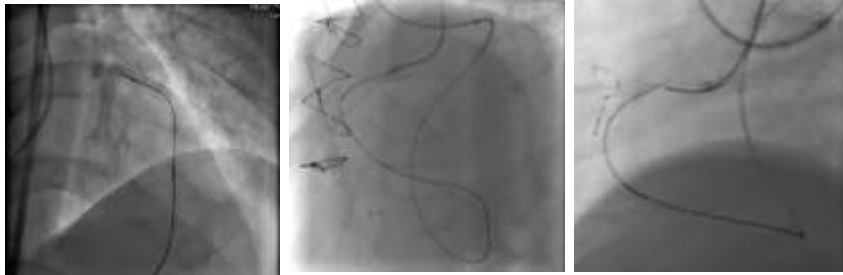


The Antegrade Approach

Ahmed M. ElGuindy, MD, MRCP(UK), FACC



Key Components

- Deliver the microcatheter/OTW balloon to the proximal cap
- Establish the “base of operations”
- Crossing strategies
 - Wire choice
 - Wire tip-shaping
 - Wire handling
- Ensure wire is in the true lumen distally
- Re-entering the true lumen (if in the false lumen)
- Exchange for a soft-tip workhorse wire
- Special scenarios

Deliver the microcatheter to the proximal cap



Back to basics



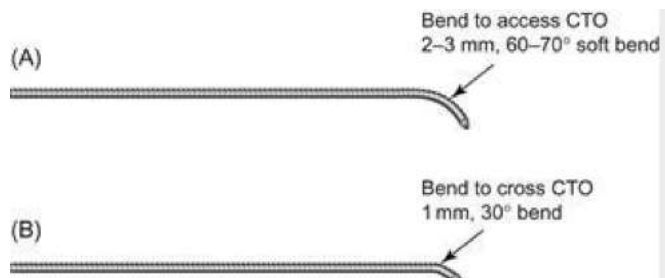
Base of operations



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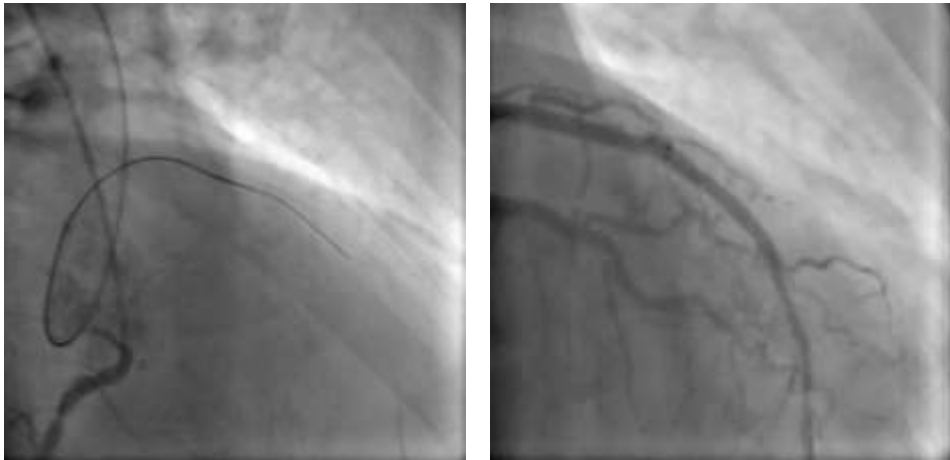


Getting to the base of operations



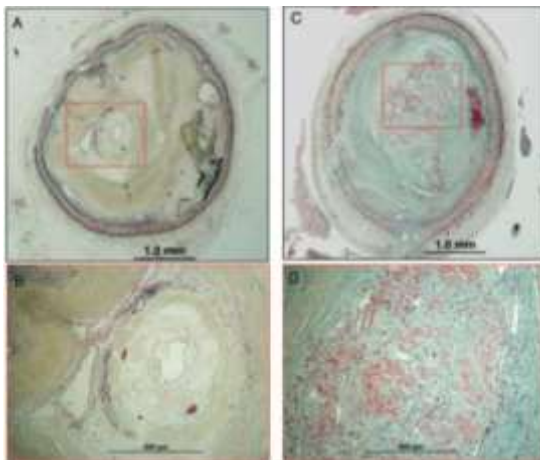
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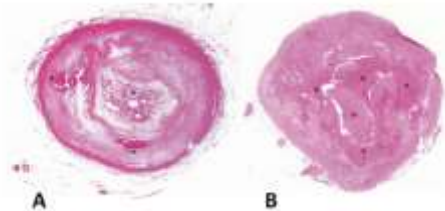


Crossing strategies

Wire choice



Srivatsa et al. JACC 1997



Saturo et al. JACC Int 2011

Crossing strategies

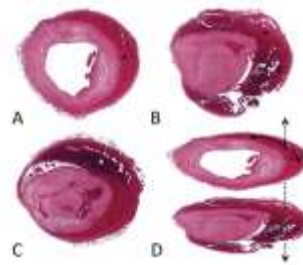
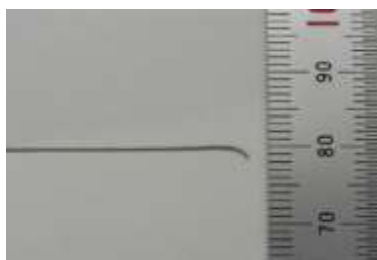
Wire choice

- Fielder XT
- Stiff polymer jacketed wire (Pilot 200) – especially if tortuous/unknown course
- Conquest pro 12 – in short segments with straight course
- **Gaia Family**
- Miracle Bros Family



Crossing strategies

Wire tip-shaping



Saturo et al. JACC Int 2011



*Manual of CTO Interventions
Brilakis et al. 2015*



Crossing strategies

Wire handling

- **Sliding**

- Gentle rotation and very gentle forward motion to probe microchannels
- Usually polymer-jacketed tapered wires
- Limited tactile feedback; always stop and check position

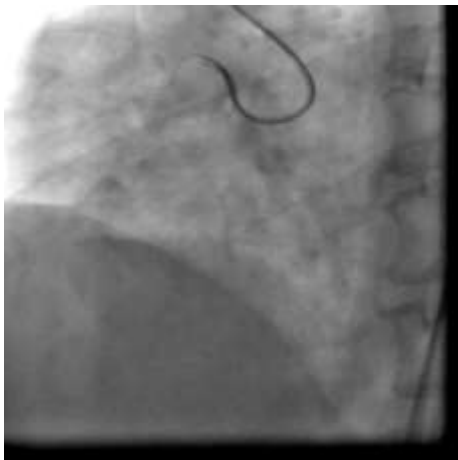
- **Drilling**

- Controlled rotation in both directions
- Limit to 90° to avoid large subintimal hematomas

- **Penetration**

- Intentionally advancing the wire in a specific direction
- Useful for crossing calcified cap or dense calcification within the body of the CTO (a clear course is mandatory)

Sliding



Penetration



Ensure wire is in the true lumen distally

- Contralateral injection – two orthogonal views
- The “dance”
- Free motion of the tip (esp if a workhorse wire) and when side branches are entered
 - Not always the case if diseased distal vessel
 - Stiff wires can create large subintimal space and move “freely”
 - Excessive motion denotes exiting the vessel architecture
- Injection via the microcatheter (discouraged if uncertain)



Ensure wire is in the true lumen distally

Contralateral injection



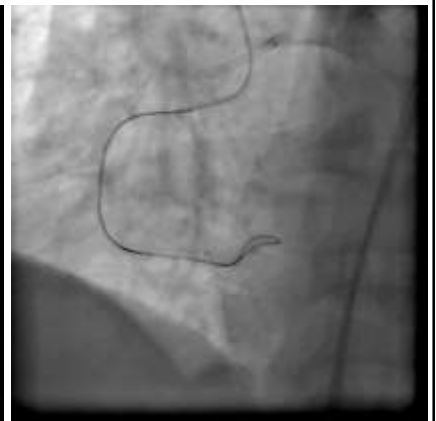
Ensure wire is in the true lumen distally

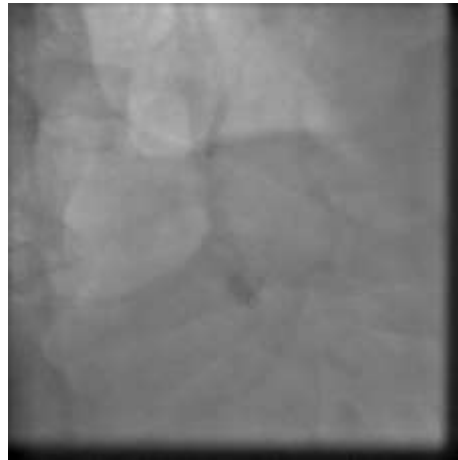
The "Dance"



Ensure wire is in the true lumen distally

Distal injection





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Re-entering the true lumen

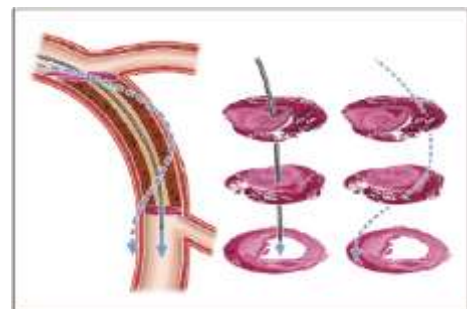
• Antegrade dissection re-entry

- STAR
- Contrast STAR
- LAST (mini-STAR)
- CrossBoss/Stingray

• Non-dissection re-entry

- Parallel wire technique
- See-Saw technique
- Double-lumen microcatheter

The "S" Sign

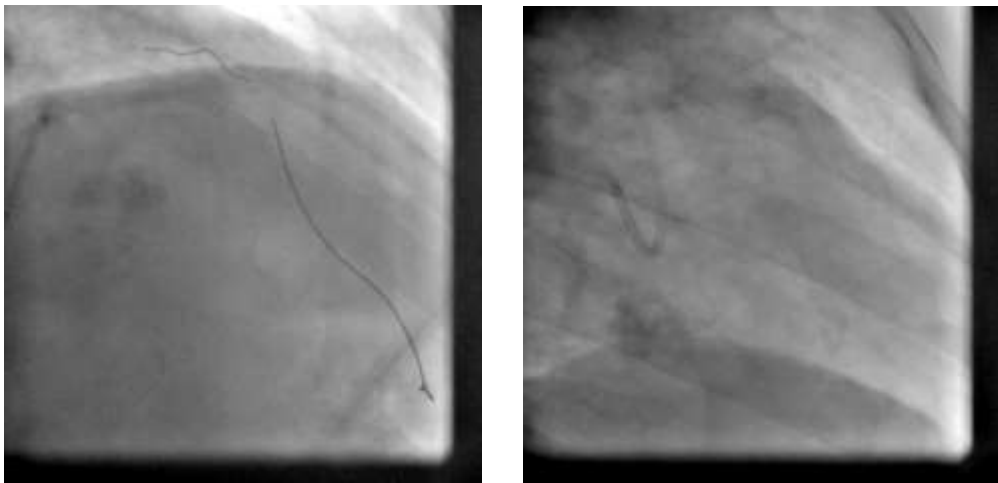
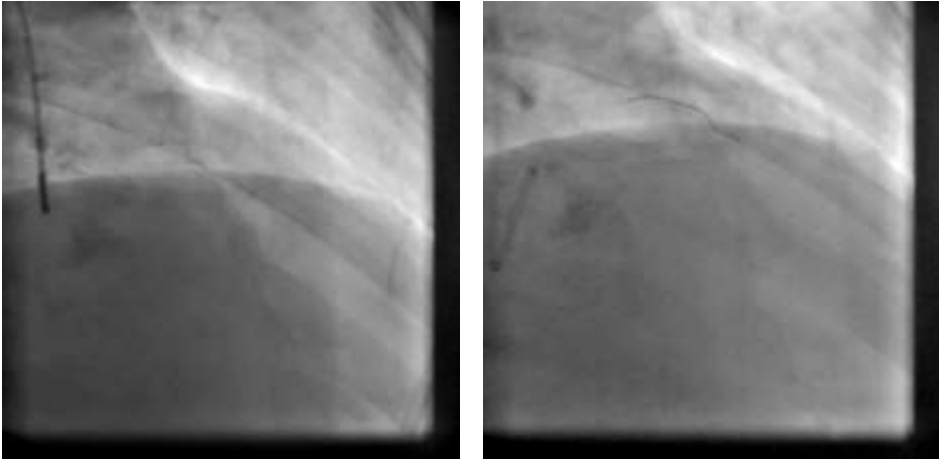


Saturo et al. JACC Int 2011

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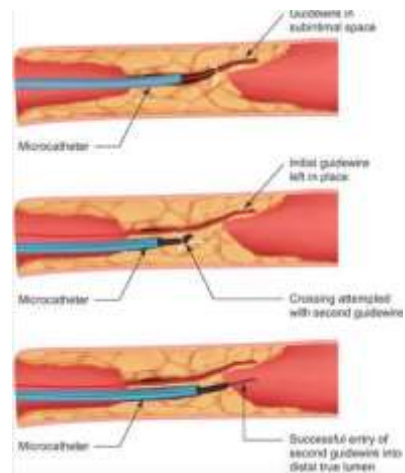


Parallel wire technique



Parallel wire technique

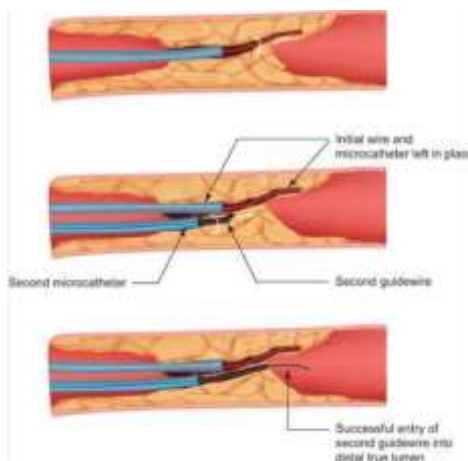
- Second wire has to be stiffer
- Avoid over-rotation
- Check wires in two orthogonal views



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See-Saw and double lumen microcatheters



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Exchange for a soft-tip workhorse wire

- Balloon trapping method
- Indeflator-hydraulic pressure method

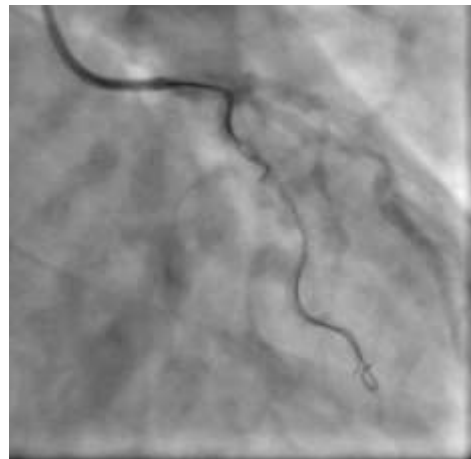
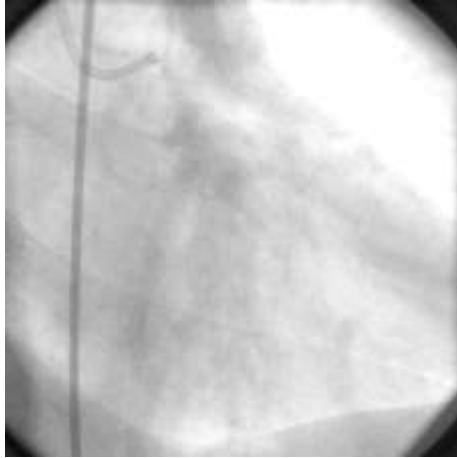
Special Scenarios

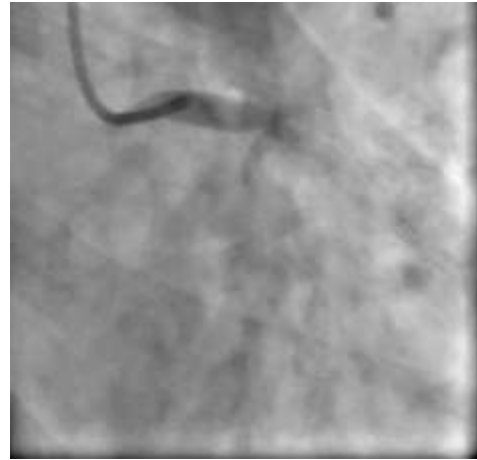
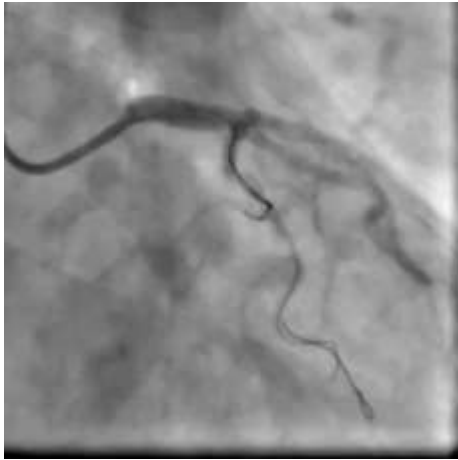
Ambiguous proximal cap

- Use multiple projections
- Wire side branch
- IVUS guidance
- MSCT-CA

Special Scenarios

Sharp angulation





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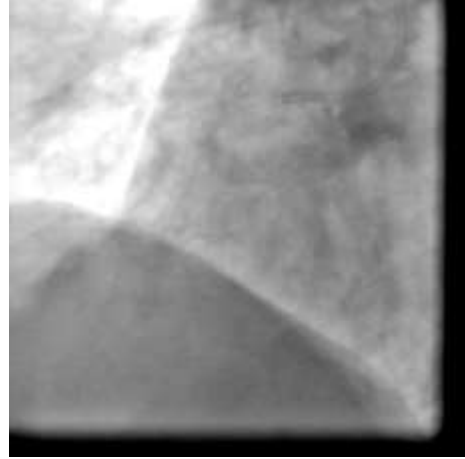


Final tips

- Successful wiring leads to a successful procedure in >85% of cases
- Know and practice various support/anchoring techniques
- Do not take shortcuts: it's the easiest way to prolong a case – or lead to failure
- Do not overstent the distal vessel

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