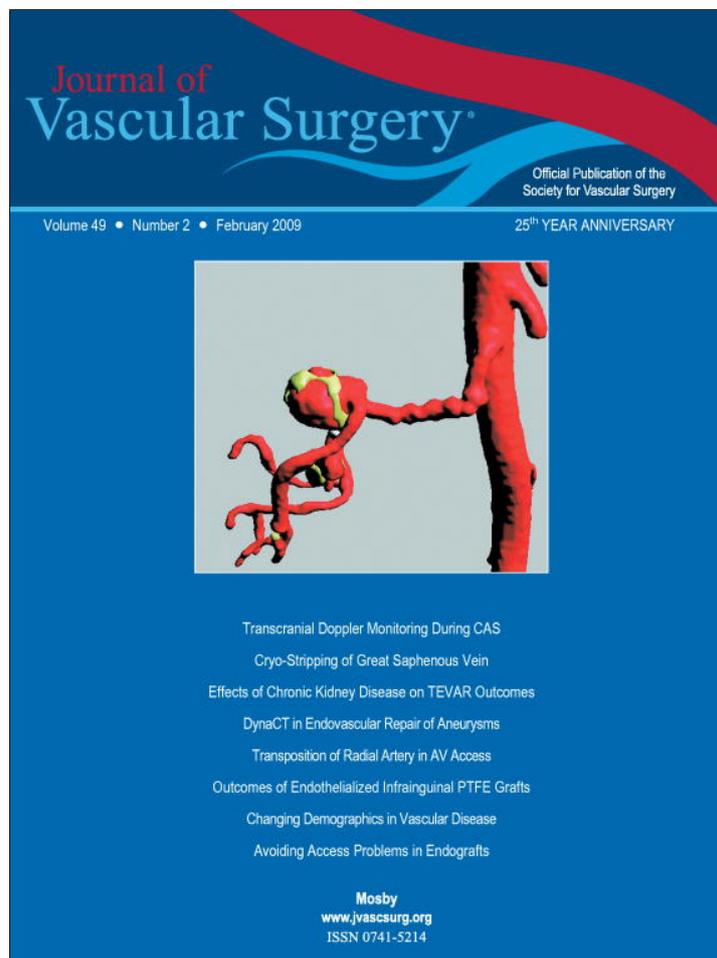


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SPECIAL COMMUNICATION

From the American Venous Forum

Updated terminology of chronic venous disorders: The VEIN-TERM transatlantic interdisciplinary consensus document

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Non-uniform terminology in the world's venous literature has continued to pose a significant hindrance to the dissemination of knowledge regarding the management of chronic venous disorders. This VEIN-TERM consensus document was developed by a transatlantic interdisciplinary faculty of experts under the auspices of the American Venous Forum (AVF), the European Venous Forum (EVF), the International Union of Phlebology (IUP), the American College of Phlebology (ACP), and the International Union of Angiology (IUA). It provides recommendations for fundamental venous terminology, focusing on terms that were identified as creating interpretive problems, with the intent of promoting the use of a common scientific language in the investigation and management of chronic venous disorders. The VEIN-TERM consensus document is intended to augment previous transatlantic/international interdisciplinary efforts in standardizing venous nomenclature which are referenced in this article. (*J Vasc Surg* 2009;49:498-501.)

Chronic venous disorders (CVD) have a documented socioeconomic impact, involving 50-85% of the western populations, and consuming 2-3% or more of community health budgets. For publications dealing with the management of CVD to have more universal value, standardized reporting practices with uniform terminology are needed.¹⁻² The CEAP classification (1995, 2004),³⁻⁵ the venous severity scoring (2000)⁶ and the nomenclature extensions and refinements of the veins of the lower limbs (2002, 2005)^{7,8} have generated a momentum in the quest for promoting consistency in medical venous reporting. Nevertheless, the increasing universal interest in the proper

management of chronic venous disorders has exposed problems caused by non-uniform use or misuse of a number of venous terms. The lack of universal agreement on the definition of many widely used clinical venous terms has perpetuated their liberal interpretation, and hindered the effective exchange of medical information and the comparison of clinical outcomes.

OBJECTIVE

To report recommendations of uniform usage of venous terms reached by consensus by a transatlantic interdisciplinary faculty of experts (Table) under the auspices of the American Venous Forum (AVF), the European Venous Forum (EVF), the International Union of Phlebology (IUP), the American College of Phlebology (ACP), and the International Union of Angiology (IUA), the goal being a common scientific language for reports on the management of CVD.

METHODS

The aims of this consensus process, along with a working protocol and an organizational framework, were first developed in Feb 2007 as part of plans for an "Arctic Fjords Conference and Workshops on CVD" to be held aboard MS Trollfjord (Oct 2-6, 2007), Hurtigruten, Norway, under the auspices of the European Venous Forum (EVF), the Societas Phlebologica Scandinavica (SPS), and the University of Tromsø, Norway. On October 5, 2007, a group composed of invited faculty attending this workshop held

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Competition of interest: none.

Presented at the American Venous Forum Twentieth Annual Meeting, Charleston, SC, Feb 20-23, 2008.

The following societies were a part of the terminology guideline consensus:

- The American College of Phlebology
- The American Venous Forum
- The European Venous Forum

- The International Union of Phlebology

The following societies endorsed the terminology guidelines:

- The International Union of Angiology
- The Society for Vascular Surgery

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Table. Faculty

| | |
|--|---|
| 1 st VENTERM Meeting | |
| Arctic Fjords Conference and Workshops on Chronic Venous Disorders, October 5, 2007, Hurtigruten, Norway | |
| 1. Michel Perrin, MD | Vascular Surgery, France |
| 2. Bo Eklöf, MD | Vascular Surgery, Sweden |
| 3. Robert L. Kistner, MD | Vascular Surgery, USA |
| 4. Robert B. Rutherford, MD | Vascular Surgery, USA |
| 5. Hugo Partsch, MD | Dermatology/Angiology, Austria |
| 6. John T. Hobbs, MD | Phlebology, UK |
| 7. Andrew N. Nicolaides, MD | Vascular Surgery, Cyprus |
| 8. Peter Neglen, MD | Vascular Surgery, USA |
| 9. Olle Nelzén, MD | Vascular Surgery, Sweden |
| 10. Marianne Vandendriessche, MD | Phlebology, Belgium |
| 11. Jean Jerome Guex, MD | Angiology, France |
| 12. Konstantinos T. Delis, MD | Vascular Surgery, Greece |
| 2 nd VENTERM Meeting | |
| Twentieth Annual Meeting of the American Venous Forum, February 20-23, 2008, Charleston, SC, USA | |
| Participants of the first meeting (except RBR, MV, JTH) in addition to: | |
| 1. John J. Bergan, MD | Vascular Surgery, USA |
| 2. Peter Gloviczki, MD | Vascular Surgery, USA |
| 3. Nicos Labropoulos, PhD | Vascular Physiology/ Ultrasound, USA |
| 4. Mark H. Meissner, MD | Vascular Surgery, USA |
| 5. Eberhard Rabe, MD | Dermatology, Germany |
| 6. Claudio Allegra, MD | Angiology, Italy |
| 7. Steven Zimmet, MD | Phlebology/Dermatology, USA |
| 8. Joann M. Lohr, MD | Vascular Surgery, USA |
| 9. Thomas Proebstle, MD | Dermatology, Germany |

the first VEIN-TERM meeting, co-chaired by M. Perrin (M.P.) and B. Eklöf (B.E.) with K.T. Delis as secretary. A second consensus meeting, also chaired by B.E. and M.P., was held at the time of the Twentieth Annual Meeting of the American Venous Forum (AVF), February 20-23, 2008, Charleston, SC, USA, under the auspices of the AVF. Between these meetings, a consensus draft was circulated and refined. At the first meeting, a list of problematic CVD terms was identified and provisional definitions were set forth. Between meetings, a draft of these was circulated by open e-mail communications to the entire faculty for further refining comments, which were provisionally incorporated into the main draft. This process was repeated, with additional input from those invited to attend the second meeting, and three additional drafts were circulated in this manner prior to the second meeting at the AVF in Feb 2008 where the original faculty was enlarged to include those not present at the first meeting but contributing to the draft refinements. This second face-to-face meeting at the AVF on Feb 16, 2008, produced further refinements in wording and document organization. These were incorporated into a final draft reflecting the consensus of the assembled faculty. This article, then, represents the final consensus agreement on venous terminology reached at the second VEIN-TERM meeting at the Twentieth Annual Meeting of the AVF, Charleston, SC, USA. Its make-up includes broadly used venous terms

related to the management of CVD of the lower extremities, which were agreed to have variable applicability and interpretation in reports in the venous literature. Excluded were terms previously defined in the CEAP documents³⁻⁵ and prior venous nomenclature refinements,^{7,8} and those pertaining to a congenital etiology. In the section below, the venous terms selected for inclusion in the VEIN-TERM consensus are stratified into three different groups: Clinical, Physiological, and Descriptive, although some degree of overlap was unavoidable.

THE VEIN-TERM UPDATE ON TERMINOLOGY OF CHRONIC VENOUS DISORDERS

Clinical venous terms.

1. **Chronic venous disorder:** This term includes the full spectrum of morphological and functional abnormalities of the venous system.
2. **Chronic venous disease:** (Any) morphological and functional abnormalities of the venous system of long duration manifested either by symptoms and/or signs indicating the need for investigation and/or care.
3. **Chronic venous insufficiency (C3*-C6):** A term reserved for advanced CVD, which is applied to functional abnormalities of the venous system producing edema,* skin changes, or venous ulcers. (C3*: moderate or severe edema as stratified by Rutherford et al.⁶)
(Explanation: It was unanimously accepted that the term "chronic venous disorder" would encompass the full spectrum of venous abnormalities, and after much deliberation, it was further agreed that "chronic venous disease" would represent that major subset of individuals with venous complaints and/or manifestations requiring investigation and/or care. The term "chronic venous insufficiency" was then reserved for those with advanced signs and/or symptoms).^{1,2,9-11}
4. **Venous symptoms:** Complaints related to venous disease, which may include tingling, aching, burning, pain, muscle cramps, swelling, sensations of throbbing or heaviness, itching skin, restless legs, leg-tiredness and/or fatigue. Although not pathognomonic, these may be suggestive of chronic venous disease, particularly if they are exacerbated by heat or dependency in the day's course, and relieved with leg rest and/or elevation. Existing venous signs and/or (non invasive) laboratory evidence are crucial in associating these symptoms with CVD.
5. **Venous signs:** Visible manifestations of venous disorders, which include dilated veins (telangiectasia, reticular veins, varicose veins), leg edema, skin changes, ulcers, as included in the CEAP classification.⁵
6. **Recurrent varices:** Reappearance of varicose veins in an area previously treated successfully.
7. **Residual varices:** Varicose veins remaining after treatment.
8. **PREVAIT:** This acronym means PREsence of Varices (residual or recurrent) After InTervention.

(Explanation: Although recurrent varices, taken as those reappearing in an area previously treated successfully, and residual varices, taken as those remaining after treatment, were both felt to be clearly defined, the difficulty in correctly classifying the results of initial procedures done by others prompted the need for an all-inclusive term for varices presenting for treatment after prior intervention. The acronym PREVAIT, which was introduced to facilitate reporting in clinical scenarios where varices could not be definitely classified as recurrent or residual, was therefore accepted.)

9. **Post-thrombotic syndrome:** Chronic venous symptoms and/or signs secondary to deep vein thrombosis and its sequelae.
10. **Pelvic congestion syndrome:** Chronic symptoms, which may include pelvic pain, perineal heaviness, urgency of micturition, and post-coital pain, caused by ovarian and/or pelvic vein reflux and/or obstruction, and which may be associated with vulvar, perineal, and/or lower extremity varices.
11. **Varicocele:** Presence of scrotal varicose veins.
12. **Venous aneurysm:** Localized saccular or fusiform dilatation of a venous segment with a caliber at least 50% greater than the normal trunk.

Physiological venous terms.

1. **Venous valvular incompetence:** Venous valve dysfunction resulting in retrograde venous flow of abnormal duration.
2. **Venous reflux:** Retrograde venous flow of abnormal duration in any venous segment.
 - Primary: Caused by idiopathic venous valve dysfunction.
 - Secondary: Caused by thrombosis, trauma, or mechanical, thermal, or chemical etiologies.
 - Congenital: Caused by the absence or abnormal development of venous valves.
3. **Axial reflux:** Uninterrupted retrograde venous flow from the groin to the calf.
 - Superficial: Confined to the superficial venous system.
 - Deep: Confined to the deep venous system.
 - Combined: Involving any combination of the three venous systems (superficial, deep, perforating).
4. **Segmental reflux:** Localized retrograde flow in venous segments of any of the three venous systems (superficial, deep, perforating) in any combination in the thigh and/or the calf, but **NOT** in continuity from the groin to calf.

(Explanation: The now recognized significance of axial reflux in the pathophysiology of venous leg ulcers¹² justified distinctions made to clarify the definitions of different types of lower extremity venous reflux with axial reflux defined as uninterrupted retrograde venous flow from the groin to the calf in continuity. It was accepted that axial reflux might be confined to the superficial or the deep systems, but could also involve

any combination of the superficial, deep, and the perforator systems. This is in contradistinction to “segmental reflux”, defined as localized retrograde flow in any of the three venous systems, **but without continuity** from the groin to the calf.)

5. **Perforator incompetence:** Perforating veins with outward flow of abnormal duration.
6. **Neovascularization:** Presence of multiple new small tortuous veins in anatomic proximity to a previous venous intervention.
7. **Venous occlusion:** Total obliteration of the venous lumen.
8. **Venous obstruction:** Partial or total blockage to venous flow.
9. **Venous compression:** Narrowing or occlusion of the venous lumen as a result of extra-luminal pressure.
10. **Recanalization:** Development of a new lumen in a previously obstructed vein.
11. **Iliac vein obstruction syndrome:** Venous symptoms and signs caused by narrowing or occlusion of the common or external iliac vein.
12. **May-Thurner syndrome:** Venous symptoms and signs caused by obstruction of the left common iliac vein due to external compression at its crossing posterior to the right common iliac artery.

(Explanation: Venous symptoms and signs may be caused by narrowing or occlusion of the common or external iliac vein, yet not be due to the May-Thurner syndrome, as described. The term Iliac Vein Obstruction syndrome is, thus, an all-inclusive term, and the May-Thurner syndrome is a specific variant of this, capable of producing those symptoms and signs.)

Descriptive venous terms.

1. **High ligation and division:** Ligation and division of the great saphenous vein (GSV) at its confluence with the common femoral vein, including ligation and division of all upper GSV tributaries.
 - (Explanation: This is still the gold standard against which new endovenous and surgical methods which may preserve the upper tributaries should be compared. Partial or complete preservation of the upper GSV tributaries, when the GSV is ligated, stripped, or ablated, must be clearly stated.)
2. **Stripping:** Removal of a long vein segment, usually most of the GSV or the small saphenous vein (SSV) by means of a device.
3. **Venous ablation:** Removal or destruction of a vein by mechanical, thermal, or chemical means.
4. **Perforating vein interruption:** Disconnection of a perforating vein by mechanical, chemical, or thermal means.
5. **Perforating vein ligation:** Interruption of a perforating vein by mechanical means.
6. **Perforating vein ablation:** Disconnection or destruction of a perforating vein by mechanical, chemical, or thermal means.

(Explanation: The introduction of “standards for endovenous ablation for the treatment of venous insufficiency” in 2007,^{1,3} and the increased use of minimally invasive and/or endovenous procedures underscores the need for uniform nomenclature regarding such procedures. The loose application of the term “venous ablation” has been particularly problematic. For the most part, the terms “ligation” and “ablation” adequately define the range of interventions, however, it must be emphasized that ablation literally means “destruction or removal”, whereas interruption implies a more localized occlusion or luminal obliteration, such as by ligation, cautery, or clipping.)

7. **Mini-phlebectomy:** Removal of a vein segment through a small skin incision.
8. **Sclerotherapy:** Obliteration of a vein by chemical introduction (liquid or foam).
9. **Endophlebectomy:** Removal of post-thrombotic residue from the venous lumen.

DISCUSSION

A compelling demand for a common scientific language in the literature on chronic venous disorders has recently led to national and international multidisciplinary efforts to refine venous nomenclature.^{3-8,13} Evidence-based medical practice requires uniform terminology in reporting clinical and basic studies of chronic venous disorders. Venous terms directly associated with acute venous disease and congenital disorders, as well as those having been comprehensively defined in previous consensus documents^{3-5,7,8} were excluded from consideration in this VEIN-TERM consensus document. This VEIN-TERM consensus document has a transatlantic interdisciplinary base and the above recommendations were arrived at as a result of open debate and free communication between venous experts from a number of countries. It is intended to provide those involved in the management of CVD around the world, who may report their experiences in the English literature, with clarifying refinements in venous terminology. Hopefully it will result in a more precise use of venous terms in English language articles on CVD in the future.

AUTHOR CONTRIBUTIONS

Conception and design: MP, BE

Analysis and interpretation: MP, BE, KD, RR, PG, VEIN-TERM FACULTY

Data collection: MP, BE, KD

Writing the article: KD

Critical revision of the article: MP, BE, KD, RR, PG, VEIN-TERM FACULTY

Final approval of the article: MP, BE, KD, RR, PG, VEIN-TERM FACULTY

Statistical analysis: Not applicable

Obtained funding: American Venous Forum Hurtigrut

Overall responsibility: MP, BE, KD, RR, PG

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