Abstract N°: ID-145

Topic: Wounds and wound healing, ulcer

Spatiotemporally-Tunable double-layered microneedle confers immunoregulation to improve wound healing in diabetes

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Introduction
Impaired wound healing and ulcer complications are a major cause of disability and mortality in diabetic patients, often associated with reduced physical function and diminished quality of life. The underlying mechanism involves dysregulated macrophage plasticity, in which macrophages fail to transition from a proinflammatory to a reparative state, along with impaired angiogenesis, collectively leading to non-healing wounds. There is a pressing clinical need for advanced treatment strategies to promote diabetic wound healing.

Materials and Methods
Microneedle (MN) patches represent an effective approach for transdermal drug delivery, and recent research has focused on developing smart systems capable of sensing and responding to the pathological wound microenvironment. Using single-cell RNA sequencing, we identified a persistent proinflammatory state in macrophages and disrupted cellular crosstalk between macrophages and endothelial cells in diabetic wounds.
To address these abnormalities, we designed a novel double-layered microneedle patch that co-encapsulates reactive oxygen species (ROS)-responsive nanoparticles containing IL-33 and glutathione (GSH)-responsive nanoparticles loaded with Roxadustat (Rox). This integrated nanoplatform enables programmed and sequential drug release in response to the wound microenvironment, thereby promoting macrophage polarization and angiogenesis in a spatially and temporally controlled manner.

Results
In diabetic mouse models, the MN patch significantly improved wound healing by modulating local immune responses and enhancing tissue repair. Specifically, it facilitated the transition of proinflammatory macrophages to an anti-inflammatory phenotype and robustly stimulated angiogenesis. RNA sequencing analysis of wound macrophages further revealed that Ddit4 expression was upregulated following treatment and played a key functional role in regulating macrophage polarization and promoting vascularization.

Conclusions
By combining a macrophage modulator (IL-33) and an angiogenesis inducer (Rox) within a smart microneedle system, we achieved simultaneous immune normalization and enhanced angiogenesis. This strategy provides a promising and comprehensive technology for the treatment of diabetic wounds, with improved efficacy, safety, and patient compliance.

Abstract N°: ID-154

Topic: Wounds and wound healing, ulcer

Does Roller Mixer–Based PRP Preparation Improve Platelet Survival and Clinical Outcomes in Dermatology? A Prospective Clinical Study

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Introduction
Platelet-rich plasma (PRP) has become a routine regenerative treatment in dermatology for conditions such as androgenetic alopecia, acne scars, and striae distensae. Despite its widespread use, clinical outcomes often vary, even when similar centrifugation protocols are followed. One important but frequently overlooked factor is mechanical handling of PRP after centrifugation, which may lead to premature platelet activation and reduced biological efficacy. Gentle, continuous mixing using a roller mixer may help preserve platelet integrity and improve consistency of PRP preparations.
Objectives To assess whether PRP prepared using a roller mixer demonstrates better platelet preservation and more consistent clinical outcomes compared with conventionally handled PRP in common dermatologic indications.

Materials and Methods
This prospective study included 110 patients treated for androgenetic alopecia, post-steroid striae distensae, and atrophic acne scars. PRP was prepared using a standardized centrifugation technique, followed by either roller mixer–based gentle agitation or conventional manual handling. Clinical outcomes were evaluated using objective and semi-objective measures, including ultrasonographic depth measurement for striae, hair density assessment for alopecia, and clinical grading for acne scars. Statistical analysis was performed using paired and unpaired t-tests, Wilcoxon signed-rank test, and Chi-square test, with a significance threshold of $p < 0.05$.

Results
PRP prepared using a roller mixer showed consistently better clinical outcomes compared to conventionally handled PRP. A significant reduction in mean striae depth was observed (2.48 mm to 1.10 mm, $p < 0.001$), along with improved pigmentation recovery in 85% of patients. Hair density increased by 28% in the alopecia group ($p < 0.05$), while acne scar texture showed statistically significant improvement on non-parametric analysis. Platelet stability over time appeared superior in roller mixer preparations, suggesting improved platelet survival. Patient satisfaction scores were higher, and fewer repeat sessions were required.

Conclusions
Gentle PRP handling using a roller mixer appears to preserve platelet viability and improve the consistency of clinical outcomes across multiple dermatologic indications. This simple modification in PRP preparation may enhance biological effectiveness, patient satisfaction, and cost-efficiency, and represents a practical step toward more standardized PRP practice in dermatology.

Abstract N°: ID-622

Topic: Wounds and wound healing, ulcer

Topical Glucocorticosteroids for Proactive Therapy of Acute Radiation-Induced Skin Injury in Head and Neck Cancer: A Systematic Review and Meta-Analysis

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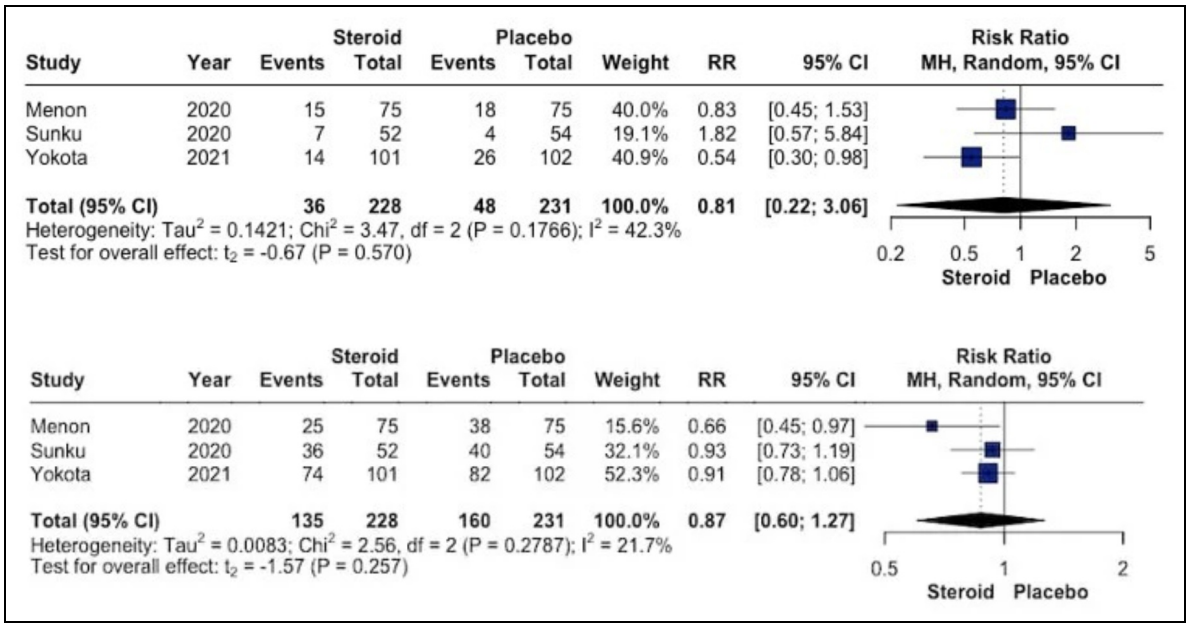
Introduction
Acute radiation-induced skin injury (aRISI) is one of the most frequent adverse effects of radiotherapy (RT) in patients with head and neck cancer (HNC) and may compromise treatment delivery and quality of life. Topical glucocorticosteroids (GCS) are commonly used in clinical practice for aRISI management; however, evidence supporting their proactive use remains inconsistent. This systematic review and meta-analysis aimed to evaluate the efficacy and safety of proactive topical GCS therapy during RT for HNC.

Materials and Methods
A systematic search of PubMed, Embase, and the Cochrane Library was conducted from database inception to July 2025 in accordance with PRISMA 2020 guidelines. Randomized controlled trials comparing topical GCS with placebo or standard skin care in adult patients undergoing curative RT or RChT for HNC were included. The primary outcomes were incidence of clinically significant aRISI (grade ≥2) and severe aRISI (grade ≥3), assessed using validated grading systems (RTOG or CTCAE). Random-effects meta-analyses were performed to calculate pooled risk ratios (RRs) with 95% confidence intervals (CIs). Risk of bias was assessed using the Cochrane RoB 2 tool.

Results
Three randomized controlled trials comprising 459 patients were included. Proactive topical GCS did not significantly reduce the pooled incidence of grade ≥2 aRISI compared with placebo or standard skin care (RR 0.87, 95% CI 0.60–1.27). Similarly, no statistically significant reduction in grade ≥3 aRISI was observed in pooled analysis (RR 0.81, 95% CI 0.22–3.06). Qualitative synthesis of secondary outcomes reported in individual trials suggested potential benefits of topical GCS, including delayed onset or slower progression of aRISI, and, in one large double-blind study, a reduced risk of severe reactions. No increase in treatment-related adverse events was observed in any included trial.



Forest plots graphically represent the meta-analyses on the effect of topical GCS compared with placebo or standard of care on severe and overall aRISI. The diamond, depicted in dark color, indicates the overall effect size, with pooled RRs used as the effect size metric together with their corresponding 95% confidence intervals (95% CIs).

Conclusions

Proactive topical GCS do not significantly reduce the overall incidence of aRISI in pooled analysis. Individual studies showed trend towards delayed onset, slower progression, and reduced severe aRISI without compromising safety. These findings support the judicious use of topical GCS as part of proactive supportive care in HNC RT, while highlighting the need for larger, standardized trials to define optimal regimens and patient selection.

Abstract N°: ID-680

Topic: Wounds and wound healing, ulcer

Chronic injection-related fibrosing leg ulcers mimicking pyoderma gangrenosum: a diagnostic pitfall

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Introduction

Pyoderma gangrenosum is a neutrophilic dermatosis and remains a diagnosis of exclusion. Several chronic traumatic and inflammatory conditions may closely mimic PG both clinically and histopathologically, creating a risk of misdiagnosis and inappropriate immunosuppressive treatment. Recognizing atypical features that argue against true PG is essential in the evaluation of chronic ulcerative lesions

Materials and Methods

We report the case of a 61-year-old man with opioid use disorder on methadone, a history of long-standing intravenous drug use, and previously treated hepatitis C infection with sustained virological response. He presented with a two-year history of painful, progressive ulcerations on both anterior thighs.

A comprehensive diagnostic work-up was performed including microbiological cultures, immunological testing (ANA, ANCA, HIV, cryoglobulins), imaging studies, and repeated skin biopsies in order to exclude infection, vasculitis, cutaneous tuberculosis, drug-related ulcerations, and malignancy

Results

Clinical examination revealed irregular ulcers with undermined borders, purulent discharge, surrounding erythema, and elevated inflammatory markers (CRP and leukocytosis). Imaging demonstrated diffuse dermo-hypodermal infiltration with small suspected fluid collections.

Microbiological and immunological investigations were negative. Histopathological examination of two biopsies showed deep neutrophilic inflammation associated with marked dermal fibrosis and chronic tissue remodeling, without evidence of true vasculitis or malignancy.

Although initially considered compatible with PG, the prominent fibrotic component together with the clinical context of repeated injections supported the diagnosis of a chronic injection-related fibrosing ulcerative process with secondary neutrophilic inflammation, mimicking PG

Conclusions

Chronic injection-related fibrosing ulcers represent an important and underrecognized mimicker of pyoderma gangrenosum. Prominent dermal fibrosis is not a classical feature of active PG and should prompt consideration of alternative diagnoses. Careful clinicopathological correlation is

crucial to avoid misclassification and unnecessary systemic immunosuppression.

Abstract N°: ID-719

Topic: Wounds and wound healing, ulcer

Targeted enzybiotics as a new strategy for selective elimination of pathogenic staphylococci from the skin

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Introduction

Staphylococci are among the most abundant bacteria colonizing human skin. *Staphylococcus epidermidis* constitutes a major fraction of the healthy skin microbiota, whereas *Staphylococcus aureus* is a key etiological agent responsible for skin infections and is strongly associated with various inflammatory skin disorders, including atopic dermatitis. Currently used antimicrobial therapies are often insufficient and/or disrupt the natural skin microbiota, thereby exacerbating dysbiosis and promoting recurrent infections.

Enzybiotics represent a novel class of antibacterial agents that enable highly effective and selective elimination of pathogenic bacteria without harming commensal species and without promoting resistance development. Importantly, enzybiotics are active against antibiotic-resistant strains and biofilms, while remaining safe for humans and animals (1).

Materials and Methods

Enzybiotics were cloned, produced as recombinant proteins in *Escherichia coli* and purified using ion-exchange and size-exclusion chromatography. Chimeric enzymes were constructed by fusing catalytic and cell wall binding domains derived from selected parental enzymes (2,3). Antimicrobial activity was assessed using turbidity reduction assays and quantitative killing assays based on CFU enumeration.

Results

We isolated and engineered several enzybiotics targeting staphylococci, including Enterine,(3), AuresinePLUS (2), and AuresineR (4).

Enterine exhibited the broadest spectrum of activity, acting not only against staphylococci but also streptococci and selected enterococcal species (3).

Auresines are very selective towards staphylococci. AuresinePLUS is very effective in eradicating *S. aureus* from infected wounds in a murine model (5). Furthermore, we showed that the enzyme can be combined with other antimicrobials and wound dressings, including formulations incorporating nanomaterials to control release kinetics (6).

AuresineR displayed exceptionally high activity against *S. aureus* while largely sparing *S. epidermidis*, demonstrating its potential for selective pathogen elimination without disrupting the commensal microbiota. AuresineR is being evaluated for its ability to restore microbiota balance in skin dysbiosis associated with atopic dermatitis.

Conclusions

Targeted enzybiotics represent a promising new therapeutic strategy for the selective elimination of pathogenic *S. aureus* from the skin while preserving beneficial commensal bacteria. Their high efficacy, specificity, activity against resistant strains and biofilms, and favorable safety profile make them attractive candidates for future dermatological applications, including the treatment of chronic wounds and inflammatory skin diseases associated with microbiota imbalance.

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Abstract N°: ID-786

Topic: Wounds and wound healing, ulcer

Hyperbaric oxygen therapy in the treatment of Buerger disease

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Introduction

Burger disease, known as thromboangiitis obliterans, is a progressive, segmental, inflammatory disease that commonly affects small and medium arteries and veins of the upper and lower extremities resulting in thrombosis. Tobacco exposure is required for disease initiation and progression and the mechanism of the disease may involve immunological dysfunction and tobacco hypersensitivity.

Materials and Methods

45-year-old patient presented with intense pain and progressing claudication affecting right foot lasting for 10 days, followed by formation of multiple deep, necrotic ulcers on dorsal aspect of a right foot and fingers. The patient has been diagnosed with Buerger disease 14 years previously but continued smoking, although displayed sensitivity to cold, Raynaud phenomenon and increasing claudication symptoms but no signs of superficial thrombophlebitis. During this period of time his fingers and especially toes were pale, red-bluish and cold to the touch.

Three days prior admission to Department of undersea and hyperbaric medicine, erythema end oedema of right foot and shin developed associated with fever requiring systemic antibiotic treatment. MSCT angiography was performed following the admission showed non-atherosclerotic segmental occlusions of small and medium-sized arteries including both tibial and perineal arteries.

The patient was initially treated with intravenous iloprost and systemic antibiotics according to antibiogram. Adjunctively, the patient was treated with hyperbaric oxygen therapy and standard wound treatment including infection control, debridement and microbial load control, and dressings to provide a moist wound environment. Contrary to medical suggestions, patient initially continued smoking 1-2 cigarettes daily, but finally seized smoking after 4 weeks of treatment.

Results

Applied treatment resulted in significant improvement during 8 weeks follow-up period. Initially, a fast regression of local and systemic signs of infection was detected followed by a significant reduction in ulcers size and depth and finally complete healing. There was a significant improvement of impaired circulation symptoms including regression of Raynaud phenomenon and claudications associated with improvement in symptom-free walking distance.

Conclusions

According to our experience, hyperbaric oxygen therapy in association with standard wound treatment is an effective and safe adjuvant treatment option for treating patients with Buerger disease.

Abstract N°: ID-894

Topic: Wounds and wound healing, ulcer

Bacterial Isolates and Antimicrobial Resistance in Chronic Venous Leg Ulcers: Rethinking Empirical Antibiotic Therapy

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Introduction

Chronic venous leg ulcers (VLUs) represent a significant clinical challenge due to prolonged healing, frequent bacterial colonization, and the increasing burden of antimicrobial resistance. Because colonization alone does not justify systemic antibiotic therapy, accurate differentiation between colonization and clinically significant infection is essential. This study aimed to characterize the microbiological profile and resistance burden in chronic VLUs using repeated deep tissue biopsy sampling, an approach rarely reported in longitudinal wound microbiology studies.

Materials and Methods

We conducted a one-year longitudinal observational pilot study involving 10 patients with chronic VLUs at the Department of Dermatovenerology, Clinical Hospital Center Rijeka. The study population comprised an equal distribution of male and female patients, with a mean age of 74 years (range 51–84 years). A total of 17 serial deep tissue wound biopsy specimens were collected across 10 patients during follow-up, yielding 30 bacterial isolates for microbiological culture and antimicrobial susceptibility testing. Resistance profiles were interpreted according to EUCAST criteria.

Results

Polymicrobial colonization was observed in most patients (80%), most commonly involving two bacterial species, frequently resistant to two or more antibiotics. The microbiological profile was dominated by Gram-negative organisms, with *Pseudomonas aeruginosa* (70%) being the most prevalent pathogen, followed by *Escherichia coli* (40%), *Enterococcus faecalis* (30%), and *Proteus mirabilis* (30%), whereas *Staphylococcus aureus* was isolated in only one patient (10%). Across consecutive biopsies, isolates demonstrated a trend toward increasing antimicrobial resistance during follow-up. Ciprofloxacin resistance was the most common phenotype (43.3% of isolates) and was detected in 80% of patients, followed by resistance to piperacillin–tazobactam and imipenem/cilastatin (each 13.3%). Notably, multidrug-resistant Gram-negative isolates were identified in a substantial proportion of patients (60%), including carbapenem-resistant *Acinetobacter baumannii* complex in 20%.

Conclusions

Our findings support current international recommendations advocating restrictive and rational systemic antibiotic use in chronic VLUs. Serial biopsy-based monitoring demonstrated persistence of resistant organisms and detection of multidrug-resistant Gram-negative pathogens over follow-up, highlighting the importance of targeted diagnostics in guiding antibiotic stewardship. Optimal VLU management therefore requires accurate clinical differentiation of infection from colonization and a multidisciplinary approach including compression therapy, debridement, and strict adherence to antimicrobial stewardship principles.

Abstract N°: ID-973

Topic: Wounds and wound healing, ulcer

Chronic Leg Ulcer Revealing a Femoral Arteriovenous Fistula: A Case Report

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Introduction

A leg ulcer is defined as a chronic loss of skin substance affecting the lower limb, most commonly resulting from venous, arterial, or mixed vascular insufficiency. In young patients, the occurrence of an atypical or extensive ulcer should prompt consideration of less common etiologies, particularly underlying vascular abnormalities.
We report the case of a chronic leg ulcer secondary to a post-traumatic femoral arteriovenous fistula.

Materials and Methods

A 38-year-old woman was admitted to our department for the management of a chronic ulcer of the right leg, which had been evolving for one year following a previous local trauma. Dermatological examination revealed a painful ulceration with an erythematous base, measuring approximately 20 cm in length and 10 cm in width, located on the anterolateral aspect of the right leg and extending toward the ankle.
On physical examination, a palpable thrill was noted on the anteromedial aspect of the right thigh, raising suspicion of an underlying vascular abnormality. Computed tomography angiography of the lower limbs demonstrated an arteriovenous fistula between the right superficial femoral artery and vein, without evidence of associated deep venous thrombosis.
Management included ongoing local wound care with directed healing, and the patient was scheduled for surgical closure of the arteriovenous fistula.

Results

Arteriovenous fistulas (AVFs) are abnormal communications between an artery and a vein that create a high-flow shunt, leading to venous hypertension and impaired tissue perfusion. These hemodynamic changes can promote chronic inflammation and tissue breakdown, ultimately contributing to the development and persistence of leg ulcers.

In our case, the presence of a palpable thrill and confirmatory findings on CT angiography allowed the diagnosis of a femoral arteriovenous fistula to be established. This etiology should be considered in any young patient presenting with an atypical, large, or non-healing leg ulcer, particularly when there is a history of local trauma.

AVFs are an exceptionally rare cause of chronic leg ulcers, accounting for less than 1% of all cases worldwide, as most ulcers are related to venous insufficiency (70–80%) or arterial disease (5–10%). Traumatic femoral AVFs themselves are uncommon, with an estimated incidence of 0.2–2% after vascular injuries, and progression to a chronic ulcer is described mainly in isolated case reports.

Diagnosis relies on vascular imaging, with Doppler ultrasound as the first-line tool, followed by CT angiography for detailed assessment. Management requires a multidisciplinary approach, and definitive treatment is based on surgical or endovascular closure of the fistula, which is essential for durable ulcer healing.

Conclusions

This case highlights the importance of considering an underlying vascular abnormality in any young patient presenting with an atypical chronic leg ulcer. The presence of a palpable thrill on physical examination is a key clinical clue that

should prompt further vascular investigation. Definitive correction of the arteriovenous fistula is central to management, as it determines both successful ulcer healing and the prevention of recurrence.

Abstract N°: ID-1138

Topic: Wounds and wound healing, ulcer

Mast Cell–Derived Exosomal Semaphorin 7A Enhances Cutaneous Wound Repair Through Fibroblast-Driven Matrix Remodeling

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Introduction
Mast cells are increasingly recognized as regulators of skin repair beyond their inflammatory functions. Although mast cell–derived mediators have been implicated in wound healing, the contribution of mast cell–derived exosomes and their functional cargo remains insufficiently defined. This study evaluated the role of mast cell–derived exosomes in cutaneous wound healing, with a focus on semaphorin 7A (SEMA7A)–mediated fibroblast activation and extracellular matrix (ECM) remodeling.

Materials and Methods
Exosomes isolated from a human mast cell line were characterized by nanoparticle tracking analysis and immunoblotting. Human dermal fibroblasts were treated with mast cell–derived exosomes to assess proliferation and ECM protein expression. Full-thickness excisional wounds were generated in wild-type and mast cell-deficient mice, followed by topical exosome application. To determine the functional role of exosomal SEMA7A, SEMA7A-deficient exosomes were generated using siRNA knockdown. Wound closure and histological parameters, including collagen deposition, were quantitatively analyzed.

Results
Mast cell–derived exosomes enhanced dermal fibroblast proliferation and upregulated collagen type I and fibronectin expression in vitro. In vivo, topical application of these exosomes significantly accelerated wound closure and improved dermal regeneration in both wild-type and mast cell-deficient mice. Proteomic analysis identified SEMA7A as a mast cell–specific exosomal protein. Exosomes lacking SEMA7A showed reduced induction of ECM proteins in fibroblasts and impaired wound healing with diminished collagen deposition in vivo, independent of endogenous mast cell presence.

Conclusions
Mast cell–derived exosomes facilitate cutaneous wound repair by promoting fibroblast-mediated ECM remodeling. Exosomal SEMA7A is a key regulator of collagen synthesis and tissue regeneration, supporting a mechanistic role for mast cell–derived exosomes in skin repair.

Abstract N°: ID-1343

Topic: Wounds and wound healing, ulcer

A Systematic Review of Procedural Treatments for Burn Scars in Children: Evaluating Efficacy, Safety, Standard Protocols, Average Sessions, and Tolerability Based on Clinical Studies

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Introduction
Burn injuries in children often result in long-term physical and psychological challenges, including the development of hypertrophic scars (HTS). These scars present unique treatment difficulties due to the physical, emotional, and developmental considerations in pediatric care. This systematic review evaluates the efficacy, safety, and tolerability of various procedural treatments for burn scars in children, including laser therapies, phototherapy, and surgical techniques.

Materials and Methods
A comprehensive literature review was conducted, covering studies published up to August 2024. Key databases including PubMed, Scopus, and Web of Science were searched for relevant clinical studies on procedural treatments for burn scars in children. Data were collected on participant demographics, treatment methods, follow-up procedures, treatment outcomes, and reported adverse events. A total of 256 children were included in the studies, with interventions ranging from laser treatments to surgical options such as trapeze-flap plasty and percutaneous collagen induction.

Results
The systematic review included nine clinical trials, with treatment modalities such as fractional CO2 laser, Integra artificial skin, photobiomodulation, and trapeze-flap plasty showing significant improvements in scar appearance. Laser treatments, particularly those using local anesthesia, showed high efficacy, with Vancouver Scar Scale (VSS) reductions ranging from 55.55% to 76.31%. Adverse effects were generally mild and transient, including erythema, pigmentation changes, and swelling. Notably, laser treatments were well tolerated by children, eliminating the need for general anesthesia in most cases.

Conclusions
This review highlights the promising effectiveness and safety of procedural treatments, particularly laser therapies, for managing burn scars in children. Laser treatments, especially when combined with other methods like phototherapy and collagen induction, provide effective scar reduction with minimal side effects. The findings emphasize the importance of non-invasive and tolerable treatments in pediatric burn care, reducing the risks associated with general anesthesia and improving patient outcomes. Further studies with larger sample sizes are needed to confirm these findings and establish standardized treatment protocols for pediatric burn scars.

Abstract N°: ID-1359

Topic: Wounds and wound healing, ulcer

A Systematic Review of the Efficacy, Safety, and Satisfaction of Regenerative Medicine Treatments, Including Platelet-Rich Plasma, Stromal Vascular Fraction, and Stem Cell-Conditioned Medium for Hypertrophic Scars and Keloids

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Introduction
Hypertrophic scars and keloids are common sequelae of skin injury, posing significant challenges to both patients and clinicians. Conventional treatments such as corticosteroid injections and laser therapies often have limited effectiveness. Recently, regenerative medicine, including platelet-rich plasma (PRP), stromal vascular fraction (SVF), and stem cell-conditioned medium, has shown promise in the treatment of these scars. This systematic review aims to evaluate the efficacy, safety, and patient satisfaction of these regenerative treatments for hypertrophic scars and keloids.

Materials and Methods
A comprehensive literature search was conducted using major databases such as PubMed, Scopus, and Web of Science. Studies were included if they focused on regenerative treatments like PRP, SVF, and stem cell-conditioned medium for hypertrophic and keloid scars. A total of 8 studies met the inclusion criteria, which included randomized clinical trials, non-randomized trials, and retrospective observational studies. Data were extracted on treatment methods, clinical outcomes, and patient satisfaction.

Results
The review found that regenerative treatments were generally effective in treating hypertrophic scars and keloids. Five of the studies focused on PRP, while two examined SVF, and one evaluated stem cell-conditioned medium. The studies consistently reported significant clinical improvements in scar appearance, with PRP showing the most promising results. Treatment methods were either used alone or in combination with standard therapies. No severe adverse effects were reported, and treatments were well-tolerated by patients. Patient satisfaction was generally high, particularly for those receiving PRP treatments.

Conclusions
Regenerative medicine, particularly PRP, offers a promising approach for treating hypertrophic scars and keloids, with minimal side effects and high patient satisfaction. It can be used as a monotherapy or combined with other treatments like corticosteroid injections or laser therapy. However, further studies are needed to confirm the long-term effectiveness of these treatments and establish standardized protocols for their use in clinical practice.

Abstract N°: ID-1416

Topic: Wounds and wound healing, ulcer

Postoperative pyoderma gangrenosum after reduction mammoplasty: a case report

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Introduction

Pyoderma gangrenosum (PG) is a rare, non-infectious neutrophilic dermatosis of unknown etiology, characterized by painful, chronic, and recurrent ulcers. PG should be differentiated from other causes of chronic ulceration, including peripheral vascular disease, neuropathic (trophic) ulcers, connective tissue disorders, inflammatory dermatoses, and cutaneous infections. Postsurgical PG may mimic a surgical wound infection, but bacterial cultures are often negative, and antibiotic therapy is ineffective. Moreover, due to the pathergy phenomenon, surgical excision can promote disease progression and greater tissue loss.

Materials and Methods

We present a rare case report of postoperative PG following bilateral reduction mammoplasty.

Results

A 62-year-old woman underwent bilateral breast reduction for gigantomastia in July 2022. The right breast healed without complication; however, the left breast developed a non-healing postoperative wound with dehiscence along the vertical inverted-T incision and a fistula superior to the nipple. Treatment included saline dressings, systemic antibiotics, and topical fusidic acid. In October 2022, surgical necrectomy with local tissue reconstruction was performed. By November 2022, the process had progressed to involve both breasts, and an additional non-healing ulcer developed on the left upper arm. Examination revealed multiple exudative ulcers (up to 2 × 1.5 cm on the left breast, several ulcers of approximately 1 cm on the right breast, and an ulcer of approximately 1.5 × 1 cm on the left upper arm). Systemic and topical therapy was initiated, comprising oral prednisolone 70 mg on a tapering regimen, topical antiseptic agent, betamethasone, emollients, silver dressings, and elastic bandaging of the left upper arm. The lesions subsequently healed with scar formation.

In August 2023, following compressive mammography, a painful erythematous infiltrate developed in the breast, and in January 2024, a painful nodule ruptured spontaneously. Breast MRI findings were more consistent with inflammatory change and resolving abscesses. On reassessment, an approximately 1 cm ulcer was observed in the central region of the left breast, along with an evolving scar on the left upper arm; therefore, prednisolone tapering was continued (40 mg to 25 mg), and a topical corticosteroid was prescribed for perilesional application.

Due to persistent wounds, the patient was admitted to the Department of Dermatology and Venereology in January 2026. On the right breast adjacent to the nipple, there was an approximately 2 × 3 cm ulcer (depth up to ~3 mm) with a purulent coating and profuse exudation. On the left breast above the nipple, there was an approximately 1 × 4

cm exudative ulcer (depth up to ~3 mm) with a fibrinous coating. Atrophic, cyanotic scars from previous ulcers were visible on the breasts, within the inframammary folds, and on the right upper arm. Microbiological culture of the wound exudate showed no bacterial growth. The patient received intravenous prednisolone pulse therapy for three days, followed by oral methylprednisolone 32 mg with dose tapering. Topical therapy consisted of 1% fuchsin solution, 1% resorcinol solution, gentamicin, and prednisolone ointment, with clinical improvement and remission achieved.

Conclusions

This case highlights the importance of a multidisciplinary approach to achieving an accurate diagnosis, ensuring long-term follow-up, and initiating targeted immunosuppressive therapy, thereby limiting unnecessary surgical interventions and minimizing the risk of tissue loss and scarring.

Abstract N°: ID-1544

Topic: Wounds and wound healing, ulcer

Effect of Topical Timolol on Healing of Immature Breast Scars After Mammoplasty: A Randomized Controlled Trial With Blinded Assessors and Patients

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Introduction

Post-surgical scars, particularly after mammoplasty, are a common cosmetic concern. Timolol, a non-selective β-blocker traditionally used for glaucoma, has shown promise in enhancing wound healing. This study evaluates the effects of topical timolol on improving the appearance of immature breast scars following mammoplasty.

Materials and Methods

A double-blind, randomized controlled trial was conducted on 12 patients who underwent bilateral mammoplasty. One breast was treated with 0.5% timolol eye drops, and the contralateral breast received distilled water as a placebo. Treatment started 48 hours post-surgery and continued for 1 month. Erythema and aesthetic appearance of the scars were evaluated using a 10-point Likert scale by a blinded dermatologist on Days 2, 10, and 30 post-surgery.

Results

Topical timolol significantly reduced erythema compared to the placebo ($p=0.02$), with an average reduction of 5.38 points for the timolol group versus 4.41 points for the placebo. A significant improvement in the aesthetic appearance was also noted for the timolol-treated scars ($p=0.015$), with an average score increase of 5.5 points compared to 4.58 points in the placebo group. The overall aesthetic score for timolol was 0.972 points higher than placebo ($p<0.0001$).

Conclusions

Topical application of 0.5% timolol significantly improved the aesthetic appearance and reduced erythema of post-mammoplasty breast scars over a 1-month period. These findings suggest that timolol may be a safe, non-invasive option for enhancing scar outcomes after mammoplasty. Further studies with larger sample sizes and longer follow-up periods are needed to confirm these results.

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Topic: Wounds and wound healing, ulcer

Hyperhomocysteinemia and Cutaneous Phenotypes in Chronic Venous Leg Ulcers: A Systematic Review

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Introduction
Chronic venous leg ulcers (VLUs) represent a common and clinically significant dermatologic manifestation of chronic venous disease. Emerging evidence suggests that hyperhomocysteinemia contributes to endothelial dysfunction, microvascular injury, and prothrombotic states that may adversely affect venous microcirculation and wound healing. However, the prevalence of hyperhomocysteinemia in VLU and its associations with ulcer morphology, healing, and recurrence remain poorly defined. This systematic review aims to synthesize the available evidence on hyperhomocysteinemia in VLU populations, evaluate its potential clinical associations, and identify gaps to inform future research.

Materials and Methods
A systematic search of MEDLINE, EMBASE, CINAHL, PubMed, and the Cochrane Library was conducted from database inception to December 15, 2025. Eligible studies included patients with chronic venous leg ulcers (VLUs) attributable to venous disease or insufficiency. Studies in which ulcers were primarily due to non-venous etiologies, were excluded. The search identified 2199 records. After removal of duplicates, titles and abstracts were screened independently by two reviewers using predefined eligibility criteria. Full-text articles were subsequently reviewed for inclusion, with discrepancies resolved through discussion or consultation with a third reviewer when necessary. Data extraction was performed independently in duplicate using a standardized extraction form, capturing study characteristics, patient demographics, ulcer characteristics, lab values, and reported outcomes. The methodological quality of included studies was assessed using appropriate risk-of-bias tools based on study design.

Results
Across nineteen included studies, ulcer duration ranged from 6 weeks to 45 years, and most patients presented with multiple ulcers affecting the distal lower extremities. Common periwound changes included atrophie blanche, purpura, and livedo reticularis. Among studies reporting extractable homocysteine data, hyperhomocysteinemia was present in 37.97% of patients with VLUs (n=603). In a large cohort study (n = 717), hyperhomocysteinemia was significantly more frequent in patients with chronic VLUs compared with controls (46.2% vs 17.5%). Seven studies reported statistically significant findings, including four demonstrating a significant association between hyperhomocysteinemia and chronic VLUs, and one identifying an association with infected VLUs. Two studies reported unadjusted odds ratios, which were gconsistent in demonstrating an association between elevated homocysteine levels and venous leg ulcers (OR range: 4.31–5.50; 95% CI range: 1.20–51.07).

Conclusions
Hyperhomocysteinemia is common among patients with chronic VLUs and may be associated with ulcer presence and severity. Although causality cannot yet be established, the available evidence suggests that it may represent a clinically relevant, potentially modifiable risk factor contributing to impaired venous ulcer healing and infection risk, warranting

further prospective investigation. Limited evidence suggests that homocysteine-lowering therapy may be associated with improved healing, but causality remains uncertain due to heterogeneity, confounding, and sparse randomized data.