

Rotational Atherectomy: Troubleshooting

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Interventional Cardiology

80 year-old diabetic with ACS

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Severely calcified proximal LAD

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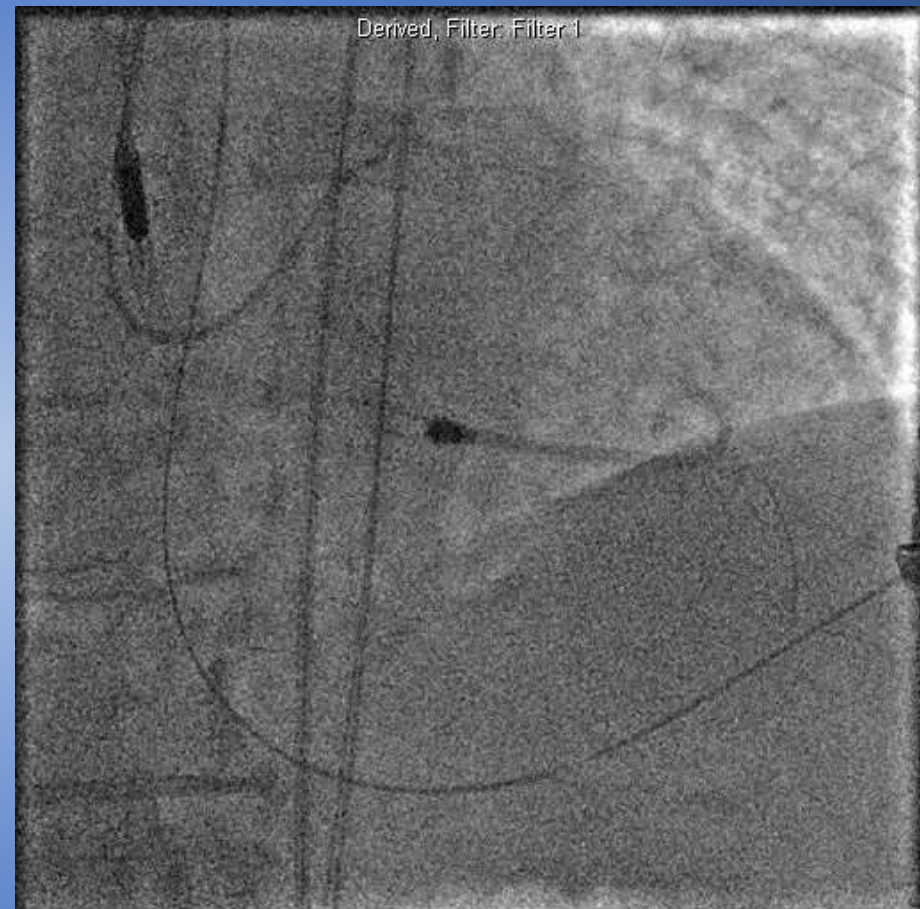
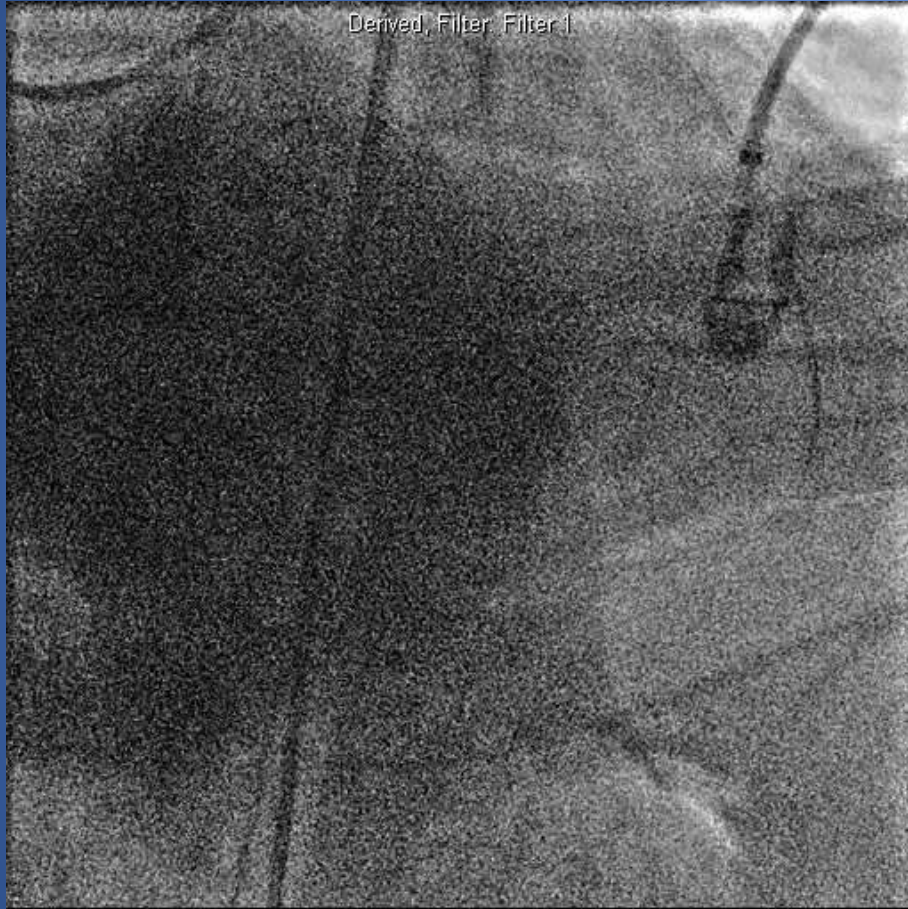


- Multiple, prolonged, high-pressure inflations
- Unable to fully dilate balloon

- Slow flow
- Ischemia
- Contrast staining c/w dissection

- **Cardiac arrest**
- **CPR**

- **Impella insertion**
- **Rotational atherectomy**



- **Intubated, multiple vasopressors**
- **Hemo-metabolic shock, septic shock, multi-organ failure**
- **Died**

Loss of Wire Purchase

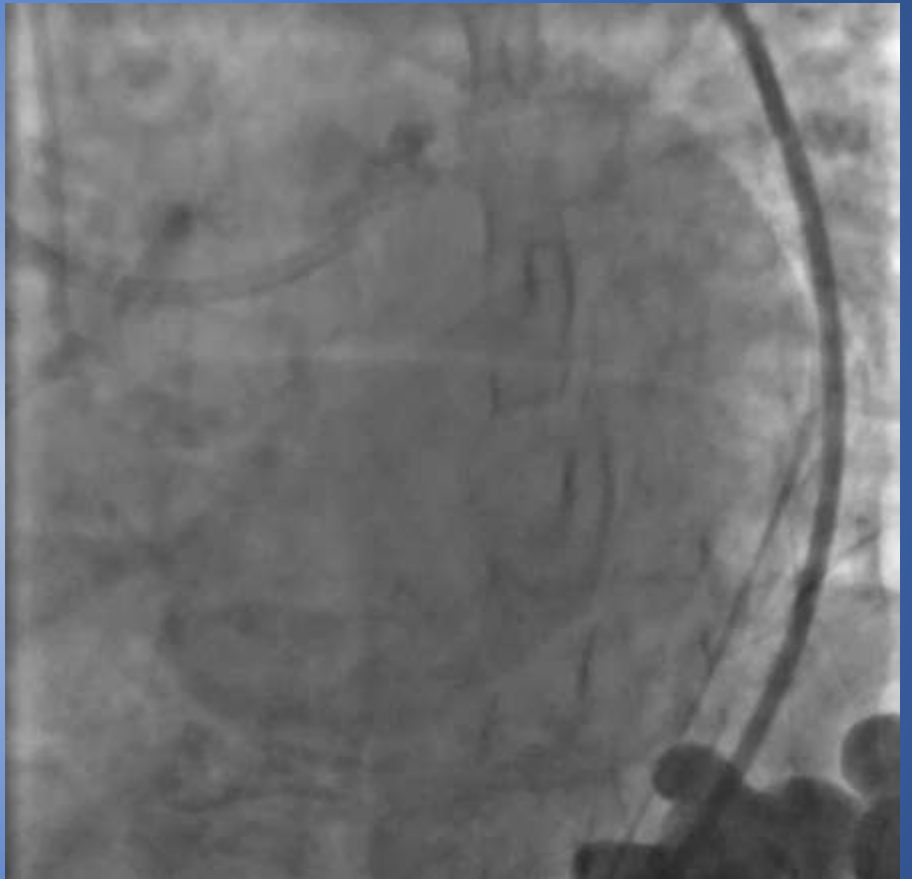
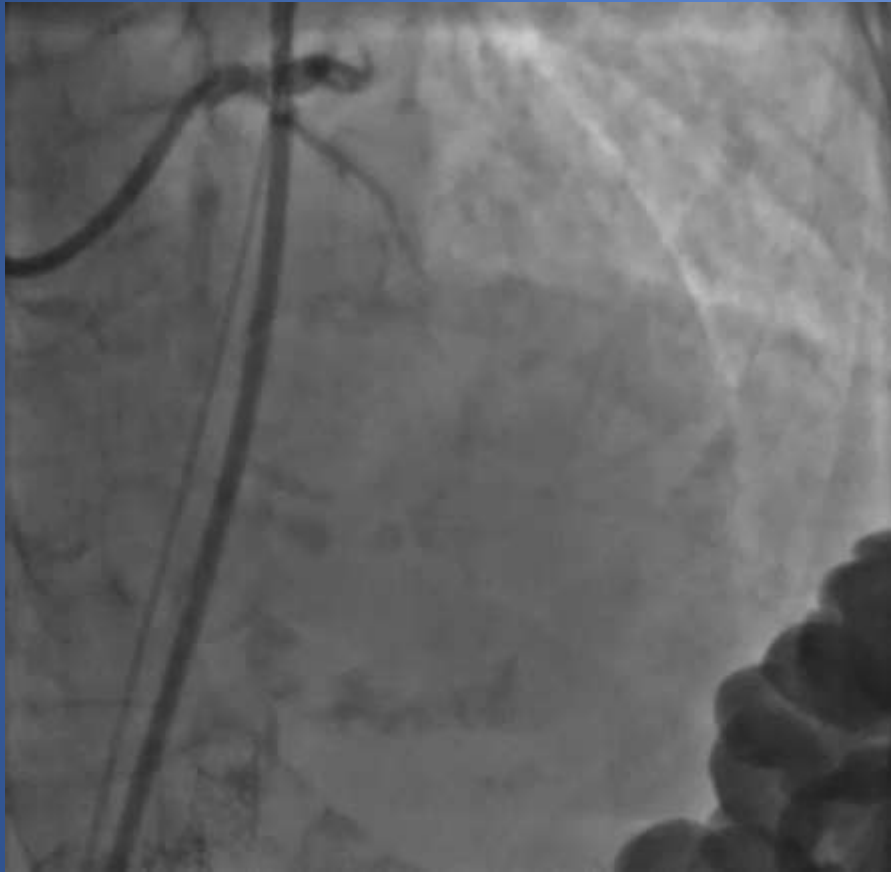
**86 y.o. female with bronchiectasis, CMP with EF 35%
presents with NSTEMI**



**Severe mesenteric ischemia
s/p stent
Renal artery stenosis s/p stent**



**4F JL4
Severe ostial LM, LAD, and LCX**



Rotational Atherectomy of LM and LAD

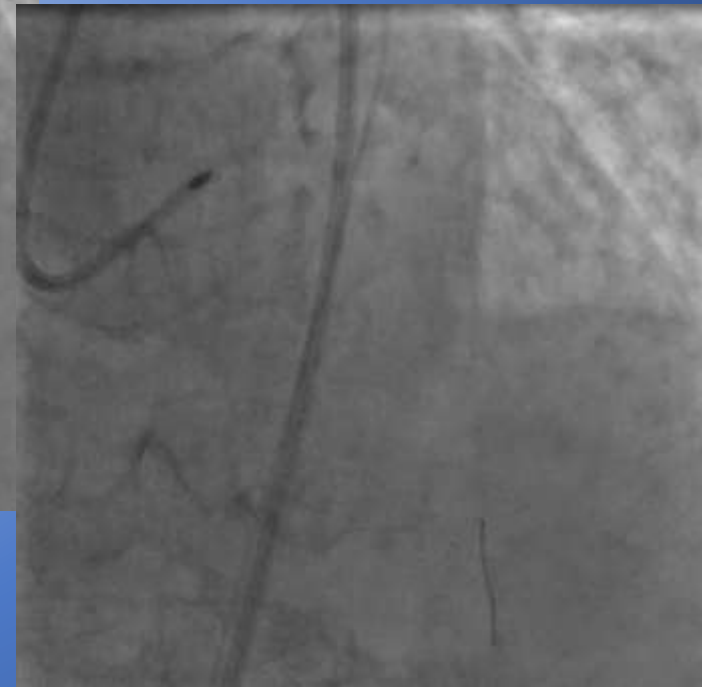
Advance Rota-Floppy wire under Dynaglide



1.25 mm burr



1.5 mm burr



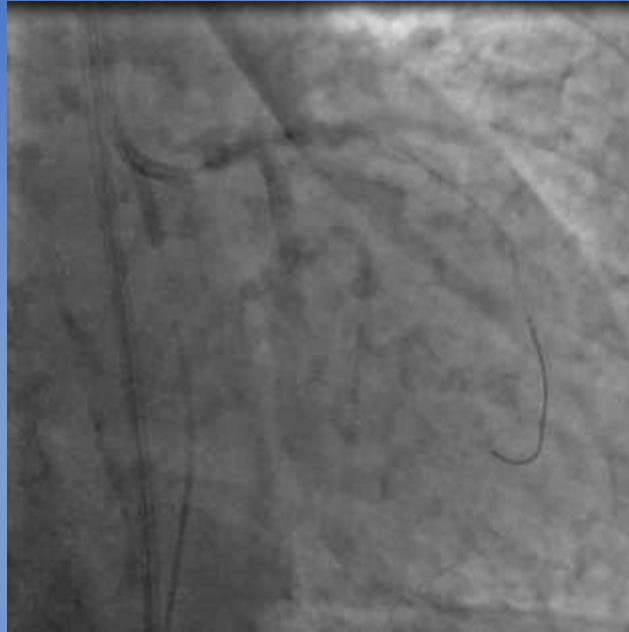
1.75 mm burr



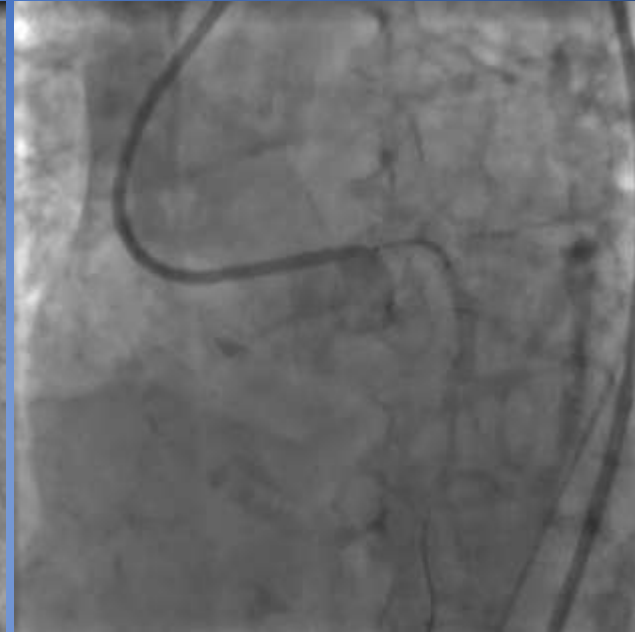
3.5x28 mm EES



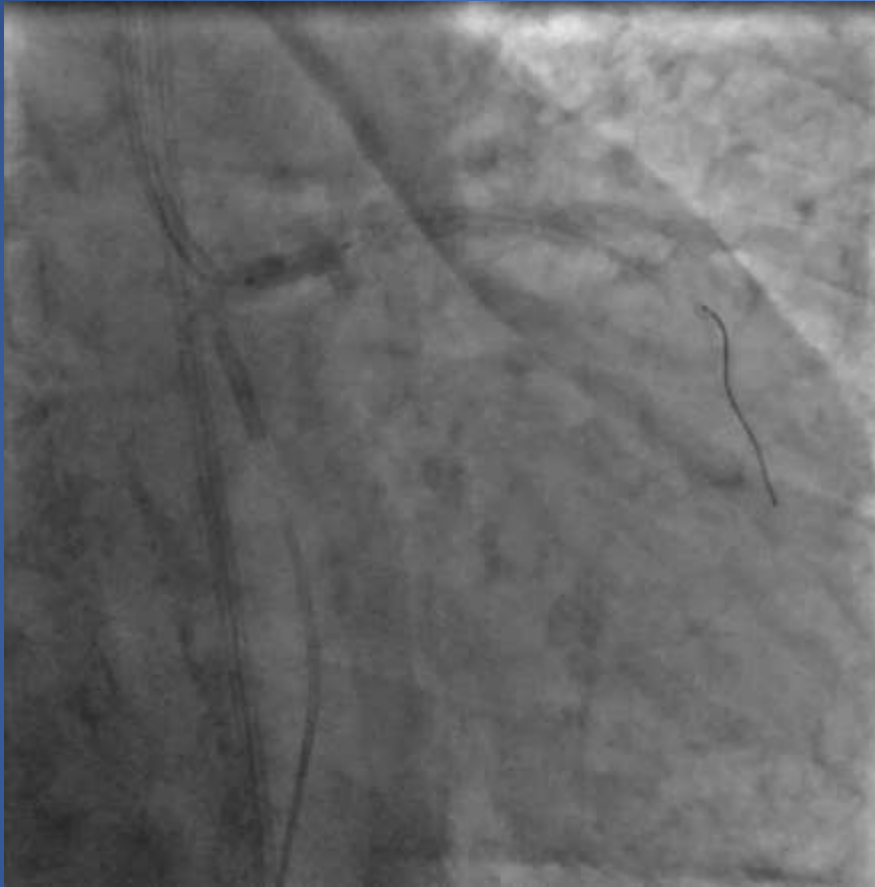
LCX: 3.5x15 mm EES
LAD: 3.5x15 mm balloon



Crush technique



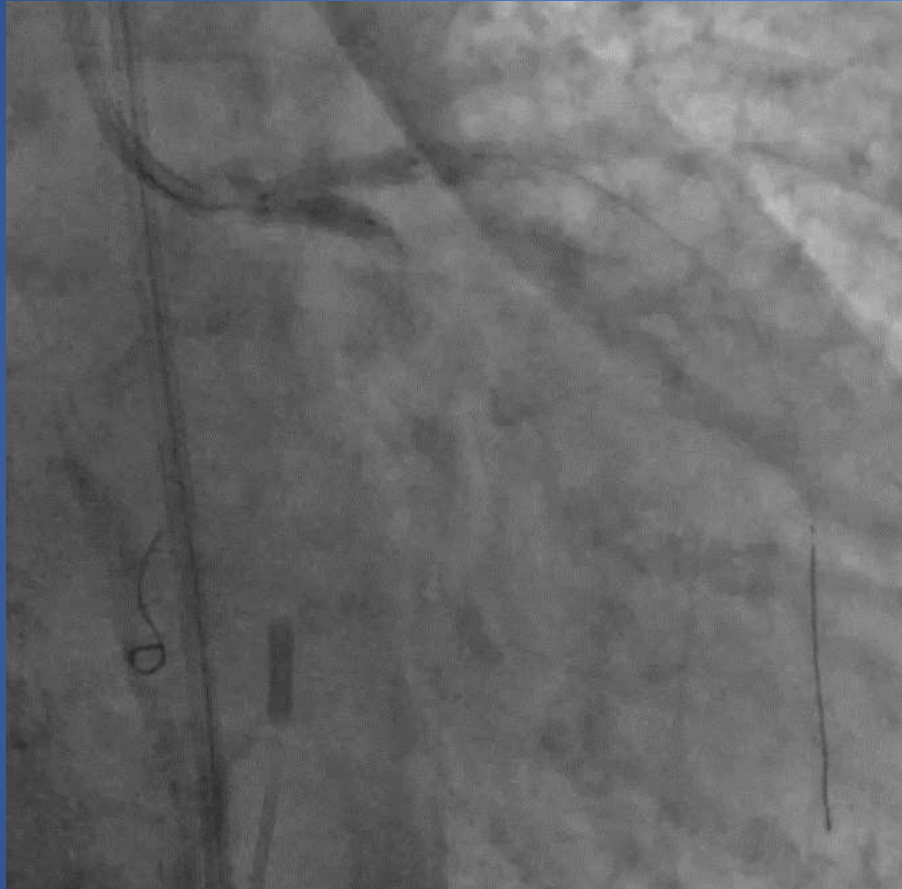
LM: 4.0x18 mm EES



POT with 4.0x12 mm NC balloon



Flare of ostial LM



Kissing balloon:
LAD: 3.75x15 mm NC
LCX: 3.5x12 mm NC



Final angiogram

***Advance Burr to Lesion Without
Assistant Holding the RotaWire***

Single-Operator Technique



Avoid Burr Jump

Solution

- Pull back RotaWire
- Release knob and move back and forth
- Activate Dynaglide

Slow Flow

Prevention of Slow Flow

- **Constant injection of saline during atherectomy**
- **Decrease the duration of each pass**
- **IC Nipride 100 mcg**
- **IC Nicardipine 100 mcg**
- **IV Phenylephrine 100 mcg**

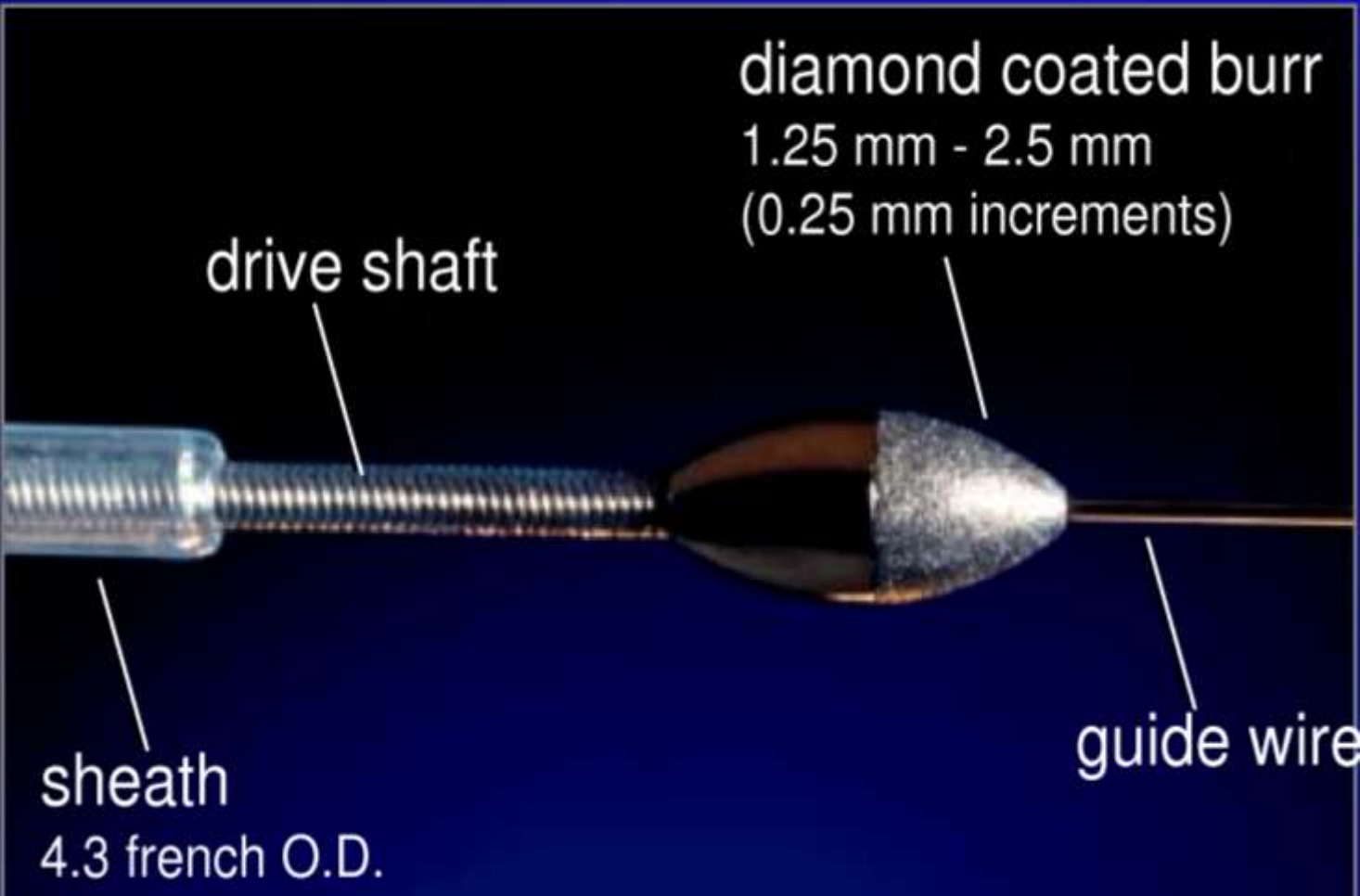
Unable to Advance Burr to Lesion

Solution

- **Activate Dynaglide**

Burr Entrapment

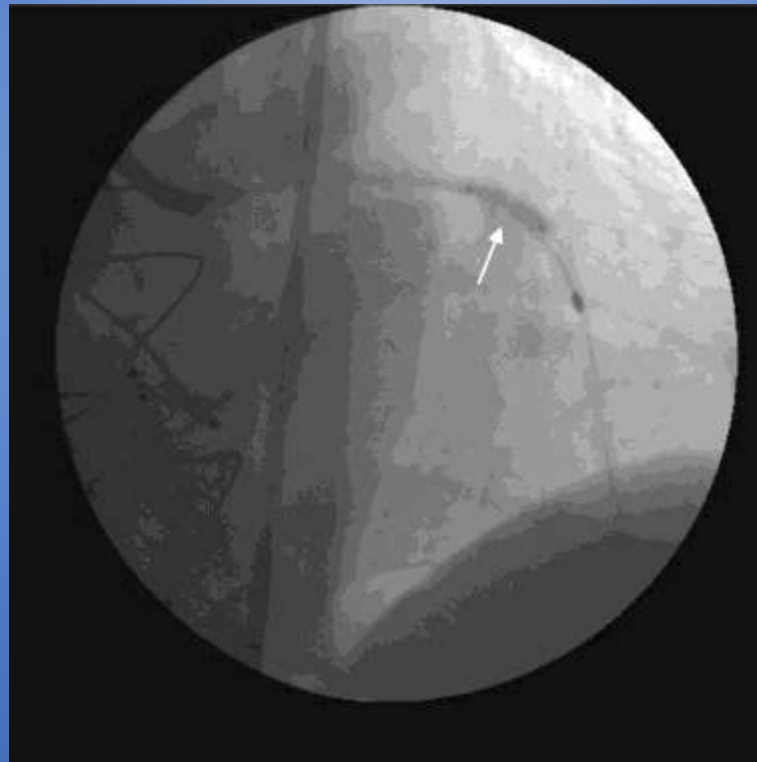
Position of the diamond crystals in the distal half of the RA burr may predispose to BE, since it can only ablate in a forward movement



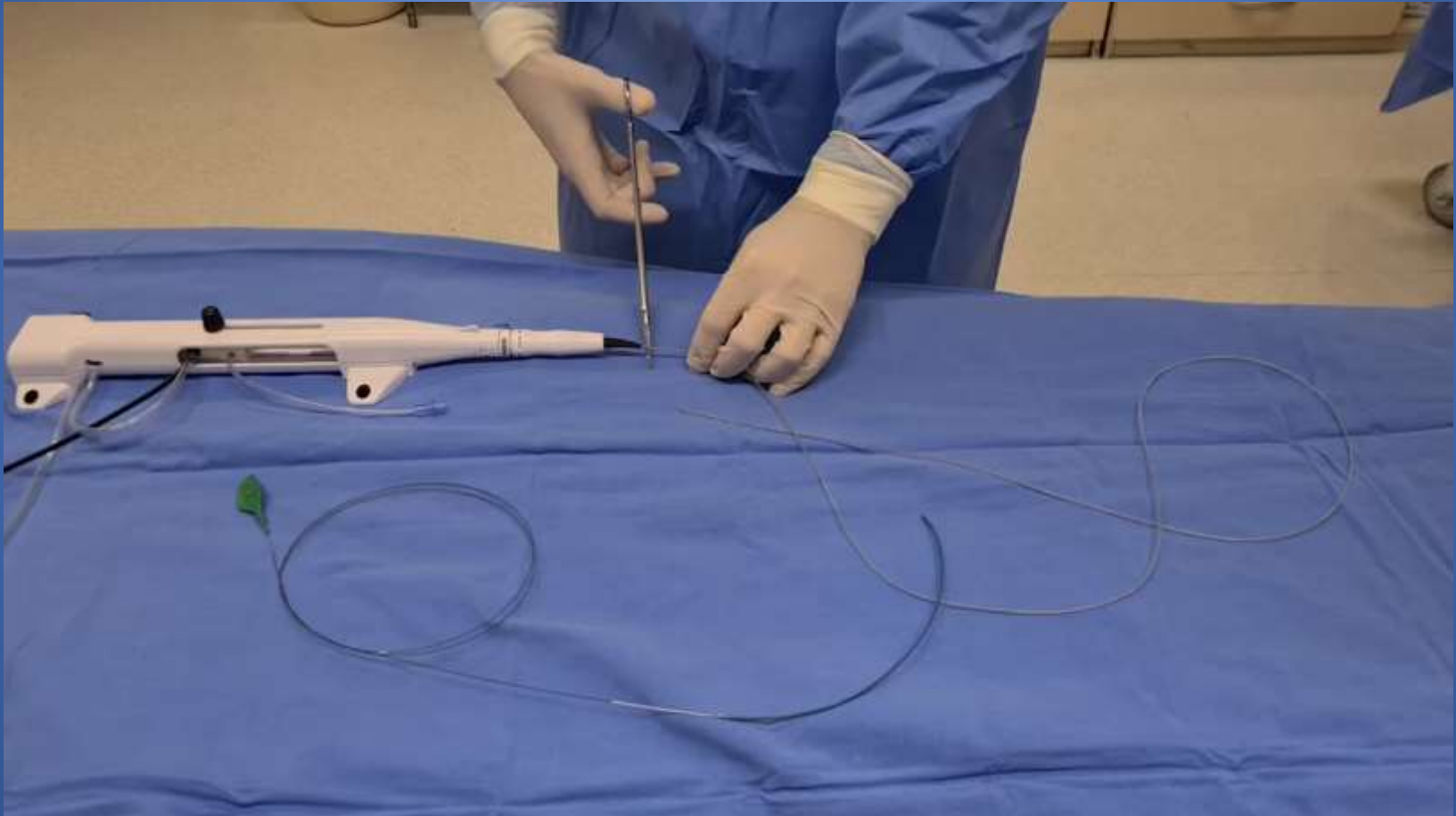
Burr Entrapment

- Incidence is 0.5 to 1%
- More common with 1.25 mm burr
- Pass a second wire beyond the entrapped burr followed by balloon dilatation

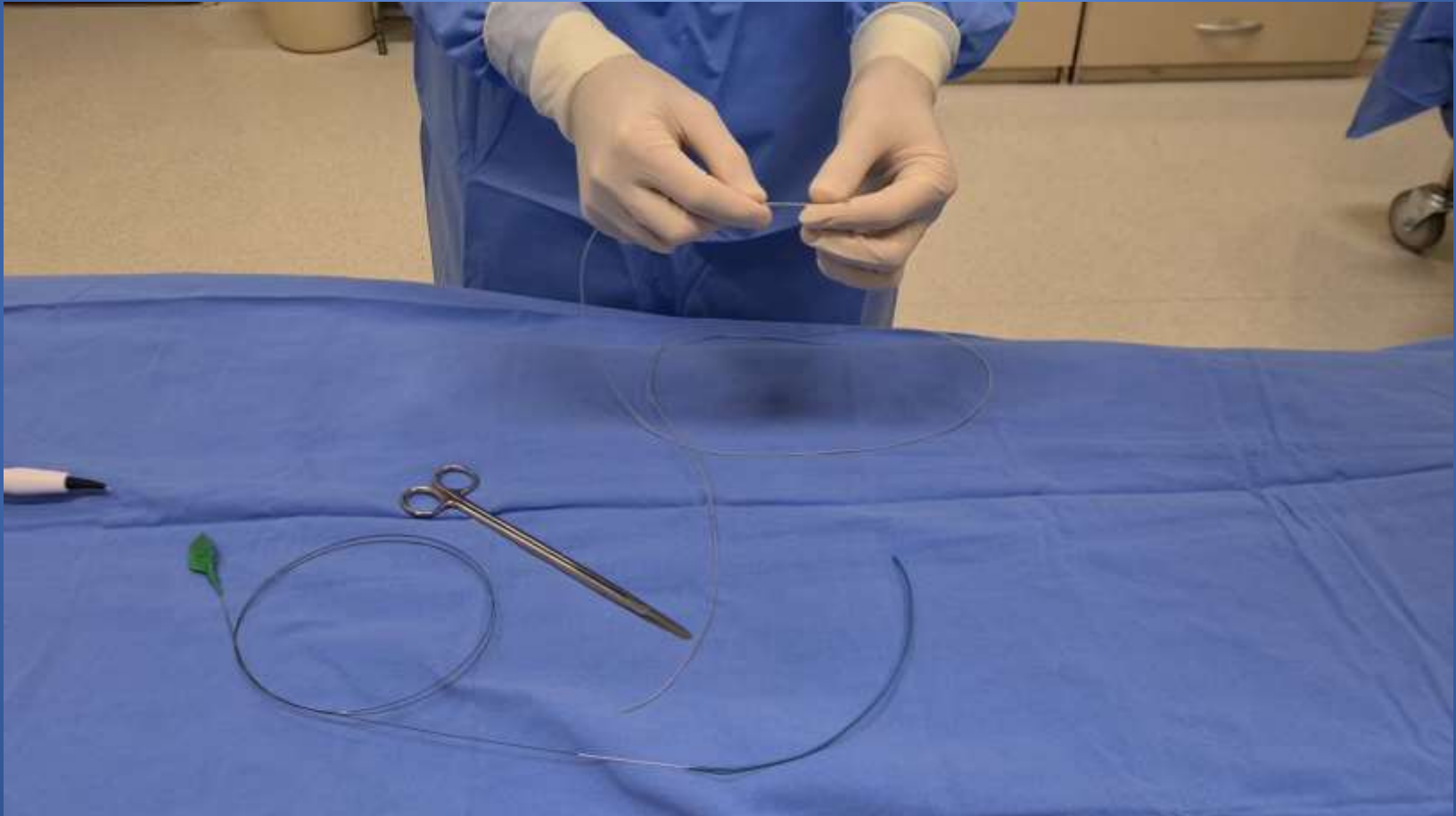
Entrapped burr in LAD and rescued by balloon inflation (arrow) at the proximal stenotic lesion.



Cut the RA drive shaft with sharp scissors as close as possible to the black rubber connection of the advancer



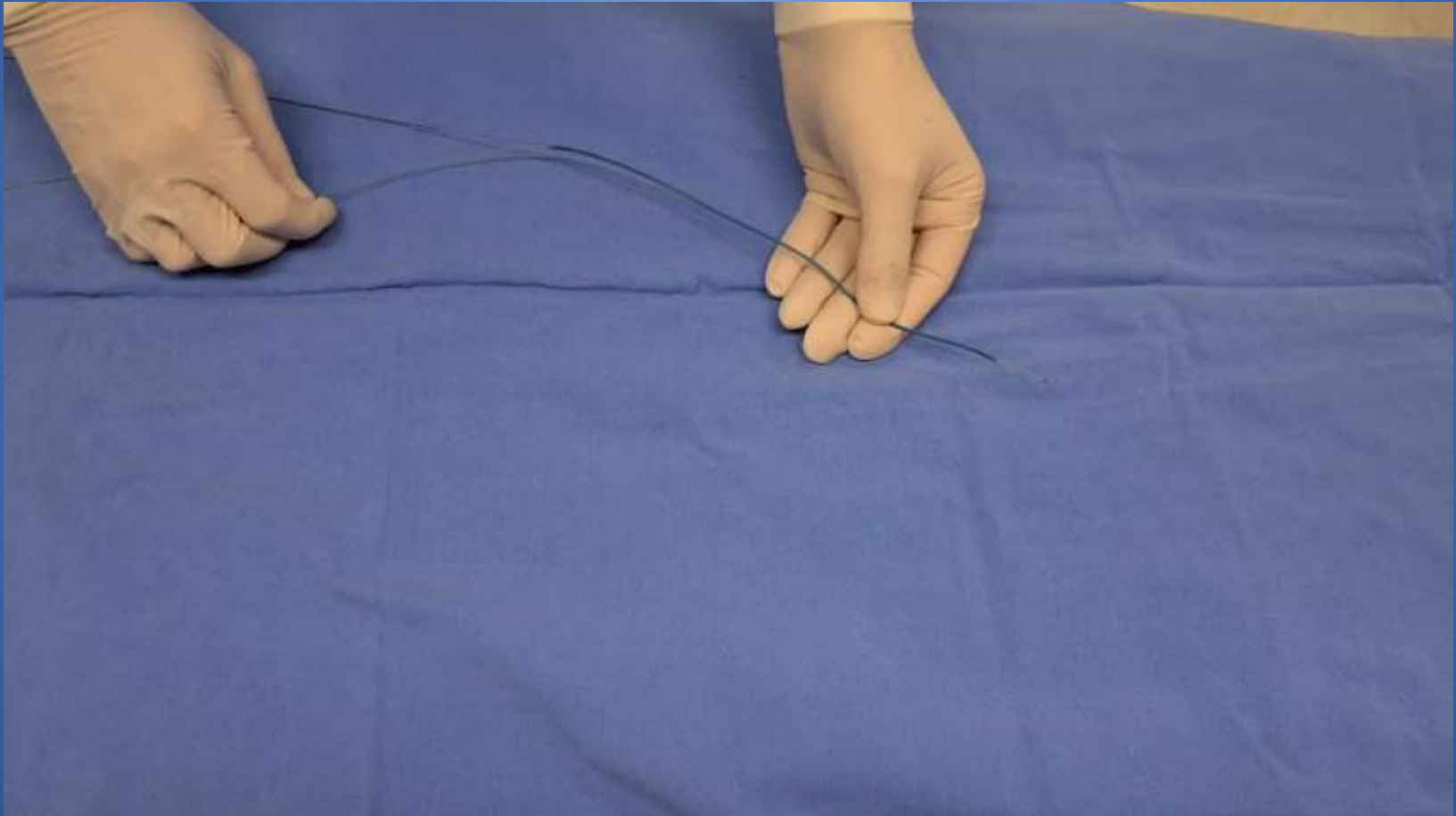
Pull out the plastic drive shaft sheath and expose completely the drive shaft of the burr



Load the GEC onto the drive shaft



Advance the GEC against the burr in the coronary and pull back the whole system



Hypotension during Atherectomy

RotaGlide Alternative

- **10,000 Unit of heparin into 1 L of saline**
- **Have the cath lab nurse prepare phenylephrine in syringe and be ready to give it immediately (100 mcg)**

Bradycardia

- Pacemaker often unnecessary
- Limit duration of passes
- Have the cath lab nurse ready with atropine next to patient

Conclusion

- Burr entrapment is uncommon but several techniques can be used to retrieve the burr
- Avoid 1.25 mm burr
- Consider Rotaglide alternative to minimize hypotension
- Transvenous pacemaker requirement is uncommon
- Nurses should be ready to promptly administer phenylephrine and atropine on demand

“Failing to prepare is preparing to fail.”