Abstract N°: 71

Value of complementary skin imaging in management of pigmented facial lesions

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Introduction & Objectives:

Pigmented skin lesions refer to lesions that are brown, black, or blue in colour, or may be confused with brown or black lesions (for example, vascular lesions, which sometimes look black with the naked eye but under dermatoscopy appear red, purple, or blue).

Pigmented skin lesions are most often melanocytic. However, non-melanocytic lesions can also be pigmented, particularly in dark-skinned individuals. Non-melanocytic lesions may be keratinocytic, vascular, or reactive.

Combined malformations, These lesions are complex and include more than one type of malformation. These lesions are highly variable and can present unique challenges in both diagnosis and treatment.

Materials & Methods:

Female patient 20 years old presented with disfiguring facial pigmented lesion shortly after birth which was diagnosed as congenital melanocytic nevus, previous trials of Q switched lasers with no response, on clinical examination mild facial asymmetry was noted, single pigmented lesion on the left cheek measuring about 4 by 5 cm with well-defined margin, complementary imaging of the lesion was done using dermoscopy and antera 3D camera with unexpected results of non pigmented nature of the lesion in addition to its vascular nature with dialated red and vialaceous lacune in addition to prominent hair follicles with terminal coarse hairs further examination with Antera 3D camera was done whiched showed absence of melanin, prominent vascular components with abnormal skin texture at the site of lesion.

Results:

It is important to remember that vascular anomalies of the head and neck can be divided into vascular tumors and vascular malformations; the former representing true proliferative neoplasms and the latter defects of vascular morphogenesis. These lesions can present in a variety of locations in the head and neck. Imaging plays a role for many of these lesions.

Conclusion:

complementary skin imaging in skin lesions especially in pigmented facial lesions is crucial to gurantee accurate diagnosis and to avoid misdiagnosis and unnecessary interventions and procedures.

Abstract N°: 127

Dermatology of black skin: images to help you see more clearly

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Introduction & Objectives:

Dermatology in black skin can have a confusing presentation. In fact, the semiological particularities of cutaneous pathologies in black skin are seldom discussed in standard dermatology textbooks. We propose to illustrate the pathologies encountered on black skin by visual impregnation with a rich iconography briefly commented instead of a classical teaching.

The main aim of this course is to improve diagnostic skills through a very large sample of clinical photographs. A wide range of pathologies will be covered: common dermatoses, dyschromia, systemic diseases, infectious diseases, pediatric dermatology, more unusual inflammatory dermatoses, skin tumors, arboviruses. As a secondary objective, we will outline the therapeutic particularities of some of these dermatoses when they occur on black skin.

Conclusion:

At the end of the session, the dermatologist will have developed, thanks to the large number of images, the confidence and ability to recognize a significant variety of dermatoses on black skin and, where necessary, adapt the treatment.

Over 200 photos will be presented.

Near infrared spectroscopy and Electric impedans (nirimp) in combination of artificiall intelligen's-based assessment of dermoscopy to detect melanoma -a prospective studie .

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Introduction & Objectives:

Skin cancer incidence increased the last decades both in Sweden and worldwide. Skin cancer has a good prognose if detected in the early stage. The established method in clinical praxis in distinguishing skin cancer from benign lesions is clinical examination, also including use of dermoscopy and teledermoscopy. The experience among primary care physicians in assessing skin tumors varies, as does the accessibility to teledermoscopy consultation. To enhance the diagnostic process and further methods for skin tumor diagnostics need to be developed to avoid unnecessary skin biopsies or excisions. The aim of the study is to investigate the diagnostic ability of a non-invasive method combining near infrared spectroscopy with skin impedance measurement (NIRIMP) in distinguishing skin cancer among lesions assets in dermatology clinic, together with an artificial intelligence (AI) tool analyzing dermatoscopic images of the lesions.

Materials & Methods:

NIRIMP measurements collected prospectively from 140 patients referred to dermatology clinics from primary care for skin examination of melanoma suspected lesions will at analysis be combined with AI-executed assessment of teledermoscopic images of the lesions. The results from the measurements with NIRIMP and the AI tool will to be compared to the histopathologic lesion diagnosis. The results from the measurements with NIRIMP and the AI tool will be compared to the histopathologic lesion diagnosis.

Results: Data collection is ongoing and study results remain to be presented when completed.

Abstract N°: 722

ChatGPT and The Suspicion of Skin Cancer

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Introduction & Objectives:

Dermatology relies on visual diagnosis, especially for common non-melanocytic skin cancers like SCC and BCC. Artificial intelligence is taking over the world and particularly in the field of medicine. ChatGPT is of the most popular AI platforms, and is user-friendly, trained on diverse text sources, and accessible to many. Despite potential benefits in medicine and dermatology, concerns persist about delayed diagnosis and false reassurances for patients with possible malignancies.

Our study aims to assess the accuracy of AI, specifically ChatGPT, in diagnosing skin malignancies and expressing the urgency to seek medical advice.

Materials & Methods:

This diagnostic accuracy study assesses the agreement between dermatologists' final diagnoses and those provided by ChatGPT when patients describe their lesions. Conducted at the Department of Dermatology, the study recruited 35 patients suspected by the attending dermatologist of skin cancer (SCC and BCC) from private and the outpatient clinmics. Rare skin cancers were excluded due to low clinical suspicion. Patients were asked to provide using their own words, details including age, sex, lesion description, duration, color, location, and associated symptoms in a 5-minutes oral interview without any intervention by a medical provider or medical records. The provided diagnoses were documented in ChatGPT3.5 and ChatGPT4.0 platforms for analysis.

Results:

Table1 shows the demographics of our sample. Thirty five out of the 35 suspected lesions by the dermatologist turned out to be malignant giving the dermatologist a 100% accuracy rate. Table2 outlines the model's performance compared to the dermatologist and biopsy. ChatGPT3.5 suspected malignancy in 7 cases (20%), whereas ChatGPT4.0 suspected malignancy in 6 cases (17.14%). For ChatGPT3.5, it matched the correct cancer subtype in 6 out of the 7 cases (85.71%), and in 1 case suggested melanoma as the cancer subtype whereas the biopsy showed BCC. ChatGPT4.0 matched the correct cancer subtype in 5 out of the 6 cases (83.33%), and in 1 case suggested BCC whereas the biopsy suggested SCC. Interestingly, ChatGPT3.5 and ChatGPT4.0 showed discordance in flagging lesions as malignant. Flagging only 3 identical lesions as malignant. As a whole, only 7 lesions were given the same diagnosis on GPT3.5 and GPT4.0. Both ChatGPT3.5 and ChatGPT4.0 referred patients to the dermatologist in 100% of cases. Benign diagnoses that were most commonly suggested were SK (N=11) and AK (n=3) for GPT3.5 and AK (n=4) and Dermatofibroma (n=4) for GPT4. GPT4.0 suggested more varied diagnosis than GPT3.5. Age, gender, location of lesion, and duration of lesion all did not affect the ability of both GPT3.5 and GPT4.0 in getting the correct diagnosis.

Conclusion:

Both GPT models performed comparably to each other but were significantly inferior to dermatologists. However, both did not cause delays in referral or in prompt management. The study's limitation lies in the use of patient-

generated descriptions, which may not provide adequate information for accurate diagnosis, suggesting that the observed poor accuracy may be attributed to both ChatGPT and the quality of patient descriptions. The limitations of these models include poor accuracy, lack of concordance among each other, and reproducibility issues with their answers. These models require substantial improvement before they can be reliably used in diagnosing and triaging skin lesions as malignant or benign.

Table 1: The demographic characteristics of our sample

Parameter	N (%)
Average Age	73.6 +- 11.88
Gender	
Male	22 (62.86)
Female	13 (37.14)
Location	
Nose	14 (40.00)
Scalp	9 (25.71)
Face	9 (25.71)
Body	2 (5.71)
Ear	1 (2.87)
Duration	
<6 months	12 (34.29)
7-12 months	7 (20.00)
1-5 years	11 (34.43)
>5 years	3 (8.57)
Cannot Recall	2 (5.71)
Result of Biopsy	
Basal Cell Carcinoma	23 (65.7)
Squamous Cell Carcinoma	12 (34.3)

Table 2: The models performance compared to the dermatologist and biopsy

	ChatGPT3.5	ChatGPT4.0	Dermatologist	Biopsy	P<0.00001
Benign	28	29	0	0	
Malignant	7	6	35	35	

Abstract N°: 875

The usefulness of ice packs in screening skin tumors using ultrasound sonography

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Introduction & Objectives:

Ultrasound has become a crucial tool in assessing skin tumors due to its ease of use, noninvasive nature, safety, and ability to provide real-time information. Specifically, in cases of basal cell carcinoma (BCC), ultrasound is recommended to evaluate its depth and invasiveness. However, visualizing lesions like nodules or tumors in concave or convex areas can pose challenges. In this study, we investigated the effectiveness of ultrasound sonography in assessing skin tumors by employing an ice pack as a coupling medium.

Materials & Methods:

We performed preoperative assessments on two patients with elevated cutaneous tumors, utilizing both conventional ultrasound examinations and ultrasound examinations supplemented with the use of an ice pack as an intervening medium. We examined whether there were any disparities in the ultrasound images between the two modalities.

Results:

An 82-year-old Japanese female presented to our hospital with a complaint of an elevated tumor on her alar region. Pre-surgical ultrasound (ACUSON P300 with a 6-18 MHz linear array probe, Siemens Medical Solution, Erlangen, Germany) using the standard method revealed an echogenic artifact, with acoustic shadowing observed at the edges of the tumor, making it challenging to discern the depth of invasion. However, by incorporating an ice pack along with coupling gel, the echogenic artifact was mitigated, allowing for visualization of tumor invasion within the subcutaneous fat tissue. Subsequently, tumor resection was performed, and the tumor thickness was evaluated. Histopathological analysis revealed tumor thickness within the subcutaneous fat tissue.

A 74-year-old Japanese male presented with an elevated tumor on his supra-orbital area. Conventional ultrasound failed to delineate the depth of the tumor effectively. However, employing ultrasound with an ice pack revealed the presence of subcutaneous fat tissue and orbicularis oculi muscle beneath the tumor, suggesting tumor invasion within the subcutaneous fat tissue. Histopathological assessment corroborated the thickness observed on ultrasound imaging.

Conclusion:

In summary, employing ice packs as a coupling material during ultrasound examinations enables clear delineation of nodules or tumors in concave or convex areas without artifacts. Moreover, they are cost-effective and readily available.

Abstract N°: 1290

Non-invasive imaging techniques (dermoscopy, reflectance confocal microscopy and line-field confocal optical coherence tomography) for the diagnosis of cutaneous leishmaniasis

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Introduction & Objectives:

Cutaneous leishmaniasis (CL) is an infectious disease caused by the Leishmania genus of flagellate protozoan. The disease is widespread in most countries in the Mediterranean basin, including Italy, even if it is quite rare in this country. Dermoscopy is a noninvasive diagnostic tool that has been used for describing skin lesions of various origins: neoplastic, inflammatory, infectious, hair disorders and so on. Other non-invasive diagnostic technique, as reflectance confocal microscopy (RCM) and line-field confocal optical coherence tomography (LC-OCT), are nowadays used to help the clinician to do the correct diagnosis of skin lesions.

Materials & Methods:

We describe a series of two patients with CL studied with dermoscopy, RCM and LC-OCT. The clinical presentation was similar: single, well-circumscribed nodular lesion on various localizations oh head and neck, with an orangish-erythematous color. They had gradually been increasing in size. No insect bite or travel abroad were reported. Their medical history was otherwise unremarkable. Dermoscopy shows generalized erythema, with streaks and enlarged vascular polymorphous structures were present in all CL lesions. RCM (Vivascope 1500, Mavig, Munich, Germany) revealed a typical honeycomb epidermal pattern, small bright cells, a dense infiltrate of dendritic cells within the basal layer, a well-represented inflammatory infiltrate in the upper dermis. In the dermis there was hyper reflecting interwoven fibers forming roundish structures. Multinucleated giant cells were also observed in the upper dermis. LC-OCT (DeepLive®, DAMAE Médical, France) shows mild hyperkeratosis, a dense inflammatory infiltrate with some vacuolized areas in the epidermis and upper-dermis. The inflammatory infiltrate was extremely polymorphous in shape and size, and it can be well correlated with the classical inflammatory infiltrate present in CL.

Results:

Histopathology exams in a skin sample obtained by punch biopsy revealed a dense, mixed infiltrate (lymphocytes, plasma cells and histiocytes) with small epithelioid granulomas and multinucleated giant cells. In some histiocytes Donovan bodies were observed. Diagnosis of CL was made. All two patients were positive for leishmania antibody in the blood. Patients were sent to referral infectious disease department for the specific treatment.

Conclusion:

Even if the diagnosis remains essentially clinical and requires validation with laboratory tests and histopathological examination, LC-OCT, like other non-invasive diagnostic techniques, can represent a further tool for non-invasive assessment of cutaneous infection and infestation. Our preliminary results find that most of the histological features of CL can be visualized on LC-OCT. Our findings suggest that LC-OCT may be useful for the non-invasive diagnosis of CCA, allowing it to be distinguished from other neoplastic or infective diseases for the specific skin patterns and alterations that can be found. LC-OCT may help decrease the need for surgical excision for confirmation of the diagnosis of benign tumours that can be removed with less invasive surgical techniques. However, further studies with a larger number of cases are necessary to demonstrate the diagnostic utility of LC-

OCT in the clinical setting.

Abstract N°: 1312

Neutrophil-to-lymphocyte ratio: A potential biomarker for differentiating between deep vein thrombosis and erysipelas

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Introduction & Objectives:

Deep vein thrombosis (DVT) and erysipelas are common medical conditions with overlapping clinical features, such as redness, swelling, and pain in an extremity. In clinical practice, diagnostic tools like Doppler ultrasound, serum D-dimer, and inflammatory markers are used to differentiate between these conditions. However, there are situations where these methods have limitations. Therefore, our aim was to identify new biomarkers to expedite the assessment of patients with DVT or erysipelas. One such biomarker of interest is the Neutrophil-to-Lymphocyte Ratio (NLR), known for its effectiveness in quantifying inflammation in various diseases. Our objective was to evaluate the utility of NLR in distinguishing between DVT and erysipelas.

Materials & Methods:

In this retrospective clinical study, we collected data from patients treated at the First Department of Internal Medicine and the Department of Dermatology and Allergology in Szeged from January 2022 to December 2022. A total of 75 patients were identified, and 46 patients met our inclusion criteria.

Results:

The 46 study patients were divided into two groups; half had DVT (n=23), and the other half had erysipelas (n=23). The median age was 73 years (range 22-94). We tested NLR correlations with patient age, duration of symptoms, white blood cell count, C-reactive protein, procalcitonin, and D-dimer levels using Spearman rank correlation analysis. We found a correlation between NLR and the last 4 biomarkers (p=0.012, p=0.001, p=0.05, p=0.0015) respectively. Next, using the Mann-Whitney U test, we evaluated the differences in these biomarkers between the erysipelas group and the deep vein thrombosis group, and we found a significant association between pretreatment NLR values and erysipelas (p=0.0017). Receiver Operating Characteristic (ROC) curve analysis determined an optimal NLR cutoff of 4.91 for predicting erysipelas, with 91% sensitivity and 70% specificity.

Conclusion:

Our findings suggest that NLR has promise as a valuable marker for differentiating between DVT and erysipelas, making it a practical tool for routine patient assessment. Furthermore, NLR is cost-effective and readily available, making it easily implementable in everyday clinical practice.

Abstract N°: 1316

Panoramic Trichoscopy as valuable tool for management of diffuse alopecia.

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Panoramic Trichoscopy as valuable tool for management of diffuse alopecia.

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Introduction & Objectives:

Trichoscopy is a valuable technique for diagnosing and monitoring individuals with hair loss. The

method's present shortcoming is that only tiny areas of the scalp may be imaged. This might be challenging when attempting to assess vast regions, such as the whole hairline in individuals with frontal fibrosing alopecia (FFA), as well as when attempting to compare the exact same field of view in posterior examinations.

Materials & Methods:

A prospective study was carried out on 60 patients diagnosed with diffuse alopecia (from August 2021 to January 2023) to evaluate the usefulness of panoramic trichoscopy in the assessment and follow up of their conditions. Before starting the study, ethical committee approvals and patients consenting were obtained. The study was approved by an ethics committee of Al Azhar Faculty of Medicine

Results:

The mean satisfaction percentage of all analyzed patients in the current study was 37 21.2%, with a minimum percentage of 10% and a maximum percentage of 60%. Twenty-three patients (38.3%) improved little, 26 patients (43.3%) improved significantly, and 11 patients (18.3%) improved moderately.

Conclusion:

To our knowledge, no previous studies evaluated this novel method of panoramic trichoscopy and on this number of patients. We have demonstrated that a wider image perspective can be more useful and provide a significantly higher accuracy when making diagnosis and follow-ups compared to traditional trichoscopy. Furthermore; wider sections can provide more insightful details to view more clearly follicular openings, hair shaft diameter diversity and to guide to differentiating between cicatricial and non cicatricial hair conditions.

We demonstrated a higher compliance among subjects in the panoramic imaging mode since not many hand held images were needed to be taken over multiple areas. Simply, the dermatoscope plate is moved continuously over the scalp area concerned in a smooth move with the dermatoscope attached to the smart phone in "panorama mode". Another advantage would be the ability to have a larger scan area for better potential biopsy spots selection, and the ability to compare lesional and non-lesional areas side by side.

Panoramic trichoscopy is easy, tolerable and new diagnostic method, cost effective, saving time, effort, more easy

and complaint for patient with diffuse alopecia.

Abstract N°: 1616

Diagnosis of vulvar pigmented lesions with confocal microscopy

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Introduction & Objectives:

The diagnosis and management of vulvar-pigmented lesions (VPLs) still represent a challenging entity for dermatologists. Benign vulvar melanosis (BVM) account for the vast majority of the pigmented lesions of the female genital area, however, they must be differentiated from the rare but aggressive form of vulvar melanoma (VM). Indeed, VM represents only 1-3% of female melanoma but it is associated with a very poor long-term prognosis.

Dermoscopic features of vulvar-pigmented lesions might help in differential diagnosis, but they are frequently inconclusive, requiring histological exam through incisional or excisional biopsies. However, considering the sensitivity of the genital area, surgical procedures are associated with great discomfort to the patients, leading to psychological and aesthetic damage.

For these reasons, reflectance confocal microscopy (RCM) might help in doubtful cases to avoid unnecessary surgical interventions.

In this context, we performed a prospective study on VPLs, comparing clinical and dermoscopic characteristics with RCM parameters.

The final aim of our work was to create a diagnostic algorithm to help dermatologists and other clinicians in VPLs management.

Materials & Methods:

We acquired baseline and follow-up clinical, dermoscopic and RCM pictures of 128 VPLs in 112 female patients.

We classified the lesions based on the following dermoscopic patterns: structureless, cobblestone, reticular, globular, ringed, parallel, and combined (2 o more patterns within the same lesions).

Then we performed handheld 3000 RCM acquisitions and we sub-divided the VPLs into three major categories: rimmed, non-rimmed with dendritic cells, and rimmed with dendritic cells. We completed the work with incisional/excisional histological examination of doubtful cases.

Results:

Our study found 90 BVMs, 28 moles, 8 atypical melanocytic nevi of genital type (AMNGT), and 2 melanoma.

Considering our acquisitions, we proposed a diagnostic algorithm:

\1. Rimmed melanosis (73%) no need of follow-up

\2. Rimmed + dendritic cells at the dermo-epidermal junction melanosis (20%): follow-up

\3. Non rimmed + chaotic dendritic proliferation melanosis (7%): short time follow-up/biopsy

\4. Non rimmed + chaotic dendritic proliferation + round cells: suggestive for melanoma (excision)

Conclusion:

In conclusion, our work proposes a new RCM-based algorithm for the management of VPLs. Further studies are needed to confirm our preliminary work.

Abstract N°: 2122

Identifying skin changes during the menstrual cycle in healthy premenopausal women: a prospective pilot study

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Introduction & Objectives:

Skin problems such as skin blemishes and irritations are common during the menstrual cycle among premenopausal women and can often affect their quality of life. The aim of this study was to assess relevant skin changes during the menstrual cycle. Surveys have shown an increasing number of women seeking non-hormonal contraception. With a greater understanding of skin changes during the menstrual cycle, certain parameters could potentially be used to track the cycle and supplement or replace hormone-based contraception.

Materials & Methods:

The study included non-hormonal contraceptive women with regular menstrual periods as well as hormonal contraceptive women taking the pill. Ages of participants ranged from 18-35 years. Skin oiliness was measured using a Sebumeter, skin hydration was measured using a Corneometer, and transepidermal water loss (TEWL) was measured using another device. Furthermore, a skin thermometer was used to measure peripheral temperature, and a pH meter was used to measure skin pH. Blood was taken and analyzed for progesterone to differentiate between possible ovulatory cycles (progesterone $\leq$ 6ng/ml) and non-ovulatory cycles (progesterone < 6ng/ml). Skin parameter measurements were performed on days 2-6 (phase 1), days 10-14 (phase 2), and days 19-26 (phase 3) of the menstrual cycle. They were taken on the forehead, forearm and interscapular area. Changes of skin parameters throughout the phases of the menstrual cycle were assessed by fitting a linear mixed model that accounted for age, room temperature, room humidity, contraception method and ovulation.

Results:

A total of 64 women participated in the study. 45 women used non-hormonal contraceptive methods and 19 used the hormonal contraceptive pill. Overall, 176 cycles were measured, 122 from women using non-hormonal contraceptives and 54 from women using the hormonal pill. Out of 122 non-hormonal contraceptive cycles, 58 cycles showed progesterone levels of at least 6ng/ml, suggesting ovulation, while the remaining 64 cycles, with levels below 6ng/ml, indicated no ovulation. No significant interactions were found between the phase of the menstrual cycle (phase 1, phase 2, phase 3) and the groups (anovulatory cycles, ovulatory cycles and hormonal contraceptive cycles) for any of the skin parameters. It can therefore be assumed that the difference in each skin parameter is the same in all groups. A significant difference was found for TEWL measured on the forearm across phase 1 to phase 3 (p=0,014; 95% CI [0,277, 2,482]). Weaker effects were seen in interscapular TEWL across phase 2 to phase 3 (p=0,049, 95% CI [0,007, 2,356]). Other skin parameters did not show significant differences between menstrual cycle phases. Further results will be presented at the congress.

Conclusion:

The significant changes in forearm TEWL and interscapular TEWL indicate that the TEWL may be cycle-dependent and has the potential to be used for cycle tracking. However, the results should be seen in light of some limitations. First, the small sample size may limit the generalizability of the results and affect the statistical significance. Furthermore, other confounding variables that could influence the dependent variables were not

taken into account. Therefore, further studies evaluating changes in skin parameters during the menstrual cycle should be carried out.

Abstract N°: 2144

The Diagnostic Accuracy of Skin Diseases Via Teledermatology – A Single Center Study

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Introduction & Objectives:

The field of dermatology primarily relies on visual inspection for diagnosis, but often requires additional information such as medical history and physical exams. With the rise of telecommunication portals, many dermatological consultations now take place online. While face-to-face encounters remain ideal for diagnosis, teledermatology has proven useful for managing common dermatoses like eczema and acne during the pandemic. It also holds promise for providing healthcare access in remote areas lacking easy access to medical facilities. This study aims to evaluate teledermatologists' accuracy in diagnosing skin conditions based on photographs taken through a "store and forward" method. We compared their accuracy with that of dermatologists who examined patients in person. The objective is to translate these findings into practical clinical applications, providing insights into the integration of teledermatology into clinical settings.

Materials & Methods:

Our single-center prospective trial recruited participants aged 18 or above seeking initial dermatology consultation. Exclusion criteria included patients on treatment for over a week and cases with disagreement among in-clinic dermatologists on the diagnosis. Patients consented privately and underwent separate examinations by another dermatologist and a resident for verification. Teledermatology assessment involved three groups of physicians independently evaluating photographs taken by patients without guidance, after training, and by a resident. Teledermatologists made tele-diagnoses, with face-to-face diagnosis serving as the benchmark.

Results:

Descriptives of the diagnosis and treatment match and clinical outcomes across the three modes (pictures taken by patient without assistance, pictures taken by patient with assistance, pictures by resident) that account for repeated assessment are presented in Table 1. Diagnosis match for specific conditions and treatment match for biopsy in the presence of malignant neoplasm are presented in Table 2. Compared to photos taken by residents, those taken by patients unassisted led to lower odds of diagnosis and treatment match, increased likelihood of requiring patient history, decreased follow-up and confidence, longer diagnosis time, and lower correct diagnosis rates by residents versus attending physicians. Patient educational level did not significantly impact outcomes.

Conclusion:

Comparing patient-taken pictures with or without assistance to those taken by residents reveals differences, highlighting the need for accessible educational resources. Teledermatology aids early skin cancer detection, but relying solely on expert opinions has limitations. Diverse management strategies require larger studies for effective categorization. Our research emphasizes teledermatology's potential, stressing the need to refine picture-taking methods.

Table 1. Match in diagnosis and treatment, and related outcomes across the three assessment modes

	Pictures taken by patient without assistance		Pictures taken by patient with assistance		Pictures taken by resident	
	Mean[a]	95% CI	Mean[a]	95% CI	Mean[a]	95% CI
Diagnosis match [b]	0.79	0.75, 0.84	0.84	0.80, 0.88	0.87	0.83, 0.90
Treatment match [b]	0.38	0.33, 0.43	0.44	0.38, 0.50	0.45	0.39, 0.50
Asked for history	0.64	0.59, 0.69	0.59	0.53, 0.64	0.47	0.42, 0.52
Mean follow-up *(in days)*	16.18	13.41, 18.96	18.87	16.09, 21.65	20.39	17.62, 23.17
Time to diagnosis *(in days)*	18.79	17.61, 19.96	17.01	15.83, 18.18	16.27	15.10, 17.45
Confidence	6.43	6.23, 6.63	6.73	6.53, 6.93	6.91	6.71, 7.11

[a] Means represent margin values estimated using mixed models accounting for repeated assessments across modes (i.e., repeated patient subjects), with modes of evaluation and rater as predictor.

[b] Means of percent matches (ranging from 0 to 1).

Table 2. Diagnosis and treatment match for specific conditions across the three assessment modes

	Pictures taken by patient without assistance		Pictures taken by patient with assistance		Pictures taken by resident	
	Mean[a]	95% CI	Mean[a]	95% CI	Mean[a]	95% CI
Diagnosis match [b]						
Acne, Rosacea and Hidradenitis (n=39)	0.95	0.88, 1.01	0.96	0.91, 1.01	0.98	0.94, 1.01
Papulosquamous rashes (n=50)	0.74	0.61, 0.86	0.81	0.70, 0.91	0.83	0.73, 0.93
Malignant neoplasm (n=25)	0.76	0.53, 0.99	0.90	0.77, 1.02	0.86	0.69, 1.02
Treatment match [b]						
Biopsy match for malignancies [c] **(n=17)**	0.82	0.61, 1.03	0.82	0.62, 1.02	0.93	0.81, 1.05

[a] Means represent margin values estimated using mixed models accounting for repeated assessments across modes (i.e., repeated patient subjects), with modes of evaluation as predictor.

[b] Means of percent matches (ranging from 0 to 1).

[c] Subset of matched malignancy and clinical treatment being biopsy

Abstract N°: 2379

Exploring High-Frequency Ultrasound in Basal Cell Carcinoma Diagnosis and Monitoring: Enhancing Precision and Patient Care.

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Introduction & Objectives:

Basal cell carcinoma (BCC) is a type of skin cancer that originates from the basal cells of the epidermis. Its incidence has been increasing globally in recent years, and it is now recognized as the most common form of skin cancer worldwide, accounting for 75-80% of all skin tumors. BCC typically grows slowly and is therefore usually locally invasive, with a metastasis rate of less than 1%. Various diagnostic scanning methods are available, including digital dermatoscopy, confocal microscopy, and ultrasound, which is a technique of recent development and allows to explore the different layers and structures of the skin in a non-invasive way, limiting the depth and the peripheral margins of the lesion.

Materials & Methods:

Results:

A 77-year-old woman with a history of type 2 diabetes and systemic arterial hypertension was evaluated for a localized dermatosis affecting the face in the left malar region consisting of neoformation with scale and erythema of 1cm x 1.3cm, the patient stated an evolution of 2 years. Ultrasound , was performed after clinical observation finding with gray scales hypoechoic lesion with little dotted hyperechogenic lesion inside of an oval lesion of 1.53cm x 1.71 cm. Confocal microscopy reported the following findings: stratum corneum with hyperkeratosis, epidermis with typical honeycomb patron, from the basal layer to the middle reticular dermis, a neoformation was observed in hypo-reactive nests and blood vessels with slow leukocyte flow (leukocyte trafficking), with free margins of 5 mm below the lower eyelid, involving a much larger size than reported at the clinical examination, with a presumptive diagnosis of basal cell carcinoma.

Conclusion:

The use of high-frequency ultrasound (HFUS) in the diagnosis and monitoring of basal cell carcinoma has been gaining popularity in recent decades. Although the ultrasound technique itself has long been available, and its usefulness may vary depending on the availability of equipment and the training of medical personnel, its specific application in basal cell carcinoma has evolved over the last two decades or so. The technique has been refined and adapted to provide high-resolution images of the dermal layers and is currently considered a reliable technique for estimating the depth and lateral extent of basal cell carcinoma. Ultrasound was particularly useful in the present case for its ability to estimate a larger size than obtained by clinical evaluation and subsequent confocal microscopy.

From the case presented here, we can conclude that the use of non-invasive methods in the diagnosis of basal cell carcinoma is fundamental for both diagnostic accuracy and patient comfort and well-being. These techniques, which include dermatoscopy, reflective confocal microscopy, and high-frequency ultrasound, allow for a detailed prior evaluation that reduces the risk of recurrence, thus improving the patient's prognosis and quality of life.

Application of ultrasound in the management of Dermatofibrosarcoma Protuberans: A case study and its implications

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Introduction & Objectives:

Skin ultrasound for dermatofibrosarcoma protuberans (DFSP) is increasingly being studied due to its potential to improve the management of this tumor. We present a case of DFSP where ultrasound-histology correlation demonstrates the importance of this novel technique.

Materials & Methods:

A 24-year-old woman with no significant medical history presented with an asymptomatic tuberous lesion in the lumbar region with a 9-year history of progression and increased growth over the past 2 years. Examination revealed a 12 mm oval papulonodular lesion with a brownish macular area and a scarred violaceous region at the lower pole, without locoregional lymphadenopathy. Sonographically, a poorly defined hypoechoic lesion with pseudopod projections and a diffuse increase in vascularity on Doppler was observed. These findings were consistent with the initial suspicion of DFSP, which was later histologically confirmed.

Results:

DFSP is a dermal sarcoma with low metastatic potential but significant local invasiveness. It typically manifests as firm papulonodular lesions. Ultrasound is becoming increasingly important in the characterization of this neoplasia, as the typical ultrasound findings (as seen in our case) closely correlate with the pathology features. These features include poorly defined spindle-shaped tumors with storiform patterns and potential subcutaneous infiltration with a "honeycomb" or "ladder" appearance, along with positive immunohistochemistry for CD34 and negative for factor XIIIa.

Moreover, ultrasound not only aids in diagnosis but also provides valuable prognostic and treatment information, offering a spatial image of the entire lesion. Given the potential local aggressiveness, the treatment of choice for dermatofibrosarcoma protuberans remains radical surgery with wide margins or Mohs surgery to ensure complete excision. Preoperative ultrasound may represent a paradigm shift in achieving this goal.

Conclusion:

Skin ultrasound is a field in constant development that has shown its value in the diagnosis, prognosis, and treatment of various skin tumors. In the specific case of dermatofibrosarcoma protuberans, it presents an interesting option to confirm clinical suspicion and guide therapeutic approaches.

Abstract N°: 2953

Line-field confocal optical coherence tomography and reflectance confocal microscopy of Merkel cell carcinoma.

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Introduction & Objectives:

Merkel cell carcinoma (MCC) is a rare neuroendocrine neoplasm with a high rate of metastasis and mortality. Five-year survival rates are 51% for local disease, 35% for nodal disease, and 14% for distant disease.

Unfortunately, MCC often presents with a non-specific clinical appearance, having a broad differential diagnosis, including squamous and basal cell carcinoma, amelanotic melanoma, cyst, dermatofibroma and vascular neoplasms.

For this reason, an early diagnosis of the tumor, obtained through non-invasive diagnostic techniques, is essential for the prognosis of the patients.

In this work, we report for the first time the 3D LC-OCT features of MCC observed in a histologically confirmed case, comparing them with those of RCM.

Line-field confocal optical coherence tomography (LC-OCT) is a non-invasive in vivo diagnostic technique recently introduced in dermatology. It combines the principle of Optical coherence tomography (OCT) interferometry with the spatial filtering of reflectance confocal microscopy (RCM), providing a histological-like vertical, a RCM-like horizontal and a new unique tridimensional (3D) reconstruction of the skin.

In this work, we report for the first time the 3D LC-OCT features of MCC observed in a histologically confirmed case, comparing them with those of RCM.

Materials & Methods:

Clinical, LC-OCT and RCM images of a patient with histological diagnosis of MCC were acquired in the Department of Dermatology of the Spedali Civili of Brescia and analyzed by two trained dermatologists (SS and MV).

Results:

RCM shows multiple dermal aggregates of different size and shape of monomorphous hyporeflective cells, that can be discohesive in some areas, outlined by hyperreflective coarse collagen fibers. It is possible to highlight the presence of solitary bright cells (that we assume may correspond to immune cells, probably lymphocytes or highly proliferative Merkel carcinomatous cells), inside the hyporeflective nests and large caliber vessels in proximity of tumors' proliferations.

The vertical and 3D LC-OCT projections adequately reflect the histological appearance of the tumor. The epidermis, showing a mild hyperkeratosis, is regular and separated from the dermis by a flat dermo-epidermal junction due to the underlying dermal proliferation. The dermal nodular component of MCC is characterized by the alternation of white lines and dark spaces, representing nests of Merkel cells surrounded by collagen septa. This presentation appears different from the "wave pattern" already described in benign dermal melanocytic lesions: collagen fibers are thicker, more irregular and sometimes have a vertical orientation. Inside the

hyporeflective nests it is possible to recognize the presence of the same solitary bright cells highlighted with the confocal.

Conclusion:

LC-OCT, thanks to its cellular resolution, its depth of penetration and its tridimensional view, seems to be very useful for the diagnosis of MCC, allowing it to be differentiated from other clinically and dermoscopically similar tumors.

Abstract N°: 2969

Diagnostic difficulties in cutaneous sarcoidosis: a case report

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Introduction & Objectives:

Sarcoidosis is a multisystem disease that can affect almost any organ, including the skin.** Cutaneous manifestations of sarcoidosis are characterized by the formation of typical granulomas, which are non-caseating epithelioid granulomas**. As the skin lesions in sarcoidosis display significant morphological heterogeneity, its diagnosis can be challenging. Consequently, histopathological confirmation is essential to prevent treatment delays and potential long-term complications.

Here, we present a case report of a patient, who was diagnosed with granulomatous rosacea, based on clinical presentation and histopathological findings. The patient underwent a repeat biopsy due to treatment failure, which was crucial for the appropriate diagnosis.

Materials & Methods:

A 33-year-old woman with nodular facial skin lesions since 2019 was admitted to the clinic for further evaluation. She has a history of severe, treatment-resistant nodulocystic acne for many years.

In 2021, due to lack of response to treatment, a skin biopsy was performed and revealed dermatitis with numerous epithelioid histiocyte granulomas containing occasional multinucleated giant cells. These granulomas were closely spaced between hair follicles without epithelial damage and were surrounded by lymphocytes, exhibiting a tendency to coalesce. The histological picture suggested a tuberculoid pattern, favoring a diagnosis of granulomatous rosacea. However, treatment with oral isotretinoin and topical ivermectin for several months failed to improve the lesions.

Results:

Our dermatological examination revealed confluent nodular lesions with a visible vascular component on the right cheek and an erythematous, infiltrative plaque above the upper lip. The laboratory tests showed no abnormalities.

Given the persistent clinical picture despite treatment and the lack of response to typical rosacea therapy, a repeat skin biopsy was performed for further histopathological evaluation. Subsequent histological examination demonstrated the presence of sarcoidal granulomas within the dermal infiltrate.

Based on the clinical presentation, negative laboratory tests, and the characteristic histological finding of sarcoidal granulomas, the diagnosis of cutaneous sarcoidosis was established.

Conclusion:

Skin involvement is the most common extrapulmonary manifestation of sarcoidosis and is often the first symptom of the disease. Skin lesions may accompany organ involvement, but they may also appear as the sole form of

manifestation of this disease. Due to the diverse clinical picture, changes in the course of sarcoidosis can be misdiagnosed as other skin diseases, which delays the implementation of appropriate treatment. It is important to remember that in cases of ineffective treatment even after a histopathological diagnosis, sometimes a re-evaluation of the histopathology is necessary.

A prediction model identifying glycolysis signature as therapeutic target for psoriasis

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Introduction & Objectives:

The hyperproliferation featured with upregulated glycolysis is a hallmark of psoriasis. However, molecular difference of keratinocyte glycolysis amongst varied pathologic states in psoriasis remain elusive.To characterize glycolysis status of psoriatic skin and assess the potential of glycolysis score for therapeutic decision.

Materials & Methods:

We analyzed 345414 cells collected from different cohorts of single-cell RNA seq database. A new method, Scissor, was used to integrate the phenotypes in GSE11903 to guide single-cell data analysis, allowing identification of responder subpopulations. AUCell algorithm was performed to evaluate the glycolysis status of single cell. Glycolysis signature was used for further ordering in trajectory analysis. The signature model was built with logistic regression analysis and validated using external datasets.

Results:

Keratinocytes (KCs) expressing SLC2A1 and LDH1 were identified as a novel glycolysis-related subpopulation. Scissor+cells and Scissor-cells were defined as response and non-response phenotypes. In Scissor+SLC2A1+LDH1+ KCs, ATP synthesis pathway was activated, especially, the glycolysis pathway being intriguing. Based on the glycolysis signature, keratinocyte differentiation was decomposed into a three-phase trajectory of normal, non-lesional, and lesional psoriatic cells. The area under the curve (AUC) and Brier score (BS) were used to estimate the performance of the glycolysis signature in distinguishing response and non-response samples in GSE69967 (AUC =0.786, BS =17.7) and GSE85034 (AUC=0.849, BS=11.1). Furthermore, Decision Curve Analysis suggested that the glycolysis score was clinically practicable.

Conclusion: We demonstrated a novel glycolysis-related subpopulation of KCs, identified 12-glycolysis signature, and validated its promising predictive efficacy of treatment effectiveness.

Abstract N°: 3430

Atypical nevi in dermoscopy and reflectance confocal microscopy: correlation between immunohistochemistry and diagnostic patterns of atypia.

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Introduction & Objectives: Even if dermoscopy and/or reflectance confocal microscopy (RCM) reveal positive melanoma-associated characteristics, equivocal cutaneous melanocytic lesions can occasionally be diagnosed as "nevi" at histopathology. The use of immunohistochemical (IHC) analysis is used to find markers that distinguish melanoma from naevi. When there is uncertainty about the histological diagnosis, several proliferative markers, including CD271, CD20, CD31, and Cyclin D1, can be examined. These markers have historically been linked to the diagnosis of melanoma.

Materials & Methods: We prospectively detected ambiguous lesions that satisfied at least one melanoma criterion on dermoscopy and/or RCM, with a histological diagnosis of naevus (Prot.# 289\13). IHC was used to evaluate equivocal lesions in order to discover potential biological and morphological markers, such as CD271, CD20, CD31, and Cyclin D1. These markers were then associated with dermoscopy and RCM patterns that supported melanoma. IHC markers were categorized as either nonexistent or in terms of their level of presence (1, 2, or 3 [level 3 exclusive to Cyclin D1]).

Results: Of the 69 patients (69 lesions) that were included, 50.7% of the patients were male and the mean age was 45.7 years ($\pm$12.9, range 22.6-71.6). Irregular dots and globules were the most commonly detected feature (72.5%) based on dermoscopic patterns. At RCM, lesions frequently showed pagetoid cells (43.5%; mostly dendritic 25/30), focally distributed (37.7%), in <25% of the RCM image (39.1%), and atypical cells in the dermo-epidermal junction (DEJ; 49.3%). Cyclin D1 (91.3%) and CD31 (95.6%) expression were detected by IHC in the majority of lesions. Infrequently registered were CD20 (23.5%) and CD271 (8.7%). These findings confirm that equivocal naevi also exhibits irregular spots and globules, which are listed in the updated melanoma 7-point checklist. Malignant melanoma frequently exhibits pagetoid dendritic cells and atypical cells in the DEJ upon RCM.** On sun-damaged skin, dendritic cells have been linked to slow-growing melanoma, or the so-called melanocytic "proliferating attitude". The presence of Cyclin D1, which is thought to promote mitosis and be implicated in the pathophysiology of atypical naevi, verified this proliferating attitude in over 90% of the lesions at IHC. Additionally, nearly all of the atypical naevi in this investigation had the endothelial CD31 marker, which has been linked to enhanced carcinogenesis in melanoma. Cyclin D1 and atypical cells were found to be correlated (p=0.022) by chi-squared analysis, as were atypical cells found in less than 25% of the RCM picture (p=0.029). Atypical naevi included in this study had higher expression of Cyclin D1 than common naevi, which may correlate visually with characteristics tested upon RCM with cytoarchitectural atypia, focally distributed (<25%), which may not translate into a biologically typical type of malignant phenotypes.

Conclusion: The authors suggest that additional information regarding the controversial idea of atypical nevi and their connection to melanoma advancement may be provided by the finding of a small number of localized atypical cells in the DEJ upon RCM and positive IHC markers linked to tumor progression (initialization?).

Abstract N°: 3665

Mapping Malignant Melanoma Using Bedside Photoacoustic Imaging

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Introduction & Objectives:

Early and precise diagnosis of cutaneous malignant melanoma is crucial for optimal treatment. New advanced imaging technologies have the potential to enhance diagnostic precision and reduce unnecessary excision. Photoacoustic imaging (PAI) is one such emerging technology that combines optical and ultrasound imaging to visualize endogenous chromophores at depths of up to centimeters. In this study, we investigate the use of novel PAI in a clinical setting, alongside established techniques such as reflectance confocal microscopy (RCM) and dermoscopy, to differentiate between benign and malignant pigmented skin lesions and improve bedside diagnostic accuracy.

Materials & Methods:

This prospective diagnostic trial enrolled patients referred to a University Hospital with suspicious pigmented skin tumors. Lesions were dermoscopy, PAI and RCM-imaged in a 20–30-minute session. Tumors were histologically verified. Diagnostic features in PAI and RCM images were analyzed, and diagnostic accuracies assessed. Tumor thickness, melanin, hemoglobin, collagen and lipid content were measured by PAI. New diagnostic hypothesis, combining RCM, PAI and dermoscopy were tested.

Results: 75 patients were included. Quantitative analysis of PAI images revealed that malignant lesions exhibited significantly higher concentrations of melanin, hemoglobin, lipids, and collagen in comparison to benign lesions. A strong predictor for malignancy in PAI was intermingled network of melanin and blood vessels. Abundant blood vessels in PAI in combination with a high dermoscopy score were strong predictors of malignancy. Incorporation of PAI as adjunctive tool improved sensitivity when compared to relying solely on RCM and dermoscopy. Following RCM and PAI scanning, there was an increase in accurate diagnoses. However, tumor thickness measured by PAI significantly overestimated histological measurements. Entire data set and results will be presented when JEADV embargo is lifted Sept 25th 2024.

Conclusion:

PAI holds significant potential for improving skin cancer diagnosis with a notable increase in diagnostic precision. Integrating RCM and PAI in the clinic offers comprehensive bedside visualization, potentially reducing invasive procedures.

Abstract N°: 3926

Integrating RNA Tape Stripping and Dermoscopy for Comprehensive Melanoma Diagnosis

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Introduction & Objectives:

Distinguishing cutaneous malignant melanoma (MM) from benign pigmented skin lesions is a diagnostic challenge, often resulting in unnecessary removal of benign lesions. Dermoscopy plays a crucial role in evaluating skin lesions and detect specific features associated with malignancy. RNA tape stripping, a minimally invasive method for collecting superficial skin cells, shows promise for diagnosing cutaneous lesions by directly revealing malignancy-associated gene expression patterns. This study's primary objective is to explore the diagnostic accuracy of RNA tape-stripping and connections between expressed RNA genes and dermoscopic features. We aim to assess the integration of tape stripping with dermoscopy as a synergistic diagnostic strategy for melanoma.

Materials & Methods:

The study conducted at a University Hospital involved tape stripping of 75 lesions suspicious for malignant melanoma before surgical excision. RNA on the tape strips were analyzed using quantitative real-time polymerase chain reaction. The results were combined into a binary outcome, with positive indicating malignancy and negative indicating non-malignancy. Dermoscopic images of the lesions were scored using the seven-point checklist (7PCL). RNA profiles and dermatoscopic features in 7PCL were compared using The Mann-Whitney U test. Histopathological diagnosis was used as the gold standard.

Results:

Histopathology revealed 18 malignant melanoma, 2 basal cell carcinomas, and 53 non-malignant lesions. The RNA test demonstrated 100% sensitivity for all malignant lesions (MM+BCC) and identified non-malignancy in 25% of cases (25% specificity). 7PCL missed 4 MM (total score < 3) with a sensitivity of 78% and specificity of 58%. Interestingly, significant differences in RNA profiles were observed for lesions expressing "atypical network" and "regression structures" in dermoscopy. The entire dataset and results will be presented at the congress.

Conclusion:

Combining RNA tape stripping with dermoscopy presents an exciting opportunity to synergize molecular and morphological information, potentially enhancing the accuracy of melanoma diagnosis. Dermatoscopic features can help us understand the RNA profile better,and vice versa, possibly making both methods more accurate.

The high-frequency ultrasonography patterns of the different skin lesions in mycosis fungoides. The case study.

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Introduction & Objectives: High-frequency ultrasonography (HFUS) is a non-invasive and cheap diagnostic tool, used in dermatology to evaluate efficacy of treatments and monitor disease progression. Mycosis fungoides (MF) can present as patches, papules, plaques, nodules, and tumours. Nowadays the main tool for assessing the stage of the disease is mSWAT (modified Severity Weighted Assessment Tool).

Materials & Methods: We describe a case of a 79-year-old male first seen at the Department of Dermatology in 2022. During the initial hospitalisation, the patient presented with erythematous and scaling lesions on his upper and lower extremities, trunk, and head, along with moderate pruritus (4/10 on the NRS scale). Treatment included PUVA therapy (18.6 mJ/m2) and clobetasol propionate ointment 0.5 mg/mL b.i.d, providing partial relief. Elevated levels of beta-2-microglobulin (2.62 mg/l, normal: 2.5 mg/l)) were concurrently detected. During next hospitalisation 2 months later, peripheral blood immunophenotyping unveiled abnormal CD4+/CD7-: 8%, CD4+/CD27-: 23.0%, and CD4+/ CD8+: 1:4:1- subsets, indicative of mycosis fungoides (MF). A histological analysis of a skin biopsy from a previous hospitalisation confirmed lymphocytic and plasma cell infiltration, along with elastolysis, consistent with MF pathology. Treatment included subcutaneous methotrexate (20 mg/week). Six months later, new erythematous, infiltrated lesions appeared. During third hospitalisation the diagnosis was again confirmed by immunohistochemical examination detecting CD30+ cells and a Ki67 expression of 10% Treatment with bexarotene followed. In 2024 the patient showed widespread erythematous and infiltrated lesions, with epidermal desquamation and xerosis, notably affecting the scalp. During the last hospitalisation, PUVA therapy was added to bexarotene, the total dose was 20.9 mJ/m2 resulting in favourable clinical response.

Results: The assessment of the patient's cutaneous lesions unveiled two kinds of HFUS patterns: in case of tumours in HFUS was observed the wide band i.e. 0,1-1.2 mm hypoechogenic shadow, and in case of erythematous lesions only narrow band max. 0,1 mm hypoechogenic shadow below the entrance zone. Following PUVA therapy alongside concurrent bexarotene improvement was also evident in HFUS imaging the reduction of the hypoechogenic shadow.

Conclusion: Currently, the most commonly used indices is mSWAT, which distinguishes only 3 types of changes: patches, plaques, and tumours. We propose introducing a more precise tool for clinical staging assessment - HFUS. Our case confirms that HFUS is helpful in monitoring treatment effectiveness in MF as well as we revealed two patterns of HFUS pictures – one for flat and another one for elevated skin lesions in mycosis fungoides. Subvention number SIMPLE: SUBK.C260.24.059

Abstract N°: 4214

Reflectance Confocal Microscopy Combined with Dermoscopy and Histology in the Diagnostic Setting of Pigmented Eccrine Poroma

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Introduction & Objectives: Pigmented eccrine poroma (PEP) is a unique variant of a benign adnexal tumor known as eccrine poroma. Distinguishing PEPs from other pigmented lesions can be challenging due to overlapping clinical and dermoscopic features. We aimed to provide a comprehensive analysis of the dermoscopic, confocal (RCM), and histological features of PEPs.

Materials & Methods: We undertook a retrospective study of the clinical, dermoscopic, RCM and histopathological features of PEPs that were surgically excised and histopathologically recognized. Data on epidemi- ological, clinical, dermoscopic, RCM and histopathological features were collected from the databases of the Skin Cancer Unit, IRCCS Policlinico di Sant'Orsola, between January 2021 and May 2023.

Results: he study population consisted of 61 patients, including 34 females (55.7%) and 27 males (44.3%). Dermoscopic examination of 61 PEPs revealed the presence of irregular borders (55.7%), milia-like cysts (50.8%), brown pseudo-network (41%), cerebriform pattern (34.4%), comedo-like openings (29.5%), atypical vessels (26.2%), glomerular vessels (18%), fingerprint-like perifollicular structures (8.2%), dots (4.9%) and dotted vessels (4.9%). RCM imaging was collected from 11 cases and showed mostly well-defined tumor nests with small cells in 100% of cases, bright structures in the upper dermis representing melanocytes and melanophages (63.6%), dark round spaces within the tumor nests (54.5%), well-demarcated borders of the nest (45.5%) and dilated and prominent vessels in upper dermis (27.3%). Histopathological pattern analysis revealed PEP sensu stricto (PEPss) as the most frequent (54.1%).

Conclusion: The distinctive dermoscopic patterns, along with the confocal features aid in the differentiation from other pigmented lesions.

Abstract N°: 4436

Non-invasive assessment of skin vascularization, blood perfusion and micro-morphology in patients with atopic dermatitis and psoriasis

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Introduction & Objectives:

Atopic dermatitis and psoriasis are two chronic inflammatory skin diseases that significantly impact the physical, psychological, and social well-being of affected individuals. Inflammation promotes angiogenesis; therefore, these diseases are associated with changes in the skin's capillary system. Current techniques for studying dermal microvasculature such as capillaroscopy, intravital microscopy and laser Doppler imaging have poor spatial resolution, require exogenous contrast agents, or are limited to specific regions of the body. In this study, we will apply laser speckle contrast imaging (LSCI) and optical coherence tomography angiography (OCTA) to patients with atopic dermatitis and psoriasis. The techniques complement each other and offer non-invasive, high-resolution alternatives to better understand the microstructural and vascular changes in these skin diseases. The full-field technique LSCI maps blood perfusion at the capillary level, while OCTA visualizes 3D dermal microanatomy with micrometer resolution. To the best of our knowledge, investigating atopic dermatitis and psoriasis using a combination of LSCI and OCTA has not been done before.

Materials & Methods:

This feasibility study involves recruiting 10 patients with atopic dermatitis, 10 patients with psoriasis, and 5 healthy control subjects. All participating patients will fill out the Dermatological Quality of Life Index (DQLI) questionnaire and will be assessed by a clinician who will record an Eczema Area and Severity Index (EASI) or Psoriasis Area Severity Index (PASI) score. Additionally, a lesion on the patient's arm will be scanned using the LSCI and OCTA techniques and will undergo one biopsy (see Fig 1). Subsequently, a non-lesional spot on the patient's arm will be scanned using the OCTA technique and will also undergo one biopsy. Healthy controls will be scanned with LSCI and OCTA techniques and undergo a biopsy on one arm. The biopsies will consist of four-millimeter punch biopsies and will be used to assess the degree of inflammation and angiogenesis. They will be stained with hematoxylin-eosin for inflammation, and antibodies for CD-31 to measure capillary density in the skin. Additionally, antibodies for aquaporin 3 will be used to investigate the amount of aquaporin 3 present. Measured parameters are correlated with the type and degree of disease.

Results:

Outcomes include the differentiation of dermatological disease states based on microstructural and vascular properties. Quantitative imaging measures are correlated with questionnaire responses, clinician assessment and histological findings. Results will be statistically analyzed using appropriate tests.

Conclusion:

The study demonstrates the potential of combining LSCI and OCTA techniques in disease monitoring, clarifying diagnosis, and complementing or replacing invasive biopsy procedures for assessing skin microvasculature in

atopic dermatitis and psoriasis.

Figur 1:

Created in Biorender.com
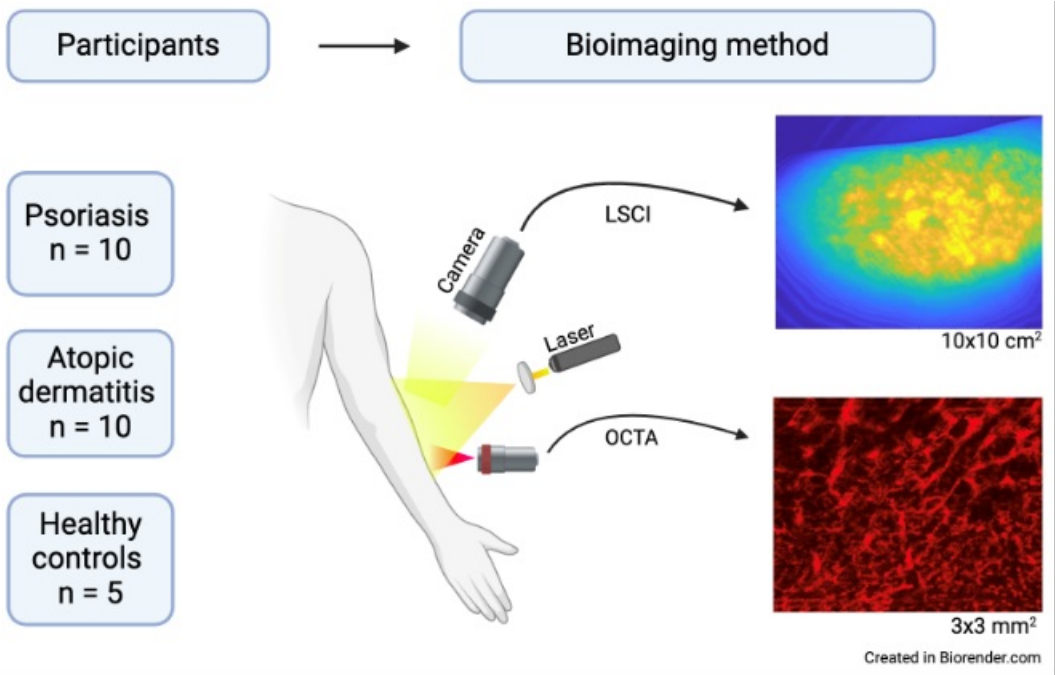
Abstract N°: 4568

Confocal microscopy and optical coherence tomography can be useful tools in breast skin lesion evaluation: case series

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Reflectance confocal microscopy and optical coherence tomography can be useful tools in breast skin lesion evaluation: case series

Introduction & Objectives: Breast cancer remains a significant health concern worldwide, a change in the shape or appearance of skin lesion on the breast or just of the nipple-areola complex (NAC), especially if it is unilateral and recent appearance, needs to be evaluated. The differential diagnosis of lesions involving this area encompasses a broad spectrum of conditions, ranging from benign tumors to inflammatory diseases and can be diagnostically challenging. Usually ultrasound, mammography or magnetic resonance imaging (MRI) are the most used non-invasive diagnostic imaging before biopsy, although in the recent years reflectance confocal microscopy (RCM) and optical coherence tomography (OCT), especially for cutaneous change, can be useful for the early diagnosis on sensitive cutaneous areas.

Materials & Methods: Three patients with suspicious breast lesions were evaluated. Lesions were imaged using: videodermoscopy, RCM and OCT, and the obtained images were analyzed for characteristics and tissue architecture. Results were biopsied and compared with histopathological findings.

Results: thanks to non-invasive diagnostic imaging technique, we were able to make early diagnosis of Paget disease, pigmented basal cell carcinoma, with unusual aspect, and breast cancer metastasis.

Conclusion: Our findings demonstrate that both RCM and OCT offer high-resolution imaging capabilities, enabling visualization of cellular and structural details of breast lesions in real-time. RCM provides high contrast images of cellular features, while OCT offers depth-resolved structural information. Furthermore, comparative analysis revealed complementary strengths of the two modalities. Overall, the combination of RCM and OCT holds promise as a comprehensive diagnostic tool for breast lesion evaluation, offering real-time, non-invasive imaging with potential applications in clinical practice for improved diagnosis and treatment monitoring. Specifically, this approach is poised to transform the work of pathologists and breast specialists, providing comprehensive diagnostic insights. Additionally, it will guide surgeons not only in therapeutic decision-making but also in achieving optimal aesthetic outcomes.

Keywords: basal cell carcinoma; confocal microscopy; metastasis; nipple-areola complex; optical coherence tomography Paget's disease.

Abstract N°: 4692

FTIR spectroscopy as a fast non-invasive technique for skin cancer differentiation

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Introduction & Objectives:

Skin cancer continues to escalate annually at a global level, affecting individuals across all skin types. Basal-cell carcinoma (BCC), the most common form of non-melanoma skin cancer, is mainly attributed to sun exposure. This study utilized non-invasive Fourier-transform infrared (FTIR) spectroscopy to characterize and discern the molecular and conformational changes induced by BCC in human skin, aiming at facilitating early cancer diagnosis.

Materials & Methods:

Human and SKH-HR2 male mice with BCC lesions were included in this study. FTIR spectra were recorded by using a surface-contact handheld spectrometer (resolution 4 cm-1, 60 scans/spectrum), enabling real-time detection of cancer development at any stage. Scanning electron microscopy (SEM) was employed to examine the architecture and elemental analysis of BCC biopsy specimens.

Results:

Comparison analysis of FTIR spectra between healthy and BCC skin tissues showed intensity and frequency shift variations within the 1800-700 cm-1 region (Fig. 1). The "diagnostic band" at around 1740 cm-1, attributed to νCHO of aldehyde from lipid peroxidation caused by BCC, increased in intensity with BCC progression. Further, the high-intensity band at 1650 cm-1, corresponding to amide I of protein peptide bonds (-NHCO-), displayed splitting concerning the change from α-helix to random coil and amyloid conformational structure. A downward shift of the amide II band of the proteins β-turns from 1550 cm-1 to 1543 cm-1 suggested alterations in the secondary structure of collagen proteins upon cancer development. Enhanced intensity of absorption bands in the 1250-1000 cm-1 region, corresponding to νPO22- DNA groups and the νC-O-C- of sugar ring of glycosaminoglycans along with exocyclic νC-O-C of inter-molecule groups, indicated skin glycosylation, a process also observed in breast and colon cancers. Moreover, the observed new bands near 872, 841 and 815 cm-1, arising from tyrosine amino acids, B-DNA and Z-DNA, respectively, were correlated with cancer progression, indicating aggressive tumor growth. SEM analysis revealed the presence of non-life metal ions such as gold (Au), lead (Pb) and aluminum (Al) in BCC lesions, particularly near the hair base (Fig. 2).

Conclusion:

This study indicates the potential of FTIR spectroscopy as a valuable non-invasive adjunct to histology for immediate skin cancer detection and discrimination. Specific spectral bands around 1740, 1200-900, 872, 841 and 815 cm-1 could serve as "diagnostic markers" for cancer development and progression. Notably, the 841 cm-1

band is absent in melanoma. Moreover, the detection of non-life metal ions, including Au, Pb and Al, may be crucially involved in conformational changes from native B-DNA to Z-DNA, potentially influencing cancer progression. This underscores the impact of environmental factors, such as occupational exposure or implants, on skin health and their potential contribution to the initiation or progression of skin cancer.
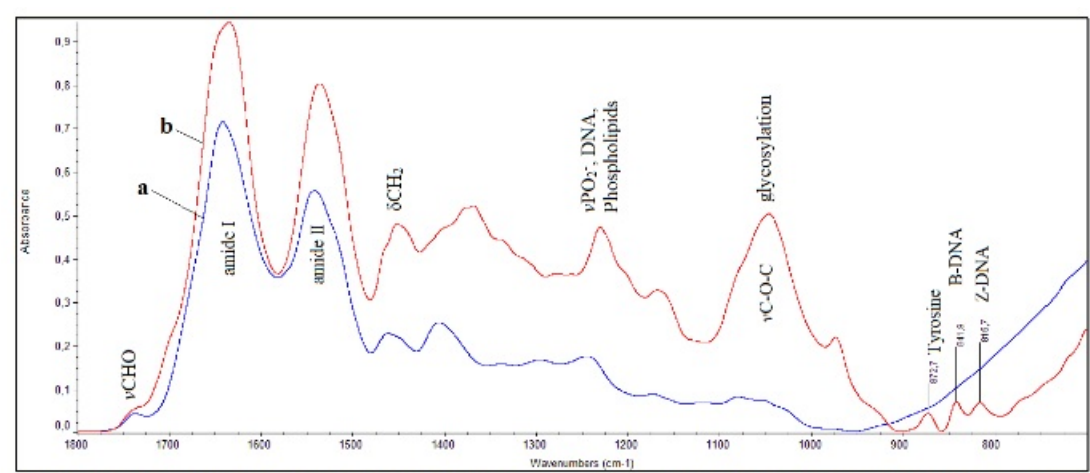

Figure 1: Characteristic FTIR spectra recorded on skin surface contact a; healthy skin and b; BCC region. There are noticed the "marker bands" that are used for early skin cancer diagnosis.
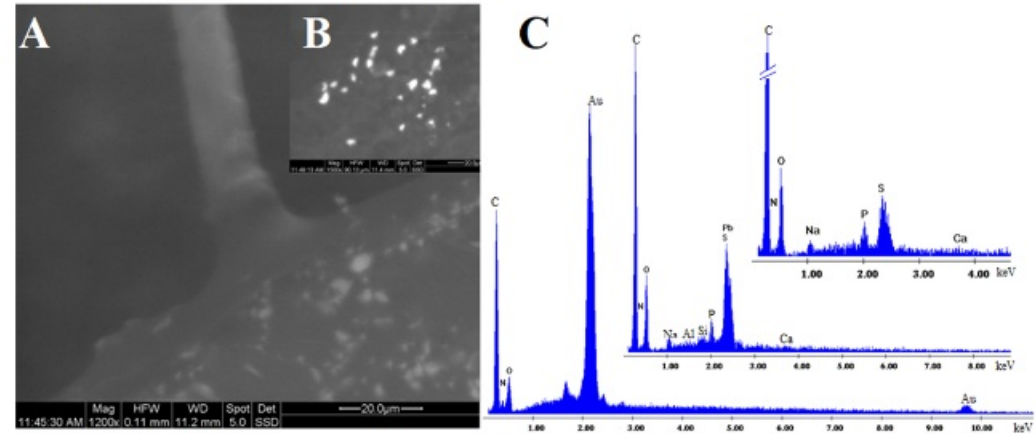
Figure 2: A; Morphology of BCC tissue (1200x, 20μm). **B;** Magnification of region rich in metal ions (1200x, 20 μm). **C;** Elementary analysis of the region B.

Abstract N°: 5146

Depression and anxiety in patients with vitiligo

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Introduction & Objectives: Vitiligo is a chronic autoimmune disease characterized by skin depigmentation, affecting approximately 1% of the global population. Along with skin manifestations, vitiligo sufferers often face significant emotional and psychological problems. Of great scientific and clinical interest in international psychodermatological studies are the complex relationships between vitiligo and psychosomatic disorders, with an emphasis on secondary (nosogenic) anxiety and depressive disorders in patients with vitiligo under conditions of social stress and stigma. To assess the level of clinical depression and anxiety, as well as social anxiety in patients with vitiligo

Materials & Methods: The study included 50 patients with vitiligo who were tested for general health using the GHQ-12 scale. Patients scoring >3 on the GHQ-12 were further assessed on the Hamilton Depression Scale (HAM-D), the Hamilton Anxiety Scale (HAM-A), and the SIAS Social Interaction Anxiety Scale. The results were statistically analyzed using SPSS-22.

Results: Of the 50 patients examined, 36 patients had a GHQ score >3 (which correlates with mental/psychosomatic disorders). 46% showed symptoms of depression on the HAM-D scale: 20% - mild, 24% - moderate, 4% - severe. According to the HAM-A scale, 48% of patients had anxiety: 36% - mild, 8% - moderate, 4% - severe. According to the SIAS scale, 36% of patients (20% of men and 60% of women) had severe social anxiety.

Conclusion: : The majority of patients in the studied sample with vitiligo showed high levels of depression, anxiety and social anxiety, which were clinically verified mainly within the framework of nosogenic reactions to the semantics of the diagnosis and cosmetic manifestations of the skin disease. Considering the psychosomatic status of patients, it seems appropriate to include psychocorrective means and techniques in the complex treatment of vitiligo.

Abstract N°: 5217

Assessment of diagnostic yield of nail biopsies at a tertiary care centre – A retrospective study

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Introduction & Objectives:

Nail biopsy is an investigation that provides etiologic and diagnostic information of nail diseases. It can be of various types depending on the unit of the nail sampled and on the technique used for biopsy. Only a few studies have assessed the significance of nail biopsy as a diagnostic modality and variable results have been noted in these studies. Hence in this study ,we aimed to analyse all the nail biopsies performed for past 2 years at a tertiary care centre and evaluate its diagnostic yield

Materials & Methods:

This was a retrospective study design. We collected all the records of nail biopsies and data including the age and gender of the patient, indication for biopsy, type of nail biopsy performed, onychoscopy (if performed), any relevant investigations including potassium hydroxide and culture (if done) and histopathological reports.

Results:

We analysed a total of 45 nail biopsies. The age of the patients ranged from 1-81 years. Majority (29) of patients were males (64.4%) and 16 (35.5%) were female. The indications for biopsy included both infectious and non-infectious causes. Infectious causes included onychomycosis (18) and non-infectious causes included nail tumors (8), trachonychia (4), nail lichen planus (6), nail psoriasis (3), langerhan cell histiocytosis (2), nail sarcoidosis (1), longitudinal melanonychia (3). The most common type of biopsy was nail matrix (17) and nail plate (17) followed by nail bed (10) and longitudinal nail biopsy (1). Clinico-histological correlation was done and it was diagnostic in 18 (40%) cases.

Conclusion:

Nail biopsy is not a commonly undertaken procedure which may be due to patient apprehension, variable expertise of dermatologist and the risk of adverse effects. However, with proper case selection and choice of biopsy technique, it can provide valuable histopathological data as seen in our study.** In conclusion, for nail disorders with diagnostic dilemma, nail biopsy can** be considered as a useful modality.

Investigation of correlation between Baumann skin type scores and skin biophysical properties

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Introduction & Objectives:

The skin type classification systems are widely used in the skin care industry nowadays, but the discrepancy between subjective and objective assessments always exist. Current classification systems are all based on information obtained from qualitative and subjective systems. The purpose of this study is evaluation of the correlation between accurate, objective and quantitative skin biophysical parameters and Baumann skin type's scores.**

Materials & Methods:

Seventy five healthy volunteers were included in the study. The stratum corneum hydration, transepidermal water loss (TEWL), erythema, melanin, sebum, elasticity parameters (R0, R2, and R5), pH (using the MPA 580), the thickness and echo-density of epidermis, and dermis (using the 22 MHz DUB-USB skin scanner) were measured on the middle forehead, chin, nose, and cheeks. Objective measurement of depth, area, and volume of nasolabial folds (using the VisioFace CSI software) were performed, too.

After determining the skin type score of each person by Baumann skin types questionnaire, the correlation between the score of each skin type and the mean of relevant skin parameters was determined using correlation coefficient statistical methods.

Results:

The correlation of Baumann oily vs. dry skin type score was 0.08 (p-value: 0.507) with stratum corneum hydration, -0.065 (p-value: 0.591) with TEWL, and 0.299 (p-value: 0.011) with sebum. The correlation of Baumann sensitive vs. resistant skin type score was 0.167 (p-value: 0.163) with skin erythema, 0.388 (p-value: 0.001) with TEWL, and 0.445 (p-value: 0.000) with pH. The correlation between Baumann pigmented vs. non-pigmented skin type score was 0.280 (p-value: 0.018) with skin melanin. The correlation of Baumann wrinkle-prone vs. tight skin type score was -0.242 (p-value: 0.042) with dermis thickness, 0.189 (p-value: 0.115) with dermis density, -0.128 (p-value: 0.288) with epidermis thickness, 0.162 (p-value: 0.181) with epidermis density, 0.495 (p-value: 0.000) with R0, -0.318 (p-value: 0.007) with R2, -0.014 (p-value: 0.907) with R5, 0.138 (p-value: 0.250) with nasolabial fold volume, 0.150 (p-value: 0.213) with nasolabial fold surface, and 0.048 (p-value: 0.690) with nasolabial fold depth.**

Conclusion:

Totally, the results of the study showed that only some of the biophysical skin parameters with a weak correlation, correlate the Baumann skin type scoring and it is necessary to develop novel skin type scoring systems based on quantitative and objective methods which could omit the limitations of previous qualitative and subjective methods.

Abstract N°: 5415

Utility of Ultrasound Biomicroscopy in the diagnosis of Skin diseases

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Introduction & Objectives:

Ultrasound Biomicroscopy (UBM) is a recent technique used for the visualization of the superficial structures of the skin with the help of a high-frequency ultrasound transducer with a 50 MHz probe. The resolution of the 50 MHz probe is 40 microns and the depth is 4 mm.

Materials & Methods:

Here we share our experience of using ultrasound biomicroscopy in the diagnosis of various skin diseases.

Results:

In sclerosing diseases like** morphea, UBM is useful in measuring skin thickness, identifying the activity of the disease, and the changes in echotexture of the dermis and subcutaneous tissue. It also helps in assessing responses to the treatment.

UBM is also helpful in identifying aging changes in the skin and topical steroid-induced atrophy of skin changes. Improvement in skin changes after appropriate treatment can also be monitored.

Tissue biopsy is the gold standard in the diagnosis of benign and malignant skin tumors, but sometimes tissue biopsy may not yield adequate results despite strong clinical suspicion. UBM is very useful in localizing clinically invisible lesions and helps in identifying the correct site for biopsy in addition to measuring the size of the tumors, echotexture, vascularity and extension into the surrounding or underlying structures.

In granulomatous diseases like lupus vulgaris and leprosy, granulomas can be seen as focal hypoechoic lesions in the dermis. These hypoechoic lesions can be seen especially around the appendages and blood vessels in leprosy. While in lupus vulgaris the granulomatous involvement can be appreciated in upper and mid dermis with more diffuse involvement.

In patients of alopecia areata, UBM shows an increase in epidermal thickness and hair follicle diameter which may be attributed to inflammatory infiltrate around the follicle. Reduction in hair follicular diameter can be seen after treatment, thereby it is effective in monitoring treatment response.

UBM helps in the diagnosis of nail unit diseases like digital myxoid cysts, glomus tumors, and neuromas. The nail unit has a complex structure and nail biopsy is the gold standard. But considering the size of small biopsies taken in this location there more chances of missing the diagnosis on nail biopsy. UBM helps in localizing the tumors, measuring size, and vascularity, and identifying the biopsy site. It is also helpful in identifying recurrence by long-term follow-up.

UBM has also been useful in superficial cutaneous parasitic infestations like dracunculosis, atypical mycobacterial infections, and botryomycosis.

Conclusion:

UBM is non-invasive. objective and cost-effective investigations in the diagnosis of many skin, hair, and nail diseases. In addition to dermoscopy and clinical examination, it is an additional technique to visualize the skin for diagnostic and prognostic purposes.

Abstract N°: 5453

Effects of Mogamulizumab on CD39, CD73 and CD38 ectonucleotidases expression in T-cells in patients with Sézary syndrome

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Introduction & Objectives: In patients with Sezary Syndrome (SS), a correlation between heightened CD39/CD73 expression and elevated extracellular adenosine concentrations has been described. Adenosine contributes to the establishment of an immunosuppressive tumor microenvironment. Additionally, CD38 expression in SS cells has been reported to be lower than those of benign T cells from the same patients and CD4+ T cells from healthy donors. However, recent studies highlighted a significant association between high CD38 expression and reduced survival rates in aggressive forms of cutaneous lymphoma. Overall, the impact of systemic therapy on the modulation of these markers continues to be a subject of ongoing debate.

Materials & Methods: Building on preliminary data, we investigated the expression of CD39/CD73/CD38 ectoenzymes in a prospectively collected cohort of SS patients recently detailed in the literature. Whole blood multiparametric flow-cytometry was performed on CD4+ T cells, specifically the CD26– and CD26+ subsets, and on CD8+ T cells at initial encounter and subsequent follow-up visits. Analysis of CD39 and CD73 in the skin biopsy from each patient was performed at baseline.

Results: Over a follow-up period of 24 months, the evaluation of 8 patients treated with anti-CCR4 mogamulizumab yielded noteworthy outcomes. Among them, seven (87.5%) displayed early complete depletion of SS cells in the blood, partial skin response, and a significant upregulation of CD38 expression in residual circulating CD4+ T cells. Patients with GG or AG ENTPD1 SNP rs10748643 genotypes, showing high CD39 expression at baseline, experienced a concurrent reduction in CD39 expression. In one patient carrying the AA genotype, characterized by low CD39 and high CD73 expression at the baseline, response to treatment lead to reduction of CD73 expression. The only one patient unresponsive to mogamulizumab, with AA genotype, showed no modulation of CD38 or CD39, while CD73 expression increased. In two out of seven responding patients, showing disease recurrence, CD39 expression gradually increased while CD38 expression simultaneously decreased.

Conclusion: These findings suggest that mogamulizumab not only reduces malignant T cells in SS but also has an impact on the expression of CD39, CD73 and CD38. Notably, mogamulizumab increases the expression of CD38 in responding patients and influences the expression of CD39 only in patients with proficient CD39 genotypes (GG, GA), but not in those with AA genotype. Despite recent research indicating no influence of anti-CCR4 mogamulizumab on CD38 expression, our extended patient follow-up of over two years sheds new light on the possibility of a steady increase in CD38. These results contribute valuable insights into the intricate dynamics of ectonucleotidase expression in SS patients undergoing targeted therapies, hinting at the potential of CD38 as a marker for monitoring responses to mogamulizumab therapy. Further investigations are crucial to evaluate the potential role of CD38 as a targetable molecule for refractory SS patients.
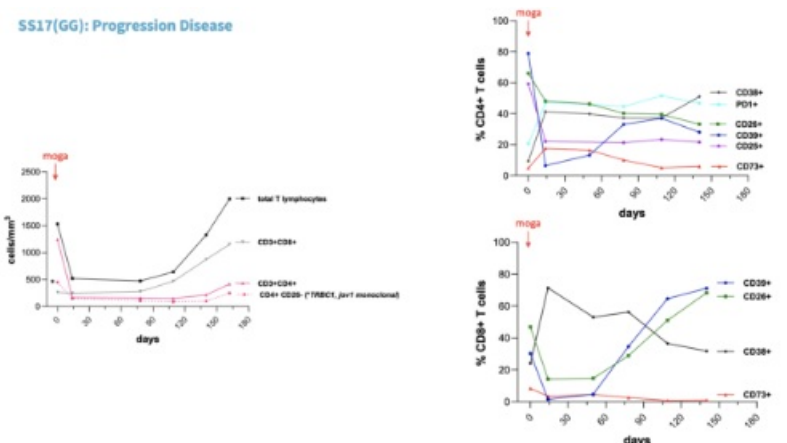
SS12(AA): No-Response
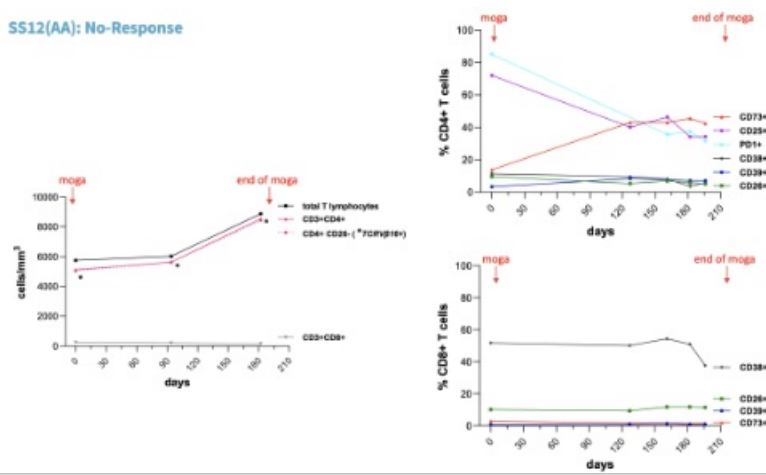
SS07(AG): Complete Response
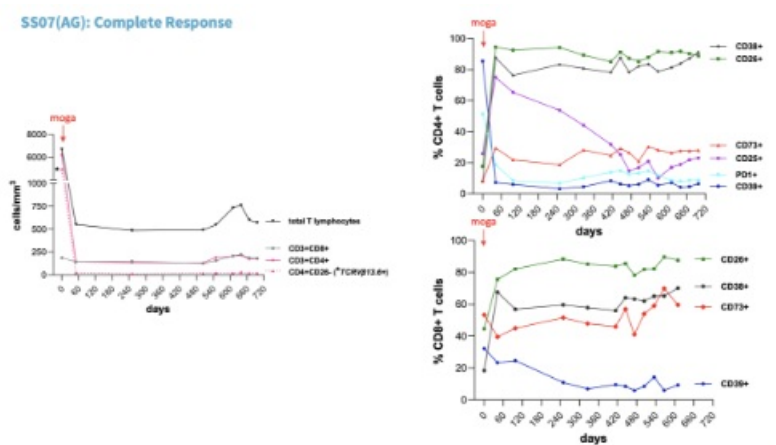
SS17(GG): Progression Disease

Abstract N°: 5793

A comparison between Lactic Acid Sting test and Sensitive Scale-10 in the diagnosis of Sensitive Skin

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Introduction & Objectives:

Sensitive skin can be defined clinically as the occurrence of abnormal stinging, burning, and tingling sensations (and sometimes as pain or pruritus) in response to multiple factors that may be physical, chemical and sometimes psychological or hormonal. Erythema is often but not always involved. Lactic Acid Sting Test (LAST) is a classical method to identify sensitive skin. LAST scores could be used to identify subjects with sensitive skin characterized mainly by stinging and itching, but not those mainly by burning and erythema. The Sensitive Scale-10 (SS-10) is a scale used to evaluate the severity of sensitive skin; it includes 10 items, and results in a score called the SS-10 score. SS-10 could be used to determine a cut-off for the diagnosis of sensitive skin. In this study we assessed the consistency between LAST and SS-10 scores in subjects with sensitive Skin.

Materials & Methods:

A single-center, prospective, self-controlled study involving 92 women with sensitive skin was performed in a hospital setting. Skin sensitivity was assessed by LAST and Sensicale-10 (SS-10 Global Score). Additional instrumental measurements were performed: Transdermal water loss (TEWL); Stratum corneum hydration (SCH); Skin pH; Sebum content; Erythema index (EI); VISIA red area and a* value (intensity of red in the skin color). Consistency analysis between LAST and SS-10 was assessed by Pearson correlation and Scatter plot analysis.

Results:

The results of 88 females were statistically analyzed. Average age: 40.7 ± 7.44. Skin Type: Dry skin: 44.50%; Normal skin: 27.31%; Combination to dry skin: 17.19%. Phototypes: II: 1.1%; III: 49.56%; IV: 38.43%. LAST mean scores (SD): 10.86 ± 4.00. SS-10 Global Mean Score (SD): 20.24 ± 9.93. Subjects were grouped according to SS-10 scores and cutoff values: 68.78% had sensitive skin (SS-10 global score ≥ 13) and 19.22% had slightly sensitive skin (5<SS-10 global score<13). Pearson correlation coefficient (r=0.211; p=0.048) showed a significant (weak) positive correlation between LAST and SS-10 scores. Additional instrumental measurements showed that sensitive skin had higher EI, a*, red area, and TEWL scores compared with slightly sensitive skin group.

Conclusion:

A positive but weak correlation was found between LAST and SS-10 scores. This weak correlation may be explained by previously reported significant different SS scores in stinging, itching, tautness and scaling between LAST-positive and -negative subjects as well as LAST-negative subjects showing burning and erythema. Subgroup analysis according to SS-10 scores showed a more severe facial redness (higher EI, a*, red area scores) and poorer skin barrier function (lower TEWL scores) in sensitive skin group compared to slightly sensitive skin subjects. The authors consider SS-10 scale a useful tool to better classify sensitive skin sufferers according to their severity and better manage this specific skin condition.

Abstract N°: 6017

A Comprehensive Study on a Certified AI Medical Device for Skin Pathology Diagnosis Support

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Introduction & Objectives:

In recent years, there has been a notable incorporation of artificial intelligence (AI) into dermatological practice, particularly in teledermatology, leading to a significant change in the diagnosis and management of skin conditions. This study emphasizes the importance of thoroughly evaluating AI-based medical devices to ensure their effectiveness and reliability in clinical use.

This study focuses on assessing a CE Certified Medical Device that utilizes AI technology to detect various skin pathologies and identify malignancies. The primary objective is to evaluate its efficacy through two specific areas of investigation.

Firstly, the research aims to compare the diagnostic performance of the medical device using either a single image or multiple images of the same lesion. This comparative analysis provides insights into how the device performs across different image processing approaches.

Lastly, the study examines the impact of image quality on the device's diagnostic capabilities. By investigating how variations in image clarity and resolution affect the device's performance, researchers can assess its reliability in real-world clinical scenarios where image quality may vary.

Materials & Methods:

We evaluated this Medical Device using images from 58 patients at a prestigious University Hospital's Dermatology Department. The dermatologists took at least three photos of each patient using smartphones for general clinical imaging and smartphones equipped with dermatoscopes for pigmented or tumor pathologies. The evaluation employed two processing methods: Image-level analysis and Patient-level analysis, which involves using multiple images of the same lesions to produce results from the Medical Device.

Results:

The study's findings indicate a notable variance in accuracy between the two methods. The device achieved 68% accuracy for the top-1 prediction, 80% for the top-3, and 84% for the top-5 using the patient-level approach. For the single-image method, the device achieved 54% for the top-1 prediction, 75% for the top-3, and 79% for the top-5. Malignancy detection demonstrated impressive AUCs of 0.9935 and 0.9688 for patient-level and image-level methods, respectively. Importantly, image quality was a significant factor; images with a quality score above 70% in DIQA score (Hernández Montilla et al., 2022) showed a 14% improvement in accuracy.

Conclusion:

The Medical Device performs well with single-image analysis, yet the patient-level method demonstrated a notable 13% increase in top-1 accuracy, indicating its superior reliability and precision. Remarkably, the device excelled in detecting malignancies, with AUCs surpassing 0.96, establishing it as an innovative triage tool in dermatology. This study emphasizes the pivotal role of this advanced tool in improving clinical decision-making,

especially in triaging and supporting the diagnosis of skin conditions, thus greatly advancing AI applications in dermatology.

Chronic nummular eczema: beware of misdiagnosing mycosis fungoides!

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Introduction & Objectives:

Nummular eczema is characterized by well-demarcated, highly pruritic, coin-shaped, erythematous and eczematous plaques, usually 1 to 10 cm in diameter. Nummular eczema must be distinguished from other annular lesions. We report a new case of pilotropic Mycosis fungoides in a patient treated for 8 years for eczema.

Materials & Methods:

Results:

A 70-year-old male, chronic smoker, treated for nummular eczema for eight years on dermocorticoids without improvement, presented with multiple papulo-nodular plaque lesions associated with intense pruritus evolving for 6 months. Clinical examination revealed a patient in good general condition with firm papulo-nodular and tumoral lesions on the back of the trunk and limbs, finely scaly infiltrated erythematous plaques on the trunk, diffuse comedonal lesions associated with depilation of the limbs, and occipital alopecic plaques on the scalp. The lymph nodes were free. Biological tests were unremarkable. A skin biopsy with immunohistochemistry revealed a lymphoid, pilotropic dermal and epidermotropic infiltrate suggestive of pilotropic mycosis fungoides lymphoma. CT-PET revealed multiple pre-tracheal, latero-tracheal and subcarinal mediastinal adenopathies, bilateral infracentimetric axillary adenopathies, and bilateral lombo-aortic, coelio-mesenteric and iliac nodes. Ultrasound of the lymph nodes showed infracentimetric right axillary and laterocervical adenopathies. The patient was referred to a dermatology-hematology-oncology consultation meeting, and treatment with polychemotherapy was indicated. The course was marked by regression of tumour lesions and pruritus.

Conclusion:

Mycosis fungoides is a slow-growing, low-grade cutaneous lymphoma. Cutaneous manifestations are usually isolated and associated with pruritus. Dermatological lesions are erythematosquamous, predominating on the trunk and limb roots, and may be misdiagnosed as eczema, as in our patient who was treated for several years with dermocorticoids without clinical improvement.The fixity, sharp delineation and appearance of the plaque, together with pruritus and resistance to local treatment, are suggestive of mycosis fungoides, hence the importance of performing and increasing the number of skin biopsies with immunohistochemistry for early detection and correct management of the disease.

Clinical Investigation: Distinguishing Aggressive Histological Subtypes of Basal Cell Carcinoma through Optically Guided High-Frequency Ultrasound Imaging

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Introduction & Objectives: Basal cell carcinoma (BCC) represents the predominant form of skin malignancy. The histological subtype (HST) of BCC, crucial for treatment stratification, currently requires invasive biopsy for definitive diagnosis. This study aims to evaluate the potential of optically guided high-frequency ultrasound (OG-HFUS) imaging in distinguishing aggressive HST BCCs from their low-risk counterparts.

Materials & Methods: A prospective investigation involved clinical and dermoscopic evaluations of BCCs, followed by OG-HFUS imaging at 33 MHz, subsequent surgical excision, and histopathological analysis. Seventy-five patients with 78 BCCs were recruited, with 63 lesions forming the basis for developing a novel OG-HFUS risk classification algorithm, and 15 lesions used for algorithm validation. The cohort had a mean age of 72.9 ± 11.2 years, with histological delineation identifying 16 lesions as aggressive HST (infiltrative or micronodular subtypes) and 47 as low-risk HST (superficial or nodular subtypes). Statistical analysis included a one-sided Fisher's exact test for categorical assessment and Receiver Operating Characteristic (ROC) curve analysis for diagnostic accuracy evaluation.

Results: OG-HFUS successfully discriminated aggressive BCC HSTs by identifying irregular shape ($p < 0.0001$), ill-defined margins ($p < 0.0001$), and non-homogeneous internal echoes ($p = 0.004$). A risk-categorizing algorithm was developed, demonstrating superior sensitivity (82.4%) and specificity (91.3%) compared to conventional macroscopic and dermoscopic evaluations (sensitivity: 40.1%, specificity: 73.1%). Dermoscopic assessment yielded positive and negative predictive values (PPV and NPV, respectively) of 30.2% and 76.8%, while the OG-HFUS-based algorithm showed a PPV of 94.7% and an NPV of 78.6%. Validation of the algorithm using an independent image set (n = 15), overseen by two blinded evaluators, revealed a sensitivity of 83.33% and specificity of 91.66%.

Conclusion: OG-HFUS emerges as a promising tool for identifying aggressive BCC HSTs, utilizing readily discernible morphological parameters to inform early therapeutic decision-making.

Abstract N°: 6267

Artificial Intelligence Algorithm for the Automatic and Accurate Assessment of the Severity of Generalized Pustular Psoriasis

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Introduction & Objectives:

Assessment of the severity of skin diseases is commonly performed using scoring systems based on visible signs and sometimes symptoms. These methods have high inter- and intra-observer variability and are often time-consuming, a scarce resource in dermatologic practices. This practice often results in hasty or even missed assessments. A particular example is Generalized Pustular Psoriasis (GPP), a rare and severe form of psoriasis with potentially lethal risks if not adequately treated. The scarcity of GPP cases implies the lack of standardized criteria for its evaluation, complicated by the subjectivity and slowness of the manual process. Consequently, our study aims to address these shortcomings by developing a more accurate and reliable scoring system. To achieve this objective, we developed an artificial intelligence algorithm for the automatic assessment of Generalized Pustular Psoriasis Physician Global Assessment (GPPGA) scale through image analysis.

Materials & Methods:

We gathered a dataset comprising 332 images of patients with GPP from various medical sources, including atlases and medical centers. Three experienced dermatologists annotated this set, rating the severity of visible signs—erythema, desquamation, and pustulation—on a scale from 0 to 4, based on GPPGA criteria. To enhance accuracy, images of healthy skin were included to aid in assessing mild or clear lesions, given that most images depicted moderate to severe cases.

From these annotations, we derived consensus labels by consolidating intensities according to expert agreement. In cases of disagreement, we averaged intensity values to reach a consensus. These labels served to train a convolutional neural network for classifying the intensity of each visual sign on a scale of 0 to 4. Rather than employing separate networks, we adopted a unified approach with a single network featuring three heads—one for each visual sign. This strategy not only reduces processing time but also facilitates better learning, allowing the model to grasp shared representations across tasks, potentially enhancing its ability to generalize.

Results:

When measuring agreement among experts, we found a high degree of agreement, with a Cohen's kappa coefficient above 0.8. The algorithm showed a level of agreement comparable to that of the experts, with a Cohen's kappa of 0.78, evidencing its ability to emulate the performance of specialists in the assessment of the pathology. Pustulation, a hallmark of this system, achieved an agreement of 0.83 on Cohen's kappa value.

Conclusion:

By overcoming the limitations of current manual methods, our algorithm facilitates a more objective and efficient

assessment of GPP severity, contributing to the standardization of assessment protocols for this disease. With this, this algorithm is emerging as a valuable tool in modern dermatology, improving accuracy and efficiency in the evaluation of a challenging pathology such as GPP.

Evaluation of Optically Guided High-Frequency Ultrasound and Multispectral Imaging for Preoperative Assessment of Breslow Thickness in Melanoma

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Introduction & Objectives:

Characterized by its metastatic potential and increasing incidence rates, melanoma represents a significant global health concern. Initial diagnosis often lacks essential data on Breslow thickness, crucial for tumor staging and surgical planning. Despite this, comparative data on novel imaging techniques for Breslow thickness assessment remain sparse. This study aims to evaluate the efficacy of optically guided high-frequency ultrasound (OG-HFUS) and multispectral imaging (MSI) in preoperatively estimating Breslow thickness and staging in patients with cutaneous malignancies.

Materials & Methods:

A cohort of 101 patients with histologically confirmed primary melanoma was enrolled and categorized based on tumor thickness. Optically guided 33 MHz HFUS and MSI were employed for the assessment. An MSI-based algorithm was developed to categorize melanomas into three subgroups, with sensitivity, specificity, and agreement measured. Similarly, OG-HFUS performance was evaluated in comparison, focusing on sensitivity, specificity, and agreement metrics.

Results:

The MSI-based algorithm exhibited a sensitivity of 62.6%, specificity of 81.3%, and fair agreement (κ = 0.440, CI: 0.298–0.583). In contrast, OG-HFUS demonstrated superior performance with a sensitivity of 91.8%, specificity of 96.0%, and almost perfect agreement (κ = 0.858, CI: 0.763–0.952).

Conclusion:

Our research indicates that OG-HFUS performs better than MSI in estimating Breslow thickness for malignant melanoma.

Abstract N°: 6280

Exploring FDA and EMA Approved Noninvasive Imaging Modalities for Margin Assessment in Mohs Micrographic Surgery for Basal Cell Carcinomas

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Introduction & Objectives:

Mohs micrographic surgery (MMS) stands as a cornerstone in the precise removal of basal cell carcinomas (BCCs), leveraging immediate margin confirmation through frozen section histopathology. Renowned for its unrivaled accuracy in margin assessment and superior cure rates compared to conventional treatments, MMS ensures meticulous eradication of BCCs. Recent advancements in noninvasive imaging modalities such as dermoscopy, high-frequency ultrasound (HFUS), optical coherence tomography (OCT), line-field optical coherence tomography (LC-OCT), and reflectance confocal microscopy (RCM) offer promising alternatives to traditional clinical evaluation for delineating presurgical margins. This systematic scoping review aims to assess the current understanding of these innovative imaging techniques in identifying BCC margins, focusing on modalities approved for clinical use by either the United States Food and Drug Administration (FDA) or the European Medicines Agency (EMA).

Materials & Methods:

A systematic search was conducted across EMBASE, Scopus, PubMed, and the Cochrane Public Library databases.

Results:

The search yielded 2123 records, resulting in the identification of 11 relevant studies encompassing 644 lesions across five imaging modalities.

Conclusion:

The evaluated imaging techniques, including dermoscopy, HFUS, OCT, LC-OCT, and RCM, hold promise in discerning BCC margins, potentially streamlining the workflow of MMS. Additionally, these modalities provide valuable insights into anticipated defect dimensions and reconstructive requirements, potentially reducing procedural expenses.

Abstract N°: 6602

Analysis of the Performance of an Artificial Intelligence Medical Device for Clinical Workflow Optimization in Patients with Pigmented Lesions

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Introduction & Objectives:

Artificial Intelligence (AI) has shown comparable or even better accuracy than healthcare professionals in various aspects of image-based diagnosis. Nevertheless, many AI algorithms remain underutilized in clinical settings due to regulatory non-compliance.

This study presents the outcomes of the DERMATIA project, focusing on evaluating the efficacy of a CE certified AI medical device for diagnosing and triaging patients with pigmented lesions. Our main objective was to assess the device's capacity to detect malignant lesions using smartphone-captured clinical images and compare its performance to that of expert dermatologists.

Materials & Methods:

We collected imaging data from 42 patients who consulted for pigmented skin lesions in a private dermatology practice with some degree of suspected malignancy. Upon initial evaluation, the dermatologist provided clinical assessments, annotated diagnoses, recommended further actions (e.g., follow-up or excision), and assigned a suspicion score for malignancy on a scale from 1 to 10. Subsequently, the dermatologist captured 1 to 3 images of each lesion using a smartphone camera and the medical device. Additionally, the dermatologist recorded the malignancy probability detected by the medical device on a scale from 0 to 100.

In parallel, some patients underwent biopsy procedures to obtain histopathological diagnoses, considered the gold standard in this study. The study then compared the dermatologist's clinical suspicion of malignancy with the device-generated assessments. Following this, both, clinical and device diagnoses, were juxtaposed against biopsy results, when available, to determine diagnostic accuracy metrics.

Results:

The findings demonstrated that the imaging device and the dermatologist exhibited excellent discrimination capacity for malignancy, with respective areas under the curve (AUC) of 0.95 and 0.96. Notably, the device achieved a sensitivity of 100% with a specificity of 71%, whereas the dermatologist achieved a sensitivity of 100% with a specificity of 32%. Conversely, at 100% specificity, the device exhibited a sensitivity of 37.5%, while the dermatologist's sensitivity was 62.5%.

In terms of correlation with the histology, the device exhibited a coefficient of 0.70, indicating a strong association, while the dermatologist achieved a higher coefficient of 0.81. Furthermore, the correlation between the device and dermatologist assessments was also robust, with a coefficient of 0.71.

Conclusion:

The medical device demonstrated high performance, comparable to that of an expert dermatologist. Our analysis concludes that it exhibited high sensitivity and specificity in detecting malignant lesions using clinical images. Its

implementation could streamline the diagnosis of malignant lesions, improve clinical flow, and potentially increase the patient's survival and quality of life.

Augmenting dermatological diagnosis with explainable AI: A case-based approach to contextual predictions.

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Introduction & Objectives:

Artificial Intelligence (AI) models have emerged as a solution to mitigate subjectivity in medical image analysis, but they often lack explainability, functioning as "black boxes." To address these issues, we introduce an explainable case based contextual predictions model, which integrates an AI classification model with a similar image model. This approach retrieves historical cases and their diagnoses to provide context for the AI predictions. By weighing similar image diagnoses alongside AI predictions,this model produces a final weighted prediction, aiding physicians in understanding the diagnosis process.

Materials & Methods:

Fitzpatrick17 and HAM1000 datasets were used to finetune a ResNet-34 model.

To further validate the accuracy and explainability of our approach, three dermatologists of varying degrees of expertise were provided test images along with the output of our system, which includes similar images and corresponding diagnosis.. They were asked to provide a diagnosis and confidence rating of a skin lesion with and without similar images.

Results:

Analysis shows that average accuracy in diagnosis skin lesions went from 28.26% to 64.49% when using similar images. The average reported confidence went from a 1.77 to a 2.82 using similar images. When tested, our novel model showed a 47% increase in sensitivity and 11% increase in positive predictive value over the base ResNet-34 model in the differentiation of skin lesions.

Conclusion:

Offering enhanced accuracy, explainability, and performance on two different dermatology datasets,this model represents a notable advancement in dermatology AI. Our system can be adapted to unseen local data simply by tuning the weights of the prediction equation as the base model is fixed.

This has the potential for pan-pathological dermatology uses and for teaching, though further research is needed to optimize its performance and assess performance in real life settings.

Wrinkle.ai – Novel AI Wrinkle Analysis Based on 3D Data

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Introduction & Objectives:

Understanding skin aging and the respective consumer needs are key areas of focus in the cosmetic industry, as well as finding effective ways to treat and prevent wrinkles: about 50% of all European women state that fine lines and wrinkles are the most important skin problems. Consequently, accurate quantitative assessment of skin topography such as wrinkles stands as most critical in cosmetics and dermatological research. Digital fringe projection technology provides high-resolution topographic data from the corner of the eye ideal for new AI-supported algorithms for 3D wrinkle analysis. Wrinkle.ai is a new fully automated algorithm that is precisely tailored to the evaluation of wrinkles. The software works in a cloud-based infrastructure for the comprehensive evaluation of an entire study.

Materials & Methods:

Typically, up to 10 measurements are carried out per skin area and measurement time point. In a data selection step, the system filters out the measurements that contain the greatest deviations between all-time points and include only subsets with a sufficient overall similarity. This is done to exclude micro-variations in facial expressions that influence the wrinkle parameters to be detected.

Afterwards selected subsets go through a V-Net segmentation model to identify all wrinkles, then the "ID and Match" module finds the same wrinkle throughout all timepoints and gives them an ID. The subset is then registered based on the ID and Match data without warping the image.

The prepared data from the last step enters the measurement pipeline. Using our "Silk Cloth" algorithm, we create the best reference surface for an accurate extraction of all 3D features of each wrinkle and are now able to calculate all its characterizing parameters.

Results:

Wrinkle.ai provides a detailed document containing all 3D parameters for each wrinkle through time. For the pixel-dependent parameters width and depth, we deliver mean, median, 90 percentile and max values. For the discrete parameters volume, area, length, and skeleton length. All values are given on a millimeter-based scale. Roughness ISO parameters are also computed to ensure compatibility with other methods.

Conclusion:

Wrinkle AI provides new and detailed insights into the efficacy of wrinkle treatments. It contributes to the identification of new active ingredients as a powerful tool for understanding the underlying mechanisms of skin aging and wrinkle dynamics. **

Abstract N°: 6972

Large Language Models and Dermoscopy: Assessing the Potential of Task-specific GPT-4 Vision in Diagnosing Basal Cell Carcinoma

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Introduction:

Human-computer interaction has been significantly changed by the introduction of Multimodal Large Language Models (LLMs), such as Generative Pre-trained Transformer (GPT) models and their multimodal extension, GPT-4 Vision.

Materials & Methods:

Using OpenAI's GPT editor, we created a custom GPT model that differentiates between non-BCC lesions and those indicative of basal cell carcinoma (BCC) in dermatoscopic images. We conducted a retrospective examination of 557 polarized-light dermoscopic images from our digital archives, consisting of 300 BCC and 257 non-BCC images, which included 100 nevi, 50 melanomas, 50 seborrheic keratoses, and 57 squamous cell carcinomas. Both the custom GPT model and the authors independently reviewed the images, classifying them into BCC or non-BCC categories and assessing each for the presence of BCC-specific dermoscopic features, such as arborizing vessels, pink-white background, ulceration, leaf-like areas, and spoke-wheel areas.

Results:

Dermoscopy demonstrated a diagnostic accuracy of 96.8%, with a sensitivity of 98.3% and a specificity of 94.7%. In contrast, the AI model showed a total accuracy of 84.4%, achieving a sensitivity of 94.0% and a specificity of 76.7%, and proficiently detected BCC indicators such as arborizing vessels (98.5%), a pink-white background (97.9%), and ulceration (95.4%).

Conclusion:

Those preliminary results are encouraging, despite the difficulties in applying large language models (LLMs) to medical diagnostics. These models point the way forward for healthcare innovation, with significant potential to advance medical knowledge and facilitate earlier diagnoses.

Evaluating Efficacy of Point-of-Care Testing in Detecting PGL-1 and NDO-LID Conjugate in Leprosy Patients: A Comprehensive Systematic Review and Meta-Analysis of Diagnostic Test Studies

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Introduction & Objectives:

Leprosy contributes to approximately 14 thousand the total global cases and makes Indonesia the third highest of new cases for the last two decades. The disease caused by Mycobacterium leprae impacts skin, peripheral nerve, and upper respiratory mucosa and also can lead to complications, such as long-term disabilities. Controlling leprosy in Indonesia still requires abundant evaluation, one of which is strengthening early detection systems. In this case, point-of-care testing (POCT), a practical diagnostic testing method, could be a solution to this issue. The objective of this study is to evaluate the effectivity of POCT as a screening tool in leprosy, measured by sensitivity, specificity, positive likelihood ratio (LR+), negative likelihood ratio (LR-), diagnostic odd ratio (DOR), and area under curve (AUC).

Materials & Methods:

The study search was conducted across six databases. Qualitative analysis was performed on 10 studies using QUADAS-2 and also analyzed quantitatively for true positives, false positives, false negatives, and true negatives using STATA with the MIDAS package. Subsequently, meta-regression analysis was performed to determine outliers.

Results:

In leprosy screening, the performance of NDO-LID conjugate vs. PGL-1 is: sensitivity (61% vs. 76%), specificity (94% vs. 90%), LR+ (9.6 vs. 7.5), LR- (0.41 vs. 0.27), DOR (23 vs. 28), AUC (0.89 vs. 0.90). Overall, POCT detects PGL-1 better than NDO-LID conjugate, except for the performance of NDO-LID conjugate in specificity and AUC. In screening MB and PB, the performance of POCT in screening MB is better than PB. Meta-regression analysis revealed notable heterogeneity with favorable flow and timing in both PGL-1 and NDO-LID. We also discovered that decreased specificity is caused by baciloscopy findings, while decreased sensitivity is due to random selection bias in PGL-1. For NDO-LID, the location of studies accounts for the high variation in specificity.
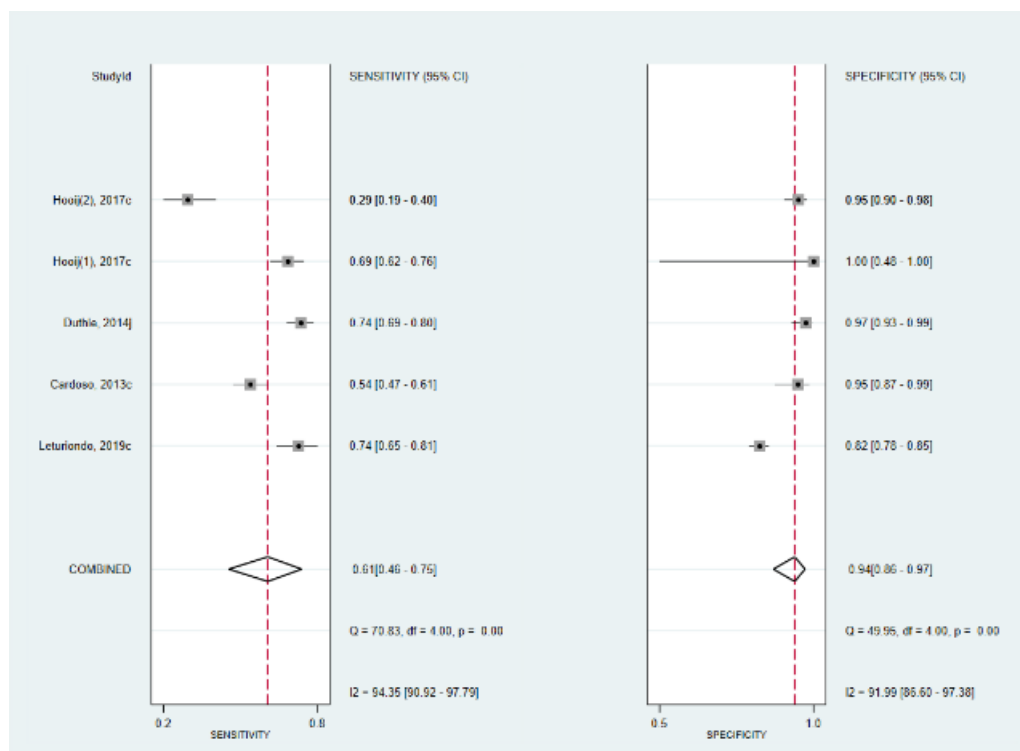
Conclusion:

Overall, POCT has better performance in detecting PGL-1 compared to NDO-LID conjugate. Furthermore, POCT also has better capability in screening MB compared to PB.
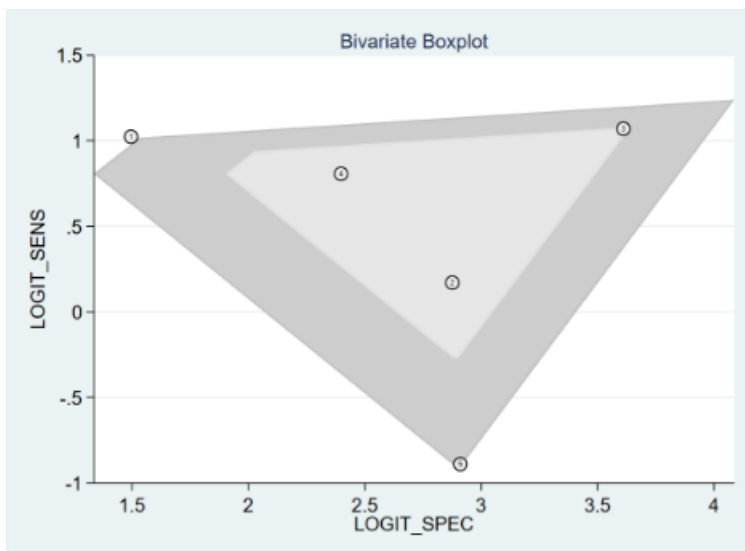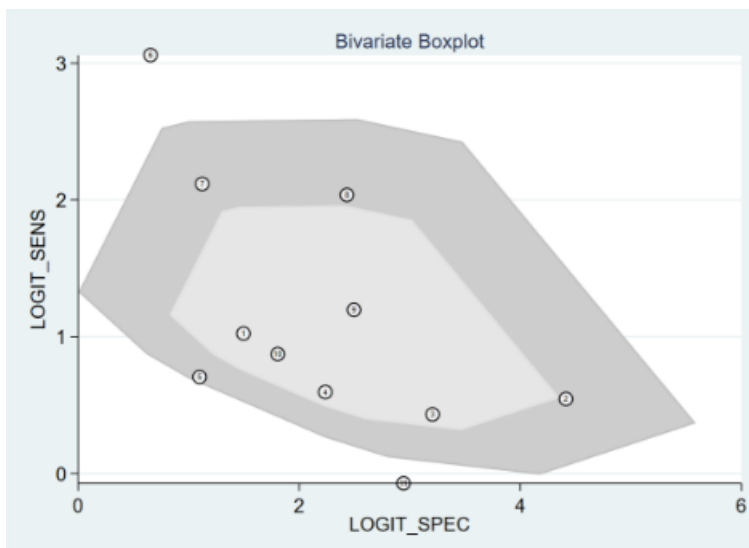
Figure 1. Traffic Light Plot of QUADAS-2

Graph 1. Forest Plot of Sensitivity and Specificity of Point-of-Care Testing in Detecting NDO-LID Conjugate
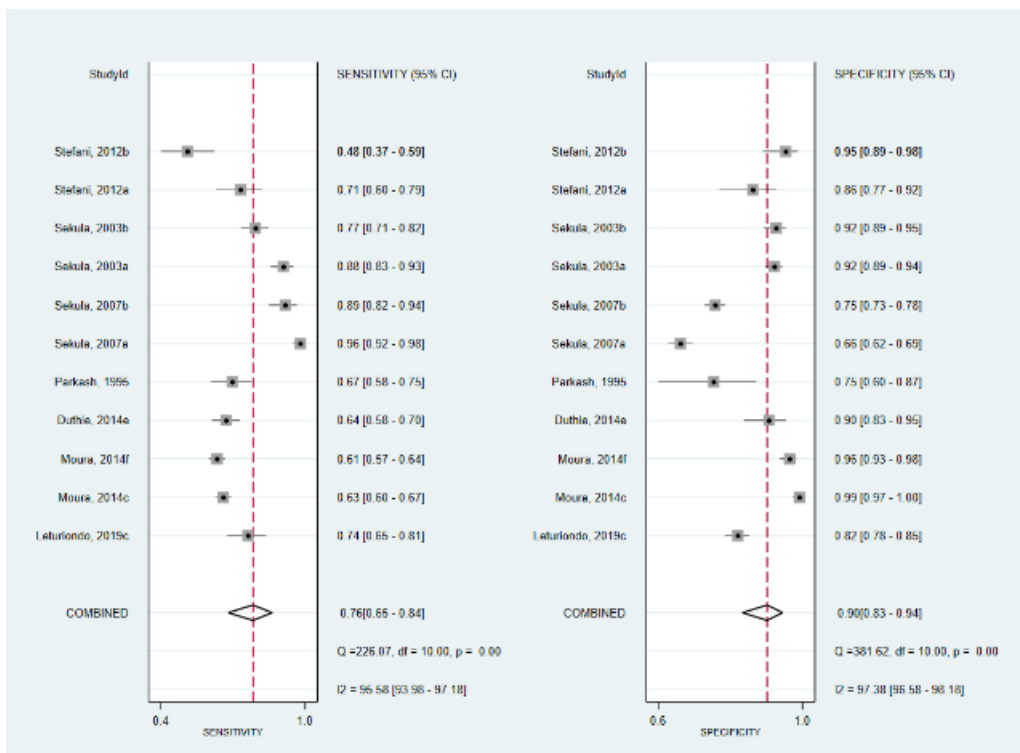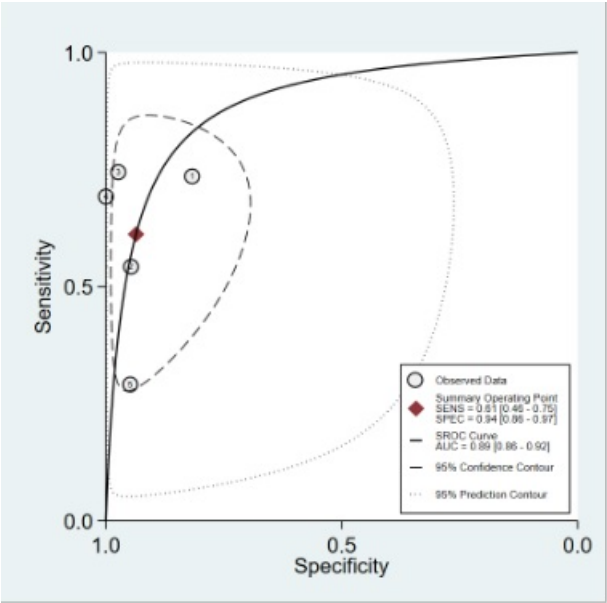
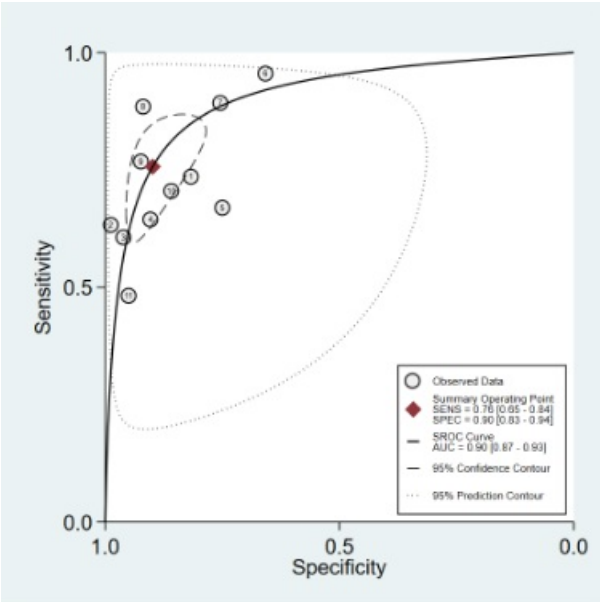**Graph 2.** Forest Plot of Sensitivity and Specificity of Point-of-Care Testing in Detecting PGL-1

Graph 3. Bivariate Boxplot of POCT Detecting NDO-LID Conjugate

Graph 4. Bivariate Boxplot of POCT Detecting PGL-1

Graph 5. SROC of POCT Detecting NDO-LID Conjugate

Graph 6. SROC of POCT Detecting PGL-1

Abstract N°: 7098

High frequency ultrasonography of benign and malignant skin tumors and its correlation with histopathology

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Introduction & Objectives: Skin tumors represent a significant global health concern, manifesting across all age demographics with increasing prevalence. Although primary method for diagnosing these lesions remains clinical examination and histopathology, various other modalities have emerged to assist in diagnosis. High frequency ultrasonography (HFUS) is still a novel and understudied technology in connection to all skin tumors.

Objective: To compare and correlate the ultrasonographic findings of benign and malignant skin tumors with histopathologic findings as a reference standard.

Materials & Methods: : A cross sectional observational study conducted on patients with benign and malignant skin tumors. A total of 52 patients were recruited. Patients with clinical suspicion of benign and malignant skin tumors were included in the study. Other inclusion criteria were patients age $\geq$ 18 years, lesions without any previous procedure or treatment & lesions more than or equal to 0.5 cm and less than or equal to 5 cm. Patients with bleeding diathesis and lesions over inaccessible sites where USG was not possible were excluded. Relevant history and clinical examination was performed, dermoscopy with photographic documentation, high frequency ultrasonography and histopathological examinations. Statistical analyses of these parameters were done using SPSS software v.25. p–value < 0.05 was considered significant.

Results: The ages of the patients ranged from 18 to 80 years with a mean age of 36.81 ± 18.7 years with female preponderance. 73.08% benign tumors and 26.92% malignant tumors were found. Lesions were most commonly present over the face (46%), scalp (21.15%), and upper extremities (17.31%). BCC followed by appendageal tumors and spindle cell tumors were most commonly found tumors. The majority of lesions were described as hypoechoic, homogenous, oval to irregular-shaped solid lesions by HFUS. Significant positive correlation was seen between clinical width(mm) with HFUS width(mm) with correlation coefficient of 0.993. Significant positive correlation was seen between HFUS depth(mm) with HPE depth(mm) with correlation coefficient of 0.976. Excellent correlation exist between HFUS depth(mm) with HPE depth(mm) (**Intraclass correlation**: single measure:-0.9868, average measure:-0.9933). Fair agreement exist between HPE vascularity and USG vascularity with kappa 0.36 and p value 0.002.

Conclusion: This study suggests a novel method in diagnosis and assessment of benign and malignant skin tumors with high frequency ultrasonography and its correlation with confirmatory findings seen on histopathology. Although earlier researches have mostly focused on NMSCs, our study expands potential literature on value of HFUS in a wide range of skin malignancies. It emphasised the need of ultrasound before surgery since it can provide an approximate depth estimate that can be utilized during the excision process and also expands the non-invasive diagnostic approach for skin tumors with the help of HFUS by detecting tumor size, location, vascularity, and invasion which can eventually lead to better preoperative planning

Abstract N°: 7270

Role of high resolution sonography in diagnosing the nerve involvement in leprosy.

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Introduction & Objectives:

Leprosy is a chronic disease of skin and nerves. USG is a non invasive modality which is useful to identify the pathology of peripheral nerves. Clinical examination of peripheral nerves by palpation is subjective to a wide interobserver variability and challenging due to the deeper course traversed by peripheral nerves.

The aim of the study was to compare the nerve thickness and cross sectional area of leprosy patients and

normal subjects using high resolution sonography

Materials & Methods:

A total of 100 patients were divided into 2 groups of 50 leprosy cases and 50 normal controls each, who were subjected to clinical and USG evaluation of all peripheral nerves. The greatest diameter and the cross sectional area were tabulated in a Microsoft Excel spreadsheet and analyzed using Statistical Package for Social Sciences(SSPS). Receiver operator characteristics were used for the calculation of cut off values to designate the nerves as thickened.

Results:

Group A patients had significantly higher number of thickened nerves with p value <0.001. Asymmetric nerve thickness was noted in 54.6%. Among 300 nerve points examined 120 were found to be clinically thickened and 198 were found to be thickened ultrasonographically (p<0.001).

Conclusion:

Ultrasound is a noninvasive modality that acts as an effective objective marker of nerve thickening in leprosy.

Abstract N°: 7496

A pilot audit on the use of medical infrared thermal imaging in the clinical assessment of Morphea

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Introduction & Objectives:

Clinical assessment of Morphea or localised scleroderma is challenging and to determine if the disease is active or passive usually requires subjective observational assessment. There is a clear need to establish techniques of quantifying the degree of activity/inflammation. As part of the overall clinical assessment of Morphea medical infrared thermographic imaging (IRT) is in the process of being introduced and audited as a method of addressing this issue.

Materials & Methods:

Patients were allowed to acclimatise to the hospital environment for at least 15 minutes and IRT images were acquired of the lesion together an area of unaffected skin close the anatomical areas of interest. Images of the nose and hands were also acquired as as part of protocol to assess circulatory changes. The images were imported into Thermacam researcher software 2.10 (Teledyne FLIR TM), and freeform regions of interest drawn over the parts of the image corresponding to lesion and normal skin. For the hands regions of interest were drawn over the ends of the fingers just below the location of the nails. The patients were assessed by an experienced consultant dermatologist who determined if the morphea was currently active or passive. For the IRT results, if the temperature difference between affected and normal skin was less than 1°C then this was considered in-active; between 1°C and 2°C, borderline; above 2°C – active.

Results:

41 lesions were imaged in 9 patients, with 10 sets of discrete images in total. Patients were then classified using the IRT as described above in materials and methods. Based on this criterion 4 patients were considered to have active morphea, 2 in the borderline group, and 4 passive. The average hand and nose temperature in the in-active group was 30.9° and 30.7°C respectively; 33.7°C and 34.5°C in the borderline group and in the active group 28.1°C and 33.9°C. No statistical analysis was possible due to the low patient numbers.

Conclusion:

A method of thermogrpahy imaging and analysis has been put forward in a small number of patients. This could help support clinical decision making and rationalising treatment of patients with immunomodulatory therapy. The observations in the hands and nose were incidental but the changes to fingers and nose suggest that morphoea may have associated systemic vascular changes which are beyond the areas of affected skin and warrants further assessment.

Abstract N°: 7544

Exploring dermatological emergency management : knowledge and training needs among medical interns at CHU IBN ROCHD , CASABLANCA

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Introduction & Objectives:

Dermatological emergency is defined as any acute skin disorder that develops and worsens in less than 5 days. Medical interns are often the first to see patients with dermatological issues ,they have a key role in the early recognition and management of these emergencies .

Our objective is to show the knowledge of interns about dermatological emergencies and to evaluate training needs they must have

Materials & Methods:

We carried out a descriptive, observational, study using an

anonymous questionnaire answered by 115 interns of Ibn Rochd University Hospital of Casablanca

Results:

Our study shows that only 43 of the interns passed through the dermatology department and almost all of them have the basics about the elementary lesions that they have essentially acquired through regular courses. The number of patient with skin disorder seen per a day by an intern was between 1 and 5 .In 73% of the cases pruritus, and erythema at lower extremities were the commonly reasons for consultations , followed by several dermatological crises such angioedema, acute urticaria, immunobullous disorders, erythroderma, medication responses like Stevens-Johnson syndrome , and toxic epidermal necrolysis

The difficulty in making an accurate diagnosis , was expressed by half of the interns, they specified that the request for a dermatological appointment in the emergency department is essentially due to a lack of expertise in skin disorders difficulty to differentiate between urgent and non-urgent skin condition and to recognize the potential complications and consequences of dermatological emergencies. 97% of the interns affirmed that a regular training in the diagnosis and treatment of common dermatological illnesses should be provided to lead to a more responsive system, lower waiting times and to improve medical services and outcomes.

Conclusion:

Medical interns are the first to meet a large number of patients with skin disorders that's why clinical protocols for these emergencies are essential tools to provide initial assessment and management, improving the accuracy to get the right diagnosis and to know exactly when to refer to dermatologists when necessary

Abstract N°: 7644

Analysis of the Utility of Reflectance Confocal Microscopy: Comparison Between Confocalist and Non-Confocalist Dermatologists in 1285 lesions in a Hospital Setting

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Introduction & Objectives:

Reflectance confocal microscopy (RCM) corresponds to a non-invasive diagnostic method that allows obtaining quasi-histological images of skin lesions, currently used for evaluating various benign and malignant lesions. The acquisition and interpretation of images are performed by dermatologists who have received specific training and education, referred to as confocalists. The objective of the following study is to compare the results and utility of RCM in a university hospital for lesions derived by confocalist dermatologists versus non-confocalist dermatologists.

Materials & Methods:

Prospective, non-controlled study of consecutive cases between February 2021 and January 2024, in which a total of 1285 lesions in 877 patients were enrolled. Data were extracted from clinical records and RCM reports. Two groups of lesions were evaluated: those derived by dermatologists who perform RCM in their daily practice, called confocalists, and those who do not perform RCM, called non-confocalists. Statistical analysis was performed using RStudio program with χ^2 test for calculation of statistical significance.

Results:

A total of 1285 lesions in 877 patients were analyzed. A total of 533 lesions (41.5%) were derived by confocalists and 752 by non-confocalists (58.5%). The overall clinical-RCM concordance of confocalists was 54.78% and in non-confocalists was 30.04%, with the difference being statistically significant (p<0.001). In confocalists, the percentage of potentially saved biopsies was 44.7% and in non-confocalists was 68.35%, with the difference being statistically significant (p<0.001). Out of the 1285 lesions, an overall RCM-histopathological concordance of 69.7% was obtained, and an overall negative predictive value of

94.3% was observed for cutaneous neoplasms.

Conclusion:

Reflectance confocal microscopy constitutes a valuable diagnostic support tool. This is the first study demonstrating that RCM would allow for a higher percentage of biopsy savings in non-confocalist dermatologists compared to confocalist dermatologists. This is likely due to the former having less training in oncological dermatology.