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Clinical Research

Expanding the Role of Endovenous Laser Therapy: Results in Large Diameter Saphenous, Small Saphenous, and Anterior Accessory Veins

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## Background

Endovenous laser therapy (EVLT) is an accepted form of axial vein ablation for symptomatic venous reflux but there is debate regarding its efficacy and complication rates in large veins (≥1 cm). In addition, its role in the treatment of small saphenous veins (SSVs) and anterior accessory veins (AAVs) has not been well characterized either.

#### Methods

A retrospective review of patients undergoing EVLT on the great saphenous vein (GSV), SSV, or AAV between August 2007 and May 2009 was conducted. A total of 885 limbs were reviewed. In all, 153 patients were excluded because of incomplete information.

Gender, age, vein size, operative details, ultrasound, and clinical follow-up results were recorded. Veins that measured <1 cm in diameter were considered small, whereas those that measured ≥1 cm at any point were considered to be large.

#### Results

A total of 732 ablations were reviewed, involving 175 men and 557 women (76.1%). Average follow-up with duplex ultrasound was 3 weeks, and all patients underwent at least one postprocedural ultrasound. In all, 565 (77.3%) GSVs, 113 (15.5%) SSVs, and 53 (7.3%) AAVs were treated. A total of 88 ablations were performed on veins measuring ≥1 cm, 12% of all treated veins. In all, 82 GSVs, three SSVs, and three AAVs measured >1 cm, and GSVs comprised 93.2% of treated large veins (p â‰× 0.001 vs. entire cohort). For active ulceration, 4.9% of small vein and 9.1% of large vein treatments were performed (p = 0.11). An average of 2,983 J (range: 250-7,922) was used for each ablation, with veins measuring ≥1 cm being treated with significantly more energy (3,733 vs. 2,876 J, p < 0.001). Complications occurred in 7.61% of small vein ablations and 7.95% of large vein ablations (p = 0.91). This included failure in 3.4% of small vein and 4.5% of large vein ablations (p = 0.59). In addition, two deep vein thromboses (0.4%) occurred, both in GSVs. The most common complication was failure of closure, occurring in 1.6% of GSVs, 8.8% SSVs, and 13.2% AAVs (p < 0.001). Overall, the GSV was more likely to have successful closure (p \hat{a}\infty x 0.001) and fewer complications (p = 0.005) than SSV or AAV.

#### Conclusions

Complication rates and closure rates are not significantly different for veins of diameter 3%¥1 cm and smaller veins. Although more energy is used, this has not translated into higher complication rates, thus making EVLT safe and effective for large vein closure. Significantly higher failure and complication rates were seen in SSV and AAV treatment as compared with GSV treatment.



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