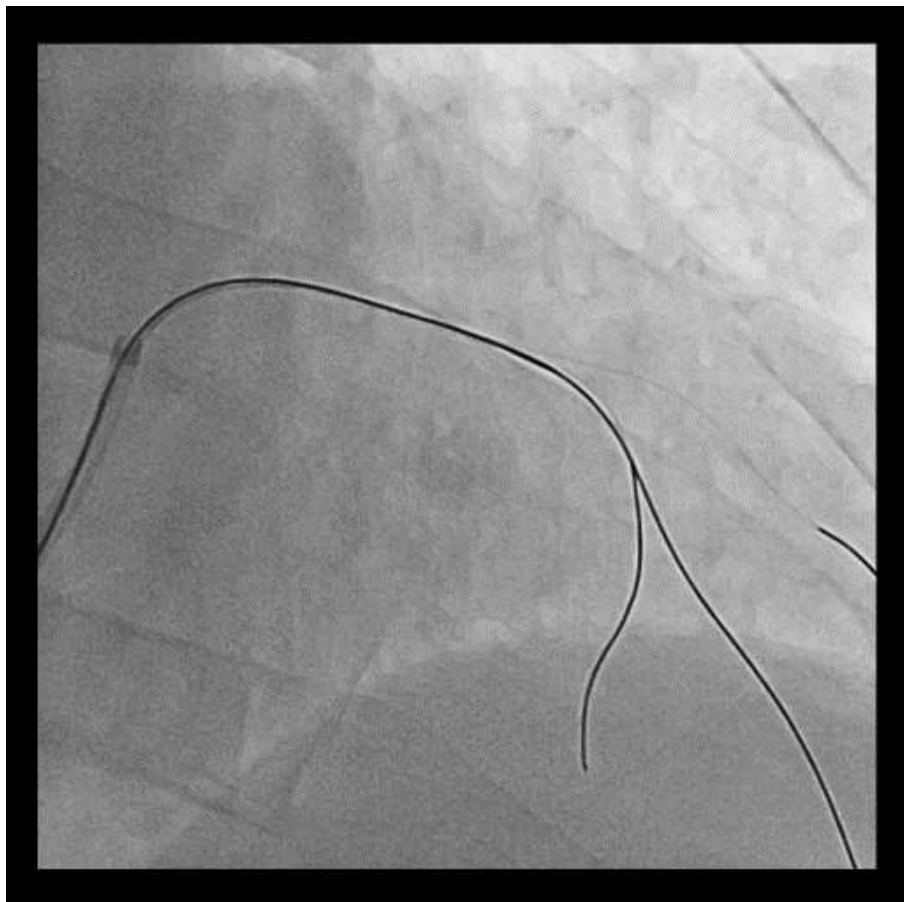
Wiring Through Angulated Bifurcation



Cautious Situation

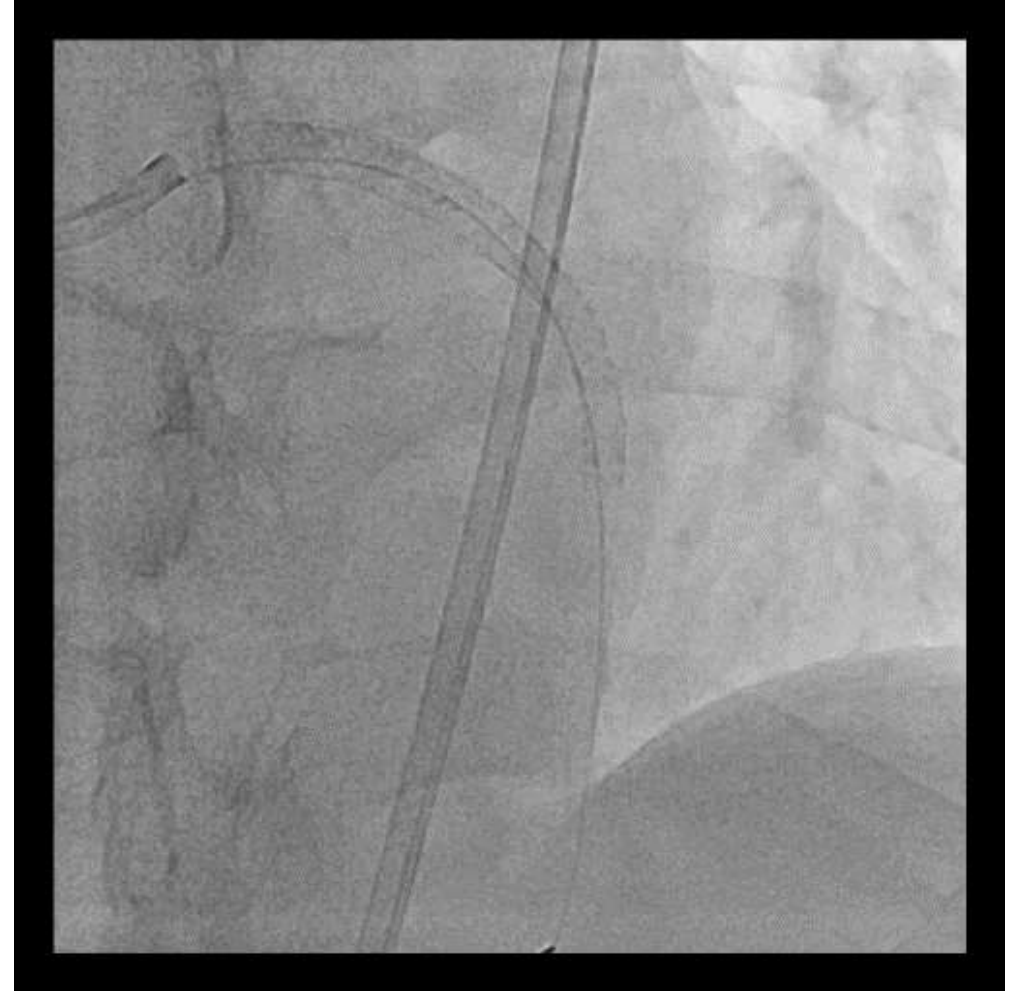


Cautious Situation



Wire Protection for Side Branch !!

Don't Make Complicated Situations



Wire Protection for Side Branch !!

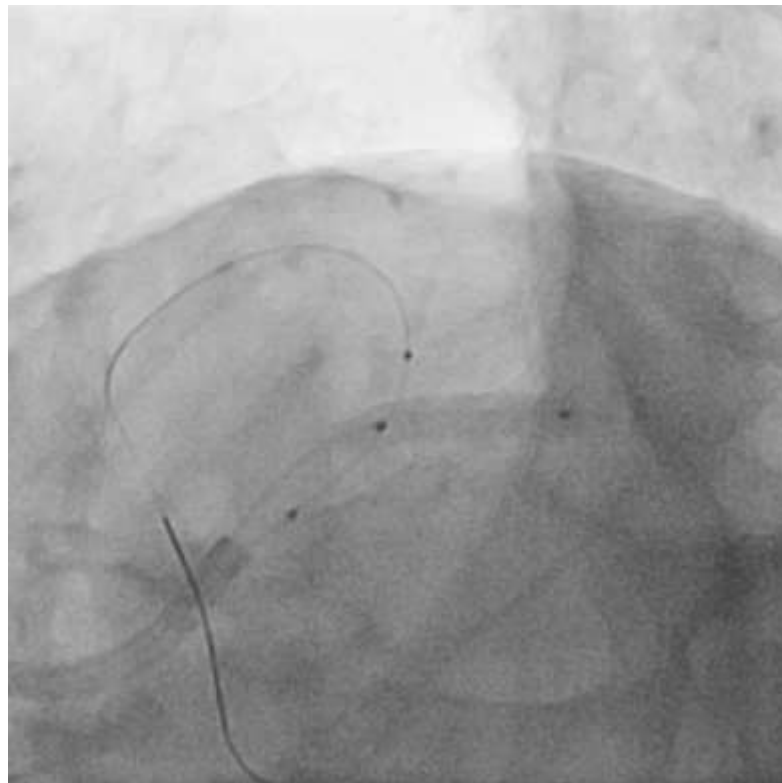
Don't Make Complicated Situations



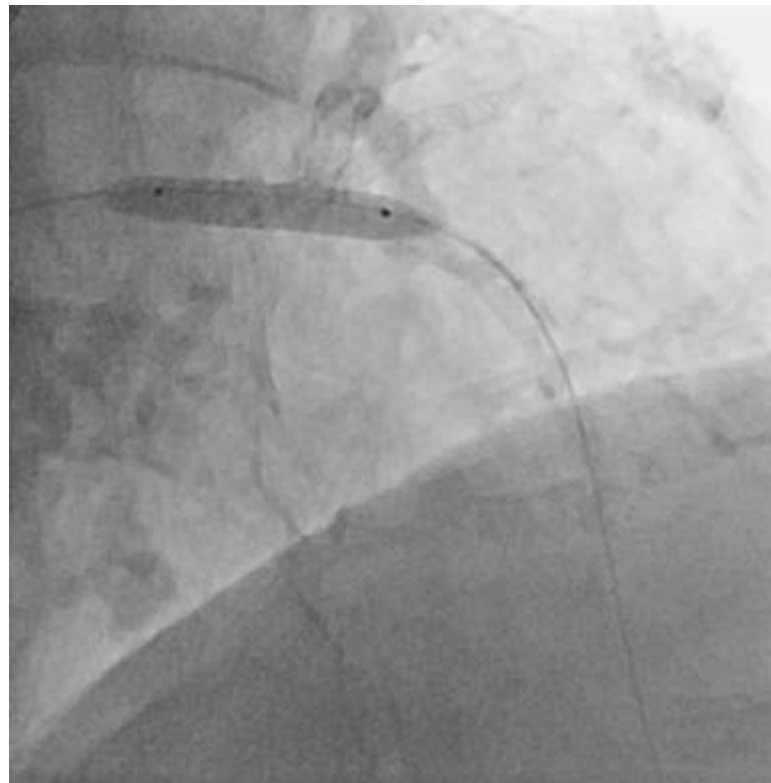
CTO technique may be helpful for the situation with difficult wiring.

Easy Rewiring Through Side Branch in Two Stenting

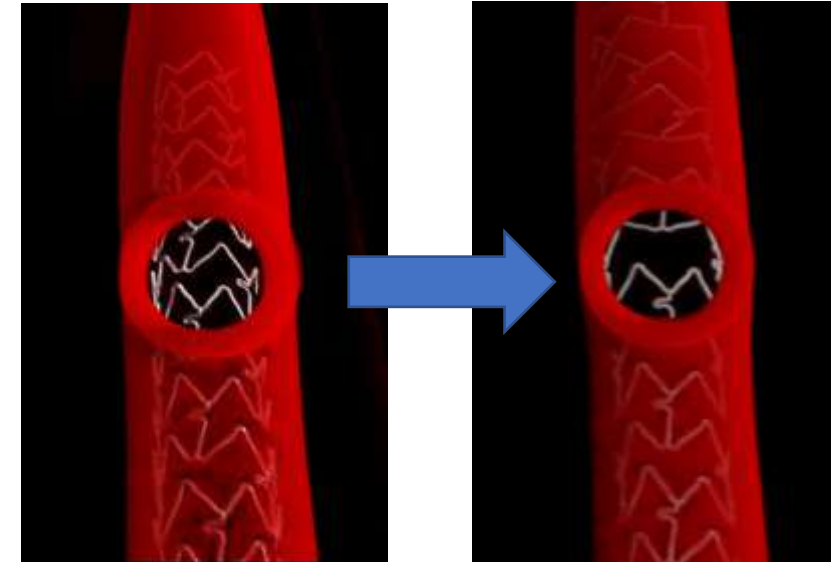
Pre-conditioning For Rewiring



High-Pressure at LCX Ostial Stent
Before Crush



Main Branch Stent Optimization



Xience 3.0mm after deployment
at NP (9 ATM)

After POT
(3.5 mm proximal)

Summary

- In the difficult situation for wiring, imagination and smart choice for strategy and device are more important than manual technique itself.
- Please do not make a complex situation
- Please make the precondition for easy wiring
- Learning CTO technique may be helpful in the situation for difficult wiring.