INITIAL EXPERIENCE WITH VENOUS WINDOW NEEDLE GUIDE (VWING) TO ASSIST CANNULATION OF DIFFICULT AVF IN AN ITALIAN HEMODIALYSIS CENTER (SP564)

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OBJECTIVES

To report initial results of a new vascular totally implantable device (VWING, *Vital Access Corp, Salt Lake City,* USA) (fig 1) in patients with difficult cannulation of AVF due to its depth (fig 2) or site. VWING combines the buttonhole technique (BT) for needle insertion.

Six devices were implanted in 4 patients between Oct. 2012 and Apr. 2014

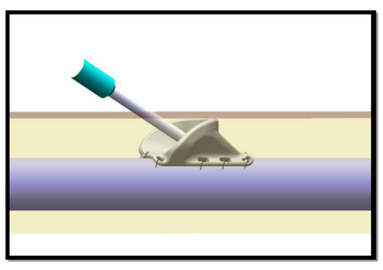

FIG 1

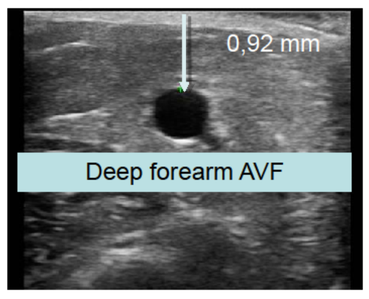

FIG 2

METHODS

The device is sutured to the superior wall of a matured AVF utilizing a surgical cut-down technique (fig. 3). The VWING remains in the extra-vascular, palpable subcutaneous position, facilitating access to the fistula by standard 16G sharp needle and subsequently blunt needle according to BT.

CASES

- Patient n.1 with deep radiocephalic AVF at venous cannulation site **1 VWING**
- Patient n.2 with radiocephalic AVF at venous cannulation site and previous manifold cannulation failures **1 VWING**
- Patient n.3 with deep radiocephalic AVF (fig 2) **2 VWINGs**
- Patient n.4 with brachiobasilic AVF (fig 3) **2 VWINGs**

Pre-operatory US mapping of AVF identified vessel depth and optimal location for implant

The VWINGs were implanted under local anesthesia (operatory time about 30'). No surgical complications occurred.

IMAGING

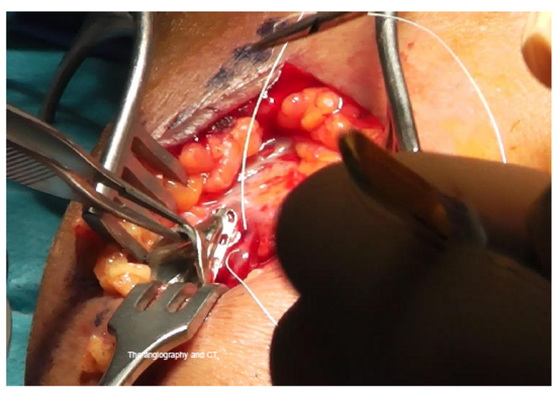

FIG 3: SURGICAL IMPLANT

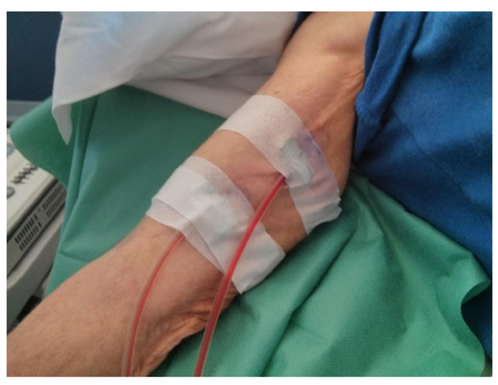

FIG 4: VWING BRACHIO-BASILIC AVF

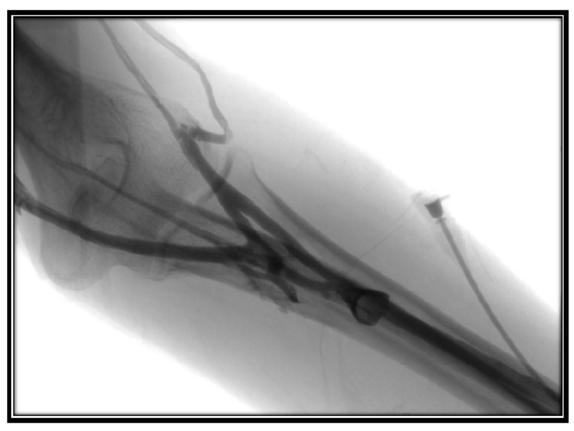

FIG 4: ANGIOGRAPHY

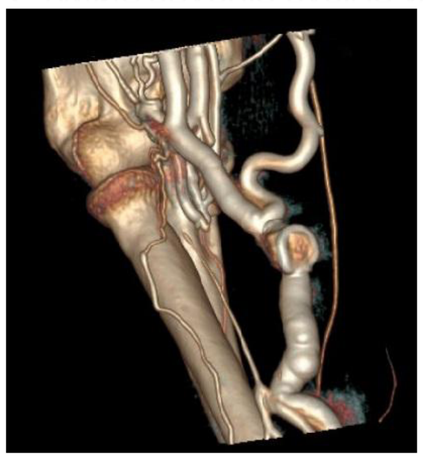

FIG 5: ANGIO CT SCANNING

RESULTS

- All 6 devices have been in use for 1,675 cumulative days since implant.
- First cannulation of VWING is feasibile 4-5 weeks after surgery when needed
- 1 AVF failure (thrombosis) due to post anastomotic stenosis (unrelated to device) was resolved by creating a new anastomosis thus allowing prompt resumption of VWING use
- No local or systemic infections have been detected
- Target blood flow in all AVFs was obtained in 95% of dialysis
- Rare cannulation failure (< 3%) was recorded in the first phase of use resulting in the need for new cannulation.
- Angiography (fig 4 - 1st case 10 months after surgery) and angio CT with Volume Rendering (fig 5 - 2nd case 14 months after surgery) detected no complications or evidence of stenosis
- Both patients and nurses expressed interest and appreciation

CONCLUSIONS

- VWING represents a new device for access to difficult AVF, with a simple technique of implantation and use, and an effective solution in selected cases
- Execution of correct buttonhole technique is mandatory
- The initial experience is encouraging, allowing us to cannulate AVF with established or foreseeable difficulties and avoiding more complex surgical intervention of superficialization or transposition
- The well-known risk of infection associated with BT has not been recorded and may possibly be reduced by the formation of in-growth tissue inside the device after surgery
- Further studies are needed to demonstrate the long term safety and efficacy of the vascular needle guide

REFERENCES:

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J Vasc Access 2013 Apr-Jun;14(2):164-9. doi: 10.5301/jva.5000152. Epub 2013 Apr 17.

DOI: 10.3252/pso.eu.51era.2014

Poster presented at: 51 ERA-EDTA CONGRESS AMSTERDAM 2014