

Difficult Stent Delivery

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Difficult stent delivery

- Coronary
- Peripheral
- Structural heart

Background: Coronary

- Tortuous vessels, calcified, CTO and angulated vessels
- Poor vessel preparation
- Inappropriate guide support
- Wrong or poor wire support
- Repeated attempts at same technique

Tips and tricks

- Pre-dilate difficult lesions.
- Use Rotoblator/ atherectomy when appropriate especially calcified vessels.
- Scoring balloon and non complaint balloon may help.
- Appropriate guiding catheters, femoral versus radial access, large caliber 7 French vs 6 French.
- Use if buddy wires, anchor balloon technique, guide-liner, mother child catheter or Godzilla catheter.

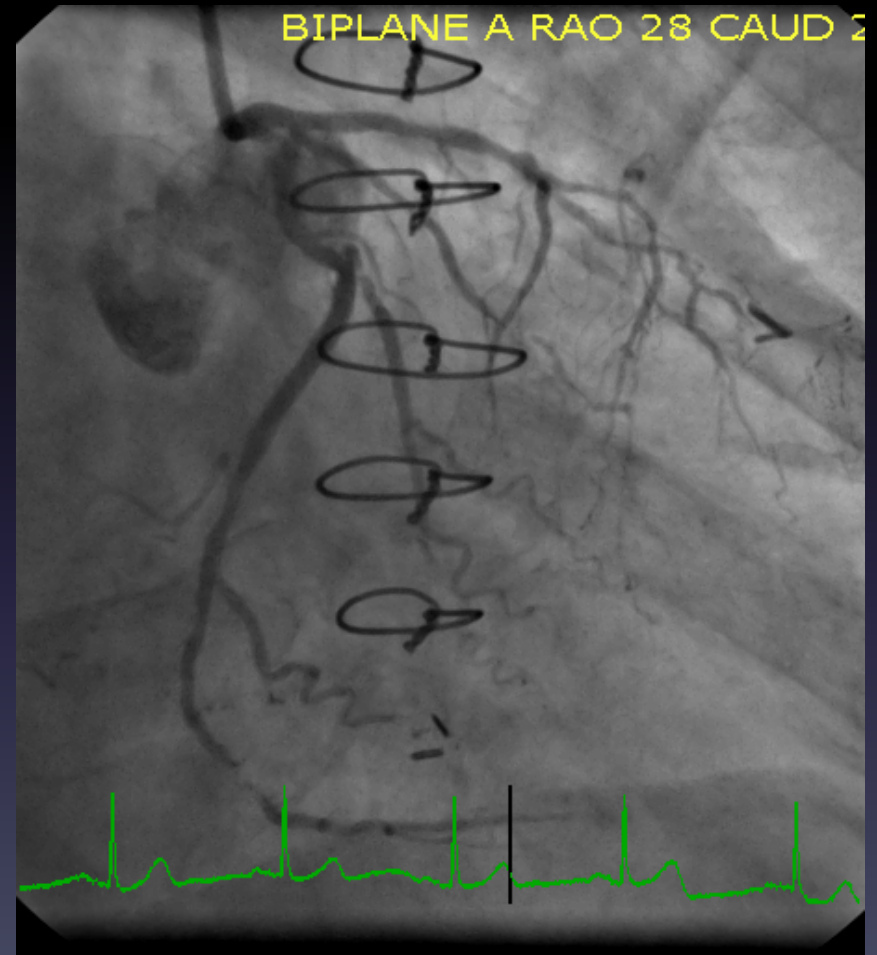
Tips

- L main: Radial is acceptable but if involving distal segment and proximal LAD and LCX use 7 French femoral
- Choose good back up support rather than JL₄
- LCX proximal : Amplatz rather than EBU
- RCA: Amplatz or Hockey stick rather than JR₄

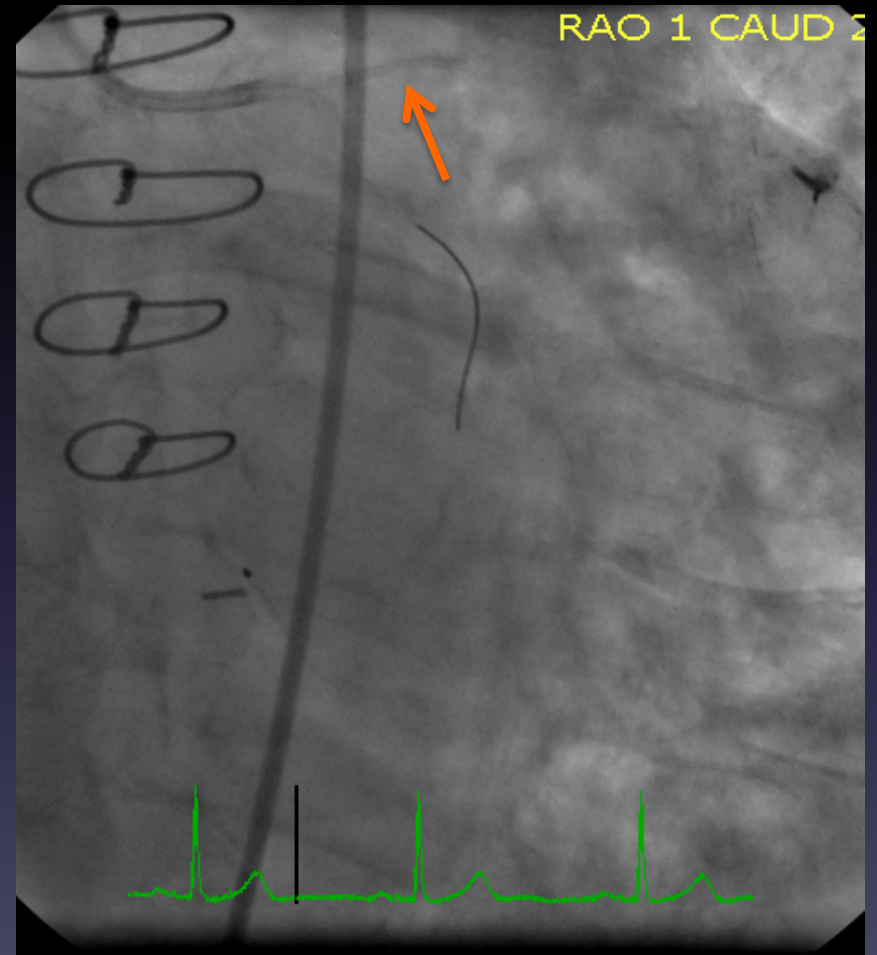
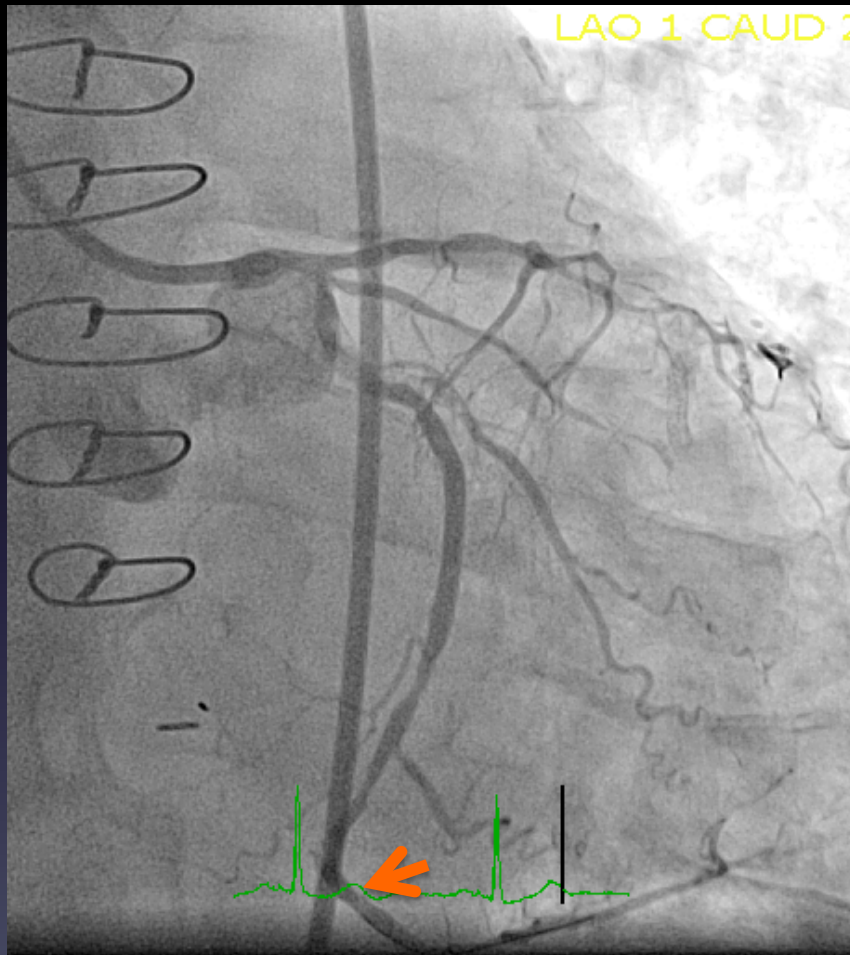
Case examples:

- 90 yr old patient with persistent angina despite medical treatment.
- Stress test showed lateral wall ischemia.
- Attempted PCI of distal LCX outside facility: deliver POBA and 2.25 stent lost in guide catheter. and subsequently noted in proximal LAD (intact LIMA)

Images



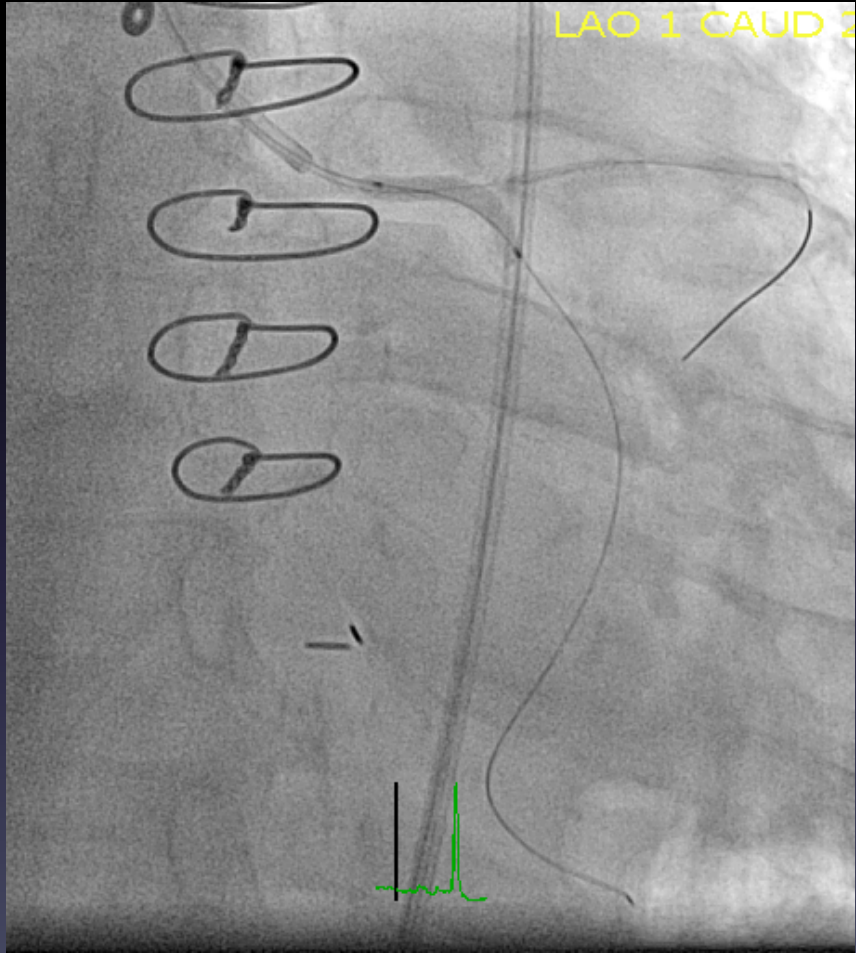
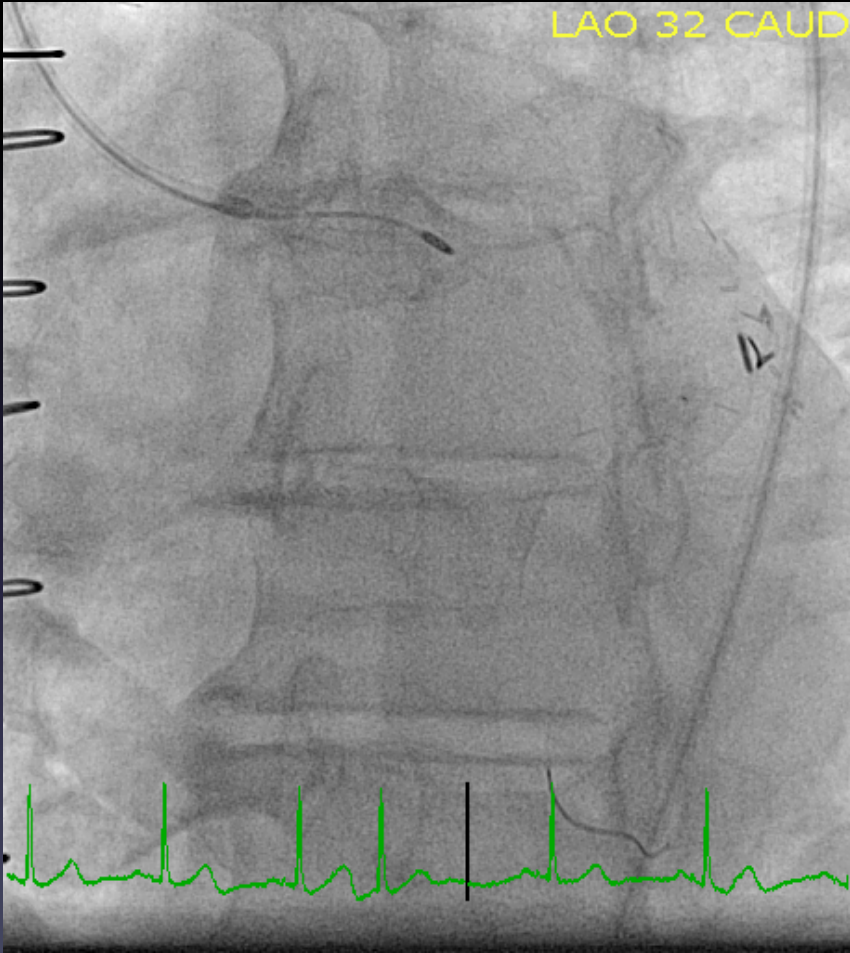
Images



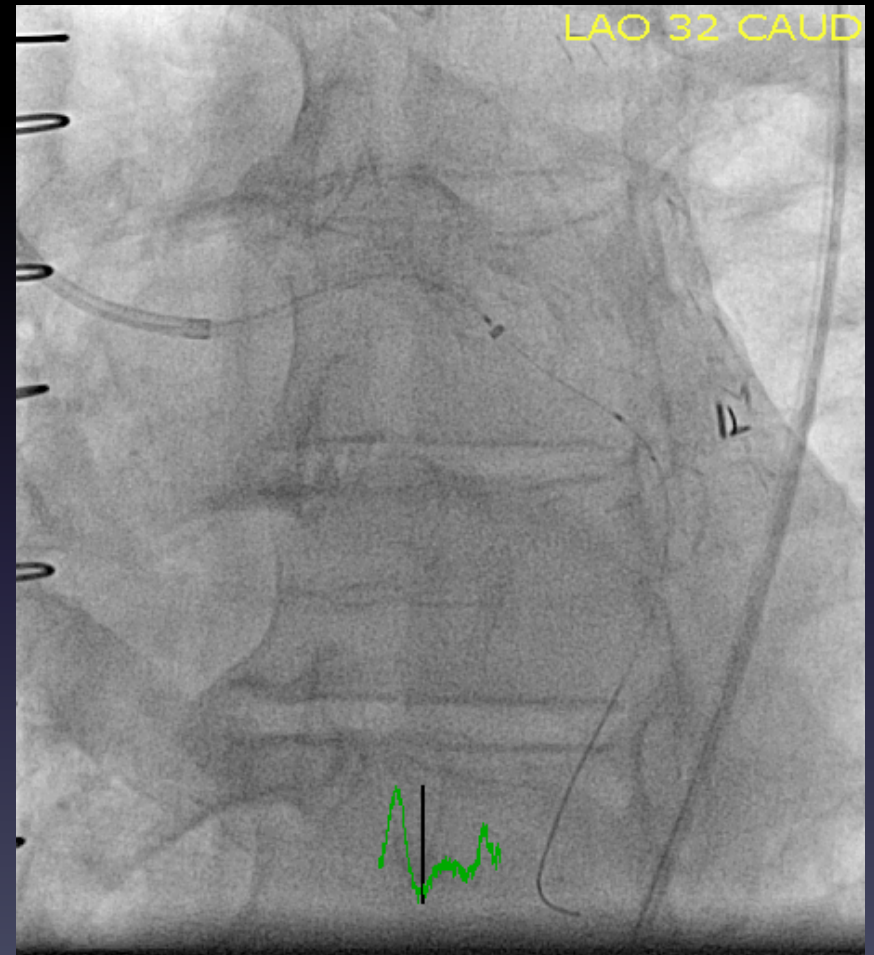
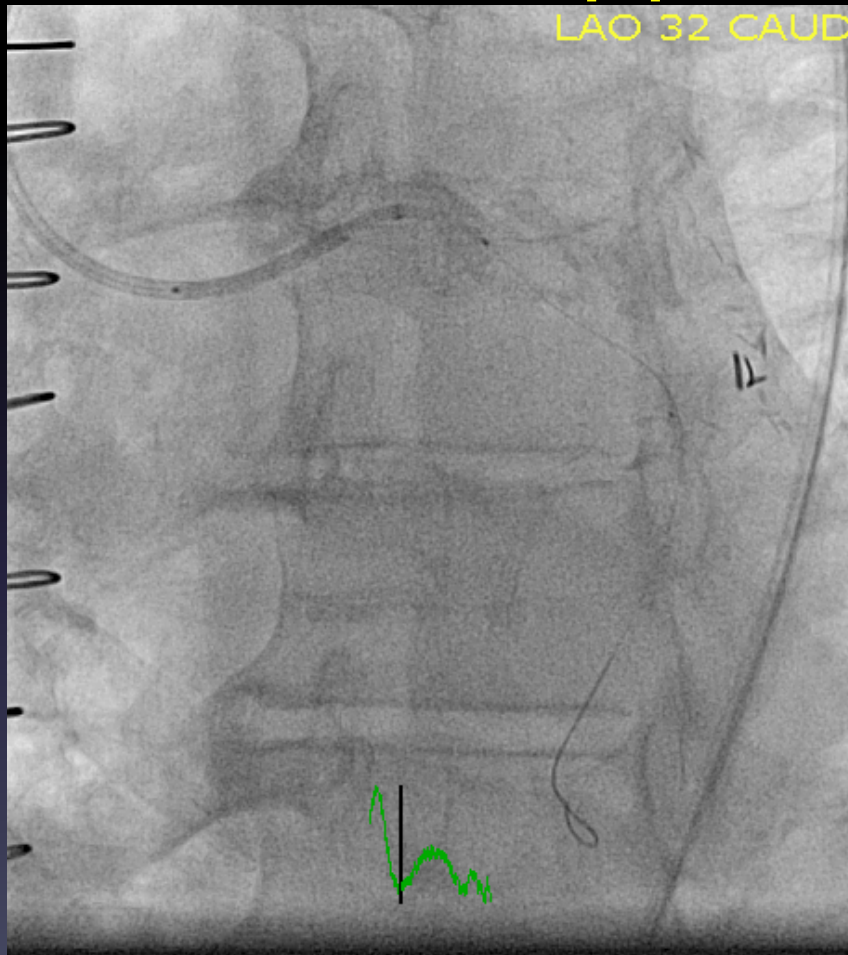
Options

- Lesion involves distal L main and proximal LCX : Redo CABG/medical treatment: NO
- POBA results of distal LCX/PDA acceptable
- Un deployed stent in proximal LAD: Leave it or retrieve or new stent to crush it
- Stent L main into LCX after Roto

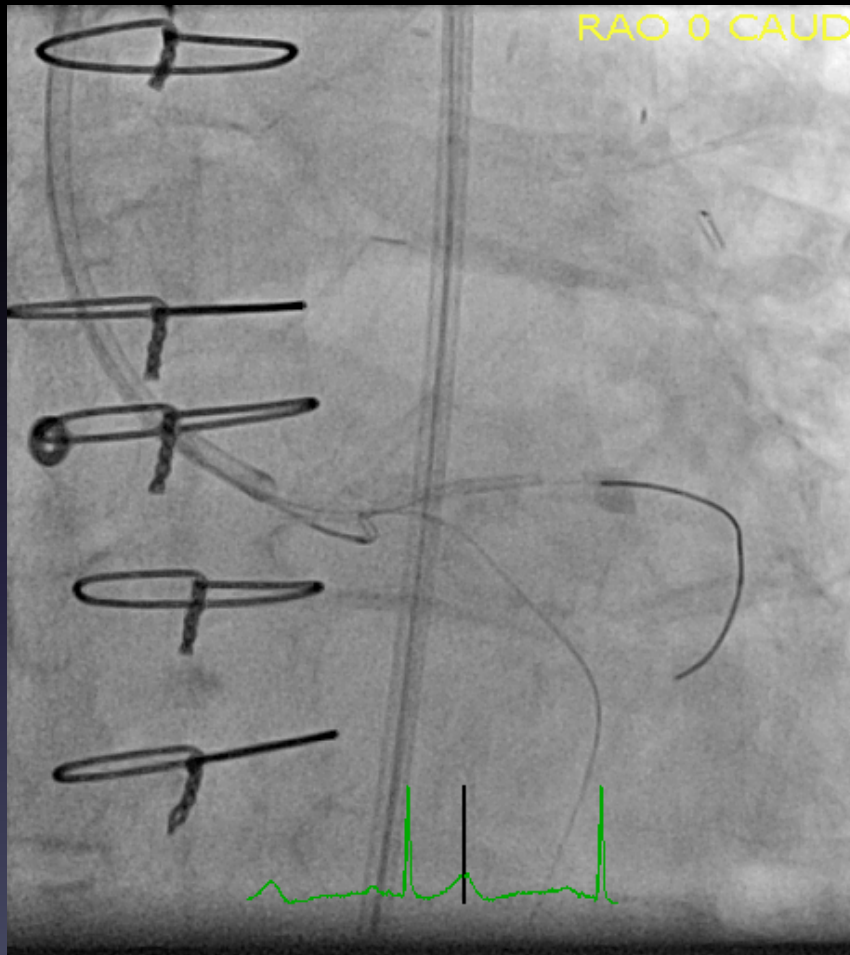
Case: Athrectomy and pre-dilatation



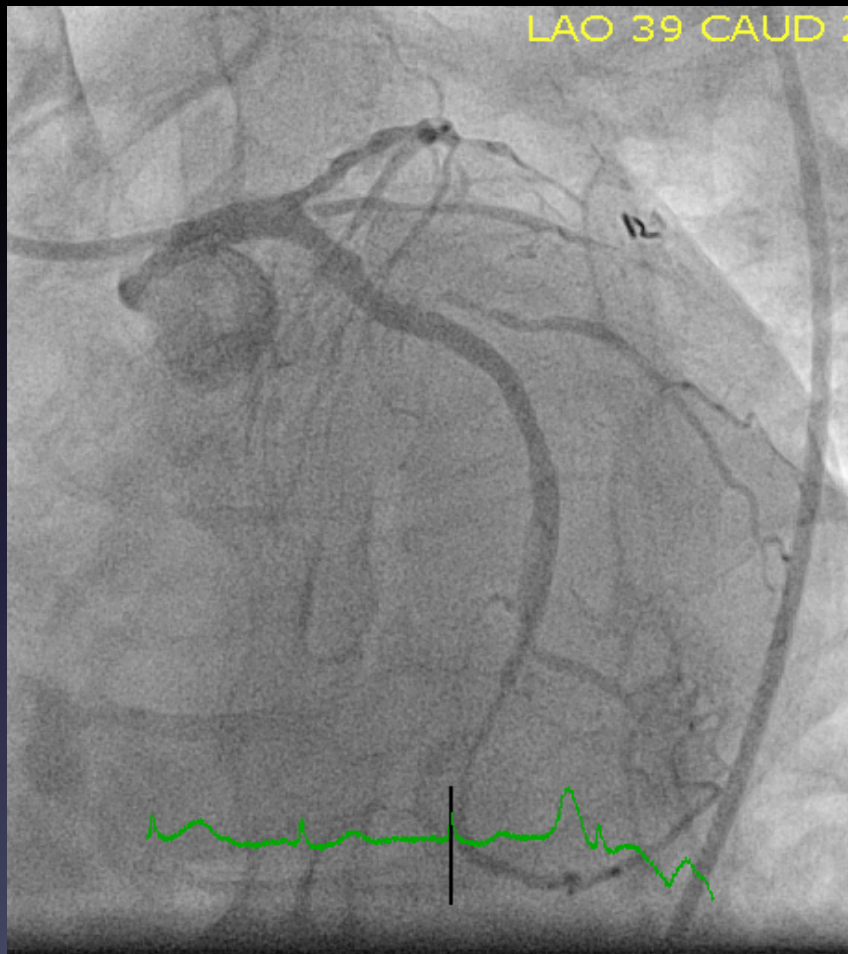
Still difficult to cross: support catheter



What about the un-deployed stent



Final angiogram and retrieved stent



70 yr old with positive lateral wall stress

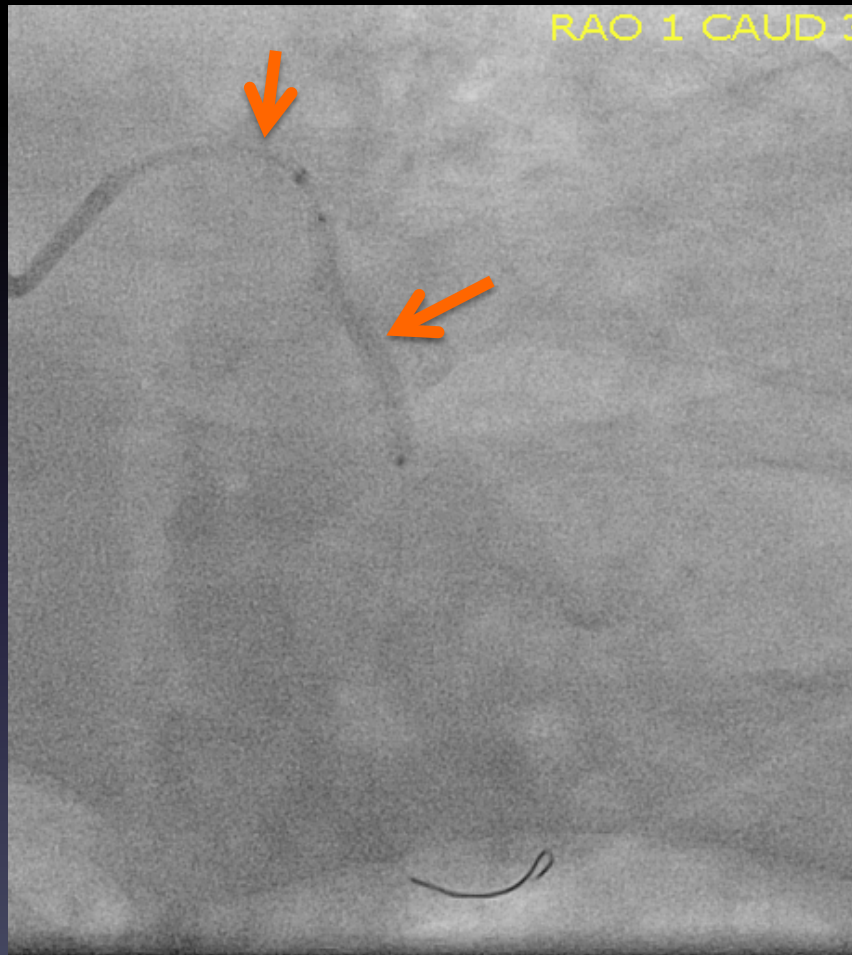


- Radial 6 french access
- XB LAD 3.5 guide catheter
- LCX comes off at 90° to L Main and LAD

Options

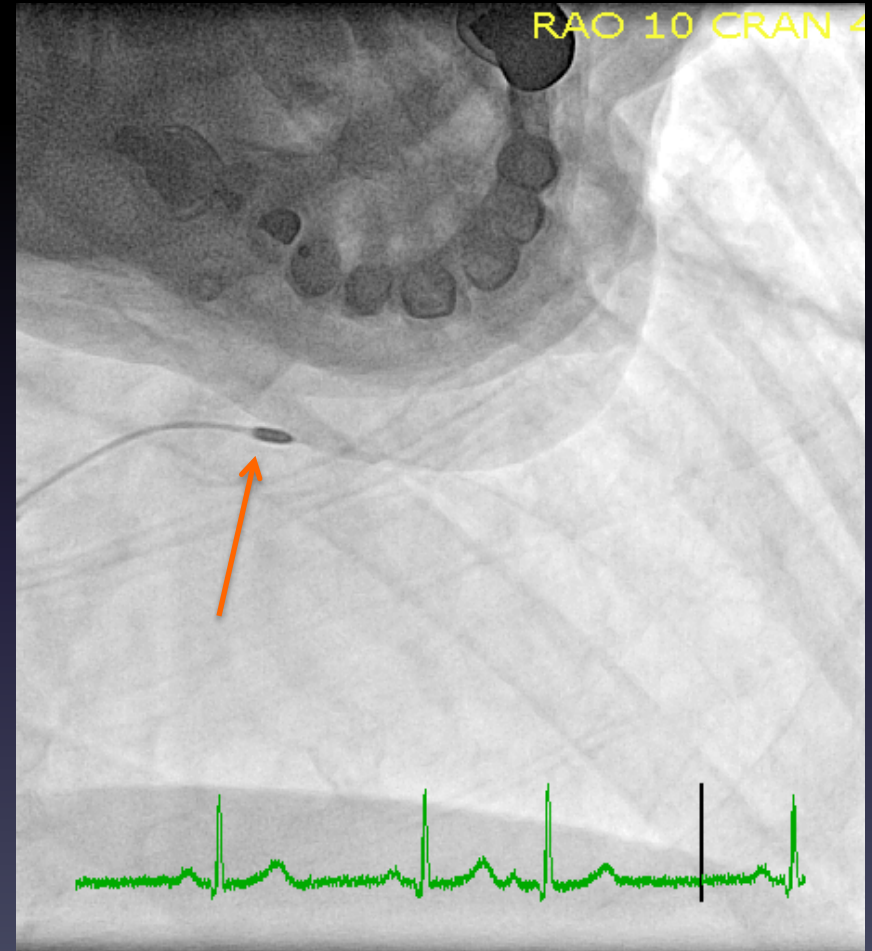
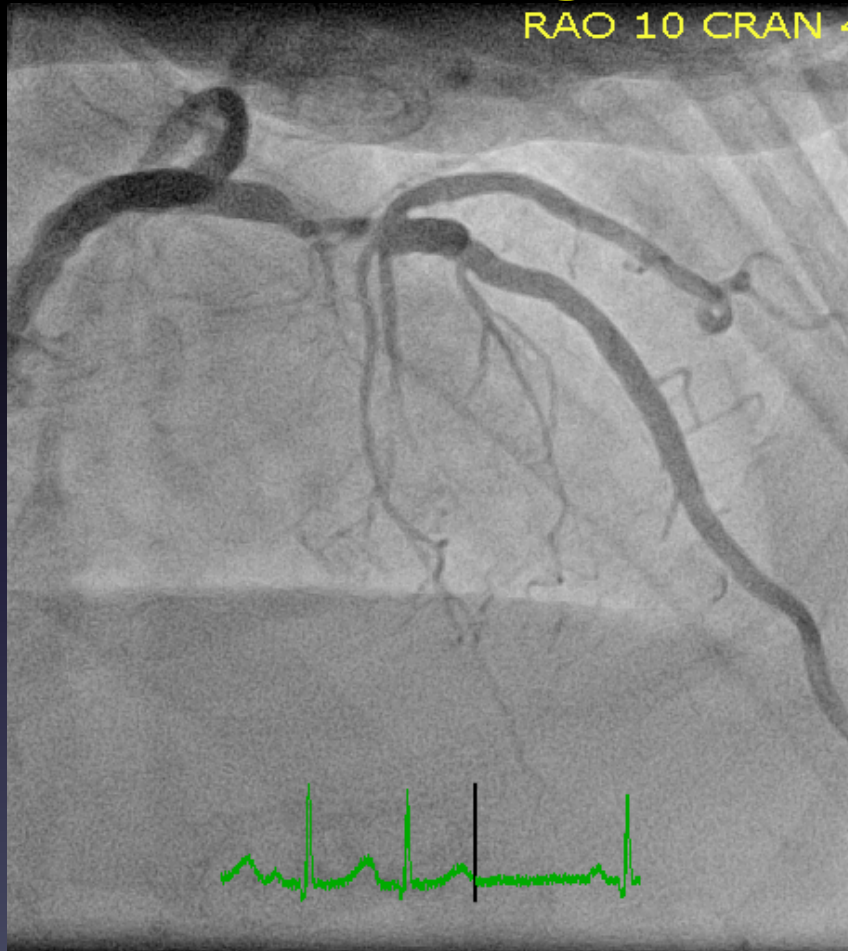
- Change to femoral approach
- Upsize to 7French use
- Use buddy wire
- Pre dilatation
- Support catheter: Guideliner

Delivery of Stent via Guide-liner

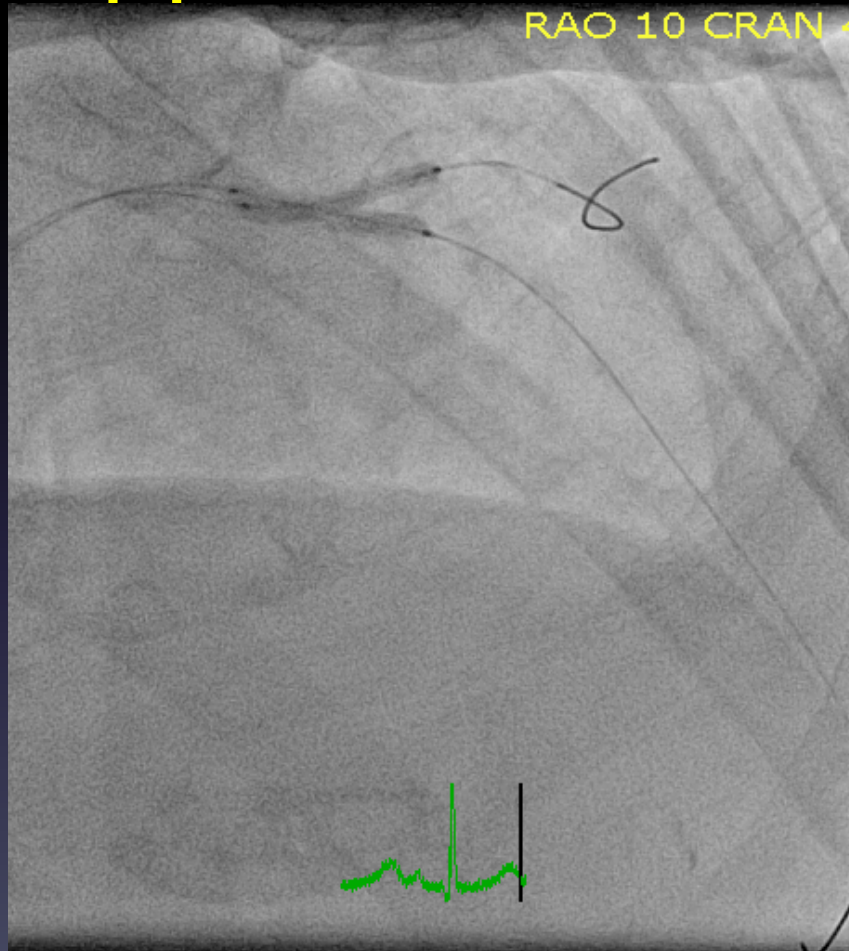


Case: Difficult to deliver stent in a LAD

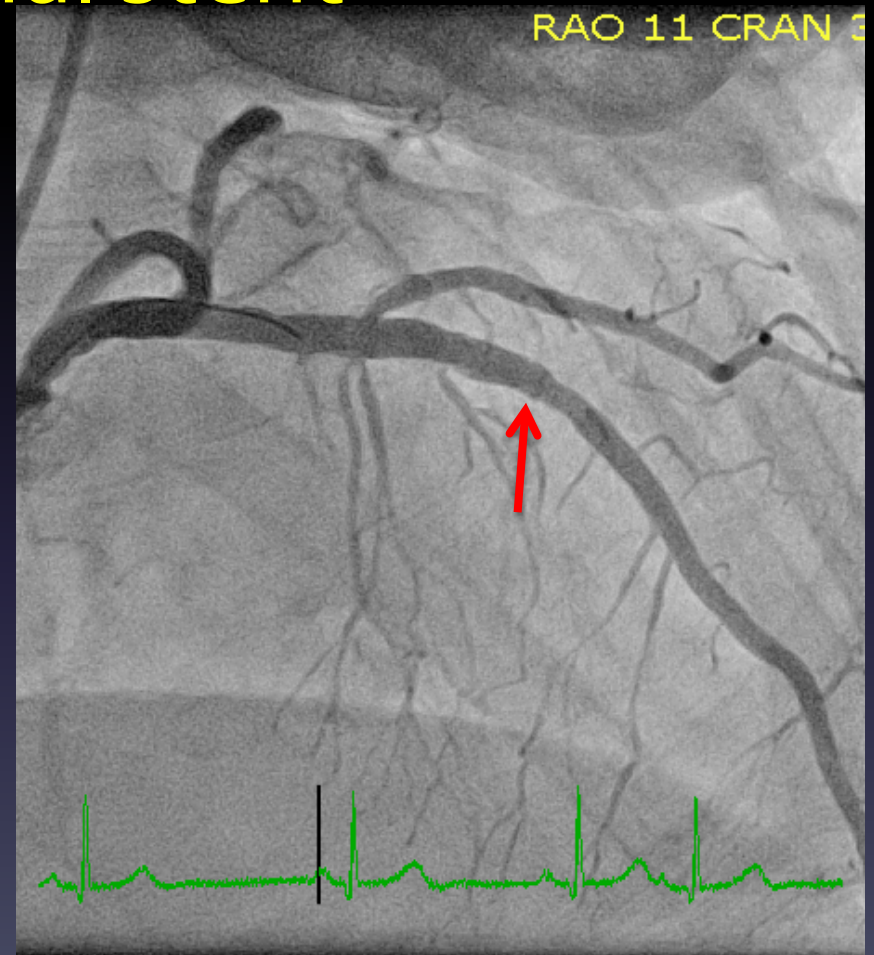
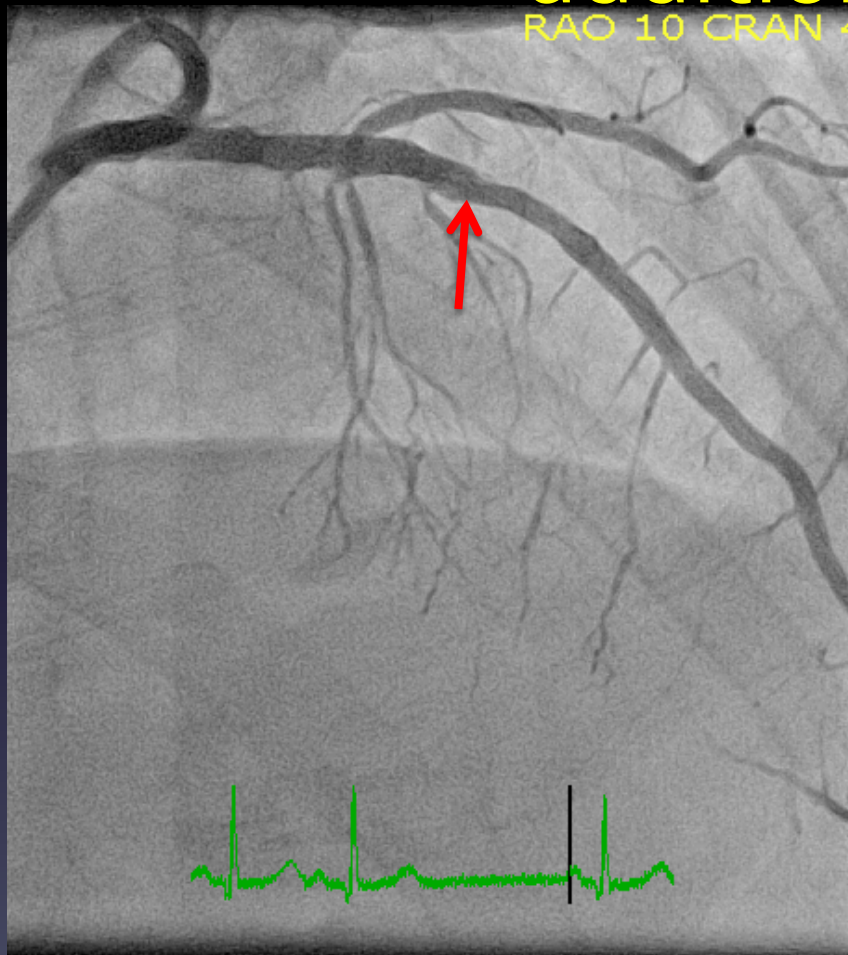
Diag bifurcation lesion



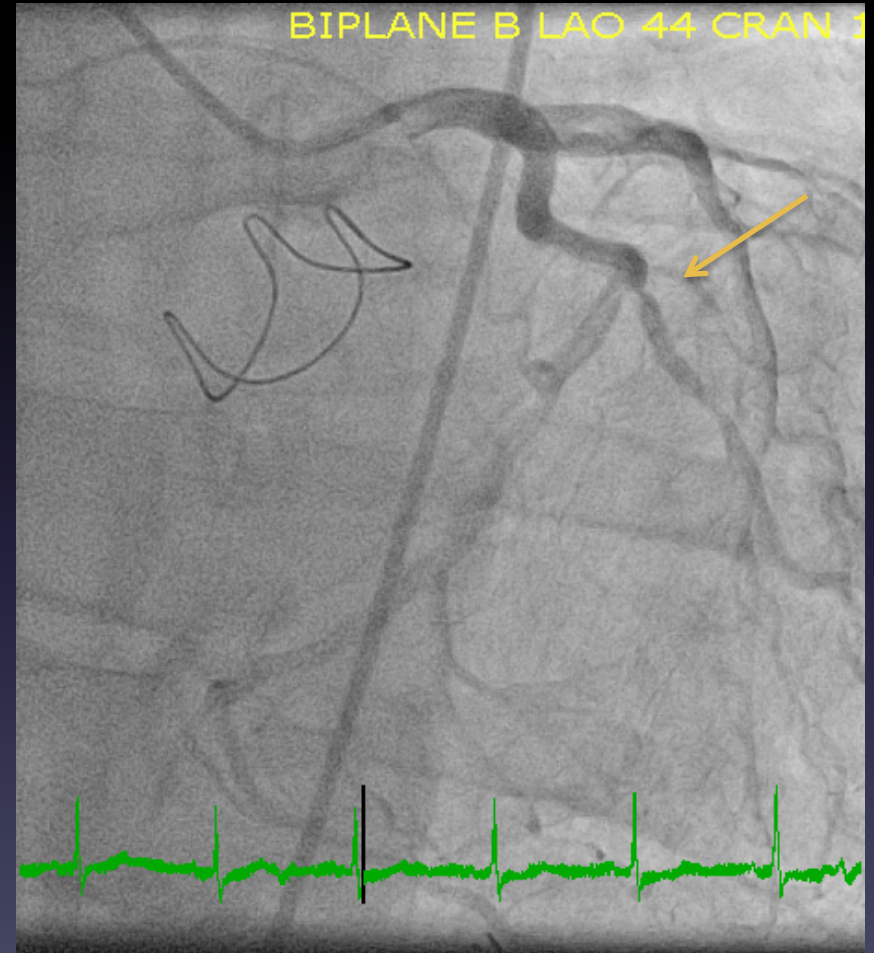
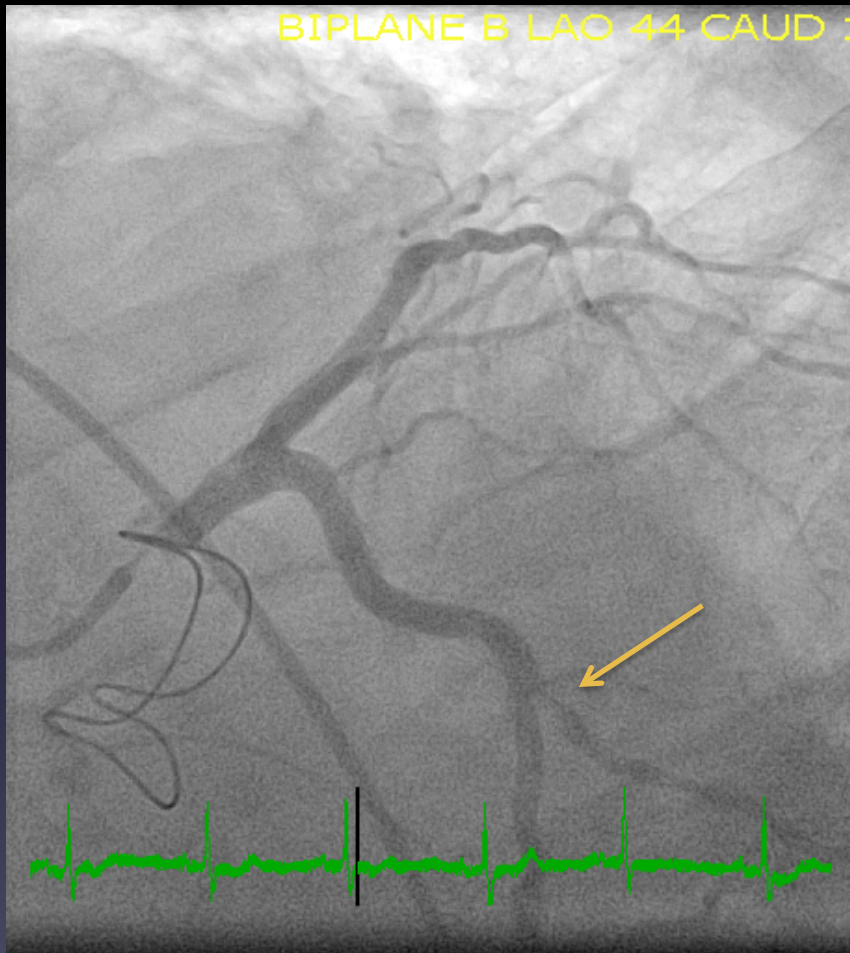
Kissing balloon followed by Support catheter for stent delivery



Final angiogram: edge dissection and additional stent



Case: Ostial OM lesion acute LCX take off and ESRD patient

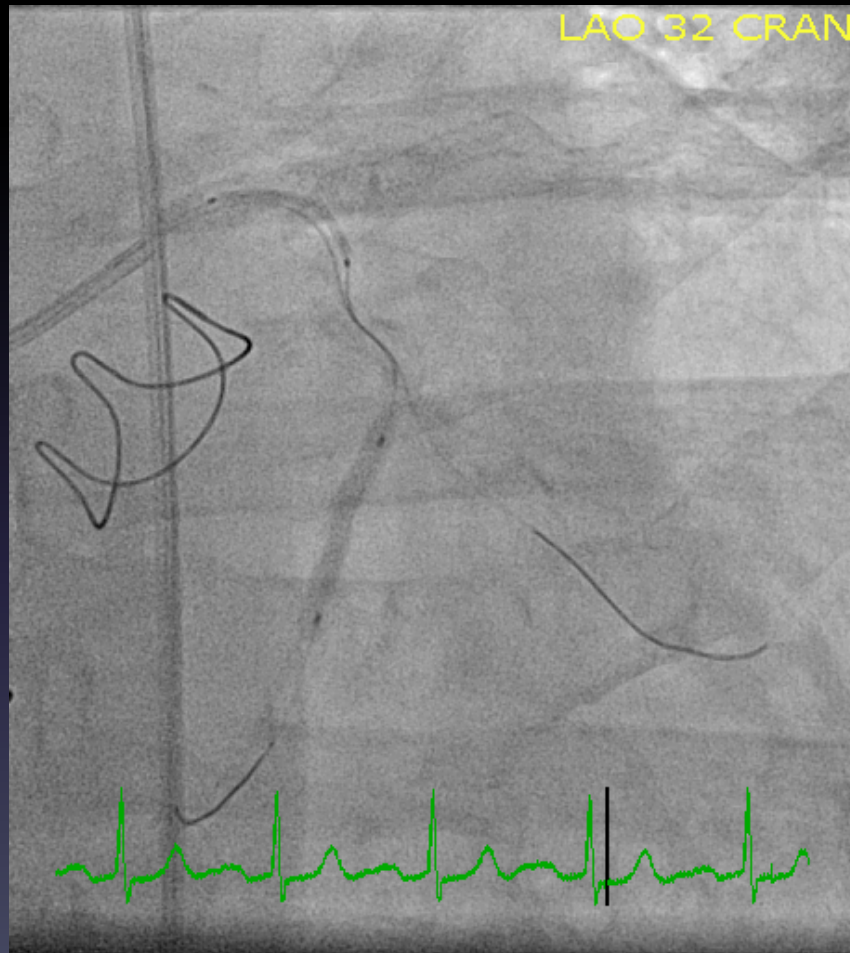


Approach: Double wire

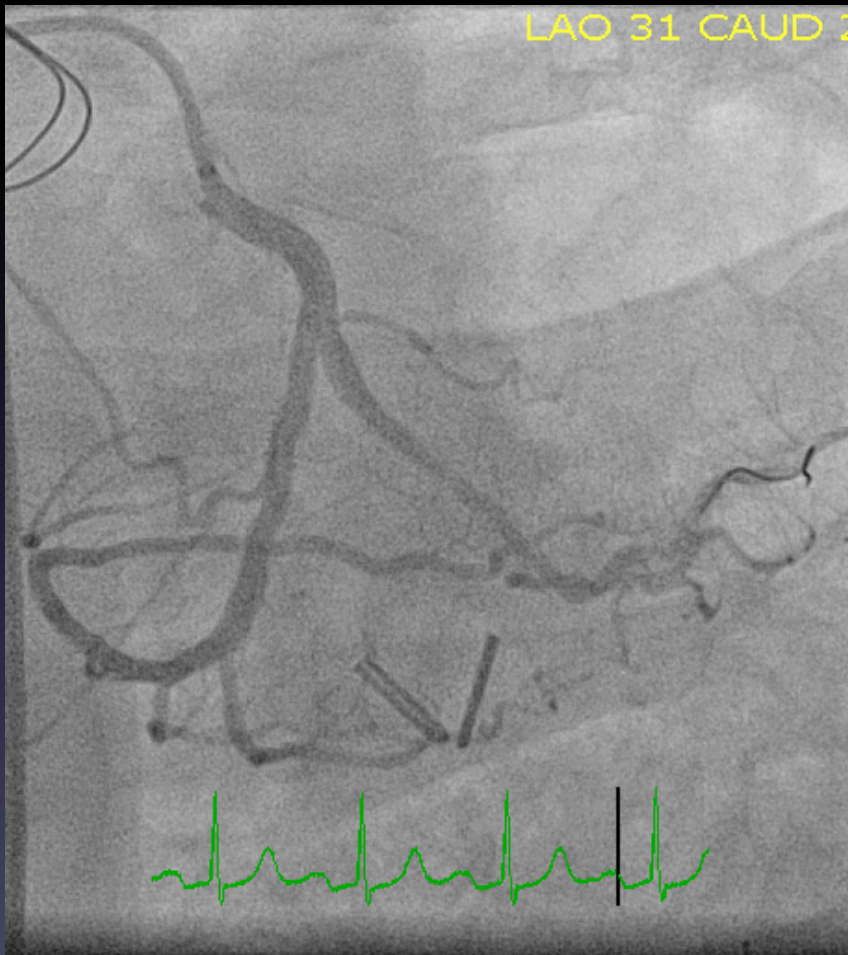


- Attempted stent delivery failed despite predilatation
- Options: Rotoblator, support catheter or anchor balloon

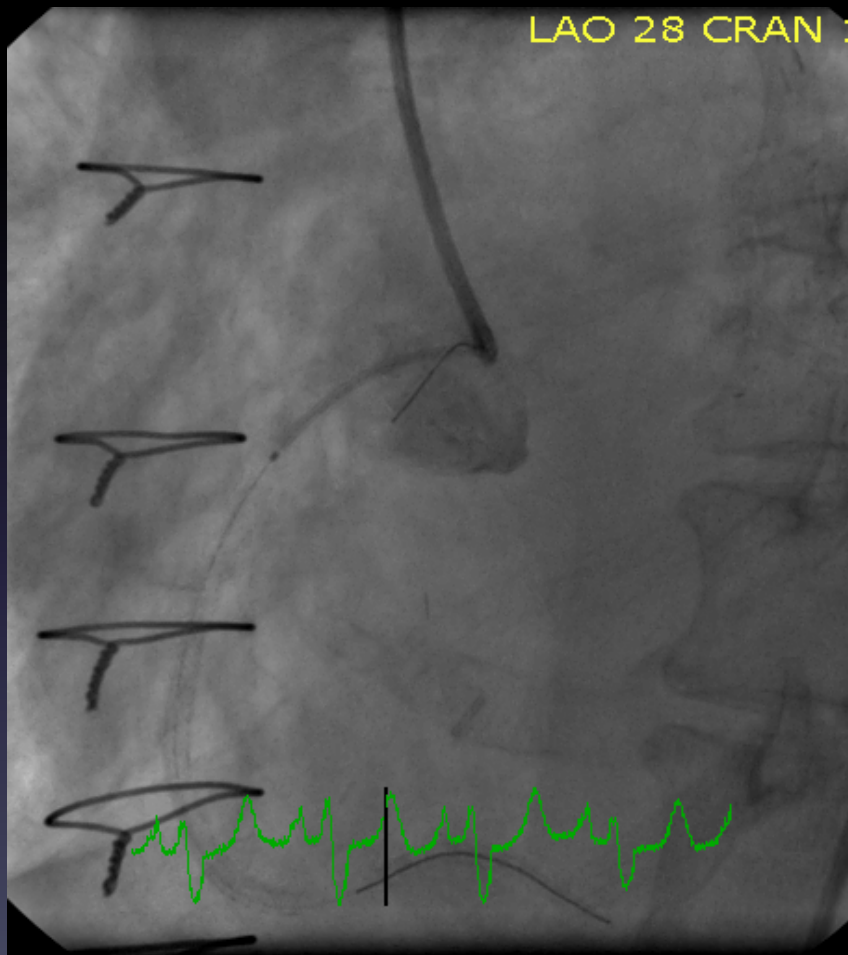
Anchor balloon and stent delivery



Final Images

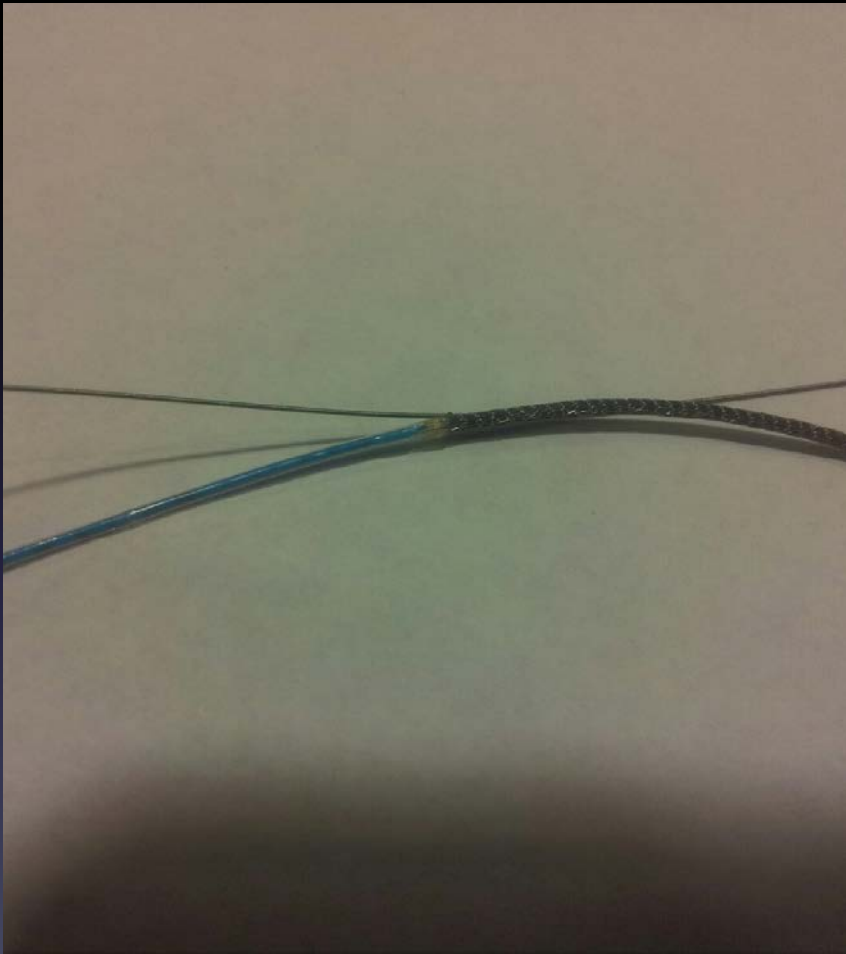


How to precisely place stent at the ostium



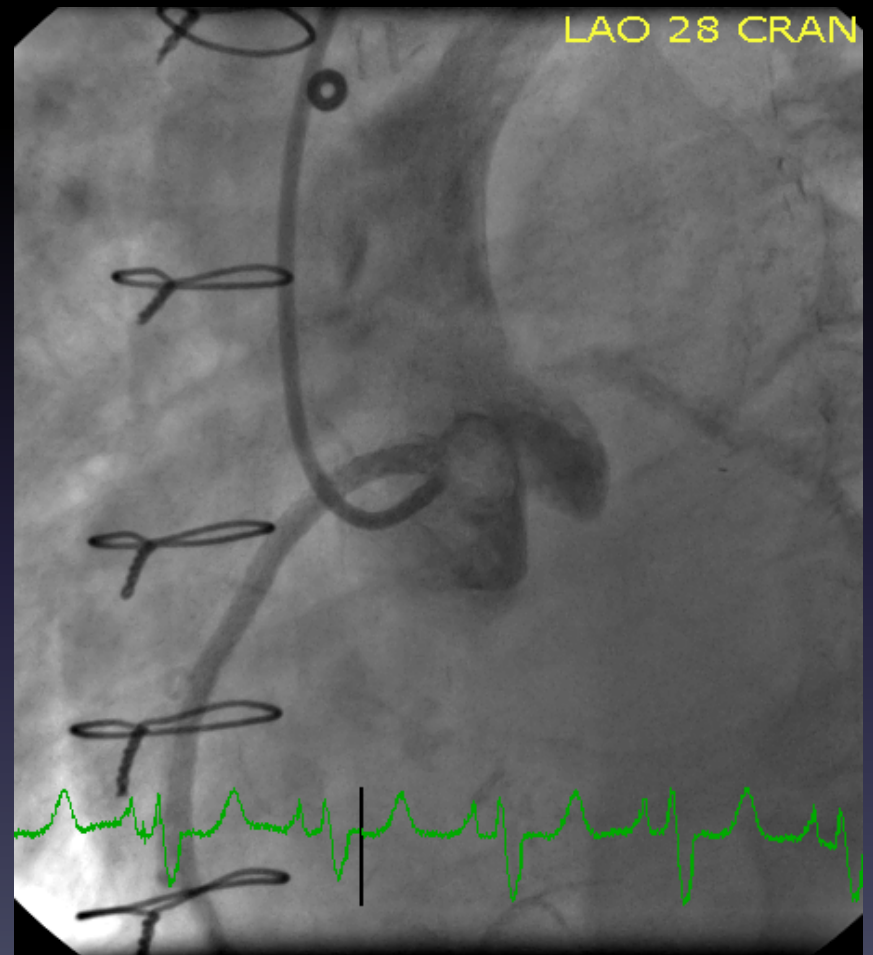
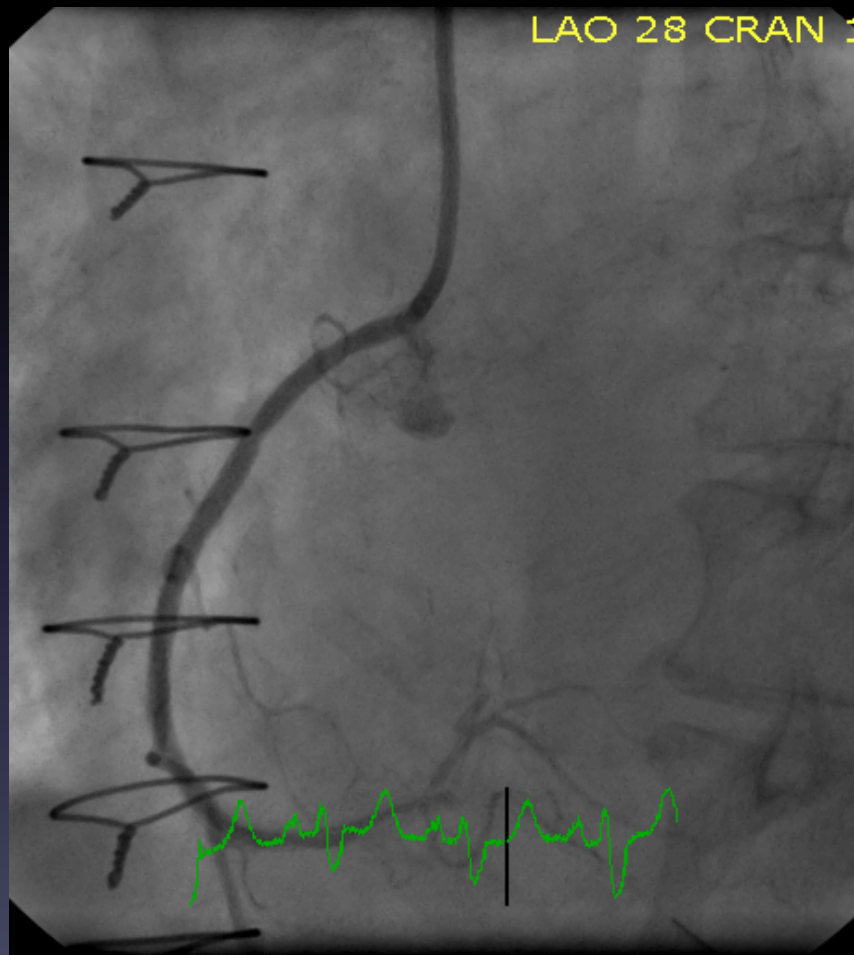
- Leave a wire in the cusp
- Mark the ostium by IVUS
- Szabo technique

Szabo technique



- Leave one wire in main lumen and one in the cusp
- Inflate the stent to 2 atms with the cover on
- Isolate the distal last stent strut
- Insert the back end of the cusp wire through the distal last stent

Final Images



Conclusions

- Stent delivery can be difficult in elderly calcified tortuous arteries
- Choose appropriate access and guide support
- Prepare the vessel with a balloon or atherectomy
- Learn tips and tricks such as double wire, anchor balloon