Hemodialysis Reliable Outflow (HERO) Graft as an alternative for limited vascular access

Martin Schroeder, MD

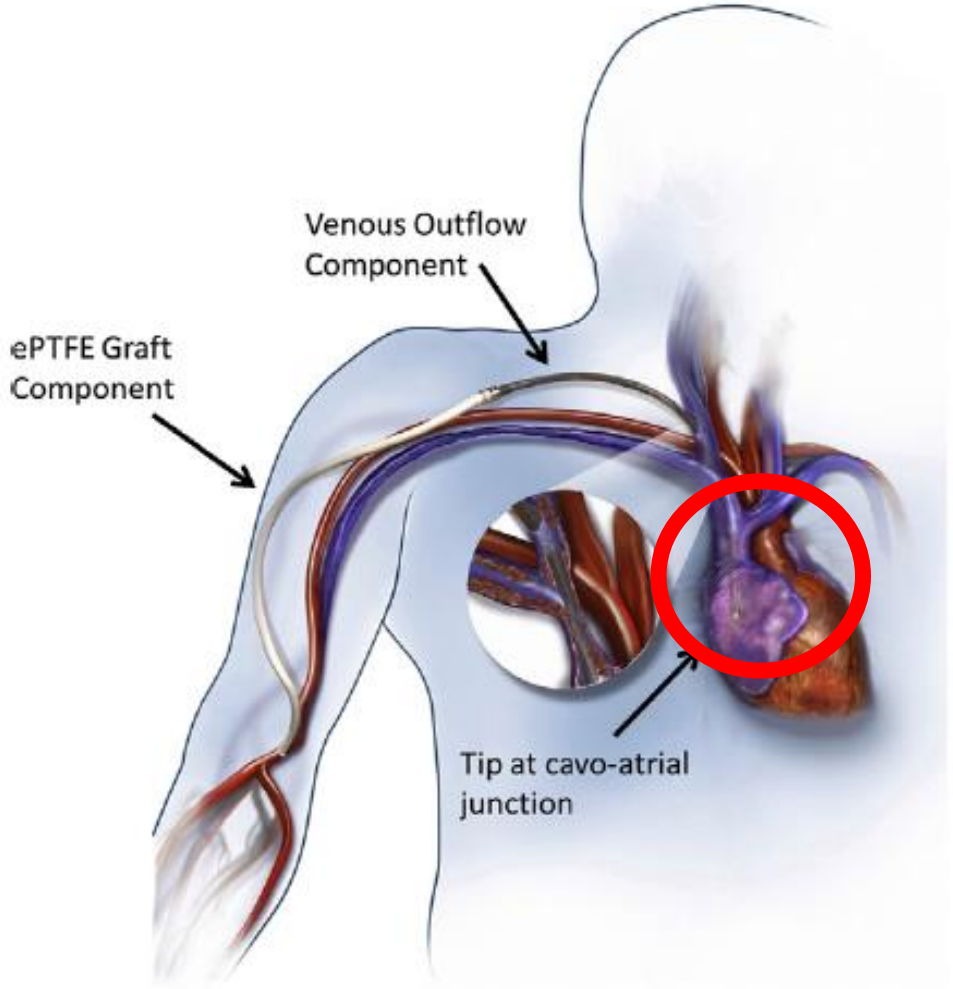
Vascular Surgeon

Clinic for Vascular and Endovascular surgery

Marienhospital Witten - Germany

HERO = Hemodialysis Reliable Outflow Graft

HERO = Hemodialysis Reliable Outflow Graft



FDA 2008

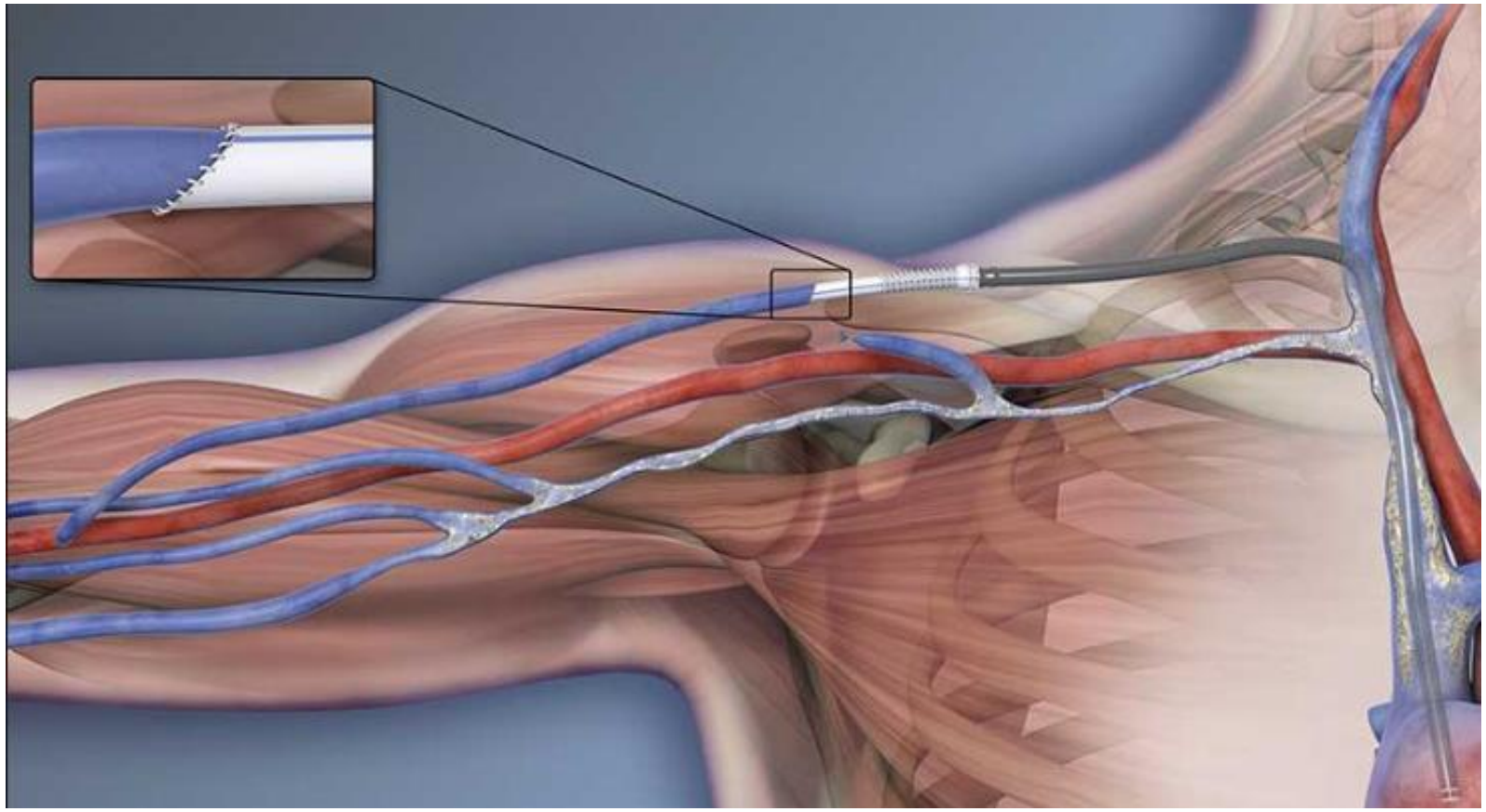
HERO Graft (Merit Medical)

HERO = Hemodialysis Reliable Outflow Graft

INDICATIONS

- Central venous Obstruction
- Exhausted venous situation
- Recurrent atrial catheter problems
- Shunt alternative to the thigh

HERO = Hemodialysis Reliable Outflow Graft



HERO - Case report

55 J. male on dialysis since 2004

Several Shunt-operations and dialysis catheters on both sides

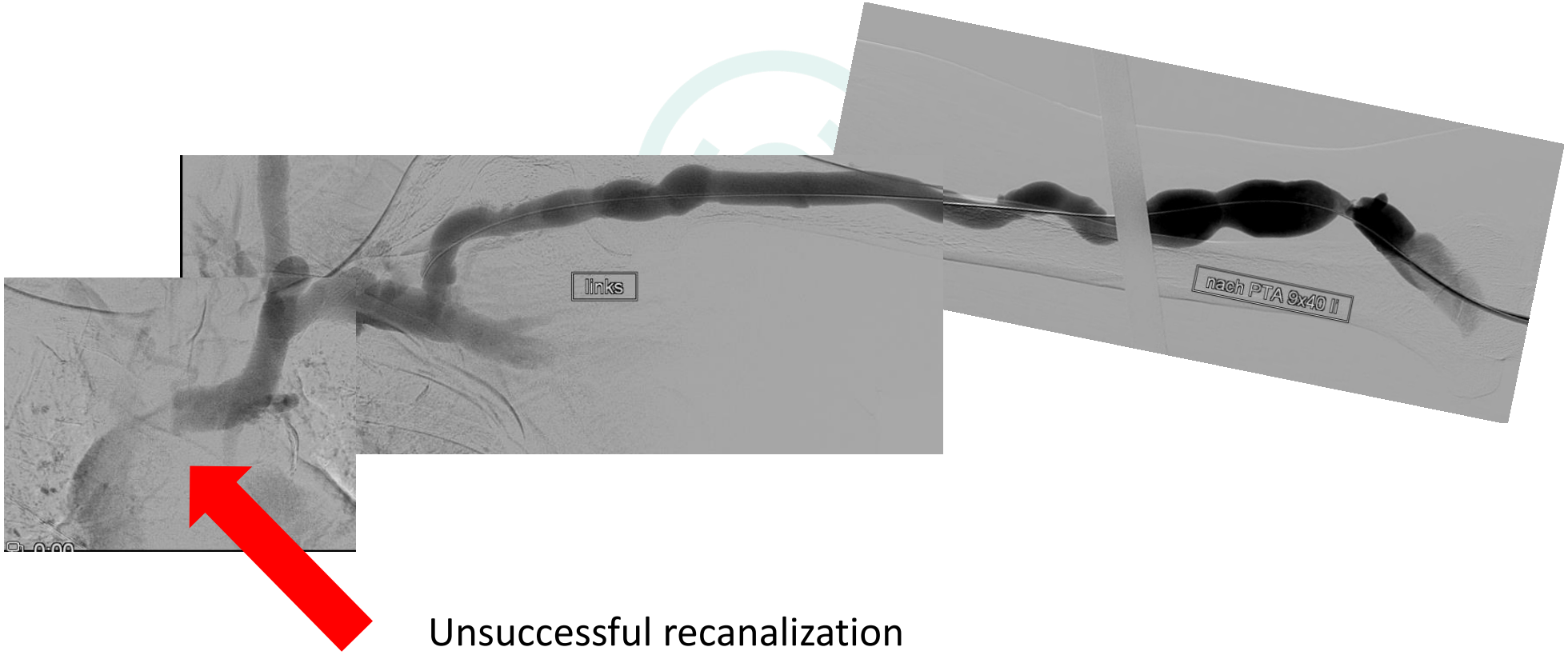
Brachiocephalic Fistula left arm 4/2014

Current symptoms:
Potassium >7mmol/l
Recirculation
Progressive arm swelling

HERO - Case report

VASCUPEDIA

05/2016

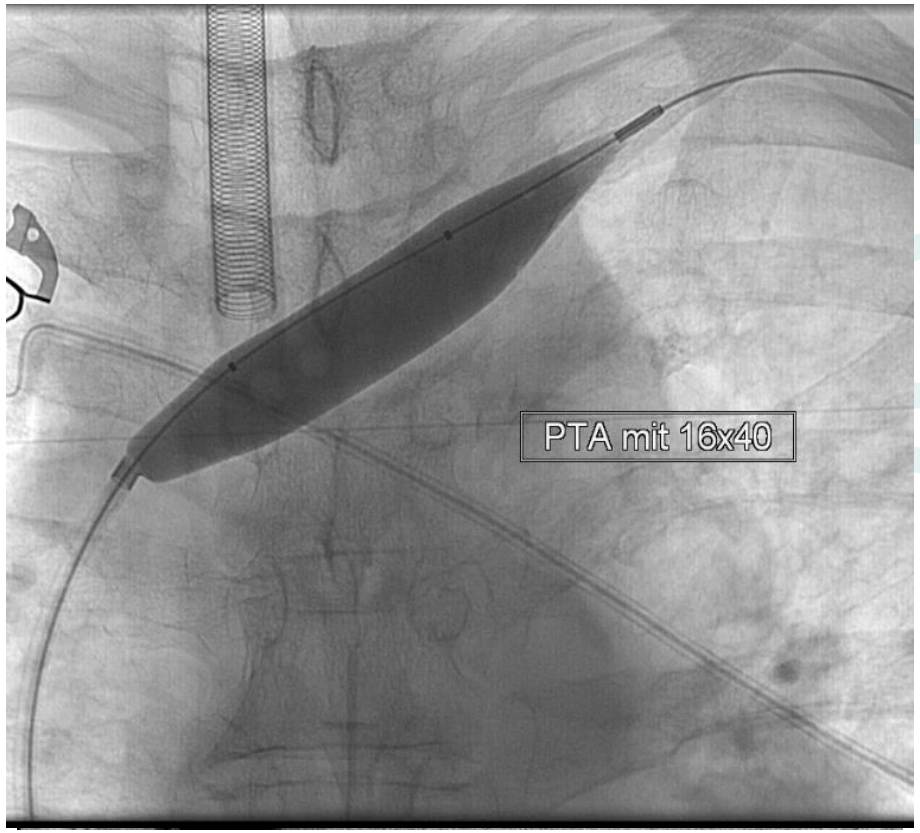


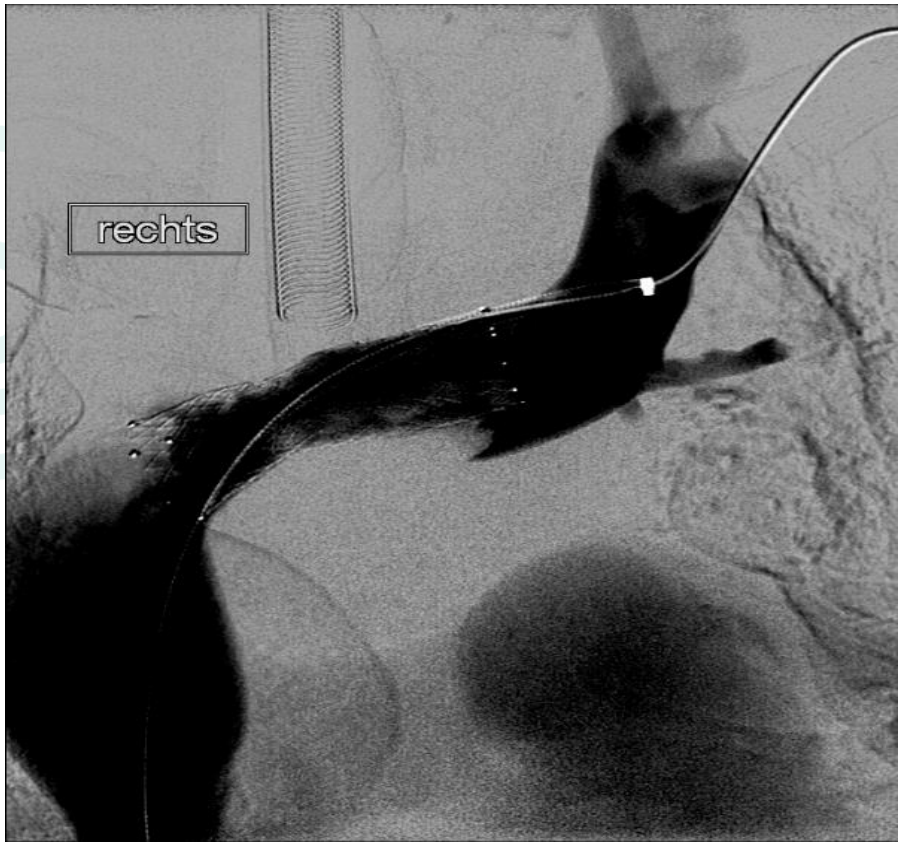
Unsuccessful recanalization

HERO - Case report

VASCUPEDIA

05/2016



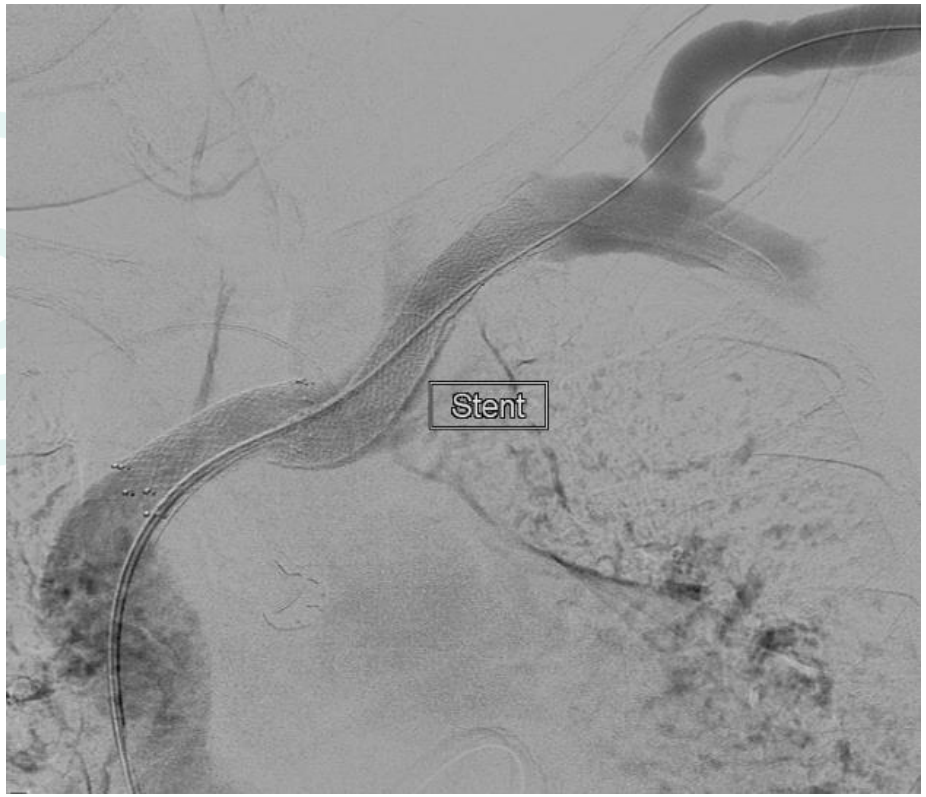


Recanalisation from femoral with 14x40mm Luminexx Stent

HERO - Case report

VASCUPEDIA

11/2016

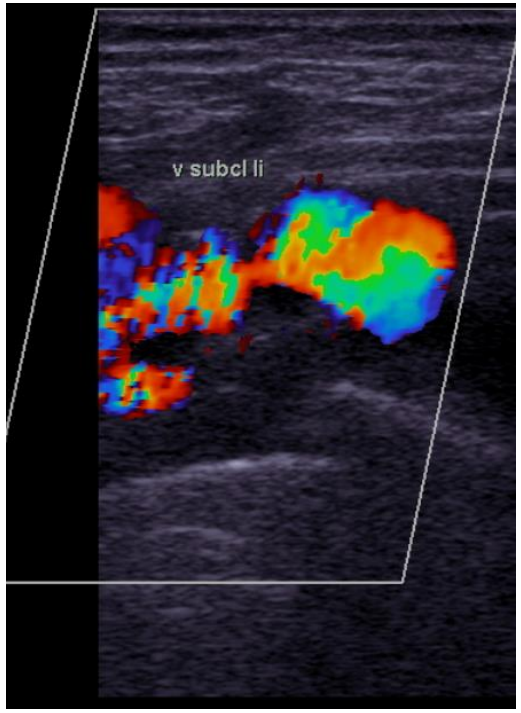


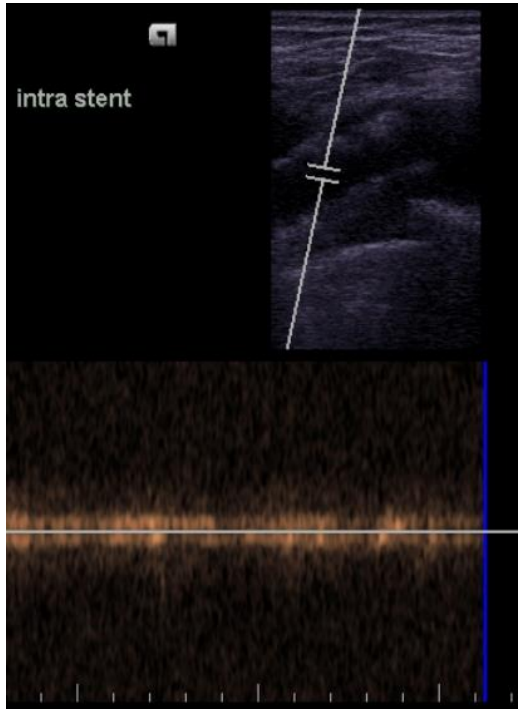
New stent in the dital part of the subclavian vein

HERO - Case report

VASCUPEDIA

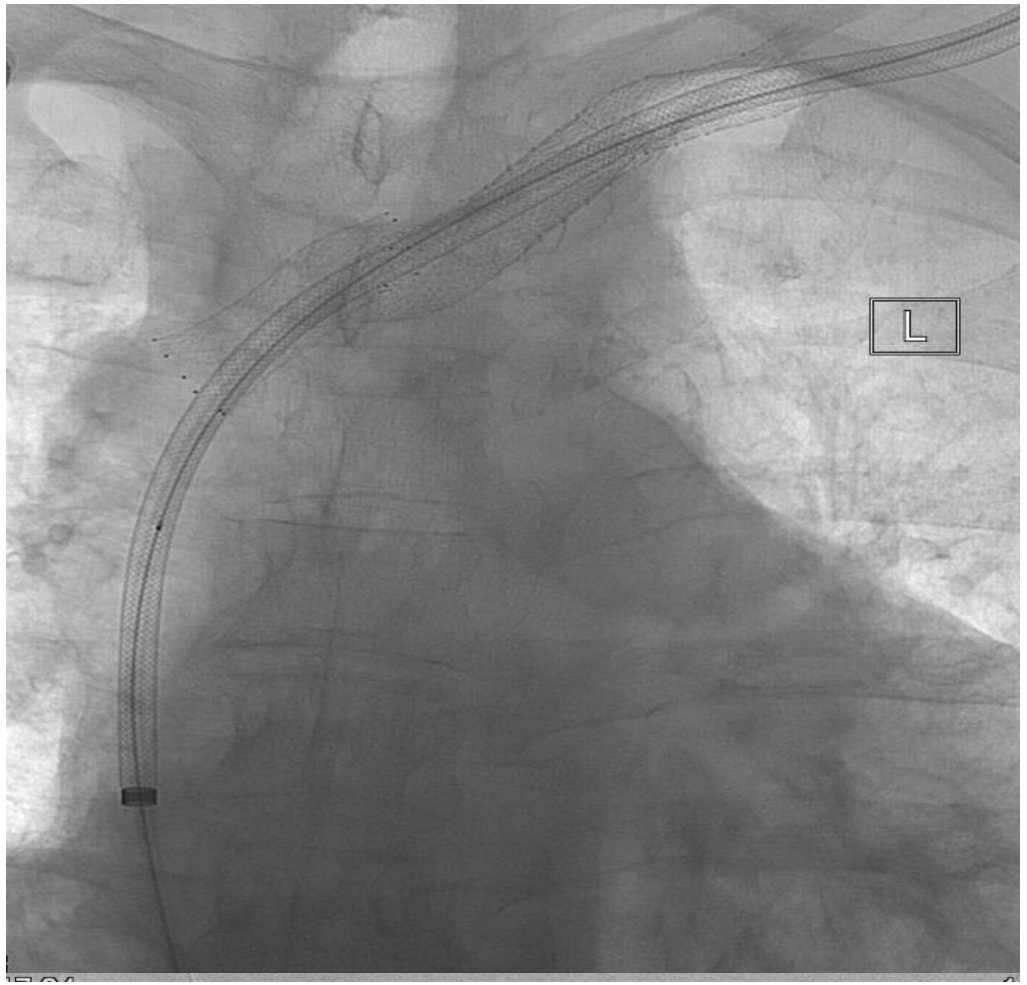
1/2017





HERO - Case report

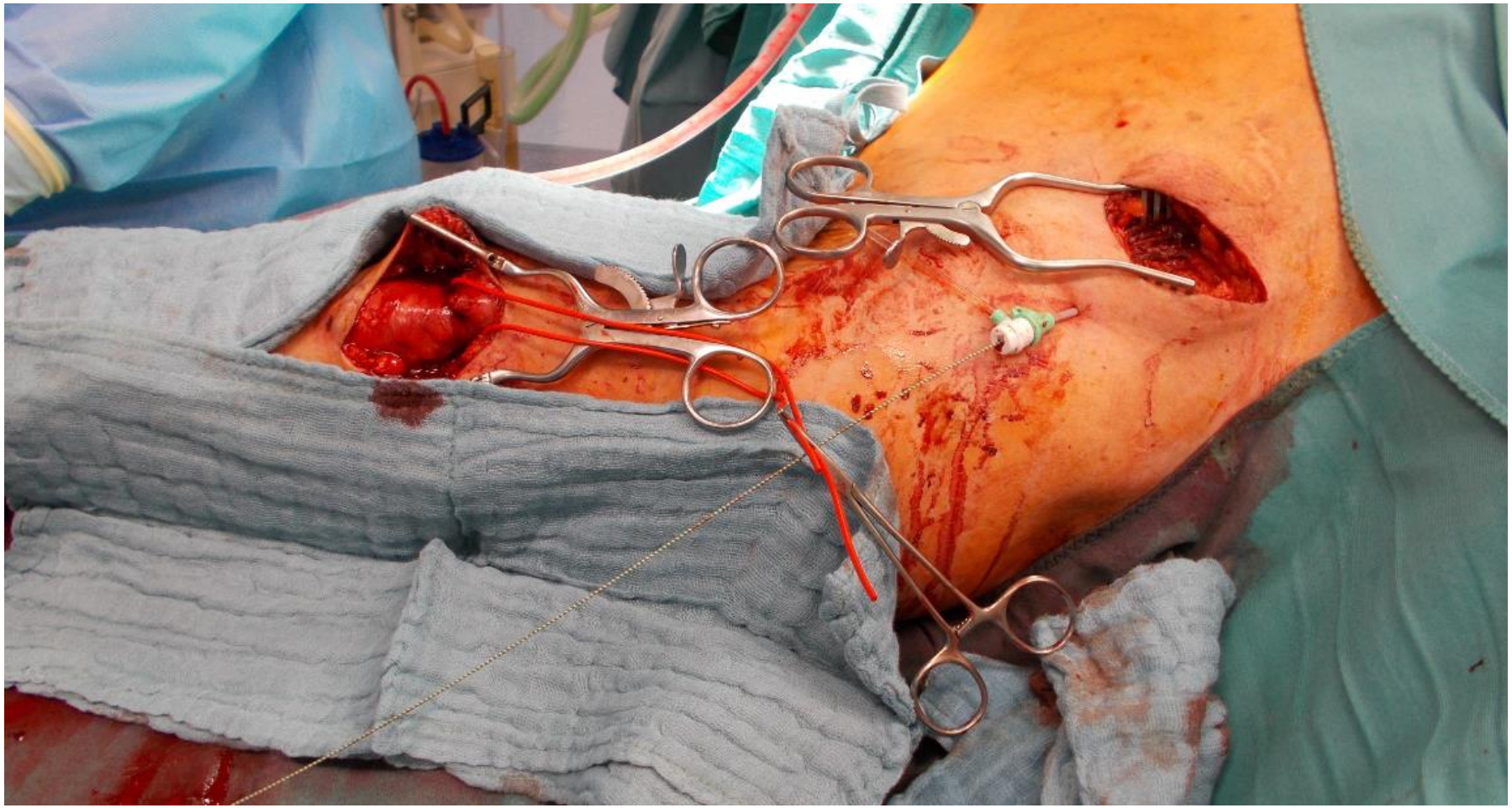
1/2017



Re-occlusion

Final treatment:
Implantation of the HERO – graft system

HERO - Case report



HERO - Case report

1. post op Day

Eur J Vasc Endovasc Surg (2015) 50, 108–113

REVIEW

A Review on the Hemodialysis Reliable Outflow (HeRO) Graft for Haemodialysis Vascular Access

J. Al Shakarchi [a,b,*], J.G. Houston [b,c], R.G. Jones [d], N. Inston [a,b]

[a] Department of Renal Surgery, QEHB, University Hospital Birmingham, Birmingham, UK
[b] ReDVA Research Consortium, University of Dundee, Dundee, UK
[c] Cardiovascular and Diabetes Medicine, University of Dundee, Dundee, UK
[d] Department of Radiology, QEHB, University Hospital Birmingham, Birmingham, UK

HERO- Review of the literature

VASCUPEDIA

Table 3. Summary table of HeRO outcomes of included studies.

Reference	Number of HeRO	Early failure rate (%)	Primary Patency rate (%)	Secondary Patency rate (%)	Dialysis access associated steal syndrome (%)	HeRO graft infection (%)	HeRO related bacteraemia per 1000 days	Rate of intervention per year	Mean time with HeRO (d/patient)
Katzman[5]	38	2.6	38.9[a]	72.2[a]	2.6	2.6	0.7	2.5	276
Gage[6]	164	NS	48.8	90.8	1.4	NS	0.14	1.5	NS
Steerman[7]	60	NS	15	57	1.7	22	0.61	2.2	NS
Kokkosis[8]	12	8.3	9.1	45.5	NS	25	NS	1.5	NS
Wallace[9]	21	14	11	32	22.2	NS	0.5	3	186
Nassar[10]	52	3.8	34.8	67.6	3.8	3.8	0.13	2.2	238
Kudlaty[11]	20	30	29	53.5	4.8	10	0.53	1.7	238
Torrent[12]	41	NS	8.4	53.7	NS	NS	NS	2.8	380
Weighed Pooled rate % (95% CI)		9.2 (1.9—19.9)	21.9[b] (9.6—37.2)	59.4[b] (39.4—78.0)	6.3 (1—14.7)	10.1 (2.5—21)			

NS = not specified.

[a] 8.6 months rates.

[b] Pooled rate excluding Katzman et al paper.

HERO- Review of the literature

VASCUPEDIA

European Journal of Vascular and Endovascular Surgery 44 (2012) 93–99

Contents lists available at SciVerse ScienceDirect

European Journal of Vascular and Endovascular Surgery

journal homepage: www.ejves.com

Multi-center Experience of 164 Consecutive Hemodialysis Reliable Outflow [HeRO] Graft Implants for Hemodialysis Treatment☆

S.M. Gage [a,*], H.E. Katzman [b], J.R. Ross [c], S.E. Hohmann [d], C.A. Sharpe [e], D.W. Butterly [f], J.H. Lawson [a,g]

164 patients in 4 centers @ USA

Average follow up time: 12.8 months

HERO- Review of the literature

VASCUPEDIA

Table 1
HeRO recipient demographics.

Demographic	% (*n*/*N*)
Age[a]	55.9 ± 14.3 (162) [21–88]
Male	48.8% (79/162)
Race	
Black/African American	78.3% (126/161)
White/Caucasian	13.0% (21/161)
Hispanic	8.7% (14/161)
Diabetic	46.3% (76/161)
Mean follow-up (months)[a]	12.8 ± 9.1 (164) [0.07–32.9]
Deaths	17.7% (29/164)

[a] Mean ± SD (N), [Range].

HERO- Review of the literature

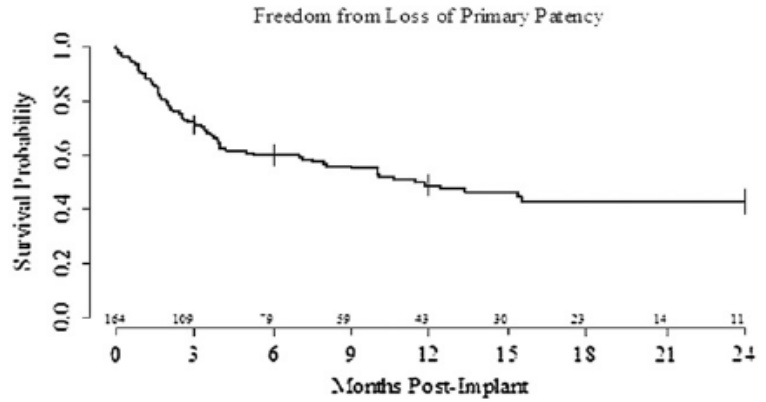


Figure 4. Kaplan–Meier curve illustrating primary patency. Standard error bars at 3, 6, 9, 12, and 24 months.

Primary patency @ 12 months: 49 %

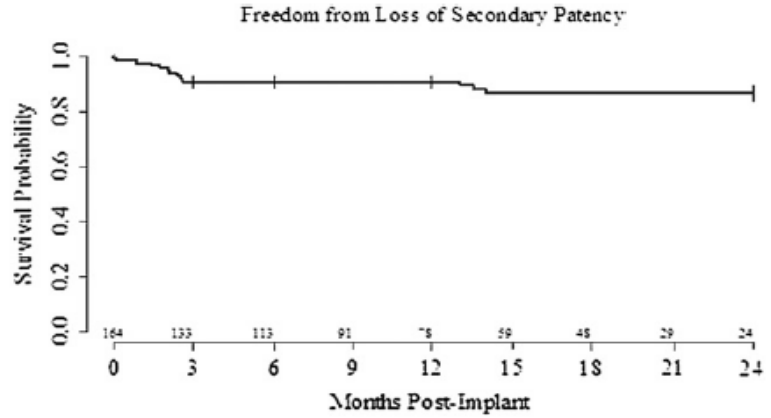


Figure 5. Kaplan–Meier curve illustrating secondary patency. Standard error bars at 3, 6, 9, 12, and 24 months.

Secondary patency @ 12 months: 91%

HERO graft - Conclusions

- **Hero catheter is a new alternative to complex dialysis access**
- **The catheter has low infection risk**
- **Controlled randomised trial comparing the HERO graft to alternative vascular accesses is still needed**