The Difficult Permcat/Hickman
(How I do it)

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The Difficult Perm cath

- Principles
- Issues – What makes it difficult?
- “My” Technique – how I do it
- Case examples
- Alternative access sites
- Complications
- Discussion
Principles
Principles

• CARI guidelines:

“preserve each access site for as long as possible before moving to a new one”
Principles

• Protection of critical vascular “real estate”
  – Every site is precious

• Defined Strategy:
  – Sequence of access sites
    • RIJV
    • LIJV
    • SCV
    • FV
    • IVC
  – Sequential fall-back to more difficult sites
Principles

- “Go the extra mile”
  - Be prepared to work hard to preserve each access site – even if only for a few extra months
  
  - This may mean dealing with stenoses, thrombosis, or even occlusions
"Hey! That was my stop back there!"
Issues: What makes it difficult

• Referral/communication
  – Everyone understanding where we are in this patient’s ‘sequence’

• Psychology
  – Not informed
  – Denial
  – anxious
Issues: What makes it difficult

• Skin
  – Sepsis
  – Burns

• Scar tissue
  – Previous lines and catheters

• Anatomy
  – Thick neck – Obesity
  – Skinny neck – lung apices
  – Tracheostomy
Issues: What makes it difficult

- Existing catheters
  - CVC, Vascath etc.
    - +/- Infection
- Small vessels
  - Incl. partially occluded / recanalised
- Central stenoses
- Fibrin sheaths – prior catheters
  - Not only with catheter exchange
Issues: What makes it difficult

- Kinking of catheter
- Coagulation and platelet function
- Sedation
  - Sick patients
  - Anaesthetist / sedationist
- Antibiotics
- Complications
  - Pneumothorax, arterial puncture
Technique
Technique

• Has evolved over the years
• Everything is for a reason

— “I'm full of fears and I do my best to avoid difficulties and any kind of complications. I like everything around me to be clear as crystal and completely calm.”
"I'm full of tears and I do my best to avoid difficulties and any kind of complications. I like everything around me to be clear as crystal and completely calm."
Technique

• Before beginning;
  – Review Patient
    • Decide on site
    • Review old notes and images
    • Are we getting the right story??
    • Re-image jugulars with U/S

• INR, Ab’s, sedation etc.
Technique

• Sterile environment
  – Doors closed, minimum numbers in room
  – Hat, mask
  – Double glove

• Ultrasound
  – Level A evidence

• Fluoroscopy
  – Essential, but used minimally
Technique
Technique
Technique

• Lateral Jugular puncture
  – Needle in view the whole time
  – Infiltrate vessel wall with local

• Lignocaine + HCO3

• Stab skin incision – Langer’s Lines
Technique

• +/- Micropuncture set

• Luer slip syringe + saline

• Line up bevel of needle with numbers
Technique

• Access vein

• **Wire through into IVC**
  – Avoid arrhythmias
  – Avoid perforations
  – Confirms venous puncture

• Serial dilators
Technique

• If necessary - DO VENOGRAM
Create Tunnel
Minimize catheter handling
Minimize catheter handling
Minimize catheter handling
Technique

- For difficult cases, place catheter over wire
  - Glidewire or stiff glide
  - Thread back through catheter
  - Nitinol – kink resistant
  - Not just for rewiring
CXR not necessary
Tip placement
Cases
Restricted access – existing Vascath
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Venous stenosis
Venous stenosis
Venous stenosis
Venous stenosis
BCV stenosis
BCV stenosis
BCV stenosis
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SVC / BCV recanalisation
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SVC / BCV recanalisation
Subclavian Vein Puncture

• Avoid, especially if fistula is still an option
• Puncture with U/S
• Lateral of first rib
• ‘Osseus Pinch’
Femoral access
Femoral access
Femoral access
IVC placement

- CT placement of needle, then Fluoro
- Puncture L3, L4
- Tunnel anteriorly
- Think about future exchanges
  - (running out of options)
Other access routes

Murthy, JVIR 2002
Hepatic vein access

Translumbar IVC catheter fallen out; all other access routes exhausted
Hepatic vein access
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Re-wiring

- Double wire
- 2 x Stiff glide or Stiff glide + Amplatz
Fibrin Sheath
Complications

"Pull out, Betty! Pull out! . . . You've hit an artery!"
Complications: SVC perforation
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Complications: Aortic injury
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Complications: Brachial Plexus Haematoma
Conclusions/Advice

- Work hard to make each site last as long as possible
- ‘Difficult’ is relative
- Most complications are easily preventable
- Lateral Puncture of Jugular
- Micropuncture set
- Perform venography
- Wire into IVC
Family planning advice
Use rear entrance