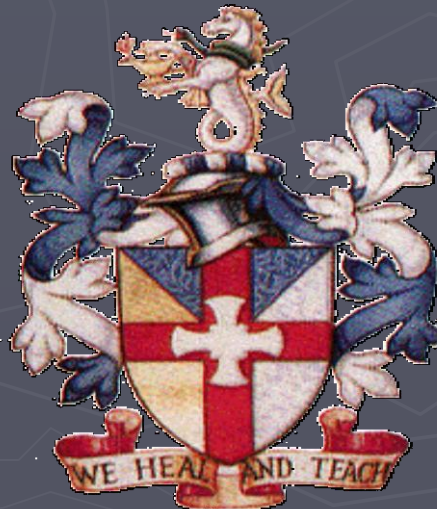


Step By Step Tips for the MICHI (Silk Road Medical) Direct Carotid Access System

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Disclosures:

Research / Educational Grants & / or consultancy:

Abbott Vascular

Silk Road Medical

CR Bard

St Jude/AGA

Biotronik

Spectranetics

Bridgepoint / EPS vascular

Tryton Medical

Cordis (J & J)

Pyramed

COOK

Terumo

Ev3/Covidien

Vascular Perspectives

Medtronic / Invatec

Volcano

Merit Medical

WL Gore

Lecture Plan:

- Why might an interventionist with:
 - **16 years of general transfemoral access experience**
 - **& 13 years of specific transfemoral CAS experience**

Wish to move to direct carotid access ?

- To explore tips & tricks from a second-in-man world-wide experience

Rationale:

MICHI (Silk Road Medical)

Direct Carotid Access System

- The potential of new technology to solve the remaining issues for CAS:
 - **Excess microembolic burden when compared to CEA**
 - **Anatomic constraints from a femoral route, with distal - filter protection i.e. "standard" CAS**
 - **Learning curve issues (femoral route, complex catheterization for novices)**
 - **Minor stroke excess when compared to CEA**

Study	Procedure	Embolic Protection	# subjects	% w/ New DWI Lesions
ICSS ¹	Transfemoral CAS	Distal filter (various)	51	73
ICSS ¹	CEA	Clamp, backbleed	107	17
PROFI ²	Transfemoral CAS	Distal filter (Embosheild)	31	87
Leal ⁴	Transfemoral	Distal Filter (FilterWire)	33	33
PROFI ²	Transfemoral CAS	Proximal occlusion (MoMA)	31	45
PROOF ³	Transervical CAS	High flow rate flow reversal	48	16.7
Leal ⁴	Transervical CAS	Flow Reversal	31	12.9

1 Lancet Neurol. 2010 Apr;9(4):353-62

2. J Am Coll Cardiol. 2012;59:1383-1389

3. JVS 2011;54:1317-1323

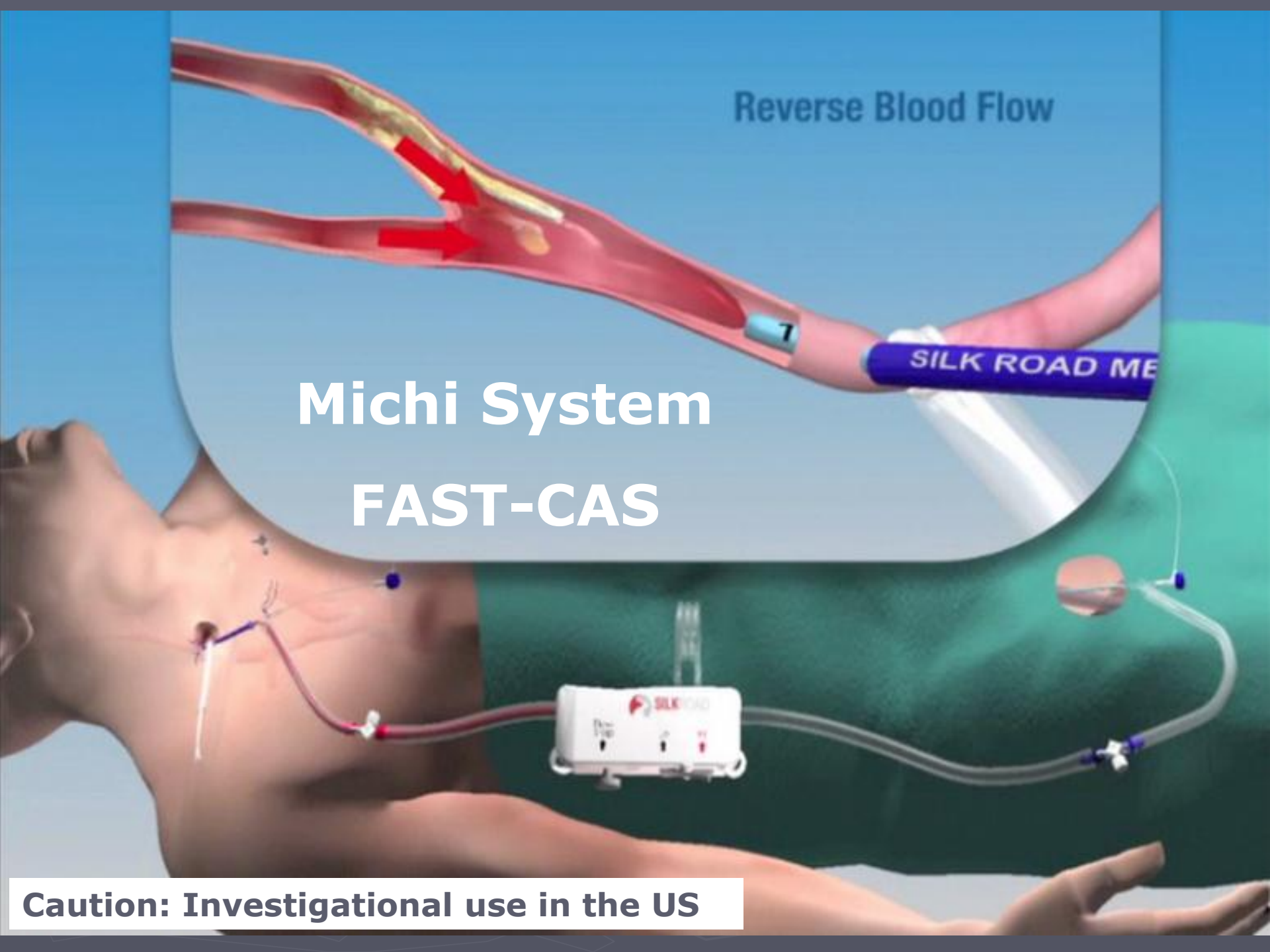
4. JVS 2012 In Press

Reverse Blood Flow

Michi System FAST-CAS

SILK ROAD ME

Caution: Investigational use in the US



Technical Tips & Tricks:

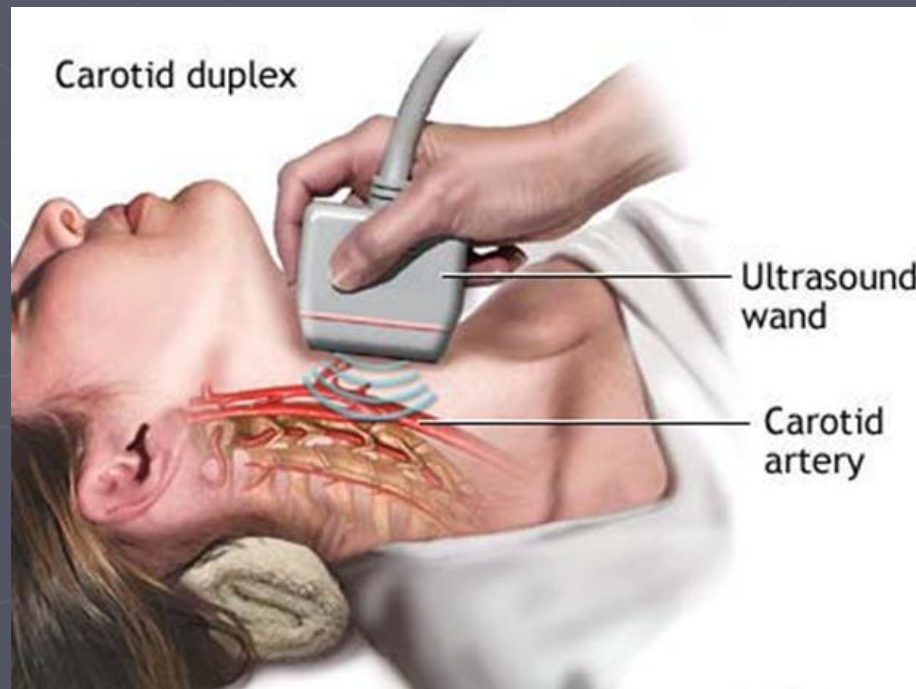
The Top Ten;

- 1. Sedation considerations:** IV conscious sedation is unpredictable
 - Overnight hypnotics (Zopiclone – Lunesta) & oral benzodiazepines at 0600 hours on the morning of the procedure
 - Liberal infiltration of LA above the clavicle at the proposed cut-down site before surgeon, interventionist or patient preparation

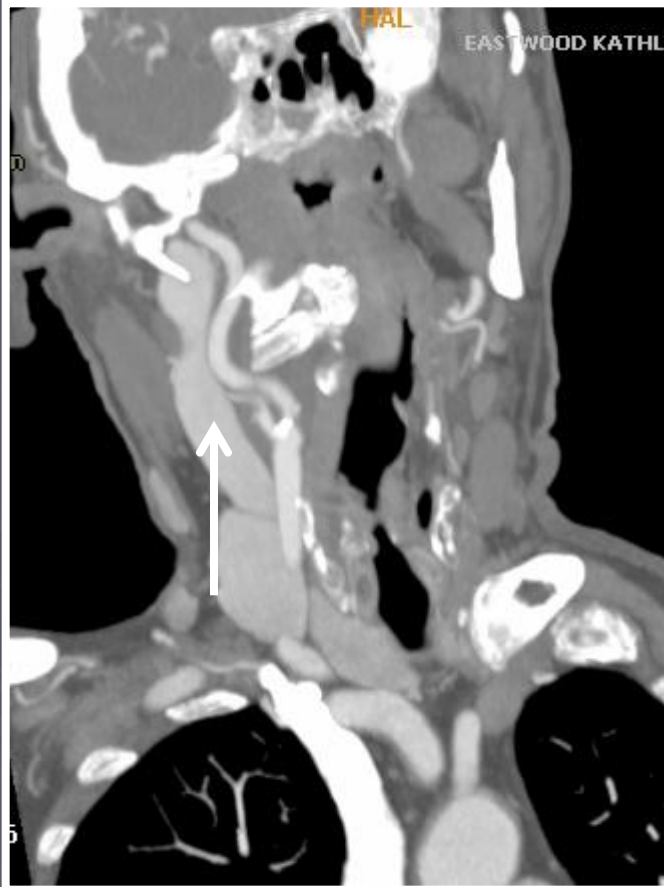
Technical Tips & Tricks:

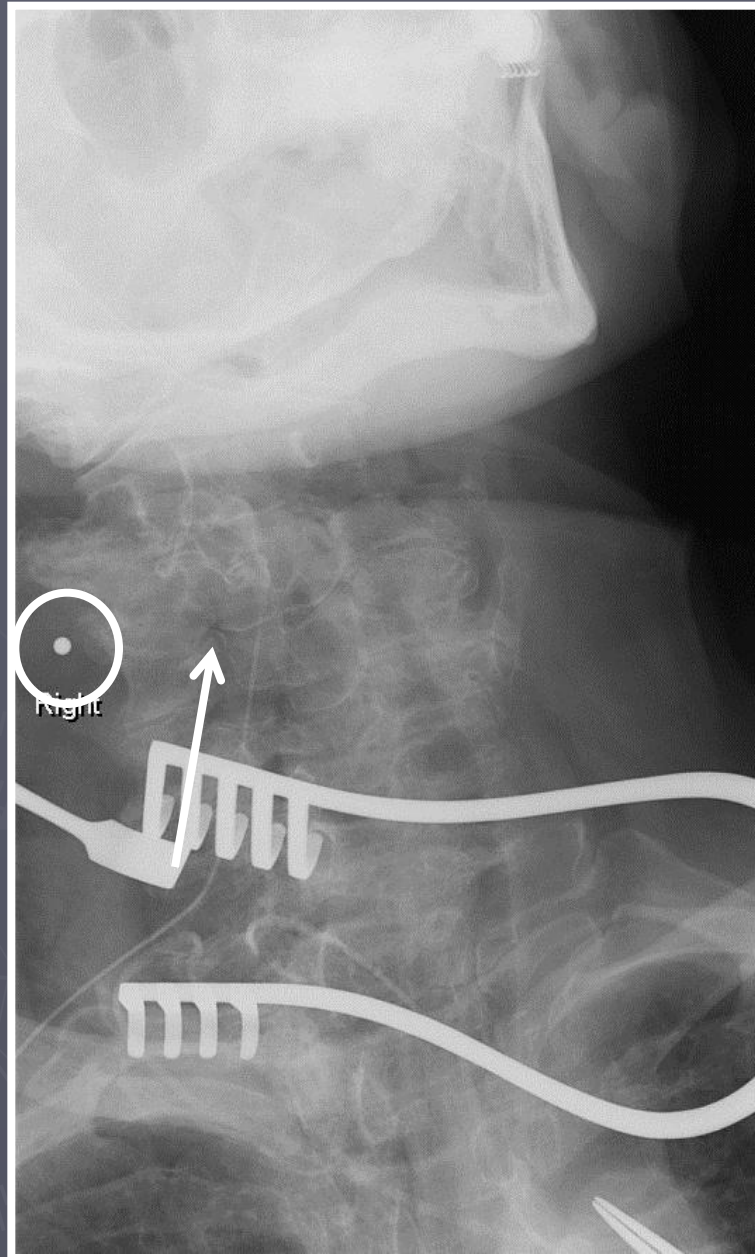
The Top Ten;

2. Neck length considerations:



Avoid "guesstimates" on CTA





Ball – bearing marks the lesion

Working length – only 4.5cm

Ultrasound is the most accurate measurement

Technical Tips & Tricks:

The Top Ten;

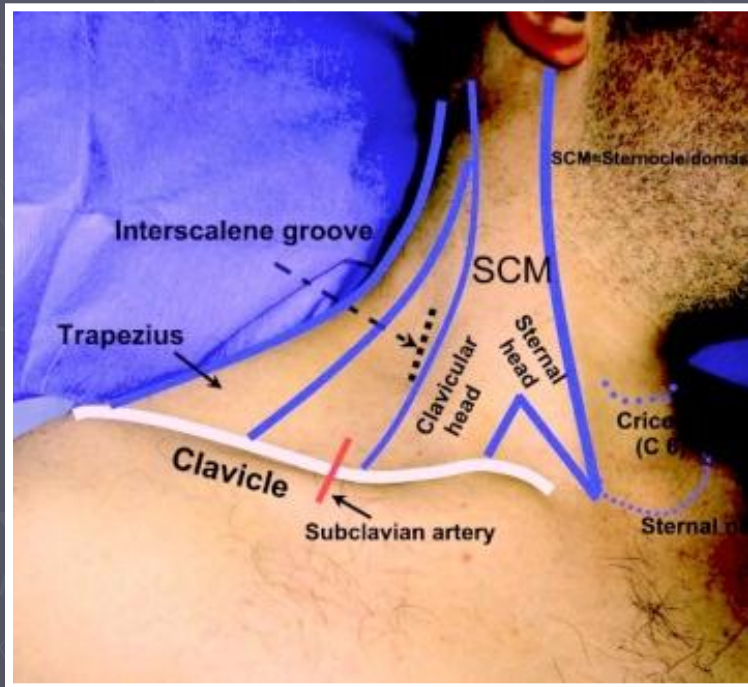
3. Head Position:



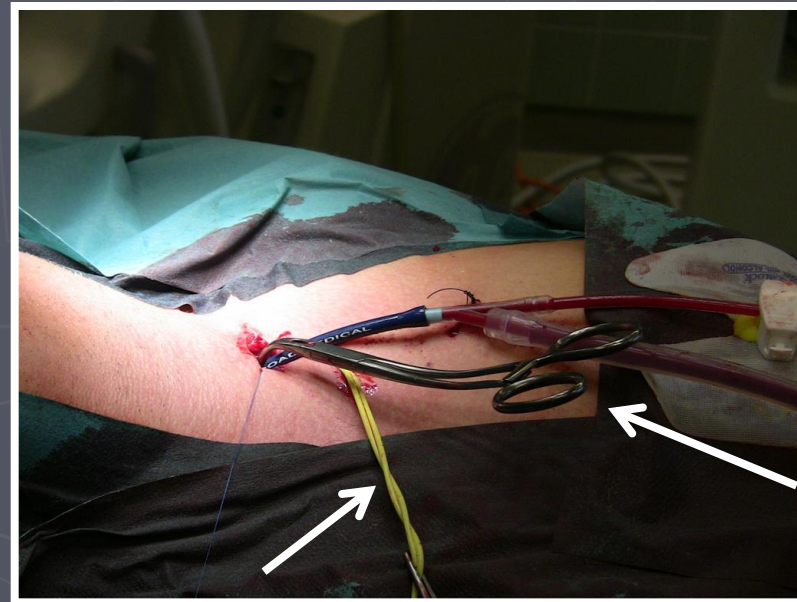
Technical Tips & Tricks:

The Top Ten;

4. Surgical Access:



Rummel Loop



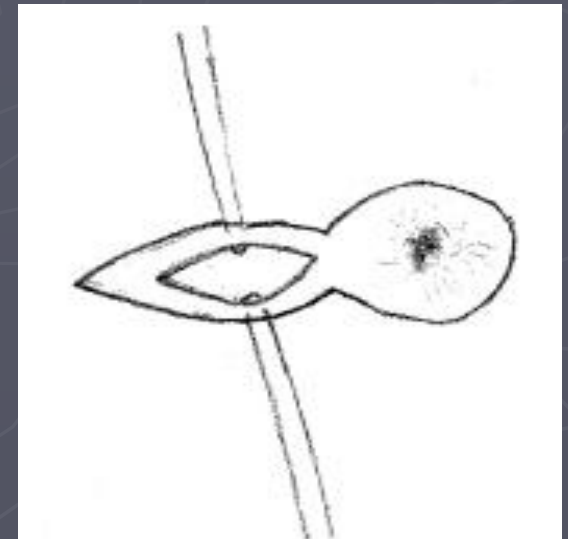
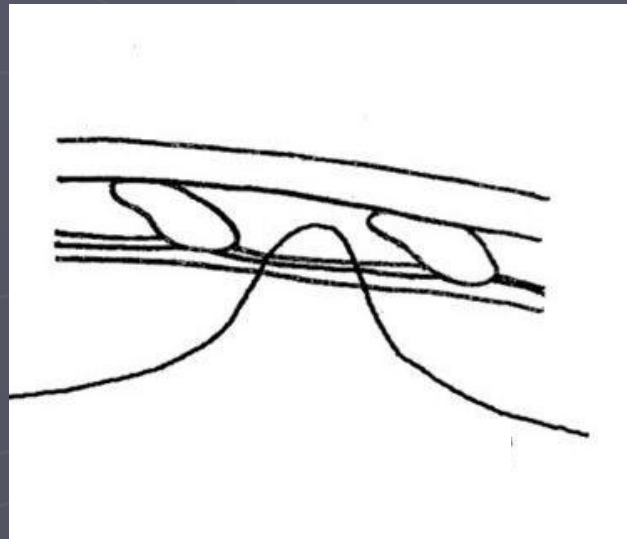
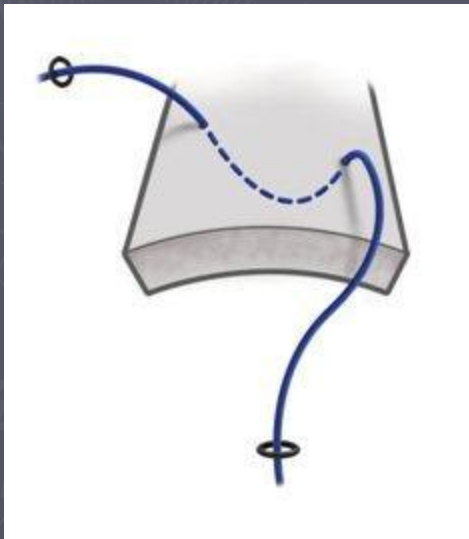
Side biting clamps

Technical Tips & Tricks:

The Top Ten;

5. Surgical Pre-Closure Considerations:

The "U" stitch



Technical Tips & Tricks:

The Top Ten;

6. Facilitating Arterial Sheath Access:



Gentle traction on the Rummel loop

Serial dilatation – 6, 8F

Technical Tips & Tricks:

The Top Ten;

7 . Perfect first-time venous access:

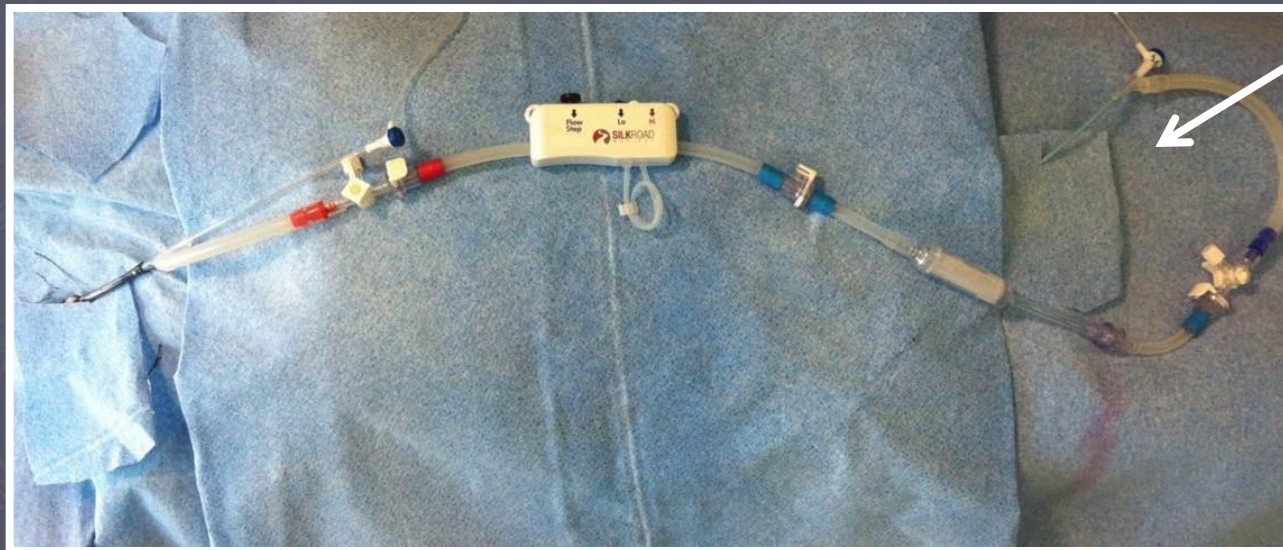


Ultrasound guidance

Technical Tips & Tricks:

The Top Ten;

8. Cross-patient device working:



R CCA →

← L CFV

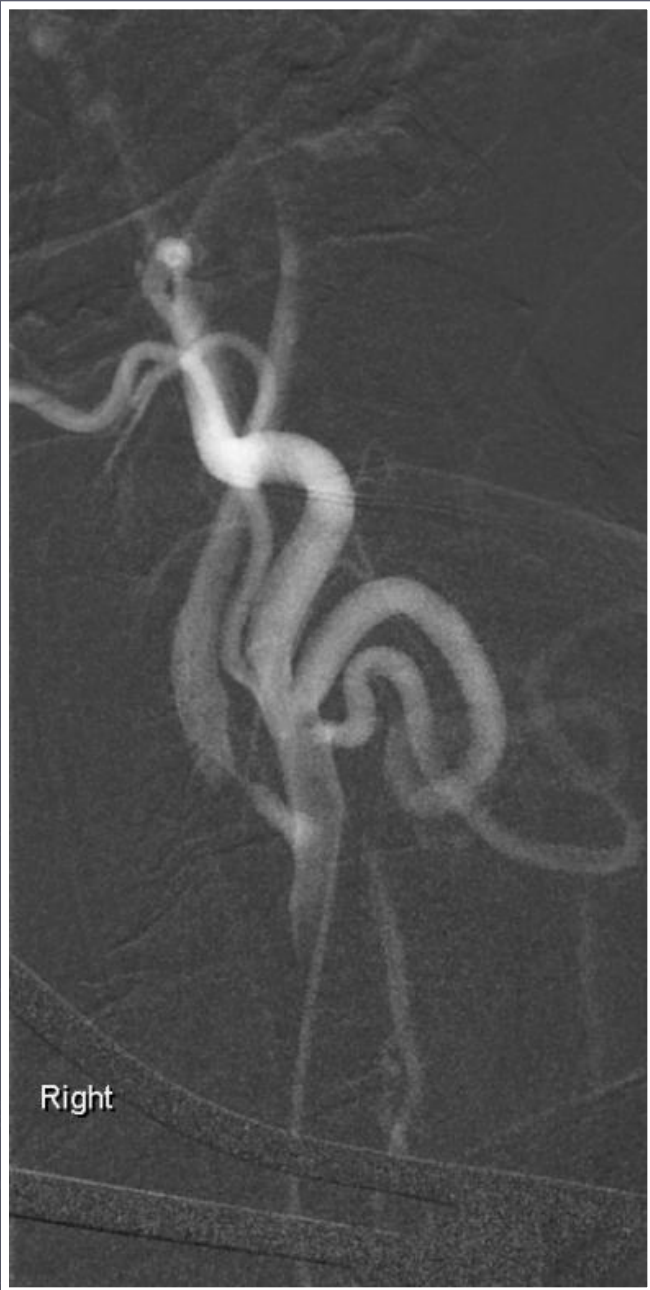
R CCA to L CFV or vice versa

Technical Tips & Tricks:

The Top Ten:

9. Wire Management:

Ipsilateral ECA access might facilitate secure placement of the 10F outer diameter arterial sheath when there is short " neck length "





Technical Tips & Tricks:

The Top Ten;

10. Hemostasis:

- “U” stitch closure
- Wait 10 minutes before subcuticular sutures (whilst applying pressure to the venous access site)
- “ Mini-vac ” drain
- Sit the patient at 45° as soon as possible
- “ D-Stat Dry ” or other hemostatic dressing

Conclusions:

"*Standing on the shoulders of giants**"

- Direct carotid access with high flow rate flow-reversal may address a number of the remaining issues of CAS
- The learning curve of any new technique may be blunted by attention to detail
- The early **adopters** can learn from the **pioneers** (Düsseldorf), in conjunction with good clinical & technical support (SRM)
- The ROADSTER US IDE trial is enrolling US sites now – some of the early lessons learnt should improve procedural practicality

*Bernard of Chartres 12th Century AD

