Guide Catheter Selection and Manipulation from the Wrist

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**Disclosure Statement of Financial Interest**

*Saibal Kar*

Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below.

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<thead>
<tr>
<th>Affiliation/Financial Relationship</th>
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<tbody>
<tr>
<td>• Grant/Research Support</td>
<td>• Abbott Vascular, Boston Scientific, Gore Medical, CardioKentix, St Jude Medical</td>
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Introduction

• Guide catheter selection and seating of the catheter is the most important step for successful PCI
  Techniques and catheters dependent on access site (Lt and Rt radial), body habitus, size of aorta

• Several specialized catheters are available to help cannulate the arteries.

• Operators need to be familiar with both left and right radial techniques
Right radial approach

**Advantages**

- Easy for operator to stand right side
- Good backup force for left coronary artery
- If patient requires CABG, left radial artery can be used for graft.

**Disadvantages**

- Specialized catheter required
- Poor back up force for RCA
- Not great for post CABG patients
- Subclavian artery tortuosity/anomalies
Left radial approach

**Advantages**
- Non dominant arm.
- Easier to negotiate around the arch.
- Standard catheter can be used.
- Preferred approach for patients post CABG.
- Good back up force for RCA.

**Disadvantages**
- Difficulty for obese patients.
- Left radial artery can be damaged for graft.
- Arm positioning is challenging in some cases.
Patient preparation

*left radial approach*
Patient preparation

left radial approach (advance the catheter)
Patient preparation

left radial approach (arm position)
Armrest for left radial approach

Courtesy of Sendai Kousei Hospital, Sendai, Japan
Right radial approach: Often requires specialized catheters

- Medtronic/Cordis:
  - LCA: EBU 3.5 to 4, XBLAD 3, 3.5 to 5, J L 3.5 to 4.5, AL1 or 2
  - RCA: JR 4, AL1, Mac 3 to 4, MP1 or 2
  - Grafts: MB, LCB, AL1, RCA

- ASAHI Sheathless
  - LCA: JL 3.5 to 5, Powerbackup 3.0 to 4.0
  - RCA: JR 3.0 to 5, AL 0.75 to 2, Hockey stick

- Terumo
  - LCA: JL 3.5 to 6, Backup left 3.0 to 4.5, Ikari left 3.5 to 4
  - RCA: JR 3.5 to 6, AR 1 to 2, Ikari right 1.5 to 2, Ikari left, MP
Left radial approach:
Often conventional catheter used, size is 0.5 higher

- **Medtronic/Cordis:**
  - LCA: EBU 3.5 to 4, XBLAD 3.5 to 5, JL 3.5 to 4.5, AL 1 or 2
  - RCA: JR 4, AL 1, Mac 3 to 4, MP 1 or 2
  - Grafts: MB, LCB, AL 1, RCA

- **ASAHI Sheathless**
  - LCA: JL 3.5 to 5, Powerbackup 3.0 to 4.0
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Guide Catheter Selection

- Standard size for LCA from left radial
- $\frac{1}{2}$ size lower for LCA from Rt Radial
- Finger torque technique
- Standard catheter can be used in most cases
  - EBU /X B LAD for the LCA
  - JR4 or AL1 or MAC for the RCA
Engaging the LCA from left radial

- Push catheter to make tip look up
- Counterclockwise torque to engage the ostium
- Once ostium engaged, pull back, and a little clockwise
Guide Catheter Selection for LCA Extra Backup (EBU)

Extra Backup

Sizing suggestion
J L3.5 = EBU 3.5
J L4.0 = EBU3.5,EBU4.0

Broad secondary curve braces against the contralateral wall for superior back up
Case 2

Transradial PCI for LMT

System:
Transradial approach
Guide Catheter: 7.5Fr Extra Backup 3.5
Case 2

Transradial PCI for LMT

- Stenting for proximal LCX
  Endeavor 3.5/9 mm

- Stenting for proximal LAD
  Endeavor 3.5/12 mm

- Kissing Balloon technique
Final angiography
Sheathless Guide Catheter
Asashi Eaucath

Catheter Construction

Before dilator insertion    Dilator insertion    After dilator insertion

Without use of a sheath

Cedars Sinai Medical Center
Sheathless Guide Catheter
Asashi Eaucath

4Fr Sheath < 6.5F Sheathless GC < 5Fr Sheath < 7.5Fr Sheathless GC < 6Fr sheath
Case 1

Transradial PCI with Sheathless GC

System:
Transradial approach
Guide Catheter: Sheathless 6.5Fr Power Backup 3.0
Case 1

Transradial PCI for LCX with EBU

Stenting for mid LCX
Resolute 3.0/12mm

Stenting for proximal LCX
Resolute 2.75/14mm

Stenting for OM
Resolute 2.5/2mm
Final angiography
Right coronary intervention
RCA interventions (radial approach)

- Left radial approach provides better support
- Right radial approach
  - requires special catheters
  - Tortuous subclavian artery - challenging
Guide Catheter Selection for RCA
Judkins Right (JR)

Judkins Right

- Secondary curve
- Curve length
- Primary curve
- Tip

Aortic Root
- Normal: JR 4
- Dilated: JR 5
- Narrow: J 3.5
RCA PCI via left radial artery, using the 6F JR4 guide
RCA PCI via right radial approach with 6 Fr AL1 guide
RCA PCI via right radial approach with 6 Fr AL1 guide and GuideLiner

Exchange the MAC GC for AL 1 Stenting with using GuideLiner
RCA PCI via right radial approach with 6 Fr AL1 guide and GuideLiner

Exchange the MAC GC for AL1 Stenting with using GuideLiner
Guide catheter for Primary PCI

• Left radial approach is preferrable
  - Standard guide catheters can be used
  - Less chance of subclavian tortuosity
  - Shorter time

• Radial approach vs femoral
  - Lower bleeding
  - ?lower mortality
  - Equivalent efficacy
54 yr old gentleman with chest pain and acute shortness of breath
(Urgent Cath via the left radial artery)
Primary PCI via the left radial artery
Impella LP

Day 0

6F EBU 3,75
via left radial artery

3.5 x 18 mm Left main
Xience Stent

Day 21 just prior discharge
Other catheters
Ikari Left Guide Catheter

A

B

A

B
Ikari Right Guide Catheter

phalic artery

Straight portion B to generate strong back-up force supported by opposite side of aorta wall.
Conclusions

• Almost all complex coronary interventions can be performed by radial approach
• Guide catheter selection is a critical step for trans-radial interventions
• There are differences between right and left radial approaches
• Special catheters are available though in most cases standard catheters can be used