International Experience Using the 980 nm Laser: 7,000 Cases

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Endovenous laser ablation of the saphenous vein has been in clinical use in the United States for over 9 years. There are now many devices available for this treatment method using various laser wavelengths. To evaluate the clinical results of 980 nm lasers, an international registry consisting of established leaders in the field was established. This registry now has 7,611 limbs included in its database. The country of origin for the data, the number of limbs treated, and the immediate success rates as defined by the first postprocedural duplex scan are listed in Table 1. The complications associated with the procedure are listed in Table 2. Unfortunately, not all countries participated in this aspect of the registry, so only those reporting data are listed.

The development of ecchymosis following these procedures is common and, except for the report from Geneva, appears to occur to some degree in the majority of patients. However, personal experience proves that ecchymosis invariably resolves within 2 to 3 weeks and causes no short- or long-term issues other than cosmetic embarrassment.

The incidence of paresthesia following laser ablation with the 980 nm laser is infrequent and is probably no more than 3%. The wide variation seen in Table 2 may represent an incorrect interpretation of the word with some non-English-speaking centers ascribing any altered sensation (including discomfort) to this complication. As can be seen, centers in the Unites States reported paresthesia occurring in no more than 0.6% of limbs. The duration and severity of such paresthesia was not reported.

Superficial phlebitis was also uncommon (0.5 to 5.3%) and usually occurs in an area of the vein in which occlusion occurs by thrombus formation rather than endothelial ablation. This can usually be alleviated by lancing the involved area and expressing the liquid clot.

Skin burns are infrequent and should not occur if adequate tumescent anesthesia has been instilled around the saphenous vein under the saphenous investing fascia.

Deep venous thrombophlebitis (DVT) was fortunately also rare and only reported in 10 of 1,933 limbs treated in the United States. The location of the DVT (ie, common femoral or other deep veins) was not disclosed. In our experience, we have seen three extensions of clot into the common femoral vein following 213 procedures. All three resolved completely with no untoward result after 1 month of warfarin therapy (which was then discontinued). Only one pulmonary embolism has been reported in the 3,536 limbs followed up for this complication. This was not fatal.

Conclusions

Despite obvious deficiencies in the construction and reporting for this international registry, the overall reported experience proves that endovenous ablation of the saphenous vein using the 980 nm laser is safe and efficacious at least in the short term. The registry participants are now in the process of refining the data collection and expanding the program to include long-term follow-up since prevention of recurrent varicose veins is clearly the important end point of treatment.

Table 1. Country of Origin, Number of Limbs Treated, and Immediate Success Rates

Country	No. of Limbs	% Success
Argentina	2,017	97.7
Brazil	1,092	91.9
Brussels	152	97.0
Chile	100	100
England	120	96.6
Ecuador	586	98.0
France	156	99.4
Geneva	114	96.7
Germany	87	n/d
Italy	1,087	96.6
Peru	167	96.0
United States	1,933	94.9
Total	7,611	95.9

n/d = not disclosed.

Table 2. Procedure-Associated Complications

Country	Ecchymosis (%)	Paresthesia (%)	Phlebitis (%)	Burns (%)	DVT (%)	PE (%)
Brussels	52	41.5	1.3	1.3	0	0
England	100	3.2	5.3	0	0	0
France	100	1.3	1.3	0	0	0
Geneva	2.8	7.9	2.8	0	0	0
Italy	46.3	1.6	4.5	0.1	0	0
United States	97	0.6	0.5	0	0.5	0.05
Reported totals	76.61	2.3	2	0.5	0.3	0.03 (1/3,536)

DVT = deep venous thrombophlebitis; PE = pulmonary embolism.

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