

# Incompetent Great Saphenous Veins Treated with Endovenous 1,320-nm Laser: Results for 71 Legs and Morphologic Evolvement Study

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**BACKGROUND** Endovenous lasers with various wavelengths have been utilized with good outcomes in treating leg varicose veins. The natural history and evolution of treated veins after endovenous procedures, however, have seldom been addressed.

**OBJECTIVE** This study determines the efficacy vein ablation and serial venous morphologic evolution of incompetent great saphenous veins (GSVs) after endovenous 1,320-nm laser treatment.

**METHODS** Fifty patients with symptomatic varicose veins secondary to GSV insufficiency treated with 1,320-nm endovenous laser ablation were enrolled. The treated varicose veins in each limb were mapped and sized before laser treatment. Vein wall diameters were measured with duplex ultrasound at follow-up visits.

**RESULTS** Seventy-one limbs in 50 patients were enrolled. During the mean 13.1-month follow-up, closure of GSVs was observed in 94% of limbs (67/71). Vein diameters at 3 cm below saphenofemoral junction level were reduced to 81% at 2 days, 75% at 1 month, 48% at 3 months, and 39% at 5 months. Average mean duration for treated GSVs to narrow as fibrotic cords (internal diameter, <2.5 mm) was 5.8 months.

**CONCLUSION** The endovenous 1,320-nm laser ablation procedures have excellent efficacy in treating incompetent GSVs. This excellent shrinkage behavior may be the basis for nice long-term results of patients treated with 1,320-nm Cooltouch endovenous laser.

*Dynamic Medical Technologies, Inc., is appreciated for its use of a 1,320-nm Cooltouch laser in this study.*

Varicose veins are a common chronic disease afflicting roughly 28% of female adults.<sup>1</sup> In addition to disfigurement, varicose veins cause significant long-term morbidity, such as lower-extremity swelling, pain, eczema, ulceration, and bleeding.<sup>2</sup> One treatment option has been high ligation with stripping of the great saphenous vein (GSV). Although this therapy attains sufficient control for most patients, its complications are saphenous

nerve damage, hematoma, pain, and extended hospital stay.<sup>3,4</sup> Endovenous laser and radiofrequency devices have recently emerged as alternate treatment modalities for varicose veins that require limited downtime.<sup>5</sup> Recovery time is generally rapid because endovenous treatment is performed under local anesthesia and the vein segment treated is insulated from surrounding tissue using a tumescent solution. The Cooltouch endovenous laser (CTEV;

Cooltouch, Roseville, CA) is a unique endovenous laser for leg varicosity involving the GSV. In 2005, the U.S. Food and Drug Administration cleared the CTEV for treating short saphenous veins. The CTEV uses an infrared laser that emits a 1,320-nm wavelength for targeting water in blood and vein walls. Goldman and co-workers<sup>6</sup> recently demonstrated the efficacy of the 1,320-nm laser in treating incompetent GSVs using a 6- to 12-month follow-up.

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