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Delayed Time to First Skin Cancer Among Hematopoietic Stem Cell Transplant Recipients With Chronic Cutaneous Graft-Versus-Host Disease

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INTRODUCTION

- Hematopoietic stem cell transplantation (HSCT) includes allogeneic (alloHSCT) and autologous (autoHSCT) approaches
- AlloHSCT is associated with increased risk of skin cancer, while evidence for autoHSCT remains mixed
- Cutaneous chronic graft-versus-host disease (cGVHD), unique to alloHSCT, may further modify skin cancer risk

METHODS

- IRB-approved retrospective study at Duke University Medical Center (January 2010 to December 2020)
- Inclusion criteria: HSCT recipients with documented cutaneous malignancy. Patients with prior solid organ transplantation were excluded.
- Stratified by transplant type and presence of cutaneous cGVHD
- **Primary outcome**: Time from transplant to first and second skin cancer
- **Secondary outcomes**: Skin cancer type, average number of skin cancers, and anatomic location

RESULTS

- 192 patients were included and stratified into three groups: alloHSCT recipients with cutaneous cGVHD (n = 96); alloHSCT recipients without cGVHD (n = 20); autoHSCT patients (n = 76).
- Median age at transplant: alloHSCT with cGVHD, 52 years; alloHSCT without cGVHD, 58 years; autoHSCT, 64 years ($p < 0.001$).

RESULTS

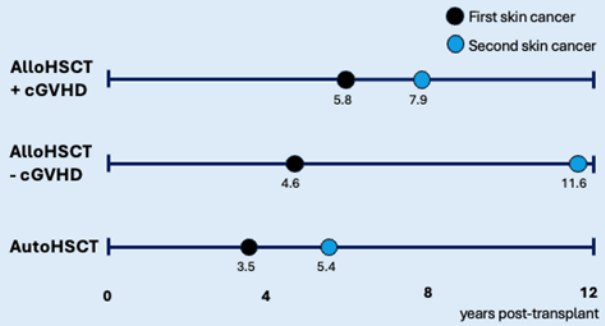

Figure 1. Time to skin cancer after HSCT. Patients with cutaneous cGVHD experienced a longer interval to first skin cancer ($p = 0.047$) but a shorter interval to subsequent skin cancers ($p = 0.02$) compared with alloHSCT recipients without cGVHD and autoHSCT recipients.

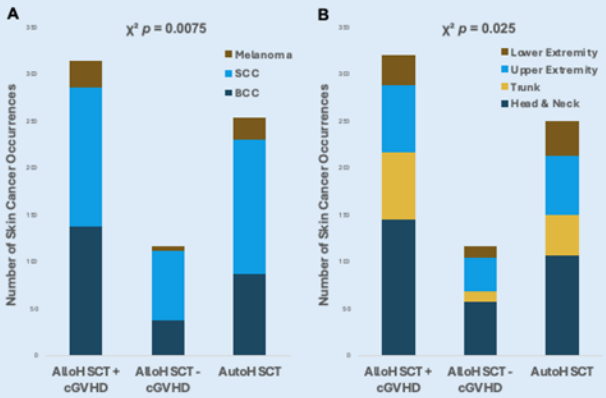

Figure 2. Secondary skin cancer characteristics by HSCT group. (**A**) Skin cancer type and (**B**) anatomic distribution showed SCC predominance overall, with relatively higher proportions of BCC and melanoma and more frequent truncal involvement in cutaneous cGVHD compared to alloHSCT recipients without cGVHD and autoHSCT recipients.

DISCUSSION

- Early after HSCT, heightened immunosurveillance may account for the longer latency to first skin cancer
- Prolonged immunosuppressive therapy and chronic inflammation may facilitate quicker onset of subsequent skin cancers
- Latency to first skin cancer in alloHSCT recipients is shorter compared to a previously reported timeline of 6.3–7.9 years from a 2006 study, which may be explained by shifts toward myeloablative conditioning regimens
- The anatomic distribution of skin cancers aligns with UV-exposed regions, reinforcing the synergism of UV exposure and immunosuppression in oncogenesis

CONCLUSION

- Time to first and subsequent skin cancers differs by HSCT type and cutaneous cGVHD status
- Patients with cutaneous cGVHD experience delayed initial but accelerated subsequent skin cancer development
- These findings support the need for long-term, tailored surveillance strategies following HSCT, particularly for patients with cutaneous cGVHD

REFERENCES

1. Mansilla-Polo M, Montoro J, López-Davia J, et al. Incidence and Risk Factors of Skin Cancer and Preneoplastic Lesions after Autologous and Allogeneic Hematopoietic Cell Transplantation. Transplant Cell Ther. Published online July 5, 2025. doi:10.1016/j.jtct.2025.06.031
2. Mansilla-Polo M, López-Davia J, De Unamuno-Bustos B, et al. Skin cancer risk after hematopoietic stem cell transplantation: a systematic review and meta-analysis. Int J Dermatol. 2024;63(12):1691-1700. doi:10.1111/ijd.17371
3. Schaar DA, Pirsl F, Holtzman N, et al. Subsequent Cancers in Patients Affected with Moderate or Severe Chronic Graft-versus-Host Disease. Transplant Cell Ther. 2021;27(11):937.e1-937.e7. doi:10.1016/j.jtct.2021.08.001
4. Leisenring W, Friedman DL, Flowers ME, Schwartz JL, Deeg HJ. Nonmelanoma skin and mucosal cancers after hematopoietic cell transplantation. J Clin Oncol. 2006;24(7):1119-1126. doi:10.1200/JCO.2005.02.7052

Progressive Painful Skin Lesions in a Patient with End-Stage Renal Disease

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Background

- Calciphylaxis is a rare, life-threatening disorder. The pathophysiology includes microvascular calcification, thrombosis, and finally ischemic necrosis of skin and soft tissues.[1]
- It is frequently associated with end-stage renal disease (ESRD) and secondary hyperparathyroidism.[2]
- Key clinical features of calciphylaxis include painful retiform purpura and tissue necrosis. Early recognition is critical for timely intervention.[2]
- Management of calciphylaxis requires a holistic, multidisciplinary approach. The approach to treat patients with calciphylaxis should include correcting systemic biochemical imbalances, meticulous wound care, aggressive pain control, and psychological and quality-of-life support.

Introduction

- We present a 60-year-old man with a six-week history of pain and swelling in the lower abdomen. The patient had been diagnosed with ESRD and had been on dialysis for four years.

This patient had a **unique presentation** due to a(n):

Uncommon Distribution:
- Calciphylaxis usually affects the lower extremities, but this patient presented with lower abdominal involvement (peau d'orange changes, indurated abdominal wall), which is less common.

Absence of classic retiform purpura:
- Despite biopsy-proven vascular calcification, the patient lacked the retiform purpura typically seen in calciphylaxis, making diagnosing more challenging.

Multiple comorbidities:
- The patient's background of multiple comorbidities represents a complex interplay of risk factors that likely contributed to disease progression.

Prior IV contrast exposure:
- History of IV contrast use within the past year may have contributed to endothelial injury and vascular compromise- a less frequently emphasized risk factor.

Clinical Presentation

History of Present Illness:
- 60-year-old male
- 6-week history of progressive lower abdominal pain and swelling. He was later diagnosed with **calciphylaxis.**
- This patient had ESRD and had been on dialysis for 4 years.
- Past medical history includes heart failure with preserved ejection fraction (HFpEF), Type 2 Diabetes Mellitus (T2DM), COPD, and gout.

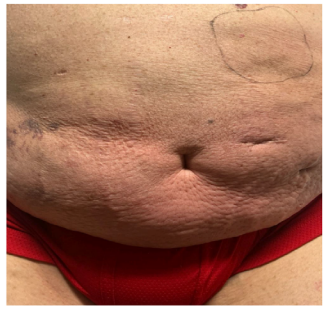

Figure 1. Peau d'orange appearance present in the patient's abdomen. Erythematous and indurated skin can be noted. There is a lack of retiform purpura which is typically seen in calciphylaxis patients.

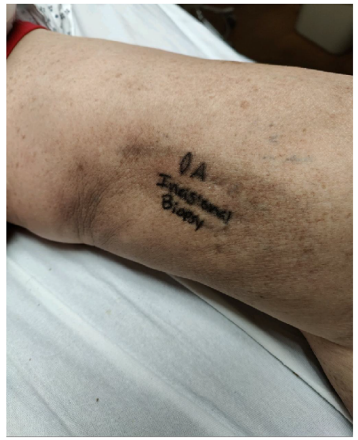

Figure 2. Hyperpigmented firm plaque with a peau d'orange appearance on thigh.

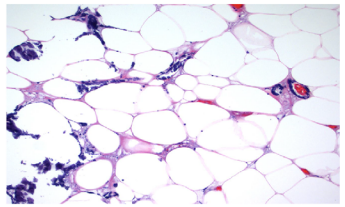

Figure 3: Histopathologic results showing microvascular calcification at 40X magnification.

Category	Findings
Labs	Hypocalcemia: 8.5 mg/dL Hyperphosphatemia: 8.4 mg/dL Markedly elevated PTH: 1695.8 pg/mL
Ultrasound	Diffuse anterior abdominal wall thickening, edema, fluid collections
Histopathology – Abdominal punch biopsy	Mild perivascular lymphocytic infiltration; Presence of histiocytes
Histopathology – Left thigh incisional biopsy	Small vessel calcification in subcutis; Focal tissue necrosis

Clinical Outcomes

- The patient received intravenous (IV) sodium thiosulfate, cinacalcet, and oxycodone for pain management.
- Despite aggressive multidisciplinary interventions, including phosphate binders and dialysis adjustments to normalize serum levels, the patient succumbed to complications one month after discharge.

Discussion

- Calciphylaxis is a rare, life-threatening condition most often associated with chronic kidney disease (CKD), ESRD, and secondary hyperparathyroidism.[2]
- It carries a 60-80% mortality rate, frequently due to sepsis from nonhealing ulcers.[3]
- Risk factors include obesity, diabetes, and kidney failure, which contribute to vascular injury, hypoxia, and tissue necrosis.
- By the time cutaneous lesions are apparent, irreversible vascular damage has already occurred, explaining the high mortality.[1]
- Diagnosis relies on clinical suspicion, exclusion of other vascular disorders, and confirmation with biopsy or bone scan.[1]
- This patient had a unique presentation due to an uncommon distribution of calciphylaxis, an absence of classic retiform purpura, a history of multiple comorbidities, and prior IV contrast exposure.

Conclusion

This case emphasizes the potential for rapid deterioration in patients diagnosed with calciphylaxis. Once cutaneous lesions are visible, irreversible damage has already occurred to the vessels. It is crucial to keep a high clinical suspicion, especially in patients who are missing typical features of calciphylaxis.

References

1. Wilmer WA, Magro CM. Calciphylaxis: emerging concepts in prevention, diagnosis and treatment. Semin Dial. 2002;15:172–186.
2. Kalajian AH, Malhotra PS, Callen JP, Parker LP. Calciphylaxis with normal renal and parathyroid function. Arch Dermatol. 2009;154:451–458.
3. Fine A, Zacharias J. Calciphylaxis is usually non-ulcerating: risk factors, outcome and therapy. Kidney Int. 2002;61:2210–2217.
4. Wenig RH. Pathogenesis of calciphylaxis: Hans Selye to nuclear factor KB. J Am Acad Dermatol. 2008;58:458–471.

Artificial Intelligence in Full-Body Skin Imaging: Opportunities and Challenges in Skin of Color

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Background

- Skin cancer incidence is increasing globally, highlighting the need for scalable screening solutions amid a shortage of board-certified dermatologists.[1]
- Artificial intelligence (AI) tools such as Dermasensor, VECTRA WB360, and FotoFinder have advanced three-dimensional (3D) total-body photography, digital dermoscopy, and high-resolution dermoscopy to improve diagnostic accuracy in cutaneous malignancy screenings.[2,3,4]
- 20,000+ lesions analyzed per patient with effective distinction of melanoma from benign lesions.[5]
- Datasets underrepresent higher Fitzpatrick skin types (VI-VI) (4%–18% of textbook images), contributing to reduced AI performance in higher Fitzpatrick types.[4,6-8]

Purpose

- This study aims to examine the limitations of AI-assisted full-body imaging in melanoma detection among skin of color populations and to propose a framework for equitable algorithmic development.
- To ensure that AI enhances rather than limits access to care, the dermatologic community must intentionally include diverse datasets, evaluate model performance by Fitzpatrick type, and integrate clinical context into algorithm interpretation.

References

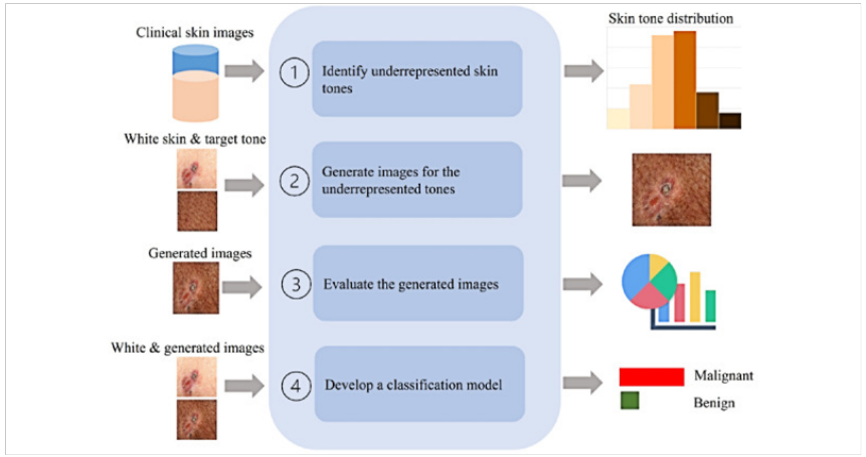

Figure 1. The process of developing cutaneous malignancy classification models for higher Fitzpatrick types (IV-VI) in AI 3D skin scanning devices.[9]

Results

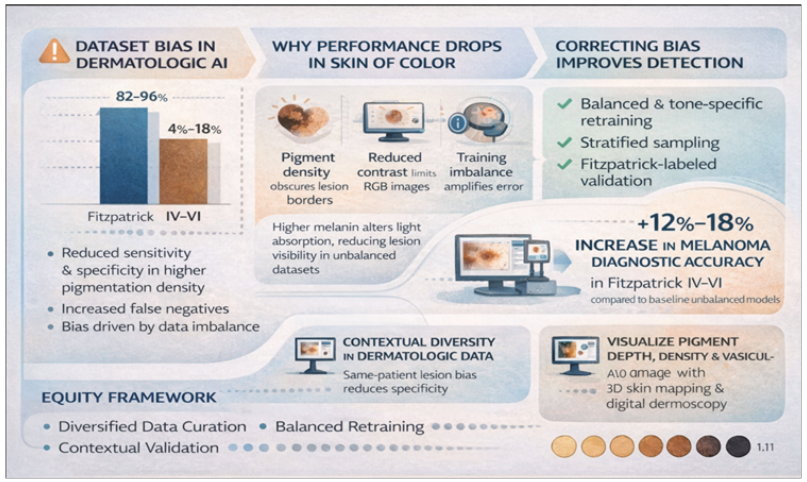

Figure 2. Graphic illustrating the results and correlating interpretations as it pertains to AI integrations in skin scanning devices, particularly with relation to inequity in sampling and accurately diagnosing higher Fitzpatrick skin types (IV-VI)

Methods

- A structured literature review was conducted using PubMed and Scopus to identify studies published between 2019 and 2025 evaluating AI-based full-body photography, 3-D skin imaging, and digital dermoscopy platforms, including VECTRA WB360, FotoFinder, and DermaSensor.[2,3,5]
- Secondary analyses evaluated the integration of pigment density, vascularity, and texture mapping parameters in AI training.
- The analysis informed a framework designed to operationalize equity in dermatologic AI, quantifying underrepresentation, diversifying seed data, retraining with balanced sampling, and evaluating diagnostic accuracy by Fitzpatrick type.[9]

Conclusion

- AI integrated with three-dimensional skin mapping improves features often obscured in higher Fitzpatrick skin types, which include visualization of pigment depth, vascularity, and lesion structure.[3,11,12]
- Equitable performance requires diverse training data, Fitzpatrick-stratified evaluation, and clinical oversight[3,9-12]
- AI-based skin scanners augment risk stratification in resource-limited settings, extending dermatologic expertise without replacing clinical judgment.
- hen validated on representative populations, AI-assisted imaging functions as a diagnostic and public health tool to improve early detection and dermatology care access.

An Update on the Safety of Biologics for the Treatment of Psoriasis

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Introduction

- Psoriasis is a chronic inflammatory disease affecting 3% of Americans and is driven by IL-23/Th17 immune dysregulation.
- Traditional systemic drugs are effective but are limited by toxicity.
- Biologics are safer and more effective treatments; however, more long-term data is needed to review the safety profiles of each biologic.
- This review looks at biologic safety profiles over the past 5 year of Phase III and IV literature.

Methods

- PUBMED was used to search for Phase III and IV trials from 2020-2025.
- The following terms were used: (psoriasis[MeSH Terms] OR psoriasis[Title/Abstract]) AND (ustekinumab OR secukinumab OR ixekizumab OR brodalumab OR bimekizumab OR guselkumab OR risankizumab OR tildrakizumab OR adalimumab OR etanercept OR infliximab OR certolizumab OR golimumab) AND (safety OR "adverse events" OR infections OR malignancy OR immunogenicity OR "long-term outcomes")

Results

Table 1. TNF inhibitor averages for adverse events and serious adverse events.

Outcome	Mean (%)	Studies Reporting
Any Adverse Event	62.8%	10
Serious Adverse Event	6.4%	7
Infection/URI	19.3%	10

- The average adverse events (AE) rate for TNF inhibitors was 62.8%, ranging from 29%-81.8%.
- The average serious adverse events (SAE) rate for TNF inhibitors was 6.4%, ranging from 3.1% to 10%.
- Infections, mainly upper respiratory tract infections (URI), were the main AE for TNF inhibitors.

Table 2. IL-17 inhibitor averages for adverse events and serious adverse events.

Outcome	Mean (%)	Studies Reporting
Any Adverse Event	61.6%	15
Serious Adverse Event	5.1%	13
Infection/URI	16.9%	14

- The average AE rate for IL-17 inhibitors 61.6%, with a range of 37.7% - 91.9%.
- The average SAE rate was 5.1%, with a range of 0%-12.8%.
- Infections (URI), were the most common AE with an average rate of 16.9%.

Table 3. A summary of the results, focused on IL-23 inhibitors, study design and major safety outcomes.

Outcomes	Mean (%)	Studies Reporting
Any Adverse Event	52.9%	22
Serious Adverse Event	4.9%	25
Infection/URI	22.1%	24

- The average rate of AE for IL-23 inhibitors is 52.9%, with a range of 29.1%-95.5%.
- The average SAE rate for IL-23 inhibitors is 4.9%, with a range of 0%-13.3%.
- Infections were the most common AE, with an average of 22.1% and a range of 5.7%-64%.

Discussion

- IL-23 inhibitors demonstrated lower overall serious adverse event and serious infection rates compared to TNF inhibitors and were comparable or slightly favorable to IL-17 inhibitors.
- TNF inhibitors showed the highest overall AE and infection rates.
- URI were most common infections across all biologic classes
- Phase III and IV studies showed stable safety profiles over time, without cumulative toxicity
- IL-23 inhibitors may offer a favorable risk-benefit profile.

Conclusions

- Current evidence supports a favorable safety profile for biologic therapies in psoriasis, with IL-23 inhibitors demonstrating reassuring long-term safety.
- URI and fungal infections are things for providers to look out for when treating patients with biologics.

Disclosures

Steven R. Feldman has received research, speaking and/or consulting support from Eli Lilly and Company, GlaxoSmithKline/Stiefel, AbbVie, Janssen, Alovtech, vTv Therapeutics, Bristol-Myers Squibb, Samsung, Pfizer, Alumis, Boehringer Ingelheim, Oruka, Amgen, Dermavant, Arcutis, Novartis, UCB, Helsinn, Sun Pharma, Almirall, Galderma, Leo Pharma, Mylan, Celgene, Ortho Dermatology, Menlo, Merck & Co, Qurient, Forte, Arena, Biocon, Accordant, Argenx, Sanofi, Regeneron, the National Biological Corporation, Caremark, Teladoc, BMS, Ono, Micreos, Eurofins, Informa, UpToDate, Verrica, and the National Psoriasis Foundation. He is founder and part owner of Causa Research and holds stock in Sensal Health. The other authors have no conflicts to disclose.

Dermatitis Neglecta: A Case Report of Hyperpigmentation Due to Neglected Hygiene

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Introduction

Dermatitis neglecta results from inadequate skin cleansing, causing buildup of sebum, sweat, and corneocytes that form hyperpigmented or verrucous plaques.[1] It is linked to poor hygiene due to psychiatric or neurologic limitations. Diagnosis is clinical, as alcohol swabbing removes the pigmentation.[1] We report a case of extensive dermatitis neglecta in an elderly patient with psychiatric and neurologic disease.

Case Report

A 71-year-old woman presented to the ED with anxiety after running out of quetiapine. Her history included CVA with residual left-sided weakness, anxiety, depression, and schizophrenia. She was unable to attend an in-person visit for a refill due to severe mobility limitations and lack of transportation. EMS reported unsafe living conditions, including an unheated home and inability to ambulate or perform self-care for two years after loss of her caregiver. On arrival, she was hypothermic, disheveled, and urine-soaked, with a significant UTI. Dark discoloration on her back was initially concerning for infection; however, it was easily removed with rubbing alcohol, confirming extensive dermatitis neglecta.

Acknowledgements

We thank the patient for their contribution to the benefit of our medical education.

References

Findings

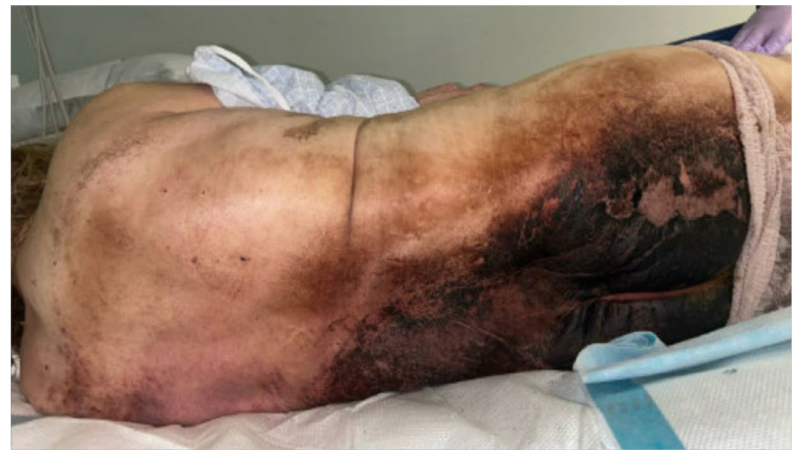

Image 1. Right back. Extensive, sharply demarcated, waxy, adherent plaque extending from the mid-back to the posterior thighs, accompanied by diffuse hyperpigmented patches across the back.

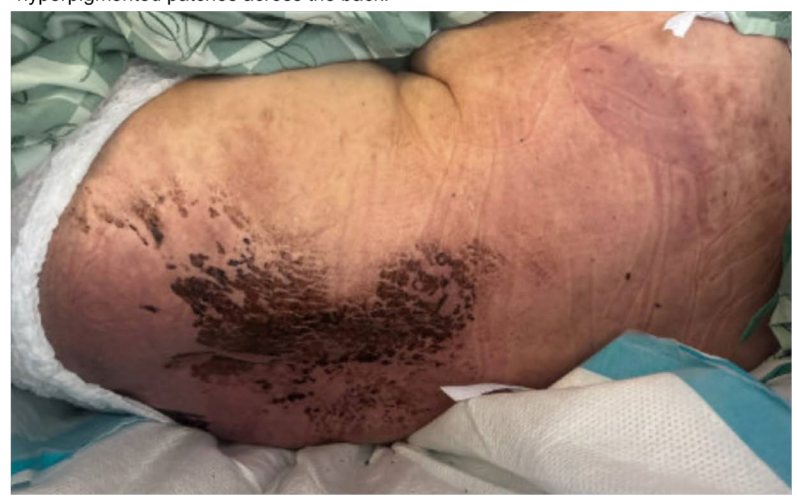

Image 2. Left Back, post bath. Marked improvement in the previously hyperpigmented areas, with notable resolution of the erythematous upper-back lesion.

Discussion

Dermatitis neglecta (DN) is an uncommon, often underdiagnosed condition caused by inadequate hygiene and insufficient exfoliation, leading to accumulation of keratin, sebum, sweat, and debris and forming hyperpigmented, scaly patches.[1] It commonly occurs in patients with disability, pain, or prior trauma limiting hygiene. This case demonstrates an unusually extensive DN from the mid-back to posterior thighs in a patient with multifactorial debility.

Differential diagnoses for hyperpigmented lesions include dermatitis artefacta, where lesions are self-inflicted and often geometric; terra firma-forme dermatitis, which resists removal with soap and water; and verrucous nevi, acanthosis nigricans, and post-inflammatory hyperpigmentation, all of which are similarly not easily cleaned.[3-5]

In this patient, the lesion was initially suspected as a fungal infection. Wood's lamp exam showed fluorescence in some areas but not the primary lesion. Scrubbing with alcohol removed the pigment, and a full bath revealed normal underlying skin. This immediate improvement with cleansing confirmed DN, which is also its primary treatment.[3]

Conclusions

When identified early, DN is a benign, reversible condition. Prompt recognition avoids unnecessary tests and treatments, and DN should be considered in hyperpigmented plaques, especially in patients with limitations affecting self-care.

Cutaneous Pseudoepitheliomatous Hyperplasia from a Canine Pet Hair

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Introduction

- **Pseudoepitheliomatous hyperplasia (PEH)** is a benign squamous epithelial proliferation that is strongly associated with neoplasia, infection, or inflammation of the underlying dermis.
- **PEH is difficult to distinguish from squamous cell carcinoma (SCC)** both clinically and histopathologically.[1]
- **PEH has been linked to foreign body reactive inflammation**, including tattoo ink and orthopedic implant etiologies.[2,3]

Case Presentation

A 70-year-old man presented to general dermatology with chief complaint of a non-healing lesion on the right foot for six months. Upon initial examination, a 0.7 cm hypertrophic, erythematous papule with hyperkeratotic scale on the right lateral dorsal foot was identified. Shave biopsy showed atypical squamous proliferation worrisome for SCC (Figure 1). Patient returned to clinic four weeks later for excision with pathology showing residual SCC with clear margins. Patient returned seven months later due to lesion recurrence. Repeat shave biopsy showed transected atypical squamous proliferation with the base unavailable for review; therefore, SCC could not be excluded. Further comments noted associated suppurative inflammation, but lesional epithelium exhibited greater complexity than typically seen in reactive process. Patient was referred for Mohs surgery (Figure 2(a)). Microscopic evaluation of the first Mohs stage showed a foreign body suspicious for nonhuman hair. Repeat intraoperative examination revealed several short, coarse dark hairs in the plantar web space of the patient's feet and further history revealed the patient owned a Rottweiler dog (Figure 2(b)). These findings resulted in a new differential diagnosis of PEH due to cutaneous penetration of canine hair rather than SCC. Residual hairs were extracted with a hemostat. Pathology consult confirmed foreign body with reactive inflammatory changes, negative for malignancy, confirming the incidental pet hair as the cause of the cutaneous proliferation (Figure 3(a-c)). Eight weeks later, the patient returned for routine follow-up; the site was healing appropriately and asymptomatic.

Pathology and Figures

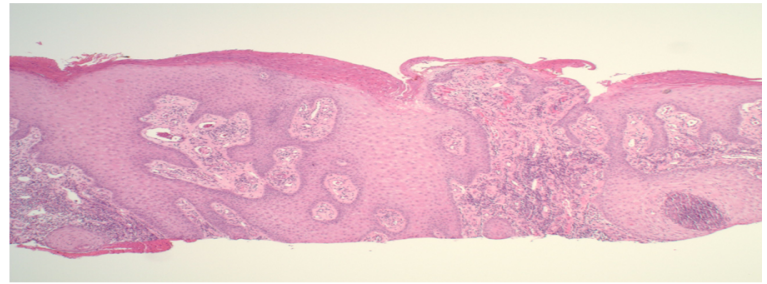

Figure 1: Histopathology photograph from initial shave biopsy. Irregular endophytic squamous proliferation with mild atypia, focal ulcer and underlying acute and chronic inflammation (H&E stain; 10x magnification).

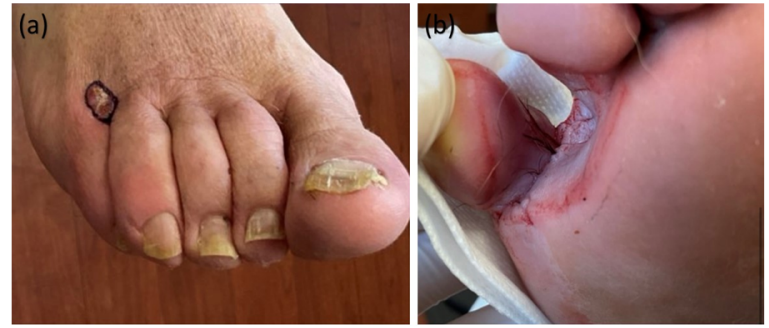

Figure 2: Clinical photographs from Mohs surgical visit. Pre-operative: hypertrophic, erythematous papule with hyperkeratotic scale on the right lateral dorsal foot (a). Intra-operative: short, coarse dark hairs in the plantar web space of the patient's feet (b).

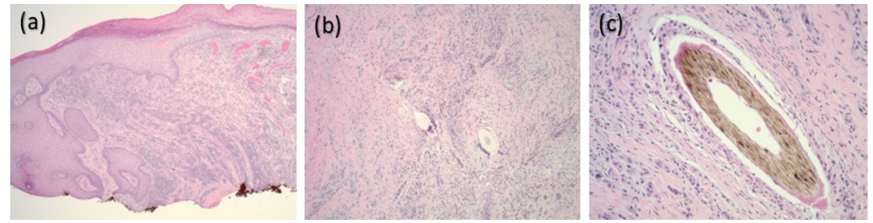

Figure 3: Histopathology photographs from Mohs surgical visit. Mohs Debulk: Biopsy site changes and continues to show irregular epidermal hyperplasia, but no malignant cells (H&E stain; 4x magnification) (a). Mohs en face section: Cross sections of multiple naked hair shafts of varying size and pigment in the dermis with surrounding fibrosis and inflammation; no malignant cells (H&E stain; 4x magnification) (b). Mohs en face section: Longitudinal section of naked pigmented hair shaft with surrounding fibrosis and inflammation; no malignant cells (H&E stain; 10x magnification) (c).

Discussion

- **This case demonstrates challenge of distinguishing a hypertrophic, hyperkeratotic papule as either malignant (SCC) or benign (PEH)**.
- Histology can be helpful; immunohistochemical markers have been studied in differentiating PEH from SCC (matrix metalloproteinases and p53).[4]
- Many dermatologic diagnoses are predominantly based on clinical features.[5]
- **In our case, pathology or examination alone was unable to give a definitive diagnosis.**
- **Key contributors to definitive diagnosis of PEH**: social history, physical examination during the Mohs surgical visit, and Mohs histology concerning for foreign body.
- A **limitation in clinical workup** potentially resulting in delayed diagnosis: **nonideal biopsy method**.
- PEH may be misinterpreted as SCC, especially if superficial biopsy specimen does not contain sufficient portion of the dermis.[1]
- **Punch biopsy or surgical biopsy** would have potentially **provided more comprehensive view of lesion, allowing more rapid and accurate diagnosis of PEH**.

Conclusion

- Differentiating between PEH and SCC can be difficult clinically and histopathologically.
- Definitive diagnosis is crucial for appropriate intervention.
- This case highlights the significance of a complete social history and physical examination in collaboration with dermatopathology, including considerations for biopsy method.

References

1. Zayour M, Lazova R. Pseudoepitheliomatous hyperplasia: a review. *Am J Dermatopathol*. 2011;33(2):112-126. doi:10.1097/DAD.0b013e3181fcfb47
2. Badavanis G, Constantinou P, Pasmatzi E, Monastirli A, Tsambaos D. Late-onset pseudoepitheliomatous hyperplasia developing within a red ink tattoo. *Dermatol Online J*. 2019;25(5):13030/qt7rk415vm. Published 2019 May 15.
3. Blum FR, D'Souza LS. Cutaneous Pseudoepitheliomatous Hyperplasia from a Displaced Metallic Orthopedic Implant. *Case Rep Dermatol Med*. 2022;2022:9139213. Published 2022 Apr 7. doi:10.1155/2022/9139213
4. Nayak VN, Uma K, Girish HC, Murgod S, Shyamala K, Naik RB. Pseudoepitheliomatous Hyperplasia in Oral Lesions: A Review. *J Int Oral Health*. 2015;7(9):148-152.
5. Zaman JAB. The Enduring Value of the Physical Examination. *Med Clin North Am*. 2018;102(3):417-423. doi:10.1016/j.mcna.2017.12.003

Are Skin Cancer Screenings Beneficial in Patients Without Personal Risk Factors?

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Introduction

- Patient access to dermatologic care is limited as demand for dermatology outpaces capacity for dermatologists[1,2]
- This study examines population characteristics of new patients presenting for first-time skin cancer screening (FBSE)

Methods

- i2b2 (Informatics for Integrating Biology and the Bedside) and SKAN (Search Kibana Accessible Notes) natural language model generated first-time skin cancer screening visits
- E/M codes 99202, 99203, 99204 and natural language "full body skin exam", "skin check", "FBSE" were used to identify adult patients from March 1, 2021, to March 1, 2022
- Patient demographics, visit diagnoses, and visit procedures were collecting and analyzed
- Biopsy results were manually reviewed and interpreted
- High risk (HR) was defined as personal histories of immunosuppression/ immunodeficiency, malignant melanoma, melanoma in-situ, and/or malignant neoplasms (Z92.25, V10.82, V10.89, Z85.818, Z86.006, V10.83, D82.8)
- Low risk (LR) was defined as not meeting HR criteria

Results

- 29576 patients from i2b2 and 8340 from SKAN were cross-referenced
- A final list of 833 patients (M=335, F=498, mean age=54) was generated for analysis
- 152 patients (M=72, F=80, mean age=62) were categorized as high risk
- 681 patients (M= 263, F= 418, mean age= 53) were categorized as low risk

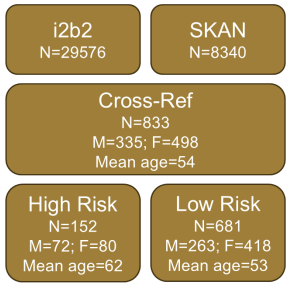

Figure 1: The final cohort for analysis contained 833 patients.

Results

- Patients were middle-aged, predominantly white, with 40:60 M:F ratio
- In the HR cohort, patients are nearly 10 years older with 50:50 M:F ratio
- In the LR cohort, proportions match the overall cohort characteristics
- Of the 833 patients, 31% underwent a procedure
- In the HR group, 50% underwent a procedure
- In the LR group, 26% underwent a procedure
- Of the 833 patients, 18% received at least one biopsy

	Age ± std	Gender; N (%)	Race; N (%)
Total N=833	54 ±16	Male; 335 (40%) Female; 498 (60%)	White; 760 (91%) Black; 36 (4%)
HR N=152	62 ±13	Male; 72 (47%) Female; 80 (53%)	White; 149 (98%) Black; 1 (1%)
LR N=681	53 ±16	Male; 263 (39%) Female; 418 (61%)	White; 611 (90%) Black; 35 (5%)

Table 1: In the overall cohort, patients were middle-aged, mostly white, with slightly more females than males. Patients in the HR cohort were nearly 10 years older, mostly white, with an even gender distribution. The LR cohort matches the overall cohort's characteristics.

	Procedure Rate; Count (rate)
Total N=833	One or more; N=256 (31%) Biopsy; 221 (0.27 per patient) Pre-malign Destruction; 144 (0.17 per patient) Benign Destruction; 95 (0.11 per patient)
HR N=152	One or more; N=76 (50%) Biopsy; 66 (0.43 per patient) Pre-malign Destruction; 50 (0.33 per patient) Benign Destruction; 15 (0.10 per patient)
LR N=681	One or more; N=180 (26%) Biopsy; 155 (0.23 per patient) Pre-malign Destruction; 94 (0.14 per patient) Benign Destruction; 80 (0.12 per patient)

Table 2: In the overall cohort, there was a total of 221 biopsies, 144 pre-malignant destructions, and 95 benign destructions. In the HR cohort, more patients underwent a procedure and there were more procedures per patient than in the LR cohort.

- In the HR group, 26% received at least one biopsy and 10% had two or more biopsies
- In the LR group, 16% received at least one biopsy and 4% had two or more biopsies

References

1. Freeman EE. Global health dermatology: An emerging field addressing the access to care crisis. Indian Journal of Dermatology, Venereology & Leprology. 2024;90(1):1-2. doi:10.25259/IJDVL_1361_2023
2. Desrosiers AS, Petruzzelli CJ, Bobo JF, et al. Clinical interventions aimed at expanding access to dermatologic care. Dermatol Online J. 2021;27(3):13030/qt9w82x2z1. Published 2021 Mar 15.

Results (cont.)

- In the HR group, 41/152 (27%) were found with biopsy-proven cutaneous malignancy
- In the LR group, 80/681 (12%) were found with biopsy-proven cutaneous malignancy

	Biopsy Breakdown; N (%)	Biopsy Results; Count (rate)
Total N=833	N=150 (18%) One only; 110 (13%) Two or more; 40 (5%)	Melanoma or Nevus w/ Severe Atypia; 9 (0.01 per patient) Basal Cell Carcinoma; 72 (0.09 per patient) Squamous Cell Carcinoma; 40 (0.05 per patient)
HR N=152	N=39 (26%) One only; 24 (16%) Two or more; 15 (10%)	Melanoma or Nevus w/ Severe Atypia; 0 (0 per patient) Basal Cell Carcinoma; 30 (0.20 per patient) Squamous Cell Carcinoma; 11 (0.07 per patient)
LR N=681	N=111 (16%) One only; 86 (13%) Two or more; 25 (4%)	Melanoma or Nevus w/ Severe Atypia; 9 (0.01 per patient) Basal Cell Carcinoma; 42 (0.06 per patient) Squamous Cell Carcinoma; 29 (0.04 per patient)

Table 3: Overall, 18% of patients received at least one biopsy with a skin cancer rate of 0.15 per patient. In the HR group, 26% received one biopsy with a skin cancer rate of 0.27 per patient. In the LR group, 16% received a biopsy with a skin cancer rate of 0.11 per patient.

Discussion

- Patients presenting for first-time skin cancer screening visits are at low overall risk for skin cancer, though all melanomas were detected in this cohort
- In patients with a history of skin cancer or immunosuppression, ~50% may undergo a procedure with ~26% requiring biopsy
- In patients without a history of skin cancer or immunosuppression, only ~26% may undergo a procedure with ~12% requiring biopsy
- Better methods for triaging patients requesting FBSE are needed to maximize limited resources

Disclosures

The authors have no conflicts to disclose.

Gluteal Cleft and Perianal Granular Parakeratosis: An Atypical Presentation

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Introduction

- Granular parakeratosis (GP) is a rare acquired disorder of keratinization classically affecting intertriginous areas
- Clinical features include **hyperkeratotic brown or erythematous plaques with burning, pruritus, and irritation**[1]
- Histopathology is characterized by compact parakeratosis with retention of keratohyalin granules[2]
- **Anogenital and perianal involvement is uncommon** and may mimic infectious or inflammatory dermatoses, leading to diagnostic delay

Patient Case

- 50-year-old female with months-long history of painful, pruritic rash initially localized to the perianal and gluteal cleft
- Symptoms worsened with **heat, moisture, friction, and harsh washing**
- Initial exam showed a scaly, hyperpigmented gluteal cleft plaque (Figure 1A)
- Shave biopsy of gluteal cleft confirmed granular parakeratosis (Figure 2)
- Initial improvement with hydrocortisone after discontinuing zinc oxide
- Subsequent flares with **extension to groin, upper thighs, and later axillae** (Figure 1B)
- Intolerance to tacrolimus and hydrocortisone due to burning sensation
- Treatment revised to include topical calcipotriene and short-course doxycycline, with good improvement

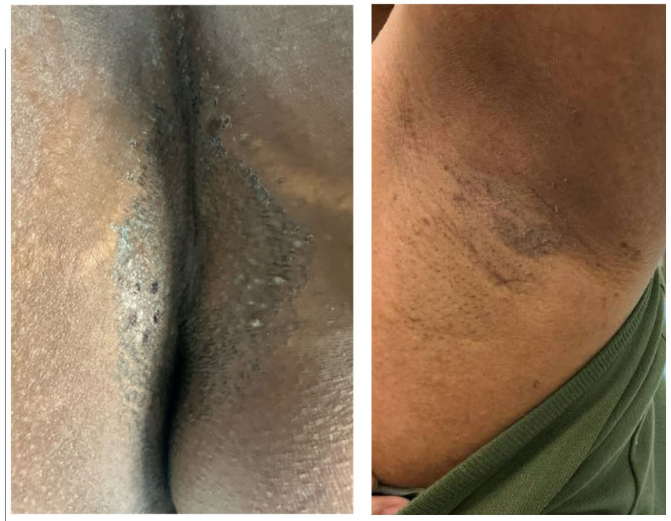

Figure 1: Ill-defined scaly brown plaques of the **A.** gluteal fold and **B.** left axilla

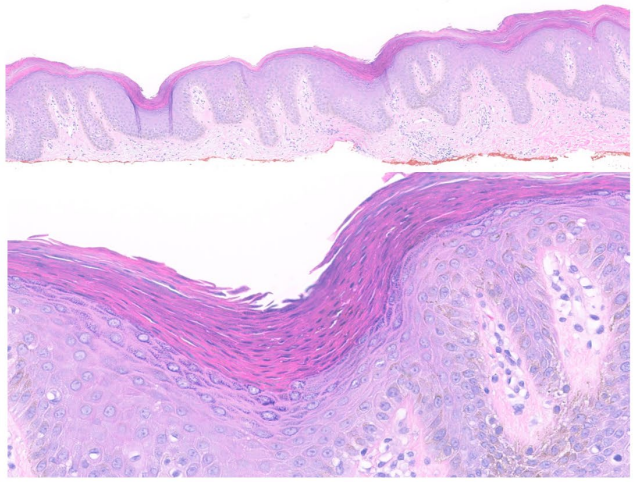

Figure 2: Compact hyperkeratosis with confluent parakeratosis overlying an acanthotic epidermis with mild papillomatosis. Retained nuclei through the stratum corneum with retention of keratohyalin granules.

Discussion

- This case highlights an **atypical initial presentation of GP confined to the perianal region**, preceding involvement of classic axillary disease
- Interval development of axillary lesions supports the original biopsy-based diagnosis and **underscores the value of early tissue sampling**
- GP can cause significant morbidity, including pain, maceration, and impaired mobility
- Clinical overlap with infectious and inflammatory dermatoses increases risk of misdiagnosis
- Vitamin D analogs and anti-inflammatory antibiotics may serve as useful alternatives in refractory or intolerant cases

Conclusion

- GP may present initially in atypical anogenital locations before evolving into classic intertriginous disease
- Early biopsy is critical for diagnosis when presentation is limited to uncommon sites
- GP can be severely symptomatic and functionally limiting
- Treatment often requires individualized therapeutic strategies
- Increased awareness of atypical GP presentations can reduce misdiagnosis, unnecessary treatments, and delays in care

References

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A DIVISION OF COMPASS HEALTH

Acquired Reactive Perforating Collagenosis Treatment with Upadacitinib: A Case Report

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Background

Reactive perforating collagenosis (RPC) is a rare and chronic skin disease characterized by epidermal elimination of collagen through the skin.[1] RPC is a type of perforating dermatoses. The pathogenesis of RPC is unknown, but lesions are believed to develop at sites of trauma and are exacerbated by scratching.[2] RPC can occur as an inherited form or acquired form.[1] The acquired form of RPC is associated with chronic renal insufficiency, diabetes, and malignancy.[1,3] Presentation of RPC is typically hyperkeratotic, pruritic papules on extremities and hands.[1] Most cases are self-limited and do not require treatment; however, topical treatments, antihistamines, and UV-B phototherapy can be used to alleviate pruritus.[1,3,4]

There are few reported cases of treatment options for patients with severe, resistant RPC. Herein, we present a case of acquired RPC secondary to dialysis treated with upadacitinib, a Janus kinase (JAK) inhibitor.

Case Summary & Diagnosis

A 66-year-old female with chronic kidney disease on dialysis presented to clinic with a chief complaint of worsening, pruritic skin lesions. The patient denied history of skin cancer, allergies, and/or inciting trauma. Physical examination revealed hyperkeratotic scales and erythematous papules with central erosions and plugging on the right superior upper back, left upper arm, and trunk.

A 4 mm punch biopsy of the right superior upper back demonstrated an umbilicated lesion with a central plug composed of parakeratotic debris, degenerate collagen, and inflammatory cells (Figure 1). A repeat biopsy one month later showed similar findings.

Based on histopathology, presentation, and medical history of chronic kidney disease the diagnosis of RPC secondary to dialysis was determined.

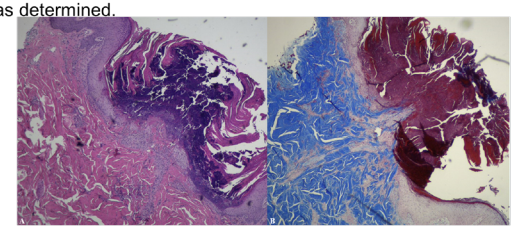

Figure 1. Histopathology showing parakeratotic debris with degenerated collagen and inflammatory cells, with hypergranulosis and lymphohistiocytic infiltrate (A). Masson's trichrome highlights epidermal thinning and vertically oriented collagen fibers (B).

Observations & Investigations

Initial treatment composed of triamcinolone cream twice daily and antihistamines as needed for pruritus, but symptoms persisted. The patient was prescribed upadacitinib and within five days her pruritus, perforating nodules, and papules significantly improved. On follow-up approximately two weeks later, the patient noted her pruritus has significantly improved and she is able to sleep through the night, despite having occasional breakthrough episodes of pruritus (Figure 2). In addition, the patient stated her skin lesions were fading and no new lesions were developed. At three months post treatment initiation, the patient reported her condition has remained unchanged.

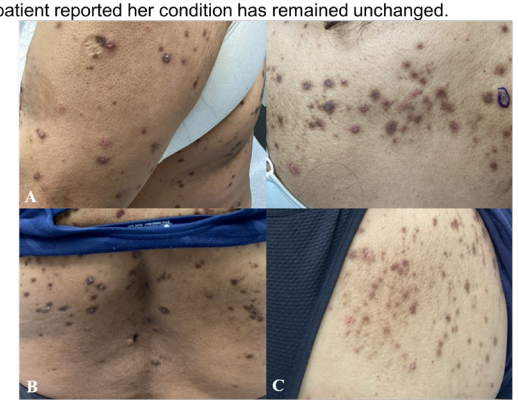

Figure 2. Hyperkeratotic scales and erythematous papules with central erosions on the patient's upper arms at baseline (Row A), 2 weeks after treatment initiation (B), and three months after treatment initiation (C).

Discussion

Acquired perforating dermatoses affect up to 11% of dialysis patients.[5] It is well-known that uremic toxins and electrolyte imbalances from chronic renal failure can lead to pruritus. When patients scratch their skin this leads to microtrauma and alteration of collagen in the dermis, leading to perforation.[5] Current treatment options target cytokine signaling such as dupilumab, a monoclonal antibody that inhibits IL-4 and IL-13 signaling by binding to the shared IL-4 receptor alpha subunit.[6,7] IL-4 and IL-13 play a significant role in type 2 inflammation and stimulate epithelial cells to produce chemokines and induce epithelial hyperplasia, barrier dysfunction, and white blood cell infiltration.[7]

Discussion (continued)

Upadacitinib is a selective and reversible JAK-1 inhibitor that is used to treat immune-mediated inflammatory conditions.[8]A literature review done in PubMed found two case reports describing the use of JAK inhibitors for RPC.[4,8] In all three cases, patients had significant relief of their pruritus and minimal side effects, but the presence of scars persisted. In the presented case, once the patient discontinued Upadacitinib her pruritus returned and once she resumed her medication, the pruritus resolved within days. Common adverse events reported from clinical trials include upper respiratory tract infections, nasopharyngitis, and increase in blood creatine phosphokinase levels.[8]

Upadacitinib targets additional cytokines than dupilumab in the pathogenesis of pruritus. Upadacitinib targets multiple proinflammatory cytokines including IL-4, IL-13, IL-22, IL-31, and IFN-γ.[10] Upadacitinib is useful for targeting pruritus through IL-31 signaling inhibition and perforation through IL-13 and IL-22, as well as lesion chronicity from IFN-γ signaling inhibition.[10]

Upadacitinib is a well-tolerated treatment option for patients with RPC that not only manages symptoms, but progression of lesions. Future research should be dedicated to exploring effectiveness in a larger patient population.

References

[1] Mullins TB, Sickinger M, Zito PM. Reactive Perforating Collagenosis. In: StatPearls. Treasure Island (FL): StatPearls Publishing; March 1, 2024.
[2] Kochen D, Sohal RJ, Nat A. Reactive Perforating Collagenosis; An Uncontrolled Pruritus That Left You Scratching Your Head. Cureus. 2020;12(7):e9175. Published 2020 Jul 14. doi:10.7759/cureus.9175
[3] Singhania N, Singhania G, Al-Rabadi L. Acquired Reactive Perforating Collagenosis. Clin Exp Nephrol. 2020;24(11):1086-1087. doi:10.1007/s10157-020-01929-1
[4] Ding W, Wang Y, Song L, Zhou N. A potential new treatment with upadacitinib for acquired reactive perforating collagenosis. JAAD Case Rep. 2024;48:112-114. Published 2024 Apr 20. doi:10.1016/j.jdcr.2024.04.017
[5] Viejo-Boyano I, López-Romero LC, Martínez-I-Cózar V, Soldevila-Orient A, Hernández-Jaras J. Acquired perforating dermatosis in patients on peritoneal dialysis: a report of 3 cases. AME Case Rep. 2023;7:46. Published 2023 Oct 12. doi:10.21037/acr-23-9
[6] Liu B, Wu Y, Wu X, Zhong X, Xue R, Zhang Z. Dupilumab improve acquired reactive perforating collagenosis characterized by type 2 inflammation. Front Immunol. 2023;14:1240262. Published 2023 Aug 10. doi:10.3389/fimmu.2023.1240262
[7] McCann MR, Kosloski MP, Xu C, Davis JD, Kamal MA. Dupilumab: Mechanism of action, clinical, and translational science. Clin Transl Sci. 2024;17(8):e13899. doi:10.1111/cts.13899
[8] Mohamed MF, Bhatnagar S, Parmentier JM, Nakasato P, Wung P. Upadacitinib: Mechanism of action, clinical, and translational science. Clin Transl Sci. 2024;17(1):e13688. doi:10.1111/cts.13688
[9] Zheng J, Ding Y, Chen Y, Shi Y, Gao Y. Effectiveness of baricitinib in acquired reactive perforating collagenosis: a case report. Front Immunol. 2024;15:1388274. Published 2024 Jul 15. doi:10.3389/fimmu.2024.1388274
[10] Blauvelt A, Teixeira HD, Simpson EL, et al. Efficacy and Safety of Upadacitinib vs Dupilumab in Adults With Moderate-to-Severe Atopic Dermatitis: A Randomized Clinical Trial [published correction appears in JAMA Dermatol. 2022 Feb 1;158(2):219. doi: 10.1001/jamadermatol.2021.5451] [published correction appears in JAMA Dermatol. 2022 Feb 1;158(2):219. doi: 10.1001/jamadermatol.2022.0056] [published correction appears in JAMA Dermatol. 2024 Mar 1;160(3):370. doi: 10.1001/jamadermatol.2023.6395] [published correction appears in JAMA Dermatol. 2024 Sep 1;160(9):1012. doi: 10.1001/jamadermatol.2024.2673]. JAMA Dermatol. 2021;157(9):1047-1055. doi:10.1001/jamadermatol.2021.3023

HPV 42+ Digital Papillary Adenocarcinoma Mimicking a Pyogenic Granuloma

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Introduction

Digital papillary adenocarcinoma (DPAc) is a rare malignant tumor of the eccrine sweat glands that commonly presents as a slow-growing nodule on the digits of middle-aged to older men [1, 2]. It may resemble other benign skin lesions, but despite its benign appearance, DPAc has a high risk of local recurrence and distant metastasis [1].

We report a case of DPAc that developed following treatment for a splinter and clinically mimicked a pyogenic granuloma but was later confirmed as DPAc on histopathologic examination..

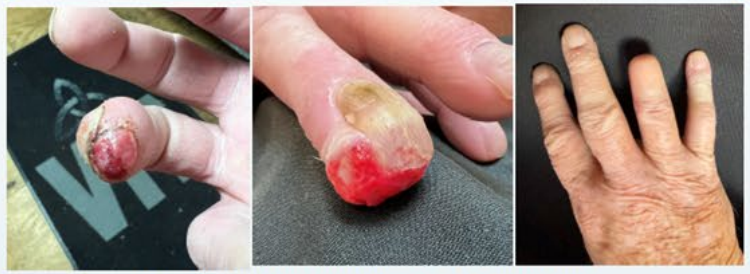
Case

A man in his 60s with a history of hypertension, hyperlipidemia, arthritis, and colon cancer in remission presented with a four-month history of an enlarging nodule on the right fourth digit. He reported prior splinter removal at the same site. Initially diagnosed as a pyogenic granuloma by an orthopedist, who recommended treatment with topical salt, but the lesion continued to enlarge over three months with intermittent bleeding and tenderness.

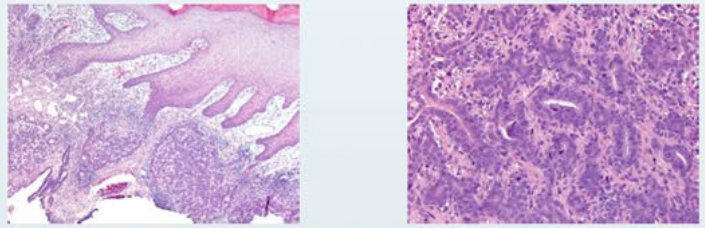
Examination showed a 1.3 × 1.5 cm friable, hemorrhagic nodule on the right fourth fingertip. Biopsy revealed an ulcerated epithelial neoplasm with multinodular, cystic ductal and tubular proliferation, peripheral lobules, central cystic spaces, and focal papillary projections. The biphasic epithelium demonstrated cytologic atypia and frequent mitoses. Tumor cells were positive for cytokeratin AE1/AE3, CK7, SOX10, EMA, and p63 in myoepithelial areas, and negative for p63 in ductules, CEA, and CK20, supporting a diagnosis of DPAc.

Outside consultation confirmed DPAc, with HPV42 detected by in situ hybridization. MRI showed no extension into the bone. The patient underwent tumor resection with partial distal interphalangeal joint amputation with a negative sentinel lymph node. He has no evidence of recurrence at six-month follow-up.

Images



Left: A small friable erythematous nodule on the fourth fingertip.
Middle: 3 months later, a larger, 1.3 x 1.5 cm nodule on the fourth fingertip.
Right: After partial amputation through the distal interphalangeal joint.



Left: Ulcerated epithelial neoplasm with multinodular, cystic ductal and tubular proliferation, peripheral lobules, central cystic spaces, and focal papillary projections.

Right: The cells are present in well formed ducts composed of neoplastic cells with round to oval nuclei that show small but distinct nucleoli with scant eosinophilic cytoplasm. Mitotic figures are easy to identify.

Discussion

DPAc was first described by Kao and Helwig in 1987 and initially classified by histology [1]. A subsequent review of 67 cases by Duke et al. demonstrated that tumors labeled benign could recur and metastasize, showing that histologic features do not reliably predict behavior and that all DPAc should be considered malignant.

With an annual incidence of 0.8 per 1,000,000, DPAc is rare and frequently misdiagnosed due to overlap with common lesions, including infections, cysts, pyogenic granulomas, glomus tumors, foreign body granulomas, adnexal tumors, and metastatic carcinoma [2,4–6]. In our case, the lesion developed after treatment of a retained splinter and clinically resembled a pyogenic granuloma, delaying diagnosis.

Discussion Continued

Histologic differential includes other adnexal tumors such as hidradenoma, hidradenocarcinoma, cystadenoma, spiradenoma, papillary eccrine adenoma, and metastatic adenocarcinomas [5,7,8].

Characteristic features include solid and cystic architecture with papillary projections, tightly packed tubular or glandular structures, cytologic atypia, variable mitotic activity, and deep dermal extension [5,7].

A strong association between DPAc and HPV42 has been shown with HPV42 detected in all tumors examined by Vanderbilt et al. and absent in other adnexal neoplasms [9].

Our case was also HPV42-positive, supporting HPV42 in situ hybridization as a useful diagnostic tool [8].

Treatment is surgical, with wide local excision or digital amputation recommended [3,4,7]. Local recurrence occurs in 21–50% of cases, and metastases, most often to lungs, lymph nodes, and bone may occur in 5–26% of cases, sometimes decades later [1,5,7]. Sentinel lymph node biopsy may detect occult disease, but effective systemic therapies are lacking, highlighting the importance of complete surgical management [2,3,6].

References

1. Kao GF, Helwig EB, Graham JH. Aggressive digital papillary adenoma and adenocarcinoma: A clinicopathologic study of 57 patients, with histochemical, immunopathological, and ultrastructural observations. J Cutan Pathol. 1987;14(3):129–146. doi:10.1111/j.1600-0560.1987.tb00488.x
2. Mudduwa V, Goodarzi M, Chalmers R, Khashaba H. Digital papillary adenocarcinoma: A case report of a rare malignant tumour with recommendations on management and follow-up. Int J Surg Case Rep. 2025;127:110922. doi:10.1016/j.ijscr.2025.110922
3. Duke WH, Sherrod TT, Lupton GP. Aggressive digital papillary adenocarcinoma (aggressive digital papillary adenoma and adenocarcinoma revisited). Am J Surg Pathol. 2000;24(6):775–784. doi:10.1097/00000478-200006000-00002
4. Rismiller K, Knackstedt TJ. Aggressive digital papillary adenocarcinoma: Population-based analysis of incidence, demographics, treatment, and outcomes. Dermatol Surg. 2018;44(7):911–917. doi:10.1097/DSS.0000000000001498
5. Weingertner N, Giessel A, Battistella M, Cribier B. Aggressive digital papillary adenocarcinoma: A clinicopathologic study of 19 cases. J Am Acad Dermatol. 2017;76(6):1105–1113. doi:10.1016/j.jaad.2017.02.006
6. Pate HF, Fulton DB. Digital papillary adenocarcinoma: A case presentation and literature review. J Hand Surg Glob Online. 2024;6(5):xxx–xxx. doi:10.1016/j.jhsg.2024.09.002
7. Suchak R, Wang WL, Prieto VG, Ivan D, Lazar AJ, Brenn T, Calonje E. Cutaneous digital papillary adenocarcinoma: A clinicopathologic study of 31 cases of a rare neoplasm with new observations. Am J Surg Pathol. 2012;36(12):1883–1891. doi:10.1097/PAS.0b013e3182632dec
8. Cascardo CA, Cornell G, Moesch JR. Human papillomavirus 42–associated digital papillary adenocarcinoma. JAAD Case Rep. 2023;32:52–54. doi:10.1016/j.jdcr.2022.10.038
9. Vanderbilt C, Brenn T, Moy AP, Harloe G, Arlyan C, Athanasian E, Busam KJ. Association of HPV42 with digital papillary adenocarcinoma and the use of in situ hybridization for its distinction from acral hidradenoma and diagnosis at non-acral sites. Mod Pathol. 2022;35(10):1405–1410. doi:10.1038/s41379-022-01094-8
10. Bartelstein MK, Schwarzkopf E, Busam KJ, Brady MS, Athanasian EA. Sentinel lymph node biopsy predicts systemic recurrence in digital papillary adenocarcinoma. J Surg Oncol. 2020;122(7):1323–1327. doi:10.1002/jso.26170

Lymphangioma Circumscriptum with Trauma-Related Change in Clinical Presentation

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Introduction

Lymphangioma circumscriptum (LC), is a rare benign malformation of the superficial lymphatic channels and the most common form of cutaneous lymphangioma (1). It classically presents as grouped translucent or hemorrhagic vesicles resembling "frog spawn."

We report a longstanding case of LC that often changed clinical appearance due to repeated work-related trauma.

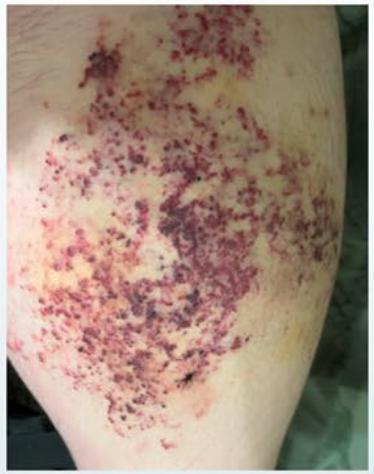
Case

A man in his 30s presented with a longstanding vascular lesion on the left thigh. As a teenager, the area was treated with a CO2 laser at an outside institution, but continued to slowly enlarge over the past several years. He reported recurrent irritation from a construction harness with occasional bleeding and frequent bruising.

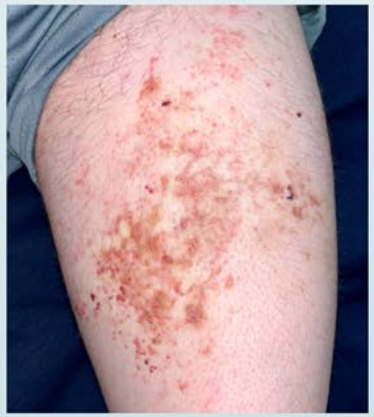
Clinically, the lesion consisted of clusters of dark red to blue-black papules coalescing into a large plaque with adjacent) purpura. A punch biopsy showed superficial dilated vascular spaces congested with erythrocytes with chronic inflammation, and was interpreted as angioma serpiginosum.

On two month follow-up, the large plaque had changed appearance, and showed numerous grouped, translucent pink vesicles, resembling "frog-spawn" with a few satellite hemorrhagic vesicles. Repeat punch biopsy revealed dilated lymphatic channels lined by flattened endothelial cells with thin fibrous septa and sparse lymphocytes, consistent with a lymphatic malformation such as lymphangioma circumscriptum.

Clinical Images

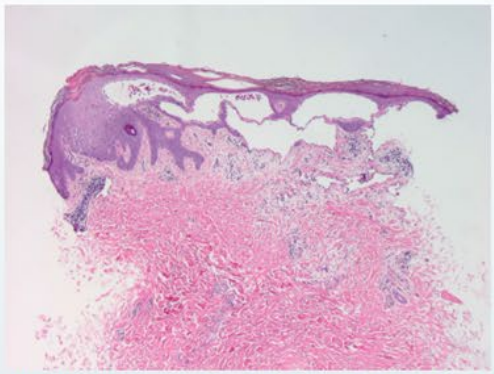


Initial Presentation, with work harness-related trauma

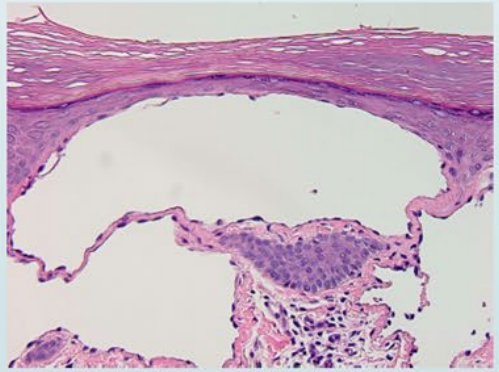


At 2-month follow-up

Histopathology



Dilated lymphatic channels lined by flattened endothelial cells with thin fibrous septa and sparse lymphocytes, consistent with a lymphatic malformation



Close up of dilated lymphatic channels lined by flattened endothelial cells.

Discussion

Lymphangiomas are uncommon hamartomatous malformations of the lymphatic system affecting the skin and subcutaneous tissue. They are classified by depth into superficial and deep forms. Superficial lesions, known as lymphangioma circumscriptum (LC), involve dilated lymphatic channels in the superficial dermis, while deeper forms include cavernous lymphangiomas and cystic hygromas (2).

LC may be congenital or acquired. Congenital LC results from persistent connections between deep and superficial lymphatic channels that fail to join the normal drainage system, leading to lymphatic dilation (3). Acquired lymphangiomas develop from secondary dilation of previously normal lymphatics due to obstruction and have been reported in chronic lymphedema, infections, radiation therapy, and morphea (1,3,4).

Clinically, LC presents as clusters of translucent or hemorrhagic thin-walled vesicular papules with a "frog spawn" appearance. Although often asymptomatic, lesions may be complicated by swelling, hemorrhage, ulceration, or recurrent cellulitis, which can alter appearance and lead to misdiagnosis (1,2).

Histopathology shows thin-walled, dilated lymphatic vessels in the superficial dermis, sometimes extending deeper, lined by endothelial cells and containing eosinophilic material or red blood cells, with overlying epidermal acanthosis or hyperkeratosis (2).

Surgical excision is the most definitive treatment when feasible. Other options include laser therapy, electrocautery, radiofrequency ablation, topical imiquimod, and intralesional sclerotherapy (3,5).

References

1. Acquired lymphangioma circumscriptum. J Am Acad Dermatol. 2012;66(4 Suppl 1):AB41. doi:10.1016/j.jaad.2011.11.181.
2. Miceli A, Stewart KM. Lymphangioma. StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; Updated August 8, 2023.
3. Whimster IW. The pathology of lymphangioma circumscriptum. Br J Dermatol. 1976;94:473–86. doi: 10.1111/j.1365-2133.1976.tb05134.x.
4. Tan SK, Tay YK. Lymphangioma circumscriptum. N Engl J Med. 2012;366(18):1724. doi:10.1056/NEJMicm1101005.
5. Puri N. Treatment options of lymphangioma circumscriptum. Indian Dermatol Online J. 2015;6(4):293–294. doi:10.4103/2229-5178.162493. PMID: 26225342; PMCID: PMC4513417.

EOSINOPHILIC ANNULAR ERYTHEMA IN A PATIENT WITH OVARIAN CANCER TREATED WITH POLY-ADP-RIBOSE POLYMERASE (PARP) INHIBITOR

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INTRODUCTION

- Eosinophilic annular erythema (EAE) is an acute, rare eosinophilic dermatosis of unclear etiology for which clinical management remains challenging.[1,2]
- Patients generally exhibit annular or polycyclic erythematous plaques with central pigmentation, severe pruritus, and a centrifugal growth pattern, while histology reveals superficial and deep perivascular lymphocytic and eosinophilic inflammation.[3]
- This case report represents a unique presentation of EAE in the setting of poly-ADP-ribose polymerase (PARP) inhibitor use as maintenance therapy for high-grade ovarian carcinoma.

CLINICAL HISTORY

- A 60-year-old female patient with a history of high-grade metastatic ovarian cancer in the setting of BRCA2 mutation presented to the dermatology clinic with a new rash following treatment with olaparib, a PARP inhibitor, as maintenance therapy.
- Three weeks after starting olaparib, the patient developed a non-pruritic rash with erythematous annular plaques on her trunk and extremities, which continued after stopping the medication (**Figure 1**).
- The differential diagnosis included granuloma annulare, erythema annulare centrifugum (EAC), or a drug eruption.

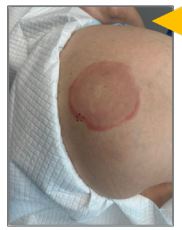

Figure 1. Erythematous, annular plaque on the patient's right upper lateral thigh.

DIAGNOSIS AND MANAGEMENT

- A punch biopsy of the right thigh revealed a superficial and mid-dermal perivascular infiltrate of lymphocytes with abundant interstitial eosinophils and scattered interstitial histiocytes; with the clinical presentation, this was most consistent with a diagnosis of EAE (**Figure 2**).
- After three months of treatment with clobetasol, the patient experienced moderate improvement of her symptoms but continued to develop new rashes, particularly in areas of friction or high pressure from clothing or arthropod bites.
- She was subsequently started on a 10mg dose of oral montelukast given her history of asthma and hypersensitivity reactions to exposures like mosquito bites.
- Currently, the patient reports minimal response to montelukast after two months of therapy and continues to follow with dermatology for EAE management.

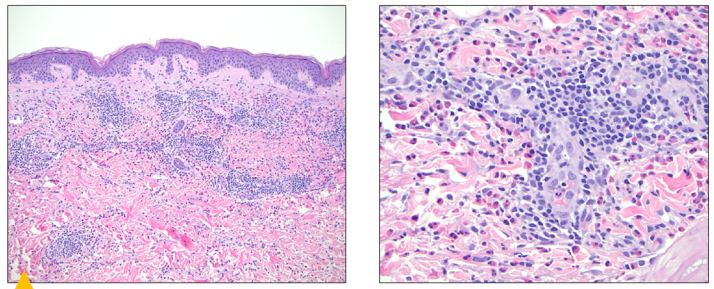

Figure 2. Histopathology images obtained following punch biopsy. A. H&E, 100x. Brisk dermal infiltrate of eosinophils with accompanying perivascular lymphohistiocytic inflammation and frequent interstitial histiocytes. B. H&E, 400x. Dense eosinophilic infiltrate with focal eosinophil degranulation.

DISCUSSION

- EAE is a rare, complex dermatosis that remains poorly understood and difficult to manage, with a range of potential therapies, including topical and oral steroids, methotrexate, cyclosporine, nonsteroidal anti-inflammatory drugs, hydroxychloroquine, and anti-IL5 drugs.
- This case contributes to a growing body of literature describing EAE in the adult population and is the first to our knowledge to identify a case in the setting of PARP inhibitor use for ovarian cancer, although it is difficult to discern whether the patient's EAE is attributable to her olaparib use or underlying malignancy.
- Future research should include large-scale retrospective studies and clinical trials to clarify the treatment profile of EAE and optimize management.

REFERENCES

Scan for references

Scan for contact information

Wake Forest University School of Medicine

Pre- and post- non-ablative fractional laser treatment facial analysis using artificial intelligence

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INTRODUCTION

- Artificial intelligence (AI) facial analysis systems are increasingly available, yet their ability to quantify outcomes of cosmetic procedures is not well defined.
- AI facial analysis systems offer high-resolution, multi-spectral imaging systems that evaluate skin conditions and detects abnormalities.[1-3]
- Non-ablative fractional resurfacing technology is designed to improve wrinkles, pigmentation, scars, and photodamaged skin.[4] These effects may be detectable by AI facial analysis.

METHODS

- 32-year-old woman underwent non-ablative fractional laser photo thermolysis (Fraxel® Dual).
- Standardized facial photographs from nine months before and two weeks after treatment were analyzed using:
  - Visia® photo booth AI (Canfield Scientific)
  - AI Skincare smartphone application (PERFECT corp.)
- Photo booth AI generated raw scores for eight features, and smartphone AI produced percentile scores for fourteen facial parameters.
- Changes in skin features before and after treatment were considered in the context of the function of fractional laser, and the efficacy of the smartphone application was determined through comparison with the photo booth AI analysis.

RESULTS

- Photo booth AI measurements demonstrated the greatest improvements in **pores**, **spots**, and brown spots with a raw score change of >5.
- Smartphone AI application detected the greatest improvements in skin oiliness, **spots**, and **pores** with changes greater than 10 percentile points.

	Before	After	Change
Eye Bags	93	91	-2
Moisture	53	57	+4
Oiliness	55	72	**+17**
Redness	65	64	-1
Spots	63	80	**+17**
Texture	76	79	+3
Acne	92	96	+4
Droopy lower lid	82	84	+2
Droopy upper lid	19	22	+3
Firmness	93	93	0
Dark Circles	86	91	+5
Radiance	46	40	-6
Pores	56	46	**+10**
Wrinkles	88	89	+1

Table 1. Smart phone AI facial assessment report before and after treatment with non-ablative fractional resurfacing laser. Scores placed on a percentile scale of 0-100 with 100 indicating perfect skin.

	Before	After	Change
Texture	9	5	-4
Wrinkles	10	5	-5
Pores	18	10	**-8**
Spots	41	35	**-6**
UV Spots	33	37	+4
Porphyrins	3	5	+2
Red Areas	12	10	-2
Brown Spots	42	27	**-15**

Table 2. Photo booth AI facial assessment report before and after treatment with non-ablative fractional resurfacing laser. Scores are indicative of the level of detected facial features.

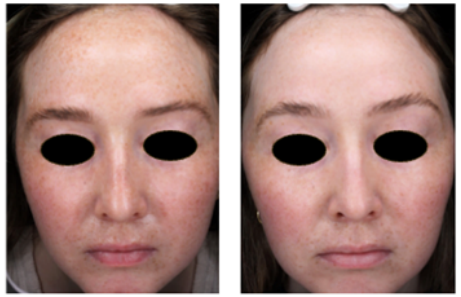

Figure 1. Representative clinical photographs taken on iPad PRO (12.9 in) 5th Gen running iPad OS version 18.5 before (left) and after (right) non-ablative fractional laser treatment

CONCLUSION

- Skin scores from smart phone AI improved for spots, pores, and dark circles, supported photo booth AI findings of enhanced surface refinement and tone uniformity.
- Changes in texture, pore size, and pigmentation are detectable and consistent with expected benefits with Fraxel in this patient.
- AI-based facial analysis may offer practical, quantitative tools to monitor cosmetic outcomes, support patient counseling, and enhance evidence-based assessment of aesthetic procedures.

REFERENCES

1. Visia® by Canfield
2. Huang YW, Arkesteijn W, Lai YJ, Ng CY. A comparative study of an advanced skin imaging system in diagnosing facial pigmentary and inflammatory conditions. Sci Rep. 2024 Jun 25;14(1):14673. [PubMed]
3. PERFECT Corp. Skin Diagnostic
4. Buis J, Mazer JM. Fractional photo-thermolysis by laser Fraxel as an adjuvant for facial surgical rejuvenation. Ann Chir Plast Esthet. 2007 Jun;52(3):222-33.

CONFLICTS OF INTEREST

Steven R. Feldman has received research, speaking and/or consulting support from a variety of companies including Galderma, GSK/Stiefel, Almirall, Leo Pharma, Boehringer Ingelheim, Mylan, Celgene, Pfizer, Valeant, Abbvie, Samsung, Janssen, Lilly, Menlo, Merck, Novartis, Regeneron, Sanofi, Novan, Qurient, National Biological Corporation, Caremark, Advance Medical, Sun Pharma, Suncare Research, Informa, UpToDate and National Psoriasis Foundation. He is founder and majority owner of www.DrScore.com and founder and part owner of Causa Research, a company dedicated to enhancing patients' adherence to treatment. The other authors have no conflicts to disclose.

Funding sources: Perfect Corp., an affiliate of Perfect Mobile Corp.

Symmetrical Drug-Related Intertriginous and Flexural Exanthema due to Trimethoprim-Sulfamethoxazole: A Clinical Case and Discussion

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PURPOSE OF CLINICAL VIGNETTE

The purpose of this clinical vignette is to describe a case of Symmetrical Drug-related Intertriginous and Flexural Exanthema (SDRIFE) due to the antibiotic trimethoprim-sulfamethoxazole. The diagnosis, clinical manifestations, common culprit medications, and treatment of SDRIFE will be discussed.

CLINICAL VIGNETTE

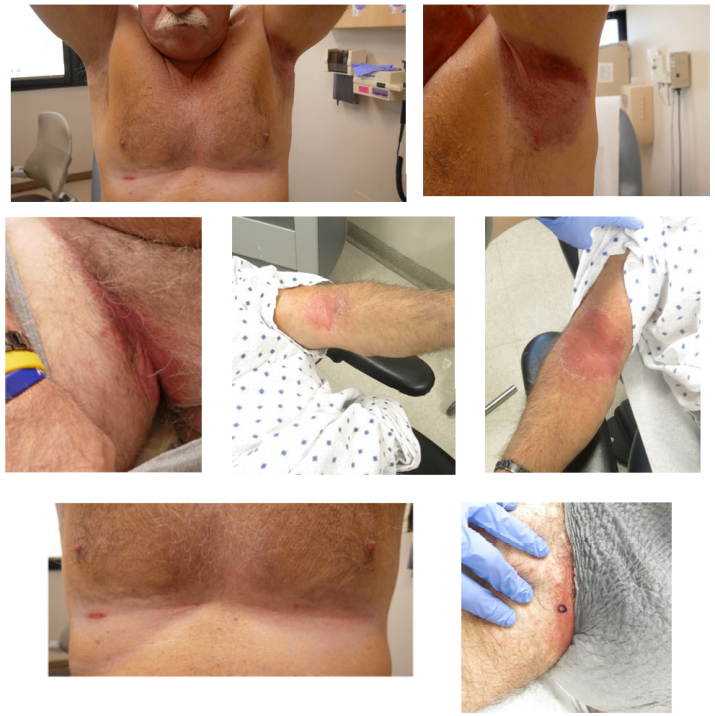
A 72-year-old male presented to dermatology clinic with symmetric erythematous pruritic patches of the gluteal cleft, bilateral inguinal folds, axillae, antecubital fossae, inframammary folds, and scrotum. He had received trimethoprim-sulfamethoxazole two days prior to onset.

Prior to his presentation to dermatology clinic, he had received fluconazole 150 mg and topical nystatin without improvement. He was hemodynamically stable without fever with normal complete blood count, renal, and liver function. Punch biopsy of the right inguinal fold showed spongiotic dermatitis with eosinophils. Periodic Acid-Schiff staining was negative.

REFERENCES

References:
Harbaoui S, Litaiem N. Symmetrical Drug-Related Intertriginous and Flexural Exanthema. [Updated 2022 Oct 3]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK539750/
Eunheh Koh, Joo Young Jung, Michelle Lin, Ahmad A. Rathor, Loretta S. Davis. A systematic review of symmetrical drug-related intertriginous and flexural exanthema, JAAD Reviews, Volume 6, 2025, Pages 48-53, ISSN 2950-1989, https://doi.org/10.1016/j.jdrv.2025.07.007/.

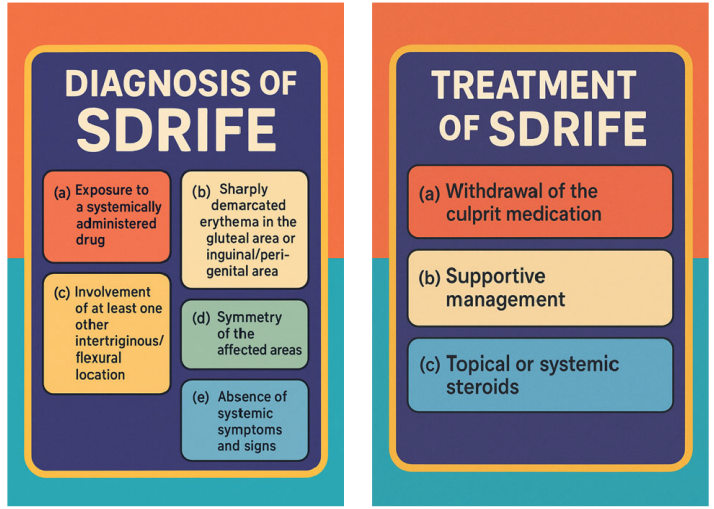
CLINICAL PRESENTATION



DIAGNOSIS OF SDRIFE

Given concern for SDRIFE, trimethoprim-sulfamethoxazole was stopped and triamcinolone 0.1% ointment twice per day to all affected areas was prescribed. Due to worsening despite topical steroids, the patient was treated with prednisone for approximately 20 days with resolution of his dermatitis. **The patient was diagnosed with SDRIFE due to trimethoprim-sulfamethoxazole.**

SDRIFE: DIAGNOSIS AND MANAGEMENT



CONCLUSION

A diagnosis of SDRIFE should be considered when a patient presents with acute onset of well-demarcated, symmetric erythema in the flexural and intertriginous zones after exposure to a systemic medication.

The most common medication triggers are beta-lactam antibiotics and iodine-based contrast. Other culprit medications include nystatin, terbinafine, fluconazole, metronidazole, valacyclovir, clindamycin, erythromycin, trimethoprim-sulfamethoxazole, and others. The onset of SDRIFE is typically within a few hours to days of medication exposure with a median latency time of 2.5 days.

A Case Review of MPox: Lessons for Modern Outbreak

Jaspreet Bhutani, MS; Leslie Onyeji, BA; Kwadwo Owusu-Ansah, MD; Katherine Jicha, MD; Jayson Miedema, MD; Rachel Blasiak, MD

Introduction

Abstract

Mpox virus (formerly known as Monkeypox) (MPXV) is an emerging zoonotic infection caused by direct contact, with recent outbreaks demonstrating **diverse clinical presentations** that can mimic common dermatologic and infectious conditions.[1] We report a 42-year-old female who presented with symptoms initially suggesting bacterial cellulitis with possible abscess. She improved with supportive care and did not require antiviral therapy.

Background

- Classic Mpox typically begins with a **prodrome** of fever, chills, malaise, lymphadenopathy, and myalgias, followed by a **centrifugal pustular rash** that progresses synchronously from macules, papules, vesicles, to pustules, and the lesion subsequently crusts.[2]
- Challenges in diagnosing Mpox are often a result of the clinical presentation resembling more common conditions such as bacterial cellulitis, abscesses, or herpesvirus infections.[3]
- **This is a case of an atypical presentation of Mpox that presented as a large necrotic facial lesion with surrounding cellulitis in an immunocompetent patient without traditional risk factors.**

Objective

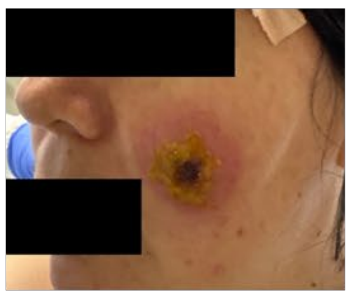
The purpose of this case study is to demonstrate several features that highlight the evolving clinical spectrum of Mpox and the diagnostic challenges it presents.

Research

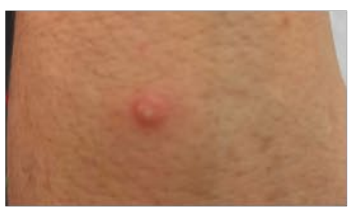
Case Presentation

A 42-year-old female with a past medical history of cystic fibrosis carrier, iron deficiency anemia, and prior gestational diabetes presented with a two-week history of intermittent left jaw and cheek swelling. She reported increasing pain, and new swelling of the left preauricular and anterior cervical lymph nodes. She reported generalized aching, subjective fever, and chills. She was treated with doxycycline and amoxicillin–clavulanate without improvement. Additionally, she reported the development of a new painful lesion above the left eyebrow and a scattered rash on her extremities. A punch biopsy was obtained from the left forehead and back for H&E. Blood cultures, tissue cultures (aerobic, AFB, fungal), Bartonella antibody panel, Syphilis screen, HIV, Histo/Blasto, Chlamydia/gonorrhea, HSV/VZV swab were negative. **Monkeypox PCR** was positive for **MPXV Clade II**. The patient treated with Vancomycin and Doxycline for suspected secondary bacterial infection.

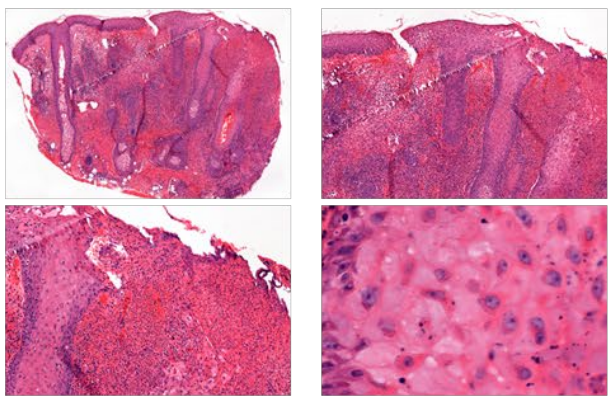
Pathology



Large, indurated nodule with central necrosis on the left cheek with surrounding erythema.



Umbilicated pustule on the dorsal hand.



Slides proceed from low to high magnification. Pox viruses form papular lesions with central viral change which can cause necrosis. The **viral cytopathic change in Mpox is histologically subtle**: eosinophilic ground glass cytopathic change, ulcer and suppurative inflammation, sometimes multinucleate keratinocytes, Guarnieri bodies (eosinophilic cytoplasmic inclusions). **Diagnosis requires clinical-pathologic correlation**; diagnosis in this case was made with clinical suspicion and viral PCR studies.

Results

Discussion

- In this case, the patient's **lesions appeared initially on her left cheek** and then progressed to her left eyebrow and then disseminated across her trunk and upper extremities.
- The patient had **no classic epidemiologic risk factors;** no new sexual partners, no recent travel, and no known exposure to infected individuals. Her only potential risk factor was a recent stay in a poorly maintained hotel, raising the possibility of fomite transmission (less common but biologically plausible).[4]
- Her initial and most prominent finding was a large necrotic facial nodule with extensive surrounding erythema, lymphadenopathy, and **features concerning abscess formation**. The deep facial involvement and rapid progression prompted evaluation for bacterial cellulitis, leading to empiric broad-spectrum antibiotic therapy and diagnostic imaging (CT maxillofacial).
- In this case, the **absence of fever** during hospitalization, minimal pain, and involvement of cosmetically and functionally significant facial structures complicated clinical assessment.
- A thorough, full skin exam and identifying the umbilicated pustules helped lead to monkeypox diagnosis.

Key Clinical Pearls

This case recognizes an **atypical presentation** of Mpox in a patient **without traditional risk factors** to emphasize the **importance of considering the diagnosis Mpox in necrotic or cellulitic lesions** unresponsive to conventional therapy. Early recognition and multidisciplinary care are critical to preventing complications and unnecessary interventions.

1. **Atypical presentations are important to recognize to prevent delay of care.** Large necrotic facial lesions mimicking bacterial skin infections may disguise recognition of Mpox particularly in the absence of known risk factors.
2. **PCR testing is essential** for definitive diagnosis given the broad differential diagnoses. This test can be performed with a normal viral swab.
3. **Interdisciplinary management** among dermatology, infectious disease, and other departments can prevent unnecessary procedures and guide appropriate therapy.
4. **Sweet's syndrome** has similar changes on pathology. Mpox should be considered in the differential diagnoses for this condition.

1. Titanji BK, Hazra A, Zucker J. MPOX clinical presentation, diagnostic approaches, and treatment strategies. JAMA. 2024 Nov 19;332(19):1652–62.
2. Mitjà O, Ogoina D, Titanji BK, Galvan C, Muyembe JJ, Marks M, Orkin CM. Monkeypox. Lancet. 2023 Jan 7;401(10370):60-74. doi: 10.1016/S0140-6736(22)02075-X. Epub 2022 Nov 17. Erratum in: Lancet. 2022 Dec 3;400(10367):1926.
3. Mrad YN, Jain K, Vikas J, Lichtenberg AB, Ansari AZ, Bhatt N, Gupta S. Monkeypox in a Non-endemic Setting: Challenges in the Diagnosis and Management of an Atypical Case. Cureus. 2025 Feb 24;17(2):e79547.
4. Miller JM, Binnicker MJ, Campbell S, Carroll KC, Chapin KC, Gonzalez MD, et al. Guide to utilization of the microbiology laboratory for diagnosis of infectious diseases: 2024 update by the Infectious Diseases Society of America (IDSA) and the American Society for Microbiology (ASM). Clinical Infectious Diseases. 2024 Mar 5

A Case of Malignant Adnexal Carcinoma of the Thigh with Divergent Differentiation and Basaloid Features

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Introduction

- Malignant adnexal tumors (MATs) of the skin comprise a group of rare, typically low-grade carcinomas with variable histological differentiation, often including follicular, sebaceous, apocrine, or eccrine features.[1-3]
- This report presents a unique case of malignant adnexal carcinoma of the thigh with divergent differentiation and basaloid features, expanding the spectrum of adnexal tumor morphology described in the literature.

Clinical History

- A 76-year-old male patient with an extensive past medical history of non-melanoma skin cancers, mostly in the head/neck region treated with Mohs micrographic surgery, presented for a follow-up visit to the dermatology clinic to discuss a potentially evolving lesion.
- The patient reported an asymptomatic lesion which had been present for over 30 years on the right posterior thigh but subjectively appeared to be changing in visual appearance with regards to shape and color.
- Physical examination revealed a 2.4-cm firm, tan-pink nodule with irregular contour on the right posterior thigh **(Figure 1)**.
- A punch biopsy was performed of the lesion, and the initial differential diagnosis included dermatofibroma, epidermal inclusion cyst, or a new non-melanoma skin cancer.

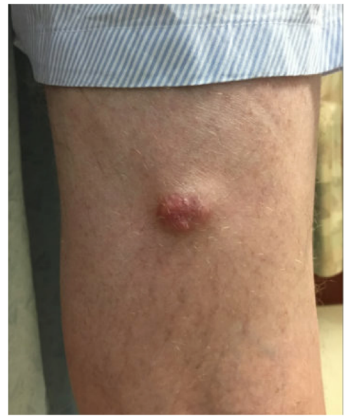

Figure 1. 2.4cm firm, mobile subcutaneous nodule on the patient's right posterior thigh.

Diagnosis and Management

- Biopsy showed dermal basaloid cells with central necrosis, increased mitoses, and duct formation within dense sclerosis, findings concerning for a cutaneous malignancy.
- Immunohistochemical stains were performed for further evaluation and complete diagnosis **(Figure 2)**.
  - p40 and p63 stains were positive, with patchy BER-EB4 immunoreactivity.
  - EMA and monoclonal CEA highlighted focal duct formation.
  - The cells were negative for D2-40, Adipophilin, CK7, CK20, and INSM1, helping exclude sebaceous and neuroendocrine differentiation.
  - Beta-catenin demonstrated diffuse membranous staining with only focal nuclear staining.
- High-risk HPV testing of the lesion was negative.
- Additional studies demonstrated retained nuclear YAP1 expression and negative NUT staining, thereby excluding porocarcinoma harboring YAP1 and NUTM1 rearrangements.

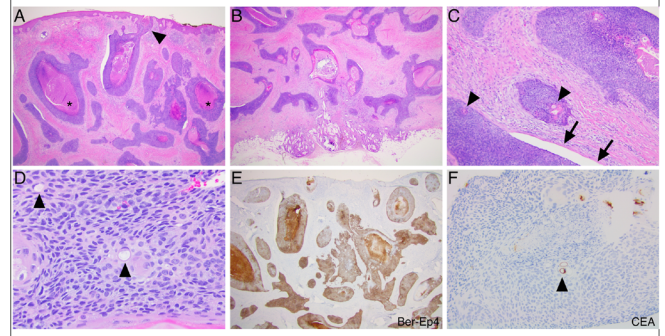

Figure 2. A and B: Low-power views of the nodular and infiltrative basaloid carcinoma invading to the superficial subcutis with focal epidermal connection (arrowhead in A) and foci of necrosis (asterisks in A) (H&E, 20X). C: Medium-power view of the tumor showing peripheral palisading, foci of ductal differentiation (arrowheads) and epithelial-to-stromal artifactual clefting (arrows) (H&E, 100X). D: A High-power view of the lesion showing the basaloid cells and the foci of ductal differentiation with cuticle-like luminal edge (arrowheads) (H&E, 400X). E: A low-power view of the tumor showing diffuse positivity with Ber-Ep4 immunohistochemical stain (Ber-Ep4 immunohistochemistry, 20X). F: A CEA immunostain highlighted the luminal aspect of a subset of the ducts (arrowhead) (CEA immunohistochemistry 200X).

Conclusions

- To ensure margin control, Mohs surgery was performed, with the site subsequently re-epithelializing by secondary intention.
- Surgical pathology demonstrated mixed features of nodular and infiltrative basal cell carcinoma along with follicular and sweat gland differentiation.
- The presence of comedo-type necrosis and sweat gland differentiation supported a final diagnosis of malignant adnexal carcinoma with divergent differentiation.
- While malignant adnexal carcinomas are rare and typically arise in the head and neck, this case highlights a unique presentation on the thigh with overlapping basal cell carcinoma–like features, broadening the definition of this diverse and rare class of cutaneous malignancies.
- Future research should include larger case series and prospective studies with long-term follow-up to more closely examine and characterize clinical outcomes among this unique patient population.

References and Contact Information

Scan for references

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Isolated Cutaneous Manifestations of Chikungunya in a Returning Traveler

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Duke Dermatology
Duke University School of Medicine

Background

- Chikungunya virus is an alpha-virus transmitted by *Aedes* mosquitoes in tropical and subtropical regions, including South America, Africa, and Asia.
- Typical infections present with an abrupt fever, severe polyarthralgias, myalgias, and a maculopapular rash.
- Although atypical presentations of chikungunya without systemic symptoms have been described in pediatric and geriatric populations, reports of isolated mucocutaneous findings in healthy adults are uncommon.[1,2]

Case Presentation

- A 33-year-old female with recent travel to Madagascar presented to the emergency department one week after gradual onset of a diffuse rash following a mosquito bite. This rash was mildly pruritic and associated with paresthesia.
- She was previously treated at an outside hospital with prednisone, antihistamines, and azithromycin without improvement of her symptoms. During her trip, she was also taking atovaquone/proguanil for malaria prophylaxis.
- Physical exam revealed numerous coalescent pink macules with dusky centers and targetoid morphology on the extremities, trunk, and face, resembling an erythema-multiforme-like rash. Prominent acral vesiculobullous lesion were also noted **(Figure 1).**
- She denied any fever, chills, arthralgias, myalgias, nausea, vomiting, diarrhea, or other systemic symptoms.
- A comprehensive infectious workup and a punch biopsy of her right forearm were performed.

Clinical Images

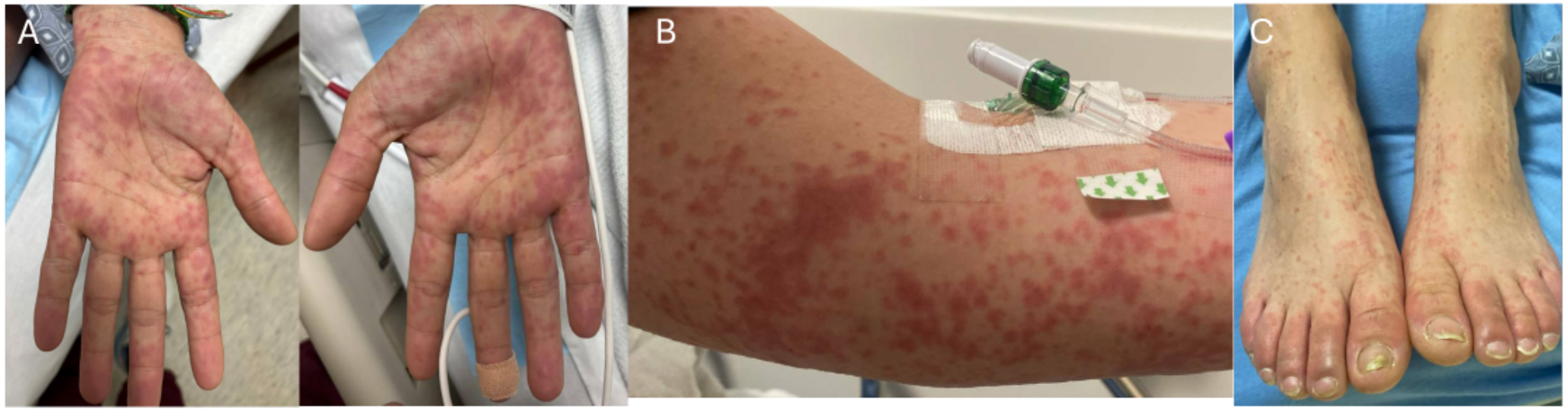

Figure 1: (A) (B) Coalescent pink macules with dusky centers and a targetoid appearance on the bilateral palms and extremities. (C) Confluent erythema with bullae on the dorsal toes.

Results

- Serologic testing was positive for chikungunya IgM and IgG antibodies, with negative HSV, VZV, syphilis, dengue, and RMSF studies.
- Histopathology demonstrated interface dermatitis with abundant dyskeratotic keratinocytes at all levels of the epidermis and in follicular epithelium with a mild superficial perivascular lymphocytic infiltrate **(Figure 2).**
- These findings were suggestive of a viral exanthem, and with positive serologies were consistent with chikungunya viral infection.

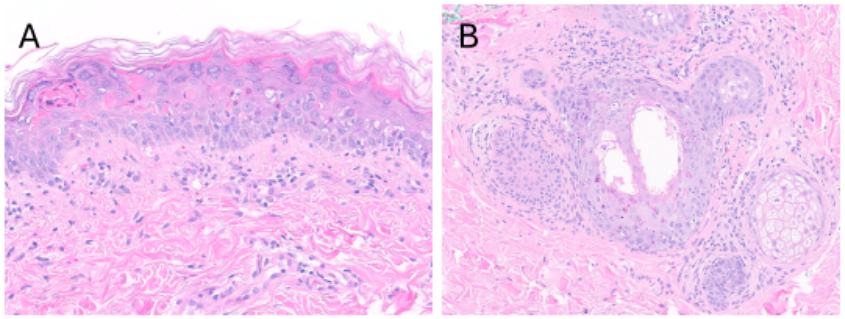

Figure 2
(A) H&E-stained slide at 10x magnification: Dyskeratotic keratinocytes present at all epidermis levels, with associated mild superficial lymphocytic infiltrate.
(B) H&E-stained slide at 10x magnification: Dyskeratotic keratinocytes also within hair follicle epithelium, with associated nuclear break down.

Conclusions

- This case highlights an atypical cutaneous presentation of chikungunya virus with notable absence of arthralgia, morbilliform eruption, or other prominent systemic symptoms.
- Awareness of isolated dermatologic findings of chikungunya in travelers returning from endemic regions may prevent misdiagnosis and ensure timely management.

References

1. Godaert L, Najioullah F, Bartholet S, et al. Atypical Clinical Presentations of Acute Phase Chikungunya Virus Infection in Older Adults. *J Am Geriatr Soc.* 2017;65(11):2510-2515. doi:10.1111/jgs.15004
2. Boonanek A, Chokephaibulkit K, Phongsamart W, et al. Re-emerging outbreaks of chikungunya virus infections of increased severity: A single-center, retrospective analysis of atypical manifestations in hospitalized children during the 2019 outbreak in Bangkok, Thailand. *PLoS One.* 2025;20(9):e0330527. Published 2025 Sep 25. doi:10.1371/journal.pone.0330527

Association Between Hidradenitis Suppurativa and Breast Cancer Risk and Tumor Receptor Subtypes: A Multi-Database Retrospective Cohort Study

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THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Background

Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease increasingly recognized for its systemic effects and associated comorbidities[1]. Chronic inflammation and dysregulated epithelial proliferation are well-established contributors to carcinogenesis[2]. However, the relationship between HS and breast cancer risk remains poorly defined. Recent genome-wide association studies have identified HS-associated genetic variation near Kruppel-like factor (KLF) 5[3]. *KLFs* are transcription factors implicated in epithelial cell proliferation, apoptosis, tumor progression, and cancer stem cell regulation[4].

Notably, *KLF5* has demonstrated prognostic and predictive relevance in breast cancer biology and clinical outcomes[4]. Together, these findings suggest a biologically plausible link between HS and breast carcinogenesis.

Purpose

The purpose of this study is to evaluate breast cancer risk among patients with HS compared with the general population.

References

1. Aşkın Ö, Ferhatoğlu ZA, Özkoca D, Cesur SK, Tüzün Y. The comorbidities of hidradenitis suppurativa. *Clinics in Dermatology*. 2025;43(4):449-454. doi:10.1016/j.clindermatol.2025.05.009
2. Danforth DN. The Role of Chronic Inflammation in the Development of Breast Cancer. *Cancers (Basel)*. 2021;13(15):3918. doi:10.3390/cancers13153918
3. Sun Q, Broadaway KA, Edmiston SN, et al. Genetic Variants Associated With Hidradenitis Suppurativa. *JAMA Dermatol*. 2023;159(9):930. doi:10.1001/jamadermatol.2023.2217
4. Zhang J, Li G, Feng L, Lu H, Wang X. Krüppel-like factors in breast cancer: Function, regulation and clinical relevance. *Biomedicine & Pharmacotherapy*. 2020;123:109778. doi:10.1016/j.biopha.2019.109778

Methods

- **Study Design:** Retrospective cohort study
- **Data Source:** TriNetX LIVE Platform
- **Population:**
  - Female patients aged 18–80 years receiving care at academic medical centers
  - HS cohort required ≥2 HS-associated clinical encounters to ensure longitudinal disease characterization
  - Control cohort included individuals without HS with ≥2 general examination encounters
- **Detection Bias Mitigation:** Analyses restricted to patients with documented breast cancer screening (≥1 mammogram)
- **Outcomes:**
  - Primary: Incident overall breast cancer
  - Secondary: Estrogen-receptor positive (ER+) and progesterone receptor-positive (PR+) breast cancer
- **Statistical Analysis:**
  - Propensity score matching for age, sex, race, smoking status, diabetes mellitus, and obesity
  - Positive Control: Inflammatory Bowel Disease
  - Negative Control: Acute appendicitis

Results

- **Final matched cohort:** 15,911 female patients (HS vs non-HS)
- **Overall breast cancer:**
  - Increased risk observed among patients with HS
  - HR 1.17 (95% CI 1.04-1.32), p = 0.0089
- **Subtype analyses:** ER+ and PR+ breast cancer incidence did not differ significantly between groups
- **Control Outcomes:**
  - Expected association confirmed between HS and IBD
  - No association observed between HS and appendicitis

Outcome	HS Cohort (N = 15,911)	Non-HS Cohort (N = 15,911)	HR	95% CI	*p* value
Overall Breast Cancer	565 outcomes	505 outcomes	1.17	1.04–1.32	0.0089
ER-Positive Breast Cancer	329 outcomes	310 outcomes	1.12	0.96–1.31	0.146
PR-Positive Breast Cancer	29 outcomes	31 outcomes	1.02	0.62–1.70	0.931
Negative Control (Acute Appendicitis)	86 outcomes	92 outcomes	0.99	0.74–1.34	0.967
Positive Control (Inflammatory Bowel Disease)	597 outcomes	302 outcomes	2.08	1.81–2.39	<0.0001

Discussion & Conclusion

- **Hidradenitis suppurativa was associated with a modest but statistically significant increase in overall breast cancer risk** in a propensity score–matched cohort restricted to screened women, reducing detection bias.
- **Analytic validity was supported by control outcomes**, with the expected association observed for inflammatory bowel disease and no association for acute appendicitis.
- **Chronic systemic inflammation in HS may contribute to carcinogenesis**, through persistent immune activation and dysregulated epithelial proliferation.
- **Emerging genetic evidence implicating KLF5 provides biologic plausibility** for a shared mechanistic pathway between HS and breast cancer.
- **No statistically significant differences were observed in ER+ or PR+ breast cancer**, though interpretation is limited by incomplete hormone receptor reporting in EHR-based datasets.
- **Future registry-linked studies incorporating HS severity and treatment exposure** are needed to clarify biologic mechanisms and inform clinical risk stratification.

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The Efficacy of *Centella asiatica* on Diabetic Wound Healing in South Asian Populations: A Targeted Literature Review

Bianca A. Patel, BS, BA[1] and Helly A. Patel, BS[2]

1. Morehouse School of Medicine, Atlanta, GA
2. University of Georgia, Athens, GA

Introduction

- Given the rising prevalence of South Asian patients with diabetes and thus, increase disease burden, wound healing complications should be considered.[1]
- Poor diabetic wound healing arises from delayed progression from the inflammatory to proliferative phase.[3]

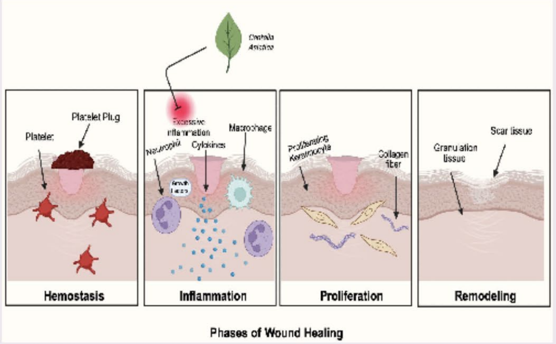

Figure 1: Phases of Wound Healing, C. asiatica Interaction
Figure Created with BioRender

- *Centella asiatica* is an herb commonly used in Ayurvedic medicine that can be applied to facilitate wound healing.[2] As seen in Figure 1, it is uniquely interactive in the relevant phase of wound healing.
- Given the cultural acceptance and accessibility of *C. asiatica*, it is positioned to be a promising therapeutic for diabetic wound healing.
- Many studies have elucidated the mechanism of action; however, limited studies have translated the findings in practice

Methods

A **targeted literature review** was conducted through **PubMed** with search terms "**Centella asiatica**," "**gotu kola**," "**diabetes**," "**wound healing**," and "**South Asian**" of articles published in **English** between **2010-2025.**

Results

Table 1: Evidence of *C. asiatica* properties on South Asian Populations

Number of C. Asiatica Studies Included	Number of Studies Investigating South Asians	Notes
12	0	*No emphasis of population with disease burden in discussions of C. asiatica properties

Table 2: Stratification of Investigated *C. asiatica*, Study Types and Properties

<u>Effects of C. Asiatica</u>	<u>n (%)</u>
Total Studies Investigated	15
Type of Study	
Human[9]	1 (8.3%)
Increased hydroxyproline and collagen synthesis	
Increased wound contraction	
Increased scar suppression	
Animal	8 (66.7%)
Increased cell growth[5]	
Increased wound recovery[5,8]	
Increased granulation tissue[5,12,13]	
Increased capillaries in wound areas[5]	
Better cell proliferation[5]	
Increased tensile strength[6]	
Increased collagen synthesis[6,8]	
Increase in antioxidant levels[7,12]	
Increased wound contraction[7,12,13]	
Promoted fibroblast proliferation[7]	
Reduced fasting blood glucose levels[12]	
Enhanced epithelialization and angiogenesis[13]	
In Vitro	6 (50%)
Increased cellular proliferation[4,10]	
Faster rates of epithelialization[4]	
Faster rates of wound contraction[4,11]	
Increased collagen synthesis[8]	
Increased fibroblast proliferation[10,14]	
Increased collagen production[10]	
Reduced nitric oxide production[10,11]	
Promoted keratinocyte proliferation and migration[15]	

Discussions

- Across study types, *C. asiatica* depicts promising benefits for diabetic wound healing.
- Generalizability is limited.
- Further diverse human studies are needed to capture the needs of the South Asian population.

Limitations

- Lack of population-specific data
- Limited clinical studies
- No uniform delivery method
- Need dose dependent studies

Conclusions

In conclusion, preclinical and clinical studies found *C. asiatica* to facilitate timely wound healing by modulating the pro-inflammatory pathways. Furthermore, C. asiatica also plays a healing role in the other phases by promoting cellular proliferation and angiogenesis. However, **clinical efficacy validation** is necessary for populations with **greater health burden** and **increased complications.**

References

[illegible]

Type I interferonopathy in a patient with a TAF1 gene variant

Wake Forest University School of Medicine

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Department of Dermatology, Wake Forest University School of Medicine, Winston-Salem, NC

Introduction

Type I interferonopathies are a group of inborn disorders of immunity. We report the first case, to our knowledge, involving a TAF1 gene variant.

Case: 0-12 months (rash)

- Female, born 38w2d via spontaneous vaginal delivery
- Maternal history was noncontributory, no prenatal complications
- Newborn screen negative
- Hospitalized at 2 months: feeding difficulty, c/f GERD

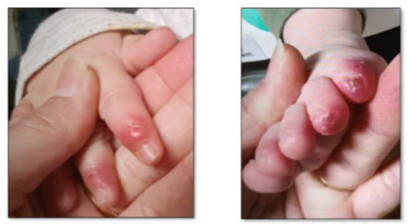

Figure 1. Chilblain-like lesions (2 months)

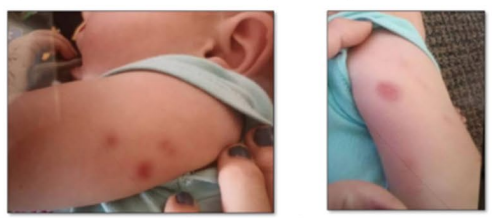

Figure 2. Panniculitis (2-12 months)

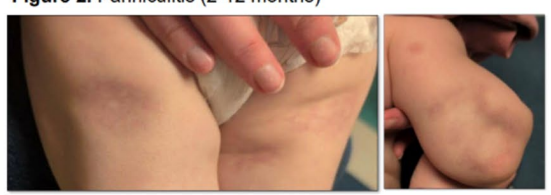

Figure 3. Lipodystrophy (2-12 months)

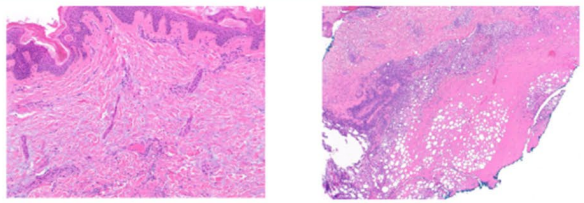

Figure 4. H&E. Dermal mucin, lobular panniculitis

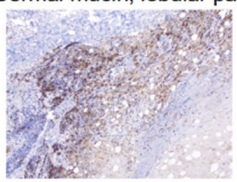

Figure 5. CD123 (+) plasmacytoid dendritic cells

Case: 14 months (CNS symptoms emerge)

- Spastic diplegia (cerebral palsy-like), loss of fine motor skills
- Could walk with hand held → now "legs always crossed"
- Could sit w/o support → now cannot, nor tripod
- 2-3 words; single-syllable babbles
- Constantly fussy, irritable, crying

Failure to thrive

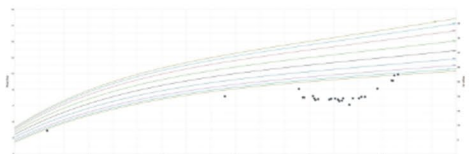

Figure 6. Weight curve, <0.01 percentile

Exhaustive work-up unrevealing:

ANA, dsDNA, ANCAs, APLAs, Jo-1, PL-7, PL-12, EJ, OJ, SRP, Mi-2, TIF1y, MDA-5, NXP-2, SAE1, PM/Scl-100, Ku, SSA, U1/2/R3 RNP, CT/MRI brain/spine, infectious, etc...

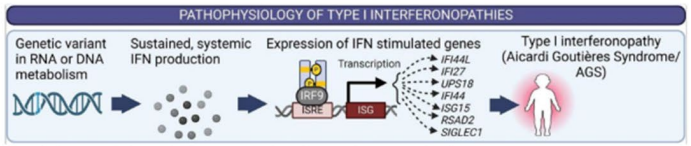

Figure 7. Interferonopathy basic pathogenesis.[1]

Serum IFN signature tests

CD14 monocyte flow cytometry (T1A2MP test) revealed a very strong type I IFN signature on classical CD14 bright monocytes (~30k, ref: ~1-8k; 100%, ref: 0-2%).

Genetic testing

Both whole exome and whole genome sequencing were negative for known variants. A TAF1 (XLD, maternal) gene variant of unknown significance was identified.

Management / Outcome

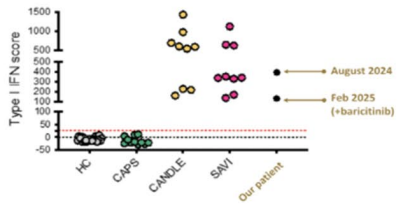

Figure 8. Baricitinib, 1->3 mg QD, yielded improvement (rash cleared, development has progressed more appropriately). The observed clinical responses correlate with a reduced type I IFN score.

TAF1 tumor models

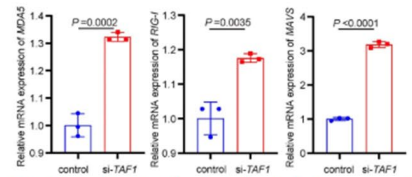

Figure 9. TAF1 inhibition leads to the induction of endogenous retrovirus (ERVs) expression and double-stranded RNA (dsRNA) formation, resulting in the activation of interferon responses.[2]

References: 1. Adang LA et al. JCI Insight. 2024. doi:10.1172.
2. Zhang S et al. Biochem Biophys Res Commun. 2023. doi:10.1016

Standard Dermatology Outcome Measures (SDOM) Questionnaire as a Predictor of Dermatology Visit Complexity

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Introduction

- Accurately assessing visit complexity in dermatology is essential: it underpins appropriate resource allocation, workflow planning, and reimbursement[1-2].
- However, existing validated complexity-scoring tools are labor-intensive and difficult to implement without the use of artificial intelligence (AI)[2].
- This study explores whether a patient-reported outcome (PRO) from the Standard Dermatology Outcomes Measure (SDOM) Questionnaire, which measures skin-related quality of life (QoL), symptom severity, and treatment adequacy, can serve as a proxy for visit complexity[3-4].

Methods

- In this single-center retrospective study, we randomly selected 50 patients who had at least two dermatology visits with the same primary diagnosis at our institution, with SDOM data available for each visit.
- For each patient, we manually calculated complexity scores for two visits in accordance with the MDM Guidelines. Two reviewers independently scored each patient and corroborated results to ensure consistency.
- The SDOM questionnaire includes the Skindex-Mini (3 items assessing skin-related quality of life on a 0-6 scale, including interference with activities, impact of physical symptoms, and emotional impact), ItchyQuant (self-reported itch severity, 0-10), disease severity (1-5), and treatment adequacy (good enough yes/no).
- Spearman's rank correlation compared calculated complexity scores with each SDOM subscore. The significance level was set at $p<0.05$.

Results

Spearman Correlation: SDOM Components vs. Visit Complexity

Conclusions

- Manually scored data were significantly correlated with two components of the SDOM: the ItchyQuant ($p = 0.006$) and the Skindex-Mini Symptom score ($p = 0.012$). However, both correlations were statistically weak ($R^2 = 0.1$-0.3), with an R^2 of 0.272 and 0.252, respectively.
- The SDOM Questionnaire therefore demonstrated a modest capacity to predict dermatology visit complexity, with the ItchyQuant score and Skindex-Mini Symptom score showing weak but statistically significant correlations with manual complexity scoring.
- Future studies may explore whether combining multiple SDOM components or incorporating additional clinical variables improves predictive accuracy.
- Integration of PROs into electronic health records could enable real-time complexity estimation to optimize scheduling and resource allocation.
- These findings suggest that PROs could play a meaningful role in future models aimed at anticipating clinical complexity, warranting further exploration in larger cohorts.

Contacts & References

SCAN FOR REFERENCES AND CONTACT INFO

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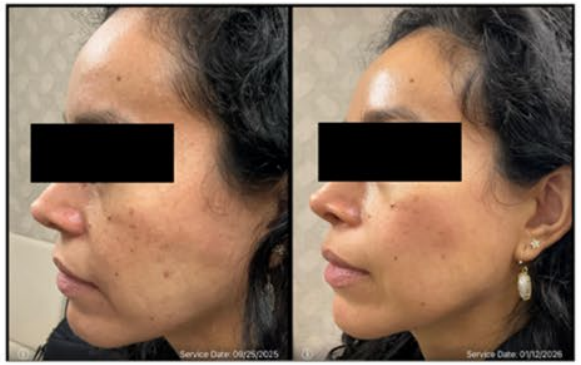
The Use of Spironolactone on Perimenopausal Women With Acne

Taylor Abel, B.S. & Emily O. McLean, MD, FAAD

Purpose of The Study

Limited data exist on spironolactone use for acne in perimenopausal women. We conducted a retrospective chart review to evaluate the effectiveness of oral spironolactone for acne in women likely experiencing perimenopause.

Spironolactone reduces sebum production by antagonizing androgen receptors, which may be particularly beneficial during perimenopause when declining estrogen levels create a relative androgen excess. Adult-onset acne in this population carries a significant psychosocial burden, and this study examines spironolactone as a targeted therapeutic option.

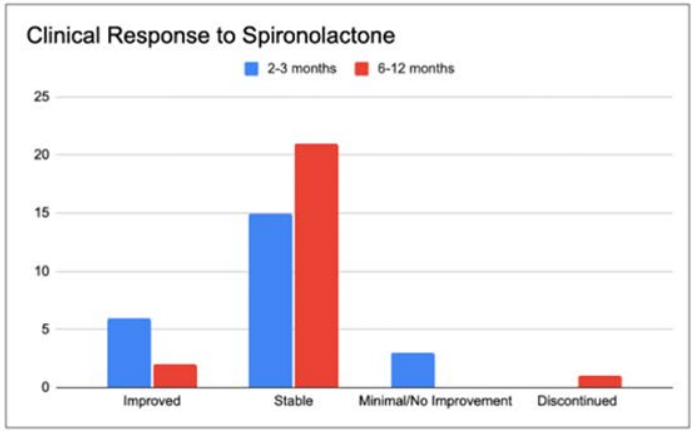


Results

At 2–3 months, 75% of patients demonstrated good tolerability and clinical improvement, with reduced deep cystic acne and no significant adverse effects.
Two patients (10%) experienced side effects—most commonly menstrual irregularities—requiring dose reduction to 75mg and 50 mg daily with subsequent tolerability.
Three patients (15%) showed minimal initial improvement; one discontinued therapy, and one required dose escalation to 150 mg daily.
At 6–12 months, responders maintained improvement with minimal hormonal flares, and non-responders demonstrated gradual clinical improvement over time.

Methods

A retrospective chart review using the NextTech EMR identified female patients ≥40 years prescribed oral spironolactone for hormonal acne. Patients treated for other indications were excluded. Twenty three women treated at Charlotte Skin and Laser between January and December 2025 met inclusion criteria and were analyzed.



Conclusions

Our findings support oral spironolactone as a safe and effective treatment for acne in perimenopausal women, with favorable tolerability and sustained clinical improvement, highlighting the need for further research to better define its long-term efficacy in this population.

Bibliography

Charny, J. W., & Choi, J. K. (2017). Spironolactone for the treatment of acne in women, a retrospective study of 110 patients. *International Journal of Women's Dermatology*, 3(2), 111–115. https://doi.org/10.1016/j.ijwd.2017.02.002

Dréno, B., Layton, A., Zouboulis, C. C., López-Estebaranz, J. L., & Picardo, M. (2013). Adult female acne: A new paradigm. *Journal of the European Academy of Dermatology and Venereology*, 27(9), 1063–1070. https://doi.org/10.1111/jdv.12061

Tanghetti, E. A. (2014). Adult female acne: A review of clinical presentation, pathophysiology, and treatment. *International Journal of Women's Dermatology*, 1(2), 79–86. https://doi.org/10.1016/j.ijwd.2014.10.002

CHARLOTTE SKIN & LASER
Elizabeth Rostan MD

Optimizing Antifungal Therapy for Pediatric Tinea Capitis: A Narrative Review of Species-Specific Efficacy, Dosing Strategies, and Clinical Implications

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Chester Tyson[1], Caitlin Haydek[2], Elizabeth Nieman[2], Diana McShane[2], and Dean Morrell[2]

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UNC SCHOOL OF MEDICINE

Background

I. Pediatric Tinea Capitis Overview

A. Superficial fungal infection of the scalp and hair follicles (primarily affecting children under 12 years old)

B. Presents with patchy alopecia, scaling, or the characteristic "black dot" pattern from broken hair shafts

- Severe inflammatory forms, such as kerion, can lead to pain, scarring, and permanent hair loss[1,2]
- Causes psychosocial distress due to visible lesions and stigma

II. Geographic Variations in Dermatophyte Species

A. Tinea capitis is caused by keratinophilic dermatophytes, predominantly from the *Trichophyton* and *Microsporum* genera.[3,4] These species display distinct geographic patterns:

Region	Predominant Species
North America	*Trichophyton tonsurans*
Europe	*T. tonsurans*, *Microsporum canis*
Africa	*T. violaceum*, *T. soudanense*
Asian & Latin America	*M. canis* + mixed *Trichophyton* species

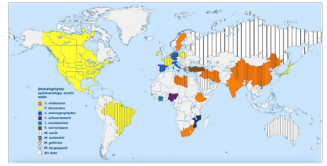


Figure 1. Dermatophytes epidemiology on a worldwide basis.[3]

Rationale for Review

I. Standard of Care

A. Four major oral agents:[6,7,8]

Drug	Class	Preferred Species	Notes
Griseofulvin	Fungistatic (microtubule inhibitor)	Microsporum	Historical gold standard
Terbinafine	Allylamine (squalene epoxidase inhibitor)	Trichophyton	Shorter course, high efficacy
Itraconazole	Azole	Broad-spectrum	Off-label; effective in both
Fluconazole	Azole	Broad-spectrum	Off-label; long half-life

II. Species-Specific Efficacy

A. Infecting dermatophyte species = determinant of treatment success

B. Failure to stratify studies by causative species → misleading conclusions/ confusion about optimal therapy[7,8]

III. Pediatric Dosing Variability

A. Griseofulvin and terbinafine are the only FDA-approved oral agents for pediatric tinea capitis, but confusion surrounding dosing regimens has historically hindered efficacy comparisons.[6]

- Griseofulvin: Under-dosing or confusion between microsize and ultramicrosize formulations
- Terbinafine: Weight-based dosing vs. fixed dosing

IV. Need for an Updated Review

A. Antifungal prescribing remain inconsistent - wide variability in regimens/limited reliance on confirmatory fungal testing

B. As a result:

- Species misidentification → inappropriate drug choice
- Inaccurate dosing → therapeutic failure
- Inadequate monitoring → avoidable resistance

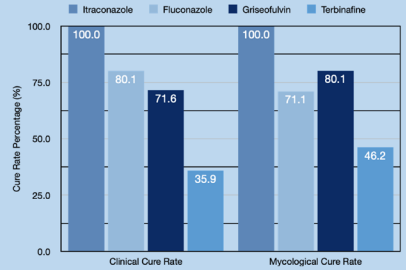
C. This review synthesizes findings from clinical studies that stratified by species and used standardized dosing regimens to:

1. Evaluate antifungal efficacy and dosing in pediatric tinea capitis
2. Highlight species-specific therapeutic outcomes
3. Address resistance trends and future implications

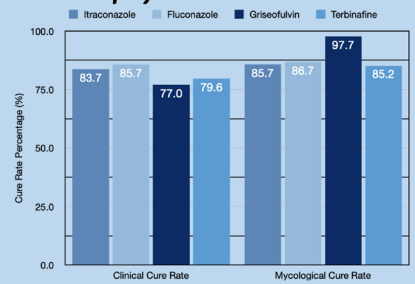
Clinical variability → *Diagnostic inconsistency* → *Dosing error* → *Misinterpreted efficacy* → *Need for synthesis*

Summary of Clinical Evidence

Microsporum Cure Rates



Trichophyton Cure Rates



I. Overview of Clinical Evidence

A. Only studies using standardized dosing regimens were considered:

- Griseofulvin: 20–25 mg/kg/day
- Terbinafine: weight-based dosing: 62.5 mg for children under 20 kg, 125 mg for those 20–40 kg, and 250 mg for those over 40 kg
- Fluconazole: 6 mg/kg/day or as once-weekly 8 mg/kg
- Itraconazole: 5 mg/kg/day to fixed doses of 50 mg or 100 mg based on weight.

II: Comparative Antifungal Performance*

A. Griseofulvin:

- Reliable activity for *Microsporum* and excellent clearance for *Trichophyton* (97.7% mycological).
- Remains a dependable first-line agent despite slower clinical response.

B. Terbinafine:

- Poor efficacy for *Microsporum* but strong results for *Trichophyton* (≈80–85% cure).
- Highlights importance of species identification before treatment.

C. Fluconazole:

- Moderate-to-high cure rates for both species (≈80–87%).
- Consistent performance across dosing regimens.

D. Itraconazole:

- Achieved complete cure for *Microsporum* and high efficacy for *Trichophyton* (>80%).

*Data synthesized from multiple comparative studies (n = 32) published 1997-2025. Full reference list available upon request.

Discussion and Conclusion

I. Species-Driven Efficacy

A. Griseofulvin → Best for *Microsporum* (≈72–80% cure) and reliable for *Trichophyton* when dosed 20–25 mg/kg/day.

B. Terbinafine → Strong for *Trichophyton* (~80–85%), ineffective for Microsporum (<50%).

C. Fluconazole → Flexible dosing; good across species (≈80–85%), mild hepatotoxicity risk.

D. Itraconazole → High cure rates for both species (>80%, up to 100% for *Microsporum*), but limited data.

II. Resistance & Stewardship

A. Emerging terbinafine resistance in *Trichophyton* highlights the need for diagnostic-guided therapy.[9]

B. Overuse of narrow-spectrum agents accelerates resistance and recurrence.

C. Culture or PCR confirmation, when feasible, ensures targeted therapy and long-term effectiveness.

III. Clinical Implications

A. When species unknown → Default to griseofulvin as a broad, safe first-line (6–8 weeks typical duration).

B. When *Trichophyton* confirmed → Terbinafine offers a shorter 2–4 week course with high efficacy.

C. Avoid empirical terbinafine when species unconfirmed or *Microsporum* likely.

D. Itraconazole/Fluconazole → Use selectively in refractory cases; both require hepatic monitoring and have limited pediatric data.

E. Accurate species identification, modern dosing, and structured follow-up are essential to improve cure rates and prevent resistance.

References:

1.Mayser P., et al. S1 guidelines: Tinea capitis. J Dtsch Dermatol Ges. 2020
2.Leung AKC., et al. Tinea Capitis: An Updated Review. Recent Pat Inflamm Allergy Drug Discov. 2020
3.Weitzman I., et al. The dermatophytes. Clin Microbiol Rev. 1995
4.Gupta AK., et al. An update on tinea capitis in children. Pediatr Dermatol. 2024
5.Keshwania P., et al. Superficial Dermatophytosis across the World's Populations: Potential Benefits from Nanocarrier-Based Therapies and Rising Challenges. ACS Omega. 2023
6.Gupta AK., et al. Tinea capitis in children: a systematic review of management. J Eur Acad Dermatol Venereol. 2018
7.Bonifaz A., et al. Now that griseofulvin is not available, what to do with tinea capitis treatments? Expert Rev Anti Infect Ther. 2024
8.Alter SJ., et al. Common Child and Adolescent Cutaneous Infestations and Fungal Infections. Curr Probl Pediatr Adolesc Health Care. 2018
9.Rudramurthy, S. M., et al. Emergence of terbinafine resistance in dermatophytes: A multicentric study from India. Journal of Antimicrobial Chemotherapy. 2018

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Patient Priorities in Artificial Intelligence for Skincare Analysis

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Introduction

- Artificial intelligence (AI) is increasingly being used in dermatology for clinical decision support and in patient-facing skincare tools[1]
- Understanding individual skincare priorities, brand familiarity, AI experience, and willingness to pay can align AI development with patient priorities[2]

[3]

Objective

- This study examines skincare priorities and behaviors to inform the development of AI-based skincare evaluation tools.

Methods

- **Study Design:** Cross-sectional survey
- **Data Collection:** 147 survey responses via Amazon Mechanical Turk (MTurk) from September 2025 to October 2025 . Data were collected and managed using REDCap[4] electronic tools. Descriptive statistics summarizing respondent patterns were performed in R 4.4.1
- **IRB**: Approved, IRB00135818.

Results

Table 1. Please select the skincare factor(s) that you value most.

Factor	Count	Percent
Dark Eye Circle	45	30.6%
Eyebags	44	29.9%
Oiliness	44	29.9%
Age/Dark Spots	43	29.3%
Acne	41	27.9%
Wrinkles	35	23.8%
Redness	25	17.0%
Moisture	23	15.6%
Droopy Lower Eyelids	21	14.3%
Droopy Upper Eyelids	19	12.9%
Firmness	19	12.9%
Radiance	14	9.5%
Texture	10	6.8%
Pores	9	6.1%
Other	0	0%

Table 2. Which of the following cosmetic or skincare brands have you heard of?

Brand	Count	Percent
Procter & Gamble (includes Olay, SK-II)	90	61.2%
Unilever (includes Dove, Ponds, Simple)	89	60.5%
LOréal (includes La Roche-Posay, Vichy, SkinCeuticals, CeraVe)	84	57.1%
Estée Lauder	73	49.7%
Chanel	67	45.6%
Beiersdorf (includes Nivea)	53	36.1%
Natura	52	35.4%
LVMH (includes Dior, Givenchy, Fenty)	47	32%
Shiseido	30	20.4%
Coty	23	15.6%

Table 3. How much would you be willing to pay for an AI skincare evaluation tool?

Price ($)	Count	Percent
0	71	61.7%
1-20	18	15.7%
21-50	22	19.1%
51-100	4	3.5%
101+	0	0%

Table 4. How would you prefer to access an AI skincare evaluation tool?

Platform	Count	Percent
On a mobile app	74	50.3%
In a clinic or store	55	37.4%
On a website	17	11.6%
Other	1	0.7%

Table 5. Have you ever used AI tools specifically for skincare or cosmetic purposes?

Option	Count	Percent
To analyze my face using a mobile app or website (e.g., for acne, wrinkles, dark spots)	84	57.1%
To get product recommendations based on my skin type or goals	68	46.3%
To generate a personalized skincare routine (e.g., via chatbot or online tool)	56	38.1%
To try virtual makeup or filter-based skin effects	36	24.5%
To track skincare progress over time using AI-based analysis	24	16.3%
Other	18	12.2%

Discussion

- Reported skincare priorities centered on visible features such as under-eye concerns, pigmentation, and skin texture
- The most recognized brands in our sample invest substantially more in global marketing than less familiar brands[5]
- Willingness to pay for AI-based skincare evaluation was limited in this cohort, with 77% of respondents unwilling to pay more than $20
- Prior experience with AI facial analysis and a preference for mobile app access suggest that familiarity and convenience may be important for individuals engaging with AI skincare tools

Conclusions

- Successful AI implementation may require low-cost mobile apps, tools designed to analyze visible features, or partnerships with widely recognized brands. Future research may examine how willingness to pay, priorities, and adoption differ across socioeconomic, demographic, or health-related factors to further inform the development and deployment of AI-based skincare tools.

References

Female Underrepresentation in Upper-Tier Industry Payments to Mohs Surgeons (2018-2024)

Wake Forest University School of Medicine

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Introduction

- The Centers for Medicare and Medicaid Services (CMS) Open Payments program tracks financial relationships between physicians and industry. Industry payments in dermatology are higher for male physicians than female. Whether these disparities extend to subspecialities such as Mohs surgery, and whether they are due to distributional differences or outlier payments, has not been evaluated.

- **Objective:** To analyze industry payments to U.S. Mohs Surgeons stratified by sex from 2018 to 2024.
- **Hypothesis:** We hypothesized that sex-based differences in industry payments may exist among U.S. Mohs surgeons due to skewed distribution and outliers.

Methods

- CMS Open Payments data[1] were filtered to include only U.S. Dermatologists specializing in Mohs surgery (2018-2024).
- National Provider Identifier (NPI) public registry was used to determine provider sex.
- Payment distributions were stratified by sex, with mean and median differences assessed by two-tailed t tests and distributional difference by Mann-Whitney U tests ($p < 0.05$).

Results

Year	Sex	$0-<$10K	$10K-<$100K	$100K-<$1M	Total Mohs Surgeons
2018	Female	192	5	0	197
	Male	449	16	4	469
2019	Female	186	6	0	192
	Male	417	18	3	438
2020	Female	207	5	0	212
	Male	417	10	2	429
2021	Female	265	4	0	269
	Male	521	17	4	542
2022	Female	310	4	0	314
	Male	565	21	2	588
2023	Female	330	6	1	337
	Male	592	18	6	616
2024	Female	365	5	1	371
	Male	646	23	6	675

Figure 1: Number of Mohs Surgeons Who Received Industry Payments, by Annual Payment Range and Sex (2018–2024)

Year	Sex	Total Amount	Mean Payment	Median Payment
2018	Female	$321,821	$1,634	$218
	Male	$1,397,882	$2,981	$188
2019	Female	$224,286	$1,168	$250
	Male	$1,867,517	$4,264	$286
2020	Female	$181,614	$857	$105
	Male	$856,530	$1,997	$137
2021	Female	$172,373	$641	$171
	Male	$1,416,725	$2,614	$173
2022	Female	$249,908	$796	$197
	Male	$1,916,391	$3,259	$221
2023	Female	$378,955	$1,124	$235
	Male	$2,662,409	$4,322	$247
2024	Female	$513,358	$1,384	$285
	Male	$3,053,306	$4,523	$311

Figure 2: Annual Total, Mean, and Median Payments to Mohs Surgeons by Sex (2018–2024)

Results

- Industry payments nearly doubled from $1.7 million in 2018 to $3.6 million in 2024.
- Male Mohs surgeons received higher mean payments than females in 2019, 2021-2024.
- Median payments were similar between sexes, with small distributional differences in 2020.
- Males were disproportionately represented in high payment brackets ($10K+), comprising 12-29 surgeons annually (2.8-4.8%) compared to females representing 4-7 surgeons (1.3-3.1%).
- While proportional ranges overlapped slightly across all years, in every matched year female percentages were lower than those of males.

Conclusions

- Industry payments to Mohs surgeons increased substantially from 2018 to 2024.
- Although Mohs male surgeons received higher mean and total payments than female surgeons, median payments were similar across sexes.
- Male Mohs surgeons were more frequently represented in the highest payment brackets.
- Sex-based differences in industry payments to Mohs surgeons appear to be driven by a small subset of high-earning male Mohs surgeons and less by broad disparities across the profession.

References

1. General Payment Data | OpenPayments. Accessed January 19, 2026. https://openpaymentsdata.cms.gov/dataset/e6b17c6a-2534-4207-a4a1-6746a14911ff

Rate of Pathologic Tumor Upstaging After Initial Biopsy of Melanoma

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

UNC SCHOOL OF MEDICINE

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Introduction

Clinical guidelines recommend an excisional biopsy for melanoma diagnosis. However, there are inadvertent transected biopsies or cases where excisional biopsy may not be practical. There is limited evidence examining transected tumors and impacts on staging accuracy, and sentinel lymph node (SLN) testing. Some studies show that while transected biopsies do cause errors in diagnoses and staging, there is not sufficient evidence to suggest significant impact on lymph node involvement or patient survival.

Figure 1: Histopathology of a Transected Shave Biopsy

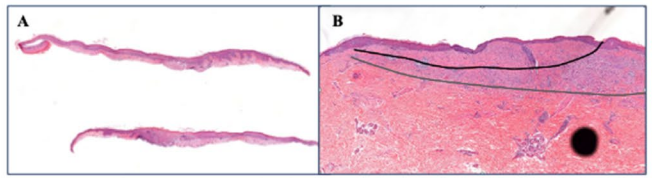


Figure 1 provides a current example of a transected biopsy that resulted in upstaging. Image (A) is the shave biopsy specimen and image (B) shows this to be a transected biopsy that misidentified the depth of the tumor and true pT. This is indicated by the excision scar (dark line) and residual tumor (light line).

Objective

This study investigates the percentage of initial melanoma biopsies received at UNC that underestimate the final pathologic tumor staging (pT; a function of depth) and how this affects SLN testing.

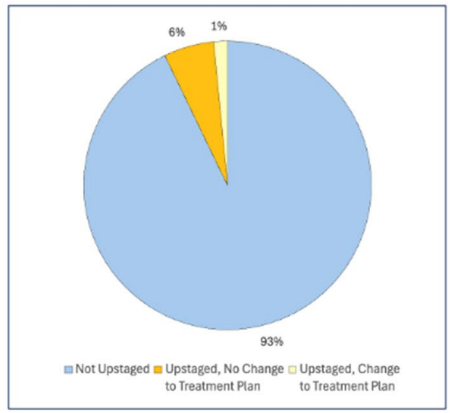
Methods

- *Population:* Adult patients (≥18 years) with a melanoma diagnosis seen at UNC in 2022.
- *Study Design*: EHR review of 585 charts to collect data on location of biopsy, biopsy technique, initial tumor staging, SLN testing, and final pT staging.
- *Analysis:* Fisher's exact test and odds ratio (OR) with 95% confidence interval (CI) to assess association between upstaging and punch biopsy technique and anatomical site of biopsy.

Results

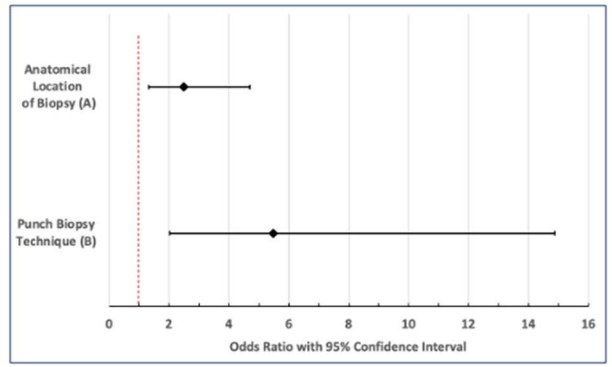
- 7.2% of case reports (42/585) had a more advanced final pT stage following therapeutic excision than was noted after the initial diagnostic biopsy.
- In 1.5% total case reports upstaging altered the treatment plan (additional appointments for SLN biopsy, discussion with patients on prognosis, etc.).

Figure 2: Percent of Melanoma Cases Upstaged at UNC in 2022



- Upstaging was more likely to occur when the lesion was in an area difficult to biopsy including face, ears, scalp, hands, feet, and genital area. A difficult biopsy due to anatomical location comprised 47.6% of upstaged melanoma cases compared with 26.7% of non-upstaged cases (two-tailed z-test for proportions: p = 0.004; OR= 2.49, 95% CI: 1.32–4.70) (Figure 3 (A)).
- Among upstaged cases, punch biopsies were usedin14.3% of cases compared with 3.0% in non-upstaged cases (Fisher's Exact Test, p<0.001; OR 5.48, 95% CI (2.03–14.88) (Figure 3 (B)).

Figure 3: Association among use of punch biopsy technique, anatomical location of biopsy and upstaging



Conclusion

This study evaluated 585 case reports of patients with a melanoma diagnosis who received a diagnostic skin biopsy and therapeutic excision with or without a sentinel lymph node biopsy at UNC in 2022.
Previous literature has sited incidence of upstaging to be highly variable, ranging from 3.9 to 32%. In this review, 7.2% of total case reports indicated a more advanced final tumor stage (pT) following therapeutic excision than was noted after the initial diagnosis. Additionally, impacts on the treatment plan were infrequent, occurring in only 21% of cases that were upstaged or 1.5% of total cases. Upstaging was more commonly associated with the punch biopsy technique and difficult anatomical location.

References

•Doolan, Brent J. et al. Accuracy of partial biopsies in the management of cutaneous melanoma. Australasian journal of dermatology, 2019, 60(3): 209-213.
•Etzkorn, Jeremy R. et al. Frequency of and risk factors for tumor upstaging after wide local excision of primary cutaneous melanoma. Journal of the American Academy of Dermatology, 2016, 77(2):341-348.
•Gazivoda, Victor P. et al. Factors Associated With Upstaging of Melanoma Thickness on Final Excision. Journal of Surgical Research, 2023, Volume 289: 253-260.
•Rosenthal, Amanda et al. Tumor upstaging in invasive melanoma is associated with changes in clinical management and worse prognosis. Journal of the American Academy of Dermatology, 2025, 92(3):528-537.

How Regimen Complexity Affects Acne Medication Dosing: Evidence from Novel Electronic Monitoring

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Background

- Adherence to topical acne therapy is poor, particularly for complex treatment regimens.[1]
- The amount of medication dispensed by individuals is rarely measured directly, and complex regimens may reduce dosing accuracy.[2]
- **Objective: To assess how acne regimen complexity affects daily dosing accuracy using a novel device that records both dose times and quantity dispensed.**

Methods

- Patients with moderate acne vulgaris enrolled in a 12-week trial (NCT05582434). All patients received topical adapalene, benzoyl peroxide (BP), and clindamycin with instructions to apply 1 fingertip unit (FTU) or 0.5 grams once daily.
- Patients were randomized into three groups: (a) one, (b) two, or (c) three topical products:
- Arm 1: Combination BPO 3.1%, Adapalene 0.15%, Clindamycin phosphate 1.2%
- Arm 2: Combination BPO 2.5%/Adapalene 0.3%+ Clindamycin phosphate gel 1.2%
- Arm 3: BPO gel 2.5% + Adapalene Gel 0.1%+ Clindamycin phosphate gel 1.2%
- Electronic (adherence) monitoring devices (EMD) (Figure 1) were attached to each topical medication container that recorded the weight of medication dispensed each day.
- Correct dosing was defined as ≥0.3g and ≤ 0.7g on days with a dose.
- Patients were not informed their adherence was monitored until end of study.

Figure 1: Topical medications on EMD for Arm 1, 2, and 3 (left to right). Patients received adapalene/BP/clinda or adapalene/BP, + clinda, as two products or adapalene + BP + clinda as 3 separate products.

Results

1. 72 patients completed the study, while 17 patients were excluded due to side effects, data capturing issues, or pregnancy.
2. Correct dosage amount on days with a dose occurred in 65% of the 3-in-1 group, 47% of the 2+1 group, and 21% of the 1+1+1 group (Chi-square *P*=0.028) (Figure 2).
3. Underdosing occurred in 29%, 53%, and 68% of participants, respectively (Chi-square *P*=0.064).
4. Overdosing occurred in 6%, 5%, and 16%, respectively (Chi-square *P*=0.5).

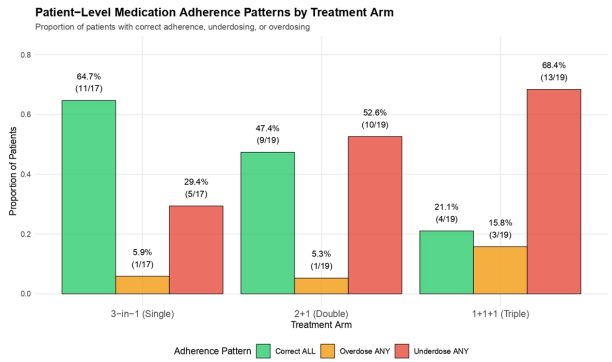

Figure 2: Participants correctly dosing all their medication or underdosing/overdosing at least one medication on days with a dose; the correct amount of medication dispensed was defined as ≥0.3 grams (g) and ≤ 0.7g. Underuse was defined as <0.3g per day, and overuse was defined as >0.7g per day.

Discussion

1. Poor adherence to topical treatment is common in patients with acne
2. Participants using multiple topical products were less likely to dispense the correct amount of medication on days with a dose.
3. As regimen complexity increased, underdosing became more common.
4. Novel electronic monitoring technologies can help monitor patient adherence to complex topical therapies, across multiple parameters.
5. Simplifying an acne treatment regimen to a single product may improve dosing accuracy of topicals dispensed.

References

1. Jimmy B, Jose J. Patient medication adherence: measures in daily practice. *Oman Med J.* May 2011;26(3):155-9. doi:10.5001/omj.2011.38
2. Teixeira A, Teixeira M, Almeida V, Torres T, Sousa Lobo JM, Almeida IF. Methodologies for medication adherence evaluation: Focus on psoriasis topical treatment. *J Dermatol Sci.* May 2016;82(2):63-8. doi:10.1016/j.jdermsci.2016.02.008

Acknowledgement

We would like to thank Bausch Health for funding and Sensal Health for their support with electronic medication monitoring in this study.

Conflicts of Interest

Steven R. Feldman has received research, speaking and/or consulting support from a variety of companies including Galderma, GSK/Stiefel, Almirall, Leo Pharma, Boehringer Ingelheim, Mylan, Celgene, Pfizer, Valeant, Abbvie, Samsung, Janssen, Lilly, Menlo, Merck, Novartis, Regeneron, Sanofi, Novan, Qurient, National Biological Corporation, Caremark, Advance Medical, Sun Pharma, Suncare Research, Informa, UpToDate and National Psoriasis Foundation. He is founder and majority owner of www.DrScore.com and founder and part owner of Causa Research, a company dedicated to enhancing patients' adherence to treatment. The other authors have no conflicts to disclose.

Efficacy of Methylene Blue Photodynamic Therapy on Healing of Cutaneous Wounds: A Review of Literature

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Duke Dermatology
Duke University School of Medicine

Introduction

- Chronic and complex cutaneous wounds represent a significant clinical challenge for which traditional wound management approaches often prove insufficient[1].
- Methylene blue (MB) is known to have antimicrobial, antioxidant, and skin rejuvenation properties[2-3].
- MB is also used as a sensitizer for photodynamic therapy (PDT), and MB-PDT has emerged as a treatment modality for a variety of skin conditions[4-6].
- The mechanism of MB-PDT involves selective uptake of the photosensitizer by target tissues, followed by light activation that produces localized cytotoxic effects on microorganisms while simultaneously promoting tissue regeneration and modulating inflammatory responses[4-6].
- Antimicrobial and tissue rejuvenating effects position MB-PDT as a potentially valuable approach for managing refractory cutaneous wounds[4-6].
- This narrative review aims to evaluate the efficacy of MB-PDT in promoting cutaneous wound healing.

Methods

- A comprehensive literature search was performed on August 15, 2025.
- Studies containing ≥1 keyword relevant to methylene blue and cutaneous dermatologic conditions were identified, yielding 1,953 manuscripts.
- Manual abstract screening identified 9 articles meeting inclusion criteria for MB-PDT administration in cutaneous wounds with reported clinical outcomes.

Results

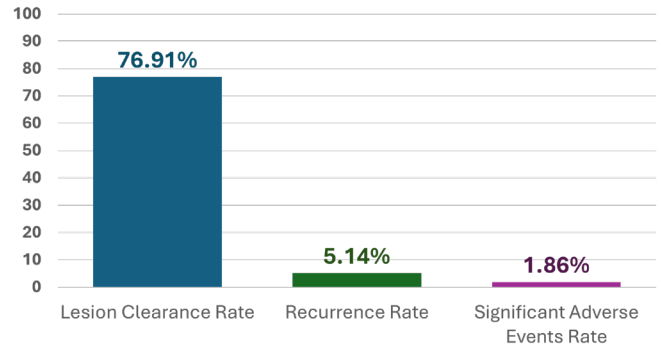
STUDY OVERVIEW

9	11.56	48.41	61.0%
Studies Analyzed 2016-2025	Mean Participants Per Study	Mean Age (years) ±15.29 SD	Male Participants

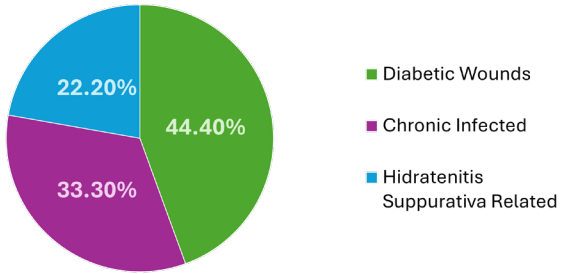
TREATMENT PARAMETERS

7.94	7.31	6.33
Mean PDT Sessions	Mean Days Between Sessions	Mean Follow-up (months)

PRIMARY CLINICAL OUTCOMES



WOUND ETIOLOGY DISTRIBUTION



Conclusions

- MB-PDT demonstrates promising efficacy in diverse cutaneous wounds, achieving a mean clearance rate of 76.91% and low recurrence rate of 5.14% over an average 6.33-month follow-up period across multiple wound etiologies.
- The favorable safety profile, with significant adverse events occurring in <2% of cases, supports the clinical utility of MB-PDT as an adjunctive therapy for complex wound management where conventional approaches may prove insufficient.
- Current evidence is limited by heterogeneous study designs, small sample sizes (mean 11.56 participants per study), and variable treatment protocols, highlighting the need for larger randomized controlled trials to establish optimal treatment parameters.
- Future research should prioritize long-term outcome studies, cost-effectiveness analyses comparing MB-PDT to other advanced wound therapies, and investigation of specific patient populations or wound types that may derive the greatest benefit from this treatment modality.

Contacts & References

SCAN FOR REFERENCES AND CONTACT INFO

SCAN FOR POSTER

Stigma and Repercussions in Hidradenitis Suppurativa Patients: A Review of the Literature

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Purpose

- Hidradenitis Suppurativa (HS) is a chronic inflammatory condition with recurrent boils and cysts predominately in intertriginous areas. This disease can lead to abscesses, nodules, and draining tunnels causing odor, pain, and disfigurement. **Decreased body image** and **self-esteem** leading to **embarrassment**, **social isolation**, and **sexual dysfunction** have been reported in the literature. Given the growing literature around stigma and repercussions in HS, a comprehensive review to summarize key findings is warranted. The purpose of this study is to **consolidate stigma and repercussions research** in patients with HS to help healthcare providers identify the multifaceted challenges HS patients face to ensure more **patient-centered care** for this vulnerable population

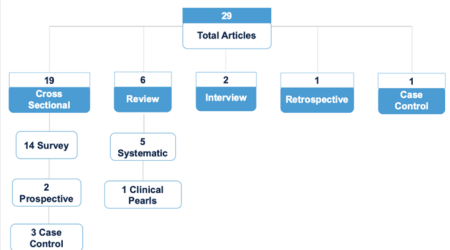
Methods

- This review was conducted with assistance from a librarian at the University of North Carolina at Chapel Hill Health Sciences Library. Our team **searched PubMed using broad MeSH terms** related to stigma and repercussions in HS patients. Mental health terms, conference abstracts, and non-English articles were excluded. **2 reviewers** conducted title and abstract screening and full-text article screening. **Data was extracted** from remaining articles and summarized into key findings

Results

- Our search yielded **185 articles**. After screening titles and abstracts, 54 were included in full-text review. **29** were included in data analysis. Articles were primarily excluded due to research contributions not related to stigma and repercussions (Figure 1)

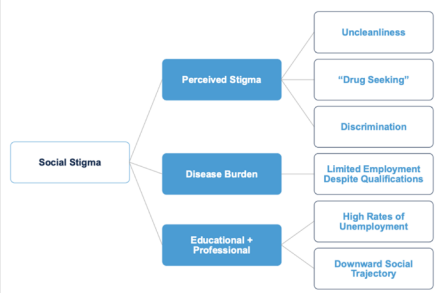
Figure 1. Articles included in data analysis separated by specific article type



- Common themes were predictors of stigmatization, self-stigma, social stigma, sexuality, and sexual health
- We found **predictors of stigmatization** included disease severity, presence of itch, female sex, mental health, excess weight, sexual health, and interpersonal perceptions
- **Self-stigma** and **repercussions** included shame, unworthiness, depression, severely impacted body image, dissatisfaction with cutaneous body image, lower self-esteem, greater loneliness, self-consciousness, embarrassment, low self-acceptance, and fear of stigma (Figure 2)
- We found **social stigma** and **repercussions** included feelings of uncleanliness, "drug seeking", discrimination, and disease burden with limited employment, high rates of unemployment, and downward social trajectory (Figure 3)

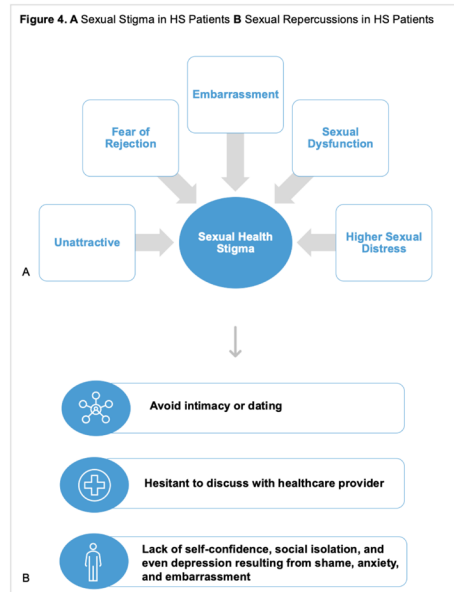
Figure 2. Self-Stigma and Repercussions in HS Patients

Figure 3. Social Stigma and Repercussions in HS Patients



- Lastly, we found **sexuality and sexual health stigma** included feelings of unattractiveness, fear of rejection, embarrassment, sexual dysfunction, and higher sexual distress leading to **repercussions** such as intimacy avoidance, hesitancy to discuss with healthcare provider, and lack of self-confidence, social isolation, and depression resulting from shame, anxiety, and embarrassment (Figure 4)

Figure 4. A Sexual Stigma in HS Patients **B** Sexual Repercussions in HS Patients



Discussion

- HS is a debilitating dermatological condition leading to stigma and repercussions personally, socially, and sexually leading to negative impacts
- These **negative impacts** can affect a patient's overall well-being and disease burden
- It is important for healthcare providers to recognize these implications related to HS to **provide holistic care** when developing a patient's treatment plan
- We found **predictors of stigmatization** include disease severity, presence of itch, female sex, mental health, excess weight, sexual health, and interpersonal perceptions
- We found **recurring themes** related to self, social, and sexual stigma
- Continued work to ensure patients are heard, valued, and understood is an important step for healthcare providers treating patients with this disease
- **Increased social awareness** and acceptance of the disease should continue to be pursued
- Our team plans to broaden our search criteria by searching other data bases to ensure we are capturing additional articles and publish our results as a scope and review
- Future prospective initiatives and research are important to continue **decreasing stigma and repercussions**

References: Jenkins T, Isaac J, Edwards A, Okoye GA. Hidradenitis Suppurativa. *Dermatol Clin*. 2023;41(3):471-479. doi:10.1016/j.det.2023.02.001

Seetan K, Al-Zubi M, Al-Omari R. Sexual Dysfunction in Patients with Hidradenitis Suppurativa: A Systematic Review and Meta-Analysis. *J Clin Aesthet Dermatol*. 2021;14(8):61-65.

Wake Forest University School of Medicine

"Bonesmashing" – A Dangerous Trend with Potential Harm

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Background

- Bonesmashing is a self-modification practice popularized on social media in which individuals repeatedly strike facial structures to alter perceived bone shape.
- It is framed online as a do-it-yourself alternative to orthodontic, dermatologic, or surgical cosmetic interventions, and it has been covered in mainstream reporting and medical commentary as a hazardous social-media trend.
- Clinical descriptions in the medical literature of bonesmashing remain limited with no documented cases in dermatology literature, and clinicians may be unfamiliar with the term and its potential risk profile.

Methods

- A literature and online media review of bonesmashing was done to better understand the practice and its potential harms.

Discussion

- The claimed mechanism is usually a lay reinterpretation of bone mechanobiology, often invoking Wolff's law, the concept that bone adapts to mechanical loading. Proponents assert that repeated micro-injury or microfracture would trigger healing responses that "build" or "thicken" facial bone in a cosmetically favorable direction.
- Dermatology and related outpatient clinics may encounter patients with skin and soft tissue injury, pain, swelling, and/or dyschromia because of repeated facial trauma.
- Dermatologists may benefit from being aware of this potentially dangerous technique, and should counsel patients to avoid bonesmashing as there is no evidence supporting the practice with potential risk of self-harm.

References

1. Grillo R. Urgent concern regarding "bone smashing", a dangerous trend on TikTok. *J Stomatol Oral Maxillofac Surg.* 2024;125(2):101783. doi:10.1016/j.jormas.2024.101783.

2. Pacquelet E, Bon L, Essid L, Guillier D. The bone smashing and the excesses of social networking trends. *J Stomatol Oral Maxillofac Surg.* 2024;125(12 Suppl 2):101814. doi:10.1016/j.jormas.2024.101814.

3. Usborne S. From bone smashing to chin extensions: how 'looksmaxxing' is reshaping young men's faces. *The Guardian.* February 15, 2024.

Conflicts of Interest

Steven R. Feldman has received research, speaking and/or consulting support from a variety of companies including Galderma, GSK/Stiefel, Almirall, Leo Pharma, Boehringer Ingelheim, Mylan, Celgene, Pfizer, Valeant, Abbvie, Samsung, Janssen, Lilly, Menlo, Merck, Novartis, Regeneron, Sanofi, Novan, Qurient, National Biological Corporation, Caremark, Advance Medical, Sun Pharma, Suncare Research, Informa, UpToDate and National Psoriasis Foundation. He is founder and majority owner of www.DrScore.com and founder and part owner of Causa Research, a company dedicated to enhancing patients' adherence to treatment. Omar Raheel has no conflicts to disclose.

Pediatric Immunoglobulin A Vasculitis (IgAV): Clinical Course and Review of Literature for Treatment of Recurrent Disease

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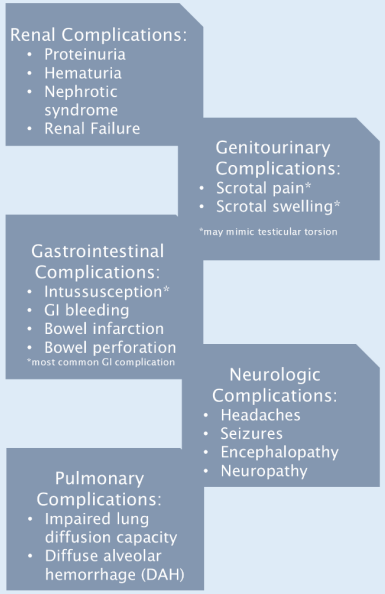
Introduction

- Immunoglobulin A vasculitis (IgAV), also known as Henoch Schönlein purpura (HSP), is the most common vasculitis in children, with approximately ninety percent of cases occurring in pediatric patients. [1]
- Incidence varies between 3 to 27 per 100,000 individuals. [1]
- IgAV is typically self-limited and is characterized by palpable purpura with arthralgia, gastrointestinal, and/or renal involvement. (**Figure 1**)
- Most children have a favorable course, with symptoms commonly resolving within the first 4 weeks. [2]
- In a minority of patients, IgAV can persist despite initial treatment.
- The purpose of this report is to describe the presentation and clinical course of chronic, recalcitrant IgAV in a pediatric patient, along with a review of treatment options for refractory disease.

Figure 1. Potential complications of IgA vasculitis (IgAV)



References

1. Oni L, Sampath S. Childhood IgA Vasculitis (Henoch Schonlein Purpura)-Advances and Knowledge Gaps. *Front Pediatr*. 2019;7:257. Published 2019 Jun 27. doi:10.3389/fped.2019.00257
2. Du, L., Wang, P., Liu, C., Li, S., Yue, S. and Yang, Y., 2021. Multisystemic manifestations of IgA vasculitis. *Clinical Rheumatology*, *40*(1), pp.43-52.
3. Treajelusic, M., Sestan, M., Ciani, T. and Cimaz, R., 2022. New insights and challenges associated with IgA vasculitis and IgA vasculitis with nephritis—Is it time to change the paradigm of the most common systemic vasculitis in childhood?. *Frontiers in pediatrics*, *10*, p.853724.
4. Trapani S, Micheli A, Grisolia F, et al. Henoch Schonlein purpura in childhood: epidemiological and clinical analysis of 150 cases over a 5-year period and review of literature. *Semin Arthritis Rheum*. 2005;35(3):143-153. doi:10.1016/j.semarthrit.2005.08.007

Figure 2. (A) Bilateral lower legs with erythematous to purpuric macules and patches. **(B)** Torso with erythematous to purpuric macules and patches. **(C)** Bilateral lower legs with marked hyperpigmentation from resolved lesions.

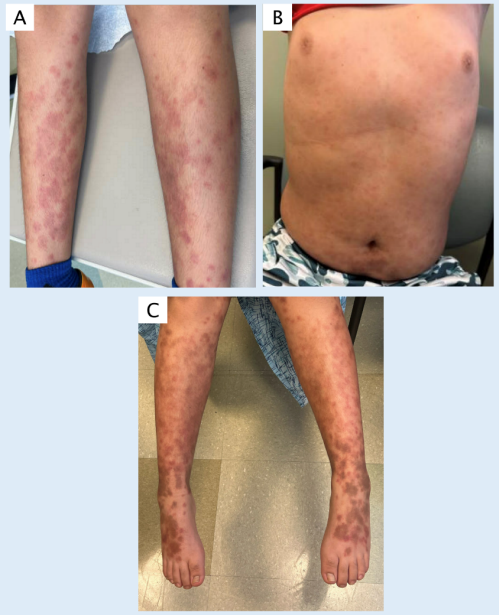


Table 1. Treatment options for recalcitrant IgAV

Treatment option	When to consider usage
Colchicine	For chronic purpuric lesions (> 6 weeks)
Dapsone	For chronic purpuric lesions with minimal dose of 1 mg/kg/day. (Frequent relapse after discontinuation)
Rituximab	For refractory IgAV, shown to improve cutaneous, articular, and gastrointestinal symptoms and reduce proteinuria and hematuria. (Renal function may remain unchanged)
Intravenous immune globulin	For severe gastrointestinal involvement of IgAV
Mycophenolate mofetil	For relapsing IgAV and maintenance of remission
Cyclo-phosphamide	For severe GI bleeding recalcitrant to corticosteroids (single-dose IV 500 mg/m^2)
Plasmapheresis	For patients with rapidly-progressive glomerulonephritis caused by IgAV; adjunctive treatment for patients with Diffuse Alveolar Hemorrhage (DAH)

Case Description

- A 12-year-old patient presented after referral for further evaluation of HSP, initially diagnosed five months prior in Mexico with treatment consisting of prednisone 30 mg daily for two months with improvement followed by a 10-day taper. During this time, he had significant weight gain and developed Cushingoid facies.
- After discontinuation, symptoms recurred and worsened, with new lesions becoming more extensive on the legs and now involving his arms and torso. At that time, complete blood count, comprehensive metabolic panel, coagulation studies, and urinalysis were reportedly normal.
- On presentation, the patient denied abdominal pain, joint symptoms, hematuria, or other concerns. Skin examination demonstrated erythematous and purpuric macules and patches in various stages of evolution on the lower extremities **(Figure 2A),** upper extremities, and torso **(Figure 2B)**.
- Laboratory testing was obtained; blood work and urinalysis were within normal limits except for mild proteinuria, which resolved and did not recur on repeat testing.
- A skin biopsy with direct immunofluorescence was performed. Histopathology demonstrated changes consistent with small vessel vasculitis and history and review of systems were negative for drug-induced or infection-related vasculitis.
- The family wished to avoid future courses of systemic steroids. Dapsone was initiated at 25 mg daily, then titrated to 75 mg daily, and was well-tolerated, New lesions continued to develop and he was transitioned to colchicine 0.6 mg daily and increased to twice daily without issue.
- Resolved lesions have left significant hyperpigmentation which is being managed conservatively. **(Figure 2C)**

Discussion

- Most patients with IgAV do not require specific treatment of skin lesions and recover spontaneously with no recurrent episodes, with management focused on supportive therapy and pain relief. As such, guidance on clinical management of atypical, recalcitrant disease remains limited and treatment options are available but not widely explored in the literature.[1-3] **(Table 1)**
- Risk of relapses are higher with gastrointestinal and renal complications and in children who were treated with glucocorticoids.[4]
- Prognosis for IgAV in children is typically excellent, but a minority develop long term, multi-organ complications, so close monitoring early in the disease course is important.[2,4] **(Figure 1)**
- Increased awareness of treatment responses in refractory pediatric IgAV may help inform future management strategies and improve care for patients with prolonged or recurrent disease.

Recognition and treatment of cutaneous manifestations of mast cell activation syndrome

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Introduction

Mast cell activation syndrome (MCAS) is a relatively new diagnosis, with clinical criteria first established in 2012.[1] As recognition of the disease grows among clinicians and the community, an increasing number of patients are presenting with symptoms that may be attributed to MCAS. However, diagnosis is challenging due to high variability in clinical presentation, often with nonspecific symptoms. This case series describes two patients with MCAS who presented with rash, and reviews the existing literature to update dermatologists on the clinical features of the disease, its cutaneous manifestations, and management.

Case Presentations

Patient 1

- 32 year-old woman with Ehlers-Danlos syndrome, postural orthostatic tachycardia syndrome (POTS), small fiber neuropathy, and cholinergic/aquagenic urticaria
- Presented to allergy & immunology for recurrent urticaria, flushing, and GI symptoms
- Prior treatments include antihistamines, oral prednisone, oral cromolyn, methotrexate, hydroxychloroquine, dupilumab, and omalizumab
- Referred to dermatology for a rash on the bilateral dorsal hands in the setting of frequent hand washing with antimicrobial soap
- Pertinent labs: Negative urine mast cell metabolites, slightly elevated C4 complement, anti-cardiolipin IgM, and beta-2 glycol 1 IgM. ANA, ENA, ANCA, Anti-DS DNA, Anti-Smith, Anti-RNP, CRP, C3, IgG, and SPEP within normal limits.
- Left hand punch biopsy with lichen simplex chronicus-like changes

Assessment & Plan

#Chronic irritant vs. allergic contact dermatitis

- Reduce hand washing, use mild soaps, frequent emollient use
- Referral for patch testing
- Consider restarting dupilumab vs. trialing a JAK inhibitor

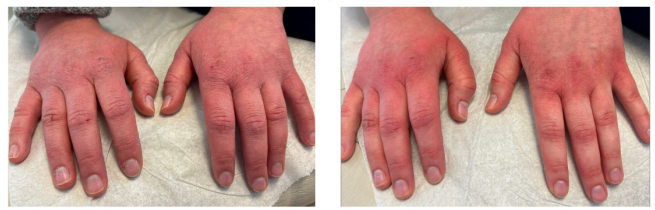

Figure 1. Patient 1 bilateral dorsal hands without (left) and with (right) water exposure

Patient 2

- 38-year old female with POTS, MCAS, and atopic dermatitis
- MCAS managed with antihistamines and compounded ketotifen.
- Previously treated by an outside dermatologist with topical steroids and dupilumab for atopic dermatitis.
- Presented for a chronic erythema, xerosis, and lichenification of the eyelids, perioral area, neck, and bilateral antecubital fossae.
- *CBC, CMP, CRP, tryptase normal*

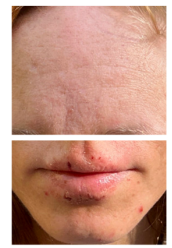

Figure 2. Patient 2 forehead and mouth

Assessment & Plan

#Atopic dermatitis

- Topical pimecrolimus, ruxolitinib
- Referral to allergy & immunology
- Consider dupilumab

MCAS Diagnostic Criteria[1,2]

1. Episodic, recurrent, severe MCAS symptoms involving ≥2 organ systems
   - Typically including recurrent anaphylaxis
2. Laboratory markers of mast cell activation: preferably event-related serum tryptase elevation above 120% of the individual's baseline + 2 ng/mL
3. Clinical response to drugs that counteract mast cell activation

Diagnostic symptoms of MCAS[1]

Cutaneous: flushing, pruritus, hives, angioedema

- Non-diagnostic cutaneous symptoms: dermographism, urticaria, rashes, edema, alopecia, poor healing, onychodystrophy

Respiratory: Shortness of breath, laryngeal edema, wheezing, hypoxia, nasal congestion, sneezing

Gastrointestinal: Vomiting, abdominal cramps, diarrhea

Cardiovascular: Hypotension, syncope, collapse, incontinence

MCAS Pharmacotherapies[1]

1. Antihistamines
2. Leukotriene inhibitors (montelukast)
3. Mast cell stabilizers (cromolyn sodium, nedocromil), ketotifen
4. IgE receptor inhibitors (omalizumab)

Discussion

Despite increasing awareness of MCAS, few patients actually meet all three original diagnostic criteria. In fact, an alternate consensus exists that proposes a broader definition of MCAS, foregoing the laboratory and clinical response criteria.[2] In the last few years, an effort has been made to distinguish patients not meeting full MCAS criteria from those who do.[3] Proponents argue that overdiagnosis of MCAS can delay establishment of an underlying disorder. Even in the broader definition MCAS, one must rule out other potential etiologies. Dermatologists play a key role in identifying alternative diagnoses for skin findings attributable to MCAS, which are nonspecific and common among the general population. In the two cases presented, atopic dermatitis/eczema was described. Of note, atopy and chronic inflammatory disorders with mast cell activation can predispose for MCAS which complicates the picture.[3] Thus, referral to allergy & immunology for further workup of suspected cases of MCA is recommended. Treatment should prioritize management of the featured skin findings. Dupilumab has demonstrated efficacy compared to omalizumab in treating chronic spontaneous urticaria which implicates mast cell activation, suggesting that dupilumab may address both atopic dermatitis and MCAS simultaneously.[4]

References

1. Mihele DM, Nistor PA, Bruma G, et al. Mast Cell Activation Syndrome Update-A Dermatological Perspective. *J Pers Med*. 2023;13(7):1116. Published 2023 Jul 10. doi:10.3390/jpm13071116
2. Afrin LB, Ackerley MB, Bluestein LS, et al. Diagnosis of mast cell activation syndrome: a global "consensus-2". Diagnosis (Berl). 2020;8(2):137-152. Published 2020 Apr 22. doi:10.1515/dx-2020-0005
3. Valent P, Hartmann K, Bonadonna P, et al. Global Classification of Mast Cell Activation Disorders: An ICD-10-CM-Adjusted Proposal of the ECNM-AIM Consortium. J Allergy Clin Immunol Pract. 2022;10(8):1941-1950. doi:10.1016/j.jaip.2022.05.007
4. Bernstein JS, Bernstein JA, Lang DM. Chronic Spontaneous Urticaria: Current and Emerging Biologic Agents. Immunol Allergy Clin North Am. 2024;44(4):595-613. doi:10.1016/j.iac.2024.07.001

Recalcitrant Pediatric Linear IgA Bullous Dermatosis Treated with IVIG and Rituximab

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Introduction

- Linear IgA blistering dermatosis (LABD) is a rare autoimmune blistering disease defined by linear deposits of immunoglobulin A at the dermo-epidermal junction (DEJ).
- Incidence varies between 0.5 to 2.3 cases per million individuals worldwide. [1]
- It occurs in both adults and children. In pediatric patients, it is often referred to as chronic bullous disease of childhood (CBDC) and is described as the most common autoimmune blistering disease in this group.[1]
- First line therapy for idiopathic disease is dapsone, with topical corticosteroids used as adjunctive treatment. [1]
- In severe or refractory disease, alternative treatment options exist **(Table 1)** though evidence is limited, underscoring the need for further research.

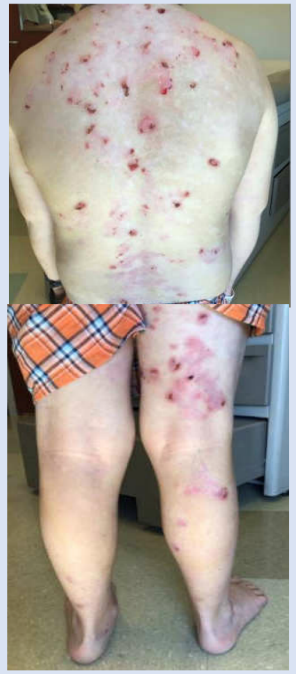


Figure 2. Clinical photographs during flare while on MMF and colchicine: ruptured bullae with hemorrhagic crust, most prominent on the back, erythematous xerotic patches with irregular borders on the lower extremities.

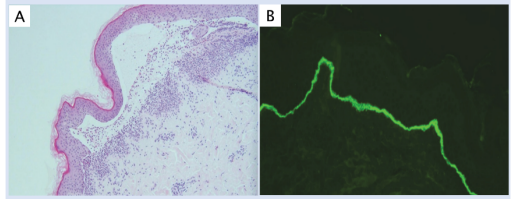
Case Description

- An 8-year-old male presented for management of recalcitrant LABD.
- He was diagnosed at 2 years of age via skin biopsy with direct immunofluorescence demonstrating linear IgA deposition along the basement membrane zone. **(Figure 1)**
- Prednisone 1.5 mg/kg/d and Dapsone 1 mg/kg/d were initiated, with dapsone dose escalation then discontinuation due to gastrointestinal intolerance and vomiting.
- At age 3, he was transitioned to mycophenolate mofetil (MMF) 100 mg twice daily with gradual increase to 600 mg twice daily. Attempts to taper resulted in flares, necessitating return to 600 mg twice daily.
- At age 4, Colchicine was added at 0.6 mg daily, with increase to 0.6 mg twice daily.
- Attempts to taper prednisolone were unsuccessful and long-term use resulted in weight gain, Cushingoid facies, and adrenal insufficiency.
- Despite MMF 600mg PO BID, colchicine 0.6 mg PO BID, and prednisolone, his skin continued to flare **(Figure 2)** in light of this and his steroid adverse effects.
- Given persistent flaring and medication side effects, he was transitioned to IVIG (2 g/kg) monthly and rituximab (375 mg/m^2) q2 weeks for two doses.
- He received one dose of IVIG and one dose of rituximab 375mg/m^2 , and prednisone was tapered down to 0.4 mg/kg/d, with future tapering managed by pediatric endocrinology being dictated by his adrenal insufficiency.
- Within two weeks of IVIG, the patient reported marked symptomatic improvement, with no new lesions and improved healing of existing lesions. He tolerated the second doses of IVIG and rituximab without issue.
- Given good response to treatment, MMF was tapered off with plans to continue IVIG as needed monthly until therapeutic on rituximab as he continues to be monitored closely for flares.

Table 1. Treatment options for refractory LABD

Treatment option	Reported adverse effects in LABD patients
Colchicine	GI symptoms (nausea, vomiting, diarrhea, abdominal pain), hepatotoxicity, and bone marrow suppression
Systemic glucocorticoids	Cushingoid features, GI symptoms, growth impairment in children, osteoporosis, myopathy, infections, insomnia
Mycophenolate mofetil	GI symptoms, headaches, sleep disturbances, hepatotoxicity, nephrotoxicity, anemia, neutropenia, and leukopenia
Cyclosporine	Hirsutism, gingival hyperplasia, hepatoxicity and nephrotoxicity
Rituximab	SIADH, tachycardia, fever, body aches, and infections
IVIG	Headache and chills
Anti-tumor necrosis factor (TNF)-alpha inhibitors	Upper respiratory infections and injection site reaction
Dupilumab	None reported
Omalizumab	None reported
Nicotinamide	None reported
Erythromycin	QT prolongation, GI symptoms
Trimethoprim/ Sulfamethoxazole	Myelosuppression, SJS/TEN, TMP/SMX-induced LABD

Figure 1. (A) Hematoxylin and Eosin (H&E) histopathology showing subepidermal blister containing neutrophilic infiltrate. [5] **(B)** Biopsy with direct immunofluorescence demonstrating linear IgA deposition along the basement membrane zone, consistent with linear IgA bullous dermatosis. [5]



Discussion

- Characteristic features of childhood LABD includes acute onset of widespread lesions in annular or "string of pearl" pattern, predominately involving the thighs, perineum and lower abdomen. Adult LABD may present abruptly or with a gradual onset and is often medication induced. Annular lesions are less common, and blisters are more commonly located on extensor surfaces of extremities and trunk. [2]
- Mucosal involvement is reported at variable rates, and studies disagree on whether it is more common in children than in adults. It is associated with higher morbidity and complications that may require hospitalization, including odynophagia, infection and respiratory compromise. [2]
- Given the low prevalence, there is limited data on treatment options and no FDA approved therapy for pediatric LABD. Frequent flaring makes it additionally difficult to treat.
- Evidence for treatment of refractory LABD is largely based on case reports. [3,4] **(Table 1)**
- Greater awareness of uncommon refractory cases and effective treatment options may help improve clinical decision making and strengthen management approach for children with persistent LABD.

References

1. Mori, F., Saretta, F., Liotti, L., Giovannini, M., Castagnoli, R., Arasi, S., Barni, S., Mastrorilli, C., Pecoraro, L., Caminiti, L. and Marseglia, G.L., 2022. Linear immunoglobulin a bullous dermatosis in children. *Frontiers in pediatrics*, *10*, p.937528.
2. Genovese G, Venegoni L, Fanoni D, Muratori S, Berti E, Marzano AV. Linear IgA bullous dermatosis in adults and children: a clinical and immunopathological study of 38 patients. *Orphanet J Rare Dis.* 2019;14(1):115. Published 2019 May 24. doi:10.1186/s13023-019-1089-2
3. Shin L, Gardner JT 2nd, Dao H Jr. Updates in the Diagnosis and Management of Linear IgA Disease: A Systematic Review. Medicina (Kaunas). 2021;57(8):818. Published 2021 Aug 12. doi:10.3390/medicina57080818
4. Khan M, Park L, Skopit S. Management Options for Linear Immunoglobulin A (IgA) Bullous Dermatosis: A Literature Review. Cureus. 2023;15(3):e36481. Published 2023 Mar 21. doi:10.7759/cureus.36481
5. Nasri J, Jungo P, Blickenstorfer M, et al. Linear IgA bullous dermatosis of childhood. Dermatol Online J. 2022;28(5):10.5070/D328559270. Published 2022 Oct 15. doi:10.5070/D328559270

When Cellulitis Isn't Cellulitis: A Case of Rapidly Progressive Cutaneous Hemorrhagic Bullae and Purpura with Mucosal Involvement

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Background

- **Antineutrophil cytoplasmic antibody (ANCA)-associated vasculitides** (AAVs) are rare autoimmune small-vessel disorders that include granulomatosis with polyangiitis, microscopic polyangiitis, and eosinophilic granulomatosis with polyangiitis. They are characterized by necrotizing inflammation and ANCAs directed against proteinase 3 (PR3) or myeloperoxidase (MPO).
- While often **idiopathic**, AAV may also be triggered by **infections, environmental exposures, or medications**. Drug-induced ANCA vasculitis represents an important, but often underrecognized entity.

Drug Classification	Specific Drugs
Anti-thyroid drugs	Methimazole, Propylthiouracil, Carbimazole, Benzylthiouracil
Biological agents	Adalimumab, Infliximab, Etanercept, Infliximab
Antibiotics	Minocycline, Trimethoprim-sulfamethoxazole, Vancomycin, Nitrofurantoin, Cefotaxime
Anti-tuberculosis drugs	Rifampicin, Isoniazid
Disease-Modifying Antirheumatic Drugs (DMARDs)	Sulfasalazine, D-Penicillamine
Psychiatric drugs	Clozapine, Thioridazine
Miscellaneous	Hydralazine, Allopurinol, Atorvastatin, Levamisole, Isotretinoin, Phenytoin, Denosumab

Table 1. Drugs commonly implicated in drug-induced ANCA vasculitis.

- Prognosis is generally favorable with prompt discontinuation of the offending agent and initiation of immunosuppressive therapy, though severe presentations can lead to multi-organ involvement and increased mortality risk.

Introduction

- We present a case of **drug-induced AAV** in a 77-year-old male with **rapidly progressive cutaneous necrosis and mucosal involvement**, highlighting the diagnostic challenges and importance of dermatologic recognition in rare drug-induced vasculitis.
  - Widespread hemorrhagic bullae
  - Palpable purpura and petechia
  - Mucosal involvement (ocular and oral)
- Drug-induced AAV is significantly less common than primary AAV, representing a minority of all ANCA-associated vasculitis cases. Most drug-induced cases present with mild to moderate cutaneous findings such as palpable or retiform purpura, ulcerations, or livedo reticularis.
- This case represents an unusually **severe presentation**, with rapidly progressive necrotic bullae and extensive mucosal involvement. This highlights both the rarity and potential severity of drug-induced AAV and underscores the importance of early recognition by clinicians to prevent multi-organ complications.

Case Presentation

Patient Information: 77-year-old Caucasian male.

Past Medical History: Hypertension, diastolic heart failure, atrial fibrillation, stage 3 CKD.

Medications: Furosemide, hydralazine, apixaban, rosuvastatin, folic acid, tadalafil cephalexin.

History of Present Illness:
- 2 months prior: Admitted for volume overload → Developed lower extremity wounds.
- Treated with cephalexin for presumed cellulitis, but wounds worsened.
- Presented to emergency department with new symptoms: fever, anemia, hematuria, hemorrhagic bullae, and palpable purpura
- Rapid progression over next 48 hours → Trunk, arms, mucosal sites (oral bullae, conjunctival injection, lip blistering)

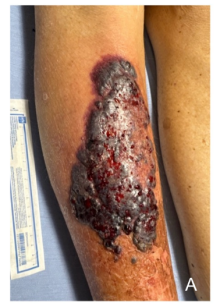

Figure A: Initial hemorrhagic bullae on right lower extremity.

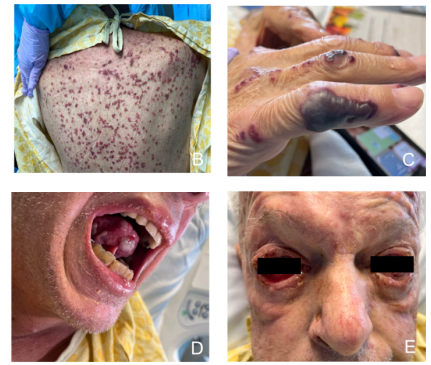

Figure B-E: Progression of cutaneous lesions that included diffuse palpable purpura (Fig. B), hemorrhagic bullae (Fig C), oral bullae (Fig. D), and conjunctival injection (Fig. E) .

Diagnostic Workup

Labs:
- CBC: anemia (low Hb, ↑MCV), no leukocytosis
- CMP: BUN/Cr 62/2.08, AST mild ↑, bicarbonate ↓
- ESR 88, CRP 108
- Coagulation: ↑PT, ↑PTT
- Complements: mildly ↓ C3, C4
- UA: WBCs, RBCs, bacteria, yeast
- Blood cultures: Negative

Serologies:
- Dual ANCA positivity (PR3 & MPO), anti-dsDNA positive, *Mycoplasma pneumoniae* IgM/IgG positive, ANA/RF/anti-GBM negative.

Skin Biopsy:
- Vacuolar interface changes, intraepidermal blistering, leukocytoclastic vasculitis with fibrinoid necrosis; DIF negative; cultures sterile.

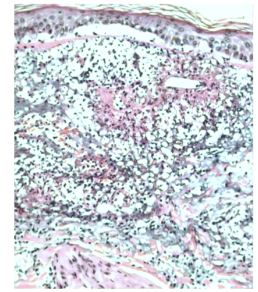

Figure F: Cutaneous punch biopsy results showing leukocytoclastic vasculitis with intraepidermal pustules overlying a neutrophilic infiltrate."

Clinical Course

- Lesions rapidly expanded and involved multiple mucosal sites. Respiratory function acutely declined necessitating transfer to the intensive care unit.
- Managed with **multidisciplinary care** (i.e., Dermatology, Ophthalmology, Rheumatology, Nephrology).
- Treatment included **cessation of drug-induced AAV associated medications** and initiation of **immunosuppressive therapy.** Patient eventually stabilized and lesions slowly regressed.

Discussion

- Mucosal involvement or rapidly progressive necrotic skin lesions in ANCA-vasculitis indicate **severe** disease and higher risk of systemic involvement. Patients often endorse **constitutional symptoms** such as fever, malaise, weight loss, and fatigue. Renal disease (i.e., rapidly progressive glomerulonephritis) and pulmonary disease (i.e., alveolar hemorrhage, cough, dyspnea, hemoptysis) are hallmark features. Other manifestations may include sinusitis, nasal crusting, otitis, neuropathy, or arthralgias.
- Differentiating primary from drug-induced AAV can be difficult, as features overlap. **Primary disease** is typically PR3-ANCA positive with elevated CRP, ESR, and hypocomplementemia, whereas **drug-induced** cases often show MPO-ANCA positivity, lower inflammatory markers, and possible ANA, anti-histone, or anti-dsDNA antibodies. Dual MPO- and PR3-ANCA positivity further suggests a drug-induced etiology.
- In this case, localized drug-induced vasculitis likely arose on the lower extremities after IV furosemide, hydralazine, and multiple courses of cephalexin, with subsequent *Mycoplasma pneumoniae* infection contributing to progression to systemic disease.
- Early recognition, **withdrawal of the drug**, and immunosuppression are critical to prevent irreversible multi-organ damage.

Conclusion

This case highlights a rare instance of drug-induced ANCA-associated vasculitis (AAV). Dual ANCA positivity and atypical serologies (anti-dsDNA, low complement) strengthen suspicion. Prompt recognition and intervention are crucial to prevent systemic complications.

References

1. Gandhi P, Khurana B, Munjal RS, Sekar A, Gandhi RG. Hydralazine-Induced Vasculitis. Cureus. 2023 Feb 22;15(2):e35306. doi: 10.7759/cureus.35306. PMID: 36994251; PMCID: PMC10042502.
2. 2. Weng CH, Liu ZC. Drug-induced anti-neutrophil cytoplasmic antibody-associated vasculitis. Chin Med J (Engl). 2019 Dec 5;132(23):2848-2855. doi: 10.1097/CM9.0000000000000539. PMID: 31856057; PMCID: PMC6940077.
3. 3. Nakazawa D, Masuda S, Tomaru U, Ishizu A. Pathogenesis and therapeutic interventions for ANCA-associated vasculitis. Nat Rev Rheumatol. 2019 Feb;15(2):91-101. doi: 10.1038/s41584-018-0145-y. Erratum in: Nat Rev Rheumatol. 2019 Feb;15(2):123. doi: 10.1038/s41584-019-0168-z. PMID: 30542206.

A Case of Anisocoria Associated With QBREXZA (glycopyrronium) cloth, 2.4%

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Introduction

- Hyperhidrosis is estimated to affect 15.3 million individuals in the United States.[1]
- Oral anticholinergics are an effective off-label treatment option for hyperhidrosis,[2] the use of which is often complicated by systemic anticholinergic effects including dry mouth, mydriasis, blurred vision, tachycardia, constipation and urinary retention.[3]
- Topical anti-cholinergics have been developed to reduce systemic exposure and improve overall tolerability.
- Topical glycopyrronium 2.4% cloth *(Qbrexza)* was FDA approved in 2018 (NDA: 210361) in a once-daily wipe for primary axillary hyperhidrosis in patients aged 9 years and older.[4]
- Clinically significant adverse effects were observed at low rates in clinical trials (**Figure 1**). [5]
- We report a patient with primary hyperhidrosis, extending beyond the axilla, who used QBREXZA (glycopyrronium) cloth, 2.4% after an inadequate response to oral glycopyrrolate.
- The purpose of this report is to describe the presentation and clinical course of an adverse event following the use of 2.4% glycopyrronium cloths for hyperhidrosis.

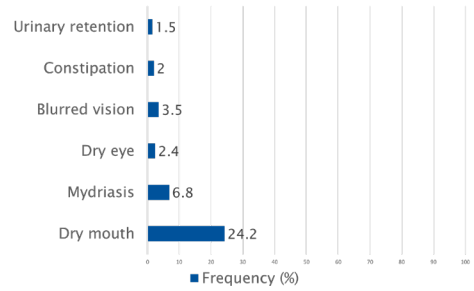

Figure 1. Frequency of adverse events reported in the ATMOS-1 and ATMOS-2 phase III trials

Case Description

- A 21-year-old female patient initially presented for evaluation of primary hyperhidrosis involving the hairline, axillae, and feet.
- Past medical history included exercise-induced asthma and anxiety, for which the patient took propranolol as needed.
- The patient had no known drug allergies and no history of anesthesia related complications.
- On physical examination, there was moist skin with visible sweat production on the anterior scalp, bilateral axillae, and bilateral feet.
- To assess for alternative diagnoses, laboratory testing was obtained, including 5-HIAA, which was within normal limits.
- The patient had been taking oral glycopyrrolate 2 mg daily without symptomatic improvement and without reported side effects.
- Due to inadequate response, and the inherent risks of systemic glycopyrrolate, the treatment plan was to initiate topical therapy with follow up in 4 to 6 weeks. The patient was prescribed QBREXZA (glycopyrronium) cloth, 2.4% for at-home use.
- The patient developed anisocoria, with dilated right pupil, and reported xerostomia (**Figure 2**) requiring a visit to the emergency department.
- Symptoms resolved within 48 hours, after which the patient restarted the topical medication and experienced recurrence of the same clinical features.
- At dermatology follow-up the use of the 2.4% glycopyrronium cloths was discontinued due to anisocoria secondary to topical glycopyrronium use.
- On physical examination, the patient continued to have moist skin with visible sweat production on the forehead, bilateral axillae, and bilateral plantar feet.
- The patient was advised to start aluminum chloride 20% solution and to consider botulinum toxin injections, with follow up planned in 2 months.

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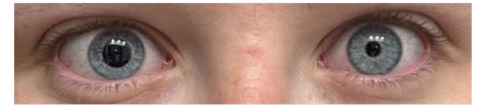

Figure 2. Clinical photograph demonstrating anisocoria with dilation of the right pupil following use of topical glycopyrronium cloth 2.4%

Discussion

- In this study, we describe an uncommon case of anisocoria secondary to the use of glycopyrronium cloths, 2.4% for primary hyperhidrosis.
- Clinicians prescribing topical glycopyrronium cloths, 2.4% for hyperhidrosis should be aware that anisocoria or other anticholinergic symptoms may occur as an adverse effect.
- Anisocoria is a concerning ocular finding that may mimic serious neurologic conditions and prompt emergency evaluation.
- When these symptoms develop, prompt discontinuation of the suspected agent and consideration of alternative therapies such as aluminum chloride and botulinum toxin may be appropriate.
- To reduce the risk of ocular exposure, patients should be counseled to practice strict hand hygiene after application (wash with soap and water or apply with gloves) and to avoid contact with the face or periocular area. [3]
- Increased awareness of these potential adverse effects may help clinicians recognize similar presentations and counsel patients as the use of glycopyrronium cloths, 2.4%, becomes more prevalent.

References

1. Doolittle J, Walker P, Mills T, Thurston J. Hyperhidrosis: an update on prevalence and severity in the United States. *Arch Dermatol Res.* 2016;308(10):743-749. doi:10.1007/s00403-016-1697-9
2. Nawrocki S, Cha J. The etiology, diagnosis, and management of hyperhidrosis: a comprehensive review: therapeutic options. *Journal of the American Academy of Dermatology.* 2019;81(3):669-80.
3. Kaufman AR, Gulati S, Pula JH, et al. Pharmacologic Mydriasis Secondary to Topical Glycopyrronium Tosylate Cloths: Clinical Characterization From a Multicenter Analysis. *J Neuroophthalmol.* 2022;42(4):530-534. doi:10.1097/WNO.0000000000001567
4. Lamb YN. Topical Glycopyrronium Tosylate in Primary Axillary Hyperhidrosis: A Profile of Its Use. *Clin Drug Investig.* 2019;39(11):1141-1147. doi:10.1007/s40261-019-00853-x
5. Glaser DA, Hebert AA, Nast A, et al. Topical glycopyrronium tosylate for the treatment of primary axillary hyperhidrosis: Results from the ATMOS-1 and ATMOS-2 phase 3 randomized controlled trials. *J Am Acad Dermatol.* 2019;80(1):128-138.e2. doi:10.1016/j.jaad.2018.07.002

Compensation and Productivity Across Dermatology Practice Types

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ACKGROUND

urpose: Provide information about compensation and roductivity can be organized across different models of mployment.

volution of Dermatology Practice

ermatology has often been governed by private practice; owever, dermatology has seen a rise in health system-mployed physicians, reflecting broader trends across edicine. Consolidation, private equity, and system tegration have created career paths with different centive structures.[1] According to the Bureau of Labor tatistics (BLS), hospital employment rose by 33% ompared to 17% by practice practices in 2022.[2,3]

ctor	Private Practice	Hospital-Employed	Academic
yment ority	Physician = last paid	Biweekly, guaranteed paycheck with base salary guaranteed	Biweekly, guaranteed paycheck with base salary guaranteed
oductivity uirements	High	Moderate	Low
ministrative sponsibility	High	Low/none	Minimal
gulatory Burden	High	Lower	Lower
entive to oid Downtime	Very High	Moderate	Low
xibility in ient Care	High	Limited by standardization protocols	Research-focused

ble 1. *Different compensation and organizational factors create distinct incentive stems that affect both physician behavior and patient care delivery.*

METHODS

- ➢ Narrative review of publicly available physician compensation benchmarking data:
  - Medical Group Management Association [MGMA] 2025 Provider Compensation and Productivity Data Report[4]
  - SalaryDr 2025[5]
  - Peer-reviewed employment trend analysis[1,3,6]
- ➢ Compensation and productivity categorized by practice types: (1) private practice, (2) hospital employed, and (3) academic.

RESULTS

- ➢ Private practice dermatologists earned $720,000 versus $580,000 for hospital-employed physicians (24% differential, SalaryDr n=48 and n=18). Academic-based dermatologists earned the least of the three practice types with available data at $440,000 (n=14).
- ➢ Nonsurgical specialists' productivity for physician-owned practices showed 21% encounter growth with -7.7% decline in work Relative Value Units (wRVU), a complexity-adjusted productivity metric, while hospital-owned showed 19.8% increase in encounters with +9.1% wRVU growth.

CONCLUSIONS

Compensation structures can vary widely within and across different employment models, and few resources exist that provide clarity so that physicians can make informed decisions.

Key Takeaways

- ➢ The divergence in encounter growth and wRVU growth in physician-owned practices versus hospital-owned practices suggests survival depends on patient volume, not complexity whereas health systems are rewarding both volume and complexity.
- ➢ Career decision-making by dermatologists requires awareness of different practice types and likely differences in incentive structures such as base salary differentials, productivity requirements, and earning potential so that they can make informed decisions.

DISCLOSURES

Steven R. Feldman has received research, speaking and/or consulting support from Eli Lilly and Company, GlaxoSmithKline/Stiefel, AbbVie, Janssen, Alovtech, vTv Therapeutics, Bristol-Myers Squibb, Samsung, Pfizer, Alumis, Boehringer Ingelheim, Oruka, Amgen, Dermavant, Arcutis, Novartis, UCB, Helsinn, Sun Pharma, Almirall, Galderma, Leo Pharma, Mylan, Celgene, Ortho Dermatology, Menlo, Merck & Co, Qurient, Forte, Arena, Biocon, Accordant, Argenx, Sanofi, Regeneron, the National Biological Corporation, Caremark, Teladoc, BMS, Ono, Micreos, Eurofins, Informa, UpToDate, Verrica, and the National Psoriasis Foundation. He is founder and part owner of Causa Research and holds stock in Sensal Health. The other authors have no conflicts to disclose.

REFERENCES

1. Tewfik G, et al. "The Risks and Benefits of Physician Practice Acquisition and Consolidation: A Narrative Review of Peer-Reviewed Publications Between 2009 and 2022 in the United States." *Journal of Multidisciplinary Healthcare*. 2024;17:2271-2279. PMID: 38765617.
2. U.S. Bureau of Labor Statistics. (2022). Occupational employment and wage statistics: Dermatologists (SOC 29-1065). Retrieved from https://www.bls.gov/oes/current/oes291065.htm
3. Popover JL, Jones T, Kalathia C, et al. Physician Employment in America: Private Practices Dominate Despite Increased Hospital Employment. JSLS. 2025;29(2):e2025.00012. doi:10.4293/JSLS.2025.00012
4. 2025 MGMA Provider Compensation and Productivity Data Report. Medical Group Management Association. Published October 5, 2025. Accessed December 15, 2025., https://www.mgma.com/2025-provider-compensation?[illegible]
5. Dermatology Salary (2026) — Average, Median, Hourly. SalaryDr. Updated January 21, 2026. Accessed December 15, 2025. https://www.salarydr.com/specialty/dermatology.
6. Benlagha I, Nguyen BM. Changes in dermatology practice characteristics in the United States from 2012 to 2017. *JAAD Int*. 2021;3:92-101. Published 2021 Apr 22. doi:10.1016/j.jdin.2021.03.005

Perspectives On Use Of Artificial Intelligence (AI) In Dermatology: A Qualitative Study

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BACKGROUND

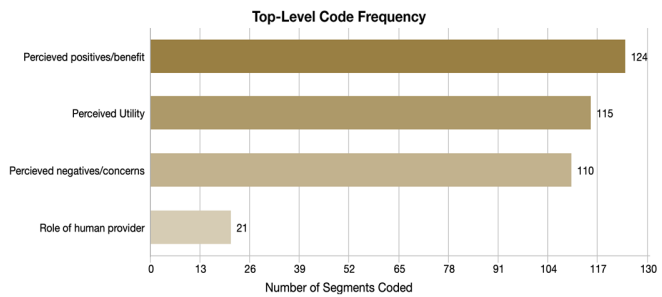
- Therapeutic landscapes increasingly assimilates technology to support diagnosis, treatment, and administrative needs. Less is known about how stakeholders see AI use in real-life clinical setting.
- This study explores the general perceptions of dermatology personnels toward AI in healthcare.
- We examined boundaries participants place between appropriate AI use and areas that need human judgment.

METHODS

- Dermatology patients and clinic staff, residents, and attendings at an academic dermatology center in NC engaged in semi-structured interviews.
- Participants were recruited during clinic visits. Interviews done in-person, lasting 10-20 mins. All interviews were audio-recorded, verbatim transcribed, and de-identified.
- Inductive or thematic analysis using the Framework Method. Transcripts were coded line-by-line, then organized into broader themes. Coding focused on **five areas**: Perceived (1) usefulness and (2) concerns, (3) provider's role, (4) ethical and societal considerations, and (5) comparisons between AI in healthcare versus everyday settings. Discrepancies were cooperatively handled by the study team.

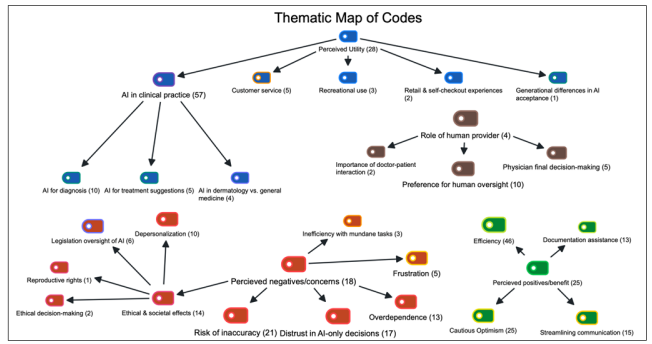
RESULTS

- Participants were carefully optimistic about general AI use. Perceived advantages include improved task productivity, documentation, and communication. Positive expectations were influenced by encounters with AI in everyday life - such as chatbots and self-checkout systems.
- Human oversight was profoundly non-negotiable. Participants shared a predilection for consent prior to AI use. Patients wanted doctors to make the ultimate healthcare choices. AI was seen as suitable for auxiliary jobs but not as a substitute for clinical judgment.
- Concerns were about AI reliability and dependability in medicine. Focal issues were risk of inaccuracies, impersonal or depersonalized care, and mistrust or fear of decisions made independently by AI. Ethical implications called for thorough institutional and legislative oversight.



CONCLUSIONS

A human-centered approach to AI adoption in dermatology relies on augmentation, not replacement, of clinical care. Tangible human interaction, physician accountability, and ethical judgment remain essential for trust and acceptance. Successfully integrating AI into dermatology may benefit from clear boundaries that preserve clinician authority, transparent patient communication, and safeguards for accuracy, bias, and ethical use.



DISCLOSURES

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REFERENCES

1. Thang CJ, Duffy C, Khattab S, Semenov YR. The Current State and Future Prospects for Artificial Intelligence in Dermatology. *Dermatol Clin*. 2025;43(4):503-514. doi:10.1016/j.det.2025.05.00
2. Arza A, Lebhar J, Lipoff JB. Applications of Artificial Intelligence in Dermatology: Ethical Considerations. *Dermatol Clin*. 2025;43(4):529-540. doi:10.1016/j.det.2025.05.003
3. Daneshjou R, Smith MP, Sun MD, Rotemberg V, Zou J. Lack of Transparency and Potential Bias in Artificial Intelligence Data Sets and Algorithms: A Scoping Review. *JAMA Dermatol*. 2021;157(11):1362-1369. doi:10.1001/jamadermatol.2021.3129
4. Partridge B, Gillespie N, Soyer HP, Mar V, Janda M. Exploring the Views of Dermatologists, General Practitioners, and Melanographers on the Use of AI Tools in the Context of Good Decision-Making When Detecting Melanoma: Qualitative Interview Study. *JMIR Dermatol*. 2025;8:e63923. Published 2025 Mar 24. doi:10.2196/63923

Correlation Between IGA Reduction and AI-Analyzed Photographic Measures in Acne Vulgaris: A Secondary Analysis

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BACKGROUND

Purpose: Investigate whether reduction in Investigator's Global Assessment (IGA) scores is correlated with improvement in eight predefined and AI-analyzed photographic domains (spots, wrinkles, texture, pores, UV spots, brown spots, red areas, and porphyrins)

IGA remains the gold standard for acne severity assessment in clinical practice; however, commercial digital imaging systems analyzed by artificial intelligence are increasingly marketed as alternatives to trained clinical assessment.[1]

METHODS

Study Design and Population

- Secondary analysis [n=56/72 (77.8%) enrolled participants with evaluable data, 22.1±8.8 years, 75% female] of a 12-week prospective, single-center randomized clinical trial; Participants aged ≥12 years with acne vulgaris

Assessment Methods

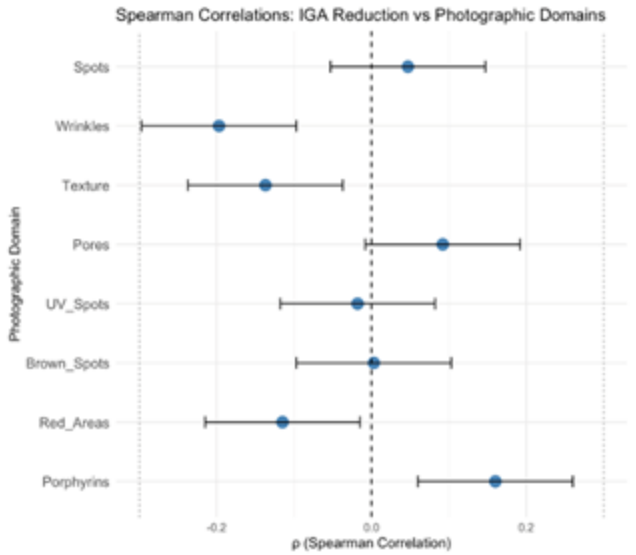
- Clinical: IGA at baseline (Visit 1) and two follow-ups
- Photographic: Eight measures predefined by commercial system recorded as percentiles vs. age/skin-type matched database

Statistical Analysis

- Change scores calculated: IGA (Visit 1 - Visit 3) and photographic measure domains (Visit 3 - Visit 1)
- Spearman correlation for association between IGA reduction and photographic measure improvement
- Bonferroni correction applied ($\alpha = 0.0063$)

RESULTS

- Spearman correlations revealed weak correlations across all domains, with none reaching statistical significance at the Bonferroni-corrected threshold ($|\rho| < 0.3$, $p < 0.0063$).



CONCLUSIONS

Correlation between IGA reduction and photographic measures were weak across all eight domains. Consider using both for comprehensive assessment.

Key Takeaways

- Data suggests percentile metrics may not adequately capture clinically relevant improvements detected by trained assessors or that the AI-analyzed measures are distinct variables from clinical severity assessment.
- Variability in IGA scoring between different assessors may have also contributed to the weak association.[2]
- Commercial digital imaging system with AI-analyzed measures requires further validation prior to recommending its use as a standalone tool for acne assessment.[3]

DISCLOSURES

Steven R. Feldman has received research, speaking and/or consulting support from Eli Lilly and Company, GlaxoSmithKline/Stiefel, AbbVie, Janssen, Alovtech, vTv Therapeutics, Bristol-Myers Squibb, Samsung, Pfizer, Alumis, Boehringer Ingelheim, Oruka, Amgen, Dermavant, Arcutis, Novartis, UCB, Helsinn, Sun Pharma, Almirall, Galderma, Leo Pharma, Mylan, Celgene, Ortho Dermatology, Menlo, Merck & Co, Qurient, Forte, Arena, Biocon, Accordant, Argenx, Sanofi, Regeneron, the National Biological Corporation, Caremark, Teladoc, BMS, Ono, Microos, Eurofins, Informa, UpToDate, Verrica, and the National Psoriasis Foundation. He is founder and part owner of Causa Research and holds stock in Sensal Health. The other authors have no conflicts to disclose.

REFERENCES

1. Traini D, Palmisano G, Guerriero C, Peris K. Artificial intelligence in the assessment and grading of acne vulgaris: a systematic review. J Pers Med. 2025;15(6):238. doi:10.3390/jpm15060238
2. Zhao Y, Fu L, Xu H, et al. Inter-rater variability and consistency within four acne grading systems recommended in China, USA, and Europe. *J Cosmet Dermatol*. 2022;21(11):6513-6522. doi:10.1111/jocd.15178
3. Holfelder M, Valesky EM, Kippenberger S, Kaufmann R, Meissner M. Investigation of the precision of the Visia® complexion analysis camera system for skin assessment. *Skin Res Technol*. 2023;29(1):e13341. doi:10.1111/srt.13341.

Wake Forest University School of Medicine

Efficacy of Deucravacitinib in Highly Adherent vs. Poorly Adherent Patients

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Background

- Adherence affects treatment outcomes in psoriasis.
- While deucravacitinib improves disease severity in clinical trials, real-world adherence and its relationship to efficacy are less understood.
- **Objective:** We evaluated the relationship between adherence to deucravacitinib and clinical improvement in patients with plaque psoriasis.

Methods

- Forty adults with plaque psoriasis were given deucravacitinib 6 mg daily for 90 days.
- Medication use was monitored electronically by a dock that recorded bottle handling and weight change to confirm dosing (Figure 1).
- Adherence was calculated as the ratio of confirmed doses to total monitored days. Participants who completed follow-up (n = 28) were stratified into the most adherent (top 20%, T20; n=13) and least adherent (bottom 20%, B20; n=6) groups.
- Efficacy was assessed by change in Physician Global Assessment (PGA), Psoriasis Area and Severity Index (PASI), and achievement of PASI75 from baseline to three months.

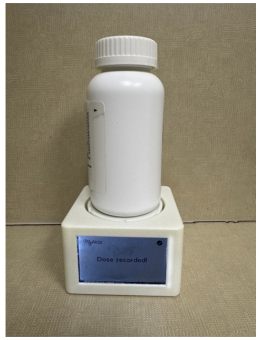

Figure 1. Electronic Monitoring Device

Results

- T20 participants had higher adherence (mean = 98.6%, SD 0.9) than B20 participants (82.5%, SD 10.7; $p < 0.001$, t-test) (Table 1).
- Mean PGA improvement was 1.2 for T20 and 0.5 for B20 ($p = 0.14$, t-test).
- Mean PASI reduction was 7.7 in T20 versus 2.8 in B20 (t-test, $p = 0.11$).
- PASI75 was achieved by 5 of 13 T20 participants (38%) and 0 of 6 B20 participants (Fisher's exact test, $p = 0.13$).

Psoriasis Severity Scores in Most and Least Adherent Patients

	B20 Group	T20 Group	P-Value
Mean adherence, %, (SD)	82.5 (10.7)	98.6 (0.9)	<0.001[a]
Mean change in PGA	0.5	1.2	0.14[a]
Mean change in PASI	2.8	7.7	0.11[a]
PASI75, n	0	5	0.13[b]

Table 1: Adherence, PGA, PASI, and PASI75 results in the top 20th percentile and bottom 20th percentile groups. P-values were determined using a two-arm t-test[a] or Fisher's exact test[b] with significance at < 0.05.

Discussion

- Higher adherence to deucravacitinib was associated with greater clinical improvement, though differences were not statistically significant in this small sample.
- Objective adherence monitoring may help optimize real-world outcomes for oral psoriasis therapy.

References

1. Korman NJ, Warren RB, Bagel J, et al. Deucravacitinib onset of action and maintenance of response in phase 3 plaque psoriasis trials. *J Dermatolog Treat*. Dec 2024;35(1):2371045. doi:10.1080/09546634.2024.2371045

2. Ahn CS, Culp L, Huang WW, Davis SA, Feldman SR. Adherence in dermatology. *J Dermatolog Treat*. Mar 2017;28(2):94-103. doi:10.1080/09546634.2016.1181256

Acknowledgement

We would like to thank Bristol Myers Squibb for funding and Sensal Health for their support with electronic medication monitoring in this study.

Conflicts of Interest

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Intralesional sodium thiosulfate in the treatment of calcinosis cutis

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Introduction

Calcinosis cutis is a rare disease characterized by deposition of calcium in the skin and subcutaneous tissue. It is most commonly associated with autoimmune connective tissue disorders. There is no standard therapeutic regimen for managing calcinosis cutis, although there is limited evidence to support the efficacy of medications such as diltiazem, bisphosphonates, and minocycline.[1] Intralesional sodium thiosulfate (IL STS) has emerged as a promising non-systemic option, although evidence is limited to case reports and small cohort studies.[2] This case report describes a patient with extensive multifocal calcinosis cutis in the setting of dermatomyositis that responded well to treatment with intralesional sodium thiosulfate and reviews therapeutic options for this uncommon disease.

Case Presentation

Patient History

- 43 year-old male with dermatomyositis followed by rheumatology, stable on IVIG and methotrexate 25 mg qw presented with worsening lower back and thigh induration and tenderness
- MRI showed confluent soft tissue calcifications across lower back suggesting calcinosis
- Initiated IV pamidronate 60 mg monthly x 4 doses
- Initial softening of induration, but recurrence of calcinosis with worsening induration and pain on lower back at 8 months s/p pamidronate
- Referred to dermatology, initiated additional course of IV pamidronate x6 months
- Patient presents to dermatology reporting ~10% improvement of calcinosis after completing 2/6 doses of IV pamidronate but severe pain from thigh lesions

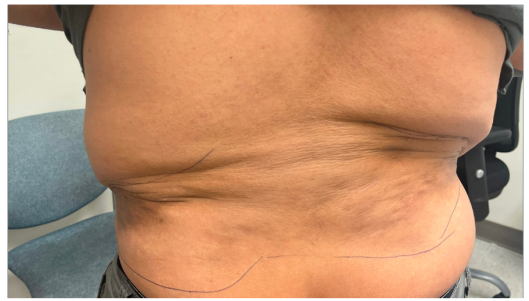

Figure 1. Lower back induration (outlined)

Physical Exam

- **Lower back:** delineated induration extending across lower back from iliac crest extending to the mid-lumbar spine and BL flanks.
- **Left lower extremity:** patchy indurations on the back of the left thigh extending to the popliteal fossa. Inferior round induration measuring 2.5 x 3 cm.
- **Right upper thigh:** small round induration measuring 0.5 x 0.5 cm.

Treatment Course

- **IV pamidronate** 60 mg monthly
  - 4-month course (2/2024 – 5/2024)
  - 12-month course (3/2025 – present)
- **Minocycline** 100 mg BID (9/2025 – present)
- **IL STS injections** monthly
  - 7/2025 – LLE inferior lesion (1 mL 12.5 g/50 mL sodium thiosulfate injected in approximately 0.1-0.3 mL increments)
  - 8/2025 – LLE 2 lesions (total 1.4 mL 12.5 g/50 mL sodium thiosulfate mixed with 0.6 mL lidocaine 2% with epinephrine; 1.0 mL each)
  - 9/2025 – LLE and RLE (total 1.0 mL 12.5 g/50 mL sodium thiosulfate mixed with 1.0 mL lidocaine 2% with epinephrine; 1.5 mL LLE, 0.5 mL RLE)
  - 10/2025 – LLE, RLE, L medial back (total 3.0 mL 12.5g/50mL sodium thiosulfate; 1.5 mL LLE, 0.5 mL RLE, 1.0 mL back)

Results

- Patient reported 20-25% improvement in size and firmness of LLE lesion s/p 1 injection
- Pain reduced from 5/10 to 0/10 s/p 2 injections
- RLE lesion reduced in size from 0.5x0.5 cm to minimally present s/p 1 injection
- LLE lesion reduced in size from 3x3 cm to 2x2 cm s/p 3 injections

Discussion

- Focal calcinosis lesions quickly improved in size, induration, and pain with monthly IL STS injections
- IL STS may be mixed with lidocaine to reduce pain during injection or administered undiluted over time or as tolerated
- Consider IL STS as a first-line treatment in adjunct with systemic therapies

Table 1. Therapeutic options for calcinosis cutis

Therapy	Dosage	Comments
Topical sodium thiosulfate[1,2]	10-25% STS compound applied BID	For small superficial or ulcerated lesions (<0.5 cm)
Intralesional sodium thiosulfate[1,2]	125-250 mg/mL injected monthly	Can be mixed with lidocaine if painful
Bisphosphonates (pamidronate, alendronate)[1,3]	Pamidronate 60 mg IV Q1 month Alendronate 10 mg PO QD or 70 mg PO QW	
Rituximab[1]	0.5-1g IV, variable frequency/duration	
Diltiazem[1,3]	240 mg PO QD	May be prophylactic
Minocycline[1]	100 mg PO BID	
Colchicine[1,3]	1 mg PO QD	
Surgical excision[1,3]	N/A	Risk for wound infection

References
1. Traineau H, Aggarwal R, Monfort JB, et al. Treatment of calcinosis cutis in systemic sclerosis and dermatomyositis: A review of the literature. J Am Acad Dermatol. 2020;82(2):317-325. doi:10.1016/j.jaad.2019.07.006
2. Howard RM, Smith GP. Treatment of calcinosis cutis with sodium thiosulfate therapy. J Am Acad Dermatol. 2020;83(5):1518-1520. doi:10.1016/j.jaad.2020.06.996
3. Boulman N, Slobodin G, Rozenbaum M, Rosner I. Calcinosis in rheumatic diseases. Semin Arthritis Rheum. 2005;34(6):805-812. doi:10.1016/j.semarthrit.2005.01.016