

Abstract N°: 161**Autologous Platelet-Rich Fibrin Matrix (PRFM) Therapy: A Therapeutic Boon In Non Healing Ulcers: A Study Of 24 Cases.**Monal Sadhwani*¹¹Deenanath Mangeshkar Hospital and Research Center, Dermatology, Pune, India**Autologous Platelet-Rich Fibrin Matrix (PRFM) Therapy: A Therapeutic Boon In Non Healing Ulcers-A Study Of 24 Cases****Introduction & Objectives:**

Non healing ulcers, especially of the lower limbs pose a great disability to the patient. This study aims to evaluate the efficacy of autologous Platelet Rich Fibrins Matrix (PRFM) in the treatment of non healing ulcers.

Materials & Methods:

This is a prospective study conducted on 24 patients who presented with non healing ulcers due to various etiologies of more than 6 weeks duration. Autologous PRFM was prepared using 10ml of patient's blood in a presterile conical tube (without anticoagulant), subjected to centrifugation at 3000rpm for 10 minutes. The PRF gel thus obtained was placed over the ulcer under occlusive dressing. The procedure was repeated every week until complete re-epithelisation occurred or upto 5 sittings, whichever occurred earlier. Clinical photographs were taken and area and volume of the ulcer was calculated at baseline and at every follow up.

Results:

Out of the total 24 patients with 26 ulcers, there were 21 trophic ulcers due to leprosy, 2 due to connective tissue disorders, 2 ulcers were neuropathic in origin and 1 case of erosive lichen planus. The mean age of presentation of patients was 42.91 years. The mean duration of healing of ulcers was 2.62 weeks. The mean percentage reduction in the area and volume of ulcer were 92.57% and 98.04% respectively. 73.08% of the ulcers healed completely.

Conclusion:

PRFM has proven to be a breakthrough modality of treatment of non healing ulcers as it provides the satisfactory growth factors for wound healing leading to faster healing rates as compared to the conventional therapies.

Abstract N°: 224**Gdansk Wound QoL – cross-sectional study on health-related quality of life in patients with chronic ulcers and importance of professional physician-patient relation.**

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Introduction & Objectives:

Chronic wounds lower health-related quality of life, as they affect various aspects of life due to pain, odor, tedious treatment, and stigma from society. Implementing proper treatment, where patient is well informed and active is a key for best outcomes.

Aim of the study was to evaluate health-related quality of life among the patients with chronic ulcers, with the use of new scale Gdansk Wound QoL developed in cooperation between dermatologists, general and plastic surgeons, as well as wound nurses.

Materials & Methods:

18 patients who met the inclusion criteria were enrolled to the study. Before the education on day 0 patients were asked to fill in Gdansk QoL questionnaire, as well as fill the follow-up Gdansk QoL on day 30, which was also the end of the study.

Results:

Study participants (n = 18) were on average 71.5 ± 6 years and the majority had a venous or mixed ulcer on their lower limbs of average wound area of 10,8 cm². On average, quality of life increased by 36.70% after 30 days trial. Moreover, on the follow up visit 94.44% of the patients stated that their knowledge on the disease has increased and everyone was satisfied with the course of treatment proposed by the current doctor. Furthermore, 44.44% of the study group increased their activity at the end of the study.

Conclusion:

This cross-sectional, epidemiological study shows that Gdansk Wound QoL can provide professionals in wound care good feedback on health-related quality of life of patients with chronic wounds.



Abstract N°: 225**Automated prediction of Photographic Wound Assessment Tool in Chronic Wound images**

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Introduction & Objectives:

Many automated approaches have been proposed in the literature to improve the objectivity of estimating clinically relevant wound features based on image processing analysis. The purpose is to remove human subjectivity and accelerate the clinical practice. In this work, we introduce a fully automated model for the prediction of the Photographic Wound Assessment Tool (PWAT) able to completely automatize the clinical procedure, starting from the images acquired by smartphones.

Materials & Methods:

We extracted textural and morphological features from the wound areas, automatically identified by a previously published wound segmentation model. We introduced a regression model for the PWAT estimation based on this set of features using a developed dataset of images called Deepskin. We used the segmentation masks obtained by a previously published automated wound segmentation neural network model

Results:

The set of features extracted on these ROIs correctly predicts the PWAT scale values with a Spearman's correlation coefficient of 0.85 on a set of not previously used samples.

Conclusion:

The robustness of our pipeline confirms its possible usage in clinical practice as a viable decision support system for dermatologists.

Abstract N°: 735
A novel ecobiological dermo-cosmetic product in wound healing and scar management

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Introduction & Objectives:

Scar management becomes an important dermatological issue due to the increase of aesthetic procedures in the last two decades. Applying an adapted moisturizer during the healing process is commonly practiced in order to help wound healing, reduce discomfort sensations, and most importantly, the final issue, leading to absence of scar pigmented or not. The aim of the study was to evaluate the safety and efficacy of a new soothing and repairing dermo-cosmetic product formulated in accordance with the ecobiological approach. Ecobiology considers the skin as a living ecosystem interfacing with its environment and preserving its natural biology to act lastingly.

Materials & Methods:

Three clinical studies (2 randomized split face and 1 opened study in real life) were performed with the product applied twice daily for 14 days. In the 2 split face studies, 21 subjects (mean age 45 y.o.) and 22 subjects (mean age 36 y.o.) that underwent a CO2 fractional laser or 70% glycolic acid peeling procedures, respectively, applied the repair product on a half-face and the placebo on the other one. The global wound score was constituted of 3 subscores - the inflammation, the scar appearance and the soothing effect - evaluated by the dermatologist. Instrumental assessments (TEWL, pH, LC-OCT) were also performed. A non-comparative true-life study on 35 subjects (mean age 32 y.o.) was based on the massage of post-surgical scars with the product and evaluated by global assessments (5-point scale, Vancouver Scar Scale [VSS]), skin colorimetry (chromameter) and scar thickness (ultrasound system).

Results:

In the first clinical studies, a significant reduction of the global score was noted after laser procedure at D7 (-63%) and D14 (-96%) and after peeling vs placebo at D3 (-56% vs. -32%) at D7 (-81% vs. -55%), both compared to D0. A TEWL reduction and a more physiological pH value were obtained with the product vs. placebo from D1 after peeling procedure. Moreover, the stratum corneum was thicker at D1 (+1.4 µm) and viable epidermis thickness was higher (+0.2 µm) with the product compared to placebo. Finally, after 14 days of the product use in real life, we observed a significant improvement on suppleness +34%, scar color -35%, scar pigmentation -30%, thickness -32%, tightness -71%, discomfort sensations -89%, vascularity -46%, pigmentation -26% (VSS), pliability -46, height -20% and VSS total score -39%. In addition, we noticed a significant improvement of the skin homogeneity, redness and a decrease of post-inflammatory hyperpigmentation as well as the scar thickness and depth (up to -19% at D14 vs. D0) via instrumental measurement. In the 3 clinical studies, the tolerance of the product was very good.

Conclusion:

This repair dermo-cosmetic product creates ecobiological conditions by favoring the natural process of wound healing in respect of skin ecosystem for a rapid wound healing with no pigmentation nor scar.



Abstract N°: 776**Does veganism worsen outcomes in procedural dermatology?**Usamah Afzal^{*1}, Faisal Ali²

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Introduction & Objectives:

Post-surgical skin healing is a dynamic process involving several stages of progression: hemostasis, inflammation, cell proliferation, epithelialisation, and tissue remodelling—various genetic and modifiable factors, including nutrition, control skin wound healing. However, the impact of veganism on post-surgical wound healing remained unanswered.

Materials & Methods:

A systematic review was conducted using PubMed searching for terms relating to dermatologic surgery, ("Mohs", "dermatologic surgery", "wound healing") and ("vegan", "veganism", "diet restriction"). We also searched the reference lists for relevant citations.

Results:

We found five relevant articles that underwent full text review. Fusano *et al.* found that vegans have a higher incidence of wound disruption in the early stages of wound repair (inflammation and cell proliferation). They postulate that the difference in wound healing outcomes in vegans is because they consume less vitamin B12 and iron, both of which contribute to collagen production. Collagen is a primary component of the extra-cellular matrix (ECM) and plays an essential role in the strength and elasticity of scar tissue.

There is comparable evidence suggesting poor wound healing and worse outcomes in vegans following fractionated CO2 laser treatment, micro-focused ultrasound (MFU) and fractionated microneedle radiofrequency (FMR).

Conclusion:

Optimising outcomes whilst minimising side effects is the goal of any dermatological procedure. The study by Fusano *et al.* prompts dermatologists to ask patients about dietary habits pre-operatively and pre-warn patients who are vegan of the potentially worse outcomes as part of the informed consent process. Data is not yet available to advise whether (re)introduction of meat or dairy products can abrogate these reported poor outcomes.

Abstract N°: 908**The Usefulness of an Ear Thermometer Probe Cover as a Template in External Auricular Canal Reconstruction with a Skin Graft**Rah Yoon Kim^{*1}, Chae Rim Lee¹, Deuk Young Oh¹¹The Catholic University of Korea Seoul St. Mary's Hospital, Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South**Introduction & Objectives:**

It is necessary to maintain the patency and shape of the external auditory canal (EAC) in order to preserve its functions including physiological hearing and microbial protection. Many surgical approaches with varying success rates for EAC reconstruction have been devised, including secondary healing, skin grafting, and a variety of local skin flaps. In this report, we have described a case of EAC reconstruction with a skin graft after a premalignant lesion resection. The probe cover of the ear thermometer was successfully used as a template for the curvature of the EAC.

Materials & Methods:

A 55-year-old Asian woman presented to our clinic with a one-week history of tinnitus in the left ear. The patient denied hearing loss, otalgia, otorrhea, bleeding, or vertigo. No visible lesions were observed in her outer ear. The lesion was diagnosed as actinic keratosis on skin biopsy. Due to the malignant potential of the lesion, local resection and reconstruction with a split-thickness skin graft (STSG) were planned. To maintain the shape of the cone-shaped graft, a sterilized ear thermometer probe cover (MC-EP2 for ear thermometer model TH839S; Omron, Kyoto, Japan) was used as a template for the EAC.

Results:

Both the graft dressing and thread gauze used for inner packing were changed every three days without disturbing the grafts. Polyurethane foam dressing was used to treat the donor site. The wound had healed well without any complications at three months follow-up after surgery.

Conclusion:

In order to achieve successful wound healing using skin grafts, it is important to maintain the grafted skin in close contact with the wound. Hence, the ear thermometer probe cover is a useful graft template for EAC defect reconstruction using skin grafts.

Abstract N°: 1078**Lower limb ulcers - is it a simple ulcer?**

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Introduction & Objectives:

Lower limb ulcers are a common occurrence and can be due to a large variety of causes. For effective treatment, the underlying cause should be identified and managed to promote healing and prevent future occurrences.

Materials & Methods:

We present two interesting cases of painful, non-healing venous ulcers on the lower limbs.

Results:

Both patients had a history of essential thrombocythaemia requiring systemic treatment with hydroxyurea. Once identified as a causative factor, hydroxyurea was changed to an alternative treatment and the ulcers improved dramatically.

Conclusion:

These cases highlight an interesting diagnostic dilemma of chronic venous disease, livedo vasculopathy, hydroxyurea-induced ulcers and varicose ulcers. It reminds us of the considerations required when approaching and managing lower limb venous ulcers which may not be so simple.



Abstract N°: 1228**Non-invasive monitoring of skin restoration by line-field confocal optical coherence tomography in an experimentally induced superficial wound model**

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Introduction & Objectives: Line-field confocal optical tomography (LC-OCT) is a recently introduced non-invasive *in vivo* method for visualizing skin components and structures with a formerly not achievable resolution of approx. 1 µm reaching into the skin to a depth of approx. 500 µm. LC-OCT allows digital imaging of the epidermis and superficial dermal skin layers. It was our aim to evaluate LC-OCT for an objective and quantitative evaluation of the wound healing process with a special focus on a structural restoration process of the epidermis.

Materials & Methods:

Superficial wounds were induced in healthy volunteers as previously described by suction blisters with consecutive removal of the blister roof first described by Kiistala and Mustakallio (1967). Wound healing was then documented by LC-OCT in defined intervals up to day 35.

Results:

Following superficial wound induction by suction blister, a thin wound membrane was seen on LC-OCT images as early as day 7 combined with epidermal edema and first clearly enlarged epidermal cells. On day 14 a new epidermis has been built under a fibrin crust. Complete wound healing was achieved on day 28 with a complete restoration of the stratum corneum. Enlarged blood vessels, increased bloodflow of the upper dermal plexus was fading after day 28 and had mainly ceased on day 35

Conclusion:

Our results demonstrate that epidermal structures and their modifications in the wound healing process can be visualized in detail by the noninvasive optical technique of LC-OCT. LC-OCT further provides objective parameters for wound closure with surprising insights into wound healing processes which are not accessible for clinical methods or devices that lack single cell resolution as the conventional OCT. Skin barrier restoration can be objectively monitored by LC-OCT by measuring epidermal thickness, assessing the composition of cells and fibrin structures, as well as the vasodilation of blood vessels. Thus, LC-OCT represents an excellent and objective noninvasive method in real time, offering a wide range of potential applications in clinical trials.

Abstract N°: 1354
Topical care in pemphigus wounds: A systematic review of the literature

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Introduction & Objectives:

Pemphigus is a group of autoimmune blistering diseases. Given the ulcerative nature of the diseases, the full healing of ulcers and erosions might be challenging. The aim of this study was to determine various topical wound care options for pemphigus patients, the advantage of each alternative, and to compare their efficacy, safety, and feasibility.

Materials & Methods:

In accordance with PRISMA guideline, we performed a systematic search in PubMed/Medline, web of science, and Scopus databases for articles published from inception until February 2, 2022. Our search keywords were dressing, wound healing, wound care, wound management, topical care, bandage, covering, pemphigus, pemphigus vulgaris, pemphigus vegetans, pemphigus foliaceus, para- neoplastic pemphigus, and drug induced pemphigus. In this study, we specifically included studies assessing the efficacy of a topical care modality for pemphigus wounds regardless of the systemic or topical medications such as immunosuppressive agents. Out of 703 initially retrieved articles, 11 full texts were included.

Results:

Our findings were divided into the following categories: silver-containing dressings, paraffin-embedded tulle nets, topical insulin, pure silk fibroin, platelet gel, and biosynthetic dressing. The most commonly used topical care in pemphigus patients was silver-containing dressings in six studies.

Based on a randomized controlled study on 32 cases of pemphigus vulgaris that had hard-to-heal ulcers, the treatment group (n = 16) received the nanocolloidal silver-based gel and the control group (n = 16) was prescribed the conventional eosin. They revealed a significantly higher rate of improvement in ulcer areas, higher patient, and physician satisfaction in the treatment group in comparison to the control group.

Another randomized controlled study compared wet silver dressings and wet-to-dry povidone-iodine dressings for wound healing. Dressing changes, wound healing time, and duration of hospital stay were significantly reduced in the treatment group compared to the control group. Wound healing time was approximately 7 days less in the treatment group in comparison to the control group.

In a study on 49 patients (15 burns, 15 chronic genital erosive diseases, 9 chronic leg ulcerations, and 10 with an autoimmune bullous disease such as pemphigus vulgaris) the application of a dressing and powder (made from pure silk fibroin) was proved to be an effective treatment for different kinds of erosive and ulcerated dermatoses, not only when added to usual care, but even when used as a sole treatment.

Except for silver-based treatments and pure silk fibroin-based treatment categories, other included studies that belonged to other categories (paraffin-embedded tulle nets, topical insulin, platelet gel, and biosynthetic dressing) were all case-reports that showed relative improvements in the wound healing.

All of the included studies reported acceptable outcomes without any severe adverse effects.

Conclusion:

Due to the few available studies in this field, a definite suggestion cannot be made. We recommend larger randomized controlled studies to identify the best topical care modality in pemphigus patients.

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Abstract N°: 1375
Cutaneous necrosis caused by spider bite: two cases of cutaneous loxoscelism

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Introduction & Objectives: Loxoscelism refers to a set of cutaneous or visceral manifestations induced by a bite from a spider of the genus *Loxosceles*. Cutaneous involvement is prominent, with cutaneous necrosis that can be extensive in extreme cases. We report two cases of necrotic envenomation by a presumed spider bite highly suggestive of cutaneous loxoscelism

Materials & Methods:

Case1- 30-year-old man, with no particular medical history, presenting with a 1 week necrotic lesion on his left foot. Clinical examination revealed a purpuric erythematous patch on the left foot, centered by a large area of necrosis underneath a cutaneous detachment, measuring 15 cm by 8 cm with a clear border. Examination also revealed a rounded ulcer of 1 cm in diameter in the area of the hallux, corresponding to the site of a bite sensation reported by the patient, during gardening work, 6 hours prior to the onset of symptoms. The rest of the physical examination was normal. Routine laboratory tests (CBC, PT/PTT, liver enzymes) were normal. Our patient was treated with combined necrosectomy and antibiotic therapy (doxycycline + amoxicillin) and directed healing.

Case2- 45-year-old woman, with history of thyroiditis, presenting with a 4-day painful erythematous lesion on her right forearm. History revealed a bite sensation during household chores, 12 hours before the onset of symptoms. Examination found an oval-shaped purpuric erythematous patch measuring 7 cm by 5 cm, centered by a 1-cm ulcer, with a clear discharge and covered with a crust. A lymphangitis as well as inflammatory axillary lymphadenopathies were present. The patient reported fever and diffuse arthralgia. The physical examination was otherwise normal. Routine laboratory tests were normal. The treatment involved a combination of antibiotic therapy (amoxicillin + clavulanic acid) and local care

Results:

Complete healing was achieved in both patients after 6 weeks and 3 weeks of follow-up, respectively

In both cases, acute necrotic lesions developed within a few hours. Complete healing was achieved within a few weeks (6 and 3, respectively) by removing the necrotic area and providing local care. We explored all potential causes of the necrotic lesions, however, through questioning, we discovered that spiders were present in the immediate environment of the patients. As a result, the diagnosis of cutaneous loxoscelism was considered

Conclusion (and discussion):

The diagnosis of loxoscelism is most often made by exclusion in the presence of a necrotic skin lesion. It is a severe form of necrotizing araneism induced by the cytotoxic venom of spiders of the ubiquitous *Loxosceles* genus, mostly found in tropical and temperate regions. The clinical appearance varies depending on the species involved. The species *rufescens* is fairly abundant in the mediterranean region and most often responsible for mild cutaneous forms. An initial inflammatory patch evolves centrifugally and is surrounded by a whitish halo, creating the characteristic red, white, blue appearance of cutaneous loxoscelism, which primarily affects the extremities (limbs and face) and is more common in summer and rural environments. The diagnosis is based on the clinical

appearance and the presence of Loxosceles in the region. Treatment is symptomatic and based on local treatments and analgesics

In conclusion, Loxoscelism is a cause of cutaneous necrosis to be aware of in endemic areas of the Mediterranean region

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Abstract N°: 1417**Efficacy and tolerability of a prebiotic-containing multipurpose healing balm in the management of dry eczematides across phototypes, localizations and ages**

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Introduction & Objectives:

Some mild cutaneous conditions do not necessarily deserve a prescription drug as a first-line treatment. This is typically the case with dry eczematides for which a healing product may solve the problem with expectations including perfect tolerance, rapid calming effect and quick come back to a mark-free skin across phototypes worldwide. Evidence is growing that to restore skin microbiome plays an important role.

The objective of this study was to evaluate the efficacy and tolerability of a prebiotic-containing healing balm in the management of dry eczematides.

Materials & Methods:

This was an open-label non comparative study conducted in 4 centers in Poland (n=6), Mauritius (n=2), China (n=10) and the US (n=12) in male and female of phototypes I-VI aged 12 to 69 years, with dry eczematides of various localizations. Product was applied at least twice daily for 21 days. Evaluations were conducted as per: IGA for improvement, success rate (IGA 3 and 4), local signs, pain and pruritus, post recovery marks, local tolerance.

Results:

Success was obtained in 62% of subjects at day 21. Hyperpigmentation was absent or almost absent in 64 % of cases. It was well contained in others (53% mild, 13% moderate, no severe). Pruritus nearly disappeared after the first application of the product. Local tolerance was considered good or excellent in 100% of cases. Subgroup analysis showed consistent efficacy across ages, localizations and phototypes. Pictures are provided to illustrate efficacy across subgroups.

Conclusion:

The study showed the efficacy of a prebiotic-containing multipurpose healing balm in the first-line management of dry eczematides over 21 days with a success rate of 62% across phototypes, ages and localizations. Hyperpigmentation was contained and an immediate calming effect was observed. It is likely that the effect on the microbiome restauration plays an important role in these results.

Abstract N°: 1418**Efficacy and tolerability of a prebiotic-containing multipurpose healing balm in the management of skin irritation of various etiologies across phototypes, localizations and ages**

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Introduction & Objectives:

Some mild cutaneous conditions do not necessarily deserve a prescription drug as a first-line treatment. This is typically the case with dry eczematides (DE), unspecific irritative and cracked dermatitis (ICD), non-disease specific irritations of the lips, genitals and peri-anal region (LGPA), rubbing irritations (RI) and superficial burns (SB). For these conditions a healing product may solve the problem with expectations including perfect tolerance, rapid calming effect and quick come back to a mark-free skin across phototypes worldwide. Evidence is growing that to restore skin microbiome plays an important role.

The objective of this study was to evaluate the efficacy and tolerability of a prebiotic-containing healing balm in the management of irritations of various etiologies.

Materials & Methods:

This was an open-label non comparative study conducted in 4 centers in Poland (n=27), Mauritius (n=27), China (n=25) and the US (n=30) in males and females of all phototypes aged 3 to 70 years, with various kinds of non-disease-specific irritations of the skin, lips, genitals and peri anal region. Product was applied at least twice daily for 21 days. Evaluations were conducted as per: IGA for improvement, success rate (IGA 3 and 4), local signs, pain and pruritus, post-recovery marks, local tolerance.

Results:

At day 21, success was obtained in 62% of subjects for DE, 88% for ICD, 71% for LGPA, 67% for RI and 93% for SB. Hyperpigmentation was absent or almost absent in 73% of cases with phototypes I-III and in 46% of cases with phototypes IV-VI. It was well contained in others (30% mild, 7% moderate). Pain and pruritus nearly disappeared after the first application of the product whatever the indication. Local tolerance was considered good or excellent in 99% of cases ranging from 94% to 100% depending on the indication. Subgroup analysis showed consistent efficacy across ages, localizations, phototypes and etiologies. Pictures are provided to illustrate efficacy across subgroups.

Conclusion:

The study showed the efficacy of a prebiotic-containing multipurpose healing balm in various nonspecific irritative dermatitis over 21 days with a success rate ranging from 62% to 93% across phototypes, ages and localizations including lips and genitals. Hyperpigmentation was contained and an immediate calming effect was observed. It is likely that the effect on the microbiome restauration plays an important role in these results.

Abstract N°: 1420**Efficacy and tolerability of a prebiotic-containing multipurpose healing balm in the management of irritations of the lips, genitals and peri-anal region across phototypes, localizations and ages**

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Introduction & Objectives:

Some mild cutaneous conditions do not necessarily deserve a prescription drug as a first-line treatment. This is typically the case with non-disease specific irritations of the lips, genitals and peri anal region for which a healing product may solve the problem with expectations including perfect tolerance, rapid calming effect and quick come back to a mark-free skin across phototypes worldwide. Evidence is growing that to restore skin microbiome plays an important role.

The objective of this study was to evaluate the efficacy and tolerability of a prebiotic-containing healing balm in the management of non-disease specific irritations of the lips, genitals and peri-anal region.

Materials & Methods:

This was an open-label non comparative study conducted in 4 centers in Poland (n=4), Mauritius (n=6), China (n=4) and the US (n=8) in male and female of phototypes I to IV aged 3 to 69 years, with non-disease specific irritations of the lips, genitals and peri-anal region. Product was applied at least twice daily for 21 days. Evaluations were conducted as per: IGA for improvement, success rate (IGA 3 and 4), SCOREPI (SCORE de REparation de l'EPIderme)¹, local signs, pain and pruritus, post recovery marks, local tolerance.

1 Le Maître M, Crickx B, Lacour JP, Bagot M, Chevallier JM, Cribier B, Doutre MS, Giordano-Labadie F, Guillot B, Joly P, Schmutz JL, Vabres P, Bensimon D. Validation of a clinical evaluation score for irritative dermatitis: SCOREPI. J Eur Acad Dermatol Venereol. 2013 Sep;27(9):1138-42.

Results:

Success was obtained in 71% of subjects at D21. Mean IGA score was improved from 0.7 at D2 to 3.1 at D21. SCOREPI was improved by 80%. Erythema was improved in 93% of patients and cracks were improved in 75% of patients at D21. Pruritus nearly disappeared immediately after the first application of the product. Local tolerance was considered good or excellent in 94% of cases.

Conclusion:

The study showed the efficacy of a prebiotic-containing multipurpose healing balm in the first-line management of non-disease specific irritations of the lips, genitals and peri-anal region over 21 days with a success rate of 59% across phototypes, ages and localizations. Hyperpigmentation was contained and an immediate calming effect was observed.

Abstract N°: 1474**Probiotics, diabetes, periodontitis & wounds - The “PRODIU” pilot study**

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Introduction & Objectives:

Chronic wounds frequently occur as a symptom or complication of diabetes mellitus. They are a great psychological and physical burden for those affected, which is accompanied by an impairment of the quality of life (QoL) and high costs for the healthcare system. Pathogenic wound bacteria, which are frequently detected in chronic wounds, impede the healing process and are a risk factor for the development of local and systemic infections. Probiotics are capable of displacing human pathogenic bacteria, alleviating inflammation, and positively affecting the skin and mucosal microbiome. We postulate that this is particularly beneficial in patients with chronic wound healing disorders and type II diabetes mellitus. In the presented pilot study, the effect of a nutritional supplement containing a multispecies probiotic on the healing of chronic wounds in diabetic patients is investigated. In addition, the effects of probiotic supplements on periodontitis, a disease frequently observed in these patients and a cause of premature tooth loss, will be analyzed.

Patients & Methods:

In this pilot study, designed as a non-placebo-controlled clinical trial, 20 patients with chronic wounds received a multispecies probiotic orally daily for 6 months. Changes in the oral, enteric, and wound microbiome were examined using Illumina-based 16S sequencing of V1-V2 regions. In addition, the influence of the probiotic supplement on wound healing processes (size, exudation, infection, etc.), periodontitis markers (gingival probing depth, attachment loss, etc.), and wound-associated QoL parameters of the patients was analyzed

Results:

15 of the 20 patients completed the pilot study; study discontinuations were due to the multimorbidity of the patients. After three months of intake of the probiotic supplement, an overall progressive healing process was observed. In 11 of 15 patients, the wound size decreased by at least 50%, and in 5 the wounds were even completely closed. Most patients reported an improvement in wound-associated QoL, with particularly positive effects on the parameters “pain” and “mobility”. Periodontitis showed significant improvement in most measurement parameters, while the patients’ oral hygiene remained poor. Microbiome analysis revealed a reduction in the relative abundance of *Staphylococcus aureus* in the wounds as well as significant changes in the bacterial pattern of the wounds in the individual study patients - although the results were not statistically significant.

Conclusion:

Taking a multispecies probiotic for 6 months in diabetic patients with chronic wounds has a positive impact on wound closure, wound microbial pattern, and QoL - while significantly improving periodontitis status. Here, it is expected that dental health can be increased when probiotics are combined with local periodontitis therapy. A randomized, placebo-controlled clinical trial is needed to verify the results of this pilot study.

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Abstract N°: 1479**MRSA & *P. aeruginosa* wound biofilm: detection, colonization patterns and elimination.**Ewa Klara Stuermer^{*1}, Besser Manuela², Dietrich Michael²¹University Medical Center Hamburg-Eppendorf, Department of Vascular Medicine, Hamburg, ²Witten-Herdecke University, Institute of Translationale Research, Witten**Introduction & Objectives:**

Wound biofilms are one of the greatest challenges in the therapy of chronic wounds, as potent antimicrobial substances killing planktonic bacteria within a very short time often fail. Preclinical investigations using novel model systems that closely mimic the human wound environment, and in particular the wound biofilm, are required to identify new and effective therapeutic options. Likewise, correlations between this translational model and chronic wound biofilm will be used to guide optimizing local therapy.

Materials & Methods:

The combined use of the established human biofilm model hpBIOM, incorporated into a defined wound, based on human dermal resectates after abdominoplasty, allowed the investigation of the interaction of the biofilm-forming bacteria *S. aureus* or MRSA, respectively, and *P. aeruginosa* with the skin cells. Under exposure to UV-near light, areas of bacterial activity were detected in wounds of 20 patients by red fluorescence of the deposited bacterial metabolites, such as porphyrins (for Staphylococci or Enterobacteriaceae, e.g.) or by cyan-blue fluorescence of the siderophore called pyoverdins secreted by Pseudomonas. Thus, possible effects on wound healing and persistence in the biofilm in the wound environment were analyzed.

Results:

Using H/E staining, a different, species-dependent infiltration mode of the bacteria into the wound tissue was examined for the biofilm builder MRSA and *P. aeruginosa*. The latter predominantly colonizes the wound margin, being very destructive leading to epidermiolysis. MRSA is more likely to be found in the wound bed, its penetration depth being significantly less than that of *P. aeruginosa*. This spreading behavior correlates with clinical evaluations of the spatial distributions of bacteria within as well as surround of patients' wounds. In particular, the clinically prominent Pseudomonas-specific distension of the wound margin was identified as epidermiolysis due to persistent infiltration. In contrast, MRSA tends to colonize the wound bed and is less invasive.

Conclusion:

The human wound biofilm model applied in this study represents a potential tool for preclinical analyses, which should provide significant results in the context of approval processes for new antimicrobials. In terms of clinical practice, a microbiological swabbing technique that also addresses the wound margin should be routine to counteract wound exacerbation and enlarging at an early stage. In addition, the histologically obtained insights of wound biofilm formation and persistence in the human skin biofilm model should influence the debridement technique of chronic wounds: Deep and frequent sharp debridement is required to eliminate *P. aeruginosa*-biofilm infiltrated wounds.

Abstract N°: 1496**Evaluation biodegradable silk fibroin-based wound matrices in a human ex vivo 3D wound model guiding the orchestrated wound closure**

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Introduction & Objectives:

Final epithelialization of chronic, hard-to-heal or infected wounds often takes months. To accelerate this process, split skin grafting often is performed, generating effort, cost, and secondary morbidity. Silk fibroin offers a high potential for tissue regeneration and optimization in soft tissue surgery. The aim of these translational analyses was to validate silk-based biodegradable wound matrices (fibroin) in a human 3D ex-vivo wound model, regarding their histomorphological tissue integration and their influence on re-epithelialization. Silk sericin, which is known to be tissue incompatible, was extracted in the manufacturing process.

Materials & Methods:

Based on 2D in vitro preliminary experiments, two silk matrices (membrane and fleece) were selected and press implanted into a 3 mm diameter central tissue defect of skin punches from an abdominoplasty resection. After incubation at 37°C in the air-lift for 5 to 20 days, the tissues were analyzed histomorphologically, histomorphometrically and immunohistochemically for proliferation (Ki-67), migration (Laminin- α 3), metabolic activity (FAP) and apoptosis (TUNEL assay).

Results:

The wounds covered with silk fibroin membranes and fleeces showed low wound contraction. The integration of silk fibroin membranes demonstrated a more organized and structured keratinocyte network compared to the fleece matrix, while the wound cells (fibroblasts and keratinocytes) appeared vital, actively proliferating, and migrating. The wound closure was detected by ingrowth of fibroin membrane after 16.8 days (mean). In controls (without fibroin matrices), no wound closure was achieved. Degradation or infiltration of the matrices was not detectable due to the time-dependent nature of the process; it is expected after 8-12 weeks.

Conclusion:

The human 3D ex vivo wound model provides a crucial advantage over 2D cell culture through the intercellular communication of skin cells. It allows for a realistic assessment of healing processes and tissue integration of potential wound matrices or implants. The matrices based on fibroin, especially membranes, show good tissue integration and provide evidence of regenerative properties. Overall, the validated silk fibroin-based wound matrices show promising results in this human wound model, suggesting their potential use in hard-to heal wounds for tissue regeneration and optimization. Now in vivo studies are needed to explore their efficacy in this field and to optimize their design and application.

Abstract N°: 1655**Calciophylaxis following Roux-en-Y gastric bypass surgery. A case report.**

María Victoria Signes-Costa Smith¹, Elvira Molina Figuera¹, Ana Belén Gargallo Quintero¹, Natalia Aranda Sánchez¹, David Mateos Moreno¹, Lidia Carbonero Jiménez¹, María Cotarelo Hernández¹, Cristina Romera de Blas¹, Juan José Amorós Oliva¹, María José Carrera Hernández¹, Cristina Perez Hortet¹

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Introduction & Objectives:

Calciophylaxis is defined as a vasculopathy characterized by ischemia and skin necrosis secondary to calcification of small and medium-sized vessels.

Materials & Methods/Case Report:

A 68 year old woman with obesity overcame a gastric bypass and Roux-en-Y surgery 30 years prior to the presentation. She never underwent a panniculectomy surgery. Other comorbidities were primary hyperparathyroidism (HPT) due to an adenoma surgically treated 3 years ago with current normocalcemia, diabetes and axial spondyloarthritis treated with systemic corticosteroids.

In the right abdominal area, a deep ulcer on an indurated plaque of 5 x 4 centimeters, intensely painful on palpation, was noticed. On the contralateral side, indurated centimetric nodules with similar symptoms were observed. Laboratory testing was notable for low 25-hydroxyvitamin D levels (5.3ng/dL). The skin biopsy revealed ischemic necrosis of the adipose panniculus secondary to calciophylaxis. Clinicopathologic correlation was consistent and treatment with sodium thiosulfate (STS) was begun. In the second session, the patient reported improvement in pain. The complete re-epithelialization of the ulcer was achieved in 5 months.

Results/Discussion:

Calciophylaxis is a rare but fatal entity. Etiopathogenesis remains unknown. It is mainly seen in advanced-stage renal failure, but nonuremic calciophylaxis has also been described. There are multiple risk factors suggested. On one hand, it has been insinuated the involvement of the G1 protein of the extracellular matrix; which, after its vitamin K-dependent activation, inhibits vascular calcification, vitamin K antagonists could interfere with its action. On the other hand, alterations in phosphocalcic metabolism such as HPT may promote adynamic bone disease and extraosseous calcifications. Other risk factors have been studied: obesity, diabetes, nonalcoholic liver disease, treatment with systemic corticosteroids... In recent years, it has also been described bariatric surgery as a risk factor arising. These patients often suffer nutritional deficiencies, most relevant are deficiencies of the fat-soluble vitamins D and K, both implicated in calciophylaxis. Moreover, another idea to acknowledge is that our patient never underwent panniculectomy surgery, the excess of skin and adipose tissue may cause tensile stress on dermal arterioles reducing blood flow in already calcified vessels.

Regarding the treatment, STS is widely used in the treatment of uremic calciophylaxis, there are some cases in literature of its effectiveness in non-uremic calciophylaxis. In our patient, intravenous STS was administered at a dose of 25mg 3 days a week with resolution of the ulcer after failure of other topic therapies.

Conclusion:

Bariatric surgery is an effective treatment for obesity but it is recommended to monitor the nutritional deficiencies.

Recognition of risk factors for calciphylaxis in patients after bariatric surgery is essential to reach the diagnosis and establish the appropriate treatment.

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Abstract N°: 1709**Hydroxyurea induced lip ulceration**Shahab Babakoohi^{*1}, Hamid Ehsan²¹Levine Cancer Institute, Wake Forest School of Medicine, Charlotte, United States,²Levine Cancer Institute, Charlotte, United States**Introduction & Objectives:**

Hydroxyurea has been used as a cytoreductive therapy to treat a variety of hematologic disorders including myeloproliferative neoplasms. Lower extremity ulceration, as a classic complication, has been documented in numerous publications over several decades. However, facial ulceration has not been reported.

Materials & Methods: Case presentation****Results:**

A 41-year-old woman with essential thrombocytosis was referred to the oncologic dermatology clinic for an enlarging lip ulcer. She had been on hydroxyurea for 2 years. About two months prior to the presentation, she developed a small ulcer on her lower lip. She was treated for herpes simplex. The ulcer kept growing. She received empiric antibiotics. She was seen by her dermatologist and a culture was taken. It was positive for E-coli sensitive to ciprofloxacin and was treated accordingly. The ulcer continued to enlarge.

In the physical exam, there was a 2.5 cm solitary well demarcated round tender clean based ulcer on the left lower vermilion lip with extension to the left lower cutaneous lip .

With the impression of hydroxyurea induced ulceration, hydroxyurea was discontinued. Shortly after discontinuation, the wound started to shrink and healing was completed in less than a month. Later, she received intralesional injections of steroids with shrinkage of residual scar.

Conclusion:

Hydroxyurea can cause ulceration in uncommon areas, including the face. Any new ulcer in an unusual site in patients who are using hydroxyurea needs to raise the suspicion and discontinuation of the drug should be considered. Secondary infection of hydroxyurea induced ulcer is common and may mask the underlying etiology.



Abstract N°: 1787**Management of scars following burn injuries in dark-skinned race**Hajer Touil¹¹UH Mahdia, Department of oral and maxillofacial surgery, Monastir**Introduction & Objectives:**

Partial and full thickness burns in Dark-skinned race are usually associated with a permanent hypopigmentation or hypertrophy of scars. This consequence can cause severe aesthetic issues. The surgical goals for effective treatment are to remove scar tissues with minimal donor site morbidity. In this work, we tend to expose our experience face to this cases.

Materials & Methods:

We report the case of a 22 years-old-men, who presented from Nigeria for facial postburn scars evolving since two years. The examination revealed a large frontal hypopigmented scar, and a hypertrophic scars in both lower eyelid causing a contracture. Multiple surgeries were performed for this patient in different clinics, but there were no improvement and the patient had never been satisfied. Besides, he presented with an increased psychological morbidity. Regarding the large frontal scar, we performed a new full-thickness grafting, the donor site was the arm and we tried to release the contracture on the lower eyelids by similarly a Z-plasty after excising the keloid scars.

Results:

The result was satisfactory for the forehead, but there was a relapse of the eyelid contracture.

Conclusion:

In addition to disfigurement, postburn scars complications such as hypopigmentation and hypertrophy, are often associated with chronic neuropathic pain and pruritus, functional impairment, and psychological morbidity, which collectively contribute to decreased quality of life. Known risk factors include female sex, young age, burn depth and extent, burn site, number of operations, delayed wound- healing, and use of meshed skin. In addition, individuals of dark-skinned race appear to be at increased risk of these complications. Since race reflects geographic ancestral origin and population genetic structure, this association suggests a genetic mechanism. Multiple studies have led to different therapeutic strategies to prevent or attenuate these complications : pressure therapy, silicone gel sheeting, cryotherapy, corticosteroids, scar revision with skin grafting, radiotherapy, laser therapy... But each option has its indications and limits. Unfortunately, the result is never guaranteed with dark skinned race.

Abstract N°: 1791**The Buruli Ulcer : which therapeutic strategy ?**Hajer Touil¹¹UH Mahdia, Department of oral and maxillofacial surgery, Monastir**Introduction & Objectives:**

The Buruli Ulcer is skin disease caused by *Mycobacterium ulcerans* typically found in west Africa with usually large lesions resulting from diagnostic delay in patients in rural regions and that may lead to severe complications.

Materials & Methods:

We report the case of 30-years-old African man, who presented with a two years history of large ulcer involving the left leg. The patient reported the history of thin skin grafting performed one year ago with an immediate necrosis and relapse. Bacteriological and histological examinations revealed the presence of the *Mycobacterium ulcerans*. A computed tomography performed showed that the lesion was superficial with no bone erosion. The patient received an association of rifampin and streptomycin during a period of 8 weeks, a full thickness skin graft was associated and followed by daily local care. The donor site was the contralateral thigh.

Results:

The result was satisfactory and the follow-up showed no complications or signs of recurrence after one year.

Conclusion:

Based on promising preclinical studies, treatment trials in West Africa have shown that a combination of rifampin and streptomycin administered daily for 8 weeks can kill *Mycobacterium ulcerans* bacilli, arrest the disease, and promote healing without relapse or reduce the extent of surgical excision. However, skin grafting remains necessary for large lesions especially the full-thickness skin graft which seems to be more sure.



Abstract N°: 1864**skin involvement by systemic diffuse b-cell lymphoma: an atypical pyoderma gangrenosum-like presentation**

Nekane Martinez¹, Jurvist Stee Rodriguez¹, Amaia De Mariscal Polo¹, Miguel Zaldua Arrese¹, Ana Sanchez Diez¹, Rosa María Izu Belloso¹

¹Bilbao, dermatology, Bilbao, Spain

Introduction & Objectives:

Pyoderma gangrenosum (PG) is an unusual inflammatory and ulcerative skin disorder that shows an accumulation of neutrophils in the skin biopsy. The most common presentation of PG is a fast development of one or multiple painful ulcers with undermined borders. Other several skin conditions that clinically mimic PG should be excluded for the diagnosis.

Materials & Methods:

Presentation of a clinical case.

Results:

A 69-year-old man visited the Emergency Department for a 7 x 5 cm ulcerated scapular lesion, with undermined violaceous borders of several months of evolution. General Surgery Department debrided the lesion with the suspected diagnosis of PG versus complication of an epidermal cyst, sending a sample for pathology. The histological findings were compatible with a lymphoproliferative lesion, with BCL6 rearrangement. A PET scan was requested, showing hypermetabolic lymphadenopathies in the left axilla (II-E stage). Core needle biopsy (CNB) of a lymph node showed infiltration by B lymphocytes with an immunophenotype compatible with Diffuse Large B Cell Lymphoma (DLBCL). Patient received 6 cycles of R-CHOP achieving complete closure of the skin ulcer and full metabolic response in 4 months.

Conclusion:

We present a case of skin involvement by systemic DLBCL with an atypical PG-like presentation. The diagnosis of pyoderma gangrenosum is one of exclusion and this case emphasizes the usefulness of complementary tests to rule out other possible diagnoses. In this case, histology allowed the diagnosis of a lymphoproliferative disorder. The presence of systemic involvement ruled out the diagnosis of primary cutaneous diffuse large B-cell lymphoma, "leg type" (PCDLBCL, "LT"); main differential diagnosis. Chemotherapy and Rituximab were quickly started with full response to date (1 year and 8 months).

Abstract N°: 1974**Association of pain intensity, health and wound status in patients with venous leg ulcers**

Vesna Karanikolic¹, Masa Golubovic¹, Ivana Binic¹, Hristina Kocic¹

¹Niš, Dermatology, Nis, Serbia

Introduction & Objectives:

The aim of this study was to analyze the dynamics of pain intensity, predictors of pain and treatment modalities in a group of patients with venous leg ulcers (VLU).

Materials & Methods:

The research included 116 outpatients over the age of 18 with VLU treated at the Clinic for Skin Diseases of the Niš Clinical Center. Patients were monitored for 24 weeks. All patients were treated with compression therapy and local management (TIME strategy). Subjective pain intensity was measured at weekly intervals using an 11-point visual analog scale (VAS). The following parameters were monitored: age, gender, comorbidity, wound status, wound pain and use of analgesics.

Results:

The analysis showed that 79% of patients reported pain caused by the wound, and 44% estimated that their analgesics did not relieve pain sufficiently (mean VAS value 4.7). The average health status was 49.5 (maximum health status 100). Patients with a pain score ≥ 5 showed a lower mean health status (40.2) than patients with a pain score < 5 . More intense pain was present in VLU with the presence of pus and/or unpleasant odor, as well as in posterior and/or peripheral ulcers. The presence of ulcer redness was associated with lower pain intensity.

Conclusion:

It is necessary to improve wound treatment and pain therapy in patients with VLU. Higher levels of pain decrease the subjective health status of patients. Predictors of pain severity must be considered when planning VLU therapy.



Abstract N°: 2038**Core Outcome Domains for Pressure Ulcer Prevention Trials**Jan Kottner¹¹Charité – Universitätsmedizin Berlin, Institute of Clinical Nursing Science, Berlin, Germany**Core Outcome Domains for Pressure Ulcer Prevention Trials**

Jan Kottner, Susanne Coleman, Kathrin Balzer, Jane Nixon

Introduction & Objectives: Pressure ulcers are clinically relevant skin and soft tissue lesions and wounds. Pressure ulcer prevention includes mobility promotion, repositioning, offloading, use of support surfaces and many others. The lack of comparability of study outcomes limits evidence generation and syntheses. The Outcomes for Pressure Ulcers Trials (OUTPUTs) project was set up to develop a core outcome set (COS) in the field of pressure ulcer prevention.

Materials & Methods: A scoping review was conducted to map all potential outcomes that have or might be used. Workshops were conducted with people at elevated pressure ulcer risk or who had/have a pressure ulcer to gain further insight into the patient perspectives. An international 3-round Delphi survey followed in 2020 and 2021. Finally, an online consensus meeting was conducted including patients, practitioners, industry representatives and researchers.

Results: In total, 332 studies were included in the scoping review and 68 outcome domains were identified. The workshop did not result in new outcome domains. The first Delphi round included n = 158 participants and 36 domains were presented. After the third Delphi round 18 outcome domains were considered as critically important. In the consensus meeting the following six core outcome domains were prioritized: pressure ulcer occurrence, pressure ulcer precursor signs and symptoms, mobility, acceptability and comfort of intervention, adherence/compliance, adverse events/safety.

Conclusion: The OUTPUTs project followed the current standards of COS development and went through a multistage process. However, compared to treatment studies developing core outcomes for prevention studies is a major methodological challenge. Six core outcome domains have been identified and it is necessary to develop the most appropriate outcome measurement instruments per domain. Although the measurement methods have not yet been determined, the six identified core outcomes should already be considered in studies, as various stakeholders agreed that they are critically important.



Abstract N°: 2292**Protection effect of macrophage-regulation drug for Acute Radiation Dermatitis (ARD): from preclinical pharmacology to real-world proof-of-concept study.**

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Introduction & Objectives:

Radiation therapy (RT) is currently one of the main therapies for the treatment of malignant tumors, but approximately 95% of these patients will eventually develop radiation dermatitis with different CTCAE grades within or after treatment course. While dermatitis getting worse, most patients will discontinue RT and lead to cancer progression owing to the poor quality of life. It is urgent to have a good treatment choice for radiation dermatitis. ON101 is a novel macrophage-regulating drug for diabetic foot ulcers (DFUs). With its mechanism by inhibiting pro-inflammatory M1 macrophages and promoting GCSF and CXCL3 to increase M2 macrophages, ON101 has been demonstrated with superior efficacy in wound healing. Since macrophages and inflammation are also involved in radiation dermatitis, in this study, we investigate the therapeutic effect of ON101 on radiation dermatitis from preclinical pharmacology (animal disease model) to real-world application in clinical patients.

Materials & Methods:

We used an acute radiation dermatitis (ARD) mice model to evaluate the effect of ON101 cream on radiation dermatitis. Radio-dermatitis severity scoring was based on toxicity grades the principal study investigator assigned to the study drug application site (SDAS) and the adjacent untreated control site of every mouse that each dose of 6 Gy daily for 5 days (Day 0 to Day 4) and dermatitis evaluation (every 7 days) until 28 days. ON101 cream was also applied on the radiative ulcer of tongue cancer patient following animal study.

Results:

In the ARD mice, ON101 showed significant therapeutic effects in the prevention and alleviation of radiation dermatitis compared with the placebo and steroid groups. In clinical case study, a 60-year-old male patient presented with a radiative ulcer on neck for 2 months. We start to apply ON101 cream for wound care after failure of other wound medications. The ulcer has been healed eventually after 10-week care with ON101 cream.

Conclusion:

This is the first time to demonstrate the prevention and alleviation of radiation dermatitis of ON101 in the ARD mice model. Furthermore, a real-world case also provides outstanding clinical outcome of ON101 for the RT treatment in radiative ulcer patients. From pre-clinical to real-world case, ON101 cream provides a promising alternative to radiation dermatitis patients and is worthy of further research.

Abstract N°: 2761**Regenerative Potential of Adipose-Derived Stem Cells in Wound Healing and Scar Management: A Narrative Review**

Milanie Milan¹, Jeffry Takla², Franshesca Hayek², Nancy Emmanuel^{*3}, Gregory Nicolas³, Juan Pablo Menendez³

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Introduction & Objectives: Chronic wounds are a challenge for dermatology and plastic surgery as they fail to progress through normal stages of wound healing due to constant inflammation, leading to an abnormal wound microenvironment and frequent relapse. Traditional therapies have only been moderately effective and stem cell therapy has emerged as a promising new treatment modality. ADSCs, which are pluripotent stem cells found in fat tissue, have regenerative capacity in multiple tissues and diseases which renders them a great candidate for skin wounds' healing and recovery. The objective of this research paper is to explore the role of adipose-derived stem cells (ADSCs) in wound healing.

Materials & Methods: In this review, we present an overview of the current knowledge and application of adipose derived stem cells in wound healing based on existing studies. A multistep search of the PubMed database has been performed to identify papers on ADSCs and their role in wound healing. Of the 151 articles initially identified, 73 articles focusing on regenerative strategies in wound healing were selected and, consequently, only those articles were initially assessed for eligibility. Then, 13 articles of these were excluded due to inability to access them. The remaining 60 articles, strictly regarding the application of ADSCs in wound healing, were reviewed and summarized to present the findings of our study.

Results: The mechanisms of ADSCs in wound healing are attributed to their paracrine signaling, immunomodulatory effects, promotion of angiogenesis, enhanced epithelialization and extracellular matrix formation. Pre-clinical studies have demonstrated the effectiveness of ADSCs, both in-vitro and in-vivo. Applications in plastic surgery have also shown potential benefits, along with a significant cost-effective margin; but safety concerns and ethical considerations, remain important challenges and limitations. Future directions for ADSCs in wound healing include advancements in research and potential improvements in patient outcomes.

Conclusion: ADSCs have a significant role in wound healing and show great potential as a therapeutic option. However, further research is needed to address the challenges and limitations of ADSC therapy and improve its effectiveness and safety.

Abstract N°: 3223
Vitreoscilla filiformis extract: a powerful regenerative active ingredient even in (photo)-polluted conditions

Liboutet Muriel^{*1}, Deshayes Nathalie², Boissout Florian², Moussay Mannon², Cheilian Stéphanie¹, Caron Johanna³, Peggy Sextius², Marrot Laurent², Audrey Gueniche¹

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Introduction & Objectives

Vitreoscilla filiformis, a gram-negative non-pathogenic bacterium, was isolated by Dr. Joseph Victor Jullien, from sodium sulfurized thermal waters in Pyrénées mountains. Since Roman times, the spring water of Molitg-les-bains, was known for its beneficial properties for the skin, especially for wound healing. *Vitreoscilla filiformis* extract (Vfe) has already demonstrated strong efficacy *in vitro* and in clinical trials with regard epidermal renewal, reinforcement of barrier function and stimulating endogenous antioxidant mediators. Epidermal differentiation is strongly impaired when skin is submitted to (photo)-pollution. So, we investigated the capacity of Vfe to impact the epidermal regeneration process and its pro-epithelializing effect, especially under (photo)-polluted conditions *in vitro* epithelialization and *in vivo* on skin quality.

Materials & Methods

Epidermal regeneration 3D model was used in basal condition or submitted to a systemic and chronical (photo)-pollution stress. Living dermal equivalents are ballasted by a metal ring. Keratinocytes are seeded around the ring, the centre remaining empty. After ring removal, Vfe was evaluated in culture media. The photo-stress UVA1 (7.4J/cm²) is performed thrice during the culture, as pollutant (BaP) is continuously added. Then, keratinocytes migration kinetics and histological analysis are performed.

Clinical and perceived performance of the formula has been evaluated on skin quality on 49 Caucasian females living in urban city (France), from 37 to 60 years old, including 100% sensitive skin.

Results

Using 3D *in vitro* model of re-epithelialization phase in the wound healing process submitted or not to a (photo)-pollutant stress, the study reveals a pro-epithelialization effect of Vfe. It was shown that in this model Vfe significantly accelerates migration speed process (up to 3 times at D17 in basal conditions, and up to 1.5 times in (photo)-polluted conditions). In addition, in (photo)-polluted skin Vfe it significantly improved skin quality benefits compared to stressed skin (increase of epidermal thickness in wound zone up to 2.7 times at D17).

The clinical study shows significant results at month that progress over the time for all parameters. After 2 months, all parameters are significantly improved: uneven skin tone (-13.6%), pores (-16%), roughness (-13.4%), redness (-10.7%), dull complexion (-17.6%). Interestingly, the same level of clinical performance is maintained after 7 days without product on pore roughness and dull complexion. These data were confirmed by self-assessment evaluations.

Conclusion

Vfe plays a powerful role in re-epithelialization, and improvement of skin quality, even under (photo)-polluted

conditions. Further, with our product which contains 5% of Vfe, all parameters on skin quality are improved on women living in polluted environment.

C1 - Internal use

C1 - Internal use

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Abstract N°: 3280
Intralesional sodium thiosulfate for the treatment of calciphylaxis

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Intralesional sodium thiosulfate for the treatment of calciphylaxis

Introduction: Calciphylaxis is a rare calcifying thrombotic vasculopathy responsible for tissue ischemia with painful and slow healing ulcers. This condition is highly morbid and its management is often difficult. Intravenous sodium thiosulfate (IVST) has shown favorable outcomes and is currently the first-line medical treatment for calciphylaxis, despite being an off-label medication. However, the use of IVST can be limited by its adverse effects.

Case Report: A 56-year-old Caucasian woman with history of stage V chronic kidney disease, hypertension, type 2 diabetes mellitus, hyperlipidemia, obesity and hypothyroidism, was admitted to the dermatology outpatient department due to painful ulcerations of both legs evolving for 6 months. She had a right kidney transplant 15 years ago, however requiring hemodialysis since 2018 due to chronic graft dysfunction. Her serum creatinine, phosphorus and parathyroid hormone (PTH) levels were elevated, 7.07 mg/dL (reference range, 0.51-0.95 mg/dL), 5.6 mg/dL (reference range, 2.7-4.5 mg/dL), 275.5 pg/mL (reference range, 10.0-65.0 pg/mL), respectively. Patient's calcium levels were normal with decreased cholecalciferol. Physical examination showed irregularly bordered ulcers of the right and left legs with areas of hypergranulation, fibrotic debris, and foci of purpura. Histological examination revealed calcification of adipocytes and small-sized vessels with non-inflammatory thrombotic vasculopathy in the lobules of adipose tissue, as well as interlobular septa. The patient was diagnosed with uremic calciphylaxis and IVST was started during dialysis three times a week. Three months after the beginning of IVST she had marked improvement, but nausea and vomiting were poorly controlled with anti-emetics and lead to its suspension with consequent worsening of the ulcers and pain (10, by visual analogue pain scale). We decided to start intralesional sodium thiosulfate (ITST), according to the following protocol: 1 to 3 mL of ITST in every ulcer, once or twice a week, in line with clinical response. At baseline, physical examination showed a circumferential 1 x 1 cm ulcer on the lower portion of the left leg and a 3 x 2.1 cm irregularly bordered ulcer with foci of purpura on the upper third of the left leg. After 3 weeks of treatment (4 injections of sodium thiosulfate), the patient reported a rapid decrease in pain (2, by visual analogue pain scale). During the next 2 months, 8 additional injections of ITST were administered, and the ulcers improved rapidly with almost complete re-epithelization. The patient tolerated each injection very well, with only complains of mild and transient local pain during injection.

Discussion: Sodium thiosulfate is a versatile inorganic salt hypothesized to serve as an antioxidant and vasodilator that prevents calcification of blood vessels. Improved outcomes of calciphylaxis have been demonstrated with IVST, however potential adverse effects include nausea, vomiting, metabolic acidosis, among others. Considering that the use of IVST can be limited by its adverse effects, ILST is a potentially effective alternative for patients who cannot tolerate systemic treatment as it was the case of our patient. This is in line with the literature (*Table 1*) and provides additional evidence that ILTS is a generally low-risk, highly targeted method delivery that can deeply penetrate the skin, while avoiding systemic distribution.



Table 1. Intralesional sodium thiosulfate for the treatment of calciphylaxis

Authors	Type of study	Population	Intervention	Results	Adverse effects/ Safety
Strazzula et al	Retrospective case review	n = 4 (all uremic CPX)	ILST (250 mg/mL) alone (n=3) ILST (250mg/mL) plus IVST (n=1)	All patients (n=4) had complete healing of ulcers: - Week 24: 4 injections of 1-4mL ILST (n=1) - Week 20: 3 injections of 1mL ILST (n=1) - Week 25: 16 injections of 1-3mL ILST (n=1) - Week 20: 3 injections of 2 mL ILST and 3 months of IVST (n=1) Pain improvement (n=4) reported: week 1 (n=1), week 4 (n=1), week 6 (n=1), not specified (n=1)	Transient discomfort during injection (n=4) localized during
Isoherranen et al	Observational prospective, open label, study	n = 4 -uremic CPX (n=1) -non-uremic calciphylaxis (n=3): CPX precipitated by primary hyperparathyroidism (n=1), osteoporosis treatment with teriparatide (n=1), initiation of anti-vitamin K for lung embolia (n=1)	ILST (250 mg/mL, 1,5 to 15 mL injection around ulcers, on active borders, once or twice a week and then at 1-2 weeks intervals. Concomitant treatment: - IVST (n=2), 25 g twice a week: IVST was withdrawn at initiation of ILST (n=1); IVST + ILST (n=1) - Prednisolone, 6 months (n=1)	- 75% of patients (n=3) healed completely/almost completely. - Failure in one patient (25%) with concomitant lower limb arteriopathy. - Clinical response visible after 2 weeks. - Mean sessions of ILST: 10.5 - Pain improvement after two series of injections. - Treatment time: 6 to 11 months	Transient discomfort during injection (n=4) localized during
Gabel et al	Observational retrospective study	n=33 (total of 104 unique injected lesions) -uremic CPX (n=18)	ILST alone (n=13) ILST + IVST (n=19) ILST alone versus ILST+IVST: - Volume of ILST injected per session, mL, mean: 3,5 vs 4,2, p=0,08 - Number of injection sessions per lesion, mean: 3.5 vs 3.0, p=0,47 - Number of lesions, mean: 2.2 vs 3.9, p=0.09	- 93.3% of lesions improved (median 14 days, 95% CI 8-21 days), 85.6% had resolution of activity (median 41 days, 95% CI 32-49 days) and 76.4% healed (median 222 days, 95% CI 204-266 days). - Patients treated with dual therapy had no difference in outcomes compared with ISTS alone. ILST alone versus ILST+IVST: - Number of injections before clinical improvement, mean: 1.3 vs 2.0, p= 0.048 - Decreased, n (%): 7 (53.8%) vs 10 (52.6%), p> 0,99: o Within 6 months: 7 (53.8%) vs 10 (52.6%),	Of 327 injections, 21% were discontinued because of pain. No other adverse effects were reported.

				<p>p > 0,70;</p> <ul style="list-style-type: none"> Within 12 months: 4 (30.8%) vs 7 (3.8%), p > 0,99. 	
Ossorio-Garcia et al	Case report	n=1 -uremic CPX	<p><u>Initial treatment:</u> 10 mL of ILST solution distributed over the edges of the ulcers monthly for 6 months.</p> <p><u>Maintenance therapy:</u> IVST after hemodialysis</p>	<p>Rapid relief of pain after the first treatment with ILST and total remission of all skin ulcers after 6 months.</p> <p>After 6 months of maintenance therapy, the injuries relapsed, but new remission was achieved after 3 administrations of ILST per month.</p>	Transient discomfort during injection localized
Zuhaili et al	Case report	n=1 -uremic CPX	<p>ILST: 4 to 5 mL once every two weeks</p> <p><i>Plus</i> Wound care with collagenase 250 units per gram ointment twice daily</p>	Week 9: complete resolution of the ulcer	NA

ILST – Intralesional sodium thiosulfate; IVST - Intravenous sodium thiosulfate; CPX – Calciphylaxis; CI – Confidence Interval;



Abstract N°: 3305**Calciophylaxis: an under-diagnosed fatal disease**

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Introduction & Objectives:

Calcific uremic arteriopathy (CUA), also known as calciophylaxis, is a primary disease of the deep dermis and hypodermis causing painful skin lesions that progress to ulceration. It has a poor prognosis with a risk of superinfection and septicemia. In Morocco, only ten cases have been reported to date. The aim of this report is to emphasize the role of the early management of an abdominal calciophylaxis independently of the histology findings.

Case report:

We report the case of a 56-year-old diabetic woman, hypertensive, treated for renal disease at the stage of hemodialysis complicated by hyperparathyroidism under calcimimetic treatment, who presented with a necrotic ulceration of the abdominal adipose panniculus evolving for three months. A biopsy revealed pyoderma gangrenosum. The patient was put on corticosteroids with surgical trimming and antibiotic therapy as well as LED therapy. The evolution was characterized by the progression and appearance of new ulcerations. Biology and imaging findings have suspected the diagnosis of calciophylaxis that was confirmed later on by histological analysis showing a monomorphic calcium deposit in the media of the hypodermis arterioles. Treatment consisted of a balanced phosphocalcic homeostasis and hyperbaric wound sessions to improve wound healing. Although it was well conducted, the extension of the ulceration and its superinfection led to the patient's death.

Discussion:

Described by Seyle Stress, calciophylaxis is a disease occurring more frequently in patients in end stage renal disease with a poor diagnosis. Clinically, it presents in its early stage as a reticular livedo due to alteration of skin's vascular supply, plaques and nodules evolve into painful necrotic ulcers that extend into the livedoid zones. It preferentially affects acral extremities and areas of thick adipose tissue prone to repeated trauma, as in our patient's case. Histological examination is the standard method of confirmation although its role in practice is widely debated. Treatment, which is not standardized, requires a multidisciplinary approach and is based on phosphocalcium homeostasis balanced by frequent hemodialysis sessions. The PTH levels must be maintained normal. A calcimimetic agent or a parathyroidectomy can be proposed. hyperbaric oxygenation may be considered for recalcitrant lesions. Pain management is essential; Fentanyl and Methadone as well as daily vitamin K would be beneficial. The complementary use of intravenous sodium thiosulfate, not available in Morocco, has proven its benefit.

Conclusion :

Overall, CUA is a serious under-diagnosed pathology in our Moroccan context; we consider that histological findings are not essential to initiate an appropriate treatment, when it comes to patients with end stage renal disease to prevent the extension of the lesions and their complications.



Abstract N°: 3441**Isotretinoin and Timing of Procedural Interventions: Clinical Implications and practical points**

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Introduction & Objectives:

- For decades, the notion that elective surgeries and cutaneous procedures should be postponed for 6-12 months in patients on, or recently administered with isotretinoin, has been widely accepted. However, some recent studies showed the need for a change in this regard.
- Due to discrepancies in the literature, clinicians remain unsure if they can implement invasive procedures on patients using isotretinoin without any risk of atypical healing process.
- Moreover, conflicting results of these studies has raised some issues about timing and protocol of receiving isotretinoin in patients undergoing various invasive procedures by plastic surgeons, ENT surgeons, dermatologists and ophthalmologists. .

Materials & Methods:

- Here, we reviewed the existing data in this regard through searching on PubMed, Google Scholar and Scopus. All of the relevant papers published in English, until October, 2022, which we could access to their full-texts, were included.

Results:

- We found some recommendations made by plastic surgeons, dermatologists, ENT surgeons, ophthalmologists, orthopedic surgeons and dentists regarding the correct timing of procedural interventions in patients on, or recently administered with isotretinoin and tried to summarize them to provide a practical guide for clinicians.

Conclusion:

- Physicians may discuss with patients regarding the known risk of abnormal wound healing in the setting of systemic isotretinoin treatment and suggest that, when possible, surgical procedures be postponed until the activity of the retinoids has time to subside. It is even more important regarding patients with darker skins to follow an even more strict guideline.
- Hair removal by both laser (of different types) and intense pulsed light, fractional nonablative lasers, q-switched lasers, superficial and medium-depth peels, microneedling, microdermabrasion and superficial excision by radio-frequency devices seem to be safe in patients recently used isotretinoin .
- Since skin biopsy needs to be performed for diagnosing serious disorders, its restriction because of isotretinoin usage is not recommended.
- Aggressive procedures such as dermabrasion, full-face ablative laser resurfacing, and deep peels would be safer to be postponed for the window period of 6 months after stopping the drug.

Abstract N°: 3731**Intralesional combination of bleomycin with triamcinolone acetonide for treatment of steroid-resistant keloids**Nikoo Mozafari¹, Faeghe Mollaabasi¹¹Shahid Beheshti University of Medical Sciences, dermatology , Tehran, Iran

Introduction & Objectives: Triamcinolone acetate (TAC) injections are considered as the first treatment option for keloids but quite high proportions of keloids either not responding to TAC or developing recurrence. Beneficial effects of intralesional bleomycine have been recently shown in the treatment of keloids and hypertrophic scars but its efficacy on the steroid-resistant keloids is not clear. The purpose of this study was to evaluate the efficacy of using combination of bleomycin (1u/cc) with triamcinolone acetonide (13.3mg/cc) for treatment of steroid-resistant keloids

Materials & Methods: Totally, 20 patients with steroid-resistant keloids (including 8 men and 12 women) with a mean age of 32 years old (age range of 18-50 years old) were enrolled in this study. Mixture of bleomycin (1u/cc) with triamcinolone acetonide (13.3mg/cc) was injected intralesionally in to the keloids every four weeks for a maximum of six cycles. The clinical improvement was evaluated using the Japan Scar Workshop scar scale (JSS) and the physician global assessment of flattening of the lesions. Side effects were also noted and recorded

Results: In all patients the total JSS scores decreased significantly after treatment compared to baseline ($P < 0.001$); 18 patients (90%) experienced more than 90 percent of flattening. In 2 patients degree of flattening was about 70 percent. Observed side effects were hypopigmentation(35.0%), telangiectasia(45.0%), ulceration (80.0%) , hyperpigmentation(60.0%), and secondary infection (30.0%).

Conclusion: Intralesional Bleomycin in combination with triamcinolone acetonide could be a promising alternative for keloids not responding to intralesional corticosteroids alone



Abstract N°: 3732**A rare case of an ulcer chronified by iatrogenic calcinosis cutis with good response to sodium thiosulfate occlusive dressings.**

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Introduction & Objectives:

Calcinosis Cutis is characterized by the calcium deposits within the skin. There are five known types: dystrophic, idiopathic, metastatic, iatrogenic and calciphylaxis. These types depend on where the calcium deposits are in the layers of the skin, and where it comes from.

In this case we present a non-common skin ulcer that's generated from physical trauma and became chronic by dermal calcium deposits. We decided to treat the patient with a preparation of topic sodium thiosulfate obtaining very good results.

Materials & Methods:

Case report and literature review.

Results:

A 85-year-old feminine patient with hypertension, osteoporosis, dyslipidemia and mixed arterial-venous insufficiency in lower limbs; nonsmoker and medicated with losartan, rosuvastatin, alendronate, vitamin D and calcium (these two, self-medicated in the last 15 years).

She suffered a sharp blunt trauma on the external face of his left leg, causing an ulcer of 5x5cm dimension of 1 month of evolution that was not responding to conventional moist dressings.

We made the histopathological diagnosis and discarded all the other possible origins of the deposits. Then suspended vitamin D and Calcium along with starting occlusive dressings with topic thiosulfate (10gr of sodium thiosulfate + 10ml of purified water + 100gr base cream) associated with short stretch bandage to reduce oedema treating all underlying causes of chronification.

The wound started healing from the first dressing. We indicated it 12 hours a day for a 2-month period and associated doxycycline 100mg/day to moderate the inflammation of the tissue. Once the wound was completely full of granulating tissue and the border started epithelizing, we switched thiosulfate dressings for essential fatty acids ointment dressings for an occlusive 24hs period and continued healing the wound using TIME clinical decision support tool for wounds until it healed 100% in 4 months, with minor intercurrents.

Conclusion:

There is no protocolized treatment for calcinosis cutis. There are few cases reported and the therapeutic is tailor made depending on the patient and the type. This is a case in which it is exhaustively demonstrated how important it is to apply adequate care to our wounds, making the right diagnosis first, treating the underlying causes that chronifies the wound and going through with the most appropriate advanced therapy products at the precise moment using TIME clinical decision support tool.



Abstract N°: 3752**Neuropathic ulcers due to sitting in a cross legged position for opium abuse : A case report**Farideh Beyki¹, Sahar Dadkhahfar¹, Zahra Sami¹¹Skin Research Center Shahid Beheshti university of Medical sciences, Tehran, Iran**Introduction & Objectives:****Materials & Methods:**

Results: Foot ulceration may have several etiologies such as vascular damage, trauma and neuropathy. In case of peripheral neuropathy the lack of sensation in the area may predispose patients to chronic ulceration due to unattended or unnoticed trauma. The plantar surface of pedal prominences is a common place for development of neuropathic ulcer because of pressure during ambulation . Since most of the patients with neuropathy may have underlying comorbidities, the proper diagnosis of underlying cause may be challenging. Herein we report a case of bilateral feet ulcer due to chronic sciatic neuropathy that occurred because of chronic bad posture for opium abuse causing direct pressure to the sciatic nerve.

A 45-year-old woman presented with a bilateral plantar ulceration since two weeks before the current presentation. She reported a history of burn injury as the result of unintentional contact to heater in an Elderly Care Center. She was admitted in the orthopedic department and the dermatology consultation was recommended for diagnosis of ulcer.

She complained of a numbness, bilateral foot drop and lower extremity weakness from a few months ago. She denied any specific complaint of back pain, and changes in bowel or bladder function. She did not have any constitutional symptoms.

The paresthesia and numbness had begun gradually during the past few months that was remained untreated until she developed burn injury of her feet. The past medical history was significant for chronic hypertension and latent tuberculosis. The patient had no medication allergies and she only took Losartan for hypertension and Isoniazid , Pyrazinamide , Ethambutol and Rifampin for latent TB.

In Dermatology consultation we found bilateral bizarre shape necrotic ulcer on the plantar surface of the pedal prominences and lateral border of the feet.

The patient underwent neurologic examination by a neurologist. The patient had normal cranial nerve and upper extremity function , however demonstrated reduced sensation in the lower extremities , no fasciculation , and mute plantar reflex.

Brain magnetic resonance imaging (MRI) was normal. Cervical and thoracolumbar MRI revealed disc bulging between c3-c4 , c4-c5 , c5-c6 , L2-L3 ,L3-L4 and L4-L5. . Further nerve conduction studies showed a severe bilateral axonal subacute to chronic sciatic neuropathy proximal to take-off to biceps femoris muscles with evidence of ongoing denervation and evidence of reinnervation through biceps femoris (long head) muscles and entrapment neuropathy should be considered.

Electromyographic examination of muscles in upper extremity was normal. The consultant neurologist suggested that the chronic sciatic neuropathy was associated with direct pressure to the nerve due to prolonged inappropriate position for abusing opium.

Bizzare shape necrotic ulcers on the pedal prominences of the foot due to environmental causes such as burn injury should lead doctors to neuropathic ulcers . the main cause of neuropathic ulcer in our patient was chronic compression due to her bad posture for abusing opium. It is important to consider lifestyle factors and habits when evaluating patients with neuropathic ulcer. early diagnosis and treatment can prevent further nerve damage and improve the patient`s quality of life. The patient was advised to stop using opium and started physical therapy and pain management, it is also important to educate the patient on proper posture.

Conclusion:

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Abstract N°: 3851**Phlegmon - a dermatological or surgical problem**

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Introduction: In routine medical practice, phlegmon ranks as the 28th most prevalent illness, affecting approximately 2.2% of patients. Although it is a relatively rare condition, its potential to pose a grave threat to patients' lives should not be underestimated. Existing literature suggests that one case of phlegmon occurs for every 100 infections. This particular infection is considered the most perilous among soft tissue infections, primarily targeting the dermis and subcutaneous tissue, although less frequently it can affect mucosal and muscular organs. Phlegmon exhibits poor demarcation within the soft tissues and is typically caused by pathogenic bacteria belonging to the streptococcus or staphylococci groups. The prognosis is consistently serious due to the rapid development of acute phlegmonous inflammation, which can lead to sepsis. Therefore, the management and treatment of patients with phlegmon hold significant importance. In this case report, we present a phlegmon case in a female patient resolved with multidisciplinary approach.

Case report: The patient, a 60-year-old female, sought medical examination due to the presence of three ulcers of varying sizes beneath the left axilla. The ulcers displayed distinct edges and a base consisting of fibrin and purulent patches with a noticeable foul odor. The infection had caused edema and erythema that extended to the shoulder, back, and chest. The patient's medical history revealed an artificially created initial wound that had subsequently become infected, accompanied by a fever of up to 38°C. The patient had initiated therapy with oral antibiotic the day before admission and was referred to our dermatology clinic for further investigation and treatment. Laboratory tests indicated leukocytosis with neutrophilia, thrombocytopenia, hyponatremia, and elevated levels of AST, creatinine, D-dimers, and CRP. A microbiological swab isolated *Staphylococcus aureus*. The treatment plan involved parenteral administration of antibiotics, analgesics, antimycotics, antithrombotics, gastroprotective agents, and rehydration therapy. A plastic surgeon performed local excision, dressing, bandaging, and application of antibiotic spray every two days. During hospitalization, the patient underwent additional examinations by a psychiatrist and a cardiologist who prescribed the necessary ongoing therapy for the patient's preexisting conditions. Significant improvement and wound healing were observed after two weeks of appropriate treatment. Following discharge from the clinic, the patient received home therapy, with referrals for bandage dressings and regular check-ups at the Clinic for Plastic and Reconstructive Surgery and the Institute of Transfusiology to monitor hemostasis, D-dimers, and continuation of therapy.

Discussion: The dermatologist plays a significant role in diagnosing and managing soft tissue infections such as phlegmon until the point where surgical intervention by a plastic surgeon becomes necessary. The primary objective in treating patients with phlegmon is to enhance and reinforce the body's defense mechanisms during infection through a combination of medical, surgical, and physical interventions. No single treatment approach alone is effective; therefore, a comprehensive strategy combining multiple approaches is imperative.

Abstract N°: 3923
Comparing the effects of silencing RNA dissolving microneedle patch versus silicone sheets in reducing post-surgical scars – a preliminary analysis

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Introduction & Objectives:

A common complication of wounds is exuberant growth of fibrotic scar tissue, resulting in hypertrophic scars and/or keloids. Often, the symptoms and cosmetic deformation lead to a high physical and psychological burden on patients¹. One of the pathophysiology behind wound fibrosis is excessive fibroblast activity from the expression of secreted protein acidic and cysteine-rich (SPARC) gene. SPARC expression was found to be upregulated in keloid scar tissues². In-vitro studies have shown that SPARC overexpression causes cell proliferation, migration, collagen production and extracellular matrix synthesis in fibroblasts, and SPARC inhibition was shown to attenuate fibrosis in in vitro and in vivo studies³. We have designed microneedle patches containing silencing RNA (siRNA) targeted against SPARC gene expression, to reduce the amount of scar formation.

We aim to compare the differences in the volume of post-surgical scars between daily application of siRNA-embedded dissolving microneedle patches and silicone sheets. Our primary hypothesis is that the half of the wound treated with siRNA microneedle patches will have reduced scar formation, as reflected by smaller 3D scar volume, as compared to the half treated with silicone sheets.

Materials & Methods:

This was an 8-week, single centre single-blinded intra-individually controlled study that enrolled patients aged 21-65 years with a 2 weeks-old post-operative wound. 19 patients were recruited for the study, of which 2 dropped out due to non-compliance to the patches. The wounds were split into 2 halves. Each half of the scar was randomly assigned to either the microneedle patch or silicone sheet, and vice versa for the other half. Assessment consisted of a high resolution three-dimensional (3D) imaging that was done for each half of the scar.

Results:

Baseline characteristics of participants are described in Table 1. There was an overall reduction in the 3D volume of all scars on day 60. Scars treated with microneedle patches had a mean percentage reduction of 79.7% (SD 18.0) while those treated with silicone sheets had a mean percentage reduction of 72.9% (SD 25.8) (Table 2). Comparing the two modalities, there was a statistically significant difference in the percentage reduction of 3D volumes for scars treated with microneedle patches (mean difference = 6.81%, $p = 0.045$, 95% CI: 0.18, 13.44).

There were no adverse effects reports by the participants throughout the study and 76.46% of participants preferred microneedle patches to silicone sheets.

Conclusion:

Our results show that there was a significant decrease in 3D volumes of scars when they were treated with microneedle patches containing silencing RNA targeting SPARC. The preliminary result for this study is promising, showcasing the potential of the microneedle patches in the preventing excessive scar formation, which occurs in hypertrophic scars and keloids. A greater sample size at the end of the study will allow us to have more robust

analysis of the effectiveness of the microneedle patches.

Tables and Figures

Table 1. Demographics

Age (mean, SD)	44.2 (15.2)
Race	
Chinese	16 (94.1%)
Malay	1 (5.88%)
Gender	
Female	13 (76.47%)
Male	4 (23.53%)
Medical History	
Hypertension	1 (5.88%)
Hyperlipidemia	1 (5.88%)
Diabetes Mellitus	1 (5.88%)
None	16 (94.12%)
Location of scar	
Head/neck	10 (58.82%)
Trunk	3 (17.65%)
Upper Limb	2 (11.76%)
Lower Limb	2 (11.76%)
All numbers are reported in no. (%), unless otherwise specified	

Table 2. 3-dimensional volume analysis of scars treated with microneedles and silicone sheet

Table 2. 3-dimensional volume analysis of scars treated with microneedles and silicone sheet

3-dimensional volume of scars (mm3)				
	Day 0	Day 30	Day 60	
Microneedle patches	60.3 (40.7)	28.2 (24.9)	11.7 (13.3)	
Silicone sheet	62.4 (50.2)	27.7 (30.1)	12.6 (15.2)	
Reduction in volume from Day 0 (mm3)				
	Microneedle patches	Silicone sheet		
Day 30	32.1 (26.0)	34.7 (37.8)		
Day 60	50.5 (35.2)	51.6 (44.8)		
Percentage reduction in volume from Day 0 (%)				
	Microneedle patches	Silicone sheet	Mean difference	P-value
Day 30	53.1 (28.8)	49.1 (33.4)	3.98	0.408 (95% CI: - 5.94, 13.90)
Day 60	79.7 (18.0)	72.94 (25.88)	6.81	0.045 (95% CI: 0.18, 13.44)
All numbers are reported in mean (SD), unless otherwise specified				



Abstract N°: 4206**bimekizumab in recalcitrant pyoderma gangrenosum**

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Introduction & Objectives:

Pyoderma gangrenosum (PG) is a neutrophilic dermatosis of unknown etiology characterized by the presence of an inflammatory phase and a noninflammatory phase. Treatment of PG includes local and systemic therapies, although multirefractory PG cases represent a common clinical challenge. New insights into the pathogenesis of the disease, particularly the role of the IL17/IL23 axis, may lead to the identification of new molecular targets for the treatment of refractory forms of PG.

The IL -17 family includes six structurally similar cytokines (from IL -17A to IL17F), and its upregulation would be able to influence the physiological healing process. IL -17 induces activation of a signaling pathway that leads to neutrophil recruitment and release of cytokines by activated neutrophils. Monoclonal antibodies (mAbs) that selectively target IL -17, such as bimekizumab (anti IL-17A-F), may be a useful therapeutic option for this multifactorial disease.

Materials & Methods:

The cases of two patients with multirefractory PG under systemic treatment with off-label use of bimekizumab and local management in accordance with PG-TIME are reported. The patients were followed for 24 and 12 weeks, respectively.

The first case was a 70-year-old woman admitted to our clinic in February 2022 with a history of chronic lymphatic leukemia (CLL). The patient had lesions on her right foot, which were clinically diagnosed as PG. The patient was unsuccessfully treated with oral corticosteroids, guselkumab, adalimumab, cyclophosphamide, and baricitinib. In December 2023, off-label therapy with bimekizumab 320 mg (administered by 2 subcutaneous injections of 160 mg each) was started every other week.

The second case is a 48-year-old patient diagnosed with PG and sterile arthritis since 2004. The patient had been previously treated with topical and systemic corticosteroids, cyclosporine, intravenous administration of infliximab, and subcutaneous administration of adalimumab. In February 2023, off-label therapy was started with bimekizumab 320 mg at weeks 0, 3, 6, 9 and 12.

We assessed patients' ulcers using the wound bed score (WBS) and the NRS scale for pain quantification.

Results:

For the first patient the wound had adherent fibrinous tissue, inflammatory margins, evidence of critical bacterial colonization, and tendon exposure with a WBS=6 and NRS pain=9. After 8 weeks there was improvement in pain and similar wound severity (WBS 8; NRS pain 6), and after 16 weeks the patient progressed to the noninflammatory phase (WBS=13; NRS pain =1).

The second patient rapidly moved to a noninflammatory phase (WBS at T0=8, NRS at T0=6 vs WBS at W12=14, NRS at W12=2).

Conclusion:

These two cases demonstrate how bimekizumab could represent a promising strategy for difficult-to-treat PGs. Targeting IL17A/F could be a viable option to enable the switch from non inflammatory to the non inflammatory phase.

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Abstract N°: 4285**Ulcers associated to the overuse of an antihemorrhoidal ointment containing ephedrine and benzocaine**

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Introduction & Objectives:

When studying the potential causes of perianal ulceration one must always consider the possibility of existing topical agents.

Case report /Materials & Methods:

An 82-year old woman with a history of type II diabetes, grade III internal hemorrhoids and severe urine incontinence, was referred with a 6-month history of painful anogenital lesions. Physical examination revealed multiple ulcers sitting on well demarcated erythematodesquamative plaques. Treatment with topical measures offered very poor improvement of the existing lesions and over the course of the following weeks, the patient developed ulcers on the submamary and infraabdominal folds sitting on otherwise healthy-looking skin, as well as erythematodesquamative plaques on the lower back and thighs.

After a thorough diagnostic process, a directed anamnesis led to the patient admitting on demand use of Hemoal Forte®, an antihemorrhoidal ointment containing ephedrine and benzocaine. Patch tests were performed using the baseline series of the Grupo Español en Investigación de Dermatitis de Contacto y Alergia Cutánea, ulcer leg series, local anaesthetics series and steroid series, obtaining positive results for Benzocaine 5%, Hemoal Forte®, Methylprednisolone Aceponate and Budesonide. On stopping the antihemorrhoidal ointment, there was a complete resolution of all the aforementioned lesions.

Discussion / Results:

Recently, several cases of perianal ulceration due to an antihemorrhoidal ointment (ANSO®) have been reported mimicking the previously described cases associated to topical steroids, systemic nicorandil and suppositories containing vasoconstrictive agents.

Hemoal Forte® is a prescription-free antihemorrhoidal ointment composed of benzocaine and ephedrine, a sympathomimetic agent with a vasoconstrictive effect that could explain the onset of ischemic cutaneous ulcers, especially when overused as in the present case. The patient's sporadic use of topical steroids might have also contributed to said vasoconstriction. Additionally, persistent use of topical preparations on a disrupted cutaneous barrier was probably the cause for the patient's contact-sensitization, which can be interpreted as a collateral and aggravating factor.

Conclusion:

We present the first case of cutaneous ulcers associated to Hemoal Forte®. A directed anamnesis is frequently the key in any diagnostic process. Moreover, among all the complementary tests to study chronic cutaneous ulcers, one must always consider patch tests as a fundamental diagnostic tool.



Abstract N°: 4461**Acral ulcerations: an unusual presentation of Carpal Tunnel Syndrome**

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Introduction & Objectives: Carpal tunnel syndrome (CTS) is caused by the compression of the median nerve between the transverse carpal ligament and carpal bones. Skin symptoms are unusual in CTS, developing only in severe forms of the disease, and presenting as oedema, bullae, erythema, nail changes and/or indolent ulcerations of both the fingertips and the subungual regions. Two cases of elderly patients presenting persistent acral ulcerations associated with underlying bone involvement as a cutaneous manifestation of CTS are reported.

Patients & Methods: Patient 1- A 92 year-old woman with history of carpal tunnel release ten years ago, who consulted for painless subungual ulcers on the second and third fingers of the right hand that had appeared 1 year before. Physical examination also showed a short distant phalanx on the second right finger. A biopsy disclosed epidermal ulceration changes with mild chronic inflammation without signs of vasculitis or thrombosis. Rheumatoid factor, cryoglobulin, cold agglutinin and autoantibody tests were normal. Capillaroscopy showed unspecific changes. Hand X-rays were performed showing bone resorption in the distal phalanx of the right index finger. An electroneuromyography (ENG) disclosed severe median nerve damage. Based on these findings the diagnosis of ulcerative variant of CTS was made and the patient was referred to the traumatologist for a newly surgical decompression of the median nerve. Patient 2- A 93 year-old woman with history of Sézary syndrome who presented with recurrent painless ulcers and paraesthesia in the thumb, index and middle fingers of the right hand. She also referred discrete hypoesthesia in these fingers and thenar muscle atrophy. Capillaroscopy and blood test did not show abnormalities. A biopsy specimen showed superficial epidermal necrosis. An ENG was performed showing severe sensorimotor axonal neuropathy of the both median nerves. The patient was also referred to the traumatologist but she finally refused surgical treatment.

Results: Carpal tunnel syndrome is the most frequent type of entrapment neuropathy, being more prevalent in women than in men. The compression of the median nerve leads to an elevated pressure in the carpal tunnel, which produces ischaemia of the median nerve, resulting in pain, paraesthesia, weakness and atrophy. Cutaneous involvement in CTS is rare and severe forms of the disease may manifest as localized uni or bilateral vesiculobullous and ulcerative-mutilating acral lesions that may develop even in patients without a previous diagnosis of CTS. Clinically the lesions are characteristically painless ulcerations often associated with acroosteolysis involving the second and third fingers. The differential diagnosis should include a heterogeneous group of disorders manifested as persistent acral ulcers and recurrent vesiculo-bullous lesions including ischemic disorders, connective tissue diseases, vascular pathologies, autonomic neuropathies, external repeated trauma and hematologic and metabolic diseases.

Conclusion: We describe two cases of recurrent vesiculobullous lesions and persistent acral ulcers as a cutaneous manifestation of CTS. The peculiar and exclusive distribution involving the second and third fingers may lead to suspect the diagnosis. An increased awareness of particular clinical picture seems important in order to establish an early diagnosis that may permit to prevent potential bone involvement and mutilating deformities.

Abstract N°: 4547
Efficacy of a ceramide-containing ointment in a laser-induced wound healing model

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Introduction & Objectives:

Dry skin lacks essential intercellular lipids, particularly ceramides. Overly dry skin can form cracks and superficial wounds within the stratum corneum causing it to become more permeable to external aggressors and less effective at reducing transepidermal water loss (TEWL). Emollients, humectants and occlusives are common ingredients found in epidermal repair products. The mechanism of occlusives is particularly beneficial for damaged skin by creating a waterproof barrier on the skin's surface without impeding barrier recovery. Additionally, topically applied ceramides are proven to be beneficial for disrupted skin barriers. In this double-blind study, a ceramide-containing occlusive ointment was assessed to evaluate its ability to accelerate wound healing speed and quality versus an emollient reference cream.

Materials & Methods:

A new technique of using an ablative laser (Sciton) to induce consistent, superficial wounds at 150 µm was investigated on the volar forearm of 24 male and female subjects (25-45 years old) of Fitzpatrick types II or III. All subjects applied the test ceramide-containing healing ointment or an emollient reference cream twice daily for 18 days. One site was left untreated. Hydration (Corneometer) was assessed at baseline and at days 1, 3, 7, 11, and 18. Erythema, epithelial confluence, scabbing/crusting, smoothness, and general wound appearance were clinically scored by the investigator at baseline post-laser and at all timepoints. Subjects assessed their wounds for burning, stinging, itching tightness, tingling, pain and general wound appearance at baseline post product application and at all timepoints.

Results:

The ceramide-containing occlusive ointment consistently showed better general wound appearance from day 1-7 with significant improvement ($p < 0.05$) on days 1 and 7 compared to the untreated site. Compared to the untreated control and emollient reference cream, the ceramide-containing occlusive ointment displayed significantly ($p < 0.05$) less crusting and scabbing on days 1 and 7 versus the untreated control and day 3 versus both the untreated control and emollient reference cream. Generally, both the ceramide-containing occlusive ointment and emollient reference cream had little to no impact on erythema during healing. The ceramide-containing occlusive ointment also resulted in superior hydration ($p < 0.05$) compared to both the emollient reference cream (days 1, 3, 11) and untreated control at days 1, 3, 7 and 11.

Conclusion:

The ceramide-containing occlusive ointment accelerated wound healing versus the untreated control with significantly more epithelial confluence on days 3 and 7 compared the untreated site. Laser induced wound healing model proved to be an effective method to demonstrate the efficacy of the topical products in promoting skin repair and improving skin quality.



Abstract N°: 4601**Leg ulcers in Prolidase Deficiency: Successful treatment with oral proline**

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Introduction & Objectives:

Prolidase deficiency is a rare autosomal recessive hereditary disease characterized by massive urinary excretion of proline, which constitutes more than 90% of endogenous proteins such as collagen. We report a case of PD treated effectively with oral proline supplementation

Observation :

A 22-year-old patient, suffering from prolidase deficiency associated with lupus since the age of 7, was clinically retained in the face of facial dysmorphism with hypertelorism, prognatism and enlargement of the base of the nose, in addition to chronic leg ulcers, recurrent skin infections, epidermal atrophy and telangiectasias. The diagnosis of PD was retained in front of a high rate of urinary hydroxyproline (.....). The patient was initially put on topical treatment for ulcers, oral corticosteroid therapy and APS for her lupus. The evolution was marked by the persistence of ulcers with repeated infections. A new treatment based on oral proline was started with a test dose of 500 mg then progressive increase in the dose every 2 months up to a dose of 2 g per day. The evolution was noted by clinical photos and fortnightly measurements, it was marked by a clear improvement of cutaneous ulcers with drying and shortening of the diameter of the ulcers.

Discussion :

There is no definitive cure for prolidase deficiency although several treatments have been evaluated with varying degrees of success

Our patient was treated with local antiseptics, daily dressings with healing creams and antibiotics as well as oral corticosteroid therapy without any improvement for 12 years.

Faced with this disappointing development, the new therapy was started based on oral L-Proline.

Topical proline has been reported in the literature as an alternative therapy of skin ulcers related to PD disease with moderate efficacy. In our patient, the multiple and digging character of the ulcers as well as the unavailability of local proline argues our choice of oral supplementation.

Abstract N°: 4657**Martorell ulcer – an uncommon manifestation of a prevalent disease**

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Introduction & Objectives:**Materials & Methods:****Results:**

Martorell ulcer is a rare and underdiagnosed cause of leg ulcer, with an estimated prevalence of 5%. The etiopathogenesis involves a severe, uncontrolled, and long-standing hypertension, that leads to subcutaneous ischemic arteriolosclerosis.

We describe a case of a 53-year-old male, with a past medical history of hypertension with poor treatment adherence and leg ulcers with 6 months of evolution. The patient complained of severe local pain, increasing with decubitus. Physical examination revealed a blood pressure of 240/130 mmHg, palpable peripheral pulses and 3 superficial ulcers, with a regular border, base covered with fibrin and necrotic areas, in the lateral-posterior aspect of the lower legs. Doppler ultrasonography of the lower limbs revealed vascular permeability, valvular competence and arterial triphasic flux. There were no analytical findings suggestive of thrombophilia, autoimmune diseases or diabetes mellitus. Left ventricular hypertrophy was identified, without other hypertensive target organ damage. Cutaneous biopsy revealed signs of small vessel occlusive vasculopathy. Thus, the clinical and histopathological data lead to the diagnosis of Martorell ulcer. Combined anti-hypertensive treatment and local wound care (surgical debridement, enzyme alginogel and silver-containing hidrofiber dressing) were initiated, with clinical improvement.

Martorell ulcer typically develops on the lateral-posterior aspect of the lower legs. It is usually superficial, with a purplish-red border and a necrotic base. The severe associated pain, increasing with decubitus, is a distinctive feature. The diagnosis is based on the clinical manifestations and histopathological features. The subcutaneous ischemic arteriolosclerosis typically manifests with media hypertrophy and intima hyperplasia of the arterioles. However, obliterating lesions of small vessels have also been described. Hypertensive target organ damage and absence of large vessel involvement also supports the diagnosis.

Conclusion:

Abstract N°: 4666
A multilobulated nodule of a cesarean section scar : Think of cutaneous endometriosis

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Introduction & Objectives:

Endometriosis is a condition where endometrial-like tissues grow outside the uterus, causing bleeding and thickening with each menstrual cycle. It affects 10-15% of women of childbearing age. Abdominal wall endometriosis is more common in women who have had previous cesarean sections, as the transplantation and implantation of endometrial tissue during the procedure can promote scar endometriosis. Due to its varied presentation, scar endometriosis often leads to a deferred diagnosis and unnecessary referrals. We report a case of cutaneous endometriosis (CE) one year after a cesarean section scar.

Materials & Methods:

We report the rare case of a 35-year-old woman seen in consultation for a painful lower abdominal multilobular nodule with skin discolorations at and around the abdominal incision site. She was a healthy-looking woman who underwent two natural deliveries then had an emergency cesarean section 3 years ago for preterm delivery with breech presentation. After an unremarkable postpartum follow-up, she started having a painful growing nodule on the left side of the incision 2 years after the surgery. She indicated that the pain followed a cyclic pattern every month for the previous few months, often accompanied by red-colored fluid coming from the incision site. Physical examination revealed a non-mobile, painful multilobular moderately pigmented nodule, of approximately 2x3 cm at the incision's left lateral border. Dermoscopy showed reddish areas separated by fibrous septa. A color Doppler ultrasound evaluation revealed the presence of an irregular hypoechoic solid mass measuring 2x1.3x2.2 cm with internal vascularity. An excision was ordered confirming the diagnosis of CE. The patient was referred to gynecology to look for a pelvic location of her endometriosis.

Results:

Endometriosis is a chronic condition where endometrial tissue is found outside of the uterus, commonly in the ovaries or tubes, but it can be located anywhere in the body. When endometriotic implants are found in the skin, they are referred to as CE. There are two types: primary CE, which occurs without a prior history, and secondary CE, which occurs after surgical procedures and is often located in the resulting scars. It typically presents as a non-malignant abdominal mass, recurring pain during menstruation, and a history of abdominal surgery. The level of pain and size of the scar endometriosis can vary with the menstrual cycle, and symptoms usually appear 3.7 to 4.5 years after cesarean section surgery. Risk factors include a low body mass index, nulliparity, early menarche, late menopause, and a family history of endometriosis. Iatrogenic implantation of endometrial tissue during surgery is a possible mechanism, as suggested by the presented case. Diagnosing CE can be challenging, and a range of other conditions must be ruled out, such as infections, abscesses, keloids, tumors, and lymphadenopathy. Preoperative diagnosis requires a thorough history and examination, along with conventional imaging, and excision is necessary for a conclusive diagnosis.

Conclusion:

While ultrasound, medical history, and examination can aid in the diagnosis of CE, the definitive diagnosis is only possible through pathology and surgical excision is a prompt and effective treatment. The growing rate of

cesarean sections has also increased the likelihood of CE being discovered, emphasizing the need for education to increase awareness among obstetricians and dermatologists.

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Abstract N°: 4717
Post-traumatic recurrent idiopathic pyoderma gangrenosum: a case report

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Introduction & Objectives:

Pyoderma gangrenosum (PG) is a rare, neutrophilic and ulcerative skin disease. Its estimated incidence ranges from 3 to 10 cases per million, predominantly affecting women, with two peak incidences between 40 and 60 years of age. The classic subtype is the most common, characterized by a painful and inflammatory lesion in the form of a papule, which evolves into an irregularly shaped, rapidly growing ulcer with erythematous or violaceous borders and a serpiginous appearance. It occurs in previously unaffected areas or in traumatized regions, commonly found on the lower extremities and trunk. In young patients, it is associated with inflammatory bowel disease, while in older adults, it is linked to rheumatoid arthritis. The ulcers usually resolve, leaving behind characteristic atrophic scars with a cribriform pattern.

Materials & Methods:

Post-traumatic recurrent idiopathic pyoderma gangrenosum: a case report

Results:

We present the case of a 72-year-old female patient residing in Mexico. The patient has a history of DM 2 and hypertension. The reason for the current consultation is the presence of a dermatosis located on the left knee, consisting of an ulcer with elevated, violaceous, punched-out borders, a granulomatous and purulent-looking base, measuring 8x7 cm, covered by multiple openings of various sizes, most measuring 1-2 mm. The ulcer is painful and has an acute evolution, appearing after a fall from her own height. Furthermore, there are three cribriform and atrophic scars resembling cigarette paper located on the posterior aspect of both thighs and the anterior aspect of the left thigh, such scars were originated from ulcers of unknown origin. A skin biopsy revealed an epidermis with para-keratosis, acanthosis, spongiosis, and focal exocytosis. In the dermis, dilated blood vessels were observed, surrounded by abundant inflammatory infiltrate mainly composed of neutrophils, as well as a few eosinophils and lymphocytes extending into the subcutaneous tissue. Based on the clinical and histopathological findings, and in the absence of associated pathologies, the diagnosis of Idiopathic Pyoderma Gangrenosum was concluded. Treatment was initiated with prednisone at a dose of 60 mg/day (1 mg/kg) for 3 weeks, having an evolution towards improvement. The corresponding tapering was performed once the ulcer was no longer present, although a cribriform and atrophic scar secondary to the ulcer was observed.

Conclusion:

PG is a rare and rapidly progressing disease. It is associated with the phenomenon of pathergy in up to 20% of cases, which is the appearance of new lesions following trauma. The first-line treatment involves ulcer management, systemic corticosteroids, and cyclosporine and biologic agents being the most commonly used second-line option. It is crucial to perform a comprehensive evaluation of the patient, thoroughly examine all of her skin, recognize the main characteristics and different presentations, and inquire about associated pathologies. This will allow for early diagnosis and timely initiation of treatment, which will also help preventing disease

progression, potential complications, and improving the patient's quality of life.

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Abstract N°: 4880**TNE INFLAMMATORY CHARACTERISTICS OF KELOIDS WITH DIFFERENT DISEASE DURATION**Huinan Suo*¹¹Wuhan Union Hospital, Dermatology, Wuhan, China**Introduction & Objectives:**

Keloid is an abnormal proliferation of connective tissue resulting in large amounts of collagen fibers deposited in the dermis. Evidence suggests that the inflammatory response plays an important role in the pathogenesis of keloids. However, a comparative characterization of the inflammatory profiles in keloids with different disease duration is lacking. We sought to define inflammatory characteristics in early keloids (disease duration ≤ 3 years) and late keloids (disease duration > 3 years).

Materials & Methods:

63 keloid patients with different disease duration were studied. We performed RNA sequencing, real-time PCR (RT-PCR) and immunofluorescence to analyze TH pathway-related markers in skin biopsy samples. Flow-encoded microsphere microarray was used to measure the levels of TH1, TH2, TH17 cell-related cytokines in blood. The correlation between the expression of TH-related markers in skin biopsy tissues/peripheral blood and clinical disease duration was analyzed.

Results:

There was a significant difference in gene expression profiles between early keloids (disease duration ≤ 3 years) and late keloids (disease duration > 3 years). Early keloids showed increased expression of TH1, TH2, TH17 and TH22 related gene sets compared to late keloids. Among them, TH1-related cytokines (IFN- γ and CXCR3, [$P < 0.05$]) and TH17-related cytokines (IL-17A and IL-17F, [$P < 0.05$]) were significantly increased in early keloids. Immunofluorescence results indicated increased TH1, TH2, and TH17 cell populations in keloid tissue with 1-year duration. With disease progression, a significantly lower frequency of TH1 and TH17 cell populations was observed in keloid tissue. However, the number of TH2 cells decreased slowly, and TH2 polarization was clearly detected in keloid tissues with 10-year duration. Positive correlations were found between the levels of TH2-related cytokines, IL-4 ($r=0.60$; $P<0.05$), IL-10 ($r=0.67$; $P<0.01$), and IL-13 ($r=0.70$; $P<0.05$), and disease duration. Consistently, the level of serum IL-4 was significantly correlated with clinical disease duration ($r=0.36$; $P<0.05$).

Conclusion:

The inflammatory characteristics of early keloid are significantly different from those of late keloid. Early keloid is characterized by a skewed TH1/TH2/TH17 axis, whereas late keloid is relatively TH2 polarized. These data provide an important basis for studying the inflammatory response in keloids with different disease duration. Future targeted therapies should delineate the relative contribution of each TH axis to disease development.

Abstract N°: 4979**Antibiotic resistance phenotypes of bacterial strains isolated from skin lesions**

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Introduction & Objectives:

The phenomenon of antibiotic resistance is constantly increasing at a global level. Skin lesions are commonly found in medical practice and represent an important risk factor in the development of bacterial infections, especially in the presence of comorbidities or associated immunosuppression.

We conducted a detailed analysis of antibiotic resistance phenotypes of bacterial strains isolated from various skin lesions and assessed the evolution of patients diagnosed with various infectious or superinfected skin pathologies.

The objectives of our study were to identify the demographic data of the patients admitted during the study period, the frequency of hospital admissions and distribution according to diagnosis, type of hospitalization, detailed analysis of the bacteriological and mycological examination with the identification of bacterial and fungal strains.

Materials & Methods:

We performed an observational retrospective study on a group of patients admitted to the hospital between January 2015 and August 2020. The group consisted of 676 patients, who were hospitalized in a total number of 1467 times. The patients' data were obtained from the electronic archive of the hospital. The observation sheets and the paraclinical investigations were analyzed, especially the results of the bacteriological examinations that were performed during that period.

411 bacteriological examinations of the samples obtained from the skin lesions were performed (abscesses, pustules, boils, fistulas, superinfected venous and arterial ulcers).

Results:

We identified a total of 375 strains, from which 114 (30.40%) were resistant to at least one tested antimicrobial agent. There were identified 70 (61.40%) Gram-positive microorganisms (of which 47 were represented by *Staphylococcus aureus*) and 44 strains (38.60%) Gram-negative. 160 strains (40.26%) of the total 375 were susceptible to all tested antimicrobial agents.

The most common Gram-positive strains isolated from skin lesions were represented by *Staphylococcus aureus*, with a generally increasing antibiotic resistance. MRSA strains (methicillin resistant *Staphylococcus aureus*) were identified in 6.66% of all isolated strains with a high degree of resistance (84%) to macrolides (erythromycin) and lincosamides (clindamycin). Gram-negative strains were mainly represented by *Pseudomonas aeruginosa*, which showed a low level of resistance to the classes of tested antibiotics.

Conclusion:

In conclusion, the results of our study support the importance of long-term antibiotic sensitivity monitoring, that allows the epidemiological control of infections in skin lesions.

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Abstract N°: 4999
High-resolution imaging to demonstrate efficacy of skin repair product containing *Aquaphilus Dolomia* ferment extract

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High-resolution imaging to demonstrate efficacy of skin repair product containing *Aquaphilus Dolomia* ferment extract

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Introduction & Objectives:

Wound healing process is a well-orchestrated series of biological events such as haemostasis, inflammation, proliferation and extracellular matrix remodelling. Improving normal wound healing to prevent scar formation represents a major cosmetic issue. The aim of the present study was to demonstrate and visualize the efficacy of a dermo-cosmetic formulation containing *Aquaphilus Dolomia* ferment extract on wound healing.

Materials & Methods:

For that purpose, we developed a punch-to-punch model on human skin explants using 2 mm diameter biopsies to remove epidermis, on a 14 mm diameter biopsy, to mimic skin wound. Wounds, on four donors, have been topically treated at the optimal time with the studied product in comparison with a positive (wound healing product) and a negative (non-wound healing product) controls. Wound closures were quantified by a high-resolution scanning confocal microscope after labelling the cell membrane and nuclei to visualize three-dimensional (3D) re-epithelialization.

Results:

The ready-reproducible 3D *ex vivo* human wound healing model allowed us to visualize and quantify, in an original way, wound closure by an epidermis regeneration staining. A kinetics was done, from 16 to 48 hours) to define the most suitable time point to evaluate skin repair product effect. The time point of 40 hours seemed to be the best to quantify and visualize wound closure. Indeed, the 40 hour-time point gave the best compromise, not fully closed but closed enough to quantify differences in efficacy between different types of products. The positive control showed a wound closure of 70.87% +/- 7.27 whereas the negative control of 13.5% +/- 2.4. The dermo-cosmetic formulation studied, induced a wound closure of 60.07 % +/- 3.26 in 40 hours with no significant difference compared to the positive control and highly significant compared to the non-healing product.

Another advantage of this model is to make possible the study the effects of the product on the remodelling, occurring during wound healing process. Indeed, a two-photon multispectral imaging would allow to visualize the fibrillin network alteration, and collagens and elastin reorientation.

Conclusion:

These data allow us to demonstrate, with an original high-resolution imaging approach, the efficacy of a dermo-cosmetic product containing *Aquaphilus Dolomiae* ferment extract on epidermis regeneration, promoting wound healing.

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Abstract N°: 5003**Platelet Rich Plasma as an Adjunctive Wound Care Therapy for Ulcerative Pyoderma Gangrenosum: A case report**

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Introduction & Objectives:

Wound treatment is an important thing for pyoderma gangrenosum (PG). The goal of wound treatment is to make optimal healing environment. Systemic corticosteroid and any immunosuppressive agents are the first line therapy. Using Platelet Rich Plasma (PRP) for wound management in PG is an alternative therapy for patients. PRP is an autologous preparation of platelets in concentrated plasma. It has more than 20 growth factors in it and it can enhance wound healing by promoting healing process. They are platelet-derived growth factor (PDGF), epidermal growth factor (EGF), transforming growth factor (TGF), vascular endothelial growth factor (VEGF), insulin like growth factor (IGF). This case want to analyse the effectiveness of PRP in ulcerative PG management.

Materials & Methods:

A 44 years old woman with hyperthyroid disease presented with ulcers on her abdomen. The ulcers start from the anterior part and rapidly progressing to the posterior part of the abdomen in one month. It measures about 20 x 10 x 0.5 cm with well-defined margins, punched-out edged, red to bluish around it, serpiginous like lesion, covered by granulation tissue. The pain visual analogue scale is 8. She also had history of tuberculosis completing therapy in 9 months. The histopathological presents as specific granulomatous chronic inflammation with no malignancy. Periodic Acid Schiff (PAS) stain is negative. Immunohistochemistry test for Ki67 is normal. She gets high dose of systemic corticosteroid and systemic antibiotics. The debridement was on hold because the severe pain, but the wound and crusted tissue were treated by NaCl 0.9% solution dressing 2 times a day for 10 minutes. After the crusted being removed and the skin inflammation is reduced, we take care the ulcers with PRP.

10 cc of venous blood were taken and put into a citrate anticoagulant tube. Then it is processed by double centrifugation method. First, the tubes are centrifugated on 1500 RPM for 6 minutes. After that we get three layers of serum, top layer is plasma serum, middle is buffy coat, bottom is red blood cells. Plasma serum and buffy coat are put into a tube without anticoagulant, then centrifuged on 2500 RPM for 15 minutes. In the end, we get 4 – 5 cc autologous PRP. We put PRP on the ulcer and smear it all over the skin. This therapy was done every 2 weeks.

Results:

After 1 month PRP therapy, the ulcer is improved. The pain reduces with VAS 4.

Conclusion:

PRP is safe, simple, feasible, cost-effective therapy for managing chronic non-healing ulcers. It is effective and clinically proven to enhance wound healing. The higher concentrations of platelet, the higher growth factors we get. PRP can be an alternative option in managing pain ulcer for PG.



Abstract N°: 5050**Assessment of the usefulness of bioimpedance measurement in the healing process of hard-to-heal wounds**

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Introduction & Objectives:

Chronic leg ulcers affect 1-2% of the general population and present a significant economic burden to healthcare system due to their increasing prevalence and cost. Assessment of the wound is mainly based on visual examination of wound size or healing status and may be subjective. Moreover, clinical evaluation requires often and sometimes unnecessary dressing removal. Objective monitoring methods are missing, which could reduce total cost of the treatment. A bioimpedance measurement-based method and measurement system has been developed by Kekonen et al. to evaluate the state of wound healing using electrode sensor array beneath the primary dressing. Therefore, the purpose of the study was to investigate feasibility of conducting measurements of bioimpedance using bioimpedance sensor array in patients with chronic wounds.

Materials & Methods:

Between April 2022 and April 2023 the ulcers were studied using the bioimpedance measurement system at the Surgery Outpatient Clinic, at the University Clinical Centre in Gdansk, Poland. The measurement system incorporated a bioimpedance device, a measurement software, and an electrode array. A variable designated as the Wound Status Index (WSI), derived from the bioimpedance data, was used for describing the state of wound healing. Ulcers were measured one to two times a week until the complete re-epithelialization of the wound was achieved. Wound dressings were removed, and the wound was visually assessed by a nurse or a doctor. The standard local wound care procedures according to the state of the wound were conducted. The wounds were photographed, and areas were calculated in computer software (AutoCAD). The bioimpedance sensor array was placed on the wound, and measurement was conducted. Sensor arrays were removed, and the standard wound dressings were applied on the wound.

Results:

Five patients (4 women, 1 man) with venous or mixed etiology leg ulcers were enrolled in the study. Ten wounds were monitored, and 67 measurements were conducted. The time range of follow-up duration was from 14 to 125 days. A strong negative correlation was found between the WSI and wounds area, which was statistically significant.

Conclusion:

This study provided evidence of the feasibility of the bioimpedance based method for assessing the wound status.

Abstract N°: 5062**Cold plasma therapy for pyoderma gangrenosum: efficacy, tolerability, patient preferences, and patient-reported outcomes**

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Introduction: Pyoderma gangrenosum (PG) is a rare aseptic, inflammatory, neutrophilic dermatosis characterized by recurrent skin ulcers with an assumed immunologic pathogenesis. The distinctive feature of PG is the sometimes fulminant course, the severe pain as well as the pathergy phenomenon (deterioration of the wound after trauma) prohibiting a wound debridement. Bacterial colonization of the wound is problematic, leading to activation of the immune system via antimicrobial peptides. The application of cold atmospheric plasma (CAP) has been described as a promising therapeutic approach to wound healing. Its use in the field of immunological wounds has not yet been sufficiently investigated.

Objectives: Evaluation of the efficacy, tolerability, patient preferences, and patient-reported outcomes of CAP in PG.

Method: This is a monocentric, prospective, randomized controlled clinical case series including 20 patients with PG. The treatment phase lasted for a period of 12 weeks with 2 cold plasma treatments per week and 5 documented visits. Effects on fibrin and necrotic tissue, epithelialization, granulation, length and width of the wound. Validated Questionnaires were used to assess the effects on patient experience including reduction in pain, improvement in quality of life, and improvement in patient-defined benefit of treatment.

Results: In the treatment group statistically significant long-term effects were found in the reduction of fibrin coatings ($z = -2.06$, $p < 0.05$, $n = 6$, $d = 0.84$), in the improvement of quality of life (wound QoL) ($t(6) = 3.14$, $p < 0.05$, $d = 1.19$) and in the reduction of pain before ($z = -2.04$, $p < 0.05$, $n = 7$, $d = 0.77$) and after treatment (VAS) ($z = -2.23$, $p < 0.05$, $n = 7$, $d = 0.84$).

Conclusions: CAP effectively reduces fibrin coatings and pain over time, which is associated with a significant improvement in the quality of life of those affected by PG.

Abstract N°: 5554**Erosive lesion of the nipple: what diagnosis**Anass Saddik¹, Fouzia Hali¹, Soumiya Chiheb¹¹Dermatology department**Introduction**

Paget's disease of the nipple is a rare condition that accompanies 1 to 4% of breast cancers. It corresponds to the infiltration of the epidermis of the nipple by cells of the adenocarcinoma type. Clinically, it results in eczema-like eruptions on the nipple and areola. We report the case of a 70-year-old patient who consulted for an erosive plaque in the left breast that had been evolving for more than a year.

Materials and methods**Results**

A 50-year-old woman consulted for an erosive plaque in the left breast that had been evolving for more than a year. The clinical examination found an erosive plaque 10 cm in diameter on the left breast, oozing, surmounted by crusts on the periphery, with disappearance of the relief of the nipple. There were no adenopathies or palpable mass. A skin biopsy was performed and revealed Paget's disease associated with infiltrating ductal carcinoma. The breasts were classified BIRADS 0 on the right and BIRADS 2 on the left in echo-mammography. MRI showed a retracted right breast, site of significant thickening and skin enhancement, associated with ipsilateral axillary adenopathy, related to Paget's disease of the nipple with absence of underlying parenchymal tumor process. The patient underwent mastectomy with lymph node dissection.

Discussion

Paget's disease was first described by Sir Paget in 1874 as an eczematous lesion of the nipple related to underlying cancer. It is a rare entity that only affects 1 to 4% of breast cancers. It mainly affects postmenopausal women with an average age of 62.6 years. Paget's disease of the nipple is either isolated in 1.4 to 13.3% of cases or associated with breast cancer in 82 to 100% of cases. The isolated forms of Paget's disease of the nipple could be explained by the malignant transformation of nipple keratinocytes. However, the most accepted theory is the migration of Paget cells from an underlying ductal carcinoma. Definitive diagnosis of Paget's disease is made either by cytological scraping of the nipple or, at best, by nipple-areolar biopsy. Histologically, this lesion is characterized by the presence of pagetic cells in the epidermis of the nipple. Paget's disease of the nipple, although rare, should be considered in the presence of any trailing eczematous lesion of the nipple that has not responded to medical treatment. The diagnostic certainty requires a histological confrontation. The couple mammography breast ultrasound, possibly with a breast MRI must look for underlying breast cancer.



Abstract N°: 5585**Cocaine-induced mucocutaneous facial ulcer**

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Introduction & Objectives:

Cocaine is a central nervous system stimulant with powerful vasoconstrictor and anaesthetic activity. Its consumption has increased in Europe in the past decade, with nearly 2.2 million consumers between the ages of 15 to 34-year-old in 2022. Cocaine abuse or some of its main adulterants have been associated with multiple mucocutaneous manifestations, such as midline destructive lesions (CIMDLs), autoimmune vasculitis and neutrophilic dermatoses.

The main objective of this report is to draw attention to cocaine-induced conditions as a differential diagnosis of mucocutaneous ulcers in the nasolabial triangle.

Materials & Methods:

We report the case of a 53-year-old man referred to our department with a periorificial destructive lesion of 6 month-duration.

Results:

The patient presented an ulcerated lesion with slightly erythematous papillomatous edges that extend from the right nasal mucosa to the upper lip. He underwent antibiotic treatment, without improvement. He denied weight loss, fever, night sweats, asthenia, or anorexia. He was non-smoker and at first refused to admit any other toxic habit. He also denied using nasal sprays. The only notable fact was owning a dog.

Physical examination did not reveal any other mucocutaneous manifestations, nor palpable lymphadenopathies or hepatosplenomegaly.

The differential diagnosis included the following: infections (Leishmaniasis, Syphilis, Lyme disease and rhinoscleroma), malignancy (NK-/T-cell lymphoma), immune-mediated inflammatory diseases (eosinophilic granulomatosis with polyangiitis (EGPA), IgG4-related disease or plasma cell mucositis) or the abuse of illegal drugs such as cocaine.

Initial investigations included several blood tests, including complete blood count and chemistry, coagulation studies, renal and liver profiles, complement, immunoglobulins, antinuclear antibodies (ANAs), and antineutrophil cytoplasmic antibodies. As well as serology for Leishmania, Treponema pallidum, C and B hepatitis and human immunodeficiency virus. A skin biopsy was also performed for histopathology and culture. Histological examination revealed epidermal acanthosis and a necrotizing granulomatous reaction in subcutaneous tissue. No microorganisms were detected with PAS, Grocott, Ziehl Neelsen, Giemsa, and Whartin-Starry immunohistochemical techniques. The polymerase chain reaction for leishmania was negative.

After ruling out infection, malignancy, or immune diseases, we reinterrogated the patient, who finally admitted cocaine consumption.

Conclusion:

Although cocaine-induced conditions are a diagnosis of exclusion, we consider that they should be considered in the differential diagnosis of midline mucocutaneous ulcers. Especially at this time when we are witnessing a significant increase in the consumption of this drug.

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Abstract N°: 5602**Diffuse ulceration of the gluteal region in a young subject: therapeutic challenge of pathomimicry in a schizophrenic patient**

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Introduction & Objectives: Cutaneous pathomimia is a particular form of factitious disorders, relatively rare, caused by the patient himself on his cutaneous-mucosal covering or his dander, to fill a psychological need, of which he is not aware. We report a case revealed by a diffuse ulceration of the gluteal region.

Observation : A 22 years old patient , treated for schizophrenia for 4 years, clinical examination: objective the Presence of a single large ulcer, superficial seat at the level of the two buttocks and the two posterior faces of the thighs, very well limited, irregular contour with clean surface, erythematous bottom with excoriations. With skin debris under the patient's nails. The peri-lesional skin is healthy. The infectious assessment was positive following the infection of the lesions. The skin biopsy came back without anomaly. Given the context and the other arguments, the diagnosis retained was pathomimia. Evolution: healing of the lesions with healing ointment under occlusive dressing .

Results: Pathomimia is a self-induced skin disease following a psychological suffering. It is one of the most complex diagnostic problems because of the multiplicity of its clinical aspects, in our patient a diffuse ulceration mimicking a burn. It is a diagnosis of elimination based on a set of arguments: young age, location in accessible areas, lesions not belonging to any known skin disease, normal paraclinical tests and the presence of positive psychological arguments. Collaboration between dermatologist and psychiatrist is essential in order to elaborate a common therapeutic project. Hospitalization is sometimes necessary in order to remove the patient from his environment, which may be the source of his disorders, and improve his treatment.

Conclusion : The management of pathomimia is complex. It seems important to make a precise diagnosis of this disease because the differential diagnoses lead to very different management. The prognosis is very poorly known.



Abstract N°: 5663**Unexpected complete epithelialization of a Chronic Venous Ulcer after Interleukin-17 Inhibitor treatment for Severe Psoriasis**Bud Corina^{1, 2}, Bianca Nicolau¹, Ulici Andreea¹, Goman Roxana¹¹County Clinical Emergency Hospital of Oradea, Dermato-Venereology, Oradea, Romania, ²University of Oradea, Medicine, Oradea, Romania**Introduction:**

Chronic venous ulcers are a debilitating condition that can have a major impact on patients' quality of life. Current treatment options for venous ulcers remain limited, and many patients experience poor healing rates and extensive hospitalization. Therefore, the development of new treatments for venous ulcers is urgently needed.

One potential area of research is exploring the use of interleukin 17 (IL-17) inhibitors in treating venous ulcers. IL-17 is a proinflammatory cytokine that has been linked to the development of chronic inflammation in various disorders, and may play a role in the pathogenesis of venous ulcers.

We present the case of a patient diagnosed with unhealing chronic venous ulcer which completely epithelialized after the initiation of secukinumab therapy for severe psoriasis.

Results (Case Report):

A 48-year-old patient was admitted to our department for extensive erythematous-squamous plaques on trunk, limbs, total nail involvement accompanied by subjective sensation of pain.

From the medical history we learn that the patient is a chronic smoker and was diagnosed with Psoriasis Vulgaris since 20 years, severe form, (PASI 40.6, DLQI 24) without improvement over time following treatment with acitretin, methotrexate, adalimumab. The lesions have spread and remained constant on the skin for the last 4 years. At the age of 46, the patient was diagnosed with venous ulcer on the right calf, without tendency to spontaneous epithelialization under treatment.

Physical examination revealed obesity class III (BMI 46.78), multiple isolated and confluent erythematous-squamous plaques on trunk and limbs. On the right calf, three well-defined round-oval ulcerations covered with purulent deposits, adjacent integument covered with erythematous-squamous plaques.

Biological examination revealed dyslipidaemia. Cultures from the lesions' secretion were performed, highlighting presence of *Staphylococcus aureus*.

Secukinumab therapy was initiated with favourable evolution at 4 weeks (PASI-17.9, PASI%-56%) and at 6 months (PASI-9.6, PASI%-76%). The ulcer was treated with antiseptic solutions in the absence of local inflammatory signs. Reduction of ulcer size by 30% was noticed at 4 weeks as well as complete epithelialization at 6 months.

Discussions

Overproduction of IL-17 has been implicated in the pathogenesis of various autoimmune and inflammatory diseases, including psoriasis, and IL-17 has also been shown to be upregulated in chronic wounds.

Secukinumab blocks the interaction between IL-17 and its receptor, thereby inhibiting downstream proinflammatory effects. However, its use in chronic wounds is still under investigation and there have been no

studies focusing on chronic venous ulcers.

Conclusion:

The observations in this case may serve as a basis for the study of IL-17 inhibitors in the treatment of chronic venous ulcers.

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Abstract N°: 5680**Chronic leg ulcer associated with osteomyelitis in a patient with previous leg trauma**

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Introduction:

Leg ulcer refers to areas of epidermal and dermal discontinuity in lower limbs having multiple causes. The most frequent are chronic venous disease related mainly to venous hypertension and peripheral arterial disease due to disseminated atheromatous lesions in lower limb arteries. In some cases, ulcers of mixed venous-arterial etiology occur, which are usually more resistant to conservative therapy. Chronic leg ulcers may be complicated by chronic osteomyelitis and/or septicemia, which mandates immediate and aggressive treatment.

Case report:

We present a 59-year-old male patient who was referred to our clinic for a painful, enlarging chronic leg ulcer that appeared at the site of a previous leg trauma.

The patient recognized a traumatic event followed by a long history of recalcitrant ulcers that developed on previously skin-grafted areas. During the last hospital visits, the patient presented with multiple antibiotic-resistant bacterial infections at the wound site (*Enterobacter*, *Escherichia coli*, *Proteus hauseri*, and *Morganella morganii*), for which he received multiple courses of antibiotic therapy.

During current hospitalization, the patient presented with a gigant pretibial ulcer covered by yellow fibrinous exudate, necrosis, and diffuse bleeding. Surrounding skin was sclerotic and cicatricial, with multiple smooth ivory white plaques of atrophie blanche and yellow-brown discoloration. The patient declared multiple episodes of high fever and night sweating for the past few months.

Several investigations were performed, including microbiological swabs, arterial and venous ultrasonography, and radiography of the affected leg. Wound culture indicated the presence of *Escherichia coli* and *Morganella morganii*. Duplex ultrasonography showed varicose veins of the superficial venous system without deep vein thrombosis. At arterial ultrasonography were observed several atherosclerotic plaques at the posterior tibial artery level. Radiography investigations of the lower leg showed areas of bone destruction and periosteal elevation, findings consistent with chronic osteomyelitis affecting peroneus and tibial bones.

The patient underwent conservative treatment with necrosis debridement, dressings, topical and systemic antibiotics, and flebotonics and vascular surgery with ligation in the anterior saphenous distribution area. These interventions were unsuccessful and for this reason, as a last resort, was decided by a multidisciplinary committee to perform a major amputation of the lower right limb.

Conclusion:

Ulcer healing requires aggressive treatment of bacterial infection, leg edema, and associated complications. Amputation should be considered the last resort in patients with non-salvageable limb. The association of a chronic non-healing ulcer in a patient with previous leg trauma, venous insufficiency, impaired arterial supply, multiple bacterial infections, and osteomyelitis led to this last treatment option

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Abstract N°: 5838**Metabolic reprogramming in human skin wound healing**

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Chronic wounds are a considerable medical burden and are expected to increase with an aging population. Although many potential causes for impaired wound healing have been described, the underlying pathophysiology is still not fully understood and therapeutical options are missing. Given the high energy expenditure of wound healing, we assessed the role metabolic profile of normal skin, acute and chronic wounds by combining transcriptomics and metabolomics. In later phases of acute and chronic wound healing, we found that there is an upregulation of glycolysis, tricarboxylic acid (TCA) cycle, glutaminolysis and β -oxidation. To assess the impact of stimulation or inhibition of these pathways in wound healing, we targeted them in *in vitro* and in *ex vivo* wound healing assays, by measuring the healing capacity after inhibiting or stimulating each metabolic pathway. We found that stimulating or inhibiting glycolysis had the largest effect on wound healing, followed by glutaminolysis, even when compared to changes in oxidative phosphorylation or fatty acid β -oxidation. To conclude, the observed metabolic reprogramming helps us to better understand wound healing from a metabolic perspective and to pinpoint glycolysis and glutaminolysis as potential therapeutical targets.



Abstract N°: 5897**Adjuvant hyperbaric oxygen therapy in treatment of chronic wounds and chronic inflammation**

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Introduction & Objectives: Chronic wounds are those in which the sequence and timing of reparative processes are disturbed. Often, they remain in the inflammation phase, which prevents the establishment of anatomical and functional integrity. Wound healing is a complex process that initiates the need for oxygen therapy under increased pressure-HBOT. The main function of HBOT is to supply the injured tissue with enough oxygen by way of diffusion to satisfy the metabolic processes of the cells in the wound itself and its surroundings. Objectives: To evaluate the effect of hyperbaric oxygen therapy in chronic wound healing and to assess the efficacy of HBOT in terms of wound changes (size or complete epithelialization) compared to the control group and the effect of this therapy on inflammation by determining IL-6 in the blood.

Materials & Methods: The study is prospective randomized. It includes 55 patients over 18 years of age, of both sexes, with chronic wounds. 27 patients - control group and 28 - patients treated according to HBOT protocol of 2.2 ATA. All subjects were followed for a period of 6 months.

Results: The analysis of the obtained results confirmed the efficiency of HBOT as an adjuvant therapy in the treatment of chronic wounds. The wounds treated with HBOT showed a statistically significantly higher percentage of epithelialization compared to the wounds treated only with conventional therapy at the end of the treatment.

Conclusion: Hyperbaric oxygen therapy facilitates the healing of chronic wounds and reduces the inflammatory response.



Abstract N°: 5929
Characteristics and Risk Factors for Diabetic Foot Ulceration

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Introduction & Objectives:

Diabetic foot ulcers (DFU) are a serious complication of diabetes mellitus (DM), as they often precede lower extremity amputations (LEA). Various factors, including glycated hemoglobin (HbA1c) and duration of diabetes contribute to severity of DM complications.

Aim:

We sought to determine if correlations between established variables (HbA1c, diabetes duration, age and sex), for diabetes complications were also valid for DFU

Materials & Methods:

A total of 234 (76F:158M) patients were prospectively enrolled into the study, consecutively.

Clinical characteristics, ulcer type and number were recorded. Pearson regression was used to calculate correlations.

Results:

Average age, diabetes duration, HbA1c, pre-treatment ulcer duration and ulcer number/patient of the study group were 65.5yrs. (SD \pm 10.6), 16.67yrs (SD \pm 9.5), 8.1% (SD \pm 2.0%), 5months (SD \pm 15.6) and 1.5 (SD \pm 0.98). Toe area was most affected 0.93/patient (SD \pm 0.90) and there was a strong positive correlation between total number of ulcers and degree of toe involvement ($r(234) = 0.6663$, $p < 0.05$). Female patients presented with greater average age (67.5 vs 64.5yrs), and duration of diabetes (18.3 vs 15.7 yrs.), yet lower average HbA1c (7.7% vs 8.2%), pre-treatment ulcer duration (4.3 vs. 5.3 months), average total number of ulcers (1.5 vs 1.6).

Conclusion:

Most patients presenting at our outpatient clinic with diabetic foot ulcers were of older age (65.5yrs), male sex (M:F = 2:1) with a long duration of diabetes (16.67 yrs.) and poor average metabolic control (8.1%). In spite of this, there was no correlation whatsoever between any of these factors ($p < 0.05$) and the pre-treatment duration, number or location of ulcers. There was a strong correlation between total number of ulcers/patient and location of ulcers at the toes ($r(234) = 0.6663$, $p = < 0.05$). On the whole, female patients presented with greater age and duration of diabetes, but, in spite of this, better metabolic control, shorter pre-treatment duration of ulcer and lower ulcer number.

Although glycemic control, duration of diabetes and patient age are often correlated positively with increased risk of diabetes complications, this did not appear to be the case with DFU cohort. Total number of DFU is strongly correlated with location of ulcers at the toes ($r(234) = 0.6663$, $p = < 0.05$), which is the area at highest risk for foot ulcers. No conclusions can be drawn with regard to correlations with prognosis, as our study was not designed to

test this question. Strategies, such as wearing of shoes that adequately protect the toes, based on these data.

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Abstract N°: 6322
Changes in Gene Expression in pressure ulcers debrided by different approaches - a pilot study

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Introduction & Objectives:

Pressure ulcers (PUs), also known as pressure injuries, are chronic wounds that represent potential lifelong complications. Pressure ulcers of a deep category (III and IV) are often indicated for surgical treatment - debridement and surgical reconstruction. Sharp surgical debridement is widely used in the debridement of PUs; however, the Versajet® hydrosurgery system is becoming an increasingly popular tool for tangential excision in surgery due to its numerous advantages. This work focused on the expression of selected genes, especially those associated with oxidative stress, in PUs debrided by two approaches – sharp surgical debridement and debridement using Versajet® hydrosurgery system. Expression of following genes was evaluated: NFE2L2, ACTA2, NFKB1, VEGFA, MKI67, HMOX1, HMOX2, HIF1A, and SOD2. ACTB and PSMB were used as housekeeping genes. So far, five patients have been enrolled in the study. Preliminary results suggest no significant difference in gene expression with different pressure ulcer treatment approaches except NFE2L2, despite the macroscopic differences. However, the results revealed correlations between the expression of some genes, namely HIF1A and SOD2, VEGFA and SOD2 and VEGFA and HIF1A. These results may indicate a connection between hypoxia, oxidative stress, pressure ulcer healing processes and angiogenesis.

Materials & Methods:

A prospective interventional study was conducted on five patients with pressure ulcers (PUs) larger than 5x5cm. The PU bed was divided into halves, and each half was debrided using a different approach (sharp or hydrosurgery). Tissue samples were collected before and one week after debridement and processed for RNA analysis. The RNA was isolated and transcribed using specific kits. The gene expression analysis was performed using quantitative RT-PCR with selected gene assays. Statistical analysis was conducted using R language and various packages. The results showed significant differences between individual patients and detected changes in gene expression after treatment. Correlation analysis revealed specific correlations between gene expressions for each treatment. The gene expression profiles were summarized in a heatmap with cluster analysis, indicating trends and similarities among** samples.

Conclusion: The analysis of tissue samples from pressure ulcers treated with different debridement techniques showed minimal differences in gene expression. However, the Versajet technique had significantly reduced expression of the NFE2L2 gene compared to sharp surgery. This gene is involved in antioxidant mechanisms and cell death processes. Correlations were found between gene expression related to neovascularization, antioxidant proteins, and hypoxia-inducible factor 1-alpha. The preliminary results suggest a potential benefit of the Versajet technique in healing severe pressure ulcers, but further studies are needed for confirmation.

This work was supported by the Ministry of Health of the Czech Republic under grant no. NU21-09-00541, "The

role of oxidative stress in pressure ulcers treatment in a patient with spinal injury”.

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Abstract N°: 6378**A comparative study on the efficacy of fractional co2 laser alone and fractional co2 laser with micro needling radio frequency in Fitzpatrick skin types iv-v.**Golla Sandeep*¹¹Saanvi's laser ,skin & hair clinic, dermatology, HYDERABAD, India**Introduction & Objectives:**

Surgical correction of scars may not be ideal remedy in all cases and hence it is desirable to have a non-surgical option available. Fractional co2 laser alternative with micro needling radio frequency combined offer a satisfactory treatment modality in Fitzpatrick skin types iv-v with minimal post inflammatory hyperpigmentation.

Materials & Methods:

A total of 50 patients with scars were randomly divided into two groups with Fitzpatrick skin types iv-v. group 1 was treated with 6 sessions of monthly fractional co2 laser and group 2 with 3 sessions of fractional co2 alternative with 3 sessions of micro needling radio frequency. The patients were assessed using the patient and observer scar assessment scale (POSAS) at baseline and 4 weeks after each session.

For continuous variable's, the summary statistics of mean \pm standard deviation was used. For categorical data, number and percentage were used. Chi-square (χ^2) test was used for associated between two categorical variables. P value <0.05 was considered to be statistically significant

Results:

17 cases in group 1 and 23 cases in group 2 completed the study. There was a significant improvement in total score of POSAS ($P<0.001$) in group 2, the final difference between the two groups was statistically significant with p-value 0.033895.

Conclusion:

Fractional co2 laser causes significant scar revision with high risk of post inflammatory hyperpigmentation, with decreased client adherence to the procedure, but combining along with micro needling radiofrequency decrease chances of post inflammatory hyperpigmentation with increased client adherence and satisfied permanent scar revision in Fitzpatrick type iv-v skin types.