

**Abstract N°: 13****vulvar pyoderma gangrenosum in a woman with ulcerative colitis a case report**

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Introduction & Objectives:

Pyoderma gangrenosum (PG) is a rare neutrophilic dermatosis, it's main characteristic is the formation of sterile ulcer compound on the skin. 4 forms have been described: ulcerative, bullous, pustular and vegetative. Main localizations involve: lower limbs, ribs, neck, hands; special sites consider: peristomal, genital (vulva, penis, scrotum), extra cutaneous and postoperative scars. PG has an association with systemic affections such as inflammatory bowel disease (IBD) up to 1-2% cases, hematologic disorders, arthritis, cancer, hepatitis, HIV, sarcoidosis. Biopsy has an important role for diagnosis. Initial treatment involves topical and systemic high potency steroids.

We'll review the case of vulvar PG in a woman with diagnosis of ulcerative colitis (UC) with ileostomy. Objectives: identify the relationship between IBD and PG, identify initial signs of disease at early stages, recognized the importance of biopsy in time, highlight importance of initial treatment with high potency steroids.

Materials & Methods:

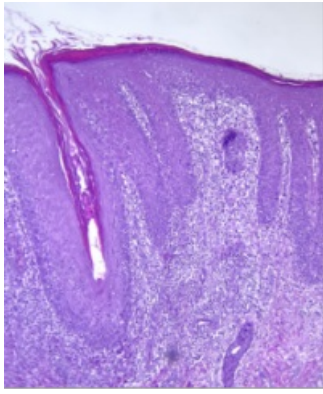
Case report. We evaluated a patient who was presented to dermatology consult. Delphi consensus was employed to establish diagnosis, August-December 2023. Search of data using key words: pyoderma gangrenosum, vulvar, inflammatory bowel disease, ulcerative colitis was made on databases with analysis of case reports and one cohort study.

Results:

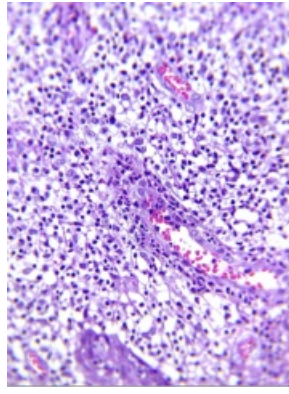
53-year-old woman with UC with colectomy made 13 years ago, current treatment with azathioprine and loperamide, with remnant in rectum with final stenosis. In April 2023 she received a consultation by proctology that started intrarectal mesalazine as part of treatment (not administrated).

First dermatology consult, August 2023 with ulcers in genital area. Previously she went to a private practice dermatologist who prescribe topical zinc, without improvement. Physical: dermatitis in pubic area, ulcers in plies of labia minor and erythematous papules in pubis and inguinal region. Initial treatment: general care of the skin and wounds and topical ketoconazol in areas with erythema under diagnosis of cutaneous candidiasis. September 2023 lack of improvement under diagnosis UC with cutaneous manifestations in genital region.

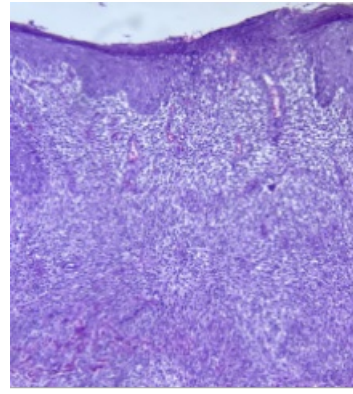
By November 2023 biopsy was performed with weeks latter dehiscence of wound and ulceration on the site, mayor inflammation was observed in genital region, erythema and growth of previous injuries. Histopathology findings were: sub dermic acute inflammatory infiltrate, intraepithelial lesion towards epidermis, presence of sub corneal abscess with focal epidermal ulceration, vasculitis and localized vasculitis on periphery (**Pictures 1-6**); given these, vulvar PG was considered and treatment with clobetasol 2 times per day in genital region was started, greater improvement was noticed.



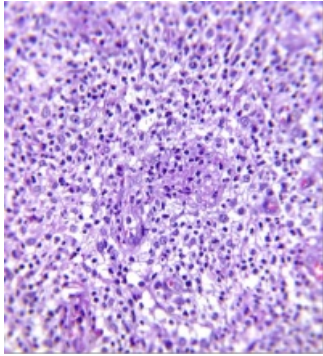
Picture 1



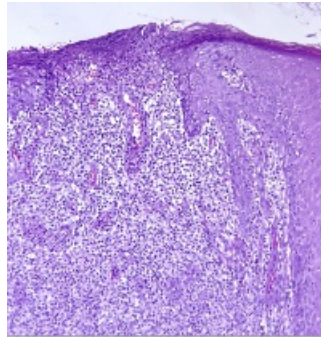
Picture 2



Picture 3



Picture 4



Picture 5

(Histopathology findings)

Conclusion:

PG represents a diagnosis and therapeutic challenge with mayor implications for patient and their quality of living. When patient manifest systemic inflammatory diseases that have been associated with PG physicians have the obligation to suspect this dermatological disorder. Other causes of ulcers exclusion and early biopsy make set a precedent for timely start management. In this case no additional therapies were needed. Patient does not manifest extra intestinal UC manifestations. To our knowledge, this is the first vulvar PG case reported in our country.



**Abstract N°: 120****The effectiveness of preparations based on colostrum in the topical treatment of wound - a pilot study**

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The effectiveness of preparations based on colostrum in the topical treatment of wound - a pilot study**Introduction & Objectives:**

The current state of knowledge indicates the effectiveness of bovine colostrum as a raw material in preparations applied topically to treat wound. Colostrum contains in its composition, among others, actively biological proteins – lactoferrin and growth factors, which show high potential of wound healing due to their natural origin and biocompatibility with human skin cells, which would be an effective and safe alternative to traditional medical methods. Taking up an innovative approach these days would contribute to the development of a modern, effective, but also safe therapy with a colostrum preparation for patients with difficult-to-heal, post-acne, mechanical or post-burn wounds.

The aim of the study was to evaluate the effectiveness of the preparations based on 7% and 5% colostrum in the topical treatment of mechanical and post-burn wound in a 20-year-old female patient.

Materials & Methods:

In the winter period of 2024 a case of a 20-year-old female patient was examined. Her medical history stated that the damage was occurred as a result of cleansing the skin with an electric facial brush and then applying peeling tonic with glycolic acid at home. The patient came for therapy 5 days after this injury. The physical examination showed symptoms of open wounds on her chin and mandible, and the rest of the facial skin was sensitive. The skin diagnostic examination was performed with a device for the analysis of skin biophysical parameters, which showed disturbed skin structure, diffuse redness, sensitive skin and post-inflammatory discolorations (Tab.1).

The experimental study consisted of a local transdermal therapy with professional hydrogel based on 7% colostrum, which was applied for 20 minutes during the first visit. And then, the patient was recommended to use a cream preparation with 5% colostrum every morning and evening. The effects were observed after 7 days.

Results:

The pilot study showed the effectiveness of transdermal therapy with a preparations based on 7% and 5% colostrum. What was observed in the physical examination were: tissue regeneration, reducing inflammation, decreased sensitivity and wound healed. Biophysical parameters after the treatment showed a significant improvement in the skin condition (Tab. 2). The patient did not feel irritation during the therapy and did not experience any side effects after the treatment.

Conclusion:

This preliminary pilot study suggests that the implementation of an innovative, effective, but safe treatment with a colostrum preparation for external application can contribute to a significant improvement quality of life and acceleration of skin healing. The results of this study also give a chance for the probability of effective topical

treatment with a colostrum preparation in other dermatological lesions related to skin healing.

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Abstract N°: 216

Navigating laser treatments for Scars: The Physical and Emotional Journey

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Navigating laser treatments for Scars: The Physical and Emotional Journey

Dr Diala HAYKAL

Introduction & Objectives:

The physical and emotional burden that scars impose on people's lives has been the concern of dermatological research for quite some time. Usually, the available literature on the topic draws a grim image containing solely dry medical facts. The present study deviates from this approach by reflecting a solution-centered study which has also touched on the quotidian life of an average person. The overall intention of the present experiment was to inspect how a holistic approach to scars in dermatology can be crucial for the patient's quality of life.

Materials & Methods:

This pilot study compiles data collected through the Patient and Observer Scar Assessment Scale (POSAS) and the Dermatology Life Quality Index (DLQI) from the same set of patients within the span of a year. Sixty patients with diverse scar profiles were asked to rate POSAS and DLQI in every session. A combination of EBDs was used based on the scar examination. T-student test was run to validate the data.

Results:

The evaluations by POSAS and DLQI indicate significant improvement in the physical aspect of the scar, as well as the patient quality of life a year after the first treatment. According to mean values collected from POSAS, there is a direct correlation between average patient evaluations and physician assessments. Thus, EBDs prove to be efficient in improving the QoL of scar patient. The 20 patients who had reported mild side effects after treatments recovered fully within a few days after the sessions. No patient reported severe side effects. Apart from the physical indications that scars bring about into patients' lives, the psychological repercussions caused by scars have a major effect on the QoL of the patients. These repercussions can be divided into individual and social. At individual level, scars have a profoundly negative effect on the image of the self which leads to several different psychological complications by time. At social level, scars affect the radius of physical movement besides the quality of the patient's activities. Therefore, EBDs as effective treatment methods can improve itchiness, pain, etc. of the patient, similarly can also improve the psychological aspect.

Conclusion:

All in all, the present study aims to produce a more panoramic perspectives on the concern of scars in the field of dermatology, centering around EBDs as a solution for improving scar patient QoL. With a focus on the efficacy of EBDs in the scar treatment, and with reference to studies on the topic, it is safe to assume that the earlier the scar treatment initiates, the better the outcomes. Departing from this point, in the future of cosmetic dermatology, prepping the skin by EBD treatments before surgery is imaginable.



**Abstract N°: 411****Vulvar necrosis after orthopedic surgery: traction with perineal post or posterior pelvic tilt?**

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Introduction & Objectives:

Perineal and genital necrosis following orthopedic surgery, albeit rare, have been documented in the literature, predominantly associated with the use of traction tables and perineal posts. In this case series, we present manifestations of vulvar necrosis subsequent to orthopedic procedures, highlighting diverse etiologies beyond traction table usage and emphasizing the necessity for preventive strategies.

Materials & Methods:

We conducted a retrospective analysis of five cases involving vulvar necrosis following orthopedic surgeries. Patient demographics, surgical indications, operative durations, onset of necrosis, management strategies, and outcomes were retrospectively collected and analyzed.

Results:

The mean age of the patients was 27 years (range, 21-34), with two scheduled surgery for spondylolisthesis and two emergency surgery due to polytrauma. The mean operative time was 240 minutes (range, 150-360). Vulvar necrosis (edema and necrosis) occurred 3 to 5 days post-surgery in all cases, with complete wound healing achieved over 9 to 12 weeks without surgical debridement. Viral swabs were taken from the lip for direct PCR detection of herpes simplex 1 and 2, resulting in HSV 2 isolation and subsequent treatment with valaciclovir in one patient. Bacterial swabs yielded negative results. Additionally, skin biopsy findings revealed ischemic lesions: epidermal ulceration, polymorphous inflammatory infiltrate of the dermis without neutrophilic predominance, and sweat gland ischemia, as well as evidence of vascular damage and venous thrombi.

Notably, all patients were female, differing from previous reports in the literature where perineal necrosis predominantly affected males. While traction and prolonged pressure from perineal posts are established factors in hip surgery, we observed that specific morphological parameters in patients with spondylolisthesis may contribute to vulvar necrosis in spinal surgeries. Our hypothesis is related to the consequence to the high pelvic tilt angle where the sacral promontory is tilted forward, further "exposing" the vulva in this ventral decubitus position against the positioning cushion, which led to the ischemic necrosis. This prolonged exposure, even in the absence of traction forces, apparently is sufficient to cause ischemic necrosis of the vulva.

Conclusion:

Vulvar necrosis following orthopedic surgery, albeit uncommon, is associated to a significant morbidity risk. Traction and prolonged pressure against the perineal post are the major factors leading to this necrosis for hip surgery, and probably particular morphologic parameters are involved in the spinal surgery of patients with spondylolisthesis like in our observations. Surgeons must be vigilant and aware of the diverse mechanisms contributing to this complication, especially in patients with spondylolisthesis. Implementing preventive measures is essential to minimize the risk of perineal and genital necrosis and improve patient outcomes.

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**Abstract N°: 584****A prebiotic and panthenol-containing multipurpose healing dermocosmetic post cryotherapy for actinic keratoses: results of a randomised controlled trial.**

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¹Spedali Civili di Brescia, Dermatology, Brescia, Italy

Introduction & Objectives: The objective of the study was to evaluate the efficacy of a dermocosmetic (DC) formulation containing prebiotic active ingredients (Aqua Posae Filiformis, a prebiotic complex made of ferments, sugars and plant extracts, panthenol, madecassoside, and zinc) on the healing time, and local skin reactions (LRS) following cryotherapy of actinic keratoses; by comparing the DC associated with Boric acid 3% solution soaks (BA) versus the application of BA alone.

Materials & Methods: Seventy-five adult patients who presenting with a maximum of 5 isolated actinic keratoses on the face and/or scalp and undergoing cryotherapy (T0), were enrolled in the study. Following a 6-8 hour interval post-treatment, patients initiated the application of BA or the application of BA followed by the application of DC, based on an unblinded 1:1 randomization. The topicals were applied once daily for 30 days.

The evaluation of efficacy in terms of healing time (reported by the patient) and the cosmetic outcomes were assessed at 30 days post-treatment (T2); LRS at 3 days post-treatment (T1). 2D clinical photographs were taken for a single target actinic keratosis lesion at baseline, T1, and T2.

Results: There was a gain of 4.5 days (40%) in healing time compared in the group treated with BA+DC compared to BA alone, with a median time of 7 days (range 2-14) versus 11.5 days (range 5-20), respectively ($p < 0.0005$). Additionally, among lesions in complete response 50% of them had an excellent cosmetic outcome with BA+DC against 20% with BA.

The majority of patient treated with BA+DC had mild LSR against moderate with BA, median value at 2 vs 3, respectively ($p < 0.0001$).

Conclusion: The addition of a prebiotic and panthenol-containing multipurpose healing DC is able to significantly reduce the healing time with a better cosmetic outcome and the local skin reactions post cryotherapy for AK. In addition no adverse events were reported with the DC treatment.



**Abstract N°: 688****A multicenter, intra-individual (left-right arm), randomized-controlled trial evaluating the safety and efficacy of using a dermocosmetic emollient versus a topical antimicrobial as adjunctive therapies for post-procedural wounds in dermatology**Nour Dayeh¹, Charles Lynde²¹L'Oreal Canada, Montreal, Canada, ²Lynde Institute for Dermatology, Markham, Canada**Introduction & Objectives:**

Actinic keratoses (AKs) are pre-cancerous, intraepidermal malignancies that exists on a continuum with squamous cell carcinoma. Cryotherapy using liquid nitrogen freezing is the most common method for treating AKs. Following cryotherapy, wound care often involves antimicrobial ointments as prophylactics against infection. However, given the rise in antibacterial resistance, equivalent alternatives should be identified. Evaluate post-procedural wound healing of AK lesions, when using either a topical antibiotic (PSO), or a cream containing panthenol, madecassoside, and metal salts (CB5).

Materials & Methods:

A multicenter, intra-individual, randomized control trial was conducted. A total of sixty participants with at least three AK lesions on each arm were enrolled. Following cryotherapy, three lesions were selected on both arms for study and control treatment. Allocation of treatment to the right or left arm was randomly assigned to either the control group (PSO) or the investigational group (CB5). At each visit, the physician assessed the skin condition (erythema, oozing/crusting) and adverse events, and subject satisfaction was recorded.

Results:

There were no clinically significant differences in time to lesion healing, erythema, or oozing/crusting between groups. On Day 21, 100% of patients agreed that their lesions had improved. There were no serious adverse events or adverse events related to the study products reported throughout the trial.

Conclusion:

Post-procedural treatment with CB5 and PSO demonstrated equivalent wound healing in participants undergoing liquid nitrogen cryotherapy for AKs. These results support the hypothesis that antibiotics are not necessary for safe and effective healing of superficial wounds created secondary to dermatologic procedures.





Abstract N°: 787

Tolerability and cosmetic acceptance of a purifying cleansing gel and a hydrating skin repairing emulsion for tattoo aftercare

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Introduction & Objectives:

Proper tattoo aftercare includes cleansing, moisturizing, and protection against sunlight. Those steps are essential to ensure proper tattoo healing. We evaluated the tolerability, performance, and cosmetic acceptability of specific dermo-cosmetic products (a purifying cleansing gel and a hydrating skin repairing emulsion) in tattoo aftercare.

Materials & Methods:

Exploratory open-label cosmetic study was conducted between March 2023 and November 2023 to evaluate 2 dermo-cosmetic products. Forty healthy adults >18 yo were included by two tattoo artists from two different tattoo shops. Customers were asked to apply the aftercare after their tattoo session. No incentive was given for participation. Self-assessment by the tattooist and the customers through subject questionnaires were used to assess the tolerability, acceptance, ease of use, and cosmetic outcomes of both products at Day 7.

Results:

The subjects ranged from 21 to 48 years of age (median 31 years) and 77% identified as women. The level of compliance was good for all subjects. Tattoos were located mainly on the upper limbs (hands included, 65%). Products have been applied immediately after tattooing in 18% of the cases. The customer applied the hydrating skin repairing emulsion ≤ 24 h in 37.5% of the cases and in 55% of the cases >24h (1-7 days). The customer perceived the efficacy of the hydrating skin repairing emulsion after a median of 3 days of use. The treatment (cleansing gel and hydrating skin repairing emulsion) was applied twice a day in 97.5% of the cases, for a median 7 days. All the customers felt that the treatment was efficient (45%) to very efficient (55%). 87.5% of the customers would consider the same product for a future tattoo and 97.5% would recommend the product for tattoo aftercare. Both tattooists felt that both treatments were efficient to very efficient in 42.5% and 45% of the cases respectively. Only two subjects reported mild symptoms such as stinging at first application or more itch than usual after tattooing.

Conclusion:

Both products were well tolerated and appreciated by tattooed subjects. Hence, they are suitable options for tattoo aftercare in line with current recommendations and practice.

Figure 1. Self assessment by the tattooed subjects

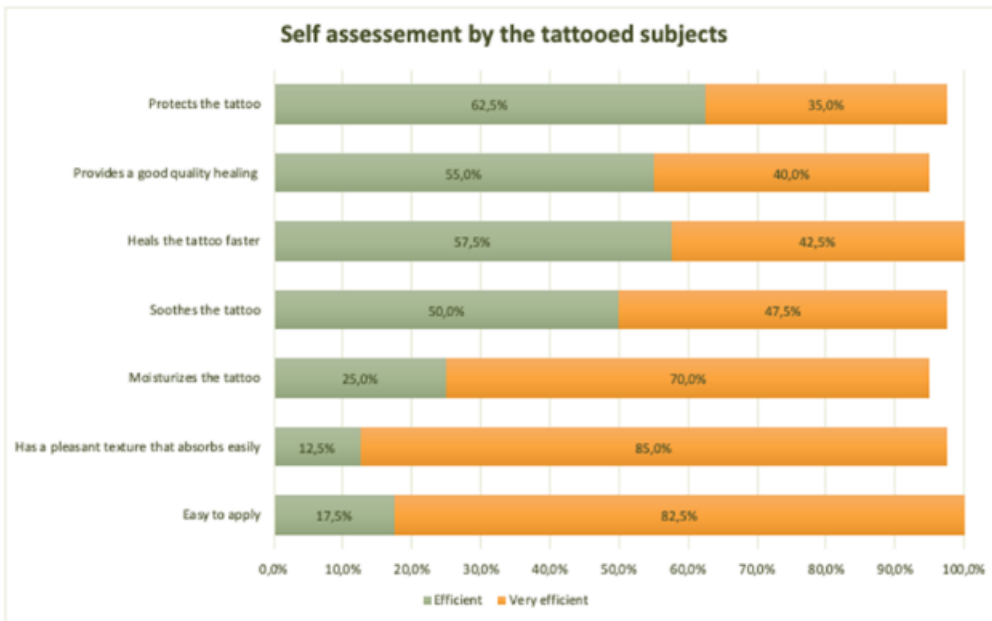
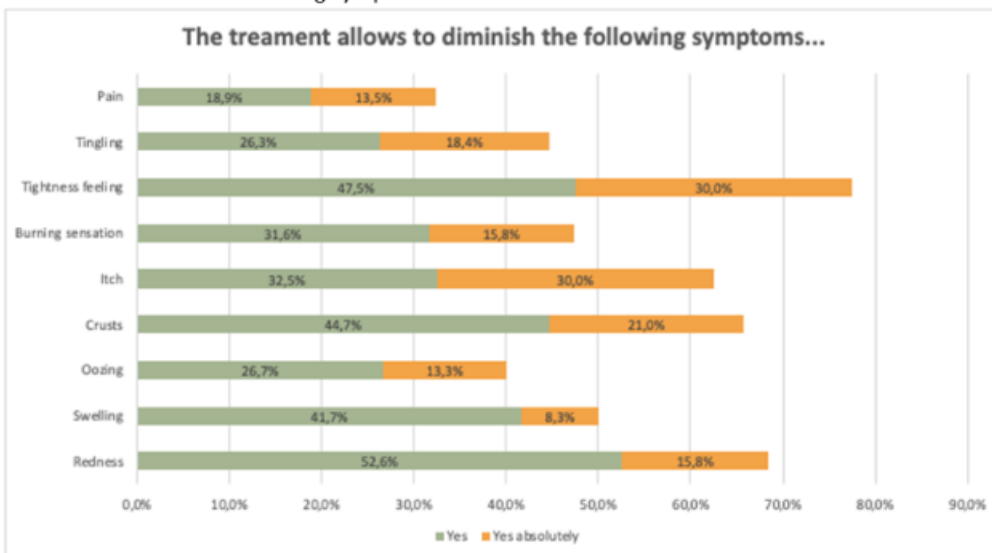


Figure 2. The application of the purifying cleansing gel and the hydrating skin repairing emulsion allows to diminish the following symptoms...



**Abstract N°: 1141****Global Trends in Scar Prevalence: A Comprehensive Analysis of Regional, Gender, and Age-Related Differences (Results of the ALL project)**

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¹ADERMA, Global Medical Director, Lavour, France, ²APHP - Hopital Ambroise Paré, Department of Dermatology,, Boulogne Billancourt, France, ³Pierre Fabre, Patient Centricity, Toulouse, France, ⁴European Market Maintenance Assessment, Data Scientist, Tel Aviv, Israel, ⁵European Market Maintenance Assessment, Patients Priority, Paris, France, ⁶Hôpital Saint-André, CHU de Bordeaux, Department of Dermatology,, Bordeaux, France

Introduction & Objectives:

As a component of the "ALL project", our team opted to examine the prevalence of face and body scars within various regional demographics, with a specific emphasis on Europe. Our goal was to pinpoint overarching patterns in scarring prevalence, as well as disparities related to gender and age, and the distribution of scars across the body. Furthermore, the research aimed to delve into the influence of sun exposure and the application of sunscreen among individuals with scars.

Materials & Methods:

The ALL PROJECT is a large-scale study of individuals representative of the adult population in 20 countries on five continents:

Europe [France, Italy, Germany, Poland, Portugal, Spain, Denmark; n=17500], Latin America [Brazil, Mexico; n=6501], Asia [China, India, South Korea; n=10500], North America [Canada, USA; n= 7500]; Middle East [Israel, United Arab Emirates; n=2750], Australia [Australia; n=2000] and Africa [Kenya, South Africa, Senegal; n=1800] Together, these countries represent more than 50% of the world's population.

In each of the 20 countries surveyed, representative and extrapolable samples of the general population aged 16 and over were interviewed. Patients with professionally diagnosed atopic dermatitis/eczema were identified. The results were compared using Chi-square or Fisher's exact test. The alpha risk was set at 5% and two-tailed tests were used. Statistical analysis was performed using EasyMedStat (version 3.34; www.easymedstat.com).

Results:

The overall prevalence of scarring is 62.1%, with marked regional differences. In Europe, the prevalence of scarring is 60.3%, slightly lower than the global average. When differentiating between the sexes in Europe, 64.3% (n=16170) of women versus 60% (n=15239) of men reported having one or more scars ($p < 0.001$).

No statistically significant difference was observed between age groups ($p > 0.05$), suggesting an even distribution of scars across age groups. One in four respondents [24.8%, n=12214] reported one or more facial scars [Europe 23.7%, NA: 21.4% (< 0.0001) Asia 18.4% (< 0.0001)].

Of these, corrective make-up is used by 31.1% of Europeans, which is not significantly different from North America (31.2%), but significantly different from Asia, where more than half of respondents reported using corrective make-up (60.7%) $p < 0.0001$.

In terms of location, it is important to note that the location of scars in the genital area, which is rarely studied, is by no means negligible: 5.8% (n=1463) in men, 14.3% (n=3598) in women ($p < 0.0001$).

In women, there was a significant difference between European (14.9%) and North American (19.3%) women and between European and Asian women (8.8%).

Among men, there was also a significant difference between European men (6.2%) and North American men (7.1%) and between European and Asian men (4.7%).

Conclusion:

This research underscores the significance of scars across diverse populations and underscores distinctions among genders and cultures. The widespread occurrence of facial and genital scars prompts inquiries into their psychosocial implications and the necessity for tailored care methods. Variances in corrective makeup usage between Asia and Europe reveal cultural disparities in scar perception and management. These results advocate for heightened awareness and individualized care strategies that acknowledge the varied experiences of individuals with scars.

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**Abstract N°: 1724****Integrative approach to understand the pharmaco-clinical efficacy of a topical formula containing oat concentrate and cichaliumide on wound healing process: the role of ecosystem interactions.**

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¹Pierre Fabre Dermo Cosmetic and Personal Care, Applied Research, toulouse, France, ²TOXALIM, ³Medical Department, Laboratoires dermatologiques Aderma, Lavaur, France

Introduction & Objectives: Wound healing is a major public health issue. Repopulation of the wound with resident commensal organisms e.g., *Staphylococcus epidermidis*, has been suggested to accelerate wound healing and prevent infection by opportunist pathogens. The first aim of the present study was to link changes in the skin microbiome with changes in the metabolome during wound healing and identify key pathways involved in this process. The second aim was to investigate how topical application of a formulation known to accelerate wound closure in volunteers by modulating the skin microbiome diversity and ecosystem interactions.

Materials & Methods: A clinical study was conducted in 21 subjects. Lesions on the forearms were induced by epidermal laser ablation, after which the areas were left untreated or the formulation containing oat concentrate and cichaliumide was applied. Re-epithelialization was monitored for 18 days. Skin swabs taken before the laser, just after the laser, on Day 5, on the re-epithelialization day (subject-dependent) and Day 19. Swabs were analyzed for microbiota and metabolomic profiles. Microbiome richness and evenness were evaluated by 16S gene V1-V3 region sequencing using the Illumina MiSeq system and selected species were sequenced and quantified by digital droplet PCR. Metabolomic profiles were performed by UHPLC-HRMS.

Results: After laser injury microbiota evenness and richness were markedly reduced. On Day 5, microbiota diversity returned to pre-ablation levels. Application of the topical formulation to the ablated skin accelerated the re-epithelialization time, which was more profound for slow healing subjects with long re-epithelialization times than quick healing subjects with a low re-epithelialization time. The beneficial effect was associated with greater microbiota diversity and the species-specific growth of commensal bacteria such as *Staphylococcus epidermidis*. The topical formulation also significantly modified the metabolome of the skin, whereby metabolites involved in promoting wound healing were increased e.g. 5-A-RU (early intermediate in bacterial riboflavin synthesis which boosts MAIT cell production), 13-HODE (a lipid mediator leading to anti-inflammatory effects), provitamin B5 (known to improve wound healing process) and suchars (microbiota nutrients).

Conclusion: The integrative approach, used in this clinical study, highlight a network of biological interactions that occur during the wound healing process. Application of the formulation, containing oat concentrate and cichaliumide, to the ablated skin accelerated re-epithelialization, modulated the microbiota, more specifically *S. Epidermidis*, and metabolites involved in inflammation and cell growth during the healing process. Altogether, these results show for the time, at clinical level, that a wound healing formula is acting on the mechanisms and the regulation of wound healing process, contributing to re-epithelialization improvement.





Abstract N°: 1880

Advances in Botulinum Toxin Applications: Enhancing Wound Healing and Optimizing Scar Management

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Introduction & Objectives: Botulinum toxin (BTx) has evolved from its initial use in cosmetic procedures to emerge as a versatile therapeutic agent, addressing a spectrum of medical conditions including strabismus, migraine, and hyperhidrosis. This review delves into the expanding role of BTx in wound healing and scar prevention, which are pivotal in managing the physical and psychological burden of scars. As traditional scar management methods often fall short, exploring novel solutions becomes imperative in modern healthcare.

Materials & Methods: A comprehensive search was conducted from inception through January 2024. Three reviewers independently examined each study based on preset inclusion and exclusion criteria, as well as the screening of references of the selected papers, and a fourth reviewer resolved conflicting decisions. A comprehensive review of all included papers was conducted, ensuring an objective analysis and synthesis of available literature to draw evidence-based conclusions.

Results: The review inspects BTx's efficacy in reducing scar width, improving appearance, and mitigating functional impairments. The mechanism underlying BTx's action involves tension reduction, inflammation regulation, and modulation of fibroblast activity, all crucial in controlling scar formation. Clinical observations across diverse surgical disciplines reiterate BTx's effectiveness in scar prevention and remodelling, often complemented by adjunctive therapies such as corticosteroids, laser treatment, and radiotherapy to augment therapeutic outcomes. BTx has also proven to help in reducing keloid formation through its potential to decrease fibroblast proliferation. Despite challenges in determining optimal dosages and timing, BTx injections exhibit a favourable safety profile, increased patient satisfaction scores and a decreased Vancouver Scar Scale (VSS).

Conclusion: While the role of BTx in improving wound healing and preventing hypertrophic and keloid scar formation has been established, further focused research is crucial to establish standardised dosages and injection protocols. This review provides comprehensive insights and highlights the need for focused investigations to refine BTx utilisation and optimise its therapeutic potential, thereby enhancing patient satisfaction, care, and scar outcomes.

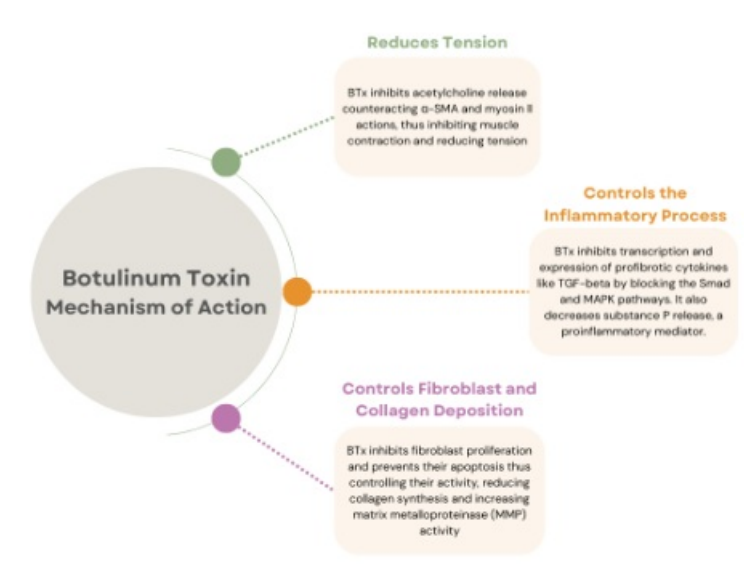


Figure 1: Diagram summarizing the mechanism of action of Botulinum Toxin in wound healing and scar management
 Figure 1: Diagram summarizing the mechanism of action of Botulinum Toxin in wound healing and scar management
 management



**Abstract N°: 1966****Treatment of Cesarean Section Scars Using Picosecond Laser Therapy: Personal Experience**Patrycja Łazicka*^{1, 1, 2}, Katarzyna Osipowicz¹¹Klinika OT.CO - Chirurgia plastyczna & Medycyna estetyczna, Warszawa, Poland,²Warszawski Uniwersytet Medyczny

Introduction & Objectives:

This study aims to evaluate the effectiveness of picosecond laser therapy in improving the appearance and structure of cesarean scars, with a particular focus on keloid cesarean scars. Scar revision, especially for keloids, presents significant challenges, and there is a pressing need for treatments that not only reduce scar visibility but also enhance tissue functionality.

Materials & Methods:

The study involved 22 female patients aged 24-40, 14 of them undergo a series of three picosecond laser therapy sessions. These sessions were conducted at intervals of 4-5 weeks, with parameters being progressively increased at each visit. The efficacy of the treatment was assessed using the Vancouver Scar Scale to measure general improvements and the Patient and Observer Scar Assessment Scale (POSAS) to specifically evaluate changes in scar characteristics such as vascularity, pigmentation, thickness, relief, pliability, and surface area.

Results:

Significant improvements were reported by 80% of the participants in terms of scar appearance, while 90% noted better structural qualities. The overall enhancement was quantified at 30-60% improvement on the Vancouver scale. Patients with keloid scars showed substantial improvements in several specific parameters: vascularity decreased by 40%, pigmentation by 30%, thickness by 50%, relief by 30%, and pliability by 30%. No change was observed in surface area. Furthermore, three patients who had previously experienced numbness in the affected area reported a return of sensation post-treatment. These findings suggest that picosecond laser therapy offers a promising option for effectively managing and treating scars, particularly challenging keloid scars, by significantly improving both their appearance and structural attributes.

Conclusion:

The results of this study demonstrate that picosecond laser therapy is an effective treatment modality for improving the aesthetic and structural aspects of scars, particularly keloid scars. The significant improvements observed across various parameters—including vascularity, pigmentation, thickness, relief, and pliability—highlight the therapy's capacity to enhance both the visual and physical characteristics of scar tissue. Notably, the restoration of sensation in patients who previously reported numbness also underscores the potential functional benefits of this treatment. Given these positive outcomes, picosecond laser therapy should be considered a viable and beneficial option for patients seeking cesarean scar revision.





Abstract N°: 1974

A Comparative Analysis of Fractional CO₂ and PICO Laser Treatments for Cesarean Section Scars: A Novel Approach to Scar Management

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Introduction & Objectives:

A Comparative Analysis of Fractional CO₂ and PICO Laser Treatments for Cesarean Section Scars: A Novel Approach to Scar Management

Cesarean section scars are a significant concern for post-pregnancy women, often leading to dissatisfaction and a reduced quality of life. This study aimed to evaluate the efficacy of two different laser treatments, fractional CO₂ and PICO, in addressing these concerns.

Materials & Methods:

Twenty-two female participants were evenly divided into two groups, with one group receiving fractional CO₂ laser treatment and the other PICO laser treatment. Each group underwent three sessions at intervals of 4-5 weeks. Responses were recorded using a scar satisfaction scale, and evaluations were conducted using the "Patient and Observer Scar Assessment Scale" (POSAS) and the Vancouver Scar Scale.

Results:

POSAS assessments revealed a statistically significant clinical improvement in the fractional CO₂ group, while the PICO group exhibited comparatively less improvement. Surprisingly, despite the lesser clinical improvement, the PICO group reported higher satisfaction, attributing it to faster healing and reduced convalescence time, a trend substantiated by statistical analyses.

Conclusion:

This study stands as a unique contribution to the current literature, as no similar publications were identified. The absence of guidelines from gynecologists-obstetricians or physiotherapists regarding optimal scar management after cesarean sections underscores the significance of our findings. The results suggest a potential shift in clinical practice towards considering not only clinical outcomes but also patient satisfaction in scar management strategies. Further research and integration of these findings into medical guidelines may pave the way for a more comprehensive approach to post-cesarean section scar treatment





Abstract N°: 2423

ALKBH5–mediated m6A demethylation fuels cutaneous wound re–epithelialization by enhancing PELI2 mRNA stability

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Introduction & Objectives:

Impaired wound re–epithelialization contributes to cutaneous barrier reconstruction dysfunction. Recently, *N*6–methyladenosine (m6A) RNA modification has been shown to participate in the determination of RNA fate, and its aberration triggers the pathogenesis of numerous diseases. However, the function of m6A in wound re–epithelialization remains enigmatic.

Materials & Methods:

Alkbh5^{–/–} mouse was constructed to study the rate of wound re–epithelialization after ALKBH5 ablation. Integrated high–throughput analysis combining methylated RNA immunoprecipitation sequencing (MeRIP–seq) and RNA–seq was used to identify the downstream target of ALKBH5. *In vitro* and *in vivo* rescue experiments were conducted to verify the role of the downstream target on the functional phenotype of ALKBH5–deficient cells or animals. Furthermore, the interacting reader protein and regulatory mechanisms were determined through RIP–qPCR, RNA pull–down, and RNA stability assays.

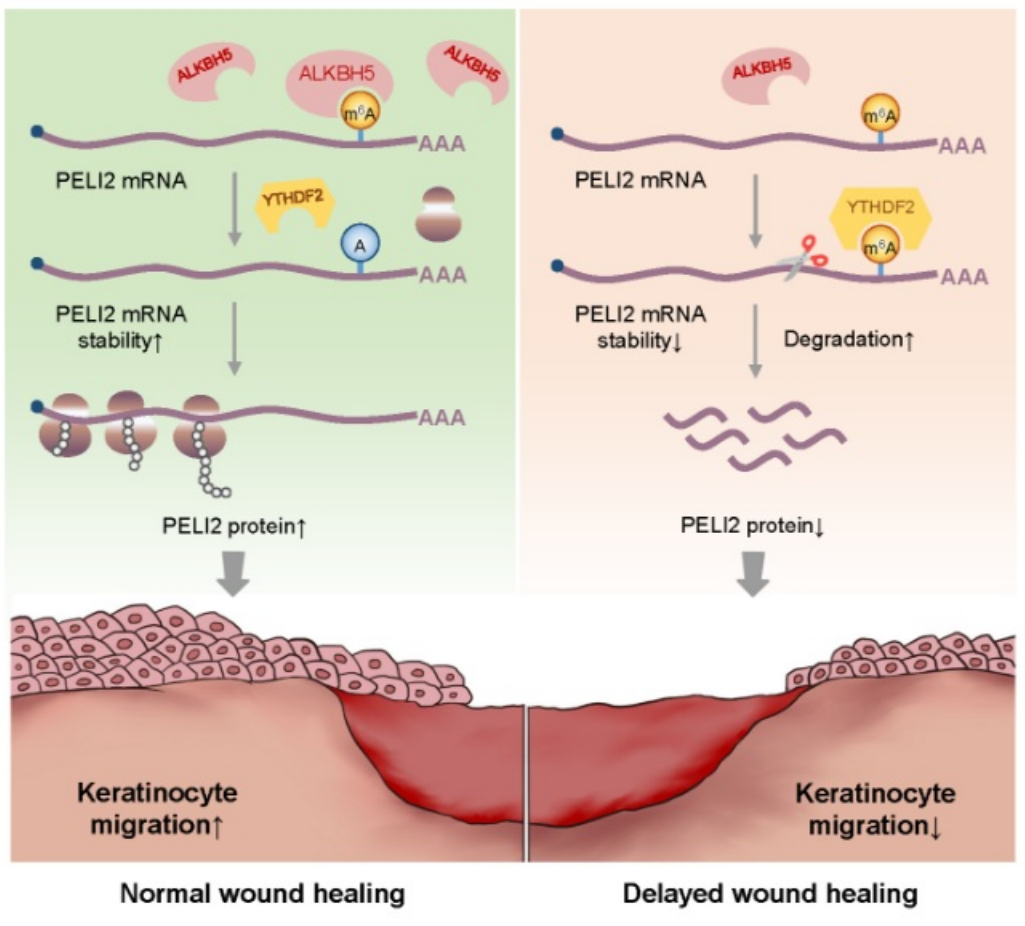
Results:

ALKBH5 was specifically upregulated in the wound edge epidermis. Ablation of ALKBH5 suppressed keratinocyte migration and resulted in delayed wound re–epithelialization in *Alkbh5*^{–/–} mouse. Integrated high–throughput analysis revealed that PELI2, an E3 ubiquitin protein ligase, serves* as the downstream target of ALKBH5. Concordantly, exogenous PELI2 supplementation partially rescued keratinocyte migration and accelerated re–epithelialization* in ALKBH5–deficient cells, both *in vitro* and *in vivo*. In terms of its mechanism, ALKBH5 promoted PELI2 expression by removing the m6A modification from PELI2 mRNA and enhancing its stability in a YTHDF2–dependent manner.

Conclusion:

This study identifies ALKBH5 as an endogenous accelerator of wound re–epithelialization, thereby benefiting the development of a reprogrammed m6A targeted therapy for refractory wounds.

Graphical abstract:





Abstract N°: 2723

Hydrogel loaded with nanoparticles coated with EDIL3 accelerates the healing of skin pressure ulcer.

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Introduction & Objectives:

Pressure ulcer wounds often turn chronic due to hypoxia and ischemia, posing health risks. Current dressings like film, foam, and hydrocolloid are ineffective in inflammation inhibition and angiogenesis promotion, resulting in poor ulcer treatment and increased medical burden. Hence, exploring new ulcer treatment methods is crucial. In this study, we developed nanoparticles with multiple functions of inhibiting inflammation and promoting angiogenesis, and loaded them in silk fibroin collagen hydrogel. The sustained-release nanoparticles played a role in wound surface and accelerated the healing of skin pressure ulcers.

Materials & Methods:

Extracellular vesicles are the focus of research in this field. We extracted them from embryonic fibroblasts, and screened the EDIL3 protein with high efficiency through mass spectrometry and Gene ontology analysis. CHO cells were infected with recombinant lentivirus, and EDIL3 protein was expressed. After the EDIL3 protein was purified by magnetic beads, silk fibroin was used to prepare nanoparticles wrapped with the purified protein, and the protein carried by the nanoparticles was detected by Western blotting and high performance liquid chromatography (HPLC). Silk fibroin hydrogel (SF hydrogel) and collagen hydrogel (Col hydrogel) were mixed in various ratios formed sustained-release carriers, optimal ratio selected based on mechanical, swelling, and release properties. EDIL3 protein nanoparticles loaded into SF/Col hydrogel showed therapeutic effect on skin ulcers in animal experiments.

Results:

The results of mass spectrometry and Gene ontology analysis showed that EDIL3 protein was not only expressed abundantly, but also closely related to many wound healing pathways. Western blotting revealed EDIL3 downregulation in severe pressure ulcer patients. Lentivirus transfection in mouse vascular endothelial cells (C166) showed EDIL3 enhanced cell proliferation and suppressed tert-butanol and hydrogen peroxide (TBHP)-induced inflammation. NPs@EDIL3 protein encapsulation was 34.35%. NPs@EDIL3 was internalized by C166 cells, promoting migration and proliferation, while suppressing β -catenin, ICAM-1, and TNF- α expression in TBHP-stimulated cells. Protein encapsulation efficiency of NPs@EDIL3 reached 34.35%. NPs@EDIL3 can be swallowed by C166 cells and promote the migration and proliferation of C166 cells. It also inhibited the protein expression of β -catenin, ICAM-1 and TNF- α in C166 cells stimulated by TBHP. To capitalize on SF and Col hydrogels' benefits, we mixed them in various ratios. When the ratio of SF hydrogel/Col hydrogel was 1:3 (volume ratio), the release rate of NPs@EDIL3 reached the best, and the sustained release function could last for 7 days. In vivo experiments treated mouse pressure sore wounds with PBS, SF/Col, NPs-SF/Col, and NPs@EDIL3-SF/Col. NPs@EDIL3-SF/Col healed 92.58% of wounds in 7 days, with the best re-epithelization. And the number of inflammatory factors and inflammatory cells in wound tissue decreased significantly, while CD31 and α -SMA protein expression increased, which was obviously better than other groups, and the collagen deposition was the densest and most uniform, reaching 96.79%.

Conclusion:

Hydrogel loaded with nanoparticles coated with EDIL3 enhance tissue repair and skin pressure ulcer healing by suppressing inflammation and boosting angiogenesis, fibroblast activation, and collagen deposit.

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Abstract N°: 2755

Improve Wound Care Analysis via Digital Data Acquisition and Artificial Intelligence support

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Introduction & Objectives: Appropriate wound management shortens the healing times and reduces the management costs, benefiting the patient physically and reducing the healthcare system's economic burden. Integrating digital systems for data acquisition could significantly speed up the development of novel medical research analysis, improving the quality of the information and the diffusion of telemedicine approaches. Smartphone devices represent the most suitable solutions to these aims, balancing the enormous worldwide spread of data acquisition instruments with the computational efficiency of their hardware/software. In this project, we propose a dedicated artificial intelligence smartphone solution based on wound healing characterisation and monitoring.

Materials & Methods: We implemented an active semi-supervised learning strategy to annotate a novel database of wound pictures acquired by smartphone cameras. The database comprises more than 7k images, labelled with wound stage metadata and validated by two expert clinicians. A dedicated artificial intelligence (AI) model was trained for the automated identification and segmentation of the wound components on these images. The morphological and textural features extracted from the lesion areas were used for the automated prediction of several clinically relevant scores, including the standard PWAT metric. The entire set of automated solutions was implemented in a novel smartphone mobile application and related web service interface, providing a complete GDPR-compliant digitalisation of the data acquisition process and a decision support system for clinical practice.

Results: The performances of the AI segmentation model were evaluated in a cross-validation framework using the collected database (*Dice Score Coefficient* of 0.95) and benchmarked on state-of-the-art datasets (*FUSC Database of MICCAI 2021 Challenge* and *Medetec Wound Database*) obtaining statistically significant results. The prediction of clinically relevant metrics like wound necrotic tissue amount and type, tissue granulation, wound area, and *Photographic Wound Assessment Tool* (PWAT) were compared with the manual ones, showing significant levels of correlation (*Spearman's coefficient* higher than 0.7). The integration in smartphone hardware and the development of the secure data transmission framework pose was validated during clinical practice (TRL 7), showing remarkable interest from the clinical community.

Conclusion: The current wound care analysis is often subjective, relying on the operator's expertise and qualitative evaluation. Our automated solution, based on artificial intelligence, has the potential to overcome these limitations, facilitating wound assessment, boosting evaluations, and improving patient assistance. Our proposed smartphone-based solution has shown promising results, confirming its potential as a clinical decision support system for wound care management.





Abstract N°: 2787

Application of PCR sequencing and next-generation sequencing in the diagnosis of sporotrichosis

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Introduction & Objectives:

Sporotrichosis is a common chronic fungal infection and usually caused by trauma through which the spores or yeast cells enter the host. The clinical manifestation can range from fixed-cutaneous to lymphocutaneous sporotrichosis even disseminated sporotrichosis. Diagnosis of sporotrichosis* relies mainly on pathogen isolation and culture, histopathological examination, species identification by molecular tests. Currently, there is a critical need to rapidly identify infectious organisms in clinical samples. Next generation sequencing (NGS) as a novel and promising approach and has the ability to identify pathogens and detect microorganism. Here we reported a case of sporotrichosis confirmed by a combination of histopathological examination, PCR-sequencing and NGS.

Materials & Methods:

A 70-year-old Chinese man presented with a six-month of painful cutaneous lesion on the back of right hand was admitted to our department. Six months ago, a few pustules were occurred on the back of right hand. The patient denied a history of surgery or trauma and did not received any treatment. The rashes gradually enlarged into an infiltrative reddish plaque accompanied by ulceration and purulent secretion. One month ago, the patient was presented to a local hospital and a skin biopsy was performed. The bacterial culture was *Cronobacter* spp, whereas the fungal culture was negative. He was diagnosed as bacterial cutaneous infection and treated with intravenous piperacillin. However, the lesions was not significantly improved. He had a 10-year history of poorly controlled hypertension.

Results:

Physical examination revealed a 3.5×2 cm infiltrative reddish plaque with unclear boundaries. The purulent secretion and crusts were observed on the plaque (Fig. 1A). Histopathological examination revealed pseudoepitheliomatous hyperplasia and the infiltration of lymphocytes, neutrophils, histiocytes and multinucleated giant cells in the dermis using HE staining (Fig. 1B). The scattered round yeast cells were observed by PAS staining (Fig. 1C). Fungal culture of biopsy specimen and purulent secretion revealed multiple, velvety, brown colonies on the Sabouraud dextrose agar (Fig. 1D). Microscopic characteristic showed thin, branched, hyaline septate hyphae (Fig. 1E). The genomic DNA was extracted and used to amplify internal transcribed spacer sequence. The PCR product showed 100% similarity with *Sporothrix globosa* sequences in the CBS database. The pathogen in biopsy tissue was also identified using NGS. The detected *Sporothrix* reads were 20005, accounting for 34.7% (Fig. 1F). Therefore, the patient was diagnosed as sporotrichosis caused by *Sporothrix globosa* by histopathology, PCR-sequencing and NGS. The lesions was dramatically ameliorated after treatment with oral itraconazole 400 mg/day for 2 months (Fig. 1G).

Conclusion:

Sporotrichosis typically presents as papules or pustules that form ulcerated nodules, which needs to distinguish from nontuberculous mycobacterial infection and chronic eczema. Our patient presented with a

chronic unilateral deep infiltrating plaque covered with crusts, which was initially diagnosed as bacterial cutaneous infection. In this study, the findings of NGS was *Sporothrix* spp., which is consistent with the histopathological examination, fungal culture and PCR-sequencing.

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Abstract N°: 2837

Pyoderma in the Dominican Republic: An analysis of temporal trends and burden correlated to gender from 1999-2019

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Introduction & Objectives:

Pyoderma is an ulcerous cutaneous infection of unknown etiology. Although this infection is known as its own meaning, pus in the skin, it may not be always discoverable in plain sight. It has been associated with autoimmune diseases and genetic components. The aim of this research is to correlate the impact of pyoderma amongst females and males in the Dominican Republic.

Materials & Methods:

Data was extracted from Global Burden of Disease Study 2019. Incidence, prevalence, number of deaths and DALYs (Disability-Adjusted Life Years) were analyzed by age, year and location from 1990-2019 including all ages. Annual percentage change (APC) was used to analyze the burden trend.

Results:

In the Dominican Republic, the incidence rate per 100,000 habitants resulted in an upward trend amongst both females and males. The incidence in females went from a rate of 15,248.65(95% UI: 14,602.15-15,921.04) in 1999 to 15,726.42(95% UI: 15,049.74-16,406.41) in 2019 with an APC of 0.89% (95% UI: -4.32-6.07). On the other hand, males went from a rate of 19,432.92(95% UI: 18,661.88-20,313.17) in 1999 to 20,430.45(95% UI: 19,580.96-21,368.71) in 2019 with an APC of 3.61% (95% UI: -1.75-9.04). The prevalence rate demonstrated an APC of 3.35% (95% UI: -0.68-7.93) from 634.03(95% UI: 605.65-662.94) in 1999 to 647.92(95% UI: 619.84-675.98) in 2019 amongst females. Males had an APC of 6.58% (95% UI: 2.23-10.57) from 789.80(95% UI: 758.05-824.44) in 1999 to 823.94(95% UI: 789.11-861.33) in 2019, both sexes demonstrating an upward trend in prevalence. Regarding the number of deaths, females displayed an upward trend greater than males from 9.91(95% UI: 7.67-13.57) in 1999 to 18.55(95% UI: 12.10-29.60) in 2019 with an APC of 4.74% (95% UI: -24.50-64.40). Males number of deaths went from 13.11(95% UI: 6.93-16.36) in 1999 to 15.84(95% UI: 10.62-23.27) in 2019 with an APC of -37.33% (95% UI: -57.63-43.95). Concerning the DALYs, females exhibited an APC of -0.77% (95% UI: -28.15-58.50) from 503.23(95% UI: 372.46-703.91) in 1999 to 648.29(95% UI: 452.61-924.03) in 2019 whilst males displayed an APC of -29.39% (95% UI: -54.11-41.75) from 639.35(95% UI: 371.95-897.29) in 1999 to 711.76(95% UI: 489.56-1,033.32) in 2019.

Conclusion:

The incidence and prevalence of pyoderma has shown a greater upward trend in males rather than females. On the contrary, regarding the number of deaths and DALYs females displayed a major upward trend across the years. These results become a clear concern for females, as they have shown a considerable upward trend in the last two decades, which implies there should be action taken upon and evaluate how we can prevent and reduce deaths from pyoderma amongst females.





Abstract N°: 2854

A case of pyoderma gangrenosum treated with guselkumab

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Introduction & Objectives:

Pyoderma gangrenosum (PG) is a rare, idiopathic, neutrophilic dermatosis characterised by the development of rapidly progressing and painful skin ulcers with undermined, necrotic borders. Therapeutic approaches for PG centre around immunosuppression to mitigate the inflammatory response, such as systemic corticosteroids and cyclosporine, amongst others. Recently, cases have emerged suggesting guselkumab, a monoclonal antibody targeting interleukin (IL-) 23, may have potential utility in treating refractory PG.

Materials & Methods:

We report a case of PG treated with guselkumab.

Results:

A 70-year-old man presented with a persistent purulent left lower leg ulcer with violaceous undermined borders of 8 months' duration. According to the PARACELSUS score, the patient scored 18 confirming the diagnosis of PG, with a score of at least 10 confirming the diagnosis. Using Delphi consensus criteria for diagnosis of PG, the patient had the following criteria: one major criterion (neutrophilic infiltrate) and five minor criteria with a score of 7 (with a score of 5 or more needed to make the diagnosis) also confirming the diagnosis of PG. Given the severity and patient's co-morbidities, including a newly diagnosed multiple myeloma, biologic therapy with guselkumab was initiated. The patient was started on guselkumab SC 100 mg at week 0, and week 4, followed by a dose increase to 200 mg SC every 4 weeks. At the one-month review, re-epithelialisation was noted over part of the ulcer, and there was significant improvement in pain. At 8-months follow up, the wound had improved significantly.

Conclusion:

Managing PG presents numerous challenges due to its multifaceted nature and potential complications. Emerging research suggests a role for IL-23 inhibition in the management of pyoderma gangrenosum. Three case reports in the literature have successfully treated PG with guselkumab in different regimens. This case provides additional evidence for the potential effectiveness of repurposing guselkumab at higher dose of 200 mg every 4 weeks in managing recalcitrant PG, and stresses the need for larger, randomised controlled studies to validate these findings.





Abstract N°: 2863

Advancing Global Collaboration in AI for Enhanced Wound Care Management

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Introduction & Objectives:

Chronic wounds pose a significant challenge in healthcare, leading to extensive treatment durations and inconsistent care methodologies, which increase the economic burden on healthcare systems. The primary objective of this paper is to propose the integration of artificial intelligence (AI) in wound care management and to advocate for global collaboration to develop non-proprietary, science-based digital tools for wound assessment.

Materials & Methods:

The application utilises machine learning algorithms based on CCN structure to analyse images of wounds, providing metrical and clinical scores and, ideally, diagnostic aids and predictions of healing trajectories. Data for training these algorithms were sourced from a comprehensive database of wound images, which was anonymized and complied with all relevant data protection regulations, annotated with clinical outcomes to ensure the accuracy and relevance of the AI predictions.

Results:

Accuracy and Predictive Capability: To date, our AI model has not just shown promise, but has demonstrated a remarkable concordance rate of approximately 95% in geometric measurements of wounds. It is also the first to predict the PWAT score, significantly enhancing the ability to monitor wound healing trajectories accurately, with an impressive accuracy of over 75%.

Advanced Monitoring Features: The application can track the progression of multiple ulcers in a single image and manage detailed patient data. This facilitates personalised and timely care interventions, such as sending reminders for medication, scheduling follow-up appointments, and providing real-time feedback on wound healing progress. All this lays solid foundations for further progress in the development of this device.

Conclusion:

AI holds a revolutionary potential for managing chronic wounds, offering a transformative means to standardise treatment methodologies and reduce resource wastage. We firmly believe that national and international collaboration is not just beneficial, but essential to harness diverse expertise, develop projects, and support scientifically robust AI tools that can lead to significantly improved patient outcomes and more efficient healthcare systems. The goals are to further develop it in telemedicine and as a co-pilot for wound diagnosis and therapy. Our team initiative at the University of Bologna serves as a compelling call to action for worldwide partners to join this innovative endeavour.

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Abstract N°: 2930

Treatment of postinjury hypergranulation tissue with topical corticosteroids: a case report

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Introduction & Objectives:

Hypergranulation tissue (HGT) is a complication of wound healing. It is characterized by exuberant growth of granulation tissue during the proliferative stage of wound healing. It presents as spongy, friable, red to purple mass of tissue which rises above the surface of the skin, and readily bleeds, but doesn't cause pain as the tissue lacks sensory innervation. Various associations with HGT have been reported including chronic inflammation, external friction, infection, and foreign-body irritation. Secondary infection of HGT are common. Diagnosing and treating secondary infection is necessary before attempting other treatment modalities. Although HGT may resolve spontaneously, potential complications or persistent lesion need treatment in the majority of cases. Traditional treatments of HGT include destructive chemical treatments such as silver nitrate, which can cause discomfort and haven't been routinely successful. Other treatments include intralesional corticosteroid, surgical removal, pulsed dye laser and KTP laser. Several studies have demonstrated successful outcomes with low and high potency topical corticosteroids. Topical corticosteroid suppress the inflammatory response that contributes to the growth of HGT, has antiangiogenic effect and reduction of edema secondary to cell membrane stabilization.

Materials & Methods:

A 32-year-old male presented with a nonhealing wound on his left vertex scalp. He fell from 10 m height 1,5 months prior, and had multiple trauma. He was treated by neurosurgeon. No surgery was performed on that area, only saline wet dressings twice a day and topical silver sulfadiazine. The patient was prohibited to wash his head during treatment. After 1,5 months the lesion was not getting better so he was consulted to dermatovenereology clinic. On the examination there was an irregular 4,5 cm x 2 cm red, soft, friable, eroded plaque with multiple pus, on the left vertex scalp. It was easily bleed. No pain or itchy. Given the characteristic of clinical history and physical examination, the diagnosis of postinjury HGT with secondary infection was highly suspected. The patient refused a biopsy and want minimally invasive treatment. The patient was educate to shave the hair around the lesion so it will be easier to give topical treatment, also wash with gentle shampoo everyday. The secondary infection was given salicylic acid 1 0/00 wet dressings twice a day. After the infection treated, topically clobetasol propionate cream 0.05% was given twice a day.

Results:

After 2 days treatment with salicylic acid wet dressings the infection was gone, with no pus at the lesion. After 4 weeks treatment with topical clobetasol, the excess granulation tissue had resolved and the site healed with only erythematous macule.

Conclusion:

As seen in this case, injury or wounds on the scalp may have increased susceptibility of developing HGT, and also secondary infection. The optimal treatment of HGT is not clear because of the lack of controlled, randomized trial. Topical corticosteroid should be considered as a treatment option. Majority of reported cases use of potent topical corticosteroid. Monitoring is recommended to avoid infection due to localized immunosuppression. In conclusion, treatment with topical corticosteroid is simple, painless, noninvasive, and can be performed at home.

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Abstract N°: 3066

Adipose-derived stem cell exosomes accelerate cutaneous wound healing and improve skin function.

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Adipose-derived stem cell exosomes accelerate cutaneous wound healing and improve skin function after burn.

Jayson Jay, Alen Palackic, Kandhadai, Anuttham, Ye Wang, Wilkerson, Michael G, Steven Wolf, Amina El Ayadi.

Introduction & Objectives:

Hypertrophic scars result from sup-optimal wound healing and significantly affect the physical and psychological well-being of burn survivors. Various therapeutic strategies have been attempted to accelerate wound healing, reduce Hypertrophic scar formation, and improve skin composition with limited success. Stem cell exosomes have recently gained attention as a therapeutic strategy in various diseases. In this study, we propose to investigate the therapeutic effects of adipose-derived stem cell exosomes on wound re-epithelialization, scar development, and skin function. We hypothesize that topical hydrogel containing stem cell exosomes will accelerate wound closure and restore skin function.

Materials & Methods:

We used the Red Duroc preclinical Pig model of wound healing and scarring that receives full thickness burn before excision and grafting. Burn sites were treated with a hydrogel with or without adipose-derived stem cell exosomes at days 1, 7, and 14. Functional analysis data and skin biopsies were collected every week for the first month and every month afterward for 4 months.

Results:

we found that ASC exosomes reduce trans-epidermal water loss as early as 14 days after burn. ASC -EX reduce epidermal thickness at 28, 60, and 90 days compared to controls. Collagen density was also reduced in ACS-exosomes-treated sites compared to controls. Interestingly, Decorin, an extracellular matrix proteoglycan found in tumor surrounding tissues, and a natural inhibitor of tumor cell proliferation was significantly increased in the ASC- Exosome group compared to controls. Neovascularisation assessed by SMA-positive blood vessels was also reduced in naive exosomes-treated tissue compared to hydrogel controls.

Conclusion:

These data support the therapeutic potential of stem cell exosomes in accelerating cutaneous wound healing and improving skin function following severe burn injury.





Abstract N°: 3074

Increased Extracellular Matrix Stiffness by Upregulating Expression of Key Glycolytic Enzyme PKM2 to Promote Keloid Progression

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Introduction & Objectives:

Mechanical signaling mediated by extracellular matrix (ECM) stiffness has been reported to play an important role in the progression of fibrotic diseases, and ECM stiffness is closely associated with a variety of cellular metabolic activities. However, whether and how ECM stiffness regulates cellular metabolic activities leading to keloid progression is unclear. In this study, we aim to explore the molecular mechanism of ECM stiffness promoting keloid progression by regulating cellular metabolic activities.

Materials & Methods:

ECM stiffness, filamentous actin (F-actin) morphological structure, Yes-associated protein (YAP) distribution and pyruvate kinase type M2 (PKM2) expression of keloid tissue were investigated in clinical samples, and the correlation between ECM stiffness and scar severity was analyzed. Gelatin methacryloyl (GelMA) hydrogel with tunable mechanical properties was prepared to mimic ECM stiffness. In vitro studies were performed on GelMA hydrogel to investigate the mechanism of ECM stiffness regulating the pro-fibrotic phenotype of human keloid fibroblasts through the F-actin-YAP-PKM2 axis. The YAP inhibitor verteporfin was administered in the murine keloid xenograft model to analyse the effect of ECM stiffness on keloid progression.

Results:

The mean horizontal Young's modulus of the keloid was 101.9 ± 20.9 kPa, which was significantly higher than that of the surrounding normal skin (15.8 ± 17.8 kPa, $P < 0.05$). There was a significant positive correlation between the mean horizontal Young's modulus of the keloid and scar severity - Vancouver Scar Scale (VSS) ($r = 0.855$, $P < 0.01$). The mRNA results showed that Col1A1 and Col3A1 were increased in keloid tissue compared to surrounding normal skin ($P < 0.05$). The ECM metabolising enzymes MMP2 and the collagen cross-linking catalyzing enzyme lysyl oxidase were significantly increased ($P < 0.05$). By adjusting the concentration of GelMA hydrogel from 10% to 30% (w/v), GelMA hydrogel with variable stiffness was prepared. The expression of Col1A1 and Col3A1, glucose consumption and lactate production in human keloid fibroblasts were significantly increased when cultured on high stiffness (30%, w/v) GelMA hydrogel. After addition of the F-actin inhibitor latrunculin B, RNA sequencing analysis revealed downregulated expression of Col1A1, Col3A1 and PKM2. Compared to low stiffness GelMA hydrogel (10%, w/v), YAP expression and nuclear localisation of human keloid fibroblasts were increased when cultured on high stiffness GelMA hydrogel (30%, w/v). Knockdown of YAP by siRNA significantly decreased the expression of PKM2 in human keloid fibroblasts ($P < 0.05$).

Conclusion:

Increased ECM stiffness in the keloid microenvironment induces nuclear translocation of YAP to induce transcription of PKM2, a key glycolysis enzyme, by regulating cytoskeletal F-actin structure. Subsequently, PKM2 enhances fibroblast glycolysis and ECM secretion to promote keloid progression. This study would shed light on the pathogenesis and targeted therapy for keloid.

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Abstract N°: 3147

Cold plasma therapy and low-level laser for treatment of cutaneous lesions in RDEB patients: A case series

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Cold plasma therapy and low-level laser for treatment of cutaneous lesions in RDEB patients: A case series

Introduction & Objectives:

Diverse therapeutic options are proposed for the treatment of RDEB patients. However, no definite therapy is established for RDEB. Although several advancements in wound care in RDEB, it remains a challenging issue among dermatologists. Plasma is appraised as a fourth state of the matter regarding its distinctive features apart from solid, fluid, and gas. Plasma as a new modality has been employed in various fields, especially in dermatology. Several studies investigate the efficacy of non-thermal plasma in the process of wound healing.

Furthermore, recent studies reported the advantage of diverse lasers in the acceleration of wound healing. Recent cell studies reported the effects of LLL on decreased TNF- α concentration and increased fibroblast proliferation accelerating wound healing. In this investigation, we examine the effects of plasma and low-level laser in the treatment of cutaneous lesions of RDEB patients.

Materials & Methods:

We evaluated wound healing in six RDEB patients in a pilot clinical case series carried out at Shohada-e-Tajrish Hospital, Tehran, Iran, 2019. In each patient, two lesions were treated with Low-Level Laser (LLL), and the other two lesions with Atmospheric Pressure Plasma Jet. Also, one wound was selected to be dressed daily as the control group. All patients were receiving therapeutic modalities twice a week on Saturdays and Tuesdays. For the evaluation of cutaneous lesions, we determine the duration of a half-week (regarding the period between Saturday and Tuesday) for the application of each session of therapy.

We designed a time of 50% wound healing which means the time that 50% or more of the wound area is healed. Also, the percent of the decrease in wound area size is $[(\text{Post-treatment size} - \text{baseline size}) / \text{baseline size}] * 100$. Furthermore, in each session, we evaluated possible complications including the formation of blisters, a sense of burning or pruritus, and so on for each treatment modality. After three months we evaluated every patient concerning recurrence or possible complications.

Results:

All patients experienced complete wound healing except one and four patients in the plasma and control group, respectively. The mean time of 50% wound healing was 2 ± 0.89 , 2.92 ± 0.90 , and 4.33 ± 2.08 half-week in the plasma, LLL, and control group, respectively. Further, the Kruskal-Wallis test showed that the mean percent of the decrease in wound area size was 99.29 ± 1.83 , 100.0 ± 0.0 , and 43.42 ± 34.65 in the plasma, LLL, and control group, respectively.

Complete wound healing happened with a mean of 3.44 ± 1.59 and 5.25 ± 2.18 half-week in the plasma and LLL group, respectively. Also, the time to complete remission was significantly lower with the plasma treatment in comparison with the LLL.

Conclusion:

In our study, both LLL and plasma treatment decreased wound area. Furthermore, the wound area of lesions treated with plasma was reduced faster compared to the control. In conclusion, regarding these satisfactory results for EB patients, we recommend using combination therapy of plasma and LLL for the treatment of RDEB cutaneous lesions.

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Abstract N°: 3379

Treatment of calciphylaxis with hyperbaric oxygen therapy (HBOT) in monotherapy

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Introduction:

Calciphylaxis is a vasculopathy characterized by vascular medial calcification and intimal hyperplasia with high morbidity and mortality. We present the first case described in the literature of calciphylaxis successfully treated with hyperbaric oxygen therapy (HBOT) in monotherapy.

Case report:

A 60-year-old woman with chronic kidney disease stage 3a secondary to type 2 diabetes mellitus consulted for a leg ulcer of weeks' evolution, associated with intense pain refractory to the third analgesic step. She was previously assessed by Angiology and Vascular Surgery, where a vascular origin was excluded. Physical examination revealed a retiform erythematous-violaceous plaque with areas of necrosis and sloughing. Laboratory tests showed normal or negative levels of PTH, phosphocalcic product and autoimmunity. Histopathological and microbiological studies confirmed the diagnosis of calciphylaxis associated with infection by *Pseudomonas aeruginosa*, so she was treated with oral ciprofloxacin adjusted to renal function. Given the patient's refusal to receive first-line treatment with IV sodium thiosulphate, and the limited improvement of the lesion and pain control with routine wound care plus surgical debridement, she was referred to Radiation Oncology for treatment with HBOT. She received 40 sessions for 60 minutes in a hyperbaric chamber at 1.45 atmospheres absolute pressure breathing 100% O₂. From the second week, a progressive healing of the lesion and less analgesic requirement was observed until full re-epithelialization

Discussion:

Calciphylaxis can be a therapeutic challenge. Although sodium thiosulphate is the most commonly used treatment, it should be combined with pain management, wound care and modification of risk factors. The evidence for HBOT in calciphylaxis is limited, but it may promote wound healing through fibroblast proliferation and angiogenesis as well as decreasing the risk of infection.

Conclusion:

HBOT is presented as a safe and viable option to be considered in the multidisciplinary approach to calciphylaxis, especially in open wounds to accelerate healing.





Abstract N°: 3563

Disclosing treatment response: clinical insights into lower extremity ulcer management at a dermatology center

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Introduction and Objectives:

Ulcers in the lower limbs constitute a serious global health problem. They affect 1.5-3 cases per 1,000 people, are associated with significant morbidity and mortality and negatively affect the quality of patient life. The complexity of the approach lies in multifactorial causes, with venous insufficiency, arterial disease and neuropathy responsible for 90% of cases. This diagnostic challenge requires a multidisciplinary approach, in which the role of dermatologists is essential.

Materials and Methods:

A retrospective cohort study of 207 patients was carried out between the years 2015-2022; medical records were collected with the aim of identifying the factors associated with the clinical improvement of patients with ulcers in the lower limbs who were treated by the Dermatology Service.

Results:

Table 1 shows the sociodemographic characteristics of the 207 patients included in the study. Among 207 patients, 63.8% were female, averaging 64 years old, with over half having prior ulcers. Comorbidities like hypertension, diabetes, anemia, malnutrition, and internal malignancy hindered improvement; diabetes and malnutrition were statistically significant in both univariate and multivariate analyses. Deeper ulcers showed poorer improvement, statistically significant in both analyses. The clinical manifestations are exhibited in Figure 1 and the different ulcer etiologies are listed in Table 2.

Table 1. Sociodemographic Characteristics of Patients Included in the Study

Characteristic	n	%
Sex		
Masculine	75	36.2
Femenine	132	63.8
Previous ulcer in the lower extremities	84	40.6
Arterial Hypertension	128	61.8
Diabetes Mellitus	67	32.4
Obesity	19	9.2
Autoimmune disease	26	12.5
History of deep vein thrombosis (DVT)	27	13
Internal malignancy in the last 5 years	9	4.3
Anemia	100	48.3
Malnutrition	31	15
History of trauma to the ulcer site	37	17.9
History of treatment with Methotrexate or Hydroxyurea		
Hydroxyurea	3	1.4
Methotrexate	5	2.4
History of smoking	45	21.7
History of alcohol consumption	22	10.6
History of substance abuse	11	5.3

Figure 1. Clinical manifestations of lower extremity ulcers

Depth Subcutaneous cellular tissue: 57.9%	Location Leg: 74.8%	Average Diameter 6 cm
Ulcer Bottom Granulation tissue: 37.1%	Ulcer Edges Beveled: 41.5%	Peripheral Skin Erythema: 35.2%

Table 2. Frequency of the etiology of lower extremity ulcer, treated by Dermatology service

Etiology of the ulcer	Absolute frequency (total of 207 patients)	Percentage
Venous	74	35,7
Arterial	26	12,6
Pyoderma gangrenosum	17	8,2
Traumatic ulcer	16	7,7
Martorell's ulcer	6	2,9
Neuropathic ulcer	6	2,9
Livedoid vasculopathy	4	1,9
Mixed arterial and venous ulcer	4	1,9
Ecchyma	4	1,9
Tumor ulceration	4	1,9
Vasculitis	2	1
Cocaine-levamisol Syndrome	2	1
Leishmaniasis	1	0,5
Rheumatoid arthritis	1	0,5
Myeloproliferative Syndrome	1	0,5
Sickle Cell Anemia	1	0,5
No clear etiology	18	8,7

Topical management included steroids, antibiotics and different dressings at the discretion of clinic wound specialists. Systemic medications used included antibiotics for superinfected ulcers, steroids, other immunomodulators, and antihypertensives. Topical and systemic management were statistically significant factors associated with improvement of lower extremity ulcers (Table 3).

Table 3. Factors associated with improvement of lower extremity ulcers

Characteristic	Improvement	No improvement	OR	Adjusted OR
Age (median, IQR)	64 (25)	68 (19)	0,99 (0,97-1,02)	
Sex				
Masculine	69 (37,1)	6 (28,6)	1,47 (0,54-3,97)	
Femenine	117 (62,9)	15 (71,4)		
Arterial Hypertension				
Yes	111 (59,7)	17 (81)	0,34 (0,113-1,07)	1,00 (0,06-15,78)
No	75 (40,3)	4 (19)		
Diabetes Mellitus				
Yes	56 (30,1)	11 (52,4)	0,39 (0,15-0,97)	0,26 (0,01-3,67)
No	130 (69,9)	10 (47,6)		
History of deep vein thrombosis (DVT)				
Yes	27 (14,5)	0 (0)	1,13 (1,07-1,19)	
No	159 (85,5)	21 (100)		
Malnutrition				
Yes	24 (12,9)	7 (33,3)	0,29 (0,10-0,80)	0.23 (0,09-0,29)
No	162 (87,1)	14 (66,7)		
Ulcer evolution time				
Less than 1 month	52 (28)	4 (19)		
1-12 months	77 (41,4)	10 (47,6)	1,68 (0,50-5,67)	
More than 12 months	57 (30,6)	7 (33,3)	1,59 (0,44-5,76)	
Presence of pain				
Yes	174 (93,5)	21 (100)	0,89 (0,85-0,93)	
No	12 (6,5)	0 (0)		
Ulcer depth				
Dermis	49 (26,3)	5 (23,8)		

Subcutaneous tissue	119 (64)	10 (47,6)	0,82 (0,26-2,53)	0,99 (0,35-2,64)
Tendon, muscle or bone	18 (9,7)	6 (28,6)	0,56 (0,16-0,97)	0,49 (0,20-0,99)
Altered APS profile				
Yes	4 (15,4)	0 (0)	1,18 (1,0-1,39)	1,10 (1,02-1,42)
No	22 (84,6)	4 (100)		
Was surgery performed?				
Yes	56 (30,1)	7 (33,3)	0,86 (0,33-2,25)	
No	130 (69,9)	14 (66,7)		
Did the patient received topical treatment?				
Yes	172 (92,5)	14 (66,7)	6,14 (2,13-17,7)	2,01 (1,54-4,89)
No	14 (7,5)	7 (33,3)		
Were curations carried out by a wound clinic?				
Yes	177 (95,2)	18 (85,7)	3,27 (0,81-13,20)	
No	9 (4,8)	3 (14,3)		
Did the patient received systemic treatment?				
Yes	83 (44,6)	10 (47,6)	1,20 (1,09-2,18)	3,8 (1,67-5,20)
No	103 (55,4)	11 (52,4)		

Conclusion:

Identifying the etiology of ulcers is crucial for effective treatment and improved outcomes. However, determining the factors that improve and worsen lower limb ulcers is necessary to effectively address them. There is growing need for a greater epidemiological understanding to optimize the diagnosis and treatment of these ulcers, to provide strategies aimed at prevention, timely diagnosis and optimal management to patients in our region.



**Abstract N°: 3621****Peristomal Moisture Associate Skin Damage: A Case Series**Maylita Sari¹, Sulaksanaswastho Suyoso Sulaksana², Aulia Dita Karlina²¹Rsud Dokter Soetomo Surabaya, Surabaya, Indonesia, ²Airlangga University Dharmahasada (A) Campus, Indonesia**Introduction & Objectives:**

Moisture associate skin damage (MASD) is complex skin condition caused by overexposure of the skin to excessive bodily fluids that can compromise its integrity and barrier function. The cause common irritants is bodily fluids include urine, stool, perspiration, saliva, intestinal fluids from stomas and exudate from wounds. We present a case series of moisture associate skin damage due to overexposure body fluid from stoma.

Materials & Methods:

Case series with total 3 patients, 1 adult patient male 18 years old, 2 infant patients with 2 and 3 old months, all of the patients presented with symptoms redness and erosion around stoma area with faecal fluids appears from the stoma. Erythematous macules with clear or unclear boundaries, with extensive erosions were observed on the area around stoma in all 3 patients. All patients was diagnosed with peristomal moisture-associated dermatitis type. Diagnosis of MASD was made based on patient's history and clinical manifestations. The primary management peristomal moisture-associated skin damage type was to manage peristomal moisture source such as perspiration and wound exudate and changed the pouch. The patients were treated with wet compress of NaCl 0.9% to clean the lesion area, erosion area is given sodium fusidate cream 2% and closed with thick gauze for erosion area, changed and observed every 2 days.

Results:

The development of MASD involves more than bodily fluids alone. Skin damage that happen resulting from multiple factors, including chemical irritants within the moisture source (e.g. proteases and lipases in faeces, drug metabolites), its pH, associated microorganisms on the skin surface (e.g. commensal skin flora), and mechanical factors such as friction. Replace the absorbent that has better absorption, and the right time to replace the gauze and adhesive around the stoma (not too fast and not too long about 2 days) is important too for the repair process of the skin barrier. Early assessment of patients at risk of MASD along with good skin hygiene is important in prevention and management strategies of MASD.

Conclusion:

Basic management strategies should focus on risk assessment, prevention of mitigating factors, employing an appropriate and structured care pathway to maintain skin integrity. Clinicians must be able to recognise and aware the risk factors for MASD, both in maintaining optimal skin conditions and in diagnosing and treating early stages of MASD to prevent progression and skin breakdown.



**Abstract N°: 3670****Care of Trophic ulcers in patients with Leprosy;comparison of three methods**Aparna Palit*¹¹All India Institute of Medical Sciences, Kalyani, Dermatology, Venereology & Leprosy, Kalyani, India

Introduction & Objectives: India is a high endemic country for leprosy. Though elimination of leprosy was declared in December,2005, it continues to be in the topmost position regarding overall prevalence rate of the disease and annual new case detection rates. However, the scenario has changed as compared to the pre-elimination era as majority of the states have achieved the elimination criteria whereas few states remain as high endemic pockets of leprosy since earlier to elimination. Majority of the 'released from treatment' patients live with various grade II deformities like muscle paralysis or trophic ulcers pertaining to anaesthetic hands & feet. As trophic ulcers are long lasting and do not heal without medical intervention, these pose serious negative effect on the patients' quality of life in the form of stigma, risk of infections and gangrene and inability to earn livelihood.

Objective: To find out effective ways of management of trophic ulcers in leprosy.

Materials & Methods: Patients attending the Leprosy Clinic of a tertiary health care center with trophic ulcers on feet were treated by three different modalities irrespective of their anti-leprosy treatment status. Serial paring and dressing of wound, debridement followed by immobilization using total contact cast (TCC) and debridement followed by platelet rich fibrin (PRF) therapy.

The recovery period in each method of therapy was recorded. Patient perceived and physician perceived conveniences and inconveniences of each treatment modality were recorded.

Results: Total 85 patients were treated. Forty patients were treated by serial paring, 35 with TCC and 20 by PRF. Average time required for ulcer healing by paring was longest (4-6months), followed by TCC(2-3months) and most rapid healing was observed with PRF therapy (1month). Repeated hospital visits, related travel expenditure, advice for immobilization and loss of daily wages were inconvenient for the patients receiving paring and TCC.

Conclusion: The physicians opined that efficacy of ulcer healing was comparable by all the three methods but success of paring requires patient cooperation in the form of immobilization. Both the patients and the physicians opined that PRF is a superior method considering the factors like time consumption and monetary loss for patients by paring and TCC. Though superior, PRF is an invasive technique and can only be performed by specialists in tertiary health care centers.



**Abstract N°: 3690****Glycine soja extract boosts peptide regenerative properties - multidirectional assessment of in vitro and ex vivo efficacy in skin models**

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Introduction & Objectives:

Development of novel approaches to topical formulations targeted at skin rejuvenation is a perpetual challenge globally. Thoroughly chosen combinations of active ingredients, based on botanical origin solutions and engineering advances may be a crucial step forward in creation breakthrough innovation.

Glycine soja is a well known botanical cosmetic ingredients with a large amount of scientific evidence of its efficacy in anti-aging skin care. However, little is known about its activity as an activator of regenerative properties of peptides.

The aim of the study was evaluation of *Glycine soja* extract (GSE) as a booster of peptide activity (Acetyl heptapeptide-9, Hexapeptide-9) in *in vitro* conditions. *Ex vivo* analyses of collagen, elastin and glycosaminoglycan (GAG) level in skin explants after exposure to a new cosmetic formulation (5555) containing aforementioned ingredients were also performed.

Materials & Methods:

In vitro studies were conducted in fibroblast L929 cell culture. Boosting effect of GSE on peptides in the concentration contained in the final formulation, was evaluated using MTT method after a 24 h incubation.

Cell migration and proliferation was assessed in a wound scratch assay. Cells were photographed before and after 24 h incubation with peptides alone and peptides with GSE to visualize injury healing.

For *ex vivo* analysis, skin explants from 40-year-old female were used. Explants (6 mm diameter) were treated with 10 µL of 5555 for three consecutive days. Vaseline served as placebo. Fixed explants were stained: Mallory dye was used to reveal collagen content, for elastin and GAG, Verhoeff-Van Gieson and Alcian Blue stains, respectively, were used.

Results:

Mean viability of cells after exposure to peptides alone was 131.06% ± 6.27% compared to untreated control cells. An addition of 0.2% GSE resulted in an increase in mean cell viability to 168.74% ± 14.83% (in both cases $p < 0.001$). Interestingly, GSE alone did not induce enhanced cell proliferation (mean viability was 98.08% ± 4.66%).

Scratch assay showed a noticeable cell migration promotion induced by evaluated chemicals. The average reduction in wound width observed in peptide only samples was by 43.45%. Addition of GSE caused a boost in cell migration and proliferation – scratch wound width was reduced by 74.87%. Reduction in scratch width in untreated control cells was by 32.44%.

In *ex vivo* assessment after 72h exposure (three applications of final serum formulation), an increase in the

content of all evaluated structures (collagen, elastin, GAG) was observed, in comparison to placebo.

Conclusion:

The study proved that GSE was a booster for peptide regenerative potency. A combination of GSE, Hepta-, and Hexapeptide exhibits promising anti-aging results in *in vitro* assays. Treatment with a new cosmetic formulation containing those ingredients increased the content of skin structural molecules, suggesting notable rejuvenating properties.

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**Abstract N°: 3723****Rare etiologies of leg ulcers - cohort study on 327 patients with discussion on rare diagnoses**

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Introduction & Objectives:

As treatment guidelines differ based on causal effect of chronic leg ulcer, correct diagnosis is essential for the best therapeutical outcome.

Cause of chronic leg ulcers among all the patients with this primary diagnosis was the objective of the study. The fact that patients were included in the study did not affect the treatment method selection.

Materials & Methods:

Prospective analysis of etiologies of chronic leg ulcers at University Clinic of Dermatology, Venereology and Allergology between 2015 and 2022. Ethical committee has approved the study retroactively (decision KB/643/2023), stating that "the research does not raise any objections from the bioethics committee and does not require the opinion of the bioethics committee, as the study was purely observational and based on medical documentation." The definitive diagnosis was pre-existing, and the research was carried out from the documentation. Additionally, patients included in this manuscript provided written informed consent for the publication of their case details. Data was then coded into database.

The study included patients with leg ulcers hospitalized at the Department of Dermatology in the years 2015-2022 with an initial diagnosis L97 according to ICD 10 - non-pressure chronic ulcer of lower limb, not elsewhere classified. The duration of the ulceration was more than 6 weeks, as this is the most used definition of a chronic wound.

Results:

Out of 327 patients with chronic leg ulcers, 119 had a diagnosis other than vascular. Patients were between 18 and 97 (mean 67.5) years old. 163 men and 164 women took part in this study. In patients with ulcers of rare etiology, most common etiology was pyoderma gangrenosum, vasculitis, followed by neoplasms or complication after antineoplastic treatment.

Conclusion:

It is important to be acquainted with rare etiologies of leg ulcers for best therapeutic outcome.





Abstract N°: 4026

Photobiomodulation Treatment for Intractable and Non-responding Wounds of Various Etiologies : 27 years Experience

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Introduction & Objectives:

To present an exhaustive study of more than two decades on 'wound healing' using Light Therapy (LED source) on the principles of Photobiomodulation.

Non-healing wounds have been a challenge in Medicine and Surgery because of complications, severe morbidity, mortality, dropouts due to various reasons.

Materials & Methods:

Non-healing wounds of various etiologies were treated during the period 1996 to 2023 using LED (light emitting diodes) equipment. This equipment emitted a 'red light of 660 nm' with a power density of 30mW/cm². The equipment was portable and easy to use.

A total of 1056 patients (665 males, 391 females) were treated in the above mentioned period. Age ranged from 6 months to 96 years. Wound duration ranged from 1 week to 2 years. Wound grades and case numbers were: grade 1 - 125, grade 2 - 661, grade 3 - 193, grade 4 - 77. Break-up of cases were: diabetic (neuropathy & vasculopathy) - 592, varicose ulcers - 57, post-traumatic large wounds - 96, postoperative complicated wounds - 33, post-burns or scald wounds - 65, leprosy (neuropathy) - 47, pressure sores - 44, skin grafting failures - 21, post-amputation wounds - 13, vasculitic ulcers - 32, post-herpes zoster wounds - 20, intertrigo and post-candidiasis genital superficial ulcers - 36.

All patients were clinically examined after thorough history taking. Interfering factors like infection, vascular insufficiency, sensory loss were investigated with pus culture & sensitivity, x-ray, color doppler and corrective measures were taken accordingly. Major vascular insufficiency patients were referred to vascular or other surgeons. All wounds were cleaned thoroughly using normal saline, hydrogen peroxide. Surgical debridement was done in the clinic at intervals. Antibiotics were administered according to the type of wound, its severity or culture sensitivity report. Nutritional supplements given for anemic, weak, old patients. Comorbidities were taken care of by the respective physician. Mechanical off-loading with plaster cast for standing, walking and protective footwear was advised in appropriate cases.

Wounds were treated daily or alternate days using the LED equipment from a distance of 5 cm approximately for 10-15 minutes. Wounds larger than 10 cm² were treated using 2-3 devices simultaneously. Povidone iodine or mupirocin ointment were used for dressing.

Wound measurements and photography were done periodically and record maintained.

LED monotherapy was used in all cases.

Results:

Wounds healed completely in 901 patients (85%) distributed over all causes. 20 old patients died due to

old age complications. 113 patients were referred to surgeon for complications. 22 patients dropped out for reasons unknown.

Conclusion:

Photobiomodulation treatment showed promising results for non-healing wounds of varied etiologies.

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**Abstract N°: 4054****Wound Healing Dynamics in Congenital Epidermolysis Bullosa**Olga Orlova¹, Alena Kuratova¹, Victoria Polenova¹¹Moscow, Charitable Foundation «BELA. Butterfly Children», Moscow, Russian Federation

Introduction & Objectives: Congenital Epidermolysis Bullosa (CEB) is a group of genetic diseases characterized by increased fragility of the skin and mucous membranes, leading to the formation of erosions and blisters from minimal mechanical impact. Wound management in CEB requires a careful approach and understanding of its characteristics to minimize the risk of infections and improve the quality of life of patients.

Materials & Methods: The study involved 75 patients, including 57 individuals with Recessive Dystrophic Epidermolysis Bullosa (RDEB) and 18 with Dominant Dystrophic Epidermolysis Bullosa (DDEB), with an average age of 14 ± 12.3 years. The diagnosis was confirmed by molecular genetic testing. The study is based on dynamic observation data and patient surveying through the CEB registry. Dermatological examinations with photodocumentation of the skin process were conducted once every two weeks. Patients completed a questionnaire once, which included questions about the healing time of wounds, the presence of long-standing erosions, their size, frequency of new erosions, and blisters.

Results: The analysis showed that the average healing time for erosive surfaces in patients with CEB ranges from 14 to 24 days. A significant number of patients (57.3%) had wound surfaces existing for more than 90 days, requiring extended healing times. Statistically significant differences in wound healing time were found between patients with DDEB and RDEB ($p < 0.05$). Most patients (68%) reported the appearance of wounds with a diameter of more than 4 cm, indicating the severity of skin lesions in CEB.

Conclusion: The study demonstrates that wound management in patients with CEB is a complex task that requires an individualized approach. An important factor in determining the treatment tactics and prevention of CEB complications is the timely verification of the type of CEB. The data highlight the importance of developing specialized skin care strategies for patients with CEB aimed at accelerating the healing process of erosions, preventing new lesions, and avoiding infections and complications.





Abstract N°: 4287

Trigeminal trophic syndrome, not a simple pathomimia.

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Introduction & Objectives:

We present the case of a 37-year-old woman with TTS following surgery for a grade II clear cell meningioma, manifesting as ulcerated lesions on the right ala nasi and lower lip. TTS typically involves the trigeminal dermatomes, with unilateral facial involvement and a predilection for the maxillary nerve area. Diagnosis relies on clinical observation and exclusion of other causes.

Materials & Methods:

Histological examination was performed to rule out other causes of facial non-healing ulcers like skin neoplasms, infectious causes, systemic vasculitis, and other dermatoses. In our case, the patient's history of brain surgery combined with trigeminal paresthesia, progressive ulcers and recurrent facial manipulation supported the diagnosis of TTS.

Results:

Topical therapy with gentamicin 1% cream twice daily for 2 weeks followed by a repairing cream were undertaken; the patient was also advised not to scratch or rub her face. One month later the lesions were completely healed (Figure 1b), and no recurrence was observed at the 6-month follow-up.

Conclusion:

Trigeminal trophic syndrome (TTS) is a rare complication that occurs as a result of damage to the trigeminal nerve. The classic triad of TTS includes intractable ulceration with anesthesia and paresthesia, with burning, itching, tickling, or crawling in the same trigeminal dermatomes. Patients often rub or scratch the affected areas to relieve these sensations, resulting in persistent ulceration or eventual tissue loss due to the analgesia.

Management strategies focus on neuropathy mitigation and behavioral modifications, with pharmacological interventions like gabapentin and carbamazepine commonly used. Long-term follow-up is recommended





Abstract N°: 4314

The efficacy, satisfaction, and safety of carbon dioxide (CO₂) fractional laser in combination with pulsed dye laser (PDL) versus each one alone in the treatment of hypertrophic burn scars: a single-blinded randomized controlled trial

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Introduction & Objectives:

The tendency to use less-invasive laser-based methods with far more obvious effectiveness has been taken into consideration today for improvement of burning scars. The present study thus aimed to assess the efficacy of two laser-based techniques including pulsed dye laser (PDL) and ablative fractional CO₂ laser (AFCL) and its combination on improving different aspects of burning scars regardless of the types of scar as hypertrophic or keloid scars.

Materials & Methods:

This randomized single-blinded clinical trial was performed on patients suffering hypertrophic or keloid burning scars. The patients were randomly assigned into three groups scheduling for treatment with PDL alone, AFCL alone, or its combination. All patients were visited before and 40 days after the last treatment session, and their scars were assessed.

Results:

In all groups, significant improvement was revealed in the Vancouver scar scale (VSS) score, the color of scar, vascular bed in the scar, the and height of scar and its pliability; however, the improvement in each item was more highlighted in the group receiving a combination therapy with PDL and AFCL techniques. In this regard, the highest improvement was found in vascular bed and pliability in the combination therapy group as compared to other groups. Although the superiority of the combined group was not statistically significant, due to the high percentage of improvement in total VSS and most of its indicators, it can be clinically significant. The efficacy of the treatment protocols was different considering subgroups of mature and immature scars (less than 1 year), so that more improvement in pliability of scar, vascularity, and color of scar was found in the group scheduling for PDL + AFCL as compared to those who were treated with PDL alone in immature scar group but not in mature scar group.

Conclusion:

Combined treatment can be much more effective in improving the appearance and pathological characteristics of scars than each individual treatment. This effectiveness can be seen mainly in immature scars.





Abstract N°: 4347

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 & Objectives:

The primary objective of this study is to examine the efficiency of various regenerative medicine approaches, such as platelet-rich plasma, cell therapy, stromal vascular fraction, exosomes and stem cell-conditioned medium, in the process of healing hypertrophic and keloid scars.

Materials & Methods:

Major databases including PubMed, Scopus and Web of Science were systematically searched, and based on the content of the articles and the inclusion and exclusion criteria, eight articles were selected.

Results:

Out of these eight articles, there were two non-randomized clinical trial studies (25%), one randomized, single-blinded comparative study (12.5%), one retrospective clinical observational study (12.5%) and four randomized clinical trial studies (50%). We employed EndNote X8 and Google Sheets to conduct article reviews and extract relevant data. Following the review phase, the studies underwent analysis and categorization. In all eight reviewed studies, the effectiveness of regenerative medicine in treating hypertrophic scars and keloids has been proven. Out of these studies, five (62.5%) focused on the effectiveness of platelet-rich plasma, two study (25%) examined the effectiveness of stromal vascular fraction and one study (12.5%) explored the efficacy of stem cell-conditioned medium. In two studies (25%), the treatment methods were added to standard treatment, while in six studies (75%), regenerative medicine was used as the sole treatment method and compared with standard treatment. The use of these treatment methods did not result in any serious side effects for the patients.

Conclusion:

Regenerative medicine is an effective method with minimal side effects for the treatment of hypertrophic scars and keloids. It can be used as a monotherapy or in combination with other treatment methods. However, further studies are needed to thoroughly evaluate the effectiveness of all sub-branches of this method.



**Abstract N°: 4410****Using comparative transcriptomic profiling ex vivo to identify novel, potential targets for acute and chronic wound healing**

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Introduction & Objectives:

Chronic, non-healing wounds represent a major economic burden to the healthcare system and significantly reduce the quality of life of those affected. However, the development of effective treatment strategies requires a better understanding of the underlying molecular mechanisms of chronic or pathological wound healing (WH).

Materials & Methods:

To gain new insights, we used healthy full-thickness human skin punches and created central, partial wounds (punch-in-punch model). The wounded skin punches were then cultured under physiological or pathological (hyperglycaemic, oxidative and hypoxic) conditions to mimic acute and chronic wounds, respectively. Afterwards, an unbiased, long-term comparative transcriptome profiling was performed by bulk RNAseq analysis. RNA was isolated at day 0 and after 1, 3 or 5 days of culture.

Results:

Several known wound repair associated genes (e.g. *KRT6A-C*, *PTX3*, *KRT1*, *KRT10*, *COL1A1*) and pathways, including Wnt signaling and actin cytoskeleton organization, were differentially regulated between acute and chronic wounds, reflecting an impaired wound healing process. In addition, the comparison between chronic and acute wounds showed that overall gene expression was downregulated in chronic wounds. This suggests that genes required for proper wound healing may not be transcribed in experimentally induced pathological conditions, potentially resulting in less protein transcription and impaired wound closure. While a significant downregulation of *FGF7* was detected in chronic wounds at day 5, *MMP10* was significantly increased in chronic wounds on all analyzed days. As a proof-of-principle and to validate our model system, we counteracted their dysregulation by applying recombinant FGF7 protein and a MMP10 neutralizing antibody (α -MMP10) to acute and chronic wounds *ex vivo*. Topical administration of α -MMP10 significantly increased the wound tongue length in acute wounds *ex vivo* while application of recombinant FGF7 did not have any effect. Yet, their combined application significantly promoted re-epithelization in both acute and chronic wounds. Our transcriptomic analysis also revealed osteopontin (*SPP1*) as one of the gene significantly upregulated on day 3 and 5 in acute compared to chronic wounds. Thus, to stimulate the osteopontin pathway, we administered the osteopontin-derived peptide, FOL005, which contains a similar active site (RGD-domain), to experimentally induced wounds *ex vivo*. Treatment with FOL005 significantly increased skin re-epithelization under both, physiological and pathological culture conditions.

Conclusion:

Thus, our transcriptomic database serves as an excellent tool to identify novel therapeutic targets and to support drug development for the treatment of chronic wounds. In this context, we also highlight the therapeutic potential of FOL005 for acute and chronic wound management.

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Abstract N°: 4544

Sodium thiosulfate occlusive dressings as an adjuvant therapy for calciphylaxis

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Introduction & Objectives:

Calciphylaxis is a life-threatening complication that is the result of the deposition of calcium in dermal and adipose microvasculature. It is associated with chronic kidney failure most commonly. The high morbidity and mortality rates associated with it, makes it important to do the correct diagnose fast and treat it as soon as we know it.

In this case report it is exposed the use of a cream preparation of sodium thiosulfate to treat a lower limb ulcer by calciphylaxis with good results reducing the pain and starting the healing process. This without the need to add pain medication in the context of a complex patient being treated with multiple drugs.

Materials & Methods:

Case report and literature review

Results:

A 85 years old masculine patient with cronic renal failure, hypertension, insulin dependent diabetes, gout, benign prostatic hyperplasia, dyslipidemia and mixed vascular insufficiency in lower limbs. In triweekly hemodialysis schedule, and medicated with insulin, hydrochlorothiazide, clopidogrel, cilostazol, atorvastatin, furosemide, allopurinol, carvedilol, tamsulosin, folic acid, diosmine, hesperidine and pantoprazol.

He suffered the painful spontaneous apparition of a 15cm x 5cm ulceration with dry necrotic fundus, sharp erythematous borders, foul smell, and areas with purulent exudate. Located on the posterolateral side of his lower left limb, this wound had 4 months of evolution at the time he made the appointment.

First we debrided the wound fundus, took a sample of it and from the border for histopathological diagnosis and started twice a day occlusive dressings with sodium thiosulfate (10gr of sodium thiosulfate + 10ml of purified wáter + 100gr base cream). Then we managed the infectious intercurrents and all along with the daily use of short stretch bandage to reduce oedema.

The wound started healing since the first week of treatment and the pain reduced significantly with no use of pain medication. Within two weeks the granulating tissue appeared. Once the biopsy confirmed the diagnose, we associated the dressings with 100ml of endovenous sodium thiosulfate (25%) with every dialysis accelerating the healing.

All of this with the continuous manipulation of the wound enviroment using TIME clinical decision support tool.

Conclusion:

** Due to the complexity of calciphylaxis patients, that are often medicated with multiple drugs, that suffer from excruciating painful ulcerations, and have frequent infectious intercurrents; having a topic option that stops the process and relieve the symptoms is, at least, an interesting idea.

** Sodium thiosulfate can be applied in a cream preparation with occlusive dressings to release pain and start the healing process in a way that is not increasing the morbidity of the patients by adding systemic treatment to a metabolism that is already dealing with a lot of pressure.

It is very important, in addition, the use of strategies to maintain the wound environment for a correct healing process, like TIME clinical decision support tool and fixing the most typical ulcer chronification factors like arterial-venous lower extremity disease.

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Abstract N°: 4577

The efficacy of keloid and hypertrophic scar reduction using an intralesional corticosteroid injection alone compared to combinations with intralesional corticosteroid injection with Nd:YAG laser or Er:YAG laser: a comparative randomized study

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Introduction & Objectives:

Introduction: Keloid and hypertrophic scars are aberrant wound healing responses which arise subsequent to injuries penetrating deeper than the dermis. Apart from cosmetic concerns, these scars can elicit symptoms such as pruritus, tenderness, and scar contracture. While numerous treatment modalities exist, intralesional corticosteroid injection remains the predominant first-line intervention. Nevertheless, it entails a prolonged duration for optimal outcomes and is associated with numerous side effects.

Objective: This study aims to compare the efficacy of treatments for keloid and hypertrophic scars across three treatment modalities: intralesional corticosteroid (triamcinolone acetonide) injection (TA) alone versus a combination of intralesional corticosteroid injection with adjunct Nd:YAG laser therapy (TA with Nd:YAG), and with adjunct Er:YAG laser therapy (TA with Er:YAG).

Materials & Methods:

A randomized controlled trial enrolled patients with keloid and hypertrophic scars attending the outpatient department of Somdech Phra Nangchao Sirikit Hospital, aged over 18, with scar sizes not exceeding 20 cm². Participants were randomly allocated to three treatment arms: TA alone, TA with Nd:YAG, and TA with Er:YAG. The settings for the Nd:YAG laser were energy density of 40 J/cm², spot diameter of 9 mm, exposure time per pulse was 25 ms, and repetition rate of 1.0 Hz. The settings for the Er:YAG laser were spot size diameter of 7 mm, energy density of 3.0 J/cm², and frequency of 5 Hz. The treatment protocol was 4 sessions of each treatment with 1 month interval and the primary endpoint was scar reduction efficacy assessed every month after each treatment session using Vancouver Scar Scale (VSS) and Japan Scar Workshop (JSW) Scar Scale.

Results:

A total of 95 keloid scars were enrolled, and randomized to each treatment regimen in the study. 31 scars were treated with intralesional corticosteroid injection alone, while 32 scars were treated with a combination of TA with Nd:YAG and another 32 scars with a combination of TA with Er:YAG. There was no significant difference in the baseline VSS and JSW in each group (mean baseline VSS in TA alone, TA with Nd:Yag and TA with Er:Yag group were 12.871, 12.938 and 12.969 respectively, $p = 0.424$, while mean JSW in each group were 14.032, 13.563 and 13.563 respectively, $p = 0.494$). All treatment regimens demonstrated significant reductions in VSS score and JSW Scar Scale at the end of the treatment. However, in both VSS and JSW scoring system, the combination of TA with both laser modalities exhibited significantly superior scar reduction (mean score reduction for Nd:YAG were 7.5 ($p = 0.00$, 95% CI [7.169,7.830]) and 12.312 ($p = 0.00$, 95% CI [11.775,12.849])), and for Er:YAG were 7.562 ($p = 0.00$, 95% CI [7.288,7.836]) and 12.718 ($p = 0.00$, 95% CI [12.175,13.262]) respectively) compared to the group receiving TA alone (mean score reduction were 2.419 ($p = 0.00$, 95% CI [1.957,2.881]) and 4.581 ($p = 0.00$, 95% CI [4.159,5.001]) respectively). Conversely, there was no significant difference in scar reduction between the Nd:YAG and Er:YAG adjunct groups when using both VSS and JSW ($p = 0.905$ and $p = 0.293$ respectively).

Conclusion:

Our findings suggest that the use of Nd:YAG and Er:YAG lasers as adjunctive therapies yields superior outcomes compared to intralesional corticosteroid injection alone, as assessed by both VSS and JSW scores. However, there is no significant difference between both types of lasers.

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Abstract N°: 4604

Fractional microneedling radiofrequency versus intralesional steroid injection with and without microneedling on tissue levels of PDGF and CTGF in hypertrophic scars: A randomized comparative clinical trial.

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Introduction & Objectives:

Hypertrophic scarring is a fibroproliferative disorder that can cause severe functional and cosmetic deformities, and unfortunately is still lacking a reliable treatment method.

Objective: To evaluate and compare the efficacy and safety of fractional microneedling radiofrequency (FMR) versus intralesional corticosteroid injection (ILCS) followed or not by microneedling in the treatment of hypertrophic scars and their implication on platelet derived growth factor (PDGF) and connective tissue growth factor (CTGF) tissue levels.

Materials & Methods:

The current study included 30 patients with hypertrophic scars.

Each patient received 5 treatment sessions at 4-week intervals. In every patient, each one of the two scars, or each side of a large scar was randomly assigned to treatment either by FMR (area A) (all 30 patients) or ILCS injection alone (in 15 patients) or ILCS combined with microneedling (in 15 patients) (area B).

Area A: Fractional Microneedling Radiofrequency:

- **FMR Bipolar device was used in the current study using cartridges with 36 non-insulated microneedles. Parameters used were: power of 6 volts, exposure time of 800 milliseconds, depth of 3.5 mm, and frequency of 2 Hertz.**

Area B:

Area B scars were randomly subgrouped into two equal groups, one group (B1) treated with only ILCS injection, and the other group (B2) treated with ILCS injection and followed by microneedling.

Intralesional corticosteroids injection (ILCS): Triamcinolone acetonide was diluted with saline in concentration 1:2 (20 mg/ml) and injected using an insulin syringe along the scar.

Microneedling:

- **A handheld motorized microneedling device was used. Sterile disposable needle cartridges (30 gauge / 36 needle array) were used at needle depths of 2 mm at a speed fixed at 90-95 times/sec.**

A baseline clinical assessment was conducted before treatment, followed by an additional assessment 4 weeks after the final treatment session. A 3-mm punch biopsy was obtained from each area of treatment as a baseline measurement and 4 weeks after the last treatment session. Skin biopsy specimens were kept frozen until assayed.

Results:

Clinical assessments using POSAS scoring system showed significant reduction in mean values of PSAS and OSAS after treatment when compared to mean values before treatment within both areas A and B. There was no statistically significant difference between areas A and B regarding POSAS before or after treatment or percentage of reduction of POSAS. ($p > 0.05$). There was also no statistically significant difference between areas B1 and B2 regarding POSAS before or after treatment or percentage of reduction of POSAS ($p > 0.05$)

Biochemical assessments revealed a significant decrease in after treatment mean values of CTGF and PDGF when compared to before treatment mean values within both treatment areas A and B, but there was a statistically significant difference between the two areas regarding CTGF and PDGF percentage of reduction ($p < 0.05$) with higher percentage of reduction detected in area B

There was a significant decrease in after treatment mean values of CTGF and PDGF when compared to before treatment mean values within both areas B1 and B2. There was no significant difference between areas B1 and B2.

Conclusion:

FMR and ILCS alone or in combination with microneedling are effective in the treatment of hypertrophic scars. FMR is a safe and effective treatment option for hypertrophic scars in skin types III & IV, with low downtime and rapid healing.



**Abstract N°: 4624****Investigating nipple skin changes in lactating women**

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Introduction & Objectives:

Postpartum hormonal changes can lead to painful changes in nipple skin. Studies have demonstrated that atopic dermatitis is the cause of half of all breast and nipple dermatitis during breastfeeding. Prior research has characterized nipple trauma in response to breastfeeding, but no study to date has looked at specific dermatological conditions in postpartum women and tracked these changes over an extended period of time. Research shows that a third of postpartum women are too busy with their newborn to attend postpartum checkups, indicating a great need for resources to determine specific nipple skin injuries and consider potential treatments.

This study aimed to characterize nipple skin injuries in lactating postpartum women, evaluate contributing factors, and assess available therapeutic treatments.

Materials & Methods:

After IRB approval, an anonymous survey was distributed through Facebook groups for new, expecting, and lactating mothers, and photos of current nipple injuries secondary to lactation were gathered. All surveys and photos were collected securely through RedCap. A retrospective cross-sectional study was designed including a total of 391 postpartum women.

Results:

Results demonstrated that the incidence of nipple skin injury was significantly greater in women over 35 (39.85%) compared to women 34 and under (23.81%, $P=0.0038$). Prevalence of nipple skin injuries in women breastfeeding in the first six months was 28.97%, from six to twelve months was 21.33%, and over one year was 38.66% ($P=0.0342$). Qualitative survey data demonstrated that the most prevalent reported skin-related concerns of breastfeeding women were pain (55%), appearance (34%), and breastfeeding ability (16%). Preliminary clinical analysis of nipple skin injury photographs demonstrated significant erythema and nipple laceration.

Conclusion:

The results of this study demonstrate the disproportionate impact of breastfeeding on nipple skin of older mothers, and the long-term persistence of nipple skin injuries. These findings underscore the necessity for dermatology, OBGYN, and primary care providers to recognize and address nipple skin injuries during the postpartum period in an effort to alleviate pain and discomfort. Given the demonstrated barriers to accessing care for postpartum women, there is a critical need for accessible resources and educational materials to empower women to recognize, report, and seek appropriate management for nipple skin injuries. These findings can aid in developing a multidisciplinary approach to addressing breastfeeding-related dermatological conditions, ultimately enhancing postpartum women's well-being.

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Abstract N°: 4672

Adipocyte mesenchymal stem cells in the management of chronic ulcers: About 9 cases

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Introduction & Objectives:

In response to the growing need to replace or regenerate damaged tissues, cells such as stem cells have been harnessed. They possess unlimited potential in advanced tissue engineering and cellular therapies, offering therapeutic solutions to numerous pathologies across various medical sectors.

The aim of our study is to evaluate the quantitative contribution of adipose-derived stem cells (ADSCs) in our patients, to highlight indications for the use of ADSCs in reconstructive surgery, and to establish recommendations for managing chronic ulcers. This aims to optimize techniques for adipose tissue extraction, processing, and ADSC injection.

Materials & Methods:

This retrospective study included 9 patients with chronic and treatment-resistant cutaneous ulcers. They underwent adipose tissue extraction, isolation of adipose-derived mesenchymal stem cells, and local injection of ADSC's in combination with platelet-rich plasma over a 48-month period from January 2020 to January 2024.

Nine liposuction procedures were performed on a total of 9 patients. The average age of patients was 52.5 years (range: 40 to 75 years), with a clear male predominance (77%) and a female-to-male sex ratio of 0.28. The main indications for treatment were pathological scarring in various contexts, with 33% of chronic ulcers resulting from trauma, 50% from surgery, 1 case from fasciitis necrosis, and 1 case from amputation stumps. All procedures were conducted using tumescent liposuction. Adipose tissue was harvested from the abdominal region below the umbilicus and from the flanks, with an average volume of 52 mL (range: 20 mL to 60 mL). The volume of platelet-rich plasma samples used was 48 mL for all patients. Mesenchymal cell isolation was achieved through enzymatic digestion. Isolated cells were characterized using flow cytometry to identify CD90+/CD105+/CD73+ markers within the cell population. The average yield of ADSCs from one mL of harvested adipose tissue consistently measured 6.82×10^5 cells .

The average ADSC yield was 2.56×10^5 in women and 8.69×10^4 in men, with female yield being three times higher than that in males. The lowest yield observed in our series was 1.2×10^4 cells in a 47-year-old male.

Results:

This novel type of adult stem cell is currently under research, with various applications emerging across different specialties. Particularly in plastic surgery, these cells are utilized to address challenges in wound healing, recover from local tissue ischemia, and remodel scars, thanks to their immunomodulatory effects and ability to differentiate into multiple lineages, thereby promoting tissue regeneration.

They have also demonstrated effectiveness in stimulating facial rejuvenation, as evidenced by Korean studies, through their anti-wrinkle, antioxidant, and skin-lightening properties. Multiple studies have shown their impact on alopecia. In addition to the indications outlined in our work, ADSC's has been applied in plastic surgery for

other purposes, such as improving lesions caused by radiation and enhancing fat graft survival. They have also been successfully employed in treating Parry-Romberg syndrome.

Conclusion:

The ease of harvesting and isolation, the abundance of ADSCs, their potential to differentiate into multiple lineages, and their immunomodulatory effects position ADSCs at the forefront of cell therapy and tissue regeneration

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**Abstract N°: 4827****Botulinum toxin on a mission to erase keloids – does the dream come true?**

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Introduction & Objectives:

Keloids are fibrous scars which extend beyond the wound borders, that may be caused by various factors including trauma, surgery or skin piercing. It is considered that keloids may be the result of prolonged and aberrant wound healing, which involves excessive fibroblast participation, accelerated angiogenesis and collagen accumulation. Numerous therapeutic strategies have been described for the prevention and reduction of keloids, however, none of them have proven to be efficacious in all patients. Botulinum toxin, especially the most widely utilized serotype A (BTX-A) is used for many purposes in medical and aesthetic practice. According to increasing evidence, scar management is one of the emerging applications of BTX.

Materials & Methods:

A literature review using PubMed database was conducted to evaluate toxin botulinum in the prevention and treatment of keloids. A search was managed using the key terms: 'keloid scar', 'keloids' and 'toxin botulinum'. The information received from the above search was used in the compilation of the present article. Preliminary search yielded a total of 30 results, out of which 7 recent ones (from 2020-2024) studies were selected and reviewed.

Results:

All analyzed studies confirmed the effectiveness of intralesional (IL) injections of BTX in keloids therapy. BTX prevented the contraction of muscles and skin near the keloid tissue, reducing the tensile force during the course of traumatic cicatrization, improved the growth of fibroblasts and altered the production of transforming growth factor (TGF-1). This led to reduction in physical symptoms, facilitating scar softening, and reduced its size. Three studies showed that >80% of patients had excellent improvement of vascularity, pliability, reduction of keloids and pain. One of the studies revealed that the combination of injections of BTX and hyaluronic acid simultaneously

with steroid therapy may reduce the side effects and keloid recurrences. Randomized comparative study showed that BTX is also effective and safe for children. In 2020 another intervention study demonstrated that the IL administration of steroids in combination with BTX-A appears to outperform either therapy alone, delivering a more secure and efficacious response with fewer side effects in keloids treatment. Another study compared the effectiveness of BTX-A and 5-fluorouracil in keloids therapy, with significantly better clinical efficacy even in large size lesions detected after BTX-A.

Conclusion:

BTX presents as a promising agent in the management of keloids. A significant enhancement in the quantity and quality of collagen and elastic fibers is observed. Further investigation is warranted to determine the value of this therapeutic modality in scar management protocols.

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Abstract N°: 4886

PGC-1 α restricts the progression of piezo1-mediated keloid via the regulation of fibroblasts metabolic reprogramming.

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Introduction & Objectives:

Keloids are abnormal fibroproliferative reactions that severely diminish the quality of life. Mechanics are associated with high morbidity rates and are recognized as a significant risk factor for keloid formation. However, it is still unclear which key molecular factors are regulated by the mechanical forces during keloid formation. In this study, we investigated the role of metabolic reprogramming in stretch-mediated keloid formation.

Materials & Methods:

we reanalyzed published single-cell RNA sequencing studies of keloids, and healthy skin, and also collected skin tissues from 15 paired patients with or without keloid for untargeted metabolomics and transcriptomics analysis. Stretch-treated primary normal skin fibroblasts were used to detect the levels of glycolysis and the critical signaling pathways. A total of 626 drugs of the metabolic-associated pathway were tested by high-throughput drug screen to identify the drugs with activating peroxisome proliferator-activated receptor gamma coactivator-1 α (PGC1 α) effects for preventing keloid. Establishing a patient-derived xenograft keloid implantation mouse model to detect the levels of the keloids under the treatment of drugs regulating PGC-1 α .

Results:

We found that Piezo1 was significantly increased in keloid fibroblasts compared with normal fibroblasts, and Keloids exhibit metabolic reprogramming including enhanced glycolysis and attenuated oxidative phosphorylation. Protein levels of PGC-1 α were found downregulated in the Stretch-treated primary fibroblasts. Overexpression of PGC1 α can inhibit primary fibroblasts glycolysis via the enhancement of FAO. Our mouse model further verified these results, as PGC-1 α activator drugs significantly decreased the volume and weight of the keloids.

Conclusion:

Piezo1 mediated keloid by activating glycolysis in fibroblasts via down-regulated PGC-1 α expression. Targeting PGC-1 α for metabolic reprogramming can effectively prevent keloid.



**Abstract N°: 5265****Martorell's ulcer**Omima Eruk*¹¹St Helens, Dermatology , St Helens, United Kingdom**Introduction & Objectives:**

A 70-year-old male was referred to the outpatient dermatology department due to developed non-healing skin lesion on left ankle, which he stated as having been present for almost 6 months. A Extremely painful ulcer on Left malleolus which has affected his mobility. There was a history of Pyoderma gangrenosum on his left lower leg. Patient is known case of Diabetic Mellitus type 2, hypertension, COPD, Anxiety and depression and Glaucoma. On physical examination, a deep ulcer in size 2.6cm *3.3cm, it was 80% slough and 20% granulation detected and located on the Left ankle. showing no signs of infection or Malodour consistent with Vascular type features. The diagnostic skin punch biopsy has been performed to confirm the clinical diagnosis and it has accurately shows the histopathology features of the Martorell's ulcer.

Materials & Methods:

Martorell's ulcer is an uncommon ischemic and extremely painful lesion located in the distal portion of the lower limb, resulting from severe systemic and poorly controlled hypertension. It is common in women between 50 and 70 years of age, although this case was a Male of his early seventies.

A misdiagnosis of PG can occur due to an inadequate biopsy which may show dermal necrosis without subcutaneous arteriosclerosis or medial calcification.

Hypertensive ulcer should always be considered in the differential diagnosis of painful lesions of the lower limbs.

Results:

This case report highlights the importance of diagnostic skin punch biopsy in making accurate diagnosis in patients with non-healing skin lesion on lower limbs due to suspected of vascular disorders or to exclude skin cancer. Appropriate selection of investigation protocol such as histology is necessary to ensure timely diagnosis and improve patient management. Further other scanning and blood test that should be requested by the specialist.

Conclusion:

Combination of different therapies required for total ulcer healing. Better control of high blood pressure is the main and first type of therapy to help heal the ulcer. Changing hypertensive medications from B blocker as it's contraindication for the reason of worsening the cutaneous perfusion pressure. The drugs of choice are calcium channel blockers and angiotensin-converting enzyme inhibitors, and all patients must be anticoagulated with heparin or coumarin.

Compression therapy and surgical department were also helpful.



**Abstract N°: 5360****Burn Care: Online Tools and Comprehensive Predictive Models for Adult and Pediatric Patients**

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Introduction & Objectives: Severe burn injuries significantly challenge acute medical care, particularly in resource-limited environments. Current predictive scoring systems, often impractical and adult-focused, neglect crucial aspects like mechanical ventilation and length of hospital stay (LOS).

Materials & Methods: This study analyzed 2,618 severe burn patients, developing new predictive models for survival, mechanical ventilation, and LOS, based on promptly accessible factors applicable in any setting.

Results: We observed significant seasonality and clear age- and gender-specific patterns, highlighting the necessity for targeted interventions. We developed and publicly released new predictive models for mortality, mechanical ventilation, and LOS for both adult and pediatric populations.

Conclusion: Targeting deficiencies in existing scoring systems, this study potentially advances acute burn management, with a particular focus on resource-limited settings. It provides crucial insights into the epidemiology, etiology, and prognostic factors of severe burn injuries, encapsulated in 10 actionable points. We also present an innovative freely accessible online assessment tool: <https://burn-scores.com>. By bridging gaps in current scoring methodologies and improving acute phase management, our research offers insights to improve clinical outcomes for severe burn patients globally. The integration of tailored predictive models and technology-driven solutions, especially relevant in resource-constrained settings, represents a major stride in enhancing the quality of burn care.





Abstract N°: 5520

Scars, management , prevention and challenges

Zainab Albanna¹

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Introduction & Objectives:

Skin healing is a complex process that might result in scar formation after wounding.

In this presentation, we will review the healing process, types of scars, management, prevention and challenges.

Materials & Methods:

Many patient presented to our clinic with hypertrophic, atrophic and keloid scars.

We will review the management of patient with combination treatment of botulinum toxin, laser and microneedling devices.

In addition to the prevention of scar formation of patients at risk of keloid and hypertrophic scars.

Results:

Botulinum toxin is one of the best tools in the hands of dermatologist to prevent the formation of scars and optimize the healing process especially if combined with energy devices and micro needling techniques.

Keloids are always frustrating for physicians and patients and there is no single treatment with good results.

We also will review the use of Dupilomab in literature in the management of scars.

Conclusion:

Botulinum toxin is excellent tool in scar prevention and management.

Best results always obtained with combination modalities.

Promise lies in new biological treatments.





Abstract N°: 5536

Safety and Efficacy of a Healing Ointment as a Post-Surgical Wound Care

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Introduction & Objectives:

Post-surgical wound care typically requires a clean, occlusive, and moist environment to promote healing while reducing the risk of infection or complications at the wound site. Therefore, it is vital to utilize proper methods to support wound healing. This study evaluated the safety and efficacy of a healing ointment (HO) on post-procedural wounds.

Materials & Methods:

This was a multi-center, 4-week in-use study on subjects aged 18-85 years who were scheduled to undergo Mohs surgery, skin biopsy, or an excision. HO was applied by investigator immediately post-procedure and subjects were instructed to use the product at least twice daily. Assessments included clinical grading, subjective tolerability, photography, and self-assessment questionnaire.

Results:

A total of 12 subjects completed the study. There was no worsening or significant increase in clinical grading score for tolerability parameters (erythema, edema, overall wound appearance, and scabbing/crusting), as well as subjective tolerability (burning, itching, and pain) after 28 days of product application. Self-assessment questionnaire responses were favorable with 93% subjects agreeing that the product soothed their wound and surrounding skin at Day 7/14, 100% agreeing that the product helped heal their wound effectively at Day 28, and 83% preferring HO over their previous ointment or petrolatum-based product at Day 28. Clinical photography also showed visible wound improvement over time. There were no adverse events reported.

Conclusion:

The study results showed that the healing ointment was well-tolerated and well-perceived by subjects with noticeable improvement in the surgical wounds. The product was safe and efficacious when used as post-surgical wound care.





Abstract N°: 5908

The Effect of Blue Light Irradiation on Proliferation and Collagen Deposition of Human Dermal Fibroblast in Hyperglycaemic Conditions: A Promising Treatment for Diabetic Ulcer

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Introduction & Objectives:

Diabetes is considered a global health threat due to its potential to cause various complications, such as diabetic ulcers. Diabetic ulcers are difficult to treat and require prolonged care might impact mortality, psychological well-being, and financial stability globally. Treating and managing diabetic ulcers remains challenging. Delayed wound healing in diabetes is caused by degraded cellular function, reduced cellular migration, cellular proliferation, and decreased production of collagen and growth hormones. Recent studies indicate that exposure to blue light is beneficial for wound healing by decreasing pro-inflammatory cytokines, stimulating growth factors, increase cell migration, proliferation, and collagen production. This study aims to investigate the effect of blue light irradiation on the proliferation and collagen deposition of human dermal fibroblast in hyperglycaemic conditions simulating diabetes mellitus.

Materials & Methods:

Human dermal fibroblasts (HDFs) were obtained from the dermis of the human foreskin and cultivated in a Dulbecco's Modified Eagle's Medium (DMEM) high glucose medium containing glucose 4.5g/L (25mmol/L) to simulate hyperglycaemic conditions in diabetes for a minimum of 2 passages before being used in the experiments. Hyperglycaemic fibroblasts were then divided into control group (without blue light irradiation) and treated groups which were exposed to blue light 415-430nm with fluences 1.64, 3.28, 6.56, 13.13, and 19.69 J/cm².

Fibroblast proliferation was measured using a standardized MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-tetrazolium bromide) assay, and the optical density (OD) of formazan blue was measured with a spectrophotometer at wavelength 570nm. The proliferation index was determined by comparing the average OD of each irradiated group to the average OD of the control group. The proliferation index of the control group was regarded as 100%.

The collagen deposition capacity was conducted using the Sirius red assay to measure insoluble collagen. The Sirius red dye, which attaches to collagen, was dissolved by adding 200 µl of 0.5 N NaOH for 30 minutes. The OD was measured using a spectrophotometer at a wavelength of 570 nm. The collagen deposition index was determined by comparing the average OD of each irradiated group with the average OD of the control group. Collagen deposition of the control group was regarded as 100%. The research presents the data analysis results in means. Data analysis was conducted with the SPSS version 25 software. A one-way ANOVA test was conducted with post hoc analysis using the Least Significant Difference (LSD).

Results:

Cell proliferation index of hyperglycaemic human dermal fibroblast was significantly increased 48 hours after exposure to blue light 415-430nm irradiation at fluences of 1.64, 3.28, 6.56, 13.13, and 19.69 J/cm² compared to the control group ($p < 0.05$). After 48 hours of irradiation, the irradiated group showed a significant increase in collagen deposition capacity at fluences of 1.64, 3.28, 6.56, and 13.13 J/cm² compared to the control group

($p < 0.05$).

Conclusion:

Blue light has demonstrated beneficial effects in promoting wound healing. Our results showed that blue light irradiation at low doses can enhance cell proliferation and collagen deposition of human dermal fibroblast in hyperglycaemic conditions simulating diabetes mellitus. Thus, blue light can be a promising treatment for diabetic wounds.

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**Abstract N°: 6119****Trigeminal trophic syndrome: a rare cause of facial ulcerations**

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Introduction & Objectives:

Trigeminal trophic syndrome (TTS) is a rare presentation of unilateral facial ulceration after damage to the sensory root of the trigeminal nerve. The lesions may occur anywhere along the dermatome. Therapy is challenging and often disappointing.

Materials & Methods:

We report here an interesting case of TTS.

Results:

A 52-year-old woman presented with persistent ulcerations affecting the left side of her face with associated paraesthetic sensations for 6 months. Her medical history included a cerebrovascular accident with Wallenberg lateral medullary syndrome 4 years earlier. On examination, well demarcated ulcerations with clean borders were present at the trigeminal distribution. A neurologic examination revealed left-sided facial hypoesthesia. Viral and bacterial cultures were negative. Laboratory investigations, including full blood count, liver function tests, urea and creatinine, fasting glucose, thyroid function tests, HIV serology were normal. TTS affecting distribution of the first and second branches of the trigeminal nerve was diagnosed. Our patient was started on a dose of carbamazepine 200 mg and instructed to keep the area covered with a bandage to prevent inadvertent manipulation.

Conclusion:

TTS occurs secondary to trigeminal nerve damage, with resultant paraesthesias that cause patients to pick or rub their skin. This self-mutilating behaviour results in chronic ulcerations, typically in the trigeminal distribution. The causes of TTS include trigeminal nerve ablation or transection of the Gasserian ganglion (as treatment for trigeminal neuralgia), stroke (specifically Wallenberg lateral medullary syndrome like in our patient), craniofacial surgery, herpes, trauma, and intracranial neoplasm. A case of TTS secondary to the use of synthetic marijuana has also been reported. The time from trigeminal nerve damage to lesions development ranges from weeks to years. Treatment of TTS is difficult and there is no gold standard. Treatment consists of a combination of physical barriers to prevent manipulation and pharmacologic therapy such as gabapentin and carbamazepine. Facial reconstruction with a variety of graft techniques has also been described. Negative pressure therapy, electrical stimulation and thermoplastic face masks are other modalities of treatment that have been used with success.





Abstract N°: 6153

Spider bite

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Introduction & Objectives: Lymphangitis is a common complication associated with spider bites, particularly from venomous species such as the black widow spider. This case report presents a unique case of lymphangitis following a suspected black widow spider bite in Morocco. The objectives of this report are to describe the clinical presentation, management, and outcomes of lymphangitis in a patient following a suspected black widow spider bite.

Materials & Methods: A detailed case study of a 38-year-old male patient presenting with symptoms of lymphangitis following a suspected black widow spider bite was conducted. Clinical examination findings, laboratory investigations, imaging studies, and treatment modalities were documented. The patient's medical history, timeline of symptoms onset, and response to therapy were carefully recorded and analyzed.

Results: The patient presented with classical symptoms of a black widow spider bite, including severe pain at the bite site, localized swelling, and erythema. Lymphangitis characterized by red streaks extending from the bite site (right leg) towards the regional lymph nodes was observed. Laboratory investigations revealed elevated inflammatory markers. The patient was managed with analgesics, antibiotics, and supportive care. Gradual resolution of symptoms and improvement in clinical condition were noted over a period of two weeks.

Conclusion: This case report highlights the importance of recognizing lymphangitis as a potential complication of black widow spider bites. Early identification and appropriate management of lymphangitis are crucial in preventing further complications and promoting patient recovery. Healthcare providers in regions endemic to black widow spiders should be aware of the clinical features and treatment strategies for lymphangitis following suspected spider bites to ensure optimal patient outcomes.





Abstract N°: 6202

Nicolau Syndrome Associated with Diclofenac Sodium and Thiocolchicoside Injection: A Case Report

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Introduction & Objectives:

Nicolau syndrome (NS) is an iatrogenic drug reaction characterised by sudden pain, discolouration, varying degrees of tissue damage and necrosis following injection of drugs via any route. The syndrome can be caused by various drugs, including non-steroidal anti-inflammatory drugs (NSAIDs), antibiotics, cobalamin, vitamins, corticosteroids and local anesthetics.

Materials & Methods:

The following report presents the case of a patient diagnosed with NS following the intramuscular injection of diclofenac sodium and thiocolchicoside.

Results:

A 66-year-old woman presented with a redness and ulcers on her left gluteal region, which had been present for approximately four months. A dermatological examination revealed two irregular and sharply demarcated plaques (7x10 cm and 2x2 cm, respectively) in the outer upper quadrant of the left gluteal region with ulcers in the centre and erythematous borders. A review of the patient's medical history revealed that she had been admitted to the emergency department four months earlier due to hip pain, and had been administered intramuscular (IM) diclofenac sodium and thiocolchicoside. After three days, bruising was observed, and within seven days, a black discolouration appeared in the injection area. The patient did not report any systemic symptoms such as fever, tenderness, pain, leg weakness, or hypoesthesia. A differential diagnosis of malignancy and vasculitis was excluded by histopathological examination. A diagnosis of NS was based upon the assessment of the patient's history and a dermatological and histopathological examination. The ulcers healed almost completely after two months with topical wound care.

Conclusion:

NS is a rare condition first described in 1925 following intramuscular bismuth injection to treat syphilis and has been reported to develop after intramuscular, subcutaneous, intravenous, intraarticular and subacromial injections of various drugs.

NS is accompanied by dermatological symptoms such as a vivid reticular-type purplish patch and varying degrees of tissue loss and necrosis after injection. The diagnosis of NS is primarily based on the patient's medical history, clinical findings and exclusion of other differential diagnoses. Although the pathophysiology of the syndrome has not been fully elucidated, the majority of proposed theories are related to vascular pathologies. These include arterial embolism following direct intravascular injection, vasospasm due to sympathetic discharge after perivascular and perineural injection, and marked vascular inflammation leading to destruction of the arterial wall after vascular/perivascular injection. Furthermore, drug leakage from muscle into the subcutaneous tissue may also cause NS.

Although the clinical manifestations of NS are usually limited to mild, localised skin and subcutaneous fat tissue necrosis, cases with severe, extensive tissue necrosis and even limb amputations have been reported in the

literature.

One of the most important prevention methods of NS is to reduce the frequent or unnecessary use of drug injections. For example, NSAIDs are commonly prescribed by physicians in daily practice. Reducing the unnecessary use of these drugs will already reduce the likelihood of NS.

In conclusion, NS should be considered as a differential diagnosis for cutaneous lesions in the injection site. Prevention, early diagnosis and treatment play an essential role in order to prevent tissue loss in NS.

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**Abstract N°: 6306****The importance of allergies in phlebological treatment**Birgitte Visch¹, Kees-Peter de Roos²¹Rijnstate, Dermatology, Arnhem, Netherlands, ²Erasmus MC, Dermatology, Rotterdam, Netherlands**The importance of allergies in phlebological treatment****Introduction & Objectives:**

There is a great variety in incidence of allergic reactions during phlebological treatments. At one side of the treatment spectrum there is a high percentage (up to 75%) of contact allergies to components of wound dressings for venous leg ulcers. At the other side of this spectrum allergies when treating varicose veins seem virtually non-existent. Type I and type IV hypersensitivity are important not only in daily life, but also in phlebological treatment. Hypersensitivity and allergy play an important role with potential severe consequences for patients and treatment results.

Materials & Methods:

A review of literature was performed and shows allergic reactions in patients treated for venous insufficiency and venous leg ulcers (VLU). Hypersensitivity to local applied products and wound dressing have impaired effect on wound healing. Information about type I hypersensitivity for both tumescent anaesthesia and Lauromacrogol 400 (polidocanol) in sclerocompression therapy was obtained from both the Dutch and the European centre for adverse drug reactions and gives more information about hypersensitivity the last ten years. Besides, a survey was performed among 37 Dutch medical hospitals to investigate the incidence of treatment allergies.

Results:

Hypersensitivity type IV reaction is seen in 46-76% of patient with VLU; about 20% of these reactions are caused by wound dressings products. In 11 centres urticarial and respiratory complaints were seen and 3 systemic allergic reactions in phlebological treatments. Both in Netherlands and Europe only a few cases of systemic reactions were reported (see table).*

Conclusion:

A type IV allergy in VLU and chronic leg ulcers seems to be an underestimated problem, and causes delay in wound healing treatment. Patients with VLU with slow healing tendency should undergo allergy tests. Type I allergic reaction with anaphylactic reaction to sclerosing fluid or foam are very rare, and never proved with intracutaneous tests in literature. Most serious adverse events are cardiac and vascular events (DVT with PE). Other adverse events as urticaria, lung complaints are seldom mentioned or described.

Adverse events EudroVigilance: the four largest groups from 1995-2020

	Age	Group		Type	Adverse	Event	
	< 18 yrs	18-64 yrs	65-85 yrs	Serious	Non Serious	Unknown	Total
General disorders, administration site	25	105	34	105	51	8	164
Skin and subcutaneous tissue disorder	27	67	33	73	39	15	127
Vascular disorders	11	78	25	99	12	3	114
Nervous system disorder	15	73	16	78	19	7	104
Immune system disorders*		15*	8*	4	19	8	31

* 8 persons (26%) age unknown

EudroVigilance: Patients with type 1 reaction on lauromacrogol 400

Type adverse event	Number of patients in Europe
Anaphylactic reaction	5
Anaphylactic shock	6
Anaphylactoid reaction	1
Anaphylactoid shock	1
Drug hypersensitivity	0
Eosinophilic granulomatosis with polyangiitis	1
Hypersensitivity	9
Type I hypersensitivity	2
Total	25



**Abstract N°: 6437****To compare the efficacy and safety of intralesional vitamin D with intralesional triamcinolone and its correlation with tissue expression of vitamin D receptors in the treatment of keloids.**

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Introduction : Intralesional steroids are the first line of treatment for keloids, intralesional vitamin D has shown promise in management of keloids in few small studies.

Objectives: To compare the efficacy and safety of intralesional vitamin D with intralesional triamcinolone and its correlation with tissue expression of vitamin D receptors in the treatment of keloids.

Materials & Methods: Sixty patients were randomly divided in two groups in 1:1 ratio. The group A patients received intralesional vitamin D (2 lakh IU with a dose of 0.2 ml/cm²) and the group B patients received intralesional triamcinolone acetonide (20mg/ml with a dose of 0.1 ml/cm²). Four monthly injections were given, and the patients were followed up for further 24 weeks. Vancouver Scar Scale (VSS) was used for keloid evaluation. Pre and post-treatment biopsies of 20 patients from both groups were taken to assess the correlation between the expression of VDR receptors levels before and after treatment.

Results: The mean VSS scores of the subjects in both groups were significantly reduced over time during the follow-up (p-value < 0.001). Mean reduction in VSS at the end of treatment period was 5.17 ± 0.59 in vitamin D group and 4.77 ± 0.77 in triamcinolone group. The proportion of the patients showing > 50% reduction in VSS score was higher in triamcinolone group compared to vitamin D group (76.7% vs 50%, p = 0.032). Rates of recurrence were comparable among two groups (p = 0.51). Hypopigmentation (80% vs 36.7%, p < 0.001) and atrophy (73.3% vs 40%, p = 0.009) were more common in triamcinolone group as compared to intralesional Vitamin D group. There was no significant difference in pre and post-treatment values of tissue vitamin D receptor expression in either group.

Conclusion: Both triamcinolone and vitamin D are effective in the management of keloids. Although the reduction in scar score was higher with corticosteroids than vitamin D, intralesional injection of vitamin D had lower incidence of adverse effects such as atrophy and hypopigmentation.



**Abstract N°: 6573****Clinical and epidemiological features of pyoderma gangrenosum in Mexican population: A monocenter retrospective study.**

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Introduction & Objectives:

Pyoderma gangrenosum (PG) is a neutrophilic dermatosis characterized by painful ulcers that evolve rapidly and have undermined borders. Clinically, it presents with erythematous-edematous papules, plaques, and nodules, mainly affecting women between the second and fifth decades of life, with an annual incidence ranging from 0.3 to 10 cases per million inhabitants. Histologically, PG is characterized by a neutrophil infiltrate and may be associated with immune-mediated diseases, neoplasms, and hematologic disorders. Additionally, association with autoinflammatory syndromes has been identified. The aim of this study was to describe the clinical and demographic characteristics of PG patients treated at the wound clinic of a reference hospital in Mexico City.

Materials & Methods:

A retrospective, cross-sectional, observational study was conducted including 37 patients diagnosed with PG from January 2009 to March 2024. Patients were selected through the General Hospital "Dr. Manuel Gea González" dermatopathology database. All of them met the PARACELUS criteria with a score equal to or greater than 10. The main demographic characteristics of the population were described. A comparative analysis was performed between groups according to their response to treatment (complete, partial, or no response), for which ANOVA and Chi-square tests were used. Additionally, complementary and bivariate comparisons between groups were made using Student's t-test and/or Chi-square. The analysis was carried out using the STATA program.

Results:

The mean age of the patients was 46 ± 17 years, with a predominance of females (56.7%). Most common findings were: classical clinical variant (81%), lower extremities topography (64.8%) and autoimmune disease association (38.4%). In 30.7% of cases, no associated systemic diseases were found.

Regarding treatment selection, topical and systemic steroids were the most used, followed by other immunosuppressants or immunomodulators such as colchicine, methotrexate, and hydroxychloroquine.

Concerning the evolution, in patients for whom information was available, it was found that 55% achieved a complete response of the lesions, 30% achieved a partial response, and 3 cases were refractory to established treatment. In 42.3% of patients who received topical steroids, complete improvement was documented, with dapsone in 66.6% of cases, anti-TNF alpha in 33.3%, and methotrexate in 33.3%.

When comparing between groups, a difference was found by clinical variant ($p=0.003$) and comorbidities ($p=0.050$) in those patients over 65 years of age.

Conclusion:

We report the clinical and epidemiological characteristics of a reference center in Mexico. To our knowledge, this cohort represents one of the largest conducted in Latin America.

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Abstract N°: 6777

Management of facultative myiasis

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Introduction & Objectives:

A case series of spontaneous cutaneous myiasis in human wounds reported and treated by the dermatology and parasitology team in Hadassah medical center in Jerusalem, Israel. In two of the cases specimens were collected and identified as *Lucilia sericata* (common green bottle fly).

Materials & Methods:

Wound myiasis is a condition in which fly larvae live in traumatic lesions of vertebrates. In animals we may see re-infestation that may cause adverse events and even death. Occasionally, we may see an infestation on a human individual.

There are two forms of Myiasis: obligate and facultative. Obligate myiasis denotes maggots feeding on living tissue whereas facultative myiasis represents a fly discovering a wound with necrotic tissue and laying by eggs which hatch into maggots. Maggot infestation may be found in patients with limited mobility, neuropathy, decreased physical activity and poor hygiene if they coincide with having chronic ulcers. Current treatments and management are not well documented and include attempts to cause maggot demise, which are found as both ineffective and possibly dangerous as they may result in foreign biologic matter decomposing within the wound. Trials of treatment with topical ivermectin varnish have also failed in animals, as the ivermectin is effective on dry fur or skin and not in a purulent wound.

Additionally, treatment with antibiotics for presumed secondary infection is unnecessary without clinical signs of infection.

Results:

We will suggest a treatment plan based on our knowledge of the *Lucilia sericata*'s life cycle and predicted time that it will leave the wound to change into a pupa.

We will compare with the standard of care in treatment of myiasis in animals.

We will present instances in which there may be benefit to holding off on treatment to achieve maggot debridement therapy for the wound which may assist in wound healing and ultimately prevent future spontaneous myiasis in a particular patient.

Conclusion:



**Abstract N°: 6779****Successful treatment with tildrakizumab of rare and challenging pyoderma gangrenosum of the foot**Liang Joo Leow^{*1, 2}, Brandon Tan³¹The University of Notre Dame Australia, Sydney, Australia, ²St Vincent's Private Hospital, Sydney, Australia,³Wollongong Hospital, Wollongong, Australia**Introduction & Objectives:**

Pyoderma gangrenosum (PG) is a reactive, non-infectious inflammatory neutrophilic dermatosis that remains a diagnostic and therapeutic dilemma in many clinical settings. Its worldwide incidence is estimated at 3 to 10 cases per million population per year, usually affecting patients aged 25 to 54 years without a clear gender predilection. PG ulcers are notoriously difficult to manage. Reasons include: elevated skin and/or circulating levels of the pro-inflammatory cytokines and potent polymorphonuclear neutrophils (PMN)-attracting chemokines, skin infiltration by T cells, increase of elafin, intensification of the FAS/FASL system and impairment of tissue remodelling and wound healing. Additional challenges of treating PG of the lower limbs include pathergy and other causes of poor wound healing including arterial insufficiency, diabetes mellitus, chronic venous insufficiency, pressure and neuropathy. Evidence-based guidelines in the management of PG are limited and treatment failure is common, necessitating novel approaches.

Materials & Methods:

A 58-year-old man presented with a painful slow-healing ulcer of his right dorsal foot one month following repetitive friction from a leather sandal. Over a three-month period, broad-spectrum antibiotics, pentoxifylline, anti-inflammatories and diuretics achieved only slow clinical response, characterised by persistent wound inflammation and breakdown, associated with significant pain. Subsequent full-thickness skin grafting was also slow to resolve, prompting a change of the provisional diagnosis from traumatic ulcer to PG. Tildrakizumab 100mg was administered at 0 and 4 weeks, with plans to administer further doses every 12 weeks.

Results:

Significant re-epithelialisation and marked reduction in both pain and wound exudate were observed as early as one month following the first dose of tildrakizumab with progressive improvement and near-resolution by eleven weeks.

Conclusion:

We present one of only a handful of published cases describing PG of the foot; and the first to report the utility of tildrakizumab in this context. Our case demonstrates that a similar treatment regimen (at weeks 0 and 4, then every 12 weeks) used in treatment of moderate-to-severe plaque psoriasis can be equally applicable to challenging cases of PG, such as foot involvement.



**Abstract N°: 6878****Recalcitrant Nicolau syndrome following repeated intramuscular diclofenac injections**İsmail Ünal¹, Gulsen Akoglu*¹, Gülçin Şimşek²¹University of Health Sciences, Gulhane Training and Research Hospital, Dermatovenereology, Ankara, Türkiye,²University of Health Sciences, Gulhane Training and Research Hospital, Pathology, Ankara, Türkiye

Introduction & Objectives: Nicolau syndrome is a severe complication that typically occurs rarely but notably after intramuscular injections. It is characterized by intense pain at the injection site, skin discoloration, and tissue necrosis. While the exact pathogenesis of the disease remains unclear, vascular etiology is considered to play a significant role. **

Materials & Methods: A 42-year-old female patient presented to our clinic with a painful and itchy wound that emerged following repeated intramuscular diclofenac injections for pain control on her right buttock, persisting for about a year after uterine artery embolization. Dermatological examination revealed a well-defined lesion with crusted edges, palpably firm, partially fibrotic, and erythematous, measuring approximately 17x9 cm in the right gluteal region. Otherwise, body skin regions were normal. The patient's medical history was unremarkable. She had used numerous topical corticosteroids and topical and systemic antibiotics, which did not provide healing. **

Results: Histopathological examination of a skin biopsy showed mixed-type dermal inflammation and collagenosis. Depending on the clinical and histopathological findings, the patient was diagnosed with Nicolau syndrome based on clinical findings and history. The patient was put on antibiotic treatment due to secondary pseudomonal infection and colchicine therapy with a dose of 1.2 mg/d to provide the anti-fibrotic effect. Mechanical wound debridement was performed with a fractional Erbium YAG laser, and alginate wound dressing was applied. Over a follow-up period of approximately four months of colchicine therapy, epithelialization in the former crusted area progressed slowly, resulting in almost total healing. The patient's complaints of pain and itching significantly decreased, and she is still on follow-ups. **

Conclusion: Repeated intramuscular diclofenac injections can lead to treatment-resistant fibrotic ulcers of Nicolau syndrome. Colchicine, due to its anti-fibrotic effects, may help the management of the disorder.





Abstract N°: 7219

Unraveling the Effectiveness and Safety of Dressings in Pressure Injury Prevention: A Comprehensive Review and Network Meta-Analysis

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Introduction & Objectives:

Pressure injury is a damaged area of skin, underlying tissue, or both. Despite the availability of many types of dressings as the treatment of choice, little is known about their effectiveness and safety in clinical practices. Hence, this study aims to assess the efficacy and safety of different types of wound dressings for pressure injury prevention.

Materials & Methods:

Systematic research of literature was conducted on seven databases until 30 March 2024. Studies comparing wound dressing in preventing pressure ulcers and treating pressure ulcers were included in the frequentist network meta-analysis. The outcome of interests are the incidence of any grade pressure injury, grade I pressure injury, grade II pressure injury, deep tissue injury, and adverse events. In addition, risk of bias assessment is included.

Results:

Foam dressing is the best and most significant among other type of dressing in preventing any grade pressure injury (highest SUCRA with RR=0,19, 95%CI [0.11;0.34]), grade 1 (highest SUCRA, RR=0.18 95%CI [0.07;0.45]), grade 2 (highest SUCRA, RR=0.27, 95%CI[0.09;0.79]). For deep pressure injury prevention, the best dressing are hydrocolloid dressing (RR=0.34, 95%CI [0.09;1.22]) and multilayer foam dressing (RR=0.31, 95%CI, [0.08;1.18]), with both having similar high SUCRA score. Netheat and the league table conclude that foam dressing outstands consistently compared to other types of dressing. Subsequently, in the incidence of any grade pressure injury, significant heterogeneity was observed between HD and UC, as well as between MFD and UC. In the analysis of the incidence of grade 1 pressure injury, significant heterogeneity was found between HD and UC. In the analysis of the incidence of grade 2 pressure injury, significant heterogeneity was observed between HD and UC. Three out of seven studies reported no adverse events directly caused by the dressing. In studies that reported adverse events such as these occurrences were minor, rare, and not significantly different from the control.

Conclusion:

Our study suggests that foam dressing has the best performance in preventing patients with pressure injuries as it serves the most notable result in effectiveness and safety.

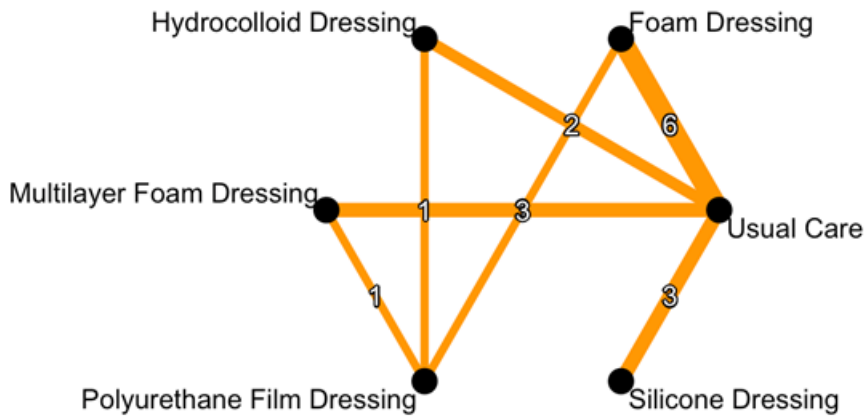


Figure 1. Netgraph Incidence of Any Grade Pressure Injury

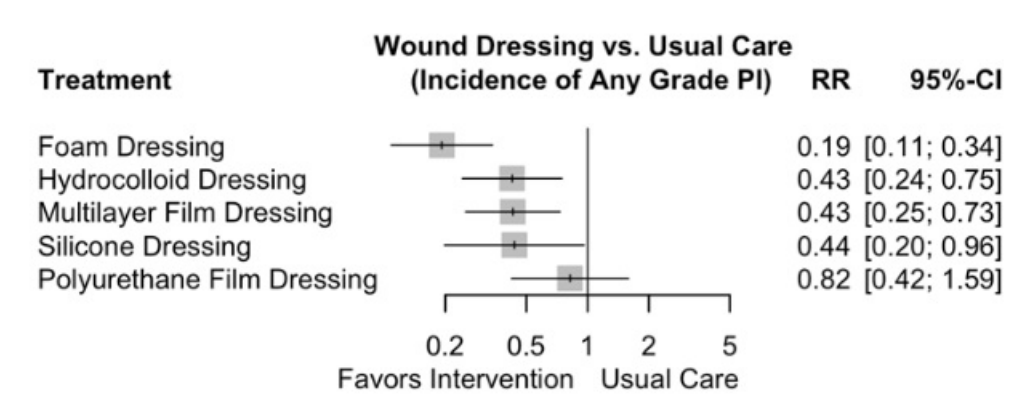


Figure 2. Forest Plot Incidence of Any Grade Pressure Injury

FD	NI	NI	0.273 [0.068; 1.101]	NI	0.187 [0.101; 0.345]
0.452 [0.207; 0.984]	HD	NI	0.399 [0.143; 1.113]	NI	0.469 [0.251; 0.877]
0.448 [0.213; 0.942]	0.992 [0.488; 2.016]	MFD	0.571 [0.281; 1.163]	NI	0.403 [0.222; 0.733]
0.235 [0.107; 0.517]	0.519 [0.253; 1.066]	0.524 [0.288; 0.953]	PFD	NI	NI
0.440 [0.166; 1.167]	0.975 [0.370; 2.569]	0.983 [0.380; 2.546]	1.877 [0.671; 5.253]	SD	0.437 [0.198; 0.960]
0.192 [0.108; 0.341]	0.426 [0.242; 0.747]	0.429 [0.252; 0.731]	0.820 [0.423; 1.588]	0.437 [0.198; 0.960]	UC

Figure 3. League Table Incidence of Any Grade Pressure Injury

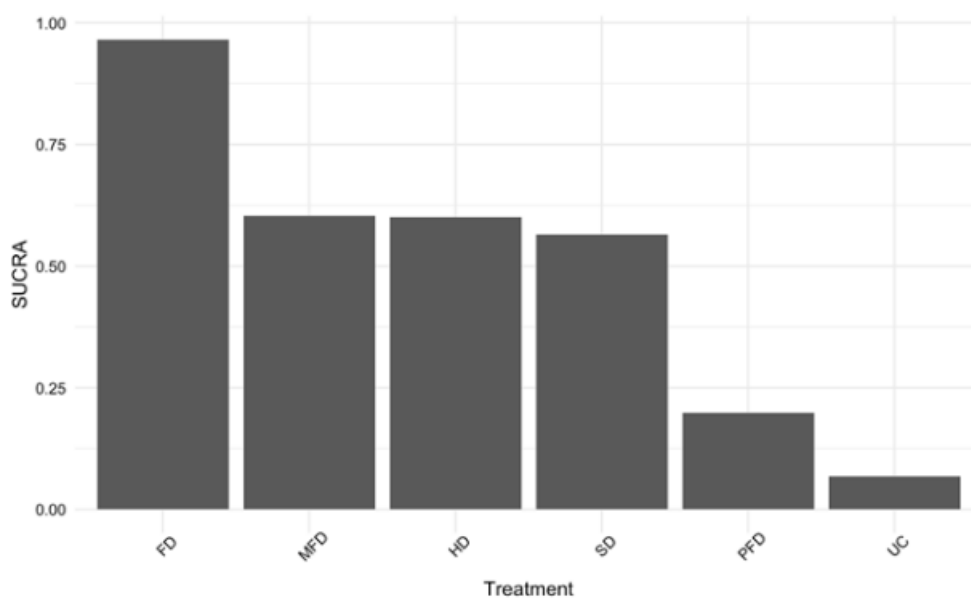


Figure 4. SUCRA Incidence of Any Grade Pressure Injury

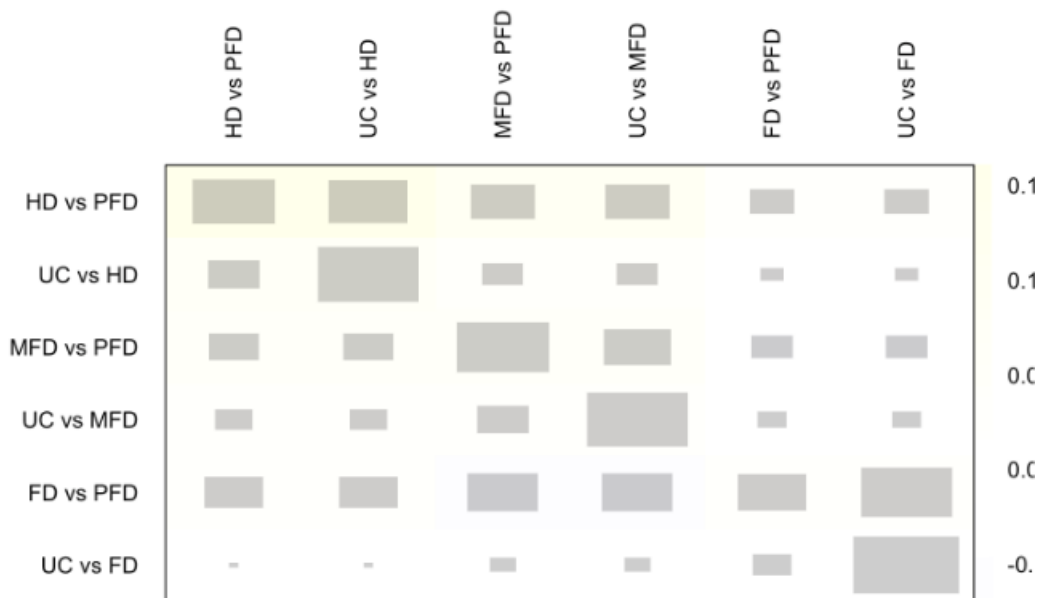


Figure 5. NetHeat Incidence of Any Grade Pressure Injury

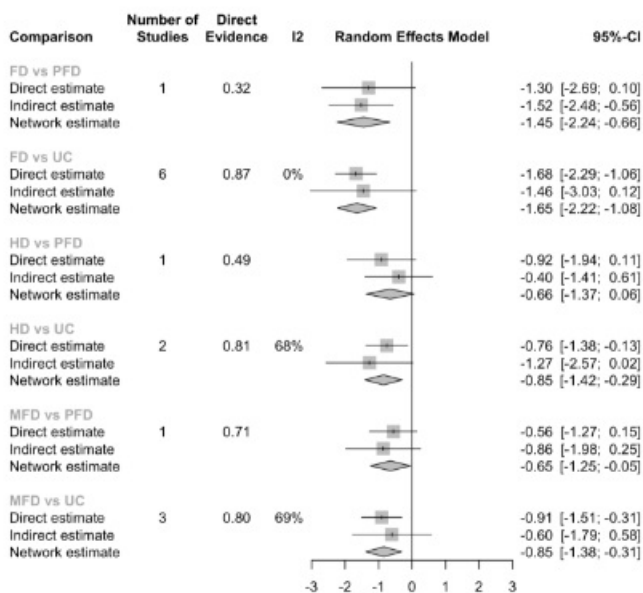


Figure 6. NetSplit Incidence of Any Grade Pressure Injury

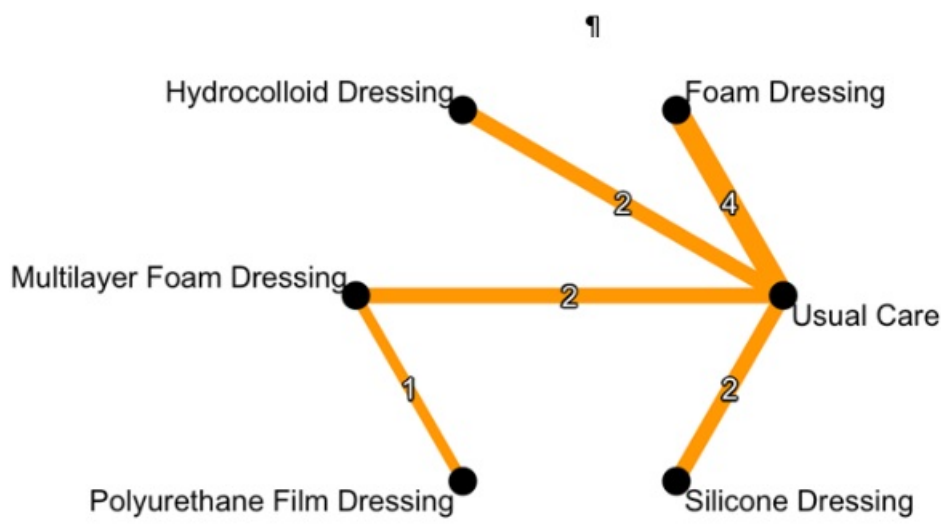


Figure 7. Netgraph Incidence of Grade 1 Pressure Injury

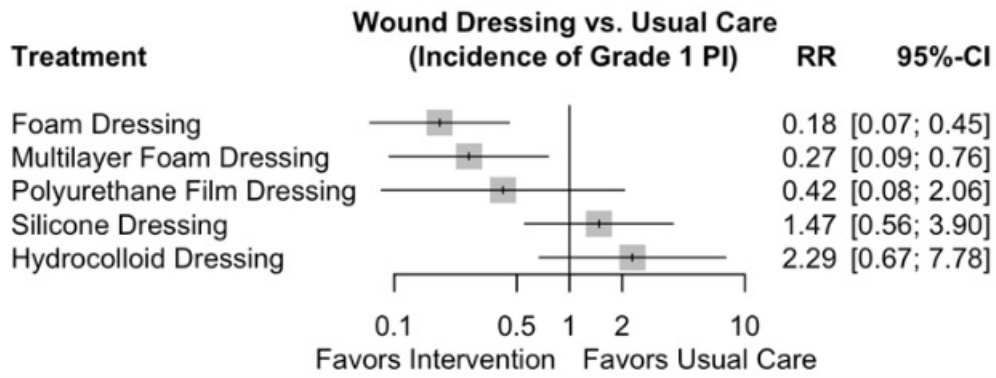


Figure 8. League Table Incidence of Grade 1 Pressure Injury

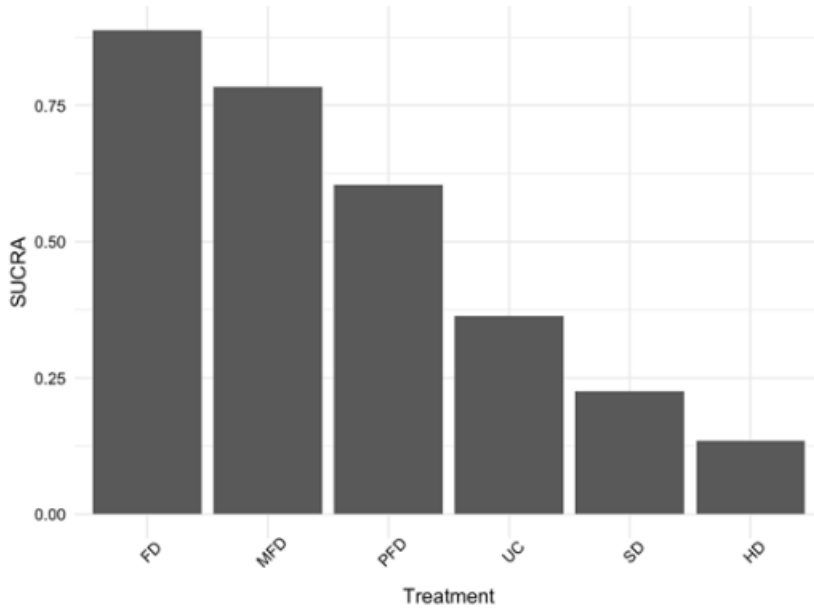


Figure 9. SUCRA Incidence of Grade 1 Pressure Injury

FD	NI	NI	NI	NI	0.182 [0.073; 0.452]
0.079 [0.017; 0.366]	HD	NI	NI	NI	2.285 [0.671; 7.779]
0.680 [0.170; 2.723]	8.565 [1.713; 42.830]	MFD	0.639 [0.192; 2.134]	NI	0.267 [0.094; 0.758]
0.435 [0.069; 2.733]	5.477 [0.733; 40.910]	0.639 [0.192; 2.134]	PFD	NI	NI
0.123 [0.032; 0.468]	1.551 [0.324; 7.421]	0.181 [0.043; 0.756]	0.283 [0.044; 1.836]	SD	1.473 [0.556; 3.903]
0.182 [0.073; 0.452]	2.285 [0.671; 7.779]	0.267 [0.094; 0.758]	0.417 [0.085; 2.056]	1.473 [0.556; 3.903]	UC

Figure 10. League Table Incidence of Grade 1 Pressure Injury

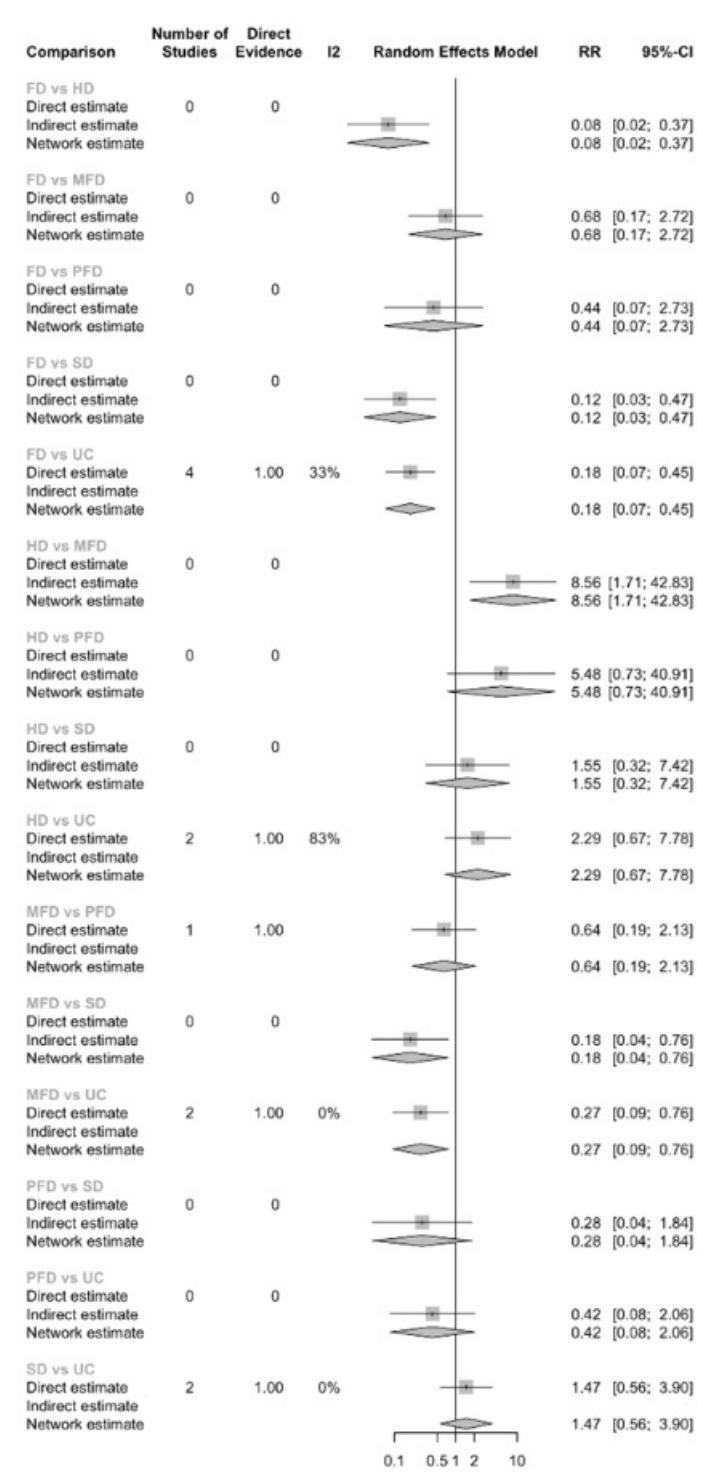


Figure 11. NetSplit Incidence of Grade 1 Pressure Injury

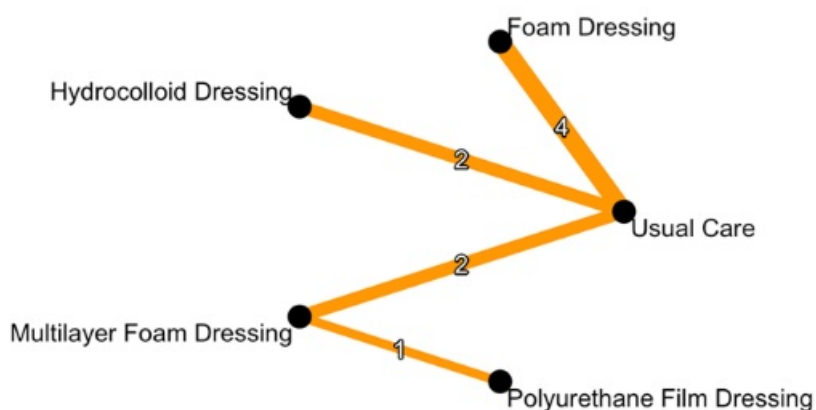


Figure 12. Netgraph Incidence of Grade 2 Pressure Injury

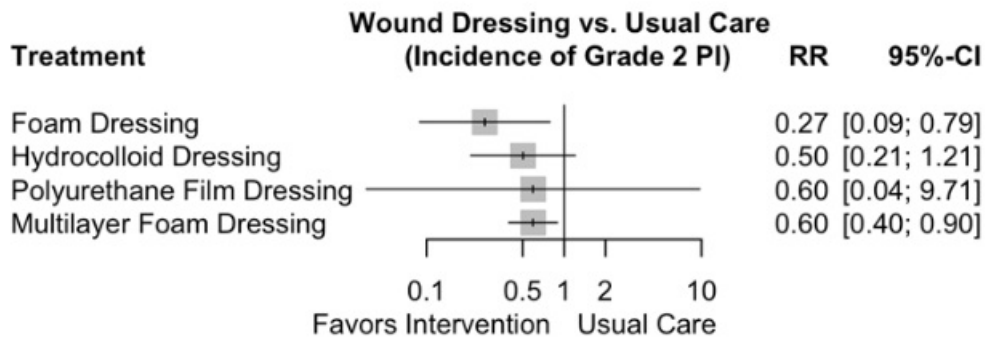


Figure 13. Forest Plot Incidence of Grade 2 Pressure Injury

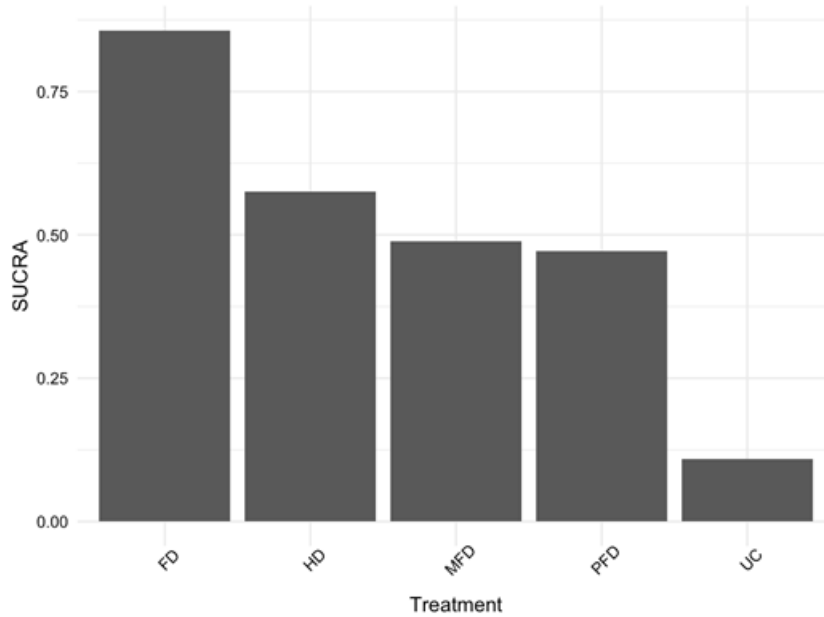


Figure 14. SUCRA Incidence of Grade 2 Pressure Injury

FD	NI	NI	NI	0.265 [0.089; 0.791]
0.527 [0.130; 2.139]	HD	NI	NI	0.503 [0.209; 1.208]
0.445 [0.139; 1.429]	0.845 [0.321; 2.220]	MFD	1.000 [0.063; 15.824]	0.596 [0.396; 0.895]
0.445 [0.022; 8.920]	0.845 [0.045; 15.750]	1.000 [0.063; 15.824]	PFD	NI
0.265 [0.089; 0.791]	0.503 [0.209; 1.208]	0.596 [0.396; 0.895]	0.596 [0.037; 9.711]	UC

Figure 15. League Table Incidence of Grade 2 Pressure Injury

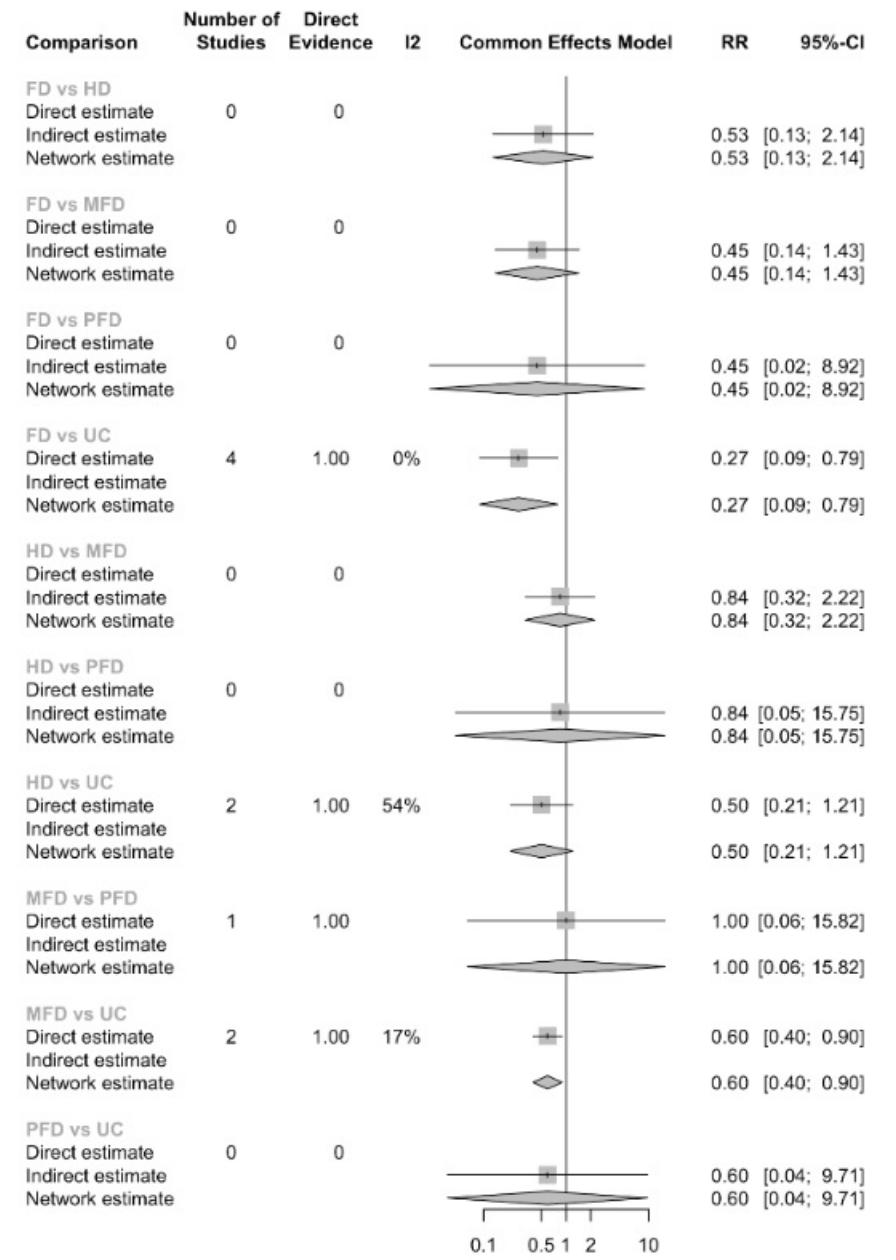


Figure 16. NetSplit Incidence of Grade 2 Pressure Injury

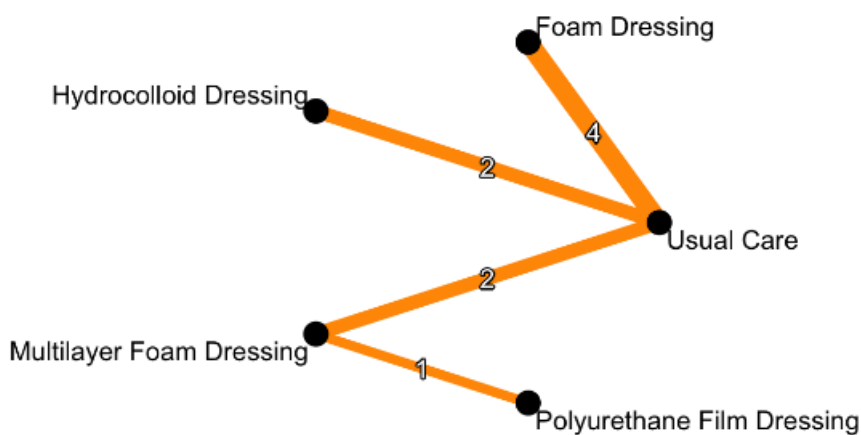


Figure 17. NetGraph Incidence of Deep Pressure Injury

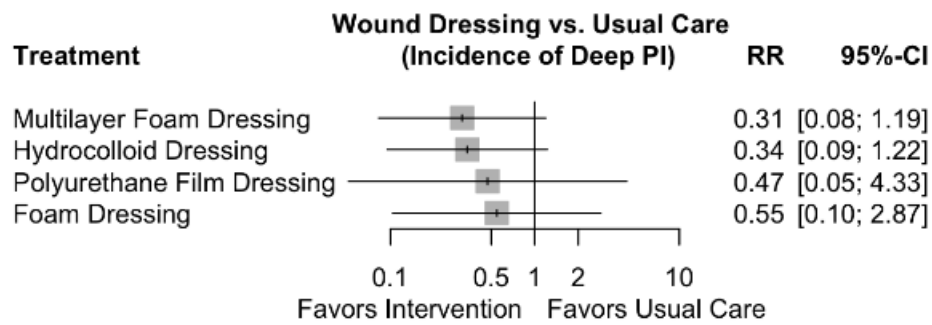


Figure 18. Forest Plot Incidence of Deep Pressure Injury

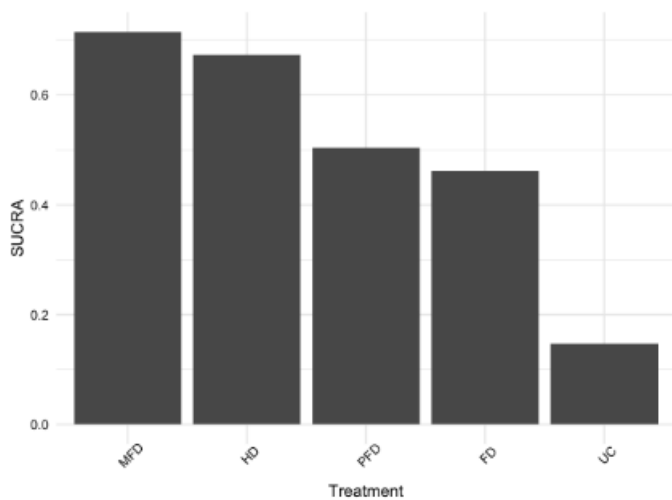


Figure 19. SUCRA Incidence of Deep Pressure Injury

FD	NI	NI	NI	0.546 [0.104; 2.875]
1.603 [0.197; 13.036]	HD	NI	NI	0.341 [0.095; 1.223]
1.738 [0.207; 14.609]	1.084 [0.171; 6.869]	MFD	0.667 [0.113; 3.927]	0.314 [0.083; 1.191]
1.159 [0.073; 18.503]	0.723 [0.056; 9.347]	0.667 [0.113; 3.927]	PFD	NI
0.546 [0.104; 2.875]	0.341 [0.095; 1.223]	0.314 [0.083; 1.191]	0.471 [0.051; 4.332]	UC

Figure 20. League Table Incidence of Deep Pressure Injury

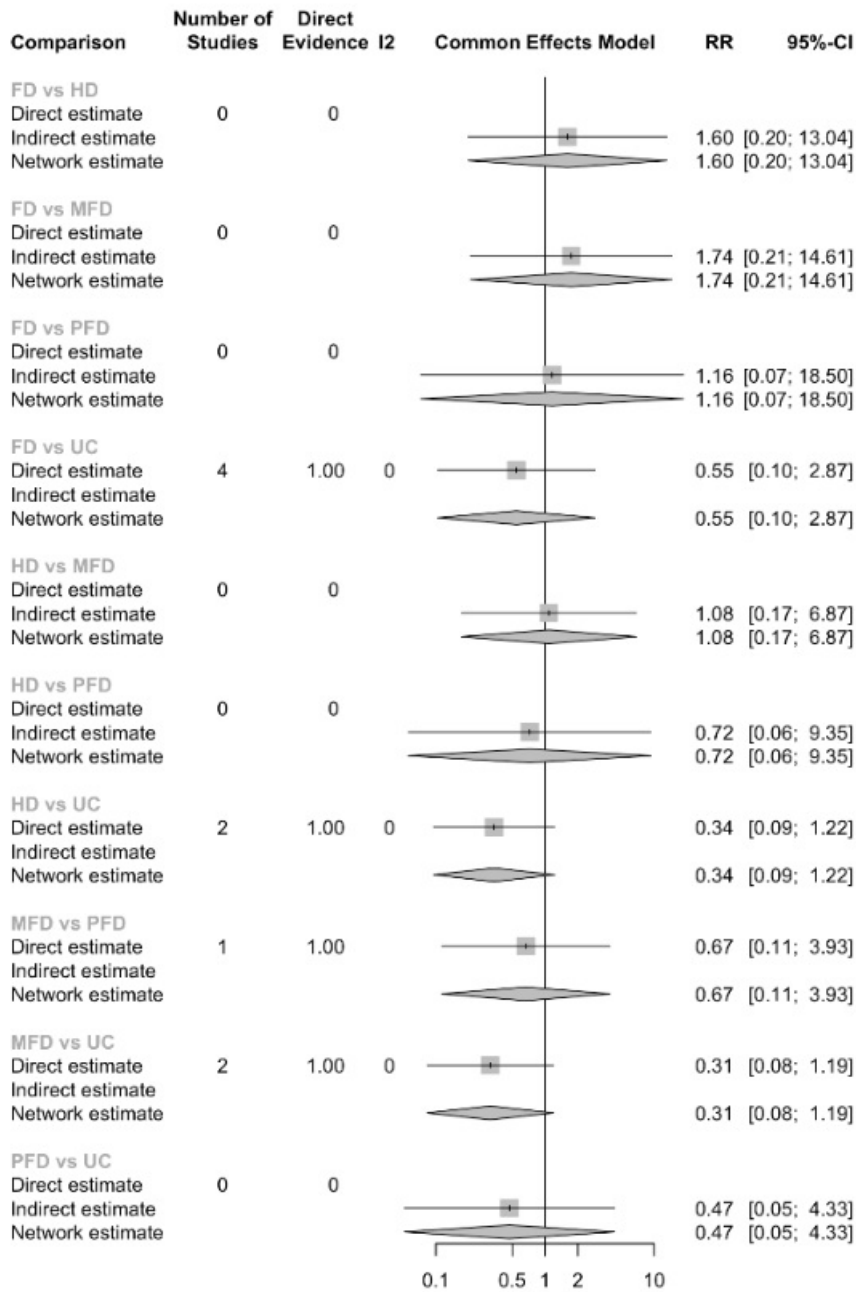


Figure 21. NetSplit of Deep Pressure Injury Incidence

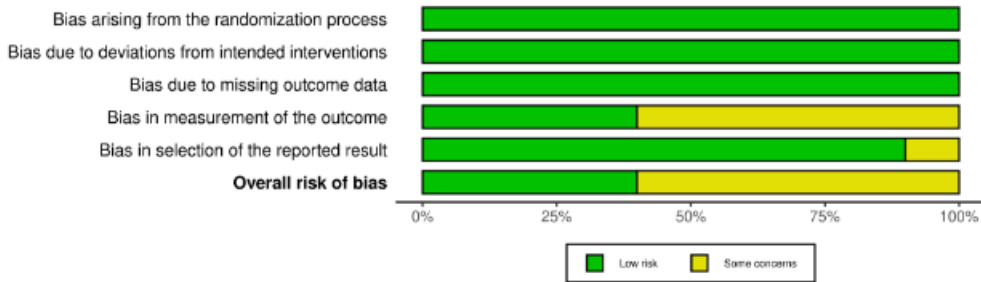
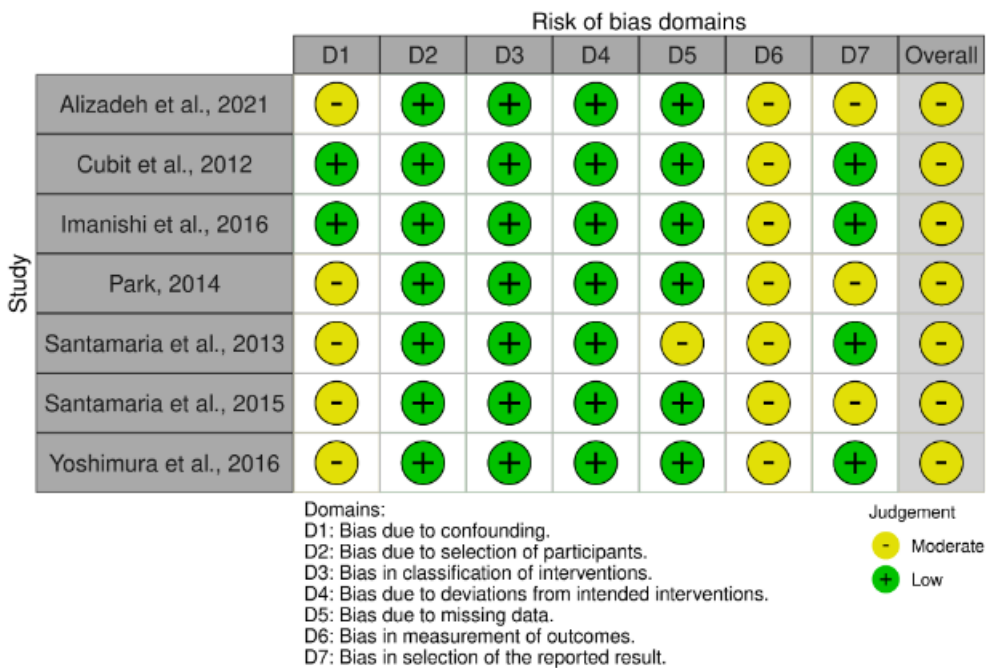


Figure 22. ROB-2 Visualization Graphic



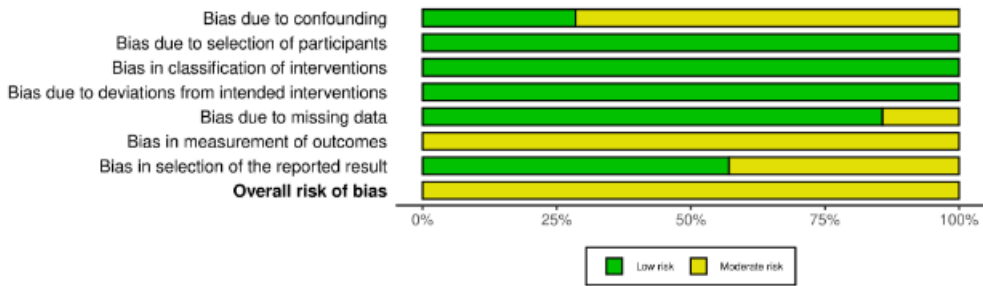


Figure 23. ROBINS-I Visualization Graphic

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Abstract N°: 7243

Successful combination of topical corticosteroids and trichloroacetic acid for the treatment of ulcerated pyoderma gangrenosum: A case report and review of literature

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¹Université Mohammed VI des Sciences et de la Santé - UM6SS - Anfa City, Casablanca, Morocco,²Mohammed V Military Training Hospital, Rabat, Morocco

Introduction & Objectives:

Pyoderma gangrenosum is a rare, ulcerative skin condition that is considered as neutrophilic dermatosis characterized by rapidly progressing ulcers. Treatment can be challenging, often requiring immunosuppressive therapy. Topical TCA has been explored as an alternative therapy in other ulcers due to its potential to promote wound healing and reduce inflammation.

Case report:

The patient is a 36-year-old woman with a history of chronic abdominal pain currently under investigation and lower extremities painful ulcers evolving for 7 months in a relapsing-remitting way. No other medical history was mentioned, and no family history was present either.

There were several ulcerations distributed asymmetrically on both limbs.

Each ulcer had serpiginous irregularly shaped borders with a purplish-red or violaceous hue, which contrasts with the surrounding healthy skin. The edges of the ulcer were undermined.

The base of the ulcers is necrotic for some and covered with fibrinous material for others.

A skin biopsy was performed and pathology showed an epidermal hyperplasia as well as a dense infiltrate of neutrophils in the dermis and subcutaneous tissue. These neutrophils were arranged in a diffuse, interstitial pattern and extend into the deeper layers of the skin. This data along with the clinical presentation were strongly suggestive of Pyoderma Gangrenosum.

The patient was treated with daily application of topical corticosteroids and 30% trichloroacetic acid (TCA) applied once every other week for a total of 8 weeks.

Significant improvement and complete healing of most the lesions were observed within 6 weeks of initiating treatment. Follow-up for 5 months showed no evidence of relapse.

Discussion:

Pyoderma gangrenosum is a non-infectious, inflammatory skin condition characterized by the development of painful ulcers with undermined borders. These ulcers typically start as small papules or pustules that rapidly progress to deep, necrotic wounds.

TCA is a chemical agent that exerts its effects through protein denaturation and coagulation necrosis. A Moroccan study published in 2021 evaluated the use of TCA in the treatment of chronic leg ulcers. The researchers found that TCA application promoted the formation of granulation tissue and accelerated healing. Another Iranian study demonstrated the benefit of using TCA in the treatment of macro-angiopathic leg ulcers in diabetic patients.

This case demonstrates the successful use of topical corticosteroids in combination with trichloroacetic acid (TCA) for the treatment of pyoderma gangrenosum (PG). TCA, known for its tissue necrosis properties, may have contributed to the resolution of the inflammatory process in PG lesions

Conclusion:

Topical trichloroacetic acid, in conjunction with topical corticosteroids, may be an effective and well-tolerated treatment option for pyoderma gangrenosum, particularly in cases refractory to

conventional therapies. Long-term studies are needed to assess the durability of treatment response and to establish TCA's safety profile in PG management.

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**Abstract N°: 7324****Platelet-rich fibrin and punch graft combination in the management of venous stasis ulcer: A great duo**Yusuf Can Edek*¹, Esra Adışen¹¹Gazi University Faculty of Medicine, Department of Dermatology, Ankara, Türkiye**Introduction & Objectives:**

Venous leg ulcers are the most common type of leg ulcer. The etiopathogenesis of venous ulcers may involve several components, including venous hypertension, venous reflux, venous thrombosis, and insufficient muscle pump function. While venous ulcer treatment options include compression therapy, local wound care, and grafts, venous ulcer care can be challenging occasionally and require a combination of therapeutic approaches.

Materials & Methods:

Here, we describe a male patient who had punch graft and platelet-rich fibrin (PRF) treatment for a venous stasis ulcer.

Results:

A 55-year-old man applied to our dermatology outpatient clinic with a painful ulcer on his right leg. His past medical history was significant for hypertension and chronic venous insufficiency. The patient described an ulcer that occurred on his right leg one month ago and increased in size over time. Dermatologic examination showed an ulcer on the right leg above the lateral malleolus, measuring 2.5 cm², with irregular borders and fibrin tissue on the lesion. Based on clinical analysis and Doppler-USG examination, the ulcer was accepted as a venous stasis ulcer. Upon treatment resistance with ulcer debridement, wound dressing, and compression therapy, we decided to apply PRF treatment. Initially, 10 cc of the patient's venous blood was drawn into a PRF tube. The blood was centrifuged in the Nuve-NF 200 centrifuge device at 1300 rotations per minute for 8 minutes. PRF material was placed on the ulcer, covered with a sterile gauze piece, and held in the area with a sterile bandage. Following the wound bed preparation via PRF, we decided to apply the punch graft method, which stands out in the literature as an effective method in ulcer management, to ensure complete epithelialization. Grafts were taken from the thigh under local anesthesia and sterile conditions using a 4-mm punch. Skin grafts were immediately placed on the wound bed and wrapped with sterile gauze. The ulcer healed completely in the fourth week of follow-up.

Conclusion:

The combined use of PRF and punch graft treatment modalities appears to be an effective combination treatment in ulcer management. PRF affects the wound healing process by having roles in cell proliferation, cell differentiation, chemotaxis, and angiogenesis through the platelets, growth factors, and cytokines it contains, as well as via its fibrin matrix. Dorjay et al. used PRF in the treatment of various leg ulcers, venous ulcers, diabetic foot ulcers, and post-traumatic ulcers.

The punch graft method is a minimally invasive surgical method in which mini-graft materials containing epidermis and papillary dermis are taken using a punch, scalpel, or curette and placed directly into the ulcerated area. Studies in the literature have reported the use of punch graft application for treating venous, arterial, and diabetic ulcers. Preparing the wound bed before applying the graft increases the success of the graft treatment.

Although there is no case in the literature in which punch skin graft placement in combination with PRF application, Carducci et al. achieved successful treatment results by combining the platelet-rich plasma (PRP) and

punch graft method in mixed arterial and venous leg ulcer management.

In this case report, we describe the first case with a leg ulcer treated with a combination of PRF and punch graft in the literature. We want to emphasize that this combination can be an effective, practical, and inexpensive approach to ulcer management.

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**Abstract N°: 7325****Pyoderma gangrenosum after caesarean section : a case report**

Younes Tamim¹, Mejdoubi Islam², Berrada Yassine¹, Balkoula Adam³, Hamada Syrine¹, Meziane Mariame¹, Ismaili Nadia¹, Benzekri Laila¹, Senouci Karima¹

¹Ibn Sina University Hospital, dermatology, rabat, Morocco, ²kharkiv medical academy of postgraduate education, dermatology, kharkiv, Ukraine, ³Ibn Sina University Hospital, plastic surgery, rabat, Morocco

Pyoderma gangrenosum after caesarean section : a case report**Introduction & Objectives:**

Pyoderma gangrenosum (PG) is a rare neutrophilic dermatosis characterized by inflammatory and painful ulcers. Mainly observed in individuals aged from 20 to 50 years, it more frequently affects women, although its occurrence is rare in pregnant women. Post-Caesarean PG may be mistaken for a surgical site infection due to similar symptoms. Accurate diagnosis is essential due to divergences in therapeutic management. We report the case of a woman presenting a pyoderma gangrenosum after a Caesarean section.

Case presentation:

A 30-year-old patient, without notable medical history, underwent a caesarean section at 38 weeks gestation due to acute fetal distress. Postoperatively, she developed bluish discoloration around the scar, followed by worsening redness, fever, and a painful ulceration. Initial treatment with antibiotics and wound care proved ineffective, prompting admission to plastic surgery for dual antibiotic therapy. Laboratory tests showed inflammation, predominantly neutrophils. A dermatology consultation confirmed pyoderma gangrenosum via biopsy. Treatment included prednisolone, wound care, and LED therapy, resulting in complete healing after 4 months, with minor thickening managed by topical corticosteroids

Discussion:

Pyoderma gangrenosum (PG) is a neutrophilic inflammatory dermatosis that primarily affects young adult females (male/female ratio: 2/3). It presents as a rapidly progressive skin ulcer, sharply bordered by a "compass-drawn" margin, with an inflammatory, firm appearance, and is punctuated by pustular crypts. Lesions can develop spontaneously, post-surgery, or following minor trauma (pathergy phenomenon). This disorder can be an early indicator of various conditions such as gastrointestinal, hematologic, systemic, or neoplastic diseases.

The association between PG and pregnancy is extremely rare, with only a few cases reported post-caesarean section. Consequently, PG after a caesarean section may be misdiagnosed due to its rarity and similarity to surgical site infection, as was the case with our patient, potentially leading to surgical debridement and exacerbation of lesions due to pathergy phenomenon.

Diagnosis primarily relies on clinical evaluation and is often established at an advanced stage. Histological features, varying based on stage, type, and biopsy site, reveal characteristics such as sterile abscesses with massive neutrophil infiltration, vascular alterations, and granulomas. While the possible presence of pathogens on the ulceration is conceivable, it is context-dependent and may indicate surinfections.

Currently, there is no standardized protocol for treating pyoderma gangrenosum. The preferred initial systemic treatment is systemic corticosteroids, followed by cyclosporin A in case of failure or contraindication. In cases of

corticosteroid dependence, dapsone or azathioprine is recommended for maintenance therapy. Biologic therapies, particularly infliximab and adalimumab, show promising results.

Conclusion:

Pyoderma gangrenosum (PG) following a caesarean section may be misdiagnosed due to its similarities with surgical wound infection. It is crucial to raise awareness among obstetric teams to avoid unnecessary surgical interventions, which could exacerbate the dermatosis and delay the diagnosis of other associated evolving conditions.

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**Abstract N°: 7471****Leg ulcer complications with compressive therapy**

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¹Medical Faculty, University of Nis, Dermatology Clinic, University Clinical Center, Nis, Serbia,²Medical Faculty, University of Nis, Psychiatry Clinic, University Clinical Center, Nis, Serbia, ³Health Center Pancevo, Dermatology, Pancevo, Serbia

Introduction & Objectives:

Venous ulceration occurs due to chronic venous insufficiency reaching its final state. Applying an appropriate level of compression therapy is equally crucial for patients and doctors in treating venous ulcerations. Regrettably, there is a lack of definitive guidelines about contraindications, risk factors, and complications associated with compression therapy. Uncommon occurrences include allergic skin responses, eczema, paresthesias, and skin necrosis. Nevertheless, they provide a significant challenge as they hinder the implementation of compression therapy, hence undermining its effectiveness as a crucial approach to treating venous ulcerations in the lower extremities.

The objective was to ascertain the incidence of problems associated with compression therapy for treating venous ulcers in the lower limbs, taking into account the age of patients and the level of compression administered.

Materials & Methods: The study comprised 110 outpatients with venous ulceration who received treatment at the Clinic for Dermatovenerology of the Niš University Clinical Center. Ulcers were observed and tracked for 24 weeks. The patients were categorized into two groups based on age: those aged ≥ 65 years and those aged < 65 years. Each group was further separated into subgroups based on the level of compression therapy. The following variables were observed: gender, age, Body Mass Index (BMI), area, location and number of ulcers, extent of granulation tissue and fibrin in the ulcers, presence of dermatitis, lipodermatosclerosis, infection, and disease duration.

Results:

A statistically significant difference was observed in the frequency of previous ulceration events, the size of the ulcerations, and the disease duration between the groups under examination. Furthermore, the study identified a correlation between the intensity of pain and the extent of compression, as well as the likelihood of experiencing paresthesia in connection to age. Increasing the intensity of compression therapy in both age groups results in a higher prevalence of patients experiencing paresthesias and increased sensitivity to pain. The study found no statistically significant association between the age of patients and the incidence of superficial necrosis and skin discoloration.

Conclusion: There is a correlation between a higher degree of compression therapy in both age groups and an increase in the number of patients who have paresthesias and a higher level of pain sensitivity. Based on the findings of the study, there was no statistically significant correlation between the age of patients who were treated with compression therapy and the risk of superficial necrosis and skin discoloration.



**Abstract N°: 7509****adipocyte mesenchymal stem cells in the management of chronic ulcers : about 9 cases**

Oumaima Lafdali¹, Loubna Idelkhir², Samira Boukind², Bendaoud Layla¹, Oumkeltoum Elatiqi², Maryem Aboudourib¹, Moulay Driss Elamrani², Ouafa Hocar¹, Yassine Benchemkha², Said Amal¹

¹chu mohammed VI , marrakech , dermatology and venereology,²chu Mohammed VI , marrakech , reconstructive , aesthetic and burn department

Introduction & Objectives:

In response to the growing need to replace or regenerate damaged tissues, cells such as stem cells have been harnessed. They possess unlimited potential in advanced tissue engineering and cellular therapies, offering therapeutic solutions to numerous pathologies across various medical sectors.

The aim of our study is to evaluate the quantitative contribution of adipose-derived stem cells (ADSCs) in our patients, to highlight indications for the use of ADSCs in reconstructive surgery, and to establish recommendations for managing chronic ulcers. This aims to optimize techniques for adipose tissue extraction, processing, and ADSC injection.

Materials & Methods:

This retrospective study included 9 patients with chronic and treatment-resistant cutaneous ulcers. They underwent adipose tissue extraction, isolation of adipose-derived mesenchymal stem cells, and local injection of ADSC's in combination with platelet-rich plasma over a 48-month period from January 2020 to January 2024.

Nine liposuction procedures were performed on a total of 9 patients. The average age of patients was 52.5 years (range: 40 to 75 years), with a clear male predominance (77%) and a female-to-male sex ratio of 0.28. The main indications for treatment were pathological scarring in various contexts, with 33% of chronic ulcers resulting from trauma, 50% from surgery, 1 case from fasciitis necrosis, and 1 case from amputation stumps. All procedures were conducted using tumescent liposuction. Adipose tissue was harvested from the abdominal region below the umbilicus and from the flanks, with an average volume of 52 mL (range: 20 mL to 60 mL). The volume of platelet-rich plasma samples used was 48 mL for all patients. Mesenchymal cell isolation was achieved through enzymatic digestion. Isolated cells were characterized using flow cytometry to identify CD90+/CD105+/CD73+ markers within the cell population. The average yield of ADSCs from one mL of harvested adipose tissue consistently measured 6.82×10^5 cells .

The average ADSC yield was 2.56×10^5 in women and 8.69×10^4 in men, with female yield being three times higher than that in males. The lowest yield observed in our series was 1.2×10^4 cells in a 47-year-old male.

Results:

This novel type of adult stem cell is currently under research, with various applications emerging across different specialties. Particularly in plastic surgery, these cells are utilized to address challenges in wound healing, recover from local tissue ischemia, and remodel scars, thanks to their immunomodulatory effects and ability to differentiate into multiple lineages, thereby promoting tissue regeneration.

They have also demonstrated effectiveness in stimulating facial rejuvenation, as evidenced by Korean studies, through their anti-wrinkle, antioxidant, and skin-lightening properties. Multiple studies have shown their impact on alopecia. In addition to the indications outlined in our work, ADSC's has been applied in plastic surgery for

other purposes, such as improving lesions caused by radiation and enhancing fat graft survival. They have also been successfully employed in treating Parry-Romberg syndrome.

Conclusion:

The ease of harvesting and isolation, the abundance of ADSCs, their potential to differentiate into multiple lineages, and their immunomodulatory effects position ADSCs at the forefront of cell therapy and tissue regeneration

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Abstract N°: 7514

Epidemiology and aetiology of leg ulcers at CHU IBN ROCHD , CASABLANCA : A 10 year retrospective study:

Aicha Cheab¹, Hali Fouzia¹, Baghdad Bouchra¹, Chiheb Soumiya¹

¹IBN ROCHD UNIVERSITY HOSPITAL, DERMATOLOGY, CASABLANCA, Morocco

Introduction & Objectives:

Leg ulcer , is defined as a defect in the skin below the level of knee persisting for more than six weeks and shows no tendency to heal . It affects 1% of the adult population and 3.6% of people older than 65 years , realizing a public health challenge.

The objective of our study is to show the epidemiological, clinical, therapeutic and evolutionary characteristics of chronic leg ulcers.

Materials & Methods:

This is a retrospective case series study, carried out over a period of ten years [January 2003 – December 2023], in the Dermatology Department of Ibn Rochd University Hospital of Casablanca including all hospitalized patients having a loss of skin without tendency to healing in the lower limbs.

Results:

We have collected 85 cases of chronic ulcer of the lower limb , The mean age was 49.4 years, A male predominance was observed with a sex ratio at 1.17. The main comorbidities included arterial hypertension, diabetes , smoking habits, and varicose veins .Etiologies were dominated by vascular origin in 54,1% of cases (33 cases of venous insufficiency, 3 cases of venous thrombosis, 6 cases of arterial thrombosis, 4 cases of mixed ulcer) , followed by infectious etiology in 20% of cases (8 cases of bacterial infection ,7 cases of leishmaniasis, and 2 case of mycetomas). Pyoderma gangrenosum accounted for 14,1% of cases ,and two cases of each Behçet's disease, prolidase deficiency, and protein C deficiency were found . 88% of our patients presented unilateral ulcer with essentially multiple lesions .And they received all a local treatment depending on the condition of the ulcer, combined with an aetiological treatment.

Through our study, we identified that the epidemiology of leg ulcers in our context has its own particularities with a predominance of male young patients which is in line with studies from other countries in the Maghreb and sub-Saharan Africa, unlike western literature, that shows older women are the most affected. On the other hand, as in all the series in literature, the etiologies are dominated by venous causes, particularly post-varicose, they also present a significant therapeutic challenge due to their chronic nature, varied etiologies necessitating comprehensive and multidisciplinary management approaches.

Conclusion:

Leg ulcers are a major health problem reducing patient's quality of life., they are dominated by vascular ulcers and a successful treatment depends upon the accurate diagnosis and the treatment of the underlying cause.





Abstract N°: 7625

Exploring Prognostic Markers for Slow Healing in Non-Traumatic Skin Ulcers

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Introduction & Objectives:

Pressure ulcers are the most common types of non-traumatic skin ulcers. Several factors influence their healing, which can be categorized into local factors and systemic factors related to the patient's overall condition.

The aim of our study is to investigate the factors influencing the healing of pressure ulcers.

Materials & Methods:

This is a retrospective, descriptive and analytical study conducted on patients presenting pressure ulcers of different locations.

We defined two groups of patients: G1 : patients who showed healing or initiation of healing after one month of treatment, and G2 : patients requiring a longer duration.

Quantitative variables were expressed as mean \pm standard deviation, and qualitative variables were expressed as frequency and percentage.

Logistic regression was used to study the factors associated with delayed healing. The difference is considered statistically significant when $p < 0.05$.

Results:

In total, we collected data from 21 patients. The mean age in G1 was 61.6 \pm 11.4 years, whereas in G2, it was 74.36 \pm 10.13 years, showing a **statistically significant difference (p=0.018)**. Female gender was present in 42.85% of cases in G1 and 85.7% in G2, **with a significant difference (p=0.04)**.

A lower socioeconomic status was present in 42.85% of cases in G1 and 57.14% in G2, with no difference statistically significant ($p=0.53$). Poor family support was observed in 28.6% of cases in G1 and 85.71% in G2, with a **statistically significant difference (p=0.009)**. The time between the appearance of pressure ulcers and the initiation of treatment was 1 month in G1, while it was 3.28 \pm 2 months in G2, showing a **statistically significant difference (p=0.011)**.

Diabetes was found in 28.6% of cases in G1 versus 71.42% in G2, although the difference was not statistically significant ($p=0.06$).

Cardiovascular diseases were present in 14.3% (G1) 71.4% (G2), with a **significant difference (p=0.011)**.

Musculoskeletal diseases were observed in 28.6% (G1) versus 57.1% (G2), without a statistically significant difference (p=0.2).

Corticosteroid use was reported in 57.14% of cases (G1) versus 92.9% (G2), **showing a significant difference (p=0.049)**.

Malnutrition was found only in the 2nd group in 28.6% of cases, without a statistically significant difference, while obesity was observed in 64.3% (G2), with a **significant difference (p=0.005)**.

Hypoalbuminemia was present in 28.6% of cases (G1) versus 92.9% (G2), showing a **significant difference (p=0.002)**.

Anemia was observed in 57.1% (G1) versus 78.6% (G2), without a statistically significant difference.

Regarding pressure ulcer characteristics :

Pressure ulcer stage > 2 was found in 64.2% of cases in G2 versus none in G1, **with a significant difference (p=0.005)**.

Pressure ulcer infection was observed in 50% of cases in G2 and none in G1, **showing a significant difference (p=0.02)**.

The most common location in G1 was on the buttocks in 71.4% of cases and on the sacrum in 28.6% of cases. In G2, the heel in 50% of cases, followed by the buttocks in 35.7% of cases and the sacrum in 14.3% of cases, with no significant difference.

Conclusion:

Studying prognostic factors for delayed healing is crucial for informing patients and helping them manage their expectations of realistic progress. Additionally, such studies can guide future research efforts, which will be essential for supporting decision-making and potentially implementing early, more invasive therapies.

