

**Table IX. Open surgery versus RFA.**

9 articles, 7 RCTs

Reference underlined in same color means same RCT

Operative procedure	Reference	Summary
Classic open surgery versus RFA	<p>Hinchliffe RJ, Uhbi J, Beech A, Ellison J, Braithwaite. A prospective randomized controlled trial of VNUS Closure versus surgery for the treatment of recurrent long saphenous varicose veins. <i>Eur J Vasc Endovasc Surg.</i> 2006;31:212-8.</p>	<p>Monocenter study            16 patients presenting bilateral REVAS with persistent GSV trunk. No data on SSV and deep vein            CEAP clinical class &gt; C2            One leg: RFA with VNUS Closure bipolar catheter on one lower limb versus            Other leg: redo-groin surgery (RGS)+Stripping            Anesthesia: no standardization  <b>Results at 10 days of follow-up:</b>            . Procedure shorter with VNUS compared with RGS. P = 0.02            . Less post-operative pain with VNUS compared with RGS. P=0.02            . Less bruising with VNUS compared with RGS. P=0.03</p>
	<p>Lurie F, Creton D, Eklof B, Kabnick LS, Kistner RL, Pichot O et al. Prospective randomized study of endovenous radiofrequency obliteration (Closure procedure) versus ligation and stripping in a selected patient population (EVOLVES Study). <i>J Vasc Surg.</i> 2003;38:207-14.</p>	<p>Multi-center study            GSV primary incompetence. No SSV incompetence. No deep vein anomaly.            CEAP clinical class C2-C4            80 lower limbs            Group I (n=44): VNUS Closure bipolar catheter versus            Group II (n=36): OS            Anesthesia: no standardization  <b>Results at 4 months of follow-up:</b>            . Return to normal activity shorter in group I compared with group II. P=0.02</p>

		<ul style="list-style-type: none"> <li>Return to work shorter in group I compared with group II. P=0.05</li> <li>Better HRQoL in group I compared with group II</li> </ul>
Lurie F, Creton D, Eklof B, Kabnick LS, Kistner RL, Pichot O, Sessa C, Schuller-Petrovic S. Prospective randomized study of endovenous radiofrequency obliteration (Closure) versus ligation and vein stripping (EVOLVEs) Two-year follow-up. <i>Eur J Vasc Endovasc Surg.</i> 2005;29:67-73.	<p>Multi-center study 85 patients (86 limbs) with primary GSV incompetence. No SSV incompetence. No deep vein anomaly. CEAP clinical class C2-C4 Anesthesia: no standardization Number of limbs assessed Group I VNUS Closure bipolar catheter Number of limbs assessed: 46 at year 1, 36 at year 2 versus Group II OS Number of limbs assessed: 20 at 1 year, 29 at year 2</p> <p><b>Results at 1-2 years of follow-up</b></p> <ul style="list-style-type: none"> <li>Similar clinical and DUS results in both groups (at least equal in group I to those of group II,</li> <li>Better HRQoL in group compared with group II.</li> </ul>	
Rautio T, Ohinmaa A, Perala J, Ohtonen P, Heikkiken T, Wiik H et al. Endovenous obliteration versus conventional stripping operating in the treatment of primary varicose veins: a randomized controlled trial with comparison of the costs. <i>J Vasc Surg.</i> 2002;35:958-65.	<p>Monocenter study. GSV primary incompetence not previously treated. No data on SSV and deep vein. No data on CEAP clinical classification Group I (n=15): VNUS Closure bipolar catheter versus Group II (n=13): OS General anesthesia</p> <p><b>Results at 2 months of follow-up</b></p> <ul style="list-style-type: none"> <li>Less post-operative pain in group I compared with group II. P = 0.017–0.036</li> <li>Shorter convalescence in group I compared with group II. P &lt; 0.001</li> <li>Cost-saving for society in employed patients in group I compared with group II</li> </ul>	
Perala J, Rautio T, Biancari F, Ohtonen P, Wiik H, Heikkinen T, Juvonen T. Radiofrequency endovenous obliteration	<p>Monocenter study GSV primary incompetence not previously treated. No data on SSV and deep vein. No data on CEAP clinical classification</p>	

	<p>versus stripping of the long saphenous vein in the management of primary varicose veins: 3-year outcome of a randomized study. <i>Ann Vasc Surg.</i> 2005;19:1-4.</p>	<p>Group I (n=15): VNUS Closure bipolar catheter versus Group II (n=13): OS. General anesthesia <b>Results at 3 years of follow-up</b> · No difference between groups in terms of clinical results</p>
	<p>Stötter L, Schaaf I, Bockelbrink A. Comparative outcomes of radiofrequency endoluminal ablation, invagination stripping and cryostripping in the treatment of great saphenous vein. <i>Phlebology.</i> 2006;21:60-4.</p>	<p>Mono center study 60 patients with GSV primary incompetence. No data on SSV and deep vein, no data on CEAP class Group I (n=20): VNUS Closure bipolar catheter versus Group II (n=20): HL+ invagination stripping versus Group III (n=20): HL+ cryostripping General anesthesia for both groups <b>Results at 1 year of follow-up</b> · No difference in the physician- assessed clinical status between the 3 groups · More satisfaction in group I compared with group II and III regarding operative procedure. P=0.001 and the cosmetic appearance. P=0.006</p>
	<p>Subromania S, Lees T. radiofrequency ablation vs conventional surgery for varicose veins-a comparison of treatment costs in a randomized trial. <i>EJVES.</i> 2010;39:104-11.</p>	<p>Multi-center study 88 GSV primary incompetence. No SSV incompetence. No deep vein anomaly. CEAP clinical class C2-C6 Group I (n=47): VNUS closure bipolar catheter versus Group II (n=41): OS. General anesthesia for both groups <b>Immediate post-operative outcome</b> · Procedure duration longer in group I compared with group II (P&lt;0.001) · Hospital cost more expensive in group I compared with group II</p>

	<p>Elkaffas KH, Elkashef O, Elbaz W. Great saphenous vein radiofrequency ablation <i>versus</i> standard stripping in the management of primary varicose veins- a randomized clinical trial. <i>Angiology</i>. 2011;62:49-54.</p>	<ul style="list-style-type: none"> <li>· Earlier return to work in group I compared with group II. P=0.006</li> </ul> <p>Monocenter study  Primary GSV and SFJ incompetence of 180 lower limbs.  No data on SSV and deep vein. CEAP clinical class C2-C5  Group I (n=90): VNUS closure bipolar catheter  <i>versus</i>  Group II (n=90): OS  RFA with local anesthesia, and OS with general anesthesia  <b>Immediate post-operative outcome</b></p> <ul style="list-style-type: none"> <li>· Lower overall complication rate in group I compared with group II</li> <li>· Shorter hospitalization in group I compared with group II. P= 0.001</li> <li>· More expensive procedure in group I compared with group II. P= 0.003</li> </ul> <p><b>Results at 2 years of follow-up</b></p> <ul style="list-style-type: none"> <li>· No difference between groups in term of VV recurrence rate.</li> </ul>
	<p>Sincos IR ,Baptista AP, Coelho Nieto F, Labropoulos N, Alledi LB, de Marins EM. Prospective randomized trial, comparing radiofrequency ablation and complete saphenous vein stripping in patients with mild to moderate chronic venous disease with a 3-Y follow-up. <i>Einstein (Sao Paulo)</i> 2019 May 2;17(2):1-8.</p>	<p>Multi-center study  40 patients with primary incompetence of the GSV or/and SSV  No previous DVT.  CEAP clinical class C2-C4  Group I (n=27): VNUS closure Fast catheter  <i>versus</i>  Group II (n=41): OS.  <b>Post- operative course</b>  No difference in terms of complications  Group I significant shorter length of hospital stay and absence from activities  <b>Outcome at 1-3 year</b>  No difference in terms of VCSS and AVQQ between the 2 groups</p>

**Abbreviations:**

AVVQ= Aberdeen varicose vein questionnaire; DUS= duplex ultrasound; DVT=deep venous thrombosis; GSV= Great saphenous vein; HL= High ligation; HRQoL= health-related quality of life; OS= Open surgery; High ligation + Saphenous stripping +/- Perforator ligation +/- tributary phlebectomy; REVAS, recurrence of VV after surgery; RFA Radiofrequency ablation; SFJ= saphenofemoral junction; SSV=small saphenous vein; VCSS= venous clinical severity score VV= varicose veins