

Cynthia K. Shortell, MD, Durham, NC

Endoluminal therapies have become increasingly popular in the treatment of symptomatic superficial venous reflux disease owing to numerous reports documenting reduced recovery time and short-term complications compared with standard high ligation and stripping. Additionally, reports demonstrating long-term results that are equivalent or superior to stripping with regard to closure, reflux, and recurrence have further bolstered the use of endoluminal techniques in the treatment of superficial reflux disease. Recently, however, some authors have voiced concern that the incidence of thromboembolic disease may be higher than previously believed, and therefore that caution should be used in using these therapies. In order to further elucidate the nature and natural history of these thromboembolic complications with regard to radiofrequency ablation (RFA), we recently reviewed our experience with RFA for superficial reflux at the University of Rochester. We also hoped to evaluate the impact of using a dedicated team and standardized protocol on the major outcome parameters such as success rate and incidence of venous thromboembolic events (VTEs). We studied 335 limbs (286 patients) undergoing RFA during 2004 at the University of Rochester. The majority of patients (236) were women, with a mean age of 46, and all were symptomatic (CEAP/C2 or greater). Successful closure was achieved in 99% of patients, and VTEs occurred in 0.7% of patients (none were life-threatening). Four patients with clot extension into the femoral vein were treated with clopidogrel, which resulted in resolution in all cases.

This report is the largest single academic center experience reported to date. However, there have been numerous prior

multicentered trials and registry reports of short- and long-term results of RFA in the treatment of superficial venous reflux (Tables 1 and 2).

Substantial data are now available with regard to long term follow up of RFA. In this regard, the major issue is the durability of RFA with respect to recanalization (with or without reflux) and recurrent clinical manifestations of superficial venous disease such as edema, pain, and varicosities. There is some evidence to suggest that neovascularity, or the development of small vessel networks, may be responsible in whole or in part for recurrence.

Currently available data suggest that both short and long term results of RFA for superficial reflux are excellent. The incidence of VTEs is low, and the vast majority of these events are of minimal or no clinical significance. It is likely that with RFA, as with all procedures requiring a measure of expertise, that experience and attention to detail improve results.

Table 1. Short-Term Results of RFA

Study	Success	VTE/Clot	Ext
	N	(%)	
Merchant et al, 2002 ¹	319	93	1.5%/0
Lurie et al, 2003 ²	86	92	0/0
Hingorani, 2004 ³	73	96	1.4%/15%

Table 2. Long-Term Results of RFA

Study	Follow-Up	Recanalization		Recurrent	VV (%)
		N	(%)	Reflux (%)	
Lurie et al, 2005 ²	2 yr	45	4	—	14
Merchant et al, 2002 ¹	2 yr	286	11	9	8
Merchant et al, 2005 ⁵	4 yr	98	11	14	21

References

1. Merchant RF, DePalma RG, Kabnick LS. Endovascular obliteration of saphenous reflux: a multicenter study. *J Vasc Surg* 2002;35:1190–6.
2. Lurie F, Creton D, Ecklof B, et al. Prospective randomized study of endovenous radiofrequency obliteration (Closure procedure) versus ligation and stripping in a selected patient population (EVOLVEs Study). *J Vasc Surg* 2003;38:207–14.
3. Hingorani AP, Ascher E, Markevich N, et al. Deep venous thrombosis after radiofrequency ablation of greater saphenous vein: a word of caution. *J Vasc Surg* 2004;40:500–4.
4. Lurie F, Creton D, Ecklof B, et al. Prospective randomised study of endovenous radiofrequency obliteration (Closure) versus ligation and vein stripping (EVOLVEs): Two-year follow-up. *Eur J Vasc Endovasc Surg* 2005;29:67–73.
5. Merchant RF, Pichot O, Myers KA. Four-year follow-up on endovascular radiofrequency obliteration of great saphenous reflux. *Dermatol Surg* 2005;31:129–34

NOTES