Chicago Dermatological Society

June 2014
Monthly Educational Conference

Program Information
Continuing Medical Education Certification
Case Presentations

Wednesday, June 11, 2014

Conference Host:
Division of Dermatology
Loyola University Medical Center
Maywood, Illinois

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Program

Conference Location

Stritch School of Medicine/Cuneo Center
Loyola University Medical Center
2160 South First Avenue, Maywood

Program Events

8:00 a.m.	**Registration & Continental Breakfast** *Main Lobby - Cuneo Center*
9:00 a.m. - 10:00 a.m.	**General Session – Resident Lecture** *Tobin Hall Room 190* Cancer Genodermatoses *Edward W. Cowen, MD, MHSc*
9:30 a.m. - 10:45 a.m.	**Clinical Rounds** • Patient & Poster Viewing - *Seminar Rooms 363, 364, 396, 397, 431, 463, 464, 496, 497 (signs will be posted)* • Slide Viewing - *Room 398*
11:00 a.m. - 12:00 p.m.	**General Session – *Guest Lecture*** *Tobin Hall Room 190* New Syndromes and Interesting Cases From the NIH *Edward W. Cowen, MD, MHSc*
12:00 p.m. - 12:30 p.m.	**Working Lunch Break** *Box lunches will be served in Room 170* *Please return to the lecture room so the business meeting can start as soon as possible during the lunch break*
12:40 p.m. - 12:50 p.m.	**CDS Business Meeting** *Tobin Hall Room 190*
12:50 p.m. - 2:30 p.m.	**General Session** – Case Discussions *Tobin Hall Room 190*
2:30 p.m.	**Meeting adjourns**

Mark the Date!

Next CDS monthly meeting – Wednesday, October 8, 2014 at the University of Illinois

Check for details on the CDS website: www.ChicagoDerm.org

Program Participant

Guest Speaker

EDWARD W. COWEN, MD, MHSC

Assistant Professor in Dermatology, Brigham and Women's Hospital; Boston, MA

Head, Dermatology Consultation Service, Senior Clinician
National Institutes of Health, Center for Cancer Research
National Cancer Institute; Bethesda, MD

Biography

Dr. Cowen received his B.S. in biology and society from Cornell University and his M.D. from the Pennsylvania State University College of Medicine. He then went on to receive specialty training in dermatology and serve as chief resident at the University of Rochester. Dr. Cowen completed a clinical research fellowship in the Dermatology Branch and the Master's program in clinical research from Duke University before joining the Senior Staff in 2004. Since 2009, Dr. Cowen has served as Head of the Dermatology Consultation Service.

Research

Dermatology Consultation Service

Dr. Cowen oversees the Dermatology Consultation Service at the NIH Clinical Center. Patients with a variety of rare diseases with cutaneous manifestations are evaluated. In addition, patients who experience adverse reactions to experimental therapeutic agents or manifest unrelated skin conditions while at the NIH are evaluated and treated. Dermatology Branch clinical fellows, fellows from other NIH Institutes, and visiting dermatology residents from around the country receive training on the Dermatology consult service. 'Grand Rounds at the NIH', an ongoing feature published in the Journal of the American Academy of Dermatology, highlights interesting cases evaluated by the Dermatology consultation service.

Dr. Cowen's primary research interest involves chronic graft-versus-host disease (cGVHD) and autoinflammatory diseases. He is Co-Study Chair of a multi-disciplinary NIH initiative aimed at the study and treatment of cGVHD (NCI #04-C-0281) and Principal Investigator of a therapeutic study of anakinra for pustular skin disease(NCI #13-C-0071)

CME Financial Disclosure: No conflicts to report.

Chicago Dermatological Society

"Chicago Dermatological Society Monthly Meeting Series"

June 11, 2014 *Maywood, IL*

OBTAINING YOUR CERTIFICATE OF CREDIT

Participants must attend the entire session to receive credit. Please be sure to sign the attendance sheet located the registration table before you leave the conference. Also, we ask that you complete the evaluation form and return it to the registration table. A certificate will be mailed to you upon conclusion of the meeting. The information collected as part of this process represents an important part of the CME planning process. CFMC will retain a record of attendance on file for six years.

JOINT SPONSORSHIP STATEMENT

This educational activity is jointly sponsored by CFMC and the Chicago Dermatological Society.

GOAL / PURPOSE

To broaden the clinical knowledge of dermatologists.

TARGET AUDIENCE

This activity has been designed to meet the educational needs of physicians and other healthcare professionals.

FACULTY

Edward W. Cowen, MD, MHSc

EDUCATIONAL OBJECTIVES

Upon completion of this series, participants should be able to:

1. Discuss key factors in the diagnosis and treatment for a variety of dermatologic diseases and conditions, including psoriasis, hair disorders, and dermatological symptoms of systemic diseases.

2. Describe the manifestation of skin cancers and the efficacy of treatments available to the dermatologist.

3. List the therapeutic options available to the dermatologist for a variety of skin diseases, both medical and surgical, and discuss how new emerging treatments can be successfully

PHYSICIAN ACCREDITATION STATEMENT

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of CFMC and the Chicago Ophthalmological Society. CFMC is accredited by the ACCME to provide continuing medical education for physicians.

CFMC designates this live activity for a maximum of 4.5 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

OTHER HEALTHCARE PROFESSIONALS STATEMENT

This educational activity has been planned and implemented following the administrative and educational design criteria required for certification of health care professions continuing education credits. Registrants attending this activity may submit their certificate along with a copy of the course content to their professional organizations or state licensing agencies for recognition for 4.5 hours.

DISCLOSURE STATEMENT

It is the policy of CFMC and the Chicago Dermatological Society that the faculty discloses real or apparent conflicts of interest relating to the topics of the educational activity.

All members of the faculty and planning team have nothing to disclose nor do they have any vested interests or affiliations.

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CHICAGO DERMATOLOGICAL SOCIETY **CASE # 1**

Presented by Ricardo Berrios, MD, Laura Winterfield, MD, MPH, and Edward Cowen, MD, MHSc
Division of Dermatology, Loyola University Medical Center
Undiagnosed Disease Clinics, National Institutes of Health

HISTORY OF PRESENT ILLNESS

This 21 year-old, Caucasian male presented to our clinic 3 years ago for evaluation and management of hidradenitis suppurativa in association with a severely debilitating, systemic, inflammatory condition characterized by severe arthritis, arthalgias and febrile episodes. Previously a very healthy and active boy, he (along with various family members) developed a bout of self-limited gastroenteritis in January 2009. Over the next month, he began to have intermittent fatigue and myalgias but was able to remain active. In March of the same year, he experience a flu-like illness with sore throat, fever, body aches, cough, and congestion. These symptoms failed to resolve, and continued increasing in frequency – sore throats would be characterized by searing pain, and fevers would reach 104^{o} F. Evaluation by his primary care physician was unremarkable. By May, his fevers began occurring daily, often accompanied by a rash across his trunk that would last a few hours. These symptoms along with his debilitating arthritis rendered him incapable of engaging in his usual activates of attending school and playing sports; he would spend most of the day any night in a recliner. He was admitted to a children's hospital where he was ultimately diagnosed with Still's disease (systemic juvenile idiopathic arthritis) and discharged on oral prednisone. He continued to experience breakthrough symptoms and was switched to pulse-dosed intravenous methylprednisolone for three days with little improvement. His course with further complicated by recurrent episodes of pericarditis requiring several hospitalizations between June and August 2009. He also developed pericardial and pleural effusions and a hypotensive episode that required a brief stay in the intensive care unit; this was thought to be due to a cytokine storm secondary to his diagnosis of Still's disease.

Over the next several months, he was tried on several mediations including anakinra, methotrexate, misoprostol, indomethacin, cyclosporine, intravenous immunoglobulin, and various antibiotics for presumed Lyme disease. He was eventually started on tocilizumab (a monoclonal antibody against interleukin-6), which eliminated his fevers, rash, pericarditis, and inflammatory serum markers. After 9 months, the tocilizumab was stopped due to a perceived lack of efficacy but was quickly restarted after recurrence of fevers and elevations in inflammatory markers.

Over the next year, he continued to experience widespread arthritis but developed new, cutaneous lesions consistent with hidradenitis suppurativa. He was referred to our clinic in October 2011 for further management where he was continued on minocycline and topical agents (clindamycin, chlorhexidine) and referred to the Undiagnosed Disease Program at the National Institutes of Health in Bethesda, Maryland. Upon initial evaluation there in February 2012, he was continued on tocilizumab, and adalimumab was added with little improvement.

He was admitted to the NIH facilities in May 2012 for complete evaluation and work-up. After extensive studies and consultations, it was determined that he should re-start anakinra (to which he had a good response) and continue that therapy at home. Because of the need for frequent administration and need for an indwelling vascular port, he was switched to canakinumab, a similar agent that targets IL-1B and that can be administered less frequently via subcutaneous injection.

He has responded remarkably well to this agent with complete resolution of fevers and arthritis. His range of motion is limited due to fusions of various joints, but he has been able to re-start most of previous activities and is currently enrolled in college. He continues to follow with various divisions in the Undiagnosed Disease Program at the NIH in conjunction with physicians at Loyola for management for his other co-morbidities.

PAST MEDICAL HISTORY
Atypical Still's disease
Hidradenitis suppurativa
Cervical spine fusion
Wrist fusion
Chronic pain
Pericarditis
Hypothyroidism
Insulin-dependent diabetes mellitus (secondary to steroid use, now resolved)

MEDICATION
Current regimen:
Canakinumab 300 mg injected subcutaneously every six weeks
Minocycline 50 or 100 mg daily to BID
Chlorhexidine washes
Acne wash (over the counter)

Previous treatments:
Anakinra
Tocilizumab
Adalimumab
Methotrexate
Cyclosporine
Prednisone
Hydroxychloroquine
Intravenous immunoglobulin
Narcotics, NSAIDs
Acupuncture
Medical hypnosis

ALLERGIES
None

FAMILY HISTORY
None

SOCIAL HISTORY
College student, lives with parents.
Denies any tobacco, ethanol, or illicit drug use.

PHYSICAL EXAM
From May 2012 (NIH):
Vital Signs: T 35.8 P 76 BP 125/63 R 12 SpO2 100% on RA

General: Alert, awake, comfortable, cooperative, NAD, nontoxic.
HEENT: PERRL, dilated 6mm, no scleral pallor or icterus. No nasal or perioral ulcers. Oral exam limited, oral aperture size 0.5 fingerbreadths
Neck: No cervical lymphadenopathy. No thyromegaly. Neck with absent flexion/extension, ROM 10 degrees both sides with lateral flexion
Lungs: Good air movement bilaterally. No crackles or wheeze. Clear to auscultation bilaterally
Cardiovascular: Regular rhythm, normal rate, S1, S2. No murmurs, rubs or gallops.
Abdomen: Soft, nontender, nondistended. Normoactive bowel sounds. No organomegaly.
Neurologic: No focal deficits.
Musculoskeletal:
Limited ROM of TM joints as described
Hands: No tenderness or synovitis of MCPs, PIPs and DIPs. Good range of motion
Wrists: bilateral absent range of motion. No tenderness
Elbows: normal
Shoulders: bilateral anterior tenderness. Left sided pain on abduction and extension. Limited ROM to 20 degrees external rotation
Spine and SI joints: Cervical spine limited ROM as described. Mild sacroiliac tenderness
Hips and knees: normal
Ankles and feet: No swelling or tenderness. No tenderness with MTP squeeze
Skin:
Bilateral cheeks with pink erythema.
Chest with atrophic, red to violaceous, spread scars.
Left upper abdomen with a 10 x 7 cm area of irregular, faint, patchy erythema with slight palpability; areas of linear morphology noted within.
Left lower flank with a discrete, 3 x 2 cm, erythematous, blanchable plaque; no overlying, surface change.
Bilateral knees and ankles with ill-defined, brown hyperpigmentation.
Bilateral axillae with no actively draining nodules or sinus tracts.
Nails are unremarkable.

LABORATORY RESULTS

From May 2012 (NIH) during a flare:
WBC 24.45 (Neut 82.4%, ANC 19920)
Hgb 11.4
ESR 20
CRP 82.2
Ferritin 239

RADIOLOGY:

From May 2012 (NIH):
Bone scan – abnormal increased bone scan activity at multiple joints, most focally at the right TMJ joint, the upper cervical spine, the wrists and thumbs, T12 vertebra, and the right foot tarsal region
MRI of the pelvis – bilateral sacroiliitis
MRI of the temporomandibular joint – marked, bilateral deformities of the condylar heads of the mandibular rami

MRI of the cervical, thoracic, and lumbar spine – no evidence of anterior or posterior osteophyte formation

Chest X- ray – unremarkable

DIAGNOSIS
Atypical Still's disease, co-managed with the Undiagnosed Disease Clinics at the National Institutes of Health

TREATMENT AND COURSE
After various failed or ineffective treatment regimens (see Medication list), he is currently being managed with canakinumab 300 mg injected subcutaneously every six weeks, minocycline, chlorhexidine and acne washes. Care for his unique presentation of atypical Still's disease is being directed by the Undiagnosed Disease Clinics at the National Institutes of Health, while various practitioners at Loyola are managing his other cutaneous and endocrine co-morbidities.

DISCUSSION
To be discussed.

REFERENCES:
http://rarediseases.info.nih.gov/resources/pages/24/tips-for-the-undiagnosed; accessed on May 28, 2014.

CHICAGO DERMATOLOGICAL SOCIETY **CASE # 2**

Presented by Anne Marie Mahoney MD, David Eilers, MD, and Madhu Dahiya, MD
Department of Dermatology, Edward Hines Jr, Veterans Affairs Hospital

HISTORY OF PRESENT ILLNESS

A 26-year-old male presented to the Dermatology clinic for excision of several scalp cysts. The patient related they had been present for several years and were increasing in number. He had undergone excision of similar scalp nodules in the past. During his preoperative evaluation the patient complained of bilateral hand stiffness and weakness that was worse in cold temperatures. These symptoms began during Army boot camp around the age of 20. On further questioning he stated he could not do pull ups while in the military and had difficulty with certain activities, such as pulling a trigger. He also complained of mild hearing loss and ringing in his ears. He denied issues with ambulation, blurred vision, or difficulty chewing.

PAST MEDICAL HISTORY

Thomsen's Disease (autosomal dominant myotonia congenita) diagnosed at age 23

MEDICATION

None

ALLERGIES

None

FAMILY HISTORY

Mother, father, brother and two sisters had no neurologic abnormalities. One sister reportedly "could not lift heavy objects".

SOCIAL HISTORY

The patient did not smoke. He occasionally drank alcohol. He denied illicit drug use. He was previously in the infantry in the Army and was deployed to Iraq for 1 year. He denied head trauma during his service.

PHYSICAL EXAM

Vitals: BP 127/65 P: 76 RR: 18 Temp: 95.3
Physical exam was notable for bi-frontal and vertex balding and multiple firm skin colored nodules scattered throughout the scalp. He demonstrated a muscular build. There was no temporal wasting.

Focused neurologic exam revealed 4/5 strength in the finger extensors and wrist extensors and 5/5 strength against slight resistance in the abductor pollicis brevis muscle (APB) bilaterally; otherwise strength was 5/5 against moderate resistance in all other muscle groups. He had hypertrophic muscle bulk and percussion myotonia in the APB muscles bilaterally and delayed hand grip opening. Reflexes were absent throughout except 2+ at the ankles. Sensation was normal to pin prick and vibration throughout.

HISTOPATHOLOGY

Excision from the right parietal scalp demonstrated a well-circumscribed nodule of basaloid cells undergoing trichilemmal-type keratinization that matured into structureless eosinophilic cells without nuceli, referred to as ghost cells. Calcification within ghost cell regions was appreciated.

LABORATORY RESULTS
The following laboratory tests were abnormal:

Creatine kinase elevated at 432.

The following laboratory tests were within normal limits:

CBC, BMP, TSH, Vit B12.

ELECTROMYOGRAPHY
The right extremities were selectively tested. EMG revealed diffuse myotonic discharges in the right arm and leg, most pronounced in the hand. There was no evidence of myopathy.

DIAGNOSIS
Multiple pilomatricomas associated with a non-dystrophic myotonic disorder (myotonia congenita)

TREATMENT AND COURSE
The neurologic evaluation suggested that the patient had a non-dystrophic myotonic disorder, given his lack of significant muscle weakness in the setting of abnormal muscle contraction. Except for balding, he did not demonstrate any of the classic characteristics of myotonic dystrophy, which include temporal wasting, drooping of the mouth, high forehead, and pronounced weakness, in addition to various systemic findings. The patient is currently awaiting genetic testing results.

DISCUSSION
Pilomatricomas, also known as calfcifying epithelioma of Malherbe, are benign adnexal tumors derived from the hair matrix, cortex and inner root sheath. They tend to present on the scalp, face, and proximal extremities. Clinically they demonstrate a “tent” or “teeter totter” sign that is seen by stretching the skin to show the multifaceted components of calcification. Pilomatricomas have activating mutations in the beta-catenin protein which is encoded by *CTNNB1.* Beta catenin is involved in cellular differentiation, proliferation, cellular adhesion and the *Wnt* signaling pathway.

Myotonic dystrophy (MD) is an autosomal dominant disorder with variable penetrance. There are two types of MD: type 1, also known as Steinert Disease, and type 2, the less common and milder form. MD is characterized by muscle weakness, an inability to relax muscles after contraction, muscle atrophy and a characteristic appearance of frontal balding, drooping mouth, and high forehead. Systemic findings include cataracts, mental retardation, diabetes, heart disease and testicular atrophy. With that said, the phenotype is quite variable and MD type 2 often lacks myotonia. It can present from birth to adulthood and is due to a mutation in the dystrophia myotonica protein kinase (DMPK). This mutation leads to amplification of an unstable trinucleotide repeat (CTG). An increased number of CTG repeats leads to earlier onset and more severe disease.

Myotonia congenita (congenital myotonia) is an autosomal dominant or recessive disorder resulting from a mutation in the voltage gated chloride channel in skeletal muscle encoded by *CLCN1*. The autosomal dominant form is also known as Thomsen’s disease and autosomal recessive form as Becker’s disease. It is characterized by a delayed ability to relax muscles and rigidity. Other findings include muscle hypertrophy, stiffness and mild weakness. In the

autosomal dominant form the myotonia is most pronounced in the upper distal extremities. There is a lack of characteristic facies and systemic involvement. There is evidence to suggest that cold aggravates symptoms and repetitive movement improves symptoms known as the "warm up phenomenon".

Multiple pilomatricomas have been reported in association with myotonic dystrophy. There are no reports of pilomatricomas being associated with myotonia congenita or Thomsen's disease. Other associations include Gardner syndrome, Turner syndrome and sarcoidosis.

The association between multiple pilomatricomas and myotonic dystrophy was first reported in 1965. The prevalence of pilomatricomas is higher in those with MD compared to the general population and those with MD are more likely to have multiple lesions. The role of DMPK in epidermal cells has not been well studied. DMPK may have a role in calcium regulation that influences cellular differentiation and could explain the association with pilomatricomas.

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CHICAGO DERMATOLOGICAL SOCIETY **CASE # 3**

Presented by Bailey Tayebi, MD, MBA, Jodi Speiser, MD, Kelli Hutchens, MD, and Rebecca Tung, MD
Division of Dermatology, Loyola University Medical Center

HISTORY OF PRESENT ILLNESS

A 55-year-old Hispanic male with a history of generalized seizure disorder, presented with complaints of extensive scarring involving the entire trunk, neck, and face following a burn injury three years prior to presentation. The burn was a result of a seizure that the patient experienced while installing a water heater in his home. Scars were pruritic, painful, and contracted in nature. The patient was admitted to the burn unit at an outside hospital where he received aggressive wound care and underwent a multitude of skin grafting procedures.

Upon presentation to Loyola Medical Center, the patient demonstrated extensive hypertrophic and keloidal scars as well as associated contractures affecting the upper and lower cutaneous lips, chin, jawline, neck, chest, abdomen, back and upper extremities, including amputation of all digits on the left hand. He complained of persistent and, often, incapacitating pruritus, pain, tightness, and immobility of his skin. The patient also endorsed an altered sense of self and lack of self-esteem.

PAST MEDICAL HISTORY

Generalized seizure disorder
Depression

MEDICATION

Carbamazepine
Diazepam
Lamotrigine
Sertraline

FAMILY HISTORY

None pertinent

SOCIAL HISTORY

Denied alcohol and tobacco use

PHYSICAL EXAM

On the upper cutaneous lip, chin, lower mandible, neck, trunk, and bilateral upper extremities, including the hands, were extensive pink to brown firm ropelike plaques and associated contractures. On the face and neck, many terminal hairs were seen horizontally trapped within these plaques. Amputation of the distal digits on the left hand was appreciated.

HISTOPATHOLOGY

Punch biopsy of the left submental neck demonstrated cicatricial fibrosis and a dilated follicular cyst with associated keratin. Granuloma formation was noted to be consistent with a ruptured follicle. No foreign body was seen on polarization.

DIAGNOSIS
Extensive Keloidal and Hypertrophic Scarring After Traumatic Burn Injury

TREATMENT AND COURSE
The patient underwent a nine-month treatment course utilizing a multimodal approach including a series of intralesional injections and a variety of laser treatments as detailed below:

- 4 intralesional triamcinolone (40mg/ml) injections administered with aggressive subcision technique at 8-week intervals alternating with
- 4 intralesional 5-fluorouracil (50 mg/ml) injections at 8-week intervals,
- 9 monthly pulsed dye laser treatments,
    - Spot size: 5 mm / Energy: 10 J / Pulse Duration: 5 ms / Cooling: 2
- 9 monthly Alexandrite laser hair removal treatments to the upper cutaneous lip, chin, jawline, and neck, and
    - Spot size: 8 mm / Energy: 35 J / Cooling: 30/20/0
- 1 non-ablative fractional laser treatment completed at month 3.
    - Energy: 50 mJ / Treatment level: 5 / Passes: 8

After completing treatment, the patient reported significant improvement in pain, itch, physical mobility, and self-esteem. Clinically, he displayed remarkable improvement in scar thickness, erythema, dyschromia, and texture.

DISCUSSION
Hypertrophic and keloidal scarring secondary to thermal injury causes significant functional, cosmetic, and psychosocial morbidity. Patients commonly complain of pain, itching, impaired mobility, depression, and poor self-esteem. While there is a lack of treatment gold standards, a wide variety of accepted treatments have been employed with varying degrees of success. Such treatments include intralesional agents, pressure therapy, silicone gel sheeting, cryotherapy, laser treatments, and reconstructive surgery. We postulate that laser hair removal lasers may also be beneficial in the treatment of burn scars in which hair trapping may serve as a constant source of inflammation and, thus, perpetuation of hypertrophic and keloidal scar formation.

Antimitotic therapies, such as intralesional corticosteroid and fluorouracil injections, improve symptoms and cosmesis in both hypertrophic and keloid scars. Corticosteroid injections are proposed to work via inhibition of the mitotic activity of fibroblasts and keratinocytes, inflammatory blockade, and vasoconstriction. Fluorouracil is a pyrimidine analog, commonly used as a chemotherapeutic agent, that inhibits TGF-β signaling as well as myofibroblast and fibroblast activity.

Pulsed dye lasers (PDL) induce targeted photothermolysis through the destruction of scar microvasculature. By this mechanism, PDLs improve burn scar texture and pliability as well as decrease erythema and associated symptoms. In 2012, a systematic review of eight randomized controlled trials found that three or more treatments with PDL lead to significant improvement in scar pigmentation and both investigator and participant global assessments as compared to those who did not receive PDL treatments.

Nonablative fractional resurfacing has been used in the management of photodamaged facial skin, producing significant improvement in rhytides, skin texture, dyschromia, and acne scarring. More recently, non-ablative fractional laser therapy has also been shown to improve scar contractures and has resulted in improved function of areas affected by scarring. A prospective,

single-arm, pilot study by Waibel et al involving ten patients treated with a 1,550 nm non-ablative fractional laser demonstrated improvements in skin texture (90%), dyschromia (80%), and degree of atrophy/hypertrophy (80%). Patients also noted improvements in self-esteem and overall appearance, both of which were statistically significant after a three-month follow-up period. Non-ablative fractional lasers also have the benefits of being easy to use, require minimal anesthesia and downtime, and may be repeated at 4-week intervals. While the optimal time to initiate treatments following a burn injury is uncertain, the general consensus is to begin treatment within months to one year of the inciting incident.

Monotherapy with any one of the above treatment modalities is often ineffective in the treatment of traumatic burn scars. Therefore, a combination approach utilizing surgical modalities, intralesional injections, and laser treatments often provides a more satisfactory outcome than any single therapeutic measure alone. Intralesional triamcinolone in combination with intralesional 5-fluorouracil for the treatment of keloids and hypertrophic scars was found to be superior to intralesional triamcinolone treatment alone in more than one trial. Likewise, PDL and fractional lasers have synergistic roles in the treatment of burn scars. Erythematous and more acutely inflamed scars are most amenable to PDL, while pigmentary and textural alterations are best realized by use of fractional laser treatments. The remarkable results demonstrated by this patient illustrate the benefits of combination therapy in the treatment of traumatic burn scars.

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CHICAGO DERMATOLOGICAL SOCIETY **CASE # 4**

Presented by Smita Aggarwal, MD and Wendy Schumacher-Kim, DO.
Division of Dermatology, Loyola University Medical Center

HISTORY OF PRESENT ILLNESS

This 13 year old Hispanic female presented to our clinic with a red patch on her forehead which had been present since birth. The patch did not itch or bleed. It was not painful. No treatment had been attempted. According to her mother, the patch would become darker and more pronounced when the patient was upset or crying.

PAST MEDICAL HISTORY

None - healthy

MEDICATIONS

None

ALLERGIES

No known drug allergies

FAMILY HISTORY

None pertinent

SOCIAL HISTORY

Lives with her family and attends 7th grade.

PHYSICAL EXAM

On physical examination, an ill-defined non-blanching erythematous patch was noted over the midline forehead, extending from the upper forehead to the nasal root. Underlying it, a subtle violaceous patch was noted. A bulging palpable vascular structure, within this violaceous patch, became increasingly noticeable when the patient was asked to lower her head.

IMAGING

MRI brain (with and without contrast): abnormal vascularity in the subcutaneous tissue over the midline frontal bone extending to the region of the glabella with transosseous venous drainage to the superior sagittal sinus.

DIAGNOSIS

Sinus pericranii

TREATMENT AND COURSE

Due to concern for an intracranial connection, cerebral angiography was performed. Bilateral cervical and cerebral angiograms revealed a vertical superficial scalp vein extending from the glabella to the posterior frontal bone associated with at least three transosseous channels. No high flow vascular malformation was present. These findings were compatible with sinus pericranii. Treatment options, including sclerotherapy, were discussed with Interventional Radiology, however the patient and her family declined further treatment at this time. Further evaluation by neurosurgery is planned.

DISCUSSION

Sinus pericranii describes an anomalous connection between extracranial and intracranial venous channels, which can be congenital or acquired. The congenital type may occur in conjunction with other slow flow congenital vascular anomalies, craniosynostosis, in the setting of blue rubber bleb nevus syndrome, or as an isolated finding. Spontaneous cases can develop due to underlying osteitis of the skull or even minor trauma in predisposed individuals. Trauma sustained during delivery or a skull fracture can also result in sinus pericranii. Fifty percent of cases present before 20 years of age as an asymptomatic red-blue slowly enlarging mass near the midline. Characteristically, the lesions will enlarge with activities that lead to an increase in intracranial pressure and subsequently regress with standing. The lesion can typically be fully reduced with externally applied pressure. An underlying bone defect may be palpated, typically involving the frontal bone of the cranium, and midline bony skull defects most commonly lead to a connection with the superior sagittal sinus.

MRI is the diagnostic imaging modality of choice, followed by cerebral angiography to better characterize the drainage pattern of the lesion. Growth of these lesions tends to slow after puberty and overall there is a low risk of bleeding. Multidisciplinary management of these lesions is necessary and includes evaluations by our neuroradiology and neurosurgery colleagues. Due to the rare nature of this condition, these is no clear consensus regarding treatment for sinus pericranii. Some recommend early surgical or endovascular treatment due to concern for hemorrhage, infection, and air embolism, while others recommend conservative management with clinical monitoring. Regardless, the drainage pattern should be clearly characterized prior to intervention to ensure the lesion does not play a major role in venous outflow from the brain.

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FAST BREAK #1 and #2

CHICAGO DERMATOLOGICAL SOCIETY **CASE # 5**

Presented by Shraddha Desai, MD, Laura Winterfield, MD, Jodi Speiser, MD and Kelli Hutchens, MD
Division of Dermatology, Loyola University Medical Center

HISTORY OF PRESENT ILLNESS

This 47-year-old Caucasian male with a history of prostate and thyroid cancer treated at Loyola, presented to our clinic for a total body skin exam. He had a history of several melanomas treated by an outside dermatologist and wanted to transfer all of his care to one site. He was bothered by a growth behind the left ear that became irritated while combing his hair, but denied any other new or changing lesions. He was otherwise feeling well with a negative review of systems.

PAST MEDICAL HISTORY

Melanoma in situ x 3, s/p wide local excision 2003 - 2010
Melanoma x 2, s/p wide local excision 2003 - 2010
Dysplastic nevi
Follicular thyroid cancer s/p thyroidectomy and radioactive iodine 2008
Prostate cancer with bony metastases s/p prostatectomy 2009 and concurrent hormone therapy
Right frontal cavernous hemangioma s/p craniotomy 2011
Cholecystectomy
Testicular lipomatosis

MEDICATION

Bicalutamide
Calcium + D
Leuprolide
Levothyroxine
Zoledronic acid
Atorvastatin

ALLERGIES

NKDA

FAMILY HISTORY

Lung cancer – half-brother and mother (deceased in 50s)
Pancreatic cancer – father (deceased in 50s)
Breast cancer – half-sister
Colonic polyps – half-brother

SOCIAL HISTORY

Negative for tobacco, alcohol, or illicit drug use
Negative for tanning bed use

PHYSICAL EXAM

Head circumference measured 64.5cm (Normal < 60cm). On the retroauricular scalp, bilateral helices, nasal sidewalls, chest, neck, and back, there were numerous skin-colored, small, round, dermal papules. On the trunk and extremities, there were multiple small, brown and tan, well-circumscribed macules with irregular borders and color variegation. On the bilateral axilla

and groin, there were dozens of fleshy, skin-colored, pedunculated papules. There were scattered punctate hyperkeratotic papules on the palms and soles, and the dorsal tongue and buccal mucosa had a cobbled appearance. Additionally, the patient had several well-healed scars on the trunk and extremities. There was no cervical, supraclavicular, axillary, or inguinal lymphadenopathy.

HISTOPATHOLOGY
Punch biopsy of the left retroauricular scalp revealed a hypocellular dermal proliferation of fibroblasts with prominent collagen fascicles and clefts between the cells. These findings were consistent with a sclerotic fibroma.

LABORATORY RESULTS
There were no abnormal laboratory tests.

ADDITIONAL EXAMS
Colonoscopy revealed twenty one polyps (adenomatous and ganglioneuromatous) in the recto-sigmoid, descending, transverse and ascending colon.
Upper GI endoscopy revealed numerous gastric and duodenal adenomatous polyps
Genetic testing revealed a gross deletion “in1_in2del” spanning exon 2 of the PTEN gene

DIAGNOSIS
Cowden Syndrome (Multiple Hamartoma Syndrome)

TREATMENT AND COURSE
Since diagnosis, the patient developed a basal cell carcinoma on the left temple treated with Mohs surgery and a lentigo maligna on the left preauricular cheek treated with excision. He continues to be followed closely by Dermatology, Endocrinology, Gastroenterology, and Hematology-Oncology for this condition, with yearly thyroid ultrasound and biannual colonoscopy and skin exams. Family members were also encouraged to be evaluated.

DISCUSSION
Cowden Syndrome (CS) is a rare autosomal dominant cancer syndrome due to a germline mutation in the tumor suppressor gene PTEN, making it a subset of the PTEN Hamartoma Tumor Syndrome (PHTS) spectrum. Patients with CS develop numerous hamartomas in addition to benign and malignant neoplasms of the breast, thyroid, and endometrium. More than 90% of individuals will have some clinical manifestation of the disorder by the late 20s and by the third decade, 99% will have mucocutaneous lesions, such as trichilemmomas, sclerotic fibromas, acral and plantar keratoses, and papillomas of the tongue and oral mucosa.

The likelihood of determining a PTEN mutation can be made using the PTEN Cleveland Clinic Risk Calculator (Tan et al 2011, AJHG;88:42-56), and diagnosis is made based on pathognomonic, major, and minor criteria as outlined below. Genetic testing is recommended in individuals with ≥ 2 major criteria (1 must be macrocephaly), ≥ 3 major criteria without macrocephaly, 1 major criterion and ≥ 3 minor criteria, or ≥ 4 minor criteria. Of note, the diagnosis of Cowen Syndrome in made only when a germline PTEN mutation is identified.

Pathognomonic/testing criteria:

Adult Lhermitte-Duclos disease (cerebellar dysplastic gangliocytoma)
Autism spectrum disorder and macrocephaly
≥ 2 biopsy proven trichilemmomas

Major criteria:

Macrocephaly (head circumference ≥ 60cm in adult males and ≥ 58cm in adult females
Malignancy:
- Breast
- Follicular thyroid
- Endometrial

Multiple GI hamartomas or ≥ 3 ganglioneuromas
Mucocutaneous lesions:
- 1 biopsy proven trichilemmoma
- Multiple palmoplantar keratoses
- Extensive mucosal papillomatoses
- Multiple cutaneous facial papules

Minor criteria:

Autism spectrum disorder
Colon cancer
Papillary/follicular variant of papillary thyroid cancer
Thyroid structural lesions (adenoma, nodules, multinodular goiter)
Intellectual disability (IQ ≤ 75)
Single GI hamartoma or ganglioneuroma
≥ 3 Esophageal glycogenic acanthoses
≥ 3 Lipomas
Renal cell carcinoma
Testicular lipomatosis
Vascular anomalies (including multiple intracranial developmental venous anomalies)

Lifetime risk for female breast cancer is up to 85% and benign breast disease is seen in 67% of patients, while risk for non-medullary thyroid cancer is up to 35%, with benign thyroid lesions affecting up to 75% of individuals. Risk of endometrial cancer is up to 28%, with benign uterine fibroids a common finding. Data from a large prospective international study has also demonstrated increased risk of melanoma, colon cancer, and kidney cancer in CS patients. Lifetime risk for colorectal cancer is 9%, however, 90% will have GI polyps including hamartomas, ganglioneuromas, and adenomas. Risk for melanoma is 6% and is due to a germline mutation as opposed to somatic mutations that have been reported. Renal cell carcinoma risk is about 35%. In addition to these malignancies, the study also recognized an association between CS, macrocephaly (present in 94% of individuals), and autism spectrum disorder.

Given the risk for these conditions, the following exams are suggested for management of patients with CS:
Renal cell ultrasound every 1-2 years after age 40
Colonoscopy every 2-5 years after age 35
Annual physical exam and thyroid ultrasound starting at age 18
Clinical breast exam every 6-12 months (age 25) with annual mammogram (ages 30-35)
Annual routine total body skin exams (more often for those with known skin cancers)
+/- annual elective endometrial ultrasound or sampling starting between the ages of 25-30

Family members should be made aware of this syndrome and as appropriate, tested for the gene mutation.

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CHICAGO DERMATOLOGICAL SOCIETY **CASE # 6**

Presented by Kelly K. Park, MD, MSL, David Eilers, MD, James Swan, MD, Madhu Dahiya, MD
Department of Dermatology, Edward Hines Jr, Veterans Affairs Hospital

HISTORY OF PRESENT ILLNESS

A 70-year-old Caucasian male presented for evaluation of a 6-year history of a bright red, scaly rash involving his forehead, cheeks, and central face. It was waxing and waning in nature and thought to be exacerbated by sunlight. His skin burned and itched intermittently, in particular when lesions were scaly. He had been evaluated by outside dermatologists and had 2 biopsies that showed non-specific parakeratosis and spongiosis. At the time of presentation, he was using Dove soap and Aquaphor as an emollient.

PAST MEDICAL HISTORY

Hyperlipidemia, hypertension, atrial fibrillation with history of ablation, type II diabetes mellitus, history of malaria, fatty liver disease, Gilbert's disease, testicular dysfunction, allergic rhinitis, coronary artery disease with history of stent placement, post-traumatic stress disorder, mucocutaneous HSV, sciatica, sleep apnea on CPAP

MEDICATIONS

Insulin, metoprolol, testosterone gel, digoxin, furosemide, lisinopril, loratadine, magnesium oxide, simvastatin, metformin, glargine insulin, folic acid, multivitamin, warfarin, aspirin, omega-3-acid ethyl esters, valacyclovir, exenatide, hydroxychloroquine

ALLERGIES

Cephalexin, testosterone transdermal patch

FAMILY HISTORY

Non-contributory

SOCIAL HISTORY

Married with two children, Vietnam veteran, retired.

PHYSICAL EXAM

Forehead, glabella, nose, cheeks, temples, and upper eyelids with well-demarcated, brightly erythematous confluent plaques with areas of overlying fine white scaling. There were several areas of sparing on the forehead.

DERMATOPATHOLOGY

4/2013

Right forehead – Superficial, deep, and perifollicular lymphoplasmacytic infiltrate consistent with the impression of rosacea. Mounds of scale and neutrophilic debris near the follicular ostia were noted.

11/2011

Right forehead – Acute/subacute spongiotic dermatitis with perivascular lymphohistiocytic infiltrate containing eosinophils. PAS stain was negative for fungal organisms.

11/2010 (outside dermatologist)

Parakeratosis and crust overlying an acantholytic and spongiotic epidermis, pustular folliculitis, reactive lymphoid hyperplasia.

3/2010 (outside dermatologist)
Parakeratosis and crust overlying a spongiotic epidermal hyperplasia. Moderately dense infiltrate in the superficial dermis.

LABORATORY DATA
ANA, anti-SSA, anti-SSB negative

PATCH TESTING
Kathon CG 1+

PREVIOUS TREATMENTS
Hydrocortisone valerate 0.2% cream, tacrolimus 0.1% ointment, metronidazole 1% gel, acitretin 10 mg, acitretin 25 mg, prednisone taper

DIAGNOSIS
Unknown

TREATMENT AND COURSE
On initial presentation, the patient was thought to have seborrheic dermatitis with a possible allergic contact dermatitis. He was treated with hydrocortisone valerate 0.2% cream and underwent patch testing. He showed a 1+ reaction to Kathon CG and began practicing allergen avoidance. After 11 months of non-responsiveness to this management, repeat biopsy was performed which showed features of a spongiotic dermatitis and rosacea. Hydrocortisone valerate was discontinued and he started protopic 0.1% ointment and metronidazole 1% gel, both of which worsened his symptoms. Approximately 18 months afterwards, he was biopsied again. The histopathology was suggestive of rosacea and seborrheic dermatitis. He was started on acitretin 10 mg daily and initially showed significant improvement. He was increased to acitretin 25 mg daily but the rash progressed and he had side effects from the medication, including sticky skin. He was decreased to acitretin 10 mg daily. He then had flaring of his disease as well as superinfection of facial lesions while he was on vacation in Florida. An urgent care facility treated him as an allergic contact dermatitis and gave him a prednisone taper that resulted in transient improvement of the rash. Upon his return from vacation and having been a few weeks after discontinuing prednisone, he was started on hydroxychloroquine 200 mg by mouth daily in addition to continuing acitretin 10 mg daily. He also switched his CPAP mask to a nasal cannula device, but this did not impact the rash. He eventually discontinued acitretin due to lack of improvement and side effects, including recurrence of sticky skin symptoms. Currently, he is taking hydroxychloroquine 200 mg twice daily and is tolerating it well.

CHICAGO DERMATOLOGICAL SOCIETY **CASE # 7**

Presented by Monika Kaniszewska, MD, Ricardo Berrios, MD, Lily Uihlein MD
Division of Dermatology, Loyola University Medical Center

HISTORY OF PRESENT ILLNESS

A 12 year-old Caucasian female presented with worsening exudative conjunctivitis, sloughing of the oral mucosa, and development of a vesicobullous eruption. Eight days prior, the patient developed fever to 103°F, pharyngitis, and cough. Rapid antigen testing and culture for group A streptococcus were both negative. Patient was treated symptomatically with ibuprofen. Shortly thereafter, she developed ulcerations of the oral mucosa, which were treated with clindamycin, and erythematous papules that quickly progressed to blisters. Lesions were tender and pruritic; she was unable to tolerate food secondary to pain in the oral mucosa. Her family endorsed several sick contacts with pneumonia at the patient's school, and reported two prior similar episodes of severe oral mucositis preceded by fevers, cough and sore throat in the past three years. All of the patient's vaccinations were up to date.

PAST MEDICAL HISTORY

Asthma

MEDICATION

Albuterol

ALLERGIES

No known drug allergies

FAMILY HISTORY

Noncontributory

SOCIAL HISTORY

The patient lives with both parents and attends middle school.

PHYSICAL EXAM

Vital signs: T_{max} 103.1°F, P 113, BP 115/71, RR 20/min
Physical exam was notable for bilateral conjunctivitis and sloughing, erosions and hemorrhagic crusting of the vermillion lips and hard and soft palate. There were numerous, scattered erythematous vesicles, bullae, and denuded areas over the face, trunk and extremities, and a single vesicle in the vulva. There were coarse breath sounds bilaterally without wheezing or retractions. Cervical and submandibular lymphadenopathy were also noted.

LABORATORY RESULTS

Laboratory studies were notable for the following:

Sodium	134	[136 – 146 MM/L]
ALT	52	[5 – 15 UI/L]
AST	43	[7 – 34 IU/L]
ESR	27	[0 – 20 MM]
CRP	9.2	[<0.8 MG/DL]
Mycoplasma Pneumoniae AB IgM	5499	Negative

IgG	>5.00	≤0.90
M Pneumonia PCR *(*pharyngeal swab*)*	Positive	Negative
Direct Fluorescent Antibody Stain for HSV/VZV	Positive for VZV	Negative
VZV PCR	Negative	Negative
HSV Culture	Negative	Negative

RADIOLOGY

CXR showed ill-defined reticular nodular opacities in the right upper and right lower lobe consistent with multifocal bronchopneumonia.

Diagnosis

Mycoplasma pneumoniae-induced Stevens-Johnson Syndrome (SJS)

TREATMENT AND COURSE

The patient received intravenous immunoglobulin (IVIG) 0.75 g/kg for a total of 3 days, an eight-day course of acyclovir and five-day course of azithromycin with significant improvement. Ophthalmology was consulted for conjunctival involvement. The patient has made a full recovery without permanent sequalae. Patient was instructed to start azithromycin at the first sign of prodromal illness in an effort to prevent future episodes.

DISCUSSION

We present a case of SJS in a child in the setting of *mycoplasma pneumoniae* infection. SJS and toxic epidermal necrolysis (TEN) represent a spectrum of severe cutaneous drug-induced reactions characterized by epidermal necrosis with subsequent detachment and mucosal involvement. Constitutional symptoms and lab abnormalities are common. Diagnosis of SJS is clinical but can be confirmed by histology showing full thickness epidermal necrosis with minimal inflammatory infiltrate. Incidence in the pediatric population is relatively low, making morbidity and mortality predictions difficult.

In pediatric patients, the most common cause of SJS is medications (most often sulfonamides and anticonvulsants). Infections are also frequent triggers of SJS, and *mycoplasma pneumoniae* is the most commonly implicated pathogen. *M pneumonia* is a well recognized caused of community-acquired pneumonia. Extrapulmonary manifestations are seen in 20 to 25% of patients, especially in children. In addition to classic SJS, *M pneumonia*-associated mucositis (also known as atypical SJS) lacking typical skin manifestations has been described. This variant seems to have a shorter course and tends to be responsive to antibiotics. Diagnosis can be made by detection of immunoglobulin M and G antibodies specific for *M pneumoniae* as well as by PCR.

The pathogenesis of SJS/TEN is not well understood, but it is postulated that widespread epidermal necrosis is triggered by the activation of apoptotic pathways. Genetically predisposed individuals are at increased risk for SJS/TEN due to defects in pathways resulting in accumulation of metabolites. Infection may result in altered expression of polymorphisms of cytochrome P450 enzymes rendering concomitant drug administration more unpredictable. Alternatively, *M pneumoniae* infection may induce autoantibody development against mucosal epithelium causing an inflammatory response leading to the clinical manifestations of SJS.

The treatment of SJS includes admission to a critical care or a burn unit and supportive care by a multidisciplinary team. Any offending agent should be withdrawn and any underlying

infectious cause should be treated. The use of IVIG may also be considered. Long-term complications include cutaneous scarring and ocular manifestations such as keratitis and corneal scarring.

Recurrence of SJS is more common in children and may be due to recurrent infection. We question whether our patient's earlier episodes of mucositis, fever, and cough might have been the result of prior infection with *M pneumoniae*. Given the significant morbidity and potential for long-term complications due to SJS, our case underscores the importance prompt identification and treatment of children presenting with respiratory illness and mucositis with or without skin lesions. This case also demonstrates a potential role for prophylaxis against future infection in susceptible patients.

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CHICAGO DERMATOLOGICAL SOCIETY **CASE # 8**

Presented by Patricia Todd, MD and Lily Uihlein, MD
Division of Dermatology, Loyola University Medical Center

HISTORY OF PRESENT ILLNESS

This 12 year-old Hispanic girl presented with an asymptomatic right facial mass that had been present since she was 4 years old. The lesion had slowly grown over time and was biopsied and surgically debulked in 2011. The histopathology was initially felt to be most suggestive of a lipoma. Over the course of the next three years, the lesion recurred and continued to enlarge. The patient and her mother denied similar cutaneous lesions elsewhere on her body, oral lesions, and early eruption of teeth. No other family members had similar lesions.

PAST MEDICAL HISTORY

Obesity
Migraine headaches

MEDICATIONS

None

ALLERGIES

No known drug allergies

FAMILY HISTORY

Negative for neurofibromatosis and lipomatous lesions.

SOCIAL HISTORY

In the 10th grade, average student
Lives with mother and two younger siblings

PHYSICAL EXAM

There was a soft facial mass on the right cheek extending to the infraorbital region. The surface of the mass was textured with irregular patches of tan pigmentation. There was no concomitant hypertrichosis. Oral mucosa and teeth appeared normal.

LABS/IMAGING

Abnormal

CT facial bones (2009) – There was prominent subcutaneous fatty tissue in the right cheek anterior to the right maxilla. The right maxilla bone was more prominent in size compared to the left.

MRI (2014) – There was asymmetry of subcutaneous fat, greater on the right, with no discrete rim to suggest lipoma.

HISTOPATHOLOGY

The excisional biopsy demonstrated proliferation of unencapsulated mature adipocytes with infiltration into skeletal muscle. An increased number of nerves was also noted. There were no malignant features.

DIAGNOSIS

Congenital infiltrating lipomatosis of the face

TREATMENT AND COURSE

The patient indicated that she was interested in re-treatment and was referred to pediatric plastic surgery. Options of liposuction with adjuvant compression mask versus re-excision were discussed with the plastic surgeon. She is scheduled to undergo liposuction later this month.

DISCUSSION

Initially described by Slavec and colleagues in 1983, congenital infiltrating lipomatosis of the face (CILF) is a rare benign non-heritable disorder characterized by hemifacial soft tissue and bony overgrowth, mucosal neuromas, macrodontia, macroglossia, and asymmetric early dental eruption. The diagnosis may be made by clinical evaluation and confirmed with radiographic imaging and histologic findings. Patients with CILF typically present in childhood with a slowly enlarging unilateral mass of the cheek or chin. Some lesions may have an overlying capillary blush. The masses are asymptomatic but may impact functioning of facial organs due to the increased size (*e.g.*, visual obstruction, speech). Temporal-mandibular joint ankylosis has also been reported in association with overlying CILF.

Histopathology shows proliferation and subcutaneous infiltration of mature non-encapsulated adipocytes lacking malignant characteristics. In addition, there are increased number of vessels with thickened walls and nerve bundles with associated fibrosis. Importantly, there is an absence of lipoblasts – a key feature differentiating CILF from malignant process such as liposarcoma.

Imaging modalities may be helpful in the diagnosis of CILF and may preclude the need for biopsy. CT/MRI shows diffuse fatty infiltration of muscle, glandular and other soft tissue structures, increased thickness of subcutaneous fat, and sclerosis and hypertrophy of bony structures. MRI is superior to CT in delineating the extent of facial involvement. Radiographic imaging may reveal sclerosis and hyperplasia of facial bones, macrodontia, and early dental eruption on the affected side.

The etiology of CILF is not fully understood. Multiple theories have been proposed including congenital CMV infection, an angiogenesis-driven pathway, trauma and somatic mosaicism of adipose stem cells. Recently, Maclellan *et al* showed that CILF tissue contain activating somatic mutations of *PIK3CA*. This gene codes for a subunit of an enzyme in the P13K signaling pathway, which plays a key role in regulation of cell proliferation, adhesion, survival and motility. Somatic mutations in *PIK3CA* and other genes affecting the P13K pathway have been found in other overgrowth syndromes (including Proteus syndrome, CLOVES syndrome, hemimegalencephaly, and Klippel-Trenaunay syndrome) as well as some cancers.

CILF is typically treated with surgical excision of the infiltrating fat or serial liposuction. Sub-total resection is almost always required due to proximity of CILF to the facial nerve. Patients undergo an average of three surgical procedures and rarely have complete resolution of their lesion; the post-resection recurrence rate has been reported to be as high as 62.5% with surgical excision. Consequently, some authors propose an integrated approach of surgical excision and adjunctive chemotherapy and anti-inflammatory medications. Targeting angiogenesis with thalidomide preoperatively and tyrosine kinase pathways with imatinib post-operatively was shown to halt disease progression in a patient who had previously undergone 6 surgical resections with persistent recurrence. Further research into the etiology and management of CILF is needed to improve outcomes from this potentially disfiguring condition.

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FAST BREAK #3 and #4

CHICAGO DERMATOLOGICAL SOCIETY **CASE # 9**

Presented by Rebecca Rovner, MD, Ricardo Berrios, MD, Laura Winterfield, MD, MPH and Kelli Hutchens, MD
Division of Dermatology, Loyola University Medical Center

Erosive Lichen Planus Follow-Up

CHICAGO DERMATOLOGICAL SOCIETY **CASE # 10**

Presented by Rebecca Rovner, MD, Monika Kaniszewska, MD, Jodi Speiser, MD and Kelli Hutchens, MD, Rebecca Tung, MD
Division of Dermatology, Loyola University Medical Center

HISTORY OF PRESENT ILLNESS

This 54 year-old Caucasian male presented to the Dermatology clinic with a 30-year history of painful and pruritic lesions on his axillae, groin, and neck. These intertriginous lesions had intermittently flared since their initial onset in the patient's early 20s. Topical treatments, including ketoconazole cream and steroids, had been prescribed in the past with variable success.

PAST MEDICAL HISTORY

Atrial fibrillation, hypertension, hyperlipidemia, sleep apnea, GERD

MEDICATION

Aspirin, atorvastatin, digoxin, lansoprazole, magnesium chloride, metoprolol succinate, niacin

ALLERGIES

None

FAMILY HISTORY

He reported that his mother and sister had a history of similar intertriginous lesions.

SOCIAL HISTORY

He denied history of smoking and illegal drug use. He occasionally drank alcohol.

PHYSICAL EXAMINATION

Bilateral axillae, inguinal and crural folds with erythematous, macerated plaques with superficial erosions. Lateral neck with smaller, erythematous heme-crusted papules.

DERMATOPATHOLOGY

A punch biopsy demonstrated acanthosis with elongation of rete ridges and overlying focal parakeratosis. Areas of full thickness and partial thickness acantholysis were noted.

LABORATORY RESULTS

None

DIAGNOSIS

Hailey-Hailey disease (Familial benign chronic pemphigus)

TREATMENT AND COURSE

The patient was started on mometasone 0.1% ointment twice daily, minocycline 50 mg twice daily and a trial of oral glycopyrrolate 1 mg daily after approval from his cardiologist. After one month of combination therapy, near total clearance was achieved with primarily post-inflammatory hyperpigmentation noted at follow-up visit. Topical therapies and minocycline were discontinued, and he was continued on only glycopyrrolate. He remained symptom free at four month follow-up on monotherapy with oral glycopyrrolate.

DISCUSSION

Hailey-Hailey disease is an autosomal dominant blistering dermatosis due to a mutation in the *ATP2C1* gene, which encodes a calcium transport ATPase within the Golgi apparatus. Dysfunction in this enzyme results in impaired calcium sequestration and depletion of calcium within the Golgi lumen. As intracellular calcium levels are suggested to play a role in keratinocyte adhesion, the disruption of the calcium ATPase in Hailey-Hailey disease leads to suprabasilar acantholysis and vesiculation. The initial lesion is a flaccid vesicle, which ruptures easily giving rise to painful, erythematous macerated and eroded plaques. Patients typically present in their second to fourth decades, and the disease follows a remitting and relapsing course.

Lesions in Hailey-Hailey disease have a predilection for intertriginous sites including axillae, inguinal folds, and lateral aspects of the neck. Known triggers of heat, friction, and sweating, are more prone to these sites. Secondary bacterial infection is the most common complication, further promoting disease activity when present. The mainstay of treatment includes topical anti-inflammatory medications and systemic antibiotics (often tetracyclines), which have anti-inflammatory, anti-matrix metalloproteinase, and antibacterial properties. Due to the lack of consistent success with any treatment modality, novel uses of established medications (i.e. alefacept, dapsone and cyclosporine) and procedures (i.e. CO2 laser, dermabrasion and PDT) have been applied with variable success.

Therapies aimed at removing or lessening the known triggers in Hailey-Hailey disease have been used. Bessa *et al* targeted the aggravating factors of heat and humidity. They applied the known effect of botulinum toxin type A in patients with hyperhydrosis. By blocking the sympathetic stimulation of eccrine gland activity, they showed that decreasing sweat production led to significant improvement or remission of affected areas. The postulated mechanism for improvement included decreased microorganism colonization and friction.

Glycopyrrolate has also been shown to be safe and effective for the treatment of hyperhidrosis. A trial of glycopyrrolate 1mg daily was initiated in our patient. He showed significant improvement and sustained clearance despite stopping topical and systemic therapies. This is the first report, to our knowledge, of Hailey-Hailey disease successfully treated with oral glycopyrrolate.

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CHICAGO DERMATOLOGICAL SOCIETY **CASE # 11**

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HISTORY OF PRESENT ILLNESS

A 5-year-old Caucasian female with no significant past medical history presented with a 3-week history of blue toes and a 1-week history of spots on the nose and fingers. The rash became more erythematous with exertion during outdoor play and was occasionally itchy. It was not alleviated with hydrocortisone cream. Her mother denied that the patient had similar lesions during the previous winter. She also complained of right leg pain that was evaluated at an urgent care and her parents were told she that had a "bone bruise". She was otherwise well, attended kindergarten daily and participated in recess.

PAST MEDICAL HISTORY

Streptococcal pharyngitis

MEDICATIONS

Hydrocortisone 1% cream

ALLERGIES

No known drug allergies

FAMILY HISTORY

Maternal and paternal grandfathers with nonmelanoma skin cancer, maternal great-grandmother with rheumatoid arthritis, paternal great-aunt with Burkitt's lymphoma, older sister with Angelman syndrome.

SOCIAL HISTORY

Lives with both parents, older sister, and attends kindergarten.

REVIEW OF SYSTEMS

The patient complained of skin rash and right leg pain. She denied nausea, vomiting, fevers, chills, diarrhea, weight loss, fatigue, dizziness, cough, weakness, headaches, blood in stool or urine, visual disturbances, or decreased appetite.

PHYSICAL EXAM

General: Well-developed Caucasian female, alert and oriented, with normal mood and affect and in no acute distress.

Skin: On the distal nasal dorsum there was a round, well-demarcated edematous pink plaque; there are two adjacent pink papules toward the columella. On the bilateral dorsal fingers there were many well-demarcated red-to-violaceous plaques with subtle pseudovesiculation. All ten distal toes were red-to-violaceous with some scaling and coolness to touch.

HEENT: Bilateral round non-tender submandibular lymphadenopathy.

DERMATOPATHOLOGY

Punch biopsies of the fingers revealed mild papillary edema with some red blood cell extravasation, a dense lymphohistiocytic infiltrate around the blood vessels and adnexa with neutrophilic debris and perieccrine mucin deposition. Lymphocytes were CD3 positive T cells with no significant increase in CD34 or CD20 positive cells noted. No blasts were seen.

LABORATORY DATA

Laboratory studies revealed a negative ANA, ENA panel (ss-A, ss-B, ss-DNA, ds-DNA), cold hemagglutinins, total complement level (CH50), C4, C3, cryoglobulin screen, and urinalysis.

Labs were remarkable for:

Hgb	8.5	[11.0 - 14.5 GM/DL]
HCT	25.2	[32.0 - 43.0%]
Plt	90	[150 - 400 K/UL]
Blast #	5.9	[<0.1 K/MM3]
ALT	28	[5 - 15 IU/L]
AST	51	[7 - 34 IU/L]
LDH	537	[150 - 345 IU/L]

Terminal deoxynucleotidyl transferase (TdT) – dim

Flow cytometric analysis of the peripheral blood revealed an increased lymphoid blast population with expression of dim CD45, CD19, CD20 (subset), CD38, FMC-7 (subset), CD34, CD10, HLA-DR, dim CD22, and dim CD11c (small subset).

Bone marrow aspirate smears showed increased blasts, the majority of which displayed a high nuclear-cytoplasmic ratio and dispersed chromatin.

FISH analysis revealed a B lymphoblastic leukemia with hyperdiplody with gains of chromosomes 4, 6, 10, 14, 17, 18, and two additional copies of chromosome 2.

DIAGNOSIS

Pernio as the presenting sign of blast crisis in B Acute Lymphoblastic Leukemia (B-ALL)

TREATMENT AND COURSE

The patient was referred for bone marrow biopsy and treated with intrathecal cytarabine. She was admitted to the pediatric hematology oncology service and treatment with alkalinized intravenous fluids, allopurinol, and ceftazidime was initiated. After confirmation of diagnosis, she began chemotherapy with dexamethasone, vincristine, and intrathecal methotrexate.

DISCUSSION

Cutaneous manifestations associated with leukemia may include leukemia cutis, neutrophilic dermatoses, eccrine hidradenitis, purpura and ecchymoses. Leukemia cutis is most commonly seen in congenital leukemia (25-30%) and acute myeloid leukemia (AML, 10-15%), and may less often be seen in chronic myeloproliferative diseases such as chronic myelogenous leukemia (CML) and myelodysplastic syndromes. Approximately 1% of patients with ALL have leukemia cutis. It has been reported that 1.2% of pediatric patients with ALL had leukemic skin lesions prior to or at the time of hematologic malignancy diagnosis, with the head being the most commonly affected site. These cases usually represent dissemination of leukemia to the skin, with younger age (early infancy) being a more predictive risk factor than karyotype abnormalities.

Chilblains-like leukemia cutis has been reported in CML and juvenile myelomonocytic leukemia (JMML) while true chilblains has been reported in several cases preceding the diagnosis of chronic myelomonocytic leukemia (CMML).

Chilblains, or pernio, is typically an abnormal reaction to cold that represents localized inflammation. It is most commonly observed in young women and is uncommon in the pediatric population. Acute lesions may appear 12-24 hours after cold insult, while the chronic form is associated with repetitive cold exposure and lesion persistence with scarring. Pernio presents as erythematous-violaceous edematous acral lesions that may be painful or itchy. Cryoproteins (cryoglobulins, cold agglutinins), excessive cold exposure, parental neglect, and anorexia nervosa may be risk factors for pediatric cases of pernio. In adults, pernio has been associated with antiphospholipid antibodies, lupus anticoagulant, anticardiolipin, CML, breast carcinoma metastases, medication reactions, and systemic lupus erythematosus. Pernio is typically self-limited and prevention and rewarming measures are recommended. Nifedipine may be useful in some cases.

Acute Lymphoblastic Leukemia (ALL) is a malignancy with a male preponderance and a peak incidence in children between 2 and 5 years of age. Survival in children is approximately 90%, while adults and infants have a relatively poor prognosis. Other poor prognostic indicators include leukocyte count $\geq 50 \times 10^9$/L at presentation, Hispanic or black race, male gender, T-cell immunophenotype, and infants with MLL gene rearrangement. Exposure to ionizing radiation is an established contributor to the development of childhood ALL, while the role of infection is controversial. Infants with trisomy 21 or Down's syndrome are at high risk for ALL and AML. ALL patients may or may not have a chromosomal alteration. In B-ALL (as in our patient), hyperdiploidy with gain of X, 4, 6, 10, 14, 17, 18, and 21, hypodiploidy with less than 44 chromosomes, translocations such as t(12;21)(p13;q22), t(1;19)(q23;p13), t(9;22)(q34;q11), and rearrangements of MLL and MYC have been implicated.

Diagnosis involves lymphoblast microscopy, immunophenotyping, flow cytometry, and chromosomal analysis. Early treatment response correlates with risk of relapse and monitoring of minimal residual disease (MRD) guides treatment and is a prognostic factor. Treatment of ALL includes remission-induction therapy typically utilizing prednisone or dexamethasone, vincristine, and asparaginase and/or anthracycline. This is followed by intensification, or consolidation, therapy which utilizes high-dose methotrexate, mercaptopurine, vincristine, corticosteroid, asparginase, and when necessary, vincristine, asparaginase, and methotrexate. Continuation, or maintenance treatment is often needed to prevent relapse, and therapy includes methotrexate and mercaptopurine or thioguanine. Refractory disease and high-risk ALL types may require allogeneic hematopoietic stem cell transplantation (HSCT). Risk of central nerve system (CNS) involvement requires treatment and CNS-directed therapy includes cranial irradiation and intrathecal chemotherapy utilizing methotrexate, hydrocortisone, and cytarabine.

To our knowledge, this is the first reported case of pernio as the presenting sign in acute lymphoblastic leukemia.

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