

Venous Ablation Therapy: Indications and Outcomes

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Abstract

Venous disease has long been recognized as a progressive, debilitating, and recurrent problem. Until recently, venous insufficiency was often undertreated due to a lack of therapeutic modalities. During the past decade, an explosion in the treatment options has occurred. Endovenous ablation therapy has nearly replaced the conventional surgical treatments for patients with superficial venous insufficiency. Dramatic changes in therapy are also available for deep venous thrombosis but are not the subject of this review. These newer techniques are much less invasive and consequently have reduced risks of wound complications or bleeding. In addition, they can be performed easily in the office setting with local anesthesia. Higher-risk patients can now be considered for these less invasive treatments to reduce their ambulatory venous hypertension. With the lower procedural risks and the dramatically shortened recovery times, earlier intervention can be entertained. This helps prevent the development of venous stasis ulceration and other sequelae of progressive venous insufficiency. (Prog Cardiovasc Dis 2011;54:61-69)

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Introduction

Although most concentration has been on the initial management of acute venous thromboembolism, many patients suffer from the long-term ravages of chronic venous disease. This spectrum of chronic venous insufficiency includes limb swelling, skin discoloration, skin ulcerations, and venous varicosities. Venous varicosities often cause cosmetically unappealing findings; however, venous valvular incompetence may result in venous stasis ulcerations that are refractory to therapy without management of the venous varicosities. Endovenous ablation of venous varicosities has largely replaced primary surgical venous ligation and stripping as the primary therapeutic modality. This article will highlight the advances in endovenous management of venous varicosities.

Basics in evaluating a patient with venous disease

History

Evaluation of every patient should start with a complete medical history including a risk assessment for thrombosis, consisting of the patient's and family's history of thrombotic events (including superficial phlebitis), medications, tobacco use, and history of obesity. Presence and severity of symptoms should be assessed. Suspicion of proximal venous obstruction should be higher in patients with severe edema or venous ambulatory claudication (bursting pain with ambulation.) Premenopausal patients, especially multiparous women with pelvic pain and heaviness or dyspareunia, should be evaluated for pelvic congestion syndrome. History of conservative measures used (ie, use of compression) should be documented.

Physical examination

Knowledge of the patient's anatomy is tantamount to understanding the indications and options for therapy. The

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Abbreviations and Acronyms

GSV = Great saphenous vein

SSV = small saphenous vein

PTE = posterior thigh extension vein

CEAP = Clinical, Etiology, Anatomy, Pathophysiology scoring system

VCSS = Venous Clinical Severity Score

CVD = chronic venous disease

QOL = quality of Life

EVL = endovenous laser

venous system can be as variable as the trees in the forest, and each patient will have subtle yet important differences that may make one treatment more appropriate than another. A careful physical examination, using inspection and palpation in the standing position, can give the examiner clues as to which vein segments are refluxing and help to guide the duplex evaluation.

There are common distributions of varicosities, or “zones of influence,” which direct the examiner to the clinically important sources of reflux. Great saphenous vein (GSV) reflux involves the medial thigh and calf, and small saphenous vein (SSV) insufficiency often leads to posterior calf or popliteal fossa varicosities (Fig 1). The posterior thigh varicosities can originate from refluxing labial/pelvic veins, or a posterior thigh extension vein that extends upward from the SSV. There is often an intersaphenous vein (previously called the vein of Giacomini) that connects the SSV to the GSV in the posterior medial

thigh, which can lead to posterior medial thigh varicosities. Lateral thigh varicosities occasionally originate from an enlarged refluxing lateral thigh perforator vein or can be associated with the lateral subdermic venous system. The lateral subdermic venous system is often a clinically important source of reflux in patients with Klippel-Trenaunay syndrome and can be treated with endovenous techniques if necessary. Before obliterating this superficial system in patients with Klippel-Trenaunay syndrome, however, a full evaluation of the deep venous system must be done to rule out obstruction or atresia. Acute or chronically phlebotic superficial varicosities can result in areas of inflammation or palpable cords, which should be noted (Table 1).

Clinical staging

The two most frequently used scoring systems include the Clinical, Etiology, Anatomical findings, and Pathophysiologic component (CEAP)¹ system (Figs 2-7) and the Venous Clinical Severity Score (VCSS)² (Table 2). Both scoring systems allow for objective assessment of progression or improvement after intervention, and are helpful when using treatment guidelines. The CEAP score is much more complex, requiring an assessment of the clinical status of the patient (C), the etiology of the venous disorder (E), the anatomical pattern of disease (A), and the underlying pathophysiology (P, predominantly reflux or obstruction).

Venous duplex

Once a thorough history has been taken and physical examination is complete, a directed duplex evaluation is warranted if there are signs or symptoms of venous insufficiency or obstruction. The indications for venous duplex scanning include pain (aching, fatigue, heaviness, throbbing, leg cramping, etc), swelling, enlarged varicosities, signs/symptoms of possible thrombosis, and skin changes or ulceration. A full examination of the deep and superficial venous system should be performed, checking for



Fig 1. Evaluate “zone of influence” (SSV insufficiency associated with varicosities in the posterior calf).

Table 1
Physical examination

Components of a comprehensive physical exam include assessment of:

- Full arterial pulse evaluation
- Presence of varicosities, reticular and spider veins (and the zones in which they are found)
- Presence of any phlebotic vein segments (acute or chronic)
- Presence of limb swelling: pitting or nonpitting, unilateral or bilateral, acute or chronic, involving the foot/toes or just the ankle, and the response of the swelling to elevation
- Skin changes: hyperpigmentation, lipodermatosclerosis, eczema, corona phlebectasia, and healed or active ulceration
- Presence of suprapubic or abdominal wall varicosities (collateral vessels possibly implying proximal obstruction)
- Presence of hemorrhoids, scrotal veins and/or labial veins (implying possible pelvic venous congestion syndrome)

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