Guide Extension Catheters: A Strong Support from a Parent-Child Relationship

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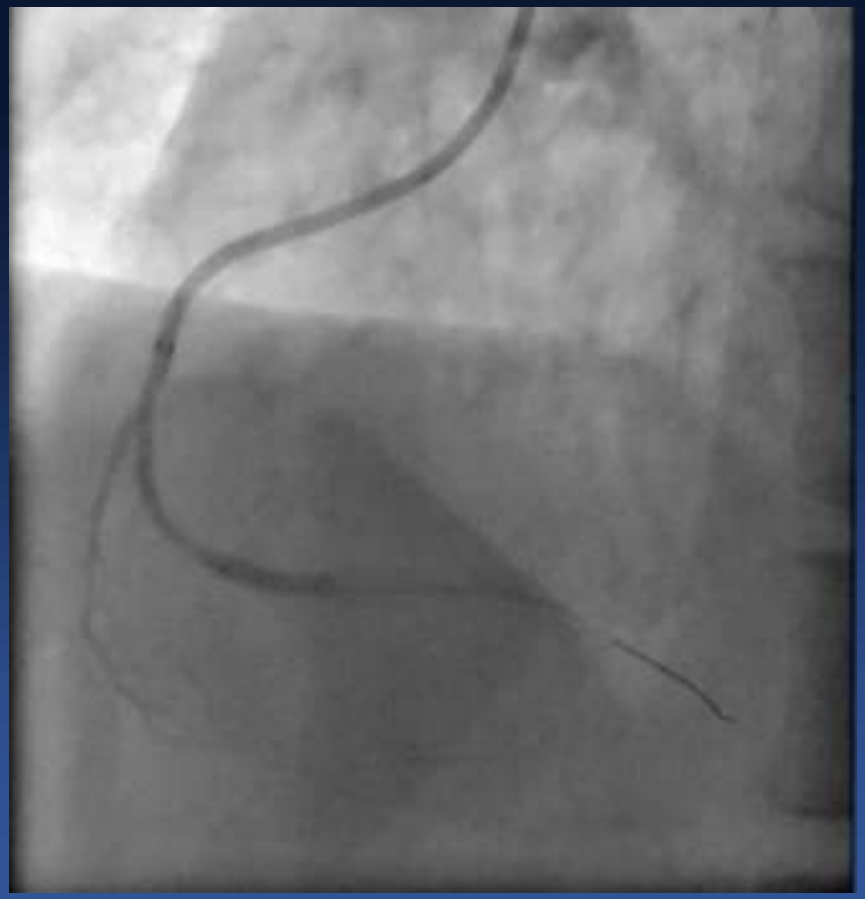
Stent Delivery in Complex PCI

- ***Co-axial guide catheter***
- Strong guide catheter: Amplatz, EBU, XB
- Aggressive lesion modification:
  1) high pressure with large balloon
  2) rotablator
- Larger size guiding catheter
- Anchoring technique: side or distal anchoring
- Deep intubation

Deep Intubation



1st Generation“Mother and Child”

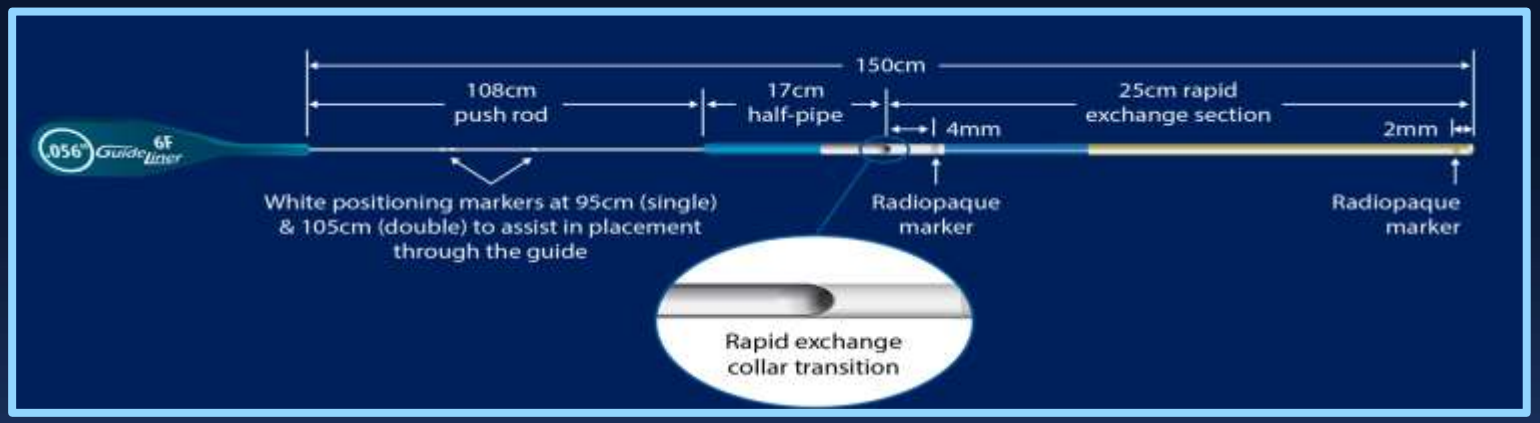
Courtesy of Dr. Shigeru Saito

- Cumbersome
- Required removal and reconnect of hemostatic valve

2nd Generation "Mother and Child"

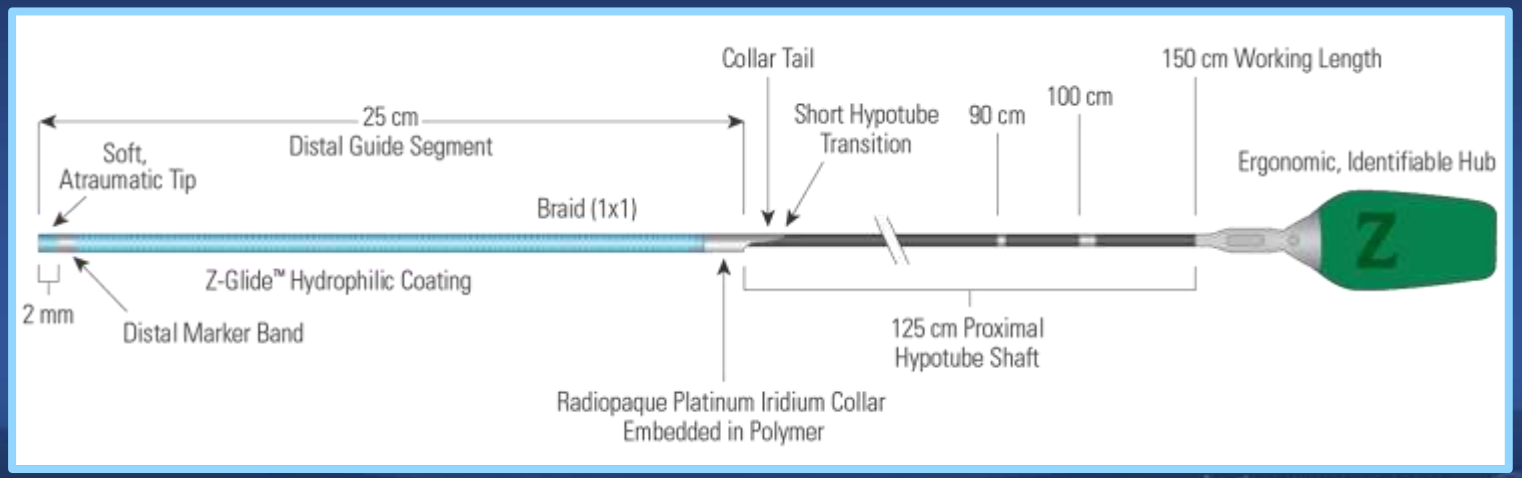
GuideLiner

More Flexible



GuideZilla II

More Pushible



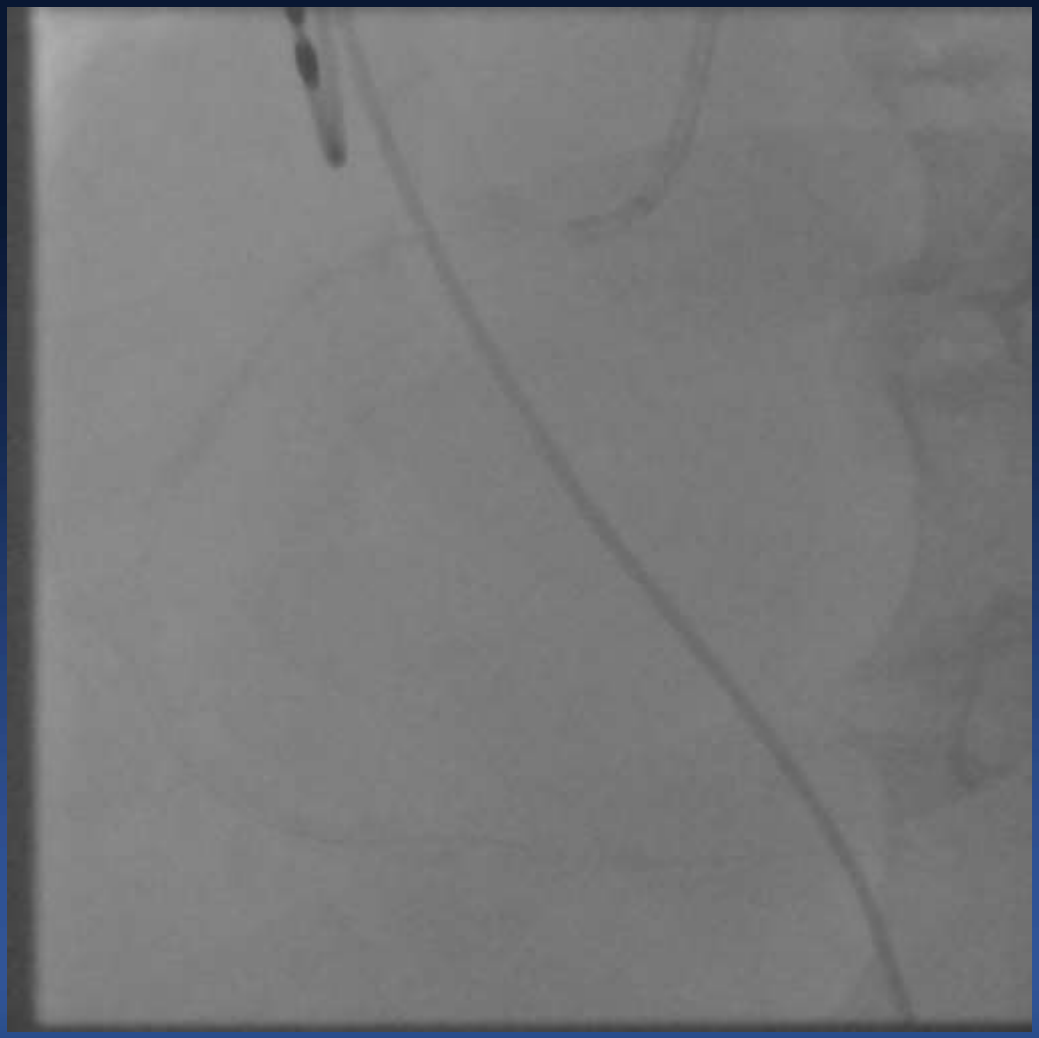
Clinical Indications

- Presence of vessel angulation and tortuisity
- Presence of severe calcification
- Chronic total occlusion

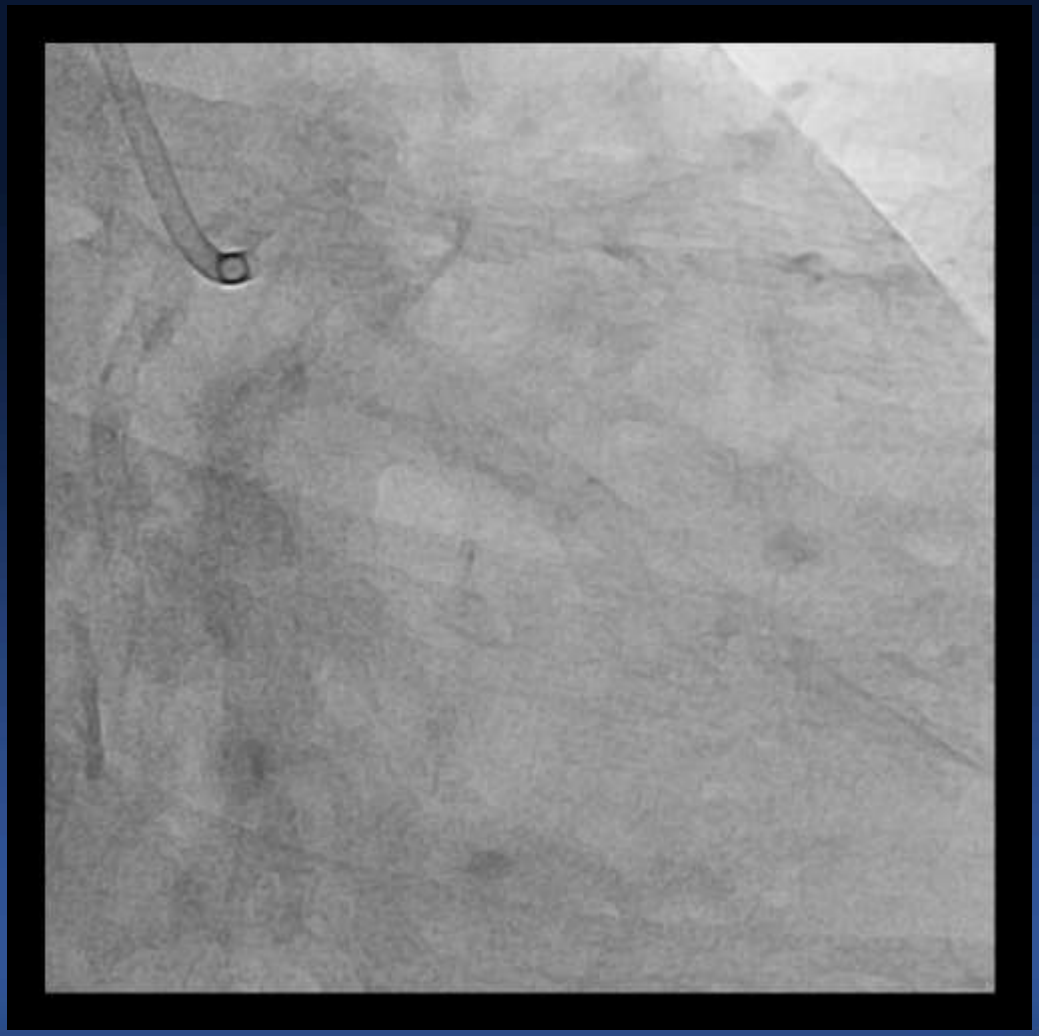
Whenever You Need It !!

- Intracoronary imaging catheter delivery
- Delivery of the burr and enabling safe rotational atherectomy in tortuous calcific lesion

Intubation of Guide Extension Catheter



Very Tortuous and Calcified LCX



How-To-Insert

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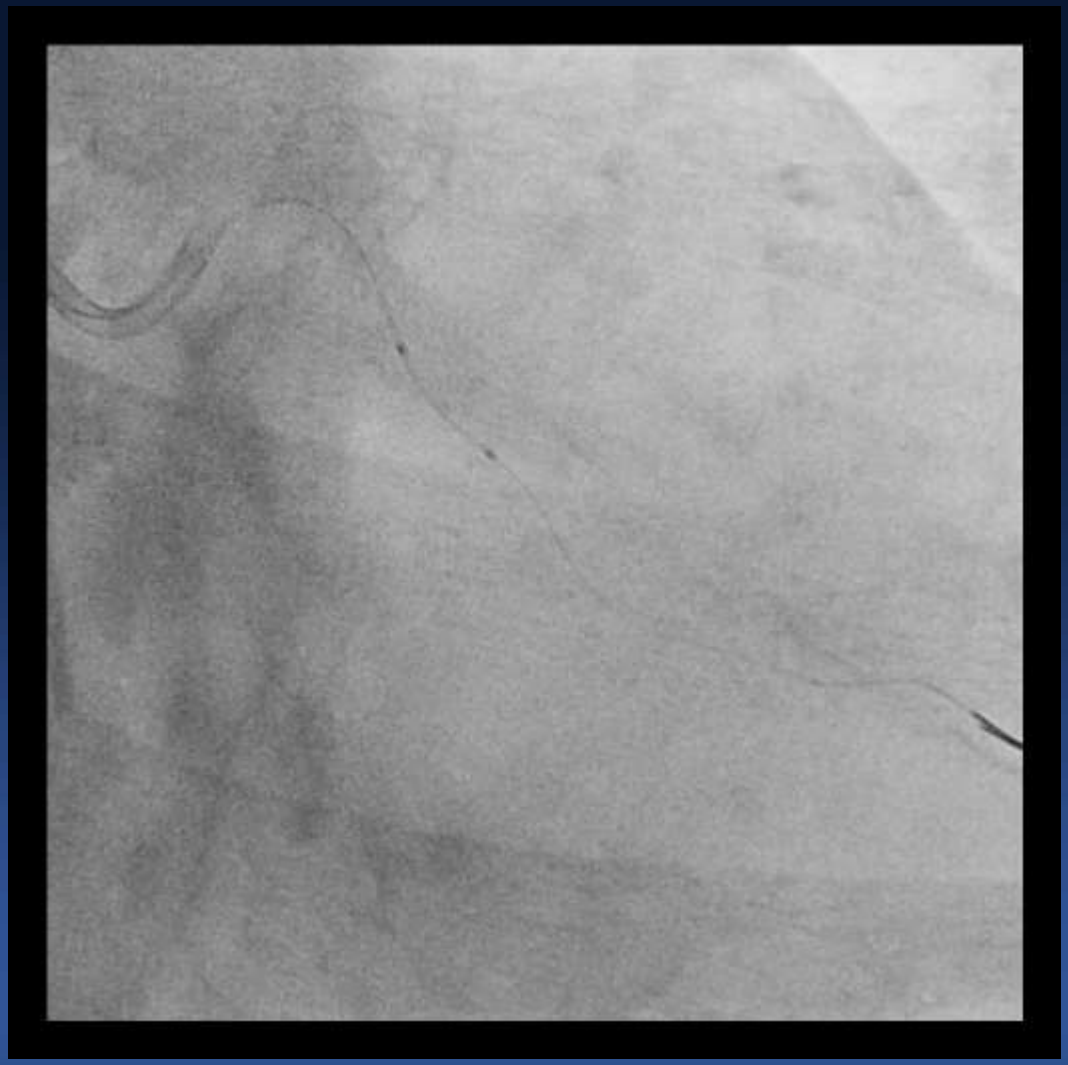

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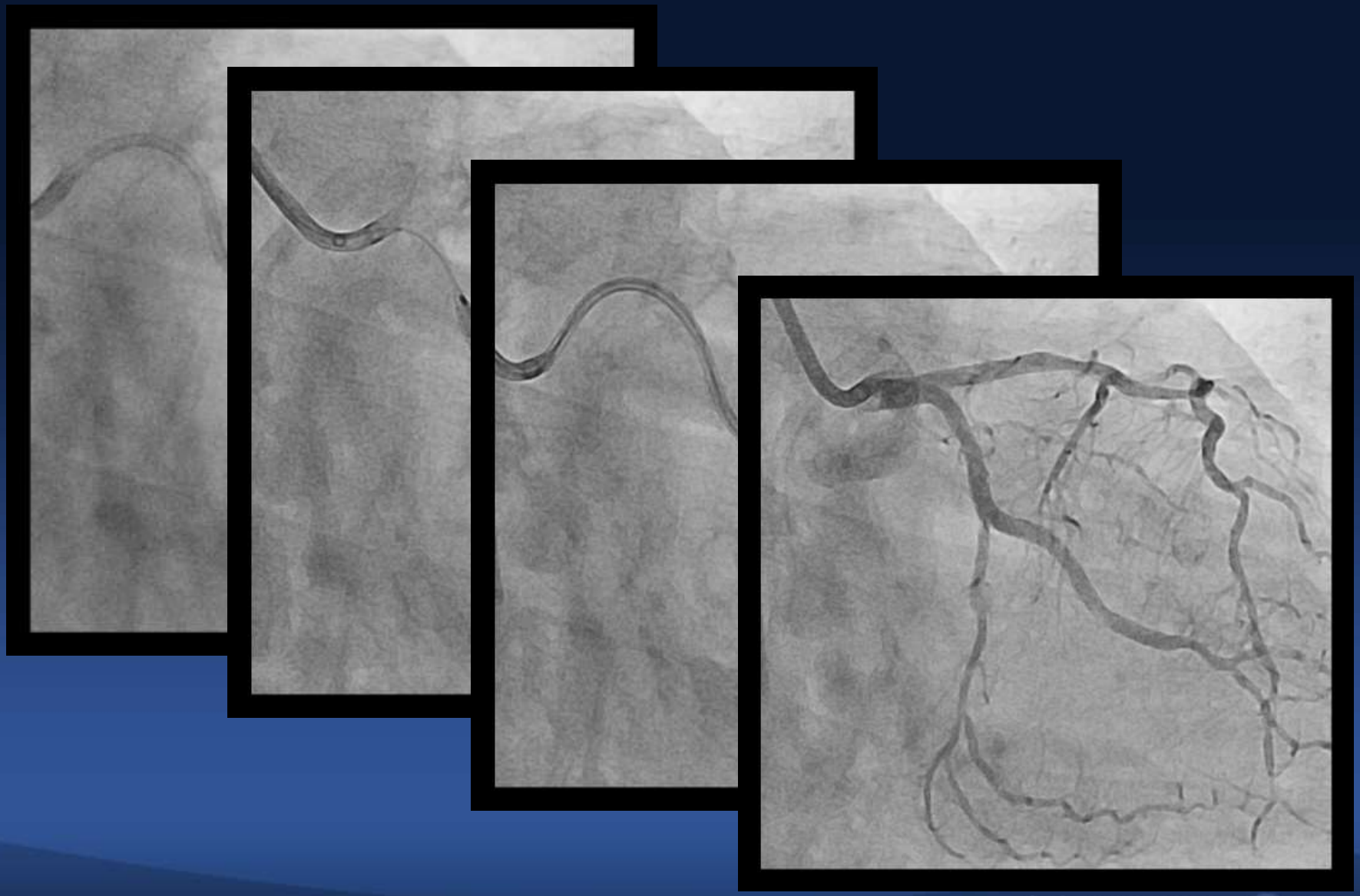


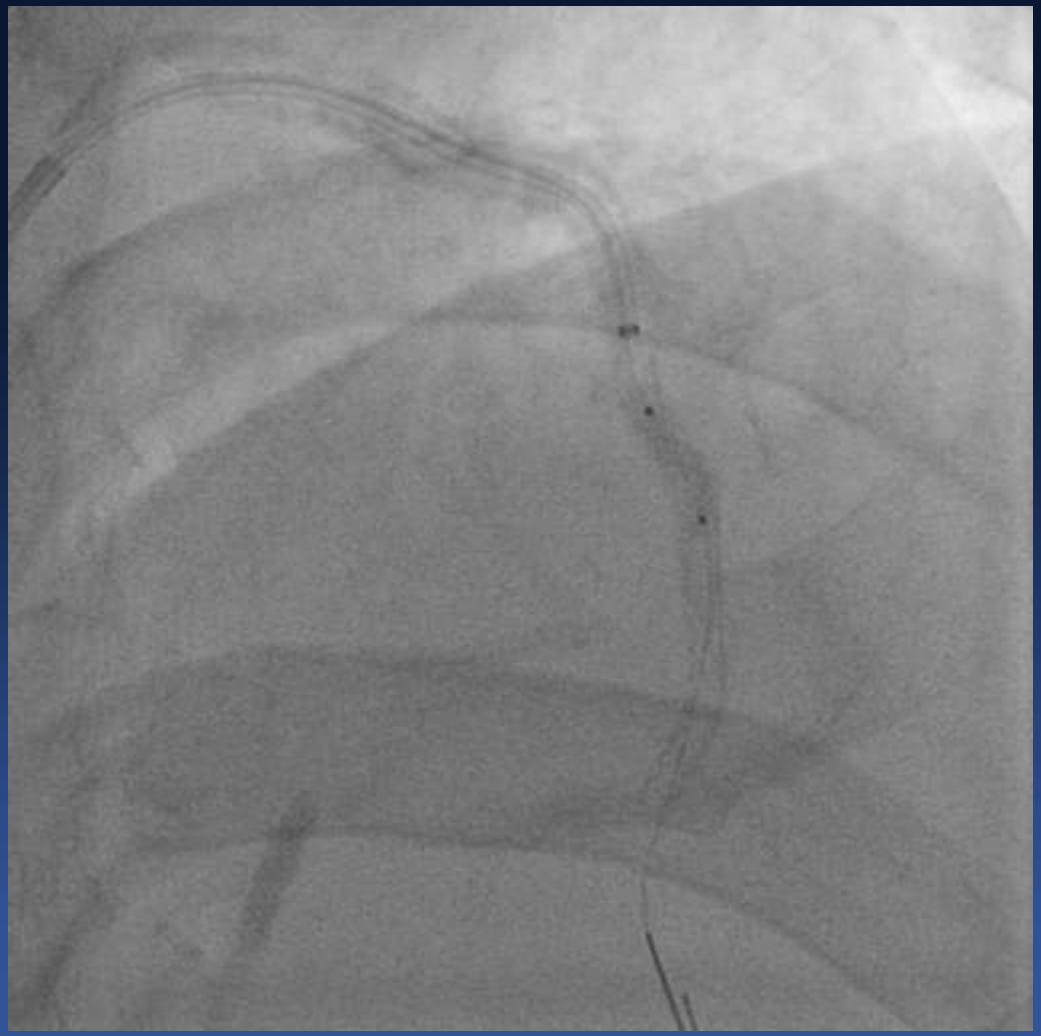
Guide Extension Catheter in AMC

2016.11.28 – 2019.11.28

441 cases

GuideZilla: 392
Guideliner: 49

Severe Calcified Lesion



Guiding Back-up

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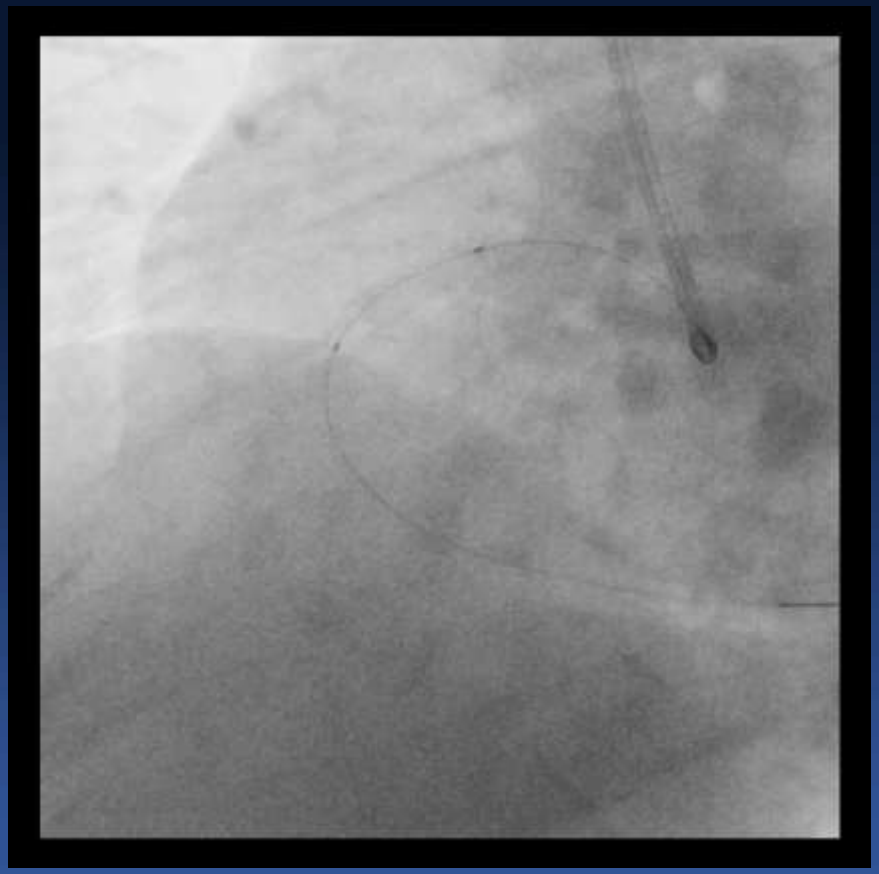

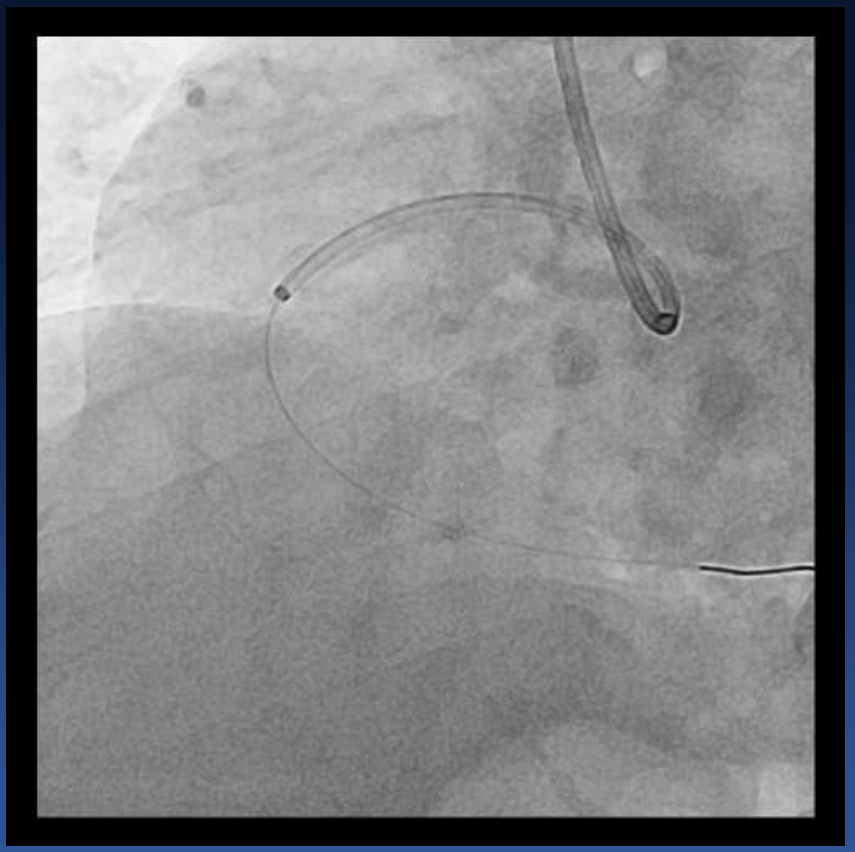

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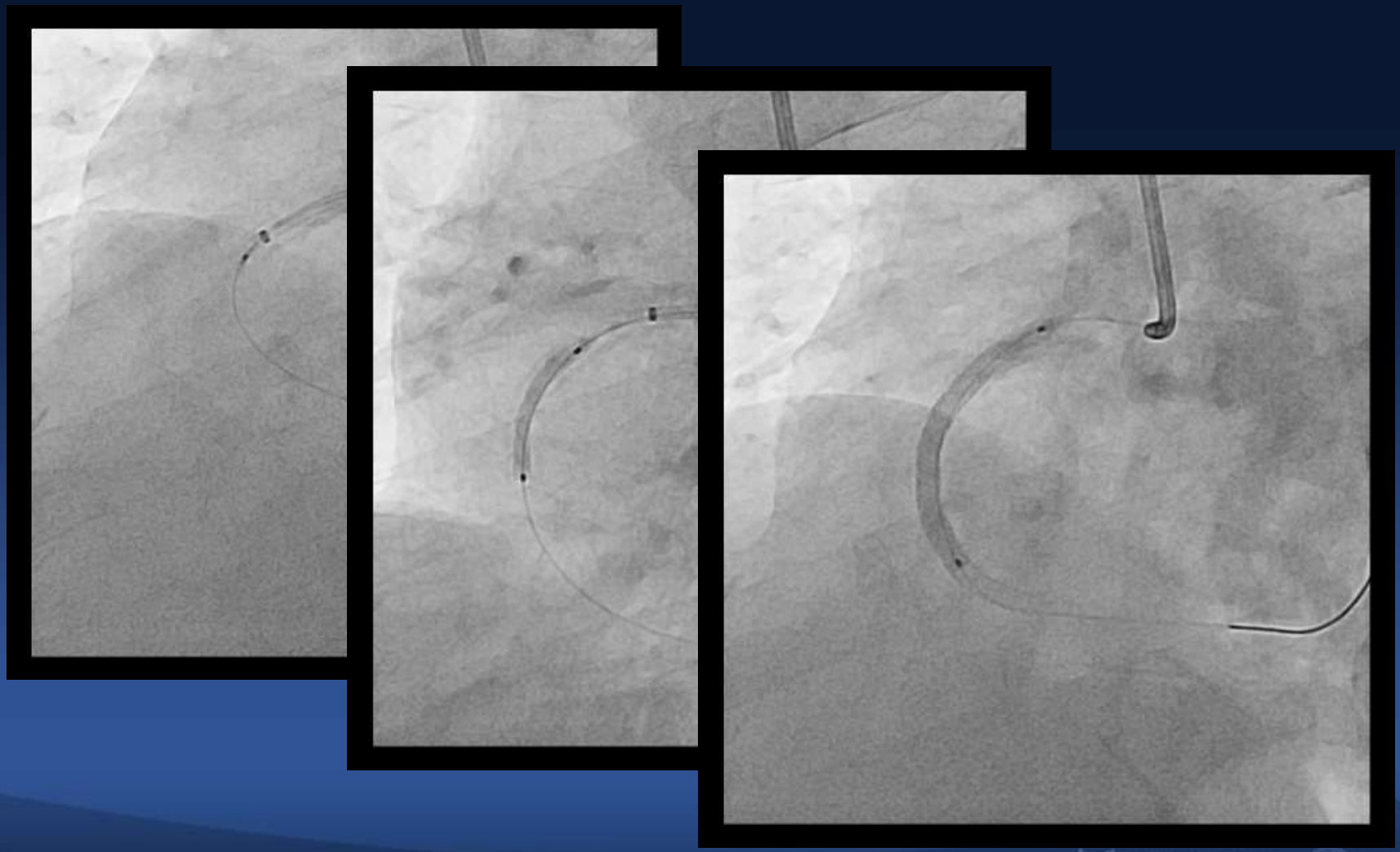
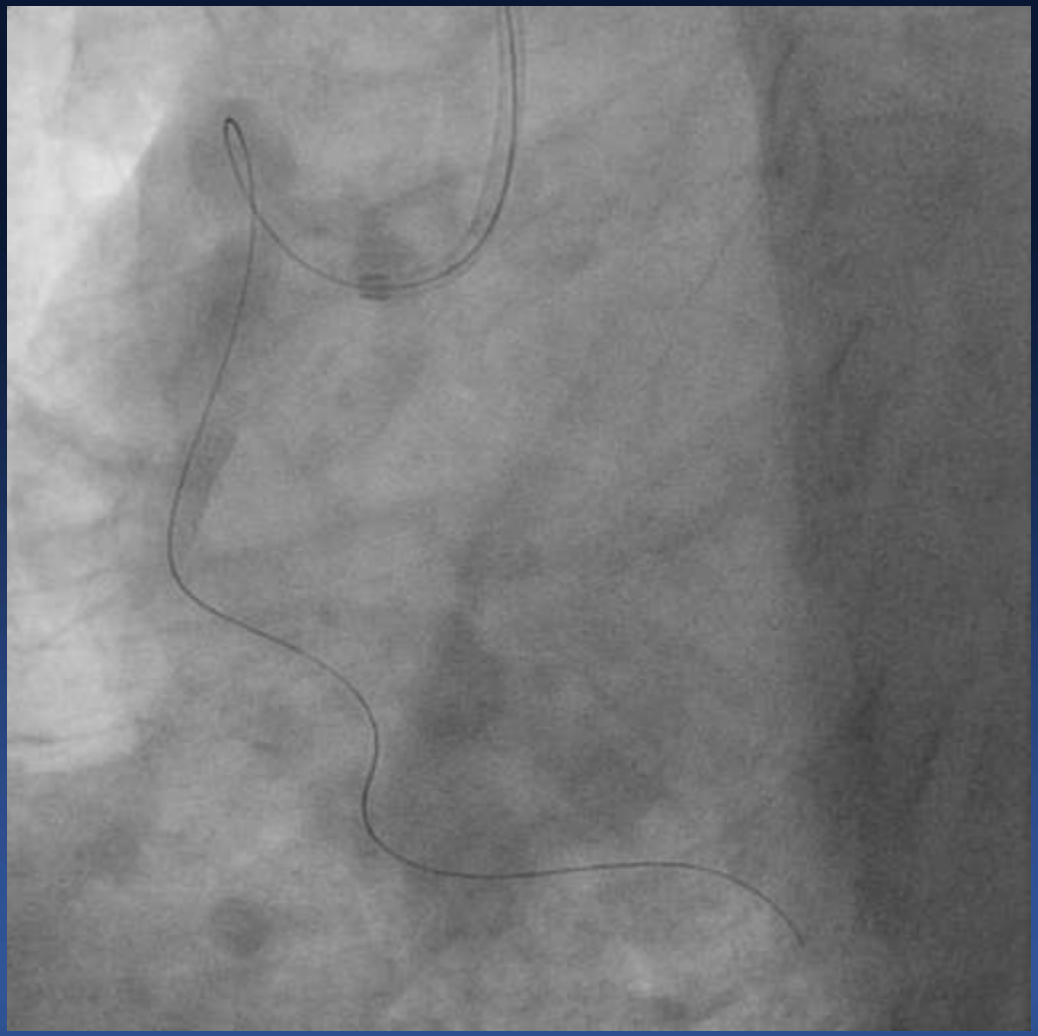


Very Tortuous Artery



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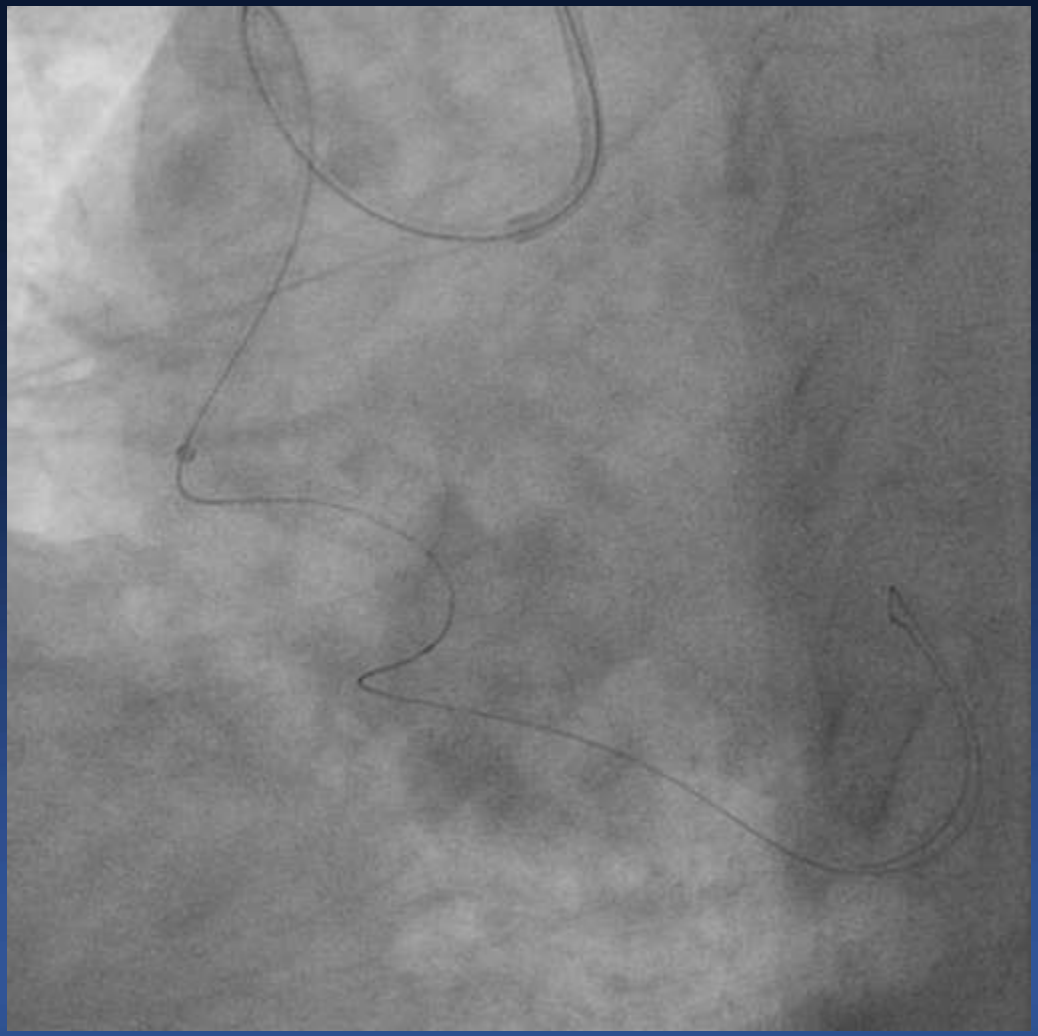
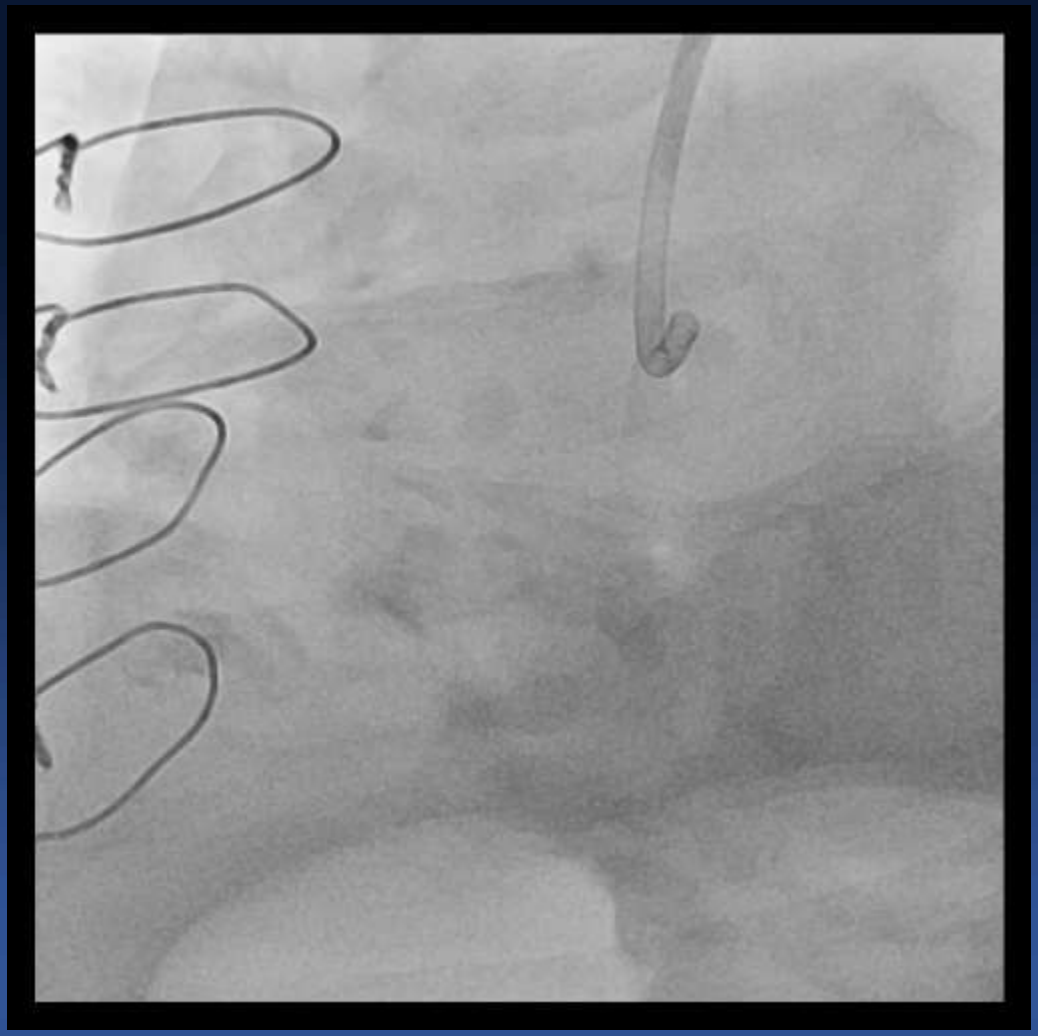


Ostial Stenting: Hard to Engage



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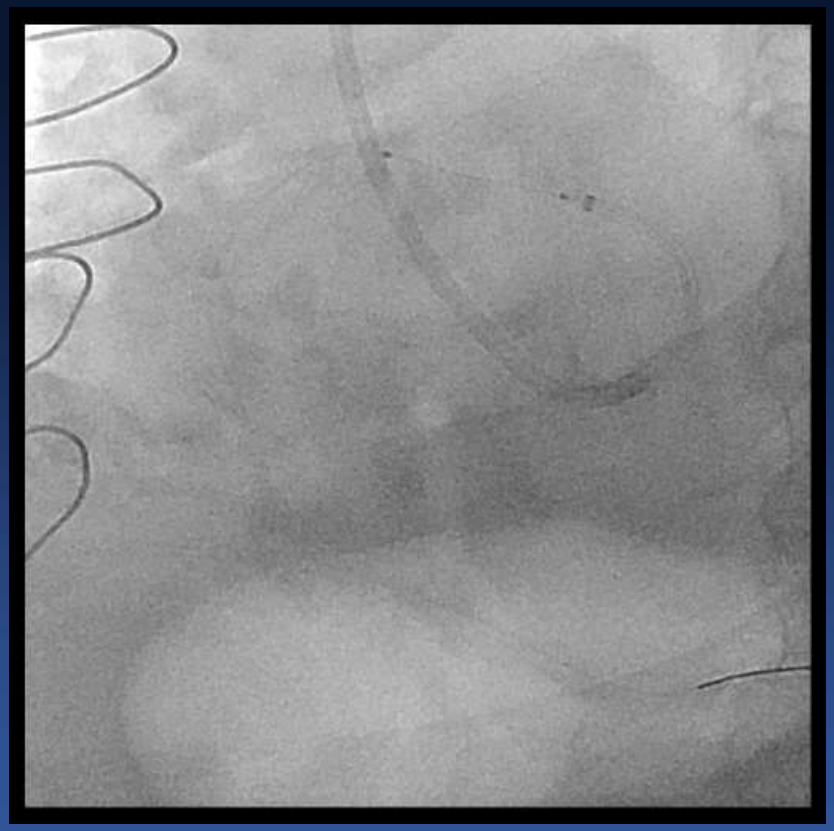
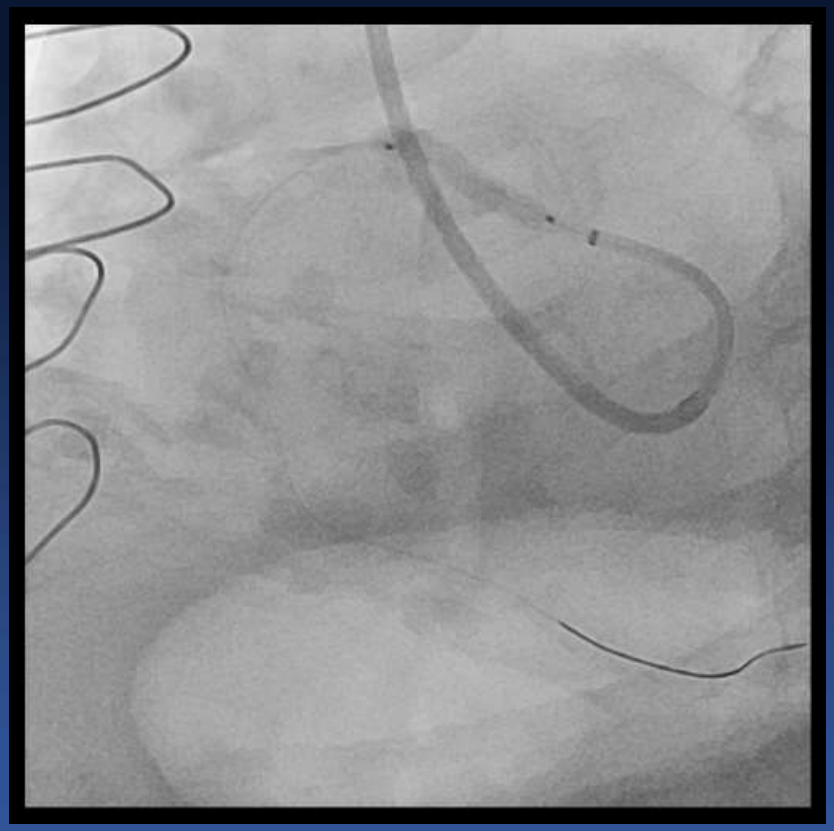
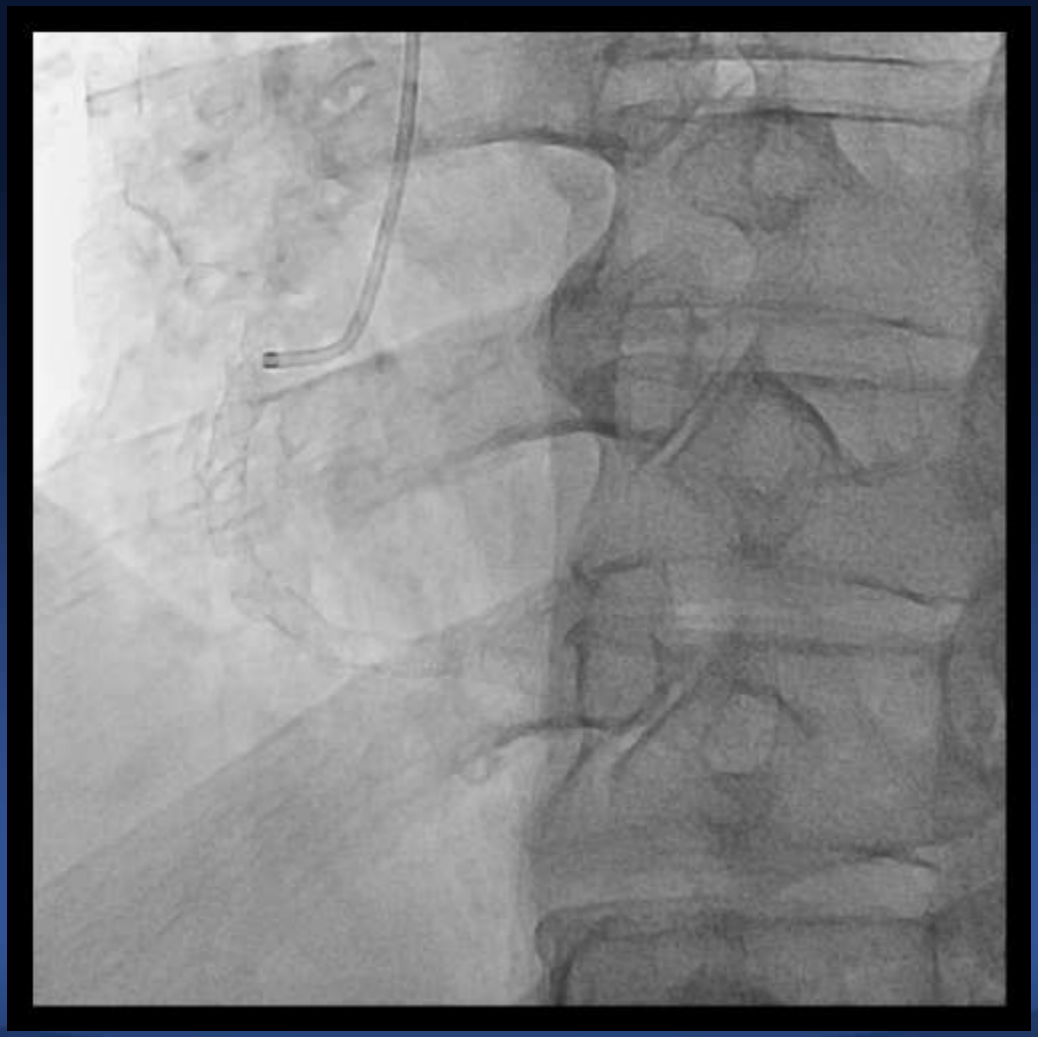




Far-Far Away Distal RCA Through Stent



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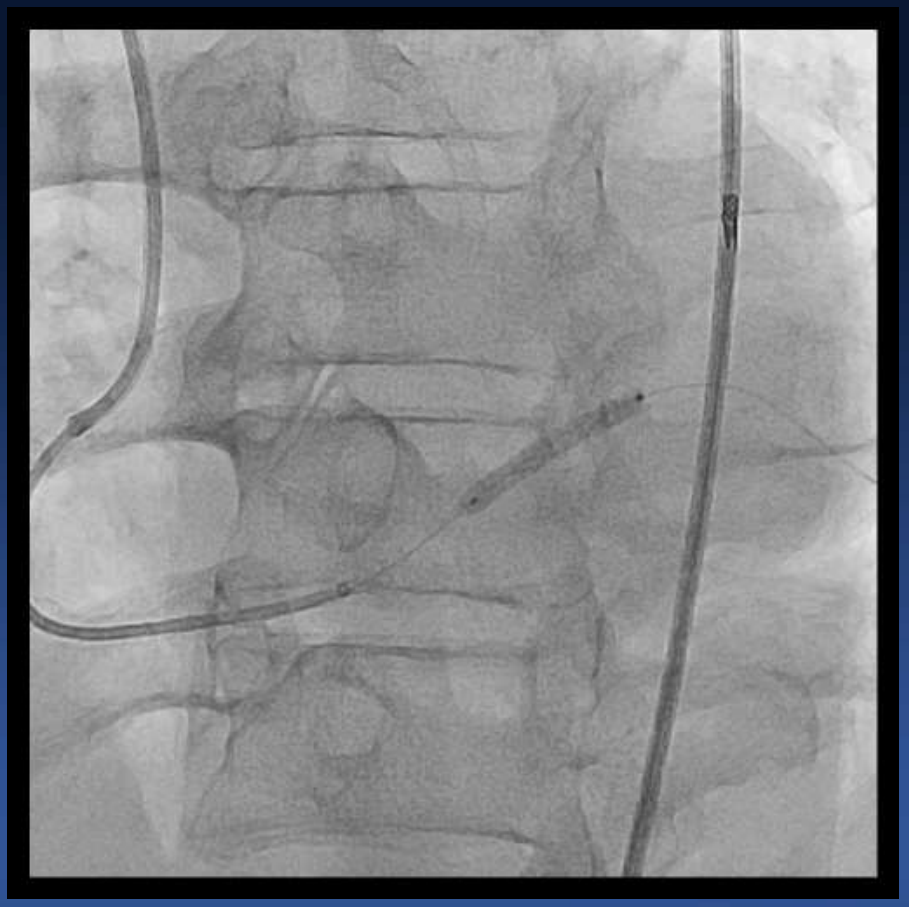
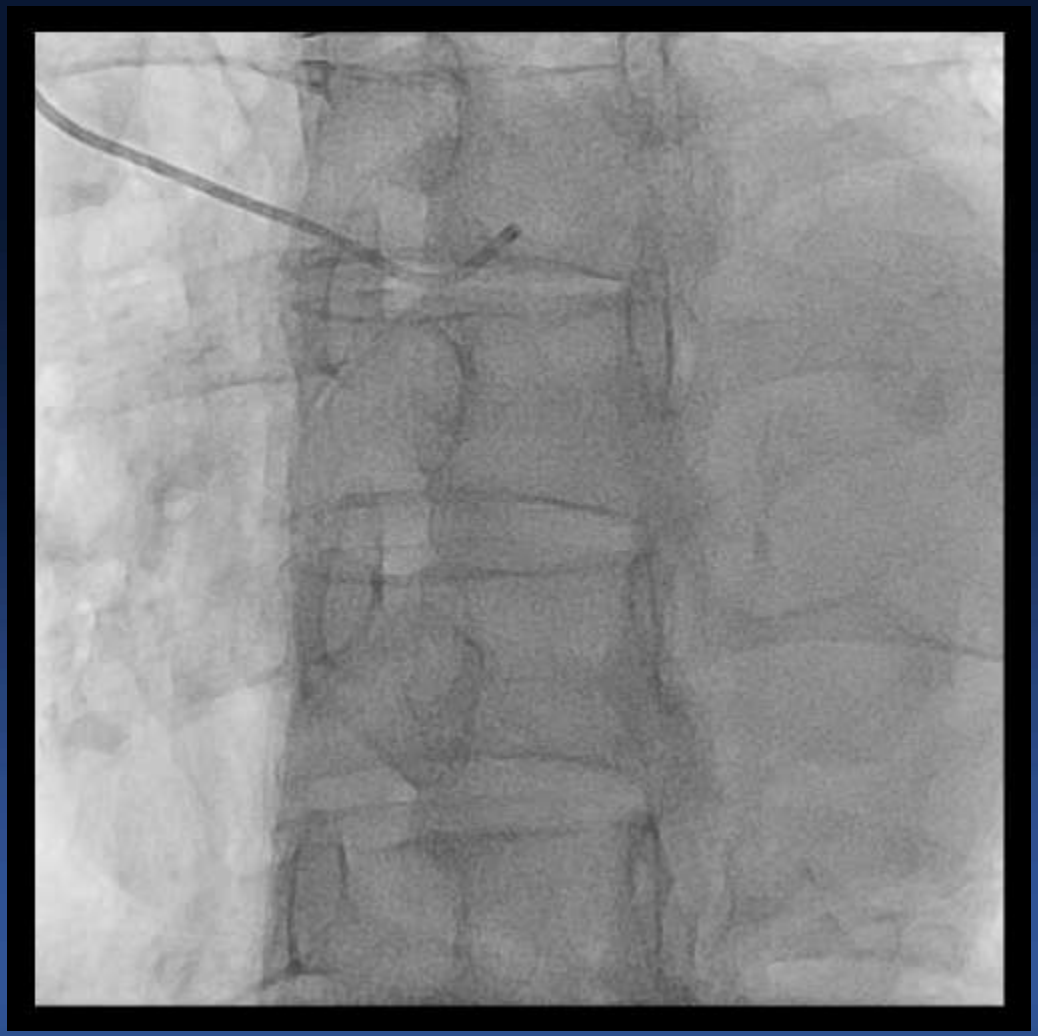


Abnormal Coronary Ostium



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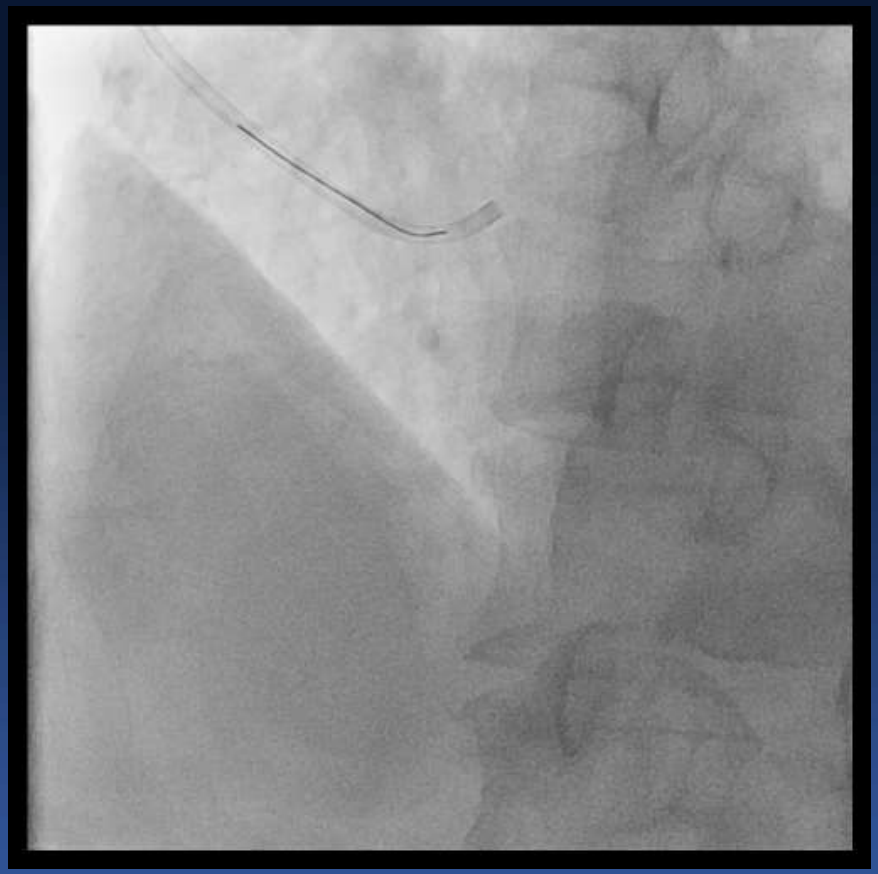

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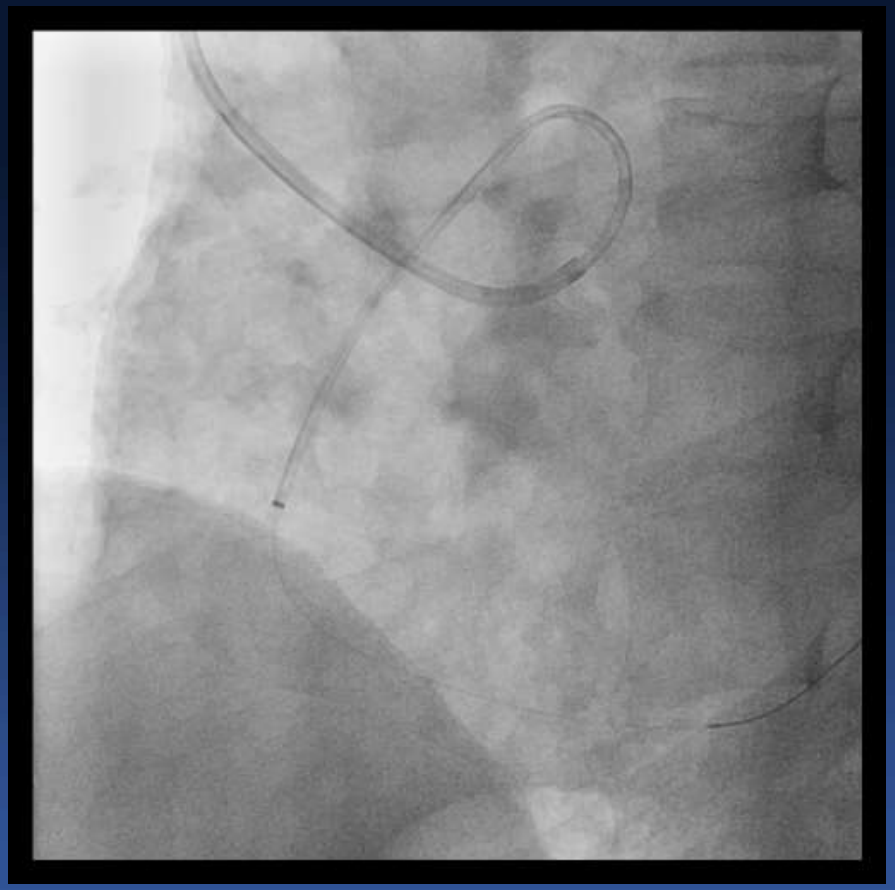

Abnormal LAD from RCA

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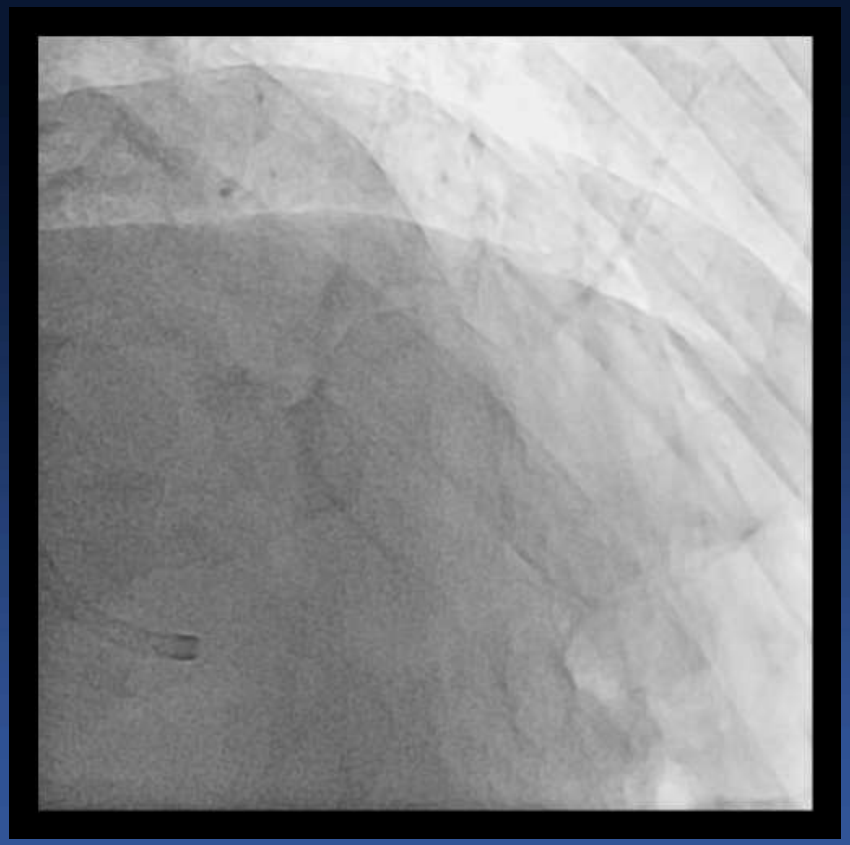
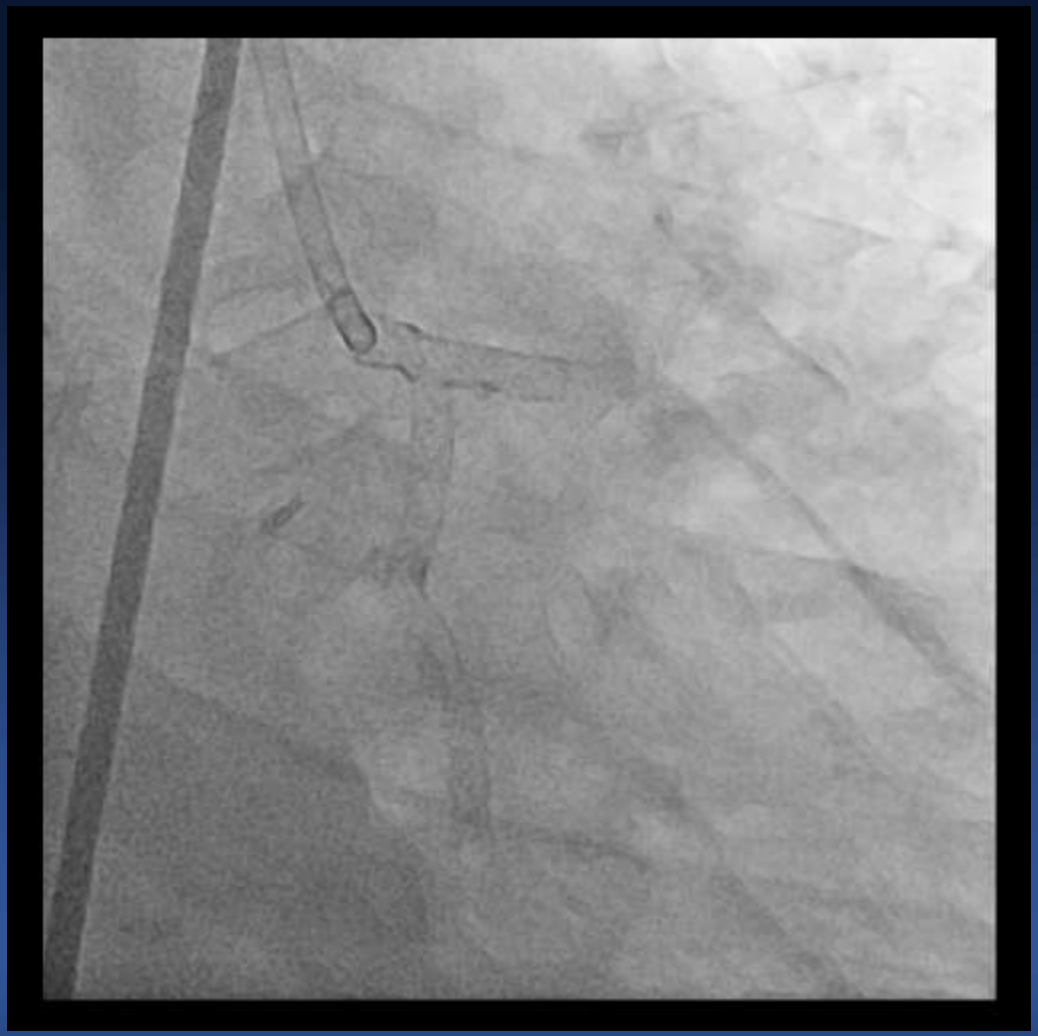


Stent Delivery Through Stent



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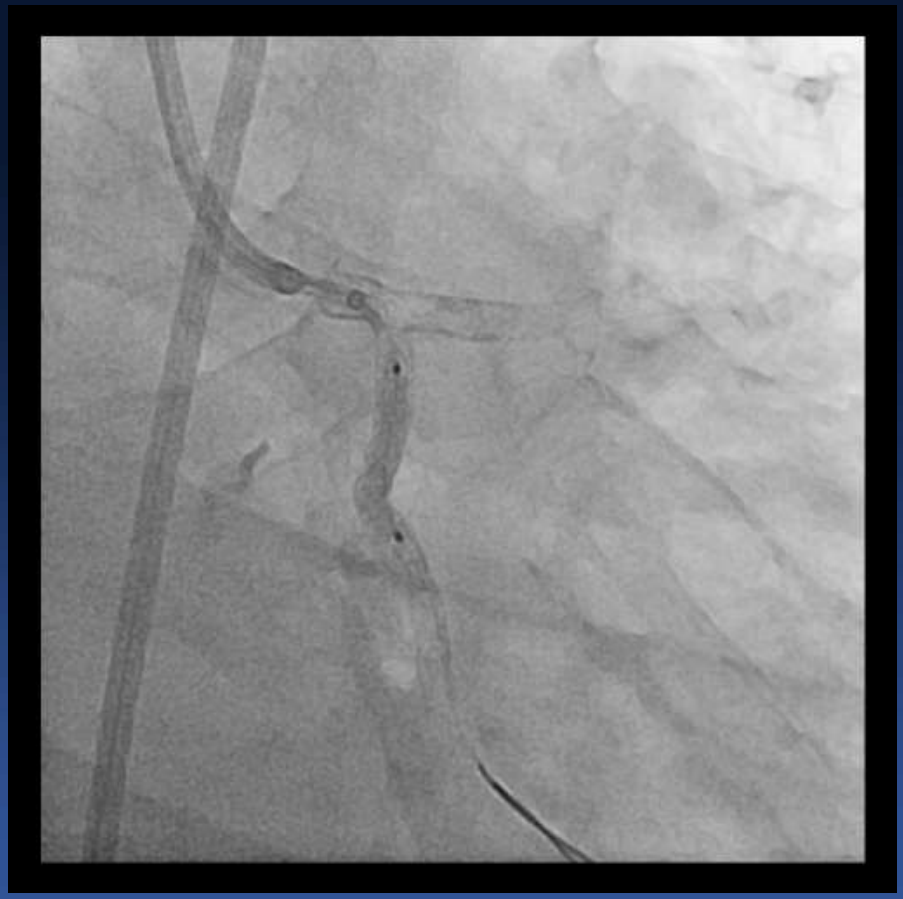
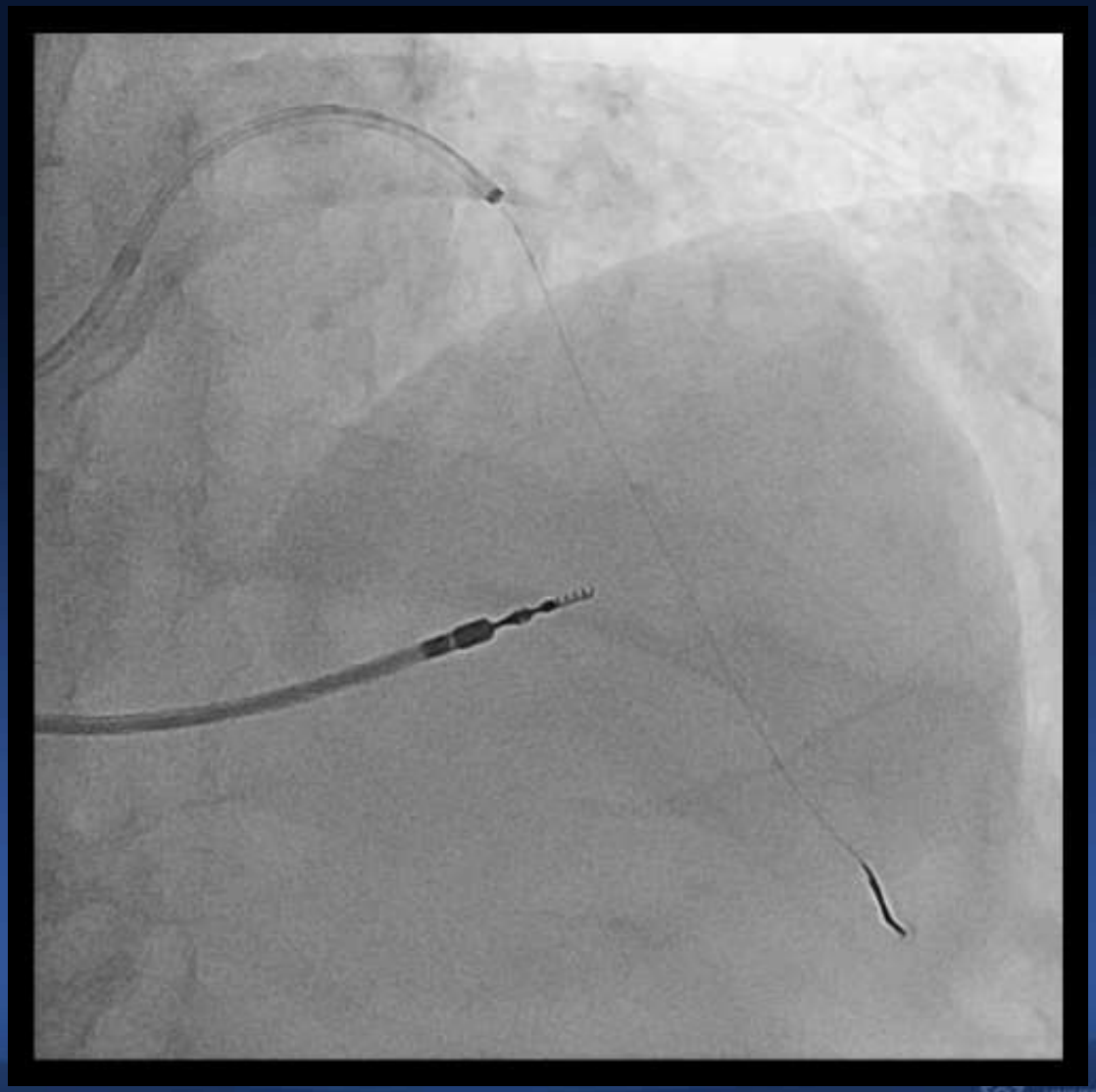


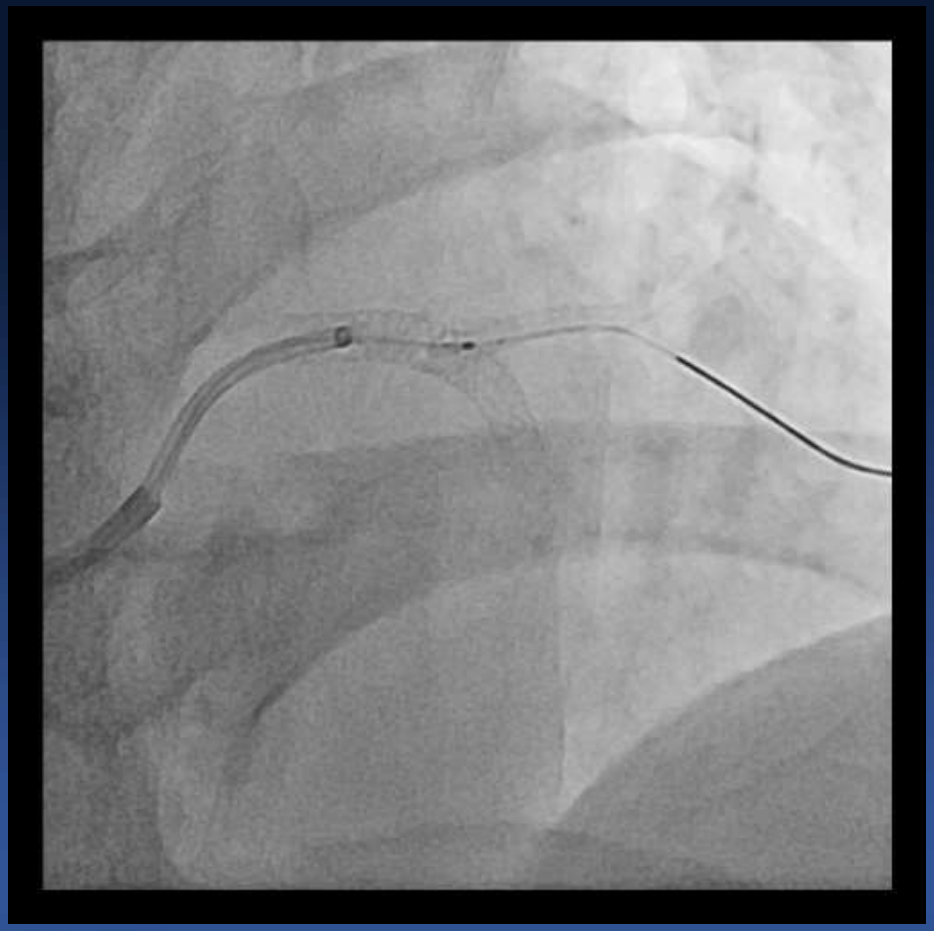
Stent Delivery Through Stent

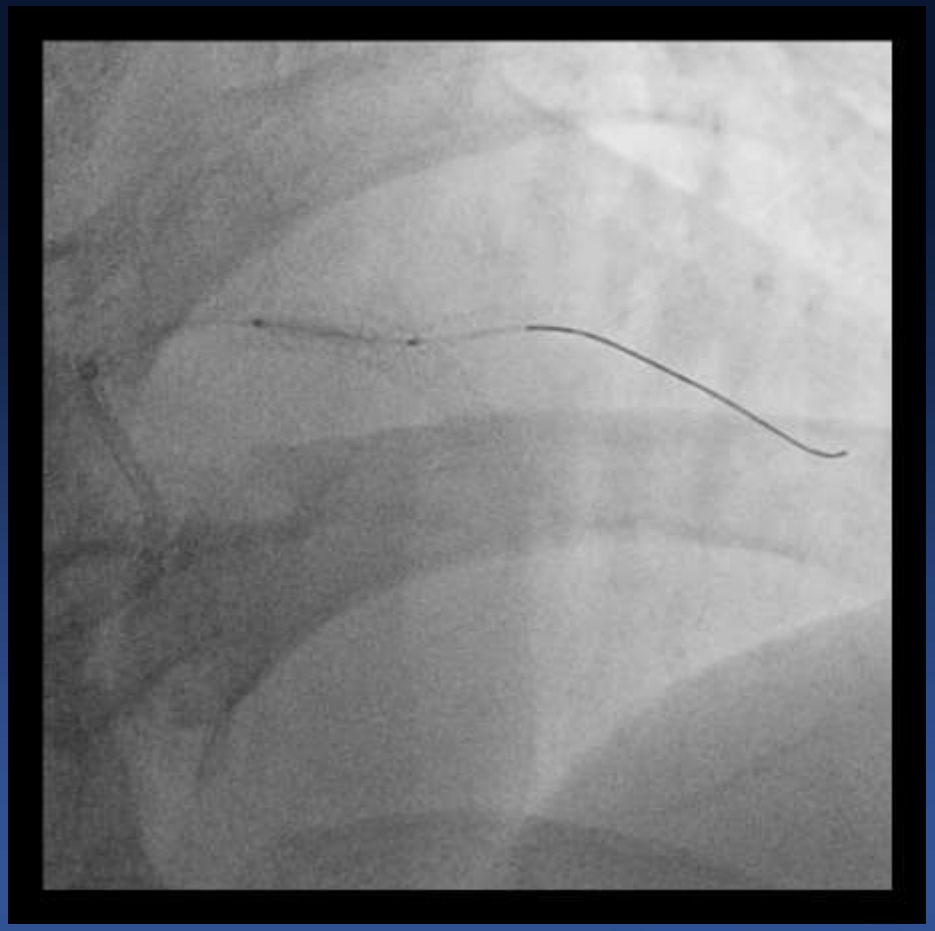
Selective Angiogram



Bifurcation Side Branch Device Delivery

Deflation and Push



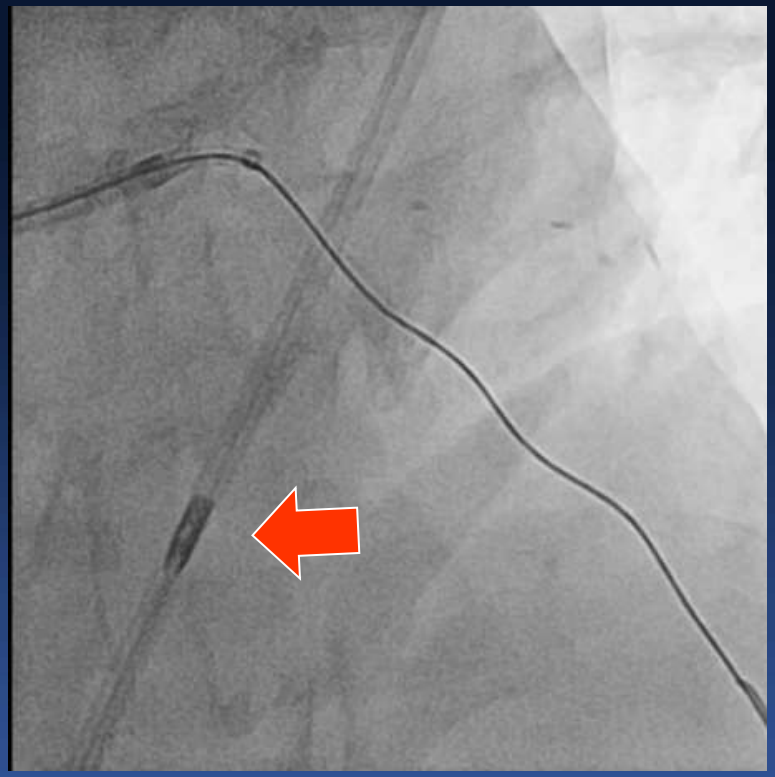


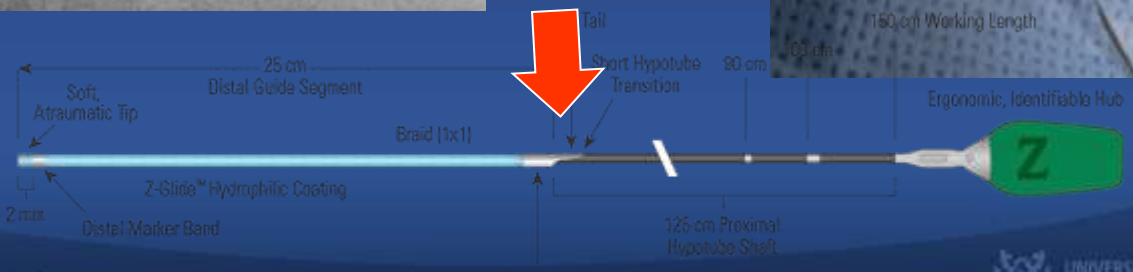
Complications

- Stent deformation
- Disruption of the stent catheter
- Coronary dissection
- Pressure damping
- Air embolism
- Dislodgement of the distal marker

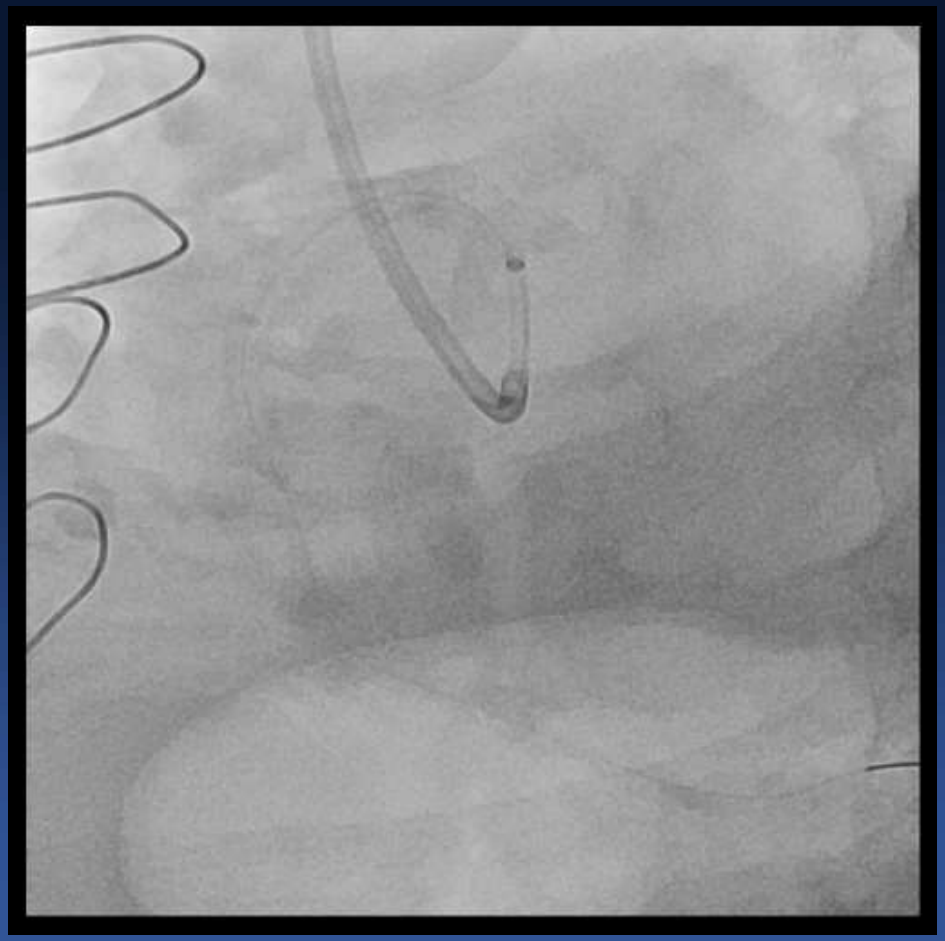
Stent Deformity

When you feel resistance, Do ***Not*** Push !!

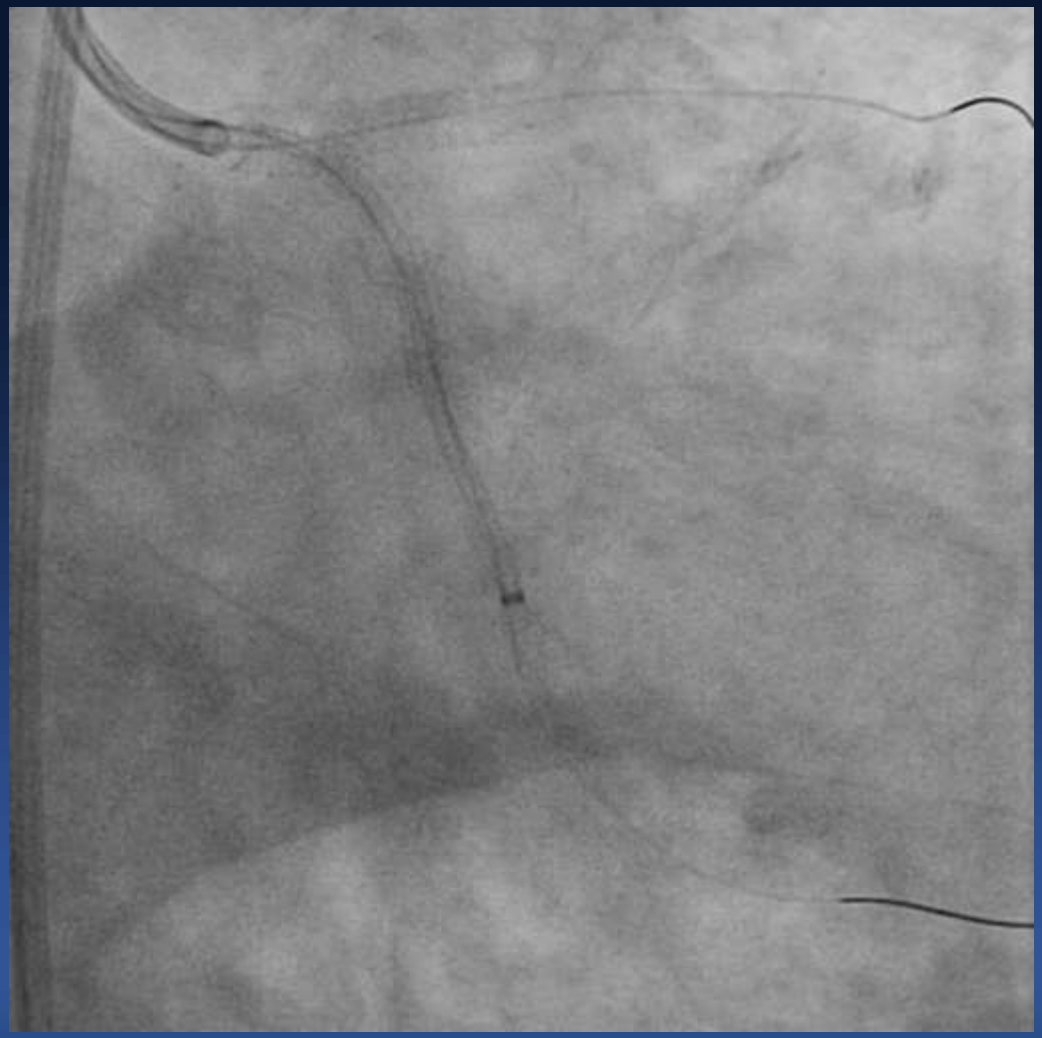




Forceful injection



Forceful injection: Coronary Dissection



Pressure Monitoring

Deep Intubation

Pressure Damping

Complications

- Stent deformation
- Disruption of the stent catheter
- Coronary dissection
- Pressure damping
- Air embolism
- Dislodgement of the distal marker

Mode of adverse events

Mode of events	GuideLiner (N=65)	Guidezilla (N=408)
Unable to pass or damaged PCI devices, n (%)	15 (23%)	53 (13%)
Difficulty advancing stent	5	21
Stent damage or detached from the stent balloon	8	9
Difficulty advancing the other PCI device	2	23
Unable to advance or pass catheter to target lesion, n (%)		117 (29%)
Catheter complete fracture		40
Catheter partial fracture		62
Catheter kinked, n (%)		59 (14%)
Catheter fracture, n (%)	38 (58%)	164 (40%)
Coronary artery dissection, n (%)	9 (14%)	10 (2.5%)
Coronary artery perforation, n (%	3 (3%)	2 (0.5%)
Aortic dissection, n (%		1 (0.2%)
Thrombus formation in the catheter, n (%	1 (1.5%)	1 (0.2%)
No-reflow phenomenon and hypotension		1 (0.2%)
Death	2 (3%)	1 (0.2%)

MAUDE database Cardiovasc Revasc Med 2019;20(5);409-412

Summary

- For device delivery, vessel or lesion resistance should be overcome.
- Strong support guides and deep intubation are often useful.
- Guide extension catheter is very useful and can overcome limitations of poor guide support and enable procedures otherwise not possible.
- For the complex PCI, guide extension catheter is a game changer. Interventional cardiologists should be familiar with this vital tool.