Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v31i2.4582

USING A SIMULATED CASE, HOW TO EVALUATE AND TREAT VENOUS VASCULAR LESIONS OF THE LOWER LIMBS

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Abstract:
Background: Venous vascular lesions in the lower extremities pose a significant clinical challenge due to their varied etiology and complexity. Practical assessment and management of these lesions require a thorough understanding of their underlying causes and appropriate treatment modalities.
Objective: Using a simulated case study approach, this research paper will comprehensively analyze assessment and management strategies for venous vascular lesions in the lower extremities. By employing this method, the paper seeks to enhance healthcare professionals' knowledge and decision-making capabilities in diagnosing and treating venous vascular issues.
Methods: The paper utilizes a simulated case study format to explore assessment and management strategies for venous vascular lesions in the lower extremities. Through an in-depth analysis of a representative case, various diagnostic techniques, treatment options, and therapeutic interventions are discussed and evaluated.
Results: The simulated case study highlights the diverse etiology and complexity of venous vascular lesions in the lower extremities. Assessment strategies encompass clinical examination, imaging studies, and diagnostic procedures tailored to identify the underlying pathology. Management approaches, including conservative measures, minimally invasive interventions, and surgical techniques, are discussed in detail, considering the individual patient's needs and preferences.
Conclusion: By employing a simulated case study approach, this paper provides valuable insights into assessing and managing venous vascular lesions in the lower extremities. Healthcare professionals can utilize the knowledge gained from this analysis to improve their diagnostic accuracy and optimize treatment outcomes for patients with venous vascular issues.

Introduction:

Venous vascular lesions in the lower extremities encompass a broad spectrum of disorders, including superficial varicosities, deep vein thrombosis (DVT), and chronic venous insufficiency (CVI). The multifaceted nature of these conditions necessitates a thorough understanding of assessment and management strategies to optimize patient outcomes. This paper explores these strategies with a particular focus on a simulated case study, designed to replicate the challenges encountered in real-world clinical scenarios.(Butova, Shayakhmetov, Fedin, Zolotukhin, & Gianesini, 2021; Secemsky et al., 2022; Shabani Varaki, Gargiulo, Penkala, & Breen, 2018).

Chronic venous disease (CVD) is a long-term pathology caused by changes in the venous system. It is characterized by the presentation of symptoms like pain, fatigue, itching, cramps, etc., or manifestations like telangiectasias, varicose veins, edema in the MMII, and venous ulcers that need to be studied and treated (Tew et al., 2018).

Based on the acronym CEAP, the "American Venous Forum" in the United States created a classification in 1994 to determine the degree of severity of CVD:

- **"C":** signs and symptoms in the clinic. It is categorized into six grades, from "no visible signs" to the emergence of an "active ulcer" (where it may be indicated whether or not symptoms are present).
- **"E":** Etiological factors; congenital, primary, and secondary etiologies are the three etiologies listed.
- **"A":** The affected anatomical region, which may be perforating, deep, or superficial.
- **"P":** Pathophysiology, which distinguishes between obstruction and reflux.

The international community in this field recognizes and agrees with this classification. As a result, grade C6 on the CEAP scale (8.9) corresponds to the existence of an active venous ulcer (Figure 1) (Schneider, Stratman, & Kirsner, 2021).

Nevertheless, we are unable to evaluate the impact of CVD on patients' quality of life or its severity using CEAP. In light of this, the Venous Clinical Severity Score (VCSS) scale was developed in 2000 by the "American Venous Forum" to assess the disease's effects on the patient as well as the response and progression of treatment. Additionally, the VCSS scale has been validated in a timely manner for use in clinical practice (Image 2) (Patel et al., 2021).

Nurses, particularly in primary care frequently treat this kind of chronic skin lesion. For this reason, one of the most crucial duties is being able to recognize and diagnose patients as soon as possible in order to begin treatment and/or prevention if they already have active UV rays or are at high risk (Atkin et al., 2021) (Saleem, Knight, & Raju, 2020)(Guntani, Yoshiga, & Mii, 2019)(Liu, Wang, Chen, Pan, & Su, 2021).

The first step in doing this for any patient is to look through their medical history to see if there is anything that could be a trigger (such as advanced age, female sex, obesity, sedentary lifestyle, toxic habits, or a personal or family history of deep vein thrombosis) and a physical examination, searching for common UV symptoms like edema, pruritus in the MMII, and moderate pain (which can become extremely intense if there is an infection in the wound) (Huberts et al., 2018).

To distinguish and diagnose UV, one must be aware of their morphology and characteristics. Typically round or oval in shape, they have well-defined hollowed and uneven edges, and the amount of exudation varies depending on the lesion's bacteriological environment, degree of limb edema, and healing phase. The perilesional tissue must also be assessed during the examination because it may exhibit skin abnormalities like varicose veins, erythema, petechiae, venous eczema, brownish hyperpigmentation, and even generalized edema of the limb (Antle, Cormier, Findlay, Miller, & Côté, 2018).

Ankle-brachial index (ABI) calculation and pulse palpation procedures (finding the presence of foot and posterior tibia pulses) are required in order to perform adequate differentiation. These are methods that point towards a potential peripheral obstructive arterial disease (PAED) and are highly helpful in identifying the kind of ulcer that is present or selecting the best course of treatment (Latz et al., 2021).

An ultrasound or Doppler device will be used, along with a sphygmomanometer cuff situated above the ankle joint, to determine their presence (Figure 3). Verifying the presence and strength of tibial pulses is the goal because their absence would suggest suspected EAOP. The next step is to compute the ABI, which is meant to assess and demonstrate the existence and severity of the EAOP. It is calculated by dividing each leg's systolic blood pressure (SBP) by the arm's highest SBP (Figure 4). A venous ulcer can be suspected as the initial diagnosis in a clinical setting if the ankle-brachial index corresponds to a number greater than 0.75 and palpation of the pulses is evident (DePopas & Brown, 2018).

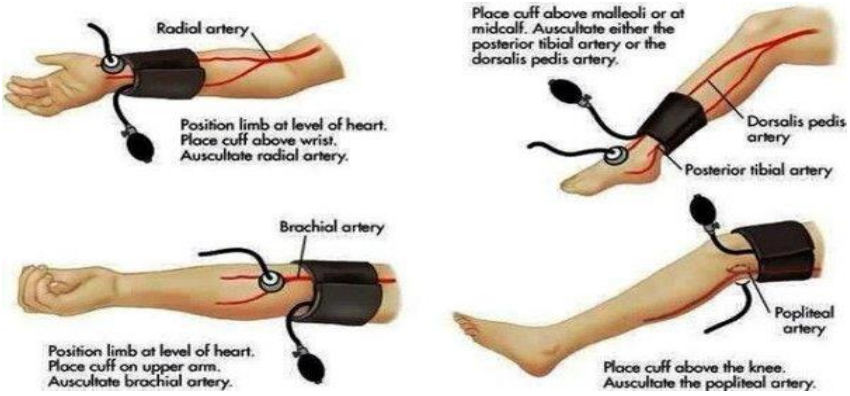

Figure 3. Systolic blood pressure measurements in MMII, MMSS, and ITB. (Reference: FEMORA protocol) .

ITB Values	Interpretation
>1.3	Vascular Calcification
0.81-1.3	Normal
0.51-0.8	Arterial Disease
<0.5	Critical Ischemia

Figure 4. ITB values (Source: Sergas' useful guide to ulcers on the legs).

UV radiation can be treated in a number of ways, such as therapeutic compression of the legs, intravenous medication (pentoxifylline is frequently administered), or even surgery (saphenectomies, phlebectomies, etc.). It is mentioned in the current literature and in relation to the aetiology of this kind of injury that the treatment needs to be etiological, meaning that the CVI should be treated with venotonic drugs from the start and integrated with compression therapy (Mervis, Kirsner, & Lev-Tov, 2019).

The primary and most effective treatment is leg compression therapy, which limits HTV and venous stasis and acts against venous insufficiency by enhancing the functionality of the legs' venous valves. As a result, the major goals of this therapy are to increase venous return and improve blood circulation in the legs. It can be applied therapeutically and prophylactically to individuals with CVI, providing the following advantages: accelerates blood flow, which improves leg circulation; shortens ulcer healing times (when combined with physical activity), delays the progression of CVI (Bjork & Ehmann, 2019).

However, since it can be harmful to the patient if performed inappropriately or with products that are misapplied, this therapy is not appropriate for any type of ulcer. It is vital to measure the ABI and ascertain whether the foot and posterior tibia have pulses in order to administer this therapy appropriately. Patients with an ABI greater than 0.8 should receive compression therapy up to 40 mmHg. It would initially be contraindicated if its ABI was less than 0.8. Still, in some instances, it could be applied at a pressure of about 20 mmHg after taking a number of precautions (multicomponent bandages that ensure pressures of 20 mmHg and 40 mmHg are available on the market). Without exception, it is completely contraindicated if you have decompensated heart failure or an ABI of less than 0.5 (AOPD with critical ischemia). It should be mentioned that there is a chance

that a patient with diabetes will have an unreliable ABI, with high values above 1.3 indicating potential vascular calcification. In these situations, the patient will need to be referred for vascular surgery (Cartee et al., 2021).

The actual course of treatment starts after the lesion has been identified and diagnosed and the severity of the underlying disease assessed. Compression therapy comes in various forms, and it can be administered with bandaging systems or stockings. In these situations, a straightforward "traditional" bandage is not recommended because we have no control over what compresses and becomes ineffective even after a few hours. Multilayer and multicomponent bandages, usually consisting of two layers, can be used for adequate and efficient compression therapy. It is predicated on applying a short traction bandage (which encourages the blood to pump through the leg muscles) in conjunction with an elastic bandage (which is in charge of sustaining continuous pressure) (Irfan, Sheahan, Mitchell, & Sheahan III, 2019).

Before applying this kind of bandage, make sure the ankle's circumference is more than 18 cm. If not, it needs to be widened and bandaged with cotton until it does (some brands have specific bandages for the perimeters) 25–35 cm and 18–25 cm). It will work best when applied from the base of the toes in the distal leg to the proximal leg, maintaining the foot in a functional 90º position and the leg free of tension. Depending on the type of bandage and the circumference of the leg, it will be done in a spiral, covering either half or three quarters of the bandage from the previous round in each round. The distal portion or the bases of the fingers, and the proximal part, or the two fingers below the knee, are always bandaged first. Don't ever sell the other way around. If there is extra bandage when the bandage reaches the knee, it should be cut off and thrown away (Ng et al., 2020).

Compression stockings are another useful substitute for compression therapy. They can be used to treat or prevent UV rays and are categorized as light (18–24 mmHg), medium (22–29 mmHg), or strong (30–40 mmHg) based on the degree of compression. Depending on the size, they can be short (up to the knee), long (reaching the thigh), or up to the waist. Which compression is appropriate will depend on how severe the CVI is. Since we will have less edema during this time, it is best to wear them early in the morning and while we are sleeping (Shwaiki et al., 2021).

In actuality, compression therapy can be challenging because it necessitates adherence from the patient (difficulty in enduring the discomfort and limitations associated with bandage use, or difficulty correctly putting on compression stockings), the healthcare workers (who bear a great deal of responsibility for the patient's care, including assistance and cooperation in putting on socks and providing hygienic care if the patient is bandaged), and the environment. However, once compression therapy is initiated, it will become a condition of lifestyle and the pathology and ulcers, if present, or their prevention if not. To promote the strongest possible relationship during this kind of therapy, it's critical to understand the patient's world (Franco-Sadud et al., 2019).

Considering the features of the lesion, treating the ulcer itself is appropriate in addition to applying compression therapy to treat the CVI. The current recommendation for wound management using moist wound healing products has the highest level of scientific evidence. Any wound must first be cleaned, preferably without harming the surrounding skin or the wound bed, by using gauze and saline solution to remove any remaining debris. Debridement of dead, detached, or nonviable tissue might be required. Similarly, in conjunction with compression therapy, the exudates level needs to be watched, and appropriate dressings (usually alginates, hydrocolloid hydrofibers, and hydropolymeric or polyurethane foams) used for this purpose (Ulloa & Glickman, 2021).

In order to detect infection symptoms as soon as possible, we also need to control the bacterial load of the wound. This may mean using antimicrobial dressings in addition to systemic antibiotic therapy. Use barrier and moisturizing creams to maintain hydrated, healthy skin, both in the event of an active ulcer and as a preventative measure (Harput et al., 2018).

When treating injuries in a sequential manner, acronyms are frequently used. One of the most popular and best supported by scientific evidence acronyms for treating chronic lesions is **TIMERS:**

- **T (non-vital tissue control):** necrotic tissue inhibits the lesion's ability to heal and, on the one hand, makes it difficult to assess the extent and depth of the lesion's involvement. As a result, it may be

sometimes some form of debridement is required, and healing in a moist environment (CAH) provides an adequate autolytic one. However, dressings for debridement (hydro-detergent fibres) or enzymatic products (collagenase) can also be used.

- **I for Infection (Inflammation):** If inflammatory symptoms or a high biological load are present, treatment with antimicrobial agents should be administered as needed. Systemic antibiotics may also be necessary.

- **M for Moisture:** humidity (exudates level): a wound bed in good condition for healing will have an appropriate amount of exudates; low humidity will impede healing, and excessive humidity will cause the wound bed to become macerated. The edges may exacerbate the injury and postpone its healing.

- **E for Edges (epithelial edges):** Additionally, we need to protect or stimulate the epithelial edges of the lesion because they may become macerated due to excessive humidity or dressing spacing, which could hinder the ulcer lesion's ability to progress normally.

- **R for Repair/Regeneration:** Determines if the lesion can be repaired adequately or, conversely, if further, more sophisticated therapies may be necessary.

- **S for Social Situation:** It's important to assess if the patient's social environment is suitable and if it gets in the way of following their treatment plan.

The prognosis varies greatly and depends on a number of factors that can result in ulcers that heal in a matter of weeks or years. As was previously mentioned, adherence to treatment is one of the conditioning factors. Other factors include obesity, a sedentary lifestyle, smoking, diabetes, hypertension, or the diet itself. UVs are typified by alternating intervals of relapse that prolong the healing process with intervals of improvement that show a sufficient progression towards recovery. Healing-based studies show that up to 10% of lesions last up to five years (or longer), 20% last up to two years, and over 50% of cases last more than a year after treatment. However, we also need to take into account the high rate of UV recurrence (54–78% of cases) (Khaja et al., 2022).
Numerous studies being conducted at the moment suggest that many cases could be prevented or have shorter recovery times. However, we also need to take into account the fact that, in certain instances, the evolution is irreversible because of the wide range of clinical variations among experts (discordance between diagnosis and treatment). For the staff, it's a comparison of the various approaches to treating this kind of injury and the various resources that are available. This study aims to identify the risk factors for developing venous ulcers. The procedures focus on prevention and show the appropriate guidelines to follow in the holistic and global approach to this type of patient (Minneti, Baker, & Sullivan, 2018).
Treatments based on scientific evidence are applied, and a simulated case activity is used to train healthcare personnel. The management of venous ulcers has become a primary problem in the healthcare field, generating a decrease in patients' quality of life and a high burden on health. The goals are to raise the standard of care in order to enhance the patient's quality of life, lower the prevalence through health education and prevention, and create a set of best practices that can be used to maximize recovery times and available resources (Velde, 2018).

MATERIALS AND METHODS:

Presentation Of Case Simulation:

A 60-year-old woman has had a chronic venous insufficiency diagnosis for over a decade. You have a history of other serious illnesses, including diabetes mellitus and hypertension. You had varicose sclerosis (sclerotherapy) on both legs about thirty years ago. Antihypertensives, oral antidiabetics,

vasoprotective medications, and psychotropic medications are the usual course of treatment for her since she complains of difficulty sleeping (Garibaldi & Olson, 2018).
She works six days a week as a business employee, meaning that she is on her feet for eight to ten hours each day (Sunday is her day off). She has complete autonomy over her daily activities. She doesn't play sports or engage in any other physical activity in her spare time, leading a comparatively sedentary lifestyle. For assessment and treatment of a vascular lesion in her left leg that occurred six years ago, she is referred to her nurse. You report that the lesion started as a result of a minor trauma that you independently treated at home using antiseptics in accordance with your regular health team's advice (a nurse and your family physician from your health centre). She claims that at the time, from standing for extended periods of time, her legs were severely edematous and swollen (Figure 5) (Cosmi et al., 2022).

Legal and ethical aspects:
Current laws and regulations state that the study of a clinical case is regarded as a data reproduction study rather than a biomedical research study as such (it does not have a research project). As a result, it is exempt from approval by the research ethics committee, and because it is a figurative case (a simulation of a real case), it does not require authorization from the healthcare facility or the informed consent of the patient (Meissner et al., 2021).

Figure 5. The venous ulcer's initial appearance.

Nursing evaluation:
Before addressing any lesion, a comprehensive patient assessment must always be completed. The patient stated that she had no relevant family history during the interview. The most noteworthy aspect of her medical history is that she was diagnosed with venous vascular insufficiency in both lower extremities 12 years ago. However, she also had surgery for bilateral scleroderma 30 years prior, which has since suggested venous vascular problems. For those who have not undergone any specific treatment, aside from topical anti-varicose ointment (Pentosan sodium polysulphate) and vasoprotective treatment, the most common cause of pain after a workday is the leg massage (Lodi, Fanti, Muntoni, & Mazzarella, 2019).
Despite his doctor's prescription for "rest stockings" several years prior, he does not wear any kind of compression system, despite reporting that he ended the day with extremely swollen legs. She says she tried wearing them but gave up because the stockings were uncomfortable and extremely difficult to put on. She lives an extremely sedentary lifestyle (against the clinical advice of her healthcare team), but she manages her hypertension and diabetes well. Regarding the ulcer, you recall that you struck your left leg against a box corner approximately six years ago, resulting in a minor superficial local trauma measuring roughly three by two centimeters. She had been using antiseptics for the past two months or so. The lesion became chronic and was diagnosed as a venous vascular ulcer because it did not heal (Hajati, Moghanlou, Vajdi, Razavi, & Matin, 2020).
Over the past six years, the ulcer has experienced a range of circumstances (and treatments). It has gone from displaying obvious signs of inflammation or infection to necessitating repeated antibiotic use. It even went through phases where it appeared to be healing, but after a few days or weeks, it

would regress again, growing in size. There were also times when it was completely immobile and numb (Ostroff, Moureau, & Ismail, 2018).
Every month, she typically visits her health centre (to look for materials and prescriptions). Povidone-iodine is typically applied at home along with compresses and a tubular bandage to cover the lesion (to absorb excess exudates that increases during the day). Adequate therapeutic adherence to the established guidelines and recommendations has not been attained, even though the patient is an autonomous individual with an acceptable cultural level. She arrives at this time because her wound is hurting and occasionally smells bad (Kermavnar, O'Sullivan, de Eyto, & O'Sullivan, 2020).
Palpation is used to identify the foot and posterior tibia pulses during the examination. In terms of the injury assessment, the wound is situated above the ankle on the inside of the leg. Its measurements are roughly 18 by 12 cm. plenty of slough tissue and sparse patches of granulation tissue (no necrotic tissue) can be seen in the wound bed. The dermis, epidermis, and subcutaneous cellular tissue are all impacted. Since the exudates level is high and suggests severe pain and an unpleasant odour, we have to believe that there is a high bacterial load. The edges, in the furthest portion of the lesion, are uneven, non-edematous, and slightly erythematous. Additionally, there is reddish-brown hyperpigmentation of the periulceral skin (ochre dermatitis typical of venous lesions) (Nguyen et al., 2020).
On the other hand, the so-called "inverted champagne bottle" that results from skin and tissue atrophy brought on by venous insufficiency is a sign that gives a lot of information to distinguish it as a venous ulcer. A certain amount of dryness in the proximal region and maceration in the distal region are visible on the perilesional skin (effect of edema-related exudate, in an upright position). Based on the verbal numeric pain scale, the patient reports a pain score of 8. Adopting an appropriate clinical approach is necessary to implement an appropriate treatment plan for this patient. In order to do this, we will evaluate which needs are met and which are not using Virginia Henderson's 14 basic health needs model. Then, using nursing reasoning, we will create a care plan that takes the patient's needs into account (Xiong, Zhang, & Li, 2022).

Action Plan:

The phase of diagnosis:

The majority of the Virginia Henderson models need breathing, elimination, dressing, temperature, communication, beliefs, work, recreation, and learning are found to be met after the assessment is completed. Meanwhile, we discover a few that are reported below, linking them in accordance with the global NANDA taxonomy with the subsequent nursing diagnoses and the corresponding NOC result and NIC intervention labels, so as to create a sufficient care plan (Table I) (Schaper et al., 2020).

Basic Needs	**NANDA-I Diagnostics**
Diet	[00296] Risk of metabolic syndrome.
Move	[00204] Ineffective peripheral tissue perfusion. [00086] Risk of peripheral neurovascular dysfunction. [00168] Sedentary lifestyle. [00278] Ineffective self-management of lymphatic edema. [00311] Risk of deterioration of cardiovascular function.
Sleep rest	[00198] Sleep pattern disorder.
Hygiene/Skin	[00046] Deterioration of skin integrity.
Avoid dangers/ Safety	[00004] Risk of infection.

Table I. Diagnoses for NANDA-I were found. Source: produced by oneself.

Phase of planning:
A selection is made from among the various nursing diagnoses in order to distinguish and provide significance to the one that most directly affects the goal of this investigation. In order to find the priority focuses with greater relevance, a network of interrelationships between diagnoses can be created through clinical reasoning and the AREA model (Current State Result Analysis). Arrows will be used to highlight the most pertinent diagnoses as they relate to the central problem, starting with the clinical problem. (Figure 6) (Xiong et al., 2022).

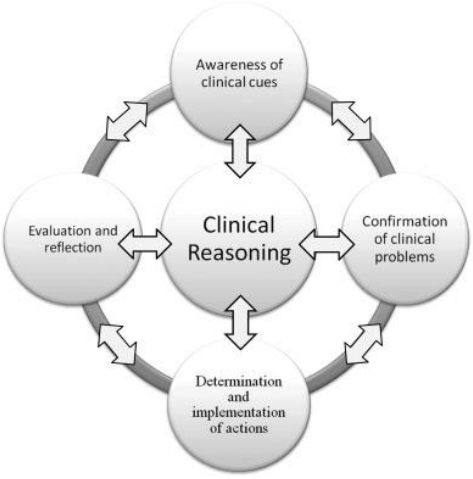

Figure 6. A network of relationships between diagnoses in clinical reasoning.

A holistic and all-encompassing approach to the patient, addressing all pertinent factors and conditions of the patient and her surroundings, must be the foundation of the care plan. The created care plan will mostly address the most pertinent nursing diagnoses that are available for the treatment of a venous ulcer, keeping in mind the goal of this study (Table II, III, and IV)

Table II: Skin integrity deterioration treatment plan.

Table IV: A treatment plan for peripheral tissue perfusion that is not working well.

RESULTS (Development and Management):
Phase of Execution:
The primary goals of nursing care will be to actively treat the current lesion, manage its symptoms, and implement strategies to stop future ulcers that could result from the underlying vascular disease as well as a potential ulcer that could recur after it has healed. Restoring skin integrity as quickly as possible while maintaining the integrity of the surrounding skin is the aim of the treatment administered to the lesion. In order to ensure that the patient has the best possible quality of life throughout the process, general measures and treatments targeted at the comprehensive and all-encompassing care of the patient and his surroundings will be established as secondary objectives (Junior, Dezotti, Dalio, Joviliano, & Piccinato, 2018).
The application of treatment and preventive measures started as soon as the patient turned to the nurse, taking into consideration the treatment plan and evolution (Figure 5). A number of general measures were implemented in order to control the primary contributing factor to the current injury situation, which was the patient's chronic venous insufficiency. For this reason, it is critical to prioritize health education, providing the patient with the information they need and instructing them in the skills and procedures that must be used. These include encouraging the practice of regular physical activity (despite working every day of the week) and maintaining an adequate diet (in this case, taking into account that she is a diabetic patient) with the aim of maintaining an ideal BMI (Raffetto, Ligi, Maniscalco, Khalil, & Mannello, 2020).

Options like walking to work or designating an hour a day for this practice (walk/exercise at home/group activity) should be made available to the child and help them develop the habit of taking it easy during the week, with the exception of Sundays. Throughout the day, keep your legs elevated above the level of your heart to encourage venous return and lessen discomfort. You ought to refrain from dressing too tight. These actions are in addition to compression therapy (Dean et al., 2020).
Its morphology and characteristics dictate UV management. The lesion is first cleaned, attempting to remove all the debris that will allow it to be removed without harming the healthy tissue. This is done by instilling both saline solution and drinking tap water. Beyond the erythematous area of the distal part, which may be the result of some maceration, the lesion does not exhibit obvious signs of infection; however, if the appearance of the wound bed is considered, the presence of significant amounts of exudates, along with the unpleasant odour and the reported pain, suggest that the bacterial load of this ulcer could be very high, which would limit its evolution. Because of this, a swab is used to gather a culture, which is then sent to the microbiology service (Cheng, Gibb, Graves, Finlayson, & Pacella, 2018).
Since the lesion contains fibrin, sharp debridement is not an option. Instead, we can use dressings containing polyacrylate detergent fibres for enzymatic debridement or autolytic debridement, which is achieved by applying the healing agent in a humid environment. This patient's option for autolytic debridement was selected (Groen et al., 2020).

Figure 7 . Padded with cotton bandage.

Now is the time to use tweezers to clean the biofilm. As long as the biofilm is present, we continue to treat the patient with hydrocolloid hydrofiber and silver, along with compression therapy, using a multicomponent bandage. However, at this point, the patient has tolerated the therapy well enough that the compression is increased to 40 mmHg. Every visit should focus on promoting health by addressing patient concerns and providing information on diet and exercise. Weight, blood pressure, and diabetic profile (glycemic control) will be checked every two weeks. Based on the case review analysis, the original treatment for this ulcer six years ago was erroneous in all respects. Due to a subpar therapeutic approach, a lesion that didn't seem to have any clinical consequences before became much larger (Raffetto et al., 2020).

Figure 8. Multilayer/multicomponent bandage.

Small traumas frequently cause vascular lesions of venous etiology, which are frequently underestimated by both medical professionals and patients (who do not seek professional evaluation

and treatment). This has the effect of making the wound become chronic due to inadequate or inappropriate treatment, which sets up a lengthy process that lowers the patient's quality of life and necessitates comprehensive and complex care from medical professionals. These professionals will then be faced with a very serious lesion that is challenging to treat and has significant clinical and social ramifications (Dean et al., 2020).

It was possible to observe and disseminate the guidelines that have been developed over the course of six years for the treatment of venous ulcers through this clinical review study. Had these guidelines been in place at the outset, six years' worth of suffering, resource consumption, and professional and patient time could have been avoided. Since these lesions are chronic in nature, the goals must be suggested, taking into account the patient's circumstances as well as the lesion. The cornerstone for healing once this kind of ulcer has been identified is compression therapy. Healing times will be very long and may never occur if there is insufficient compression. Additionally, because these wounds are recurrent, it is crucial to promote prevention and treatment strategies. Compression stockings and other general health promotion initiatives should be used to this end (Cheng et al., 2018).

The AREA model was utilized to structure a network of nursing reasoning in order to select the NANDA diagnoses; among those chosen, priority was given to the diagnoses that had the biggest influence on the issue that needed to be resolved. To accomplish the suggested goals, the NOC outcome criteria that resulted and the NIC interventions were chosen. Following a comprehensive evaluation of the patient that considered the features of the ulcer, a suitable treatment plan was devised (Groen et al., 2020).

It is crucial to train medical professionals in the treatment of venous ulcers in order to prevent clinical variability. This is because it has been shown that patients' quality of life can be improved and healing times can be shortened by following the right treatment guidelines, protocolizing and globalizing the treatment (Serinelli, Bonaccorso, & Gitto, 2020).

If properly cared for at the outset, a wound of this kind is expected to heal adequately in 20 to 30 days, preventing complications and their negative effects on the patient's quality of life. Any patient with CVI must have their risk factors assessed, as well as any symptoms such as varicose veins, edema, and changes in pigmentation, eczema, ulcers, burning, itching, or stitching; these symptoms should also be taken into consideration. The patient's and her surroundings should be assessed as the foundation for the strategy (Lokhorst et al., 2021).

Figure 9. Appearance of the lesion after 20 days of evolution.

If you also have an acute (or chronic) wound of any kind, you need to treat it right away, without underestimating its severity, using your best clinical judgment and the full range of therapeutic options available to try to heal it as quickly and effectively as possible. Controlling risk factors (both new and old), evaluating symptom control, promptly identifying lesions or compilations, assessing the patient's quality of life, and confirming medication compliance are all necessary for the follow-up of this kind of patient (Kainz et al., 2021).

Two weeks later, the patient returns to the clinic in need of a new dressing, stating that some tension has been released from the bandage. The lesion has shrunk in size, and a clear clinical improvement is seen upon removal of the bandage and dressing (Figure 10). Due to the decrease in exudates and the near-complete disappearance of pain, the wound bed now has more granulation tissue and a larger epithelialized area than biofilm. The distal portion still has desquamated tissue. The bandage has

loosened because the leg is less edematous. Treatment will be the same as it was initially, with the exception of using a multicomponent bandage in conjunction with a silver-free hydrocolloid hydrofiber to control the exudates (which was a mistake that will be explained below) (there are no longer obvious signs of infection) (Schaper et al., 2023).

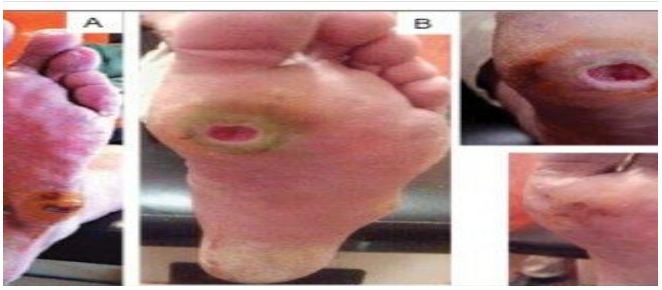

Image 10. The lesion's appearance following 32 days of development.

Following two months of development, the lesion exhibits an apparent hypergranulation (Image 11), most likely as a result of the hydrofiber lesion being maintained for such a long time. The skin surrounding the wound is intact, hydrated, and free of edema. The wound looks well, with a moderate amount of exudates. The lesion's depth and extension have shrunk, and its edges are clearly defined, and the patient is no longer in pain. In light of the circumstances, the decision was made to switch to an alginate dressing while keeping the therapy in place as a cornerstone of the ulcer's positive development (Onida et al., 2019).

Image 11. The lesion's appearance following a 60-day evolution period.

Following three months of development, the ulcer has healed (Figure 12), with areas of the lesion having already undergone epithelialization and very little exudates. The periulceral skin appears healthy and is undamaged. The patient claims not to be in any pain. Low-adhesion hydropolymer foam dressing is used in place of the dressing in order to fully restore the epithelium of the wound tissue. Given the favorable course of the ulcer, the patient is recommended to use medium compression therapeutic stockings in place of the multicomponent bandage. This will facilitate the patient's adjustment to the use of the stockings, as they will be necessary to wear after the ulcer's convalescence to prevent potential recurrence (Flores, Mell, Dalman, & Chandra, 2019).

Image 12. The lesion's appearance following ninety days of development.

Five and a half months after treatment commencement, in accordance with the approved treatment plan, the patient is released from the facility (Figure 13). Because of the trauma the patient endured, the wound bed has fully healed and re-epithelialized, allowing you to feel the exact location of the original wound. In order to prevent future recurrence or the development of new lesions, the patient is advised to use an emulsion of hyper-oxygenated fatty acids in milk as well as a product that hydrates and protects the integrity of the skin. Above all, compression stocking use is strongly advised (Baish, Padera, & Munn, 2022).

Image 13. After 5.5 months of development, the lesion's appearance.

The phase of Evaluation:
Each NOC diagnostic label has a set of specific indicators for the evaluation of the treatment plan. These indicators allow us to assess whether or not the expected result has evolved as expected using "Liker" type scales, where a score of "1" represents the lowest score and a score of "5" represents the highest score.

The two NOCs listed below are the most typical in the current clinical case:
- **wounded tissue healing: secondary intention.**
- **The integrity of mucous membranes and skin tissue.**

The two indicators (shared by both NOCs) that we believe are most relevant and precise will thus be mentioned in order to assess whether the case's evolution is sufficient:

- **Reduction in the size of the wound** (assess the wound's progression from 1 to 5, where 5 represents the wound's actual disappearance): 1-None; 2-Slight; 3-Moderate; 4-Substantial; and 5-Ample.

- **Scar formation** (assess the scar progression from 1 to 5, where 5 represents the scar actual formation): 1-None; 2-Slight; 3-Moderate; 4-Substantial; and 5-Ample.

DISCUSSION:
Based on the case review analysis, the original treatment for this ulcer six years ago was erroneous in all respects. Due to a subpar therapeutic approach, a lesion that didn't seem to have any clinical consequences before became much larger. Small traumas frequently cause vascular lesions of venous etiology, which are frequently underestimated by both medical professionals and patients (who do not seek professional evaluation and treatment). This has the effect of making the wound become chronic due to inadequate or inappropriate treatment, which sets up a lengthy process that lowers the patient's quality of life and necessitates comprehensive and complex care from medical professionals. These professionals will then be faced with a very serious lesion that is challenging to treat and has significant clinical and social ramifications (Pandor et al., 2019).
It was possible to observe and disseminate the guidelines that have been developed over the course of six years for the treatment of venous ulcers through this clinical review study. Had these guidelines been in place at the outset, six years' worth of suffering, resource consumption, and professional and patient time could have been avoided. Since these lesions are chronic, the goals must be suggested considering the patient's circumstances and the lesion (Eriksson et al., 2022).

The AREA model was utilized to structure a network of nursing reasoning in order to select the NANDA diagnoses; among those chosen, priority was given to the diagnoses that had the biggest influence on the issue that needed to be resolved. To accomplish the suggested goals, the NOC outcome criteria that resulted and the NIC interventions were chosen. Following a comprehensive evaluation of the patient that considered the features of the ulcer, a suitable treatment plan was devised (Bloch, Tomaschett, Jakob, Schwinghammer, & Schmid, 2018).

It is crucial to train medical professionals in the treatment of venous ulcers in order to prevent clinical variability. This is because it has been shown that patient's quality of life can be improved, and healing times can be shortened by following the right treatment guidelines, protocolizing and globalizing the treatment (Secemsky et al., 2018).

If properly cared for at the outset, a wound of this kind is expected to heal adequately in 20 to 30 days, preventing complications and their negative effects on the patient's quality of life. Any patient with CVI must have their risk factors assessed, as well as any symptoms such as varicose veins, edema, and changes in pigmentation, eczema, ulcers, burning, itching, or stitching; these symptoms should also be taken into consideration. The patient's and her surroundings should be assessed as the foundation for the strategy (Carman & Al-Omari, 2019).

Suppose you also have an acute (or chronic) wound of any kind. In that case, you need to treat it right away, without underestimating its severity, using your best clinical judgment and the full range of therapeutic options available to try to heal it as quickly and effectively as possible (Credeur, Vana, Kelley, Stoner, & Dolbow, 2019).

Controlling risk factors (both new and old), evaluating symptom control, promptly identifying lesions or compilations, assessing the patient's quality of life, and confirming medication compliance are all necessary for the follow-up of this kind of patient (O'Banion et al., 2021).

CONCLUSION:

The study's results show that compression therapy is the cornerstone for healing once this kind of ulcer has been identified. Healing times will be very long and may never occur without insufficient compression. Additionally, promoting prevention and treatment strategies is crucial because these wounds are recurrent. Compression stockings and other general health promotion initiatives should be used.

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