



# Long term results after endovenous thermal ablation and open surgery of varicose veins

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**Introduction:** Minimal invasive techniques are progressively replacing conventional surgery in the treatment of varicose veins. In this study we present our experience with radio frequency ablation (RFA) treatment of varicose veins with now more than 10 years of follow up.

**Methods:** Between 01/2007 and 01/2008 RFA was used in 43 patients with varicose veins. During that time 55 patients were treated with open surgery with ligation of the sapheno-femoral/-popliteal junction and stripping. For RFA ClosureFast® catheter from Covidien® was used. Compression stocking was used for 6 weeks after interventions. Patients received clinical exam one day after intervention, clinical exam and duplex sonography after 1 day, 1 week, 6 months and annually during follow up. Follow up ranged 1 month – 11 years, mean follow up was 3.4 years in the open surgery group and 6.7 years in the RFA group, 68/98 (70%) completed follow up of at least 7 years.

**Tab 1: Patients characteristics for RFA and open surgery treatment group.** Patients with previous DVT received more frequently RFA for varicose veins treatment.

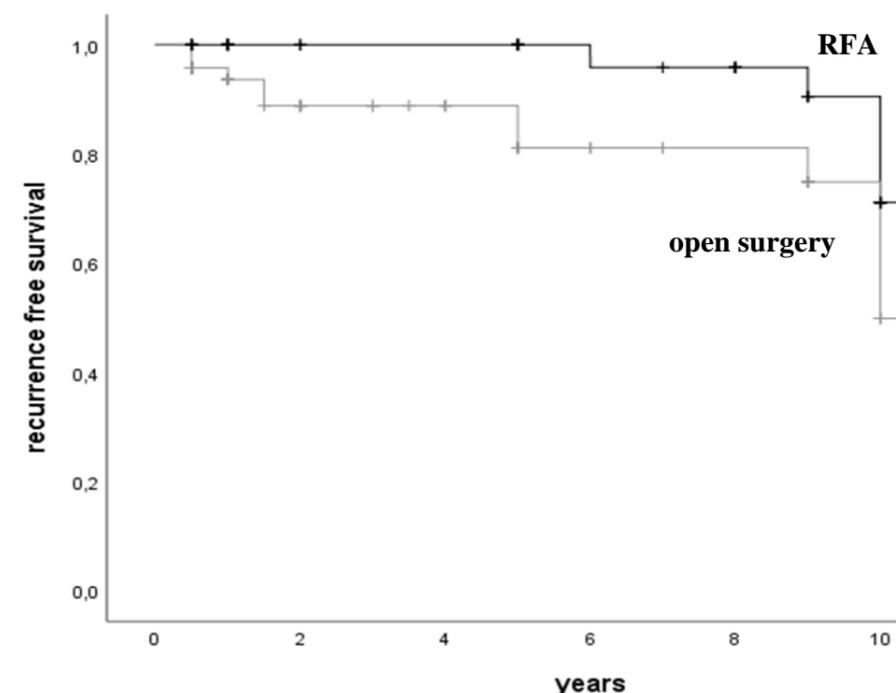
patients characteristics	RFA	open surgery	p
age	54	52.5	ns
gender (F/M)	23/8	29/7	ns
heart disease	2	2	ns
previous DVT	7	2	0.05
therapeutic anticoagulation	2	1	ns
BMI>25	4	5	ns

**Tab 2: Perioperative outcome after RFA and open surgery.** In our study group there were less paraesthesia after RFA than after ligation of the saphenous vein and stripping.

	RFA	open surgery	p
thrombophlebitis	1	1	ns
edema	1	0	ns
wound healing deficit	0	2	ns
paraesthesia	0	6	0.017

**Results:** Five patients received simultaneous interventions of 2 veins, other 5 patients were treated under oral anticoagulation. No reintervention or postoperative wound healing difficulties occurred after RFA, 2/55 (4%) patients presented with infection after open surgery. Immediate occlusion rate was 100%. Postoperative paraesthesia occurred in 8/55 (15%) after open surgery and in 1/43 (2%, p=0.03) after RFA. During follow up, partial recanalization was observed in 5 (11%) patients. 8 (19%) patients developed recurrent varicose veins after RFA and 10/55 (18%) after open surgery.

**Conclusion:** RFA and open surgery have acceptable and comparable results after a long term follow up.



**Fig 1: Long term outcome after RFA and open surgery with stripping\*.**

Recurrency rates after RFA and open surgery with ligation of the sapheno-femoral/-popliteal junction were similar (p=0.2)

Pat at risk	0	2	4	6	8	10
RFA	43	29	29	24	22	14
open surgery	55	31	26	17	13	9
<b>total</b>	<b>98</b>	<b>60</b>	<b>55</b>	<b>41</b>	<b>35</b>	<b>25</b>

\* recanalization rate : 5/43 (12%) after mean 2.3 years