

Preliminary review: should venous leg ulcers be considered healed or in remission?



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This article aims to open discussion about the need to change the term 'healed' to a more appropriate one when referring to venous leg ulcers (VLUs). The use of 'in remission' may be a better way to define VLUs that have closed, highlighting the underlying long-term condition, as per diabetic foot ulcers (DFUs). Five questions were formulated, with the intention of starting a planned debate between experts in order to reach a formal consensus on this and additional topics. A narrative literature search was performed to underpin the first four questions and to create a structured rationale for the need to raise awareness of VLUs as a chronic condition and to shape services that provide patients with appropriate follow-up during ulcer-free periods.

Venous leg ulcers (VLUs) are the most common chronic lower limb wounds, with an overall prevalence of 1–3% in adults aged over 65 years (Xie et al, 2018). VLU prevalence varies between countries. In India, approximately 4.5 per 1,000 inhabitants per year have a VLU compared to a prevalence of 3.5 in UK and 1.1 in Australia (Xie et al, 2018). A retrospective 5-year study in China found VLUs to be the most common chronic wound in the over-60s (Xiaofang et al, 2017). The lifetime risk of developing a VLU is estimated to be 1% (Nelzén and Fransson 2007).

Despite impacting so many people, VLUs continue to be a clinical challenge. Healing rates following 6 months of compression therapy vary from 30% to 75% (Lim et al, 2018), while reported recurrence rates range between 26% and 70% (Callam et al, 1985; Nelzén et al, 1997; Vowden and Vowden, 2006; Nelson, 2011). VLUs are associated with a high health economic burden. A retrospective analysis estimated that chronic wound management costs the UK National Health Service £5.3 billion per year (Guest et al, 2015).

VLUs are the consequence of chronic venous insufficiency (CVI), venous obstruction and impaired venous return with related ambulatory venous hypertension. Calf muscle insufficiency and/or reduction in ankle range of movement

are commonly found in patients with VLUs (Alavi et al, 2016). Calf ankle circumference was surprisingly found to be a negative prognostic factor, being associated with infection in patients with lower leg ulceration when the ratio was below 1.3 (Bui et al, 2018).

VLUs have a series of associated problems including dermatitis, local infection, itchiness, lipodermatosclerosis, haemosiderin staining, cellulitis, pain, depression and social isolation (Vivas et al, 2016). When there are no contraindications, such as severe peripheral arterial disease, borderline cardiac function or peripheral neuropathy (Australian Wound Management Association and New Zealand Wound Care Society, 2011), the gold standard treatment for VLUs remains graduated compression therapy with bandages or other garments that provide high compression at the ankle and favour venous and lymphatic return (Lim et al, 2018).

Aim and objective

This paper aims to describe the need to redefine the term 'healed' in VLUs. Underlying chronic damage caused by venous insufficiency means that the term 'healed' may mislead patients, and even clinicians, who perceive the wound as being completely repaired. The objective was to open a formal discussion between experts,

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Table 1. CEAP classification (Rabe and Pannier, 2012)*.

Classification	Condition
C0	No visible or palpable signs of venous disease
C1	Telangiectases or reticular veins
C2	Varicose veins
C3	Oedema
C4a	Pigmentation and/or eczema
C4b	Lipodermatosclerosis and/or white atrophy (atrophie blanche)
C5	Healed venous ulcer
C6	Active venous ulcer

*Along with C, two further components have been added: S Symptomatic (including ache, tightness, skin irritation, pain, heaviness, and muscle cramps, and other complaints attributable to venous dysfunction) and A Asymptomatic.

leading to the creation of a position document.

Four clinical questions were developed with the aim of opening constructive discussion and a re-think about some fundamental concepts relating to VLUs. These questions were:

- Is there a need to change the term 'healed' to refer to a VLU that has completely repaired?
- Would 'in remission' be a better term for healed VLUs?
- Does the fifth item of the CEAP classification [Table 1] (Rabe and Pannier, 2012) need to be amended to 'in remission'?
- Would the term 'in remission' increase awareness among patients and healthcare professionals about the underlying chronic disease?

Literature review

A literature review based on *ad hoc* searches – rather than a comprehensive search such as a systematic review (Brown University Library, 2020) – was performed to retrieve pertinent papers. PubMed, CINAHL and TRIP databases were searched using key words, such as: 'venous leg ulcers', 'remission', 'healing', 'CEAP' and 'diabetes' (the latter to gain a general understanding of the term remission), using different Boolean operator combinations. A manual literature search was also performed. There were no limits relating to publication dates or article types (e.g. reviews, trials or case studies), and English as the only language.

Database searches found 7,257 articles and six further papers were identified through a manual literature search. All papers were screened for relevance and eligibility [Figure 1]. Thirteen articles (seven from the database search and six from the manual literature search) were used to develop and structure areas surrounding the four clinical questions proposed.

Analysis

Is there a need to change the term 'healed' to refer to a VLU that has completely repaired?

Management of patients with VLUs requires a great deal of effort. The main goals should be fast healing and maximising the number of ulcer-free days. VLUs are the late effect of CVI, and the term 'chronic' links to the concept of a long-term condition. In this case, venous hypertension and its related venous hypervolaemia 'is not currently curable and therefore can only be managed' (Brown, 2008). Due to the underlying disease and high recurrence rate — up to 70% in 3 months, despite the use of compression stockings or other forms of compression (Callam et al, 1985) — the authors believe the term 'healing' when referring to VLUs does not reflect the underlying clinical condition and its long-term effects. The authors propose introducing a different term to ensure disease comprehension will be more meaningful for patients and clinicians.

Would 'in remission' be a better term for healed VLUs?

The term 'remission' is widely used in the diabetic foot ulcer (DFU) field and in other long-term diseases. A position document states that 'in patients who have already had a DFU the risk of another appearing in the next three years is 17%–60%. A patient with a healed DFU should therefore be considered in remission rather than cured' (WUWHS, 2016). Armstrong (2016) drew an interesting correlation between diabetes and cancer when he wrote about DFUs: 'When people with DFUs heal, just like with cancer, they are not really healed. Our patients are in remission. We tend to think about wounds when they are open but why don't we think about them when they are closed?'

The reason for adopting this term for VLUs is easy to understand. The recurrence rate of VLUs (50–70%; Callam et al, 1985; Vowden and Vowden, 2006) is comparable to DFUs (75% at 5 years; Boulton et al, 2018). The introduction of the term 'in remission' would lead to a more reasonable way of thinking about this chronic disease, its related complications and the requirement for clinical follow-up and patient involvement, even when a wound is healed.

Does the fifth item of the CEAP classification need to be amended to 'in remission'?

The CEAP classification to stage chronic venous disorders was created in 1994 by an international group and endorsed by the Society for Vascular Surgery (Eklöf et al, 2004). CEAP

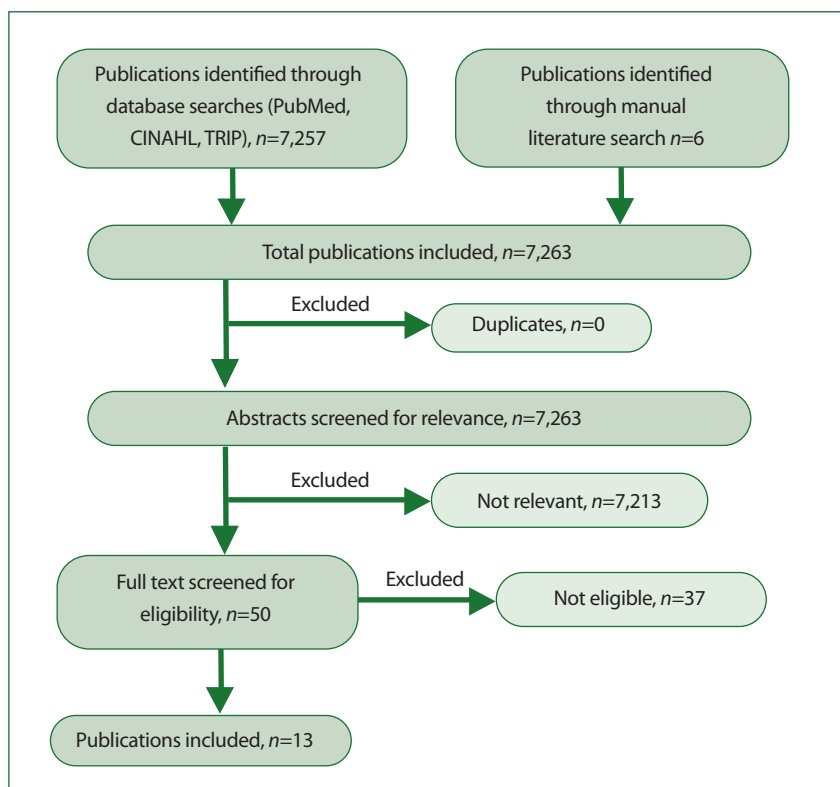


Figure 1. Flow diagram of the literature search process

classification consists of two parts:

- The classification of chronic venous disorders
- A scoring system of severity.

It is based on clinical manifestations (C), etiological factors (E), anatomic distribution of disease (A) and underlying pathophysiological findings (P). The European Venous Registry is based on CEAP. Its reported studies on intra- and interobserver variability showed a huge divergence in CEAP classification, highlighting a need to improve the definitions of clinical classes C0–6 (Uhl et al, 2001). A consensus meeting was held in Rome in 2001 with the intention of refining the 'C' in CEAP (Allegra et al, 2003).

The term 'chronic venous insufficiency' is usually reserved for more advanced disease – i.e. >C3, while an open ulcer is classified as C6 (Eklöf et al, 2004). The refinement of CEAP led to a new classification, with C4 being divided into two subgroups with different prognoses in terms of ulcer development (Rabe and Pannier, 2012), see [Table 1]. Due to the underlying chronicity, we would like to propose that the term 'healed' be changed to 'in remission' in C5.

Would the term 'in remission' increase awareness among patients and healthcare professionals about the underlying chronic disease?

In 1993, John Porter suggested the TNM (Tumor/Node/Metastasis) classification be used and adapted for CVI staging (Eklöf et al, 2004). The concept of TNM, which is used for cancer staging, is helpful in describing a lasting and chronic condition. It has been adopted by podiatrists as a conceptual framework for describing the importance and severity of DFUs. The idea of introducing adapted TNM staging in DFUs is gaining acceptance (Amit et al, 2018), as is use of the term 'remission' as a logical consequence. CVI is a chronic condition with associated conditions (especially VLU) that require management in the long term. Introducing the term 'in remission' would likely raise awareness that 'healed does not mean healed' but means an ulcer-free period. The authors, therefore, think the term 'remission' would be more appropriate to use when explaining the pathology of VLUs to patients. It may increase patients' awareness that they need to engage in preventative behaviours and think differently about the condition. In the same way, we believe the term 'remission' will enhance practitioners' awareness of and focus on VLU pathophysiology, highlighting the fact they are dealing with a chronic disease and not a simple wound.

Discussion

This paper presents the draft of a work we would like to develop in order to raise awareness of the severity of CVI and its associated VLUs. We propose to share our analysis at a meeting, preferably composed of an international panel of experts including vascular surgeons (representatives from the Society of Vascular Surgery), wound care nurses, vascular nurses, podiatrists and general clinicians. The hope is that the analysis will inform a formal discussion about strategies to prevent VLU recurrence. Based on the findings of the panel, the intention is to produce a formal position document that offers an alternative interpretation of the term 'healing' in patients with VLUs.

Based on the questions posed, our reasons for proposing the change in terminology are threefold. First, we believe that scientific literature supports the use of the term 'in remission' rather than 'healing' and better reflects the concept of CVI as a chronic condition. Second, we hope the Society for Vascular Surgery considers amending item C5 of the CEAP classification to reflect that re-ulceration is likely when a VLU has healed. We believe the use of the term 'in remission' will increase clinician awareness that VLUs are not simple wounds but the result of a condition

that needs ongoing management. Third, we feel this term should be used in daily practice when treating patients with VLUs, as we feel it will increase patient awareness of the chronic nature of the condition and need to engage in self-care and preventative strategies.

Permanent impairments require a focused approach to reduce their impact in the long term. This is the case for stroke, diabetes, depression and other chronic diseases, and should be the same for VLUs in remission. Structured services result in positive outcomes (healing rates and pain management) for patients with VLUs (Edwards et al, 2005). This finding led us to formulate a fifth question: **Would use of the term 'in remission' and consideration of the chronicity of VLUs open discussion about the need to create dedicated nurse-led education and follow-up services where they do not exist?** Planned visits, early skin assessment, educational programmes, health literacy assessment, weight control, smoking cessation and concordance with compression garments are examples of interventions that could be provided by a clinic led by specialist wound care nurses. Implementing a planned VLU remission strategy requires bundled strategies and resources not currently available in many countries but would probably result in considerable indirect health economic savings (Guest et al, 2015). A dedicated tool to identify patients at high risk of re-ulceration and a tailored approach to management has been proposed as a way of achieving this (Finlayson et al, 2018). The authors believe there are various hypotheses relating to improving patient quality of life and generating cost savings that are worth exploring. For example, Flaherty (2005) estimated an 8% cost saving to be associated with an ulcer staying in remission due to savings in community nursing time. Education is fundamental to VLUs remaining in remission. A prospective intervention and retrospective analysis of tailored educational programmes found significant increases in knowledge of the VLU disease process and self-care and concluded that education has the potential to reduce recurrence (González, 2017).

In our opinion, 'remission' should be included in the definition of a broader spectrum of wounds, as proposed in the consensus on heel pressure injury management (Rivolo et al, 2019). The authors feel it could fill the gap in comprehension and should be added to the simple, complex and recalcitrant classifications of ulceration to aid more thorough future discussion.

It is important to underline that unclear use of the term remission could have a negative impact, as it is mainly used in the oncological field. Clinicians should carefully explain this term when they use it.

Conclusions

This paper attempts to formalise new concepts of VLUs and highlight the possible role of nurse-led services in improving patient quality of life and outcomes (González, 2014). It proposes replacing the term 'healed' with 'in remission' when referring to cured VLUs in order to reduce clinician and patient misunderstanding about the nature of VLUs and better reflect the underlying chronic condition. This change in terminology may be the first step towards defining and realising the nature of the underlying damage, therefore it is hoped item C5 of the CEAP classification might be amended to 'in remission'.

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Conflict of interest: Massimo Rivolo is a part-time Clinical Consultant for L&R in Switzerland.

References

- Alavi A, Sibbald RG, Phillips TJ et al (2016) What's new: Management of venous leg ulcers: Treating venous leg ulcers. *J Am Acad Dermatol* 74(4): 643–64
- Allegra C, Antignani PL, Bergan JJ et al; International Union of Phlebology Working Group (2003) The "C" of CEAP: Suggested definitions and refinements: an International Union of Phlebology conference of experts. *J Vasc Surg* 37(1): 129–31
- Armstrong DG (2016) Treating diabetic foot ulcers like an aggressive cancer. *Podiatry Today*. Available at: www.podiatrytoday.com/blogged/treating-diabetic-foot-ulcers-aggressive-cancer (accessed 10.08.2020)
- Australian Wound Management Association and New Zealand Wound Care Society (2011) *Australian and New Zealand Clinical Practice Guideline for Prevention and Management of Venous Leg Ulcers*. Available at: www.nzwcs.org.nz/images/luag/2011_awma_vlug.pdf (accessed 10.08.2020)
- Boulton AJM, Armstrong DG, Kirsner RS, et al (2018) *Diagnosis and Management of Diabetic Foot Complications*. Arlington, VA: American Diabetes Association
- Brown A (2008) Does social support impact on venous ulcer healing or recurrence? *Br J Community Nurs* 13(3 Suppl): S6, S8, S10
- Brown University Library (2020) *Systematic and Literature Review*. Available at: <https://tinyurl.com/u9svtuh> (accessed on 10.08.2020)
- Bui UT, Edwards H, Finlayson K (2018) Identifying risk factors associated with infection in patients with chronic leg ulcers. *Int Wound J* 15(2): 283–90
- Callam M, Ruckley C, Harper D, Dale J (1985) Chronic ulceration of the leg: Extent of the problem and provision of care. *Br Med J (Clin Res Ed)* 290(6485): 1855–6
- Edwards H, Courtney M, Finlayson K et al (2005) Chronic venous leg ulcers: Effect of a community nursing

- intervention on pain and healing. *Nurs Stand* 19(52): 47–54
- Eklöf B, Rutherford RB, Bergan JJ et al; American Venous Forum International Ad Hoc Committee for Revision of the CEAP Classification (2004) Revision of the CEAP classification for chronic venous disorders: Consensus statement. *J Vasc Surg* 40(6): 1248–52
- Finlayson KJ, Parker CN, Miller C et al (2018) Predicting the likelihood of venous leg ulcer recurrence: The diagnostic accuracy of a newly developed risk assessment tool. *Int Wound J* 15(5): 686–94
- Flaherty E (2005) Setting up a community nurse-led healed leg ulcer clinic. *Br J Nurs* 14(15 Suppl): S14–S20
- González A (2014) Education project to improve venous stasis self-management knowledge. *J Wound Ostomy Continence Nurs* 41(6): 556–9
- González A (2017) The effect of a patient education intervention on knowledge and venous ulcer recurrence: Results of a prospective intervention and retrospective analysis. *Ostomy Wound Manage* 63(6): 16–28
- Guest JF, Ayoub N, McIlwraith MC et al (2015) Health economic burden that wounds impose on the Nation Health Service in the UK. *BMJ Open* 5(12): e009283
- Jain AKC (2018) Amit Jain's system of practice for diabetic foot: The new religion in diabetic foot field. *Int Surg J* 5(2): 368–72
- Lim CS, Baruah M, Bahia SS (2018) Diagnosis and management of venous leg ulcers. *BMJ* 362: k3115
- Nelson EA (2011) Venous leg ulcers. *BMJ Clin Evid* 2011: 1902
- Nelzén O, Bergqvist D, Lindhagen A (1997) Long-term prognosis for patients with chronic leg ulcers: a prospective cohort study. *Eur J Vasc Endovasc Surg* 13(5): 500–8
- Nelzén O, Fransson I (2007) True long-term healing and recurrence of venous leg ulcers following SEPS combined with superficial venous surgery: a prospective study. *Eur J Vasc Endovasc Surg* 34(5): 605–12
- Rabe E, Pannier F (2012) Clinical, aetiological, anatomical and pathological Classification (CEAP): Gold standard and limits. *Phlebology* 27(1 Suppl): 114–8
- Rivolo M, Dionisi S, Olivari D et al (2019) Heel pressure injuries: Consensus-based recommendations for assessment and management. *Adv Wound Care* 9(6): 332–47
- Uhl JF, Cornu-Thenard A, Carpentier P et al (2001) Reproducibility of the "C" classes of the CEAP classification. *J Phlebol* 1: 39–48
- Vivas A, Lev-Tov H, Kirsner RS (2016) Venous leg ulcers. *Ann Intern Med* 165: ITC17-32
- Vowden K, Vowden P (2006) Preventing venous ulcer recurrence: a review. *Int Wound J* 3(1): 11–21
- World Union of Wound Healing Societies (2016) *Position Document. Local management of diabetic foot ulcers*. London: Wounds International. Available at: www.woundsinternational.com/resources/details/position-document-local-management-diabetic-foot-ulcers (accessed 10.08.2020)
- Xiaofang S, Ni P, Wu M et al (2017) A clinicoepidemiological profile of chronic wounds in the Wound Healing Department in Shanghai. *Int J Low Extrem Wounds* 16(1): 36–44
- Xie T, Ye J, Rerkasem K, Mani R (2018) The venous ulcer continues to be a clinical challenge: an update. *Burns Trauma* 6: 18