

Over the Troubled Vessel: How to Deliver Stent in Calcified or Tortuous Lesions

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Techniques to Facilitate Stent Delivery

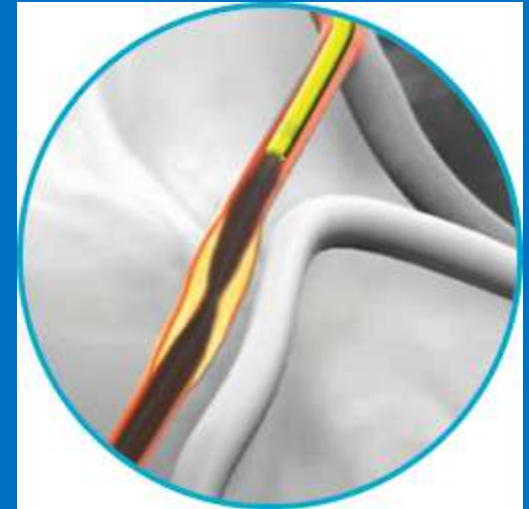
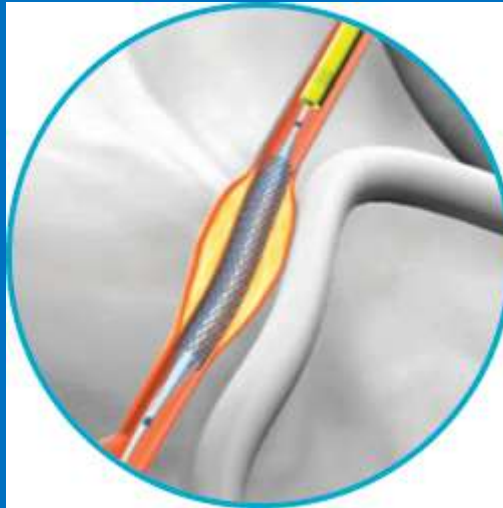
- Optimize guiding catheter
 - Co-axial
 - 7F or 8F
 - Extra back-up (EBU, XB, Amplatz)
- Guide extension catheter (Guideliner and Guidezilla)
- Long sheath (including radial sheath)
- Plaque modification (atherectomy, intravascular lithotripsy)
- Supportive wire/buddy wire (3 wires)/buddy balloon
- Balloon anchor (especially inside a previous stent)
- Breathing maneuvers
- Coughing

Guiding Catheter Extender: Indications

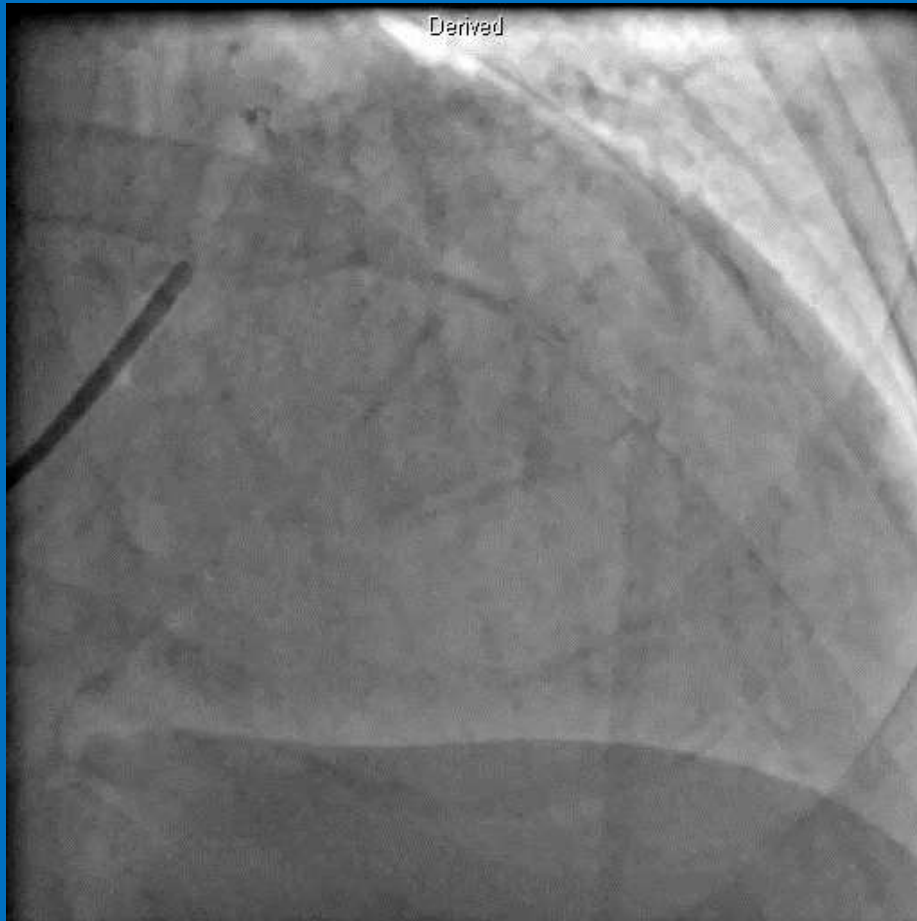
- Severe vessel angulation and tortuosity
- Coronary artery calcification
 - Orbital and rotational atherectomy
- Chronic total occlusion
- Intravascular imaging

GuideLiner

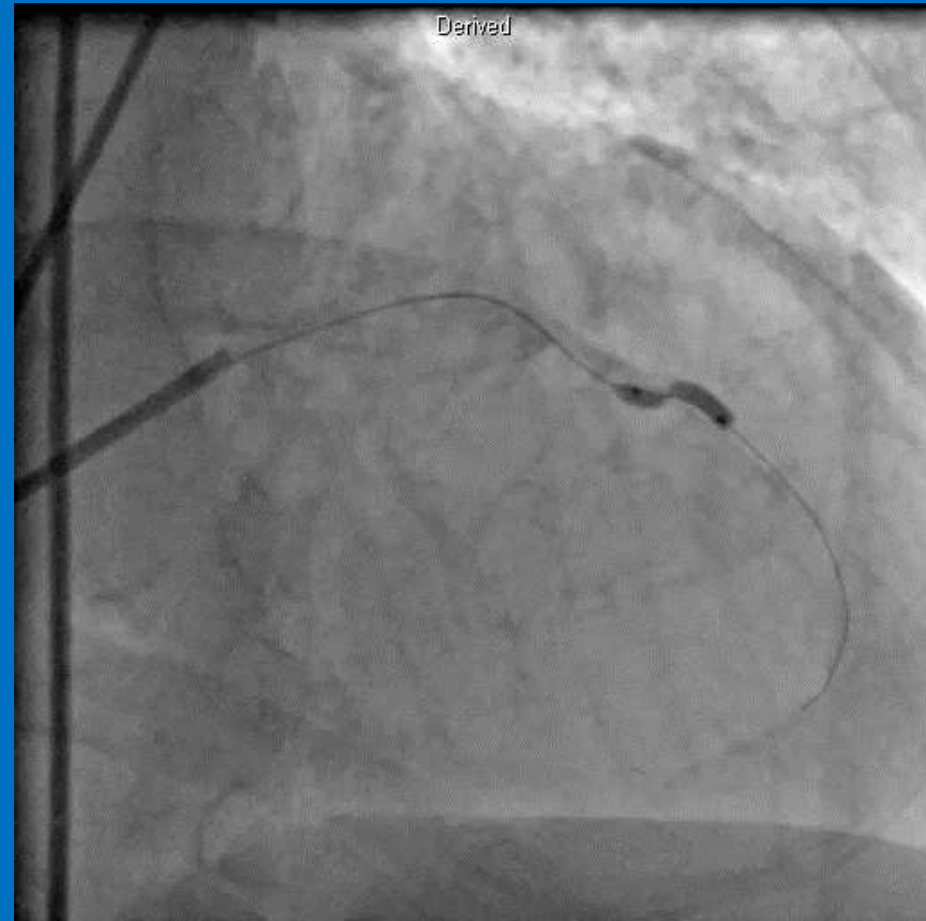
More flexible



Calcified and Tortuous LAD



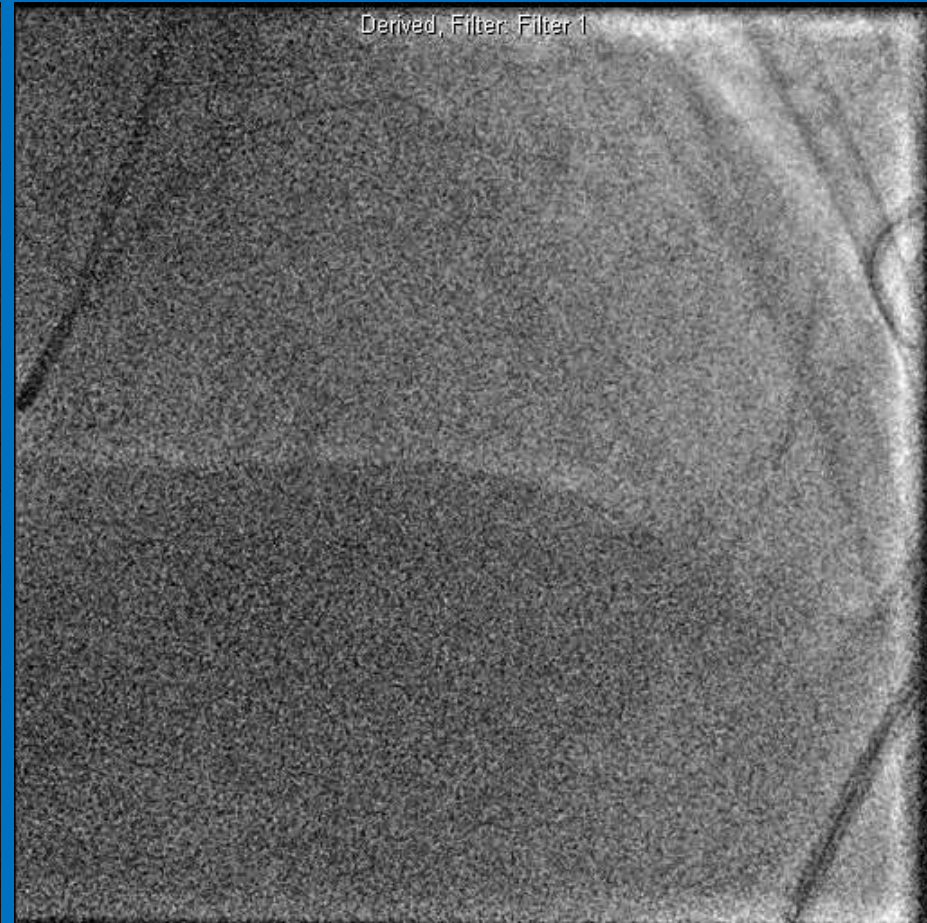
Severe proximal LAD stenosis



Unable to dilate calcified lesion

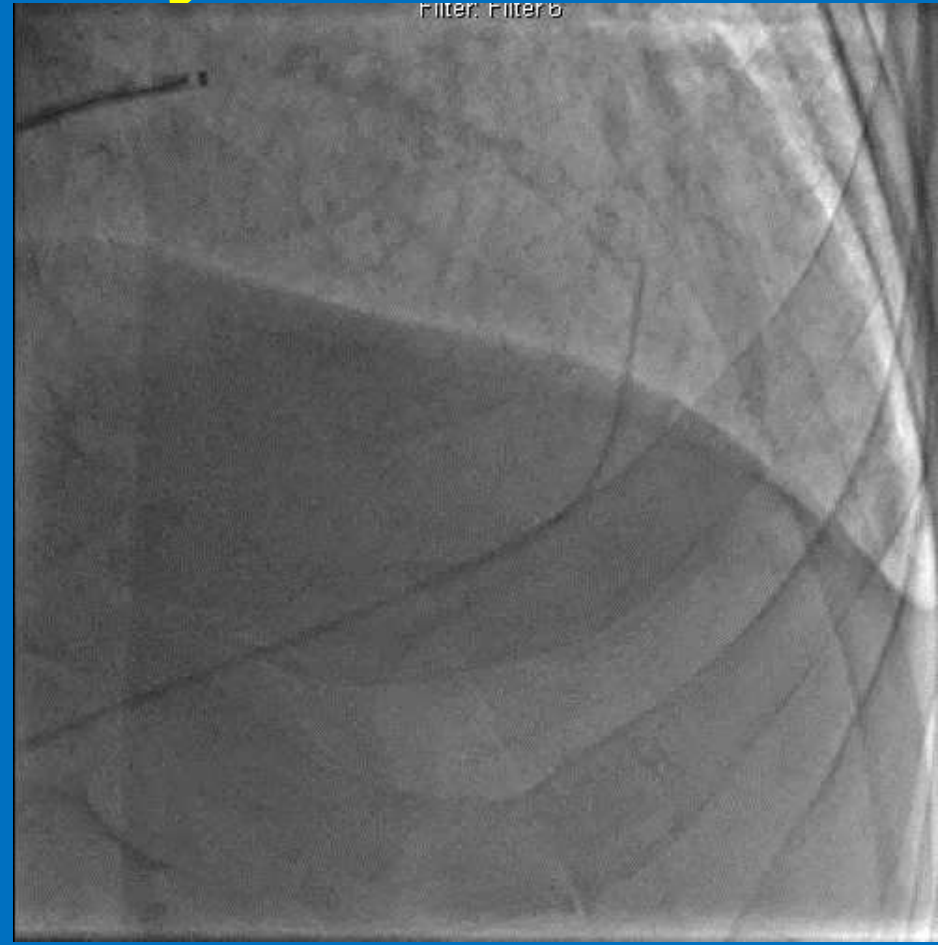
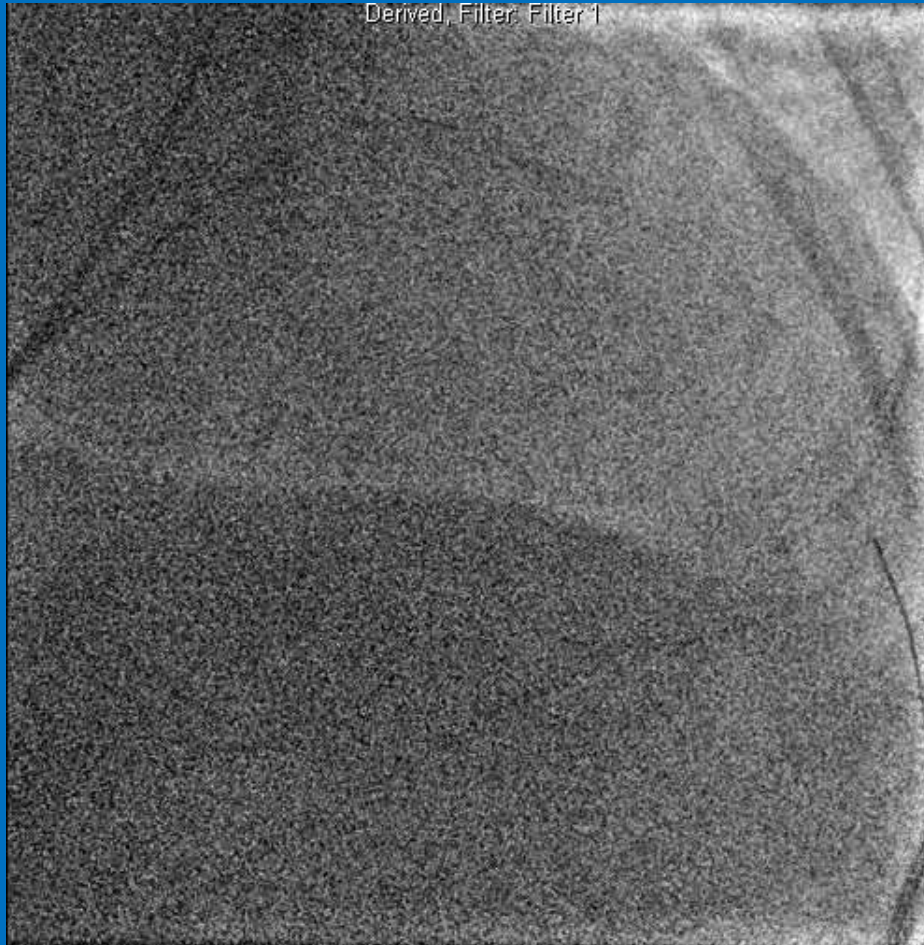


**Angiography at 1 week shows
pseudo-aneurysm of LAD**



Difficulty wiring

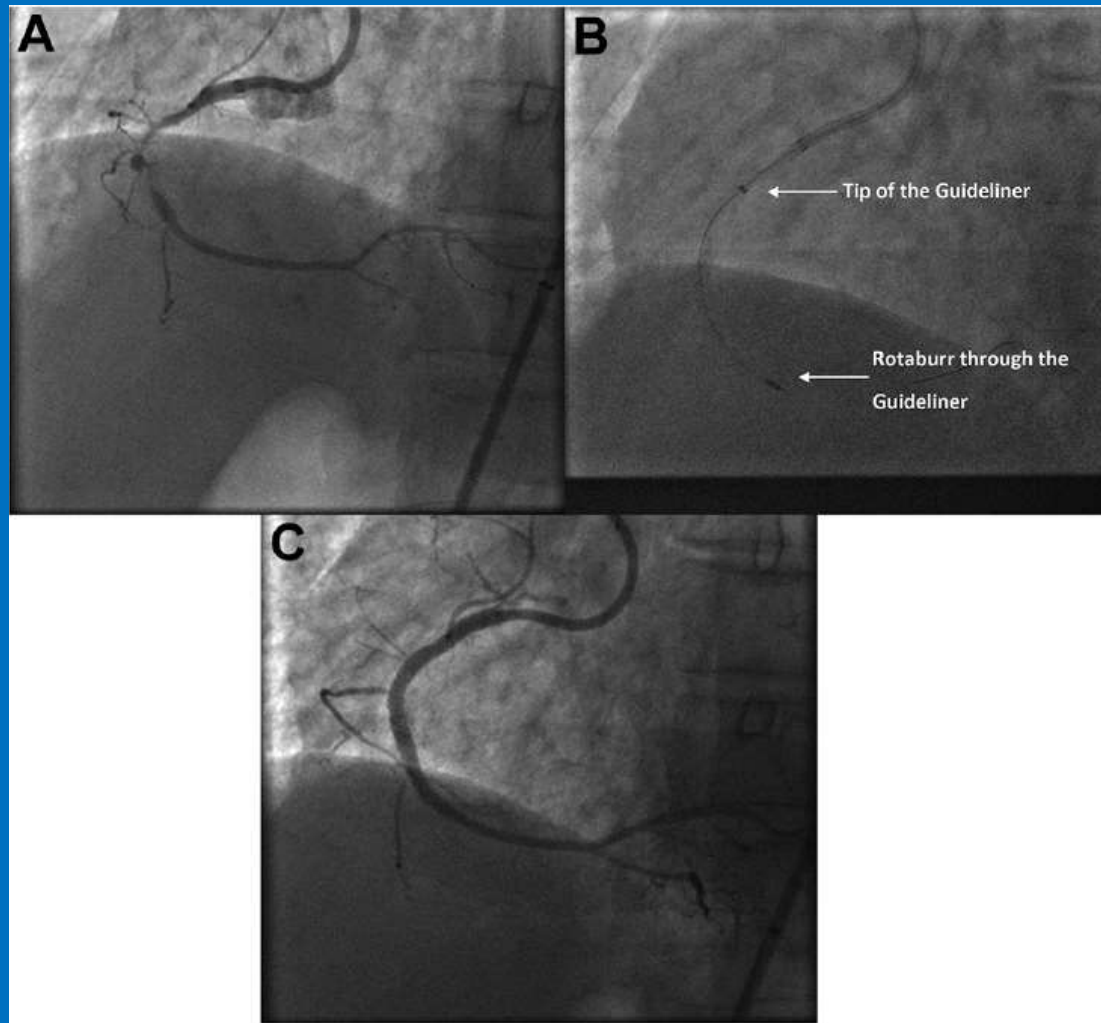
Guideliner to Facility Stent Delivery



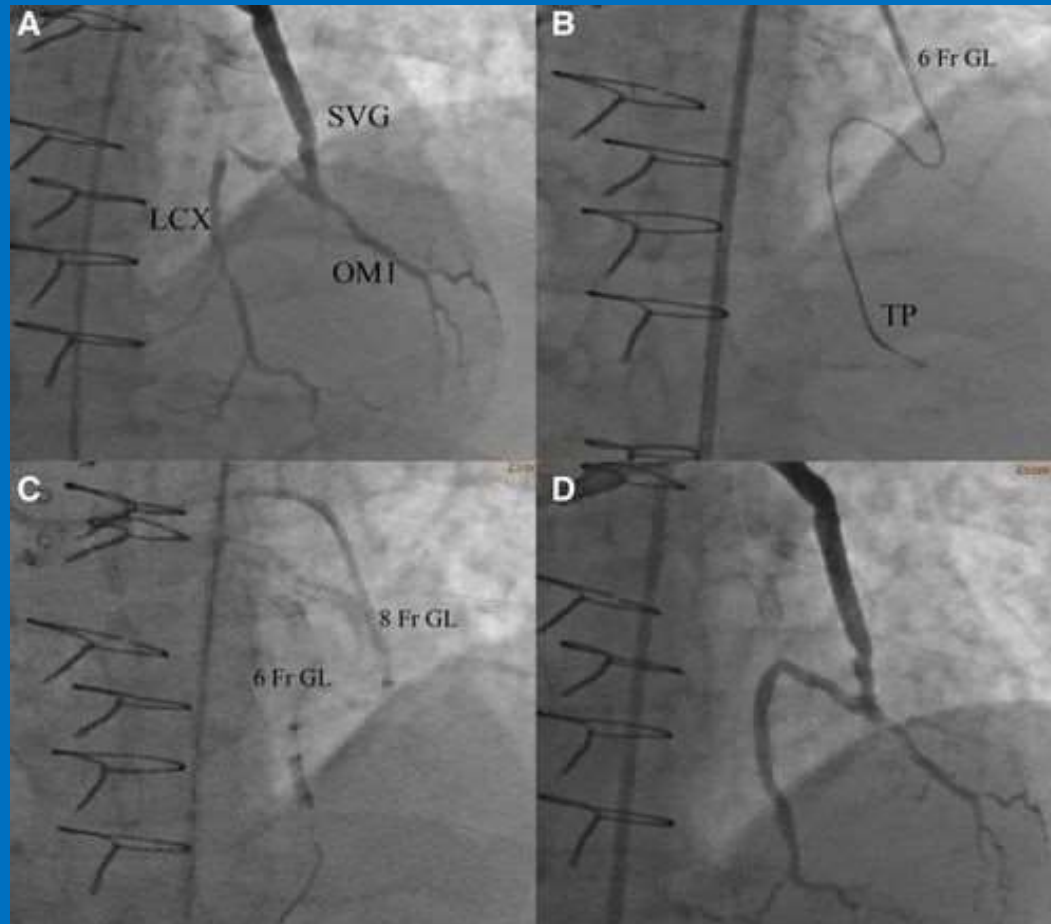
- Advance 1 mm/second. Max 25 seconds
- Continue low-speed until change in cadence
- Slow, pecking. Never push

Final angiography

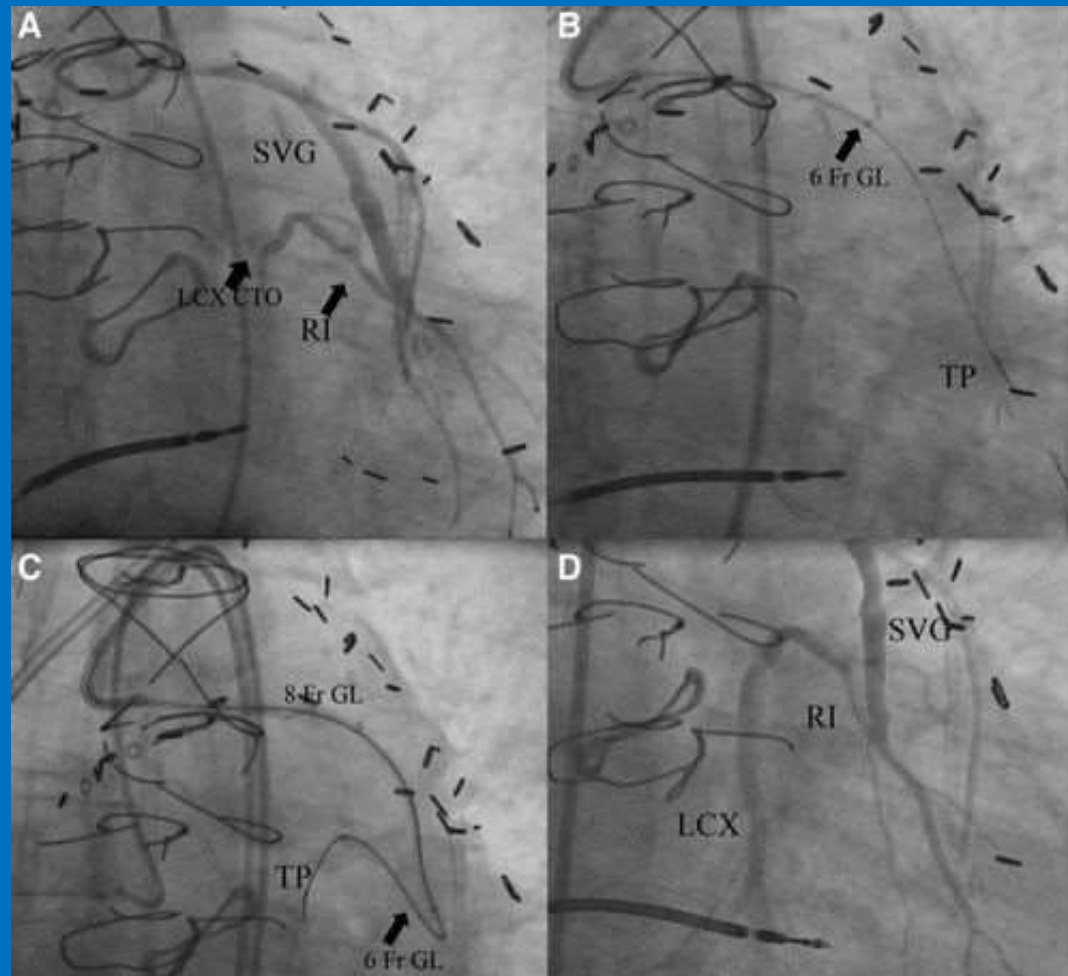
Guideline-Facilitated Rotational Atherectomy



Mother–Daughter–Granddaughter Double GuideLiner Technique



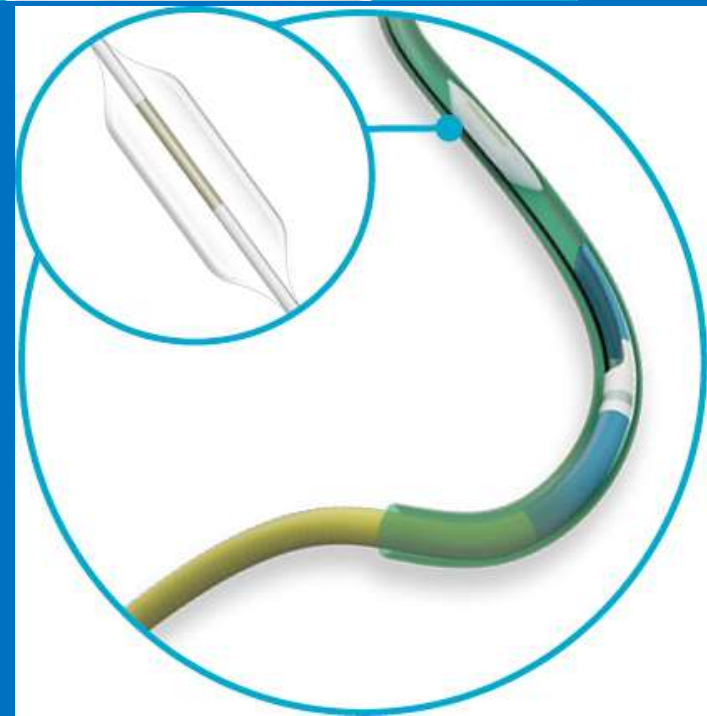
Mother–Daughter–Granddaughter Double GuideLiner Technique



TrapLiner

TrapLiner®
Catheter

Guide extension
plus wire trapping



Guidezilla

More pushable

Short Hypotube Transition

For minimal device interaction

Z-Glide™ Hydrophilic Coating

For optimal deliverability

Radiopaque Helical Collar

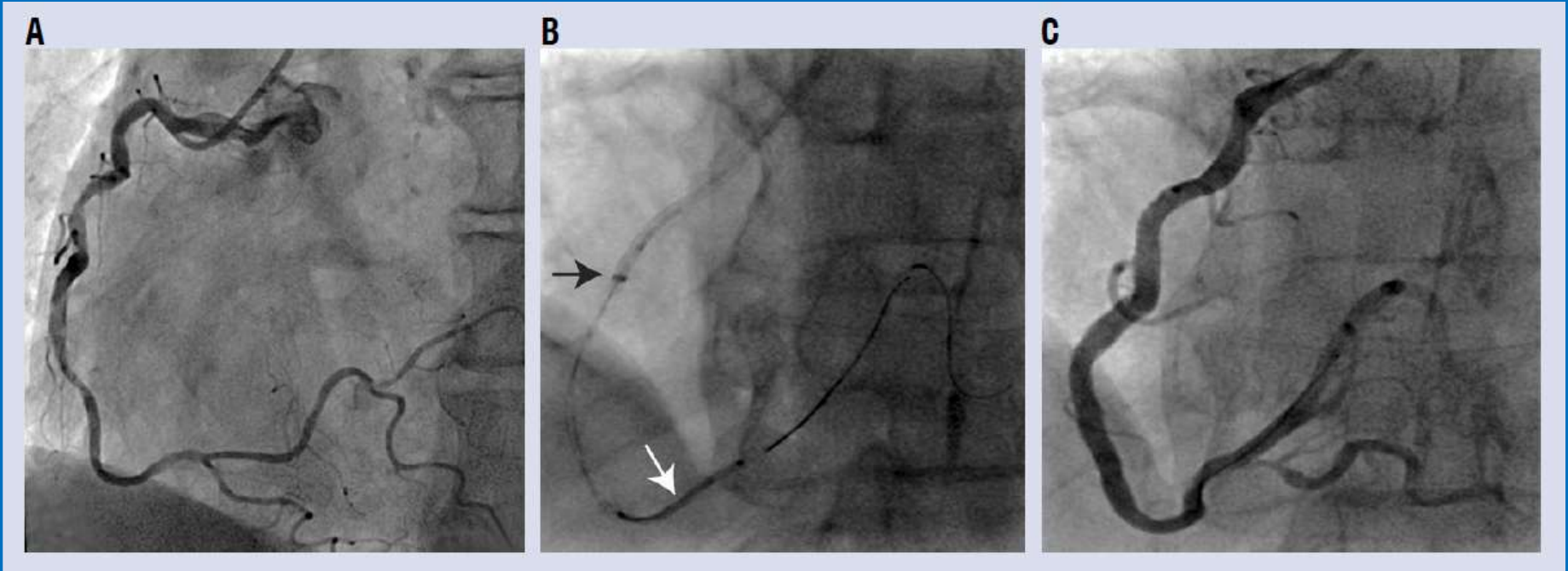
Designed for strength and visibility

Full Size Matrix

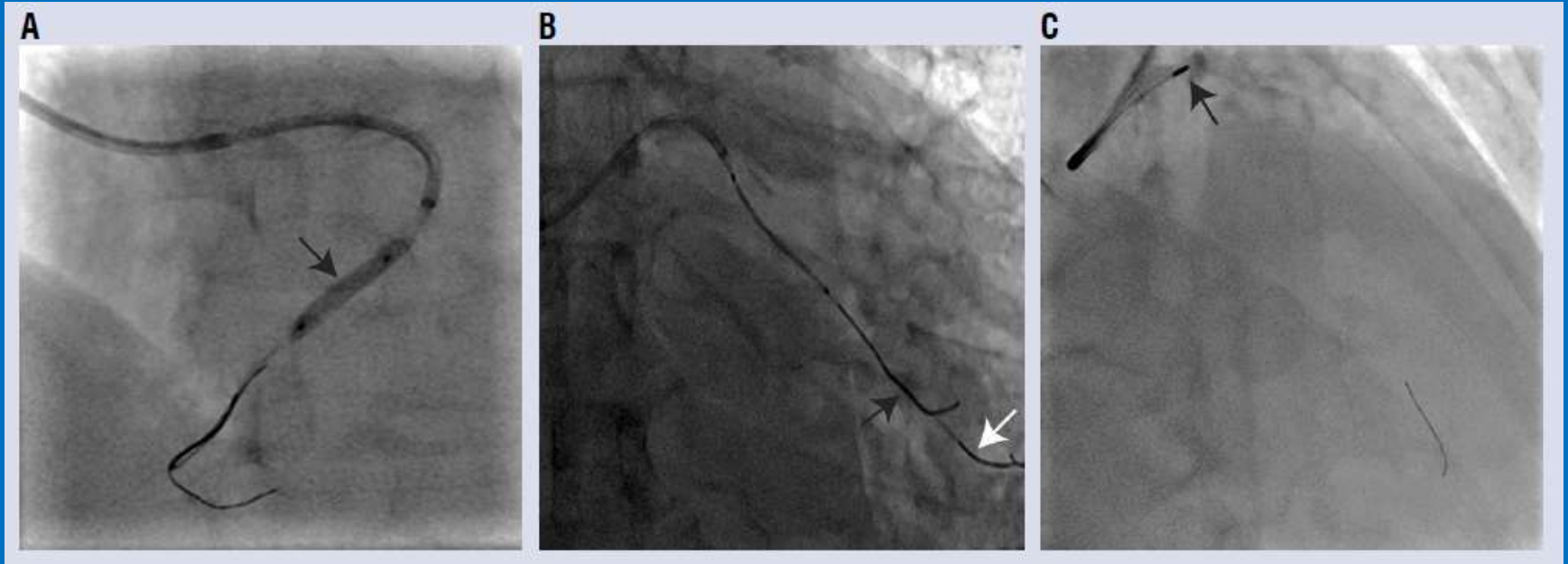
6F, 7F, & 8F are 25 cm
6F Long is 40 cm



Guidezilla



Guidezilla



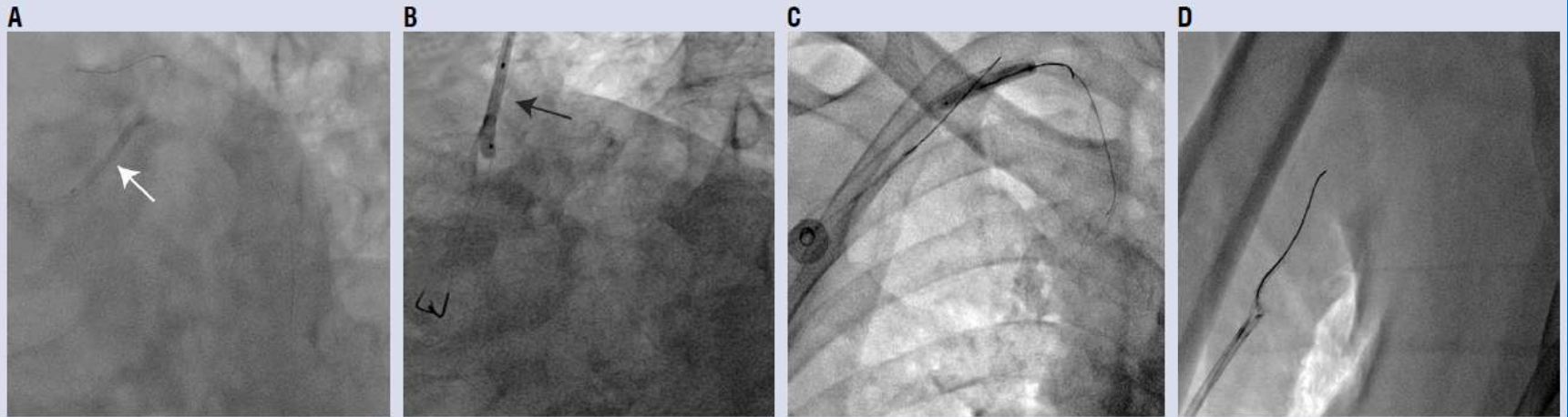
Balloon anchoring

Buddy wire

Rotational atherectomy

Guidezilla Complication

Stent Stripped Off



Complications

- Coronary dissection
- Pressure dampening and ischemia
- Air embolism (meticulous purging of air)
- Stent deformation

MAUDE Database

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%)

Summary

- Vessel tortuosity and calcification increase the degree of complexity of PCI
- Optimal guiding catheter support:
 - Co-axial
 - EBU, XB
 - 7 or 8 French
- Guide extension catheter invaluable tool
- Plaque modification with atherectomy for severely calcified lesions