Obravnava venske golenje razjede pri bolnici v socialnovarstvenem zavodu: študija primera

Management of a Venous Leg Ulcer in a Resident Receiving Long-term Care: a Case Study

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Izvleček

Namen: *Venske golenje razjede so kronične rane, povezane s kroničnim venskim popuščanjem, ki pri starejših pomembno zmanjšujejo kakovost življenja, ter tudi povečujejo tveganje za okužbe in dolgotrajno oskrbo.*
Poročilo o primeru: *Predstavljamo študijo primera 82-letne bolnice, varovanke socialnovarstvenega zavoda z vensko golenjo razjedo leve noge. Obravnava je potekala od aprila do decembra 2024 ter je vključevala zdravljenje rane po načelih sodobne oskrbe (TIME), načrtovanje zdravstvene nege na podlagi temeljnih življenjskih aktivnosti in multidisciplinarno sodelovanje. Z individualizirano lokalno oskrbo kronične rane, učinkovitim obvladovanjem izločka, nadzorom vnetja in izločka, prehransko podporo, ustrezno analgezijo*

Abstract

Aim: *Venous leg ulcers are chronic wounds that are associated with chronic venous insufficiency, which significantly reduces the quality of life in elderly residents and increases the risk of infection and the need for prolonged care.*
Case Report: *We present a case involving an 82-year-old female resident of a long-term care facility with a venous leg ulcer on the left leg. Treatment was administered from April to December 2024 and included wound management according to modern care principles (tissue care, infection/inflammation control, moisture management, and epithelialisation support [TIME]), nursing care planning based on activities of daily living, and multidisciplinary collaboration. Complete*

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ter postopno aktivacijo v okviru fizioterapije smo dosegli popolno granulacijo in epitelizacijo rane. Ob zaključku obravnave bolečina ni bila več prisotna, izboljšalo se je spanje, zmanjšal se je strah pred amputacijo okončine ter izboljšalo se je psihološko počutje varovanke.

Zaključek: *Celostna, kontinuirana in interdisciplinarna obravnava starostnika z vensko golenjo razjedo v institucionalnem okolju lahko ob ustrezni izbiri oblog, kompresijski terapiji, nadzoru vnetja, podpori pri življenjskih aktivnostih vodi v uspešno zacelitev. Ključni dejavniki so realno zastavljeni cilji, redno vrednotenje poteka zdravljenja ter opolnomočenje bolnika in svojcev.*

wound healing with full granulation and epithelialisation was achieved through individualised local care of the chronic wound, effective exudate management, inflammation and exudate control, nutritional support, appropriate analgesia, and gradual mobilisation as part of physical therapy. At the conclusion of treatment, the pain had resolved, sleep had improved, the fear of limb amputation had decreased, and her psychological well-being had improved.

Conclusion: *Comprehensive, continuous, and interdisciplinary care of an elderly resident with a venous leg ulcer in an institutional setting can lead to successful healing with appropriate dressing selection, compression therapy, inflammation control, and support with activities of daily living. Key factors for a favourable outcome include realistic goal setting, regular evaluation of treatment progress, and empowerment of the resident and the family.*

INTRODUCTION

The population in Slovenia and worldwide is ageing, resulting in an increased prevalence of chronic diseases and conditions associated with chronic wounds. Venous leg ulcers (VLUs) are the most common type of chronic lower limb ulcer and are closely linked to venous hypertension and chronic venous disease (1,2). LUs arise from venous valve dysfunction and venous reflux, which leads to sustained venous hypertension, inflammation, and subsequent tissue damage. Clinically, this pathophysiologic process presents as an ulcer that is most often situated in the lower one-third of the leg (2,3). VLUs typically require several months to heal and have a high recurrence rate, underscoring the importance of secondary prevention after wound closure (4-10).

VLUs have a significant impact on the physical and psychological well-being of residents in long-term care facilities and are associated with pain, reduced mobility, sleep disturbances, malodour, social isolation, and fear of complications (5–7). In institutional settings, further challenges arise due to multimorbidities, immobility, and dependence on assistance with activities of daily living. However, detailed reports describing comprehensive interdisciplinary management of VLUs in frail residents of long-term care institutions remain limited in the literature.

The aim of this case study is to present a comprehensive approach to managing a resident with a VLU in a social welfare institution and to highlight the key multidisciplinary interventions that contributed to successful wound healing.

CASE PRESENTATION

The principles of the CAse REport (CARE) guidelines were followed in preparing this case presentation. Personal data have been anonymised and are presented only to the extent necessary for clinical understanding of the case.

Resident Data and Medical History

The case involves an 82-year-old female resident in a social welfare institution with a VLU on the left lower limb that was present since 2022 and characterised

by multiple ulcerative areas. The medical history includes advanced chronic venous insufficiency, arterial hypertension, and osteoporosis.

In 2022 she was hospitalised for infection of chronic venous ulcers on the pre-tibial skin bilaterally. The ulcers on the pre-tibial skin persisted after discharge but no signs of acute inflammation were observed during the follow-up examination. Regular dressing changes were recommended every 3–4 days with additional home phototherapy using a light source (Bioptron®, Zepter International, Wollerau, Switzerland) during dressing changes.

In the following months the ulcer on the right pre-tibial skin was more painful than the left pre-tibial skin. An above-knee amputation of the right lower limb was performed in September 2023 due to recurrent infections of the ulcers and the development of critical ischaemia of the right lower limb. The procedure had a significant impact on her functional status and psychological condition, particularly in terms of reduced mobility and increased anxiety about the outcome of the disease.

Post-amputation the resident exhibited immobility and severe functional dependence. Care was provided at home with the support of a community nurse and caregivers before institutionalisation. She was admitted to a social welfare institution in March 2024 as her need for round-the-clock assistance increased. Upon admission, the resident required assistance with all basic activities of daily living, including personal care, mobility, transfers, and toileting. The greatest functional limitation was her inability to move independently because she was unable to use a wheelchair effectively due to the right limb amputation.

During care, she experienced appetite disturbances, occasionally refused food, and showed reduced motivation to participate actively in physiotherapy. During dressing changes, when the wound dressings listed in Table 2 were used, she reported burning and tearing pain, expressed fear of possible amputation of her left lower limb, and suffered from insomnia. We assessed her sleep disturbances using the Insomnia Severity Index [ISI] (range, 0–28), which categorises insomnia as follows: 0–7, no clinically significant insomnia; 8–14, subclinical insomnia; 15–21, moderate clinical insomnia; and 22–28, severe insomnia. The resident scored 20/28 on the ISI at the time of admission, indicating moderate clinical insomnia. Upon completing treatment, she scored 6/28 on the ISI, which was consistent with the absence of clinically significant insomnia and a subjective improvement in sleep quality.

Table 1: *Clinical characteristics of the resident*

Gender/age	Female, 82 years
Accommodation	Long-term care facility
Diagnosis	Venous leg ulcer of the left lower leg (history of bilateral ulcers since 2022); chronic venous insufficiency
Clinical description of the ulcer	
	Venous leg ulcer with multiple ulcerative areas; shallow lesions without necrosis; during exacerbation, increased exudate and unpleasant odour
Mobility and cooperation	Immobile; dependent on assistance due to above-knee amputation of right leg
Key challenges	Pain, insomnia, fear of amputation, decreased appetite, limited activity

Initial assessment of the wound

According to Falanga's classification of wound bed preparation, which combines wound appearance (A–D) and exudate control (1–3), the ulcer was assessed as C3 at the start of monitoring [< 50% granulation tissue, fibrin coating present, no eschar; uncontrolled exudate requiring daily dressings] (11). Upon completing treatment, the wound was classified as A1 (100% epithelialisation and controlled exudate). At the start of the observation period (April 2024), the VLU on the left pre-tibial skin was characterised by multiple ulcerative areas of varying size, covered with fibrin deposits and a profuse exudate. The wound edges were covered with non-viable epithelial debris and the surrounding skin was dry and scaly. Minor bleeding occurred during dressing changes. The multiple ulcerative areas noted were clinically assessed as part of a single VLU.

Compression Therapy

Compression was gradually introduced according to the resident's tolerance with regular monitoring of pain, the condition of her skin, and signs of potential ischaemia as part of standard safety procedures during compression therapy. The aim was to achieve a therapeutic pressure of approximately 30–40 mmHg at the ankle with a gradual reduction proximally. Bandages were applied after wound cleansing and dressing changes (every 1–2 days or daily if the condition worsened).

After a reduction in oedema and exudate and subsequent wound stabilisation, complete wound healing with full granulation and epithelialisation was achieved. Following ulcer healing, compression therapy was continued using class II elastic compression stockings (23–32 mmHg; Sigvaris AG, St. Gallen, Switzerland) as a secondary preventive measure to reduce the risk of recurrence.

The resident and her family were instructed on the importance of regular compression therapy, leg elevation at rest, and daily skin inspection.

NURSING CARE PLAN AND INTERVENTIONS

Based on a comprehensive initial assessment, an individualised care and treatment plan was developed in accordance with the principles of multidisciplinary care. The plan was prepared and implemented with the involvement of a physician, registered nurses, a physiotherapist, an occupational therapist, social services, and family members, who participated in defining care goals, supporting the resident, and monitoring progress.

Local wound care, pain management with analgesics, insomnia management with sedatives, nutritional support, prevention of immobility complications, such as risk of contractures, pressure ulcers, and infectious complications, and gradual functional activation were prioritised according to the abilities and tolerance of the resident. Local wound care was performed according to the principles of tissue care, inflammation/infection control, moisture management, and epithelialisation support (TIME) approach, ensuring coordinated treatment of local and systemic factors affecting the healing process through interdisciplinary cooperation.

Treatment progress was regularly evaluated at team meetings, where nursing and therapeutic measures were adjusted as needed based on the clinical response of the wound, pain intensity, functional status, and resident cooperation.

Table 2: *Timeline and key actions (April to December 2024)*

April 2024	Initial assessment, wound cleansing with tap water and mild soap (17), application of advanced dressings according to exudate level, and compression therapy as tolerated; Provision of analgesia prior to dressing changes; Monitoring fluid balance and supporting adequate nutritional intake through regular nursing assessment, including encouragement of protein- and energy-rich meals.
May - Avgust 2024	Regular dressing changes every 1–2 days, with dressing selection based on wound characteristics, including absorptive dressings (alginate, polyurethane foam), antimicrobial dressings (copper oxide–impregnated), and protective/occlusive dressings (polyester film).
October 2024	Additional support for healing was provided by polarized light phototherapy, alongside continuation of standard care and gradual mobilization.
December 2024	Complete granulation and healing of VLU achieved; no pain; reduced fear and improved cooperation in care and rehabilitation.

RESULTS

The VLU was in the complete granulation phase after 8 months (from April 2024 to December 2024) and had healed by mid-December 2024. The resident reported that the pain had resolved and she was sleeping better at night. Her psychological state improved with a reduced fear of amputation and increased willingness to participate in the physiotherapy programme.

Figure A: *Presentation of the initial clinical condition of the venous leg ulcers (VLCs) with multiple ulcerative areas before the introduction of light therapy (April 2024).*

DISCUSSION

VLUs are caused by chronic venous disease and venous hypertension and represent a significant burden for residents and the healthcare system (1,2,9). In the case presented herein, in addition to the local wound, accompanying factors were crucial: advanced age; immobility due to amputation; incontinence; decreased appetite; pain; insomnia; and psychological stress.

Systematic wound assessment and adaptation of local care are the foundation of effective treatment in chronic wounds. The TIME concept enables structured decision-making regarding debridement, infection control, moisture management, and promotion of epithelialization (8).

The Falanga classification in the assessment was also included for a more objective and repeatable description of the wound bed. This classification combines the appearance of the wound (proportion of granulation and presence of fibrin or eschar) and the degree of exudate control, enabling clearer monitoring of progress and communication within the team (10).

Compression therapy remains the primary intervention for VLU but in practice the effectiveness is often limited by resident tolerance, mobility, and cooperation (12,13). In an institutional setting it is crucial to gradually introduce compression and regularly assess the skin and pain.

Figure B: *Presentation of the clinical condition of VLUs after 2 months of treatment (June 2024).*

Figure C: *Presentation of the clinical status of VLUs after adjuvant phototherapy (October 2024).*

Nutrition and nutritional status have a significant impact on wound healing outcomes. Evidence supports the importance of adequate protein and micronutrient intake (e.g., vitamin C and zinc), while malnutrition is associated with delayed healing and increased complications (11). In the case herein, nutritional support included encouraging regular energy- and protein-rich meals, providing oral nutritional supplements enriched with protein, vitamins, and trace elements due to reduced appetite, and regularly monitoring fluid intake with nursing staff offering assistance and encouragement during meals. Residents with reduced appetite require active monitoring of intake and early intervention with individualised dietary adjustments.

Insomnia was systematically monitored using the ISI scale because sleep disturbances significantly affect regeneration, pain tolerance, and cooperation during treatment. Regular assessment allowed adjustment of non-pharmacologic measures (sleep hygiene and structuring of daily activities), and, if necessary collaboration with a physician to optimize therapy (14).

VLU-associated pain is often complex, combining chronic and procedural elements, and can lead to sleep disturbances and reduced cooperation in treatment (6,7). In the case herein, analgesia before dressing changes and psychological support due to fear of amputation were important. Quality of life in residents with chronic wounds is often an overlooked outcome, although quality of life significantly affects cooperation and long-term success (5).

Figure D: *Photography of the healed VLUs after 8 months of treatment (December 13, 2024).*

Physical activity is limited in individuals with VLUs due to pain and poor muscle pump function but structured exercise with compression can benefit the healing process (15-17). Realistic goals are less ambitious (e.g., active exercises in bed, short-term mobilization, and transfer to a wheelchair with the help of healthcare staff) for immobile residents but these measures are also important for preventing complications of immobility and psychological well-being.

In recent years, complementary methods (i.e., biophysical interventions, including phototherapy) have also been used (18,19). However, there is still insufficient evidence to support the routine use of complementary methods and are generally applied as an adjunct to standard care. In the case herein, polarised light phototherapy (Bioptron) was used as an adjunctive intervention with standard wound care. Infection was not clinically confirmed in the case herein. Therefore, management focused on controlling inflammation and prevention, including regular wound assessment, appropriate dressing selection (e.g., absorptive and antimicrobial dressings, as indicated), and strict hygiene during dressing changes (20).

Nutritional support included encouragement of regular energy- and protein-rich meals with oral nutritional supplements enriched with protein, vitamins, and trace elements due to the resident's reduced appetite.

Family members were actively involved in the care process, particularly in providing psychological support, encouraging adherence to treatment (e.g., compression therapy and nutrition), and participating in care planning and education provided by the healthcare team.

Overall, phototherapy served as a supportive and motivational intervention, while the primary drivers of healing were standard evidence-based measures, including local wound care, compression therapy, nutritional support, and rehabilitation.

The limitation of this case study was that the results cannot be generalized. Nevertheless, the case highlights the importance of continuous nursing care, structured assessment, teamwork, and resident empowerment in an institutional setting.

CONCLUSION

This case demonstrates that healing is possible in an elderly resident with a venous leg ulcer in a social care institution, even with multiple limitations, such as advanced age, immobility, pain, and psychological distress, if the treatment is comprehensive, individualized, and continuous. The key factors for success were regular wound assessment and adjustment of care according to TIME principles, effective inflammation and exudate control, nutritional support, pain management, appropriate tolerance-based compression therapy, and multidisciplinary rehabilitation. Psychological support and involvement of family members also had important roles in treatment.

This case contributes to the existing literature by illustrating the practical implementation of comprehensive VLU management in a long-term care setting, where treatment is often complicated by immobility, multimorbidity, functional dependence, and psychological distress. The report highlights the importance of integrating evidence-based wound care, compression therapy, rehabilitation, nutritional support, and psychosocial interventions to achieve successful healing outcomes in frail older adults. Furthermore, it emphasises the value of continuous interdisciplinary collaboration and individualised care planning in institutional care environments.

CONFLICT OF INTEREST

The authors declare that no conflict of interest exists.

FUNDING

The study received no funding.

ETHICAL APPROVAL

No approval by the National Medical Ethics Committee was necessary to conduct the study due to the selected research methodology.

AUTHOR CONTRIBUTION

The authors independently carried out the entire research process, including literature search and analysis. They also wrote the entire manuscript and conducted the final revision of the article. The authors confirm that they are solely responsible for all aspects of the research and writing.

PATIENT CONSENT FOR PUBLICATION

The patient has provided written informed consent and agrees to the publication of the article describing her case.

REFERENCES

1. Raffetto JD, Ligi D, Maniscalco R, Khalil RA, Mannello F. Why venous leg ulcers have difficulty healing: overview on pathophysiology, clinical consequences, and treatment. J Clin Med. 2021;10(1):29. doi:10.3390/jcm10010029.
2. Fukaya E, Klein A, Lau J, Ratchford EV. Vascular disease patient information page outpatient wound care. Vasc Med. 2023;28(1):89-92. doi:10.1177/1358863X221118120.
3. Lim CS, Baruah M, Bahia SS. Diagnosis and management of venous leg ulcers. BMJ. 2018;362:k3115. doi:10.1136/bmj.k3115.
4. Finlayson KJ, Parker CN, Miller C, et al. Predicting the likelihood of venous leg ulcer recurrence: diagnostic accuracy of a risk assessment tool. Int Wound J. 2018;15:686-694. doi:10.1111/iwj.12901.
5. Olsson M, Friman A. Quality of life of residents with hard-to-heal leg ulcers: a review of nursing documentation. Br J Community Nurs. 2020;25(Sup12):S13-S19. doi:10.12968/bjcn.2020.25.Sup12.S12.
6. Leren L, Johansen E, Eide H, et al. Pain in persons with chronic venous leg ulcers: a systematic review and meta-analysis. Int Wound J. 2020;17(2):466-84. doi:10.1111/iwj.13296.
7. Winders S, Lyon DE, Kelly DL, et al. Sleep, fatigue, and inflammatory biomarkers in older adults with chronic venous leg ulcers receiving intensive outresident wound care. Adv Wound Care (New Rochelle). 2024;13(10):508-17. doi:10.1089/wound.2023.0124.
8. Robles-Tenorio A, Lev-Tov H, Ocampo-Candiani J. Venous leg ulcer. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; updated 2022 Sep 18. Available from: https://www.ncbi.nlm.nih.gov/books/NBK567802/.
9. Bonkemeyer Millan S, Gan R, Townsend PE. Venous ulcers: diagnosis and treatment. Am Fam Physician. 2019;100(5):298-305.
10. Planinšek Ručigaj T. Venska golenja razjeda. In: Zbornik predavanj enterostomalne terapije. Ljubljana: Univerzitetni klinični center Ljubljana; 2019.
11. Falanga V. Classifications for wound bed preparation and stimulation of chronic wounds. Wound Repair Regen. 2000;8(5):347-52.
12. Alsharif AT, Alanazi OI, Alqarni RA, et al. The impact of nutritional condition and compression treatment on venous ulcer recovery: a systematic review. Cureus. 2024;16(4):e57407. doi:10.7759/cureus.57407.
13. Seth I, Lim B, Cevik J, et al. Impact of nutrition on skin wound healing and aesthetic outcomes: a comprehensive narrative review. JPRAS Open. 2024;39:291-302. doi:10.1016/j.jpra.2024.01.006.

14. Morin CM, Belleville G, Bélanger L, Ivers H. The Insomnia Severity Index: psychometric indicators to detect insomnia cases and evaluate treatment response. Sleep. 2011;34(5):601-608. doi:10.1093/SLEEP/34.5.601.
15. Jull A, Slark J, Parsons J. Prescribed exercise with compression vs compression alone for venous leg ulcers: a systematic review and meta-analysis. JAMA Dermatol. 2018;154(11):1304-1311. doi:10.1001/jamadermatol.2018.3281.
16. Qiu Y, Team V, Osadnik C, Weller C. Barriers and enablers to physical activity in people with venous leg ulcers: a systematic review of qualitative studies. Int J Nurs Stud. 2022;135:104329. doi:10.1016/j.ijnurstu.2022.104329.
17. Herraiz-Ahijado B, Folguera-Álvarez C, Verdú-Soriano J, et al. Active legs: impact of physical activity as an adjuvant treatment in the healing of venous ulcers in primary care: a RCT protocol study. BMC Nurs. 2023;22:65. doi:10.1186/s12912-023-01214-y.
18. Lurie F, Bittar S, Kasper G. Optimal compression therapy and wound care for venous ulcers. Surg Clin North Am. 2018;98(2):349-360.
19. Aleksandrowicz H, Owczarczyk-Saczonek A, Placek W. Venous leg ulcers: advanced therapies and new technologies. Biomedicines. 2021;9(11):1569. doi:10.3390/biomedicines9111569.
20. McLain NEM, Moore ZEH, Avsar P. Wound cleansing for treating venous leg ulcers. Cochrane Database Syst Rev. 2021;3:CD011675. doi:10.1002/14651858.CD011675.pub2.