Additional Information
S-55

Network providers are encouraged, but not required to participate in the on-line American Venous Forum Registry (AVR) - The First National Registry for the Treatment of Varicose Veins. This nationwide registry on venous disease allows real-time tracking of outcomes from individual practices and benchmarking them to a nationwide aggregate. By identifying practice patterns for venous disease diagnosis and treatment across the United States and among varied specialties, the online registry will serve to facilitate the assessment of functional outcomes and comparative analyses of different clinical approaches to venous disease management. The vascular quality initiative website is provided as a courtesy for informational purposes and the appearance of external hyperlinks does not constitute endorsement www.vascularqualityinitiative.org

The CEAP classification (Clinical-Etiology-Anatomy-Pathophysiology) was adopted worldwide to facilitate meaningful communication about chronic venous disease (CVD) and serve as a basis for more scientific analysis of management. This classification, based on correct diagnosis, is also expected to serve as a systematic guide in the daily clinical investigation of patients as an orderly documentation system and basis for decisions regarding appropriate treatment. The basic CEAP classification is used for clinical practice.

CEAP Classification

CEAP	DESCRIPTION
Clinical Classification	
C_0	No visible or palpable signs of venous disease
C_1	Telangiectases or reticular veins
C_2	Varicose veins
C_3	Edema
C_{4a}	Pigmentation and/or eczema
C_{4b}	Lipodermatosclerosis and/or atrophie blanche
C_5	Healed venous ulcer
C_6	Active venous ulcer
C_s	Symptoms, including ache, pain, tightness, skin irritation, heaviness, muscle cramps, as well as other complaints attributable to venous dysfunction
C_A	Asymptomatic
Etiologic Classification	
E_c	Congenital
E_p	Primary
E_s	Secondary (post-thrombotic)
E_n	No venous etiology identified
Anatomic Classification	
A_s	Superficial veins
A_p	Perforator veins
A_d	Deep veins
A_n	No venous location identified
Pathophysiologic Classification	
P_r	Reflux

P_o	Obstruction
$P_{r,o}$	Reflux and obstruction
P_n	No venous pathophysiology identifiable

The Venous Clinical Severity Score (VCCS) evaluates changes in signs and symptoms over time and to quantify outcomes. The VCCS correlates well with the CEAP score and ultrasonographic assessment of the severity of venous valvular incompetence or obstruction.

Venous Clinical Severity Score

	None: 0	Mild: 1	Moderate: 2	Severe: 3
Pain or other discomfort (ie, aching, heaviness, fatigue, soreness, burning); presumes venous origin	None	Occasional pain or other discomfort (ie, not restricting regular daily activity)	Daily pain or other discomfort (ie, interfering with but not preventing regular daily activities)	Daily pain or discomfort (ie, limits most regular daily activities
Varicose veins "Varicose" veins must be at least 3mm in diameter to qualify in the standing position	None	Few: scattered (ie, isolated branch varicosities or clusters); also includes corona phlebectatica (ankle flare)	Confined to calf or thigh	Involves calf and thigh
Venous edema Presumes venous origin	None	Limited to foot and ankle area	Extends above ankle but below knee	Extends to knee and above
Skin pigmentation Presumes venous origin; does not include focal pigmentation over varicose veins or pigmentation due to other chronic diseases (ie, vasculitis purpura)	None or focal	Limited to perimalleolar area	Diffuse over lower third of calf	Wider distribution above lower third of calf
Inflammation More than just recent pigmentation (ie, erythema, cellulitis, venous eczema, dermatitis)	None	Limited to perimalleolar area	Diffuse over lower third of calf	Wider distribution above lower third of calf
Induration Presumes venous origin of secondary skin and subcutaneous changes (ie, chronic edema with fibrosis, hypodermitis); includes white atrophy and lipodermatosclerosis	None	Limited to perimalleolar area	Diffuse over lower third of calf	Wider distribution above lower third of calf
No. of active ulcers Active ulcer duration	0	1	2	≥3

(longest active) Active ulcer size (largest active)	N/A N/A	< 3 mo Diameter < 2cm	> 3 mo but <1y Diameter 2-6 cm	Not healed for >1 y Diameter > 6cm
	None: 0	**Occasional: 1**	**Frequent: 2**	**Always: 3**
Use of compression therapy	Not used	Intermittent use of stockings	Wears stockings most days	Full compliance: stockings

Glossary

Term	Description
Ambulatory phlebectomy	Ambulatory phlebectomy is a minimally invasive procedure performed as an alternative to ligation and stripping of veins that are too large for successful sclerotherapy. Prior to the procedure, the veins are located using a Doppler ultrasound. After the vein is marked, it is removed through pinhole incisions made along the length of the vein.
Echosclerotherapy	During echosclerotherapy, duplex ultrasound is used to guide the injections and enhance the precision of the therapy. Echosclerotherapy is also called aimed sclerotherapy, duplex sclerotherapy, or sonographic sclerotherapy.
Mechanochemical Ablation	Mechanochemical ablation (e.g., ClariveinTM [Vascular Insights, Madison, CT]) is a minimally invasive treatment for varicose veins, combining mechanical and chemical modalities. The procedure involves the use of a special percutaneous infusion catheter which contains a rotating wire, providing endovenous mechanical destruction. Simultaneously, an FDA-approved sclerosing agent (e.g., sodium tetradecyl sulfate, Asclera) is administered in order to enhance occlusion of the vein.
Endovenous radiofrequency	Endovenous radiofrequency (e.g., the VNUS Closure procedure) is a minimally invasive treatment used as an alternative to saphenous vein ligation and stripping in patients with symptomatic venous insufficiency of the lower extremities (e.g., varicose veins) and is specifically designated for correcting varicose veins due to incompetence of the GSV. It involves the use of a catheter temporarily inserted into the patient's saphenous vein. This procedure utilizes radiofrequency energy

at the catheter tip to heat the vein to approximately 85 degrees, which results in contraction of the vein. As the catheter is slowly withdrawn from the vein, the heat causes the vein to collapse and occlude thus terminating the reflux that causes the patient's symptoms.

Laser obliteration

Laser obliteration of incompetent veins is also a minimally invasive procedure that is performed in a fashion similar to endovenous radiofrequency obliteration. A bare tipped laser fiber is introduced into the saphenous vein under ultrasonic guidance. The laser is activated and slowly removed along the course of the saphenous vein.

Sclerotherapy (LIQUID OR MICROFOAM)

The objective of sclerotherapy is to destroy the endothelium of the target vessel by injecting an irritant solution (either a detergent, osmotic solution, or a chemical irritant), ultimately resulting in the complete obliteration of the vessel. The success of the treatment depends on accurate injection of the vessel, an adequate injectant volume and concentration of sclerosant, and post-procedure compression. Compression theoretically results in direct apposition of the treated vein walls to provide more effective fibrosis and may decrease the extent of the thrombosis formation.

Sclerotherapy is an accepted and effective treatment of telangiectatic vessels. Historically, larger veins and very tortuous veins were not considered to be good candidates for sclerotherapy. Technical improvements in sclerotherapy, including the routine use of Duplex ultrasound to target refluxing vessels, luminal compression of the vein with anesthetics, and a foam sclerosant in place of liquid sclerosant, have improved its effectiveness in these veins. Other concerns have arisen with these expanded uses of sclerotherapy. For example, use of sclerotherapy in the treatment of varicose tributaries without prior ligation, with or without vein stripping creates issues regarding its effectiveness in the absence of the control of the point of reflux and isolation of the refluxing saphenous vein. Sclerotherapy of the GSV raises issues regarding appropriate volume and concentration of the sclerosant and the ability to provide adequate post-procedure compression. Moreover, the use of sclerotherapy, as opposed to the physical removal of the vein with stripping, raises the issue of recurrence due to recanalization.

Subfascial endoscopic perforator surgery (SEPS)	When a patient has chronic venous insufficiency severe enough to cause leg ulcers there are almost always refluxing connecting or “perforating” veins between the deep and superficial vein systems. SEPS is a surgical procedure to treat these perforating veins. During the SEPS procedure abnormal perforating veins are disconnected. This allows blood flow to be directed into normal veins, and allows healing of the ulcer.
Transilluminated powered phlebectomy	Transilluminated powered phlebectomy (e.g., TriVex System) is a minimally invasive procedure in which an endoscopic illuminator is inserted into the vein to allow visualization of the varicose vein clusters. The veins are then ablated using a vein resector. During destruction of the veins, the debris is removed from the wound using suction.