Conclusions: The unexpected high incidence of detected valve lesions in children, in particular the younger ones, should be best explained by congenital disease. It is a merit of today's ultrasound systems that these lesions now can be detected. New strategies for systematic early detection, coaching, and cost-effective therapy now have to be developed.

Author Disclosures: J. C. Ragg: Nothing to disclose.

Clinical Effectiveness of Mechanochemical Ablation Versus Radiofrequency Ablation for Symptomatic Great or Small Saphenous Vein Reflux

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Objective: Mechanochemical ablation (MOCA) is a nonthermal technology approved by the Food and Drug Administration for the delivery of sclerosing agents to treat symptomatic saphenous vein reflux. Although the technology is considered durable, its effectiveness compared with radiofrequency ablation (RFA) in the great saphenous vein (GSV) and small saphenous vein (SSV) is ill defined.

Methods: Data were prospectively collected in the Center for Vein Restoration's electronic medical record system (NexGen Healthcare Information System, Irvine, Calif) and retrospectively analyzed. Patients were divided into the following treatment categories and stratified by Clinical, Etiology, Anatomy, and Pathophysiology (CEAP) class: MOCA GSV, MOCA SSV, RFA GSV, and RFA SSV. The revised Venous Clinical Severity Score (rVCSS) was used to determine chronic venous disease treatment effectiveness in patients who underwent RFA and MOCA only in the GSV or SSV distributions. Patients with multiple treatment modalities were excluded from the analysis. In addition, the 20-item Chronic Venous Insufficiency Questionnaire (CIVIQ-20) was used to assess quality of life before and after intervention at 1 month. All statistical analyses were performed using GraphPad Prism 7 (GraphPad Software Inc, La Jolla, Calif). Treatment outcomes were assessed using unpaired *t*-tests and two-way analysis of variance.

Results: From January 2015 to December 2017, there were 21,383 patients (34,014 limbs) who underwent thermal or MOCA procedures for chronic venous disease. The average age of the cohort was 57.1 ± 14.04 years, and 73% were female. Patients/limbs were divided into the following groups: MOCA GSV (342/545), MOCA SSV (41/62), RFA GSV (15,069/25,153), and RFA SSV (1450/2087). Preintervention and postintervention rVCSS and CIVIQ-20 data were analyzed at 1 month. All postintervention rVCSS outcomes for RFA in the GSV or SSV demonstrated significant improvement compared with preintervention scores regardless of CEAP class ($P \leq .001$). Patients treated with MOCA demonstrated improvement in all CEAP classes accept for C5 MOCA GSV patients and C6 MOCA SSV patients ($P \leq .001$). CIVIQ-20 scores at 1 month were similar regardless of treatment modality or treatment outcome. CIVIQ-20 scores ranged from 50 before intervention to 35 after intervention at 1 month.

Conclusions: MOCA appears to be as effective as RFA in the GSV across CEAP classes. By rVCSS, MOCA may not be as effective as RFA in patients with C5 and C6 disease in the GSV and SSV distribution, respectively. However, patient-reported outcomes between treatment modalities are similar. MOCA in the SSV appears safe. Further assessment and long-term data are required.

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Explanted Saphenous Vein Histopathology 5.5 Years After Cyanoacrylate Closure: A Case Study

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Objective: VenaSeal (Medtronic, Dublin, Ireland) cyanoacrylate closure (CAC) requires implantation of a device, not a drug. This case report describes the histopathologic features of an explanted segment of a great saphenous vein (GSV) treated 5.5 years previously with CAC and compares it with an untreated control segment.

Methods: A segment of left GSV from a 65-year-old man 5.5 years after CAC was localized with duplex ultrasound and surgically excised at mid-thigh. An untreated control segment was excised from midcalf.

Results: The vessel was nonpalpable. Ultrasound demonstrated echo-dense vessel with no venous flow (Fig 1). On microscopic examination, the segments demonstrated a lumen filled by collagenized mature fibrous tissue and remnants of polymer material (Fig 2). Histopathology examination revealed cyanoacrylate encapsulated by multinucleated giant cells and chronic granulomatous inflammation within the vein wall and focally extending to the adventitial layer (Fig 2). The control vein exhibited thickening of the medial wall consistent with chronic reflux pathophysiology.

Conclusions: These findings demonstrate the presence of cyanoacrylate implant in a GSV treated 5.5 years earlier. The cyanoacrylate is intermittently dispersed throughout the vein as well as encapsulated by multinucleated giant cells and chronic granulomatous inflammation.

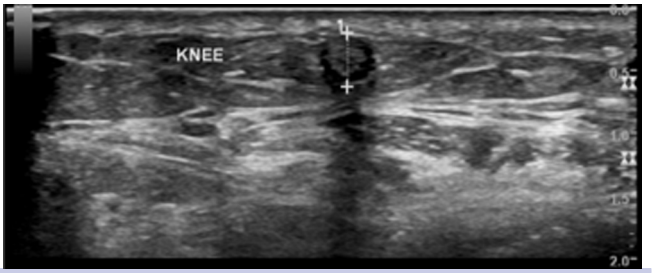

Fig 1. Ultrasound demonstrated echo-dense vessel with no venous flow.

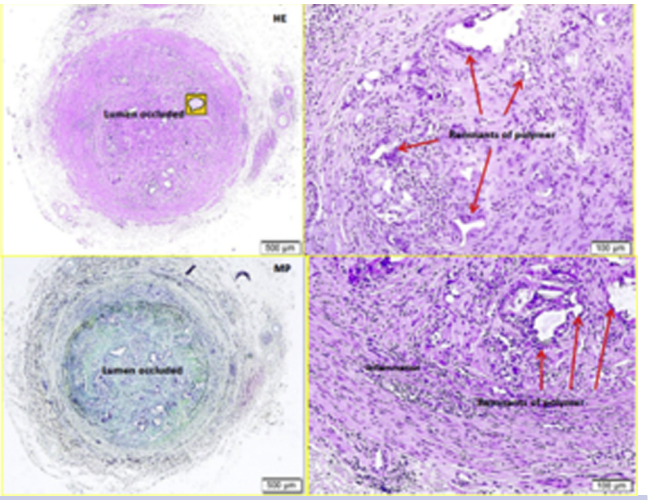

Fig 2. Microscopic and histopathologic examinations of the explanted saphenous vein.

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Contemporary Trends in the Treatment Types and Costs of Lower Extremity Superficial Venous Disease

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Objective: The treatment of lower extremity superficial venous disease has evolved from purely open procedures to less invasive procedures with