

Back to the Fundament: Techniques and Selection of Antegrade Guidewires

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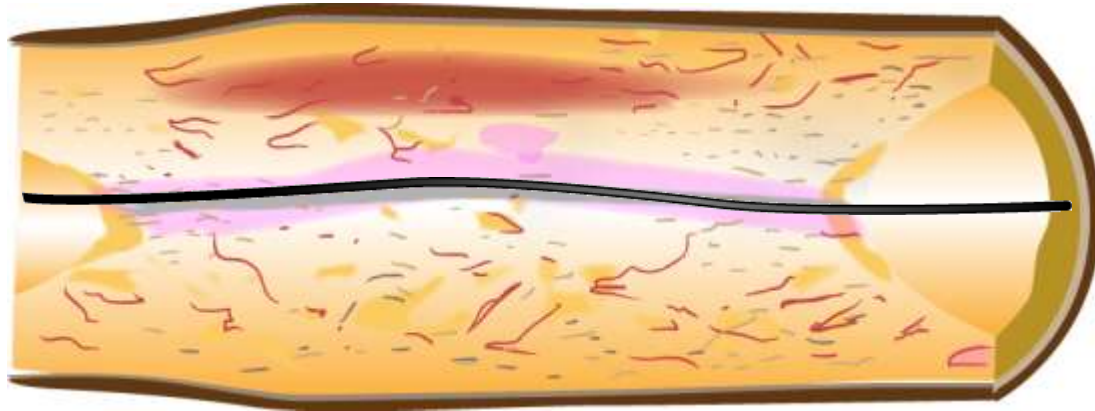
Japan



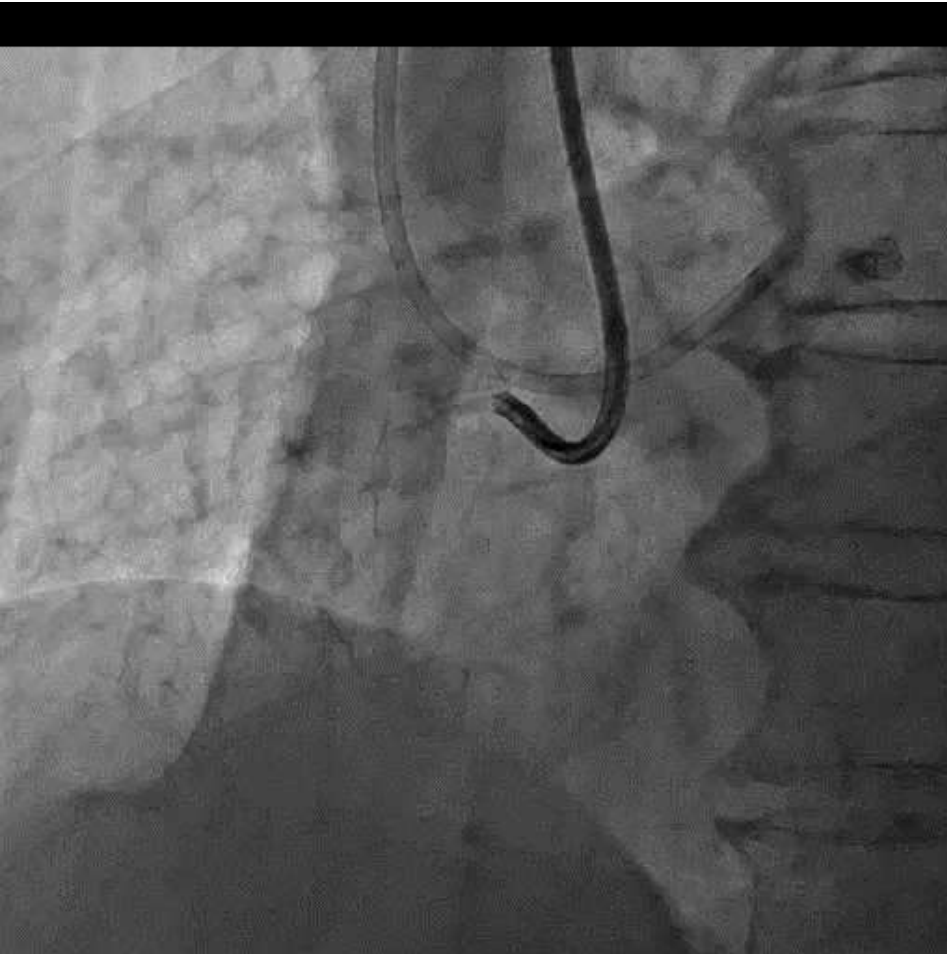
Micro channel selection by tapering tip Guide wires

Micro channel selection and loose tissue tracking

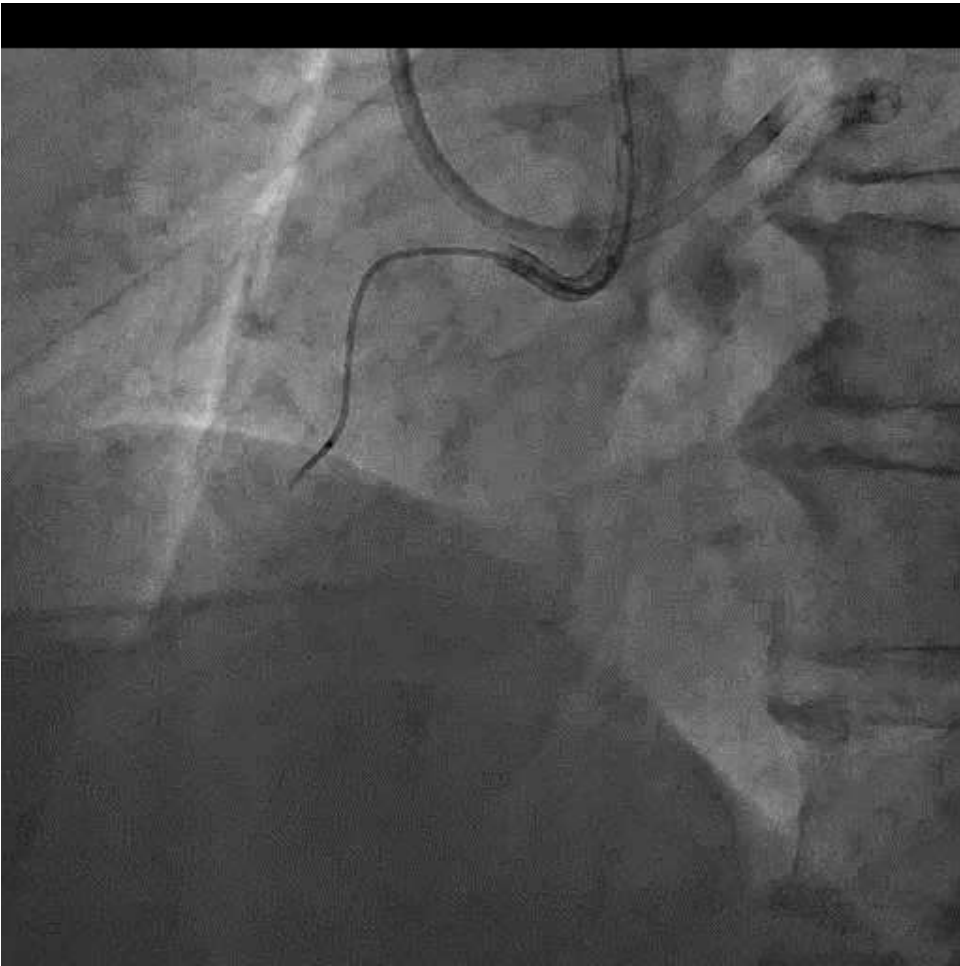
- Floppy tip → prevention for subintimal dissection
- Small tip profile → advance into the lesion
- Lubricity and torque response → crossing the lesion

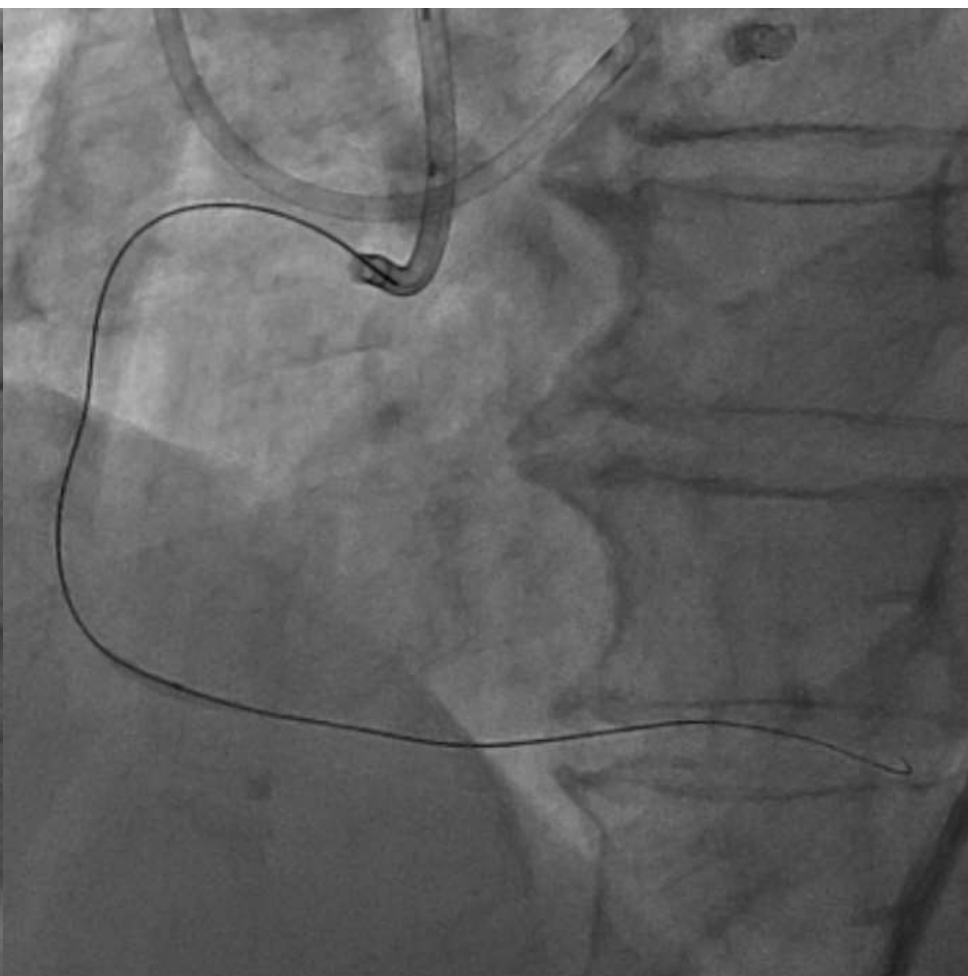


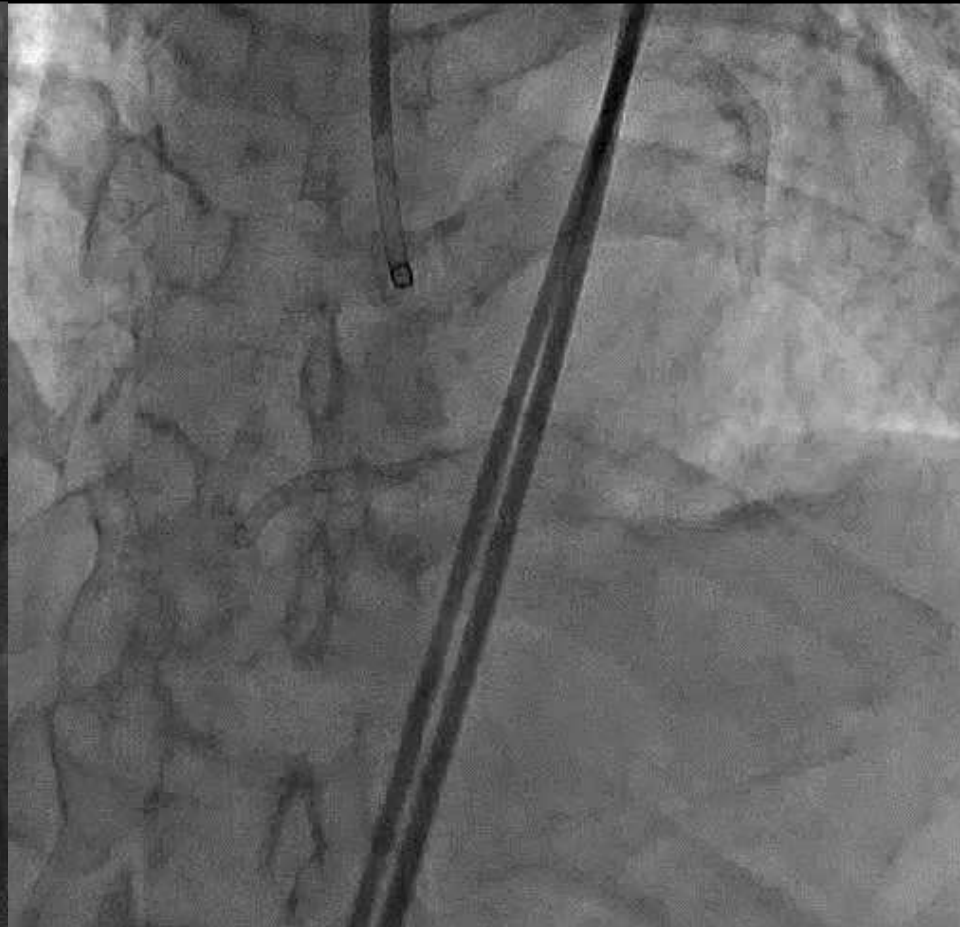
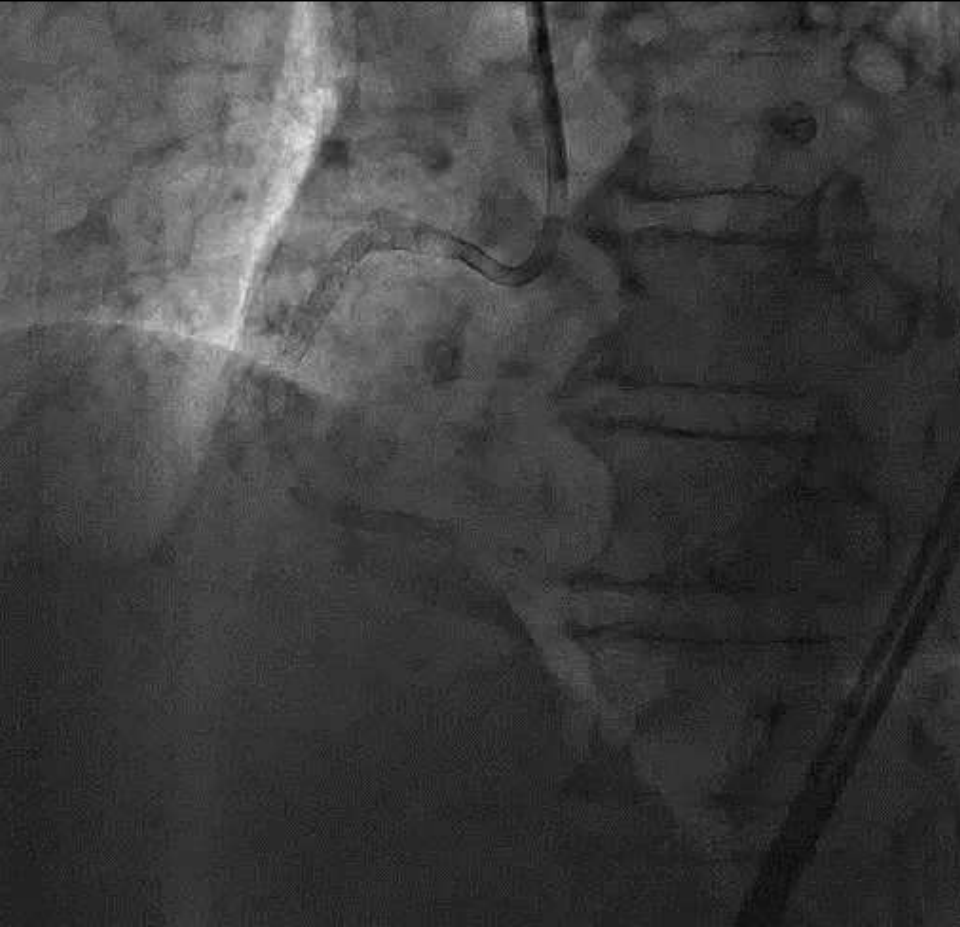
RCA CTO lesion





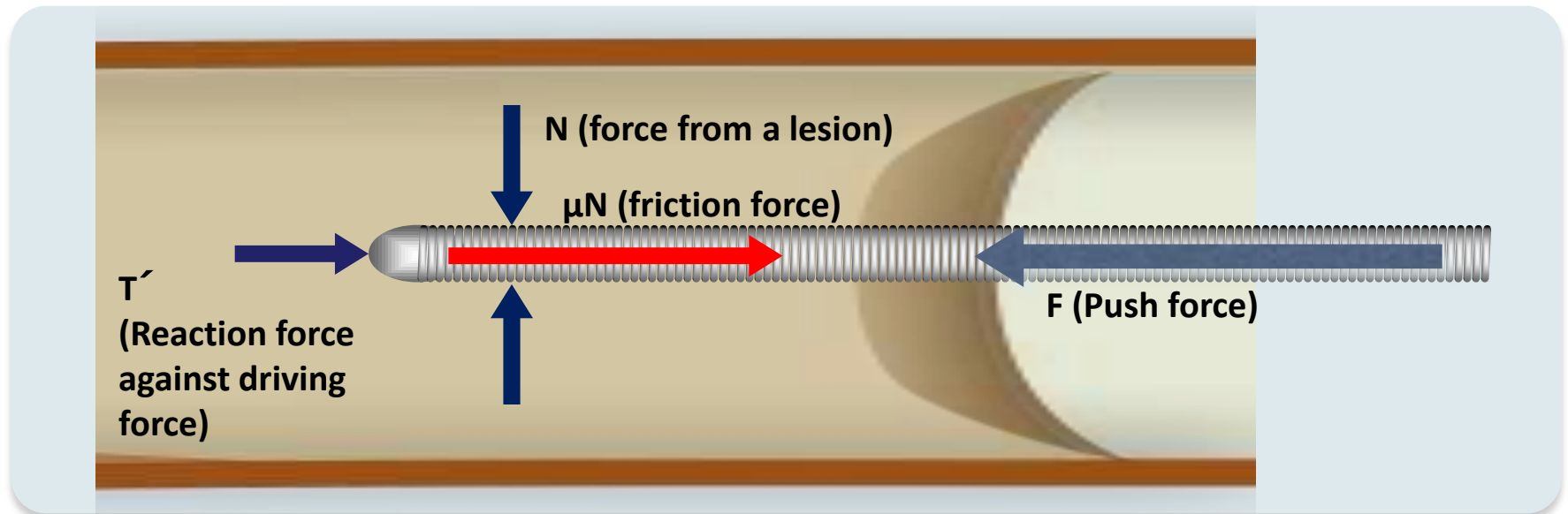






Thinking the guide wire movement in the occlusion: Definition of tip deflection

The friction caused by pushing an unshaped guide wire in a homogeneous lesion.

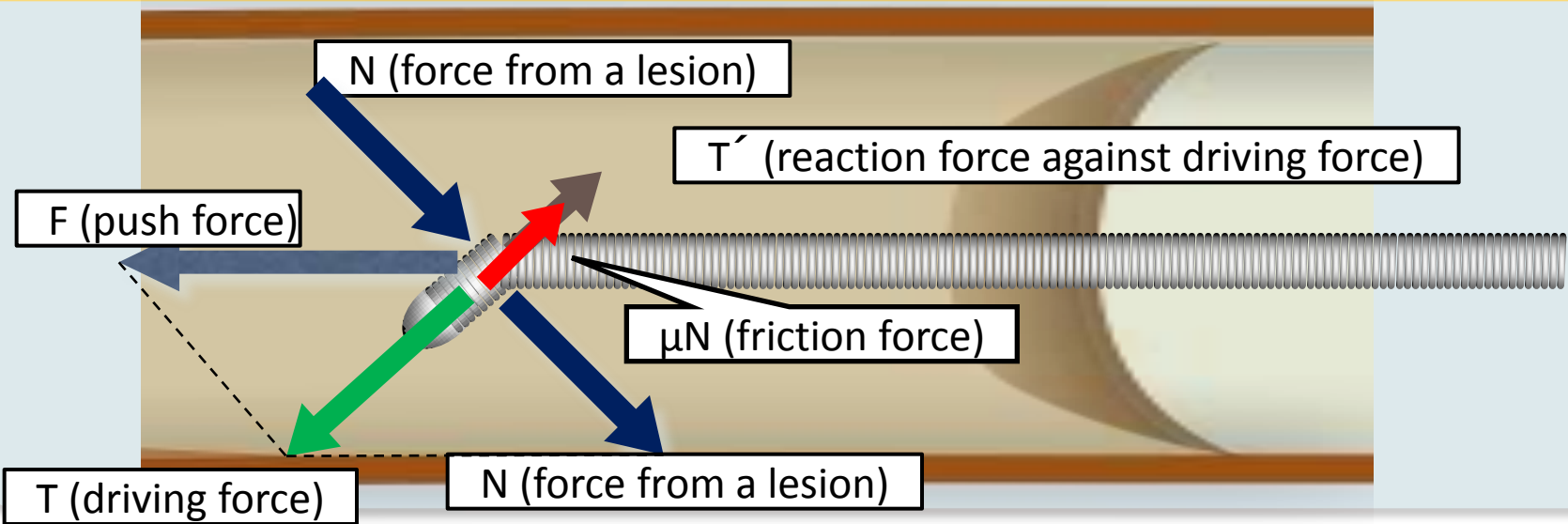


- Guidewire is acted on only by longitudinal (push force) and vertical forces (from the lesion resistance).
- In a homogeneous lesion, the force from the lesion (N) is consistently multidirectional, and is therefore offset.

⇒ Guidewire advances straight, via the longitudinal force.

Definition of tip deflection

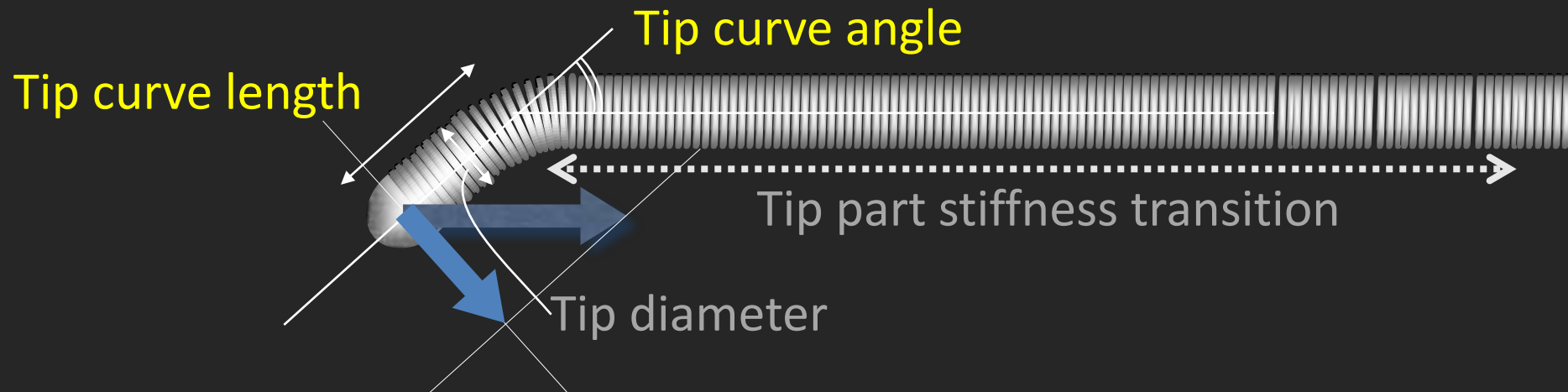
The friction from pushing a shaped guidewire in a homogeneous lesion.



- The longitudinal force (F) caused by pushing a guide wire.
- The push force (F) meets resistance (N) at the tip curve.
- Guide wire advances in the direction of the driving force (T), offset by the resistance (N).
- As a result, guide wire advances to (T) direction and causes a friction force (μN) and reaction force against driving force

Mechanism of deflection

The influence of tip curve in tip deflection



- ✓ Tip curve length and angle
⇒ Possible to control
- ✓ Tip diameter and tip part stiffness transition
⇒ Characteristics of the guide wire itself





Conquest Pro 30°





Conquest Pro 60°

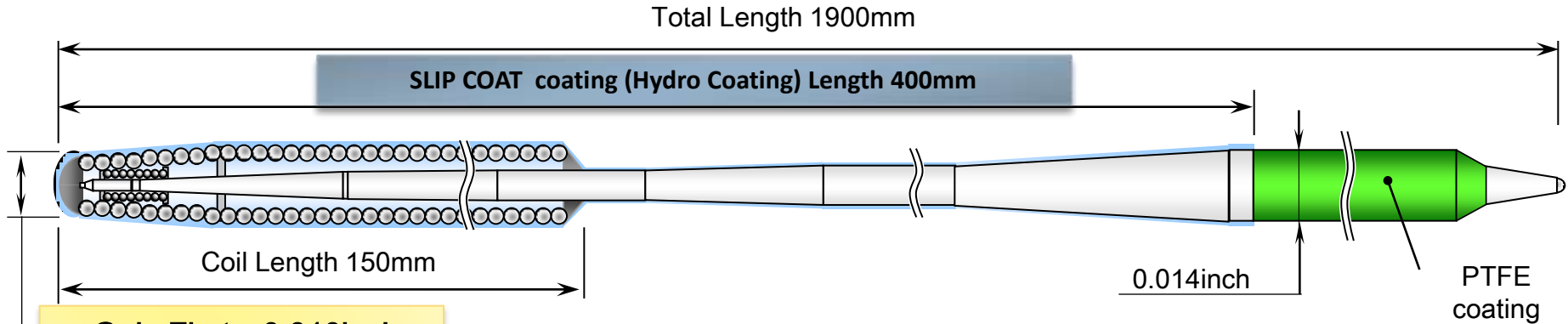




Gaia Second 60°



Basic structure



Gaia First : 0.010inch
Gaia Second : 0.011inch
Gaia Third : 0.012inch

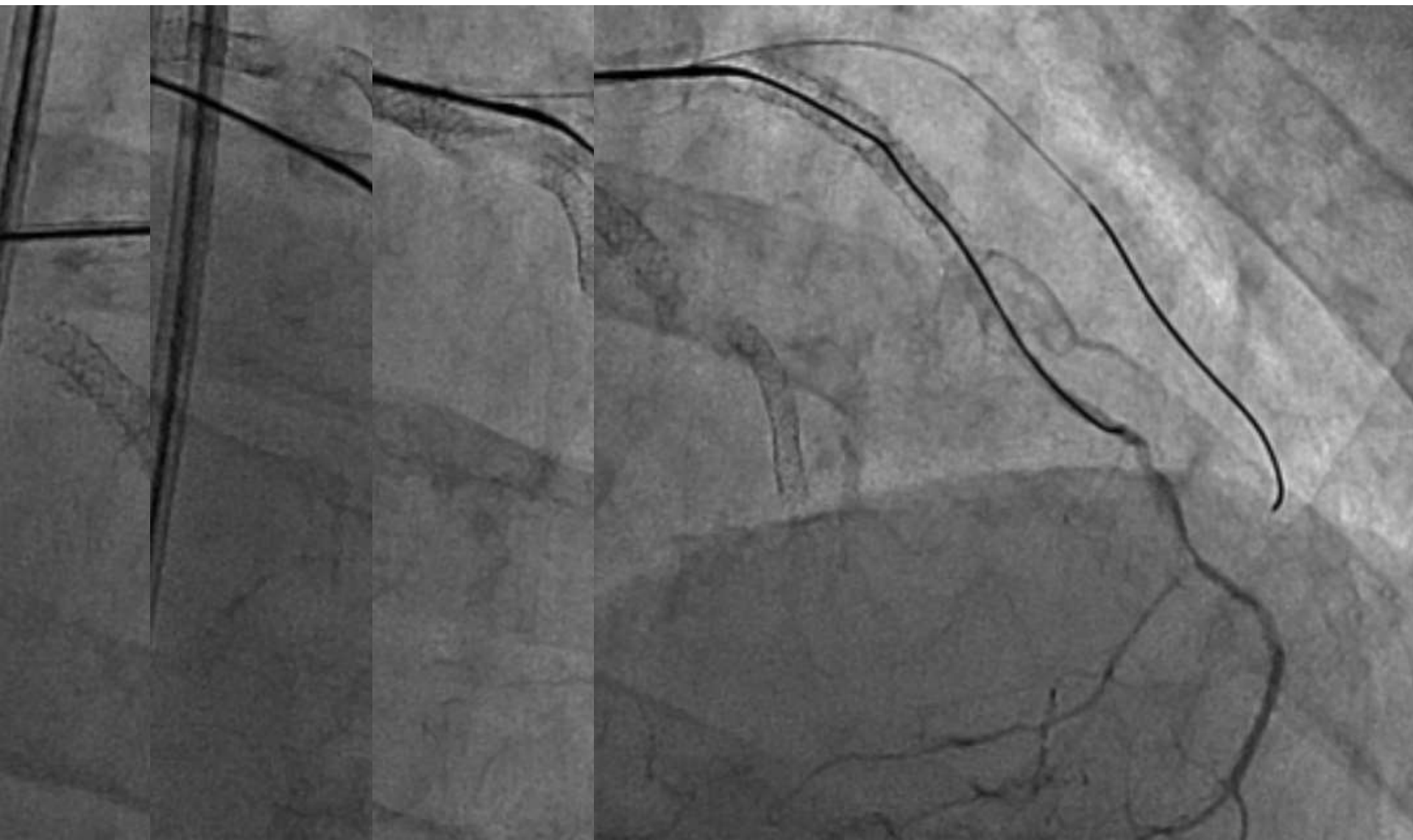
Long hydrophilic coating provides smooth manipulation when used in conjunction with a support catheter such as Corsair

Gaia First	Diameter : 0.010 - 0.014"
	Tip load : 1.5gf
Gaia Second	Diameter : 0.011 - 0.014"
	Tip load : 3.5gf
Gaia Third	Diameter : 0.012 - 0.014"
	Tip load : 4.5gf



LCX in stent occlusion



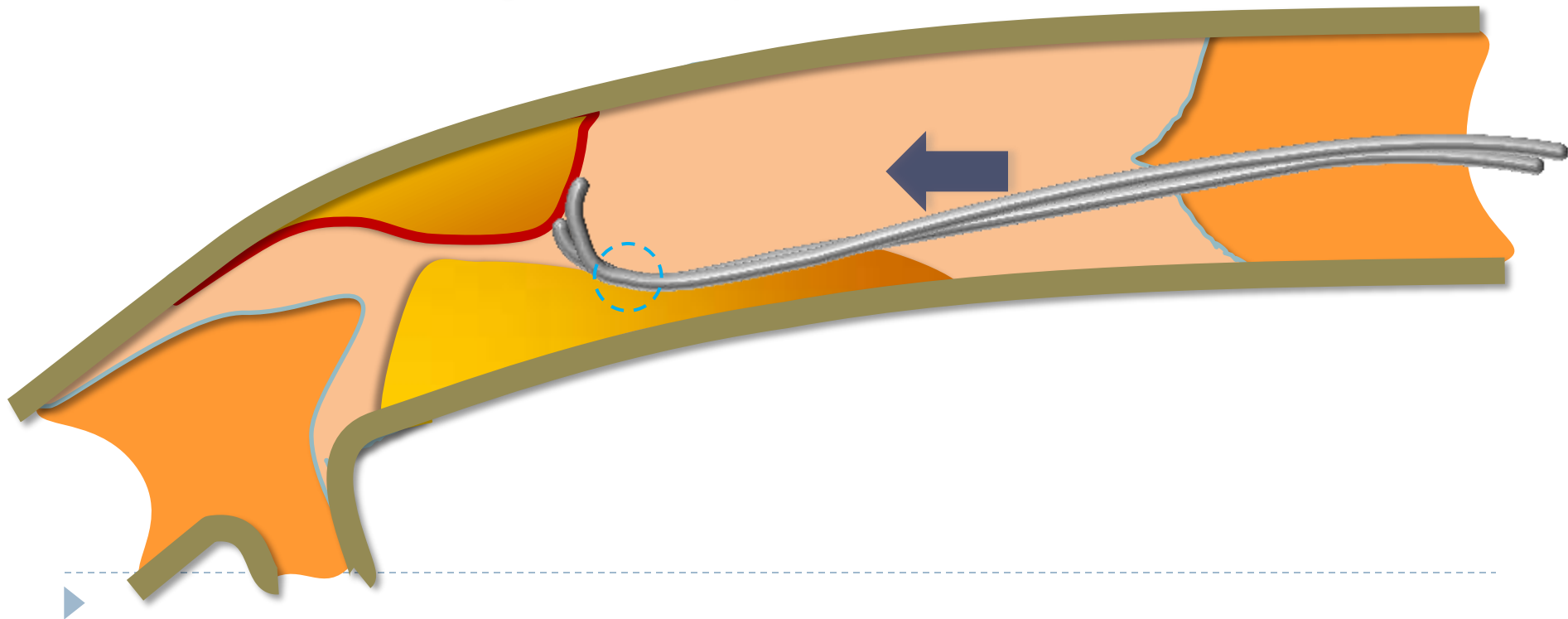




Tip deflection control

Change approach angle to the lesion

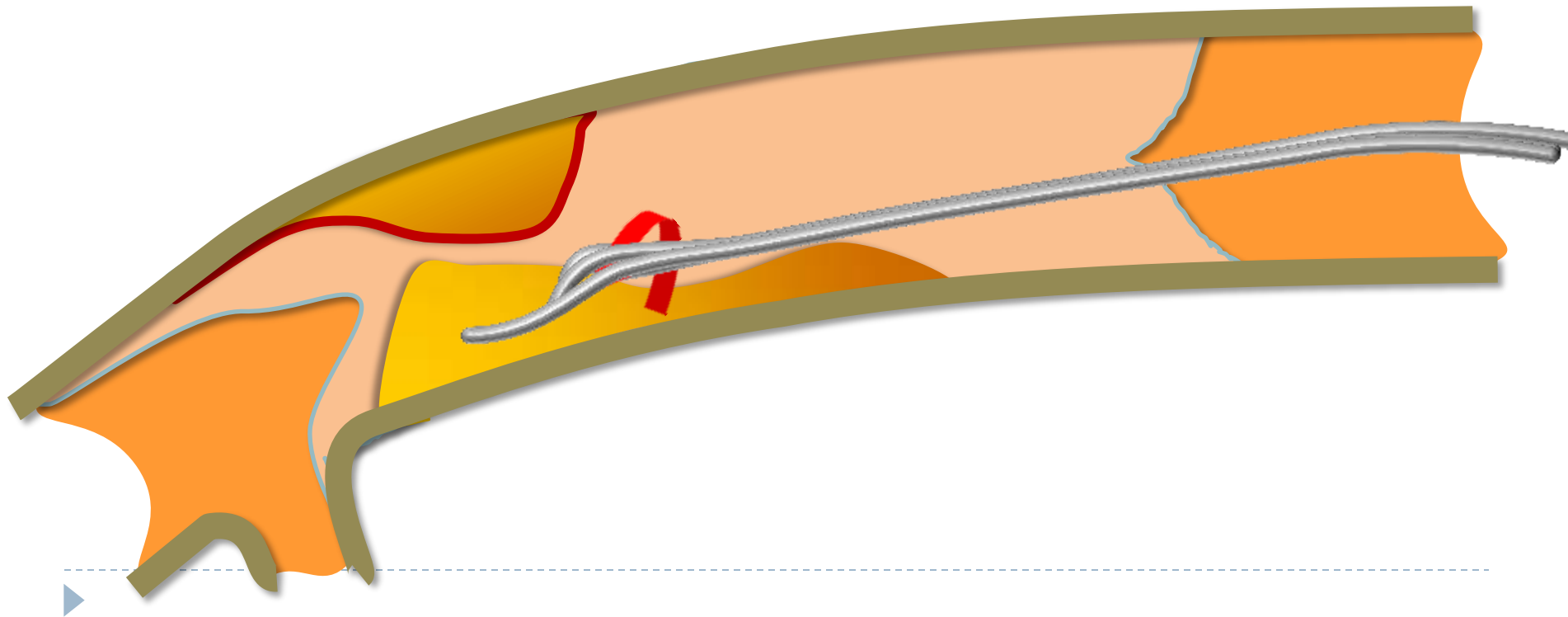
- Deflection due to the different compliance of tissues in the lesion.
- Deflection occurs when the guide wire contacts harder tissue, changing the wire route.
- GW tend to advance along the boundary of the hard tissue.



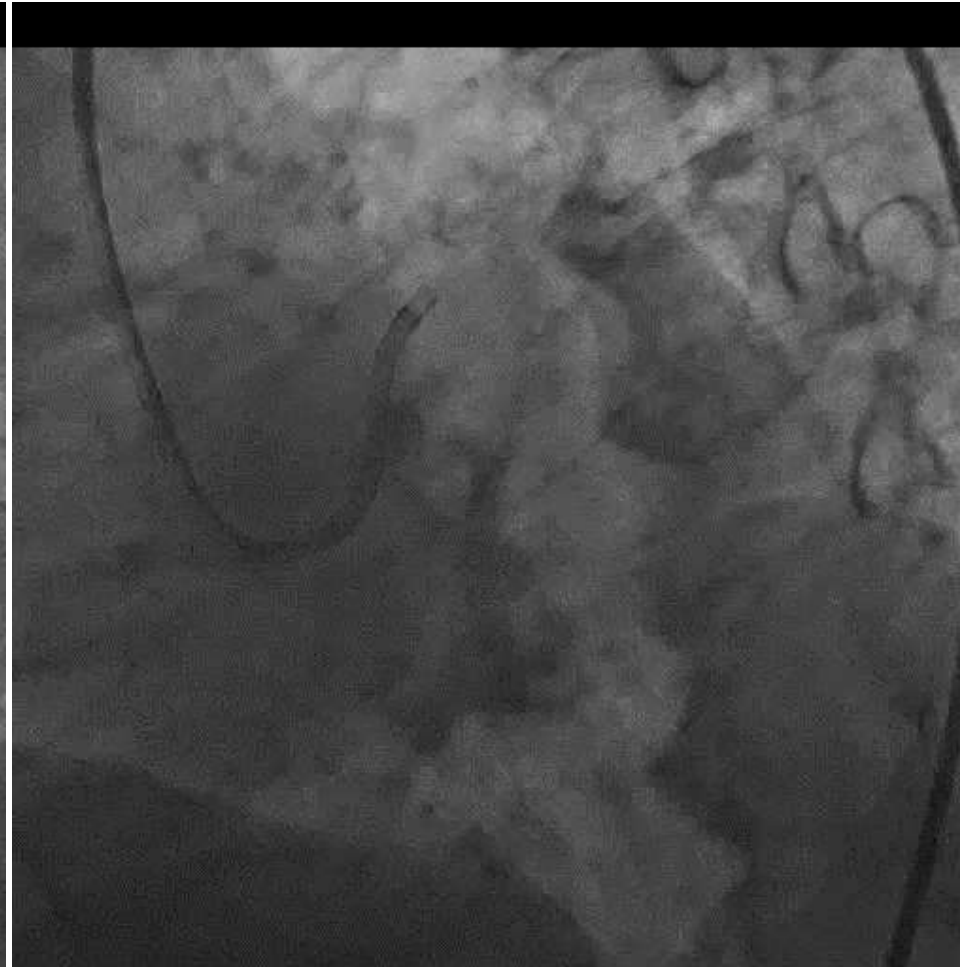
Tip deflection control

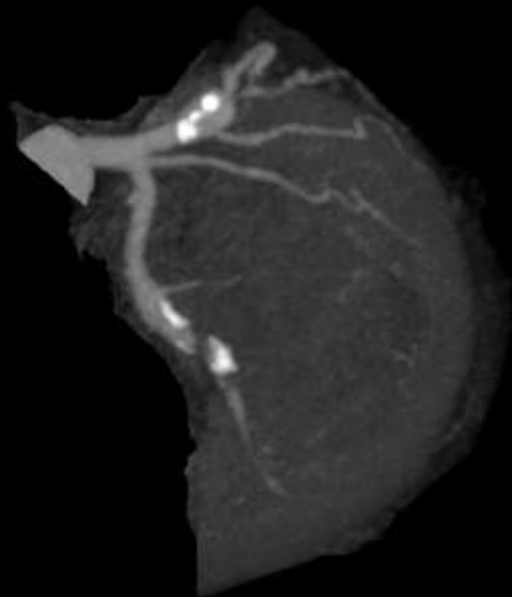
Change approach angle to the lesion

Torque the wire to change the tip direction and enter the lesion via a different angle of approach



LCX CTO lesion

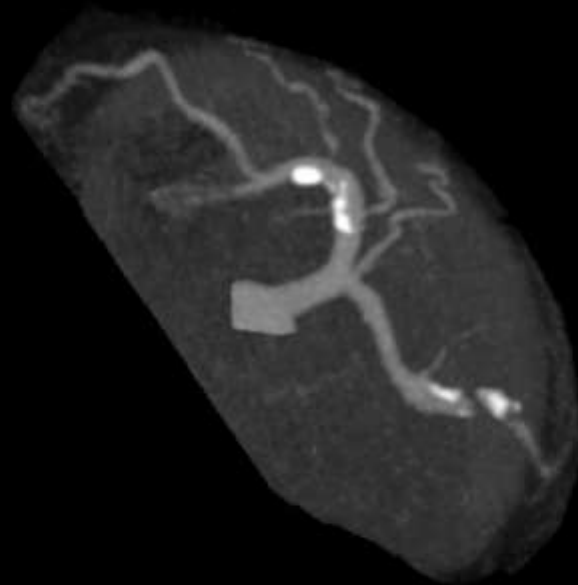




R

LAO: 0.0
CAU: 30.0

F

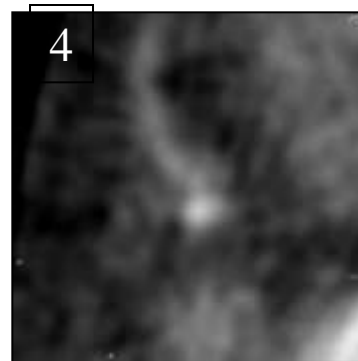
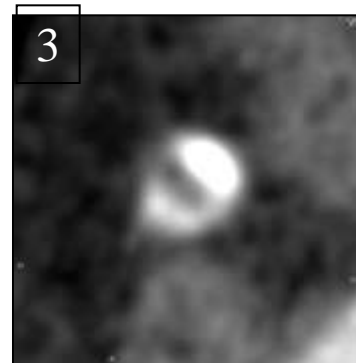
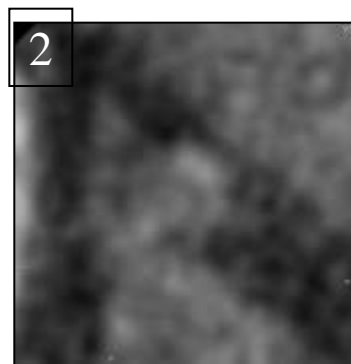
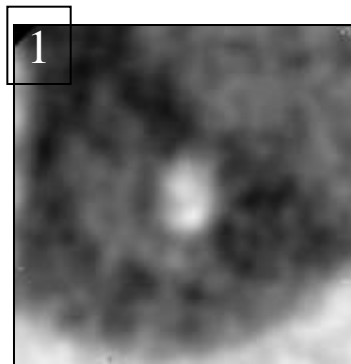


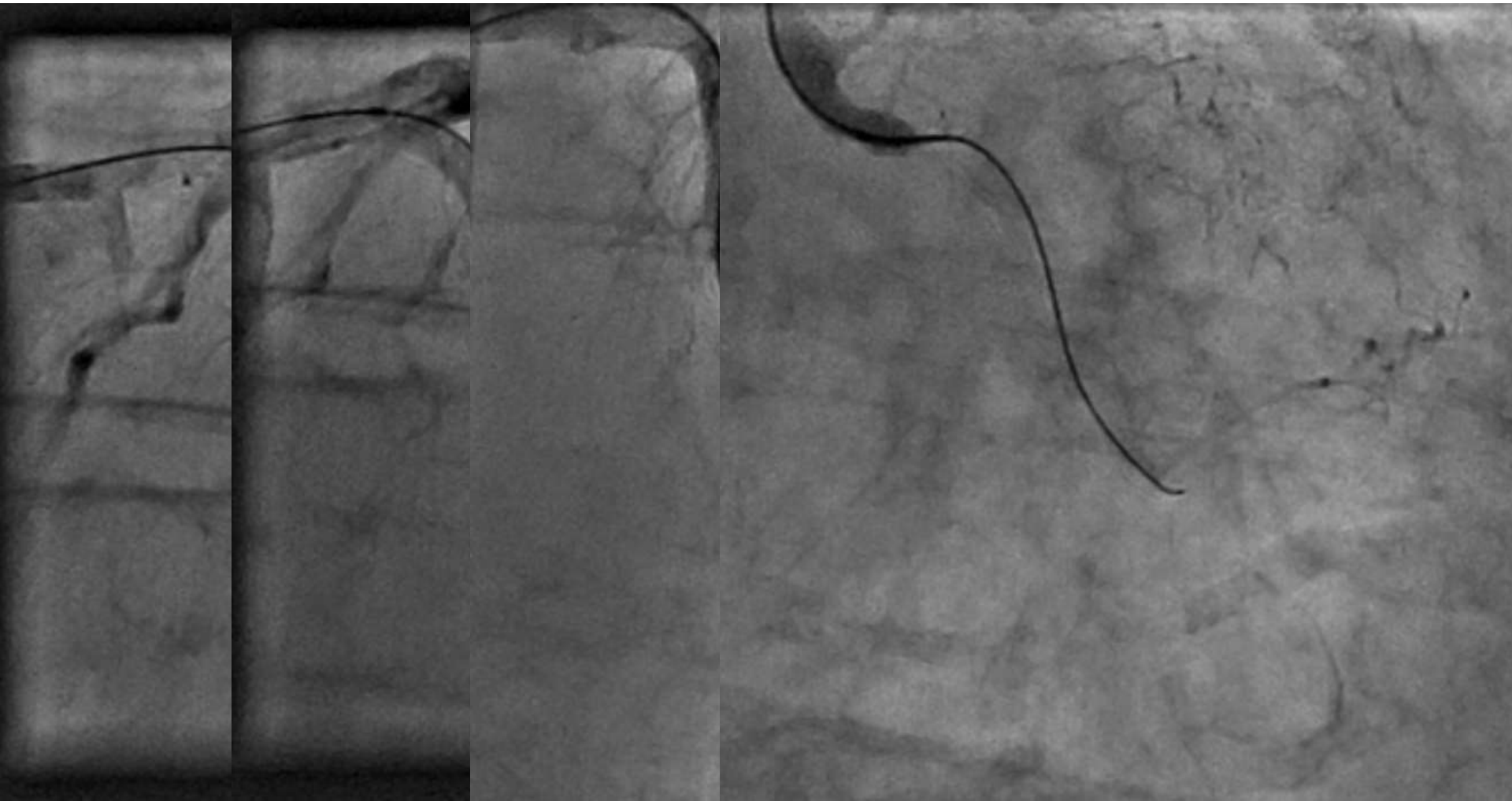
R

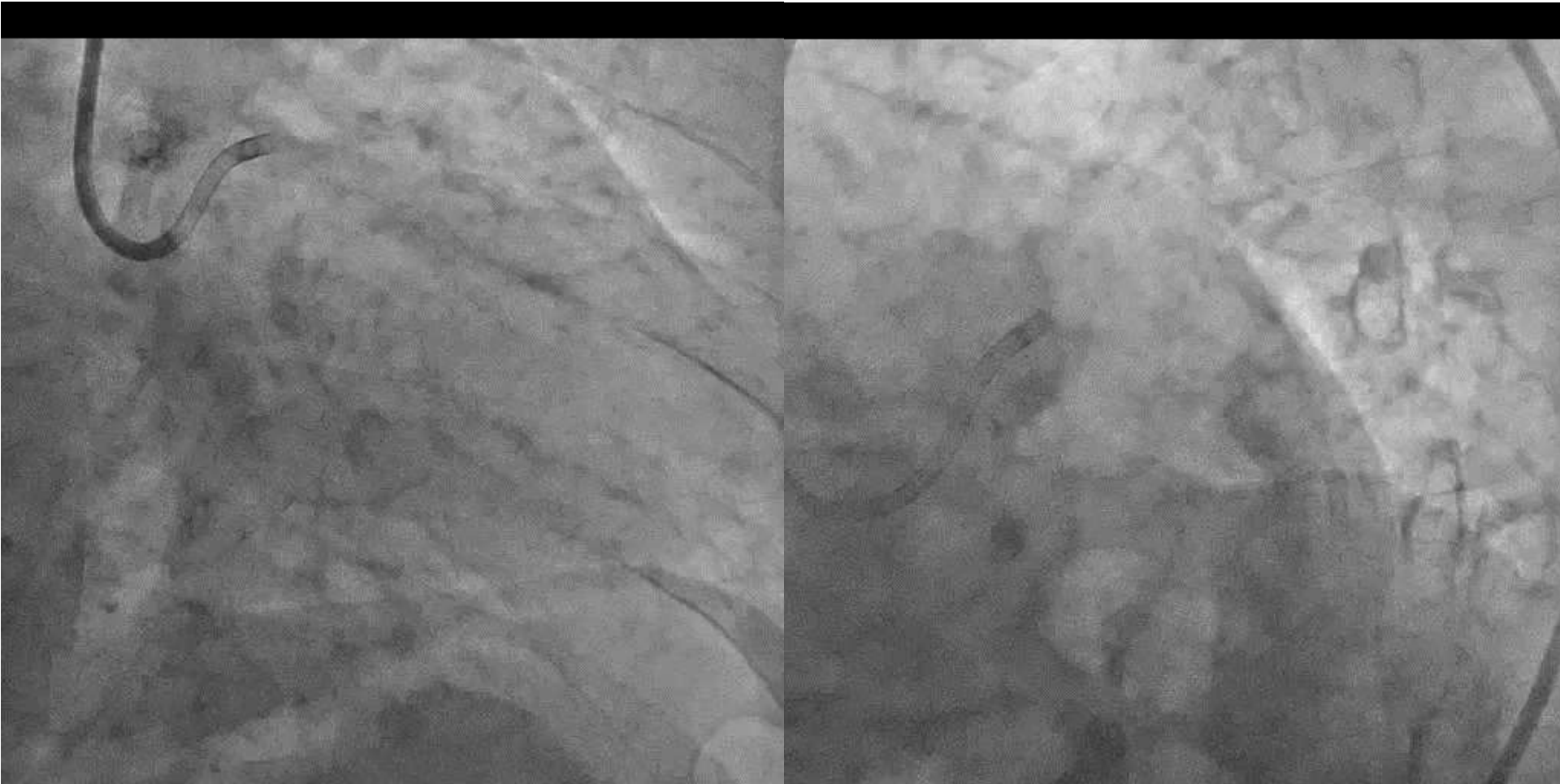
LAO: 45.0
CAU: 50.0

F

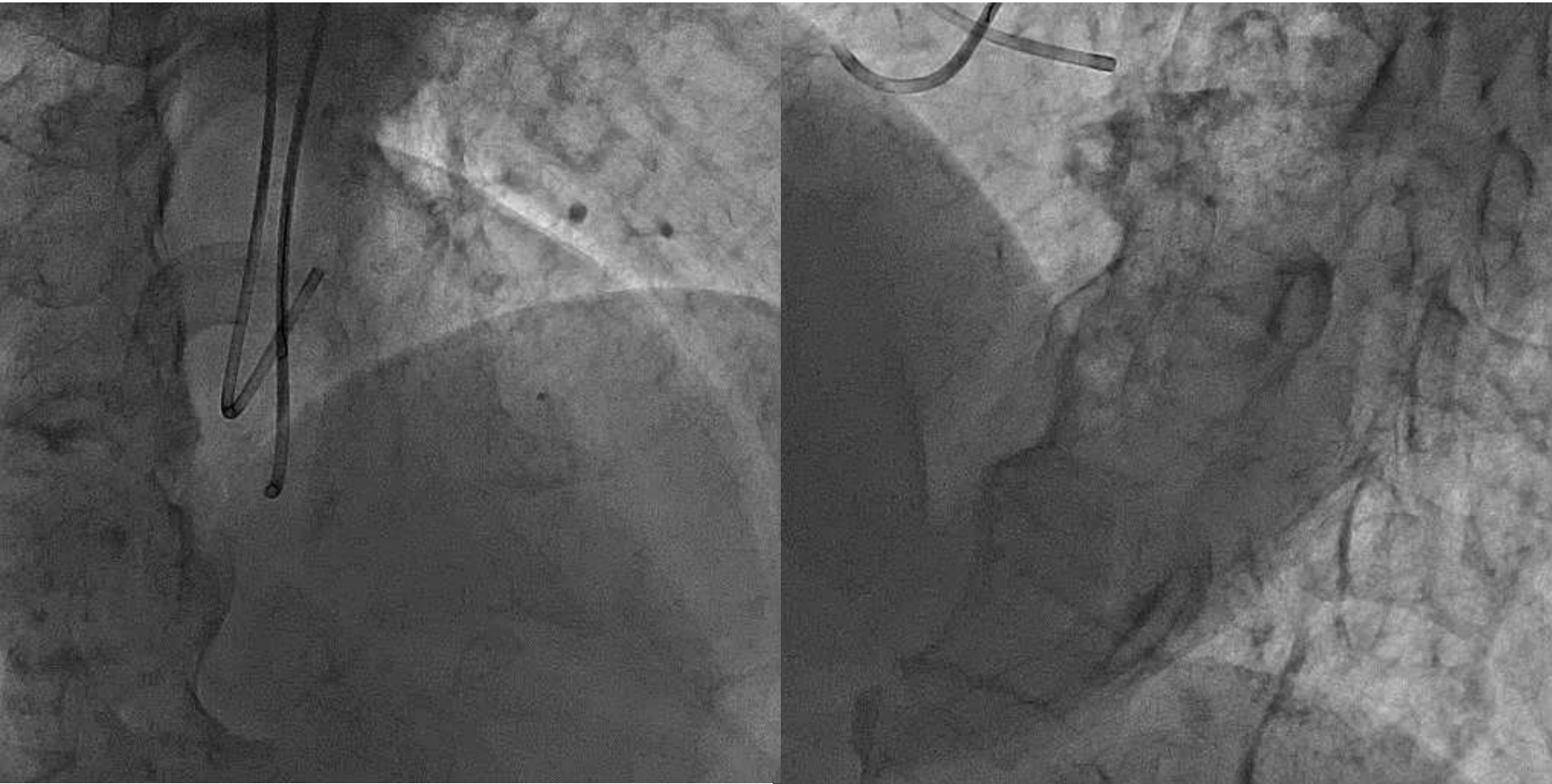


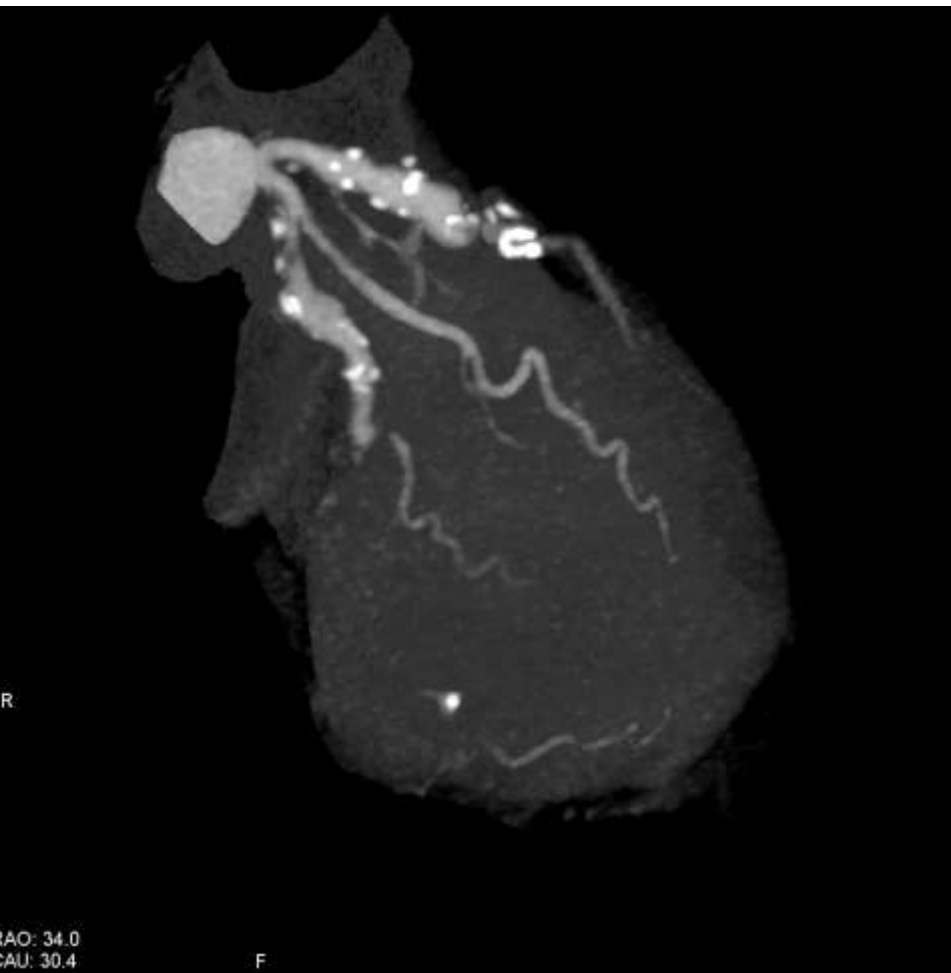




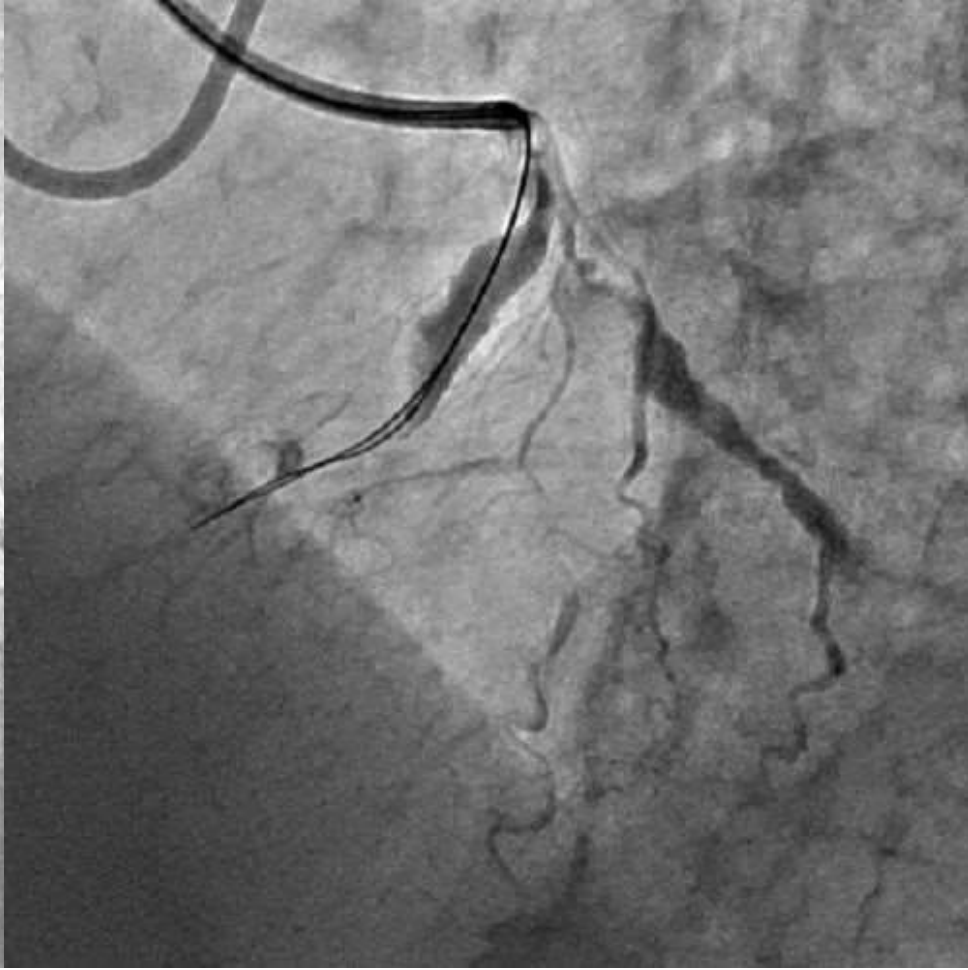


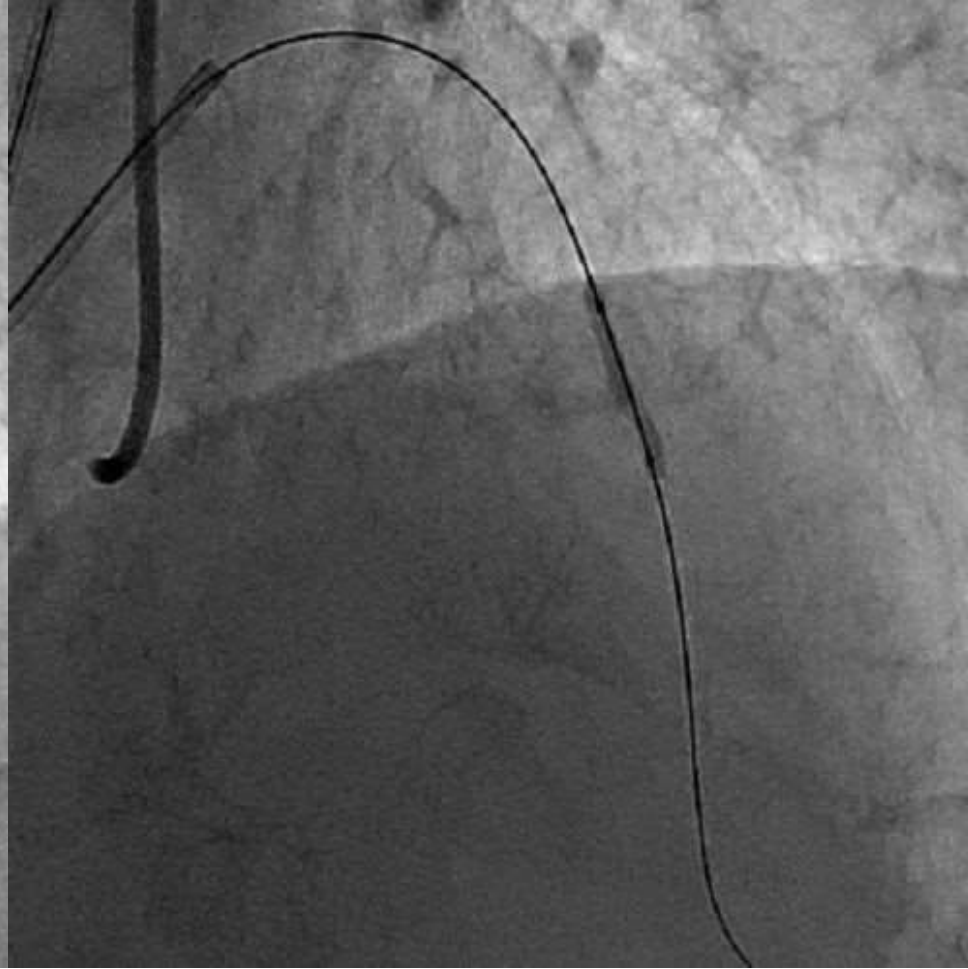
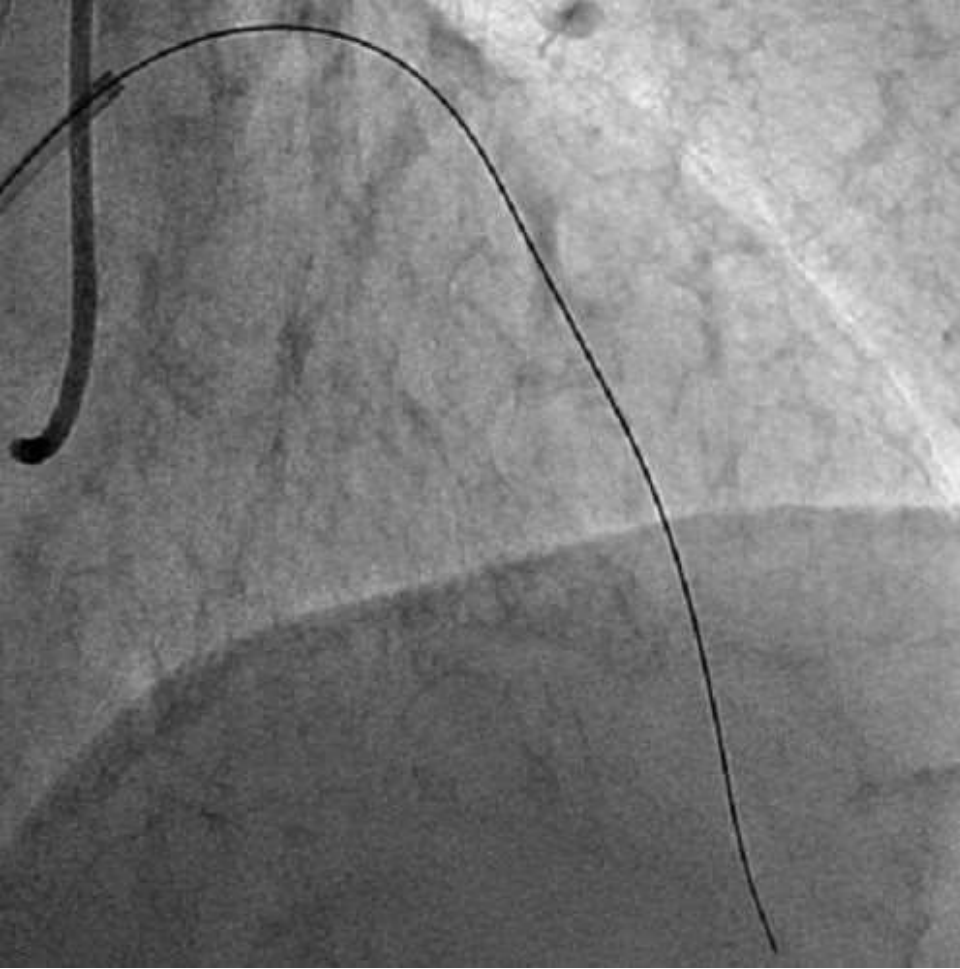
LAD CTO lesion with aneurysm



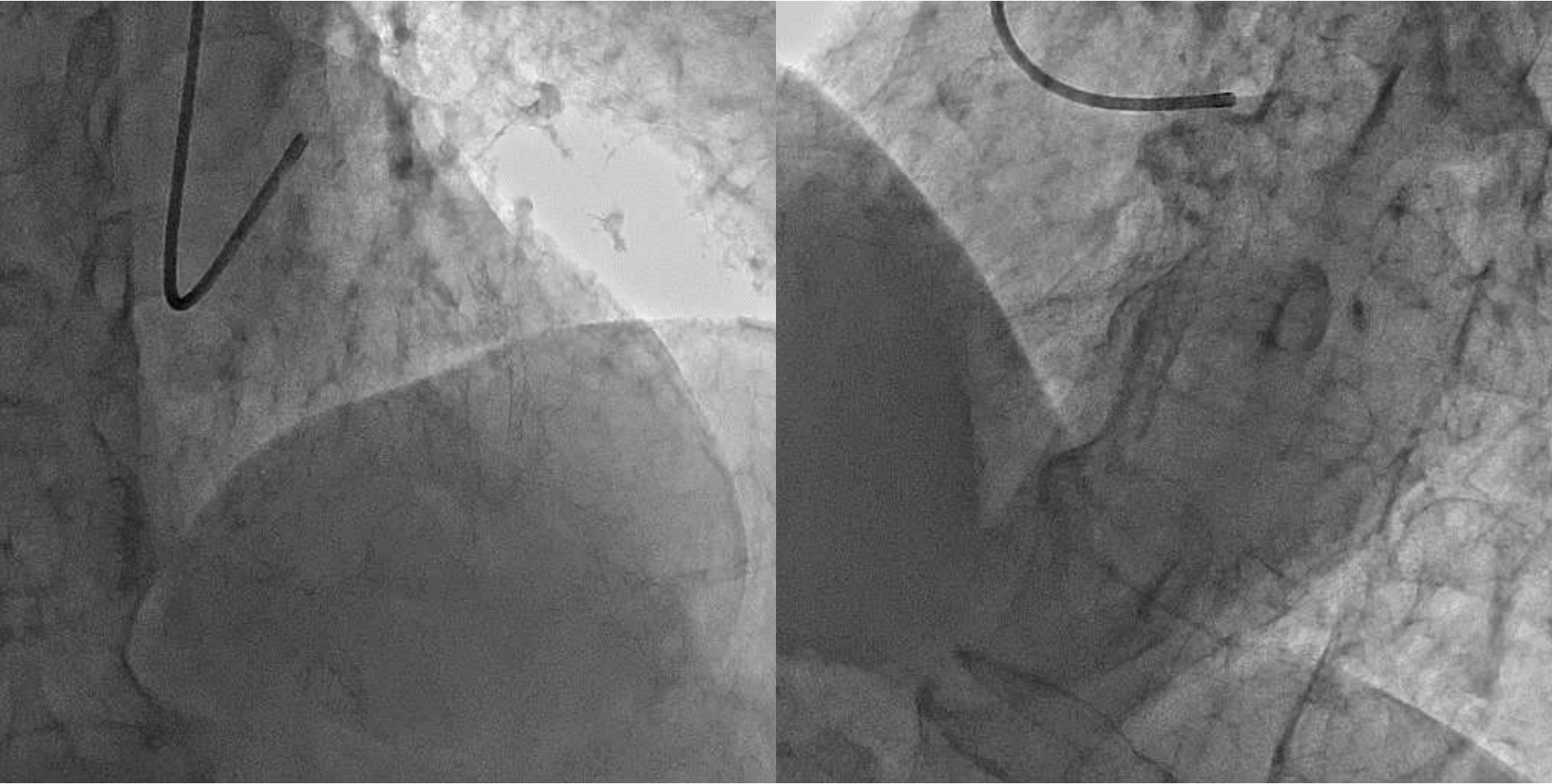








Final Angiograms



Message

A hydrophilic polymer jacket tapering guide wires are the first lines to micro channel CTO or tapering type entry CTO.

In the majority of cases, controlling guide wire is needed. It is important to change the direction using wire deflection.

The important factor affecting wire deflection are tip curve and tip length. Therefore, it is favorable to use guide wire with appropriate tip angle and tip length.

Tip deflection occurs easily in moderate weight guide wires than stiff wires. Stiff wire tend to advance straight. Therefore, it is useful when penetrating hard tissue.

