Mechanical Chemically Assisted Ablation of Varicose Veins For Venous Insufficiency

Position Statement of the American Vein & Lymphatic Society

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AMERICAN VEIN & LYMPHATIC SOCIETY

Disclosures

No financial disclosures

Society Guidelines *vs* Position Statements

Purpose
Guidelines: standardize treatment
Position: update and guide physicians
Basis recommendations
Guidelines: rigorous systematic literature review
Position: expert opinion and consensus
Development
Guidelines: $$ and ~ 2 years
Position: inexpensive and timely

Joshi GP et al. *Anesth Analg*. 2019 Dec;129(6):1767-1770

AVLS Position Statement

Members
John Blebea, Eri Fukaya, Keith S Moore, Fedor Lurie
Recommendations
Appropriate use, treatment technique, outcomes, adverse events
Reviewed
Edited and approved by the Guidelines Committee
Peer-Reviewed
Phlebology reviewers and editors

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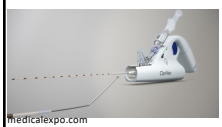
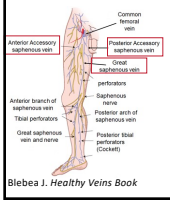
Mechano-Chemical Assisted Ablation (MOCA)

Non-thermal non-tumescent technique
Combines mechanical and chemical methods
ClariVein® - FDA 2008 / Europe 2010
Flebogrif® - Europe

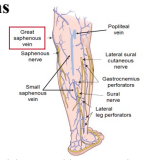


Approved Treatment

Superficial Vein Reflux
Great saphenous veins (GSV)
Small saphenous veins SSV)
Anterior saphenous veins (ASV)
Posterior accessory saphenous veins
Long tributary vessels



Blebea J. *Healthy Veins Book*



Blebea J. *Healthy Veins Book*

Advantageous Locations

Less risk nerve injury *vs* thermal techniques
Below-the-knee
Distal GSV & SSV

Initial Clinical Trials

First 1-6 months
Occlusion rates similar to RFA / EVLA (91-97%)
Faster procedure
Less procedural pain
Earlier return to work

Avoidance of injections for tumescent anesthetic and endovenous thermal application

Elias S et al. *Phlebology*. 2012; 27(2):67–72.
Vun S et al. *Phlebology*. 2015;30(10):688–92

Subsequent Results

Two-year results of a multicenter randomized controlled trial comparing Mechanochemical endovenous Ablation to RADiOfrequeNcy Ablation in the treatment of primary great saphenous vein incompetence (MARADONA trial)

Multicenter prospective randomized controlled trial
213 patients – occlusion rates:

	1 year	2 years
MOCA	84%	80%
RFA	94%	88%
	[p = 0.025]	[p = 0.066]

Holewijn S et al. *J Vasc Surg Venous and Lym Dis 2019;7:364-74.*

Results at 3 Years

Three-year results of a randomized controlled trial comparing mechanochemical and thermal ablation in the treatment of insufficient great saphenous veins

Sari Vähäaho, MD,[a] Karolina Halmesmäki, MD, PhD,[a] Osman Mahmoud, MD,[a,b] Anders Albäck, MD, PhD,[a] Katarina Noronen, MD, PhD,[a] *and* Maarit Venermo, MD, PhD,[a] *Helsinki, Finland; and Assuit, Egypt*

Multicenter prospective randomized controlled trial
125 patients – occlusion rates:

	3 years	
MOCA	80%	[p = 0.002]
RFA	100%	
Laser	100%	

Vähäaho S et al. *J Vasc Surg Venous Lymphat Disord 2021;9:652-9.*

Long Term Results

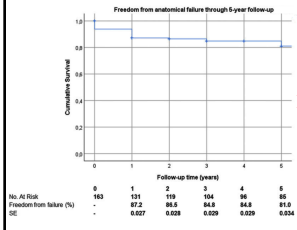
Phlebology
2024, Vol. 39(1) 9–19
DOI: 10.1177/02683555231202181
journals.sagepub.com/home/phl

Long-term results and predictors of failure after mechanochemical endovenous ablation in the treatment of primary great saphenous vein incompetence

Marianne E Witte , Suzanne Holewijn , Daphne van der Veen , Michel MPJ Reijnen and Clark J Zeebregts

Two prospective cohorts of patients
163 legs – mean follow-up 5.4 years

Decreased Anatomical Occlusion



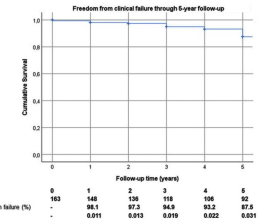
1 year..... 5 years
87% 81%

Progressive decrease in vessel occlusion each year

Witte MS et al. *Phlebology* 2024;39(10):9-19

Clinical Status

Decrease in VCSS ≥ 1 point

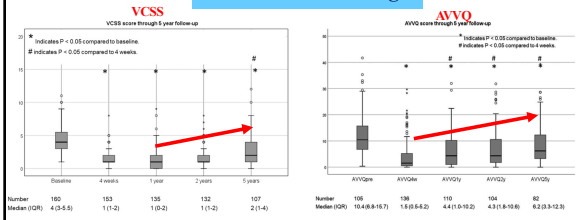


1 year.....	5 years
98%	88%

Clinical improvement persists but worsening

Witte MS et al. *Phlebology* 2024;39(10):9-19

Clinical Worsening



Progressive clinical worsening years 1 -5

Witte MS et al. *Phlebology* 2024;39(10):9-19

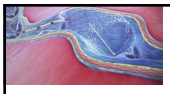
Why Discrepancy?

Greater anatomic occlusion *vs* Acceptable clinical status

Re-Intervention Rates 5 years	MOCA	EVLA
	21%	8%

Associated interventions required to maintain clinical improvement

Lim JM et al 23rd Annual Meeting of European Venous Forum, 2023.



Complications

Complication	Incidence
Hyperpigmentation	7-27%
Superficial thrombophlebitis	4- 9%
Ecchymosis	2-10%
Skin Infection	1-4%
Hematoma	0-24%
Deep venous thrombosis / ARTE	0 - 2.7%
Pulmonary embolism	0 – 0.5%

Position Statement Conclusions

- MOCA is effective in alleviating symptoms
- Safe treatment option for venous insufficiency
- No need for tumescent anesthesia
- Less procedural discomfort and thermal nerve injury
- Can use below knee and distal GSV/SSV

Phlebology

Mechanochemical chemically assisted ablation of varicose veins for venous insufficiency: American vein and lymphatic society position statement

2024, Vol. 0(0) 1–6

DOI: 10.1177/02683555241276554
journals.sagepub.com/home/phl

John Blebea[1], Eri Fukaya[2], Keith S Moore[3] and Fedor Lurie[4]

European Guidelines

European Society for Vascular Surgery (ESVS) 2022 Clinical Practice Guidelines on the Management of Chronic Venous Disease of the Lower Limbs

Marianne G. De Maeseneer , Stavros K. Kakkos , Thomas Aherne , Niels Baekgaa

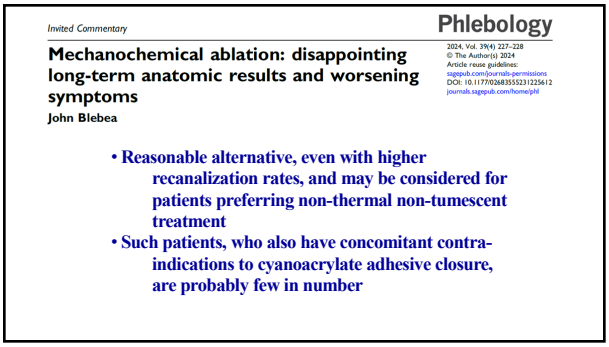
Recommendation 34 — New

For patients with great saphenous vein incompetence requiring treatment, mechanochemical ablation may be considered when a non-thermal non-tumescent technique is preferred.

Class	Level	References	ToE
IIb	A	Vos *et al.* (2017),[215] Holewijn (2019),[229] Mohamed *et al.* (2021),[230] Vähäaho *et al.* (2021)[232]	

- Evidence Level A: Randomized clinical trials
- Recommendation Class IIb: Efficacy less well established

Eur J Vasc Endovasc Surg (2022) 63, 184e267



Invited Commentary

Phlebology

2024, Vol. 39(4) 227–228

DOI: 10.1177/02683555231225612
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Mechanochemical ablation: disappointing long-term anatomic results and worsening symptoms

John Blebea

- **Reasonable alternative, even with higher recanalization rates, and may be considered for patients preferring non-thermal non-tumescent treatment**
- **Such patients, who also have concomitant contra-indications to cyanoacrylate adhesive closure, are probably few in number**