Transradial Complications
How to predict/prevent and treat

Are all complications preventable?

NO!
- Distal embolisation
- Vessel dissection etc.
- Things break!

Decide that most are: what could I do differently next time?
Always plan for disaster
We love to minimise

“Cardiac cath is usually very safe. A small number of people have minor problems. Some develop bruises where the catheter had been inserted (puncture site). The contrast dye that makes the arteries show up on X-rays causes some people to feel sick to their stomachs, get itchy or develop hives.”

http://www.heart.org/HEARTORG/Conditions/HeartAttack/SymptomsDiagnosisofHeartAttack/Cardiac-Catheterization_UCM_451486_Article.jsp#V_1jTJ7HdQ
Becoming a radialist is challenging

And is absolutely worth the hassle of the learning curve...

Patients like it more
They are less likely to bleed
They are less likely to die, especially during after STEMI and PPCI
Hospital stay and healthcare costs can be reduced...
In my hospital - I had no choice!
Consensus document on the radial approach in percutaneous cardiovascular interventions: position paper by the European Association of Percutaneous Cardiovascular Interventions and Working Groups on Acute Cardiac Care** and Thrombosis of the European Society of Cardiology
Access

Position the patient's arm comfortably, and securely

Right or left arm?
Access

Calm, well informed patient
Sedation
Testing for integrity of palmar arch?
Puncture site: 3-5cm proximal to wrist crease, proximal to the radial styloid.
Nitrates, topical or SC
Open or closed needle?

![Figure 9](image_url)

The PCR-EAPCI Textbook – Percutaneous interventional cardiovascular medicine
Vascular access
Olivier Bertrand, Rodney de Palma, David Meerkin
Access

‘Cocktail’ Drugs (intra-arterial):
Enlarges the arterial lumen and reduces spasm
nitrocine 200 mics, verapamil 2.5mg

Shorter sheaths/hydrophilic sheaths

Complication alert: radial artery occlusion

• Three factors:
  – Sheath size
  – Heparin/heparin dosage
  – Time of occlusion/removal technique

• Solutions
  – Small as possible
  – Heparin 5000 routine: once in the root
  – ‘Patent haemostasis’
  – Sheath removal technique/protocol
Next steps: traversing the arm

Small ‘J’ tip wire
   NOT hydrophilic as routine
ANY resistance: screen the arm
   wire redirect, or angiogram
Loops and kinks:
   Soft hydrophilic wire and 4Fr catheter: can be straightened

Do not try too hard: FA access works!

Radial loop/recurrent radial
Mrs J A

STEMI treated with streptokinase, aspirin, clopidogrel, clexane

Transferred to PCI centre for rescue PCI
Mrs J A

TRANSRADIAL ACCESS
• 6F sheath
• JL 3.5 diagnostic catheter shows ectatic left system vessels with no significant stenoses

PCI to culprit RCA
• 6F JR4 guide
• Unable to pass guide catheter beyond the elbow
• Severe pain at the elbow!
What is the next step?

- Compress, reverse drugs?
- Use left arm, or femoral approach without reversing drugs (to treat occluded RCA)
- Continue on the same arm?

Cross the lesion in the arm, use the guide to tamponade and complete the case!

Balloon assisted tracking
Getting to the aortic root

Deep breath
Always screen at least from the shoulder (carotids)
Very gentle catheter manipulation
Direct the wire, LAO view
Don’t repeat unhelpful manoeuvres
Difficult case: exchange length wire
Slowly remove the wire: avoid forceful intubation
Occasionally: soft hydrophilic wire – be very careful
CT angio: dissection of right subclavian artery
Engaging the coronary ostia

Get used to your standard tools

The keys to safety are:

- Gentle manipulation, aiming for coaxiality
- Change the curve when needed
  - Persistent and stubborn are not the same
  - Catheters are cheap, left mains are expensive
- Be aware of time: routine clock
- Reintroduced catheters carry particular hazard

Guiding catheters

- Adequately sized, coaxial, necessary backup and a stable and controllable tip.
- Back up is less simple than from the femoral approach
- Tips for guiding stability:
  - Additional wires
  - GC extension
  - Trapping balloons in conus RCA
- Common choices: 6F EBU 3.5, AL 0.75/JR/RCB/WRP
- Femoral crossover is not a crime against humanity
It’s you that matters...

Plan, be self aware and collaborative
Focused on safety
Fast (enough), flexible,
Never flippant
Finesse rather than force
Forward momentum
Anticipate and problem solve before the complication occurs

Thank you