



Transradial Access for Coronary Angiography & Percutaneous intervention; step by step technique.

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Radial access: Step by step

- Patient preparation
- Puncture
- Sheath
- Getting to the coronaries
- Catheters
- Support
- Hemostasis
- And then....

Equipment



Positioning



Bristol Heart Institute

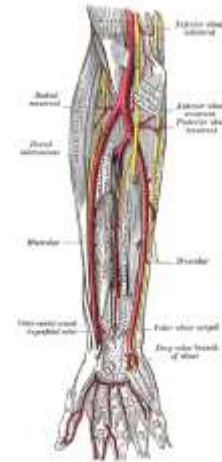
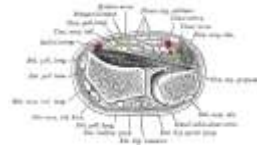


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Basic anatomy

- One of the benefits of the radial artery approach is the absence of major nerves running along its course as it travels through the wrist.



- The radial nerve bifurcates in the elbow into the posterior interosseus nerve and the superficial radial nerve, neither of which runs close to the radial artery at the level of the puncture.

Henry Gray (1918) Anatomy of the Human Body - Gray's Anatomy, Plate 421. - <https://commons.wikimedia.org/wiki/File:Gray421.png#/media/File:Gray421.png>

Counter Puncture Technique



- 20 G Teflon coated
- More freedom of angle
- Less access time
- Fewer attempts
- NO DIFFERENCE in vascular complications

Anterior Puncture Technique



- Rigid needle
- Shallow angle critical (coaxiality)

Kotowycz et al. Circulation: Cardiovascular Interventions. 2012; 5: 127-133

Radial Access Technique Evaluation (RATE) Trial

Counterpuncture vs. Anterior Approach

- Randomized trial; n = 400

- Shorter access time
- Fewer attempts
- Higher success rate of 1st pass attempts
- **NO Difference in hematoma or RAO**

Catheter Cardiovasc Interv. 2012
Aug 1;80(2):288-91. Epub 2012 Mar 14.

Cocktails

- Vasodilator – Prevent spasm
 - Nitrates (100 mcg NTG)
 - Immed onset of effect, short-lived
 - CCBs (2.5 mg verapamil, nicardipene)
 - Sustained effect, slower onset, cause *burning*
- Anticoagulants → prevent RAO
 - 50 U/kg (or 5000 U)
 - Can be given IA or IV (no diff in RAO)
 - [Even if INR therapeutic, heparin required]

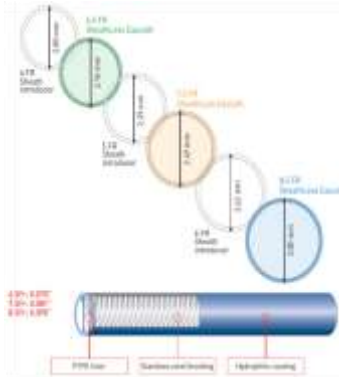
Example BHI



Long vs. short vs. Sheathless

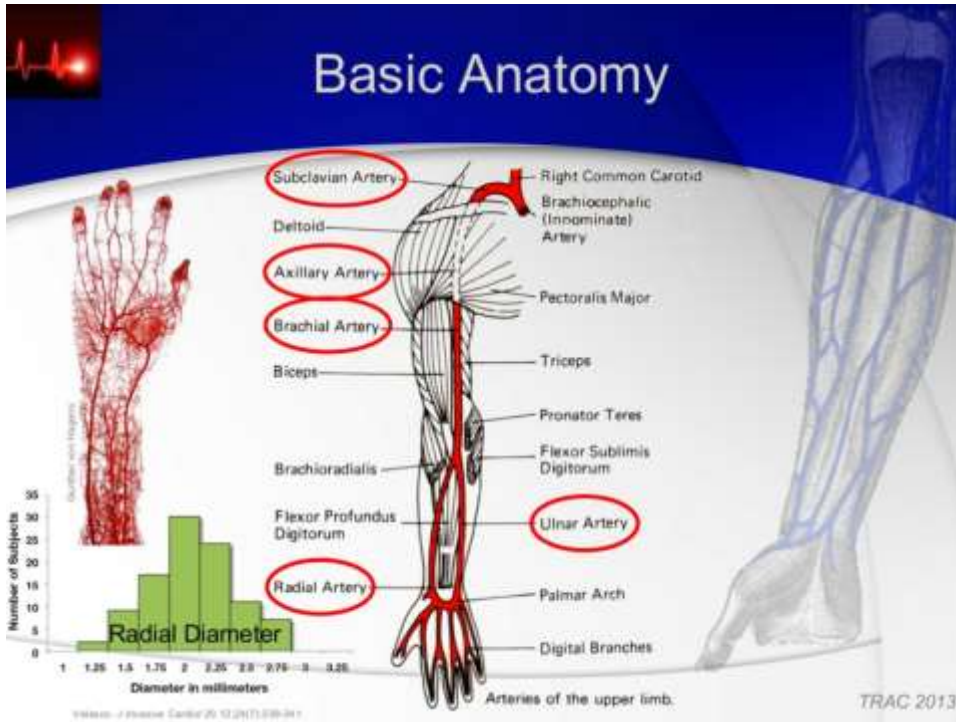
- 6 Fr Standard short
- 6 Fr Glidesheath slender (inner lumen = 7Fr)
- 7 Fr in tall pts
- Sheathless Guidecatheters

Sheathless Guide

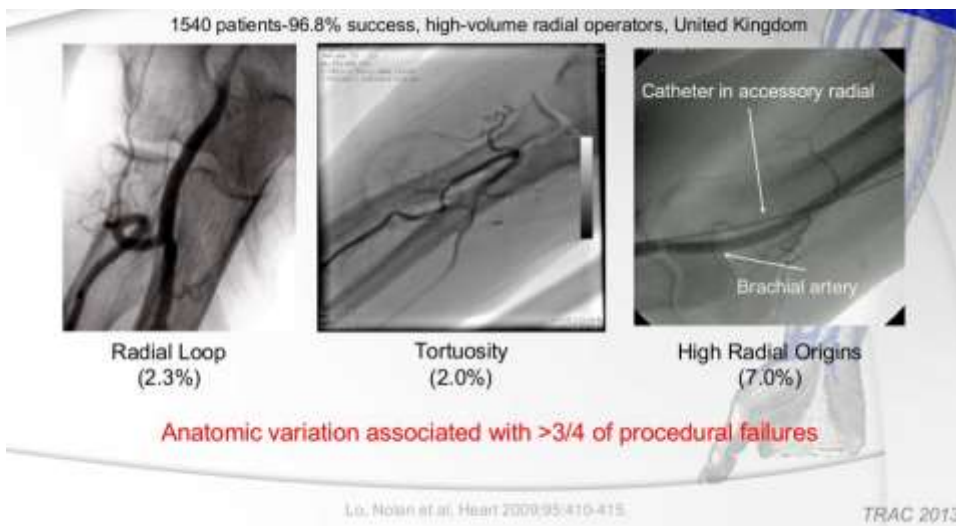


Radial access: Step by step

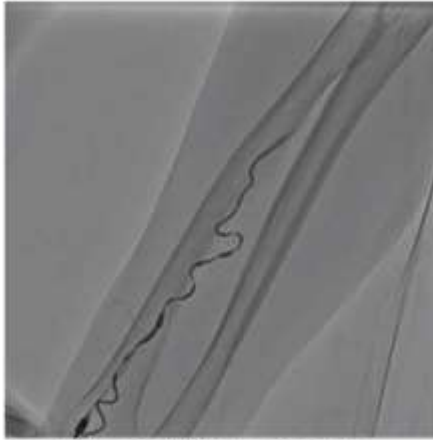
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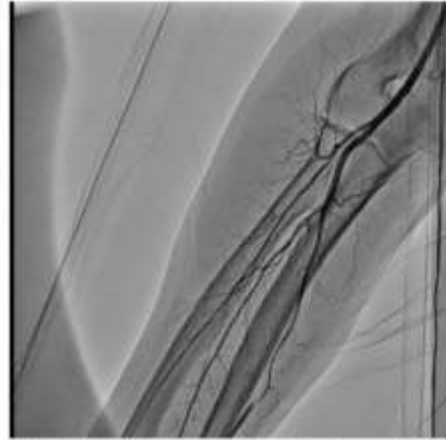
Brachial Variants



Tortuosities of RA & Hypoplastic

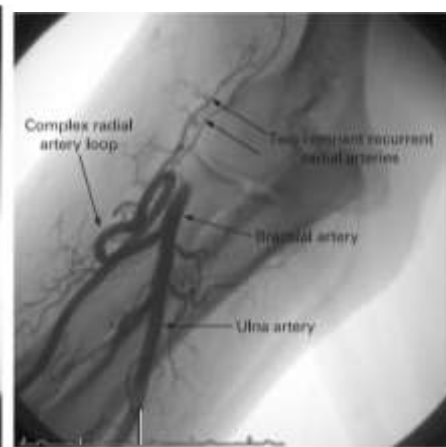
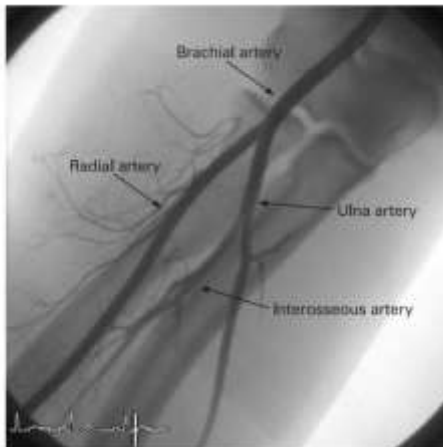


- 1,4% according to our data
- Most prone to spasm
- Crossover in 6,5%

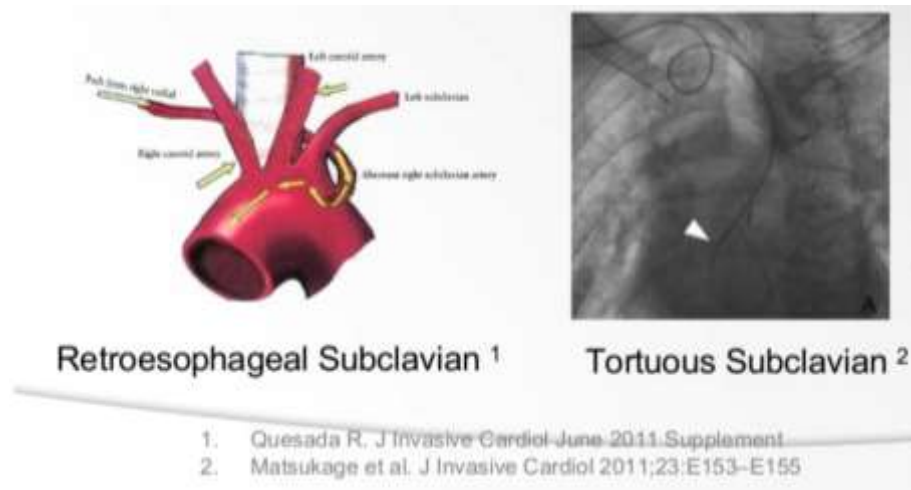


- Pts without previous interventions
- 0,16% according to our data
- 17% crossover

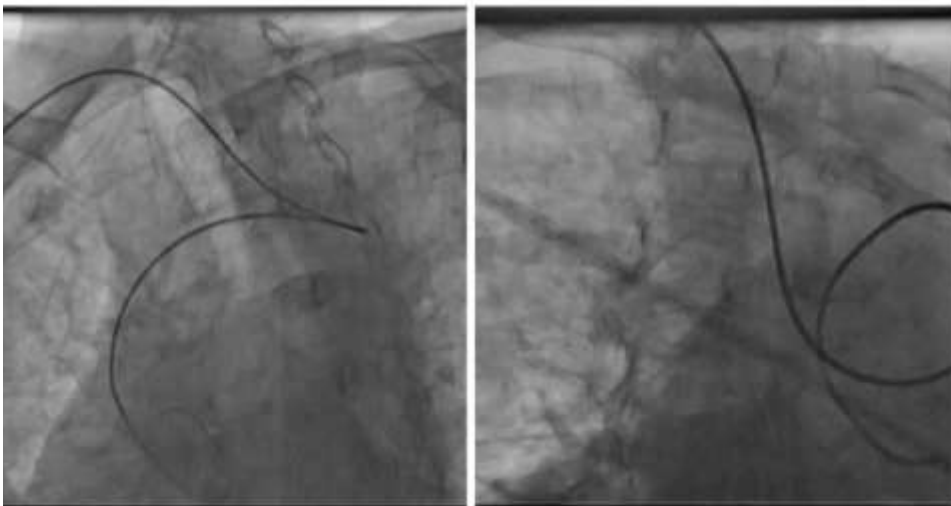
Standard vs Anomaly



Subclavian anomalies



A lusoria managed



General rules

- Don't push
- Don't push
- Visualise if in doubt
- Don't push !
- Crossover to the left

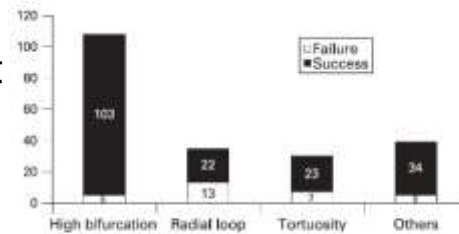


Figure 3 Types of radial anomaly and their rates of procedural failure.

Heart 2009;95:410-415. doi:10.1136/hrt.2008.150474

Straightening

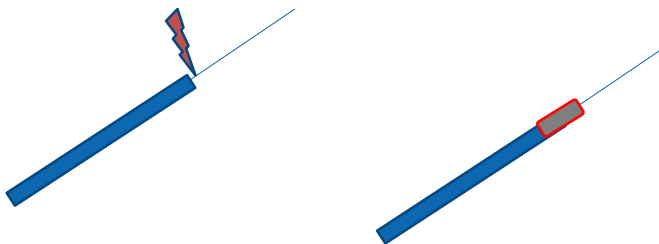


Advancing wire and guide



Tipps and Tricks

- Don't push
- Access to aorta: let patient breath in
- Guide stuck:
 - Try 0.014 PCI wire + 2.0mm balloon



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Selection of Catheters

- Diagnostic: single catheters (i.e. Kimeney)



- Diagnostic & PCI:
 - Standard Judkins JR 4, JL 3.5, EBU 3.5, AL, AR

Intubation and breathing



Intubation and breathing



Radial access: Step by step

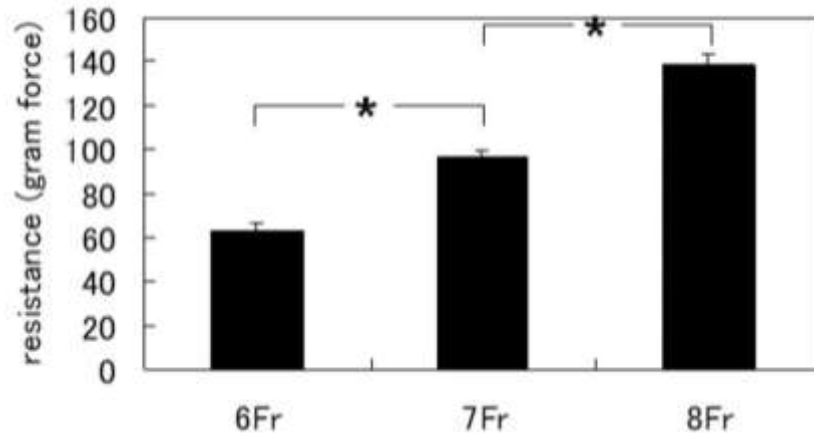
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Optimal Guide

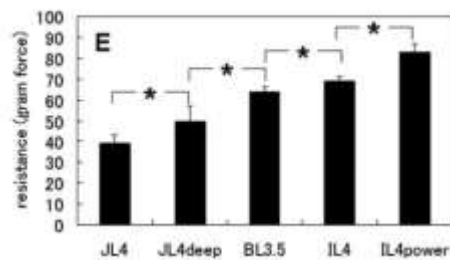
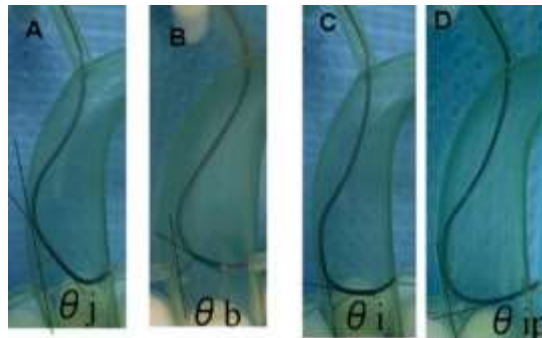


- **Tip orientation**
 - Engagement
 - Coaxial alignment
- **Backup support**
 - Stability for advancing device through lesion
 - Support point directly opposite ostium
 - Large area of support on contralateral wall

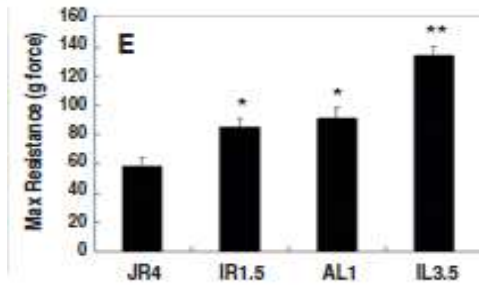
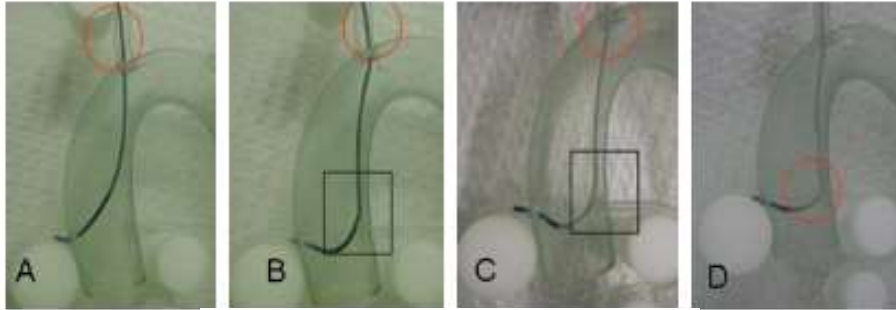
SELECTING A LARGER CALIBRE GC INCREASES SUPPORT FOR EQUIPMENT DELIVERY



OPTIMISING SUPPORT IN LCA



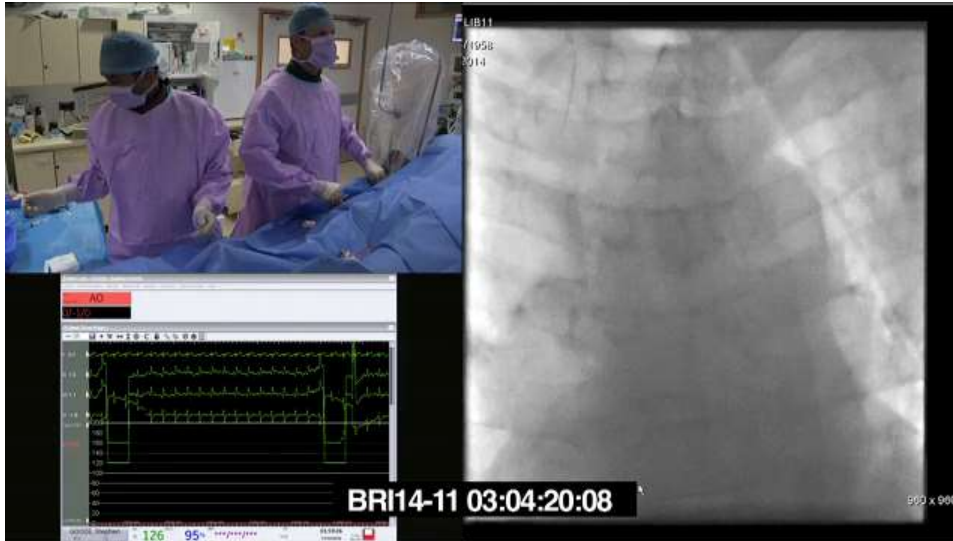
OPTIMAL SUPPORT IN RCA



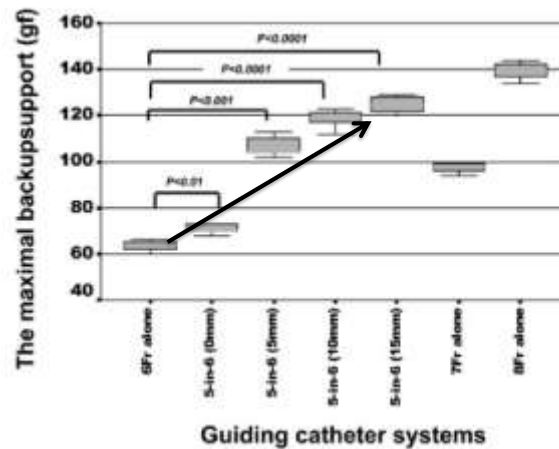
Extra Support AR1



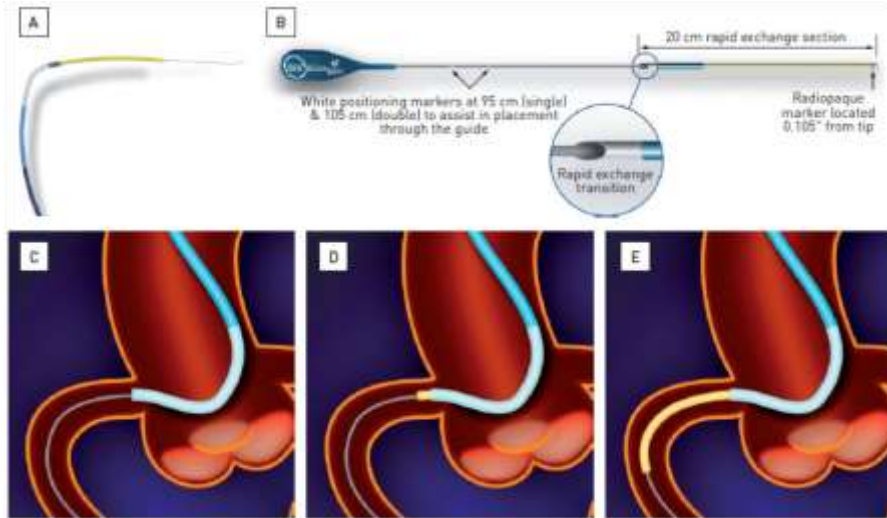
Extra Support EBU



EFFECT OF DEEP INTUBATION



Mother and Child ('5 in 6')



Guideliner



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TR Band



Patent Hemostasis

- Adjust TR band
- Make sure oxygenation is preserved when ulnar compression performed.
- Higher patency rates !



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Off to the lounge

