Step 3 – Iliofemoral disease


Western

Step 4 – Explore the utility of the technique in challenging cases

Step 5 – Experience with failure/secondary interventions

Lessons Learned

- Can perforate the SFA or EIA if not careful
  - Can be easily salvaged with covered stents
- Need common femoral disease to start endarterectomy
- Occlusion easier than stenosis
- Method of failure is neointimal hyperplasia, surveillance duplex is valuable
  - ? Role for DCB

Some other valuable use cases

What is the evidence for this technique?

Hybrid-based iliofemoral endarterectomy for severe and complete iliofemoral occlusive disease

Jessica M. Gowing, MD,[a] Michael J. Heidenreich, MD,[b] Crystal M. Kavanagh, MD,[c] *and* Abdulhameed Aziz, MD,[b] *Ypsilanti, Mich; and Toronto, Ontario, Canada*

Journal of Vascular Surgery
March 2021

Table I. Patient demographics and preprocedure variables

Indication	
Claudication	30 (48)
CLI	33 (52)
Type of CLI	
Gangrene	3 (9)
Rest pain	16 (49)
Tissue loss	14 (42)

CLI, Critical limb ischemia; *SD*, standard deviation.

Table III. Stent placement

Stent location	No. of procedures (N = 63) (% of total)	Extends into EIA	Additional EIA stent placed
CIA stent	47 (75)	21	10
EIA stent only	11 (17)	–	–
No stent placed	5 (8)	–	–

CIA, Common iliac artery; *EIA*, external iliac artery.

Table II. Procedure variables and outcomes

Variable	No. (%) or mean ± SD
Procedure time, hours	3.7 ± 0.1
Estimated blood loss, mL	482 ± 487
Length of stay, days	3 ± 3
90-Day mortality	1 (2)
30-Day readmissions	9 (15)
Patency rates	
Primary	57 (90)
Primary assisted	4 (97)
Secondary	2 (100)
Duration of follow-up, months	20 ± 21

~20% occlusion of ipsilateral internal Iliac artery

Remote iliac artery endarterectomy with selective stent use at the proximal dissection zone in TransAtlantic Inter-Society Consensus C and D lesions

Journal of Vascular Surgery
April 2019

Christian Uhl, MD,[a] Thomas Betz, MD,[a] Karin Pfister, MD,[b] Ingolf Töpel, MD,[a] *and* Markus Steinbauer, MD,[a]
Regensburg, Germany

Group 1 – No stenting post RE
Group 2 – CIA-EIA stenting of endpoint

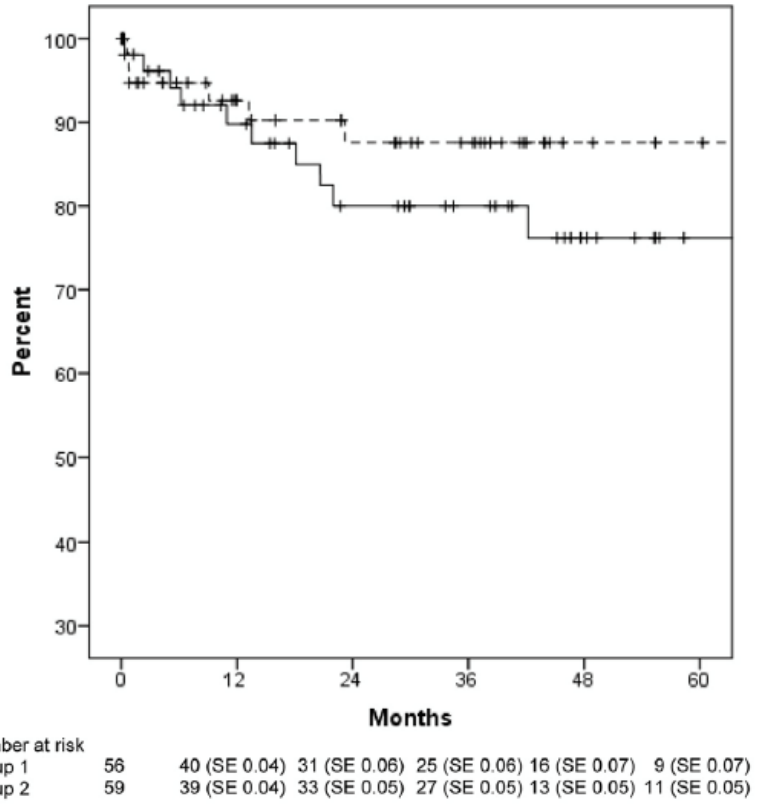

Fig 1. Primary patency, group 1 vs group 2 (89.8% vs 92.7% after 1 year [$P = .501$]; 76.2% vs 87.6% after 5 years [$P = .286$]). *SE*, Standard error.

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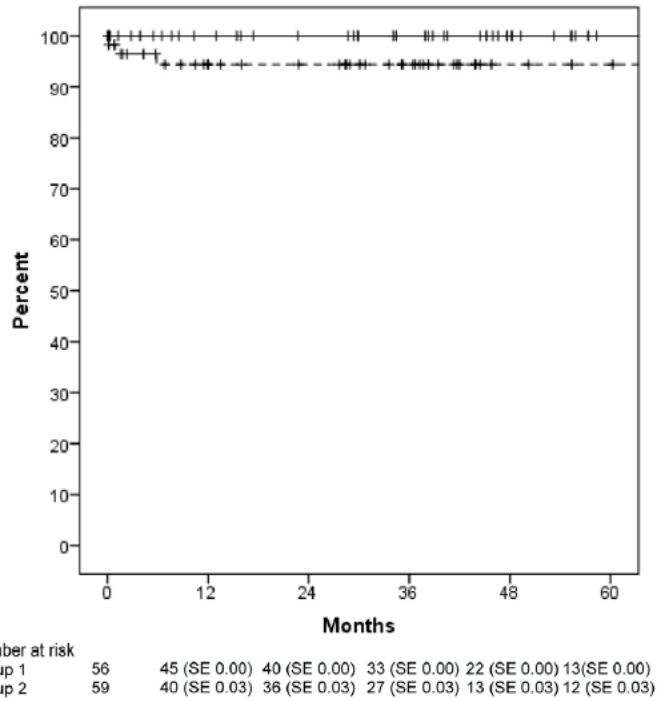

Fig 3. Limb salvage, group 1 vs group 2 (100.0% vs 94.5% after 1 year [$P = .084$]; 100.0% vs 94.5% after 5 years [$P = .084$]). *SE,* Standard error.

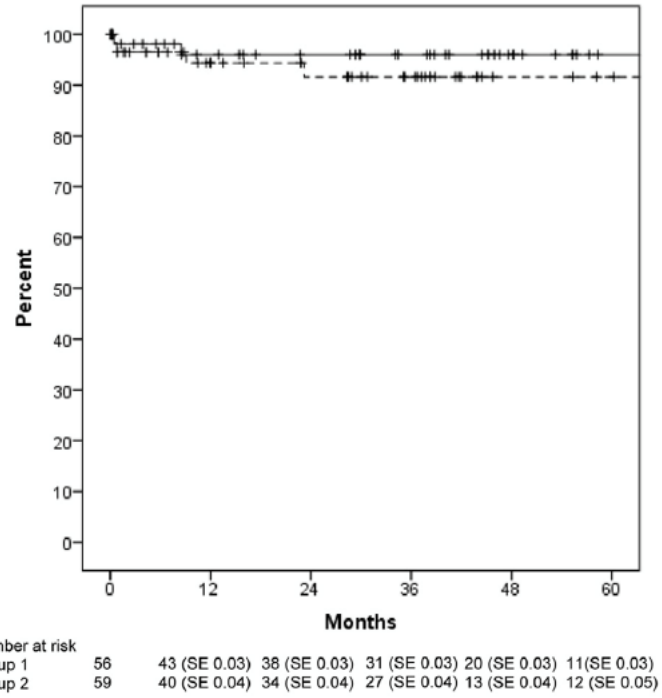

Fig 2. Secondary patency, group 1 vs group 2 (96.0% vs 94.3% after 1 year [$P = .697$]; 94.0% vs 91.6% after 5 years [$P = .435$]). *SE,* Standard error.

Balloon-assisted remote external iliac artery endarterectomy: A safe and durable technique for the treatment of iliac artery occlusive disease

John P. Henretta, MD,[a] Matthew A. Wagner, MD,[a,b] Lemuel B. Kirby, MD,[a] Michael G. Douglas, MD,[a] Douglas J. MacMillan, MD,[a] Sheri Denslow, PhD,[b] Marc Olivier Duverseau, MD,[a,b] Weldon K. Williamson, MD,[a] *and* Lynne C. Hampton, MBA, MHA, RN,[a] *Asheville, NC*

Table. Participant demographics and characteristics

	No.	%
Participants (N = 97)		
Age, years, mean ± SD	69 ± 9	
Sex		
Female	41	42.3
Male	56	57.7
Presentation		
Rest pain	29	29.9
Tissue loss	28	28.9
Claudication	40	41.2
Death	15	15.5
Treated vessels (N = 101)		
Occluded	32	31.7
Stenotic	69	68.3
Stent total	78	77.2
CIA	29	28.7
Transition	59	58.4
Both	10	9.9

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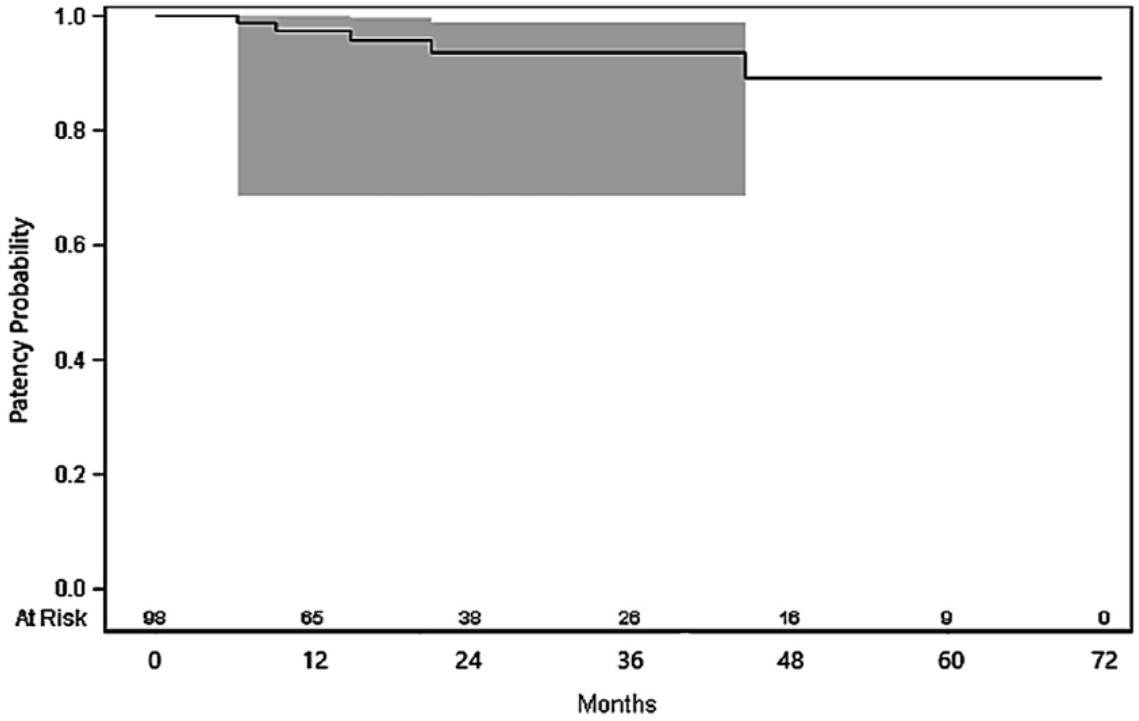


90% primary patency @ 5 years

Randomized controlled trial of remote endarterectomy versus endovascular intervention for TransAtlantic Inter-Society Consensus II D femoropopliteal lesions

JOURNAL OF VASCULAR SURGERY
December 2012

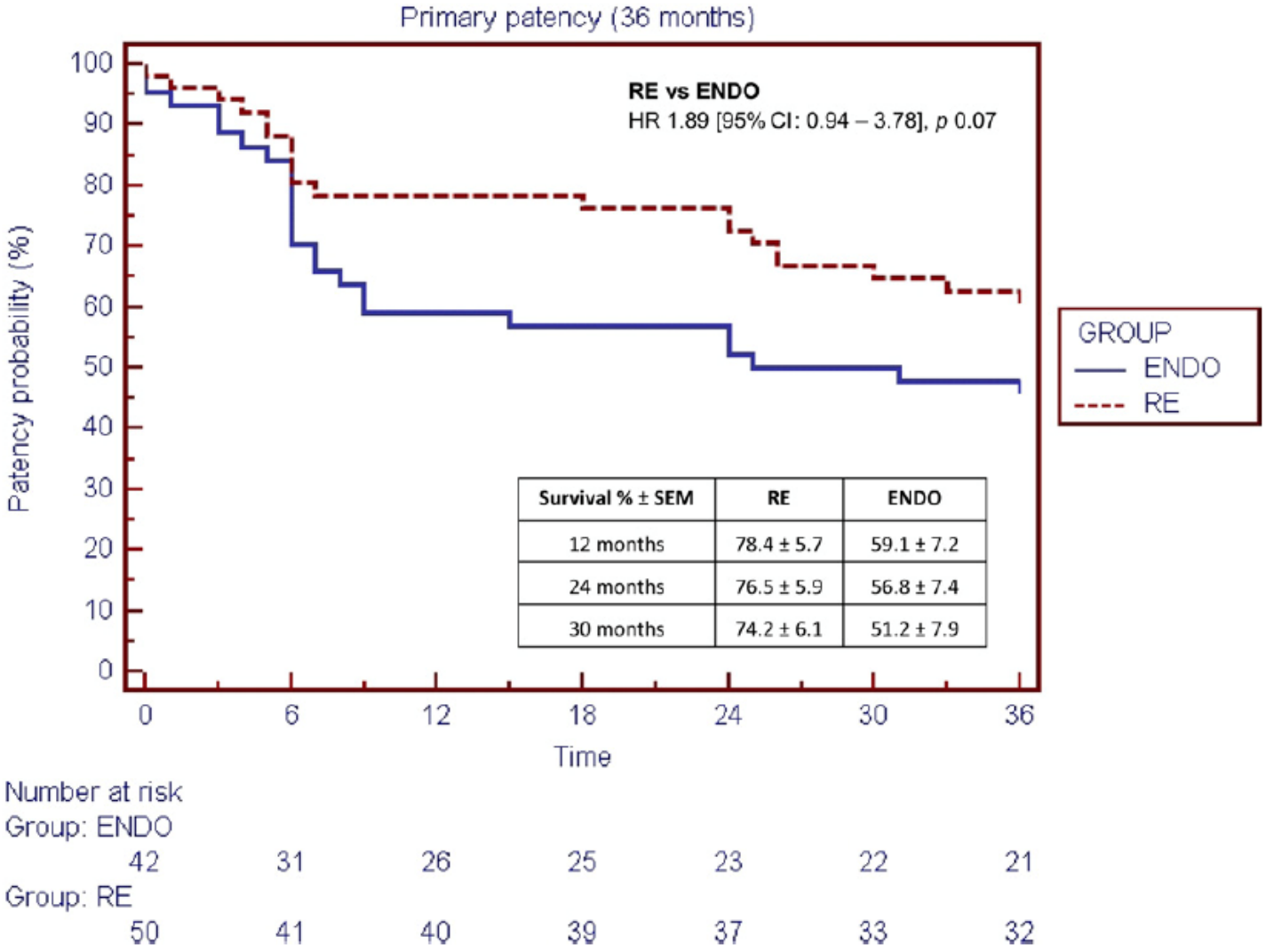
Roberto Gabrielli, MD, PhD,[a] Maria Sofia Rosati, MD, PhD,[b] Silvio Vitale, MD,[a] Giulia Baciarello, MD,[b] Andrea Siani, MD, PhD,[a] Roberto Chiappa, MD,[a] Giovanni Caselli, MD,[a] and Luigi Irace, MD, PhD,[a] *Rome, Italy*

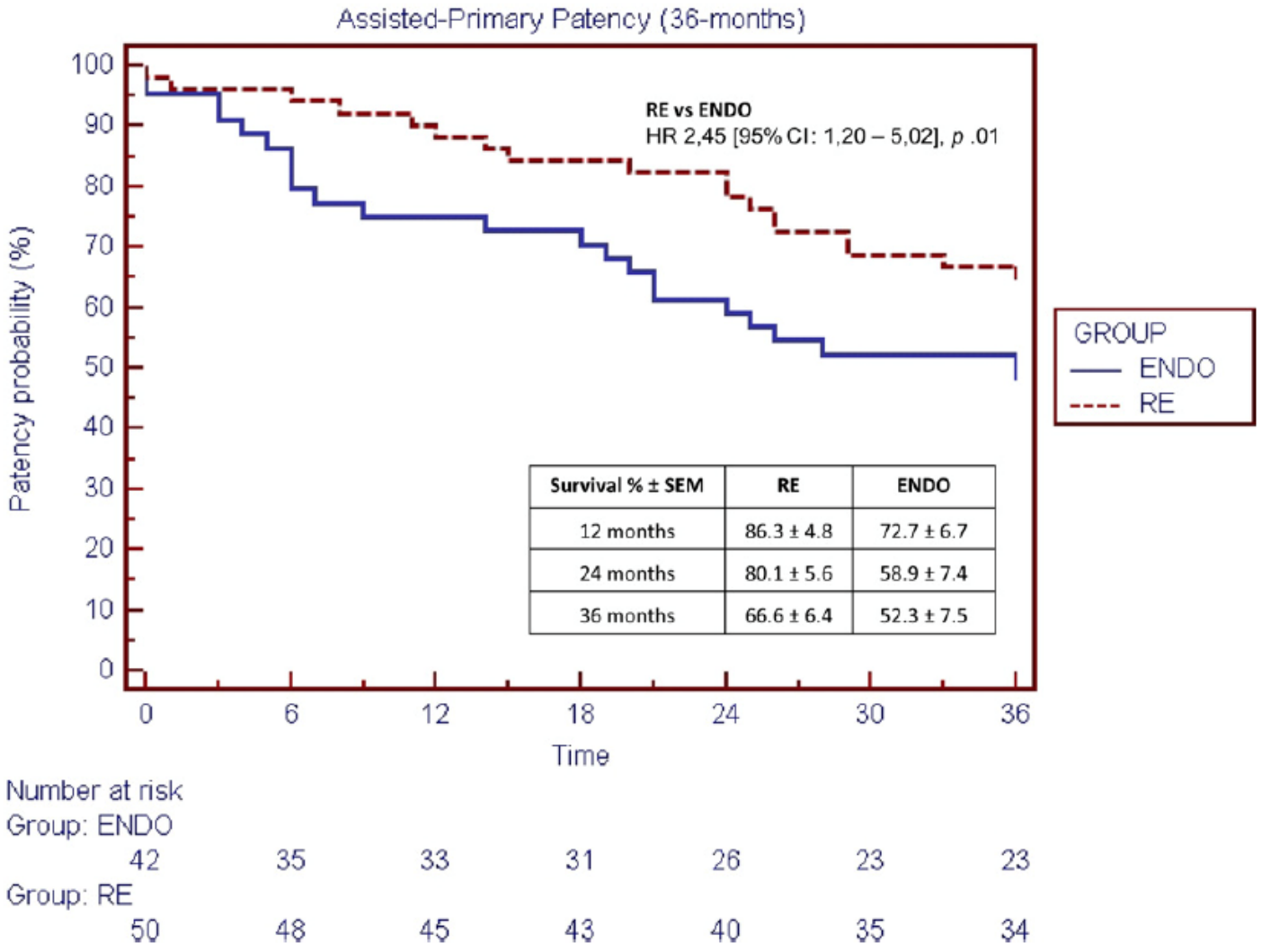
Table I. Baseline characteristics of the study population

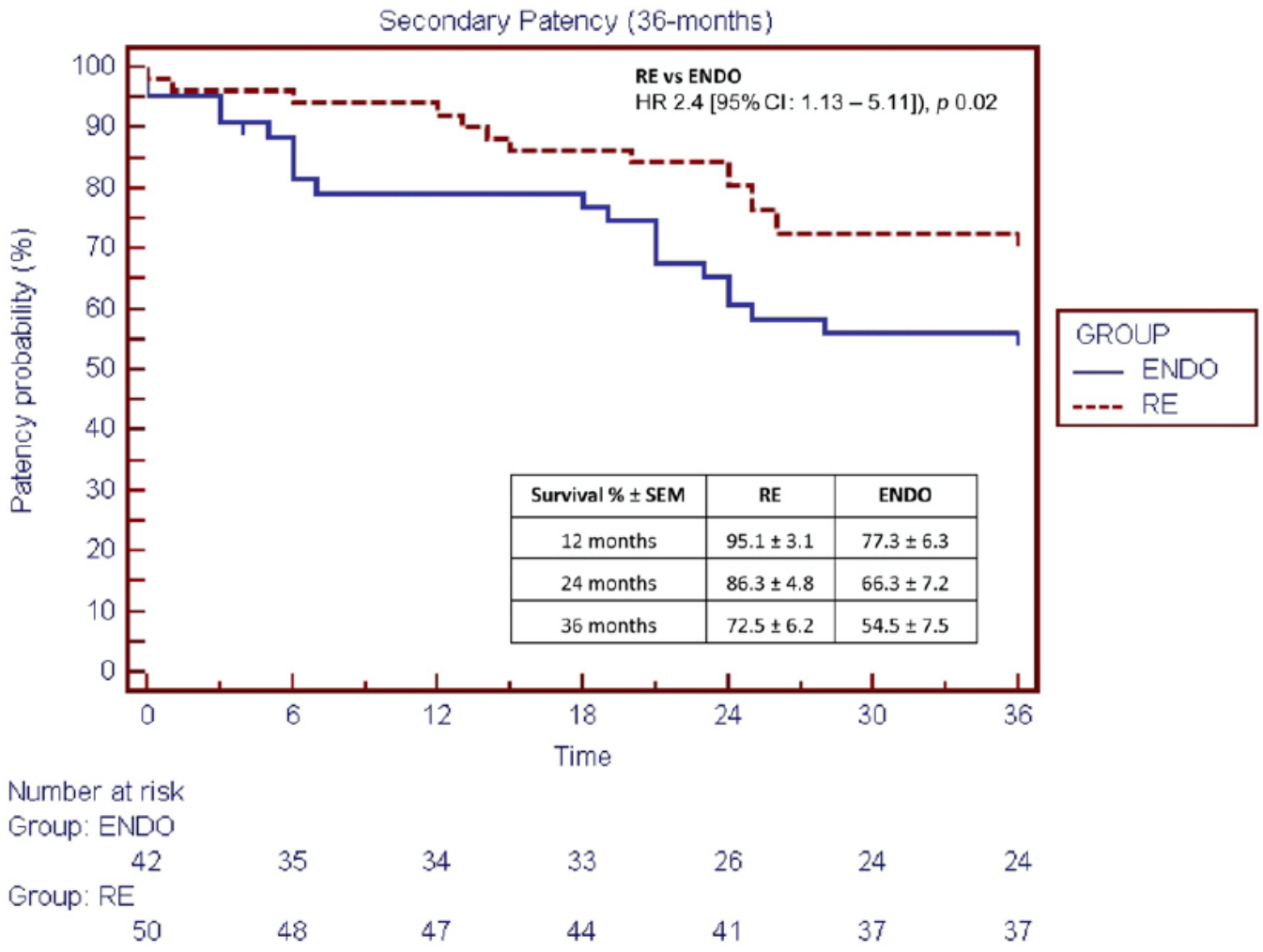
Variable	*RE (n = 51) No. (%)*	*ENDO (n = 44) No. (%)*	P
Sex			.90
Male	33 (65)	29 (66)	
Female	18 (35)	15 (34)	
Age >65 years	34 (67)	31 (71)	.69
Comorbidities and risk factors			
Diabetes	23 (45)	16 (37)	.39
Hypercholesterolemia	24 (48)	17 (39)	.41
Hypertension	35 (68)	33 (75)	.48
Renal failure[a]	7 (14)	8 (19)	.55
Smoking (current or recent)	36 (71)	33 (76)	.62
CLI (Rutherford 4)	25 (49)	18 (41)	.43
Gangrene (Rutherford 5)	6 (11.8)	5 (11.4)	.95

CLI, Critical limb ischemia; *ENDO,* endovascular treatment; *RE,* remote endarterectomy.

[a]Defined as creatinine <1.5 mg/dL.


Primary patency (36 months)
RE vs ENDO
HR 1.89 [95% CI: 0.94 – 3.78], p 0.07
Patency probability (%)
100
90
80
70
60
50
40
30
20
10
0
0
6
12
18
24
30
36
Time
GROUP
ENDO
RE
Survival % ± SEM | RE | ENDO
12 months | 78.4 ± 5.7 | 59.1 ± 7.2
24 months | 76.5 ± 5.9 | 56.8 ± 7.4
30 months | 74.2 ± 6.1 | 51.2 ± 7.9
Number at risk
Group: ENDO
42 31 26 25 23 22 21
Group: RE
50 41 40 39 37 33 32


Assisted-Primary Patency (36-months)
RE vs ENDO
HR 2,45 [95% CI: 1,20 – 5,02], p .01
Patency probability (%)
100
90
80
70
60
50
40
30
20
10
0
0
6
12
18
24
30
36
Time
GROUP
ENDO
RE
Survival % ± SEM | RE | ENDO
12 months | 86.3 ± 4.8 | 72.7 ± 6.7
24 months | 80.1 ± 5.6 | 58.9 ± 7.4
36 months | 66.6 ± 6.4 | 52.3 ± 7.5
Number at risk
Group: ENDO
42 35 33 31 26 23 23
Group: RE
50 48 45 43 40 35 34


Secondary Patency (36-months)
RE vs ENDO
HR 2.4 [95% CI: 1.13 – 5.11]), p 0.02
Patency probability (%)
100
90
80
70
60
50
40
30
20
10
0
0
6
12
18
24
30
36
Time
GROUP
ENDO
RE
Survival % ± SEM | RE | ENDO
12 months | 95.1 ± 3.1 | 77.3 ± 6.3
24 months | 86.3 ± 4.8 | 66.3 ± 7.2
36 months | 72.5 ± 6.2 | 54.5 ± 7.5
Number at risk
Group: ENDO
42 35 34 33 26 24 24
Group: RE
50 48 47 44 41 37 37

A prospective randomized trial on endovascular recanalization with stenting versus remote endarterectomy for the superficial femoral artery total occlusive lesions

Journal of Vascular Surgery
July 2022

Shoraan Saaya, PhD, Olesia Osipova, MD, Alexander Gostev, PhD, Artem Rabtsun, MD, Vladimir Starodubtsev, PhD, Alexey Cheban, MD, Pavel Ignatenko, PhD, *and* Andrey Karpenko, PhD, *Novosibirsk, Russian Federation*

Table I. Baseline characteristics

Characteristic of patients	Group EI (n = 119)	Group RE (n = 119)	*P* value
Male/female	88/31	91/28	.18
Age, years	63.34 ± 6.69	62.58 ± 7.82	.93
Rutherford			
Stage 3	25 (21)	20 (17)	.41
Stage 4	83 (70)	93 (78)	.14
Stage 5	6 (5)	4 (3)	.52
Stage 6	5 (4)	2 (2)	.25
The mean length of SFA lesion (ipsilateral), mm	289.6 ± 56.2	291 ± 54.2	1

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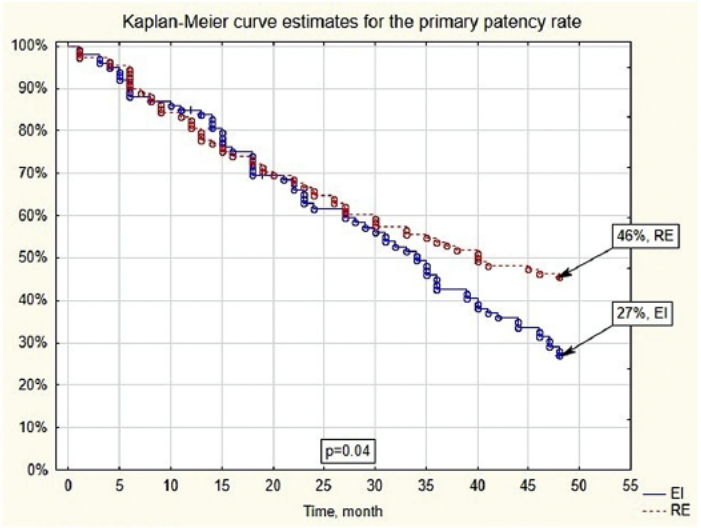
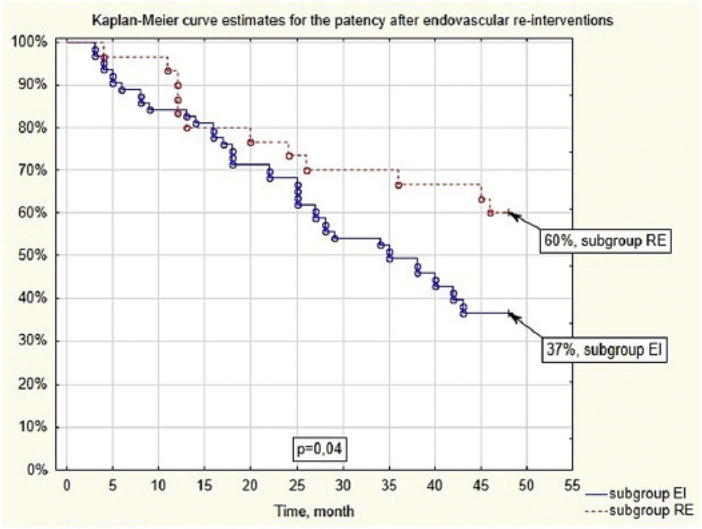


Number at risk

EI	119	111	106	100	92	86	82	68	61	53	43	32	26
RE	119	115	111	108	97	90	80	75	65	62	57	52	50

Fig 2. Kaplan-Meier curve estimates for the primary patency rates. *EI*, Endovascular recanalization with stenting; *RE*, remote endarterectomy.



Number at risk

EI	63	56	53	48	43	37	34	31	31	29	25	25	23
RE	30	29	25	24	23	21	21	21	21	20	20	20	18

Fig 3. Kaplan-Meier curve estimates for the patency rates after endovascular reinterventions. *EI*, Endovascular recanalization with stenting; *RE*, remote endarterectomy.

Femoro-popliteal bypass *versus* remote endarterectomy: a propensity matched analysis

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International Angiology 2024 June;43(3):358-66
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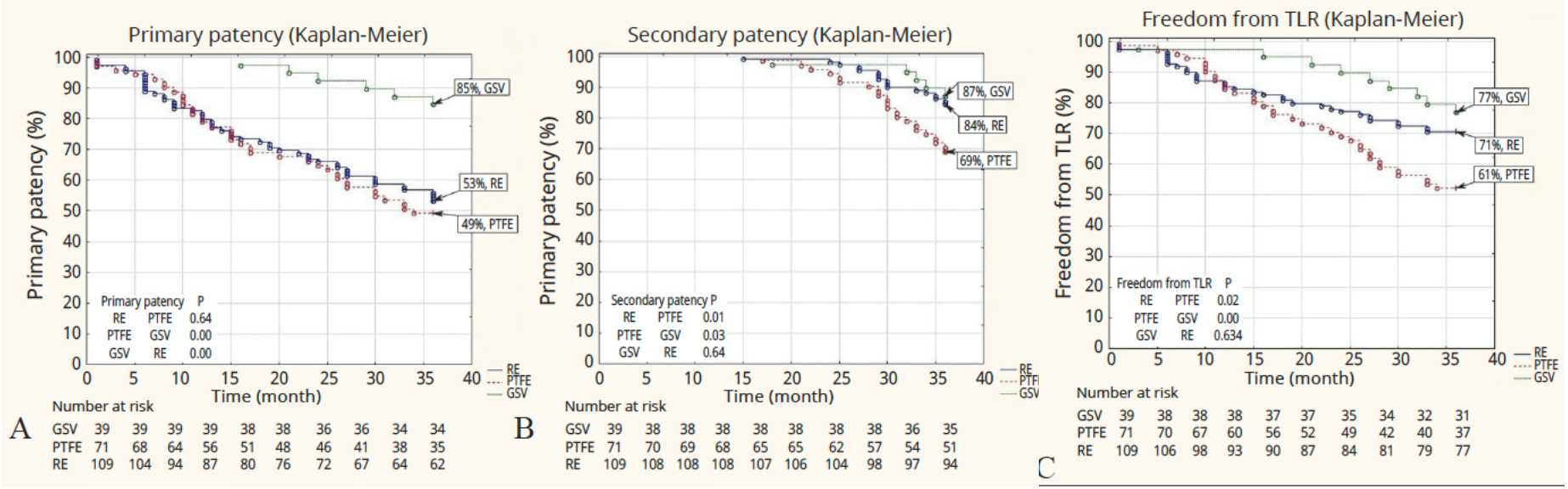

Western

Conclusions

- How has the introduction of Remote endarterectomy changed my practice?
- Fails forward very well – extended timeline of limb salvage (EndoRE, Endo, Bypass > any 1 alone)
- Multi-level iliofemoral occlusive disease
  - Always consider
- Femoropopliteal disease:
  - Only in cases where popliteal artery is open at some point distally
  - GSV > RE > Endo > PTFE