Table X. Radiofrequency ablation versus endovenous laser ablation
9 articles. 8 RCTs
Reference in same color means same RCT

Operative procedure	Reference	Summary
RFA *versus* EVLA	Almeida JI, Kaufman J, Oliver Göckeritz O, Chopra P, Evans M T, Hoheim DF, Makhou RG, Richards T, Wenzel C, Raines JK. Radiofrequency Endovenous Closure FAST *versus* Laser Ablation for the Treatment of Great Saphenous Reflux: A Multicenter, Single-blinded, Randomized Study (RECOVERY Study). *J Vasc Interv. Radiol*. 2009;20:752–759.	No data on center. 69 patients and 87 primary incompetent GSV. No data on SSV, deep vein. CEAP clinical classification not detailed **Group I** (n=40): RFA Closure Fast *versus* **Group II** (n=41): EVLA Diode 980-nm bare fiber Local tumescent anesthesia in both procedures **Results at 2 weeks of follow-up:** · All scores referable to pain, ecchymosis, and tenderness were statistically lower in the group I (ClosureFAST) at 48 hours, 1 week, and 2 weeks compared with group II. · Minor complications were more prevalent in the group II (P=0.021) · VCSS and HRQoL measures were statistically lower in the group I compared with group II No difference between groups in terms of postoperative vein occlusion and truncal reflux elimination
	Shepherd AC, Gohel MS, MD, Brown LC, Metcalf MJ, Hamish M, Davies AH. Randomized clinical trial of VNUS Closure FASTTM radiofrequency ablation *versus* laser for varicose veins.	Monocenter study 131 patients with incompetent primary GSV. Some patients with SSV incompetence or/and deep vein disease. CEAP clinical classification C2-C6. **Group I** (n=67): RFA Closure Fast

	Br J Surg. 2010;97:810-18.	*versus* **Group II** (n=61): EVLA Diode 980-nm, bare fiber General anesthesia for both procedures **Results at 6 weeks of follow-up:** . Less postoperative pain in group I compared with group II. P= 0,012-P=0,001 · Less analgesic consumption in group I compared with group II. At 3and 10 days respectively. P= 0,003-P=0.001 · HRQoL using AVVQ and SF-12: no difference between groups
	Gale SS. Lee JN, Walsh ME, Wojnarowski DL, Comerota AJ. A randomized, controlled trial of endovenous thermal ablation using the 810-nm wavelength laser and the ClosurePLUS radiofrequency ablation methods for superficial venous insufficiency of the great saphenous vein. *J Vasc Surg*. 2010;52: 645-50.	Monocenter study 118 symptomatic patients, 141 lower extremities with primary incompetent GSV... No data on SSV, deep vein. CEAP clinical classification not detailed **Group I** (n=58): RFA ClosurePlus *versus* **Group II** (n=60): EVLA Diode 810-nm bare fiber 24 bilateral. 94 unilateral Local tumescent anesthesia for both procedures **Results at 1-4 weeks to 1 year of follow-up:** · Less bruising and discomfort in group I compared with group II at 1week. (P=0.01) but no difference at 1 month. . The mean VCSS score change from baseline to 1-week post-procedure was higher for RFA compared to EVLA. P = 002, but there was no difference between groups at 1-month P=0.07 and 1 year. P =0.9 . More frequent recanalization at 1 year in group I compared to group II. P=0.002 . 1-year pain in group I compared with group II (P=0.002)
	Goode SD, Chowdurry A, Crockett M, Beech A, Simpson R, Richards,	Monocenter study 87 lower extremities with primary incompetent GSV.

	Braithwaite BD. Laser and Radiofrequency ablation Study: a randomized Study comparing Radiofrequency Ablation and Endovenous Laser Ablation (810 nm). *Eur J Vasc Endovasc Surg* 2010;40:246-53.	No data on SSV, deep vein and CEAP clinical classification **Group I** unilateral disease (n=45): CELON RFiTT RFA in 23 limbs, and EVLA Diode 810-nm bare fiber in 22 limbs *versus* **Group II** bilateral disease (n=17) CELON RFiTT RFA in 17 limbs, and EVLA Diode 810-nm bare fiber in 17 limbs Phlebectomy in both groups when needed General anesthesia for both procedures **Results at 2 to 11 days of follow-up***:* · Group I: no significant difference between procedures in terms of post-operative pain, bruising and activity scores · Group II: less postoperative pain and bruising in the RFA cohort compared with EVLA
	Nordon IM, Hinchliffe RJ, Brar R, et al. A prospective double-blind randomized controlled trial of radiofrequency versus laser treatment of the great saphenous vein in patients with varicose veins. Ann Surg. 2011; 254:876-881.	Monocenter study Patients with primary incompetent GSV. No SSV incompetence, no deep vein anomaly, CEAP clinical classification C2-C6 **Group I** (n=80): EVLA Vari-Lase Bright tip 810 nm laser fibers *versus* **Group II** (n=79): ClosureFast General anesthesia. **Results at 1 week of follow-up:** · all GSV occluded. · Significantly less pain and bruising in group II compared with group I **Results at 3 months of follow-up:** Three out of 68 GSV reopened in group I and 2 out of 70 in group II. P=NS

	Shepherd AC, Ortega-Ortega M, Gohel MS, Epstein D, Brown LC. Davies AH. Cost-Effectiveness of Radiofrequency Ablation versus Laser for Varicose Veins. International Journal of Technology Assessment in Health Care. 2015;31:289-296.	Monocenter study 110 patients with primary incompetent GSV. Some patients with SSV incompetence or/and deep vein disease. CEAP clinical classification C2-C6 Group I (n=56): RFA Closure Fast *versus* Group II (n=54): EVLA Diode 980-nm, bare fiber General anesthesia for both procedures **Results at 6 months of follow-up:** EVLA and RFA result in comparable and significant gains in quality of life and clinical improvements at 6 months, compared with baseline values. EVLA is more likely to be cost-effective than RFA but absolute differences in costs and HRQOL are small and so there is a strong case for leaving the choice to clinician and patient preference.
	Bozoglan H, Mese B, Eroglu E, Erdogan MB, Erdem K, Ekerbicer KC et al. Comparison of endovenous laser and radiofrequency ablation in treating varicose veins in the same patient. Vasc & Endovasc Surg. 2016;50(1):47-51. DOI 10.1177/1538574415625813	Multi-center study 60 patients with bilateral primary symptomatic GSV incompetence with diameter > 5.5mm No data on SSV, no deep vein anomaly, CEAP classification not detailed There was no difference between the 2 LL treated either by EVLA on one leg and RFA in the other. **Group I** EVLA (n =60) 1470nm radial fiber, continuous withdrawal *versus* **Group II** RFA (n=60) radiofrequency energy from 25 W every 0.5cm distal aspect to 50 W/SFJ. under local anesthesia **Follow-up duration:** postoperative period Intraoperative and post-operative pain, analgesic requirement, time to return to activity and work in favor of group I but not statistically significant

		Minor complications less frequent in group I but not statistically significant
	Sydnor M, Mavropoulos J, Slobodnik N, Wolfe L, Strife N, Komorowski D. A randomized prospective long-term clinical trial comparing efficacy and safety of radiofrequency ablation to 980 nm laser ablation of the great saphenous vein. Phlebology 2017;32:415-424.	Multi-center study 200 symptomatic patients with bilateral primary symptomatic GSV insufficiency were treated either by EVLA or RFA supplemented by varicose tributary phlebectomy when needed. No previous intervention on VV. Some patients with SSV incompetence, no active or prior DVT. CEAP clinical classification C2-C6 **Group I** (n=100) EVLA 980 nm radial fiber, continuous withdrawal, 50 at 10W to 80 J/cm. *versus* **Group II** (n=100) RFA radiofrequency energy from 25 W every 0.5cm distal aspect to 50 W/cm at the SFJ. under local anesthesia. **Outcome was assessed at 1,6 weeks, 6 months,1 year and then at yearly intervals** -Post procedure pain, P <0.0001 and objective post-procedure bruising, P=0.0114 were significantly lower in group II. -At 6 months when taking in account VCSS in both groups were improved, with no significant difference. -There were 4 treatment failures in each group related to persistent reflux originating at the SFJ. Overall at long-term for both anatomic and clinical endpoints no modality achieved superiority over the other.
	Hamann SAS. Timmer-de Mik L, Fritschy WM, Kuiters GRR, Nijsten TEC , van den Bos RR · Randomized clinical trial of EVLA versus direct and	Monocenter study 451 patients with symptomatic primary incompetent GSV. No patient with ipsilateral SSV incompetence or/and deep vein disease. CEAP clinical classification C2-C6/ Group I (n=149): EVLA Diode 980-nm, bare fiber continuous pull back. Procedure failure 2

	indirect RFA for the treatment of GSV. B J Surg 2019;106:998-1004	*versus* Group III (n=152): dRFA continuous pull back. Procedure failure 2 *versus* Group III (n=149): iRFA Possible incompetent tributaries were not treated. Local tumescent anesthesia **Results at 12 months of follow-up**: *Complete occlusion rate, intention to treat* Group I=75.0. 0.007 versus dRFA Group II=59.9 <0.001 versus iRFA Group III =81.3 0.208 versus EVLA Significantly more adverse events were reported after treatment with EVLA (103) than after dRFA (61) and iRFA (65), especially more pain. VCSS improved significantly for all treatments with no significant differences between them. AVVQ scores also improved significantly for all treatments, but iRFA had significantly better scores than dRFA

Abbreviations: AVVQ=Aberdeen varicose vein questionnaire; ; dRFA=radiofrequency-induced thermotherapy; EVLA=endovenous laser ablation; GSV=great saphenous vein; iRFA= =VNUS ClosureFast™ ;LL=lower limb; RFA=radiofrequency ablation; HRQoL=Health-related quality of Life; SFJ=sapheno-femoral junction; VCSS=venous clinical severity score.