

EVIDENCE ON TREATMENT OF LYMPHEDEMA AND CUTANEOUS AND BLISTERING LESIONS
ASSOCIATED WITH ERYSIPELAS

 EVIDÊNCIAS SOBRE TRATAMENTO DO LINFEDEMA E LESÕES CUTÂNEAS E BOLHOSAS ASSOCIADAS À
ERISIPELA
EVIDENCIAS SOBRE TRATAMIENTO DEL LINFEDEMA Y LESIONES CUTÂNEAS Y BULLOSAS ASOCIADAS A
ERISIPELA

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ABSTRACT

Introduction: Lymphedema related to erysipelas is a condition caused by the accumulation of lymph, skin alterations, and recurrent infections, with possible formation of blistering lesions that compromise the function of the affected limb. **Objective:** To analyze the evidence on the treatment of lymphedema related to the development of skin and blistering lesions in patients with erysipelas. **Method:** This is an integrative, exploratory, and descriptive review with a qualitative e approach, involving searches in national and international databases, selection of studies published between 2015 and 2025, standardized data extraction, and analysis through interpretative synthesis. **Results:** Ten studies were included, which addressed surgical, pharmacological, compressive, physiotherapeutic, and care interventions; combined therapies such as liposuction followed by continuous compression, lymphatic drainage, standardized protocols, and the use of pharmacological agents, which were associated with reduced edema, lower recurrence of erysipelas, and improved skin integrity. **Discussion:** The management of lymphedema with cutaneous and blistering lesions in erysipelas involves combined strategies, such as antibiotic therapy, compressive therapies, skin care, and multidisciplinary follow-up. Standardized clinical protocols and continuous monitoring highlight the role of nursing in preventing recurrences, caring for lesions, and promoting treatment adherence. Adjuvant and integrative approaches are also identified as complementary alternatives. **Final considerations:** Management requires continuous interdisciplinary care, with nursing playing a central role in prevention, monitoring, and health education, and there is a need for increased production of primary studies on professional practice. **Keywords:** Erysipelas; Skin ulcer; Blister; Lymphedema; Nursing Care.

RESUMO

Introdução: O linfedema relacionado à erisipela é uma condição determinada pelo acúmulo de linfa, alterações cutâneas e infecções recorrentes, com possíveis formações de lesões bolhosas que comprometem a função do membro acometido. **Objetivo:** Analisar as evidências sobre o tratamento do linfedema relacionado ao desenvolvimento de lesões cutâneas e bolhosas em pacientes com erisipela. **Método:** Trata-se de uma revisão integrativa, exploratória e descritiva com abordagem qualitativa com buscas em bases nacionais e internacionais, seleção de estudos publicados entre 2015 e 2025, extração padronizada e análise por síntese interpretativa. **Resultados:** Dez estudos foram incluídos, no qual abordaram intervenções cirúrgicas, farmacológicas, compressivas, fisioterapêuticas e medidas de cuidado; terapias combinadas, como lipoaspiração seguida de compressão contínua, drenagem linfática, protocolos padronizados e uso de agentes farmacológicos que se associaram à redução do edema, menor recorrência de erisipela e melhora da integridade cutânea. **Discussão:** O manejo do linfedema com lesões cutâneas e bolhosas em erisipela envolve estratégias combinadas, como antibioticoterapia, terapias compressivas, cuidados com a pele e acompanhamento multiprofissional. Protocolos clínicos padronizados e monitoramento contínuo destacam o papel da enfermagem na prevenção de recidivas, cuidado das lesões e promoção da adesão ao tratamento. Abordagens adjuvantes e integrativas também são apontadas como alternativas complementares. **Considerações finais:** O manejo exige cuidado interdisciplinar contínuo, com papel central da enfermagem na prevenção, monitorização e educação em saúde, e demanda maior produção de estudos primários sobre a atuação profissional. **Palavras-chave:** Erisipela; Avulsões Cutâneas; Vesícula; Linfedema; Cuidados de Enfermagem.

RESUMEN

Introducción: El linfedema relacionado con la erisipela es una condición determinada por la acumulación de linfa, alteraciones cutáneas e infecciones recurrentes, con posibles formaciones de lesiones ampollasas que comprometen la función del miembro afectado. **Objetivo** Analizar la evidencia sobre el tratamiento del linfedema relacionado con el desarrollo de lesiones cutáneas y ampollasas en pacientes con erisipela. **Método:** Se trata de una revisión integradora, exploratoria y descriptiva con enfoque cualitativo, con búsquedas en bases nacionales e internacionales, selección de estudios publicados entre 2015 y 2025, extracción estandarizada y análisis mediante síntesis interpretativa. **Resultados:** Se incluyeron diez estudios, los cuales abordaron intervenciones quirúrgicas, farmacológicas, compresivas, fisioterapêuticas y medidas de cuidado; terapias combinadas, como liposucción seguida de compresión continua, drenaje linfático, protocolos estandarizados y uso de agentes farmacológicos que se asociaron con la reducción del edema, menor recurrencia de erisipela y mejora de la integridad cutánea. **Discusión:** El manejo del linfedema con lesiones cutáneas y ampollasas en erisipela implica estrategias combinadas, como la antibioticoterapia, las terapias compresivas, el cuidado de la piel y el seguimiento multiprofesional. Los protocolos clínicos estandarizados y la monitorización continua destacan el papel de la enfermería en la prevención de recaídas, el cuidado de las lesiones y la promoción de la adherencia al tratamiento. También se señalan enfoques adjuvantes e integrativos como alternativas complementarias. **Consideraciones finales:** El manejo exige un cuidado interdisciplinario continuo, con un papel central de la enfermería en la prevención, monitorización y educación en salud, y demanda una mayor producción de estudios primarios sobre la actuación profesional. **Palabras clave:** Erisipela; Lesiones por Desenguantamiento; Vesícula; Linfedema; Atención de Enfermería.

INTRODUCTION

Erysipelas is a bacterial infection that affects the superficial layer of the skin, causing high inflammation of the lymphatic vessels, with β -hemolytic *Streptococcus* being the main causative agent⁽¹⁾. Among the main risk factors associated with the development of the disease are advanced age, diabetes, and reduced immunity⁽²⁾. In this perspective, the clinical picture of erysipelas usually manifests suddenly, presenting high fever in the first 12 to 24 hours, accompanied by the appearance of a well-defined, hot, painful, edematous, erythematous plaque, generally located on one of the lower limbs⁽³⁾.

Lymphedema is a chronic condition characterized by an increase in the volume of soft tissues in the affected area, which can progress to significant deformities⁽⁴⁾. Therefore, the affected limb becomes voluminous, edematous, heavy, and painful. As the disease progresses, patients develop recurrent infections and non-healing wounds, thus requiring intensive care⁽⁵⁾.

Furthermore, complications can also include skin changes, which initially appear as a localized area of redness and swelling, but gradually progress, presenting intensely red, raised borders that are clearly separated from the surrounding healthy tissue⁽⁶⁾. Thus, when the condition worsens, blisters, wounds, and lymphedema may appear⁽⁷⁾. Bullous manifestation is usually more common in women and in individuals with

hepatic or renal impairment. In these cases, the presence of blisters is related to a higher chance of infection by methicillin-resistant *Streptococcus aureus* strains⁽⁶⁾.

From this perspective, it is evident that erysipelas can develop into an intense inflammatory process, leading to damage to the lymphatic vessels. This damage can result in the development of lymphedema, where the accumulation of lymphatic fluid causes swelling and increased volume in a specific region of the body. Lymphedema, in turn, creates a favorable environment for the development of skin and bullous lesions, as the increased pressure on tissues due to swelling can damage the skin, making it more vulnerable to wounds, ulcers, and blisters. In line with this, an integrated treatment approach, including infection control and skin care, is crucial for managing these conditions and improving the quality of life of affected patients.

Thus, this study aimed to investigate and analyze the available evidence on the treatment of lymphedema associated with the development of skin and bullous lesions in patients with erysipelas, seeking to improve the efficiency of therapeutic interventions and enhance the quality of life of patients.

METHODS

This is an integrative literature review, exploratory and descriptive in nature, with a

qualitative approach. Thus, an integrative review is characterized as a research method that allows for the systematic and organized union and synthesis of findings from different studies on a specific topic or question, providing a deeper understanding of the subject⁽⁸⁾.

The guiding questions, as well as the problem formulated in interrogative format, are developed throughout the body of the study with the aim of clarifying them, rigorously following the established scientific path⁽⁹⁾. In this sense, for the formulation of the guiding question of this review, the PICo strategy (Population, Interest and Context) was used, whose structure was based on the identification of the central elements of the investigated problem, such as: erysipelas, lymphedema, cutaneous avulsions, treatment. Therefore, through these, the question was defined: "What is the evidence on the treatment of lymphedema associated with the development of cutaneous and bullous lesions in patients with erysipelas?".

Furthermore, the literature search process is a central element for the quality of evidence synthesis, so the effectiveness of this

step directly influences the final result of the study⁽¹⁰⁾. From this perspective, the sample set was fitted with descriptors defined from the standardized vocabularies Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) together with the Boolean operators AND and OR, whose suitability for the review resulted in: P ("Erysipelas") AND I ("Skin ulcer" OR "Skin Diseases" OR "Blister" OR "Lymphedema") AND Co ("Therapy" OR "Treatment Outcome" OR "Nursing Care" OR "Cost of Illness"), in order to ensure greater precision in retrieving relevant studies.

After defining the suitable and unsuitable descriptors, the search was carried out in the selected databases. The identification of studies available in national and international journals took place between May 2025 and June 2025, using the following databases: Virtual Health Library (BVS), Google Scholar, Lilacs, PubMed, ScienceDirect, and Web of Science. Selected full-text articles were obtained electronically through the CAPES Journals Portal, with access authenticated by the CAFe system, provided by the Federal University of Maranhão (UFMA).

Chart 1 – Databases and descriptors used to identify the studies

Database	Descriptors
BVS	("Erisipela") AND ("avulsões cutâneas" OR "dermatopatias" OR "vesícula" OR "Linfedema") AND ("Terapia" OR "Tratamento" OR "Cuidados de enfermagem" OR "Efeitos Psicossociais da Doença").

Google Scholar	("Erisipela") AND ("avulsões cutâneas" OR "dermatopatias" OR "vesícula" OR "Linfedema") AND ("Terapia" OR "Tratamento" OR "Cuidados de enfermagem" OR "Efeitos Psicossociais da Doença").
Lilacs	("Erisipela") AND ("avulsões cutâneas" OR "dermatopatias" OR "vesícula" OR "Linfedema") AND ("Terapia" OR "Tratamento" OR "Cuidados de enfermagem" OR "Efeitos Psicossociais da Doença").
Pubmed	("Erysipelas") AND ("Skin ulcer" OR "Skin Diseases" OR "Blister" OR "Lymphedema") AND ("Therapy" OR "Treatment Outcome" OR "Nursing Care" OR "Cost of Illness").
ScienceDirect	("Erysipelas") AND ("Skin ulcer" OR "Skin Diseases" OR "Blister" OR "Lymphedema") AND ("Therapy" OR "Treatment Outcome" OR "Nursing Care" OR "Cost of Illness").
Web of Science	("Erysipelas") AND ("Skin ulcer" OR "Skin Diseases" OR "Blister" OR "Lymphedema") AND ("Therapy" OR "Treatment Outcome" OR "Nursing Care" OR "Cost of Illness").

Source: The authors, 2025.

Following the searches, the screening and selection of articles was carried out, in accordance with the steps recommended by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The process began with the organization of the references obtained from the databases, which were imported into the Rayyan platform, an online tool developed specifically to support systematic reviews, facilitating the management, screening, and exclusion of duplicates.

The titles and abstracts were read. Then, the full texts of potentially eligible articles were read. After the final selection of studies, systematic data extraction began, based on an instrument adapted from the matrix proposed by Ursi (2005). This instrument allowed for the standardized

recording of essential information for each study, such as title, year of publication, country of origin, type of research, objectives, methodology, main results, and conclusions. Data analysis occurred in three complementary stages: exploratory reading, analytical reading, and interpretive synthesis.

This review included national and international studies obtained from filters applied to databases. Publications were selected, including reviews and original research, that presented primary data on the treatment of lymphedema in patients with erysipelas, with an emphasis on cases associated with cutaneous and bullous lesions. Only articles available in full, published between 2015 and 2025, written in Portuguese, English, or Spanish, peer-

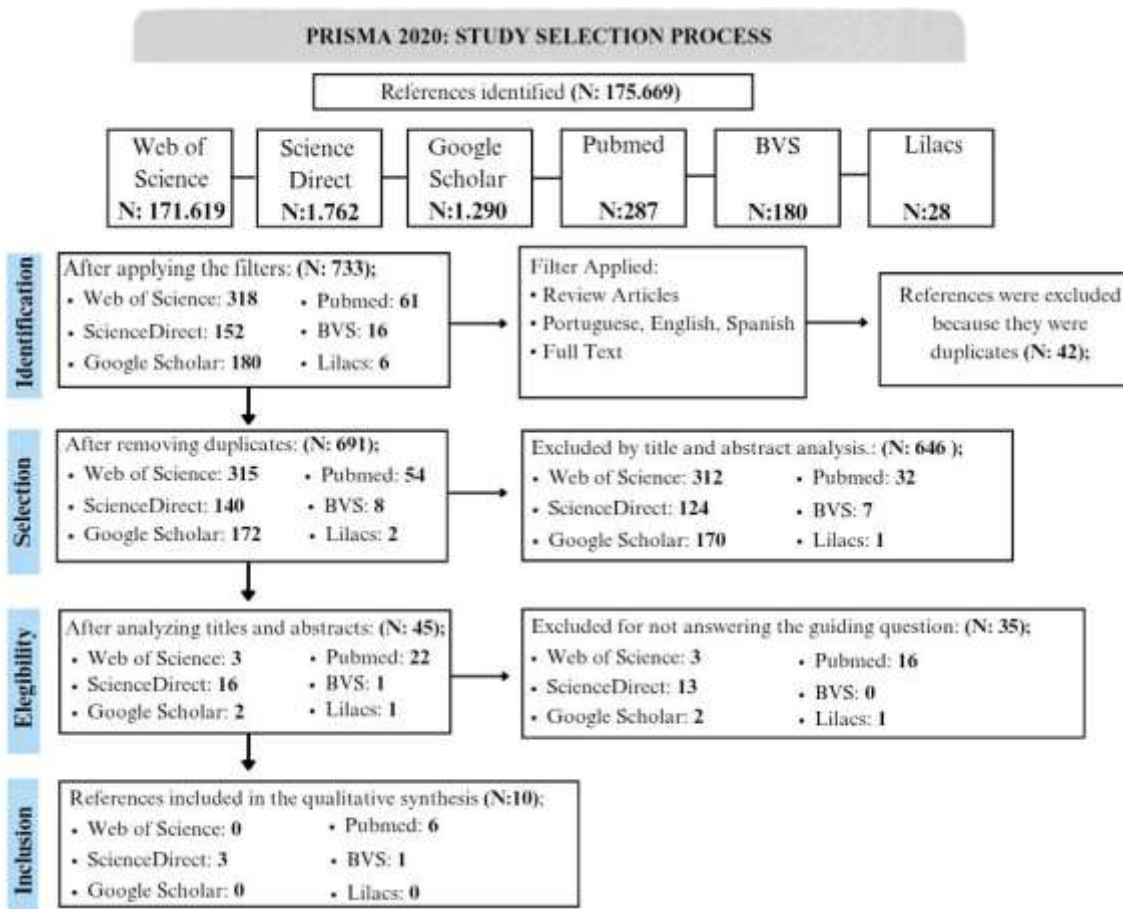
reviewed, and with methodological rigor compatible with the study's objectives were considered.

Regarding exclusion criteria, articles that did not directly address the treatment of lymphedema associated with erysipelas; reviews without clear methodological criteria; opinion articles; and publications classified as grey literature, such as theses, monographs, and institutional reports, were disregarded because they did not undergo formal peer review. Studies duplicated in the databases and those unavailable in full text were also excluded. This standardization sought to ensure methodological consistency

and the reliability of the results obtained.

The PRISMA 2020 statement emphasizes that systematic reviews should describe in a transparent and detailed manner the process of identifying and selecting studies. It also highlights that the guidelines also recommend the use of a flowchart that presents the steps of identification, screening, eligibility and final inclusion of studies. Considering these guidelines, the following flowchart was developed, which brings together all the steps of the study selection process for this review⁽¹¹⁾.

Figure 1- Flowchart for selecting included primary studies according to PRISMA



Source: Adapted and translated from PRISMA (2020).

RESULTS

Based on the analysis of the studies, 10 articles met the inclusion criteria. Therefore, the results were structured in two distinct stages. The first refers to the characterization of the included studies, presented in Table 2, which contains information on the title, origin/year of publication, objectives, methodology, and main results. The second stage consists of a descriptive synthesis of the evidence found on the treatment of lymphedema associated with the appearance of cutaneous and bullous lesions in patients with erysipelas.

During the search, few specific scientific publications from the nursing field on the subject were found. The publications originated from the medical field, mainly in international journals of plastic surgery, dermatology, and clinical medicine. Most of the identified studies have an observational, descriptive, or narrative and systematic review design, focused on the evaluation of therapeutic protocols and pharmacological interventions. Regarding the origin of the studies, a predominance of research published in European journals was observed, particularly from Germany, France, Sweden, the Netherlands, and Portugal, representing approximately 70% of the analyzed publications. Publications from the United States and Ethiopia were

also identified.

In terms of temporal distribution, the included studies span the period from 2016 to 2025, with a higher concentration of publications from 2020 onwards. As for the type of study, clinical review articles and medical practice guidelines prevailed (57%), followed by experimental and observational research (43%). The predominant area of concentration was dermatology and reconstructive surgery.

The objectives of the studies included the efficacy of combined therapies, such as liposuction associated with controlled compression; the use of sodium selenite in patients with lymphedema secondary to cancer associated with erysipelas; and the standardization of clinical protocols for the diagnosis and management of lymphedema. Studies focused on the antibacterial activity of plant extracts against microorganisms isolated from wounds in patients with lymphedema were also identified.

The main results described effects related to edema reduction and prevention of erysipelas recurrence, control of skin infections, maintenance of lymphatic volume after surgical procedures, and the effects of pharmacological interventions in clinical management. The S2k guidelines, the French National Diagnosis and Care Protocol (PNDS), and the Pediatric and Primary Lymphedema Working Group of

VASCERN (VASCERN PPL) presented standardized protocols with a multidisciplinary approach to lymphedema

management, including medical, physiotherapy, and psychological follow-up of patients.

Chart 2 – Characterization of the studies, title, origin/year, objectives, methodology, main results

Title	Origin/Year	Objectives	Methodology	Main Results
Sodium selenite and cancer related lymphedem: Biological and Pharmacological effects. ¹⁵	Germany/ 2016	To analyze the effects of sodium selenite on cancer-related lymphedema and its biological and therapeutic mechanisms.	Descriptive study, based on clinical and experimental evidence on the use of sodium selenite in patients with secondary lymphedema.	Sodium selenite reduced the volume of lymphedema and the incidence of erysipelas, with antioxidant and anti-inflammatory action, improving the response to physiotherapy treatment.
Lymphedem: Diagnostic workup and managemet. ²⁰	United States/ 2017	To present a practical overview of the diagnosis and clinical management of lymphedema.	This descriptive study, based on a review of scientific literature and recent clinical evidence, is aimed at providing medical updates.	Diagnosis is clinical and complemented by imaging tests. Treatment includes decongestive therapy, lymphatic drainage, and compression, with surgery only in resistant cases.
S2k guidelines for skin and soft Tissue infections Excerpts from the S2k guidelines for “calculated initial parenteral treatment of bacterial infections in adults update 2018”. ¹⁶	Germany/ 2019	To standardize the diagnosis and treatment of skin and bacterial infections, focusing on initial antibiotic therapy and the rational use of antimicrobials.	This is a descriptive and qualitative study, specifically a systematic review with expert consensus (Guideline S2k).	He established protocols for skin infections, indicating penicillin for erysipelas and cephalosporins for cellulitis. Severe cases require broad-spectrum antibiotics and surgery.
Shaving Technique and Compression Therapy for Elephantiasis Nostras Verrucosa (Lymphostatic	Netherlands /2020	To evaluate the effectiveness of shaving combined with compression in the treatment of Elephantiasis	A retrospective, descriptive, and quantitative study, complemented by a literature review on the topic.	The treatment significantly reduced episodes of erysipelas, eliminated recurrence of

<p>Verrucosis) of Forefeet and Toes in End-Stage Primary Lymphedema: A 5 Year Follow-Up Study in 28 Patients and a Review of the Literature.¹³</p>		<p>Nostras Verrucosa in advanced primary lymphedema, analyzing clinical results and recurrence at five years.</p>		<p>Elephantiasis Nostras Verrucosa (ENV), and improved limb function. The combination of shaving, compression, and liposuction proved effective in functional and aesthetic rehabilitation.</p>
<p>Antibacterial activity of methanol extracts of the leaves of three medicinal plants against selected bacteria isolated from wounds of lymphoedema patients.²¹</p>	<p>Ethiopia /2021</p>	<p>To investigate the antibacterial activity of methanolic extracts of Lawsonia inermis, Azadirachta indica, and Achyranthes aspera leaves against bacteria isolated from wounds in patients with lymphedema.</p>	<p>Experimental and descriptive study, conducted in a laboratory.</p>	<p>Lawsonia inermis demonstrated the highest antibacterial activity against all strains tested, while Azadirachta indica showed a moderate effect and Achyranthes aspera low efficacy.</p>
<p>Primary lymphedema French National Diagnosis and Care Protocol (PNDS; Protocole National de Diagnostic et de Soins).¹⁸</p>	<p>France/ 2021</p>	<p>To establish national guidelines for the diagnosis, monitoring, and treatment of primary lymphedema in France.</p>	<p>This is a descriptive, qualitative, and guideline-review study, including a narrative literature review and analysis of existing protocols.</p>	<p>It established clinical and genetic diagnostic criteria, recommended imaging tests, and standardized treatment with decongestive therapy, compression, and a multidisciplinary approach..</p>
<p>Dermo-Hipodermite Bacterianas Agudas Não Necrotizantes: Erisipela e Celulite Infeciosa.¹⁷</p>	<p>Portugal/ 2021</p>	<p>Describe the clinical aspects, risk factors, diagnosis, and treatment of erysipelas and infectious cellulitis.</p>	<p>This is a descriptive and qualitative study, a narrative literature review, based on published clinical and microbiological evidence on erysipelas and cellulitis.</p>	<p>Infections caused by Streptococcus pyogenes affect the lower limbs. Diagnosis is clinical, and antibiotic treatment reduces recurrences; benzathine penicillin is effective in prevention.</p>
<p>Liposuction and</p>	<p>Sweden/</p>	<p>To evaluate the</p>	<p>This was a</p>	<p>There was a</p>



Controlled Compression Therapy Reduce the Erysipelas Incidence in Primary and Secondary Lymphedema. ¹²	2022	impact of liposuction combined with controlled compression therapy in reducing the incidence of erysipelas in patients with primary and secondary lymphedema.	retrospective, observational, and quantitative study conducted with patients who underwent liposuction followed by continuous compression therapy.	significant reduction in erysipelas with the combined therapy. Controlled compression was essential to prevent recurrence and maintain reduced lymphatic volume.
The VASCERN PPL working group patient pathway for primary and paediatric lymphoedema. ¹⁹	Europe: France, United Kingdom, Belgium, Italy and Sweden / 2024	To standardize the care pathway for diagnosis, treatment, and follow-up of primary and pediatric lymphedema in Europe, promoting uniformity of care among specialized centers..	This is a descriptive and qualitative study, of the expert opinion/consensus type; based on a narrative literature review, existing protocols, and clinical experience of the centers that are part of the VASCERN PPL network.	It established a patient care flow with diagnostic steps, imaging exams, and treatment based on decongestive therapy, compression, and a multidisciplinary approach among European centers.
Swelling of the legs and feet. ¹⁴	UK/ 2025	To review the main causes of lower limb edema and present current diagnostic and therapeutic approaches, with emphasis on the most common conditions in adults in the Western world.	A descriptive and qualitative literature review, based on scientific publications and clinical guidelines on the causes, diagnosis, and treatment of edema in the lower limbs.	The main findings show that chronic venous insufficiency, lymphedema, and lipedema are the most common causes of leg swelling. Early treatment with compression therapy, skin care, and patient education is essential to prevent complications and improve quality of life.

Source: The authors, 2025.

In summary, the findings highlight important advances in combined therapies and the consolidation of international clinical protocols, although there remains a

need for greater participation from nursing-led studies, especially in the contexts of prevention, rehabilitation, and follow-up of patients with lymphedema associated with

erysipelas.

DISCUSSION

To provide a better analysis of the following results in the discussion, it was necessary to develop three sections: 1. Therapeutic approaches and clinical efficacy in the management of lymphedema associated with erysipelas; 2. Clinical protocols, standardization, and the role of nursing in multidisciplinary care; 3. Therapeutic innovations and integrative perspectives in the treatment of cutaneous and bullous lesions.

1. Therapeutic approaches and clinical efficacy in the management of lymphedema associated with erysipelas

The evaluation of scientific indicators demonstrates that therapeutic approaches aimed at managing lymphedema in patients with erysipelas are confirmed through combined therapies, which relate pharmacological control, surgical intervention, and physiotherapeutic support. The study of the effectiveness of the association between liposuction and controlled compression therapy in reducing the incidence of erysipelas in patients with primary and secondary lymphedema proved promising. This treatment has proven effective in reducing lymphatic volume, as well as in preventing relapses, reflecting a considerable advance in terms of quality of life and functional recovery of affected

patients⁽¹²⁾.

In addition, the shaving technique combined with continuous compression, used in cases of Elephantiasis Nostras Verrucosa, a critical manifestation of advanced lymphedema, reveals promising effects. Therefore, the therapeutic combination eliminated recurrent cases of infection and improved motor function of the lower limbs, indicating that aesthetic and functional rehabilitation depends on the application of integrated and continuous protocols of compression and lymphatic drainage. Concomitantly, the evidence in question strengthens the need for multidisciplinary care, highlighting the role of the nurse in preventing infectious relapses and assisting in treatment adherence⁽¹³⁾.

Contributing to this thinking, a multidisciplinary approach is recommended, involving a specialized lymphatic nurse, physiotherapist, clinical geneticist, vascular specialist, and psychologist. Traditional measures, also known as decongestive lymphatic therapy or lymphatic decongestion therapy, protect the skin and open collateral lymphatic drainage. These methods include graduated compression stockings (GC), as they reduce capillary absorption and contribute to the calf muscle pump, reducing interstitial lymphatic fluid. Intermittent pneumatic compression, with pressures up to 150 mmHg, has proven effective in reducing lower limb lymphedema, especially in bedridden

patients or those with reduced mobility. Furthermore, maintaining compression therapy for a long period of time using graduated compression stockings or inelastic bandages is also essential⁽¹⁴⁾.

Therefore, it is emphasized that the use of benzopyrones, when related to complex decongestive therapy, shows good results in the treatment of lymphedema. However, these medications are not yet approved for prescription in many countries. Furthermore, it reinforces the importance of recognizing and treating episodes of erysipelas and lymphangitis quickly, since early therapy can prevent serious complications such as sepsis or even total limb loss during the acute phase of the disease. In cases with a high amount of exudate, it is advisable to start treatment with bandages in the first few weeks. After this period, these bandages can be used over Zetuvit Plus (Paul Hartmann Ltd, Heywood, UK), which are thin, absorbent dressings, especially when erysipelas causes skin lesion⁽¹⁴⁾.

Despite surgical interventions, the literature emphasizes the use of substances with antioxidant and anti-inflammatory properties as therapeutic adjuvants. Following this line of thought, a study analyzed the efficacy of sodium selenite in patients with cancer-associated lymphedema and found a significant reduction in edema, local inflammation, and the frequency of recurrent erysipelas. Selenite enhances the

response to physiotherapy treatment and potentiates cellular oxidative metabolism, which, upon analysis, may be relevant for patients suffering from chronic erysipelas and skin lesions that are difficult to heal⁽¹⁵⁾.

Furthermore, in the area of antibiotic pharmacotherapy, the S2k guidelines implement safe protocols for the treatment of bacterial skin infections, such as erysipelas and infectious cellulitis. The conscious use of penicillin and cephalosporins is reflected as a first-line plan, while severe cases require broad-spectrum antibiotics or complementary surgical interventions. Following this line of thought, these guidelines are fundamental to reducing bacterial resistance and guiding standardized clinical management⁽¹⁶⁾.

Erysipelas is characterized by the unexpected onset of fever, specifically between 38.5°C and 40°C, manifesting as bright red, warm, erythematous plaques accompanied by pain. Furthermore, skin lesions may appear, measuring approximately 10 to 15 cm in their largest area, and are accompanied by flaccid, bullous vesicles with a translucent interior. In this context, for most patients, empirical coverage against methicillin-sensitive *Staphylococcus aureus* (MSSA) and streptococci is sufficient. Flucloxacillin and first-generation cephalosporins, such as cefradine, are chosen as first-line treatments due to their efficacy and appropriate size. In patients allergic to penicillin, clarithromycin

or clindamycin are suitable options. Generally, a seven-day treatment period is sufficient, with improvement in fever and pain within 24–48 hours and complete resolution of skin signs within two weeks. In bullous cases, such as bullous erysipelas, re-epithelialization can extend for about 20 days⁽¹⁷⁾.

In contrast, coverage for methicillin-resistant *Staphylococcus aureus* (MRSA) should be reserved for specific occasions, such as traumatic wounds, a previous history of MRSA, or intravenous drug use. In these cases, oral therapy can be established with

the addition of cotrimoxazole or doxycycline to the beta-lactam, or by replacing it with clindamycin⁽¹⁷⁾.

Patients meeting hospitalization criteria should receive intravenous antibiotic therapy, with flucloxacillin or cefazolin being the initial indications. Patients allergic to penicillin can use clarithromycin or clindamycin. In a hospital setting with suspected MRSA, vancomycin is advised, with linezolid as an alternative measure. Therefore, Chart 3 presents the most effective antibiotic therapies with their respective dosages⁽¹⁷⁾.

Chart 3 - Antibiotic regimen for the treatment of erysipelas.

Clinical Scenario	Therapeutic options	Penicillin Allergy
Outpatient clinic I	<ul style="list-style-type: none"> • Flucloxacillin - 500mg every 6 hours (orally); • Cefradine - 500mg every 6 hours (orally); • Amoxicillin/Clavulanic Acid - 875mg + 125mg every 12 hours (orally); • Clindamycin - 300mg every 6 hours (orally); • Ciprofloxacin - 750mg every 12 hours (orally); 	<ul style="list-style-type: none"> • Clarithromycin 500 mg every 12 hours (orally); • Clindamycin 600 mg every 8 hours (orally);
Hospitalization	<ul style="list-style-type: none"> • Flucloxacillin - 2g every 6 hours (IV); • Cephaloxine 1g every 6 hours (IV); • Amoxicillin/Clavulanic Acid - 1000 mg + 100 mg every 12 hours (PO); • Imipenem 1-2g every 8 hours (IV); 	<ul style="list-style-type: none"> • Clarithromycin - 500mg every 12 hours (IV); • Clindamycin - 900mg every 8 hours (IV);
Suspected or confirmed case of MRSA.	<ul style="list-style-type: none"> • Vancomycin 1-2g/day (IV); • Linezolid (dose according to clinical protocol); 	-----

Source: Adapted from Rodrigues, 2021.

In addition to these, antibiotic prevention has also proven effective in preventing relapses in patients with two or more episodes of lymphedema associated with erysipelas, using benzathine penicillin 1.2–2.4 million units every 4 weeks intramuscularly or erythromycin 250 mg/day in episodes of penicillin allergy. This measure reduces the risk of relapses during treatment by about 70%, even though its effect is only suppressive. Obese patients with a Body Mass Index (BMI \geq 33), with multiple relapses or lymphedema, show a lower response to prophylaxis⁽¹⁷⁾.

Furthermore, the agreement between surgical, compressive, and pharmacological therapies reaffirms that the treatment of lymphedema associated with erysipelas should not be separate, but integrated into an interdisciplinary approach. In this way, the nurse plays a central role in this process, that is, acting in monitoring, therapeutic adherence and infection control in health services, as well as acting in health education, wound care and rehabilitation, ensuring that therapeutic measures are effective, consistent and sustainable⁽¹⁷⁾.

2. Clinical protocols, standardization and the role of nursing in multidisciplinary care

International guidelines have adopted a fundamental role in standardizing clinical conduct in the face of lymphedema and its infectious complications. The French

National Diagnosis and Care Protocol (PNDS) proposes an integrated care structure that guides from diagnosis to rehabilitation. The protocol highlights the use of combined decongestive therapy, manual lymphatic drainage, elastic compression and skin care as essential pillars of treatment. Additionally, it emphasizes the importance of a multidisciplinary approach, which includes physicians, physiotherapists, psychologists and nurses trained in the management of lymphedema and recurrent skin infections⁽¹⁸⁾.

In this context, the European working group VASCERN PPL developed a patient pathway for primary and pediatric lymphedema. This model, in addition to standardizing diagnostic steps and imaging exams, establishes longitudinal follow-up of patients, ensuring continuity of care and equity in treatments among different European countries. This approach highlights the importance of referral centers and the coordinated action of nursing professionals in clinical surveillance and guidance on self-care, preventing complications such as bullous and ulcerated lesions resulting from erysipelas⁽¹⁹⁾.

The diagnosis of lymphedema is primarily clinical and should be confirmed by integrated imaging methods, such as lymphoscintigraphy and ultrasound. Appropriate practice includes decongestive therapy measures, compression, and daily

skin care, with surgical intervention indicated only in resistant cases. This conservative management is what most favors adherence and maintenance of skin integrity, demonstrating the importance of constant monitoring by nursing staff, who act directly in the prevention of lesions and the early identification of infectious signs⁽²⁰⁾.

In addition, it is noteworthy that erysipelas is an infection that continuously affects the lower limbs and can be recurrent in patients with lymphedema. Therefore, it is emphasized that early diagnosis and treatment with benzathine penicillin are crucial to reduce relapses, considering the importance of care protocols that prioritize antibiotic prophylaxis and comprehensive care⁽¹⁷⁾.

Thus, it is observed that the consolidation of clinical protocols, such as the PNDS, the VASCERN PPL, and the S2k guidelines, contribute to the centralization of practices and the improvement of the quality of care. These protocols provide support for nursing to act autonomously and based on evidence, corroborating its contribution in the stages of assessment, treatment, and follow-up of patients with lymphedema and erysipelas^(18,19,16).

3. Therapeutic innovations and integrative perspectives in the treatment of cutaneous and bullous lesions.

The growth of experimental research has generated new concepts for the treatment of lymphedema associated with cutaneous and bullous lesions. Therefore, the therapeutic potential of methanolic extracts of medicinal plants, such as *Lawsonia inermis* and *Azadirachta indica*, is highlighted. These plants showed significant antibacterial activity against microorganisms specific to wounds in patients with lymphedema. In this sense, the methanolic extract of *L. inermis* (Henna) presented the highest yield of bioactive compounds (15.9%) and validated the most significant antibacterial and bactericidal action among the plants tested. Inhibition halos comparable to those produced by reference antibiotics (cefoxitin and penicillin) were analyzed, particularly against strains of *Staphylococcus aureus* and *Streptococcus pyogenes*, determinants of erysipelas and secondary infections in lymphedema. The high efficacy of *L. inermis* is related to the presence of anthraquinones, phenols, flavonoids, and tannins, compounds characterized by their antimicrobial, antioxidant, and healing action⁽²¹⁾.

Regarding the methanolic extract of *Achyranthes aspera* (Telenge), it revealed an intermediate yield (14.7%) and a more limited antibacterial activity, but still efficient against *Streptococcus pyogenes*, a pathogen strongly linked to occurrences of recurrent erysipelas. Its phytochemical composition showed the presence of alkaloids, tannins, and terpenoids, compounds that have moderate antimicrobial and anti-inflammatory properties. Even less potent than *L. inermis*, this *A. aspera* extract can act

synergistically when integrated with other natural agents, helping to maintain control of the microbial load and reduce inflammation in affected tissues⁽²¹⁾.

Furthermore, regarding the methanolic extract of *Azadirachta indica* (Neem), it showed a yield of 7.9%, with moderate but consistent antibacterial activity against Gram-positive microorganisms, including *S. pyogenes* and *S. aureus*. Its function is related to the presence of flavonoids, terpenoids, and saponins, compounds known to have anti-inflammatory, bacteriostatic, and immunomodulatory effects. In the context of lymphedema and erysipelas wounds, these effects are especially important, as they reduce excessive inflammatory response, local edema, and help prevent recurrent bacterial reinfections⁽²¹⁾.

Therefore, even though *A. aspera* has a higher yield, its antibacterial efficiency is less pronounced compared to *A. indica*, even with a lower yield, because its composition is more concentrated in bioactive compounds such as flavonoids, terpenoids, and saponins. These findings reflect an important advance in the development of alternative or complementary therapies, especially in regions with limited access to conventional antibiotics. Another relevant aspect is reinforcing the possibility of integrating herbal medicines into safe clinical protocols, provided they are validated by controlled trials and guided by qualified healthcare professionals. However, safe therapeutic implementation requires supplementary clinical studies to evaluate ideal

concentrations for topical use, potential adverse effects, and the standardization of plant extracts⁽²¹⁾.

In line with this, in addition to antibiotic therapy and medicinal means, it is essential to adopt general care methods, such as rest with elevation of the affected limb, careful puncture of blisters without removing the top layer of the blister, avoiding the use of irritating antiseptics, thus promoting skin re-epithelialization. In bullous cases, the application of topical antibiotics may be necessary, such as 2% fusidic acid, 20 mg/g mupirocin, or 1% silver sulfadiazine. Thus, nursing plays a prominent role in monitoring the use of antimicrobials and implementing safe care practices, providing therapeutic adherence and preventing new lesions⁽¹⁷⁾.

The combination of surgical interventions and compression therapies can provide not only edema reduction but also tissue regeneration, improving skin texture and lymphatic function. This innovative approach is combined with integrative rehabilitation strategies that value the aesthetics and psychosocial well-being of the patient. These dimensions are fundamental, since lymphedema and bullous lesions significantly impact self-esteem and body image, factors that require sensitivity from the nursing team during care and guidance⁽¹³⁾.

Beyond pharmacological and surgical innovations, there is a growing appreciation for educational and preventive measures aimed at reducing risk factors and early detection of skin lesions. The PNDS

and VASCERN PPL indicate that patient empowerment and self-care monitored by nursing staff are essential means for therapeutic success⁽¹⁸⁻¹⁹⁾. Therefore, these practices include guidance on local hygiene, weight control, management of skin trauma, and the continuous use of compression stockings, measures that decrease the possibility of erysipelas recurrence and delay the progression of lymphedema.

Given the above, it is pertinent to acknowledge the limitations and strengths of this study. Among the limitations, the lack of studies focused on the role of nursing in the management of lymphedema related to erysipelas stands out, which reduces the detailed analysis of clinical practices and care strategies developed by the category.

Furthermore, the inclusion of review studies in the sample was noted as important, since the production of primary research on the topic is still small. This measure was essential to increase theoretical understanding and gather sufficient evidence to allow for a comprehensive and well-founded discussion of the topic.

On the other hand, this study reveals strengths, such as the robust search in scientific databases, which allowed for a careful and up-to-date selection of available evidence. Added to this is the novelty of the proposal, which systematically unites therapeutic, pharmacological, and care approaches related to lymphedema and erysipelas from a nursing perspective. The

importance of the topic is also highlighted, as it contributes to strengthening interdisciplinary care, improving clinical practice, and valuing the role of nurses in the prevention and management of cutaneous and bullous complications resulting from these conditions.

Therefore, it is evident that the most recent evidence converges on the importance of more patient-centered care, focusing on appropriate therapies and interdisciplinary support. The nurse emerges as an essential professional in integrating clinical treatment, psychological support, and self-care practices, acting as a mediator between medical actions and the individual needs of the patient. Therefore, the treatment of lymphedema related to erysipelas should be understood as an ongoing process that connects science, humanization, and technological innovation.

FINAL CONSIDERATIONS

The findings of this review highlighted that the treatment of lymphedema associated with the development of cutaneous and bullous lesions in patients with erysipelas requires a comprehensive approach, supported by combined therapeutic practices. The therapeutic measures analyzed demonstrated consistent results in reducing edema, preventing relapses, controlling skin infections, and maintaining skin integrity,

especially when associated with continuous compression interventions, manual lymphatic drainage, specific surgical therapies, and the use of pharmacological agents.

International clinical protocols have also proven to be extremely important for standardizing management, improving early diagnosis, and guiding long-term care strategies. However, the lack of scientific publications related to nursing practice is emphasized, especially regarding the prevention, rehabilitation, and follow-up of patients with lymphedema associated with erysipelas. The increase in primary research focusing on clinical and educational care is extremely relevant to promote professional practice and improve evidence-based conduct. Despite this limitation, this review highlights the systematization of updated studies, which offer theoretical and practical support to improve care.

Based on this evidence, it becomes clear that managing these conditions requires interdisciplinary actions, therapeutic continuity, and effective health education. Nurses occupy an essential position in this process, acting in clinical surveillance, treatment monitoring, wound care, and guidance on self-care. Therefore, the treatment of lymphedema associated with erysipelas should be understood as constant care that combines science, technology, and humanization, seeking to reduce complications, promote autonomy,

and improve the quality of life of patients.

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