



Percutaneous Endoluminal AVF Creation

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Paris

Roma 28/05/2018

Two Different Systems

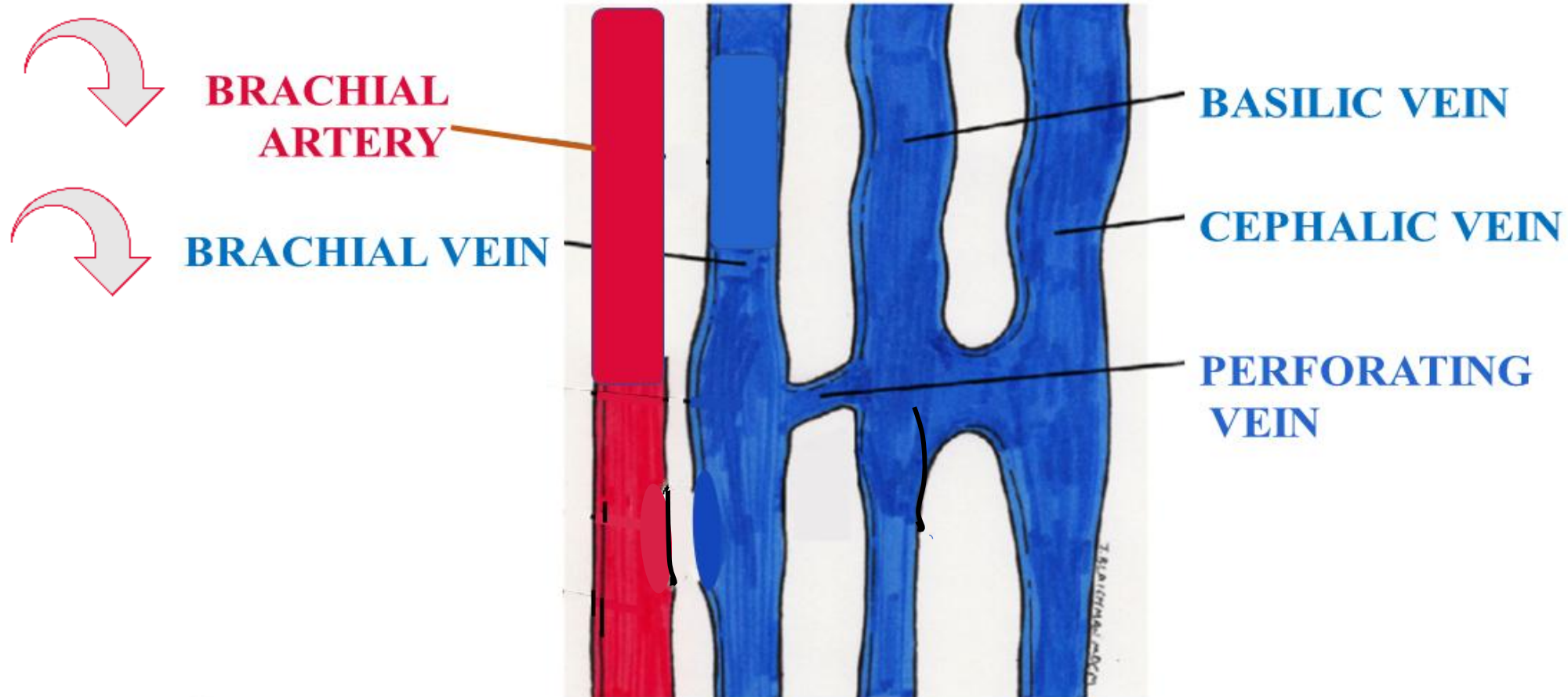
EverlinQ SYSTEM

- 2 magnetic catheters
- Fluoroscopic guidance
- Introduced via Brachial A. & V.
- Electric coagulat.-> anastomosis
- Ulna-Ulnar proximal AVF
- Secondary Balloon angioplasty
- D.Rajan and C.Lok, (Canada)
- JVIR 2015, AJKD 2017

ELLIPSYS SYSTEM

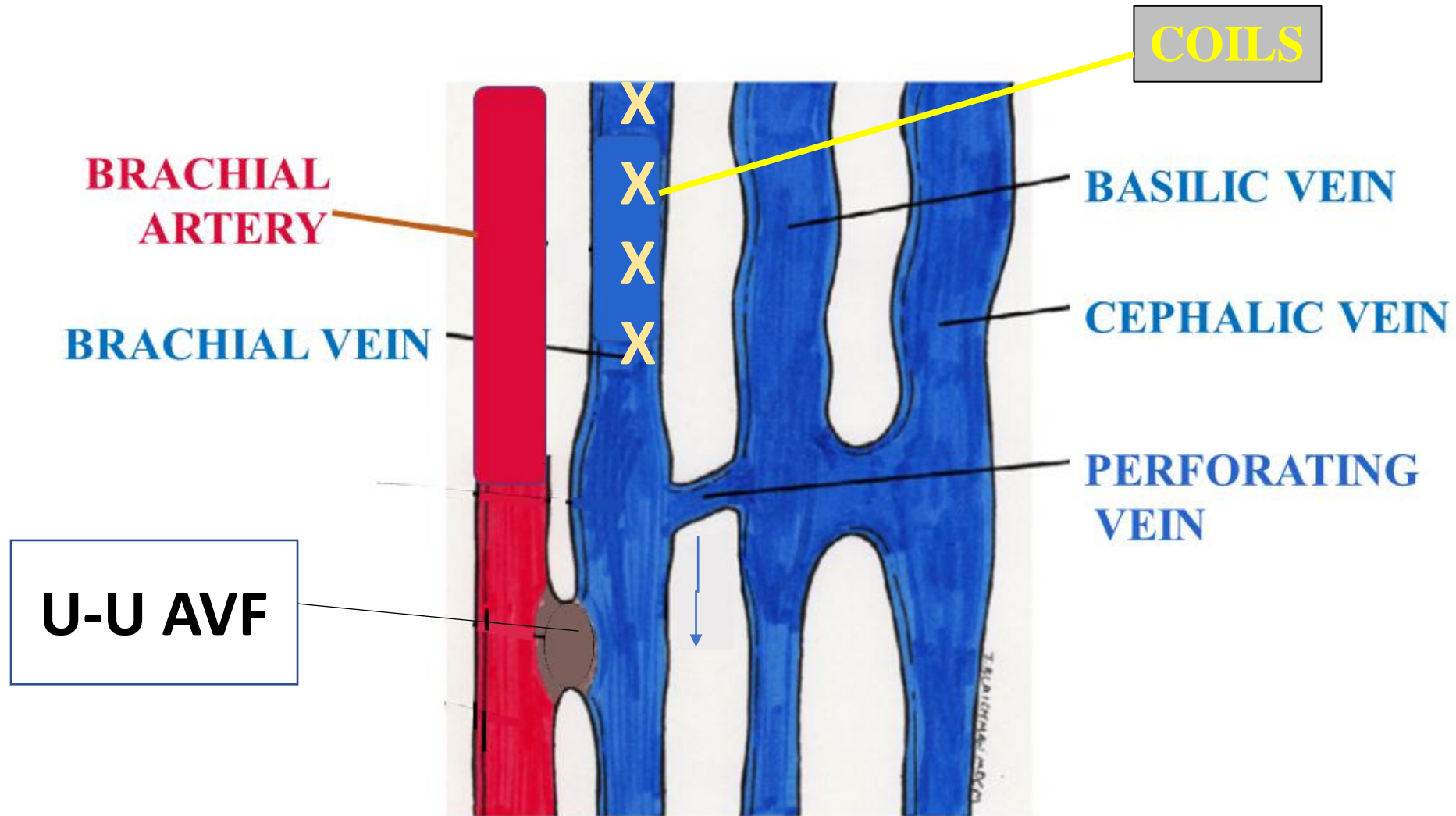
- 1 perforator (needle)
- Ultra-Sound guidance
- Via the elbow perforating vein
- Heat & pressure -> anastomosis
- Radio-Radial proximal AVF
- Immediate 5 mm PTA
- Hull (USA) JVIR 2017,
- A.Mallios (Paris) JVS 2018

EverlinQ System



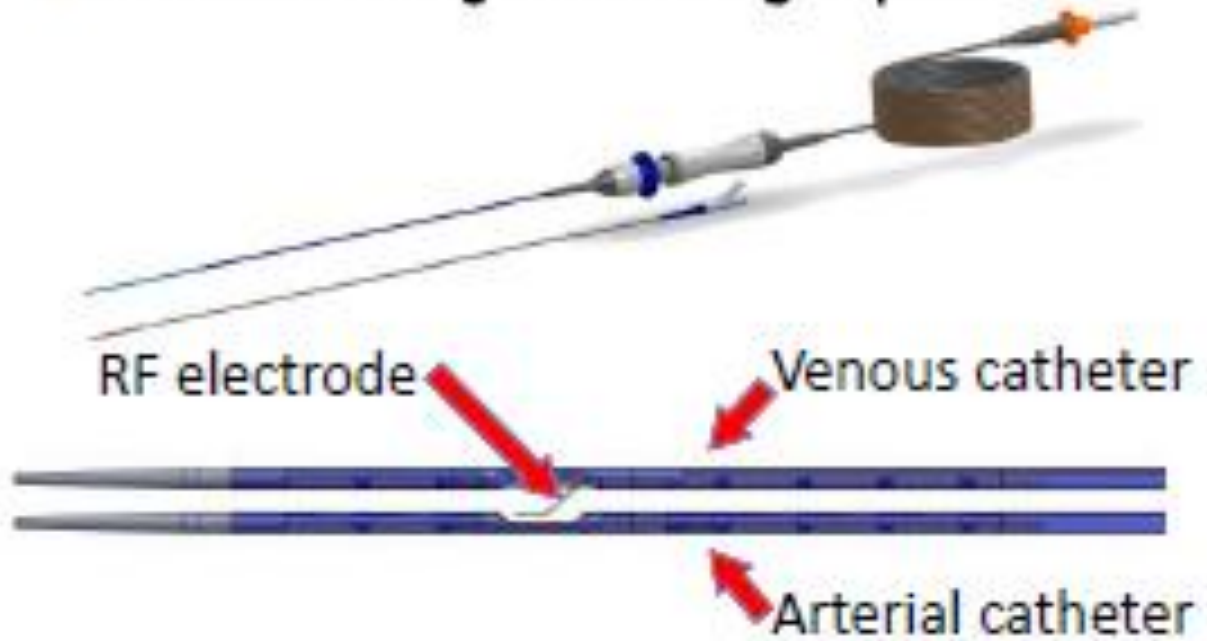
DEEP > < SUPERFICIAL

EverlinQ system



EverlinQ System:

**Paired magnetic catheters
with electrosurgical cutting capabilities**

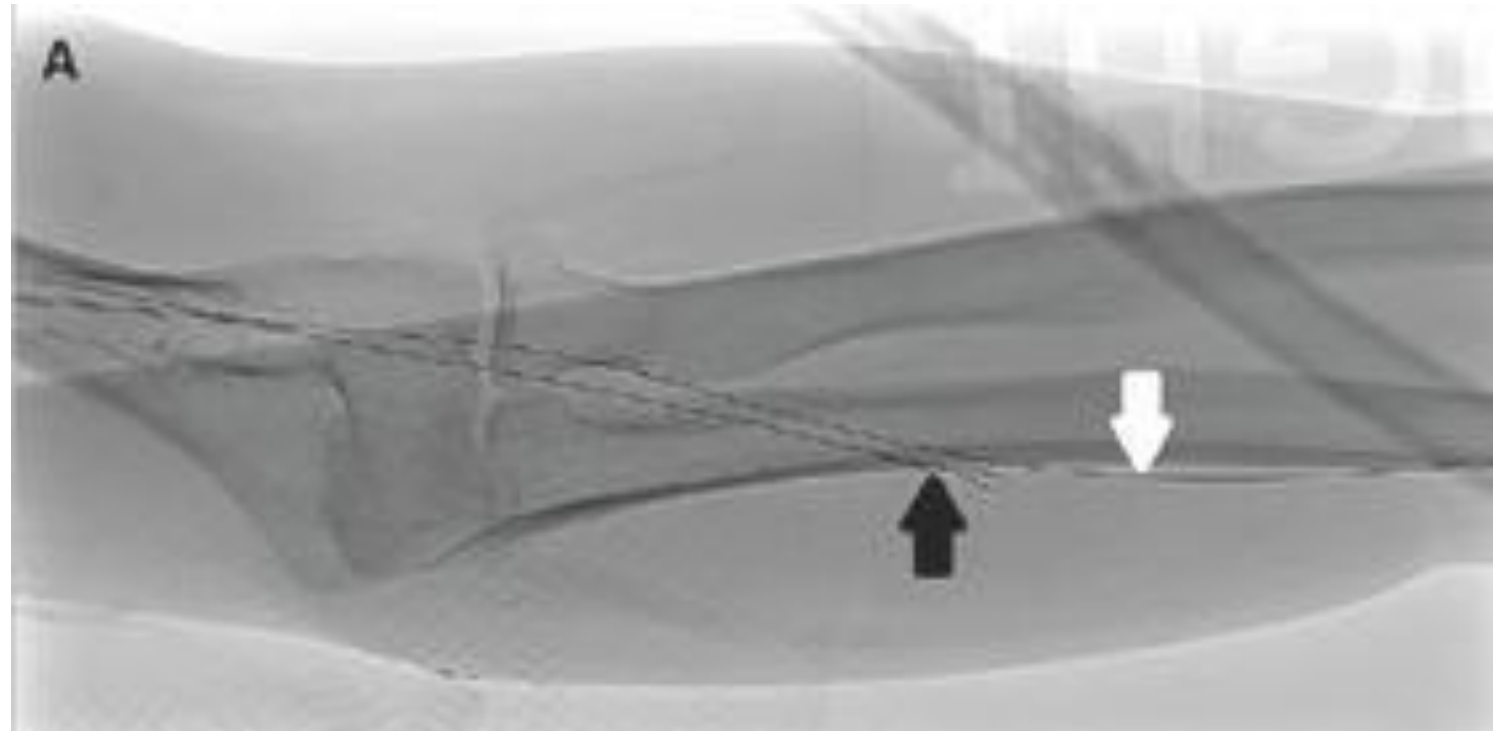


RF Generator

EverlinQ System: Procedure steps

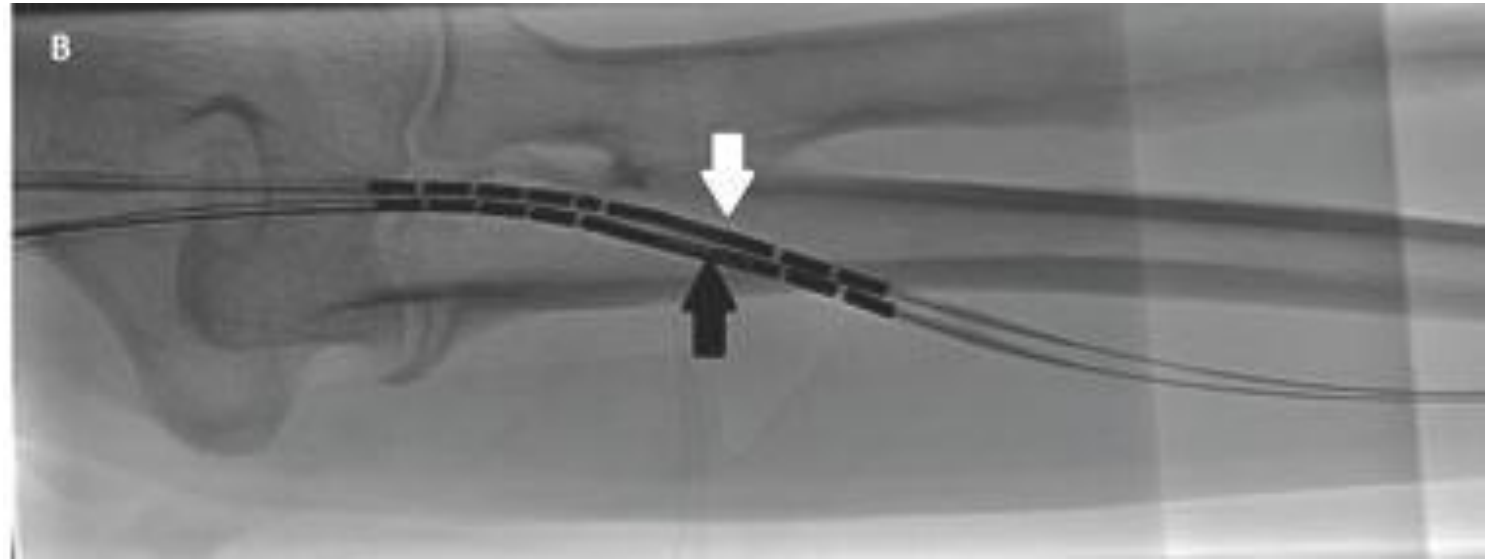
A- After entering the brachial vein and the brachial artery with 21-gauge needles, guidewires are advanced through the needles to the proximal ulnar vein and artery (arrows) under fluoroscopy.

7Fr sheaths are inserted.



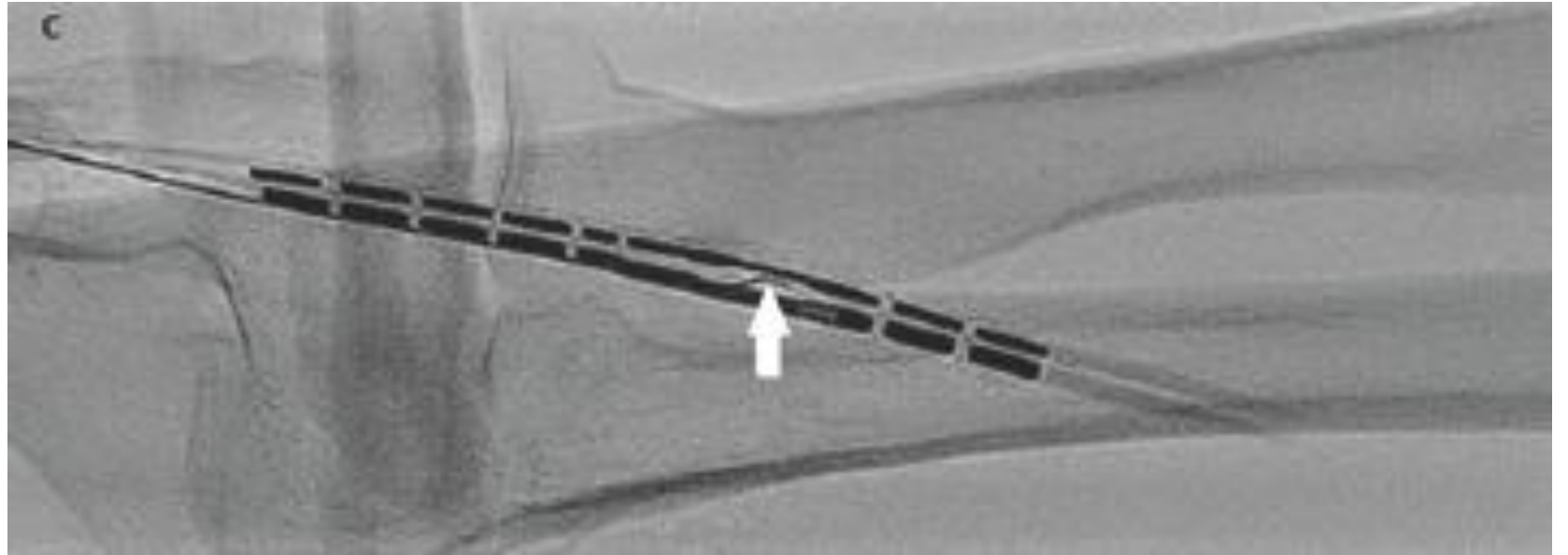
EverlinQ System: Procedure steps

B- The everlinQ catheters are advanced to the ulnar vein (black arrow), and the ulnar artery (white arrow) under fluoroscopy.



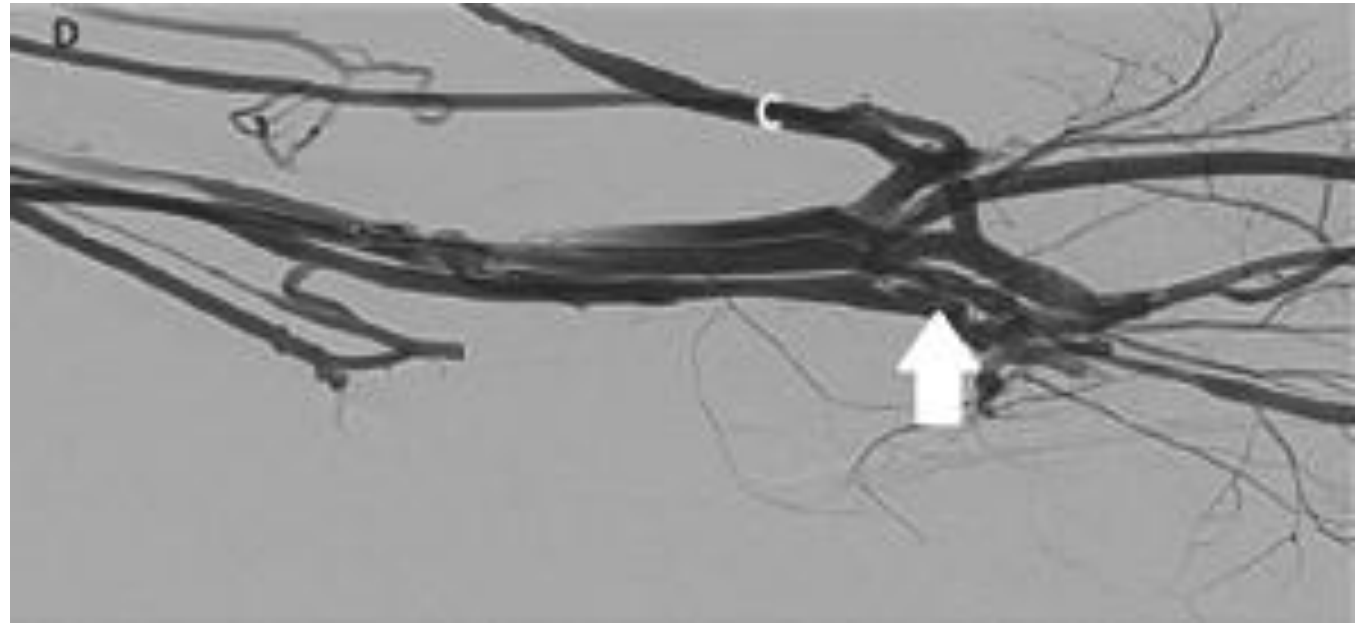
EverlinQ System: Procedures steps

C- Magnetic catheters are aligned and then the radiofrequency electrode is deployed (white arrow).



EverlinQ System: Procedures steps

D- After removing catheters, the endoAVF (white arrow) is confirmed with brachial artery contrast injection.

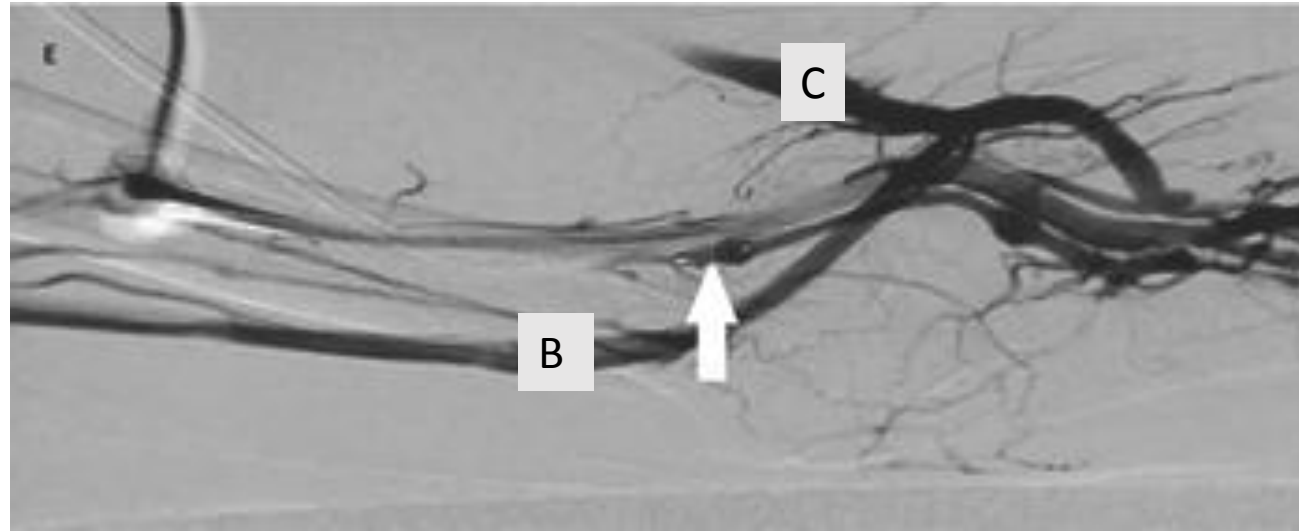


EverlinQ System: Procedures steps

E- One brachial vein is embolized (white arrow) to divert flow to superficial veins:

C: cephalic vein

B: basilic vein

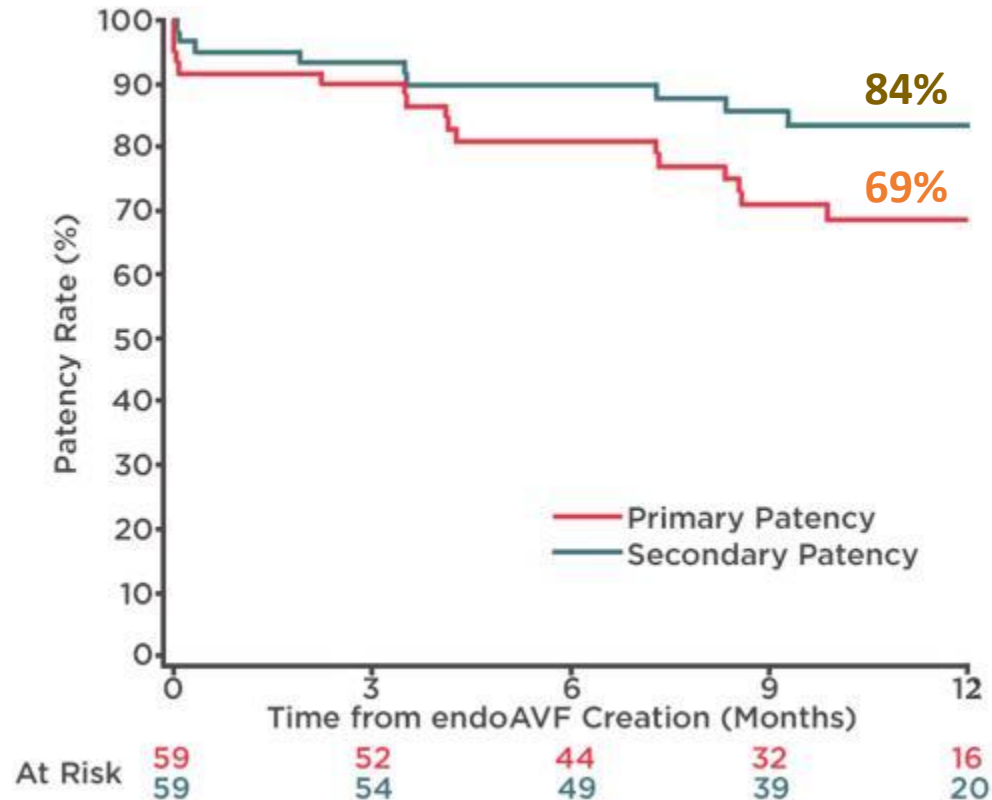


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Pilot Study Rajan DJ et al. JVIR 2015

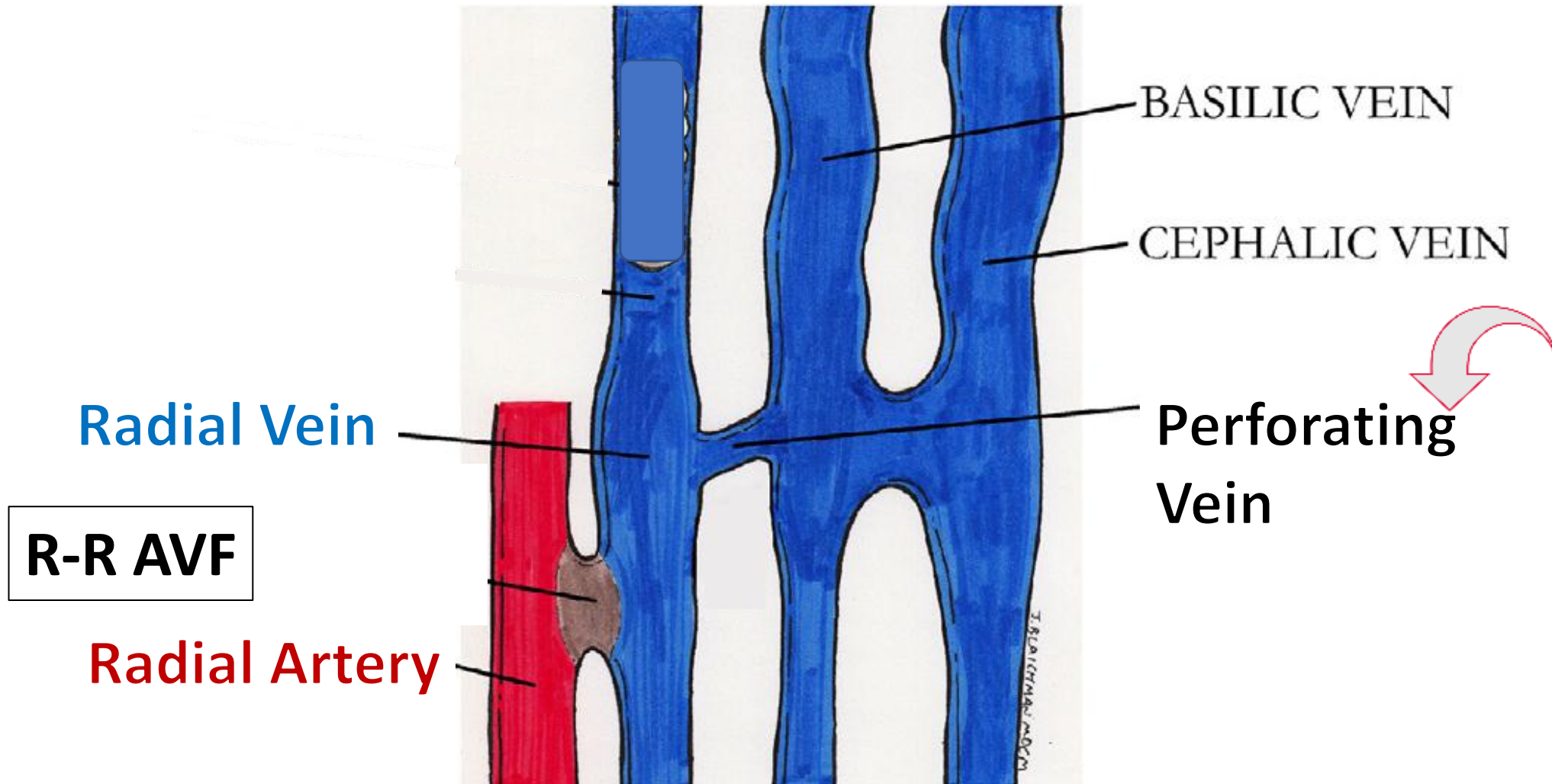
- From 8/2012 to 9/2013, 33 attempt-AVF creation between normal proximal ulnar artery and closely associated normal ulnar vein (diameters $\geq 3\text{mm}$) in selected pts.
- Results:
 - a pAVF was successfully created in 32 of 33 patients (97%)
 - 4 unrelated deaths, 1 lost to follow-up.
 - 27 remaining patients:
 - Mean time to maturation was 58 days (range: 37–168).
 - **24 were undergoing successful dialysis via their pAVF at 6 months.**
 - 2 patients had usable access but did not initiate dialysis during the study.
 - **1 pAVF thrombosis occurred in a patient with preexisting CVS.**
- **Cumulative pAVF patency at 3 months was 96% (SE=4%).**
- One serious procedure-related adverse event and 5 minor adverse events

EverlinQ Neat Study Lok & Rajan 2017

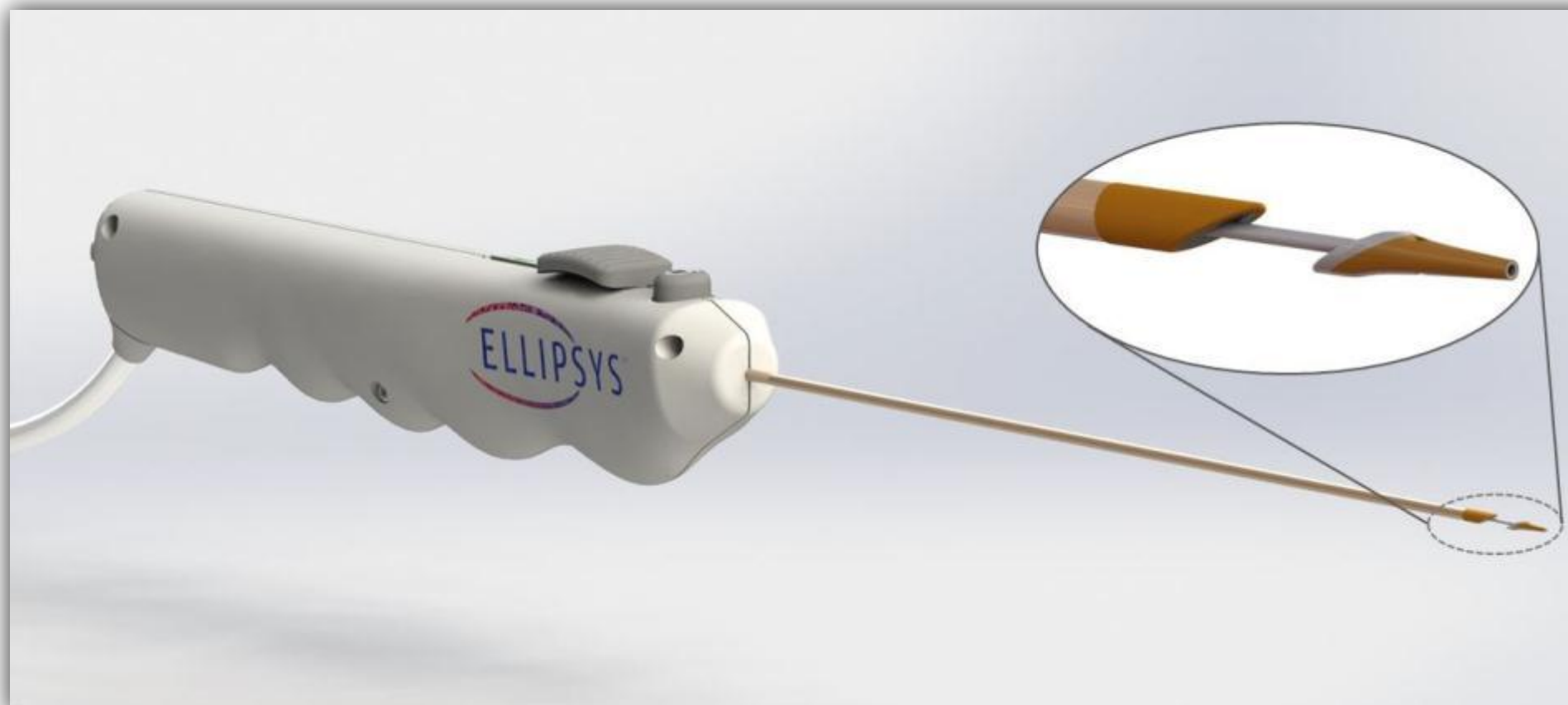


- N = 59 patients, multicenter study
- Serious events:
 - 1 immediate failure (braided catheter)
 - 1 thrombosis per-op
 - 3 non-maturations
 - 2 brachial a. lesions (not included K-M)
- Maturation at 3 months: 64% vs. :
 - “Pilot EverlinQ study” : 96%
 - Surgical AVF: 58% (review)
- Brachial artery flow: 918 mL/min, range ?

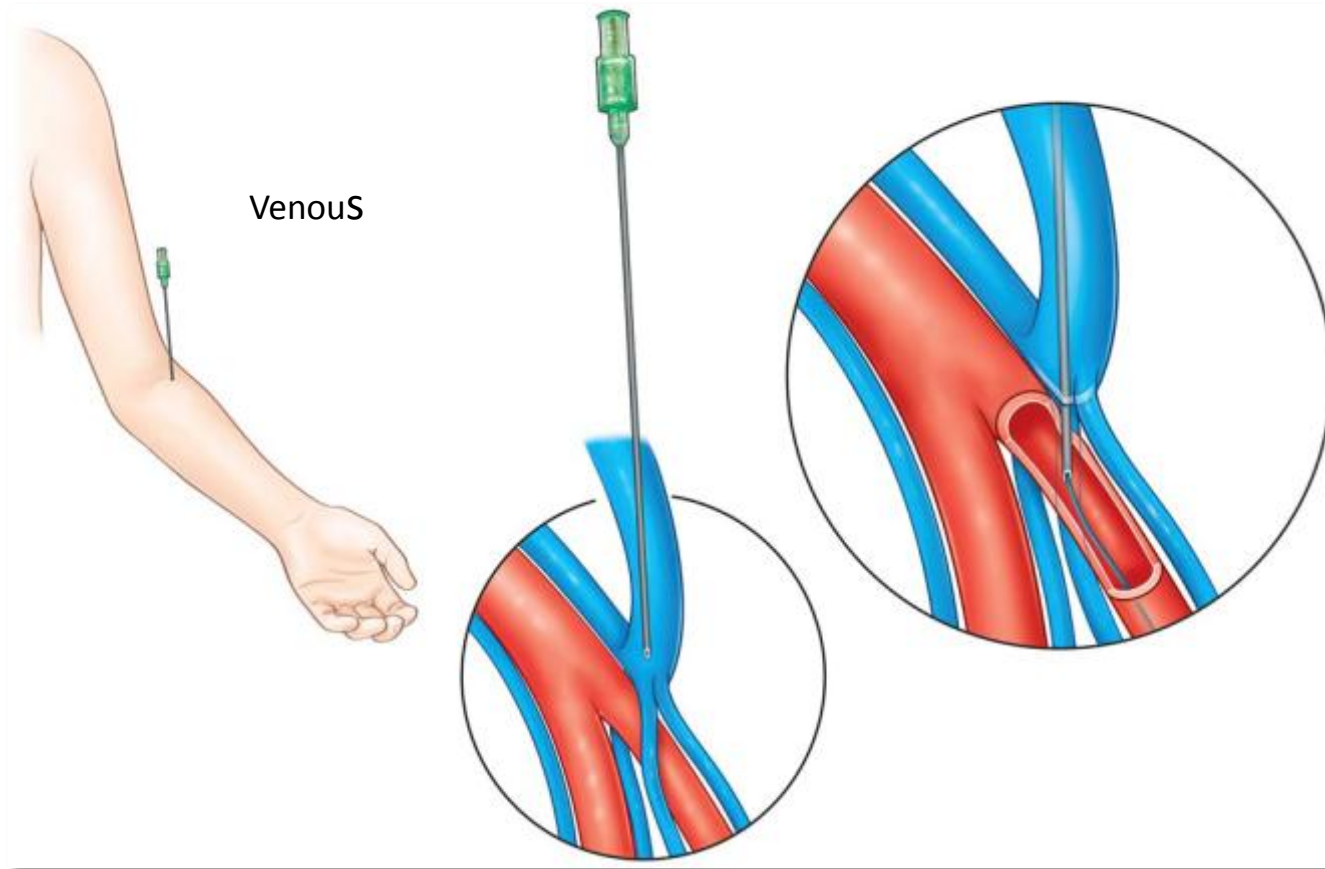
Ellipsys : Elbow Radio-Radial AVF



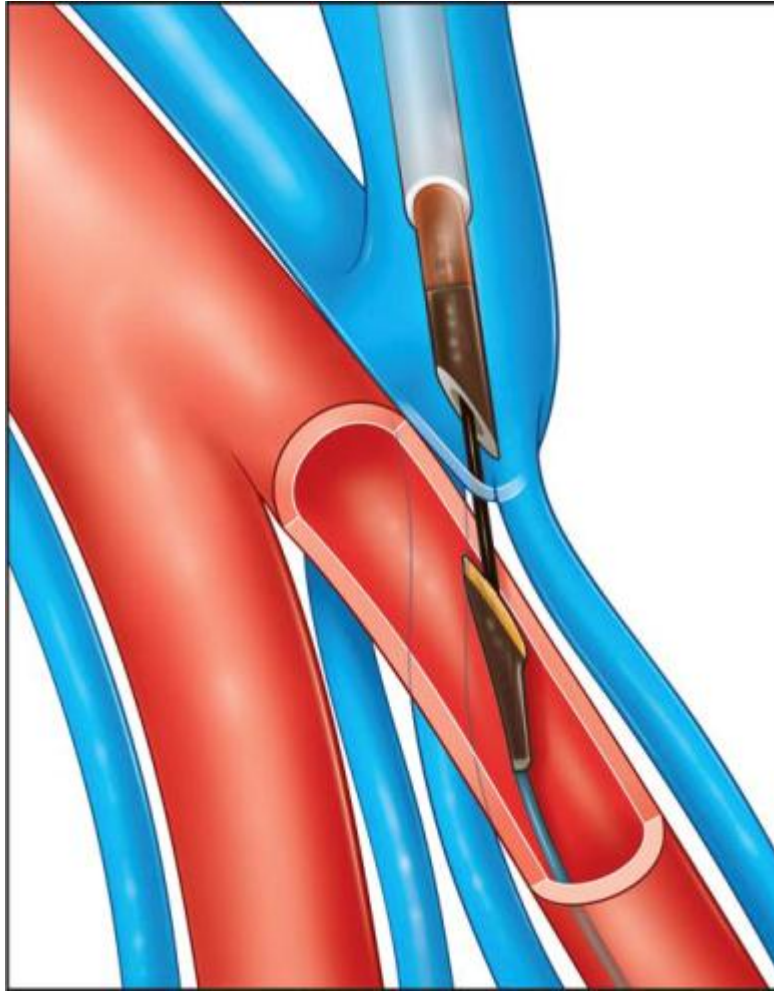
Ellipsys System



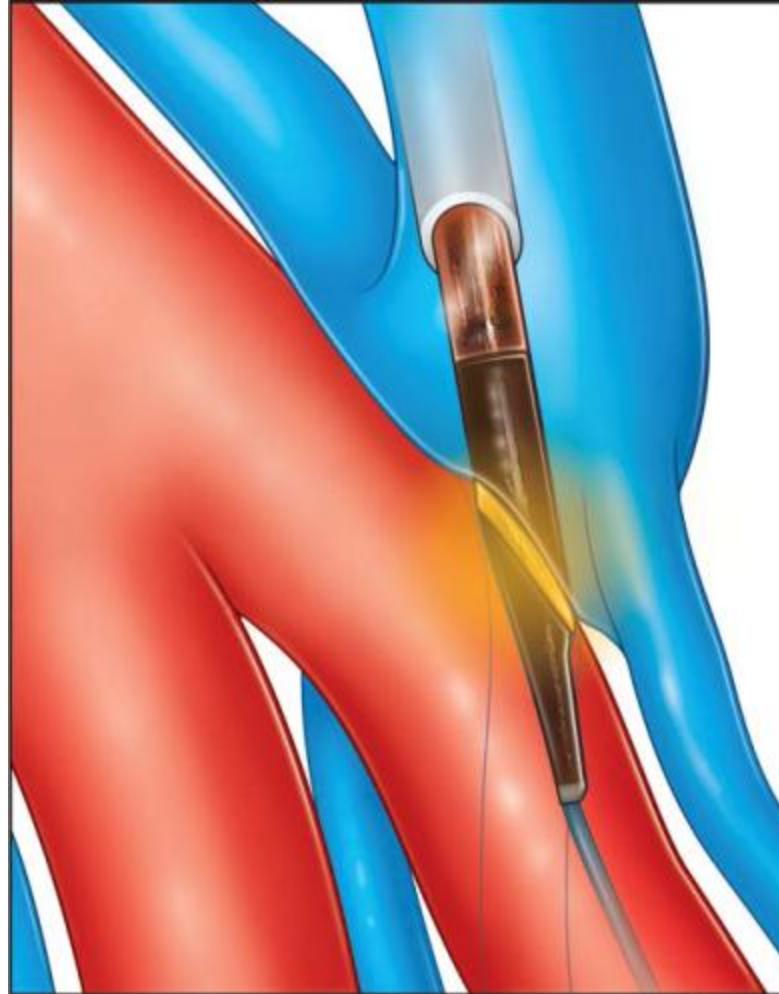
Ellipsys® Vascular Access System



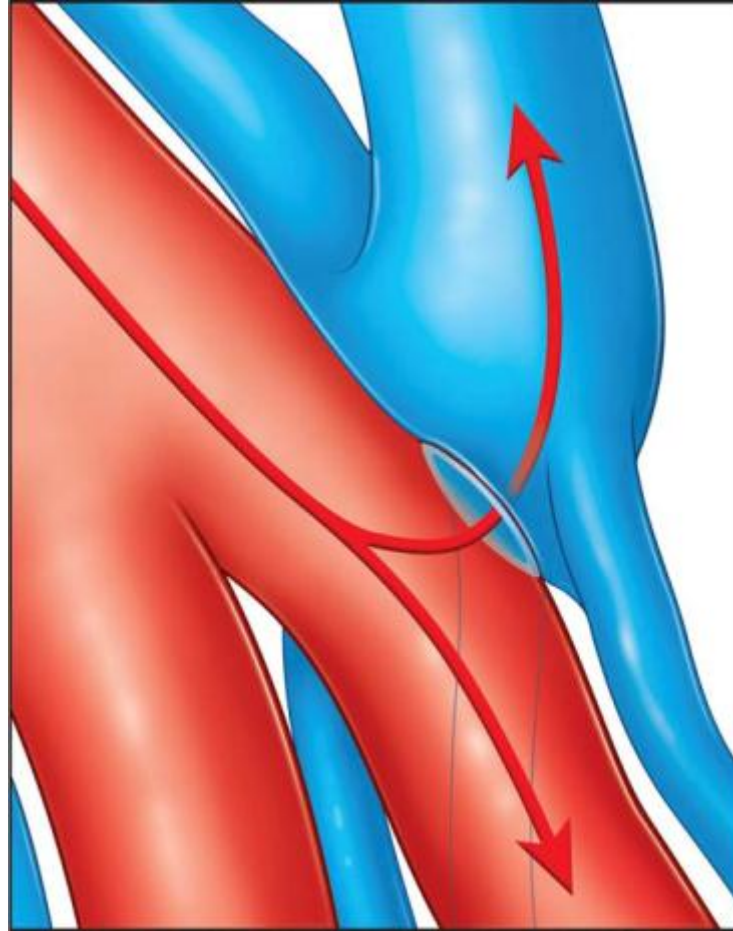
Positioning of Ellipsys[®] Catheter



Pressure, Activation and Fusion



Creation of AVF + Balloon dilatation



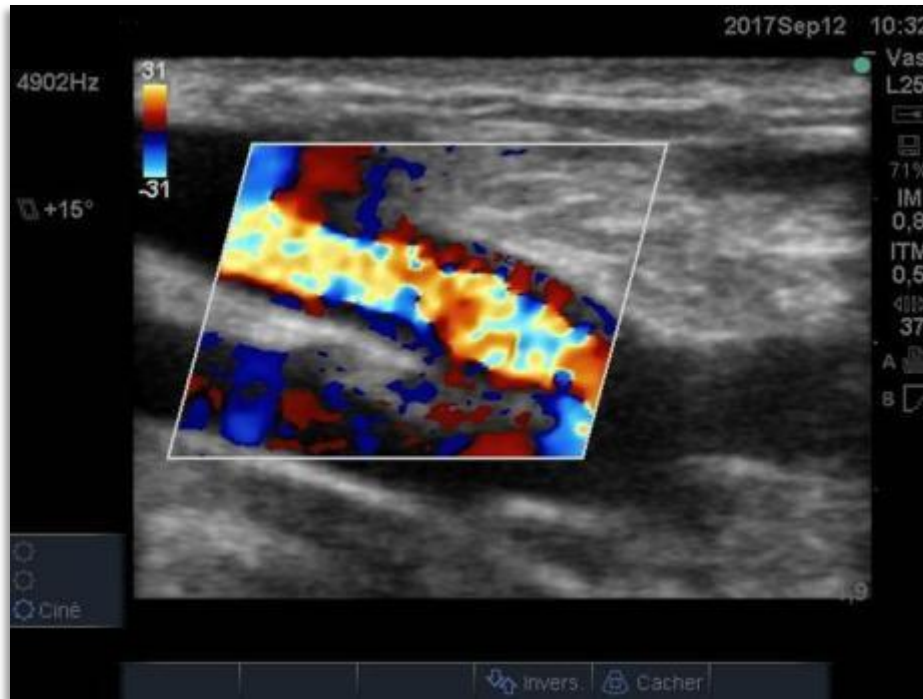
Ellipsys System Schematic Video

AVF flow post Balloon Dilatation

Pt 31



Four Days Post Ellipsys® Procedure



Early Results (A.Mallios JVS 2018)

- May – Nov 2017
- 34 patients: 10 Two-stage, 14 One-stage
- 97% technical success
- After 91 days mean follow-up:
 - 82% primary patency
 - 94% secondary cumulative patency
- Mean access flow: 1114ml/min (range, 645-1486)

Conclusion 1 : Open Surgery AVF

Pros:

50 year-experience

Angiologist Ultra-Sound mapping,

Microsurgery -> Distal AVF first, even in children

Long term patency : up to 30 yrs

Cons:

58% maturation rate at 3 mos (Distal AVF, Al Jaishi review)

Proximal AVF: High flow, Distal Ischemia

Un-aesthetic scars and veins dilatations

Conclusion 2 : Percutaneous AVF

- Cons:
 - Prices of the devices
 - Patients selection opposite to « Distal Fistula First »
 - Learning curve
 - Possible future High Flow with cardiac issues and distal ischemia
 - Secondary distal AVF ??
 - Long-term patency ?
- Pros:
 - Minimally invasive one-stage AVF creation
 - Early maturation
 - High patient satisfaction
 - Low pressure fistula

92 year-old, 8 Days Post Ellipsys[®] Procedure



12th July 1789

Louis XVI : « A revolt ? »

Duc de la Rochefoucauld : « No Sir, it is a revolution ! »

14th July 1789

The storming of the Bastille

i-AS 2018

International
Vascular Access
Symposium

PARIS - Friday 14th September 2018
Institut Mutualiste Montsouris




Institut Mutualiste Montsouris

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Thank you for your attention !

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