

The PCI Fellowship Course: The Basics

Angiography: Techniques

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Angiography Techniques

- Manifold preparation
- Guidewire advancement
- Catheter engagement
- Taking good video shots
- Interesting cases

Manifold
preparation



Manifold preparation

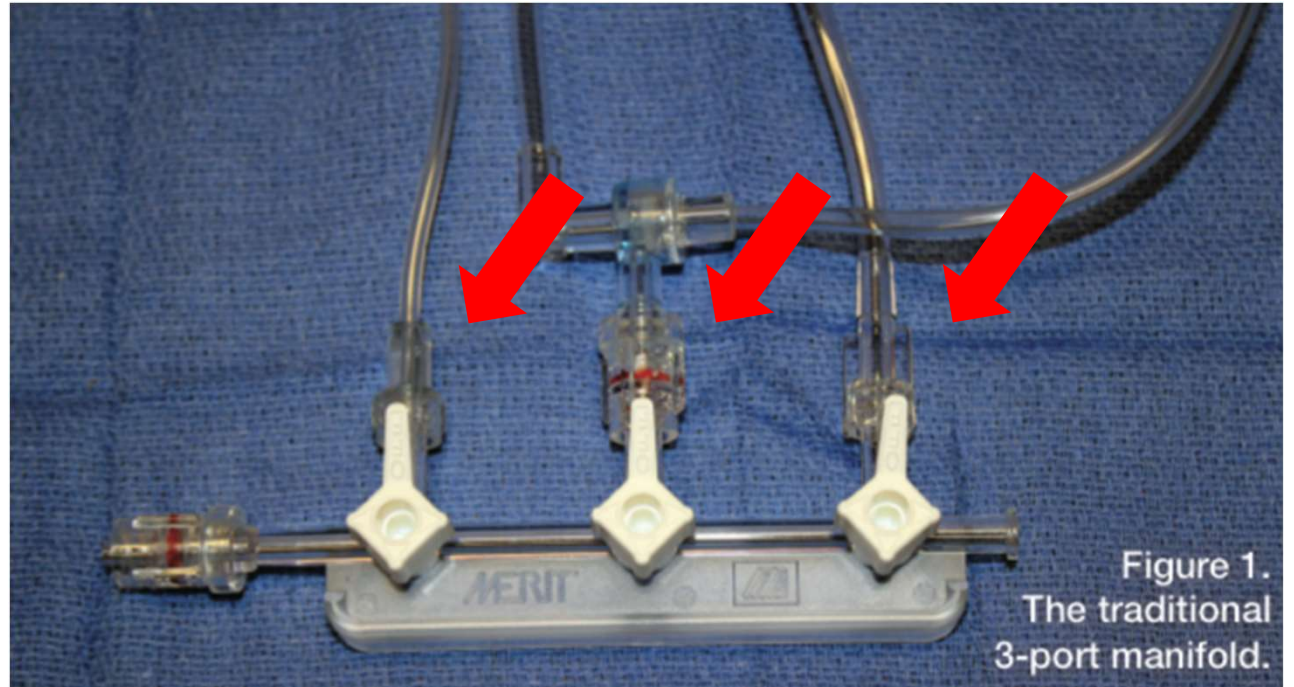
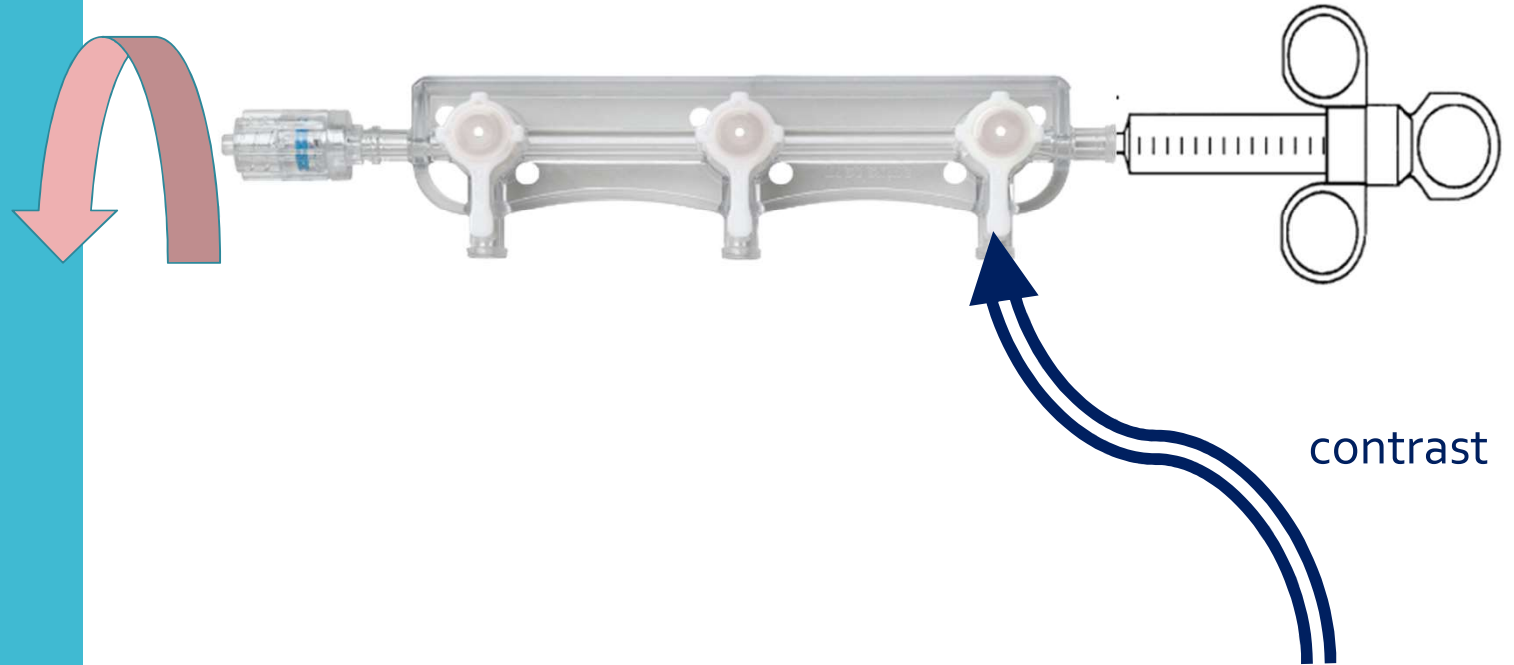


Figure 1.
The traditional
3-port manifold.

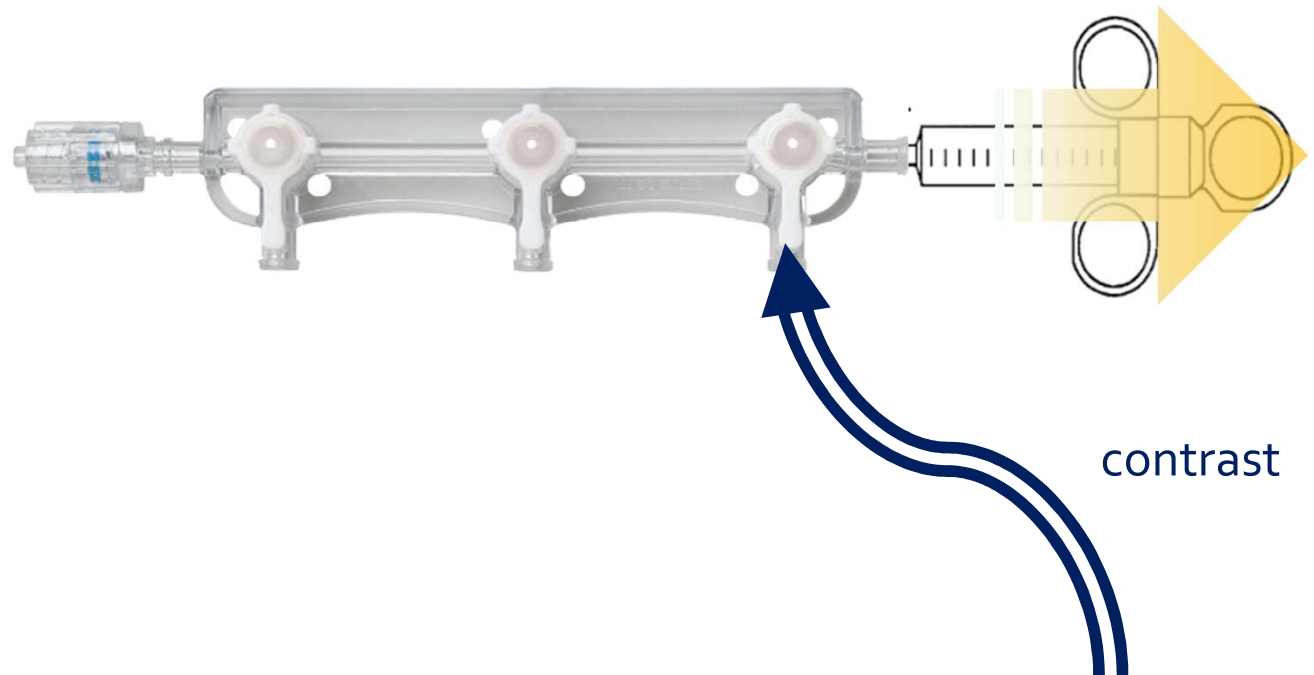
- Connections tightened
- Airless

Manifold preparation



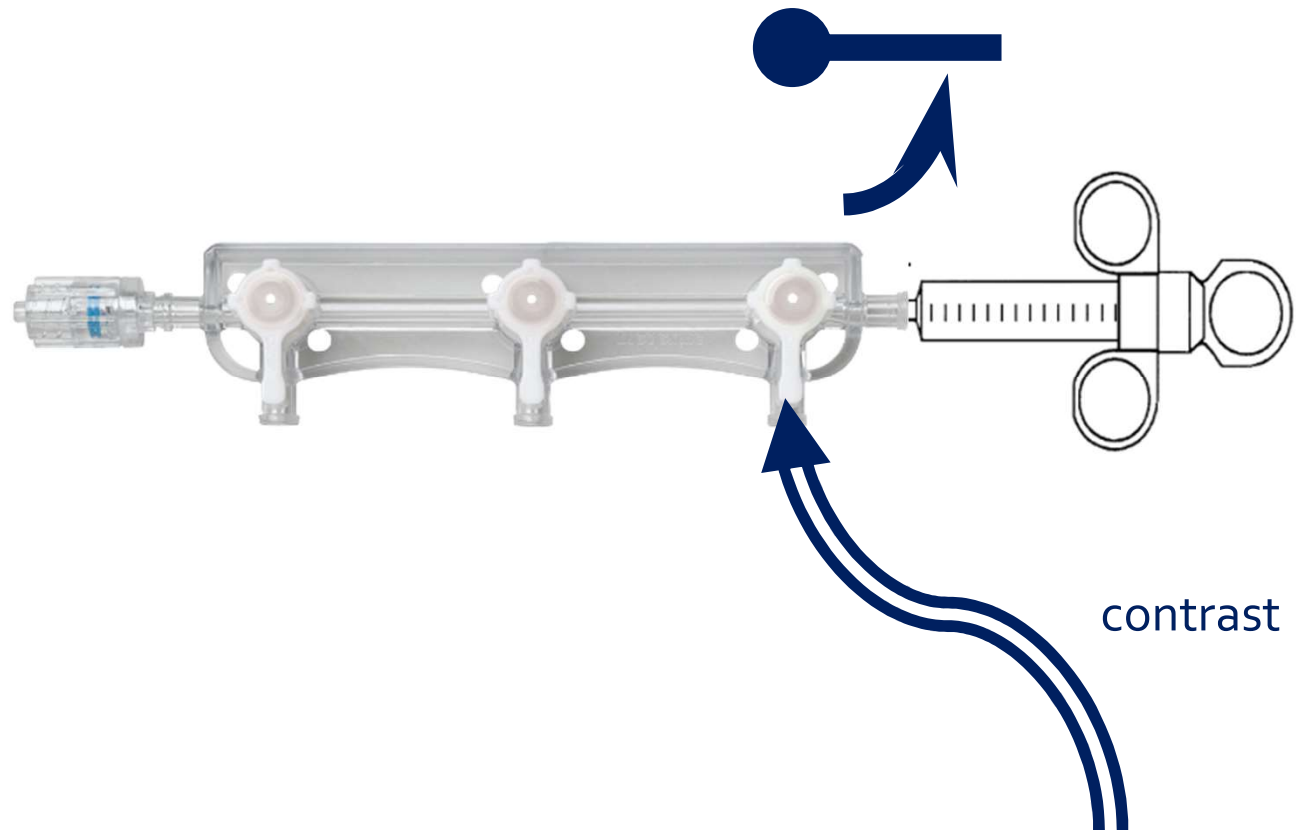
- Bubbles float: turn manifold upside down

Manifold preparation



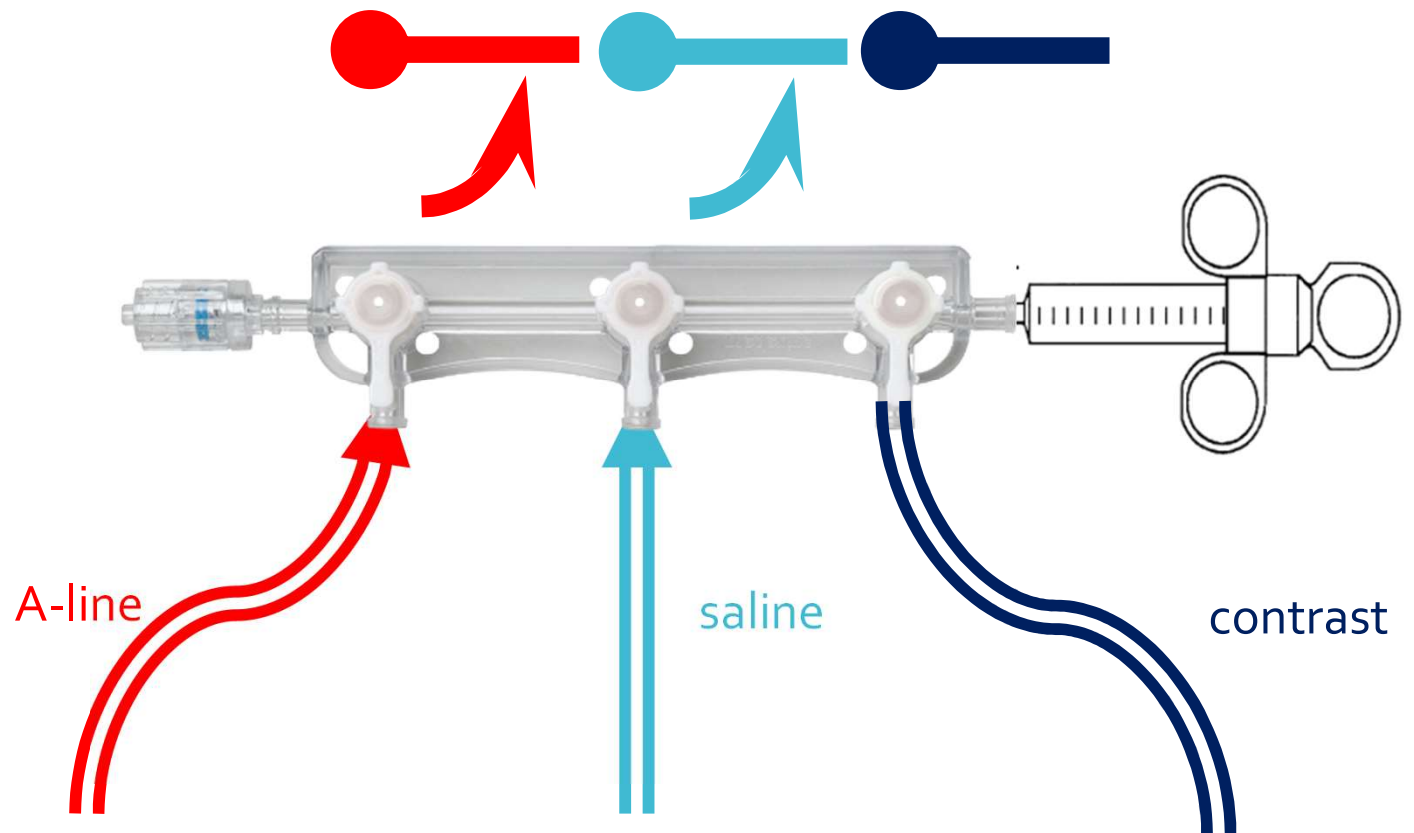
- Bubbles float: turn manifold upside down
- Apply suction from syringe (viscous contrast)

Manifold preparation



- Bubbles float: turn manifold upside down
- Apply suction from syringe (viscous contrast)
- Ensure airless, then turn the stopcock to “off”

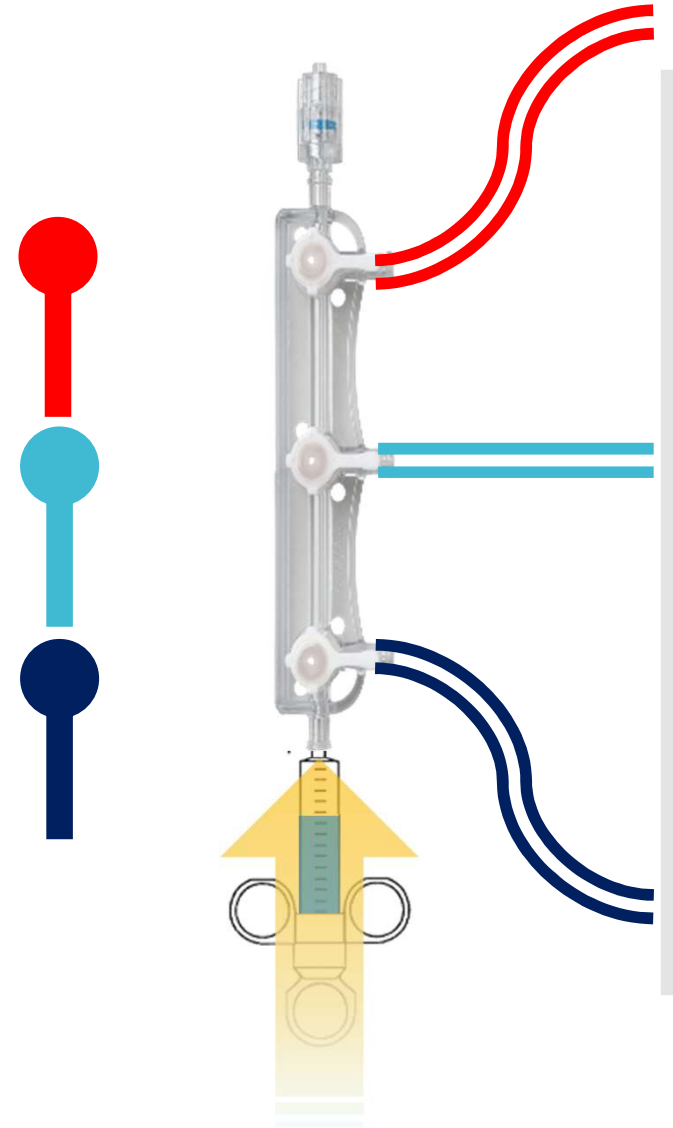
Manifold preparation



- Prep the ports 1 by 1
- No suction needed for pressurized port(s)

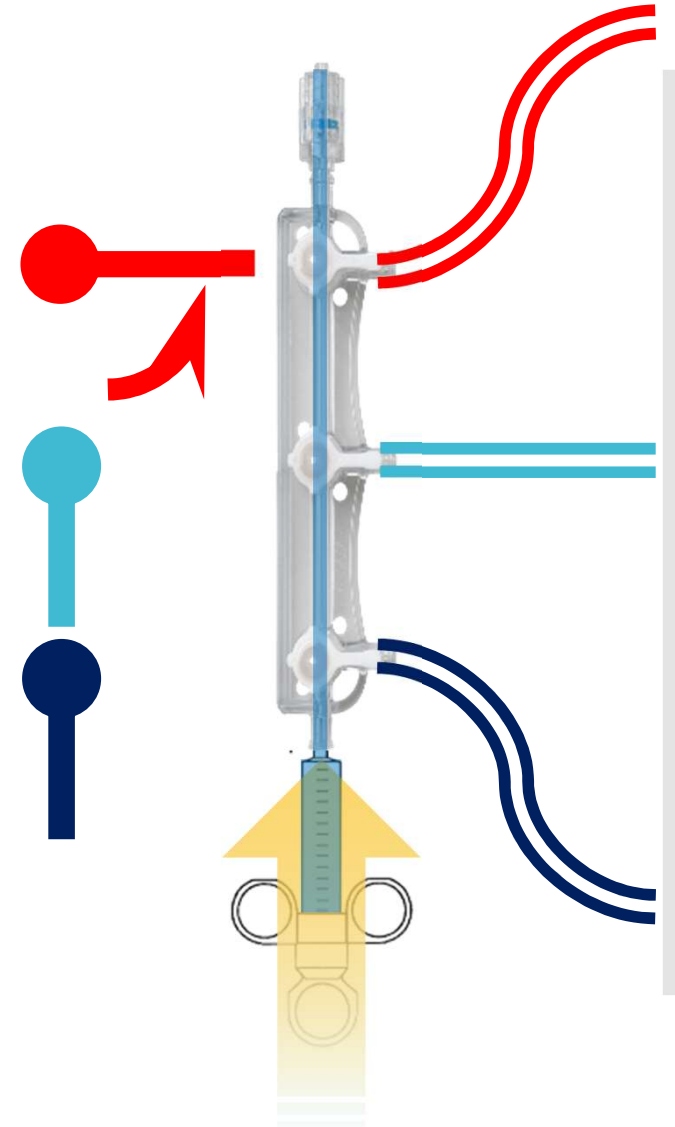
Manifold preparation

- Bubbles float
- Flush the main lumen



Manifold preparation

- Bubbles float
- Flush the main lumen
- Close the distal stopcock (A-line)



Manifold
preparation

vs

Gun Assembly



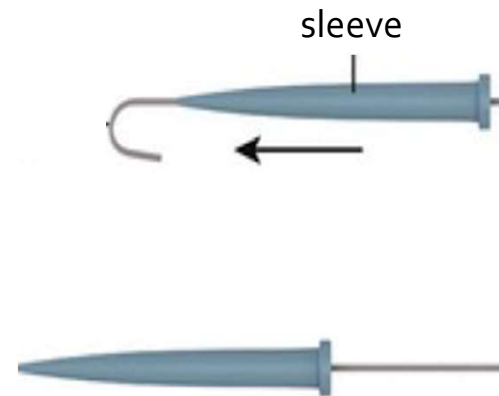
Guidewire advancement



J-tip Guidewire

Short: 150cm / Long: 260 cm

Introducing into sheath / catheter



Guidewire advancement

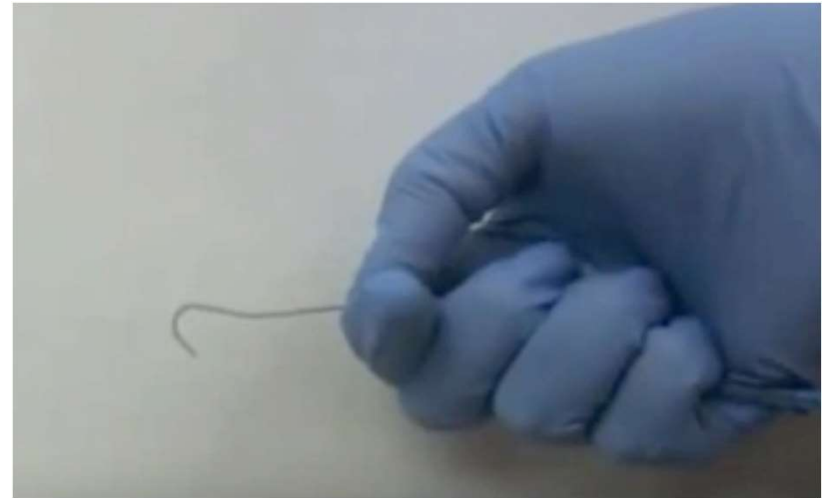


J-tip Guidewire

0.035 inch diameter

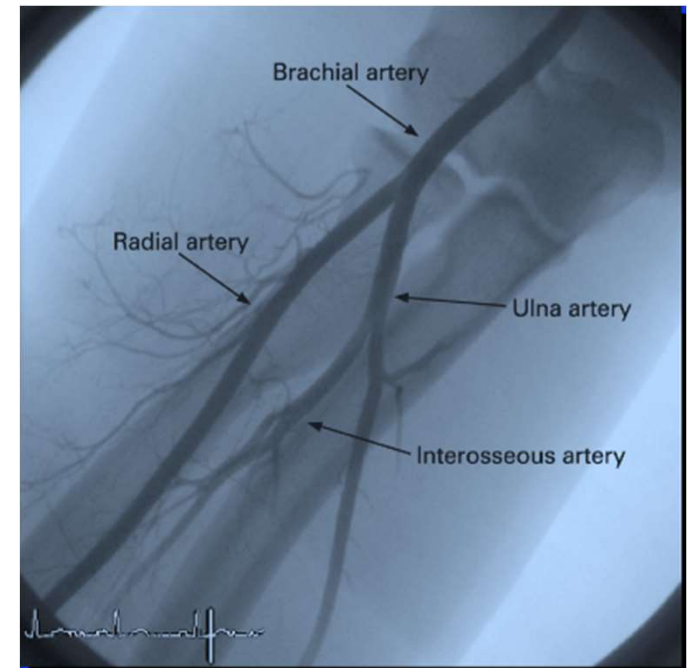
Short: 150cm / Long: 280 cm

Introducing into sheath / catheter



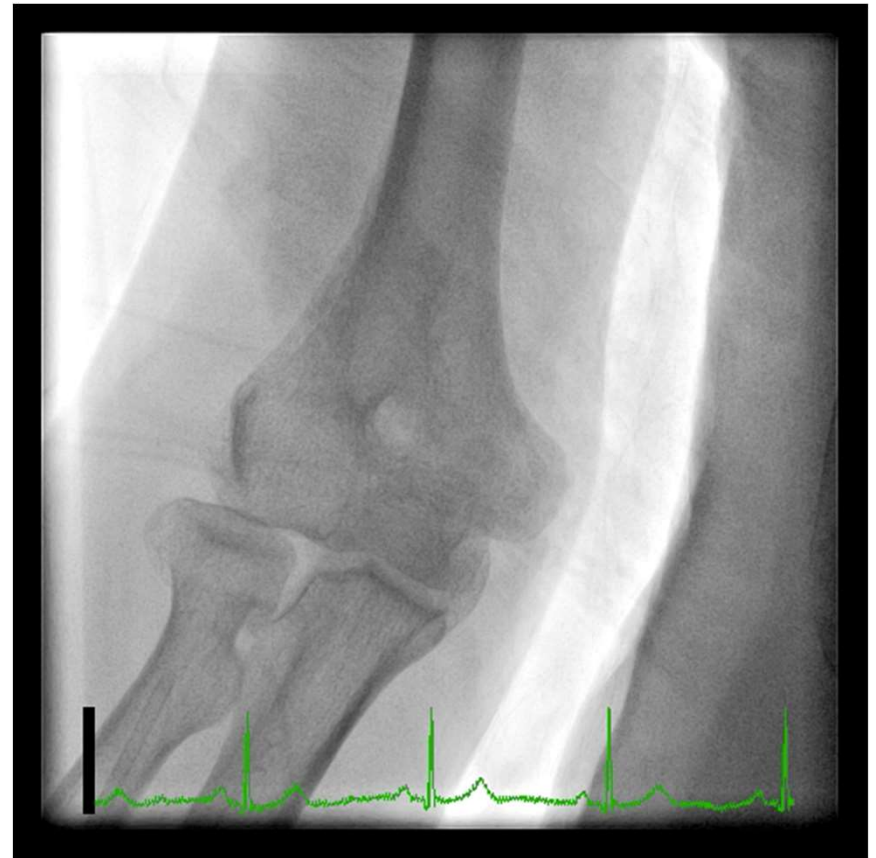
Guidewire advancement

- Cocktail: heparin + nitroglycerine / isoptin
 - Reduce artery thrombosis and vasospasm
- Advance J-tip guidewire under fluoroscopy



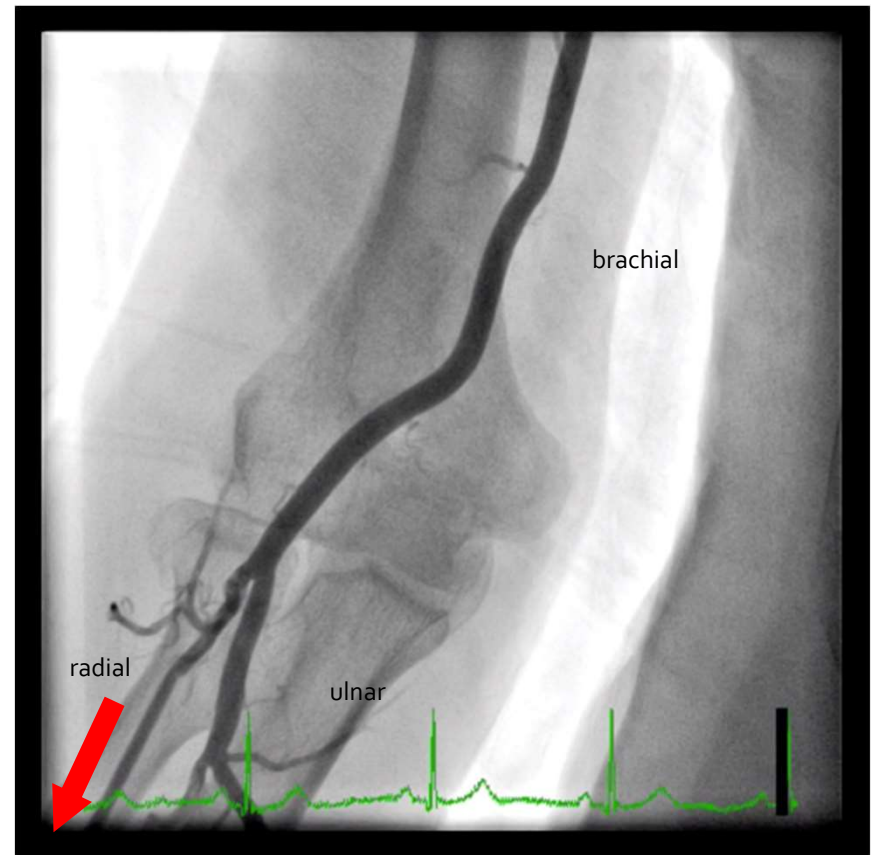
Guidewire advancement

- Checkpoint 1 (exit of radial sheath)



Guidewire advancement

- Checkpoint 1 (exit of radial sheath)

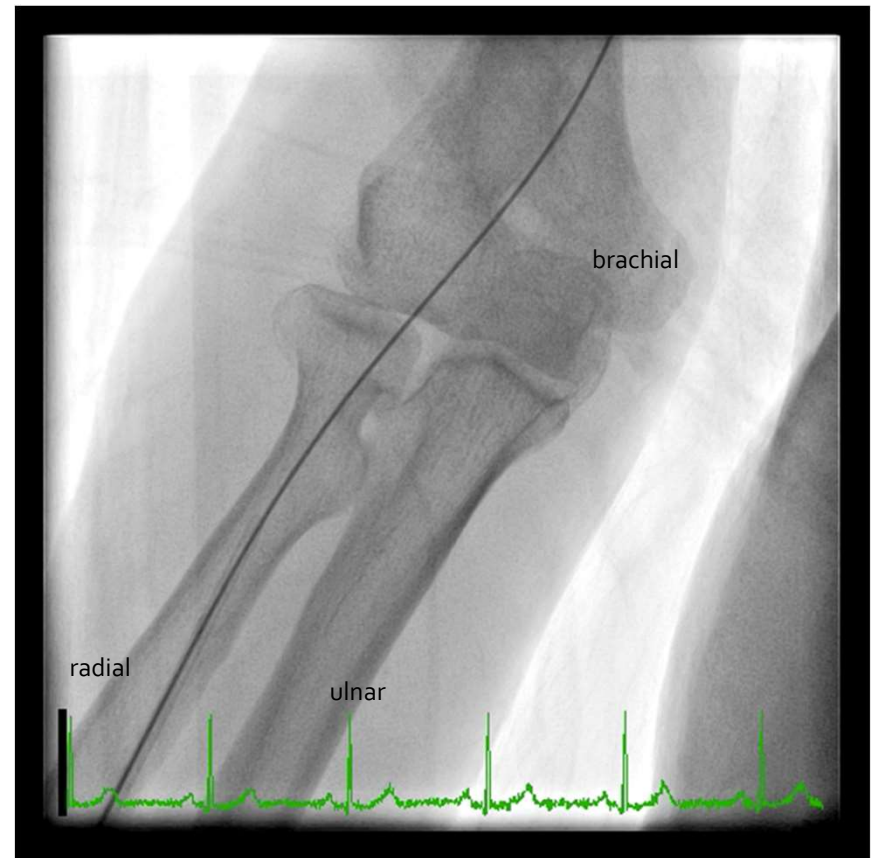


Guidewire advancement

- Checkpoint 1 (exit of radial sheath)

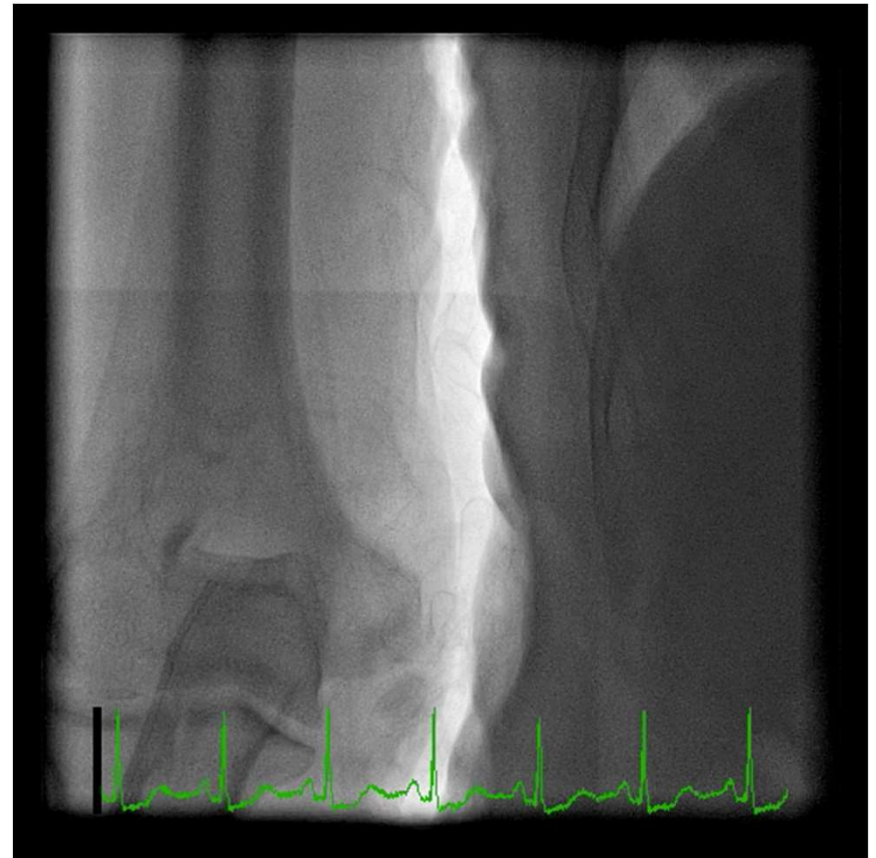


Terumo Guidewire



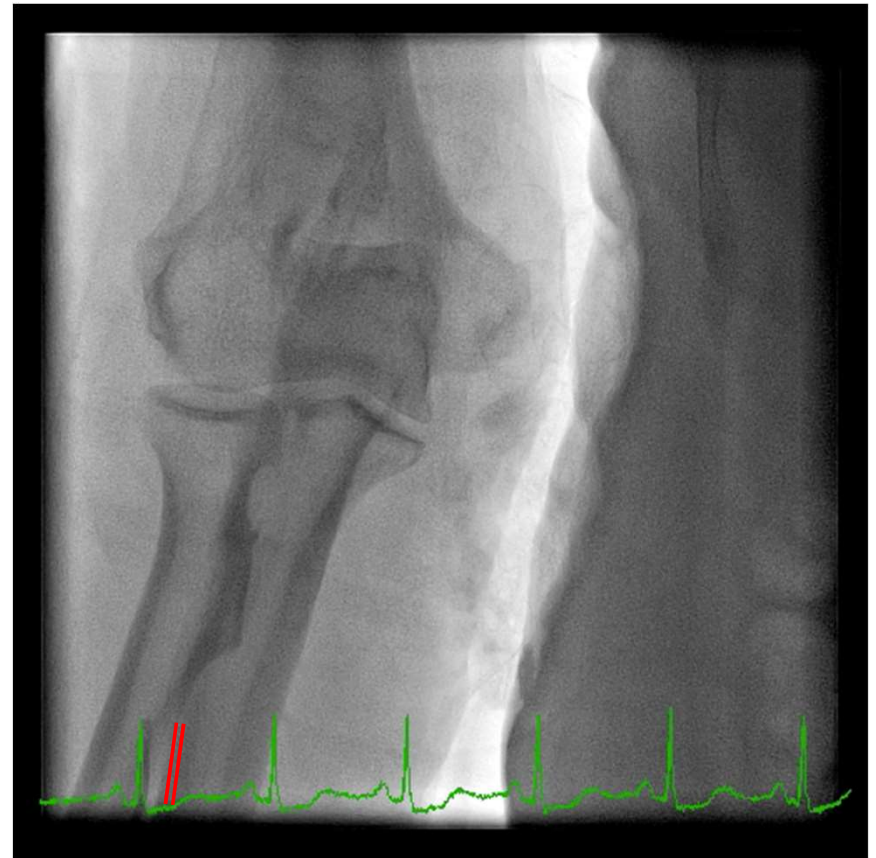
Guidewire advancement

- Checkpoint 2



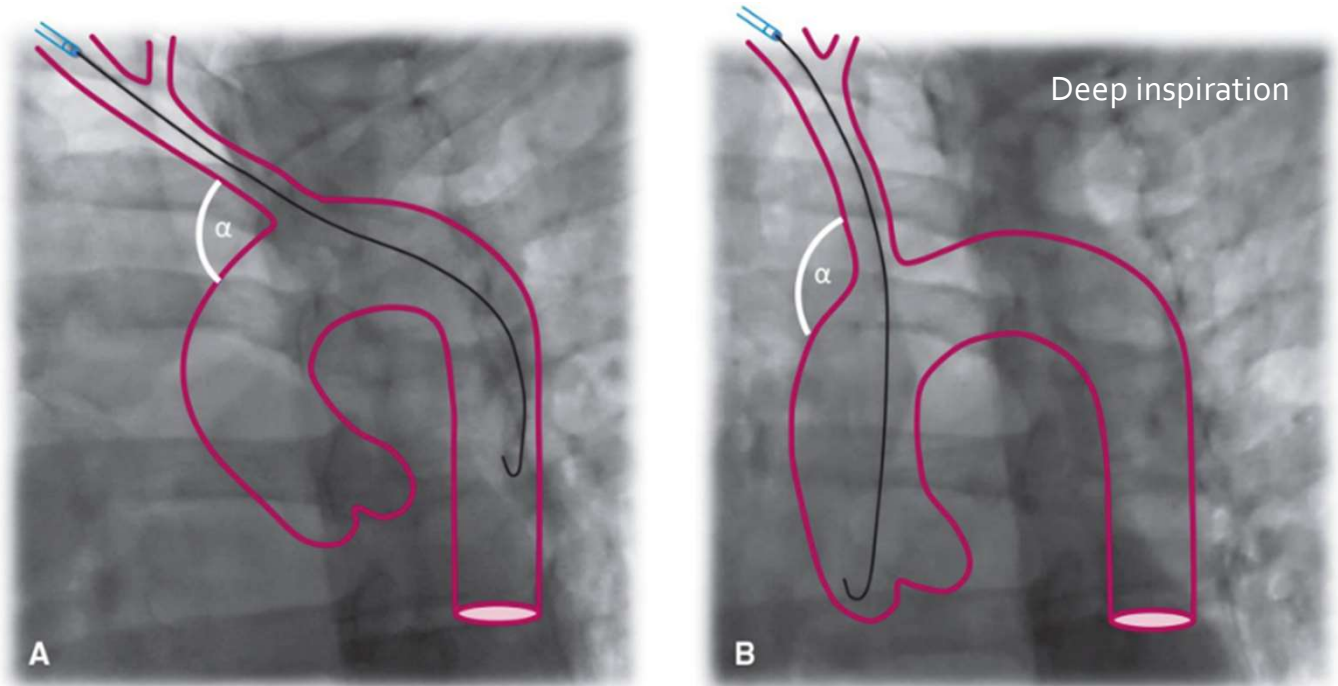
Guidewire advancement

- Checkpoint 2 (Radial Artery Loop)



Guidewire advancement

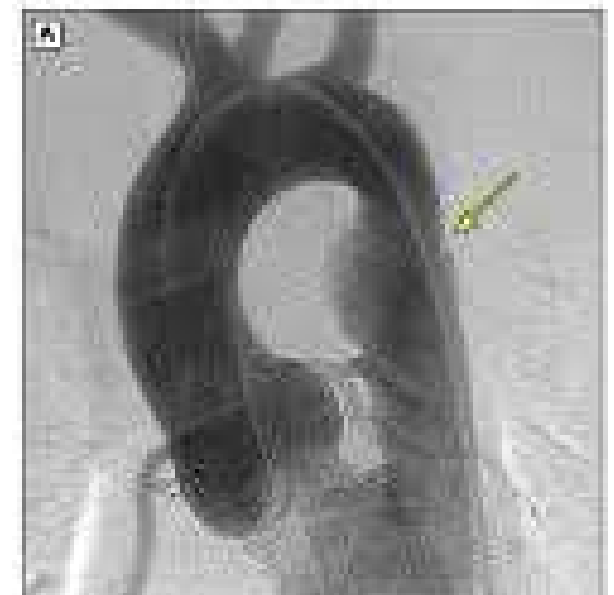
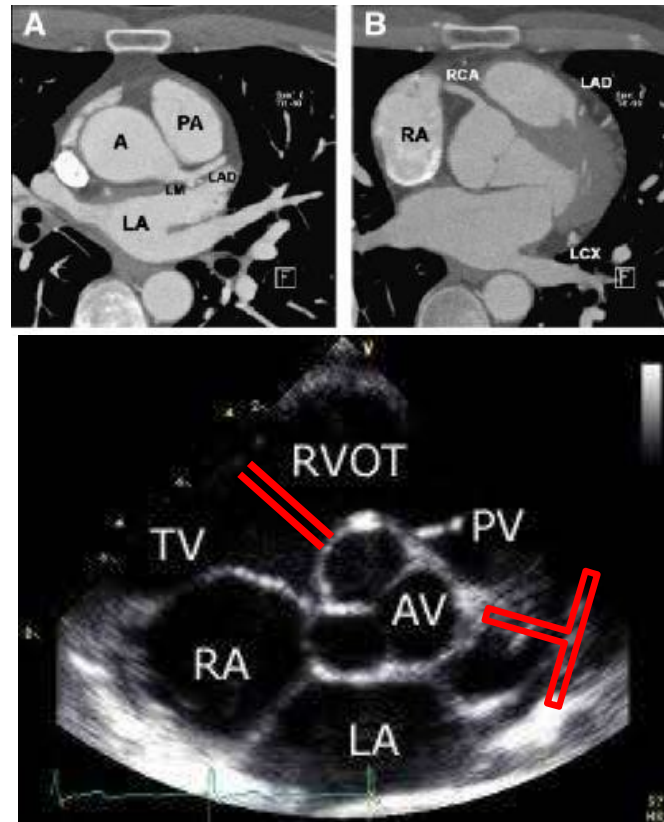
- Checkpoint 3 (brachiocephalic trunk-aorta angle)



- Deep inspiration
- Terumo guidewire
- Rotation of catheter at aortic arch

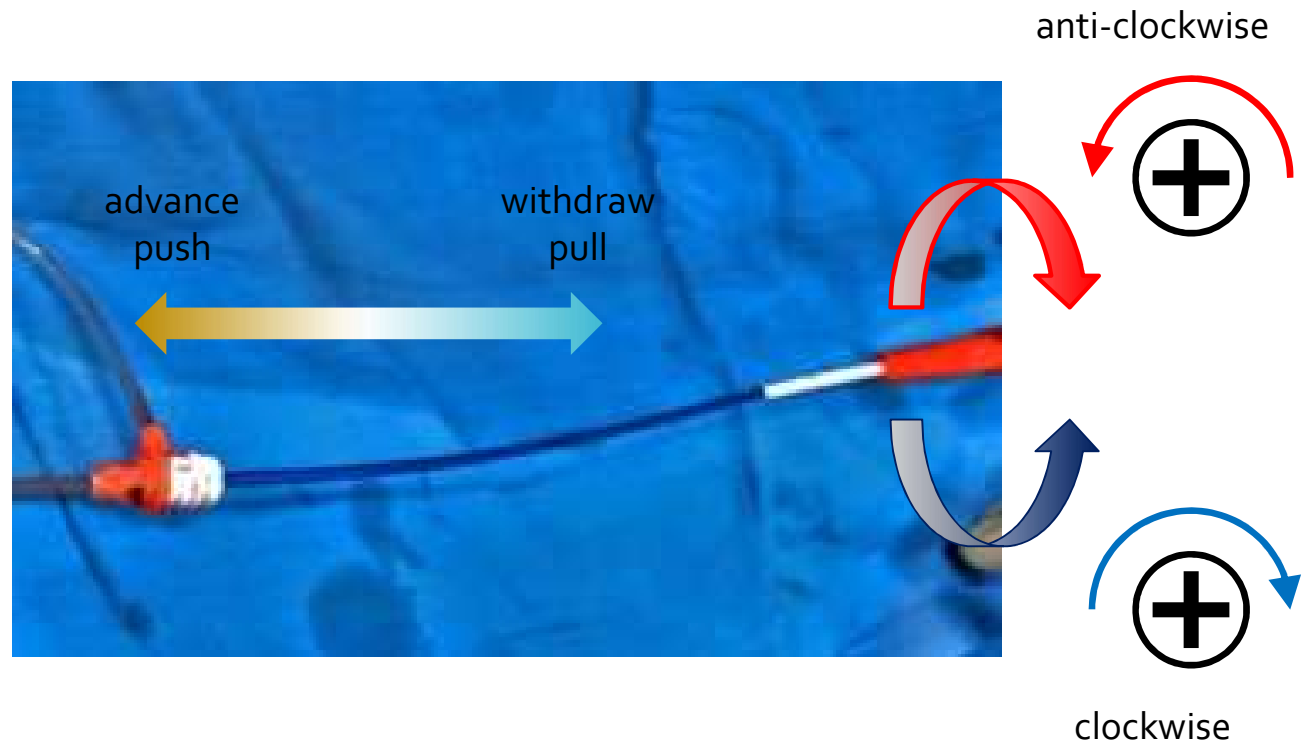
Catheter engagement

- Anatomy of Coronary Cusps

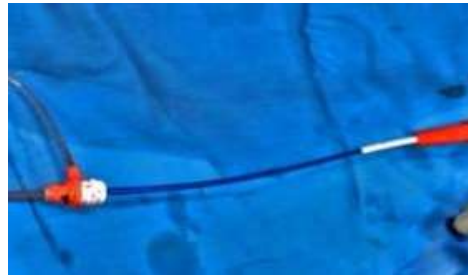


Catheter engagement

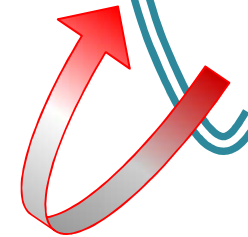
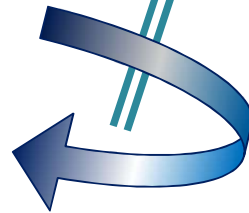
- Manipulation of catheter



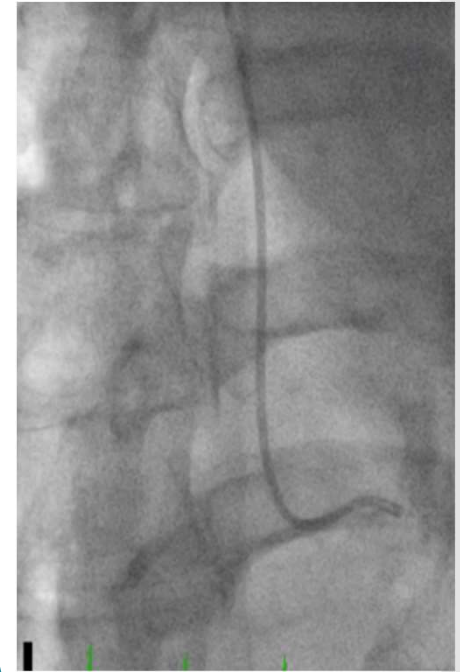
Catheter engagement



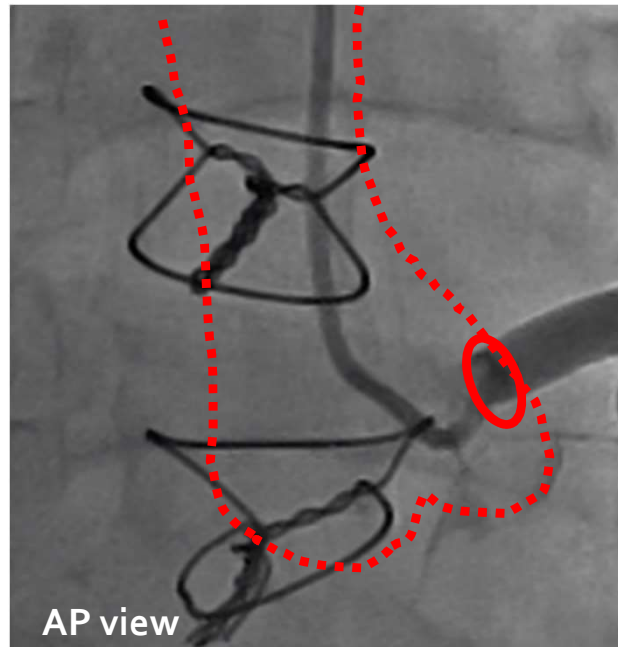
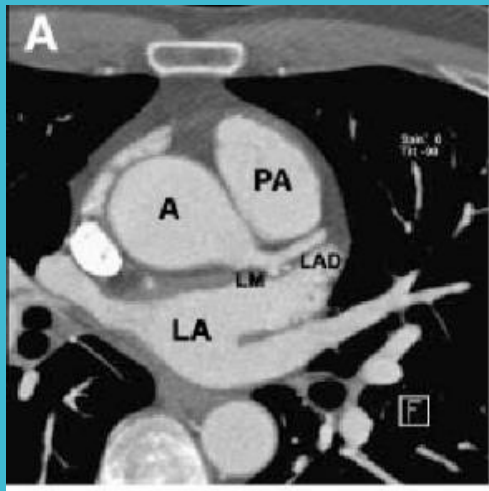
clockwise



counter-clockwise



Catheter engagement of LM



- A small puff to locate
- Advance / pullback
Clockwise / anticlockwise rotate
- Buckle-up catheter
- Jump in / synchronous movement (calcium / stent)

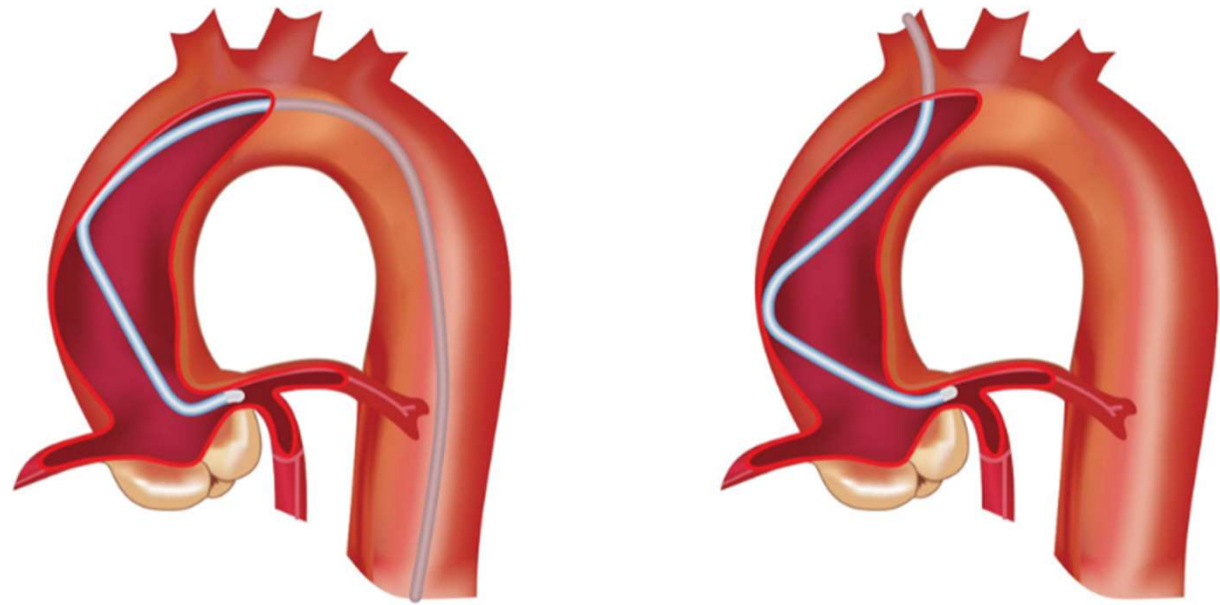
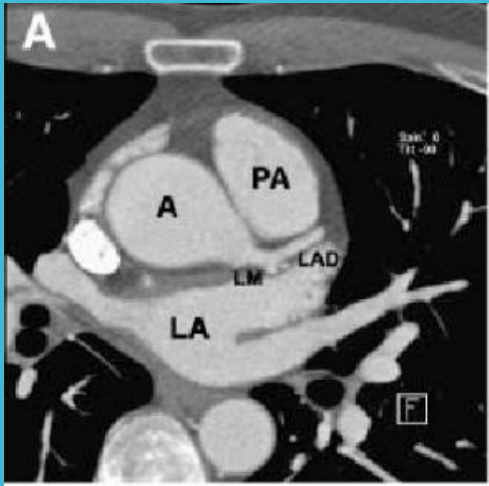
Tiger II



Judkins Left 4

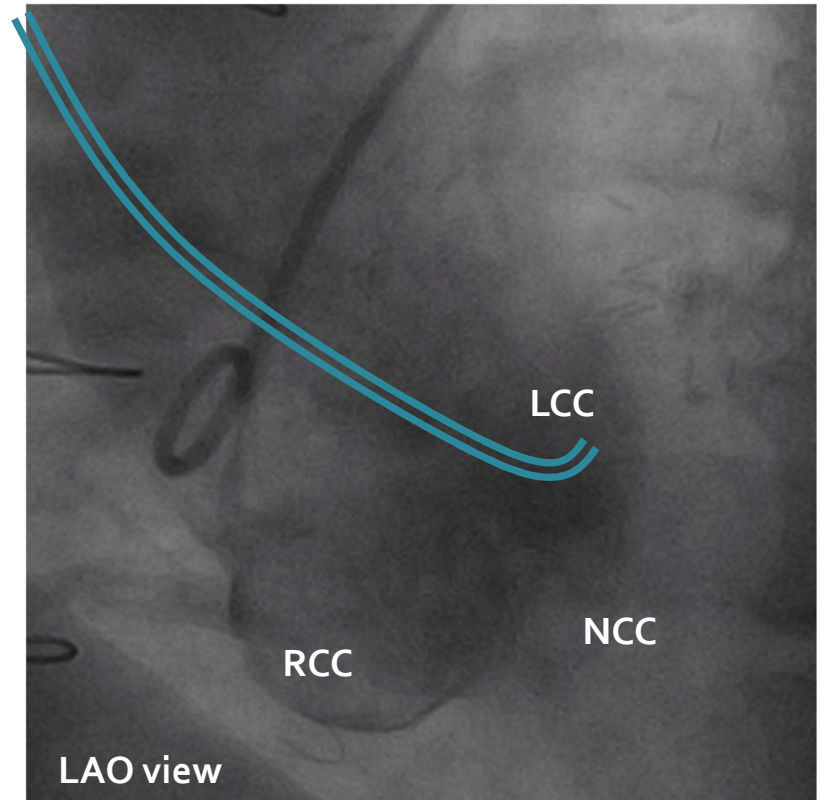
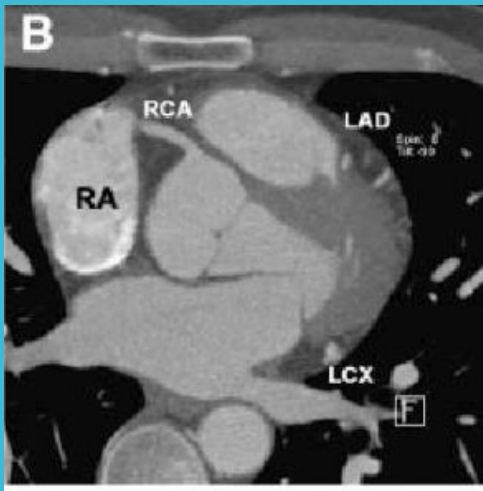


Catheter engagement of LM

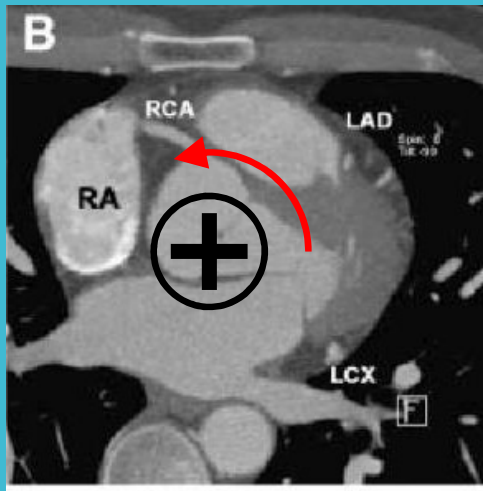


A shorter (3.5 instead of 4) JL catheter for LM cannulation in TRA

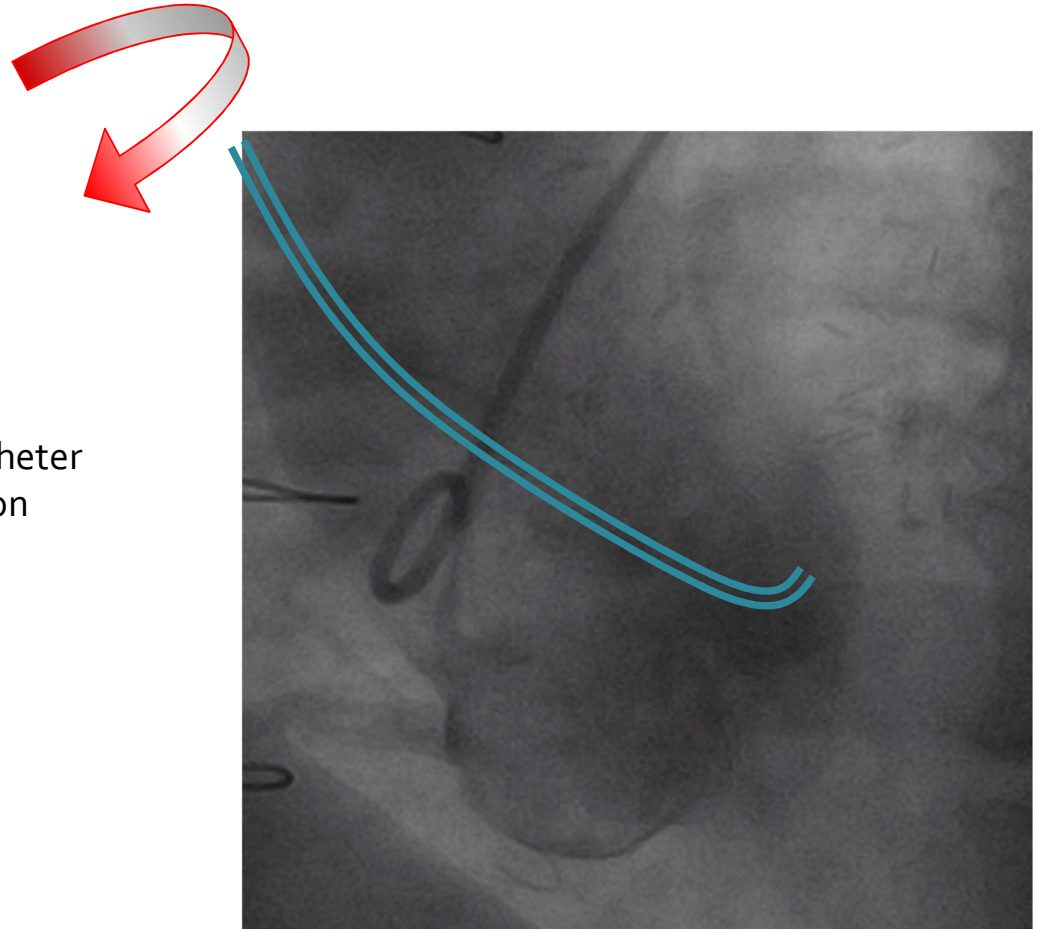
Catheter engagement of RCA



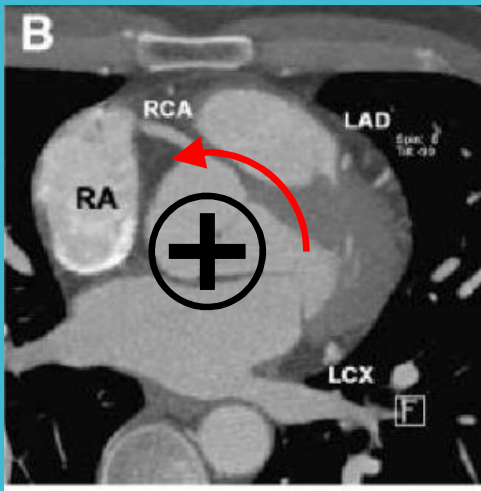
Catheter engagement of RCA



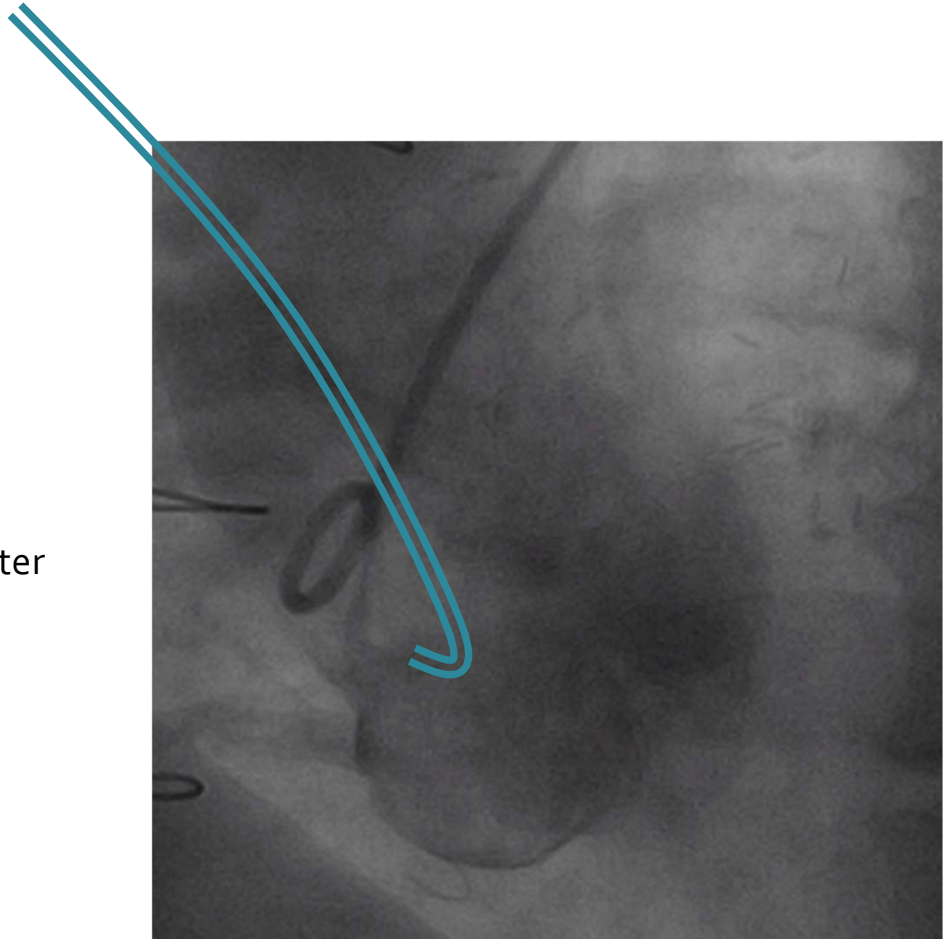
- Pullback (up) catheter
- Clockwise rotation



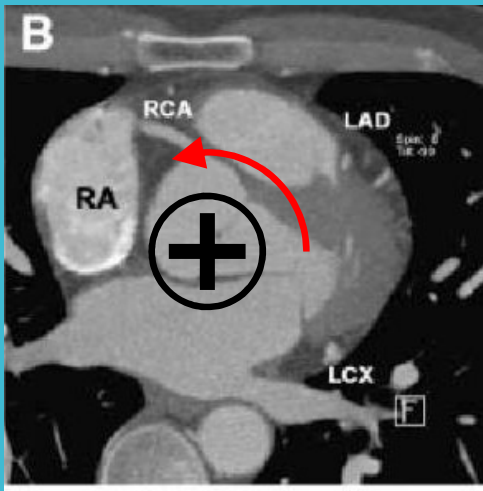
Catheter engagement of RCA



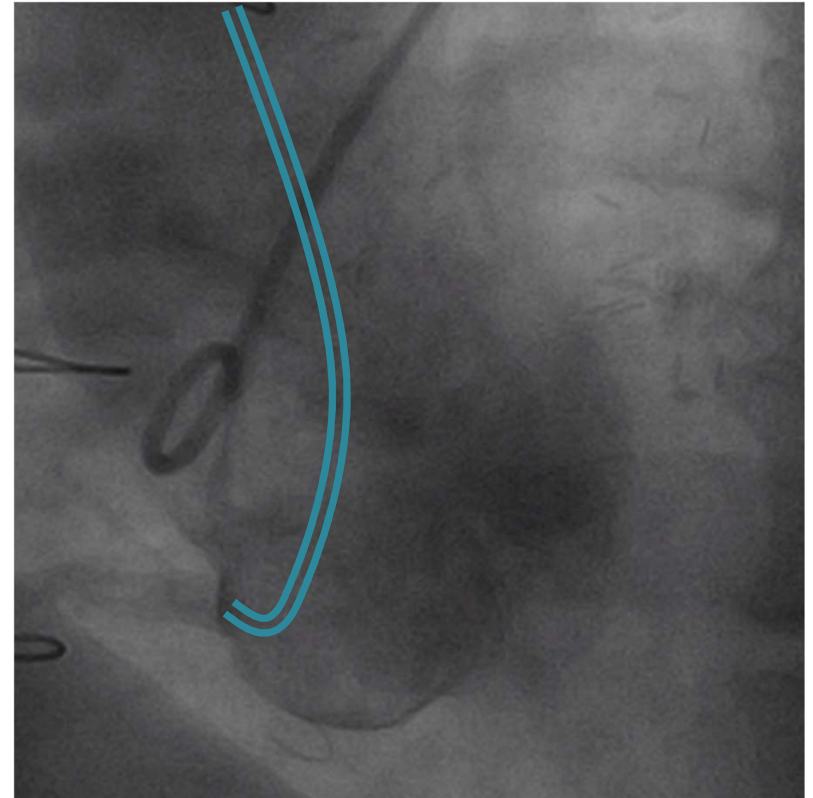
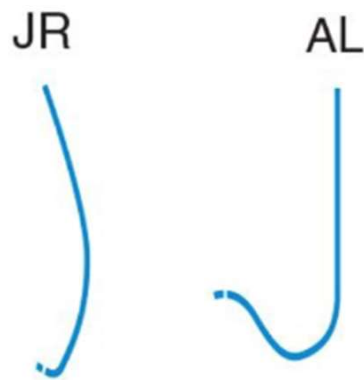
- Pullback (up) catheter
- Clockwise rotation
- Advance (down) catheter



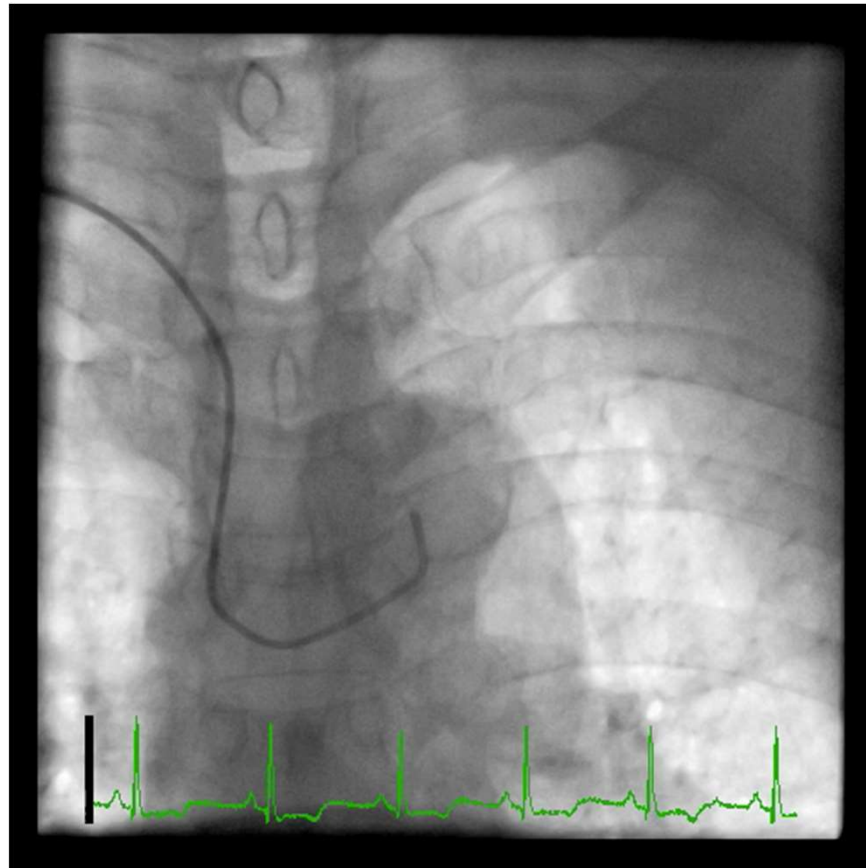
Catheter engagement of RCA



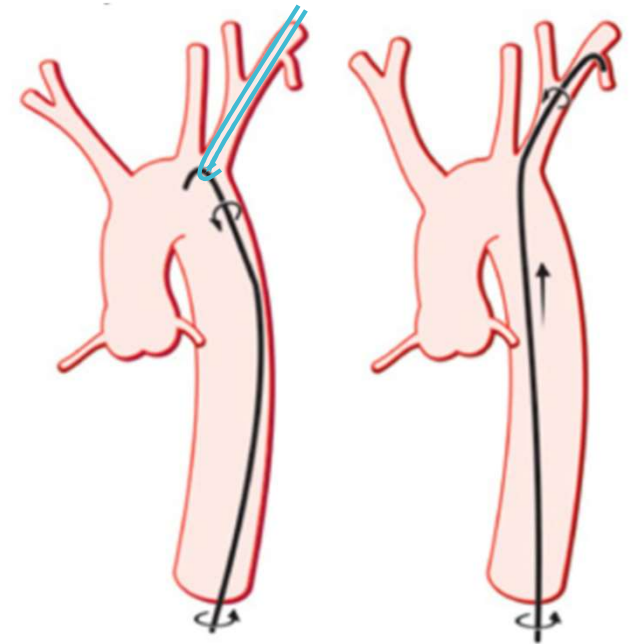
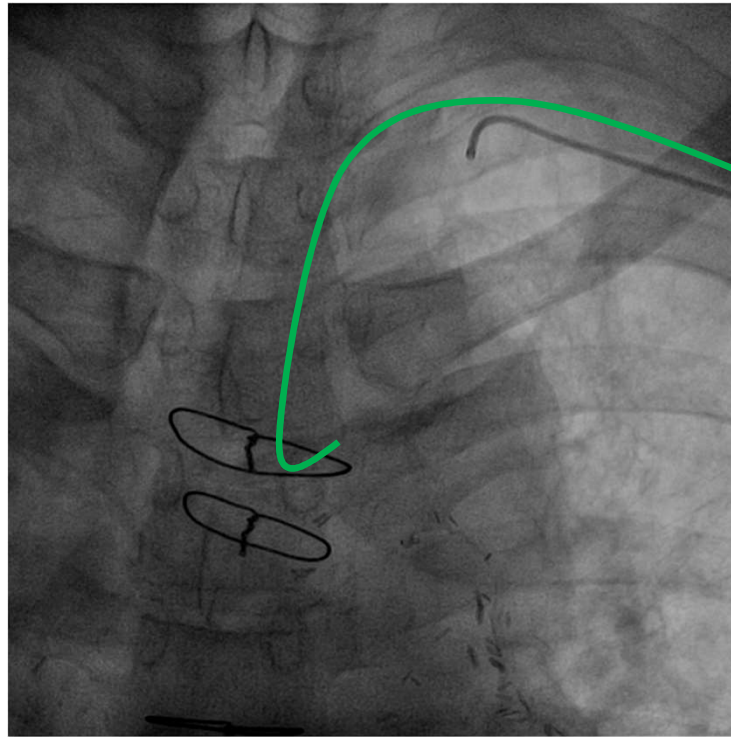
- Maintain slight clockwise while pullback
- Tiger II / JR₄ (TRA)
JR₄ / AL₁ (TFA)



Catheter
engagement
of LIMA

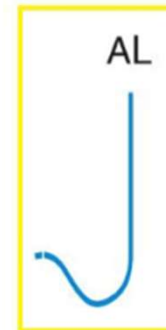
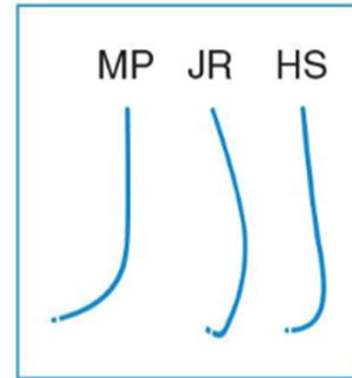
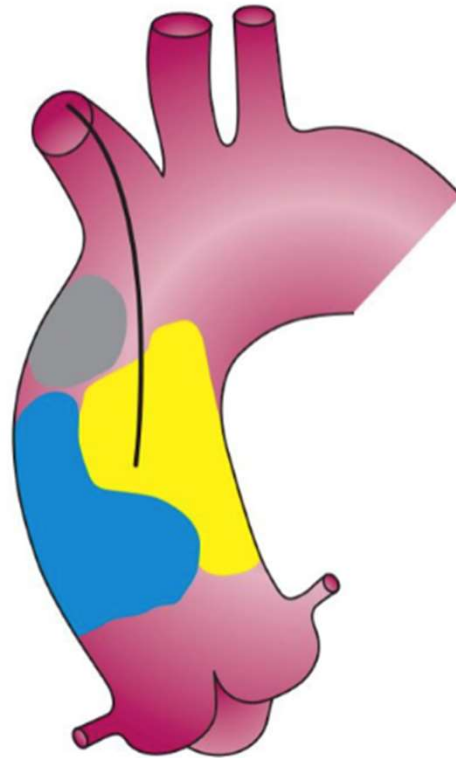


Catheter engagement of LIMA

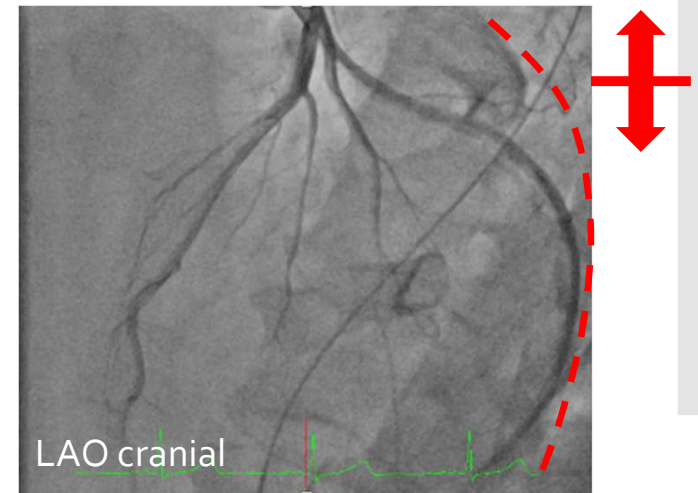
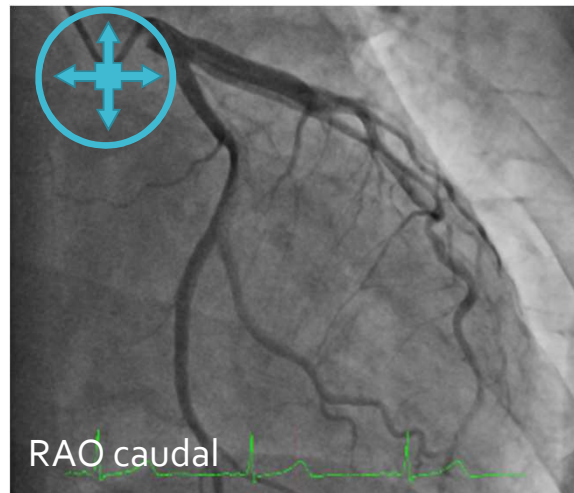
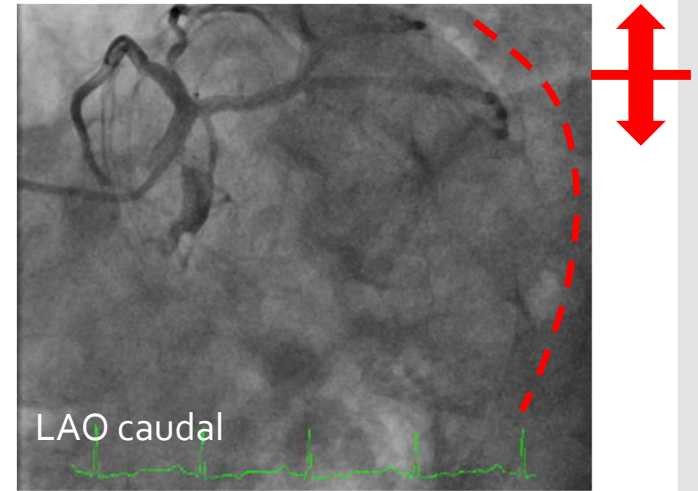
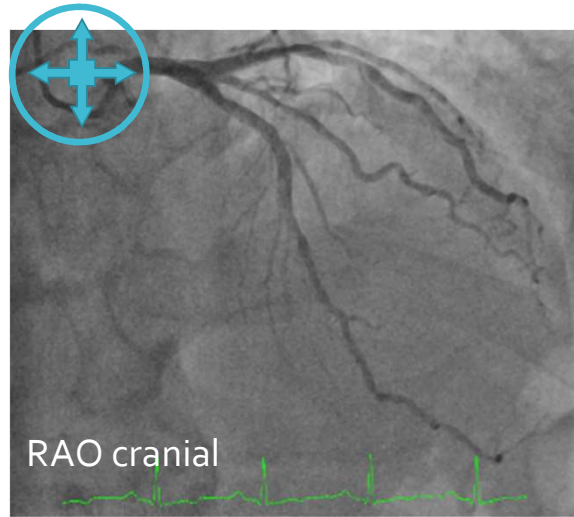


Left Radial or Femoral approach
IM / JR₄ catheter

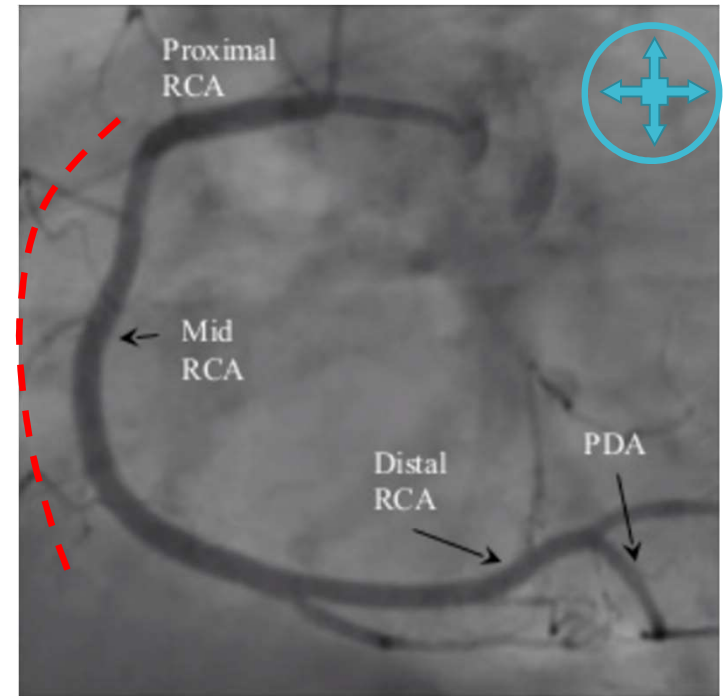
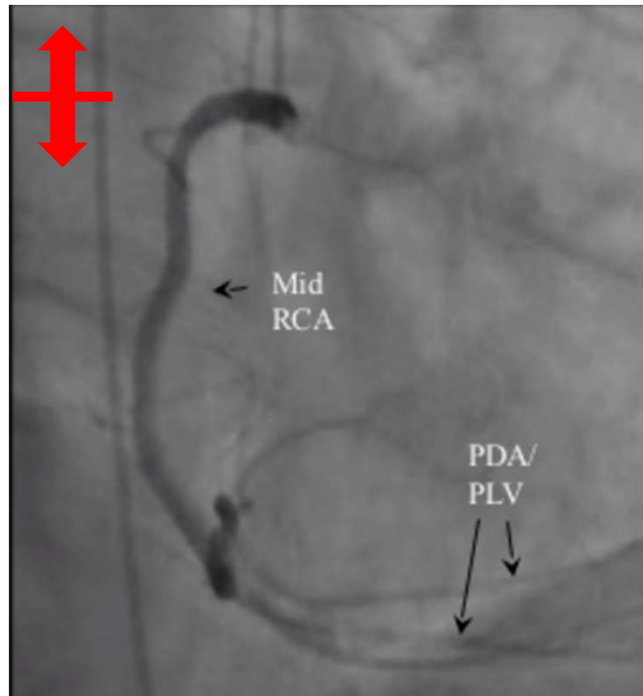
Catheter engagement of SVG



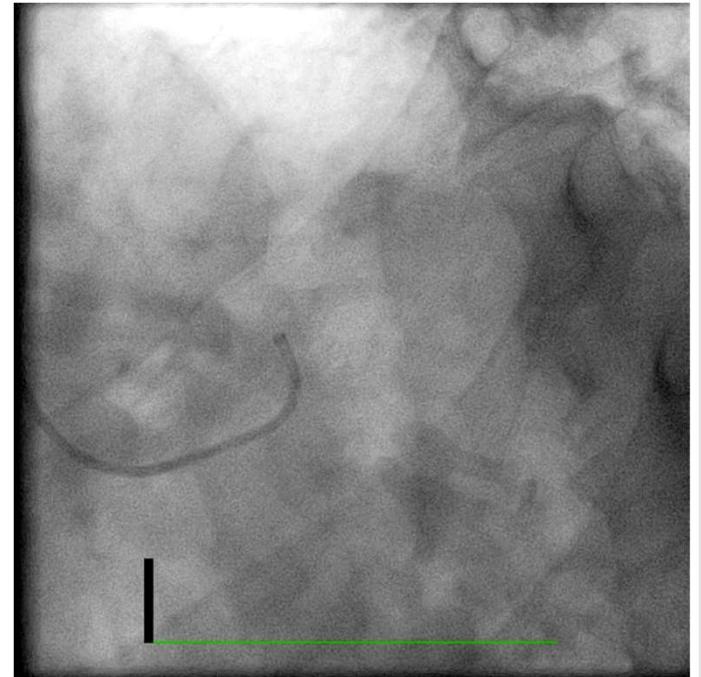
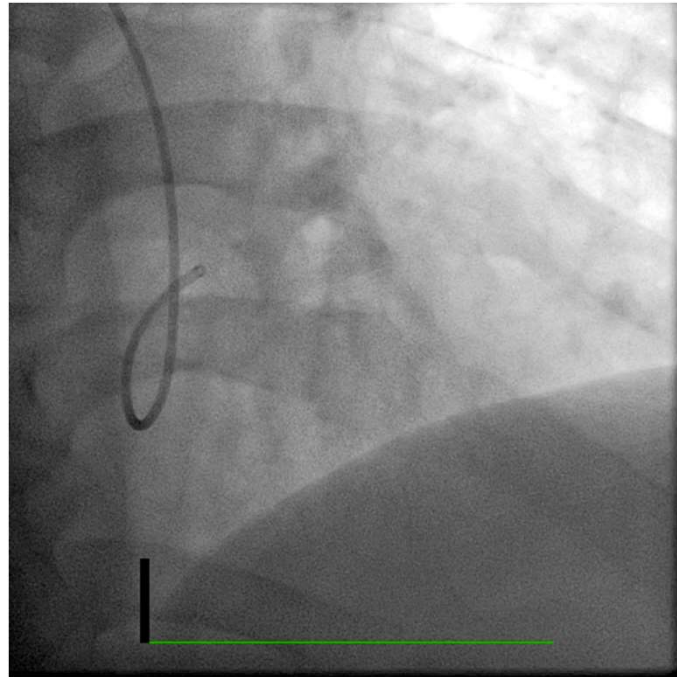
Taking good
video shots:
Standard views



Taking good
video shots:
Standard views

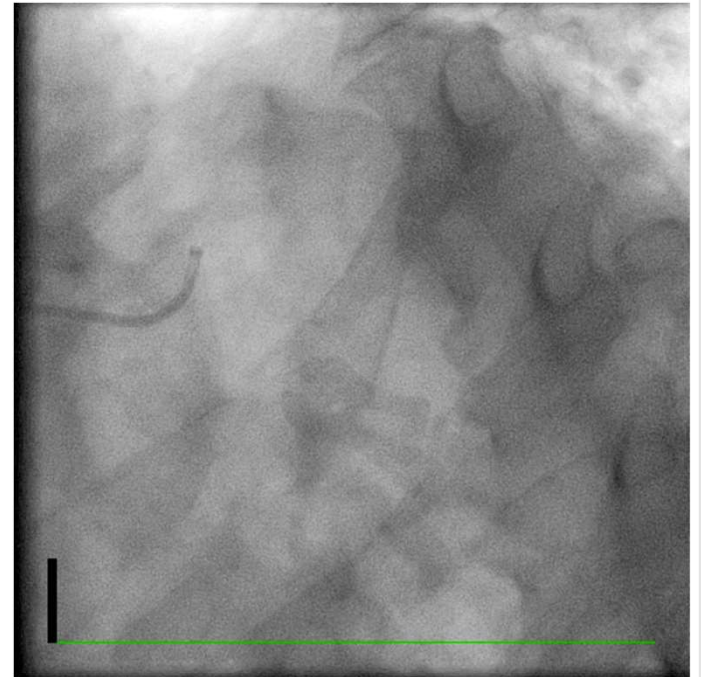
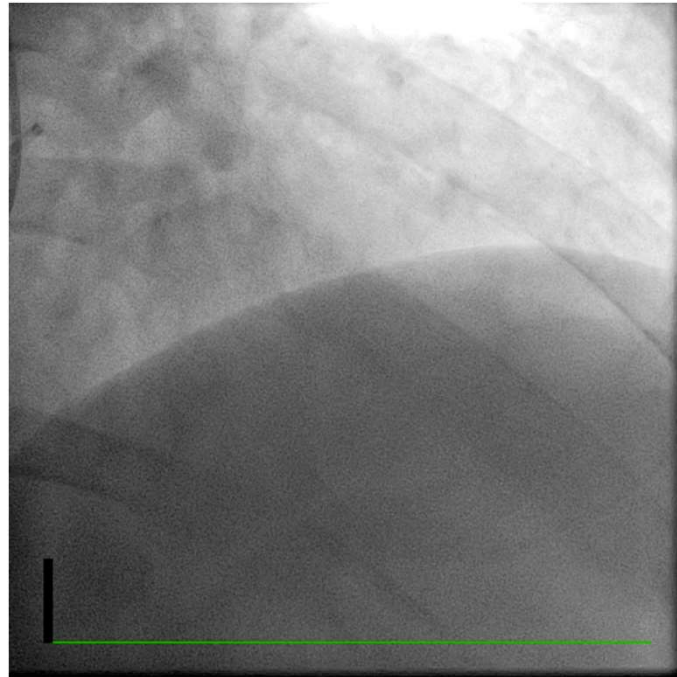


Interesting case 1



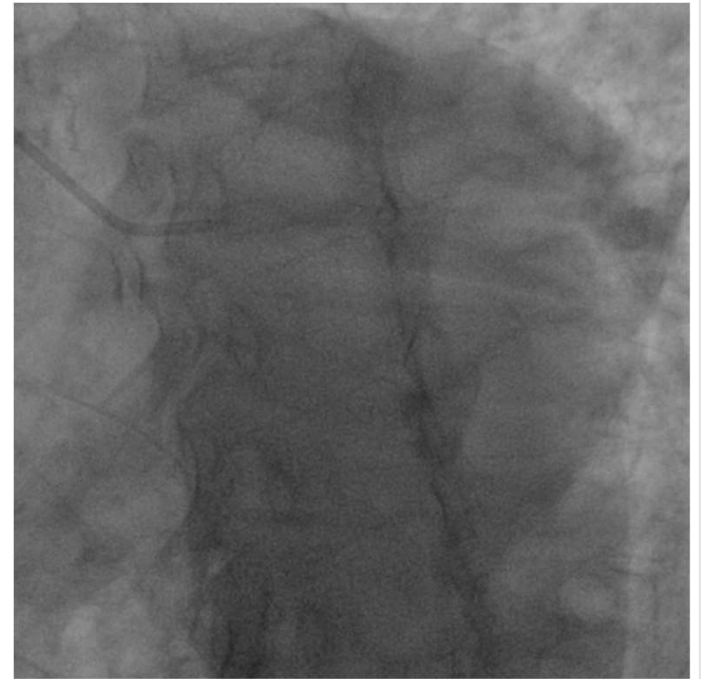
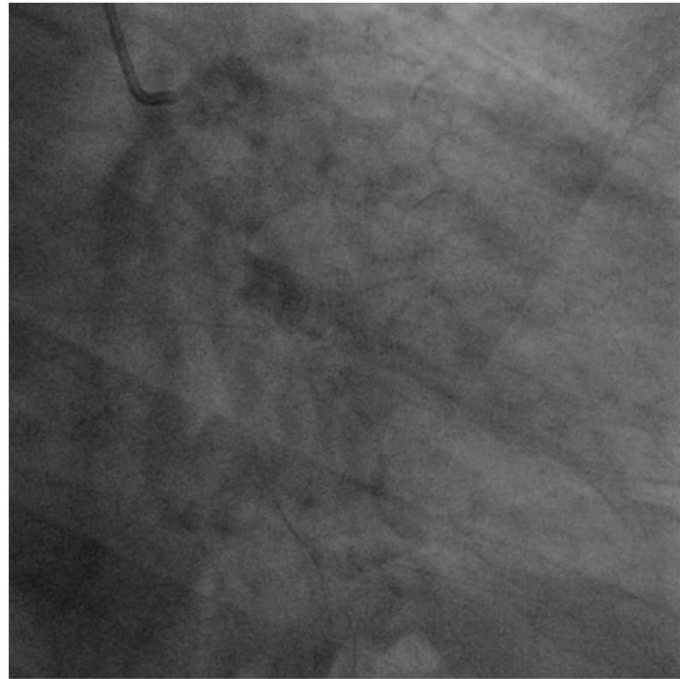
Small aortic root
JL₄ catheter to long

Interesting case 1



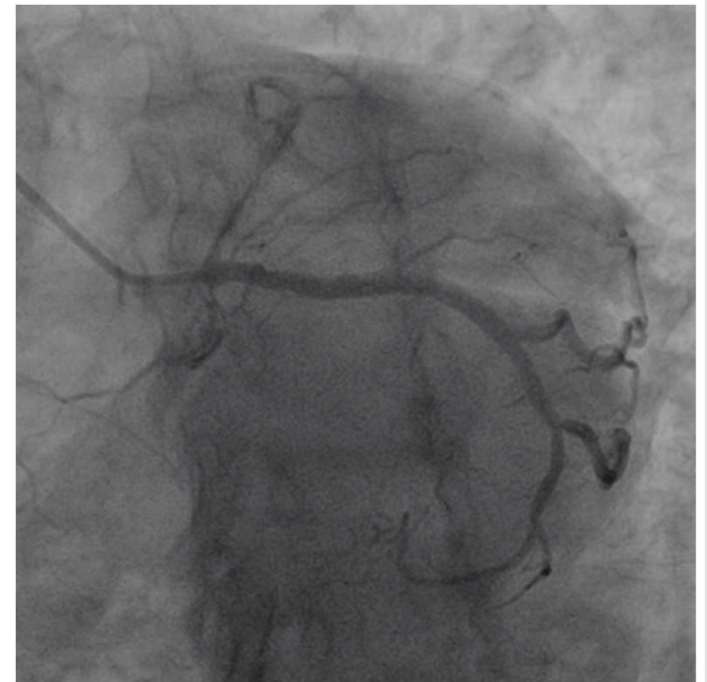
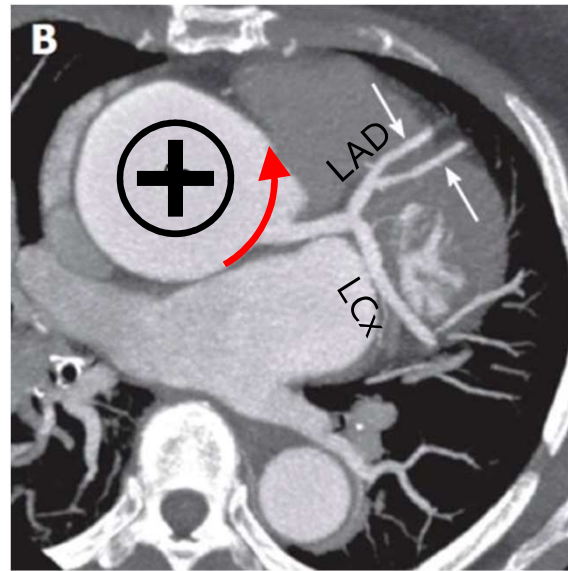
Small aortic root
JL4 catheter to long
Change to JL3.5

Interesting case 2



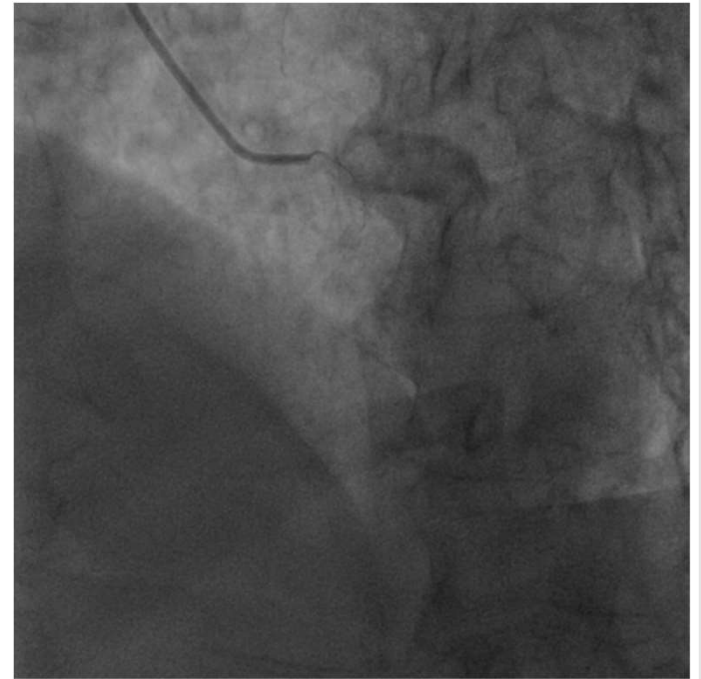
Short LM (select into LCx)
Take LCx views (RAO caudal / LAO caudal) first

Interesting case 2



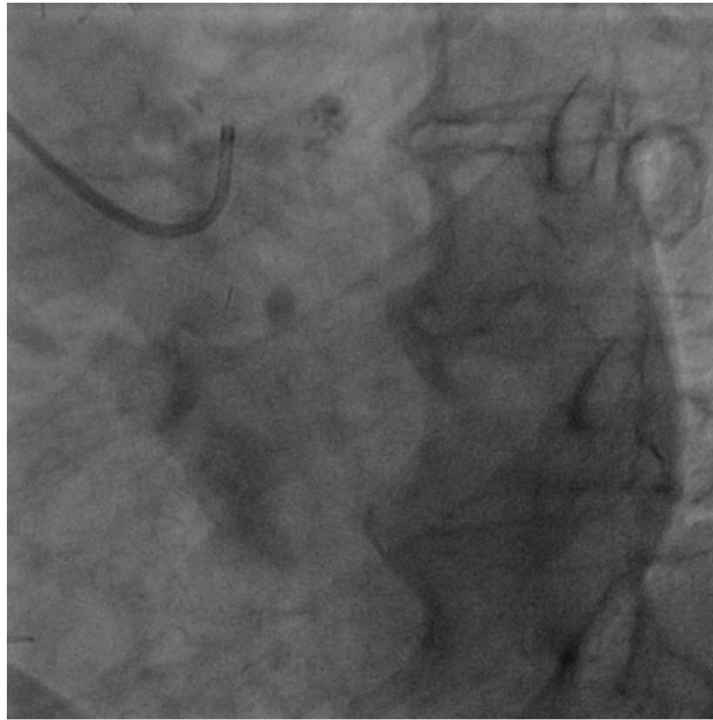
Clockwise rotation + advance (pushup) catheter
Pointing to LAD

Interesting case 2



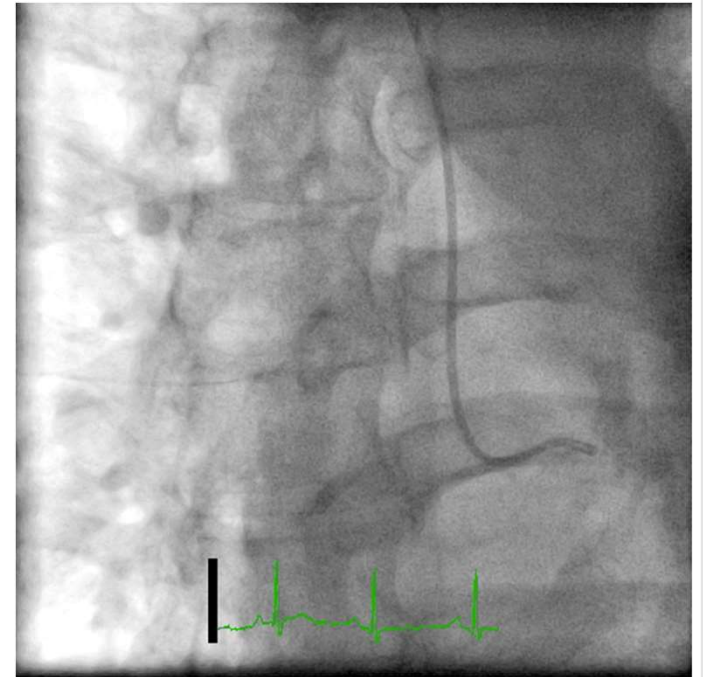
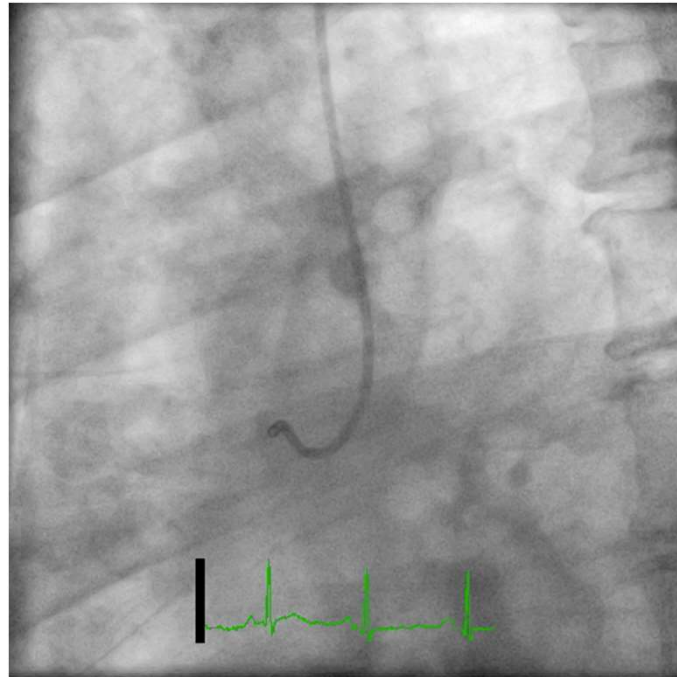
Finish LAD views (RAO cranial / LAO cranial)

Interesting case 3



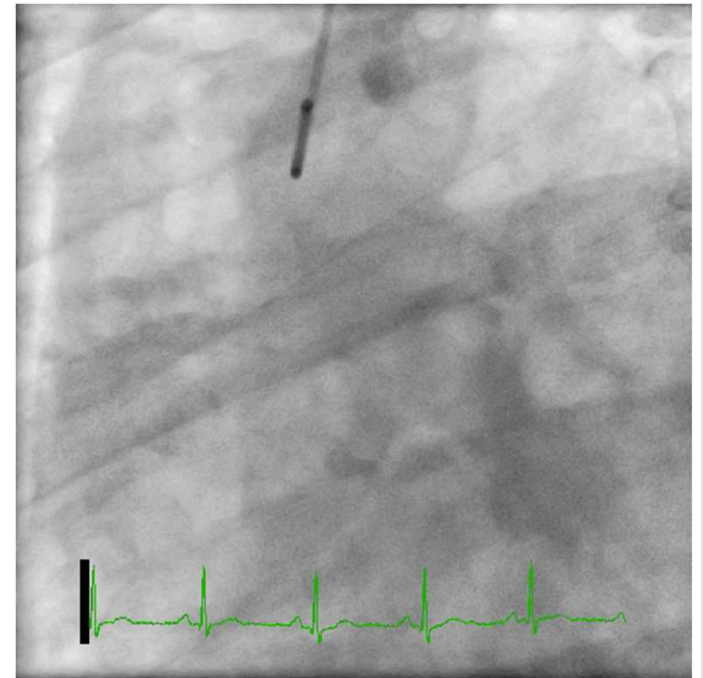
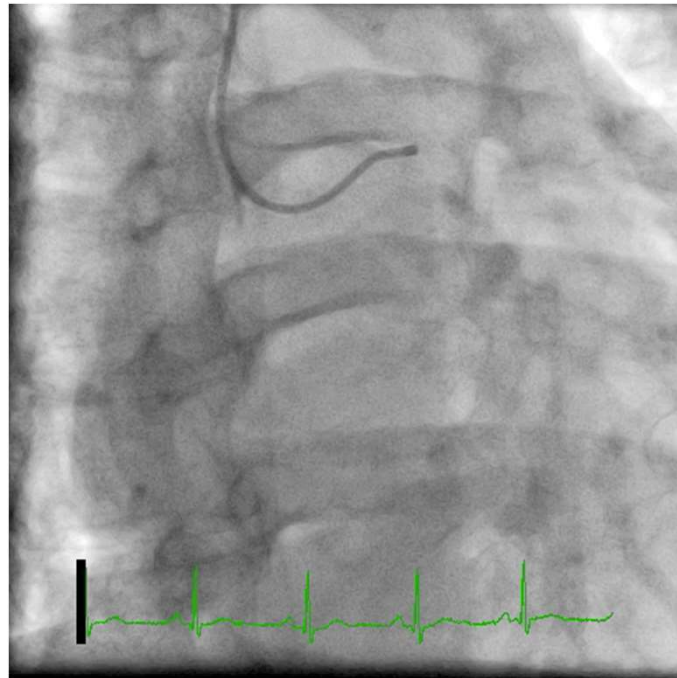
Catheter poking on LM wall
Risk of dissection
Co-axiality of catheter

Interesting case 4



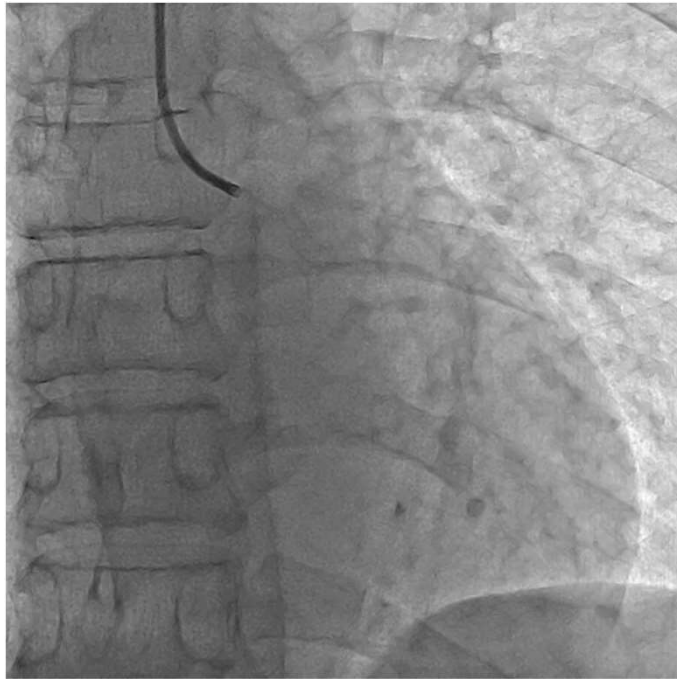
Finish LAD views (RAO cranial / LAO cranial)

Interesting case 4



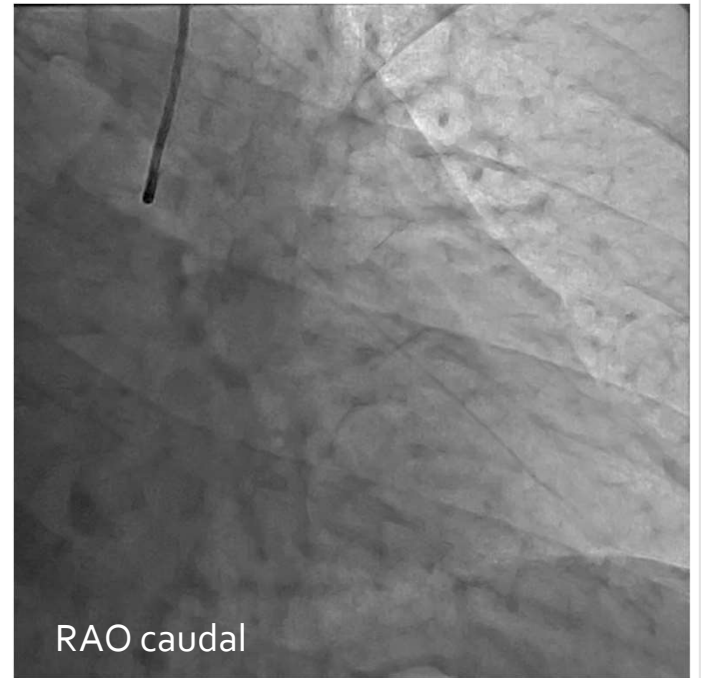
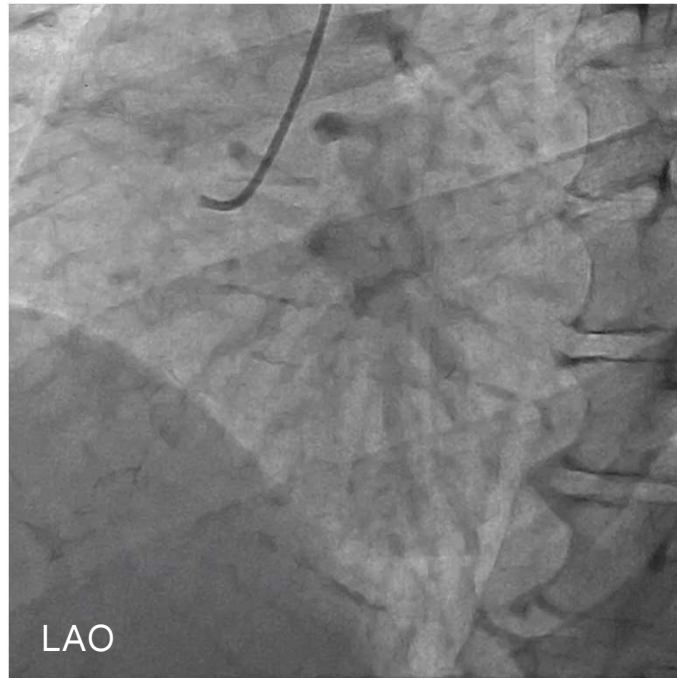
High posterior take-off RCA

Interesting case 6



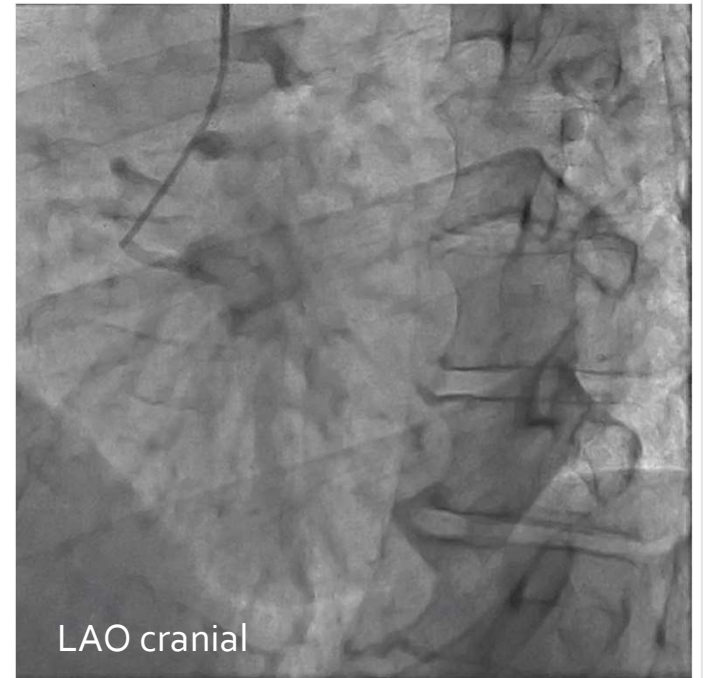
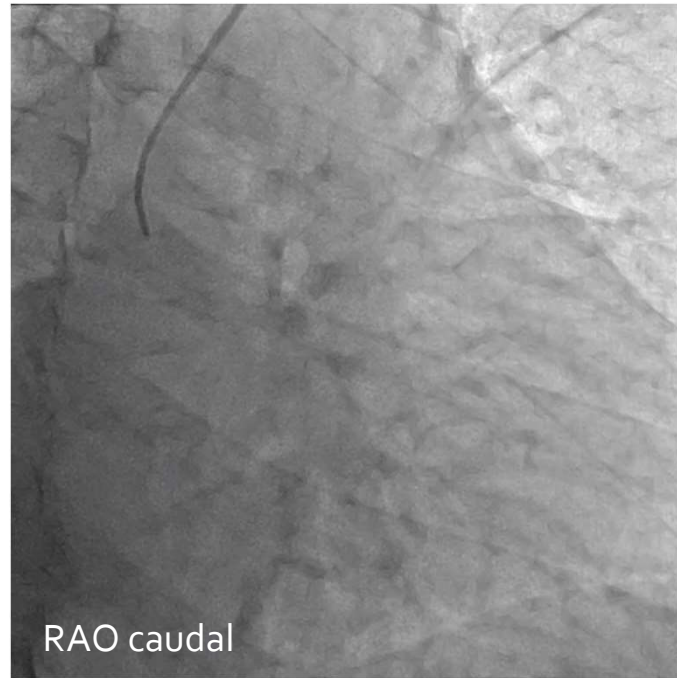
LM from right sinus

Interesting case 7



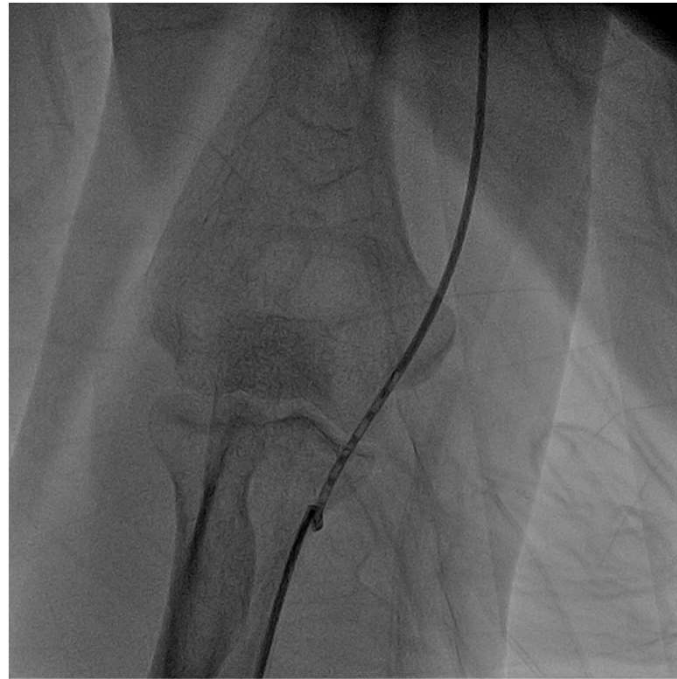
Where is the LCx?

Interesting case 7

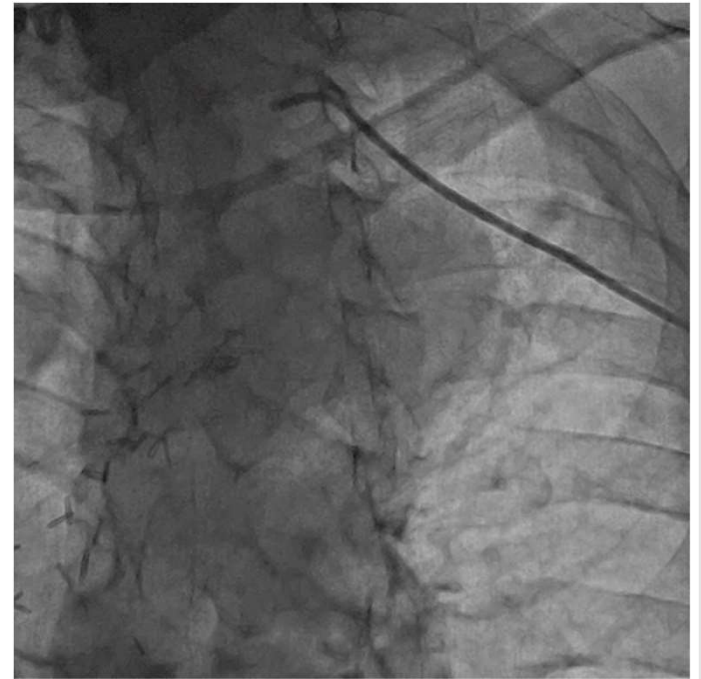


LCx from right sinus

Be safe



Avoid excessive turning
Use guidewire



Don't inject too hard
Look (pressure tracing) before
you inject

Finally:
Be safe

