THE 1ST FRENCH EXPERIENCE WITH THE WAVE LINQ ENDOAVF 4F™ SYSTEM

E. DUCASSE, C CARADU
MD PHD FEBVS
CHU DE BORDEAUX
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The physician has been compensated by Becton, Dickinson and Company to participate in this presentation.
Disclosure

Speaker name: E Ducasse

I have the following potential conflicts of interest to report:

Consulting : DB/Bard

Employment in industry

Shareholder in a healthcare company

Owner of a healthcare company

Other(s)

I do not have any potential conflict of interest
Snuffbox

1 - Radio-cephalic on the forearm

2 - WavelinQ™
   = EverlinQ™
   Ulno-ulnar or Radio-radial

Ellipsys™ Perforator

Gracz

Brachial-cephalic
   At the elbow

Brachial-basilic
   At the elbow
   ± superficialization

Only radio-radial for now
**PATIENT’S SELECTION**

**Standard Surgical AVF Screening**
- **✓ Good arterial inflow**
  - Brachial Artery $\geq 2$ mm
- **✓ Good venous outflow**
  - Superficial cephalic & basilic veins $\geq 2.5$ mm without a flow limiting central venous stenosis

**Additional EndoAVF Screening**
- **✓ Vessel’s diameter sufficient to accommodate devices**
  - Target ulnar or radial vessels $\geq 2$ mm
- **Presence of a Perforator**
  - Perforator adequately communicates between deep and superficial veins
CLINICAL CASE #1

♂ 53 years old

Pre-dialysis: diabetic nephropathy

Clearance: 14mL/min

Type 1 Diabetes since 2003 complicated with retinopathy

Hepatitis C treated

Right Arm with TOURNIQUET
1. Gain Access: Plan approach

**Parallel:**
Access From Wrist
Preferential Easier/Faster
Depends upon Diameter of vein at the wrist (Ulnar or Radial)

**Anti-Parallel:**
Access From Wrist and Upper Arm
Most common
(retrograde arterial and venous)
1. **Gain Access**: Plan approach

Venous access first
(use tourniquet + loco-regional anesthesia = supraclavicular brachial plexus block)

**Anti-Parallel**

- micro-puncture set
- **0.014-inch mini guidewire**
  under ultrasound guidance

- guidewire advanced to the radial vein
  under fluoroscopy
- 4Fr sheath is inserted
1. **Gain Access**: Plan approach

**Anti-Parallel**

Difficulty to pass the valves...
1. **Gain Access**: Plan approach

Go all the way through the wrist
Using a straight 4F catheter

Anti-Parallel

**Phlebography**
1. **Gain Access**: Plan approach

Access far enough the endoAVF creation site to leave space for the device

**Radial Artery Access through the wrist**

Anti-Parallel
1. **Gain Access**: Plan approach

**Radial Artery Access through the wrist**

Anti-Parallel

- micro-puncture set
- 0.014-inch mini guidewire under ultrasound guidance
- guidewire advanced to the radial artery under fluoroscopy
- 4Fr sheath is inserted

- 0.5mg/kg of heparine per-operatively
2. Navigate devices to target creation site

Arterial guidewire advanced (V14 guidewire)
2. Navigate devices to target creation site

Vein device advanced first

Radial Artery Access Site
endo AVF Creation Site
Brachial Vein Access Site
2. Navigate devices to target creation site

Arterial device advanced afterwards

Radial Artery Access Site

endo AVF Creation Site

WavelinQ™ Radio-radial
4. Align devices then activate RF to create endoAVF

180° rotation to determine the right angulation

Alignement is verified
4. Align devices then activate RF to create endoAVF

Wrong rotation

If the devices are not aligned, take back the arterial device, rotate the devices and push it again (otherwise it can get twisted).

Right alignment
4. Align devices then activate RF to create endoAVF

Docking is verified

Final choice of the site of endoAVF creation

Remove guidewires
4. Align devices then activate RF to create endoAVF

RF is activated

Control imaging
5. Embolize deep brachial vein to divert flow superficially

- After endoAVF creation when coming from the brachial vein

Microcatheter placed above the elbow joint in the brachial vein

Coiling process with 10mm coil for a 5mm diameter vein

To improve target vein access, the deep flow to one of the brachial veins forces blood to the superficial veins
POSTOP FU

- Patients are started on:
  - 75 mg aspirin and 75 mg clopidogrel
  - daily through the 30-day follow-up period

- 1st duplex ultrasound at 6 weeks
- Then 12 weeks

No suture
6 weeks duplex ultrasound results

Cannulation diagram

Preferential basilar developpement
CLINICAL CASE #2

♂ 85 years old

Pre-dialysis: renal carcinoma treated by right partial nephrectomy and left nephrectomy

Clearance: 19mL/min

Hypertension
COPD
Dyslipidemia
1. **Gain Access**: Plan approach

- **Parallel**

- **Phlebography**

  We recommend using a straight 4fr catheter too to make sure the guidewire does not cross in between deep veins
1. **Gain Access**: Plan approach

Radial Arterial Access through the wrist

Parallel Arteriogram
2. Embolize deep brachial vein to divert flow superficially

- *Before endoAVF creation when coming from the wrist*

**Navigation into the deep brachial vein from the radial vein**

**Microcatheter placed above the elbow joint**
2. Embolize deep brachial vein to divert flow superficially

• Before endoAVF creation when coming from the wrist

Coils in the deep brachial vein
12x40 (vein Ø5-6mm)
3. Navigate devices to target creation site

Arterial device advanced

Access Site

endo AVF Creation Sites

WavelinQ™ Radio-radial
3. Navigate devices to target creation site
4. Align devices then activate RF to create endoAVF

Venous device advanced
Docking is verified

endo AVF Creation Sites

Access Site

WavelinQ™ Radio-radial
Early control

No suture

Artery

Basilic Vein

Cephalic Vein

Early oozing

endoAVF

Vein

Artery
• **Antispasmodic cocktail ready:**
  • Risordan + isoptine

10 min later
Ultrasound postop

EndoAVF Chamber

Axial view

B Mode

Color
Ultrasound postop

EndoAVF Chamber

Longitudinal view

Color

Doppler
TAKE HOME MESSAGE

• 4 cases performed yet:
  • 2 with deep vein embolization, 2 without
  • 1 more coming up in 2 weeks
  • A protocole is under review to perform more and enter them in a registry

• EndoAVF:
  • Selective but very promising technique
  • Minimally invasive
  • Time efficient procedure
  • Highly reproducible / high technical success
  • High maturation rate
  • Low rate of complications / No scar or aneurysm in the arm
THANK YOU FOR YOUR ATTENTION
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