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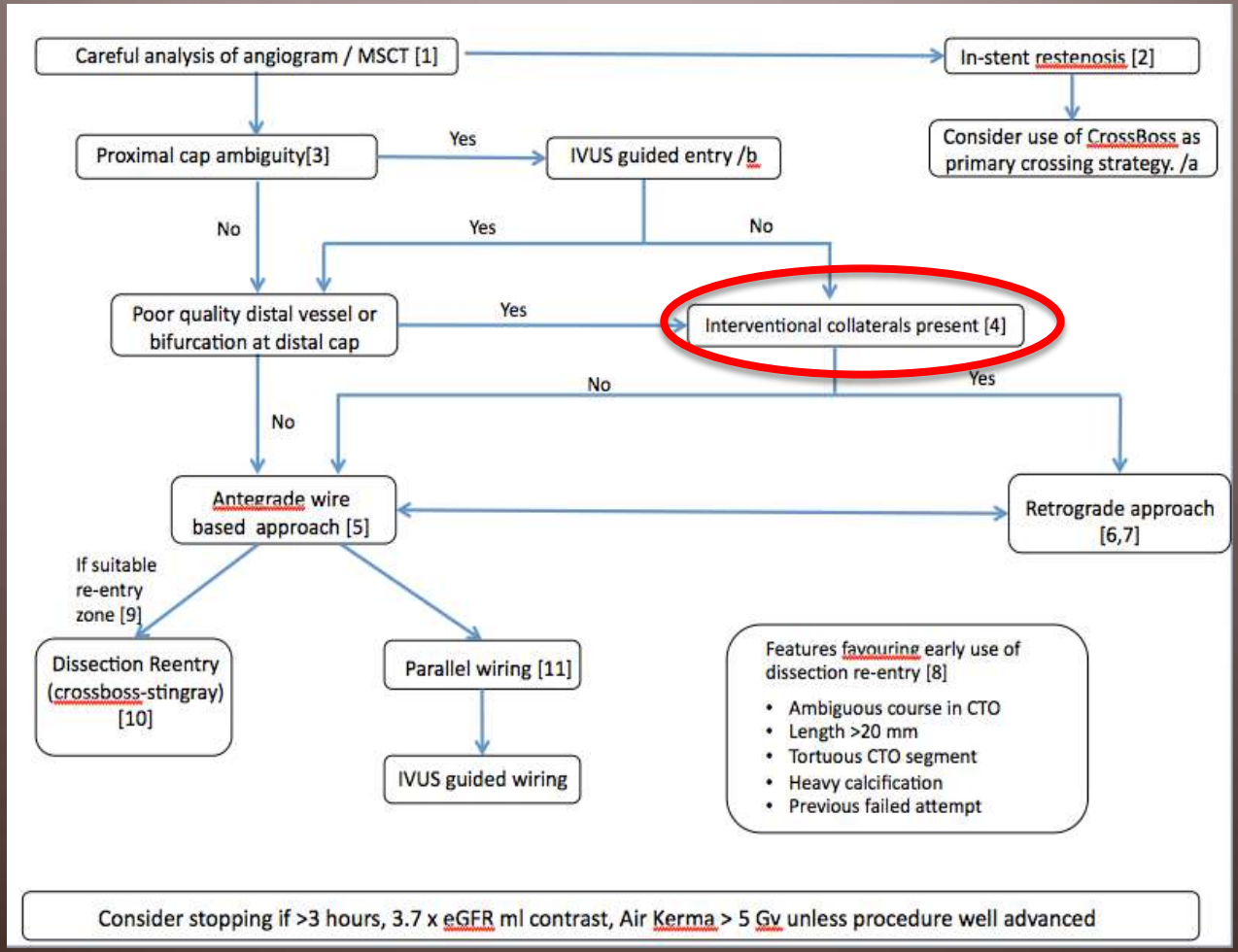
Which Way to Go?

Collateral channel selection in retrograde CTO PCI

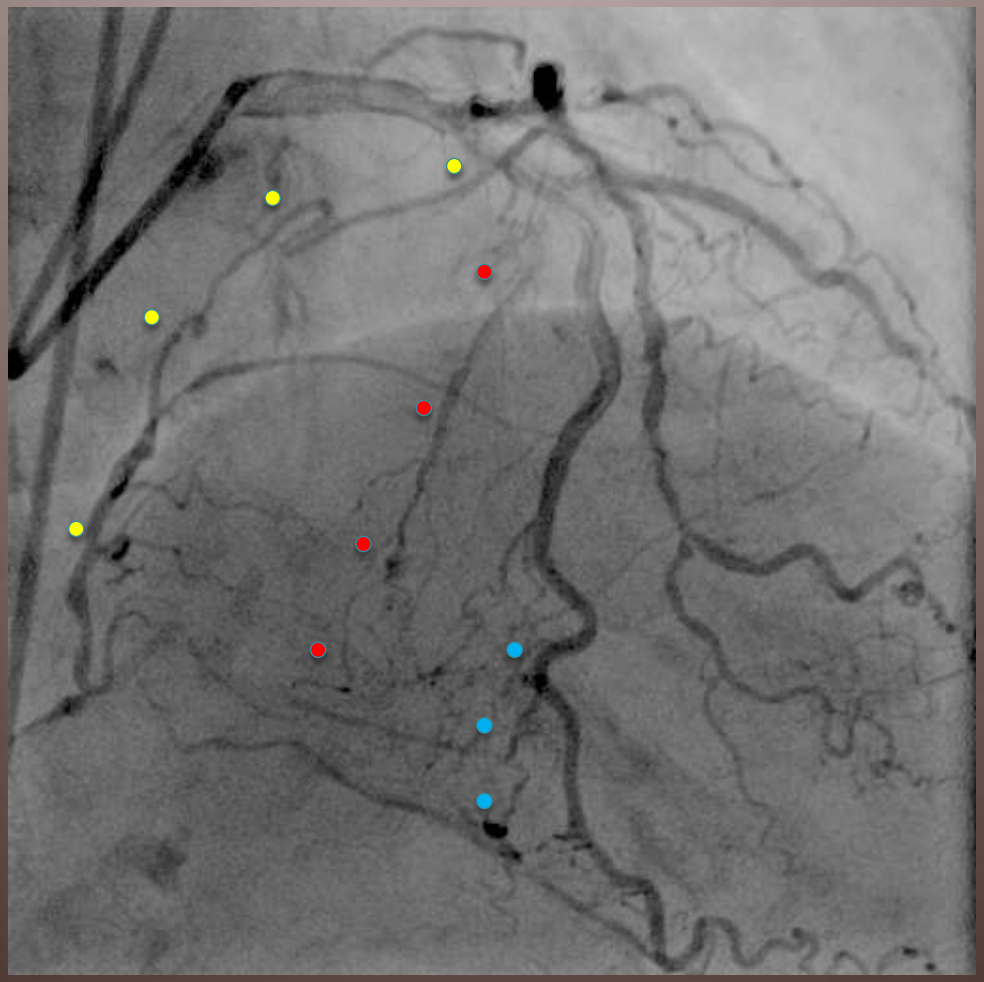
APCTO Club main algorithm



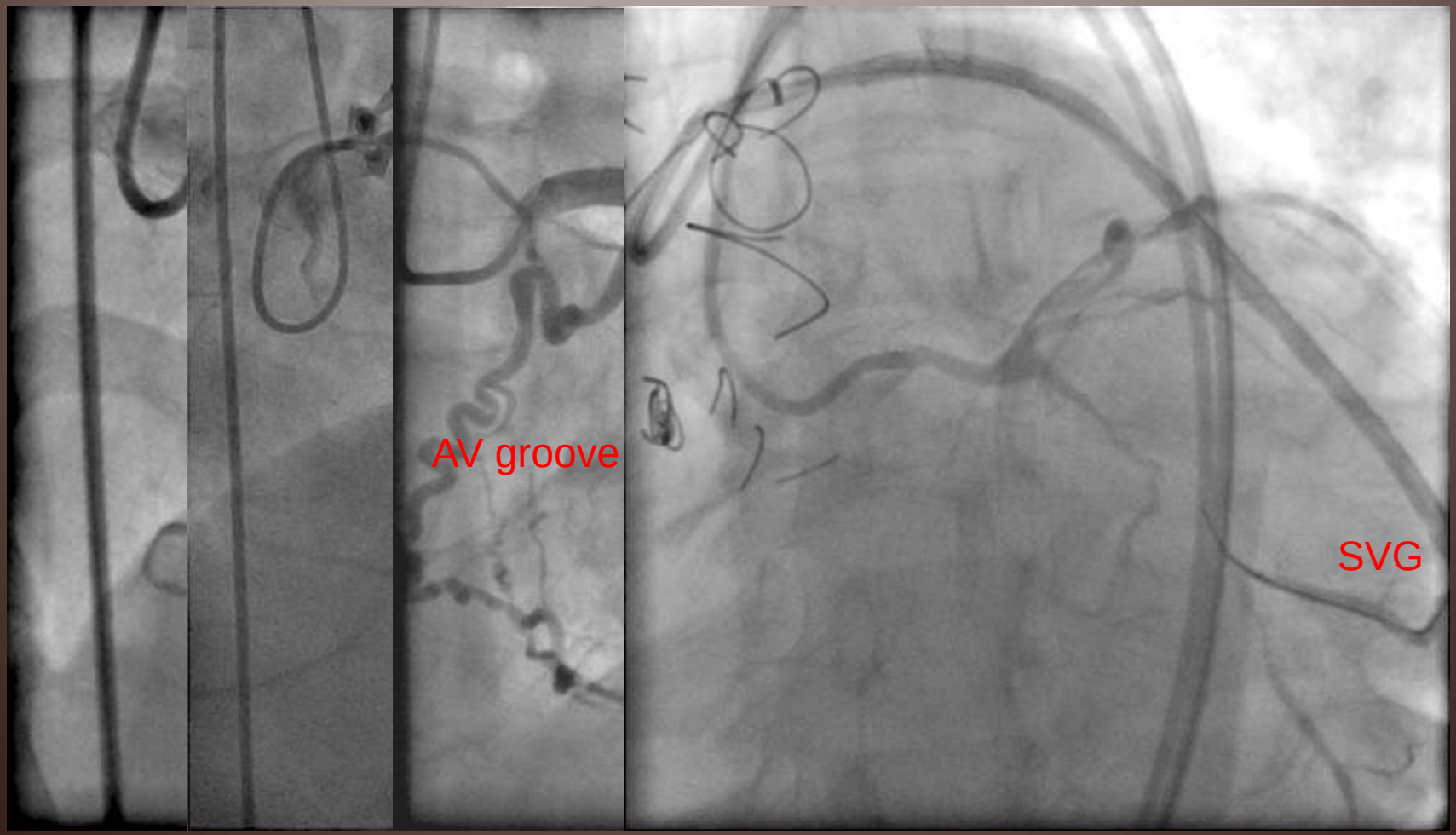
Interventional channel (IC)

- Existence of IC is dependent on operator experience and device availability
- Low-magnification contralateral injection with delayed exposure is mandatory to appreciate all possible IC
- Careful tip injection to confirm and isolate IC is sometimes necessary

1 target, several IC choices



IC types



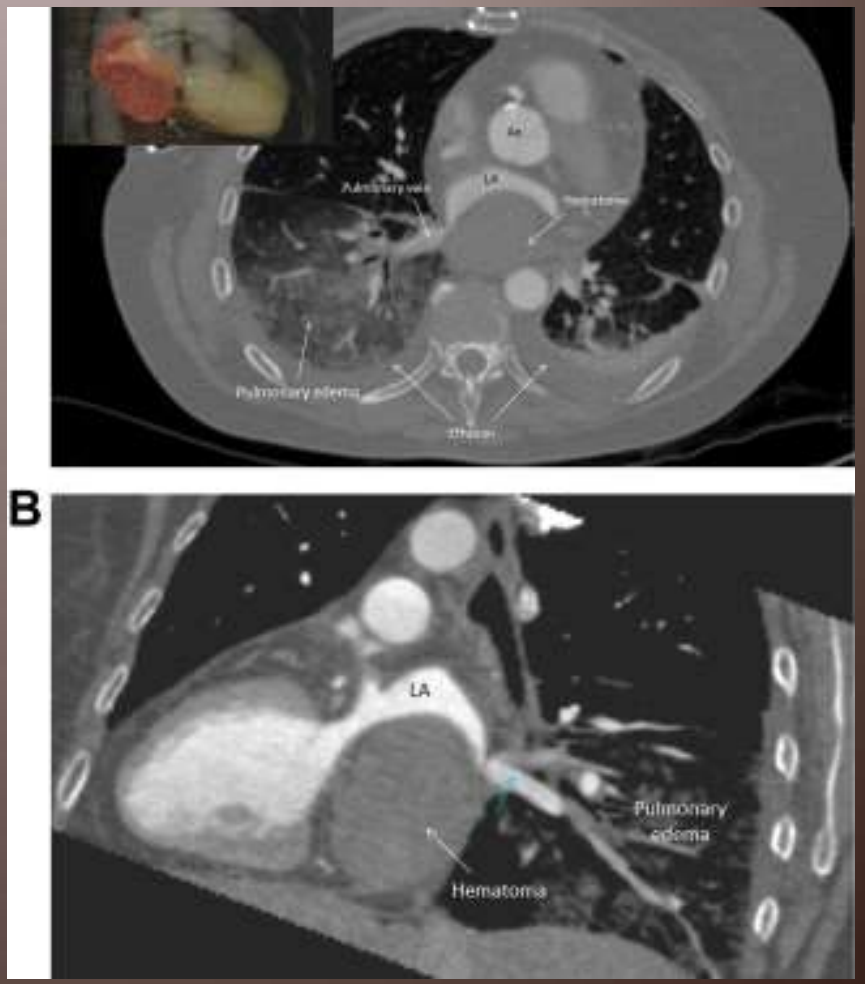
Purpose of categorization

- Different device/technique for tracking
- Specific complication pathophysiology
- Different salvage/management for rupture

Consequences of IC rupture

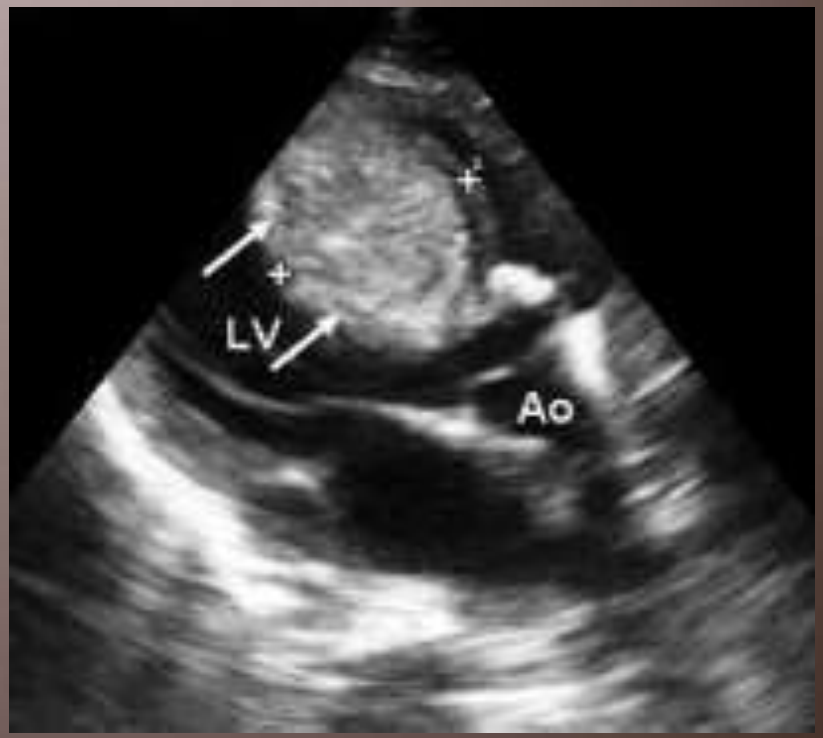
- No IC rupture is safe!!
  - Epi perf can lead to focal hematoma or tamponade
  - AVG perf can lead to LA inflow/outflow obstruction or tamponade
  - Septal perf can lead to dry tamponade/HOCM or abscess/VSD
- The issue is how to prevent and deal with rupture

LA hematoma



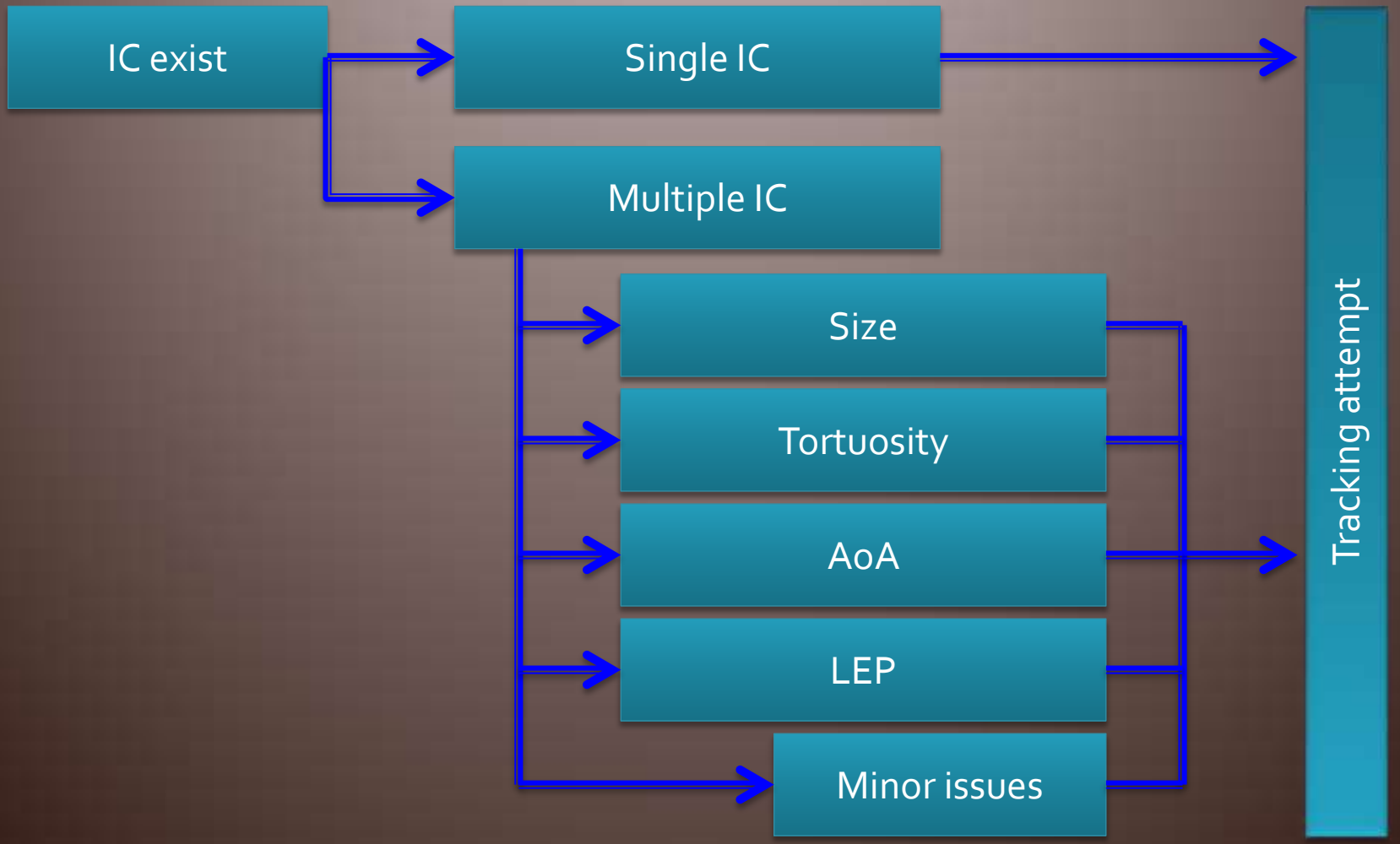
LA inflow/outflow obstruction or annulus deformity causing MR

Septal hematoma



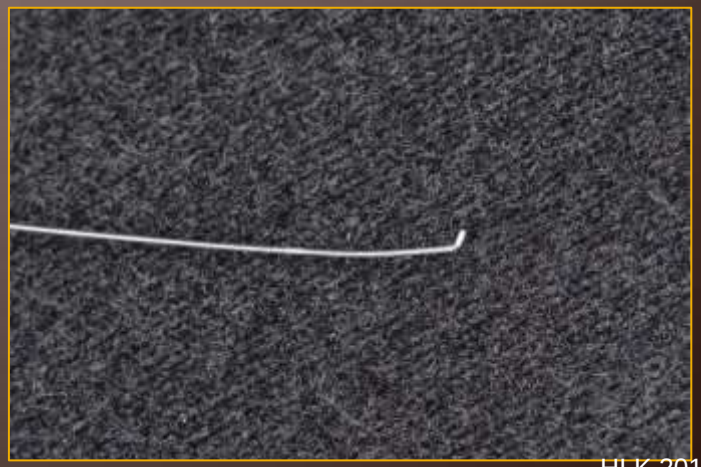
Dry tamponade and/or LVOT/RVOT obstruction

IC selection algorithm

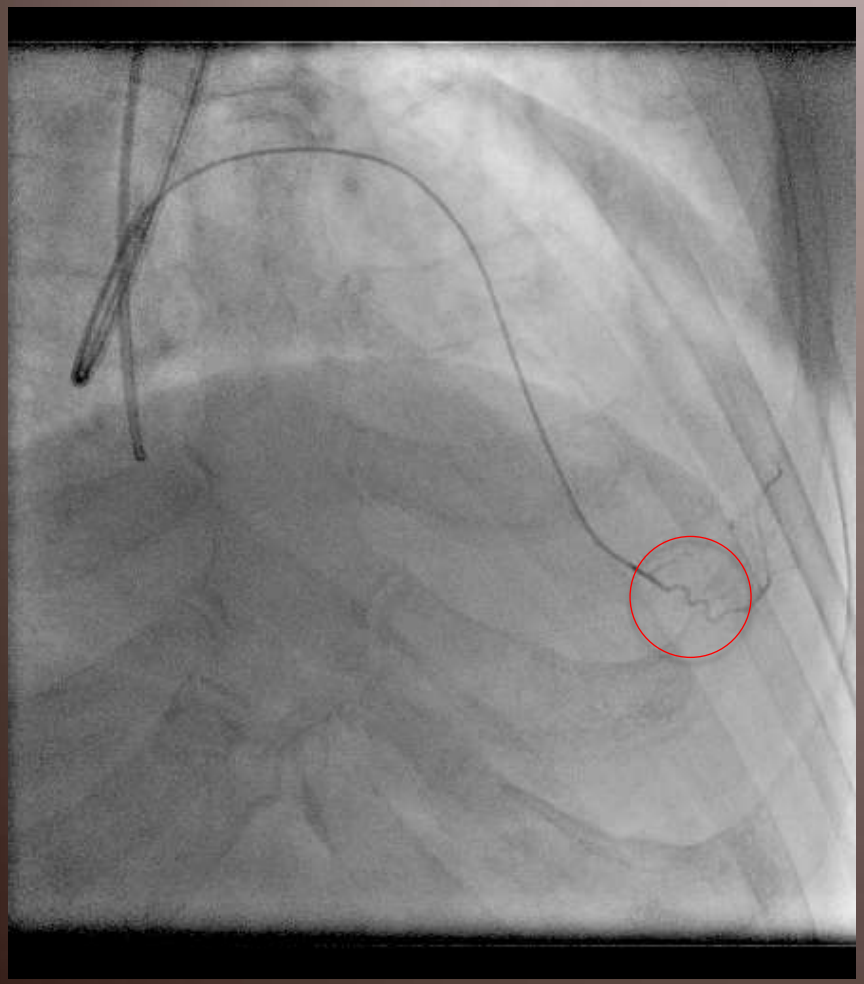


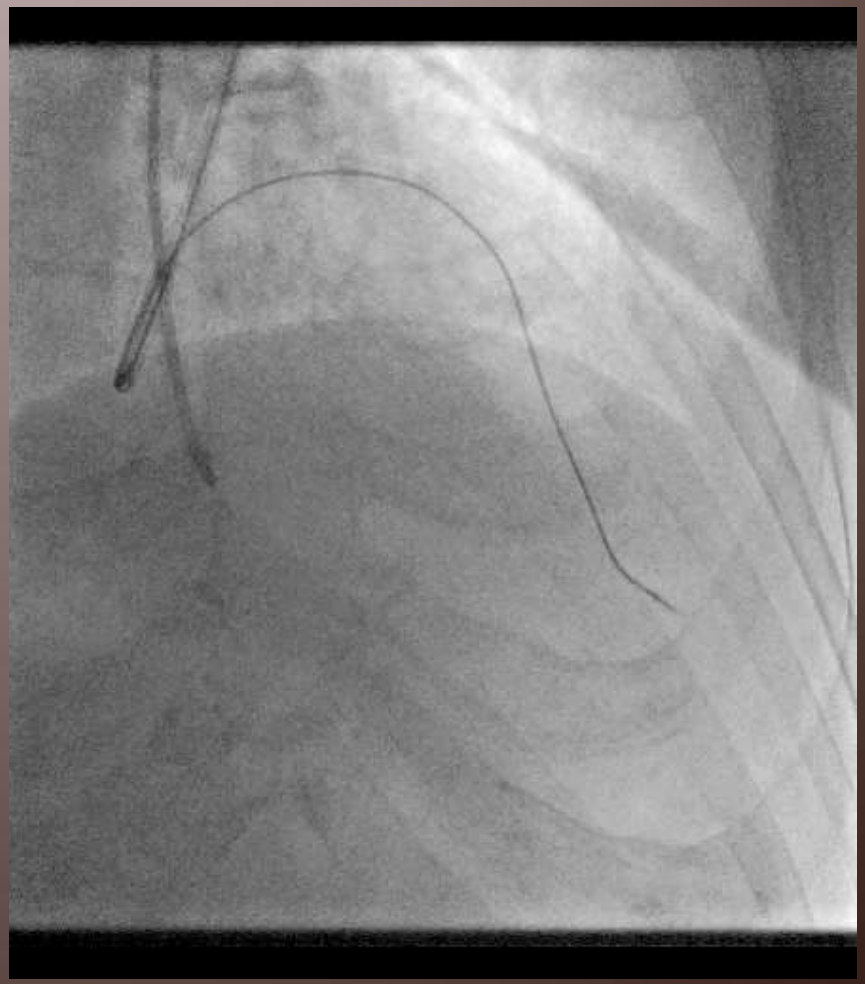
Size vs. tortuosity

- Size is more important
  - Connection visible by 20cm field is large enough
  - Avoid IC dilatation by balloon
- Wire choice and shaping for tortuosity
  - Low tip load with good torque transmission
  - "Intentional" tip fracture

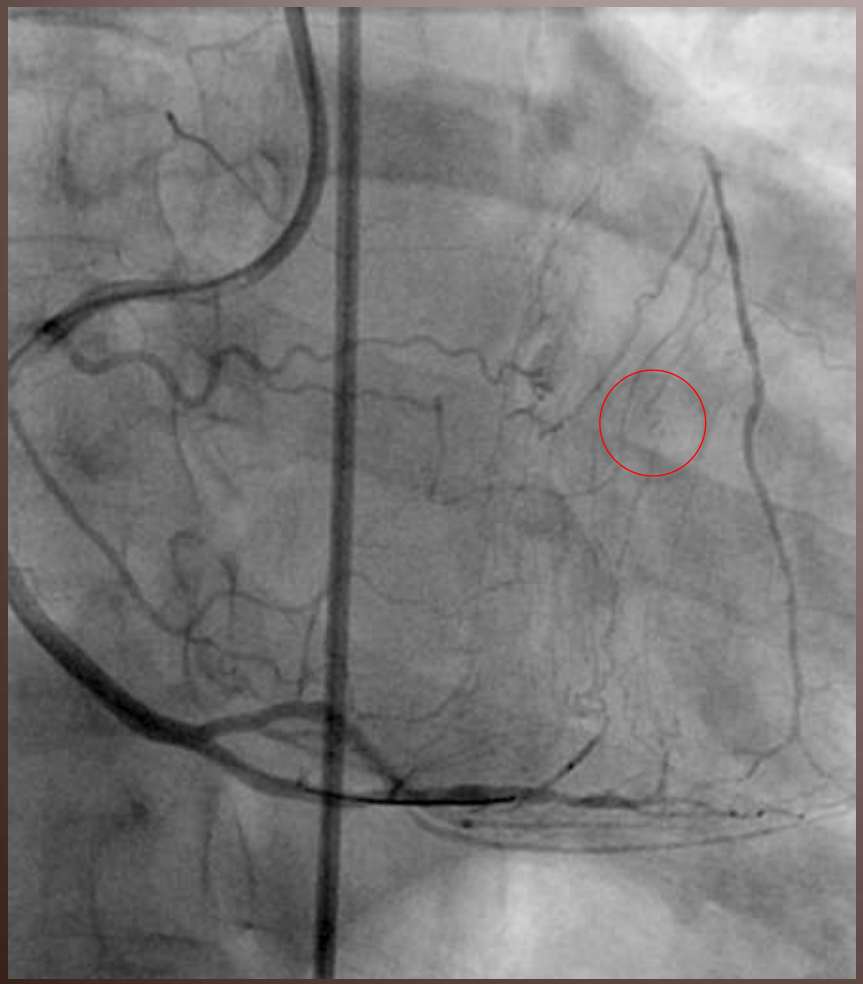


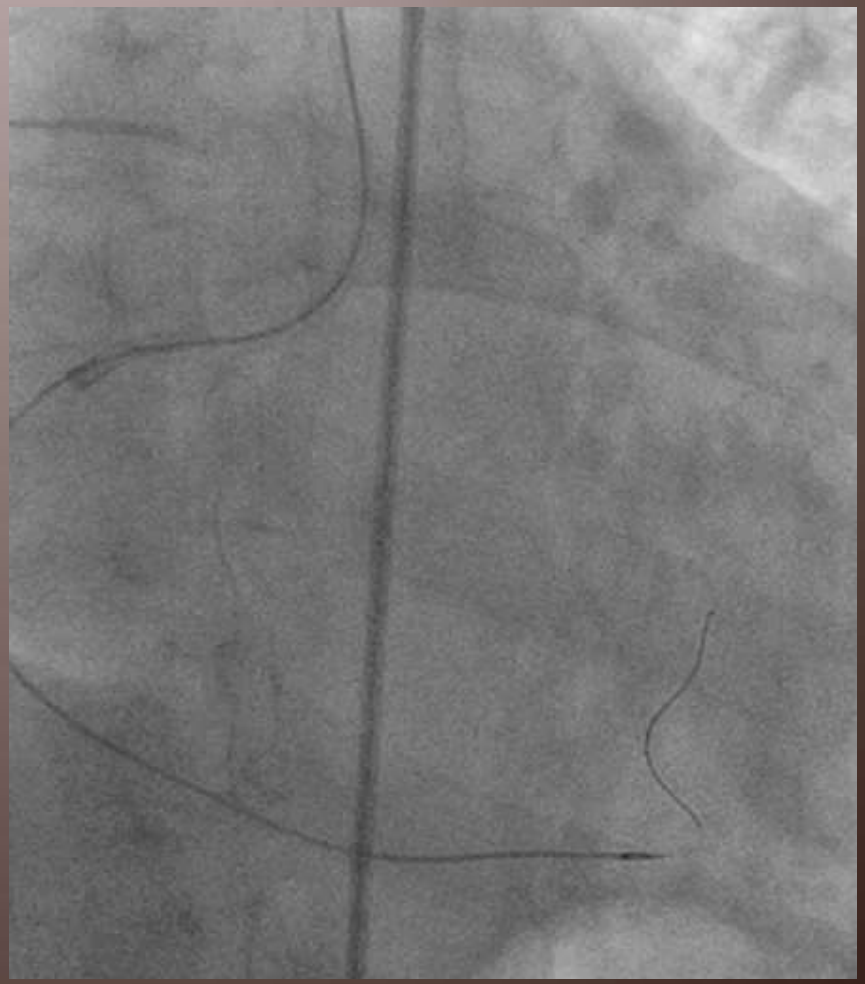
Sion epi IC tracking



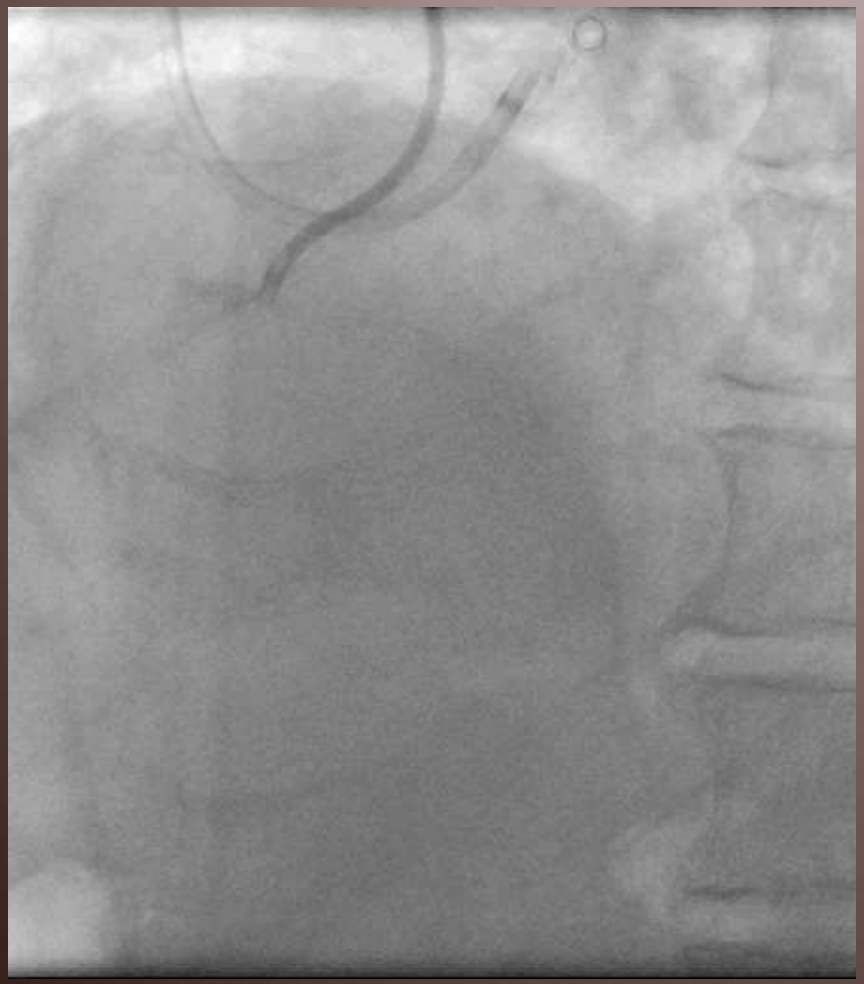


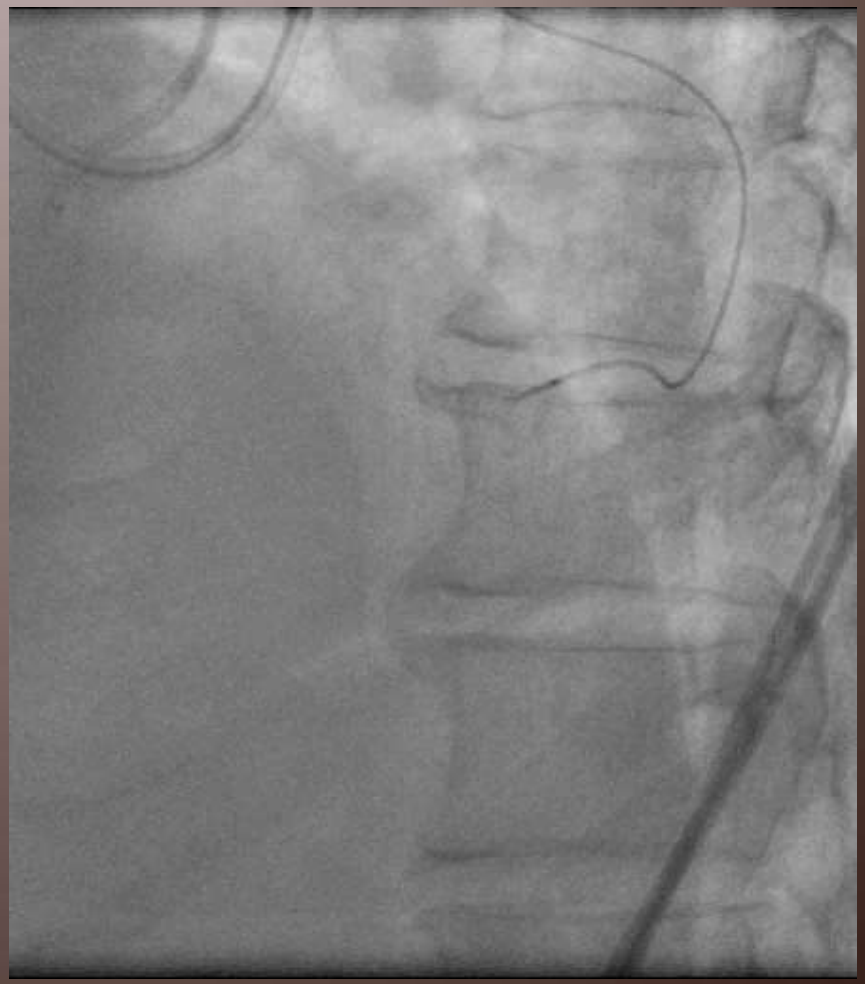
Sion blue septal IC tracking



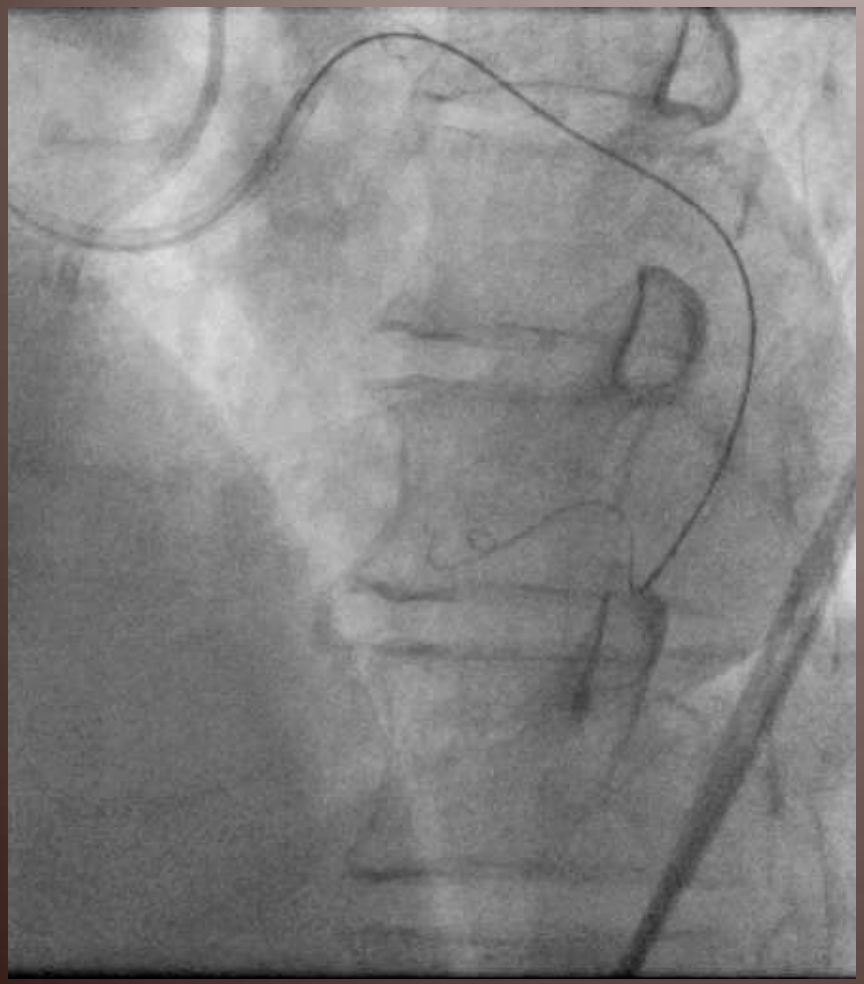


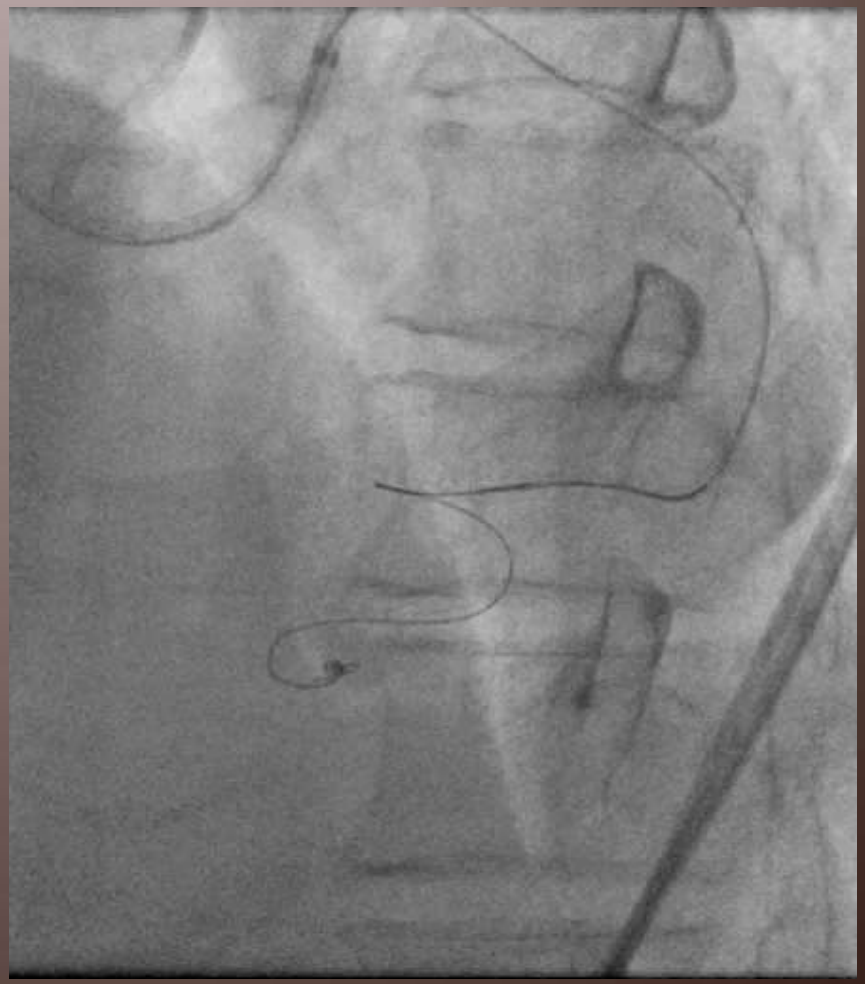
AVG IC isolation





XTR tracking

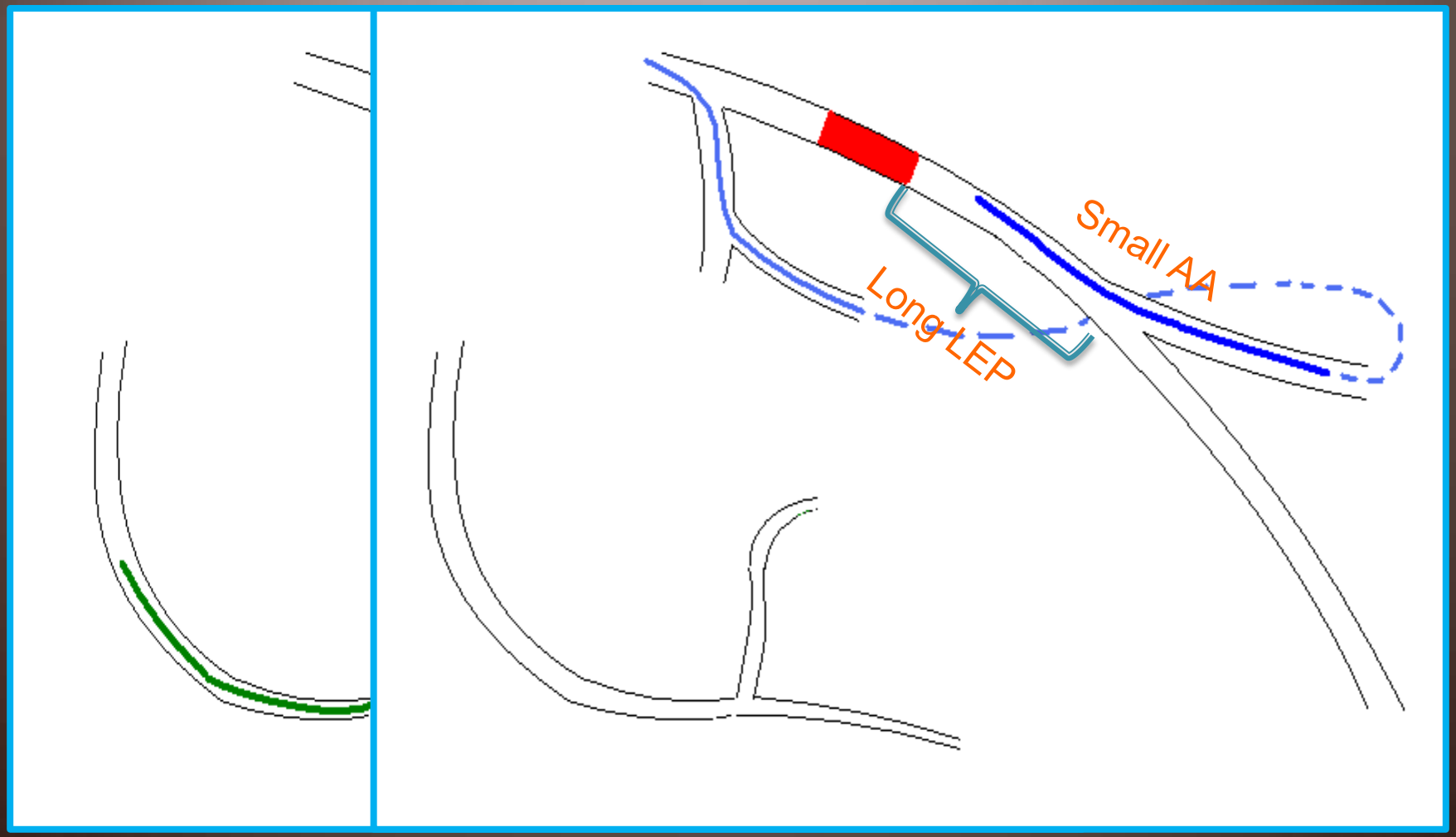




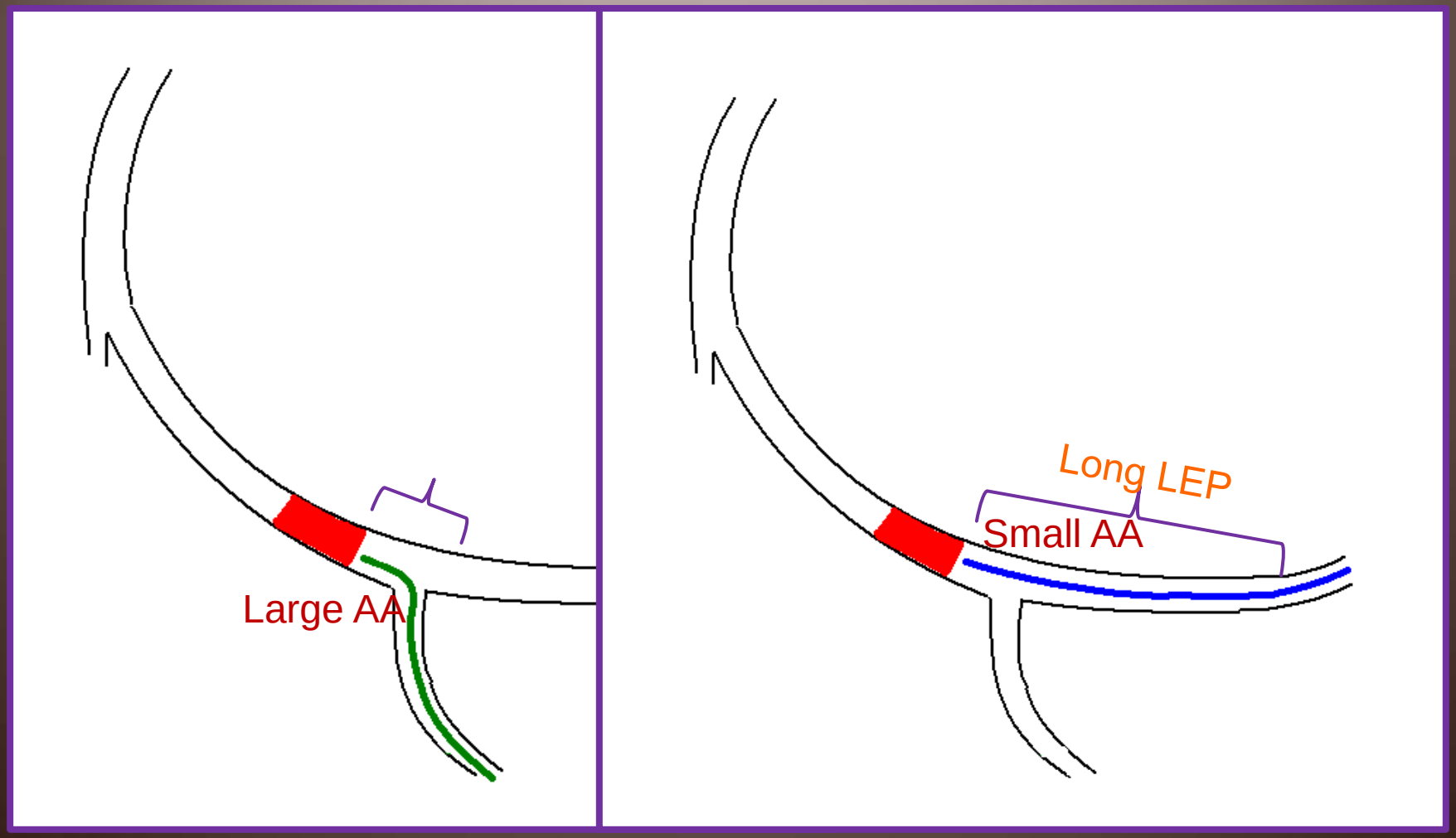
Do all roads lead to Rome?

- Angle of Attack (AoA)
  - The angle at the convergence point between IC and distal vessel
  - The smaller the better
- Length to Emerging Point (LEP)
  - The distance between the convergence point to the distal cap
  - The longer the better

AoA/LEP – LAD: septal vs. Epi



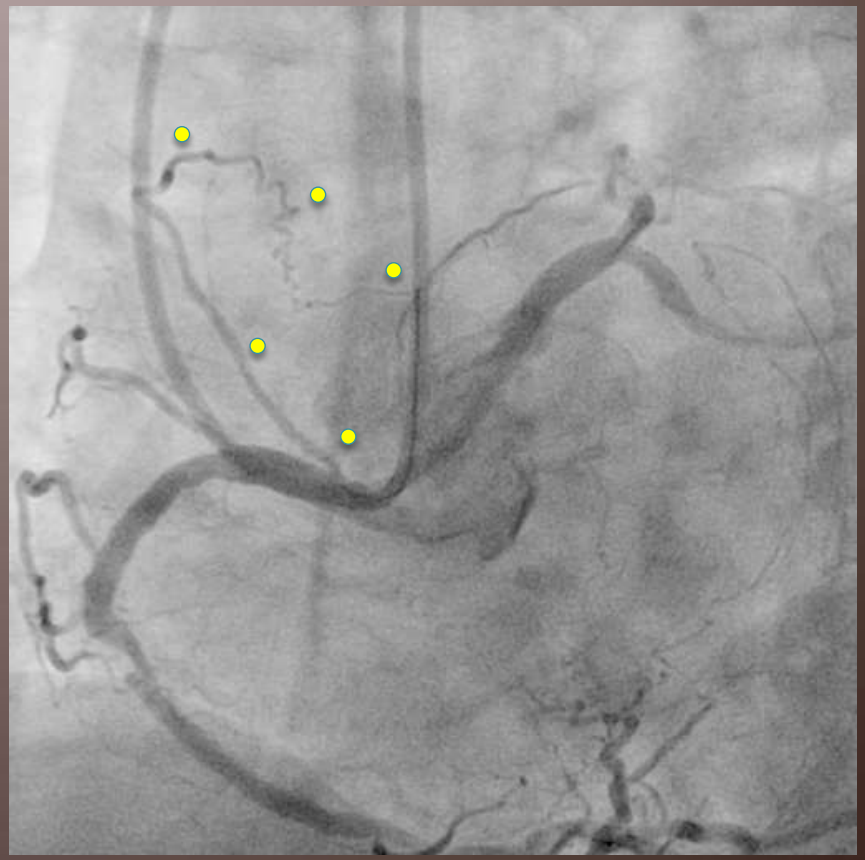
AA/LEP – RCA: septal vs. AVG



Minor issues – 1: GC-related

- Total Touhy-to-Touhy length
  - Short GC
  - Smaller/shorter collateral loop
- GC backup
  - Availability of GC curves
  - Collateral take-off

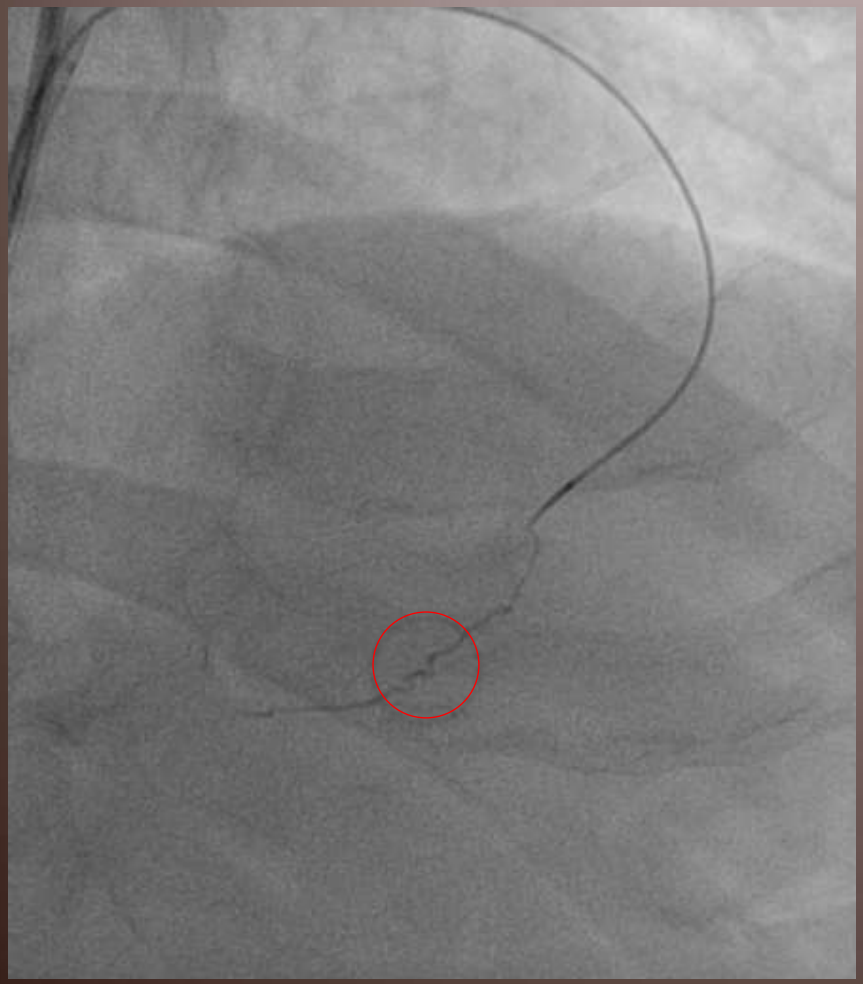
Epi (conus) for LAD CTO

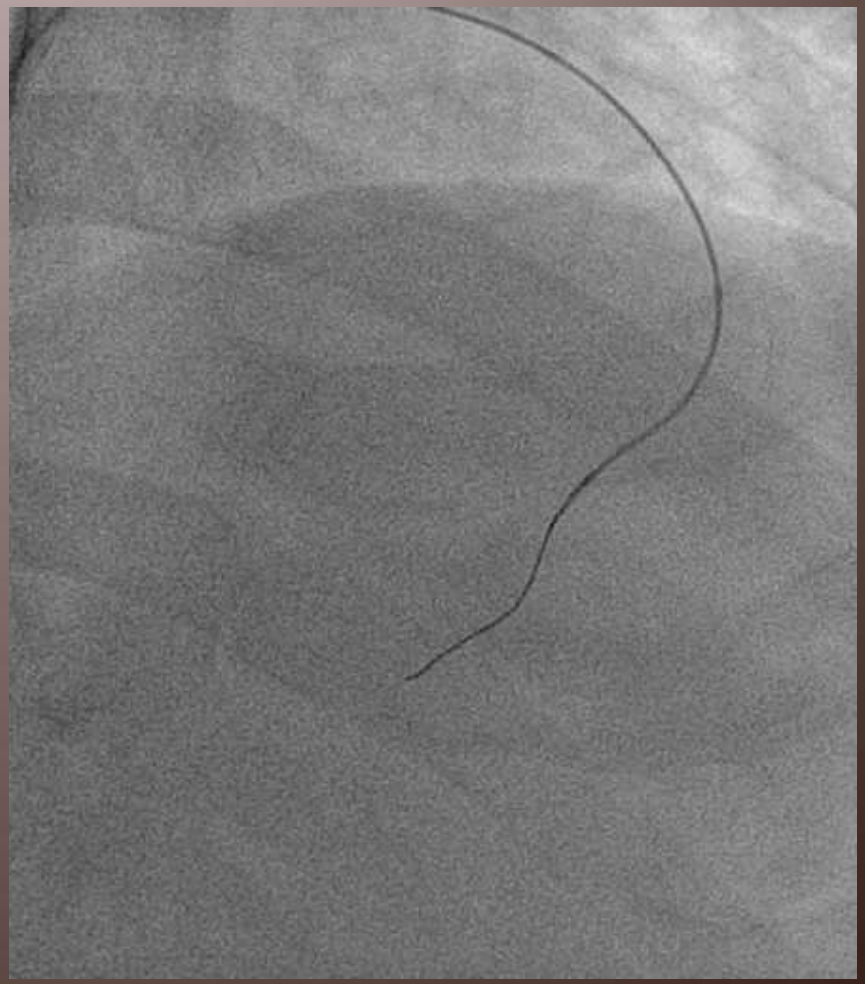


Minor issues – 2: cycle-related

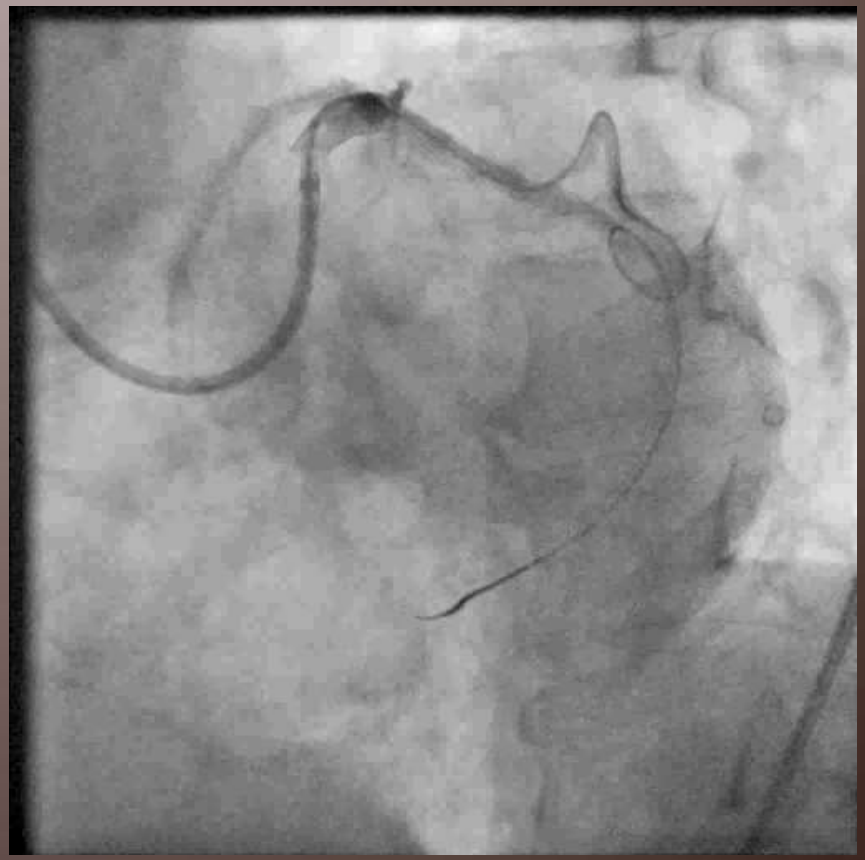
- Beat-to-beat movement with cardiac cycles
  - AV grove > septal
- Respiratory change of configuration
  - RV/R-PD/R-PL > septal
- Rhythm disturbances
  - Septal/Epi: VPC
  - AVG: AV block

Septal IC with cardiac motion





AVG IC with cardiac motion



Conclusions

- Identification and tracking IC is a critical step in retrograde approach
- Selection of the appropriate IC based on a reasonable algorithm will enhance success and reduce procedure time