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# Comparison of cyanoacrylate embolization and radiofrequency ablation for the treatment of varicose veins.

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## Abstract

Objective To review clinical outcomes of varicose vein patients treated with cyanoacrylate embolization and radiofrequency ablation at our institution. Methods A retrospective review of patients who underwent cyanoacrylate embolization and radiofrequency ablation during a three-year period. Patient records were reviewed to assess demographics, location and severity of disease, treatment details and outcome at short- and mid-term follow-ups. Outcome parameters included treatment success and complications. Results Between January 2014 and December 2016, 335 patients with 476 veins were treated with either cyanoacrylate embolization (n = 148) or radiofrequency ablation (n = 328) at the Vancouver General Hospital Vascular Surgery Vein Clinic. The average age of patients were 57 ± 1 years with the majority being female (78%) and an average BMI of 24.8 ± 0.5. CEAP classes were 2 (49%), 3 (26%), 4a (22%) and >4b (3%). Of the veins treated with cyanoacrylate embolization, the vein types were as follows: 76% were great saphenous vein, 16% were small saphenous vein, 5% were anterior accessory great saphenous vein and 1.4% were perforator veins. The vein types for radiofrequency ablation were 88%, 9%, 3% and 0%, respectively. The average amount of cyanoacrylate embolization delivered for great saphenous vein treatment was 1.8 ± 0.1 ml with a treatment length of 43 ± 1 cm. Subgroup comparison was done for great saphenous vein segments. Treatment success was 100% in cyanoacrylate embolization and 99% in radiofrequency ablation. Superficial phlebitis was the most common complication noted at mid-term follow-up in 5% of cyanoacrylate embolization and 16% of radiofrequency ablation treatments ($P < 0.05$). One patient in each group had asymptomatic proximal thrombus extension treated with anticoagulation for 2-3 weeks. Three superficial infections from **glue** clumps were noted in the cyanoacrylate embolization group requiring excision and drainage. Five patients in the radiofrequency ablation group had persistent numbness and one wound complications at the access site. Conclusion Cyanoacrylate embolization offers equivalent success rates with lower mid-term complication rates as radiofrequency ablation.

**KEYWORDS:** Chronic venous disease; endovascular treatment; endovenous technique; radiofrequency ablation; varicose veins

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