The term Chronic Venous Insufficiency (CVI) describes a condition that affects the venous system of the lower extremities with venous hypertension causing various pathologies including pain, swelling, edema, skin changes, and ulcerations.

Although the term CVI is often used to exclude uncomplicated varicose veins, varicose veins have incompetent valves with increased venous pressure leading to progressive dilation and twisting. We use the term CVI to represent the full spectrum of manifestations of chronic venous disease.

The Venous Ultrasound Exam

At the Center for Vein Restoration, the diagnosis of Chronic Venous Insufficiency is made via patient history and a physical examination with the assistance of noninvasive testing. A portion of the physical exam entails inspection and palpation of the surface of the skin to detect irregularities or bulges. The calf muscle is consistently assessed and measured for indications of fullness or increased girth due to long-standing edema.

A Venous Ultrasound measures the function of the vein valves that are critical to venous function, and can also identify vein blockages.

Sclerotherapy: Treatment Must Balance Agents and Techniques

Sclerotherapy has been used in the treatment of varicose veins for over 150 years, evolving with modern techniques such as ultrasound guidance and foam sclerotherapy as the latest developments in this evolution.

In this procedure, veins are injected with caustic agents called sclerosants, to induce closure and eventual resorption. When we treat varicose veins and superficial telangiectasias (spider veins), we want to obliterate the abnormal vessels without damaging adjacent or connected vessels that carry normal flow. This procedure may also help remedy the associated symptoms, including aching, itching, burning, swelling and night cramps.

No currently available sclerosant possesses all of the attributes...
of the perfect sclerosing agent. All sclerosants fall short in one way or another, yet the variety of available agents is such that virtually every situation in which sclerotherapy is indicated can be safely and effectively handled by one or another of available sclerosants, used alone or in combination.

The Selection of Sclerosing Agents

Sclerosants can be categorized into two classes – osmotic agents and nonionic detergents. Osmotic agents, including hypertonic saline and glycerin, are frequently employed for vessels that are one millimeter or less in diameter. Hypertonic saline has the disadvantage of stinging on injection and may have ulceragenic (ulcer causing) potential if accidentally injected outside of the blood vessels. However, it is a favorite of some sclerotherapists as it is very effective and reproducible, and has no allergic potential. Glycerin is also very effective and painless on injection.

A second class of sclerosants, the nonionic detergents, include polidocanol and sodium tetradecyl sulfate (STS). Polidocanol is commonly used in the United States and elsewhere, but is not currently FDA-approved. It rarely produces allergies, is painless, and seldom leads to direct contact ulceration. STS is more allergenic and produces ulceration at a lower concentration than polidocanol, but is much less ulceragenic than hypertonic saline.

Diluted concentrations of either nonionic detergent may be utilized for eradication of the smallest vessels. The detergent can also be combined with air and agitated to create a foam the consistency of shaving cream. The infusion of foam can be directed to deeper refluxing vessels using ultrasound guidance.

Although no magic formula exists, it is recommended to start with more diluted concentrations and evaluate for effect to minimize the potential complications of ulceration and hyperpigmentation. While the sclerosants described are effective in various concentrations depending on the size of the vessel, sclerotherapy is technique-dependent. There is no treatment regimen that will be effective on every patient and efficacy of any given treatment may vary in different sites on the same patient.

The Basics of Technique

Optimization of results also depends on post-injection compression, but there is currently no consensus on how much or the optimal duration. Recommendations vary greatly and range from several days to 4 weeks. In general, smaller vessels require less compression for shorter duration, while better results are obtained on larger vessels if the vein is evacuated prior to injection using positioning of the leg above the heart, and maintaining significant compression to prevent refill of the vessel.

In treating patients, our aim is to deliver the minimum volume and minimum concentration of the most appropriate sclerosant, and to inject it under conditions that will achieve the minimum effective exposure. Sclerosant concentration, volume and patient positioning are all key factors in achieving good results.

To schedule a sclerotherapy consult at our Center for Vein Restoration, call 301-441-2269, and to learn more visit us on the Web at www.loveyourlegsagain.org.
Ultrasound Imaging is Vital in Diagnosing Chronic Venous Insufficiency

Continued from page 1

Palpation may also reveal tenderness of the dilated veins. Active or healed ulcers are seen with more advanced disease.

There is a broad differential for the common presenting complaint with CVI. As a result, noninvasive ultrasound imaging plays an important role in diagnosing and guiding CVI treatment. Ultrasound imaging, also called ultrasound scanning or sonography, involves exposing part of a patient’s body to high-frequency sound waves to produce pictures of the inside of the body. Unlike x-rays, ultrasound exams do not use ionizing radiation.

Ultrasound imaging helps us to diagnose and treat medical conditions because they can show the structure and movement of the body’s internal organs, as well as blood flowing through blood vessels. A venous ultrasound provides us with pictures of the veins throughout the body that carry blood back to the heart.

This painless non-invasive exam measures the function of the vein valves that are critical to venous function, and can also identify vein blockages. In fact, compared to venography, which requires injecting contrast material into a vein, venous ultrasound is nearly as accurate for detecting blood clots in the calf and almost fully as accurate in finding clots in veins of the thigh.

A Doppler ultrasound may also be part of a venous ultrasound examination. This special ultrasound technique evaluates blood as it flows through a blood vessel, including the major arteries and veins, and the images can help us to see and evaluate blockages to blood flow, such as clots, or the narrowing of blood vessels.

While many patients present with large, clinically obvious bulging varicose veins, other individuals may have significant “silent” reflux (abnormal direction of blood flow) in diseased veins, which can only be detected by Doppler vein mapping - a more detailed ultrasound evaluation of the abnormal veins of the legs which illustrates the path of the blood flowing through the abnormal veins and where the trouble begins.

Careful mapping of the lower extremity venous system aids us in determining the optimal treatment plan to meet each patient’s specific needs.

Call 1-888-855-VEIN or 301-441-2269 to schedule a consultation and state-of-the-art ultrasound examination at the Center for Vein Restoration.

Doppler ultrasound is a non-invasive test that uses high-frequency sound waves that bounce off of blood cells and blood vessels to show blood flow and problems with the structure of blood vessels. This test better identifies specific arteries that are blocked.
In one evening, the faculty of Venous Insufficiency University (VIU) delivers the most current data on the diagnostic and treatment methods available to patients suffering from chronic venous disease. Scott Nutter, DPM, a partner in the Laurel Lakes Foot and Ankle Center, recently attended a VIU event in Greenbelt, Maryland. In his practice, he treats patients for a variety of podiatric needs from sports injuries to diabetic wound care.

“I came away from the event with a greater understanding of the treatment options that are available for my patients suffering from venous reflux disease,” says Dr. Nutter. “Our patients experiencing discomfort from varicose veins tend to be over 60 years of age, taking medications, and plagued by recurring medical problems, yet they are seldom aware that there’s an underlying problem that needs to be addressed.”

The monthly, complimentary CME-accredited program offers physicians and clinical health care providers a comprehensive overview of chronic venous disease — prevalent in more than 30 million people in the United States today. VIU participants gain knowledge pertaining to venous anatomy, pathophysiology, as well as diagnostic and treatment options for venous disease. Physicians and clinical health care providers can earn up to 2.5CME credits at no charge.

In addition to the events, VIU offers Physician Lunch and Learn Programs, Educational Newsletters, and Vascular Ultrasound Training in conjunction with Universities and Accredited Technical schools. To register for a VIU event, call Bob Howell, MS at 301-908-7142 or email info@loveyourlegsagain.org.

**CALENDAR OF EVENTS**

**Thursday, March 5, 2009**
6:00pm - Registration/Cocktails
6:45pm - Presentation/Dinner
Cafe Troia
28 W. Allegheny Avenue
Towson, Maryland

**Wednesday, April 15, 2009**
6:00pm - Registration/Cocktails
6:45pm - Presentation/Dinner
Location: TBD
Waldorf, Maryland

To register, call Bob Howell, MS at 301-908-7142.
Clinical Evaluation of Venous Insufficiency

CEAP Classification of Chronic Venous Disease and Course-of-Action

*Use of this classification system improves the accuracy of the diagnosis as well as communication between specialists and their patients.*

**CEAP 1:** Spider or reticular veins
**ACTION:** Venous duplex ultrasound assessment and cosmetic Sclerotherapy assessment

**CEAP 2:** Varicose veins
**ACTION:** Venous duplex ultrasound assessment and consult for conservative management

**CEAP 3:** Edema of venous origin
**ACTION:** Venous duplex ultrasound assessment and consult for possible endovenous ablation

**CEAP 4:** Skin changes ascribed to venous disease—pigmentation, venous eczema, lipodermatosclerosis
**ACTION:** Venous duplex ultrasound assessment and consult for possible endovenous ablation

**CEAP 5:** Skin changes (as in CEAP 4) in conjunction with healed ulceration
**ACTION:** Venous duplex ultrasound assessment and consult for possible endovenous ablation

**CEAP 6:** Skin changes (as in CEAP 4) in conjunction with active ulceration
**ACTION:** Urgent full leg ulcer assessment and consultation

Venous insufficiency is treatable through an in-office, minimally invasive and pain-free procedure.

Call Center for Vein Restoration at 301-441-2269 or 888-855-8346 to schedule a consult.

Phone: 888-855-VEIN (8346) or visit www.loveyourlegsagain.org
Clinical Evaluation of Venous Insufficiency: The CEAP Classification

Chronic Venous Insufficiency can be diagnosed according to severity, cause, site and specific abnormality using the CEAP Classification to improve diagnostic accuracy.

Of the 4 elements of CEAP – Clinical severity, Etiology, Anatomy and Pathophysiology – clinical severity is key for initial assessment and can be determined through simple observation and without special tests.

The CEAP Classification chart on the back page shows grades of increasing severity and the best course of action by group. The majority of patients are referred to a Vascular Specialist at grades 2-to-3, however as treatment is delayed, patients may progress on the CEAP scale leading to severe health consequences.

Early treatment is crucial to prevent further complications from venous stasis, and venous duplex ultrasound and consultation with a Vascular Specialist will determine the best course-of-action.

Center for Vein Restoration

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Additional locations:

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Baltimore/Towson, MD
Prince Frederick, MD
Rockville, MD
Takoma Park, MD
Waldorf, MD
Washington, DC

Phone: 888-855-VEIN (8346) or visit www.loveyourlegsagain.org