Tips and Tricks
Guidewires and Guide Catheters

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Conflict of Interests

- Nothing for this presentation
Nice to have the right catheter for the job!
The perspective of a transradialist

<table>
<thead>
<tr>
<th>TR PCI Procedural Failures (N=98)</th>
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<tbody>
<tr>
<td>• Failure of arterial access</td>
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<tr>
<td><strong>Inadequate arterial puncture</strong> 13 (13)</td>
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<tr>
<td>• Failure to advance catheter into ascending aorta</td>
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<td><strong>Radial artery spasm</strong> 33 (34)</td>
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<tr>
<td><strong>Radial artery loop/tortuosity</strong> 10 (10)</td>
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<tr>
<td><strong>Radial artery dissection</strong> 6 (6)</td>
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<tr>
<td><strong>Radial artery stenosis</strong> 1 (1)</td>
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<tr>
<td>• Failure to complete PCI due to lack of guide support</td>
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<tr>
<td><strong>Subclavian tortuosity</strong> 18 (18)</td>
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<tr>
<td><strong>Inadequate guide back up support</strong> 17 (17)</td>
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Addressed with routine ultrasound guidance
Guide catheters

- Passive support
- Active support
- Extended support
  - Mother-and-daughter
  - Guideliner
  - Guidezilla
Passive support

- Bigger guides
- Stiffer guides
- Amplatz left

Case example

- Started with active support
- Added guide extender (Guideliner)
- Switched to passive support (with guide extender)
Diagnostic study – diagonal lesion (markedly abnormal FFR)
Radial access - XB 4.0 guide
Unable to pass balloon, incl 1.5 OTW, incl corsair
Attempted rotational atherectomy
Added Guideliner – still unable to pass balloon
Changed guide catheter

- Amplatz guide
- Moved to leg to accommodate 8 French (baseline ultrasound of radial artery revealed small caliber radial/ulnar arteries)
- Note that guide engagement no different from arm to leg
More rotational atherectomy
Maximizing passive support

Unable to cross with rotablator burr despite several minutes of burring
Combining passive support with guide extender - Guideliner
After serial balloononing and stenting
“Radial” curves

- Medtronic MRadial
- Cordis Radial-Brachial
- Boston-Scientific Kimney
- Terumo Tiger
Ikari Left Guide Catheter

Curve A to fit angle of aorta

Straight portion (20 mm) B to generate strong back-up force supported by opposite side of aorta wall

Judkins
Ikari Guiding Catheters for RCA

Ikari catheters provide excellent support, but may become soft during lengthy procedures – lose some passive support.
Active support with Ikari Right
The perspective of a transradialist
Engaging Left subclavian from Right radial

- Jacky
- Amplatz
- Left Judkins
- Simmons
Placing Simmons catheter
Exchange out for a LIMA catheter
Easy via Left radial
Sometimes trial and error

- Preferable to find the optimal guide prior to starting case – spend 15 minutes upfront can save an hour later on
- Consider angulation (upwards/downwards), orientation, need for strong support, active versus passive
Catheters tried

- AR 1 and 2
- AL 1 and 2
- Hocky stick
- RCB – slightly more favorable orientation
After rotational atherectomy, changing wires, sequential balloons, stent post-dilation and IVUS
GUIDE WIRES
Wire construction

- Core
  - Shape, materials
- Tip
  - Coils, design
- Body
  - Coils
  - Polymer
  - Hybrid
- Coating
  - Hydrophobic, hydrophilic

Yoth, Yamane, Hyendrickx. Heart 2015;101:645
Guide-wire characteristics

- Tip load
- Torquability
- Tactile feedback
- Trackability
- Support
  - Straight
  - Tortuous
Guide wires

• Workhorse wires
• Hydrophilic wires
• Support wires
• CTO wires
  – Traversing septals
  – “Knuckling” –
  – Puncturing
• Specialty exchange wires
• Specialty wires – Rotafloppy, Pressure wires
Hydrophilic wires

- Increased risk of dissection if tip is hydrophilic (e.g., Pilot)
  - Typically try to exchange out ASAP when using hydrophilic wires, especially if patient on abciximab (wire perforation risk)

- May allow for crossing tight lesion (e.g., side branch after stenting across it) – may not provide optimal support, however

- May be damaged if “trapped”, including loss of polymer
FDA warns of 9 deaths due to coatings on minimally invasive intravascular medical devices

November 23, 2015 | By Stacy Lawrence

The U.S. Food and Drug Administration has issued a safety communication regarding a wide array of intravascular implanted devices and delivery tools that have coatings designed to reduce friction and improve maneuverability. These lubricious coatings are included on a wide variety of minimally invasive medical devices including intravascular catheters, guidewires, balloon angioplasty catheters, delivery sheaths and implant delivery systems in cerebrovascular, cardiovascular and peripheral vascular systems.

However, data from the agency indicate that guidewires, in particular, are the source of most of the recalls and patient reports relating to flaking or peeling of a device coating.

These coatings—that include both hydrophilic and hydrophobic materials such as silicone, polytetrafluoroethylene and polyvinylpyrrolidone—may peel or flake off, thereby causing serious injury to patients, the regulatory agency warns. This can be caused by a number of elements including proper usage that involves a difficult procedure. But the FDA notes that use of the wrong device for a given procedure, improper preparation or storage of the device as well as design and manufacturing issues can all be implicated in this potentially dangerous peeling of coatings.
**Workhorse versus specialty**

**Route / PROWATERflex**

- Tip load: 0.8 g
- Tip radiopacity: 3 cm
- SLIP-COAT® coating over the spring coil

First choice guidewire featuring a soft tip with good shaping memory and excellent guidewire trackability. Sufficient support for delivery of most interventional devices.

*Silicone coating up to 30mm from the tip for safer procedures.

**Fielder XT**

- Tip load: 0.8 g
- Tip radiopacity: 16 cm
- Polymer jacket length: 16 cm
- Tip outer diameter: 0.23 mm (0.009 inch)
- SLIP-COAT® coating over the polymer jacket

Polymer jacket, providing excellent lubricity and trackability in tortuous vessels. The tapered tip provides extreme precision for the treatment of complex lesions such as sub-total occlusions and long diffused lesions.
Knuckling with Fielder XT
Septal surfing

**Tip Durability**

**Crush Test:**
This test is an appearance test with a guide wire pushed into a simulated artery with a model lesion. ASAHI SION possesses a durable tip suited for treating multiple lesions.
Septal surfing – Fielder XC – now with Sion
For retrograde CTO wire exchanges

Guidewires for Externalization

ASAHI RG3

- Tip load ...................... 3.0 g
- Tip radiopacity .................. 3 cm
- SLIP-COAT® coating over the spring coil and until the middle of the shaft
- Shaft diameter ............... 0.26 mm (0.010 inch)
- Guide wire length ............ 330 cm

For guidewire externalization only.
Optimal wire strength, hydrophilic coating and 0.26 mm (0.010 inch) shaft provide superior inside-catheter pushability.
With the inner wall damage possibility reduced in tortuous vessels as well, the risk of complication is minimized.
Summary

- Goldberg rule #5: Know Thy Equipment
  - (And don’t be afraid to test different shapes/types to optimize results)
- Lots of workhorse wires – find something you like and stick with it – but recognize that differences exist between wires
- Be familiar with niche equipment
Thank you!