



New England Dermatological Society



**NEW ENGLAND DERMATOLOGICAL SOCIETY
MEETING SATURDAY, DECEMBER 3rd 2022**

**Hosted by the Department of Dermatology,
Boston University and Boston Medical Center**



EXCEPTIONAL CARE. WITHOUT EXCEPTION.



Boston University Medical Campus



NEW ENGLAND DERMATOLOGICAL SOCIETY

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December 3, 2022

Dear Attendee:

I would like to take this opportunity to invite you to become a member of the New England Dermatological Society (NEDS). A key benefit to membership in the Society is complete and full access to the NEDS website. Such access allows members to search for all uploaded cases presented at past clinical meetings. These cases provide a valuable database of unusual dermatological disorders and their treatment.

The New England Dermatological Society offers a 50% discount on the first year's membership dues for any person who applies within one year of completing their residency or fellowship training. The Society also offers a \$50 rebate on membership dues to any member who refers a new member to the Society.

Initiate your application by applying online and then forward your CV and letter of recommendation to our administrator, Gayle Sommer at NEDS@mms.org. You'll find membership application information and materials in the 'Membership' section of www.nederm.org.

If you have any further questions, please contact Gayle at 781-434-7731 or NEDS@mms.org. Your application will be reviewed at the next scheduled Council meeting once all required application information is received.

With best regards,

Avery LaChance, MD, MPH
Secretary, New England Dermatological Society
www.nederm.org



**FUTURE MEETINGS OF THE
NEW ENGLAND DERMATOLOGICAL SOCIETY**

February 4, 2023 - Didactic Meeting (virtual format)

Hosted by:

University of Vermont Medical Center

Division of Dermatology

May 6, 2023 - Clinical Meeting (live format anticipated)

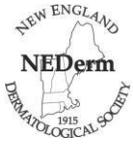
Hosted by:

Harvard Medical School

Beth Israel Deaconess Medical Center

Department of Dermatology

Boston, MA



NEDS Awards

Case of the Year

The *Case of the Year Award* is given to the best clinical case presented during the academic year. Each program submits their “best” case at the conclusion of each academic year so that the Council can vote and decide on the award recipient. If the winner then presents the case at the American Academy of Dermatology (AAD) in the gross and microscopic session he/she will be awarded \$ 500 to help with travel expenses. \$ 500 will also be presented to the recipient’s residency program’s educational fund.

Century Scholar Award

The *Century Scholar Award* is given to the dermatology resident or trainee in their dermatology rotation who wrote up the winning case. He or she is awarded a \$ 500 Amazon gift card towards the purchase of medical textbooks.

If the case is accepted for presentation at a conference and the trainee travels to present it, \$ 500 is awarded to the trainee to help with travel expenses. Their write up must specify that the case was presented at a New England Dermatological Society Conference and the case must be accepted within two years to receive the travel funding.

Book Award

The New England Dermatological Society will award a \$ 500 gift card towards the purchase of a medical textbook to any dermatology resident at a member institution who satisfies the following requirements:

1. The resident is a first author* of a report based on a case presented at a meeting of the New England Dermatological Society (*if the first author is a medical student, then the resident who is the second author is eligible for the award)
2. The report is accepted for publication by a peer-reviewed journal within two years of the NEDS meeting and contains language indicating that the “this case was presented at a meeting of the New England Dermatological Society held at (institution) on (date).”
3. The resident supplies the Society’s Secretary with a copy of the final journal acceptance letter and a receipt for their purchased medical textbook. The recipient is then awarded a gift card in the amount of \$500 towards the purchase of their medical textbook.



IMPORTANT

Conference Evaluation and Certificate Details

This meeting is eligible for up to 4.75 AMA PRA Category 1 Credits®

Attendees will be sent an email from NEDS@mms.org on **Saturday December 3rd** with a link to Lifespan's Survey Monkey® online evaluation for this activity. This email will be sent to the email address used to register for this meeting.

Be sure to alert the NEDS Administrator **by Tuesday, December 6th** if you cannot find this email.

The deadline to complete your meeting evaluation is **Monday, December 26, 2022 by 7:00 AM EST** (15 business days post meeting date). Those who meet the December 26th submission deadline will receive an email from kelli.landry@lifespan.org with your CME certificate **by January 13, 2023**.

*For further questions, please contact Gayle Sommer / NEDS Administrator
781-434-7731 or NEDS@mms.org*

ACKNOWLEDGEMENTS

We would like to extend our sincerest thanks and gratitude to the many people who dedicated their time and expertise to make this meeting possible. We applaud our residents, fellows, international trainees and medical students for their efforts in recruiting and contacting patients, writing the casebook reports, and for ensuring that the meeting ran smoothly.

Thank you to the entire dedicated Boston University Dermatology faculty for caring for the patients and working closely with the trainees in preparation of this meeting.

Thank you to our fantastic dermatopathology team, attending physicians Drs. Candice Brem, Lynne Goldberg, Gabriella Melson and Jag Bhawan and fellows Drs. Ekin Ozluk and Marian Caligayahan for their efforts in the preparation of the photographs and descriptions for the casebook and for their presentations of the dermatopathology during the discussion.

Thank you to our superb speakers, Drs. Elena Mendez-Escobar, PhD, MBA, Gregory Orłowski MD, PhD, and Christina Lam, MD, for sharing their knowledge and expertise with us and the New England Dermatologic Society membership.

We are extremely grateful for the guidance of our wonderful faculty moderators, Drs. Maya Farah and Lynne Goldberg, who spent countless hours reviewing the cases, perfecting the casebook, and guiding the discussion.

Thank you to our excellent administrative coordinators Tara Cusack and Amy Rocha, and the Shapiro clinic staff, for their work in planning the meeting and staffing the event to make sure it ran smoothly.

Thank you to the invaluable Gayle Sommer of the New England Dermatologic Society for her assistance and guidance in every aspect of this meeting.

Thank you to the amazing Dr. Lisa Shen, whose insight and organization skills were crucial to the success of this meeting.

Finally thank you to our patients, who have been generous with their time in attending the meeting and furthering our education. This meeting could not have taken place without you.

Drs. Shawn Shih, Emily Coleman, Shreya Patel, and Monica Rosales Santillan, Boston University Dermatology resident planning committee

Drs. Yasin Damji, Alison Dempsey MD, Anna Sutherland, Claire Alexanian MD, Alexandra Riopelle, Susruthi Rajanala, Frederick Gibson, Allison Perz, Cami Villa Ruiz, Zizi Yu, and Daisy Yan, Boston University Dermatology residents

**New England Dermatological Society
Boston University Chobanian & Avedisian School of Medicine
Department of Dermatology
December 3, 2022**

7:30 – 8:00 am	Registration, Breakfast and Exhibits Open*
8:00 – 9:45 am	Patient and Pathology Viewing, Casebook Review
9:45 – 10:00 am	Coffee Break*
10:00 – 10:15 am	NEDS Business Meeting*
10:15 – 10:20 am	Introductions and Overview Rhoda Alani, MD
10:20 – 10:50 am	Case Discussions 1-5 Moderators: Maya Farah, MD and Lynne J. Goldberg, MD
10:50 – 11:05 am	“Boston Medical Center’s Approach to Health Equity” Elena Mendez-Escobar, PhD, MBA
11:05 – 11:35am	Case Discussions 6-10 Moderators: Maya Farah, MD and Lynne J. Goldberg MD
11:35 – 11:50 am	“Management of Hidradenitis Suppurativa in Socioeconomically Underserved Patients” Gregory Orłowski, MD, PhD
11:50 am – 12:20 pm	Case Discussions 11-14 Moderators: Maya Farah, MD and Lynne J. Goldberg MD
12:20 – 12:40 pm	Inaugural Alfred Hollander, MD Lecture: “The Burden of Cutaneous Lupus” Christina Lam, MD
12:40 – 1:10 pm	Case Discussions 15-19 Moderators: Maya Farah, MD and Lynne J. Goldberg MD
1:10 – 1:20 pm	Final Comments and Meeting Adjourns
	<i>*ineligible for AMA PRA Category 1 Credits®</i>

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- Case 4: A 55 year-old male with right ear pain and right facial palsy
- Case 5: A 55 year-old male with edema and verrucous ulcerated lesions on the thigh
- Case 6: A 52 year-old male with a long history of a firm papule on the right distal index finger
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- Case 12: A 71 year-old female with severe alopecia
- Case 13: A 48 year-old male with digital ulcerations and blue discoloration
- Case 14: A 17 year-old female with a new bullous eruption
- Case 15: A 36 year-old female with disseminated hypopigmented papules
- Case 16: A 28 year-old female with skin discoloration and papules on the back and extremities
- Case 17: A 45 year-old female with persistent, pruritic, and tender lesions on mid back
- Case 18: A 52 year-old female with facial papules
- Case 19: A 46 year-old male with linear verrucous plaques

CASE # 1**A 68 YEAR-OLD FEMALE WITH THICK PRURITIC PLAQUES ON PALMS AND SOLES****Presenters**

Allison Perz, MD

Gregory Orłowski, MD, PhD

History

A 68 year-old female presented to the dermatology clinic with a six month history of rash on her hands and feet. She described the rash as pruritic and painful, and had tried triamcinolone 0.1% ointment and clobetasol 0.05% ointment prior to presentation without relief. The patient also reported a many-year history of scaly plaques on her bilateral elbows, and her dermatologic history included only a prior biopsy-proven diagnosis of granuloma annulare that had since resolved.

She was diagnosed with psoriasis, but failed to improve on topical treatment over the next several months. Five months after her initial presentation to dermatology, she was diagnosed with recurrent pulmonary adenocarcinoma. She continued to have persistent palmoplantar symptoms.

PMH: COPD, HTN, DM, h/o neuroendocrine lung tumor, recurrent pulmonary adenocarcinoma

MEDS: Amlodipine 10mg, ASA 81mg, Clonazepam 1mg, Gabapentin 800mg, Lisinopril 40mg, Paroxetine 20mg, Tramadol 50mg

ALL: NKDA

FH: Possible family history of psoriasis

ROS: Endorses joint stiffness in the mornings. Denies fevers, chills, weakness/fatigue. Denies muscle aches. Denies abdominal pain, nausea, vomiting.

SH: Former smoker, >20 pack years

Physical Examination

On focused skin exam, there were thick scaly plaques on the palms of the hands with extensive fissuring including the lateral distal aspects of the fingers. There were also thick scaly plaques with fissuring on the soles of the feet. On the elbows bilaterally there were thin plaques with silver scale. No nail pitting on exam.

Prior to cryoablation of lung mass:



After cryoablation of lung mass:

**Laboratory Data**

BMP, CBC, and lipid panel were unremarkable.

Bilateral 3-view x-rays of the hands were ordered but not performed.

PROBABLE ACROKERATOSIS PARANEOPLASTICA (BAZEX SYNDROME)

Treatment

- At initial presentation, the patient was prescribed augmented betamethasone 0.05% ointment to be used under occlusion at night for two weeks, then provided instructions for tapering. She was also instructed to start applying aquaphor twice daily and after washing hands.
- On a follow-up visit three months later, the patient's condition had progressed. She was instructed to restart betamethasone 0.05% ointment under occlusion at night, and prescribed tacrolimus 0.1% ointment BID.
- At her next appointment two months later, the patient had seen some improvement on her hands but her feet were unchanged. She was told to discontinue tacrolimus and start applying urea 40% cream every morning and to increase betamethasone 0.05% ointment to BID, including under occlusion at night. A rheumatology referral was placed to rule out psoriatic arthritis.
- Four months later, the patient had still not improved but in the interim she was diagnosed with recurrent pulmonary adenocarcinoma. Thus, the diagnosis of acrokeratosis paraneoplastica was considered. She was instructed to continue the urea and betamethasone and pursue treatment of her pulmonary cancer.
- In the next two months, the patient underwent cryoablation of her pulmonary tumor with interventional radiology. At her next dermatology appointment, her symptoms had improved by 70%. She planned to continue the augmented betamethasone 0.05% ointment one to two times daily as needed for symptom recurrence.

Discussion

- Acrokeratosis paraneoplastica, also known as Bazex syndrome, is a paraneoplastic syndrome resulting in keratoderma affecting acral sites including the ears, nose, palms, soles, and nails. Without treatment of the underlying disease, it can progress to involve the scalp, trunk, and proximal extremities.
- It presents as psoriasiform plaques that may or may not have a violaceous hue distributed on acral skin. It is also associated with onychodystrophy, and approximately 75% of patients will have longitudinal and horizontal nail ridging.¹
- Bazex syndrome occurs exclusively in patients with underlying malignancy, most commonly squamous cell carcinoma of the aerodigestive tract such as pharyngeal, laryngeal, and esophageal carcinomas. It has, however, been reported in a number of other malignancies including small cell carcinoma and adenocarcinoma of the lung and squamous cell carcinoma of the skin. Skin lesions precede tumor diagnosis in 50-60% of cases.²
- Clinically, Bazex syndrome presents similarly to palmoplantar psoriasis. However, involvement of the nose and/or helix of the ears and lack of response to typical psoriasis therapies are clues to diagnosis. Biopsy may show hyperkeratosis, parakeratosis, acanthosis, spongiosis, dyskeratotic keratinocytes with basal layer vacuolization and a mild mixed dermal infiltrate. Therefore, in the absence of interface change, the findings may overlap with those of palmoplantar psoriasis and the two entities may be indistinguishable.^{2,3}
- In the absence of known malignancy, suspicion for Bazex syndrome should prompt initial workup including CBC, CMP, exam and imaging of the aerodigestive tract, chest x-ray, and FOBT.²
- Definitive treatment of Bazex syndrome is aimed at treatment of underlying malignancy. Topical corticosteroids and keratolytics can be used to improve symptoms, though are not always effective.²

Teaching Points

- Acrokeratosis paraneoplastica, or Bazex syndrome, is a paraneoplastic syndrome that occurs exclusively in patients with underlying malignancy. It is most commonly associated with malignancy of the upper aerodigestive tract, but has been reported in the literature to occur in a number of other malignancies.
- The diagnosis should be considered for patients with suspected palmoplantar psoriasis or acquired PPK who do not respond to typical therapies. In that case, workup should be initiated to identify the underlying malignancy. Treatment of the underlying malignancy typically results in almost complete to complete resolution of the PPK in Bazex syndrome.

References:

1. Schwarzenberger K, Callen JP. Dermatologic Manifestations in Patients with Systemic Disease. In: Bologna J, Schaffer JV, & Cerroni L. *Dermatology* (Fourth edition.) Elsevier; 2018
2. Räßler, Goetze, S., & Elsner, P. (2017). Acrokeratosis paraneoplastica (Bazex syndrome) – a systematic review on risk factors, diagnosis, prognosis and management. *Journal of the European Academy of Dermatology and Venereology*, 31(7), 1119–1136. <https://doi.org/10.1111/jdv.14199>
3. Crucitti A, Feliciani C, Grossi U, et al. Paraneoplastic acrokeratosis (Bazex syndrome) in lung cancer. *J Clin Oncol* 2009; 27: e266–e268.

CASE # 2**A 77 YEAR-OLD FEMALE WITH A SCALY ERUPTION ON HER PALMS, SOLES, AND TRUNK****Presenters**

Alexandria Riopelle, MD
 Marian Tropico Caligayahan, MD
 Candice Brem, MD
 Gregory Orłowski, MD, PhD

History

A 77 year-old female presented to BMC dermatology in 6/2022 with a 6-month history of scaly, pruritic rash on the palms, soles, back, and buttocks. She denied new medications prior to the rash onset. She had tried topical triamcinolone 0.1% ointment, Vicks VapoRub, vinegar soaks, and ammonium lactate without improvement. Two biopsies were taken, one from the back and one from the palm.

PMH: T2DM, HTN, CVA, HLD, GERD

MEDS: Atorvastatin, vitamin D3, linagliptin, lisinopril, melatonin, metformin, esomeprazole, warfarin

ALL: NKDA

FH: No family history of similar skin lesions

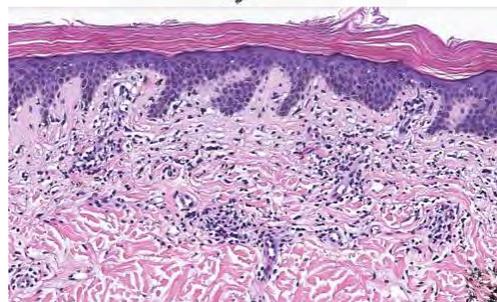
ROS: Negative (including no GI/joint complaints)

Physical Examination

Diffuse transgradens palmoplantar keratoderma of the palms and soles. Hyperpigmented plate-like scales on a background of macular hyperpigmentation diffusely on the mid and lower back/buttocks. Marked subungual hyperkeratosis of all toe nails. No nail pitting or joint tenderness.

**Histopathology**

Right Lower Back (10/17/2022): Compact orthokeratosis with focal parakeratosis, mild epidermal hyperplasia, focal subtle basal layer vacuolization, papillary dermal fibrosis, and a mild to moderate band-like superficial perivascular lymphocytic infiltrate with occasional pigment-laden macrophages. The infiltrate was composed of CD3+ CD20- T cells with CD4 predominating over CD8, and few intermixed CD30+ cells, with preservation of CD5 and partial loss of CD7

**Laboratory & Imaging Data**

CBC, CMP, ESR, SPEP, Syphilis IgG/IgM screen, TSH, ANA, and QuantiFERON gold were unremarkable. Pending workup includes CT chest/abd/pelvis with IV contrast and a mammogram.

ACQUIRED PALMOPLANTAR KERATODERMA

Treatment

Current treatment includes urea 40% cream with augmented betamethasone 0.05% ointment twice per day. After 5 months of therapy, the keratoderma has improved on the trunk and palms, but worsened on the soles.

Discussion

- Acquired palmoplantar keratoderma (PPK) is defined as a non-frictional hyperkeratosis of greater than 50% of the palms and soles. This condition may be associated with transgrediens, which is the presence of contiguous hyperkeratosis beyond the palms or soles.¹ Histologically, all PPKs demonstrate non-specific hyperkeratosis, so determining the etiology of an acquired PPK is based on history, physical exam, labs, and imaging.²
- Acquired PPK may be due to medications, malnutrition, environmental chemicals, underlying systemic disease, malignancy, dermatoses (i.e., contact and atopic dermatitis, psoriasis, PRP, keratoderma blennorrhagica, lichen planus, lupus), infections, or can be idiopathic (diagnosis of exclusion).¹ Keratoderma climactericum, also known as Haxthausen disease, is a condition seen in middle aged women in association with obesity, hypertension, and menopause with an unknown etiology. It typically begins on the soles, and the diagnosis is made clinically.³ Exposure to arsenic and chloracne have been described in association with PPK, and in the case of arsenic it may be seen alongside other classic features such as spotty hypo- or hyperpigmentation.⁴ In terms of malnutrition, PPK can develop in patients consuming a low meat and high corn and vegetable diet. Of the cases reported, resolution has been seen with thiamine and multivitamins supplementation.⁵ Drugs implicated in PPK include glucan, tegafur, lithium, venlafaxine, quinacrine, bleomycin, and hydroxyurea, among others.¹ In these cases, diagnosis and treatment relies on discontinuing the drug. Regarding medical conditions, hypothyroidism is a rare cause of PPK, which is responsive to thyroid replacement therapy.⁶ Finally, infectious causes of PPK include scabies, syphilis, human papillomavirus, trichophytosis, leprosy, and tuberculosis.¹
- Keratoderma in association with underlying malignancy may take the form of acrokeratosis paraneoplastica, also known as Bazex syndrome. Acrokeratosis paraneoplastica begins as psoriasiform scaling on the fingers and toes, followed by ear and nose involvement. The keratoderma evolves to cobblestone-like plates of hyperkeratosis with fissuring and subsequently involves the trunk and extremities.^{7,8} In this case, clinical suspicion is high for Bazex syndrome which would explain her truncal involvement. Acrokeratosis paraneoplastica is most commonly associated with upper digestive tract malignancy, but others have been reported.⁸ In contrast, a similar finding most often associated with gastric cancer called tripe palms is characterized by a moss-like texture and is likened to the inner lining of a cow stomach, known as tripe.^{1,9} Finally, Sézary syndrome may also present with PPK.¹⁰
- When there is no clear cause for an acquired PPK, workup should include a biopsy, TSH, CXR, ANA, CBC, RPR, and a TB test. If results are still inconclusive, age and gender appropriate malignancy screening is recommended.¹

Teaching Points

- Acquired PPK has numerous etiologies and biopsy is often nonspecific.
- History and physical exam should focus on patient age and gender, nutritional status, medications, underlying illnesses, non-acral skin findings, and exposure to infectious agents. In older patients, a thorough search to rule out an occult internal malignancy is warranted.

References

1. Patel S, Zirwas M, English JC, 3rd. Acquired palmoplantar keratoderma. *Am J Clin Dermatol.* 2007;8(1):1-11.
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6. Miller JJ, Roling D, Spiers E, Davies A, et al. Palmoplantar keratoderma associated with hypothyroidism. *Br J Dermatol.* 1998;139(4):741-2.
7. Millard LG, Gould DJ. Hyperkeratosis of the palms and soles associated with internal malignancy and elevated levels of immunoreactive human growth hormone. *Clin Exp Dermatol.* 1976;1(4):363-8.
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9. Clarke J. Malignant acanthosis nigricans. *Clin Exp Dermatol.* 1977;2(2):167-70.
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CASE # 3**A 39 YEAR-OLD MALE WITH HYPERPIGMENTATION AND PRURITUS OF EXTREMITIES, BACK, AND FACE****Presenters**

Nikki Zangenah, BA

Daisy Yan, MD

Gregory Orłowski, MD, PhD, FAAD

History

A 39 year-old male initially presented to clinic in 2018 for a cosmetic consultation for darkening of his arms. He reported pruritus, for which he had seen a dermatologist in Maine and used betamethasone ointment with mild improvement. Nonpharmacological management of post-inflammatory hyperpigmentation was discussed.

In 2020, the patient was seen at Brigham & Women's Hospital for similar complaints. A biopsy of his arm and back was performed, which showed macular amyloidosis. He was subsequently evaluated by rheumatology with confirmation of localized amyloidosis. In 2021, he was seen at BMC's Amyloidosis Center. A full exam and work-up was completed, showing no evidence of systemic disease.

In 2021, the patient presented to clinic for management of his cutaneous amyloidosis. At this time, he was noted to have superimposed changes of lichen simplex chronicus on the left upper back, right elbow and posterior leg. He was advised to increase his frequency of betamethasone use from BID every other day to BID daily. Three months later, he reported improvement of pruritus, but denied improvement in the appearance of lesions. He had also noticed a new spot on his left cheek. At this time, phototherapy was initiated.

PMH: Hypothyroidism, low back pain, dyslipidemia

MEDS: Augmented betamethasone 0.05% ointment, levothyroxine 112mcg

ALL: NKDA

FH: None; parents both alive and in good health

ROS: Denies fevers, chills, nausea, or vomiting

Physical Examination

On the left cheek were multiple hyperpigmented macules. On the left upper back, bilateral outer arms, and lateral/posterior aspects of the bilateral legs were

thin hyperpigmented papules coalescing into thin plaques with a rippled appearance. Over the left upper back, right elbow, and right posterior leg were lichenified plaques with focal scale-crust.

**Laboratory & Imaging Data**

Dermatopathology: Punch biopsy of the right forearm revealed macular amyloidosis (from OSH)

Hematology: Serum immunoelectrophoresis, urine immunoelectrophoresis, and Th immunoglobulins all wnl. No evidence of plasma cell dyscrasia. ALP and uric acid wnl. VitD low at 13.4, VitB12 low at 226.

Cardiac: CXR, ECG, echocardiogram, and biomarker testing all wnl. No evidence of cardiac amyloid.

Renal: No proteinuria. BUN and creatinine both wnl. No evidence of renal amyloid.

Abdominal fat pad aspirate: No evidence of amyloid.

DIFFUSE MACULAR AMYLOIDOSIS

Treatment

- The patient's presentation was consistent with the typical morphology and localization of macular amyloidosis. He was found to have some thickened areas of lichen simplex chronicus due to chronic scratching.
- High-potency topical corticosteroids were started, and phototherapy was recommended. The patient was initially interested in using a home unit for convenience, as he was commuting to BMC from Maine. However, due to difficulty of use, he instead opted to start phototherapy at BMC.
- The patient received phototherapy three times per week for the next three months. At his follow-up appointment, he reported improvement in both the pruritus and appearance of lesions. He was advised to continue phototherapy, with the eventual goal of transitioning to using the Daavlin home phototherapy unit that he had previously purchased.

Discussion

- Macular amyloidosis is a form of localized cutaneous amyloidosis characterized by pruritus and hyperpigmented macules and patches. It can have a "rippled" appearance and it is most commonly found on the back and extensor upper extremities. Other localized cutaneous amyloidosis subtypes include lichen and nodular variants.
- Pathogenesis is due to friction-related deposition of keratin-based amyloid (a fibril protein in a cross- β -pleated sheet) from keratinocytes into the superficial dermis.¹
- The diagnosis is by clinicopathologic correlation. Characteristic histological findings show amyloid deposition in the papillary dermis that stains with Congo red and has green birefringence with polarized light.²
- Treatment is highly challenging, and multiple modalities have been tried. Patients are advised to avoid manipulation or friction of the skin, as superimposed LSC or disease exacerbation can occur.
- Treatments can include high-potency topical corticosteroids, calcineurin inhibitors, dermabrasion, CO₂ or erbium:YAG laser therapy, acitretin, cyclophosphamide, and phototherapy.³
- If systemic amyloidosis is suspected, evaluation can include serum immunoelectrophoresis for plasma cell dyscrasias, echocardiogram for cardiac involvement, abdominal fat pad aspirate, and creatinine levels.
- When isolated to the back, this is often related to scratching/friction secondary to Notalgia Paresthetica, a result of nerve irritation in the upper thoracic or cervical spine leading to chronic pruritus driven by substance P. Topical Capsaicin cream may help deplete substance P and relieve pruritus in such cases.⁴

Teaching Points

- Macular amyloidosis is a form of primary localized cutaneous amyloidosis characterized by (& often initiated by) pruritus appearing as hyperpigmented macules and patches at sites of chronic friction on the back and upper extremities.
- There is no definitive treatment for macular amyloidosis but stopping the itch-scratch cycle (identifying underlying etiology of the pruritus) can prevent chronic excoriation of the skin and progressive keratin amyloid deposition. Options include topical therapy and systemic medications. When available, phototherapy can be safe and effective.
- Systemic involvement should be excluded by laboratory work-up and further imaging with input from a multidisciplinary team that can include rheumatology, cardiology, and nephrology.

References

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3. Weidner T et al. Primary Localized Cutaneous Amyloidosis: A Systematic Treatment Review. *Am J Clin Dermatol*. 2017
4. Ansari A et al. Notalgia paresthetica: treatment review and algorithmic approach. *J Dermatology Treat*. 2020.

CASE # 4

A 55 YEAR-OLD MALE WITH RIGHT EAR PAIN AND RIGHT FACIAL PALSY

Presenters

Dilshad Sachedina, MD
Marian Caligayahan, MD
Adam Lerner, MD
Minh-Tam Truong, MD
Debjani Sahni, MD

History

A 55 year-old male had surgical excision for a basal cell carcinoma (BCC) of the right conchal bowl in 2012. By 2020, due to recurrence of disease and surgical complications including stenosis of the external auditory canal (EAC), he had undergone a total of 6 surgeries involving meatoplasty, canaloplasty and Mohs micrographic surgery with reconstruction (2 stages, negative margins). He represented in 2021 with symptoms of intermittent right sided ear pain, serosanguinous discharge, and grade II House-Brackmann right facial palsy.

PMH: T2DM, HTN, low back pain

MEDS: Amlodipine, atorvastatin, metformin, glipizide

ALL: NKDA

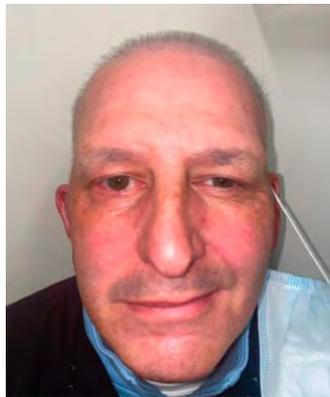
FH: Father: renal cancer, mother: breast cancer. Nil skin cancer reported

ROS: Denies fevers/chills, nausea, vomiting

Physical Examination



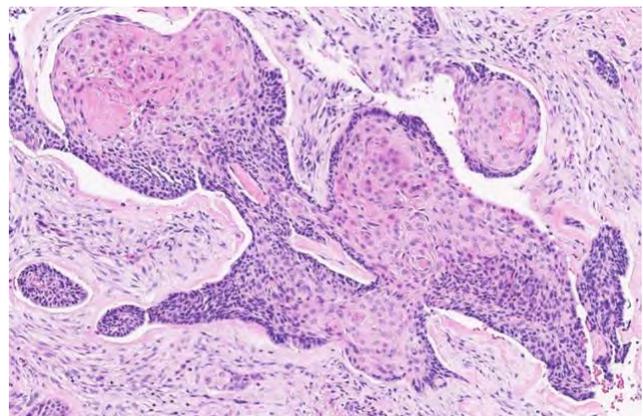
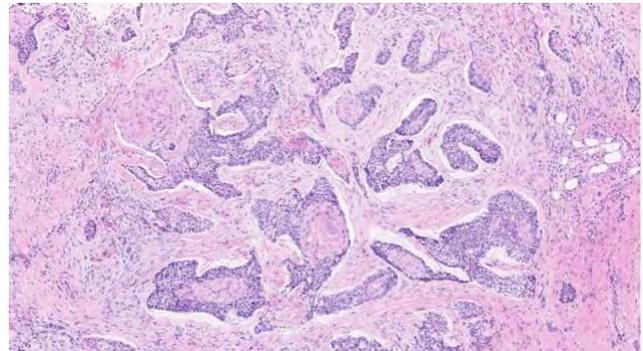
External appearance of the right ear at time of representation in 2021



Ongoing facial nerve palsy

Histopathology

Right external auditory canal: Aggregates of connective tissue with nodular, infiltrative, and focally keratinizing basal cell carcinoma in a fibromyxoid stroma.



Imaging

MRI Brain (2021): Enhancing lesion occupying the right mastoidectomy site and surrounding the right EAC, concerning for recurrence of BCC, likely with involvement of the mastoid segment of the right facial nerve.

Treatment

At the multidisciplinary cutaneous oncology tumor board meeting the patient was not deemed to be a good surgical candidate. A decision was taken to start him on the hedgehog inhibitor vismodegib and consolidate treatment with radiation, the total dose being 70GY over 35 fractions. He remains clear of disease clinically and on follow up MRI scan 7 months later.

SUCCESSFUL TREATMENT OF RECURRENT ADVANCED BASAL CELL CARCINOMA

Discussion

- Advanced BCCs of the ear have a high rate of recurrence;¹ the commonest sites being the conchal bowl (36.6%) and the helix (21%).^{1,2} Facial nerve involvement may indicate tumor invasion.³ Due to the rarity of this presentation, there is no consensus on the extent of surgery and the role of adjuvant radiotherapy and chemotherapy.⁴
- Periauricular BCCs in comparison to facial BCCs, undergo significantly more stages of Mohs surgery for tumor clearance with larger post operative defect sizes.⁵ There is greater discordance between initial biopsy result staging and subsequent Mohs histology staging due to the highly complex nature of the anatomy in this region, inadequate margin assessment and therefore higher rates of recurrence and morbidity.⁵
- BCCs are radiosensitive tumors though efficacy is reduced with more advanced lesions.⁶ Modern radiotherapy techniques that utilize variable electron beam energies can provide more superficial or deep irradiation to tumors as required.⁷ Radiotherapy is not encouraged as monotherapy for cancers in this region due to the risk of osteonecrosis, perichondritis and stenosis,³ but outcomes are improved if used in combination with surgery, and it works synergistically with vismodegib.⁸ The latter combination has the added advantage of reduced morbidity compared to surgery.
- Vismodegib works by inhibiting SMO, a key component of the hedgehog signaling pathway which is thought to be dysregulated in BCCs. Vismodegib tends not to be utilized as monotherapy due to its side effects⁹ and the risk of developing drug resistance, so the response should be consolidated with either surgery or radiation. Vismodegib can provide pre-surgical shrinkage of the tumor, but care should be taken in selecting appropriate lesions to avoid the phenomenon of recurrence associated with skip lesions in neo-adjuvant therapy.³ In the VISMONEO trial 16 out of 44 (36%) patients with locally advanced BCC showed recurrence following neo-adjuvant vismodegib plus surgery as a combined treatment.¹⁰

Teaching Points

- A multidisciplinary approach provides optimum management of advanced basal cell carcinoma as outcomes depend on the extent of tumor invasion, patient's baseline function and willingness to adhere to treatment modalities.
- Neoadjuvant vismodegib consolidated by radiation therapy can provide excellent outcomes in patients with locally advanced BCC who are poor surgical candidates.

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CASE # 5**A 55 YEAR-OLD MALE WITH EDEMA AND VERRUCOUS
ULCERATED LESIONS ON THE THIGH****Presenters**

Camila Villa, MD, MPH
 Lynne J. Goldberg, MD
 Candice Brem, MD
 Adam Lerner, MD
 Debjani Sahni, MD

History

A 55 year-old HIV-positive man with a remote history of multiple radiation therapies to the bilateral lower extremities for prior Kaposi sarcoma was admitted to BMC on 12/1/2021 for septic shock due to cellulitis. Dermatology was consulted for evaluation of painful, draining ulcers on the right thigh of 8 months duration overlying chronic wounds in the setting of chronic vascular disease of the legs. A skin biopsy at that time was suggestive of Kaposi's sarcoma, although stain for HHV-8 was negative.

Upon discharge on 2/23/2022, the patient was followed at the multidisciplinary cutaneous oncology clinic. Given minimal improvement on HAART therapy and uncertainty about the diagnosis, a repeat biopsy was performed.

MEDS: Abacavir-dolutegravir-lamivudine, aspirin, oxycodone, cilostazol, desvenlafaxine, divalproex sodium, doxepin, metformin

ALL: NKDA

ROS: Bilateral lower extremity edema and pain

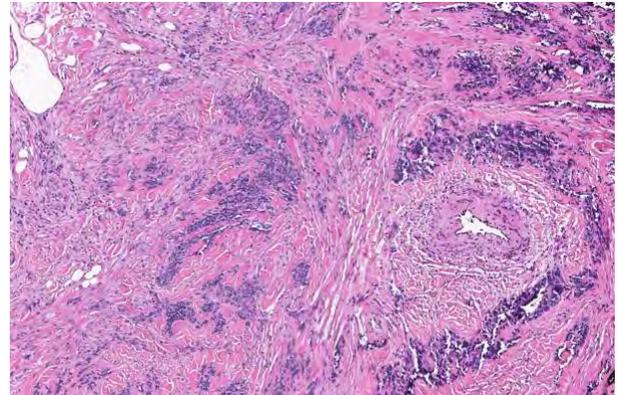
Physical examination

Thick, indurated pink to hyperpigmented verrucous, firm, papules, papulonodules and plaques on the bilateral thighs, with overlying stage II/III ulcers on the right upper thigh and surrounding edema.

Histopathology

Right thigh shave biopsy (12/2021): Basket weave keratosis, focal epidermal erosion and mild epidermal hyperplasia overlying dermal fibrosis with an intermixed superficial and mid dermal proliferation of infiltrative, focally vasoformative cords composed of atypical, mitotically active CD31 (+), D2-40 (-) cells. Immunoperoxidase stain for HHV-8 was negative.

Right thigh punch biopsy (2/2022): Deep dermal aggregates and strands of basaloid cells focally forming vascular lumina in a collagenous stroma. Cells were CD31 (+) and HHV-8 (-).

**Laboratory & Imaging Data**

CBC, CMP: wnl

CT scan of the right lower extremity (12/2021 and 6/2022) showed nodular soft tissue thickening extending to the deep fascia overlying the underlying musculature on the right thigh. CT scan CAP showed no evidence of distant metastases.

Clinical images

Initial presentation
(12/2022)



Progression through 6/2022



SLOW PROGRESSIVE PRESENTATION OF CUTANEOUS ANGIOSARCOMA

Treatment

Following the second biopsy result, the patient was started on IV doxorubicin 40mg/m² q28 days. Despite initial improvement, the patient developed tense swelling of the right calf. Doppler ultrasound showed no evidence of DVT, and CT of the right lower extremity did not show marked disease progression. At that time, doxorubicin was discontinued, and the patient was started on paclitaxel 80mg/m² weekly, with subsequent significant improvement on right lower extremity edema and cutaneous findings.

Discussion

- Angiosarcoma (AS) is a rare, highly aggressive, malignant neoplasm of vascular endothelial cell origin.¹ Angiosarcomas grow rapidly, metastasize widely, and carry a poor prognosis, with a 5-year survival rate of less than 20%.²
- The etiology and pathogenesis of cutaneous AS (cAS) is poorly understood, however two types of cAS can be defined on a pathogenetic basis.³ Primary cAS arises de novo in chronically sun-damaged skin while secondary cAS occurs mainly in the context of irradiated skin or chronic lymphedema.³
- An increased incidence has been reported in immunocompromised patients, particularly HIV/AIDS and renal transplant patients.
- Morphologically, cAS may resemble ecchymosis, cellulitis, edema, or present with a tumor or plaque.⁴ cAS lesions are usually multifocal and extend beyond clinically identifiable borders.⁴
- The mainstay of treatment for localized cAS is surgery with clear margins and adjuvant radiotherapy.⁴ In patients with unresectable lesions or metastatic disease, chemotherapy is the treatment of choice.⁴
- Despite the traditionally aggressive nature of this neoplasm, our patient experienced slow progression of locally advanced disease with an excellent response to paclitaxel. Albeit rare, development of low-grade AS following radiation has been described in the literature.⁵ Similarly to our case, Moskaluk et al. reported the case of a low-grade, slow-growing cAS following radiation therapy for breast carcinoma.⁵

Teaching points

- cAS is a rare, aggressive malignancy that may arise de novo, or secondary to radiation therapy or chronic lymphedema.
- cAS is typically associated with rapid metastasis and poor prognosis with a low 5-year survival rate.
- We present an unusual case of cAS that is slow growing and locally aggressive only in its presentation with an excellent response to paclitaxel.

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CASE # 6

A 52 YEAR-OLD MALE WITH A LONG HISTORY OF A FIRM PAPULE ON THE RIGHT DISTAL INDEX FINGER

Presenters

Nicole Trepanowski, BS
William Lau, BA
Claire Alexanian, MD
Candice Brem, MD
Gregory Orłowski, MD, PhD

History

A 52 year-old male former agricultural worker and hotel room housekeeper originally from the Dominican Republic (DR) presented to dermatology with an 8-year history of a bothersome and painful bump on the right 2nd fingertip. Since immigrating to the United States at age 13, the patient returns to the DR every two years. This 5 mm pale to skin-colored smooth dome-shaped papule on the distal volar surface of the right second finger was examined initially seven years prior. At that time, the lesion was felt benign and biopsy/excision was recommended only if symptomatic. Now, the patient felt the lesion was tender to the touch. He did not recall a history of trauma to the finger. He reported trying to physically file the lesion down, but noted no improvement. Differential diagnosis included callus, digital mucous cyst, acral digital fibrokeratoma and glomangioma. A punch biopsy was performed.

PMH: Hypertension, depression, generalized anxiety disorder, post-traumatic stress disorder, herpes labialis, +PPD s/p isoniazid, secondary syphilis s/p penicillin (2019)

MEDS: Acetaminophen 500 mg QID, amlodipine 5 mg daily, citalopram 40 mg, valacyclovir 1000 mg

ALL: NKDA

ROS: Denies fevers, chills, night sweats, weight loss

SH: Former smoker; denies alcohol or drug use; profession: cleaner, but not currently working

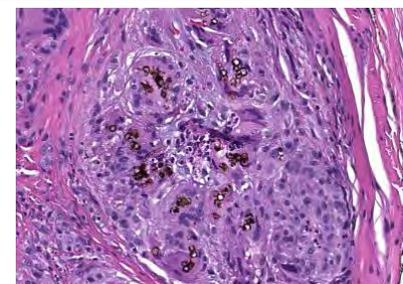
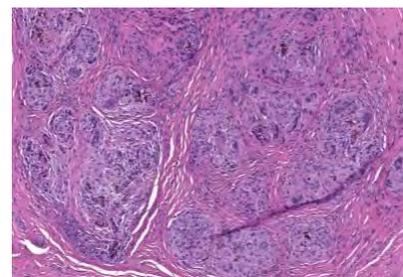
Physical Examination

On the right 2nd fingertip is a 5 mm, well-demarcated, skin-colored, non-tender, firm, dome-shaped papule with smooth surface.



Histopathology

The specimen exhibits a nodular dermal aggregate of epithelioid histiocytes and multinucleated giant cells forming necrotizing epithelioid granulomas containing brown staining thick walled round structures consistent with sclerotic bodies and occasionally septate fungal hyphae. These changes are consistent with chromoblastomycosis (chromomycosis).



CHROMOBLASTOMYCOSIS

Treatment

The lesion was completely excised with a 4 mm punch biopsy, with no further medical treatment.

Discussion

- Chromoblastomycosis (CBM), i.e. chromomycosis, is a subcutaneous fungal infection caused by pigmented fungi.^{1,2} Commonly isolated organisms include *Fonsecaea pedrosoi* and *Cladosporium carrionii*, found in decaying wood, plants, or soil.³
- CBM typically arises from traumatic implantation of fungi into the skin, commonly through splinters or thorns.^{2,3}
- CBM most commonly affects individuals living in tropical or subtropical regions, but cases have been reported in temperate climates.^{2,3} Many patients with CBM report working outdoors in agricultural or mining occupations; cases are most often seen in men and on the lower extremities.³
- The characteristic lesion of CBM is a warty papule or plaque, typically evolving slowly over many years and lacking any associated symptoms.³ Lesions gradually enlarge if untreated and may become annular, vegetating, or nodular;¹ satellite lesions may occur.³ Rare cases of dissemination have been reported.³
- Examination of lesions with 10 to 20% KOH preparations or skin biopsy can be diagnostic, with pigmented sclerotic bodies (muriform cells) or hyphae seen.^{2,3} Polymerase Chain Reaction (PCR) testing is highly specific for diagnosis.⁴
- The differential diagnosis may include other infections including tuberculosis, Hansen's disease, mycetoma, blastomycosis, leishmaniasis, botryomycosis, and tertiary syphilis.³
- Complications include secondary bacterial infection, lymphedema, elephantiasis, and scarring.² Rarely, transformation to squamous cell carcinoma may occur.²
- The mainstay of therapy is surgical, but surgical excision may not be feasible in advanced cases.³ Antifungal agents can be used alone or in combination with cryotherapy.² Heat therapy has also been reportedly effective.³ Recurrence is common.²

Teaching Points

- CBM is a subcutaneous fungal infection caused by direct inoculation of fungi into the skin, commonly through splinters or thorns. Cases most commonly occur in tropical or subtropical regions in men with occupational exposure (agriculture or mining). Lesions typically present as warty papules or plaques, and may progress to annular, vegetating, or nodular lesions if left untreated. Satellite lesions rarely occur, and dissemination is rare.
- Diagnosis is made with KOH preparations or skin biopsy, with pigmented sclerotic bodies or hyphae seen. PCR can provide a definitive diagnosis.
- Treatment involves surgical excision (if feasible), antifungal therapy +/- cryotherapy, or heat therapy. Cases are often refractory, and recurrence is common.
- This case, in particular, highlights an atypical benign-appearing clinical presentation of CBM that required close attention to history and symptomology to prompt the biopsy that led to the final diagnosis (missed seven years prior). If you cannot confidently put a name on something, biopsy it!

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CASE # 7

A 37 YEAR-OLD MALE WITH FACIAL LESIONS

Presenters

Frederick Gibson, MD

Gregory Orłowski, MD, PhD

History

A 37 year-old man from Brazil with a history of paracoccidioidomycosis (PCM) presented for evaluation of skin lesions. He presented initially in 2006, when he was diagnosed with PCM on skin biopsy after developing 'growths' along with fever and weight loss. He was treated with itraconazole for a year with subjective improvement. The disease later recurred with nodules around the ear, neck, groin, and axillae. He was then treated with sertaconazole for approximately 5 years with no improvement, and he was subsequently transitioned back to itraconazole. After insufficient improvement, he was hospitalized for 15 days and started on liposomal amphotericin, which helped with the ear lesions. Subsequent treatment included trimethoprim-sulfamethoxazole for 1 year.

In 12/2016, he was evaluated at BMC by ENT for nasal polyposis and sinusitis. A skin biopsy of his right ear was consistent with PCM. He was started on itraconazole in 2/2017, which he remains on today. From 10/2018-12/2018, he stopped itraconazole briefly and had a disease flare with right ear swelling and symptoms of sinusitis.

In 4/2020, he developed vision changes in his left eye and was evaluated by ophthalmology. He was given voriconazole intravitreal injections given concern for PCM endophthalmitis. He subsequently experienced retinal detachment in 4/2021.

As of 6/2022, he continues itraconazole 200 mg BID. Because of non-adherence, his blood levels are regularly monitored by infectious disease. His skin lesions flare when he misses doses for days at a time.

PMH: History of PCM, PCM endophthalmitis, chronic sinusitis with nasal polyps

MEDS: Itraconazole, brimonidine drops, dorzolamide-timolol drops, cyclopentolate drops, latanoprost drops, prednisolone acetate drops

ALL: Prednisone

FH: Non-contributory

ROS: Negative

Physical examination

4/2020: Edema, erythema, scaling and fissuring with hemorrhagic crust and firm ill-defined deep nodules throughout most of the right ear.

8/2022: Mild scaling, faint erythema, follicular accentuation and cobblestone-like scarring on the right ear, smooth violaceous papules coalescing into a plaque over the left forehead, and brown scleral pigment deposition in the left eye.

Clinical images

4/14/2020



8/15/2022



CHRONIC PARACOCCIDIOIDOMYCOSIS

Treatment

Patient continues itraconazole 200 mg twice daily managed by infectious disease at BMC. At this time, we believe his skin findings are consistent with PCM given his history and improvement with itraconazole. We considered a biopsy but decided to defer at the time given he is already being treated for PCM and low concern for another cutaneous process.

Discussion

- PCM is caused by a dimorphic fungus, *Paracoccidioides brasiliensis*, endemic to parts of rural Central and South America.¹ It is also known as South American blastomycosis.
- *P. brasiliensis* lives saprophytically in soil, water, and plants, and infection is due to **inhalation** of its propagules. Direct inoculation into the skin can occur as well, but is rare.^{1,2}
- Most who become infected **remain clinically silent for many years in a chronic carrier state** with latent foci of disease, usually in the lungs. However, disease may become evident with the disruption of agent-host equilibrium by immunosuppression, malnutrition, substance use, etc.¹
- Acute/subacute PCM manifests as rapid and disseminated progression of skin lesions, lymphadenopathy, and eventual suppuration, fever, and anorexia over weeks to months after fungal exposure.³
- Chronic PCM, accounting for 75-95% of cases, manifests years after exposure and primarily affects the lungs, mucous membranes, skin, adrenals, and central nervous system. Most **(90%) of patients develop pulmonary symptoms (cough, shortness of breath)** and up to **60% may develop painful granulomatous ulcerated oral/perioral lesions**. Lymphadenopathy is common.³
- The acute form of the disease has an equal distribution between sexes. The **chronic form, however, has a male predominance of 15:1 to 22:1**, usually presenting between 30-60 years old. Estrogen inhibits the transformation of conidia in yeast cells after menarche.³
- Diagnosis is made by identification of the organism in skin biopsy specimens (showing yeasts with narrow-based buds appearing like a “**mariner’s wheel**”) as well as in sputum, lesion scrapings, BAL fluid, and fine-needle aspirates, or isolating in fungal culture.^{1,2}
- The disease was fatal until sulfonamides proved to be effective for treatment in the 1940s. Now, treatment is based on the severity of disease and includes from **itraconazole** (200 mg daily for 6-18 months) or **sulfamethoxazole-trimethoprim** (2400-480 mg daily for 12-24 months) for mild to moderate disease. **Amphotericin B** may be given for severe cases, and **fluconazole or voriconazole** are recommended if there is involvement of the central nervous system.¹
- **Relapse is common** even after appropriate treatment and achievement of a clinical cure.²
- Oral absorption of itraconazole is erratic leading to unpredictable sub- & supra-therapeutic levels.³

Teaching points

- The differential diagnosis of PCM is broad, requiring high suspicion and a tissue or lab diagnosis.
- While PCM-related mortality is low, morbidity from sequelae of the chronic form is high.³
- Cure of PCM is often not achieved. Chronic PCM requires prolonged antifungal treatment and often leads to poor compliance. Despite prolonged treatment, sequelae from chronic inflammation and fibrosis may profoundly impact organ function and quality of life.³

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CASE # 8

A 51 YEAR-OLD MALE WITH SCALP FOLDS

Presenters

Jake Crouch, BS
Zizi Yu, MD
Ekin Ozluk, MD
Debjani Sahni, MD

History

A 51-year-old male presented with grooves on his posterior scalp. Three years prior to presentation, he reported itching as the first symptom which caused him to shave his hair upon which he noticed the grooves. In the past year, he reported new onset itching and burning of his frontal scalp and central forehead which prompted presentation. The patient reported no similar symptoms or grooves during childhood. A punch biopsy was taken from the scalp.

PMH: None

FH: No one in the family with similar scalp changes

SH: Non-smoker; does not drink alcohol

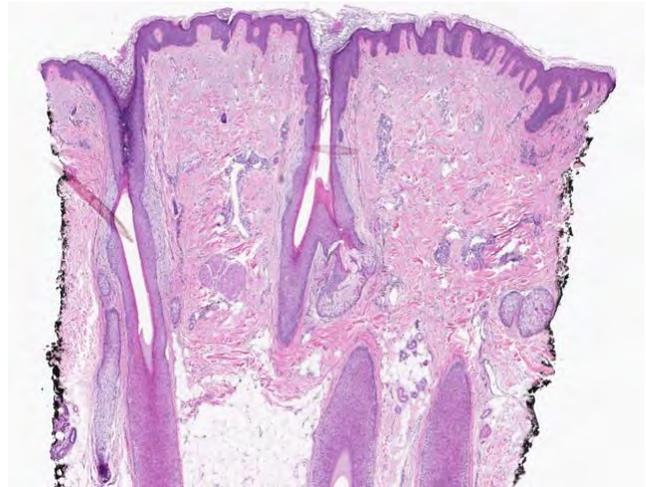
Physical Examination

Well appearing and well-developed male with skin type II; thickening of several scalp skin folds and grooves over the crown and vertex as well as a linear (L-shaped) groove over the central forehead.



Histopathology

Scalp: Hyperkeratosis, mild epidermal hyperplasia, solar elastosis, thickening of mid-dermal collagen bundles, and perifollicular fibrosis.



Laboratory & Imaging Data

IGF-1 205 (59-165); TSH 0.97 (0.5-5.0); ACTH 16 (10-60); Prolactin 12.7 (<20); Testosterone 320 (300-1,000); FSH 5.3 (1.5 – 12.4); LH 2.4 (1.8-8.6)

MRI Brain w/ and w/o contrast (12/23/2021):

~3mm hypo-enhancing lesion in the left side of the pituitary gland is nonspecific. Mild non-enhancing white matter signal changes.

MRI Pituitary (6/27/2022): 3mm hypo-enhancing lesion in the left aspect of the pituitary gland suggestive of a microadenoma.

CUTIS VERTICIS GYRATA

Treatment

Patient was referred to neurology and endocrinology following his diagnosis. In neurology follow up, patient reported increased sensitivity of skin on his scalp, but denied numbness. On ROS, he reported anxiety, difficulty concentrating, and headaches. These were felt to be unrelated. He denied seizures. In endocrine follow up, patient reported low libido but denied other symptoms. Following the above workup, the patient was reassured regarding the benign nature of the condition which does not require treatment. His pituitary adenoma is unrelated and will be monitored with serial imaging given no signs of pituitary gland hyperfunction.

Discussion

- Cutis verticis gyrata (CVG) is a rare benign cutaneous disorder characterized by thickened and folded skin leading to furrows in the scalp/forehead resembling brain sulci and gyri¹. Although CVG is considered a genetic disorder, direct chromosomal links have yet to be elucidated, and its pathogenesis is currently unknown.
- There are three subtypes: primary essential, primary non-essential, and secondary cutis verticis gyrata which are characterized by the presence of other disease states and/or symptoms², described below:
 - Secondary CVG is the most common variant, has unknown prevalence, and generally occurs in association with endocrine pathologies including insulin resistance³, hypothyroidism, and acromegaly².
 - Primary non-essential CVG is the next most common variant with a prevalence of roughly 1 in 100,000 in males and 0.026 in 100,000 females⁵. It is associated with neurologic and ophthalmologic pathologies including cerebral palsy, epilepsy, and cataracts⁵.
 - Primary essential CVG is very rare with unknown prevalence and is a diagnosis of exclusion after negative workup for secondary or primary non-essential CVG. Our patient falls into the category of primary essential CVG.
- CVG's unique appearance often allows for a clinical diagnosis; histopathology can confirm the diagnosis but is not required. The further workup and follow up for CVG is predominantly focused on determining whether associated pathologies are present¹.
- CVG does not cause significant morbidity or mortality and does not require intervention; however, patients should be counseled on appropriate scalp hygiene to avoid secretion accumulation, skin maceration, and secondary infection. Successful treatment of associated pathologies can ameliorate the CVG phenotype⁷. Surgical excision with or without flat reconstruction, as well as scalp reduction or tissue expansion, would be definitive treatment options for unresolved and bothersome CVG symptoms⁷.

Teaching points

- CVG is a benign cutaneous disorder which fall into 3 subtypes: secondary, primary non-essential, and primary essential.
- It is important to exclude underlying endocrine or neurological pathologies which may be associated with the first two subtypes.
- Treatment generally focuses on management of associated pathologies though surgical intervention may be utilized to address cosmetic appearance concerns.
- Importantly, patients should be educated on proper scalp hygiene to avoid bacterial infections.

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CASE # 9

A 44 YEAR-OLD FEMALE WITH LEG SWELLING AND VERRUCOUS LESIONS

Presenters

Camila Villa, MD, MPH
Tania Phillips, MD

History

A 44 year-old Caucasian female presented to BMC Dermatology in 2013 with a 6-month history of pruritic verrucous-appearing papules, nodules and plaques associated with chronically swollen bilateral lower legs. Pt denied recent travel or trauma to the affected areas.

Throughout the years, the patient developed recurrent cellulitis and ulcers overlying the verrucous lesions, and was frequently hospitalized for skin infections that required IV antibiotics and occasionally surgical debridement. Wound cultures primarily grew pseudomonas and MRSA.

PMH: Papillary thyroid cancer s/p thyroidectomy, obesity

MEDS: Levothyroxine 200mcg, venlafaxine 150mg, clonazepam 1mg

ALL: Doxycycline

ROS: Denied fevers/chills, weight loss, fatigue, palpitations

Physical examination

The patient initially presented with nonpitting brawny edema and induration of the bilateral legs with discrete, tender, firm, skin-colored verrucous papules and nodules on the bilateral calves (Fig. 1). By 2020, the patient had progressed to severe, nonpitting edema with verrucous lesions now involving the bilateral lower legs circumferentially (Fig. 2).

Laboratory & Imaging Data

TSH, free T4, CMP: within normal limits
CBC: notable for microcytic anemia

Abdominopelvic CT scan and abdominal ultrasound (ordered out of concern for underlying malignancy as a potential source for venolymphatic compression) showed no evidence of venous occlusion.

Clinical images

Fig. 1. Initial presentation in 2013



Fig. 2. Progression of disease through 2020



Treatment

Treatment was based on a multifactorial approach aimed at reducing edema, controlling pruritus and preventing secondary infections.

For wound care: bleach baths, Hibiclens wash, mupirocin decolonization, silver gel, aquacel Ag gauze, Optilock, dressings, Sorbact swabs, Santyl. For the edema: compression stockings, leg elevation, pneumatic compression device, multilayer compression wraps, manual lymphatic massage, decompressive physiotherapy, referral to lymphedema clinic. For pruritus: triamcinolone 0.1% ointment. Oral antibiotics as needed.

ELEPHANTIASIS NOSTRAS VERRUCOSA

Discussion

- Elephantiasis nostras verrucosa (ENV) is a rare, disfiguring complication of nonfilarial chronic lymphedema that arises from obstruction of the lymphatic system. A handful of conditions that block the lymphatic drainage can induce such lymphedema, including neoplasms, radiation treatment, congestive heart failure, trauma, obesity, surgery, hypothyroidism, chronic venous stasis, among others.^{1,2}
- Prolonged lymphostasis leads to an excess of protein-rich interstitial fluid that accumulates in the dermis and subcutaneous tissue, induces fibroblast proliferation, and blunts the local immune response, increasing the skin susceptibility to infections.³
- ENV is characterized by brawny edema of the affected extremity, generalized thickening, induration and lichenification of the skin with superimposed exophytic, cobblestoned and/or verrucous-appearing papules and nodules with overlying hyperkeratosis as seen in our patient.^{1,4} ENV most commonly affects the gravity-dependent parts of the body such as the lower extremities, although other sites such as the upper extremities, abdomen, and buttocks may also be affected.¹
- Diagnosis of ENV is based on history and characteristic cutaneous manifestations. Imaging, bloodwork and in some cases, genetic testing, may be warranted to elucidate the cause of edema.⁵
- ENV is a progressive disease that is often complicated by recurrent ulcers and secondary skin infections due to chronic colonization by bacteria and fungi.^{1,5} The latter stages of ENV are often associated with disability, sometimes requiring amputation.¹
- There is a paucity of literature regarding treatment of ENV. Treatment is challenging and requires a multifactorial approach aimed at decreasing lymphedema, preventing secondary infections, and avoiding disability. Management of lymphedema includes a multimodal therapy which consists of weight reductions, compression therapy, skin care and physiotherapy.^{4,5} There has been some success with systemic retinoids such as acitretin.⁶ Surgical treatment may be warranted in later stages to remove excess tissue and decrease the volume of the extremity.⁴ However, unsatisfactory outcomes are common in the management of ENV.³

Teaching points

- ENV is a rare complication of chronic longstanding lymphedema that may be secondary to neoplasms, radiation, obesity, trauma, CHF, chronic venous stasis, among others.
- Prompt diagnosis and treatment of underlying lymphedema is essential in preventing disability and recurrent secondary infections.
- Treatment of ENV requires a multifactorial approach aimed at treating the underlying lymphedema, preventing secondary skin infections, and avoiding disability. However, unsatisfactory outcomes are common.

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CASE # 10

A 57 YEAR-OLD FEMALE WITH INGUINAL PLAQUES

Presenters

Frederick Gibson, MD

Gregory Orłowski, MD, PhD

History

A 57 year-old obese, non-smoking, African-American woman first presented in 2013 with hyperpigmentation, draining sinuses and scarring. Since her initial presentation she had been managed consistently with chlorhexidine washes, bleach baths, topical clindamycin, courses of doxycycline, cefadroxil, prednisone, and multiple I&Ds in the emergency department. Despite this, her disease has remained largely uncontrolled and continues to progress.

From 8/2020 to 12/2020, she was treated with weekly adalimumab without significant improvement. She self-discontinued adalimumab after concern it was contributing to severe anemia.

In 2/2021, she began receiving infliximab infusions, and the dose and frequency was titrated up from 5 mg/kg every 8 weeks to 10 mg/kg every 6 weeks by 9/2021. In 4/2022, infliximab level was undetectable and methotrexate was added in attempt to rescue her response given concern for anti-drug antibodies.

In 6/2022, she was started on ustekinumab 90 mg every 12 weeks. In 8/2022, the frequency of ustekinumab injections was increased to every 8 weeks. We are currently obtaining authorization to increase to every 4 weeks for better control of her disease.

In addition to this, the patient comes in roughly every 2 weeks for intralesional steroids, helping her avoid visits to the ED. Plastic surgery is planning excision of the plaques over her thighs and abdomen with split-thickness skin grafting.

She had previously undergone excision with skin grafting to the groin area in 2003 and 2008 without concomitant biologic therapy, which provided relief from her disease for months to years at a time, but her lesions eventually recurred.

PMH: Schizoaffective disorder, substance use disorder, iron deficiency anemia, type II diabetes mellitus, hypertension, gastroesophageal reflux disease, hyperlipidemia, ICA aneurysm (extradural)

MEDS: Metformin, clozapine, folic acid, methotrexate, simvastatin, amlodipine, ferrous sulfate, omeprazole, ustekinumab, chlorhexidine 4% external liquid, clotrimazole 1% cream, clindamycin 1% lotion

FH: Mother with CAD

ROS: Negative

Physical examination

Over the inguinal creases, medial thighs, mons pubis, and lower abdominal fold there are large, smooth gyriform plaques comprised of draining nodules and complex interconnected sinus tracts throughout. Scars from prior graft donor sites are apparent on the anterior thighs.



Treatment

Chlorhexidine/clindamycin lotion/clotrimazole cream daily after bathing, methotrexate 10 mg weekly with folic acid 1 mg daily, ustekinumab 90 mg every 8 weeks (PA recently submitted to increase to every 4 weeks), and intralesional triamcinolone 40 mg/mL roughly every 2 weeks. Plastic surgery/excisions pending anemia optimization. Previous treatments included excision with skin grafting, courses of doxycycline, cefadroxil, and prednisone, and bleach baths.

HIDRADENITIS SUPPURATIVA, HURLEY STAGE 3

Discussion:

- The initiating event in the pathogenesis of HS is follicular hyperkeratosis, with friction leading to follicular occlusion, propagation of resident bacteria, and activation of Th17 and Th1 cells. Follicular rupture worsens inflammation and leads to painful nodules and abscesses. Over time, this leads to persistent sinus tracts and fistulas characteristic of the disease.¹
- HS most commonly affects young adults from 20-40 years of age; prevalence declines over 50.¹ Patients are often obese and smokers. Women African-Americans, and those of lower socioeconomic status are affected more often; about one third have a positive family history.²
- **Treatment of HS requires a multifaceted approach** including avoidance of skin trauma, pain control, smoking cessation, weight loss, and hygiene practices in addition to local and systemic therapies along with treatment of comorbidities including psychosocial ones.³
- **Adalimumab is the only FDA-approved treatment** and is recommended as the first-line biologic therapy for moderate-to-severe HS, followed by infliximab. Biologic agents targeting tumor necrosis factor (TNF), interleukin 1 (IL-1), IL-12/23 and IL-17, other TNF- α inhibitors, apremilast, and rituximab can be effective.³ Studies suggest that patients who do not respond to therapy within 12 weeks (<25% improvement) should discontinue the drug.
- **Compared to psoriasis, HS has a broader and more complex inflammatory milieu.**⁴ Biologic dosing for HS is generally higher in comparison to other inflammatory skin disorders making patient selection and monitoring of therapy and side effects ever more important.³
- **Surgery and ablative treatment with lasers are almost always necessary to control advanced disease.** Wide excision and deroofting of sinus tracts can substantially change the course of disease, and lead to long periods of substantial disease control. Recurrence is common, especially without follow up medical therapy, and correlates with severity of disease, female sex and lower body location.^{4,5} Recurrence rates are less for wide excision (5%) than for partial excision (26%).⁵
- Data from other immune-mediated diseases has **NOT shown a higher risk of complications after major surgery while on biologic treatment**⁶ and biologic therapy should be continued to aid healing and reduce recurrence.
- **Surgery has the greatest positive effect on health-related quality of life** for patients with HS.⁷

Teaching points

- HS is a chronic and often progressive disease with enormous negative impact on quality of life. **Successful management requires frequent follow up, continuous patient education and a strong doctor-patient alliance.**
- Medical therapy in HS must be tailored for each patient. **Multiple simultaneous treatments**, some of which may change over time, are required, that are aimed at disease control and preparation for surgical/procedural intervention for advanced disease.
- **Structural pathology in HS (sinus tracts, fistulas) can be extensive, and is generally NOT amenable to medical therapy.** Therefore, patients with higher stage disease should be oriented early on to a surgical treatment pathway that BOTH begins and ends with a medically optimized maintenance therapy to minimize surgical complications and prevent recurrence.

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CASE # 11**A 23 YEAR-OLD MALE WITH PAPULOSQUAMOUS ERUPTION WITH PRURITUS AND DEPIGMENTATION****Presenters**

Eric Xia, BA
 Susruthi Rajanala, MD
 Marian Caligayahan, MD
 Candice Brem, MD
 Gregory Orłowski, MD, PhD

History

A 23 year-old male with skin phototype II and past medical history significant for ankylosing spondylitis on adalimumab presented for a 1+ year history of rash affecting the bilateral elbows with associated pruritus and depigmentation. Patient previously used triamcinolone cream and OTC eczema lotion, which improved the pruritus. Patient was seen initially as an electronic consult and ultimately was referred for in-person visit.

PMH: Ankylosing spondylitis with secondary osteoarthritis of bilateral hips

MEDS: Adalimumab 40 mg every 14 days, triamcinolone cream, unspecified eczema cream

ALL: NKDA

FH: No known problems. Negative for autoimmune disorders

ROS: Skin ROS as per HPI. Denies fevers, chills, nausea, or vomiting. A 10-point ROS was otherwise negative

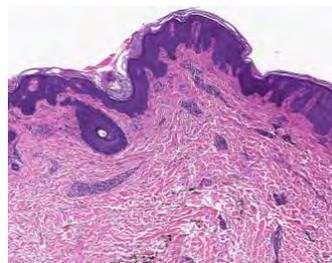
Physical Examination

Electronic consult: Erythematous thin papules and plaques with fine scales, focal erosions, and associated with hypo- vs de-pigmented patches on bilateral elbows.

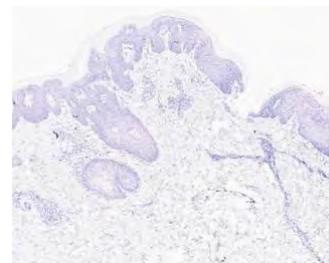
At in-person visit: On the bilateral elbows, left popliteal fossa, left upper back, and right shoulder (BSA ~5%) are multiple depigmented irregular white patches with central and peripheral erythema and subtle scaling, and focal erosions; peripherally there were confetti-like depigmented macules. No poliosis. Enhancement was noted on Wood's lamp exam.

At time of electronic consult:**During in-person dermatology visits:****Histopathology**

Skin, left posterior shoulder (punch biopsy): The specimen exhibited basket weave keratosis, mild epidermal hyperplasia, a complete absence of junctional melanocytes and basal layer keratinocytic pigmentation (confirmed by stains for MART-1 and Fontana Masson), and a mild superficial perivascular lymphocytic infiltrate. These changes, coupled with clinical suspicion, are consistent with vitiligo.



H&E



MART-1 stain

Laboratory Data

TSH: wnl

INFLAMMATORY VITILIGO

Treatment

- Following electronic consult, the patient was treated with tacrolimus 0.1% ointment twice daily.
- Approximately two months later, at the time of initial in-person evaluation, the patient was started on betamethasone 0.05% cream twice daily, alternating every other week with tacrolimus 0.1% ointment twice daily.
- Patient was also started on dexamethasone 4 mg PO daily on Saturdays and Sundays only for three months.
- Direct natural sunlight for up to 30 minutes without sunscreen was recommend for help with repigmentation.
- Dermablend or alternative makeup substitute was recommended for cosmetic concealment of depigmentation.
- A discussion was initiated regarding possible narrow-band ultraviolet B (NBUVB) phototherapy if rapidly spreading or inadequate control with current treatment regimen.

Discussion

- Vitiligo is a common, acquired autoimmune skin depigmentation disorder of complex multifactorial etiology that can present in either a localized or generalized distribution, and can be generally classified as segmental or non-segmental.¹
- Vitiligo affects approximately 1% of the population worldwide and has a profound negative psychosocial impact for both children and adults as a result of cosmetic disfiguration, especially in patient with skin of color.^{1,2}
- Vitiligo is frequently associated with autoimmune conditions, including thyroid abnormalities (which is the most common), alopecia areata, rheumatoid arthritis, and psoriasis.³
- Classically, vitiligo is characterized by depigmented macules or patches on the skin that can appear anywhere on the body and can progress centrifugally at variable, unpredictable rates. Inflammatory vitiligo is an atypical presentation and consists of erythema, scale, and pruritus most notable at edges of active lesions. Papulosquamous lesions, similar to our case, have been also reported.⁴ While the inflammatory phase is self-limited, it may cause brisk depigmentation.⁵
- Histopathologically, vitiligo shows complete loss of epidermal melanin and absence of melanocytes as well as mild lymphocytic infiltrate. Inflammatory vitiligo lesions display significant interface dermatitis with T-cell infiltrate.^{5,6}
- For localized disease, topical corticosteroids or calcineurin inhibitors are generally used as first-line therapy. For rapidly progressive disease as with inflammatory vitiligo, patients often respond to oral/systemic corticosteroids or NBUVB. In resistant cases unresponsive to initial therapy, targeted phototherapy, psoralen plus ultraviolet A, photochemotherapy, and surgical autologous melanocyte transplantation have all been used with variable efficacy.^{1,3}

Teaching Points

- Inflammatory vitiligo is an uncommon presentation of the disease and presents clinically with erythema, scale, and pruritus in active lesions.
- Characteristic histopathologic findings for this subtype include interface dermatitis with significant T-cell infiltrate along with the expected loss of epidermal melanin and absence of melanocytes.
- Scattered reports in the literature, including one demonstrated by Lee and colleagues in 2000, have highlighted the presence of papulosquamous lesions and suggested that solid and annular papulosquamous plaques be included in the spectrum of inflammatory vitiligo.⁴
- Treatment for this subtype often requires systemic steroids or NBUVB in addition to topicals.

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CASE # 12**A 71 YEAR-OLD FEMALE WITH SEVERE ALOPECIA****Authors**

Nhi Nguyen, MS
 Anna Sutherland, MD
 Lynne J. Goldberg, MD

History

This is a 71 year-old female with alopecia areata since 2007. She initially had patchy disease responsive to topical and intralesional steroids for several years. In 2018 she worsened, particularly on the crown, and topical Rogaine and spironolactone were added. She was lost to followup and represented a year later with alopecia totalis. She did not tolerate contact sensitization, and in July 2021, she started tofacitinib 5mg twice daily. One year later her dose was increased to 10 mg and 5mg.

PMH: T2DM, hypothyroidism, GERD, hypercholesterolemia

MEDS: Citalopram, levothyroxine, omeprazole, bupropion, metformin, tofacitinib

ALL: Penicillin, red dye

FH: Negative for autoimmune disorders

ROS: Negative

Physical Examination

In 2021, there were few, sparse, short, depigmented and vellus hairs with loss of hair on the scalp, eyebrows, and eyelashes. More recently in 2022, there is regrowth of predominantly depigmented hair on the scalp with the majority of regrowth occurring on the occipital scalp > parietal scalp and frontal scalp; hair remains thin on crown of head. There are areas of repigmentation on the frontal scalp and occipital scalp.

10/8/2021 - 3 months into treatment:



10/17/2022 - 15 months into treatment:

**Laboratory Data**

10/11/2022

CBC: WBC 7.6; Hgb 14.3; Hct 40.4; PLT 309

CMP: BUN 13; Creatinine 0.93; alkaline phosphatase 46; AST 27; ALT 28; total bilirubin 0.6

Lipid panel: cholesterol 181; triglyceride 205

ALOPECIA TOTALIS ON TOFACITINIB

Treatment

Tofacitinib 5mg twice daily, increased to 10 mg and 5mg

Discussion

- Alopecia totalis is an advanced form of alopecia areata characterized by nonscarring hair loss of the scalp, eyebrows, and eyelashes. The pathogenesis involves a cycle of follicular production of IL15 and T-cell production of IFN- γ , both of which rely on the Janus kinase (JAK) signaling pathway, leading to the proliferation of autoreactive T-cells responsible for stopping the hair follicle from entering anagen.^{1,2}
- Tofacitinib is a JAK inhibitor approved for rheumatoid and psoriatic arthritis but has been shown to be effective when used off label in hair regrowth in patients with alopecia areata, alopecia totalis, and alopecia universalis.^{2,3,4}
- Baricitinib, another JAK inhibitor, was recently FDA approved for alopecia areata and will likely be easier to obtain moving forward.
- Currently, the Severity of Alopecia Tool (SALT) is used in clinical trials to measure the effectiveness of interventions. A SALT score of 20 or less (e.g. if the patient has at least 80% hair regrowth) is considered a meaningful treatment outcome.⁵ However, patients with lesser outcomes can be satisfied with treatment as the condition can have a profound emotional effect on afflicted patients.
- The side effect profile for JAK inhibitors include an increased risk of malignancy, infections, and thrombosis based on data for patients with rheumatoid arthritis.⁶ However, patients with alopecia areata tend to have a different side effect profile. Common side effects include acne and upper respiratory infections.
- Lab abnormalities include cytopenias, elevated liver enzymes, and elevated blood lipids; patients require initial screen for occult infections and monitoring every three months.^{4,7}
- Patients often need to stay on the medication indefinitely as relapse occurs following medication discontinuation, although the lowest efficacious dose should be used.⁸

Teaching Points

- Alopecia totalis is an autoimmune disorder that can be successfully treated with oral JAK inhibitors.
- JAK inhibitors have a significant side effect profile, however, patients with this disorder can suffer severe emotional consequences, and treatment decisions must be made with that in mind.

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CASE # 13

A 48 YEAR-OLD MALE WITH DIGITAL ULCERATIONS AND BLUE DISCOLORATION

Presenters

Sherry Ershadi, BS
Anna Sutherland, MD
Christina Lam, MD
Tania Phillips, MD

History

A 48 year-old male, former 11 pack year smoker (quit 10 years ago), presented to the ED in June of 2021 with a 4-month history of bilateral hand and foot pain with swelling and blue discoloration followed by bilateral painful digital ulcerations and white-yellow drainage of several digits. Labs were notable for elevated WBCs, and X-rays did not show bony involvement.

PMH: Peripheral artery disease, anemia, pulmonary nodule, calculus of kidney, testicular cancer in remission s/p surgery and chemotherapy, body rash thought to be allergic irritant dermatitis from fiberglass

MEDS: Acetaminophen 1000mg q8hrs PRN, Aspirin 81mg QD, Ibuprofen 400mg q6hrs PRN, Lidocaine 4% cream BID, Nifedipine 30mg BID

ALL: Contrast agents (vomiting)

FH: Father has lung cancer

ROS: Arthralgias, tremor, finger numbness, but no associated itching or burning, in addition to those findings noted in the HPI

Physical Examination

On the hands, bilateral 3-5mm digital ulcerations, 3 on the right and 2 on left hand, and 2-5mm dark red macules on remaining fingertips, as well as bilateral ulceration of toes. Bilateral blue discoloration of fingers and toes with some white-yellow drainage.

Nail beds intact without splintering. No skin thickening, telangiectasias, or synovitis.



Laboratory & Imaging Data

CBC with differential showed transiently mildly elevated WBC

HIV and HCV Negative

Positive ANA (antinuclear antibody) 1:80

Scleroderma and rheumatoid arthritis panel negative

Coagulopathy panel negative

CT angiography of bilateral hands demonstrated chronic small vessel distal occlusions of the distal ulnar and radial arteries with corkscrew-appearing collateral vessels.

THROMBOANGIITIS OBLITERANS (BUERGER'S DISEASE) SECONDARY TO CANNABIS

Treatment

- Prior to seeing dermatology, the patient was treated with diclofenac sodium 3% gel 0.5 g every 12 hours for metatarsalgia of the feet. He was also seen in the ED where there was a concern for possible herpetic whitlow or a cutaneous presentation of systemic illness (HIV, HCV), and he was prescribed valacyclovir 1000 mg BID, and 4% topical lidocaine BID PRN for pain.
- One month later, the patient's right index finger ulcer had improved, but a new ulcer had developed on the left index finger. He was seen by rheumatology and suspected to have atypical scleroderma and was started on nifedipine 30 mg daily. The patient reported improvement on nifedipine.
- One week later, scleroderma work up returned negative, the patient was seen by dermatology and he reported active daily marijuana smoking. Thromboangiitis obliterans (TAO), or Buerger's disease, potentially secondary to active marijuana use was favored given the remote tobacco exposure. The patient was advised to stop smoking marijuana and was prescribed po aspirin 81 mg daily and collagenase (Santyl) ointment to apply to digital ulcers daily and mupirocin 2% ointment 1-2 times qd for 1-2 weeks.
- In December 2021, TAO was confirmed by IR angiogram (findings above). Patient reported that his condition had improved with the cessation of smoking marijuana. He has continued treatment with collagenase ointment daily, lidocaine 4% cream as needed for discomfort, and nifedipine 30 mg BID.

Discussion

- TAO is an inflammatory disease that most commonly affects the small and medium-sized arteries and veins of the arms and legs. The typical finding in the acute phase of the disease is a highly cellular, inflammatory thrombus, with generally unaffected, intact vessel walls.¹
- TAO is most prevalent among Ashkenazi Jews and least common in Western Europe and the US.²
- The exact etiology of the disease is unknown, but tobacco exposure is strongly correlated with its progression.³ The typical presentation is a young male current smoker between the age of 40 and 45.¹
- Patients may present with claudication of hands and feet which classically progresses to ischemic pain at rest followed by ulceration of fingers and toes.¹
- Diagnosis of TAO currently lacks set criteria. However, Shionoya⁴ has suggested 5 clinical diagnostic criteria: (1) smoking history; (2) onset < 50 years; (3) infrapopliteal arterial occlusions; (4) either upper limb involvement or phlebitis migrans; and (5) absence of atherosclerotic risk factors other than smoking.
- While classically tobacco smoking has been associated with TAO, more recent studies have looked at its association with cannabis. Some have suggested that the vasoconstrictive effects of cannabis may be an aggravating factor;⁵ others consider cannabis arteritis to be clinically indistinguishable from TAO.⁶

Teaching Points

- TAO is a disease of distal vasculature that is highly associated with cigarette smoking. The most effective treatment is smoking cessation.
- However, other practices, such as marijuana use, should also be considered as cannabis arteritis is thought to be a similar condition associated with marijuana smoking. While the health risks associated with smoking marijuana are still not fully elucidated, it seems reasonable to recommend marijuana cessation in patients with presentations concerning for TAO.

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CASE # 14

A 17 YEAR-OLD FEMALE WITH A NEW BULLOUS ERUPTION

Presenters

Allison M. Perz, MD

Lisa Shen, MD

History

A 17 year-old female with no significant past medical history presented to the ED with a 2 week history of blistering rash. The rash started on her nose, then spread to the rest of the face including lips and oral mucosa, hands/wrists, feet, umbilicus, anus, and genitalia. She had pain associated with the lesions on the oral mucosa, hands, and feet, which were causing significant difficulty eating and walking. The week prior to her ED visit she presented to her pediatrician with painful swelling of her thumb and was prescribed cephalexin for suspected infection, which is the only medication the patient was on. Notably, the blistering had already started prior to initiation of cephalexin. She was on no other medications and denied recent travel.

PMH: None

MEDS: Occasional ibuprofen

ALL: NKDA

FH: Negative for autoimmune disorders

ROS: The patient reported recent onset of fatigue. Denied arthralgias, vision changes, headache, photosensitivity, Raynaud's, shortness of breath, chest pain

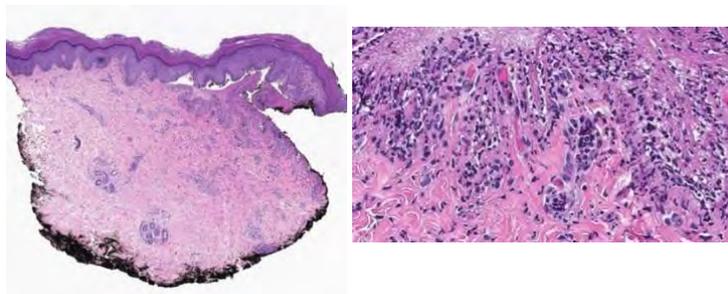
Physical Examination

Well-appearing. On the face, there were tense vesicles and bullae along the margins of the eyelids, on the nose, on the upper and lower cutaneous and vermillion lips, and on the dorsal anterior tongue. There were erosions on the hard palate and gingiva and crusted papules on the nose and medial cheeks. There was a tense cloudy bulla with erythematous base on the wrist and swelling and tenderness of the left third finger proximal nailfold. On the trunk there were crusted papules in the umbilicus. On the genitalia there were tense vesicles and erosions along the labia majora and adjacent to the anus. Nikolsky sign was negative.



Histopathology

Left wrist: Compact orthokeratosis, epidermal hyperplasia, a subepidermal vesicle containing neutrophils exhibiting festooning of dermal papillae, and a superficial perivascular and interstitial neutrophilic infiltrate.



Perilesional skin DIF: Immunostaining was observed with a linear deposition of IgG and C3 at the dermoepidermal junction.

Laboratory Data

ANA 1:1280, speckled pattern; Anti-sm Ab/RNP positive; C3, C4 complement low

CBC and complete metabolic panel WNL

Anti-dsDNA, anti-desmoglein 3, anti-SS-A, anti-SS-B, RF, CH-50 were all negative.

Urinalysis unremarkable. G6PD normal activity.

BULLOUS SYSTEMIC LUPUS ERYTHEMATOSUS

Treatment

- In the ED, patient was recommended to start triamcinolone 0.1% ointment BID while biopsy and G6PD were pending. Four days later, upon receipt of biopsy and laboratory results, patient was started on prednisone 50mg daily and dapsone 25mg daily. Over the next few weeks, dapsone was increased to 100mg daily and hydroxychloroquine 200mg daily was initiated by Rheumatology.
- Due to breakthrough lesions and significant pain, the patient was started on pulse dose IV methylprednisolone and then oral prednisone tapered down over the next month
- Due to progressive neutropenia, dapsone was discontinued and the patient was started on colchicine 0.6mg daily. Today, the patient's symptoms are fully controlled on colchicine 0.6mg and hydroxychloroquine 200mg daily.
- Given the involvement of her hands, for several months she was unable to fully extend her fingers and she was referred to occupational therapy once the bullae healed.

Discussion

- Bullous systemic lupus erythematosus (SLE) refers to an acute bullous eruption in patients who meet criteria for SLE. It often occurs in patients after diagnosis of SLE, though it is occasionally the presenting symptom for patients with undiagnosed systemic disease.^{1,2}
- Bullous SLE typically presents as vesicles and tense bullae distributed primarily on the trunk, extensor upper extremities, neck, and face. The vermilion border of the lips may sometimes be involved, which can be a clue towards diagnosis. Lesions typically heal without milia.^{3,4}
- Histopathologically, it can resemble dermatitis herpetiformis (DH) and is characterized by subepidermal bullae with a dense neutrophilic infiltrate at the papillary tips and abundant mucin deposition in the dermis. On direct immunofluorescence, there is deposition of immunoreactants at the DEJ, and on indirect immunofluorescence of salt-split skin there is immunoreactant deposition on the dermal side.⁵
- The differential diagnosis of bullous SLE includes epidermolysis bullosa acquisita, bullous pemphigoid, and DH. In the absence of a prior diagnosis such as in this case, workup should be initiated for SLE. If there is uncertainty regarding the diagnosis, ELISA can be used to detect autoantibodies against the NC1 and NC2 components of type VII collagen.¹
- There is evidence of an association between active lupus nephritis and bullous SLE.⁶ Thus, patients presenting with bullous SLE should be worked up for systemic involvement with CMP and urinalysis.
- First line treatment for bullous SLE is dapsone initiated at 1.5mg/kg for children and 25-100mg for adults. Classically, bullous SLE responds rapidly to dapsone, which can be another clue towards diagnosis.
- Second-line treatments include colchicine, hydroxychloroquine, corticosteroids, mycophenolate mofetil, and rituximab.⁷

Teaching Points

- Bullous SLE refers to an acute bullous eruption in patients with SLE and sometimes represents the first presentation of SLE for patients without a previous diagnosis. It presents as tense bullae and vesicles distributed classically on the trunk, upper extremities, neck, and face, and involvement of the oral mucosa and vermilion border of the lips can be a clue to diagnosis.
- Diagnosis is made by biopsy of lesional and perilesional skin and lab work revealing concurrent SLE. ELISA identification of circulating anti-type VII collagen autoantibodies can assist in diagnosis.
- Special attention should be paid to monitor for active systemic disease, as there has been shown to be an association between bullous SLE and active renal and hematologic disease.

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CASE # 15

A 36-YEAR-OLD FEMALE WITH DISSEMINATED HYPOPIGMENTED PAPULES

Presenters

Reina González, MD
Lynne J. Goldberg, MD
Christina Lam, MD

History

36 year-old Ugandan woman with perinatally-acquired HIV presented in 2021 with a history of multiple hypopigmented rough papules on her face since six years of age. Over time, similar lesions developed on her chest, back, arms and hands. All have remained stable and asymptomatic but are very distressing to patient. Of note, patient recalls visiting clinic in Uganda where other patients appeared to have lesions like hers. She received a trial of creams then without improvement. No biopsy or other testing performed.

PMH: Perinatally-acquired HIV (diagnosed in her teens) with strict ART adherence and undetectable viral load, Class IV TB s/p treatment, MDD on SSRI, SBO s/p exploratory laparotomy, menorrhagia

MEDS: Bictegravir/emtricitabine/tenofovir alafenamide, paroxetine

ALL: NKDA

FH: Patient is an only child, has half siblings as her mother has 2 other sons and 3 other daughters. None of her half-siblings, parents, grandparents, or more distant relatives are known to have skin conditions or skin cancer. The family is of Ugandan descent on both sides. No known consanguinity or history of known genetic syndromes in the family

ROS: Negative for fever, chills, night sweats and malaise

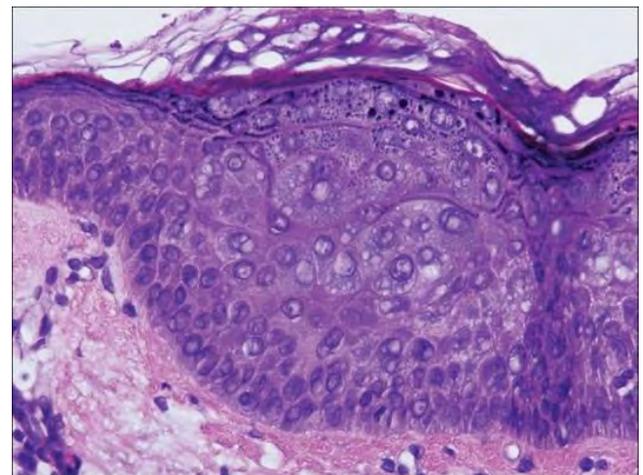
Physical Exam

Many hypopigmented macules and thin verrucous papules coalescing into patches and thin plaques predominantly on face extending to posterior auricular area and posterior neck; a few similar lesions on upper back, chest, and arms. On dorsal hands, many scattered ill-defined hypopigmented macules.



Histopathology

Left posterior auricular area: Hyperkeratosis, hypergranulosis, and epidermal hyperplasia with enlarged keratinocytes in the upper epidermis exhibiting characteristic pale blue cytoplasm.



Laboratory Data

Primary immunodeficiency panel: This test did not identify any pathogenic variants, including genes TMC6 and TMC8, as well as RHOH and CXCR4.

ACQUIRED EPIDERMODYSPLASIA VERRUCIFORMIS

Treatment

Patient was started on tretinoin 0.025% cream nightly to affected areas of face, neck and behind ears, and fluorouracil 5% cream to affected areas of back and arms once daily twice a week with increase in frequency depending on response and tolerability. Sun protection and regular skin exams were recommended. Niacinamide 500mg twice a day was added for chemoprevention and antiretroviral therapy was continued. After a month, significant improvement and flattening of lesions on the face with the use of tretinoin 0.025% cream nightly and some improvement on the extremities with the use of fluorouracil 5% daily was observed. Fluorouracil 5% cream was increased to twice daily and consistent improvement was appreciated next visit. After four months of starting therapy, patient became pregnant, and treatment was discontinued. Genetic testing did not identify a genetic mutation associated with EV making it quite unlikely for her offspring to inherit a predisposition to this skin condition and confirming the diagnosis of acquired EV. Ten months after discontinuation of therapy, post-partum, not breastfeeding and using birth control, patient returned with mild progression but otherwise stable lesions. The same treatment was reinitiated.

Discussion

- Epidermodysplasia verruciformis (EV) is a rare inherited skin disorder associated with mutations of the EVER1/TMC6, EVER2/TMC8, as well as several other genes. It is characterized by an increased susceptibility to specific human papillomavirus (HPV) genotypes leading to disseminated eruptions of hypo- and hyperpigmented wart-like lesions and increased risk of developing nonmelanoma skin cancer.¹
- The term “acquired” EV was coined to describe acquired phenotypes distinct from genetic EV that can develop in patients with a compromised immune system secondary to HIV, medications, post-transplantation, and primary immunodeficiencies.²
- Acquired EV (AEV) is caused by beta-HPV-5 and -8, among others,³ and develops most commonly in HIV patients with clinical features indistinguishable from genetic EV.¹ The pathogenesis is not clear. The development of these lesions has been shown to be unrelated to the CD4+ count and viral load³ and lesions do not necessarily improve despite immune reconstitution with combination antiretroviral therapy.⁴
- Histopathologic findings of AEV most often reveal a focally thickened and disrupted granular layer with enlarged keratinocytes containing blue-gray cytoplasm. Higher magnification of the altered keratinocytes reveals variable sized keratohyalin granules, enlarged round nuclei with pale chromatin, and one or multiple small nucleoli.^{4,5}
- The treatment of AEV is not standardized, with conflicting responses to therapy. Successful AEV treatment regimens including topical cidofovir, topical tretinoin, topical imiquimod, topical glycolic acid, HPV vaccines, oral acitretin or combination therapy, have been described.⁶ However, follow-up has often revealed recurrence.
- Patients with AEV should have close surveillance for potential skin malignancy. HPV typing and direct HPV L1 gene sequencing can help predict which AEV lesions may have increased risk of malignant transformation to SCC.¹

Teaching Points

- EV is a rare but important non-genital manifestation of HPV in the immunocompromised host.
- Despite the differing classification, clinical lesions of AEV present similarly, both macro- and microscopically, to genetic EV.
- As in the genetic form of EV, mainstays of treatment for AEV include interferon, topical and systemic retinoids, and topical imiquimod. Close surveillance for potential skin malignancy should be performed in these patients.

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CASE # 16**A 28 YEAR-OLD FEMALE WITH SKIN DISCOLORATION AND PAPULES ON THE BACK AND EXTREMITIES****Presenters**

Nikki Zangenah, BA
 Daisy Yan, MD
 Gregory Orłowski, MD, PhD, FAAD

History

A 28-year-old female presented in January 2022 for asymptomatic papules on the back and extremities that began 2 years prior during pregnancy. The bumps had been increasing in size and number since onset, and two located on the back recently became irritated. She also had asymptomatic skin discoloration of the left abdomen and left inner thigh, which had been present since childhood. Her 20-month-old daughter had similar areas of discoloration as well. The patient had not received prior treatment for the bumps, and she denied bumps in any family members.

The patient is otherwise healthy with an unremarkable medical history. She is a full-time mother and lives at home with her husband and 20-month-old daughter.

PMH: None

MEDS: Azelastine nasal spray, ibuprofen PRN, calcium, vitamin D, daily multivitamin

ALL: NKDA

FH: Daughter has tan macules

ROS: Denies fever, chills, joint pain, joint swelling, urticaria, or hay fever

Physical Examination

On the trunk, there were light brown hyperpigmented patches with dense freckling involving left chest (where they stop abruptly at midline), right upper back, and mid lower back extending to left flank. Café-au-lait macules and patches (10 of which > 1.5 cm were noted on the left abdomen, left inner thigh, left buttock, and left leg. Intertriginous freckling (+Crowe's sign) was noted on the left axillae and left groin. Soft, skin-colored papules with a positive buttonhole sign were present on the left mid back, right flank, right buttock,

and lateral thigh. On the right forearm was a soft, ill-defined subcutaneous nodule with a "bag of worms" texture. The left eye had 1-2 well-defined, dome-shaped papules on the inferior iris. On the face and limbs were multiple scattered, small, evenly-pigmented papules and macules.



SEGMENTAL NEUROFIBROMATOSIS TYPE 1

Treatment

- The patient met criteria for neurofibromatosis type 1 (NF1), including 6+ café-au-lait macules, 2+ neurofibromas, and intertriginous freckling confirmed on physical examination. Other pertinent findings were 1-2 Lisch nodules (2+ is diagnostic) and a suspected affected first-degree relative, her daughter, who is reported to have café-au-lait macules. Given that almost all findings were limited to the patient's left side, a diagnosis of mosaic NF1 (MNF1) was made, also known as segmental or type V neurofibromatosis.
- The patient was counseled on the genetic etiology of MNF1 and potential for having passed on the non-segmental form to her daughter. Initially, the plan was to refer both the patient and her daughter to the pediatric dermatology clinic at BMC, and to perform an urgent biopsy of patient's right forearm to rule out plexiform neurofibroma.
- At Grand Rounds shortly afterwards, the patient's case was presented for discussion of treatment and management. The consensus was that biopsy of the suspected plexiform lesion was not indicated, and the patient and her daughter should be referred to the multidisciplinary NF1 clinic at Mass General Hospital/Boston Children's Hospital.

Discussion

- Neurofibromatosis is classified as type 1 or type 2, of which type 1 is more common. Both are inherited in an autosomal dominant pattern, and it is estimated that ~50% of patients are the first affected member of their family.¹
- NF1 is a complex condition with wide phenotypic variation spanning many organ systems. Diagnosis is clinically based and criteria includes **2 or more of the following**: 6+ café-au-lait macules (>5 mm pre-pubertal and >15 mm post-pubertal), axillary or inguinal freckling, 2+ neurofibromas or 1 plexiform neurofibroma, optic glioma, 2+ Lisch nodules, characteristic skeletal dysplasia (long bone or sphenoid wing), and an affected first-degree relative.²
- Mosaicism is a genetic phenomenon in which an individual carries more than one distinct cell line through X-inactivation in females or post-zygotic mutational errors. Mosaicism from mutations later in embryonic development presents clinically as localized or segmental findings.¹ In the case of mosaic NF1 (MNF1), cutaneous findings are usually unilateral and limited to specific dermatomes but can involve up to half of the body. Bilateral symmetric or asymmetric distribution can also occur.¹
- NF1 is associated with various complications including cognitive impairment, seizures, orthopedic and ophthalmologic abnormalities, hypertension, renal artery stenosis, pheochromocytoma, and increased risk of malignancies. Importantly, these complications are relatively rare in individuals with MNF1.^{1,3}
- Management of NF1 consists of screening for complications and referral to the appropriate specialties such as neurology, oncology, cardiology, nephrology, ophthalmology, orthopedics, endocrinology, and genetic counselling. Treatment is mainly aimed at symptomatic control of symptomatic neurofibromas with excision, laser destruction, or electrocautery.
- Individuals with MNF1 should be followed to monitor for plexiform neurofibromas which can be at risk for transformation to malignant peripheral nerve sheath tumors (MPNSTs).⁴

Teaching Points

- NF1 is a complex condition with characteristic skin findings and multiorgan involvement. Upon diagnosis, patients should be screened for other organ system involvement, and prompt referral should be made to the corresponding specialties.
- MNF1 results from genetic mosaicism and is importantly associated with a lower risk of complications.

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CASE # 17

A 45 YEAR-OLD FEMALE WITH PERSISTENT, PRURITIC, AND TENDER LESIONS ON MID BACK

Presenters

Nikki Zangenah, BA
Eleni Pilitsi, MD
Shreya Patel, MD
Christina Lam, MD
Lynne J. Goldberg, MD

History

A 45 year-old female presented in October 2022 for evaluation of a lesion on the mid back that was itchy, tender when pressed upon, and persistent since 2010. The patient noted that she had developed another smaller lesion recently, and the lesions were asymptomatic when pressure was not applied. The patient had several “skin tags” on her back removed in April 2022 via excision followed by electrocautery by her PCP.

PMH: Latent tuberculosis, hypertension, fibroids, acne vulgaris, low back pain with sciatica

MEDS: Prenatal vitamins

ALL: NKDA

FH: Negative for known skin conditions

ROS: 12-point ROS negative

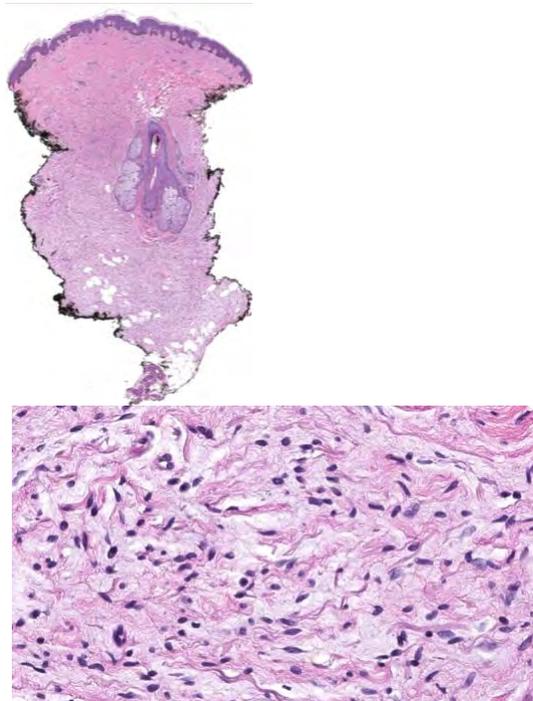
Physical Examination

On the mid back was one 2.5 cm hyperpigmented oval mildly-depressed plaque, and a few depressed papules inferiorly. On the lower back were pedunculated small skin-colored papules.



Histopathology

A 4mm punch biopsy of the mid back was obtained and showed an unencapsulated tumor in the mid dermis extending to the subcutaneous fat. The epidermis and dermis are otherwise unremarkable. The tumor is composed of spindle cells with wavy nuclei and scattered mast cells in a loose myxoid stroma, consistent with neurofibroma. Clinicopathologic correlation favors the pseudoatrophic variant of neurofibroma.



PSEUDOATROPHIC NEUROFIBROMA

Treatment

- Given the small number, minimal symptoms, and stability of the lesions, the decision was made to defer surgical excision and proceed with clinical monitoring.
- In the absence of findings suggestive of neurofibromatosis type 1 (NF-1), to make this diagnosis, two or more neurofibromas, in addition to a pathogenic genetic NF1 variant, would be required.
- Alternatively, for a diagnosis of segmental or mosaic NF-1, two or more neurofibromas fulfill criteria, even in the absence of a pathogenic genetic NF1 variant, family history or other clinical signs.
- Thus, the patient was referred to genetics for counseling and possible testing. In addition, a shave biopsy of the fleshy skin lesion on the back will be performed to differentiate among dermal nevus, hypertrophic scar, and neurofibroma.

Discussion

- Cutaneous neurofibromas are usually soft, flesh-colored or slightly tan, sessile or pedunculated papules or nodules. However, there is a rare clinicopathologic variant that is characterized by pseudoatrophic macules or patches. These neurofibromas can be present at birth or arise during puberty and appear as soft, dome-shaped, blue-grayish macules or patches with an atrophic surface, predominantly over the trunk.¹ Pruritus is a common symptom of neurofibromas.
- The pseudoatrophic variant of NF has been associated with a diagnosis of NF-1, particularly segmental or mosaic NF-1. Pseudoatrophic macules or patches have been described in only ~7% of pediatric or adolescent populations with NF-1.^{1,2,3}
- On histological examination, pseudoatrophic macules or patches display reduced collagen in the reticular dermis with diffuse replacement by neuroid tissue. Clinically, this results in the lesion appearing thinner, softer, and depressed relative to the surrounding normal skin.^{5,6}
- However, absence of true histopathologic dermal atrophy or hypoplasia can help differentiate pseudoatrophic neurofibromas from other conditions associated with skin atrophy. The differential diagnosis includes neurofibromatous dermal hypoplasia, atrophoderma of Pasini and Pierini, anetoderma, dermal dendrocyte hamartoma, nevus, cutaneous amyloidosis, and morphea.
- Identifying the histopathologic and clinical signs of pseudoatrophic neurofibromas can aid in the early detection of NF-1.⁶
- Treatment is not necessary for solitary cutaneous neurofibromas. Surgical excision can be performed when the diagnosis is in question or when removal is desired due to discomfort or cosmetic concerns.

Teaching Points

- Pseudoatrophic neurofibromas are a rare variant of cutaneous neurofibromas associated with NF-1 and particularly segmental or mosaic NF-1. They appear atrophic clinically, but do not show true atrophy or hypoplasia histologically. This distinguishes them from other lesions such as dermal dendrocyte hamartoma, atrophoderma, or anetoderma.
- Identification of pseudoatrophic neurofibromas can aid in early diagnosis of NF-1 in combination with other criteria or segmental or mosaic NF-1 in the absence of other criteria.

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CASE # 18

A 52 YEAR-OLD FEMALE WITH FACIAL PAPULES

Presenters

Soobin Song, BS, MS

Zizi Yu, MD

Tania J. Philips, MD

History

A 52 year-old female with history of recurrent pneumothorax presented in 2013 with multiple asymptomatic skin-colored 2 mm papules on the bilateral cheeks and neck, that she had for over 15 years. Punch biopsies of two lesions revealed angiofibromas. In August of 2014, she underwent *FLCN* genetic testing, which showed c.1258delC deletion. Follow up MRI of the abdomen showed 7mm cyst on inferior right kidney pole and tiny cysts on superior left kidney pole. On follow up visit in 2020, the patient reported new asymptomatic skin-colored bumps on face and along the gums. MRI noted unchanged kidney findings.

PMH: Recurrent pneumothorax s/p wedge resection and pleurodesis after 4th episode in 2011, dyshidrotic eczema, type II diabetes, hyperlipidemia

MEDS: Dulaglutide, insulin, atorvastatin

ALL: NKDA

FH: Maternal uncle with pneumothorax and pleural cyst and maternal grandmother with facial papules.

SH: Former smoker, 2-pack year

ROS: Unremarkable

Physical Examination

Several skin-colored papules on the central face, one papule with telangiectasias on the nasal tip, and multiple light brown pedunculated and skin-colored papules on the neck.



Histopathology

Punch biopsies of the left cheek and left lateral neck (12/12/2013) were consistent with angiofibroma

Laboratory & Imaging Data

MRI Abdomen (2/13/2019): Stable 7mm cyst within the inferior right kidney pole and punctate T2 hyperintensities within the superior left kidney pole likely representing tiny cysts

Genetic testing

FLCN gene test (8/28/2014): positive for deleterious mutation c.1285delC

Treatment

Patient deferred excision of asymptomatic skin findings due to risk of scarring. It was suggested that she have yearly dermatology exams, an abdominal MRI every three years, yearly urinalysis and cytology, and periodic renal ultrasounds.

BIRT-HOGG-DUBE SYNDROME

Discussion

- Birt-Hogg-Dubé (BHD) syndrome is an autosomal dominant disorder caused by a germline mutation in the *FLCN* gene with over 150 unique mutations identified.¹ The *FLCN* gene encodes the protein folliculin.¹ Common presentations include benign skin tumors, spontaneous pneumothorax, lung cysts, renal cysts, renal tumors and carcinomas.¹ Cutaneous features include adult onset of fibrofolliculomas, trichodiscomas, and acrochordons commonly seen on the face, neck, and upper torso.¹ Facial angiofibromas have also been reported as the initial or predominant cutaneous finding in BHD.^{2,3}
- The European BHD consortium proposed guidelines for diagnosis include fulfillment of either one major or two minor criteria below:⁶
 - Major criteria:
 1. At least five fibrofolliculomas or trichodiscomas, at least one histologically confirmed, of adult onset.
 2. Pathogenic *FLCN* germline mutation.
 - Minor criteria:
 1. Multiple lung cysts: bilateral basally located lung cysts with no other apparent cause, with or without spontaneous primary pneumothorax.
 2. Renal cancer: early onset (<50 years) or multifocal or bilateral renal cancer or renal cancer of mixed chromophobe and oncocytic histology.
 3. A first degree relative with BHD.⁶
- Approximately 80% of patients develop pulmonary cysts, commonly affecting the lung bases. Patients are at about a 50-fold increased risk of spontaneous pneumothorax.⁶ Renal tumors occur in up to 30% of patients; the most common types are chromophobe tumors and hybrid chromophobe/oncocytic tumors. Clear cell carcinoma, papillary carcinoma, and mixed-type carcinoma may also occur.⁶
- Patients should have regular pulmonology and nephrology follow up with counseling about increased risk of pneumothorax with smoking, air travel, and scuba diving. There are no specific guidelines for lung and kidney disease surveillance but patients should have routine CT and MRI imaging.⁶ Genetic testing is strongly recommended for offspring as penetrance is high and clinical expression is greatly variable.⁴ There is no medical therapy, but laser ablation and excision have been used to treat skin lesions.⁴

Teaching points

- Birt-Hogg-Dubé syndrome presents with multiple benign skin tumors, spontaneous pneumothorax, lung cysts, renal cysts, renal tumors and carcinomas.
- No treatment is generally indicated for the skin lesions, but routine imaging is necessary to screen for presence and progression of pulmonary and renal cysts.
- Genetic testing is recommended for definitive diagnosis of the condition and for offspring of all affected patients.

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CASE # 19**A 46 YEAR-OLD MALE WITH LINEAR VERRUCOUS PLAQUES****Presenters**

Sarem Rashid, BS, MS3
 Alexandria Riopelle, MD
 Gabriella Melson, MD
 Candice Brem, MD
 Gregory Orłowski, MD, PhD

History

A 46 year-old Haitian male presented to BMC dermatology with a pruritic birthmark located on the left back, left axilla, left abdomen, and left leg. Throughout patient's childhood, the lesion grew in proportion to him over time. In 2004, a large area of the birthmark was excised in the Dominican Republic from the left posterior neck, consequently resulting in keloid formation. During his visit, the patient pointed out an area of the birthmark that tended to bleed. This area was biopsied for evaluation to rule out malignancy.

PMH: Acne vulgaris, generalized anxiety disorder, inguinal hernia, gastroesophageal reflux disease, hyperlipidemia

MEDS: None

ALL: NKDA

FH: No family history of similar skin lesions. Mother with diabetes mellitus, father with hypertension.

ROS: Denies fevers/chills, nausea, vomiting

Physical Examination

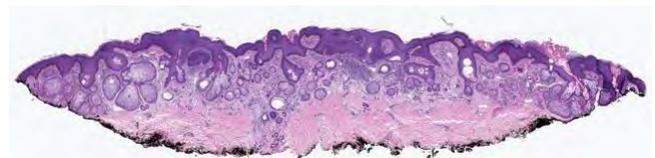
Numerous brown-pink verrucous papules and plaques on the left upper and lower back extending onto left chest, axilla, abdomen, and left thigh in a Blaschkoid distribution.



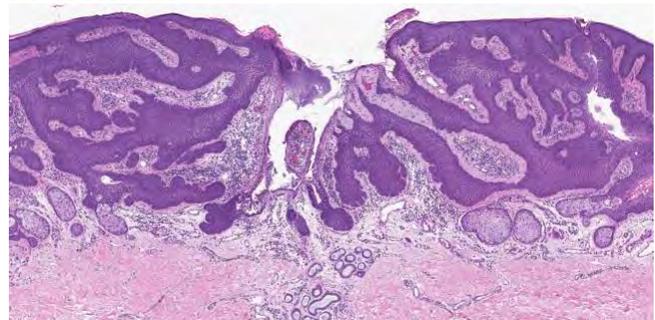
Focally on the left mid back, there is a bright pink friable papule concerning for a basal cell carcinoma with an adjacent black corrugated papule.

Histopathology

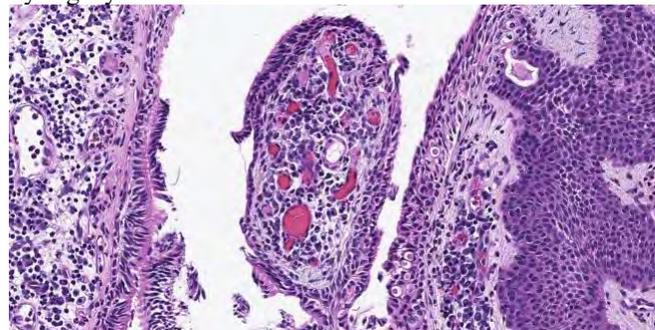
Lower back and mid back (2/26/2021, 6/27/2022): Syringocystadenoma papilliferum arising in association with a nevus sebaceus.



Nevus sebaceus



Syringocystadenoma



Syringocystadenoma

BLASCHKOID NEVUS SEBACEUS IN AN UNUSUAL LOCATION

Treatment

Patient was prescribed triamcinolone 0.1% ointment twice daily. Future therapies are being discussed.

Discussion

- Nevus sebaceus, also termed organoid nevus, is a congenital hamartoma with follicular, sebaceous, and apocrine components typically located on the scalp or face in a Blaschkoid distribution and infrequently seen on the trunk and extremities.¹⁻³ These lesions appear smooth at birth with associated alopecia and become verrucous over time during adolescence. There are reports of large, widespread lesions with histopathology demonstrating nevus sebaceus, and extensive nevus sebaceus has been associated with neurologic and skeletal abnormalities.^{3, 4}
- Approximately 95% of nevi sebaceus have a postzygotic HRAS mutation and 5% show a KRAS mutation.⁵ Secondary neoplasms, primarily benign follicular germinative neoplasms, can arise from nevus sebaceus. The most recent data shows that trichoblastoma followed by syringocystadenoma papilliferum (SCAP) appear most frequently.⁶ Less common secondary neoplasms include trichilemmoma, desmoplastic trichilemmoma, sebaceous adenoma, apocrine adenoma, and poroma.² These benign neoplasms often contain the same postzygotic mutation as the original nevus sebaceus.⁷ Basal cell carcinoma is the most frequently described secondary malignancy, but represents less than 1% of secondary neoplasms.^{6, 8}
- Histologically, early nevus sebaceus demonstrates malformed follicular units with small apocrine glands. During adolescence, the apocrine glands become larger and more developed, and the nevus develops hyperkeratosis, acanthosis, and papillomatosis akin to other epidermal nevi, and these changes correspond to the cerebriform appearance seen clinically.⁹
- SCAP is a benign adnexal tumor that originates from apocrine or eccrine glands. It typically arises on the face and scalp, although may also present on the eyelids, genitalia, and inguinal skin.^{10, 11} SCAP can present at birth or can be acquired during childhood or adulthood. One third arise within a preexisting nevus sebaceus. Although typically benign, syringocystadenocarcinoma papilliferum and ductal carcinoma may arise from SCAP.^{10, 12}
- No treatment is required for nevus sebaceus. However, many dermatologists opt to treat due to the high risk of developing benign secondary neoplasms and lower risk of developing malignancy in association with the lesion.² Options for large sebaceous nevi include surgical excision with skin grafting, carbon dioxide laser therapy, and photodynamic therapy with varying degrees of treatment success.^{3, 13, 14}

Teaching Points

- Nevus sebaceus is a benign hamartoma that typically presents on the scalp but can be seen in other locations on the body, including the trunk and extremities.
- Though most secondary neoplasms are benign, clinicians should carefully examine these nevi for signs of secondary malignancy. Removal may be warranted.

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NOTES
