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Evaluation of Symptoms in 27 Patients With Diagnosis of Acrodermatitis Enteropathica in Iran

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Acrodermatitis Enteropathica (AE) is an inherited autosomal recessive disorder caused by a mutation in the hZip4 zinc transporter gene, which reduces zinc absorption and all body zinc levels. The objective was to determine the symptoms and blood zinc level ranges of patients and determine their relationship. The study is a retrospective cross-sectional study that surveyed 27 infant patients with severe zinc deficiency that was suggestive of AE, who were referred to Razi Hospital’s Dermatology Center in Iran during 1999 to 2004. The average age and disorder onset time were 8.9 months and 37 days after birth, respectively. The average serum zinc level was 45.3 μg/dL. The statistically significant symptoms of AE can be listed as perioral, perina sal, perigenital, and perirectal lesions, acral lesions and lesions on fingers, hands, elbow and feet, diarrhea and stomach ache, diffused alopecia, and neurological symptoms like fatigue, moodiness, irritability, photophobia, and anorexia. Physicians should be aware of this largely misdiagnosed disorder and its specific symptoms to increase recognition and early treatment of it in infancy when it is often fatal.

An Atypical Outbreak of HFMD in Adults

Mary Chen Chen, MD and Robert G. Phelps MD
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Most cases of Hand, Foot, and Mouth Disease (HFMD) are seen in young children <5 years old presenting with fever and a vesiculobullous eruption of the hands, feet, and mouth. Here we report an atypical outbreak of 12 HFMD cases in May–December 2014 in an adult cohort in a large urban setting. Retrospective data analysis over the last 10 years (2005–2014) revealed an unusually high number of cases in the previous 8 months, comprising of 100% adult patients (age 27–76). Clinically as well as histologically, these cases resembled erythema multiforme. EM shows interface changes and individually necrotic apoptosis of keratinocytes. The HFMD cases showed more prominent reticulin degeneration, more ballooning of basal keratinocytes, and less interface changes. Additionally, papillary dermal edema and a mixed perivascul ar inflammatory infiltrate with neutrophils were also seen in the HFMD cases. Clinically atypical variants were seen with both widespread (“eczema coxsackiemi”) and limited involvement in this cohort. Enteroviral tropism for anterior hand/feet keratinocytes suggests that these areas facilitate transmission through direct contact. The atypical anatomic presentation (33% of the cases) including on the knee, wrist, and forearm is not inconsistent with this theory.

A Clinically Validated Gene Expression Score Impacts Diagnosis and Management Recommendations of Melanocytic Lesions

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Myriad Genetic Laboratories, Inc., Salt Lake City, UT.

Background: Recently, a 23-gene expression signature was clinically validated as an adjunctive tool to differentiate benign nevi from malignant melanoma. The goal of this study was to quantify the impact of that test on diagnosis and management recommendations made by dermatopathologists.

Methods: Difficult to diagnose melanocytic lesions encountered during routine practice were submitted for gene expression testing and received a melanoma diagnostic score (MDS). Submitting dermatopathologists completed a survey on the pre-test diagnosis, level of diagnostic confidence, further evaluation to be performed, and management recommendations. The survey was repeated after receiving the MDS. Changes between the pre- and post-test surveys were analyzed.

Results: Thousand six hundred and ninety-five eligible cases were submitted by 79 dermatopathologists. When the MDS was available in diagnostically challenging cases, indeterminate diagnoses were reduced by 42.7%. Additionally, treatment recommendations were revised in 29.1% of all cases.

Conclusions: The MDS impacts diagnosis and management recommendations by dermatopathologists confronted with diagnostically challenging melanocytic lesions.

Beta-Papillomavirus Infection of Paradoxical Cutaneous Squamous Cell Carcinoma During BRAF-Inhibition Therapy

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Mayo Clinic, Rochester, MN; Vanderbilt University Nashville, TN; and University of Texas, Houston, TX.

BRAF-inhibition (BRAFi) melanoma treatment carries a risk of secondary cutaneous squamous cell carcinoma (cSCC) and other cancers. Cutaneous beta-HPV may act with host and environmental factors in BRAFi-cSCC.

Methods: Primary BRAFi-cSCC tissue DNA, isolated from patients on BRAFi (vemurafenib or dabrafenib), was tested for cutaneous oncogenic viruses and somatic mutations. Clinical parameters were statistically analyzed with histopathology.

Results: Twenty-nine patients contributed 69 BRAFi-cSCCs, of which 22% had wart-like features (BRAFi-cSCC-WF). During vemurafenib therapy, BRAFi-cSCC-WF arose 11.6 weeks more rapidly than conventional-cSCC controlling for gender and UV-exposure (p-value = 0.03). HPV-17, HPV-38 and HPV-111 composed 49% of infections. Three novel beta-HPV genotypes were discovered. RAS mutations occurred in 63% of evaluated BRAFi-cSCC. PIK3CA, EGFR and unique CKIT and ALK mutations were also detected.

Conclusions: BRAFi-cSCCs demonstrate rapid onset, frequent wart-like histomorphology, beta-HPV infection, UV-damage and RAS mutation. These findings enhance our understanding of keratinocyte oncogenesis and broaden the knowledge base of multifactorial mediators of cancer.
Cellular Blue Nevomelanocytic Lesions: Analysis of Clinical, Histological, and Outcomes in 37 Cases
Taylor Deal, MD,1 Tawny Hung, MD,1 Zsolt Argenyi, MD,2 Lori Erickson, MD,3 Joan Guitart, MD,4 Lori Lowe, MD,5 Jane Messina, MD,6 Michael W. Francisco, CA.
Departments of Dermatology and Pathology, Loyola University Medical MD, Cindy Krol, BS, and Rebecca Tung, MD

Lost Specimens
Mara Therese P. Evangelista1 MD, and Jeffrey P. North1 MD

and Variants of Basal Cell Carcinoma
Comparative Analysis of Cytokeratin 15, TDAG51, Cytokeratin 20, and Androgen Receptor in Sclerosing Basaloid Neoplasms and Variants of Basal Cell Carcinoma
Mara Therese P. Evangelista1 MD, and Jeffrey P. North1 MD

Background: Desmoplastic trichoepithelioma (DTE), morpheaform basal cell carcinoma (BCC) and microcystic adnexal carcinoma (MAC) are sclerosing basaloid neoplasms with overlapping histopathologic features. We compared cytokeratin 15, (CK15), T cell death—associated gene 51 (TDAG51), cytokeratin 20 (CK20) and androgen receptor (AR) in differentiating these tumors and also assessed their expression in BCC subtypes.

Methods: Fifteen cases of DTE, 15 cases of infundibulocystic BCC, 18 cases of micronodular BCC, 18 cases of morpheaform BCC and 6 cases of MAC were assessed for CK15, TDAG51, CK20 and AR expression.

Results: Qualitative positivity rates of CK15 (p = 0.636) and TDAG51 (p = 0.768) were comparable among the sclerosing basaloid neoplasms, while AR (p < 0.0001) and CK20 (p = 0.015) were significantly different. The CK20+AR- immunophenotype was 100% sensitive and specific in diagnosing DTE. A CK20+ AR+ immunophenotype was 95.24% specific and 83.33% sensitive for BCC, while the CK20-AR- immunophenotype was 83.33% sensitive and 90.91% specific for MAC.

Conclusions: The combination of CK20 and AR exhibited the greatest utility in differentiating sclerosing basaloid neoplasms.

Analysis of Histologic Features of Acral-Lentiginous Melanoma (ALM) in 627 Patients
Laurence Feldmeyer,1 Michael McLemore,1 Patricia Fox,2 Victor Prieto,1 and Doina Ivan1

Objective: We are presenting a series of patients with ALM, analyzing potential adverse histologic features.


Results: The mean Breslow thickness was 2.3 mm (0.21–21 mm), 78.9% presented as Clark levels IV or V. Ulceration identified in 42.6% and regression in 15.1% of cases. Perineural invasion (PNI) was evident in 22.1% cases, lymphovascular invasion (LVI) in 16.5%, and microscopic satellitosis in 5.7%. LVI was significantly associated with local recurrence (p = 0.0129), diagnosed in 11.7% of patients. Positive sentinel lymph nodes (SLN) were identified in 50.6% cases. Univariate predictors of positive SLN included thickness, ulceration, LVI and satellitosis (p < 0.0001). The follow-up was 43.7 months (0.3–187.5). Patients with positive SLN were significantly more likely to develop distant metastases (46% vs 23%) (p < 0.0001) and to die from their disease (29% vs 11%) (p < 0.0001).

Conclusion: This is one of the largest cohorts of patients with ALM studied to date. The frequency of LVI and PNI invasion are the highest reported and may account for a significantly high rate of positive SLN and satellitosis/in transit metastases.

Ungual Bacteriosis: Massive Bacterial Colonization Per Se Could Be Pathogenic in the Nail
Aldo González-Servá and Strátax,
Lexington, MA, USA.

In the 70s, myriad of bacteria in Pap smears was known as vaginal bacteriosis, not considered to be a disease. In 1984, the condition was upgraded to “bacterial vaginosis,” then considered a disorder. Nowadays, the CDC considers that bacterial vaginosis is the most common vaginal infection in women aged 15–44. For observers of nail clippings and avulsions, it is obvious that the not infrequent massive population of bacteria among the nails keratins may qualify as ungal bacteriosis in patients without evidence of onychomycosis. These massively overgrown Gram-positive cocci resemble those found in much lesser amounts in the usual nail. When pathogenic, they tend to induce plate keratolysis or form thick biofilms in the plate

Abstract
Conclusions: We postulate to consider ECH as a distinct entity of neoplastic sequestosome 1 etiopathogenesis conceivably driven by the epidermal collarette. Immunoreactivity for ALK protein was observed in the lioid factor XIIIa-positive cells set in a demonstrating anaplastic lymphoma kinase (ALK) protein expression. Both tumors were super.

Objective: To evaluate the clinical and histopathological features of prurigo pigmentosa and propose its etiological factors.

Methods: All the medical records, photographs and histopathological slides of 32 patients diagnosed with prurigo pigmentosa in Taiwan.

Results: The patient’s age ranged from 11 to 79 years (F:M = 2:2.1). Lesions were primarily reddish-brown located on back area occurring during summer season. Minocycline alone or in combination with steroid was effective among antibiotic treatment. The major microscopic features found were association of bacterial colonies revealing either folliculitis or perifolliculitis (21/32). Others were perivascular and dermal lymphocytic infiltration (32/32), spongiosis (21/32), necrotic keratinocytes (17/32), basal cell vacuolization (12/32), dermal melanophages (20/32) and eosinophils (14/32).

Conclusion: Our data suggest that bacterial involvement may play an important role in the pathogenesis of prurigo pigmentosa. However, clinicopathologic correlation and thorough long-term follow-up are necessary to establish a diagnosis of prurigo pigmentosa. Thus, detail investigations for its etiology and pathogenesis have yet to be determined in future.

Uncommon Clinical Presentations of Leprosy: Apropos of 3 Cases

Rashmi Jindal-Mittal and Nadia Shirazi

Abstract: Leprosy is a chronic infectious disease of skin and nerves caused by Mycobacterium leprae. In the era of leprosy elimination we now encounter cases with uncommon presentations. Here we present 3 such cases.

Case 1: A 25 years old man presented with erythema, edema and tenderness localized to right hand with overlying pustules. He also had 2 subcutaneous abscesses over right arm and chest wall. Fine needle aspiration of the abscess over arm showed multiple acid fast bacilli.

Case 2: A 54 year old man presented with erythematous scaly papules and plaques over face, arms and legs following insecticide spray. Skin biopsy done with possibility of contact dermatitis showed foamy macrophages with acid fast bacilli in fite stain.

Prurigo Pigmentosa: Clinicopathological Analysis of 32 Cases With Emphasis on its Etiology

Santosh Upadhyaya Kafle,1 Sai Myint Swe,2 Pa-Fan Hsiao,3,4 Yi-Chiu Tsai,2 and Yu Hung Wu2,3,4

1Department of Pathology, B.P. Koirala Institute of Health Sciences, Dharan, Nepal; 2Department of Medicine, Mackay Medical College, New Taipei City, Taiwan; 3Department of Dermatology, Mackay Memorial Hospital, Taipei, Taiwan; 4Department of Cosmetic Application and Management, Mackay Medicine, Nursing and Management College, Taipei, Taiwan.

Background: Prurigo pigmentosa is unique among inflammatory diseases of the skin and the singularity of it is manifest both clinically and histopathologically.

Objective: To evaluate the clinical and histopathological features of prurigo pigmentosa and propose its etiological factors.

Methods: All the medical records, photographs and histopathological slides of 32 patients diagnosed with prurigo pigmentosa in Taiwan.

Results: The patient’s age ranged from 11 to 79 years (F:M = 2:2.1). Lesions were primarily reddish-brown located on back area occurring during summer season. Minocycline alone or in combination with steroid was effective among antibiotic treatment. The major microscopic features found were association of bacterial colonies revealing either folliculitis or perifolliculitis (21/32). Others were perivascular and dermal lymphocytic infiltration (32/32), spongiosis (21/32), necrotic keratinocytes (17/32), basal cell vacuolization (12/32), dermal melanophages (20/32) and eosinophils (14/32).

Conclusion: Our data suggest that bacterial involvement may play an important role in the pathogenesis of prurigo pigmentosa. However, clinicopathologic correlation and thorough long-term follow-up are necessary to establish a diagnosis of prurigo pigmentosa. Thus, detail investigations for its etiology and pathogenesis have yet to be determined in future.

Braf Expression in Thin and Thick Melanomas: An Immunohistochemical Study

Jonathan Yao MD, Mena Mansour MD, Rina Avenkar MD, and Robert Phelps MD

Mount Sinai School of Medicine.

Braf expression in melanoma is used to determine the utility of kinase inhibitor therapy. Despite routine testing by PCR, little is known of the expression in early stage melanomas and this mutations may be progressive with extent of disease. To test this hypothesis, anti-VE1 Braf antibodies were used in 10 thin melanomas (range 0.28–0.6 mm) compared to 12 thick melanomas (range 1.35–5.0 mm). Five intradermal nevi with 10 metastatic melanomas and 5 Spitz nevi were used as positive and negative controls respectively. Selected melanomas also had PCR performed. All melanomas were obtained from relatively sun protected sites. The staining was graded from 1 to 3 (I:0-33% of melanocytes stained; II:34-66%; III-67-100%). All cases studied showed grade III staining. In only one of the thin melanomas was there staining (in the epidermis and dermis). In 4 of the thick melanomas, there was staining (3 in the epidermis and dermis, 1 ulcerated in the dermis only). Although the epidermal staining was unusual, this preliminary study suggests a possible change in phenotype as melanomas age and progress.

Galectin-3 Expression in Primary Cutaneous CD30-Positive Lymphoproliferative Disorders and Transformed Mycosis Fungoides

Winner Best Oral Abstract at Meeting

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Lymphoplasmacytic Plaque—A Series of 6 Patients. Diagnostic Approach and Review of the Literature

Christina Mitteldorf,¹ Alistair Robson,² and Werner Kempf³
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We investigated 6 own lymphoplasmacytic plaques (LPP) and 9 cases reported in the literature for their clinical and histologic characteristics and their diagnostic work-up. The objective was to define clinical and histologic criteria of LPP and to develop a diagnostic flow-chart. We could differentiate 3 main histological patterns (superficial band-like only, (deep) dermal only, and mixed). Acanthosis and interface dermatitis are key features in cases with a superdermal only, and mixed). Acanthosis and interface dermatitis are key criteria of LPP and to develop a diagnostic

Reappraisal of the Histopathological Features of Bullous Pemphigoid

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Bullous pemphigoid (BP) is the most common autoimmune bullous disease with a diagnosis made based on the clinical manifestation, histopathological findings, results of direct immunofluorescence, and serological test results. Because subepidermal bulla is the hallmark of BP in a biopsy specimen, other histopathological features are often ignored. We retrospectively studied histopathological features of 110 BP cases and found several remarkable features other than subepidermal bulla. Of the 110 BP cases, subepidermal bulla was seen in 98 cases, of which 65 also showed linear necrosis of basal cells, 25 showed intraepidermal bulla, and 26 showed adnexal involvement. Adnexal involvement was confirmed by the presence of floating adnexal epithelium within the bulla in 24 cases. Acantholysis was seen in 20 cases harboring subepidermal bulla, whereas vacuolar alteration was seen in 34 cases with subepidermal bulla and 8 cases without. Although eosinophils were the predominant inflammatory cells within the bulla and also in the dermis and epidermis in most cases, neutrophils predominated in the epidermis in 15 cases and within the bulla in 16 cases.

Palsaded Neutrophilic and Granulomatous Dermatitis/Interstitial Granulomatous Dermatitis. Report of 5 Cases

Mauricio Postigo,¹ Monica Ruiz,² Ferdinand deAmat,³ Lilia Zapata,² Claudia Salas,² Patricia Rivera,³ and Anadela Laera³
¹Anatomic Pathology and ²Dermatology Services, Hospital Carlos Seguin, Arequipa, Peru; ³Dermatology Service, Hospital Honorio Delgado, Arequipa, Peru.
Palsaded neutrophilic and granulomatous dermatitis (PNGD) and interstitial granulomatous dermatitis (IGD) are rare dermatoses, commonly believed to be the same entity or different sides of the same pathology. Both share a wide clinical spectrum, but have some different histopathological features and are associated with rheumatologic and other systemic diseases. We describe 5 cases, 3 of them with features of PNGD and 2 of IGD. Two PNGD cases were associated with uveitis; 1 case of IGD had autoimmune thyroiditis and a direct relationship with a reactive depressive state. Two cases were not associated with any other condition. Patients with PNGD showed indurated and raised erythematous papules and plaques, and patients with IGD displayed erythematous flat plaques. Histopathologically, PNGD cases evidenced a diffuse neutrophilic infiltrate with leukocytoclasis and histiocytes with degenerated collagen, and IGD cases showed an almost exclusive diffuse lympho-histiocytic infiltrate with some collagen degeneration. We demonstrate cases of PNGD and IGD with distinct clinical-pathological entities.

Ischemic Fasciitis: Lessons From 16 Cases

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Ischemic fasciitis (IF), is a pseudosarcoma resulting from repeated pressure and consequent intermittent ischemia of soft tissue. Although common in bedridden patients, activity-related intermittent pressure rather than immobilization was found to be the cause in 7 of 12 cases. The elbow and forearm were most commonly affected (4 cases each). In 75% of cases, a history sufficient to explain lesion development was obtained, usually after biopsy. Preoperative diagnoses included: mass, cyst, and nodule. In no instance was IF predicted clinically or radiologically.

Illustrative Case: An active 61-year-old woman presented to dermatology with a painless 1.0 x 1.5 cm swelling on the extensor surface of her proximal forearm temporally related to pressure from a new Pilates-reformer regime. MRI revealed thickening within the dermal soft tissues of the proximal forearm replacing the normal subcutaneous fat signal. Enhancement in MRI with contrast was read as an inflammatory process. Histologically, fibrous involution of fat with ischemic cell dropout was bordered by atypical fibroblasts and reactive vascularity. This zonation, especially over a bony prominence, should lead to history and radiologic consultation that avoids further surgery.

Cutaneous Metastases, 7 Years Report

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Anatomic Pathology Service, Hospital Carlos Seguin, Arequipa, Peru.

Objective: To review and describe all cases of cutaneous carcinoma metastases during a 7 year period, in our service.

Methods: We retrospectively review all cases with histopathologic diagnosis of metastatic carcinoma from 2007 to 2014. Clinical and pathologic data were collected.

Results: Overall, 17 cases were identified in the database from 8854 primary malignancies (incidence of 0.19%) and 1.62% from all skin cancers. Average age of patients was 58.8 years old. 70.6% of cases were females and 29.4% were males. Clinical morphology: 59% was a nodule, 17% a macule, 12% a papule, 6% an erythematous plaque and 6% a depressed lesion. Primary tumor: 29.4% were from breast, 17.6% from lung; skin, kidney, ovary, cervix and endometrium accounted for 5.88% each and 23.5% were of no known primary.
Conclusions: Our series demonstrate breast as the most common primary for cutaneous metastases, followed by lung; the most common clinical appearance was a nodule. These findings correlate with previously reported cases.

Macular Arteritis Associated With Concurrent HIV and Hepatitis B Infections: Evidence for a Disease Spectrum Association With Cutaneous Polyrteritis Nodosa
Athanasios Koliviras,1 Curtis T. Thompson,2 and Josette André1
1Department of Dermatology, CHU St Pierre-Brugmann-HUDERF, Brussels, Belgium; 2Departments of Biomedical Engineering, Pathology and Dermatology, Oregon Health & Science University, Portland, Oregon.
We report the first case of macular arteritis (MA) with concurrent HIV and HBV infections. Of particular interest in MA is the striking discordance between the clinical presentation and histopathological findings, a fact that dermatologists and dermatopathologists should be aware. The case showed typical findings of MA with a predominantly lymphocytic infiltrate and intraluminal thrombosis. Both HIV and HBV have been reported as viral inducers of cutaneous polyrteritis nodosa (CPAN). Their association with MA in this case supports the hypothesis that MA and CPAN represent a single disease spectrum of vasculitides, with MA representing the chronic, lymphocytic and indolent stage, and CPAN, the neutrophilic, acute stage with a risk for systemic progression. Lymphocytic thrombophilic arteritis (LTA), with a predominantly lymphocytic infiltrate and intraluminal thrombosis, is more common in HIV+ individuals. LTA is more likely a reactive process rather than a primary inflammatory process.

Trapp (T-Cell-Rich Angiomatoid Polypoid Pseudolymphoma) With Atypical Features
Majdy AlBahhar, Jordana Herschthal, and Paolo Romanelli
University of Miami, Miami, FL.
TRAPP is a unique type of T-cell pseudolymphoma. It is commonly encountered in the head and neck. Clinically, it looks-like pyogenic granuloma. Histologically, it is composed of T-cells, with variable number of plasma cells, histiocytes and may be few eosinophils. Prominent vessels lined by plump endothelial cells. T-cells are admixture of CD4 and CD8 cells. Most studies suggested a reactive process since most cases were polyclonal. We present an atypical case of TRAPP in 62-year-old female. She presented with a small reddish papule on the nose for several months. Shave biopsy showed localized dense CD3-positive T-cell infiltrate with equal number of CD4 and CD8 cells. CD20 was negative. Atypical T-cells with scattered mitosis were prominent. CD7 was completely negative. CD30 showed few scattered positive cells. T-cell gene rearrangement showed clonality. There were prominent blood vessels with hobnail-like endothelial cells. Patient underwent blood work up including CBC with differential, blood smear, and flow cytometry. They were within normal range. The patient reported complete healing of the lesion after the shave biopsy and regular follow up confirmed it.

True and False Cytokeratin Immunoreactivity in Sentinel Lymph Nodes (SLNs) Resected From Merkel Cell Carcinoma (MCC)
Kristine Astvatsaturyan, David Frishberg, and Bonnie Balzer
Cedars Sinai, Los Angeles, CA.
Background: Detection of MCC in SLNs often requires cytokeratin immunohistochemistry (IHC). We evaluated a range of cytokeratins to optimize detection of MCC SLN metastases.

Table 1. Immunoreactivity comparison (%)

<table>
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<tr>
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<th>CK20</th>
<th>OSCAR</th>
<th>CAM5.2</th>
<th>AE1/AE3</th>
</tr>
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<tbody>
<tr>
<td>Sensitivity</td>
<td>82</td>
<td>100</td>
<td>100</td>
<td>89</td>
</tr>
<tr>
<td>Golgi pattern</td>
<td>83</td>
<td>74</td>
<td>67</td>
<td>76</td>
</tr>
<tr>
<td>Cytoplasmic Pattern</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mixed Pattern</td>
<td>17</td>
<td>22</td>
<td>33</td>
<td>24</td>
</tr>
<tr>
<td>Focal</td>
<td>9</td>
<td>0</td>
<td>4</td>
<td>12</td>
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Design: Twenty-eight MCC metastatic SLNs and 15 MCC negative SLNs form the study set. IHC slides for CK20, CAM 5.2, AE1/AE3, OSCAR were scored by 2 pathologists for reactivity distribution and pattern. For comparison 6 melanoma SLNs were stained with CAM5.2 and OSCAR.

Results: 1. All cytokeratins had mixed patterns with Golgi predominating (75%) (Table 1). 2. OSCAR and Cam5.2 were easily detected, but exhibited anomalous reactivity in negative MCC SLNs (6/15) and melanoma SLNs (4/6). 3. OSCAR and Cam5.2 detected MCC in 2 SLNs negative by CK20 and AE1/AE3.

Conclusions: Cytokeratins OSCAR, Cam5.2, and AE1/AE3 are more sensitive for detecting MCC in SLNs than CK2. Anomalous expression of OSCAR and Cam5.2 requires interpreting with caution.

Pineal Gland Mass and A Skin Nodule
Justin Bandino, MD
San Antonio Uniformed Services Health Education Consortium, San Antonio, TX.
A 47 year old female presented to the ER reporting a 1 week history of dizziness, headache, nausea, vomiting, and memory loss. A head CT discovered a hyperattenuating, well-circumscribed 1.7 cm pineal region mass. Initial differential included a primary pineal parenchymal neoplasm, a tentorial meningioma, or a germ cell tumor but the tumor was not found by Neurosurgery to involve the pineal gland and exhibited poorly differentiated cells. An extensive small round blue cell differential existed but was narrowed to lymphoma, Ewing’s sarcoma, small cell carcinoma, and melanoma. Immunohistochemistry was positive for vimentin, CD99, and focal p53, but negative for PLAP, EMA, chromogranin/synaptophysin, GFAP, CAM 5.2, IDH-1, and NFP. Follow-up IHC was negative for Lu-5, but positive for NSE, MART-1, MiTF, HMB-45, and S-100. Primary CNS melanoma was considered but a full body skin exam revealed a large 3 × 4 cm exophytic violaceous firm fixed lesion on her right lower knee. Similar staining was noted but the lesion could not be confirmed as the primary lesion. This presentation will discuss primary CNS melanomas, secondary metastatic disease to the brain, as well as Melanoma of Unknown Primary.

NCOA2 Immunohistochemistry in Cutaneous Indeterminate Cell Histiocytosis Versus Langerhans Cell Histiocytosis
Justin Bandino, MD
San Antonio Uniformed Services Health Education Consortium, San Antonio, TX.
Diagnosis of Langerhans cell histiocytosis (LCH) relies on langerin immunohistochemistry (IHC) or electron microscopy to assess for Birbeck granules, which are specific to LCH. When these studies are negative, the diagnosis of indeterminate cell histiocytosis (ICH) is possible. In light of the absence of diagnostic tools with positive predictive value for ICH, however, this entity remains controversial. Alteration of NCOA2, which encodes...
Objective: Clinicians often submit genital lesions, with benign pre-biopsy diagnoses which are histologically diagnosed as HSIL. The objective is to determine how frequently clinicians consider HSIL in the pre-biopsy diagnosis.

Methods: A retrospective record review is performed of cases diagnosed as genital HSIL in men at a National Dermatopathology lab between 1/1/2008 and 1/1/2014. Since HSIL is relatively new terminology advised by the Lower Anogenital Squamous Terminology consensus conference (LAST), cases are identified with diagnoses of HSIL. Bowen’s disease, Bowenoid papulosis and squamous cell carcinoma in situ. The records are examined to identify pre biopsy diagnoses, history of skin cancer and HPV infection.

Results: One hundred and fifty-six specimens from 148 patients are identified. In 53% of specimens there was no documented suspicion of malignancy (HSIL, SCC, basal cell carcinoma or melanoma). In 28% of specimens, the pre-biopsy diagnoses were limited to clinically pigmented lesions (seborrheic keratosis, lentigo, dysplastic nevus or melanoma). In 40% of specimens, a pigmented lesion was listed in the differential diagnosis.

Conclusions: Dermatologists often fail to consider the diagnosis of HSIL in male genital lesions. HSIL should be considered in the differential diagnosis of all genital lesions in men.

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**Boggy Scalp and Hair Loss: A Case of Lipedematous Alopecia**

Tania M. Gonzalez Santiago MD and Alina G. Bridges, DO

Mayo Clinic, Department of Dermatology, Rochester, Minnesota.

A 51-year-old Caucasian female presented with a 1-year-history of scalp pruritus which was accompanied by thickness of the scalp and gradual hair loss. The patient had no significant past medical history and had not recent illnesses. Family history was unremarkable. Physical examination revealed patchy areas of alopecia most prominent along the vertex scalp. The scalp was mildly tender on palpation and had a boggy consistency. Histologic sections revealed hyperkeratosis and mild acanthosis. A scant mixed superficial perivascular, and perifollicular infiltrate was present. No significant dermal or perifollicular fibrosis was detected. There was prominent subcutaneous adipose tissue extending into the dermis and around hair. Based on the clinical and pathologic findings patient was diagnosed with lipedematous alopecia (LA). LA is a rare disease of unknown etiology characterized by thick, boggy scalp with varying degrees of hair loss. Although initially described to occur in Afro-American patients, several reports on Asian and Caucasian patients have lessened the role of racial factors in the pathogenesis of this disease. We report a case of LA in a Caucasian patient who was initially diagnosed with “scarring alopecia.” The clinical and histologic features for this rare entity are described.

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**Diagnostic Pitfalls in Localized Massive Lymphedema**

Caitlin Halverson and Kristopher McKay

University of Alabama-Birmingham, Section of Dermatopathology.

Localized massive lymphedema is a rare pseudoneoplasm that occurs in morbidly obese patients and can mimic a well-differentiated liposarcoma (WDL). It develops due to obstruction of subcutaneous lymphatics due to large, dependent skin folds and occurs on the abdomen or medial lower extremities. We present the case of a 42-year-old morbidly obese man who presented with a rapidly enlarging tumor on the left upper thigh. Excision of a 25 pound mass was performed. Histopathology showed massive expansion of thickened, subcutaneous fibrous septae by edema fluid, foci of atypical fibroblasts, and reactive capillary proliferations on the periphery of fat lobules. Typical features of WDL including lymphoid aggregates and foci of atypical cells with multilobated, hyperchromatic nuclei were not seen. Fluorescent in situ hybridization testing for MDM2 (12q15) did not demonstrate amplification. Although the clinical and histopathologic findings in this case are classic, the diagnosis was not considered by the referring physicians, which in our experience is not uncommon and reflects a general
lack of awareness of this rare entity. Thus, we report this case to raise awareness and to help prevent misdiagnosis as WDL.

**Atypical Apocrine Tumor of Anogenital Mammary-Like Glands Presenting in Cowden Syndrome: A Novel Association?**

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**Purpose:** Anogenital mammary-like glands (AMG) are appendages of anogenital skin. Rarely, they transform into epithelial and stromal tumors that morphologically resemble breast tumors. Cowden Syndrome (CS) is an autosomal-dominant (PTEN gene) cancer-susceptibility syndrome that potentially leads to skin and breast cancers. A benign proliferative AMG lesion in the setting of CS is described here for the first time.

**Methods:** Twenty-seven-year-old female with CS (R130Q-PTEN mutation) presented with a tender, 1-cm polypoid perianal lesion. A full thickness excision was performed.

**Results:** Grossly, the cut surface showed a lobulated lesion with glistening tan-pink surface. Microscopy revealed a circumscribed, lobulated, proliferative lesion with papillary, micropapillary, and focal cribriform architecture. Immunohistochemical staining revealed positive staining for GCDFP-15 and GATA3.

**Conclusions:** These findings support the hypothesis that AMG in CS setting. Association of proliferative AMG pathogenesis and PTEN mutation needs further investigation.

**Overlap Porphyria Cutanea Tarda and Lupus: A Report of 2 Cases**

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We present 2 patients with co-existing porphyria cutanea tarda (PCT) and lupus. The first, a 63 year old woman on hemodialysis for polycystic kidney disease, initially presented with a blistering dorsal hand eruption. Skin biopsy showed thickened blood vessels Urineporphyrins were elevated, consistent with PCT. She was also noted to have a macular telangiectatic eruption on the chest, which triggered workup for connective tissue disease. Skin biopsy showed vacuolar interface dermatitis and blood tests found, elevated ANA, and elevated anti-Ro antibodies, consistent with an overlapping diagnosis of subacute cutaneous lupus. A 52 year old patient with known systemic lupus erythematosus developed photodistributed bullae on the upper extremities. Skin biopsy from the hand showed both subepidermal bulla and vacuolar interface dermatitis with dermal perivascular neutrophilic inflammation. Urine porphyrins and ferritin were elevated at the time of the eruption. Skin blistering resolved after therapeutic phlebotomy. Although rare, the overlap of PCT and lupus should be considered in patients with suggestive clinical features to ensure optimal treatment.

**Histologic Features of Non-Melanoma Skin Lesions Treated With Imiquimod**

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**Object:** Describe the histologic features of skin biopsies performed on lesions treated with topical imiquimod.

**Methods:** This is a case series in which a retrospective electronic record review was performed utilizing “imiquimod” as the search term. Our search identified 5 non-melanoma cases meeting criteria.

**Results:** Inflammatory responses included dense, often lichenoid type lymphoid infiltrates. One case demonstrated atypical lymphocytes. Epidermal changes included dyskeratotic keratinocytes and vascular surface alteration. Residual lesions were not identified in any biopsies.

**Conclusions:** Topical imiquimod is a dermatologic agent indicated to treat genital warts, actinic keratoses and superficial basal cell carcinomas. Lesions treated with imiquimod can pose clinical diagnostic challenges as erythema and ulceration are not uncommon responses thereby making it difficult to ascertain whether a lesion has been adequately treated. Biopsies are therefore performed to assure adequate treatment. While although the histologic findings of lesions treated with imiquimod could lead to further diagnostic uncertainty, as both the epidermal and inflammatory response can mimic malignant entities, in our series, pathologists were able to discern whether or not residual lesions remained in all cases.

**Disseminated Histoplasmosis in a Traveler: A Potential Diagnostic Pitfall**

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A 33 year-old male veteran presented to a hospital with a 4-week history of diarrhea and fever after returning from Iraq. Clinical evaluation revealed a new diagnosis of HIV-AIDS with a CD4 count of 21. He was subsequently started on HAART. One week later, he developed an asymptomatic erythematous maculopapular eruption involving the face, trunk, and upper and lower extremities. The clinical differential diagnosis included drug eruption, hemorrhagic lymphocytosis syndrome, Kaposi’s sarcoma, and viral exanthem. A punch biopsy from the right arm demonstrated abundant histiocytes in the superficial dermis containing intracellular PAS and GMS-positive microorganisms. A bone marrow biopsy revealed numerous macrophages with similar intracytoplasmic microorganisms. Histopathologic differential diagnosis included disseminated histoplasmosis and leishmaniasis. The organisms appeared to lack kinetoplasts under light microscopy. Immunohistochemical staining for Histoplasma capsulatum was positive and PCR testing for Leishmania spp., was negative. Tissue fungal cultures grew H. capsulatum, and urine Histoplasma antigen was positive, further supporting the diagnosis. Our case highlights the value of synergistic histologic, microbiological, and molecular assessment in distinguishing between histoplasmosis and leishmaniasis. These entities may be difficult to differentiate in an immunocompromised patient with a significant travel history.

**Malignant Melanoma Growth Requires CD98 Expression**

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**Background:** Malignant melanomas are a heterogeneous group of malignancy commonly studied using assays to detect DNA sequence alterations. We sought to identify alterations in protein levels that are hallmark of malignant melanomas. We focused on identifying cell-membrane proteins that could represent new targets for molecular therapy. We chose to study CD98, an essential amino acid carrier composed on heavy chain (CD98hc, i.e. SLC3A2) and corresponding light chain (CD98lc, i.e. SLC7A5), and evaluate whether this marker is upregulated on the cell surface of melanomas.

**Methods:** We evaluated 5 cases of benign melanocytic nevi, 4 cases of atypical melanocytic nevi, and 50 cases of malignant melanoma for CD98 expression. Cases were scored for staining intensity ranging from 0 (negative staining) to 3+ (diffuse strong staining).

**Results:** CD98 was markedly upregulated on the cell surface of 70% (35/50) of malignant melanomas, often at high levels. CD98 was completely negative in all 5 benign melanocytic nevi and was detected at low levels in 3/4 atypical nevi. In addition, we demonstrated that CD98 was required for in vitro proliferation of several melanoma cell lines.
Conclusion: CD98 protein levels are upregulated in melanomas. CD98 could potentially be used as a diagnostic marker in ambiguous melanocytic lesions, in which the diagnosis of melanoma is entertained. Furthermore, melanomas expressing this marker could be subjected to targeted therapy with available anti-CD98 agents.

A Rare Case of Axillary Sweat Gland Carcinoma With Osteosarcomatous Transformation
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Primary cutaneous apocrine sweat gland carcinomas are rare tumors which most commonly involve the axillae. Some are indolent, while others may show aggressive behavior and metastatic spread, with the lymph nodes the most common site of metastasis. Complete surgical excision is the treatment of choice. Various histologic patterns have been reported, but mesenchymal transformation has not been previously described in these tumors. A 63-year-old male presented with painful, acute enlargement of a previously stable and asymptomatic pea-sized nodule in the left axilla with overlying skin changes. Histopathologic sections demonstrated a poorly differentiated primary sweat gland carcinoma with prominent areas of sarcomatoid transformation, composed primarily of osteosarcomatous heterologous differentiation. Nested and cystic areas contained epithelial cells with strong, diffuse CK7 immunoreactivity. Molecular analysis was consistent with an osteosarcoma.

Correlation of P21 Expression in Head and Neck Squamous Cell Carcinoma With Clinicopathologic and Prognostic Parameters
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Purpose: p21 is closely related predictive marker, having bad prognostic effect in Head and Neck squamous cell carcinoma (HNSCC). The purpose of my study is to determine the expression of p21 in HNSCC with various parameters.
Materials and Methods: One hundred and ten patients of HNSCC were included in the study, p21 expression was noted and correlated with various parameters.
Results: Out of 110 cases, p21 positive cases were 88 (80%) while p21 negative were 22 (20%). Nodal metastasis was seen in 51 cases (57.95%) with positive p21 expression as compared to 4 cases (18.8%) with negative p21 expression (p value = 0.04). Thirty-nine cases (44.31%) showed recurrence with p21 positive carcinomas while 3 cases (13.63%) showed recurrence with p21 negative carcinomas (p value = 0.08). Two year survival rate was 56.81% (n = 88) with p21 positive cases while p21 negative cases showed 90.90% (n = 22) 2 year survival rate (p value = 0.20).
Conclusion: Positive p21 expression in Head and neck squamous cell carcinomas is a strong bad prognostic factor and correlates with increased nodal metastasis, tumor recurrence and worse overall survival.

Going to Your Head: The Distribution of Cutaneous Metastases Is Predicted by Tissue Treg Density
*SECOND PLACE WINNER, DERMATOPATHOLOGY TRAINEE WORLD CUP COMPETITION*†
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Squamous Eccrine Metaplasia With Neurotropism: A Potential Overdiagnosis of Aggressive Squamous Cell Carcinoma
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We present a case of a 68-year-old male with biopsy-proven BCC of the left leg. A follow-up excision specimen showed nested basal cells attached to the epidermis with peripheral palisading and clefing, confirming the diagnosis. An irregular area of squamatized eccrine units and epidermal hyperplasia was associated with the biopsy site. This dermal squamous population surrounded a deep dermal nerve, raising the possibility of a second carcinoma. Nonetheless, the nuclei were cytologically bland and the nests had indented contours characteristic of reactive biopsy site changes. The area of neurotropism was related to other squamatized eccrine ducts. This case differs from epithelial sheath nevus because it involves an anatomically-normal deep dermal nerve and represents a focal finding associated with typical squamous eccrine metaplasia and reactive epidermal hyperplasia at a biopsy site. Benign mimics of SCC exist and are potential diagnostic pitfalls. These entities include: pseudopitheloimatomatous (pseudocarcinomatous) hyperplasia, inverted follicular keratosis, and, as reported herein, squamous eccrine metaplasia with neurotropism. Recognizing these patterns, applying appropriate diagnostic criteria, and maintaining close clinicopathologic correlation can prevent misdiagnosis.

Phimosis With Incidental Lichen Sclerosus Et Atrophicus: A Histopathologic Mimic of Mycosis Fungoides
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Background: Lichen sclerosus et atrophicus (LSA) in males characteristically involves the glans and foreskin, often resulting in acquired phimosis. LSA may not be clinically apparent, but has been identified histologically in over 60% of circumcision specimens from patients with phimosis. Histologic findings may be non-specific in early lesions, potentially simulating other inflammatory dermatoses. This inflammatory stage of LSA has been reported to simulate mycosis fungoides (MF). This histologic presentation is less well known in foreskin specimens. A case of a circumcision specimen showing histologic changes simulating MF due to subclinical LSA is presented, and the histologic features of phimosis are reviewed.
Case: A foreskin specimen was submitted for histologic review, with no initial clinical history. Histologically, there was psoriasiform epidermal hyperplasia without significant spongiosis and with epidermotropism of small, but irregular lymphocytes with perinuclear halos. Some of these were aligned along the basal layer. There was papillary dermal sclerosis. The patient had no known clinical rash.

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**Conclusion:** Phimosis may have subclinical LSA and should be included in the list of MF simulators.

**Majocchi’s Granuloma May Be Missed Due to Negative Epidermal Fungal Stains**

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**Background/Objective:** The diagnosis of Majocchi’s granuloma (MG), typically confirmed by fungal stains, may be missed if fungi are absent in the stratum corneum. Our objective was to assess the frequency of fungal stain negativity in the stratum corneum of (MG) and histologic features.

**Methods:** Thirty-five cases of MG were obtained from the files of the Ackerman Academy of Dermatopathology from January 2012 to August 2014. Epidermal and dermal changes were analyzed on PAS and routine histology.

**Results:** 15/35 had identifiable hyphae in the epidermis. Epidermal changes included compact stratum corneum, parakeratosis and variable spongiosis. Dermal changes of vessel congestion, extravasation of erythrocytes, edema, and follicular spongiosis were common. Eosinophils, often admixed with neutrophils, were present in most of the sections. Some biopsies showed overlapping features with dermal hypersensitivity.

**Conclusion:** A diagnosis of MG may be missed due to the absence of fungus in the epidermis, especially if a hair is not present in the sections. Perivascular mixed inflammation, compact hyperkeratosis, congestion, and purpura should prompt one to perform levels to assess for a follicle.

**Mycosis Fungoides: When the Clinical Course Doesn’t Fit**

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A 68 year-old woman with a history of mycosis fungoides presented with progressive and painful ulcerations. Biopsies in 2011 showed an atypical dermal lymphoid infiltrate with epidermotropism and pilotropism that showed immunoreactivity to CD3, CD4, and CD7, and lacked expression for CD2, CD5, CD8, and TCR-Beta-F1. Although this pattern of immunostaining was atypical, she was diagnosed with folliculotropic mycosis fungoides. She trialed topical steroids, narrow band UVB, local radiation, methotrexate, chlorambucil, and bexarotene, yet continued to progress. Biopsy of a shoulder ulcer performed at our institution in 2014 showed a dermal infiltrate of atypical lymphoid cells with immunostaining demonstrating expression of CD3, without expression of CD4, CD5, CD7, CD8, or TCR-Beta-F1. TCR gamma-delta stain was positive. Systemic evaluation remains negative for lymphoma. This pattern supports a diagnosis of primary cutaneous gamma-delta T-cell lymphoma. In this case, lack of response to skin directed and systemic therapies prompted rebiopsy and the eventual diagnosis of primary cutaneous gamma-delta T-cell lymphoma. This demonstrates the need for careful immunophenotypic evaluation and the utility of the gamma-delta immunostain to identify this rare and aggressive cutaneous lymphoma.