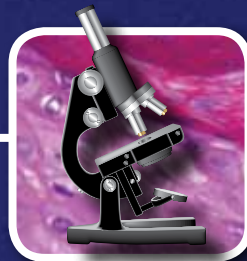


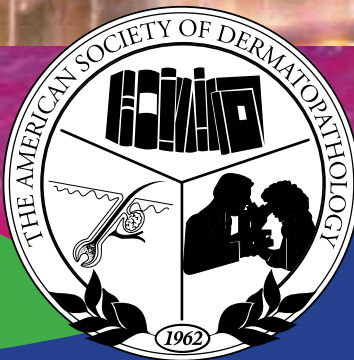
# ASDP 47<sup>TH</sup>

## Annual Meeting

The American Society of Dermatopathology



**Program  
& Abstracts**



**October 7–10, 2010**  
Hilton Atlanta  
Atlanta, GA USA

[www.asdp.org](http://www.asdp.org)

## Table of Contents

General Information ..... 5  
2010 Founders' and Nickel Award Recipients ..... 7  
Officers, Committees, Program Directors ..... 9  
Past Presidents, Past Secretary Treasurers, Past Editors ..... 10  
Committee Meetings ..... 12  
Faculty Disclosures ..... 13

### Schedules at a Glance

Program at a Glance ..... 17  
Consultations in Dermatopathology ..... 20  
    Schedule at a Glance ..... 20  
Self-Assessment in Dermatopathology ..... 22  
    Schedule at a Glance ..... 22

### Exhibits and Supporters

Exhibit Floor Plan ..... 25  
Exhibitors and Supporters ..... 25

### Thursday, October 7

Daily Program ..... 31  
Session Handouts ..... 37

### Friday, October 8

Daily Program ..... 41  
President's Reception & Banquet ..... 46  
Session Handouts ..... 47

### Saturday, October 9

Daily Program ..... 51  
Memorial Lecture ..... 54  
Evening Slide Symposium Case Summaries ..... 57  
Session Handouts ..... 59

### Sunday, October 10

Daily Program ..... 63  
Session Handouts ..... 67

**Oral Abstracts** ..... 71

**Poster Abstracts** ..... 95

**Presenter Index** ..... 195

# ASDP 47<sup>TH</sup> Annual Meeting

The American Society of Dermatopathology





## General Information

### Continuing Medical Education

The American Society of Dermatopathology is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The American Society of Dermatopathology designates this educational activity for a maximum of 35 *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should only claim credit commensurate with the extent of their participation in the activity.

The American Society of Dermatopathology 47th Annual Meeting is recognized by the American Academy of Dermatology for 35 hours of AAD Category I CME credit and may be used toward the American Academy of Dermatology's Continuing Medical Education Award.

### CME Claims and Verification of Attendance

You will receive a CME Claim form in your registration packet on which you are to indicate the number of CME hours you are claiming for this educational activity. The number of CME credit available for each course is indicated by the course title in this program and on the CME Claim form. Complete this form and submit it along with your session evaluation forms to the ASDP meeting registration desk. You must return this form in order to receive appropriate CME credit.

Your self-claimed CME credits will be recorded after the Annual Meeting and an official CME certificate will be mailed to you. Allow six to eight weeks for processing. Appropriate credit for attendance should be ascertained and reported by individual physicians to the particular state or medical society to which he/she belongs.

For those who are registered in the AAD CME Transcript/Award Program, you should log in to the AAD Online CME Transcript Program to enter credits for this AAD recognized Category 1 CME Program. ASDP's AAD program number is 254-100.

### Participant Objectives

The mission of the American Society of Dermatopathology is to teach, aid in the dissemination of knowledge, and encourage research, thus improving the quality of the practice of dermatopathology. The annual meeting is primarily an educational one, offering physicians, fellows, residents, and medical students, lectures on current topics in dermatopathology, interactive sessions at the microscope, a self-assessment course, and opportunities for poster and abstract presentations.

### Overall Learning Objectives for the 2010 Annual Meeting:

- Define molecular studies and other new techniques that are useful in confirming a diagnosis of infectious dermatoses.
- Understand how histology, molecular studies and the application of new research techniques can be integrated to assist in the diagnosis of lymphoproliferative diseases.
- Recognize new classification schemes for lymphoproliferative disorders.
- Identify critical elements that lead to the histologic diagnosis of melanoma.

- Differentiate essential diagnostic features that lead to the accurate histologic assessment of surgical margins.
- Recognize light microscopic findings that lead to a diagnosis of specific inflammatory dermatoses.
- Develop a diagnostic approach to the evaluation of biopsies from inflammatory skin lesions.
- Expand diagnostic skills by increasing familiarity with a variety of skin conditions.
- Recognize areas where new information gained from the presented cases has identified potential practice gaps and altered your awareness of competence and performance related to the presented cases.
- Develop a differential diagnosis and diagnostic approach for select groups of diseases by personal instruction with an expert in the field.
- Self-assess your diagnostic acumen and relate this information to your daily practice.

### Disclosure

The American Society of Dermatopathology (ASDP) is accredited by the Accreditation Council for Continuing Medical Education (ACCME). As such, we are required to meet the ACCME's expectations for our practice of continuing medical education. It is the policy of the ASDP to ensure balance, independence, objectivity and scientific rigor in all of its educational activities. Faculty participating in and planning the Annual Meeting must comply with all procedures governing disclosure. The ASDP has implemented a process where everyone in a position to control the content of an educational activity will present evidence based content, disclose all relevant financial relationships with any commercial interest and discussion of unlabeled/investigational uses of a commercial product. In addition, presentations must be free of commercial bias and any information regarding commercial products/services must be based on scientific methods generally accepted by the medical community. Conflicts will be resolved prior to this educational activity. Faculty who refuse to disclose relevant financial relationships and discussion of unlabeled/investigational uses of a commercial product may be disqualified from being a part of the planning and implementation of this CME activity. Presenters who qualify for the implementation of this activity are required to disclose to the audience, any of the relationships mentioned above.

## Slide Library

*Room 209-211*

**Curator:** Arthur K. Balin, MD, PhD, *Sally Balin Medical Center for Dermatology & Cosmetic Surgery*

The ASDP Slide Library opens Friday, October 8, at 1:30 p.m. and will be open 24-hours-a-day through Sunday, October 10, at 11:00 a.m. One hundred selected cases from the continuously growing slide library will be available for microscopic examination. Cases are accompanied by the diagnosis and other relevant written information and references. The 2010 Slide Library handout with case summaries, diagnoses with discussion and references will be available inside the library room.

### **Upon completion of study, participants should be able to:**

- Explain the histologic diagnosis of various skin conditions, including the use of ancillary studies, where appropriate.
- Interpret the histologic diagnosis of uncommon skin diseases.
- Critique cases that highlight diagnostic challenges.
- Apply morphological criteria to the differential diagnosis of cutaneous lesions.
- Develop appropriate differential diagnoses for a wide spectrum of tumors and dermatoses.

## Membership Business Meeting

**Saturday, October 9**

*Salon East Ballroom*

Noon – 1:30 p.m.

Members should attend the ASDP Membership Business Meeting luncheon on Saturday, October 9. The annual report to the membership will be distributed to each meeting participant. Only Fellow members of the society are allowed to vote.

## Evening Slide Symposium Preview – Open 24 Hours!

*Room 213*

Preview the Evening Slide Symposium cases throughout the annual meeting and attend the Symposium Saturday evening. Case summaries are listed in the program book behind the Saturday tab.

## ASDP Career Center

*Grand Ballroom Foyer*

The official ASDP career center is located on the Web site at [www.asdp.org](http://www.asdp.org); however, the Society has employment boards located in the Grand Ballroom Foyer. Meeting registrants can post positions available or resumes for other attendees to peruse. Individuals are responsible for making copies. The Society will not make copies onsite.

## Annual Award Recipients

### 2010 Founders' Award



**Daniel J. Santa Cruz, MD**

*Cutaneous Pathology*

*WCP Laboratories Inc*

The Founders' Award honors individuals who have made significant contributions to the field of dermatopathology, recognized by dermatopathologists throughout the medical world. This year the award will be presented to Daniel J. Santa Cruz, MD, in recognition of his leadership in the field of dermatopathology. Dr. Santa Cruz received his MD degree from the University of Buenos Aires, Buenos Aires, Argentina. His pathology residency and fellowship training was completed at Ohio State University and Washington University School of Medicine and Barnes Hospital in St. Louis, Missouri. In 1996, Dr. Santa Cruz and Dr Mark A. Hurt established Cutaneous Pathology (WCP Pathology Laboratories) in St Louis, MO. Over three hundred medical students, residents and visiting fellows from USA, Europe and Latin America have trained through the years in Cutaneous Pathology. Santa Cruz is the founder and Editor-in-Chief of the Seminars in Diagnostic

Pathology, now in its 26th year. In addition, he serves on the editorial boards of more than 10 pathology, dermatology and dermatopathology journals from around the world. Santa Cruz is board certified in Anatomical Pathology and Dermatopathology. He has published more than 100 original articles and chapters of classical textbooks on a broad spectrum of topics in Dermatopathology, including the original description of 25 new conditions.

### Previous Award Recipients

2009 Antoinette F. Hood, MD  
2008 Jag Bhawan, MD  
2007 Wilma F. Bergfeld, MD, FACP  
2006 Ronald J. Barr, MD  
2005 David D. Weedon, AO, MD, FRCPA  
2004 Philip E. LeBoit, MD  
2003 Ernst H. Beutner, PhD  
2002 John C. Maize, MD  
2001 Franz M. Enzinger, MD  
2000 Wayne C. Johnson, MD  
1999 Loren E. Golitz, MD  
1998 Martin C. Mihm, Jr., MD  
1997 Edward Wilson-Jones, FRCP, FRCPath  
1996 John R. Haserick, MD  
1995 Herbert Z. Lund, MD  
1993 Richard J. Reed, MD  
1992 John T. Headington, MD  
1991 Robert G. Freeman, MD  
1990 James H. Graham, MD  
1989 A. Bernard Ackerman, MD  
1988 Wallace H. Clark, Jr., MD  
1987 Richard K. Winkelmann, MD  
1986 Walter F. Lever, MD  
1985 Elson B. Helwig, MD  
1984 Hermann Pinkus, MD

## 2010 Walter R. Nickel Award



**Hideko Kamino, MD**  
*Professor of Pathology and Dermatology*  
*Director of Dermatopathology*  
*NYU School of Medicine*

The Walter R. Nickel Award for Excellence in Teaching of Dermatopathology is awarded annually to honor an individual who has made great contributions in dermatopathology education. This year the award will be presented to Dr. Hideko Kamino, associate professor of dermatology and pathology at New York University School of Medicine. Dr. Kamino graduated with honors from the National Autonomous University of Mexico and trained in dermatology at the Institute of Tropical Diseases in Mexico City, sponsored by the National Autonomous University of Mexico. She did her anatomic pathology training at the Mount Sinai Hospital in New York City and at the University of California in Los Angeles. Her dermatopathology fellowship was done with Dr. A. Bernard Ackerman at New York University. Dr. Kamino has held the positions of director of dermatopathology and the director of the dermatopathology fellowship training programs at Duke University and at New York University. She has been president of the American Society of Dermatopathology, member of the executive committee of the International Society of Dermatopathology, member of the board of directors of the American Society of Dermatopathology, and member of the editorial board of the *American Journal Dermatopathology*. Dr. Kamino has published more than 100 papers in peer-reviewed journals, has authored several chapters in books, and has participated and directed many courses in national and international meetings. During her academic career, her passion has been teaching residents and fellows and she has received several awards for her excellence in teaching at Duke University and at New York University.

### Previous Award Recipients

2009 James W. Patterson, MD  
2008 Dirk M. Elston, MD  
2007 Bernett L. Johnson, Jr., MD  
2006 Jag Bhawan, MD  
2005 Ronald P. Rapini, MD  
2004 Bruce R. Smoller, MD  
2003 Terence J. Harrist, MD  
2002 N. Scott McNutt, MD  
2001 Antoinette F. Hood, MD  
2000 Wilma H. Bergfeld, MD  
1999 James H. Graham, MD  
1998 A. Bernard Ackerman, MD  
1997 Elson B. Helwig, MD

## **Officers and Committees, Past Presidents, Past Secretary-Treasurers and Past Editor**

**October 2009 – October 2010**

Earl J. Glusac, MD, **President**

Zsolt B. Argenyi, MD, **President-Elect**

Mark A. Hurt, MD, **Secretary-Treasurer**

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Wilma F. Bergfeld, MC, FACP, FAAD  
Nigel J. Ball, MD, FRCPC  
Zsolt B. Argenyi, MD  
Terry L. Barrett, MD  
James W. Patterson, MD  
Sandra H. Clark, MD

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Jennifer M. McNiff, MD, Ex-Officio

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Andrea L. Volk, MD  
Stephen C. Somach, MD  
Christine Jaworsky, MD  
Melissa P. Piliang, MD

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Helmut Kerl, MD  
Heinz H. Kutzner, MD  
Cesare Massone  
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### **Ethics Committee**

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Terry L. Barrett, MD  
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Earl J. Glusac, MD, Co-Chair  
Thomas N. Helm, MD  
Antoinette F. Hood, MD  
Lyn M. Duncan, MD  
Arnold L. Schroeter, MD  
Curtis T. Thompson, MD

### **Informatics Committee**

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Philip J. Boyer, MD, PhD, Co-Chair  
Tammie Ferringer, MD  
Roger H. Weenig, MD, MPH



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Terry L. Barrett, MD  
Vilma C. Fabre, MD  
Christine Ko MD  
Shane A. Meehan, MD  
Jon A. Reed, MD  
Antoinette F. Hood, MD, Ex Officio

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Anne C. Lind MD  
Victor G. Prieto MD, PhD  
Mary S. Stone, MD

**Sponsorship & Support Committee**

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Clay J. Cockerell, MD  
Lynne J. Goldberg, MD  
Jane M. Grant-Kels, MD  
Jacqueline M. Junkins-Hopkins, MD  
Lori Lowe, MD

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Arlene S. Rosenberg, MD  
Najwa Somani, MD, FRCPC, FAAD  
Harry L. Winfield, MD

**Editor, *Journal of Cutaneous Pathology***

Timothy H. McCalmont, MD

**Journal CME Program**

Meera Mahalingam, MD, PhD, FRCPath, Director  
Stephen C. Somach, MD  
Andrea L. Volk, MD

**Quality Assurance & Laboratory Proficiency Program Director**

Drazen M. Jukic, MD, PhD

**Immunofluorescence Quality Assurance Testing**

Ernst H. Beutner, PhD, Director  
Richard W. Plunkett, PhD, Co-director

**USCAP-ASDP Companion Meeting Course Director**

Victor G. Prieto MD, PhD

**ASDP 47th Annual Meeting**

**Slide Library Curator**

Arthur K. Balin, MD, PhD

**Representative to the International League of Dermatological Societies (ILDS)**

Joan Guitart, MD

**Representatives to the International Committee for Dermatopathology (ICDP)**

Jacqueline M. Junkins-Hopkins, MD

**Representative to the American Registry of Pathology**

C. Lisa Kauffman, MD

**Representative to the College of American Pathologists (CAP)**

Jared Abbott, MD, PhD

**Dermatopathology Representatives to the AAD Intersociety Liaison Committee**

Earl J. Glusac, MD, President  
Mark A. Hurt, MD, Secretary-Treasurer

**Headquarters Staff**

Leah McCrackin, Executive Director  
Debbie Pederson, Administrator  
Jodi Metzgar, Administrator  
Lyn Maddox, Conference Director  
Kim Santos, Conference Administrator  
Patricia Sullivan, Communications Manager

**Past Presidents**

Wilma F. Bergfeld MD, FAAD	2008 – 2009
Terry L. Barrett, MD	2007 – 2008
James W. Patterson, MD	2006
Clifton R. White, MD	2005
Hideko Kamino, MD	2004
Bruce R. Smoller, MD	2003
Thomas D. Horn, MD	2002
Jag Bhawan, MD	2001
Emily F. Omura, MD	2000
Neal S. Penneys, MD	1999
Ronald P. Rapini, MD	1998
George F. Murphy, MD	1997
William A. Caro, MD	1996
John C. Maize, MD	1995
Antoinette F. Hood, MD	1994
N. Scott McNutt, MD	1993
Beno Michel, MD	1992
Evan R. Farmer, MD	1991
Loren E. Golitz, MD	1990
Ronald J. Barr, MD	1989
Waine C. Johnson, MD	1988
Ken Hashimoto, MD	1987

Kurt S. Stenn, MD	1986
A. Bernard Ackerman, MD	1985
Martin H. Brownstein, MD	1984
John T. Headington, MD	1983
Amir H. Mehregan, MD	1982
Robert W. Goltz, MD	1981
Mark Allen Everett, MD	1980
Robert G. Freeman, MD	1979
George Ioannides, MD	1978
Richard K. Winkelmann, MD	1977
James H. Graham, MD	1976
Edward P. Cawley, MD	1975
Alvin J. Cox, MD	1974
John R. Haserick, MD	1973
Louis H. Winer, MD	1972
Walter R. Nickel, MD	1971
Daniel F. Richfield, MD	1970
Walter F. Lever, MD	1969
Francis Ellis, MD	1968
Herbert Z. Lund, MD	1967
Herman Beerman, MD	1966
Elson B. Helwig, MD	1965
Hermann Pinkus, MD	1964
Hamilton Montgomery, MD	1963

**Past Secretary-Treasurers**

Zsolt B. Argyenyi, MD	2006 – 2009
James W. Patterson, MD	2001 – 2005
Thomas D. Horn, MD	1997 – 2001
Ronald P. Rapini, MD	1993 – 1996
Antoinette F. Hood, MD	1989 – 1992
Loren E. Golitz, M D	1985 – 1988
Kurt S. Stenn, MD	1982 – 1984
John T. Headington, MD	1978 – 1981
Robert G. Freeman, MD	1975 – 1977
James H. Graham, MD	1970 – 1974
Walter F. Nickel, MD	1963 – 1969

**Past JCP Editors**

James W. Patterson, MD	2005 – 2009
Bruce R. Smoller, MD	2000 – 2004
N. Scott McNutt, MD	1995 – 1999
Philip H. Cooper, MD	1990 – 1994
Evan R. Farmer, MD	1985 – 1989
Martin H. Brownstein, MD, Editor	1984
Amir H. Mehregan, MD, Assistant Editor	1984
Leopoldo F. Montes, MD, Editor	1982 – 1983
A. J. P. Klein-Szanto, MD, Assistant Editor	1982 – 1983
Leopoldo F. Montes, MD, Founder and 1st Editor	1974 – 1981

**Photographer acknowledgement:**

The ASDP gratefully acknowledges Dr. Arnold Schroeter for volunteering his time and efforts to serve at this year’s official annual meeting photographer. Please smile when you see Dr. Schroeter aiming his camera at you.

## Committee Meetings Schedule

All committee meeting rooms are located on the second and third floors. Committee meeting attendance is by invitation only.

### Thursday, October 7

3:30 – 6:00 p.m.	Board of Directors Meeting	Crystal Ballroom A
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### Friday, October 8

7:00 – 8:00 a.m.	Continuing Education & Research Committee	Room 308
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	Audit Committee	Room 208
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	Informatics Committee	Room 205
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8:00 – 9:00 a.m.	Mentorship Committee	Room 308
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	Young Physicians Committee	Room 208
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9:00 – 10:00 a.m.	Ethics Committee	Room 208
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10:00 – 11:00 p.m.	History Committee	Room 208
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Noon – 1:30 p.m.	Dermatopathology Fellowship Training Directors	Salon East
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### Saturday, October 9

7:00 – 8:00 a.m.	Committee for International Partnering	Room 205
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	Membership Committee	Room 208
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	JCP Editorial Board Meeting	Room 308
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8:00 – 9:00 a.m.	Maintenance of Certification Committee	Room 208
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4:30 – 6:00 p.m.	Program Committee	Room 201
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### Sunday, October 10

6:45 – 8:30 a.m.	Board of Directors Meeting	Room 201
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## Faculty Disclosures of Relevant Financial Relationships

In keeping with ACCME standards, the following program faculty stated that they do not perceive having a conflict of financial interest that may have a direct bearing on the subject matter of the continuing education activity.

Mahsa Abdollahi, MD  
Nina Abraham, MD  
Julia Adams, MD  
Liaqat Ali, MD  
Mary Altmeyer, MD  
Rudy Alvarez, MD  
Tariq Al-Zaid, MD  
Dipti Anand, MD  
Rachel Anolik, MD  
Zsolt B. Argenyi, MD  
Andrew Armstrong, MD  
Allison Arthur, MD  
Harty Ashby-Richardson, MD  
Natasha Atanaskova Mesinkovska, MD  
Jena Auerbach, MD  
Nasir Aziz, MD  
Andrew Badley, MD  
Soon Bahrami, MD  
Rick Bains, MD  
Gabrielle Baker, MD  
Anshu Bandhlish, MD  
Johanna Baran, MD  
Raymond Barnhill, MD  
Javad Beheshti, MD  
Daniel Bennett, MD  
Wilma F. Bergfeld, MD, FACP, FAAD  
Adar Berghoff, MD  
Richard Bernert, MD  
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Angela Bohlke, MD  
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Lynden Bowden, MD  
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Robert T. Brodell, MD  
Allison Brown, MD  
Guenter Burg, MD  
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Heather Carney, MD  
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May Chan, MD  
Wells Chandler, MD  
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Hui Chen, MD  
Hao Cheng, MD  
Wang Cheung, MD  
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Dirk M. Elston, MD  
Hillary Elwood, MD  
Gulsun Erdag, MD  
Edward Esparza, MD  
Chukwuemeka Etufugh, MD  
Farnaz Fakhari, MD  
Anthony Fernandez, MD  
Kristen Fernandez, MD  
Tammie C. Feringer, MD  
Alexander Finn, MD  
Max Fischer, MD  
Kristopher Fisher, MD  
Laurel Fohn, MD  
Melanie Fox, MD  
Garth Fraga, MD  
Nora Frisch, MD  
Heather Froehlich, MD  
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Jane Grant-Kels, MD  
Sarah Grekin, MD  
Alejandro Gru, MD  
Joan Guitart, MD  
Ashley Gullett, MD  
Brian Hall, MD  
Justin Hardin, MD  
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Andrea Haws, MD  
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Matthew Hazey, MD  
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Mark A. Hurt, MD  
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## The American Society of Dermatopathology

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Alvaro Laga, MD  
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Tamara Lazic, MD  
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Marie Leger, MD  
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Georgia Liles, MD  
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Thai Yen Ly, MD  
Douglas Lynch, MD  
Linglei Ma, MD  
Amin Maghari, MD  
Meera Mahalingam, MD  
John C. Maize, Jr., MD  
Trent Marburger, MD  
Kathryn Martires, MD  
Ryan Matherne, MD  
Rahel Mathew, MD  
Timothy H. McCalmont, MD  
Jamie McGinness, MD  
Holly McIntire, MD  
Kristopher McKay, MD  
Michael McLemore, MD  
Stephen Mercer, MD  
Jessica Mercer, MD  
Marc Meulener, MD  
Jayson Miedema, MD  
John Miedler, MD  
Daniel Miller, MD  
Eric Miller, MD  
Tiffani Milless, MD  
Omie Mills, MD  
Vineet Mishra, MD  
Melinda Mohr, MD  
Ellen Mooney, MD  
Michael B. Morgan, MD  
Kelly Morrissey, MD  
Amanda Mullins, MD  
Priyadharsini Nagarajan, MD  
Karl Napekoski, MD  
Kristen Natale, MD  
Elizabeth Naylor, MD  
Christine Nelsen, MD  
Elan Newman, MD  
Kimberly Neyman, MD  
Bichchau Michelle Nguyen, MD  
Firouzeh Niakosari, MD  
Omar Noor, MD  
Jeffrey North, MD  
Chee Won Oh, MD  
Oge Onwudiwe, MD  
Gregory Osmond, MD  
Beth Palla, MD  
John Papalas, MD  
Palak Parekh, MD  
Anisha Patel, MD  
Rajiv M. Patel, MD  
Tejesh Patel, MD  
Sylvia Paternak, MD  
Peter Pavlidakey, MD  
Ying Pei, MD  
Matthew Petitt, MD  
Pushkar Phadke, MD  
Melissa P. Piliang, MD  
Lisa Pitelka-Zengou, MD  
Joshua Podjasek, MD  
Vctor G. Prieto, MD  
Samuel Pruden, MD  
Melissa Pulitzer, MD  
Puja K. Puri, MD  
Maria Queenan, MD  
Michael Rabkin, MD  
Jennifer Raible, MD  
Ashwyn Rajagopalan, MD  
Javier Rangel, MD  
Ronald P. Rapini, MD  
Jennifer Reese, MD  
Jessica Risser, MD  
Stacey A. Rizza, MD  
Judith Robens, MD  
Glenn D. Roberts, PhD  
Leslie Robinson-Bostom, MD  
Ife Rodney, MD  
Brian Roehmholdt, MD  
Ilana Rosman, MD  
Hillary Ross, MD  
Rebecca Rovner, MD  
Beth s. Ruben, MD  
Arlene Ruiz de Luzuriaga, MD  
Daniel Russell, MD  
Jacqueline Russo, MD  
Reena Sachdev, MD  
Joya Sahu, MD  
Maria A. Selim, MD  
Mark Samols, MD  
Christian A. Sander, MD  
Omar P. Sanguenza, MD  
Farzaneh Sayedian, MD  
Alicia Schnebelen, MD  
Gregory Seidel, MD  
Alireza Sepmehr, MD  
Roya Setarehshenas, MD  
Namrata Setia, MD  
Neil Shah, MD  
Sara Shalin, MD  
Victoria Sharon, MD  
Michi Shinohara, MD  
Harleen Sidhu, MD  
Claudine Silva, MD  
Christopher Simons, MD  
Meena Singh, MD  
Jason Sluzevich, MD  
Gert Smalberger, MD  
Brooks Smith, MD  
Jie Song, MD  
Timothy Sorrells, MD  
Olga Speck, MD  
Leonard C. Sperling, MD  
Kerith Spicknall, MD  
Bhaskar Srivastava, MD  
Laurel Stearns, MD  
Catherine Stefanato, MD  
Benjamin Stoff, MD  
Jason Stratton, MD  
Maria Streber, MD  
Albert Su, MD  
Antonio Subtil, MD  
Uma Sundram, MD  
Pitiporn Suwattee, MD  
Brian Swick, MD  
Belinda Tan, MD  
Grace Tanhuanco-Kho, MD  
Michelle Tarbox, MD  
Michelle Tarbox, MD  
Zarry Tavakkol, MD  
Michael Tetzlaff, MD  
Mariantonieta Tirado, MD  
Jennifer Toyohara, MD  
James Troy, MD  
Julia Tzu, MD  
Jeffrey Uchin, MD  
Manjunath Vadmal, MD  
Marten H. Vermeer, MD  
Allison Vidimos, MD  
Jeremy Vincent, MD  
David Wada, MD  
Noreen M. G. Walsh, MD  
Sarah Walsh, MD  
Karolyn Wanat, MD  
Wei-Lien (Billy) Wang, MD  
Roger H. Weenig, MD, MPH  
Sharon Weiss, MD  
Gregory Wells, MD  
Michael Welsch, MD  
Scott Wenson, MD  
Kelly West, MD  
Nicholas Whitling, MD  
Casey Wilford, MD  
Gretchen Williams, MD  
Aparche Yang, MD  
Qinghong Yang, MD  
Jun Ye, MD  
Iwei Yeh, MD  
Limin Yu, MD  
Blazej Zbytek, MD  
Jiong Zhang, MD  
Rui Zheng, MD  
Qiang Zhou, MD  
Kejian Zhu, MD

## Program at a Glance

### Thursday, October 7

11:30 a.m. – 8:00 p.m.	Registration and Information	Grand Ballroom Foyer
11:30 a.m. – 6:00 p.m.	Speaker Ready Room	Room 207
1:00 p.m. – 2:15 p.m.	Consultation 100	Room 214
1:00 p.m. – 2:15 p.m.	Consultation 101	Room 212
1:00 p.m. – 3:00 p.m.	NEW Young Physician's Forum: Oh the Places You Will Go	Grand Ballroom East
1:00 p.m. – 3:00 p.m.	Self-Assessment A	Room 209-211
1:00 p.m. – 5:00 p.m.	Poster Set-up	Salon West
Opens at 1:00 p.m.	Evening Slide Symposium Preview – Open 24-Hours!	Room 213
2:30 p.m. – 3:45 p.m.	Consultation 102	Room 214
2:30 p.m. – 3:45 p.m.	Consultation 103	Room 212
3:00 p.m. – 4:30 p.m.	Oral Abstract Session #1	Grand Ballroom East
3:15 p.m. – 5:15 p.m.	Self-Assessment B	Room 209-211
4:00 p.m. – 5:15 p.m.	Consultation 104	Room 214
4:00 p.m. – 5:15 p.m.	Consultation 105	Room 212
5:00 p.m. – 10:00 p.m.	Poster Viewing	Salon West Ballroom
5:30 p.m. – 6:45 p.m.	Consultation 106	Room 214
5:30 p.m. – 6:45 p.m.	Consultation 107	Room 212
6:00 p.m. – 7:30 p.m.	Duel in Dermatopathology	Grand Ballroom East
7:30 p.m. – 10:00 p.m.	Short Course I: Making the Best Margin Calls	Grand Ballroom East
9:00 p.m. – 10:00 p.m.	NEW Young Physician's Reception	Crystal Ballroom B-D

### Friday, October 8

Open 24 hours	Evening Slide Symposium Preview	Room 213
6:30 a.m. – 4:30 p.m.	Registration and Information	Grand Ballroom Foyer
6:30 a.m. – 8:00 a.m.	Continental Breakfast	Grand Ballroom Foyer
7:00 a.m. – 8:15 a.m.	Consultation 200	Room 214
7:00 a.m. – 8:15 a.m.	Consultation 201	Room 212
7:00 a.m. – 9:00 a.m.	Self-Assessment C	Room 209-211
7:00 a.m. – 10:00 p.m.	Poster Viewing	Salon West Ballroom
7:00 a.m. – Noon & 1:30 p.m. – 4:00 p.m.	Speaker Ready Room	Room 207
8:00 a.m. – Noon	Short Course II: Cutaneous Lymphomas: A Course in Memory of Sabine Kohler	Grand Ballroom East
8:30 a.m. – 9:45 a.m.	Consultation 202	Room 214
8:30 a.m. – 9:45 a.m.	Consultation 203	Room 212
9:00 a.m. – 1:30 p.m.	Exhibit Viewing	Salon West
9:45 a.m. – 10:15 a.m.	Refreshment Break	Salon West Ballroom
10:00 a.m. – 11:15 a.m.	Consultation 204	Room 214
10:00 a.m. – 11:15 a.m.	Consultation 205	Room 212
10:00 a.m. – Noon	Self-Assessment D	Room 209-211
11:30 a.m. – 12:45 p.m.	Consultation 206	Room 214

## The American Society of Dermatopathology

11:30 a.m. – 12:45 p.m.	Consultation 207	Room 212
Noon – 1:30 p.m.	Dermatopathology Fellowship Training Directors Meeting	Salon East Ballroom
Noon	Box Lunch Pick-up	Grand Ballroom Foyer
12:15 p.m. – 1:45 p.m.	Oral Abstract Session #2	Grand Ballroom East
Opens at 1:30 p.m.	Slide Library – Open 24 Hours!	Room 209-211
1:30 p.m. – 2:45 p.m.	Consultation 208	Room 214
1:30 p.m. – 2:45 p.m.	Consultation 209	Room 212
2:00 p.m. – 6:00 p.m.	Self-Assessment Case Discussions	Grand Ballroom West
2:00 p.m. – 5:00 p.m.	Herman Pinkus Memorial Basic Science Course	Grand Ballroom East
3:00 p.m. – 4:00 p.m.	Exhibit Viewing	Salon West Ballroom
3:00 p.m. – 4:15 p.m.	Consultation 210	Room 214
3:00 p.m. – 4:15 p.m.	Consultation 211	Room 212
3:30 p.m. – 4:00 p.m.	Poster Defense	Salon West Ballroom
3:30 p.m. – 4:00 p.m.	Refreshment Break	Salon West Ballroom
4:30 p.m. – 5:45 p.m.	Consultation 212	Room 214
4:30 p.m. – 5:45 p.m.	Consultation 213	Room 212
7:00 p.m. – 11:00 p.m.	President's Reception & Banquet	Fox Theatre/ Egyptian Ballroom

### **Saturday, October 9**

Open 24 Hours	Slide Library	Room 209-211
Open 24 Hours	Evening Slide Symposium	Room 213
6:30 a.m. – 8:00 a.m.	Continental Breakfast	Grand Ballroom Foyer
6:30 a.m. – 10:00 p.m.	Poster Viewing	Salon West Ballroom
7:00 a.m. – 8:15 a.m.	Consultation 300	Room 214
7:00 a.m. – 8:15 a.m.	Consultation 301	Room 212
7:00 a.m. – 4:00 p.m.	Registration and Information	Grand Ballroom Foyer
7:00 a.m. – Noon & 1:30 p.m. – 5:00 p.m.	Speaker Ready Room	Room 207
8:00 a.m. – Noon	Short Course III: Inflammatory Dermatopathology, Diagnosis by Morphology	Grand Ballroom East
8:30 a.m. – 9:45 a.m.	Consultation 302	Room 214
8:30 a.m. – 9:45 a.m.	Consultation 303	Room 212
9:00 a.m. – 1:30 p.m.	Exhibit Viewing	Salon West Ballroom
10:00 a.m. – 10:30 a.m.	Refreshment Break	Salon West Ballroom
10:00 a.m. – 11:15 a.m.	Consultation 304	Room 214
10:00 a.m. – 11:15 a.m.	Consultation 305	Room 212
Noon – 1:30 p.m.	Membership Business Meeting & Luncheon	Salon East Ballroom
1:30 p.m.	Duel in Dermatopathology Awards Presentation	Grand Ballroom East
1:35 p.m. – 2:35 p.m.	Elson B. Helwig Memorial Lecture	Grand Ballroom East
2:35 p.m. – 3:05 p.m.	President's Address	Grand Ballroom East
3:05 p.m. – 3:30 p.m.	Refreshment Break	Grand Ballroom Foyer
3:05 p.m. – 3:30 p.m.	Poster Defense	Salon West Ballroom
3:15 p.m. – 4:30 p.m.	Consultation 306	Room 214

## The American Society of Dermatopathology

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3:15 p.m. – 4:30 p.m.	Consultation 307	Room 212
3:30 p.m. – 5:30 p.m.	NEW Fellows' Case Presentations	Grand Ballroom East
4:45 p.m. – 6:00 p.m.	Consultation 308	Room 214
4:45 p.m. – 6:00 p.m.	Consultation 309	Room 212
6:15 p.m. – 7:30 p.m.	Consultation 310	Room 214
6:15 p.m. – 7:30 p.m.	Consultation 311	Room 212
6:30 p.m. – 9:30 p.m.	Evening Slide Symposium	Grand Ballroom East

### **Sunday, October 10**

6:30 a.m. – 8:45 a.m.	Continental Breakfast	Grand Ballroom Foyer
6:30 a.m. – 9:30 a.m.	Speaker Ready Room	Room 207
7:00 a.m. – 11:00 a.m.	Registration and Information	Grand Ballroom Foyer
7:00 a.m. – 11:00 a.m.	Poster Dismantle	Salon West Ballroom
7:00 a.m. – 8:15 a.m.	Consultation 400	Room 214
7:00 a.m. – 8:15 a.m.	Consultation 401	Room 212
7:30 a.m. – 8:30 a.m.	Oral Abstract Session #3	Grand Ballroom East
8:30 a.m. – 8:45 a.m.	Abstract and Poster Awards Presentation	Grand Ballroom East
8:30 a.m. – 9:45 a.m.	Consultation 402	Room 214
8:30 a.m. – 9:45 a.m.	Consultation 403	Room 212
8:45 a.m. – Noon	Short Course IV: Trigger Points in the Diagnosis of Melanoma	Grand Ballroom East
11:00 a.m.	Slide Library Closes	Room 209-211
11:00 a.m.	Slide Viewing from Evening Slide Symposium Closes	Room 213



## Consultations in Dermatopathology Schedule at a Glance

1.25 hours CME credit per course

Tickets are required to enter each course.

*Even Numbered Courses — Room 214*

*Odd Numbered Courses – Room 212*

All courses use a 10-headed microscope with a class size of nine. Generally, there is a period of study at individual microscopes followed by interactive work with the course director.

### Thursday, October 7

	Course	Director	Course Title
1:00 p.m.	<b>100</b>	Lawrence E. Gibson, MD	Cutaneous Vasculitis: Selected Cases with Emphasis on Clinicopathologic Correlation
	<b>101</b>	Mark A. Hurt, MD	Hair Follicle Proliferations — My Cases and Yours
2:30 p.m.	<b>102</b>	Steven D. Billings, MD	Diagnostic Challenges in Cutaneous Soft Tissue Tumors
	<b>103</b>	David J. DiCaudo, MD	Look-alikes in Neoplastic Dermatopathology
4:00 p.m.	<b>104</b>	Rajiv M. Patel, MD	A Practical Pattern-based Approach to Cutaneous Soft Tissue Tumors
	<b>105</b>	Jacqueline M. Junkins-Hopkins, MD	Instructive Cases in Cutaneous Lymphoma
5:30 p.m.	<b>106</b>	Tammie C. Ferringer, MD	Defining Panniculitis: Chicken Soup or Cheerios?
	<b>107</b>	David S. Cassarino, MD	Inflammatory Conditions that Can Mimic Atypical or Malignant Hematolymphoid Proliferations

*(Note: Consultations 100, 101, 102 and 103 conflict with Self-Assessment Session A. Consultations 102, 103, 104 and 105 conflict with Self-Assessment Session B)*

### Friday, October 8

7:00 a.m.	<b>200</b>	Hideko Kamino, MD	Interesting Fibrohistiocytic Proliferations
	<b>201</b>	Terry L. Barrett, MD	Nevi and Malignant Melanoma from Specific Anatomic Sites
8:30 a.m.	<b>202</b>	Zsolt B. Argyenyi, MD	Diagnostic Approach to Problematic Neural Tumors
	<b>203</b>	Geoffrey J. Gottlieb, MD	Melanoma or Not? Bring Your Own Slides
10:00 a.m.	<b>204</b>	Beth S. Ruben, MD	Nail Pathology
	<b>205</b>	Klaus J. Busam, MD	Interesting Cases from New York
11:30 a.m.	<b>206</b>	Heinz H. Kutzner, MD	Perivascular Tumors and Beyond
	<b>207</b>	Maxwell A. Fung, MD	Panniculitis and Other Puzzles
1:30 p.m.	<b>208</b>	Jinah Kim, MD	Cutaneous Manifestations of Systemic Disease: Morphology, Molecules and More
	<b>209</b>	Christian A. Sander, MD	Interesting Cutaneous Lymphomas
3:00 p.m.	<b>210</b>	Lynne J. Goldberg, MD	Pitfalls in Transverse Sections
	<b>211</b>	Maria A. Selim, MD	Current Issues in Vulvar Pathology
4:30 p.m.	<b>212</b>	Antonio Subtil, MD	Cutaneous B-Cell Lymphoma
	<b>213</b>	Timothy H. McCalmont, MD	Cutaneous Spindle Cell Lesions by Light and IPX

*(Note: Consultations 200, 201, 202 and 203 conflict with Self-Assessment Session C. Consultations 204, 205, 206 and 207 conflict with Self-Assessment Session D. Consultations 208, 209, 210, 211, 212 and 213 conflict with Self-Assessment Discussion Session.)*

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## Saturday, October 9

	Course	Director	Course Title
7:00 a.m.	<b>300</b>	Michael B. Morgan, MD	Extraordinary Cases Encountered Over 20 Years in Dermatopathology
	<b>301</b>	George P. Lupton, MD	Malignant Melanoma: Yes or No?
8:30 a.m.	<b>302</b>	Leonard C. Sperling, MD	Advanced Alopecia
	<b>303</b>	Meera Mahalingam, MD	Twins – Identical or Fraternal?
10:00 a.m.	<b>304</b>	Dirk M. Elston, MD	Infections and Infestations
	<b>305</b>	Omar P. Sanguenza, MD	Vascular Lesions
3:15 p.m.	<b>306</b>	Clay J. Cockerell, MD	Challenging Clinicopathologic Correlations
	<b>307</b>	Almut Böer-Auer, MD	Rare or Rarely Diagnosed Conditions
4:45 p.m.	<b>308</b>	Loren E. Golitz, MD	Pediatric Dermatopathology
	<b>309</b>	Raymond L. Barnhill, MD	The Difficult Melanocytic Lesion
6:15 p.m.	<b>310</b>	Catherine Margaret Stefanato, MD	Scarring Alopecia: Deep-Rooted Insights
	<b>311</b>	Jina Kim, MD	Difficult Cutaneous Lymphoma Cases from the Stanford Case Files

## Sunday, October 10

7:00 a.m.	<b>400</b>	Joan Guitart, MD	Cutaneous Lymphocytic Infiltrates: Your Cases and Mine
	<b>401</b>	Shawn E. Cowper, MD	Basic Alopecia
8:30 a.m.	<b>402</b>	Jag Bhawan, MD	Mimickers in Dermatopathology
	<b>403</b>	Victor G. Prieto, MD	Diagnostic Pearls and Pitfalls in Sentinel Lymph Nodes for Melanoma Clinical Implications

**MOC-DP Self-Assessment in Dermatopathology**

Tickets are required to enter each course. Course handouts will be provided at the session.

**Course Director:** Dirk M. Elston, MD, Geisinger Medical Center

**6 hours CME credit**

(2 for sessions A, B, C or D; 4 for discussion)

Participants will have the opportunity to study 51 challenging slides, representing a wide range of inflammatory and neoplastic diseases, during one of four identical sessions. Subsequently, there will be a single discussion session during which faculty members will review the diagnostic features of each case, as well as the differential diagnosis. You must be registered for one of the Thursday or Friday courses (A, B, C or D) to attend the discussion session. Separate tickets are required to enter each course.

The ASDP Self-Assessment in Dermatopathology course offers Maintenance of Certification in Dermatopathology (MOC-DP) credit to satisfy the American Board of Dermatology (ABD) and the American Board of Pathology (ABP) MOC requirements.

**ABD SA** – The ASDP is a provider of Self-Assessments (SAs) for the Maintenance of Certification program of the American Board of Dermatology (ABD). The ASDP Self-Assessment in Dermatopathology course offers one (1) unit of SA. Participants must take and pass the exam in order to claim SA credit(s).

**ABP SAMs** – The ASDP is a provider of Self-Assessment Modules (SAMs) for Part II of the Maintenance of Certification program of the American Board of Pathology (ABP). The ASDP Self-Assessment in Dermatopathology course offers six (6) SAMs. Participants must take and pass the exam in order to claim SAMs. Participants can only

**Thursday, October 7**

1:00 p.m. – 3:00 p.m.      Session A      Room 209–211  
 (Note: This session conflicts with Consultations 100, 101, 102 and 103)

3:15 p.m. – 5:15 p.m.      Session B      Room 209–211  
 (Note: This session conflicts with Consultations 104 and 105)

**Friday, October 8**

7:00 a.m. – 9:00 a.m.      Session C      Room 209–211  
 (Note: This session conflicts with Consultations 200, and 201)

10:00 a.m. – Noon      Session D      Room 209–211  
 (Note: This session conflicts with Consultations 204, 205, 206 and 207)

2:00 p.m. - 6:00 p.m.      Self-Assessment Discussion      Grand Ballroom West  
 (Note: This session conflicts with Consultations 208, 209, 210, 211, 212 and 213)

**Faculty:**

Soon Bahrami, MD  
 University of Louisville Dermatopathology

Alan Boyd, MD  
 Vanderbilt Clinic

Alina Bridges, MD  
 Mayo Clinic, Rochester

Nooshin Ketabchi Brinster, MD  
 Virginia Commonwealth University

David J. DiCaudo, MD  
 Mayo Clinic, Arizona

Dirk M. Elston, MD  
 Geisinger Medical Center

Tammie C. Ferringer, MD  
 Geisinger Medical Center

Gary Goldenberg, MD  
 Mount Sinai School of Medicine

Christine Jaworsky, MD  
 Case Western Reserve University

Christine Ko, MD  
 Yale University

Arni K. Kristjansson, MD  
 University of Connecticut Health Center

Nektarios Lountzis, MD  
 Geisinger Medical Center

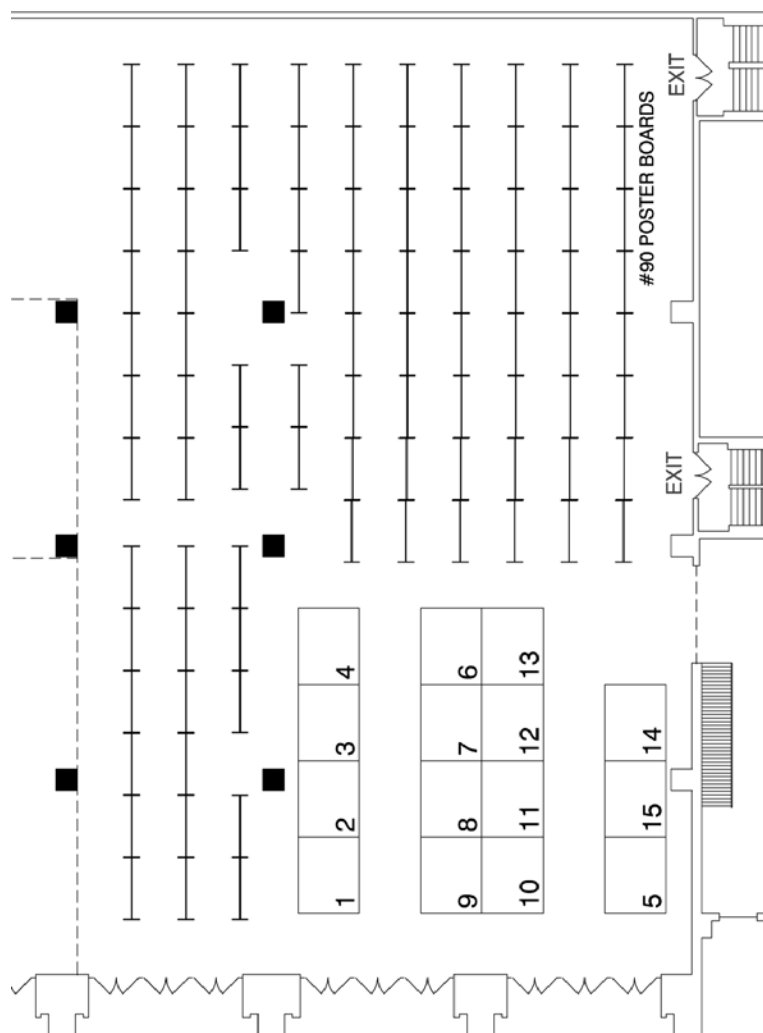
Puja K Puri, MD  
 Duke University

Ronald P. Rapini, MD  
 University of Texas Houston Medical Center

Leslie Robinson-Bostom, MD  
 Rhode Island Hospital

**Upon completion of this course, participants should be able to:**

- Recognize key light microscopic features of common, rare and unusual entities without immunoperoxidase staining.
- Expand diagnostic skills by increasing familiarity with a variety of skin conditions.
- Differentiate between diseases with similar or overlapping histologic findings during microscopic sign out sessions.
- Incorporate new information gained from the presented cases into your scope of dermatopathology practice.
- Recognize areas where new information gained from the presented cases has identified potential practice gaps and altered your awareness of, competence and performance related to the presented cases.
- Modify your existing competence and comfort level with the more common cases presented that match your own scope of practice.



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**Booth 10**

**Executive Communication Systems**

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**Booth 15**

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**Exhibitors**

**DermPath Diagnostics**

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**Booth 1**

DermPath Diagnostics is exclusively focused on providing exceptional dermatopathology services. Our commitment to dermatopathology is backed by an unrivaled team of over 90 board-certified dermatopathologists, advanced diagnostic technologies and unparalleled clinician/patient support. Our mission is to provide accurate, clear and prompt diagnoses. We also strive to develop strong relationships with our referring clinicians, and we are fully committed to assisting you in providing the best health care for every patient.

**DermPrep**

Contact: Craig Blanton  
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 Tampa, FL 33629 USA  
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**Booth 7**

DermPrep provides premium histology services nationwide. Our specialized dermatologic tissue processing, sectioning and immunohistochemistry experience allows us to cater our services to your unique specifications and needs. We are exclusively focused on providing exceptional slide preparation services to dermatopathologists and dermatologists. In addition to utilizing advanced technologies we have a proficient, friendly and easy to access support staff. We invite you to come visit us at booth 7.

**Lippincott Williams & Wilkins**

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**Booth 11**

**Loma Linda University  
Health Care**

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**Booth 3**

**Lucid, Inc.**

Contact: Christian Costa  
2320 Brighton Henrietta T/L Road  
Rochester, NY 14623 USA  
Phone: +1-585-239-9800  
Fax: +1-585-239-9806  
E-mail: [ccosta@lucid-tech.com](mailto:ccosta@lucid-tech.com)

**Booth 12**

Lucid is a company dedicated to assisting dermatopathologists in coming closer to the point and time of care by using advanced technology and superior imaging tools. Using Lucid's FDA-cleared products, dermatopathologists can receive images of lesions suspicious for skin cancer from existing and new dermatology clients. These images are delivered rapidly and securely using VivaNet, an FDA-exempt, HIPAA-compliant network that routes the images from the dermatologist's office to the dermatopathologist for interpretation. Visit our booth to find out how to make your practice stand out by offering VivaScope Interpretation Services as a part of your practice's professional services.

**Neogenomics Laboratories**

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Fort Myers, FL 33913 USA  
Phone: +1-239-768-0600  
E-mail: [mmoran@neogenomics.org](mailto:mmoran@neogenomics.org)

**Booth 9**

NeoGenomics Laboratories is a specialized genetics laboratory providing the latest diagnostic testing technologies to the pathology and oncology Communities. Staffed with specially trained hematopathologists and cytogenetic professionals, NeoGenomics Laboratories offers testing in cancer genetics, flow cytometry, immunohistochemistry and molecular diagnostics through its network of regional laboratories.

**Netsoft Inc.**

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Phone: +1-678-325-2909  
Fax: +1-678-325-2908  
E-mail: [sales@netsoftusa.com](mailto:sales@netsoftusa.com)

**Booth 4**

IntelliPath delivers leading-edge technology and performance in a highly flexible package and adapts to the way you run your business. This scalable, multi-platform application includes specimen tracking, report processing, imaging, voice recognition, regulatory compliance reporting and report transfer via print, fax, email, and internet. With interfaces to over 20 different EMR vendors and a completely integrated billing package, IntelliPath is "the way to work smarter".

**NovoVision, Inc.**

Contact: Richard Callahan  
301 N. Harrison St., Suite 384  
Princeton, NJ 08540 USA  
Phone: +1-877-NOVO-123  
Fax: +1-732-329-2420  
E-mail: [rcallahan@novovision.com](mailto:rcallahan@novovision.com)

**Booth 8**

NovoPath™, an easy-to-use Anatomic Pathology Information Management/Reporting System for processing Derm, Surgical, Cytology, Molecular and Autopsy specimens, includes all industry standard features. Also standard are features such as Advanced Security, Image Capture, Slide Loaner/Tracking, Synoptic Reporting, Daily Work Lists and over 125 commonly used pathology / billing reports. Web Outreach (order entry, resulting, interfacing), as well as dedicated modules for Specimen Tracking, Workflow Management, and Billing are representative of Novovision's modular approach to keep the system affordable. Direct interfacing to an array of with HL7 Compliant EMRs, HIS and Practice Management Systems will enhance your competitive edge. Visit Booth 8

**Pathlogix Corporation**

Contact: Jerry Grayson  
470 Nautilus St., Suite 306  
LaJolla, CA 92037 USA  
Phone: +1-858-454-8030  
Fax: +1-858-454-2003  
E-mail: [jerry@pathlogix.com](mailto:jerry@pathlogix.com)

**Booth 2**

Dermatopathology reporting, patient data storage, information management.

## Supporters

### **ProPath® Dermatopathology**

8267 Elmbrook Drive, Suite 100  
Dallas, TX 75247 USA  
Phone: +1-214-638-2000; +1-800-258-1253

### **Hotel Key Card**

### **Lucid Inc.**

2320 Brighton-Henrietta Townline Road  
Rochester, NY 14623 USA  
Phone: +1-585-239-9800  
Fax: +1-585-239-9806

### **Presidents Banquet Reception**

### **Aurora Diagnostics**

34 Collins Mill Road  
Chester Springs, PA 19425 USA  
Phone: +1-610-659-9447  
Fax: +1-610-458-1947

### **Young Physician's Reception**

Attend the Membership  
Business Meeting

**Saturday, October 9**

Noon – 1:30 p.m.  
Salon East Ballroom



## Thursday, October 7

11:30 a.m. – 8:00 p.m.	Registration and Information	Grand Ballroom Foyer
11:30 a.m. – 6:00 p.m.	Speaker Ready Room	Room 207
1:00 p.m. – 2:15 p.m.	<b>Consultation in Dermatopathology 100</b> Cutaneous Vasculitis: Selected Cases with Emphasis on Clinicopathologic Correlation <i>Lawrence E. Gibson, MD</i>	Room 214
1:00 p.m. – 2:15 p.m.	<b>Consultation in Dermatopathology 101</b> Hair Follicle Proliferations – My Cases and Yours <i>Mark A. Hurt, MD</i>	Room 212
1:00 p.m. – 3:00 p.m.	Self-Assessment in Dermatopathology – Session A	Room 209-211
1:00 p.m. – 3:00 p.m.	NEW Young Physician's Forum: Oh the Places You Will Go	Grand Ballroom Foyer
1:00 p.m. – 5:00 p.m.	Poster Set-up	Salon West
Opens at 1:00 p.m.	Evening Slide Symposium Preview – Open 24 hours!	Room 213
2:30 p.m. – 3:45 p.m.	<b>Consultation in Dermatopathology 102</b> Diagnostic Challenges in Cutaneous Soft Tissue Tumors <i>Steven D. Billings, MD</i>	Room 214
2:30 p.m. – 3:45 p.m.	<b>Consultation in Dermatopathology 103</b> Look-alikes in Neoplastic Dermatopathology <i>David J. DiCaudo, MD</i>	Room 212
3:00 p.m. – 4:30 p.m.	Oral Abstract Session #1	Grand Ballroom East
3:15 p.m. – 5:15 p.m.	Self Assessment in Dermatopathology – Session B	Room 209-211
3:30 p.m. – 6:00 p.m.	Board of Directors' Meeting	Crystal Ballroom A
4:00 p.m. – 5:15 p.m.	<b>Consultation in Dermatopathology 104</b> A Practical Pattern-based Approach to Cutaneous Soft Tissue Tumors <i>Rajiv M. Patel, MD</i>	Room 214
4:00 p.m. – 5:15 p.m.	<b>Consultation in Dermatopathology 105</b> Instructive Cases in Cutaneous Lymphoma <i>Jacqueline M. Junkins-Hopkins, MD</i>	Room 212
5:00 p.m. – 10:00 p.m.	Poster Viewing	Salon West Ballroom
5:30 p.m. – 6:45 p.m.	<b>Consultation in Dermatopathology 106</b> Defining Panniculitis: Chicken Soup or Cheerios? <i>Tammie C. Ferringer, MD</i>	Room 214
5:30 p.m. – 6:45 p.m.	<b>Consultation in Dermatopathology 107</b> Inflammatory Conditions that can Mimic Atypical or Malignant Hematolymphoid Proliferatins <i>David S. Cassarino, MD</i>	Room 212
6:00 p.m. – 7:30 p.m.	Duel in Dermatopathology	Grand Ballroom East
7:30 p.m. – 10:00 p.m.	Short Course I: Making the Best Margin Calls	Grand Ballroom East
9:00 p.m. – 10:00 p.m.	NEW Young Physician's Reception	Crystal Ballroom B–D





## Young Physician's Forum

### Oh the Places You will Go: Early Career Management for the Newly Minted Dermatopathologist

1:00 p.m. – 3:00 p.m.  
Grand Ballroom East

2 hours CME credit

Course Directors:  
Dirk M. Elston, MD  
Geisinger Medical Center

Rajiv M. Patel, MD  
University of Michigan

Melissa P. Piliang, MD  
Cleveland Clinic

Dermatopathology fellows and early career dermatopathologists are invited to join us for this new, informative session. Career insights and advice will be available to all who attend the ASDP Young Physicians Forum. A short series of lectures will be followed by an open format panel discussion in which leaders in our field respond to your questions about career development and management in a relaxed and friendly environment. Don't miss this unique opportunity to develop professional relationships with your leaders and peers.

#### Faculty:

Sharon Weiss, MD, *Emory Healthcare*

Dirk M. Elston, MD, *Geisinger Medical Center*

Richard Bernert, MD, *Arizona Dermatopathology*

Drazen Jukic, MD, *University of Pennsylvania Pittsburgh*

Thomas N. Helm, MD, *State University of New York at Buffalo*

Wilma F. Bergfeld, MD, FACP, FAAD, *Cleveland Clinic*

Lorie Lowe, MD, *University of Michigan*

#### Upon completion of this course, participants should be able to:

- Avoid pitfalls that result in manuscript rejection.
- Anticipate practice gaps in first five years of practice.
- Anticipate academic promotion requirements.

#### Young Physicians Reception

Thursday, October 7  
9:00 p.m. – 10:00 p.m.

Dermatopathology fellows and dermatopathologists in the first seven years of practice are invited to join us to network with our panel members and other dermatopathology role models at the Young Physicians Reception. Hors d'oeuvres and refreshments (wine/beer) will be served. Don't miss this unique opportunity to develop professional relationships with your leaders and peers.

## Oral Abstract Session #1

3:00 p.m. – 4:30 p.m.

*Grand Ballroom East*

*Course Director:* Stephen C. Somach, MD, Cleveland Skin Pathology Lab

**1.5 hours CME credit**

Abstracts presented in Oral Abstract Session #1 can be found in his book behind the “Oral Abstract” tab. Abstracts are listed in the order of presentation.

### Upon completion of these sessions, participants should be able to:

- Identify various clinical and basic science topics within dermatopathology.
- Exemplify and promote exchange of new ideas and concepts within the field of dermatopathology.
- Describe innovative investigative studies and tools pertaining to bench and translational research.
- Compare unique pathological perspectives and concepts as they relate to individual and groups of cases.

TIME	TITLE	SPEAKER
3:00 – 3:10 p.m.	“Virtual Signout” platform - tool for dermatopathology training	Jiang Zhang, MD
3:10 – 3:20 p.m.	A rapid sensitive test for detection of 43 mutations with relevance to targeted therapy in melanoma	Laurel Fohn, MD
3:20 – 3:30 p.m.	Alpha-smooth muscle actin expression in atypical fibroxanthoma and CD10 expression in cutaneous leiomyosarcoma: immunohistochemical and morphological study of 24 cases	Brian Swick, MD
3:30 – 3:40 p.m.	An investigation of the accuracy of tip margins as indicators of lateral margins in cutaneous elliptical excisions	Matthew Hazey, MD
3:40 – 3:50 p.m.	Anal skin tags with granulomatous inflammation: association with inflammatory bowel disease and symptoms	Anna Harris, MD
3:50 – 4:00 p.m.	Atypical spitzoid melanocytic neoplasms with angiotropism: a potential mechanism of loco-regional involvement	Raymond L. Barnhill, MD
4:00 – 4:10 p.m.	Auricular melanoma: a retrospective study of 100 cases	Priyadharsini Nagarajan, MD
4:10 – 4:20 p.m.	Cocaine-related Retiform Purpura: evidence to incriminate the adulterant, levamisole	Noreen M.G. Walsh, MD
4:20 – 4:30 p.m.	Cytological diagnosis of facial non-melanoma skin cancer: a single academic institution experience	Natalia Kiladze, MD

## 11th Annual Duel in Dermatopathology Resident Abstract Competition

6:00 – 7:30 p.m.

**Grand Ballroom East**

Course Director: Beth S. Ruben, MD, University of California, San Francisco

1.5 hours CME credit

Abstracts presented in the Duel in Dermatopathology oral abstract competition can be found in this book behind the “Oral Abstracts” tab. Abstracts are listed in the order of presentation.

The American Society of Dermatopathology is proud to present the 11th Annual Duel in Dermatopathology abstract competition for dermatology and pathology residents. Prizes for first, second and third place will be awarded for the best clinical-pathologic case reports. This resident forum consists of succinct five-minute presentations. The Program Committee will evaluate the presentations on content, form and instructive value to dermatopathology. Abstracts selected to compete in the “Duel in Dermatopathology” will be published in a featured section of the *Journal of Cutaneous Pathology*. (Competing residents have already been chosen.)

Award winners will be announced at 1:30 p.m., Saturday, Oct. 9, immediately prior to the Elson B. Helwig Memorial Lecture

TIME	TITLE	SPEAKER
6:00 – 6:05 p.m.	A case of eruptive disseminated spitz nevi	Farnaz Fakhari, MD
6:05 – 6:10 p.m.	A rapidly growing superficial angiomyxoma of the lip in a patient with a previous diagnosis of Peutz-Jeghers syndrome	Shanon Lacy, MD
6:10 – 6:15 p.m.	A systemic diagnosis of exclusion aided by a subtle histological clue	Nina Abraham, MD
6:15 – 6:20 p.m.	Acantholysis and bowenoid atypia: a potential pitfall for misdiagnosis of mammary Paget’s disease	Rudy Alvarez, MD
6:20 – 6:25 p.m.	Aspergillosis or phaeoconchyomycosis? Not always black-and-white	David Lortscher, MD
6:25 – 6:30 p.m.	Bloody bandit: cocaine-associated retiform purpura	Bhaskar Srivastava, MD
6:30 – 6:35 p.m.	Chronic lymphocytic leukemia simulating chronic paronychia	Michelle Jackson, MD
6:35 – 6:40 p.m.	Cutaneous Acanthamoebiasis in a double lung transplant patient, case report and literature review	Andrea D’Auria, MC
6:40 – 6:45 p.m.	Donor-derived Lymphomatoid Papulosis in a stem cell transplant recipient	Brendan Camp, MD
6:45 – 6:50 p.m.	Fatal pancreatitis presenting as pancreatic panniculitis without enzyme elevation	Erick Jacobson-Dunlop, MD
6:50 – 6:55 p.m.	Multiple subcutaneous nodules in a 5-month-old male	Amy Kerkvliet, MD
6:55 – 7:00 p.m.	Intravascular large B-cell lymphoma mimicking cutaneous scleroderma	Matthew Petitt, MD
7:00 – 7:05 p.m.	Merkel Cell Carcinoma <i>in situ</i> with squamous cell carcinoma <i>in situ</i> : a rare case presentation, negative for Merkel Cell Polyomavirus	Belinda Tan, MD
7:05 – 7:10 p.m.	Migratory cutaneous hemangiotropic intravascular large B-cell lymphoma	Harleen Sidhu, MD
7:10 – 7:15 p.m.	Multifocal lymphoendotheliomatosis: Blue blebs causing brain bleeds	Edward Esparza, MD
7:15 – 7:20 p.m.	Non-granulomatous cutaneous silica nodules in a kayaker	Tiffani Milless, MD
7:20 – 7:25 p.m.	Relapsed hepatosplenic T-cell lymphoma heralded by a solitary skin nodule	Thomas Hocker, MD
7:25 – 7:30 p.m.	Worms gone wild: disseminated strongyloides hyperinfection in a renal transplant recipient	Karolyn Wanat, MD

### Upon completion of this course, participants should be able to:

- Expand diagnostic skills by recognizing clinicopathologic entities presented via abstracts.
- Utilize and interpret diagnostic clues and techniques identified by literature review of these cases.

## Short Course I: Making the Best Margin Calls

7:30 – 10:00 p.m.

**Grand Ballroom East**

Course Director: Thomas N. Helm, MD

**2.5 hours CME credit**

This course is directed at experienced dermatopathologists and will review best practices in evaluating surgical margins. Optimal ways of analyzing surgical margins will be studied while keeping practical laboratory limitations, recent advances in molecular studies, and clinical considerations in mind. This course will focus on practical aspects of margin analysis that can be used in day-to-day practice.

### Faculty:

7:30 – 8:00 p.m.

**Efficient Processing of the Gross Specimen**

Ronald P. Rapini, MD

*University of Texas Houston Medical School*

8:00 – 8:30 p.m.

**What to do About Molecular Studies and Margins?**

Timothy H. McCalmont, MD

*University of California San Francisco*

8:30 – 9:00 p.m.

**Margins and Medical-Legal Issues**

Scott Binder, MD

*UCLA Medical Center/Geffen School of Medicine*

9:00 – 9:30 p.m.

**What Mohs Surgery Has Taught Me About Margins**

Allison Vidimos, MD

*Cleveland Clinic*

9:30 – 10:00 p.m.

**The Final Word: Translating Pathology Reports Into an Action Plan**

Robert T. Brodell, MD

*Brodell Medical*

### Upon completion of this course, participants should be able to:

- Utilize optimal grossing techniques.
- Explain recent molecular studies and how they may impact our understanding of adequate margins.
- Apply effective methods of communication with clinicians in order to provide the best care to patients.

Congratulations to the 2010

Dermatopathology

Research Grant Recipient

**Brian P. Pollack, MD, PhD**, Emory University

Defining the Role of Activating Transcription

Factor 3 (ATF3) in Photocarcinogenesis



# **Short Course I: Making the Best Margin Calls**



## Friday, October 8

Open 24-hours	Evening Slide Symposium	Room 213
6:30 a.m. – 4:30 p.m.	Registration and Information	Grand Ballroom Foyer
6:30 a.m. – 8:00 a.m.	Continental Breakfast	Grand Ballroom Foyer
7:00 a.m. – 8:15 a.m.	<b>Consultation in Dermatopathology 200</b> Interesting Fibrohistiocytic Proliferations <i>Hideko Kamino, MD</i>	Room 214
7:00 a.m. – 8:15 a.m.	<b>Consultation in Dermatopathology 201</b> Nevi and Malignant Melanoma from Specific Anatomic Sites <i>Terry L. Barrett, MD</i>	Room 212
7:00 a.m. – 9:00 a.m.	Self-Assessment in Dermatopathology – Session C	Room 209 - 211
7:00 a.m. – 10:00 p.m.	Poster Viewing	Salon West Ballroom
7:00 a.m. – Noon & 1:30 p.m. – 4:00 p.m.	Speaker Ready Room	Room 207
8:00 a.m. – Noon	Short Course II: Cutaneous Lymphomas: A Course in the Memory of Sabine Kohler	Grand Ballroom East
8:30 a.m. – 9:45 a.m.	<b>Consultation in Dermatopathology 202</b> Diagnostic Approach to Problematic Neural Tumors <i>Zsolt B. Argyei, MD</i>	Room 214
8:30 a.m. – 9:45 a.m.	<b>Consultation in Dermatopathology 203</b> Melanoma or Not? Bring Your Own Slides <i>Geoffrey J. Gottlieb, MD</i>	Room 212
9:00 a.m. – 1:30 p.m.	Exhibit Viewing	Salon West Ballroom
9:45 a.m. – 10:15 a.m.	Refreshment Break	Salon West Ballroom
10:00 a.m. – 11:15 a.m.	<b>Consultation in Dermatopathology 204</b> Nail Pathology <i>Beth S. Ruben, MD</i>	Room 214
10:00 a.m. – 11:15 a.m.	<b>Consultation in Dermatopathology 205</b> Interesting Cases from New York <i>Klaus J. Busam, MD</i>	Room 212
10:00 a.m. – Noon	Self-Assessment in Dermatopathology – Session D	Room 209-211
11:30 a.m. – 12:45 p.m.	<b>Consultation in Dermatopathology 206</b> Perivascular Tumors and Beyond <i>Heinz H. Kutzner, MD</i>	Room 214
11:30 a.m. – 12:45 p.m.	<b>Consultation in Dermatopathology 207</b> Panniculitis and Other Puzzles <i>Maxwell A. Fung, MD</i>	Room 212
Noon – 1:30 p.m.	Dermatopathology Fellowship Training Directors Meeting	Salon East Ballroom
Noon	Box Lunch Pick-up	Grand Ballroom Foyer
12:15 p.m. – 1:45 p.m.	Oral Abstract Session #2	Grand Ballroom East
Opens at 1:30 p.m.	Slide Library – Open 24-hours!	Room 209-211
1:30 p.m. – 2:45 p.m.	<b>Consultation in Dermatopathology 208</b> Cutaneous Manifestations of Systematic Disease: Morphology, Molecules and More <i>Jinah Kim, MD</i>	Room 214
1:30 p.m. – 2:45 p.m.	<b>Consultation in Dermatopathology 209</b> Interesting Cutaneous Lymphomas <i>Christian A. Sander, MD</i>	Room 212
2:00 p.m. – 5:00 p.m.	Herman Pinkus Memorial Basic Science Course	Grand Ballroom East



## The American Society of Dermatopathology

2:00 p.m. – 6:00 p.m.	<b>Self-Assessment in Dermatopathology Discussion</b>	Grand Ballroom West
3:00 p.m. – 4:00 p.m.	Exhibit Viewing	Salon West Ballroom
3:00 p.m. – 4:15 p.m.	<b>Consultation in Dermatopathology 210</b> Pitfalls in Transverse Sections <i>Lynne J. Goldberg, MD</i>	Room 214
3:00 p.m. – 4:15 p.m.	<b>Consultation in Dermatopathology 211</b> Current Issues in Vulvar Pathology <i>Maria Selim, MD</i>	Room 212
3:30 p.m. – 4:00 p.m.	Refreshment Break	Salon West Ballroom
3:30 p.m. – 4:00 p.m.	Poster Defense	Salon West Ballroom
4:30 p.m. – 5:45 p.m.	<b>Consultation in Dermatopathology 212</b> Cutaneous B-Cell Lymphoma <i>Antonio Subtil, MD</i>	Room 214
4:30 p.m. – 5:45 p.m.	<b>Consultation in Dermatopathology 213</b> Cutaneous Spindle Cell Lesions by Light and IPX <i>Timothy H. McCalmont, MD</i>	Room 212
7:00 p.m. – 11:00 p.m.	President's Reception & Banquet Buses will depart from the Hilton front entrance Bus shuttle starts at 6:30 p.m.	Fox Theatre/ Egyptian Ballroom

Congratulations to the 2010–2011  
ASDP Mentorship in  
Dermatopathology Award recipients

**Brad Chaser, MD**

University of Oklahoma

**Mentor:** Victor Prieto, MD

UT MD Anderson Cancer Center

**Edward Esparza, MD**

University of Washington

**Mentor:** Anne Lind, MD

Washington University School of Medicine

**Sadaf Waqar, MD**

Columbia Hospital – Palm Beach Center for Graduate  
Medical Education

**Mentor:** Klaus Busam, MD

Memorial-Sloan-Kettering Cancer Center

## **Short Course II: Cutaneous Lymphomas: A Course in Memory of Sabine Kohler**

8:00 a.m. – Noon

**Grand Ballroom East**

*Course Director:* Christian A. Sander, MD, St. Georg Clinic, Hamburg

**4 hours CME Credit**

Handouts for this course can be found in this tabbed section following the daily program schedule.

Cutaneous lymphomas are a heterogeneous group of lymphomas that show variations in histology, immunophenotype and prognosis. This course will focus on classification and diagnostic aspects of cutaneous lymphomas. Recent advances in classification, immunophenotypic and molecular analysis will be discussed. Important common and rare conditions will be addressed.

### **Faculty:**

Werner Kempf, MD, *Zurich, Switzerland*

Helmut Kerl, MD, *University of Graz*

Guenter Burg, MD, *University of Zurich*

Christian A. Sander, MD, *St. Georg Clinic, Hamburg*

Marten H. Vermeer, MD, *Leiden University*

### **Upon completion of this course, participants should be able to:**

- Explain the classification schemes for cutaneous lymphomas.
- Understand the clinical, histologic, immunologic and molecular basis for the classification of cutaneous lymphomas.
- Develop a diagnostic approach to cutaneous B- and T-cell lymphomas.
- Gain an insight into aspects of lymphoma research.

## Oral Abstract Session #2

12:15 p.m. – 1:45 p.m.

**Grand Ballroom East**

Director: Andrea L. Volk, MD, Bostwick Laboratories, Inc.

### 1.5 hours CME Credit

Abstracts presented in Oral Abstract Session #2 can be found in this book behind the “Oral Abstracts” tab. Abstracts are listed in the order of presentation.

This course has been designed for participants to enjoy their lunch during the abstract session.

TIME	TITLE	SPEAKER
12:15 – 12:25 p.m.	Desmoplastic Melanoma: A matched-pairs case control survival comparison	Javier Rangel, MD
12:25 – 12:35 p.m.	Embryonal Rhabdomyosarcoma Arising in a Congenital Melanocytic Nevus	Jennifer Kaplan, MD
12:35 – 12:45 p.m.	Expression of DNA damage repair proteins in melanoma cells	Wang Chueng, MD
12:45 – 12:55 p.m.	Frequency of adverse histologic features in a large cohort of patients with acral-lentiginous melanoma	Michael McLemore, MD, MPH
12:55 – 1:05 p.m.	Genomic analysis of distinct components of a squamomelanocytic tumor showing similar alterations	Christopher Holbrook, MD
1:05–1:15 p.m.	Identification of primary cilia effectively distinguishes benign nevi from malignant melanoma	Salma Dabiri, MD
1:15 – 1:25 p.m.	Modeling the Early stages of squamous cell carcinogenesis in murine skin	Priyadharsini Nagarajan, MD
1:25 – 1:35 p.m.	Novel CTNNB1 gene mutation explains similarity of $\beta$ -catenin staining in pilomatricomas and basal cell carcinomas with matrical differentiation	Cary Chisholm, MD
1:35 – 1:45 p.m.	NY-ESO-1 expression in malignant melanoma: a target marker for immunotherapy	Yen-Chun Liu, MD

### Upon completion of this session, participants should be able to:

- Identify various clinical and basic science topics within dermatopathology.
- Exemplify and promote exchange of new ideas and concepts within the field of dermatopathology.
- Describe innovative investigative studies and tools pertaining to bench and translational research.
- Compare unique pathological perspectives and concepts as they relate to individual and groups of cases.

## **Herman Pinkus Memorial Basic Science Course**

### **Infectious Agents of Clinical Relevance to the Dermatopathologist**

2:00 – 5:00 p.m.

**Grand Ballroom East**

Course Director: Lawrence E. Gibson, MD, Mayo Clinic, Rochester

**3 hours CME credit**

This course will discuss several infectious agents of relevance to dermatopathologists including the basis of pathogenesis, newer diagnostic techniques and possible presentations in the skin.

#### **Faculty and Course Outline:**

2:00 p.m.

##### **Introduction**

Lawrence E. Gibson, MD

*Mayo Clinic, Rochester*

2:10 p.m.

##### **Approach to the Patient With Generalized Verruosis**

Anthony Gaspari, MD

*University of Maryland*

3:00 – 3:20 p.m.

Break

3:20 p.m.

##### **Hepatitis C: The Disease and Dermatologic Manifestations**

Stacey A. Rizza, MD

*Mayo Clinic, Rochester*

3:50 p.m.

##### **Epstein Barr Virus: Update on Diagnosis and Relevance to Skin Disease**

Andrew Badley, MD

*Mayo Clinic, Rochester*

4:20 p.m.

##### **Atypical Mycobacteria: Developments in Diagnosis and Clinical Relevance**

Glen D. Roberts, PhD

*Mayo Clinic, Rochester*

#### **Upon completion of this course, participants should be able to:**

- Know the pathogenic role of several viral and mycobacterial infections as they relate to skin disease.
- Apply diagnostic techniques for these viral and mycobacterial diseases.
- Apply the potential manifestations of these infectious agents in the skin.

#### **Previous Herman Pinkus Memorial Lecturers**

2009 Lisa A. Beck, MD

2008 Norma J. Nowak, PhD

2007 David Fisher, MD, PhD

2006 Sharon Weiss, MD

2005 Boris C. Bastian, MD

2004 Michael W. Piepkorn, MD

2003 A. Razzaque Ahmed, MD

2002 Philip E. LeBoit, MD

2001 Robert C. Gallo, MD

2000 Elaine Fuchs, PhD

1999 Thomas A. Waldmann, MD

1998 David T. Woodley, MD

1997 Karen A. Holbrook, PhD

1996 Judah Folkman, MD

1995 Margaret Kripke, MD

1993 Douglas R. Lowy, MD

1992 Walter R. Gammon, MD

1991 Stephen I. Katz, MD, PhD

1990 Lance A. Liotta, MD, PhD

1989 John R. Stanley, MD

1988 Jouni J. Uitto, MD, PhD

1987 Clive Taylor, MD, PhD

1986 Tung-Tien Sun, PhD

**MOC-DP Self-Assessment in Dermatopathology Discussions**

2:00 – 6:00 p.m.

**Grand Ballroom West**

Course Director: Dirk M. Elston, MD, Geisinger Medical Center

**4 hours CME credit**

You must have been registered for one of the Thursday or Friday courses (A, B, C or D) to attend the discussion this discussion. Tickets are required to enter the course.

Participants in this session will have had the opportunity to study 51 challenging slides, representing a wide range of inflammatory and neoplastic diseases, during one of four identical sessions. Faculty members will review the diagnostic features of each case, as well as the differential diagnosis.

The ASDP Self-Assessment in Dermatopathology course offers Maintenance of Certification in Dermatopathology (MOC-DP) credit to satisfy the American Board of Dermatology (ABD) and the American Board of Pathology (ABP) MOC requirements.

**ABD SA** – The ASDP is a provider of Self-Assessments (SAs) for the Maintenance of Certification program of the American Board of Dermatology (ABD). The ASDP Self-Assessment in Dermatopathology course offers one (1) unit of SA. Participants must take and pass the exam in order to claim SA credit(s).

**ABP SAMs** – The ASDP is a provider of Self-Assessment Modules (SAMs) for Part II of the Maintenance of Certification program of the American Board of Pathology (ABP). The ASDP Self-Assessment in Dermatopathology course offers six (6) SAMs. Participants must take and pass the exam in order to claim SAMs. Participants can only claim either SAMs or CME for this activity



**President’s Reception & Banquet**

**Earl J. Glusac, MD, President**

7:00 – 11:00 p.m.

**Fox Theatre/Egyptian Ballroom**

Attendees will meet buses at the Hilton front entrance. Bus shuttle starts at 6:30 p.m.

Experience the charm of one of the last surviving grand movie palaces, Atlanta’s magical Fox Theatre. Built as a Shrine Temple during the pre-crash excess of the 1920s, this outlandish mosque-like structure exudes opulence and grandeur in every facet. Guests will enjoy a wonderful reception and seated dinner in the Egyptian Ballroom. Step back in time to the opulent splendor of the Egyptian Pharaohs, or into the mystique of a Middle Eastern palace.

Come together with friends and colleagues!  
Purchase a reserved table for ten at the annual President’s Reception and Banquet and reunite with colleagues or former fellows. Tickets still available at the registration desk.

**Short Course II:  
Cutaneous  
Lymphomas:  
A Course in  
Memory of  
Sabine Kohler**



## Saturday, October 9

Open 24 Hours	Slide Library	Room 209-211
Open 24 Hours	Evening Slide Symposium Preview	Room 213
6:30 a.m. – 8:00 a.m.	Continental Breakfast	Grand Ballroom Foyer
6:30 a.m. – 10:00 p.m.	Poster Viewing	Salon West Ballroom
7:00 a.m. – 8:15 a.m.	<b>Consultation in Dermatopathology 300</b> Extraordinary Cases Encountered Over 20 Years in Dermatopathology <i>Michael B. Morgan, MD</i>	Room 214
7:00 a.m. – 8:15 a.m.	<b>Consultation in Dermatopathology 301</b> Malignant Melanoma: Yes or No? <i>George P. Lupton, MD</i>	Room 212
7:00 a.m. – Noon & 2:00 p.m. – 5:00 p.m.	Speaker Ready Room	Room 207
7:00 a.m. – 4:00 p.m.	Registration and Information	Grand Ballroom Foyer
8:00 a.m. – Noon	Short Course III: Inflammatory Dermatopathology, Diagnosis by Morphology	Grand Ballroom East
8:30 a.m. – 9:45 a.m.	<b>Consultation in Dermatopathology 302</b> Advanced Alopecia <i>Leonard C. Sperling, MD</i>	Room 214
8:30 a.m. – 9:45 a.m.	<b>Consultation in Dermatopathology 303</b> Twins – Identical or Fraternal? <i>Meera Mahalingam, MD</i>	Room 212
9:00 a.m. – 1:30 p.m.	Exhibit Viewing	Salon West Ballroom
10:00 a.m. – 10:30 a.m.	Refreshment Break	Salon West Ballroom
10:00 a.m. – 11:15 a.m.	<b>Consultation in Dermatopathology 304</b> Infections and Infestations <i>Dirk M. Elston, MD</i>	Room 214
10:00 a.m. – 11:15 a.m.	<b>Consultation in Dermatopathology 305</b> Vascular Lesions <i>Omar P. Sanguenza, MD</i>	Room 212
Noon – 1:30 p.m.	Annual Membership Business Meeting & Luncheon	Salon East Ballroom
1:30 p.m.	Duel in Dermatopathology Awards Presentation	Grand Ballroom East
1:35 p.m. – 2:35 p.m.	Elson B. Helwig Memorial Lecture	Grand Ballroom East
2:35 p.m. – 3:05 p.m.	President's Address	Grand Ballroom East
3:05 p.m. – 3:30 p.m.	Refreshment Break	Salon West Ballroom
3:05 p.m. – 3:30 p.m.	Poster Defense	Salon West Ballroom
3:15 p.m. – 4:30 p.m.	<b>Consultation in Dermatopathology 306</b> Challenging Clinicopathologic Correlations <i>Clay J. Cockerell, MD</i>	Room 214
3:15 p.m. – 4:30 p.m.	<b>Consultation in Dermatopathology 307</b> Rare or Rarely Diagnosed Conditions <i>Almut Böer-Auer, MD</i>	Room 212
3:30 p.m. – 5:30 p.m.	NEW Fellows' Case Presentations	Grand Ballroom East
4:30 p.m. – 6:00 p.m.	Program Committee Meeting	Room 201
4:45 p.m. – 6:00 p.m.	<b>Consultation in Dermatopathology 308</b> Pediatric Dermatopathology <i>Loren E. Goltz, MD</i>	Room 214



## The American Society of Dermatopathology

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4:45 p.m. – 6:00 p.m.	<b>Consultation in Dermatopathology 309</b> The Difficult Melanocytic Lesion <i>Raymond L. Barnhill, MD</i>	Room 212
6:15 p.m. – 7:30 p.m.	<b>Consultation in Dermatopathology 310</b> Scarring Alopecia: Deep-Rooted Insights <i>Catherine Margaret Stefanato, MD</i>	Room 214
6:15 p.m. – 7:30 p.m.	<b>Consultation in Dermatopathology 311</b> Difficult Cutaneous Lymphoma Cases from the Stanford Case Files <i>Jinah Kim, MD</i>	Room 212
6:30 p.m. – 9:30 p.m.	Evening Slide Symposium	Grand Ballroom East

Submit your evaluation and CME Claim Forms in a convenient drop box located near the ASDP registration counter.

## **Short Course III: Inflammatory Dermatopathology: Diagnosis by Morphology**

8:00 a.m. – Noon

**Grand Ballroom East**

*Course Director:* Lawrence E. Gibson, MD, Mayo Clinic, Rochester

**4 hours CME credit**

Handouts for this course can be found in this tabbed section following the daily program schedule.

The course will focus on a broad range of inflammatory diseases of the skin and will emphasize a combination of clues present in the routine histopathology along with the clinical experience of the faculty to make cogent points regarding the diagnoses.

### **Faculty and Session Outline:**

8:00 – 8:15 a.m.

#### **Introduction**

Lawrence E. Gibson, MD

*Mayo Clinic, Rochester*

8:15 – 8:45 a.m.

#### **Visual Perception in Inflammatory Dermatopathology**

Almut Böer-Auer, MD

*DERMATOLOGIKUM Hamburg*

8:45 – 9:15 a.m.

#### **Hail to the Chief: Granulomatous Patterns He Missed?**

Jane Grant-Kels, MD

*Univ of Connecticut Health Center*

9:15 – 10:00 a.m.

#### **Inflammatory Skin Disorders: New Concepts, New Observations**

Helmut Kerl, MD

*Medical University of Graz*

10:00 – 10:30 a.m. Break

10:30 – 11:00 a.m.

#### **Alopecic Disorders: Clues to Diagnosis**

Wilma Bergfeld, MD, FACP, FAAD

*Cleveland Clinic*

11:00 – 11:30

#### **Vascular Inflammatory Patterns: Observations and Clinical Correlations**

Lawrence E. Gibson, MD

*Mayo Clinic, Rochester*

11:30 a.m. – Noon

#### **Clinical Correlation to the Rescue: Cases Where Clinical Features are Requisite for Accurate Diagnosis**

Clay Cockerell, MD

*University of Texas Southwestern Medical Center*

### **Upon completion of this course, participants should be able to:**

- Analyze routine histopathologic slides for subtle clues to differentiate several inflammatory skin diseases.
- Detect the patterns of inflammatory change and to use this information to better form a differential diagnosis.
- Recognize the need to utilize clinical input to finalize the diagnosis of inflammatory diseases.

## 2010 Elson B. Helwig Memorial Lecture

1:35 – 2:35 p.m.

*Grand Ballroom East*

1 hour CME credit

This clinically oriented lecture began in October 1998 as the "Special Guest Lecture." On July 31, 2000, the "Special Guest Lecture" was officially named the Elston B. Helwig Memorial Lecture in tribute of Dr. Helwig. The lectureship is awarded in recognition of excellence in the realm of diagnostic dermatopathology and for significant contribution to the dermatopathology literature and the education of fellows and colleagues.



**Helmut Kerl, MD**

*Department of Dermatology  
University of Graz*

### **Principles and Practice of Modern Dermatopathology**

In this lecture new concepts and principles of Dermatopathology will be illuminated including the following aspects: reflections on a modern dermatopathology, the challenge of melanocytic tumors and lessons from patients with interesting observations

### **Previous Lecturers**

2009 Amy S. Paller, MD

2008 Paul A. Khavari, MD, PhD

2007 Steven Rosenberg, MD, PhD

2006 Jouni Uitto, MD, PhD

2005 Prof. Lorenzo Cerroni, MD

2004 Christopher D.M. Fletcher, MD, FRCPath

2003 Phillip H. McKee, MD

2002 Jean L. Bologna, MD

## President's Address

2:35 – 3:05 p.m.

*Grand Ballroom East*



**Earl J. Glusac, MD**

*Professor*

*Yale University School of Medicine*

### **"Ergonomics and Epidemics Mental and Physical Mishaps In the Life of a Dermatopathologist"**

This talk will address two unrelated topics, each unbidden and, regrettably, central to my experience in our profession. The first topic involves a new generation of ergonomic microscopes and furniture that can be helpful in preventing or reducing pain that may arise from spending many hours each day at the microscope. The second topic is the "melanoma epidemic". Is it real? If not, what histologic factors might contribute to its seeming presence?

## Fellows' Case Presentations

3:30 – 5:30 p.m.

Grand Ballroom East

Course Director: Melissa P. Piliang, MD, Cleveland Clinic

2 hours CME Credit

New this year. The Continuing Education and Research Committee has selected twelve outstanding submissions from the Fellows in Dermatopathology abstract category to be presented orally. Abstract sessions will have a mix of case reports, clinical studies and basic science presentations.

TIME	TITLE	SPEAKER
3:30 p.m. – 3:40 p.m.	Alopecia totalis and eruptive halo nevi	Gregory Wells, MD
3:40 p.m. – 3:50 p.m.	Alpha-interferon induced sarcoidosis mimicking metastatic melanoma	Jeffrey North, MD
3:50 p.m. – 4:00 p.m.	Anti-ctla-4 antibody therapy (ipilimumab) induced lupus-like skin manifestations in a metastatic melanoma patient	Kenneth Calder, MD
4:00 p.m. – 4:10 p.m.	Fuze-ball: massive nodular amyloidosis at the site of enfuvirtide (fuzeon) injection	Stephen Mercer, MD
4:10 p.m. – 4:20 p.m.	Histopathological and PCR findings in early HPV lesions in men	Rahel Mathew, MD
4:20 p.m. – 4:30 p.m.	Langerhans cell sarcoma in the setting of prior hairy cell leukemia	Paul Furmanczyk, MD
4:30 p.m. – 4:40 p.m.	Melanoma ex mediastinal teratoma	Alexander Finn, MD
4:40 p.m.- 4:50 p.m.	Metastatic atypical fibrous histiocytoma in a patient with nevoid basal cell carcinoma syndrome	Kristopher Fisher, MD
4:50 p.m. – 5:00 p.m.	New primary lymphoma versus secondary cutaneous involvement in chronic lymphocytic leukemia	Alexander Finn, MD
5:00 p.m. – 5:10 p.m.	Perineural involvement is present in 83% of granular cell tumors	Eleanor Knopp, MD
5:10 p.m. – 5:20 p.m.	Prognostic value of multi-probe fluorescent <i>in situ</i> hybridization in melanoma	Jeffrey North, MD
5:20 p.m. – 5:30 p.m.	Remarkable rash in a man with prostate adenocarcinoma	Jessica Ghaferi, MD

### Upon completion of these sessions, participants should be able to:

- Identify various clinical and basic science topics within dermatopathology.
- Exemplify and promote exchange of new ideas and concepts within the field of dermatopathology.
- Describe innovative investigative studies and tools pertaining to bench and translational research.
- Compare unique pathological perspectives and concepts as they relate to individual and groups of cases.

## Evening Slide Symposium

**NEW — Audience Response System**

**6:30 – 9:30 p.m.**

**Grand Ballroom East**

*Course Director:* Noreen M.G. Walsh, MD, Queen Elizabeth II Health Sciences Centre

**3 hours CME credit**

Course handouts will be provided at the session.

Preview the Evening Slide Symposium cases on the ASDP Website ([www.asdp.org](http://www.asdp.org)). In this traditionally popular symposium, a five-member panel will present fifteen microscopically challenging cases. An in depth discussion by the panel will focus on the histological and clinicopathological aspects of each case. A relaxed and educationally stimulating atmosphere is planned. Audience participation is encouraged, via an audience response system, and casual attire is expected. Beer, soda and snacks will be served.

Glass slides are available for viewing during the course of the meeting. Case summaries are on the next page.

### **Faculty:**

Sylvia Pasternak, MD  
*Dalhousie University*

Mark Jacobson, MD  
*DermPath Diagnostics/Albert Einstein College of Medicine*

Almut Böer-Auer, MD  
*DERMATOLOGIKUM Hamburg*

Heinz H. Kutzner, MD  
*DermPath*

Roger H. Weenig, MD, MPH  
*Associated Skin Care Specialists*

### **Upon completion of this course, participants should be able to:**

- Demonstrate an approach toward diagnosis of various challenging skin biopsies.
- Generate clinically relevant differential diagnoses.
- Differentiate clinical and histological features of interesting, difficult, and rare disorders of the skin.

## Evening Slide Symposium Case Summaries

### Case 1

43-year-old male with chronic myeloid leukemia and recurrent tender skin nodules associated with fever (RW)

### Case 2

52-year-old, dialysis-dependent female with nodules on abdomen noticed after recent 100 pound weight loss (RW)

### Case 3

38-year-old female with a percutaneous endoscopic gastrostomy tube (PEG tube) for pancreatic insufficiency presents to emergency room with a 12-hour history of progressive right lower extremity pain, swelling and erythema associated with fever, chills and near-syncope. (RW)

### Case 4

61-year-old female with rheumatoid arthritis on Embrel. Indurated plaques, left forearm. (SP)

### Case 5

74-year-old man with history of CLL. Erythematous eruption. (SP)

### Case 6

3-year-old girl with waxy atrophic papules (a) and plaques as well as flat topped pink papules (b). (SP)

### Case 7

58-year-old female with a brownish papule on her left shin for an unknown duration of time. (MJ)

### Case 8

25-year-old female, 31 weeks pregnant, with a four-month history of a 5.0 cm verrucous plaque on the mon pubis. (MJ)

### Case 9

75-year-old male with a two-month history of a red reticulate rash on his right thigh with a 1.5 cm central nodule. (MJ)

### Case 10

45-year-old man with acute onset of a figurate and purpuric exanthem, arthralgia, and peripheral edema. History of intravenous drug abuse. (AB)

### Case 11

61-year-old woman with a chronic and widespread eruption of erythematous papules, pustules, ulcers and hyperpigmented scars. History of rheumatoid arthritis. (AB)

### Case 12

78-year-old man with a keratotic and crusted plaque on the scalp. History of multiple actinic keratoses with various attempts at treatment. (AB)

### Case 13

73-year-old man with small eruptive hemangioma on tip of nose. After laser ablation, within three months rapid ("explosive") enlargement of grouped pyogenic granuloma-like lesions in "cauliflower arrangement." (HK)

### Case 14

68-year-old woman. Four years ago lumpectomy for breast carcinoma. Recently small growth of salmon-colored erythema in upper medial quadrant of left breast. (HK)

### Case 15

52-year-old woman. Since early youth slightly verrucous coin-sized lesion on right thigh. Recently slow but continuous growth with development of small "vesicles" on surface. (HK)

Visit the ASDP Career Center to view  
employment available and wanted listings.  
Grand Ballroom Foyer

# **Short Course III: Inflammatory Dermatopathology: Diagnosis by Morphology**





## Sunday, October 10

6:30 a.m. – 8:45 a.m.	Continental Breakfast	Grand Ballroom Foyer
6:30 a.m. – 9:30 a.m.	Speaker Ready Room	Room 207
7:00 a.m. – 11:00 a.m.	Registration and Information	Grand Ballroom Foyer
7:00 a.m. – 11:00 a.m.	Poster Dismantle	Salon West Ballroom
7:00 a.m. – 8:15 a.m.	<b>Consultation in Dermatopathology 400</b> Cutaneous Lymphocytic Infiltrates: Your Cases and Mine <i>Joan Guitart, MD</i>	Room 214
7:00 a.m. – 8:15 a.m.	<b>Consultation in Dermatopathology 401</b> Basic Alopecia <i>Shawn E. Cowper, MD</i>	Room 212
7:30 a.m. – 8:30 a.m.	Oral Abstract #3	Grand Ballroom East
8:30 a.m. – 8:45 a.m.	Abstract and Poster Awards Presentations	Grand Ballroom East
8:30 a.m. – 9:45 a.m.	<b>Consultation in Dermatopathology 402</b> Mimickers in Dermatopathology <i>Jag Bhawan, MD</i>	Room 214
8:30 a.m. – 9:45 a.m.	<b>Consultation in Dermatopathology 403</b> Diagnostic Pearls and Pitfalls in Sentinel Lymph Nodes for Melanoma Clinical Implications <i>Victor G. Prieto, MD</i>	Room 212
8:45 a.m. – Noon	Short Course IV: Trigger Points in the Diagnosis of Melanoma	Grand Ballroom East
Closes at 11:00 a.m.	Slide Library	Room 209-211
Closes at 11:00 a.m.	Slide Viewing from Evening Slide Symposium	Room 213

## Oral Abstract Session #3

7:30 – 8:30 a.m.

**Grand Ballroom East**

Director: Christine Jaworsky, MD, Cleveland Skin Pathology Lab

**1 hour CME Credit**

Abstracts presented in Oral Abstract Session #3 can be found in this book behind the “Oral Abstracts” tab. Abstracts are listed in the order of presentation.

TIME	TITLE	SPEAKER
7:30 – 7:40 a.m.	Proliferative nodules in congenital nevi - a histopathologic, genomic and immunohistochemical reappraisal	Meera Mahalingam, MD
7:40 – 7:50 a.m.	Retinoblastoma tumor suppressor pathway effects survival of patients with metastatic malignant melanoma	Maria Queenan, MD
7:50 – 8:00 a.m.	Solar elastotic material in dermal lymphatics and lymph nodes	Melissa Pulitzer, MD
8:00 – 8:10 a.m.	SOX-10 is superior to S100 in the identification of nodal metastasis in melanoma	Charay Jennings, MD
8:10 – 8:20 a.m.	Spitz-type melanocytic tumors: a clinical outcome analysis	Alireza Sepehr, MD
8:20 – 8:30 a.m.	Subcutaneous amyloidomas at interferon-alpha injection sites: a report of two cases	Loren Clarke, MD

### Upon completion of these sessions, participants should be able to:

- Identify various clinical and basic science topics within dermatopathology.
- Exemplify and promote exchange of new ideas and concepts within the field of dermatopathology.
- Describe innovative investigative studies and tools pertaining to bench and translational research.
- Compare unique pathological perspectives and concepts as they relate to individual and groups of cases.

## **Short Course IV: Trigger Points in the Diagnosis of Melanoma**

### **NEW – Audience Response System**

8:45 a.m. – Noon

*Grand Ballroom East*

*Course Director:* Thomas N. Helm, MD, State University of New York at Buffalo

**3.25 hours CME Credit**

This course will provide the audience with the opportunity to see how experienced dermatopathologists determine whether a tumor is melanoma or not. The emphasis will be on borderline cases with the understanding that opinions regarding diagnosis will vary. Understanding the diagnostic paradigms of faculty members will be stressed over whether or not any one paradigm is “best.” The audience will have a chance to critically review cases with faculty members in an effort to benchmark their own diagnostic approach with those of the faculty. An audience response system will be utilized to engage the audience.

### **Faculty and Session Outline:**

8:45 – 9:15 a.m.

#### **Desmoplastic and Spindle Cell Melanoma**

Klaus J. Busam, MD

*Memorial Sloan-Kettering Cancer Center*

9:15 – 9:45 a.m.

#### **Melanoma *in situ* and Lentiginous Nevi**

John C. Maize, Jr., MD

*Cockerell and Associates Dermopath Diagnostics*

9:45 – 10:15 a.m.

#### **Dysplastic Nevi and Nevi in Special Sites**

Clay J. Cockerell, MD

*UT Southwestern Medical Center/Cockerell and Associates Dermopath Diagnostics*

10:15 – 10:45 a.m.

#### **Spitz Nevi vs. Melanoma**

Raymond L. Barnhill, MD

*Hopital Saint-Louis*

10:45 – 11:15 a.m.

#### **Melanoma and the Inadequate Biopsy**

Geoffrey J. Gottlieb, MD

*Ackerman Academy of Dermatopathology*

11:15 a.m. – Noon

#### **Cases for the Panel and for the Audience**

Thomas N. Helm, MD

*State University of New York at Buffalo*

### **Upon completion of this course, participants should be able to:**

- Interpret the similarities and differences between how you and the faculty evaluate cases.
- Observe best practices in the diagnosis of melanoma.
- Identify areas where new information will be needed to help diagnose melanomas.





# **Short Course IV: Trigger Points in the Diagnosis of Melanoma**



## Oral Abstract Session #1

TIME	TITLE	SPEAKER
3:00 p.m. – 3:10 p.m.	“Virtual Signout” platform - tool for dermatopathology training	Jiang Zhang, MD
3:10 p.m. – 3:20 p.m.	A rapid sensitive test for detection of 43 mutations with relevance to targeted therapy in melanoma	Laurel Fohn, MD
3:20 p.m. – 3:30 p.m.	Alpha-smooth muscle actin expression in atypical fibroxanthoma and CD10 expression in cutaneous leiomyosarcoma: immunohistochemical and morphological study of 24 cases	Brian Swick, MD
3:30 p.m. – 3:40 p.m.	An investigation of the accuracy of tip margins as indicators of lateral margins in cutaneous elliptical excisions	Matthew Hazey, MD
3:40 p.m. – 3:50 p.m.	Anal skin tags with granulomatous inflammation: association with inflammatory bowel disease and symptoms	Anna Harris, MD
3:50 p.m. – 4:00 p.m.	Atypical spitzoid melanocytic neoplasms with angiotropism: a potential mechanism of loco-regional involvement	Raymond Barnhill, MD
4:00 p.m. – 4:10 p.m.	Auricular Melanoma: A retrospective study of 100 cases	Priyadharsini Nagarajan, MD
4:10 p.m. – 4:20 p.m.	Cocaine-related retiform purpura: Evidence to incriminate the adulterant, levamisole	Noreen M.G. Walsh, MD
4:20 p.m. – 4:30 p.m.	Homogeneous staining regions (HSRs) - as a novel prognostic FISH marker in malignant melanoma	Liaqat Ali, MD



## **"Virtual Signout" platform — tool for dermatopathology training**

Jiong Zhang, MD

J. Zhang<sup>1</sup>; A. Kulkarni<sup>1</sup>; C. Stanton; A. Skinner<sup>2</sup>; C. Johns<sup>2</sup>; C. Handorf<sup>1</sup>; A. Slominski<sup>1</sup>

<sup>1</sup> The University of Tennessee Health Science Center, Memphis, TN, USA

<sup>2</sup> University of Memphis, Memphis, TN, USA

Background: Pathology resident training can be greatly enhanced by utilizing the Whole Slide Imaging System (WSI System) to create a virtual sign-out educational platform designed specifically for resident teaching. The virtual sign-out platform will allow resident training programs to overcome the following challenges: i) Programs and board requirements focused on the total duration of exposure received by the resident, but not necessarily the quality of exposure to different entities and diagnoses, ii) Nonsystematic case exposure which lacks the ability to facilitate uniform learning in all desired areas, and iii) Lack of an objective method for competency evaluation. Design: A web based software solution has been designed to simulate the sign-out process, allowing individualized learning and creating a robust system for evaluation. The software is designed to be backed by a large database of digitized images from selected archived cases. Case exposure is designed to avoid redundancy based on the individual users experience and diagnostic skill for each disease condition. User performance is recorded and analyzed for factors including accuracy of diagnosis and proper utilization of available resources, such as requesting additional or different staining techniques and/or deeper sections. Results: 134,000 cases from the recent archives at the University of Tennessee Health Science Center Pathology Department are scrutinized. Surgical pathology cases representing a wide variety of dermatopathology diagnosis are selected. Relevant case information, including gender, age, clinical history, specimen type and gross descriptions are extracted using scripting language PERL. Slides are digitized using ScascopeXT at ~200X magnification. Website and database backend are constructed. Conclusion: Initial user feedbacks suggest that the efficiency of dermatopathology training can be improved by using the power of information technology.

## **A rapid sensitive test for detection of 43 mutations with relevance to targeted therapy in melanoma**

Laurel Fohn, MD, PhD

L. Fohn<sup>1</sup>; D. Dias-Santagata<sup>2</sup>; Z. Su<sup>3</sup>; M. Duke<sup>3</sup>; C. Vnencak-Jones<sup>1</sup>; J. Sosman<sup>1</sup>; A. Iafate<sup>2</sup>; W. Pao<sup>1</sup>

<sup>1</sup> Vanderbilt University Medical Center, Nashville, TN, USA

<sup>2</sup> Massachusetts General Hospital, Boston, MA, USA

<sup>3</sup> Vanderbilt University School of Medicine, Nashville, TN, USA

Multiplexed mutational tumor profiling is becoming increasingly important for the prioritization of targeted therapies in cancer. We report development and validation of an assay to detect common somatic point mutations in melanoma. The assay utilizes the SNaP-Shot method (multiplex PCR, multiplex primer extension, and capillary electrophoresis) to detect 43 point mutations in six genes (BRAF, NRAS, KIT, GNAQ, GNA11, and CTNNB1) potentially relevant to existing and emerging targeted therapies in melanoma. The assay can be performed rapidly with minimal amounts of DNA from formalin-fixed paraffin-embedded tissue. Compared to Sanger sequencing, where mutant DNA needs to comprise >25% of total DNA for mutation detection, the SNaPshot assay can identify mutations in samples where mutant DNA comprises only 5-10% of the total DNA. This robust, reliable, and relatively inexpensive assay should help accelerate adoption of a genotype-driven approach in the treatment of melanoma. Its application to research, clinical trials, and clinical testing will be highlighted.

## **Alpha-smooth muscle actin expression in atypical fibroxanthoma and CD10 expression in cutaneous leiomyosarcoma: immunohistochemical and morphological study of 24 cases**

Brian Swick, MD

B. Swick; M. Stone

University of Iowa, Iowa City, IA, USA

Atypical fibroxanthoma (AFX) is mesenchymal tumor showing histiocytic, fibroblastic, and myofibroblastic differentiation. It is often composed of pleomorphic spindled cells and shows histologic overlap with spindle cell squamous cell carcinoma (SCC), spindle cell malignant melanoma (MM), and cutaneous leiomyosarcoma (LMS). Immunohistochemical stains, including S100 and cytokeratins are often used to support a diagnosis of MM and SCC over AFX. In addition, studies have shown that CD10 expression in AFX is helpful in distinguishing the entity from MM and SCC. However, there is a paucity of studies investigating immunohistochemical differentiation of CLMS from AFX. In this study, we evaluated 17 AFXs and 7 CLMSs for expression of alpha-smooth muscle actin (SMA) and CD10. SMA was expressed in 10 of 17 (59%) AFXs and 7 of 7 (100%) LMSs. SMA expression in AFXs was associated with a spindled morphology and fascicular growth. CD10 was expressed in 16 of 17 (94%) AFXs and 3 of 7 (43%) LMSs. To our knowledge, this is the first study to describe CD10 expression in LMS. Our findings show that the presence or absence of SMA expression cannot reliably be used to distinguish AFX from LMS. Instead, consideration should be given to obtaining desmin or h-caldesmon stains.

## **An investigation of the accuracy of tip margins as indicators of lateral margins in cutaneous elliptical excisions**

Matthew Hazey, MD

M. Hazey; J. Callen; S. Downs; S. Bahrami

University of Louisville School of Medicine, Louisville, KY, USA

Background: Transverse vertical sectioning, or the breadloaf method, is commonly utilized for laboratory processing of cutaneous elliptical excision specimens. The tips of the ellipse are generally regarded as a lateral margin, and subsequent re-excision may be performed based on a positive tip. Our objective was to investigate whether positive tip margins in cutaneous ellipse excisions become negative for residual pathology by obtaining additional levels thus indicating a false positive margin. Methods: Seventeen cases of elliptical excisions with positive tip margins for benign and malignant cutaneous proliferations were evaluated for the percentage of residual pathology burden as follows: horizontal residual pathology in tip(s) divided by total horizontal tip dimension in mm (X 100). Consecutive and equal 40 micron levels through the positive tips were obtained and evaluated for the presence or absence of residual pathology. If negative, the tip margin was considered a false positive and the level at which residual pathology cleared was noted; if pathology remained after 15 levels, the margin was considered a true positive. Results: False positive and true positive tips were found in 76% (13/17) and 24% (4/17) of cases, respectively. There was a significantly lower mean residual pathology burden in cases of false positive tip margins as compared to cases of true positive tip margins (29.2% vs. 63.2%; p0.05). Conclusions: The study results provide evidence for obtaining additional levels in elliptical excision specimens with positive tip margins, particularly in cases where pathology burden is less than 50%, as clearance of this false positive margin can save the patient from an unnecessary surgery.

## D2-40 expression in cutaneous malignant spindle cell tumors

Linglei Ma, MD, PhD

L. Ma<sup>1</sup>; B. Bandarchi<sup>2</sup>

<sup>1</sup> University of Michigan, Ann Arbor, MI, USA

<sup>2</sup> University of Toronto, Toronto, Ontario, Canada

The differential diagnoses of cutaneous malignant spindle cell tumor (CMSCT) require the application of various immunostains. D2-40 is a monoclonal antibody to M2A antigen, an O-linked sialoglycoprotein. Although D2-40 is specific for lymphatic/vascular endothelium, it is also expressed in non-endothelial cells/tumors, including dermatofibromas. It was previously reported that D2-40 was not detected in dermatofibrosarcoma protuberans (DFSP). Herein, we investigated D2-40 immunostain on 35 CMSCNs, including 9 Atypical Fibroxanthoma (AFX), 7 Desmoplastic Melanoma (DM), 5 Spindle Squamous Cell Carcinoma (SCC), 10 DFSP, and 4 Leiomyosarcoma (LMS) using tissue microarray. Staining intensity and percentage of positive cells were scored. D2-40 cytoplasmic staining was seen in 7/9 (78%) AFXs, 3/5 (60%) SCCs and 5/7 (71%) DMs. No expression was found in cases of DFSP (0/10) and LMS (0/4). Nearly all (6/7) D2-40-positive AFX cases showed diffuse and moderate/strong staining, while one had focal and weak reactivity. A diffuse and moderate/strong positivity was also seen in 3/5 DMs and all 3 SCCs. In summary, although D2-40 expression cannot differentiate among AFX, DM and SCC, it may be helpful in separating AFX, DM and SCC from DFSP and LMS.

## Atypical spitzoid melanocytic neoplasms with angiotropism: A potential mechanism of loco-regional involvement

Raymond Barnhill, MD

R. Barnhill<sup>1</sup>; H. Kutzner<sup>2</sup>; B. Schmidt<sup>3</sup>; C. Lugassy<sup>4</sup>

<sup>1</sup> Hopital Saint-Louis, Universi Paris VII, Paris, France

<sup>2</sup> Dermatopathologie Friedrichshafen, Friedrichshafen, Germany

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Atypical Spitz tumors (AST) may prove difficult to distinguish microscopically from melanoma, and their biological behavior may be unpredictable. AST may result in regional lymph node (LN) metastases, and up to 50% of patients with AST studied demonstrate sentinel lymph node (SLN) deposits. Since angiotropism and extravascular migratory metastasis (EVMM) appears to be significantly involved in loco-regional melanoma metastases and AST seem to show a striking propensity for regional LN involvement, angiotropism and EVMM may potentially explain loco-regional involvement and LN spread in AST. Nine AST with angiotropism from 2006-2010 were selected for study. Angiotropism was defined as previously described: melanocytes closely opposed to the external surfaces of microvascular channels without intravasation. There were 5 females and 4 males aged 6 to 40 years (median 19 and mean 18.7 years) with 5 AST involving the head and neck, 3 the extremities, and one the trunk, and diameters from 3.5 to 10 mm (mean 6.2 mm). Breslow thicknesses ranged from 0.66 to 5.35 mm with a mean of 3.21 mm, 5 lesions were Clark Level IV and 4 Level V, 2 lesions ulcerated, and dermal mitotic rates varied from 1 to 5 per mm<sup>2</sup> (mean 2.4). Despite clinical follow-up of 6 months or less in 4 subjects, 5 patients showed regional tumor spread based on detection of SLN biopsy deposits, local recurrence, or clinical satellite and LN metastases. 4 of 5 patients (80%) undergoing SLN biopsy showed nodal positivity. 2 patients had SLN deposits > 6

mm. Among 4 patients not having SLN biopsy, one patient developed local clinical lymph node metastases after 2 years. In conclusion, we report for the first time the presence of angiotropism in atypical spitzoid melanocytic neoplasms and suggest that such angiotropism seems to correlate with and may explain regional tumor spread in this neoplastic system.

## Auricular Melanoma: A Retrospective study of 100 cases

Priyadharsini Nagarajan, MD, PhD

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Auricular melanomas constitute 1.5-3% of all melanomas and are not nearly as aggressive as originally considered. We studied retrospectively all ear melanomas from the archives of Yale Dermatopathology and Surgical Pathology laboratories between 1987 and 2009. One hundred cases were analyzed. Patients age ranged from 26 to 94 years (mean 58). There was a male predominance with a M:F ratio of 5:1. Distribution was similar between right (52%) and left (48%) ear. The most common location was the helix (44%) followed by the pinna (31%). 11 cases were melanoma in-situ. 89 cases were invasive melanomas with a Breslow depth between 0.3 and 11 mm (mean 1.64). The perichondrium was not invaded in any of the cases, suggesting that it might be a natural barrier against invasion. Sentinel lymph nodes (SLN) were sampled in 29% of cases and were positive in 3 cases. In 21% of cases unilateral cervical lymph node dissection (LND) was performed. Only one lymph node contained a metastasis. In one case there was an in-transit metastasis; however, LND was negative. In two cases there was a recurrence of the melanoma, which was re-excised with negative margins. In summary, auricular melanomas behave in a relatively indolent fashion and our data provides scientific basis to support the growing trend towards more conservative surgical measures such as excision with preservation of the cartilaginous framework.

## Cocaine-related retiform purpura: Evidence to incriminate the adulterant, levamisole.

Noreen Walsh, MD

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The term 'cocaine-induced pseudovasculitis' applies to a constellation of clinical and serological findings which mimics a systemic vasculitis but lacks confirmatory evidence of vasculitis on biopsy. Antineutrophil cytoplasmic antibodies reacting with human neutrophil elastase (HNE) distinguish the cocaine-related syndrome from a true autoimmune vasculitis. Reports of retiform purpura related to cocaine use are rare and an etiologic role for levamisole, a common adulterant of cocaine, has been postulated. We describe 2 female patients aged 39 and 49 years with cocaine-related retiform purpura, mainly affecting the legs. The initial clinical and serological profile in case (i) led to a suspicion of anti-phospholipid antibody syndrome and in case (ii) to Wegeners granulomatosis, with an unexplained associated neutropenia. Skin biopsies revealed a mixed pattern of leukocytoclastic vasculitis and microvascular thrombosis in case (i) and pure microvascular thrombosis in case (ii). Identification of HNE antibodies in both patients, linked their

disease to cocaine. The mixed vasculopathic pattern in case (i) and the associated neutropenia in case (ii), both known adverse effects of levamisole, point to this as the true etiologic agent. Moreover, urine toxicology shortly after a binge of cocaine use in case (ii) proved positive for levamisole.

### **Cytological diagnosis of facial non-melanoma skin cancer: A single academic institution experience**

Liaqat Ali, MD

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The utilization of molecular techniques including fluorescence in situ hybridization (FISH) is becoming increasingly popular and important in the evaluation of melanocytic neoplasms. Most commonly gains in chromosomal segments identified by FISH occur in the form of DMINS (double minutes). These appear as distinct extra copies of specified segments of the chromosome. However, occasionally these copy number changes may occur in the form of a homogeneous staining region (HSR). Homogeneous staining regions are indicative of continuous chains of high level amplification of a chromosomal segment typically integrated into the host cells DNA. The presence of HSRs has been noted in a number of different cancers and may predict treatment responses and prognosis in some cases. In our extensive experience performing FISH analysis of melanocytic neoplasms, we have identified 6 patients with HSRs of Cyclin D1. The melanomas from these patients were characterized by high dermal mitotic count, frequent ulceration, elevated Breslow depth and metastasis in 4 of 5 cases with available follow up. In summary, in our experience to date, the presence of HSRs in Cyclin D1 occurs exclusively in mitotically active vertical growth phase melanomas and is associated with a poor prognosis. This finding may have significant prognostic and therapeutic importance for the management of melanoma patients.

## 11th Annual Duel in Dermatopathology Resident Abstract Competition

TIME	TITLE	SPEAKER
6:00 – 6:05 p.m.	A case of eruptive disseminated Spitz nevi	Farnaz Fakhari, MD
6:05 – 6:10 p.m.	A rapidly growing superficial angiomyxoma of the lip in a patient with a previous diagnosis of Peutz-Jeghers syndrome	Shanon Lacy, MD
6:10 – 6:15 p.m.	A systemic diagnosis of exclusion aided by a subtle histological clue	Nina Abraham, MD
6:15 – 6:20 p.m.	Acantholysis and bowenoid atypia: a potential pitfall for misdiagnosis of mammary Paget's disease	Rudy Alvarez, MD
6:20 – 6:25 p.m.	Aspergillosis or phaeohyphomycosis? Not always black-and-white...	David Lortscher, MD
6:25 – 6:30 p.m.	Bloody bandit: cocaine-associated retiform purpura	Bhaskar Srivastava, MD
6:30 – 6:35 p.m.	Chronic Lymphocytic Leukemia Simulating Chronic Paronychia,	Michelle Jackson, MD
6:35 – 6:40 p.m.	Cutaneous acanthamoebiasis in a double lung transplant patient, case report and literature review	Andrea D'Auria, MD
6:40 – 6:45 p.m.	Donor-derived lymphomatoid papulosis in a stem cell transplant recipient	Brendan Camp, MD
6:45 – 6:50 p.m.	Fatal pancreatitis presenting as pancreatic panniculitis without enzyme elevation	Erick Jacobson-Dunlop, MD
6:50 – 6:55 p.m.	Multiple subcutaneous nodules in a 5-month-old male	Amy Kerkvliet, MD
6:55 – 7:00 p.m.	Intravascular Large B Cell Lymphoma Mimicking Cutaneous Scleroderma	Matthew Petitt, MD
7:00 – 7:05 p.m.	Merkel cell carcinoma in situ with squamous cell carcinoma in situ: a rare case presentation, negative for Merkel Cell Polyomavirus	Belinda Tan, MD
7:05 – 7:10 p.m.	Migratory cutaneous hemangiotropic intravascular large B-cell lymphoma	Harleen Sidhu, MD
7:10 – 7:15 p.m.	Multifocal lymphangioendotheliomatosis: Blue blebs causing brain bleeds	Edward Esparza, MD
7:15 – 7:20 p.m.	Non-granulomatous cutaneous silica nodules in a kayaker	Tiffani Milless, MD
7:20 – 7:25 p.m.	Relapsed hepatosplenic T-cell lymphoma heralded by a solitary skin nodule	Thomas Hocker, MD
7:25 – 7:30 p.m.	Worms gone wild: disseminated strongyloides hyperinfection in a renal transplant recipient	Karolyn Wanat, MD

## **A case of eruptive disseminated Spitz nevi**

Farnaz Fakhari MD, PhD

F. Fakhari; B. Ehst; K. White; C. White Jr.

*Oregon Health and Science University, Portland, OR, USA*

A 31 year old female presented to Oregon Health and Science University with a 4 month history of multiple asymptomatic 1 to 2 mm dark red and brown- black dome-shaped papules scattered over her buttocks, thighs and lower back. She had approximately 40 lesions. Apart from delivering a baby girl 10 months prior to the development of her symptoms, her past medical history was otherwise unremarkable. Five separate lesions were biopsied and were found to have similar histology, including small, well-circumscribed, predominantly junctional melanocytic neoplasms with some vertically oriented nests and Kamino bodies. Occasional single melanocytes were present above the basal layer, and most of the cells contained spindled to epithelioid nuclei with only mild atypia. Eruptive disseminated spitz nevi are rare and have been reported in 14 published cases. Spitz nevi can be clinically and histologically challenging to distinguish from spitzoid melanoma. Long term follow up of at least one case did not show development of malignant melanoma. Pregnancy, as in our patient, in addition to injected drug use, operative stress, and various forms of cutaneous injury or stimulation have been proposed to be associated with the development of eruptive disseminated spitz nevi.

## **A rapidly growing superficial angiomyxoma of the lip in a patient with a previous diagnosis of Peutz-Jeghers syndrome**

Shanon Lacy, DO

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We present a case of an 18 year-old male with a rapidly growing (within a few months) lesion of his right upper lip. Approximately three years prior, the patient had been diagnosed with Peutz-Jeghers syndrome due to several lentiginos of the face and oral mucosa. Enlarged bilateral testicles were noted, and right orchiectomy revealed a large calcifying Sertoli cell tumor (which may be seen in both Peutz Jeghers and Carneys Complex). Biopsy of the upper lip lesion three years later showed a myxoid spindle cell proliferation with mild to moderate cellularity. Reconstructive surgery revealed an unusually large 7.0 x 3.8 x 3.3 cm tumor with a soft lobulated cut surface and grossly positive surgical margins. Microscopic examination revealed a hypercellular spindle cell proliferation with a rich vascular network in a myxoid and slightly collagenous background with infiltration of adjacent connective tissue and skeletal muscle, and a diagnosis of cutaneous angiomyxoma associated with Carney Complex was rendered. This case highlights the clinical overlap of these two familial syndromes, and also reports an angiomyxoma with rapid growth and large tumor size. With time, an eventual diagnosis of Carney Complex was given, and proper follow-up treatment was initiated.

## **A systemic diagnosis of exclusion aided by a subtle histological clue**

Nina Abraham, MD

N. Abraham; S. Mercer; D. Caplivski; M. Birge

*Mount Sinai School of Medicine, New York, NY, USA*

A 23 year-old Ecuadorian male presented with a one-month history of sore throat, diffuse arthralgias, chest and abdominal pain, fever, and erythematous, scaly plaques involving his trunk and extremities. Laboratory findings were significant for leukocytosis with bandemia, anemia, elevated transaminases, and elevations in erythrocyte sedimentation rate, c-reactive protein, and ferritin. Imaging studies identified a large pericardial effusion, splenomegaly, and lymphadenopathy. An extensive workup for infectious and rheumatologic etiologies failed to elucidate the diagnosis. A skin biopsy revealed a sparse superficial perivascular dermatitis, spongiosis, and skipping mounds of atypical parakeratosis with prominent necrotic keratinocytes in the upper half of the epidermis, a finding recently associated with a subset of patients with adult onset Stills disease. Adult onset Stills disease is a rare systemic inflammatory disorder characterized by a triad of arthralgias or arthritis, an evanescent rash, and daily spiking fevers. Although the rash is typically described as evanescent, a subset of patients presents with persistent skin lesions. This persistent component has the unique histological feature of prominent necrotic keratinocytes in the upper half of the epidermis. In the right clinical context, recognizing this feature may aid in earlier diagnosis and treatment of patients with this disorder.

## **Acantholysis and bowenoid atypia: a potential pitfall for misdiagnosis of mammary Paget's disease**

Rudy Alvarez, MD

R. Alvarez; N. Somani; M. Kuhar

*Indiana University School of Medicine, Indianapolis, IN, USA*

Mammary Paget's disease is typically characterized by epithelioid cells with abundant pale cytoplasm scattered throughout the epidermis. Recognizing this entity is of vital importance since it usually signifies an underlying ductal breast carcinoma. Anaplastic mammary Paget's disease is a rare subtype characterized by epidermal acantholysis and bowenoid cells that resemble squamous cell carcinoma in-situ. We present a case of a 52 year-old female with a three-month history of nipple erosion, friability, and bloody discharge. The histologic features were of full thickness epidermal atypia and marked epidermal acantholysis. Classic Paget cells were not observed on initial sections and Bowens disease headed the list of differential diagnoses. Immunohistochemical stains, however, revealed the epidermis was predominantly composed of cells positive for Her-2 neu, cytokeratin 7, and CAM 5.2. Deeper H&E sections eventually showed rare classic Paget cells admixed with the bowenoid cells. This case illustrates that mammary Paget's disease presents in multiple histological forms, and that rare presentations with acantholytic and bowenoid features are a potential pitfall for misdiagnosis and warrant further scrutiny.

**Aspergillosis or phaeohyphomycosis? Not always black-and-white...**

David Lortscher, MD

D. Lortscher; C. Piggott; R. Huang; R. Lee

*University of California San Diego, San Diego, CA, USA*

A 53-year-old man presented to UCSD dermatology clinic for painful nodules - one on each foot - that he had noticed for about 5 weeks. The patient was a liver transplant recipient whose medications included sirolimus and tacrolimus. A 3.5cm, soft, skin-colored-to-violaceous nodule with minimal epidermal change was noted on the medial left heel, and a similar 1.5cm lesion was present on the lateral right foot. A punch biopsy of the larger nodule showed septate, non-pigmented hyphae branching at acute angles, consistent with aspergillus on H&E, GMS, and PAS stains. Confirmatory fungal cultures were recommended, and the patient was promptly started on oral voriconazole and intravenous micafungin for suspected systemic aspergillosis. Surprisingly, subsequent biopsy of the smaller lesion showed branching hyphae with endogenous brown pigmentation. Fontana-Masson staining of both biopsy specimens revealed melanin in the hyphal walls, and tissue culture later confirmed that both nodules were caused by dematiaceous fungi. Even in immunocompromised patients, phaeohyphomycotic nodules do not typically portend systemic disease, and cure may be achieved by surgical excision with or without adjuvant antifungal therapy. Distinguishing between phaeohyphomycosis and hyalohyphomycosis by light microscopy depends on the presence or absence of melanin, respectively; therefore, "pauci-pigmentary" phaeohyphomycosis may mimic aspergillus. In the correct context, melanin staining can help make this important distinction and direct treatment before a patient's culture results become available.

**Bloody bandit: cocaine-associated retiform purpura**

Bhaskar Srivastava, MD, PhD

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We report a case of inflammatory retiform purpura consistent with an emerging disease seen among cocaine abusers. Our patient is a 53 year-old woman who presented with one week of progressive, painful, large retiform purpuric lesions with inflammatory borders on her arms, chest, and back. She also had involvement of her left ear. She had a long history of cocaine abuse, but was otherwise in good health and had no systemic complaints. Her lab workup was remarkable for leukopenia, positive p-ANCA, and evidence of antiphospholipid antibodies. Histopathology of the lesions revealed both microvascular occlusion with fibrin thrombi and leukocytoclastic vasculitis with neutrophils and nuclear dust around small dermal vessels. Special stains for organisms were negative. Direct immunofluorescence showed vascular deposits of IgM, IgG and C3. The clinicopathologic findings were compatible with a recently described entity termed cocaine-associated retiform purpura. The emerging use of the antihelminthic levamisole as a cutting agent in adulterated cocaine has been proposed as the culprit of vasculopathy in the setting of cocaine abuse. We report this case to increase awareness about the potential public health hazard of levamisole-contaminated cocaine.

**Chronic lymphocytic leukemia simulating chronic paronychia**

Michelle Jackson, MD

M. Jackson; R. Lee; D. Lortscher; E. Broome; H. Wang

*University of California San Diego, San Diego, CA, USA*

A 76 year-old male with a history of chronic lymphocytic leukemia (CLL) presented with a 2-year history of swollen fingernail folds and nail dystrophy. The lesions were resistant to oral ketoconazole, oral lamisil, IVIG, sulconazole nitrate solution, and triamcinolone ointment. On exam there was erythema and swelling of all fingernail folds. The nail plates were thin with longitudinal ridging and minimal subungual debris. Histology of the right 3rd nail plate clipping was normal. PAS and GMS stains were negative. Biopsy of the left third proximal nail fold revealed nodular infiltrates of monomorphic lymphocytes in the dermis and subcutis, which stained positively for CD5, CD19, CD20, and focally for CD43. PAS, AFB, and Gram stains were negative. Bacterial and fungal cultures were also negative. These findings were consistent with cutaneous infiltration of the patients known CLL. Leukemia cutis in patients with CLL is rare and primarily involves the face and extremities. To date there are only nine reported cases of leukemia cutis involving the hands. Leukemia cutis often mimics benign dermatoses, but to our knowledge, there are only two previous reports of CLL simulating chronic paronychia. This case highlights the importance of histopathological examination of any suspicious lesion in patients with CLL.

**Cutaneous acanthamoebiasis in a double lung transplant patient, case report and literature review**

Andrea D'Auria, DO

A. D'Auria; C. Rohan; G. Kim

*University of Southern California, Los Angeles, CA, USA*

We report a case of a 62-year-old male who presented 2 months status post double lung transplantation with bilateral subcutaneous nodules on the chest which enlarged and drained serous fluid over a period of two weeks. A punch biopsy of one of the lesions showed ulceration of the epidermis with a florid superficial and deep mixed inflammatory cell infiltrate admixed with large atypical mononuclear cells. These cells were large with prominent round nuclei and central nucleoli surrounded by a rigid halo as well as neutrophils and red blood cells present in the copious cytoplasm. A diagnosis of cutaneous amoebiasis was made, and with the help of the Center for Disease Control, the amoebae were determined to be acanthamoebae. Cutaneous acanthamoebiasis is an important infection in immunocompromised patients, particularly organ recipients. It is important that this entity is in the differential diagnosis of patients who are immunocompromised and have cutaneous infections that are not responding to broad spectrum antibiotics and antifungal agents. Early recognition and diagnosis are crucial since cutaneous acanthamoebiasis can disseminate and once disseminated, it is almost uniformly fatal.

## **Donor-derived lymphomatoid papulosis in a stem cell transplant recipient**

**Brendan Camp, MD**

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Lymphomatoid papulosis (LyP) is a primary cutaneous CD30+ lymphoproliferative disorder characterized by chronic, recurrent, self-healing papulonodules with the histologic finding of enlarged atypical CD30+ lymphocytes. Occasionally clonal, LyP is conceived of as the benign end of a spectrum of disorders including CD30+ anaplastic large cell lymphoma. LyP has been described as a post-transplant phenomenon in solid organ and stem cell transplant (SCT) recipients. We report a 60-year-old female with a remote history of Langerhans cell histiocytosis (LCH) who developed LyP after an allogeneic sex-mismatched SCT for acute myelogenous leukemia. Within months after transplant, the patient developed papulonecrotic lesions on her trunk, limbs, and tongue. Histology demonstrated a dense dermal mixed-cell infiltrate with many large atypical lymphocytes, and a CD3, CD4, CD30, CD43-positive and CD1a, CD34, CD117, myeloperoxidase-negative immunoprofile. Because of concern about the possibility of LCH, FISH analysis was performed, which demonstrated 96% of lesional cells to be of donor origin. Previous reports of post-transplant LyP have suggested that immunosuppressive therapy may play a role in disease pathogenesis. Our findings suggest the transfer of disordered T-cells during SCT as a cause of the recipients LyP, a finding that would be supported by the reported phenomenon of donor-derived lymphoma and which has not yet been documented.

## **Fatal pancreatitis presenting as pancreatic panniculitis without enzyme elevation**

**Erick Jacobson-Dunlop, MD**

E. Jacobson-Dunlop; C. White Jr.; K. White

*Oregon Health and Science University, Portland, OR, USA*

A 56 year old female who was hospitalized for cauda equina syndrome developed mild abdominal pain and an erythematous, indurated 15 x 4cm plaque on her left lower abdomen. An abdominal CT demonstrated non-specific retroperitoneal and pelvic fluid with fascial thickening. Dermatology was consulted and a biopsy of the skin lesion was performed. Gross examination of the biopsy specimen revealed grey, friable subcutaneous adipose tissue. Plasma amylase and lipase were obtained revealing a decreased lipase and normal amylase. Histologic examination of the biopsy, however, demonstrated superficial and deep mixed dermatitis and lobular panniculitis with neutrophils and saponification, findings diagnostic of pancreatic panniculitis. The clinical team was contacted and a CT was repeated which revealed increasing mesenteric, retroperitoneal and extraperitoneal organizing fluid of uncertain etiology. The patient developed increasing abdominal pain with peritoneal signs and altered mental status and was taken urgently to the operating room for exploratory laparotomy. She was found to have extensive necrosis of the head of the pancreas, retroperitoneum, abdominal wall and right colon. Despite multiple debridements over a period of three days, she expired. An autopsy was performed which revealed saponification, extending from the pancreas through the retroperitoneal space, including the right kidney, down to the pelvis. Histologic examination confirmed the presence of necrotizing pancreatic panniculitis in these tissues. Pancreatic panniculitis without serum amylase or lipase elevation has only been rarely reported, and this is the first reported case of pancreatic panniculitis without enzyme elevation in which the underlying pancreatic

disease was fatal. Furthermore, the characteristic histologic findings of pancreatic panniculitis can sometimes be the sole presenting sign of otherwise undetected pancreatic disease.

## **Multiple subcutaneous nodules in a 5-month-old male**

**Amy Kerkvliet, MD**

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Neuroblastoma is the most common extracranial solid tumor in childhood and the most common malignancy in children under one year of age. It has a markedly variable initial presentation depending on the location of the primary tumor and degree of disease dissemination. A 5-month-old male presented to our dermatology clinic with multiple firm, non-tender, subcutaneous nodules which were first noticed in the right groin at three months of age. The patient was otherwise asymptomatic. Punch biopsy revealed a subcutaneous tumor nodule composed of basaloid tumor cells within a fibrillary background. The tumor cells have scant cytoplasm, hyperchromatic nuclei with fine chromatin and nuclear molding. A diagnosis of metastatic neuroblastoma was made. N-myc gene amplification was not identified by FISH analysis. Imaging showed a 4.8 cm left posterior mediastinal mass, as well as multiple skin nodules and a soft tissue mass superior to the left popliteal fossa consistent with metastasis. Radiographically, focal marrow involvement was also seen but no osseous metastasis was identified. These findings correspond with stage 4s neuroblastoma, which has a tendency to regress and is managed with close observation. This case raises the awareness of cutaneous metastases in infants and the importance of additional imaging and oncology work-up.

## **Intravascular large B cell lymphoma mimicking cutaneous scleroderma**

**Matthew Petitt, DO**

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Intravascular large B cell lymphoma (IVLBCL) was previously defined as a rare aggressive subtype of extranodal diffuse large B cell lymphoma and recently reclassified as an independent disease entity in the most recent 2008 WHO classification. Up to 40% of patients have cutaneous findings. The diagnosis is frequently delayed due to the rarity of the tumor, subtle histologic findings, and non-specific symptoms. Herein, we report a case of a previously healthy 47 year old female who initially presented with excessive uterine bleeding, anemia and profound thrombocytopenia. Despite an exhaustive clinical work-up including imaging studies, bone marrow and liver biopsies, endoscopy, serologic investigations and a non-diagnostic skin biopsy, the etiology of the thrombocytopenia remained elusive. Her clinical condition progressively deteriorated as she developed fatigue, dyspnea, decreased mobility, and diffuse painful cutaneous induration with overlying hyperpigmentation starting on the thighs and rapidly progressing to the abdomen and breasts. The initial clinical impression of the cutaneous changes was that of a scleroderma disorder. Repeat skin biopsy revealed large, atypical, hyperchromatic cells filling the lumina of small blood vessels in the mid and deep reticular dermis. These neoplastic cells were strongly positive for CD20 and BCL-2 and highly proliferative (>95% of the cells expressed Ki67) confirming the diagnosis of IVLBCL. This case highlights the non-specific symptoms, frequently delayed diagnosis and importance of a skin biopsy as a simple and

less invasive technique to diagnose a rare and aggressive lymphoma. Furthermore, IVLBCL should be included in the differential diagnosis of sclerodermoid disorders of the skin.

## **Merkel cell carcinoma in situ with squamous cell carcinoma in situ: a rare case presentation, negative for Merkel Cell Polyomavirus**

Belinda Tan, MD, PhD

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Merkel cell carcinoma (MCC) is a cutaneous neuroendocrine carcinoma, typically presenting histologically as a dermal-based tumor. It has recently been found to contain a clonally integrated virus (Merkel Cell Polyomavirus (MCV)), detectable by the antibody CM2B4. While MCC may be epidermotropic, the exclusive confinement of tumor cells to the epidermis has only been reported three times, one of which had associated squamous cell carcinoma in situ (SCC). We report a case of MCC, wholly in situ, associated with in situ SCC, which arose on the cheek of a 77 year-old Caucasian male. The tumor cells extensively populated the lower levels of the epidermis and adnexal structures, with areas of marked pagetoid scatter. There were adjacent areas of SCC in situ. No MCC was found in the dermis. Immunohistochemistry showed that the tumors cells were positive for chromogranin, synaptophysin and cytokeratin 20 (perinuclear dot-like pattern), but were negative for CM2B4. An association of some MCC with SCC has been well documented. Such cases have so far been found to be negative for MCV by immunohistochemistry or PCR studies. Herein we present a fourth case of MCC, exclusively in situ. It is the second case of a combined squamous cell and Merkel cell carcinoma in situ. It is the first time that such a combined in situ-only tumor was studied for MCV expression. Our findings support prior observations that combined squamous cell and neuroendocrine carcinomas derive through a pathway independent of MCV.

## **Migratory cutaneous hemangiotropic intravascular large B-cell lymphoma**

Harleen Sidhu, MBBCh

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Intravascular large B-cell lymphoma (IVLBCL) is a rare, aggressive and disseminated lymphoid malignancy, characterized by large atypical B-cell collections confined to the small vessels of various organs. Only three cases of cutaneous IVLBCL (CIVLBCL) involving a pre-existing hemangioma have been reported. We describe a case of CIVLBCL involving hemangiomas that became palpable and visible to the patient only after lymphomatous involvement. A 76-year-old female presented with several 0.3-0.4cm cherry-red cutaneous papules on the back and left upper arm. Biopsy of two lesions revealed lobular capillary hemangiomas with some vessels filled with large atypical B-cells. Some papules in the first crop of lesions spontaneously regressed and a new crop of hemangiomas appeared on previously uninvolved areas, also biopsy-proven to be IVLBCL. This cycle of papule appearance and disappearance produced hundreds of papules all over the body. CT scans over a six year period were negative for evidence of disseminated disease and there was no lymphadenopathy. Six years after initial presentation, the patient sud-

denly became comatose and a CT scan demonstrated ischemic white matter lesions and bulky, superficial and deep, generalized lymphadenopathy. She died within a day of admission. CIVLBCL involving hemangiomas both at the diagnosis and recurrence (hemangiotropism) is an unusual, previously unreported presentation. The migratory nature of this lymphomatous process is unreported.

## **Multifocal lymphangioendotheliomatosis: Blue blebs causing brain bleeds**

Edward Esparza, MD, PhD

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Multifocal lymphangioendotheliomatosis with thrombocytopenia (MLT) is a rare congenital syndrome consisting of cutaneous and extracutaneous vascular anomalies, gastrointestinal bleeding, and indolent consumptive coagulopathy. We present a case of a 7-week-old female born with multiple blue and violet bleb like papules and nodules. She was anemic with mild thrombocytopenia, low fibrinogen, and elevated d-dimer indicative of consumptive coagulopathy. Her workup for congenital infections, bone marrow biopsy, and serial stool guaiac were negative. She developed facial hemiparesis that corresponded to intraparenchymal hemorrhage and contrast-enhancing foci representing vascular lesions or coagulopathic sequelae on head MRI. Histology showed anastomosing, ectatic vascular spaces in the reticular dermis and subcutis with extravasated erythrocytes. Hobnailed endothelial cells exhibiting nuclear enlargement and scattered mitotic figures lined the vascular channels. Frequent complex papillae projected into the lumen associated with intravascular fibrin thrombi. The endothelial cells stained for CD31 and LYVE-1 and were negative for D2-40, GLUT-1, and CD68. Treatments included propranolol, prednisolone, and aminocaproic acid, which stabilized her intracranial hemorrhages and hematologic parameters without impacting vascular tumor burden. The extensive brain involvement, absence of gastrointestinal bleeding, and distinct histologic and immunohistochemical features broaden the phenotypic spectrum of MLT and provide insights into this rare condition.

## **Non-granulomatous cutaneous silica nodules in a kayaker**

Tiffani Milless, MD

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A 43 year-old female competitive kayaker presented to our clinic with a 1-year history of painful nodules of the left lower leg and transient bilateral lower extremity edema following an episode of superficial thrombophlebitis. The transient nodules followed the course of a superficial vessel between ankle and knee. No palpable regional lymphadenopathy was noted. Testing ruled out deep venous thrombosis, vasculitis and connective tissue disease. A biopsy was performed that showed fibroadipose tissue and a single multinucleated giant cell. At high magnification, refractile filamentous material was noted throughout the tissue which was birefringent under polarized light. Scanning electron microscopy (SEM) was performed on 3.5 micron sections of tissue cut onto carbon disks. Thin, needle-shaped fibers were observed within



the tissue and energy dispersive spectroscopy (EDS) revealed a major silica peak, consistent with the composition of fiberglass and silica resin within the patients kayak. We present an unusual case of non-granulomatous cutaneous silica reaction due to kayaking, which clinically mimicked vasculitis. We propose that this entity may be underdiagnosed due to the lack of granulomas, difficulty in establishing a connection between inciting event and onset of symptoms, and typical spontaneous resolution.

## **Relapsed hepatosplenic T-cell lymphoma heralded by a solitary skin nodule**

**Thomas Hocker, MD**

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Hepatosplenic T-Cell lymphoma (HSTL) is a rare extranodal and systemic neoplasm that is derived from non-activated cytotoxic T-cells that usually express the T-cell receptor, and less commonly the receptor. HSTL classically infiltrates the sinusoids of the splenic red pulp, liver, and bone marrow. HSTL rarely involves the skin. As such, there are no detailed accounts of the clinical or histologic characteristics of HSTL involving the skin. We report a case of a 23 year-old male with a history of HSTL presumed to be in remission, who presented with a violaceous nodule on the right leg. A 4 mm punch biopsy revealed an inflammatory infiltrate composed of small-to-medium sized atypical lymphocytes arranged predominantly in a perivascular and periappendageal pattern with a band-like infiltrate at the dermoepidermal junction. Marked vacuolar interface changes were present and there was vascular destruction by the atypical lymphocytes. The neoplastic cells were CD2+, CD3+, CD7+, CD8+ T-cells that were negative for CD4 and CD5. The tumor cells expressed the cytotoxic markers Tia-1 and Granzyme B. CD56 was negative. Positive staining was observed for Beta-F1 and TCR-Gamma/Delta. We utilized FISH probes for the long arm of chromosome 7 (7q31, D7S486) and chromosome 7 centromere (D7Z1) to assess for isochromosome 7q. A majority (52.0%) of the analyzed cells were found to have an additional D7S486 signal, consistent with an isochromosome 7q. These findings were consistent with HSTL. The patient was subsequently re-staged and had widespread progression of HSTL. Our report represents the first detailed account of the clinical and histological appearance of cutaneous HSTL and highlights the utility of FISH in skin biopsies.

## **Worms gone wild: disseminated strongyloides hyperinfection in a renal transplant recipient.**

**Karolyn Wanat, MD**

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*Strongyloides stercoralis* is an enteric helminthic parasite that has a very low prevalence in industrialized society; infection in the US is primarily acquired through the skin as a result of walking on beaches contaminated with animal feces. *Strongyloides* is a rare parasite in that it can complete its entire life-cycle within a single human host; thus, patients may be chronically infected, sometimes for years or decades. Although infections are frequently asymptomatic, gastrointestinal, pulmonary, and cutaneous symptoms can occur. Cutaneous manifestations include petechial and purpuric lesions on the lower abdomen and thighs or urticarial rashes in the buttocks or waist area. We present a case of a 38 year-old woman who received a deceased-donor renal transplant two months prior to presentation with acute onset abdominal pain, nausea, vomiting, and diarrhea as well as scattered erythematous macules and purpuric patches on her abdomen. Her rash was biopsied and pathology revealed parasitic organisms in the dermis with associated dermal edema, hemorrhage, and a sparse perivascular and interstitial lymphocytic infiltrate. Stool examination revealed worm forms and *Strongyloides stercoralis* antigen. Pathogenesis and mode of transmission in this immunocompromised patient will be presented.

## Oral Abstract Session #2

TIME	TITLE	SPEAKER
12:15 – 12:25 p.m.	Desmoplastic Melanoma: A matched-pairs case control survival comparison	Javier Rangel, MD
12:25 – 12:35 p.m.	Embryonal rhabdomyosarcoma arising in a congenital melanocytic nevus	Jennifer Kaplan, MD
12:35 – 12:45 p.m.	Expression of DNA damage repair proteins in melanoma cells	Wang Chueng, MD
12:45 – 12:55 p.m.	frequency of adverse histologic features in a large cohort of patients with acral-lentiginous melanoma	Michael McLemore, MD, MPH
12:55 – 1:05 p.m.	Genomic analysis of distinct components of a squamomelanocytic tumor showing similar alterations	Christopher Holbrook, MD
1:05 – 1:15 p.m.	Identification of primary cilia effectively distinguishes benign nevi from malignant melanoma	Salma Dabiri, MD
1:15 – 1:25 p.m.	Modeling the early stages of squamous cell carcinogenesis in murine skin	Priyadharsini Nagarajan, MD
1:25 – 1:35 p.m.	Novel CTNNB1 gene mutation explains similarity of $\beta$ -catenin staining in pilomatricomas and basal cell carcinomas with matrical differentiation	Cary Chisholm, MD
1:35 – 1:45 p.m.	NY-ESO-1 expression in malignant melanoma: a target marker for immunotherapy	Yen-Chun Liu, MD

## **Desmoplastic melanoma: A matched-pairs case control survival comparison**

Javier Rangel, MD

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Desmoplastic melanoma (DM) is an uncommon variant of melanoma and differs in its propensity for deep involvement, perineural invasion, local recurrence, infrequent lymph node (LN) metastasis and a more favorable prognosis<sup>3</sup>. A recent study found LN metastases occurred in only 8% of DM patients, compared with 34% in case-matched conventional melanomas (CM). We further characterized DM outcomes with stage matched CM. Retrospective analysis of 66 DM and 132 matched-paired CM patients (2:1) referred to UCSF. DM cases were matched with CM controls for clinical and pathologic criteria: thickness, ulceration, sex, age, location and initial stage. DM patients were compared with controls for outcomes of LN status and survival including disease-specific survival (DSS) and overall survival (OS) using Cox regression and Kaplan-Meier methods. The UCSF institutional review board approved the study. DM patients had similar rates of positive nodes (11/45 = 24.4% vs 30/84 = 35.7%,  $p=0.236$ ), DSS (18.2% vs 24.2%,  $p=0.382$ ), OS (30.3% vs 43.2%,  $p=0.08$ ) compared to match-paired controls, with trend towards better survival. Node status and thickness proved significant prognosticators in multivariate analysis. DM patients matched for staging criteria have similar survival rates as CM. Lymph node involvement occurs more frequently than previously described and node status proves the most powerful predictor of survival in both DM and CM.

## **KIT amplification is uncommon in KIT mutated and wild type melanomas**

Wei-Lien (Billy) Wang, MD

W. Wang<sup>1</sup>; C. Nero<sup>2</sup>; K. Patel<sup>2</sup>; C. Torres-Cabala<sup>1</sup>; D. Ivan<sup>1</sup>; V. Prieto<sup>1</sup>; D. Lopez-Terrada<sup>2</sup>; A. Lazar<sup>1</sup>

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Introduction: KIT gain of function mutations, amplification and over-expression has been reported in some acral lentiginous/mucosal melanomas and those from chronically sun damaged skin, whereas these findings are uncommon in other subtypes. We examined the prevalence of KIT amplification in melanomas wildtype (WT) for and those with mutations in KIT exons 11, 13 and 17. Material and Methods: Twenty-one melanomas, primary or metastatic, were genotyped for KIT exons 11, 13 and 17. In all but one melanoma, the primary was acral lentiginous/mucosal. Immunohistochemical study for KIT was performed on nineteen cases. Amplification was determined by fluorescence in-situ hybridization using a commercially available chromosome 4 centromeric probe (CEP) and a home-brew probe for KIT. One hundred cells were analyzed, the number of CEP and KIT signals were counted and a CEP:KIT ratio was generated. A KIT/CEP > 2 was considered amplified, > 1.2 copy gain, 70%). Two cases harbored KIT amplification (CEP:KIT ratio 2.53, 4.76), 4 had KIT copy loss and the remaining cases were without amplification. The two cases with KIT amplification had KIT mutations (one in exon 11 and the other in exon 13). Conclusion: KIT amplification is an uncommon event and when seen, is associated with KIT mutation in acral lentiginous/mucosal melanomas. Copy loss can be seen in some acral lentiginous/mucosal melano-

mas regardless of KIT mutation status. No association between KIT immunohistochemical labeling and amplification was seen.

## **Expression of DNA damage repair proteins in melanoma cells**

Wang Cheung, MD, PhD

W. Cheung; J. Brown; K. Hiatt; B. Smoller

University of Arkansas for the Medical Sciences, Little Rock, AR, USA

UV (ultraviolet) radiation has been linked to increased risk of skin cancer including melanoma. However, the mechanism of UV radiation in carcinogenesis is still unclear. One hypothesis is that the accumulation of damaged DNA by way of UV radiation leads to DNA double stranded breaks (DSB) and subsequently gene mutations. Previously, we determined that DNA DSBs, as detected by histone H2AX phosphorylation, are increased in human melanoma tissue. Hence, we aim to determine if the downstream effectors of DNA DSB, namely the DNA repair proteins (MDC1 (mediator of DNA damage checkpoint protein), 53BP1 (p53 binding protein 1) and NBS1 (Nijmegen breakage syndrome protein 1) are altered in response to DNA damage such as UV radiation. Using melanoma cell line (A375), we determine that the expression of MDC1 is defective when melanoma cells are treated with UV radiation. In addition, immunostains for the DNA DSB proteins in human melanoma tissue also support these findings. Taking these results together, they might explain why there is more H2AX phosphorylation since melanoma cells are unable to repair these DNA DSBs likely due to inappropriate response by MDC1. These accumulated DNA DSBs can cause further gene mutations which can promote tumorigenesis.

## **Frequency of adverse histologic features in a large cohort of patients with Acral-lentiginous melanoma**

Michael McLemore, MD, MPH

M. McLemore; D. Ivan; V. Prieto

The University of Texas MD Anderson Cancer Center, Houston, TX, USA

Introduction: Acral-lentiginous melanoma (ALM) is an uncommon but aggressive variant of cutaneous melanoma. At present, few studies have investigated the histologic features that may be related to an aggressive behavior of these tumors, particularly perineural invasion, in a large cohort of ALM patients with long-term follow-up. Materials and Methods: We have conducted a retrospective review of 529 patients with ALM who have been treated and followed at a single institution, from 2002-2010. The histologic features and prognostic parameters were evaluated in all cases for which this information was available, and clinical follow-up was obtained from two months to eight years. Results: On histology, 9.3% of cases (49/529) demonstrated perineural invasion, 14.4% (53/368) had lymphovascular invasion, and 3.8% (14/366) showed microscopic satellitosis. Up to 37.0% of cases (140/378) revealed ulceration, and 9.4% (35/369) showed evidence of regression. Conclusion: This cohort represents one of the largest groups of ALM patients to be studied to date. The frequencies of perineural invasion and ulceration among these patients with ALM are greater than those reported among patients with other cutaneous melanoma types. To our knowledge, the frequency of perineural invasion in our study group is the highest reported for ALM to date. Among cohort ALM patients with perineural invasion and available clinical information, 95.8% (46/48) developed metastatic disease at long-term follow-up. ALM is an aggressive form of melanoma with a greater frequency of adverse histologic features.

**Genomic analysis of distinct components of a squamomelanocytic tumor showing similar alterations**

Christopher Holbrook, MD

C. Holbrook<sup>1</sup>; B. Bastian<sup>2</sup>; B. Beifuss<sup>1</sup>; P. Gerami<sup>1</sup>

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Squamomelanocytic tumors are rare neoplasms consisting of closely intermingled melanoma and squamous cell carcinoma. There are multiple theories regarding the development of such combined tumors including divergent differentiation. To date, however, there are few studies investigating the basis of such tumors to prove or disprove the concept of divergent differentiation. In this study, we attempt to further genetically characterize the distinct squamous and melanocytic components of a squamomelanocytic tumor from an 81 year old male. Histological evaluation revealed two obviously distinct tumor components with one having large epithelioid cells with abundant pink cytoplasm and cytoplasmic molding forming keratin pearls. This tumor component often wrapped around or was closely intermingled with a second population of cells with large nuclei, intranuclear inclusions and pigmented cytoplasm. Immunohistochemistry showed AE1/AE3 positive/mart1 and S100 negative staining in the squamous component and Mart1 and S100 positive/AE1/AE3 negative staining of the melanoma component. FISH analysis showed marked amplification of CCND1 in both tumor types. Further we microdissected out the various components using laser capture microscopy and performed mutation analysis for characteristic melanoma and squamous cell carcinoma oncogenes and tumor suppressor genes. Our results support the concept of dual differentiation in combined squamomelanocytic tumors.

**Identification of primary cilia effectively distinguishes benign nevi from malignant melanoma**

Salma Dabiri, MD

S. Dabiri; E. Seeley; J. Kim

Stanford University Medical Center, Stanford, CA, USA

The morphologic diagnosis of melanoma can be challenging and misdiagnosis may produce devastating consequences. Currently, molecular techniques, such as FISH analysis, serve as an adjunct for the classification of difficult lesions. The further development of robust strategies to distinguish nevi from melanoma would represent a significant advance. Therefore, we examined the presence of primary cilia on melanocytes within benign and neoplastic melanocytic lesions. Primary cilia are ubiquitous sensory organelles that maintain proliferative and architectural homeostasis by organizing developmental signaling modules. In specific malignancies, a complete loss of these organelles has been observed; however, their abundance and distribution in nevi and melanoma have yet to be determined. Using a combination of melanocyte, primary cilium, and basal body-specific antibodies with immunofluorescence confocal microscopy we determined that the primary cilium serves as an excellent diagnostic marker of untransformed melanocytes. While nearly all melanocytes in twenty-five melanocytic nevi were found to have assembled a primary cilium, we observed a near-complete loss of this organelle in fifteen malignant melanomas. In contrast, primary cilia were identified in stromal elements present within and between melanocytic foci in all cases examined. Together, these findings demonstrate that the primary cilium can effectively distinguish between benign and neoplastic melanocytes.

**Modeling the early stages of squamous cell carcinogenesis in murine skin**

Priyadharsini Nagarajan, MD, PhD

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The transcription factor Ets1 is normally expressed in the basal keratinocytes of stratified squamous epithelia. However, in squamous cell carcinomas (SCC) expression of Ets1 is significantly upregulated and the tumor stage as well as the prognosis appears to be inversely related to the Ets1 levels. To determine how over-expression of Ets1 might affect keratinocyte differentiation in SCC, we have developed a transgenic mouse model to induce Ets1 expression in the differentiating keratinocytes. Induction of Ets1 in the suprabasal cells during murine embryonic development resulted in a dramatic alteration in epidermal structure, with acquisition of a basal-like phenotype in the suprabasal cells, characterized by expression of basal markers and retention of proliferative capacity. The expression of multiple genes encoding stratum corneum constituents was suppressed, leading to abnormal epidermal cornification. Thus, induction of Ets1 led to impaired cornified envelope assembly, and blocked the acquisition of skin barrier function, resulting in perinatal lethality of the transgenic mice. Other epidermal morphogenetic processes such as hair follicle development and periderm formation and shedding were not affected. Suprabasal induction of the Ets1 also upregulated the expression of AP-1 transcription factors, and matrix metalloproteases. Expression of certain immune related genes, including defensins, chemokines and cytokines was altered as well, suggesting a possible role for immune-dysregulation in the promotion of squamous dysplasia. Collectively, our data reveal that ectopic expression of Ets1 inhibits the terminal differentiation of keratinocytes and promote their proliferation, migration and motility. Thus, our mouse model might provide a rare glimpse into the early molecular and morphogenetic events that may be critically important in squamous cell carcinogenesis.

**Novel CTNNB1 gene mutation explains similarity of  $\beta$ -catenin staining in pilomatricomas and basal cell carcinomas with matrical differentiation**

Cary Chisholm, MD

C. Chisholm; D. Smith; W. Neumann; K. Hocker; A. Rao; J. Greene Jr.

Scott and White Memorial Hospital and Texas A&M Health Sciences Center, Temple, TX, USA

At times, BCC may be difficult to distinguish from tumors of adnexal origin. The rare variant of BCC with matrical differentiation contains shadow cells and may prove challenging to differentiate from pilomatricoma, another tumor in which shadow cells are commonly seen.  $\beta$ -catenin has been proposed to be useful because nuclear positivity has only been demonstrated thus far in pilomatricoma due to mutations in the CTNNB1 gene which is involved in  $\beta$ -catenin expression. Basal cell carcinomas do not have these mutations. We present a case of a basal cell carcinoma with matrical differentiation arising in an 85-year-old man which had nuclear  $\beta$ -catenin staining and a novel mutation in the CTNNB1 gene. Because of the unique staining demonstrated in this tumor, a commonly mutated region of the CTNNB1 exon 3 was sequenced. The CTNNB1 gene had a deletion mutation; however, the mutation was not identical to that of pilomatricomas.  $\beta$ -catenin may not reliably differentiate between pilomatricoma and basal cell carcinoma with matrical differentiation.

**NY-ESO-1 expression in malignant melanoma:  
a target marker for immunotherapy**

Yen-Chun Liu, MD, PhD

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Background: Adoptive cell transfer immunotherapy using gene-modified lymphocytes has been demonstrated to be an effective modality of treatment for metastatic malignant melanoma. For that, an immunogenic tumor marker is the key to success. NY-ESO-1 is one of the cancer-testis antigens which are only expressed in testis and a variety of cancer cells but not in other normal somatic tissues, which makes it an ideal target for tumor immunotherapy. Methods: We analyzed the expression of NY-ESO-1 by immunohistochemistry on 225 melanoma cases collected between April 2008 and April 2009 at the National Cancer Institute, including 19 primary melanomas and 206 metastatic cases. Results: NY-ESO-1 is expressed in 28% of the metastatic malignant melanoma but in none of the primary melanoma examined in our study. Intriguingly, NY-ESO-1 is expressed in 32.6% of the epithelioid tumors but only in 9.1% of the spindle tumors ( $p < 0.05$ ). Approximately 80% of the paired tumor samples show consistent NY-ESO-1 expression. Seven of nine primary and metastatic paired lesions show negative staining in both samples, while two of the pairs show positive NY-ESO-1 staining in the metastases but not in the primary lesion. Conclusion: Our results indicate NY-ESO-1 is more likely to be expressed in metastatic malignant melanoma than in the primary lesions. Metastatic lesions with epithelioid morphology are more likely to express NY-ESO-1 when compared with lesions of spindle cell morphology.

## Fellows' Case Presentations

TIME	TITLE	SPEAKER
3:30 – 3:40 p.m.	Alopecia totalis and eruptive halo nevi	Gregory Wells, MD
3:40 – 3:50 p.m.	Alpha-interferon induced sarcoidosis mimicking metastatic melanoma	Jeffrey North, MD
3:50 – 4:00 p.m.	Anti-CTLA-4 antibody therapy (ipilimumab) induced lupus-like skin manifestations in a metastatic melanoma patient	Kenneth Calder, MD
4:00 – 4:10 p.m.	Fuze-ball: massive nodular amyloidosis at the site of enfuvirtide (fuzeon) injection	Stephen Mercer, MD
4:10 – 4:20 p.m.	Histopathological and PCR findings in early HPV lesions in men	Rahel Mathew, MD
4:20 – 4:30 p.m.	Langerhans cell sarcoma in the setting of prior hairy cell leukemia	Paul Furmanczyk, MD
4:30 – 4:40 p.m.	Melanoma ex mediastinal teratoma	Alexander Finn, MD
4:40- 4:50 p.m.	Metastatic Atypical Fibrous Histiocytoma in a patient with nevoid basal cell carcinoma syndrome	Kristopher Fisher, MD
4:50 – 5:00 p.m.	New primary lymphoma versus secondary cutaneous involvement in chronic lymphocytic leukemia	Alexander Finn, MD
5:00 – 5:10 p.m.	Perineural Involvement Is Present in 83% of Granular Cell Tumors	Eleanor Knopp, MD
5:10 – 5:20 p.m.	Prognostic value of multi-probe fluorescent in situ hybridization in melanoma	Jeffrey North, MD
5:20 – 5:30 p.m.	Remarkable rash in a man with prostate adenocarcinoma	Jessica Ghaferi, MD

## **Alopecia totalis and eruptive halo nevi**

Gregory Wells, MD

G. Wells; C. Storm

*Dartmouth-Hitchcock Medical Center, Lebanon, NH, USA*

A 52 year old woman presented with a 3 year history of worsening alopecia areata resulting in alopecia totalis and increasing numbers of white halos around moles on her back, shoulders and chest. She denied ever using a TNF alpha inhibitor or other immunosuppressive agents. She denied any personal or family history of thyroid disease, vitiligo, or melanoma. On exam, she had complete alopecia of the scalp and multiple white patches with centrally located brown macules on the chest, shoulders and back. A Woods lamp exam failed to show any other depigmented patches on her skin. Skin biopsy revealed a junctional nevus with a lichenoid infiltrate consistent with halo nevus. The etiology of alopecia areata is unknown but thought to be due to a T cell mediated disorder related to follicular antigens. It is often associated with atopy, thyroid disease, and vitiligo. Halo nevi are thought to be the result of an autoimmune phenomenon due to local or distant dysplasia, or nonspecific altered nevomelanocytes at local or distant sites. Halo nevi are associated most often with atypical nevi, vitiligo, and melanoma. Worsening alopecia areata and halo nevi have been reported previously in a patient after initiation of infliximab for ankylosing spondylitis, but never to our knowledge have alopecia totalis and eruptive halo nevi been reported simultaneously in a patient not using a TNF alpha inhibitor. Understanding of this association may increase the clinical spectrum of disorders related to alopecia areata and halo nevi, and could contribute to a better understanding of the pathophysiology of these entities.

## **Alpha-interferon induced sarcoidosis mimicking metastatic melanoma**

Jeffrey North, MD

J. North<sup>1</sup>; T. Mully<sup>1</sup>; J. Hill<sup>2</sup>

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2 months after completing a 12 month course of alpha-interferon for stage 3 melanoma, a 53 year old male presented to his oncologist with new subcutaneous nodules on the arms and legs. The nodules were asymptomatic, and he denied other systemic symptoms. Concern for metastatic melanoma prompted evaluation with PET/CT imaging which demonstrated hypermetabolic foci in the lungs, mediastinal, hilar, axillary and pelvic lymph nodes, as well as in the soft tissues of the extremities. The radiologic interpretation was metastatic melanoma, and oncology began arrangements for IL-2 therapy. Biopsy of a skin nodule showed nodular granulomatous inflammation and was felt to be non-diagnostic, so four additional nodules were biopsied. These showed similar findings consisting of collections of mono- and multinucleated histiocytes in the subcutis with scattered lymphocytes. No foreign material was identified with polarizing microscopy. Special stains for mycobacteria and fungus, as well as S-100 and Melan-A were negative and the diagnosis of interferon-induced sarcoidosis was made. Sarcoidosis induced by alpha-interferon, a pro-Th1 cytokine, can occur in the treatment of hepatitis C and rarely in patients undergoing interferon treatment for melanoma. Due to the active metabolic state of granulomatous inflammation, sarcoidosis can mimic metastatic melanoma on radiologic studies.

## **Anti-CTLA-4 antibody therapy (Ipilimumab) induced lupus-like skin manifestations in a metastatic melanoma patient**

Kenneth Calder, MD

K. Calder; C. Armstrong; K. Hiatt; B. Smoller; W. Cheung

*University of Arkansas for the Medical Sciences, Little Rock, AR, USA*

Ipilimumab is a monoclonal antibody directed at the cytotoxic T-lymphocyte antigen-4 (CTLA-4) on cytotoxic T-lymphocytes. It has been shown to improve survival in patients treated with unresectable stage III or IV melanoma. CTLA-4 is a cell surface receptor involved in the down-regulation of T-cell activation. Blocking the CTLA-4 receptor disrupts immune tolerance to tumor associated antigens, thus activating antitumor T-cells. Along with the increased immune surveillance against cancer cells, the most common adverse events related to Ipilimumab therapy are immune-related colitis, diarrhea, hypophysitis, hepatitis, nephritis, and skin reactions. Cutaneous adverse reactions include dermatitis, pruritus, and vitiligo. Herein, we present the case of a 38 year-old man with widely metastatic ocular melanoma treated with Ipilimumab. He received treatment infusions every three months for two years. One year after initiating therapy, he had an eruption of small pruritic flesh-colored papules and erythematous patches arising on his hands and progressing to his bilateral upper extremities and trunk. There was a distinct temporal pattern associated with the eruption, occurring after each infusion and improving before the next infusion. Histologically, there is a focal interface dermatitis with a superficial and deep perivascular and periadnexal lymphohistiocytic infiltrate with an absence of eosinophils. These features show overlap with those associated with autoimmune connective tissue diseases such as Lupus. Interestingly, some studies show altered CTLA-4 expression in lupus. The purpose of this case presentation is to report this unique rash associated with Ipilimumab therapy, and to consider the role of CTLA-4 in the pathogenesis and potential treatment of lupus.

## **Fuze-Ball: massive nodular amyloidosis at the site of enfuvirtide (Fuzeon) injection**

Stephen Mercer, MD, PhD

S. Mercer<sup>1</sup>; T. Whang<sup>1</sup>; C. Vidal<sup>2</sup>; M. Birge<sup>1</sup>

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A 47 year old HIV-positive male presented with large, tender, hemorrhagic masses (up to 9.5 x 5 x 2 cm) at the sites of previous enfuvirtide (Fuzeon) injections. He had triple-class resistant HIV with a persistently high viral load despite treatment with highly active antiretroviral therapy. Enfuvirtide injections were added to his regimen resulting in complete suppression of his viral loads, but they had to be stopped after 41 months due to severe injection site reactions. The current lesions appeared about 18 months after discontinuation of the medication. Two of the lesions were surgically excised. Histopathologic examination demonstrated dermal deposition of amorphous eosinophilic material, which showed characteristic apple-green birefringence with Congo Red stain under polarized light, consistent with amyloid. The identity of the substance as amyloid was confirmed by electron microscopy. Injection site reactions are extremely common with enfuvirtide therapy. Prior reports have described a wide variety of cutaneous reactions, ranging from a localized hypersensitivity reaction resembling that of granuloma annulare and interstitial granulomatous drug reaction, acute urticaria- or vasculitis-like changes, and scleroderma-like changes with

long-term administration of enfuvirtide. To our knowledge, this is the first patient reported with nodular amyloidosis associated with long-term enfuvirtide therapy.

## Histopathological and PCR findings in early HPV lesions in men

Rahel Mathew, MD

R. Mathew<sup>1</sup>; J. Messina<sup>2</sup>; D. Smith<sup>2</sup>; B. Lu<sup>2</sup>; K. Van der Kooi<sup>1</sup>; N. Vyas<sup>1</sup>; M. Abrahamsen<sup>3</sup>

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Early condyloma acuminatum (CA) in men is difficult to detect, both clinically and pathologically. We assess the diagnostic value of a set of histologic features in combination with HPV PCR results for early CA detection among men participating in a large multinational study of the natural history of HPV. Methods: Biopsies were performed on external genital lesions (EGL) and diagnosis rendered by a BC-dermatopathologist. Six histological features [rounded papillomatosis (RP), parakeratosis (PK), hypergranulosis (HG), dilated vessels (DV), koilocytes, binucleation] were assessed by a consensus panel blinded to the final diagnosis. These were assessed individually and in combination, for sensitivity and specificity of early CA diagnosis, compared to PCR results for HPV genotyping on biopsy tissue. Results: From 2009-present, 171 biopsies were performed on 119 men (age: 20-61 years). 60 were diagnosed with CA and 6 (5%) biopsies demonstrated dysplasia. In CA patients, 43% had koilocytes, 12% had binucleation. 2 non-CA had koilocytes. 53% of CA had RP/PK/HG/DV; 3 (5%) non-CA had all four features. 28/31 patients had +PCR results. 17/28 are PCR+/histologically CA+. 0 are PCR-/histologically CA+. 8/28 pts. had features of CA versus seborrheic keratosis. In these pts., 7/8 had RP and 7/8 had >2 of RP/PK/HG/DV features. Discussion: Most early CA do not demonstrate all the classic diagnostic criteria; RP/PK/HG/DV are 53% sensitivity and 95% specific for this diagnosis. RP is the most sensitive sole criterion (93%) for CA with low specificity (48%). Koilocytes with binucleation is 100% specific for CA. With PCR as gold standard, histology alone is 61% sensitive and 100% specific for CA.

## Langerhans cell sarcoma in the setting of prior hairy cell leukemia

Paul Furmanczyk, MD

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We present a case of a 73 year-old male with a prior history of hairy cell leukemia and a new 1 cm dense lesion on the right forearm. Histology showed diffuse involvement of the dermis by an atypical pleomorphic neoplasm with plasmacytoid features. The individual tumor cells showed large eccentric nuclei, prominent nucleoli and abundant eosinophilic cytoplasm. The differential included plasmacytoid melanoma, plasmablastic lymphoma, anaplastic myeloma and pleomorphic sarcoma. Immunohistochemical evaluation of the tumor showed diffuse staining for S100, CD1a, variable staining with CD68 and no reactivity with AE1/AE3, CD20, CD3, CD30, CD34, HMB45, Melan A, or tyrosinase. The features were consistent with a Langerhans cell sarcoma. This is a rare tumor that has been reported in isolated cases to arise following a B-cell lymphoma. An isolated report has proven trans-differentiation

by demonstrating an identical clone in both neoplasms. Langerhans cell sarcoma arising in a patient with prior hairy cell leukemia has not been previously reported. Given the rarity of both neoplasms, consideration could be given towards a common origin.

## Melanoma ex mediastinal teratoma

Alexander Finn, MD, PhD

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Somatic-type malignancies can arise in mediastinal germ cell tumors (GCTs) and confer a dire prognosis. Melanoma has been reported in this context only once prior -- and then in the form of late bone marrow metastases solely. Here, we present the case of a 16-year-old male with a 20-cm mediastinal mass diagnosed as mixed malignant GCT with elements of yolk sac tumor, seminoma, and choriocarcinoma on core biopsy. Incomplete response to chemotherapy and radiation prompted extrapleural pneumonectomy. Extensive sampling of the surgical specimen revealed predominantly mature cystic teratoma with an immature component of the same, as well as residual yolk sac tumor and embryonal carcinoma. A single section revealed a 0.4-cm focus of heavily pigmented malignant cells with prominent intranuclear pseudoinclusions. A positive Fontana-Masson stain identified the pigment as melanin, while positive immunostains for S100, Melan-A, and MiTF confirmed melanocytic differentiation. Despite twin insults of residual malignant GCT and unexpected melanoma, the patient has recovered well and shows no evidence of disease now eight months post extremely wide local excision. Melanoma arising in mediastinal GCT may account for some rarely reported cases of primary melanoma at this site -- previously attributed to transformed nodal and thymic nevi -- and suggests a novel source for melanoma metastases of unknown primary, particularly in younger patients.

## Metastatic atypical fibrous histiocytoma in a patient with Nevoid Basal Cell Carcinoma Syndrome

Kristopher Fisher, MD

K. Fisher; J. Ralston; J. Cook; J. Metcalf

Medical University of South Carolina, Charleston, SC, USA

Atypical fibrous histiocytoma (AFH) is a term introduced in 1983 to describe a fibrohistiocytic lesion with scattered pleomorphic epithelioid cells admixed with multinucleate giant cells in the background of a benign fibrous histiocytoma, or dermatofibroma. AFH was originally thought to behave in a similar fashion to dermatofibroma. Since that time, case series and reports have detailed its greater potential for recurrence and, rarely, metastasis. Herein, we describe a lesion that arose on the thigh of a 20-year-old woman with Nevoid Basal Cell Carcinoma Syndrome. A local recurrence surfaced one year after diagnosis, and the patient has now developed a mediastinal mass at age 24. Core needle biopsies of the mass revealed a spindle cell neoplasm consistent with metastatic AFH. In this report, we detail the case and review the literature of aggressive AFH. We also discuss the interplay between Patched (PTCH) gene mutations and other spindle cell neoplasms (fibroma, fibrosarcoma, leiomyosarcoma), and speculate how the underlying tumor suppression gene mutations in Nevoid Basal Cell Carcinoma Syndrome relate to metastatic AFH.



## **New primary lymphoma versus secondary cutaneous involvement in chronic lymphocytic leukemia**

Alexander Finn, MD, PhD

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Patients with B-cell chronic lymphocytic leukemia (CLL) exhibit diverse cutaneous pathology given decreased immunosurveillance. Here, we present our experience in this population with atypical lymphoid infiltrates specifically. Of 14 cases received over a six-year period, seven resulted in a diagnosis of cutaneous involvement by known CLL and five resulted in a diagnosis of new primary lymphoma. Notable manifestations of the former included recapitulation of a lichenoid inflammatory response to squamous carcinoma by leukemic cells and intermingling of leukemic cells with the mixed inflammatory population of an exuberant dermal hypersensitivity reaction. Our diagnoses of new primary lymphomas comprised one case each of marginal zone lymphoma, CD4+ cutaneous T-cell lymphoma (mycosis fungoides), and CD8+ peripheral T-cell lymphoma not otherwise specified, as well as two cases of gamma-delta T-cell lymphoma, one confirmed and one presumptive. A salient feature of this group was the predominance of the cytotoxic T-cell phenotype. Two additional cases that did not fit neatly into the binary classification above were a case of follicular mucinosis and a case of cutaneous large B-cell lymphoma indicative of either a new primary or Richter syndrome. Thus, atypical cutaneous lymphoid infiltrates in the setting of CLL do not necessarily represent secondary involvement by the same, and awareness of the potential for coincident primary lymphoma, in particular, is essential for accurate diagnosis.

## **Perineural involvement is present in 83% of granular cell tumors**

Eleanor Knopp, MD

E. Knopp; J. McNiff

*Yale University, New Haven, CT, USA*

Granular cell tumors (GCT) may show perineural involvement (PNI); this finding is mentioned anecdotally in two of four major dermatopathology texts. However, there are no studies examining the frequency or the clinical relevance of perineural involvement in GCT. In a retrospective review of cases of GCT submitted to our practice over a 20-year period, restricted to excisional specimens with a margin of normal tissue surrounding the tumor, we found PNI of GCT in 25 out of 30 cases, or 83%. PNI was found in most classic-type GCT (20/25) and in all of the plexiform variety (5/5). PNI was seen primarily at the periphery of specimens. Of those cases without perineural extension, 2 were relatively solid and circumscribed and 3 were otherwise indistinguishable from classic GCT showing PNI. Malignant and benign forms of GCT may have a similar histopathologic appearance, and although PNI is not included in proposed criteria to establish malignancy, it has nevertheless been cited as a reason for extensive surgery to clear tumor. Our findings of PNI in 83% of otherwise banal GCT lends scientific support to the notion that PNI is a common feature in GCT, perhaps related to its proposed schwannian genesis, and does not independently portend malignant behavior.

## **Prognostic value of multi-probe fluorescent in situ hybridization in melanoma**

Jeffrey North, MD

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Multi-probe fluorescent in situ hybridization (FISH) targeting 6p25 (RREB1), centromere 6, 6q23 (MYB), 11q13 (CCND1) has become a valuable adjunctive diagnostic test in evaluating melanocytic neoplasms. Several studies conducted on the diagnostic utility of this FISH set have shown consistent sensitivity for melanoma detection of approximately 85%. However, no studies have been published investigating the prognostic value of FISH and the implication of FISH negative melanomas. Using mortality and metastasis as primary endpoints, we examined 144 melanomas with a Breslow depth 2 mm to determine the ability of FISH to differentiate between indolent and aggressive melanomas. 82% of the 144 melanomas tested positive with FISH. Of the 43 cases that metastasized, FISH detected 93%. The odds ratio (OR) for metastasis of FISH positive tumors compared with negative tumors was 4.11 (p=0.02). Sensitivity for detection of disease-specific survival (DSS) was 96% with an OR of 7.0 (p= 0.04) for death from melanoma when FISH is positive. Kaplan Meier analysis demonstrated a significant difference in DSS (p= 0.02) and relapse free survival (p= 0.04) between FISH negative and FISH positive melanomas. This data indicates that the 15% of melanomas not detected by multi-probe FISH have a better prognosis than those testing positive, demonstrating that FISH adds prognostic value to its already established value in melanoma diagnostics.

## **Remarkable rash in a man with prostate adenocarcinoma**

Jessica Ghaferi, MD

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A 63-year-old man presented with a one-week history of a generalized pruritic eruption. His past medical history was significant for prostate adenocarcinoma, status post prostatectomy with focally positive margins. Years later, he was noted to have a rising prostate-specific antigen level. Intensity-modulated external beam radiation therapy to the prostate bed was initiated. He had received 33 of 39 fractionated treatments at the time of presentation. There were no new foods or contacts. He took no medications. Physical examination revealed diffuse, monomorphic, 1 mm erythematous papules with sparing of the face, palms and soles. A biopsy demonstrated superficial perivascular dermatitis with eosinophils. This was felt to be most consistent with eosinophilic, polymorphic and pruritic eruption associated with radiotherapy (EPPER). Most cases of EPPER have been reported in women with either breast or cervical cancer. To our knowledge, this case represents the second description of EPPER developing in a male patient being treated for prostate cancer. The eruption resolved completely with a short course of oral corticosteroids, and the patient was able to complete his radiation treatment. This rare reaction is an important consideration in the differential diagnosis of inflammatory dermatitis with eosinophils in patients being treated with radiotherapy.

## Oral Abstract Session #3

<b>TIME</b>	<b>TITLE</b>	<b>SPEAKER</b>
7:30 – 7:40 a.m.	Proliferative nodules in congenital nevi - A histopathologic, genomic and immunohistochemical reappraisal	Meera Brahmabhatt, MD
7:40 – 7:50 a.m.	Retinoblastoma tumor suppressor pathway effects survival of patients with metastatic malignant melanoma	Maria Queenan, MD
7:50 – 8:00 a.m.	Solar elastotic material in dermal lymphatics and lymph nodes	Melissa Pulitzer, MD
8:00 – 8:10 a.m.	SOX-10 is superior to S100 in the identification of nodal metastasis in melanoma	Charay Jennings, MD
8:10 – 8:20 a.m.	Spitz-type Melanocytic tumors: A clinical outcome analysis	Alireza Sepehr, MD
8:20 – 8:30 a.m.	Subcutaneous amyloidomas at interferon-alpha injection sites: A report of two cases	Loren Clarke, MD

## **Proliferative nodules in congenital nevi — A histopathologic, genomic and immunohistochemical reappraisal**

Meera Brahmabhatt, MD, PhD

M. Mahalingam; M. Brahmabhatt; S. Yang

*Boston University School of Medicine, Boston, MA, USA*

The histologic appearance of proliferative nodules (PN), areas of increased cellularity with/without atypia and mitoses within congenital nevi, may be concerning for malignant melanoma. The purpose of this study was to review the histologic features of proliferative nodules and to ascertain the utility of immunohistochemistry and analyses of oncogenic mutations in signaling components of the MAP kinase pathway (BRAF, NRAS, KRAS and, the more recently identified, GNAQ), as diagnostic adjuncts. Genomic DNA for genotyping was isolated per protocol using techniques that included laser capture microdissection to isolate nevus cells from proliferative nodules (n=3) and age-matched congenital nevi (CN, n=3). The following genes were analyzed: BRAFV600E, NRAS1, NRAS2, KRAS and GNAQ. Immunohistochemical analyses were performed using antibodies to markers of stem cells (nestin and CD133), apoptosis (p53 and c-kit) and anti-apoptosis (bcl-2). While all 3 cases of proliferative nodules exhibited mitoses, features of concern were not noted in any. Of the genes analyzed, no mutations were identified in any of the PN, although in the control group, one case demonstrated oncogenic BRAF and the other two a mutation in KRAS. Immunohistochemistry revealed the following: nestin in 1 PN (3+) and in 2 CN (both 3+); CD133 negative in all PN and CN; p53 in 1 PN (2+) and 0 in CN; c-kit in 2 PN (2+/3+) and in 3 CN (2+/3+/3+) and bcl-2 in 2 PN (both 3+) and 2 CN (both 3+). Our findings, albeit limited by sample size, suggest that proliferative nodules do not appear to possess a distinctive or unifying genomic signature. In light of evidence indicating that progression to malignant melanoma involves genetic pathways instrumental to stem cell biology, that absence of a sizeable population of stem cells in 2 of 3 of proliferative nodules in the current study supports their putative benign biologic behavior.

## **Retinoblastoma Tumor Suppressor Pathway Effects Survival of Patients with Metastatic Malignant Melanoma**

Maria Queenan, MD

M. Queenan<sup>1</sup>; K. Wu<sup>1</sup>; A. Berger<sup>1</sup>; P. McCue<sup>1</sup>; E. Knudsen<sup>2</sup>; A. Witkiewicz<sup>1</sup>

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Introduction: Retinoblastoma (RB) tumor suppressor is inactivated in malignant melanoma (MM). RB loss results in upregulation of gene expression associated with tumorigenesis and therapeutic resistance. Loss of RB function is associated with p16 overexpression and high proliferation index. Few studies evaluated expression of p16 and ki67 in nevi and MM. We question whether loss of RB influences survival in metastatic MM. Methods and Materials: 33 patients with MM [primary (n=12) and metastases (n=21)] were included. The metastatic cohort consisted of 13 short term survival, 1 year. P16 was scored as: 0=no staining, 1=75% staining. Ki67 was high if >10% of tumor cells were stained. A score of at least 2 was considered high p16 expression. A Kaplan-Meier curve estimated overall survival and log-rank test compared RB status. Results: 46% (6 of 13) short term survival metastases showed high p16/high ki67 expression indicative of RB loss while only 13% (1 of 8) long term survival metastases showed high p16/high

ki67 expression. Patients with high p16/high ki67 expression had significantly shorter survival (p=0.16). 2 of 12 (17%) primary melanomas exhibited high p16/high ki67 expression consistent with deregulated RB signaling. Conclusion: RB loss in metastatic MM is associated with shorter survival. This finding may have implications for both tumor progression and therapeutic interventions.

## **Solar elastotic material in dermal lymphatics and lymph nodes**

Melissa Pulitzer, MD

M. Pulitzer<sup>1</sup>; P. Gerami<sup>2</sup>; K. Busam<sup>1</sup>

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The movement of material via passive mechanical transport through lymphatic channels (benign mechanical transport) is a physiologic mechanism invoked to explain the occasional presence of benign heterotopic tissues within lymph nodes. Historically, the concept of benign mechanical transport has provoked controversy. The proof of this concept is of fundamental importance to the claim that foreign cells or cellular aggregates found within a sentinel lymph node do not necessarily represent clinically relevant metastatic disease. We report nine cases of solar elastotic material within dermal lymphatics, and/or capsules, subcapsular sinuses and parenchyma of lymph nodes. Eight patients were treated and/or staged for cutaneous melanoma; one had Merkel cell carcinoma. Solar elastotic material was found in lymph nodes in association with metastatic melanoma, nodal melanocytic nevi, and in otherwise unremarkable lymph nodes lacking extrinsic cells. These findings support the concept of mechanical transport of both benign and malignant tissues through lymphatics and document that passively transported material can appear in any compartment of the lymph node; an important concept to give evidence for, as it offers a sound explanation for the presence of some cellular deposits within lymphoid tissue and supports the assertion that some of these deposits are benign.

## **Sox-10 is superior to S100 in the identification of nodal metastasis in melanoma**

Charay Jennings, MD, PhD

C. Jennings; J. Kim

*Stanford University Medical Center, Stanford, CA, USA*

The presence of S100-positive dendritic cells hinders the identification of isolated melanoma tumor cells and micrometastases in sentinel lymph nodes. Sox-10, a transcription factor that plays an important role in schwannian and melanocytic cell development, is not expressed in dendritic cells. In order to improve identification of nodal metastasis in melanoma, we examined the expression pattern of Sox-10 in sentinel and non-sentinel lymph nodes for melanoma. We examined the expression pattern of Sox-10, as compared to S100, Melan-A, and HMB-45 in 95 lymph nodes (40 reported as positive and 55 reported as negative for metastasis) from 34 lymphadenectomies. The majority (82.5 %) of the involved lymph nodes represented sentinel lymph nodes. Sox-10 and S100 both highlighted metastases in 100% of involved lymph nodes; however, Sox-10 demonstrated significantly improved identification of isolated tumor cell metastases over S100 in ten (23.8%) of the involved lymph nodes. The nuclear staining of Sox-10 promoted improved distinction between heavily pigmented histiocytes and melanocytic metastases in two involved lymph nodes. Most importantly, Sox-10 immunostaining identified micrometastasis in two lymph nodes, previously reported as negative on S100, HMB-45, and Melan-A immunostains. Therefore, Sox-10 is a superior marker to

S100 in identifying nodal metastases in melanoma, especially in the setting of isolated tumor cells and heavily pigmented metastases.

### **Spitz-type melanocytic tumors: A clinical outcome analysis**

**Alireza Sepehr, MD**

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The discrimination of the benign from malignant variants of Spitz tumor has been a great challenge in dermatopathology. Based on a combination of clinicopathological parameters, Spitz tumors have been categorized into classic Spitz nevus/tumor (CST) with low, atypical Spitz tumor (AST) with intermediate, or Spitzoid melanoma (SM) with high clinical risk. However, there is lack of consensus for gauging their malignant potential and studies have suffered from short follow-up period and limited number of cases. Also, there is a chance of lymph node metastasis, but its impact on survival is unknown. The current study compares CSTs, ASTs, and SMs in regards to their clinical behavior. During 1987-2002, cases of Spitz tumor in the Pathology & Dermatology Departments at MGH were included and clinical follow-up information was obtained on each patient. Spitz tumors (n=157; mean age: 30.2) were divided in CST (n=68, mean age: 26.5), AST (n=76; mean age: 33.7), and SM (n=13; mean age: 28), with the mean clinical follow-up of 109 months. Sentinel lymph node biopsy was performed on 14 patients with AST and SM; one person with AST had a nodal involvement who underwent a negative completion lymphadenectomy and received high dose IFN, is currently 8 yrs post diagnosis and disease free. Only one case of metastases in a patient with AST - combined Spitz type nevus with cytologic atypia - who had concurrent history of an intermediate thickness melanoma (1.2 mm, level IV) was seen. A total of 2 patients with SM had nodal involvement; one patient with a nodular melanoma that arose in a Spitz nevus presented with a left axillary relapse 35 months after the initial diagnosis. All of the patients were alive without evidence of disease at last follow up. We report a large series with long follow up data on the outcome of Spitz tumors. After a mean follow-up period of 9.1 yrs, we did not detect any fatalities. Prognosis is thus, highly favorable for the Spitz-type tumors.

### **Subcutaneous amyloidomas at interferon-alpha injection sites: A report of two cases**

**Loren Clarke, MD**

L. Clarke; M. Young; F. Ruggiero

*Penn State Hershey Medical Center, Hershey, PA, USA*

Cutaneous reactions at interferon injection sites are well documented. The vast majority have been reported in patients receiving interferon beta 1-b for treatment of multiple sclerosis, and many different clinical and histopathologic findings have been documented. Amyloidomas (tumoral amyloidosis), however, have not been reported. We describe two patients who developed subcutaneous amyloidomas at the site of interferon alpha injections. Both were receiving interferon for treatment of Hepatitis C virus infection, and both were insulin-dependent diabetics. Neither had evidence of systemic amyloidosis, and neither has shown any evidence of amyloidosis or a lymphoproliferative disorder within a two-year follow-up period.



## Poster Presentation Abstracts

*Exhibit Hall – 4th Floor*

1 hour CME credit per hour of study

Basic research, practical techniques and new clinical or histopathologic entities will be presented in this traditional and popular format. Posters will be on display Thursday evening through Saturday evening. Posters will be dismantled Sunday morning by 11:00 a.m. Physicians-in-training are eligible for an award or their poster presentation. Awards will be presented on Sunday morning, 8:30 – 8:45 a.m., immediately prior to Short Course IV.

### Poster Viewing

Thursday, October 7	5:00 p.m. – 10:00 p.m.
Friday, October 8	7:00 a.m. – 10:00 p.m.
Saturday, October 9	6:30 a.m. – 10:00 p.m.

### Poster Defense

Friday, October 8	3:30 p.m. – 4:00 p.m.
Saturday, October 9	3:05 p.m. – 3:30 p.m.

The poster defense will provide an opportunity for discussion between poster presenters and attendees. Poster presenters are asked to make every effort to be at their poster during the defense session.

### Poster Dismantle

Sunday, October 10 by 11:00 a.m.

### Upon completion of study, participants should be able to:

- Identify practical techniques in dermatopathology.
- Name new clinical or histopathological entities.

## Posters

Poster Number	Title	Presenter
1	Sebaceous gland loss and inflammation in scarring alopecia: a potential role in pathogenesis	Tariq Al-Zaid, MD
2	Combined features of alopecia areata and discoid lupus erythematosus in a case of alopecia	Olga Speck, MD
3	The histopathology of frontal fibrosing alopecia involving scalp, eyebrows and body hair: Further evidence of a common pathogenesis	Catherine Stefanato, MD
4	A case of atypical human papillomavirus infection on inguinal area resembling condyloma accuminatum without koilocytes	Chee Won Oh, MD
5	Erythema chronicum migrans: a spectrum of histologic changes	Brian Swick, MD
6	Eumycotic mycetoma of the scalp	Dianne Kovacic, MD
7	Fatal case of cutaneous rhizopus	Laurel Stearns, MD
8	Mucormycosis of the forearm in a non-immunosuppressed patient	Elan Newman, MD
9	Novel use of dna-based techniques to identify atypical mycobacterial organisms in paraffin embedded cutaneous biopsies	Casey Carlos, MD
10	Herpes simplex vegetans: a report of two cases	Max Fischer, MD
11	A case of cutaneous Scedosporium in an immunocompromised patient	Wang Cheung, MD
12	Case report of molluscum contagiosum with concurrent calcinosis cutis	John Irlam, MD
13	Neutrophilic Dermatitis Redux: Yet another presentation of lupus erythematosus?	Peter Pavlidakey, MD
14	Bullous transient acantholytic dermatosis: A report of two cases and review of the literature	Joshua Podjasek, MD
15	Paraneoplastic Autoimmune Multiorgan Syndrome (Paraneoplastic Pemphigus) occurring in association with primary peritoneal carcinomatosis and presenting with eosinophilic spongiosis: Case report and review of the literature	Joshua Podjasek, MD
16	Paraneoplastic Autoimmune Multiorgan Syndrome (Paraneoplastic Pemphigus) occurring without a known neoplasm	Joshua Podjasek, MD
17	Simple and practical approach to inflammatory skin condition	Omar Noor, MD
18	Granulomatous Variant of pigmented purpuric dermatosis: Report of the first case in the caucasian population	Jennifer Kaplan, MD
19	Atypical morphology in bowel associated dermatitis arthritis syndrome	Michelle Legacy, MD
20	A case of inflammatory vitiligo mimicking CD8+ hypopigmented mycosis fungoides	Julia Adams, MD
21	Neutrophilic sebaceous adenitis in an HIV positive patient	Dianne Kovacic, MD
22	Spongiotic keratosis: A variant of lichen planus-like keratosis	Marc Meulener, MD
23	Granulomatous changes associated with pigmented purpuric dermatosis	Kelly Morrissey, MD
24	Hyalinized verruciform xanthoma of the vulva: A case report with immunohistochemical study and a review of the literature	Sylvia Hayek, MD
25	Transepidermal perforation in gout entails intraepithelial deposition of urate crystals	Mariantonieta Tirado, MD
26	Necrolytic Migratory Erythema in a patient with Celiac Sprue: A case report of Pseudoglucagonoma Syndrome.	Gretchen Williams, MD
27	A case of Fox-Fordyce Disease following axillary laser hair removal	Michael Tetzlaff, MD
28	Multicentric Reticulohistiocytosis: A unique case with pulmonary fibrosis	Kelly West, MD
29	Eosinophils in interface dermatitis: How specific are they?	Victoria Sharon, MD
30	Keratosis Lichenoides Chronica: A case report	Tejesh Patel, MD
31	Smokeless tobacco keratosis simulating histologic features of lipid proteinosis	Timothy Sorrells, MD
32	Lipodermatosclerosis showing histopathology of subcutaneous fat necrosis of newborn	Manjunath Vadmal, MD
33	Granuloma gluteale adultorum (erosive papulonodular dermatosis) associated with chronic application of topical benzocaine preparations	Gregory Seidel, MD

## Posters

Poster Number	Title	Presenter
34	Severe refractory thyroid dermopathy masquerading as recurrent keloids and occurring at a skin graft site	Judith Robens, MD
35	Annular lichenoid dermatitis of youth	Marie Leger, MD
36	Acne inversa (hidradenitis suppurativa) in a patient with axillary breasts	Gretchen Williams, MD
37	Evaluation for secondary features lichenoid keratosis	Jerome Jean-Gilles Jr., MD
38	The lollipop lesion: its prevalence and potential diagnostic significance in nephrogenic systemic fibrosis	Tiffani Millness, MD
39	Cutaneous blastic plasmacytoid dendritic cell neoplasm: a rare but easily recognizable neoplasm; learning from 2 cases	Jeong Hee Cho-Vega, MD
40	Primary cutaneous anaplastic large cell lymphoma, regressing atypical histiocytosis type with pyogenic granuloma like clinical presentation	Grace Tanhuanco-Kho, MD
41	CD31+ blastic plasmacytoid dendritic cell neoplasm	Loren Clarke, MD
42	IRF4 translocations in skin biopsies help differentiate cutaneous anaplastic large cell lymphoma from other t-cell lymphoproliferative disorders	David Wada, MD
43	Indeterminate cell histiocytosis in a 65-year old male	Kevin Boyd, MD
44	Canine mycosis fungoides	Paul Googe, MD
45	ALK+ Lymphoma Presenting as an Axillary Abscess	Peter Pavlidakey, MD
46	CD4/CD56 hematodermic neoplasm	Oge Onwudiwe, MD
47	Myxoid variant of anaplastic large cell lymphoma	Ashley Gable, MD
48	Anetoderma-like changes in primary cutaneous marginal zone lymphoma: Polychronotopic clonal expansion and involution	Catherine Stefanato, MD
49	Primary Cutaneous CD30(+) T-cell lymphoproliferative disorder presenting as paraphimosis	Omie Mills, MD
50	Cutaneous intravascular CD30+ large T-cell lymphoma arising in the setting of chronic patch mycosis fungoides	Jason Sluzevich, MD
51	Extramedullary plasmacytoma in oral cavity	Maria Streber, MD
52	Dendritic cell hyperplasia post-scabies	Elan Newman, MD
53	Extranodal natural killer cell lymphoma, nasal type presenting as painful cutaneous tumors	Jennifer Jenkins, MD
54	CD30+ large-cell transformation of mycosis fungoides resembling CD30+ lymphoproliferative disorders	Mark Cappel, MD
55	Cutaneous Gamma-Delta T-cell Lymphomas: Pathological features of a large multicenter study	Joan Guitart, MD
56	Pitfalls in diagnosis of extranodal NK/T-Cell lymphoma, nasal type: A case report	George Garib, MD
57	Keratosis lichenoides chronica histologically mimicking mycosis fungoides: Unusual presentation or novel entity	Jessica Mercer, MD
58	Influence of clinical information in the histopathologic diagnosis of mycosis fungoides	Rebecca Rovner, MD
59	EBV associated cutaneous B-cell lymphoma and immunomodulation therapy: A series of four cases	Karl Napekoski, MD
60	Amyloidosis: an unrecognized cause of basement membrane alteration	Jennifer Reese, MD
61	Coexistence of EBV-associated diffuse large B-cell lymphoma and peripheral T-cell lymphoma involving the skin	Allison Arthur, MD
62	D-penicillamine is a potential adjuvant treatment in melanoma therapy	Blazej Zbytek, MD
63	Sentinel node biopsy in childhood atypical melanocytic neoplasms: A single institution experience in 24 patients	Omie Mills, MD
64	Animal-type melanoma (pigmented epithelioid melanocytoma) in an African-American female	Katherine Caretti, MD
65	Primary Dermal Melanoma	Ying Pei, MD
66	Carcinoma or melanoma? biphenotypic tumors with both malignant epithelial and melanocytic components	Ying Pei, MD



## Posters

Poster Number	Title	Presenter
67	Small cell malignant melanoma with balloon cell differentiation resembling high grade sebaceous carcinoma; Report of 1 case and review of literature	Farzaneh Sayedian, MD
68	Characterizing regression in melanomas: a population-based study	Kathryn Martires, MD
69	Ulceration in thin melanoma	Paul Googe, MD
70	Squamomelanocytic tumor with features of animal-type melanoma	Anshu Bandhlish, MD
71	PET-positive tumoral and nodal melanosis arising in a patient with metastatic melanoma receiving IL-2	Christine Nelsen, MD
72	A combined and collision baso-squamous-melanocytic malignant tumor of the skin	Kristine Cornejo, MD
73	Differential expression of glypican-3 in melanocytic lesions	Jennifer Raible, MD
74	A malignant neurocristic tumor with both malignant peripheral nerve sheath tumor and melanoma components	Ying Pei, MD
75	Malignant melanoma arising in association with a cellular blue nevus	Jennifer Kaplan, MD
76	Assessment of histologic quality in melanomas sampled by different techniques	Garth Fraga, MD
77	Ex Vivo dermoscopy: experience with 200 cases	Garth Fraga, MD
78	Protein expression profile of melanoma and nevus from formalin fixed tissue using mass spectrometry	Wang Cheung, MD
80	Persistence of melanocytic nevi after seeming complete removal	Yann Charli-Joseph, MD
81	Pigmented epithelioid melanocytoma in an african american man	Lisa Pitelka-Zengou, MD
82	Cutaneous leiomyosarcoma: A case series	Brian Hall, MD
83	Anal apocrine carcinoma 2nd reported case	Brian Hall, MD
84	Multicentric basal cell carcinoma arising in an epidermal inclusion cyst	Douglas Lynch, MD
85	Clear cell dermatofibroma: a rare variant with an extensive differential	Amy Kerkvliet, MD
86	Verrucous Carcinoma in a 17-year-old Male	Beth Palla, MD
87	Large cell acanthoma-like changes (large cell acanthosis) in other lesions	Grace Tanhuanco-Kho, MD
88	Angiolipoma in a 14-month-old child	Eric Miller, MD
89	Eccrine angiomatous hamartoma: A case report	Kejian Zhu, MD
90	A case of primary cutaneous cd30-positive anaplastic large cell lymphoma	Na Jin, MD
91	Acquired bullous dermatosis associated with IgA multiple myeloma	Qiang Zhou, MD
92	Large dendritic cells in pigmented basal cell carcinoma on Reflectance Confocal Microscopy (RCM)	Omar Noor, MD
93	A case of leiomyoma of the scrotum	Hao Cheng, MD
94	The utility of p75 in small biopsies of cellular spindle cell lesions	Natalie Depcik-Smith, MD
95	Localized epidermolytic hyperkeratosis of the vulva	Ying Pei, MD
96	Metastatic histiocytoid carcinoma of the breast masquerading as granular cell tumor	Joseph Eaton, MD
97	NUT midline carcinoma with cutaneous metastases: A case report and brief review of the literature	Loren Clarke, MD
98	Eruptive infundibulomas: a kind of cutaneous reaction pattern?	Zhongfa Lu, MD
99	Malignancies presenting as chronic wounds	Firouzeh Niakosari, MD
100	Long lasting Discoid Lupus Erythematosus leading to basal cell carcinoma in a haitian patient	Hamza Bhatti, MD
101	A case of cranial fascitis occurred in facial area	Gyongmoon Kim, MD
102	Accuracy of histologic subtyping of basal cell carcinoma in biopsy	Andrea Haws, MD
103	Histological clues in primary cutaneous ganglioneuroma	Allison Brown, MD
104	Using D2-40 to further classify cutaneous angiosarcomas	Christine Nelsen, MD
105	Atypical fibroxanthoma with lymphomatoid reaction	Rui Zheng, MD
106	Squamous cell carcinoma arising in syringocystadenoma papilliferum?	Allison Brown, MD

## Posters

Poster Number	Title	Presenter
107	Cytokeratin 20-negative Merkel cell carcinoma with squamous differentiation.	Joseph Eaton, MD
108	BerEp4 staining of dermatofibromas with epidermal induction and basaloid proliferation	Christine Nelsen, MD
109	Giant pigmented clear cell acanthoma	Jayson Miedema, MD
110	Merkel Cell Polyomavirus: Frequency of expression by immunohistochemistry in pure versus combined merkel cell carcinomas	Thai Yen Ly, MD
111	Primary adenocarcinoma arising in anogenital mammary-like glands	April Hendryx, MD
112	Syringocystadenoma Papilliferum with Tubular Adenoma of the Vulva: A case series	Hillary Ross, MD
113	Mast cells in non-mast cell dyscrasia: Innocent bystander or maestro conductor?	Asok Biswas, MD
114	Epstein Barr Virus-Associated Leiomyosarcoma arising as a Cutaneous Abdominal Mass in an HIV-positive African child with Human Immunodeficiency Virus (HIV)	Michael Tetzlaff, MD
115	Primary cutaneous carcinosarcoma in the setting of xeroderma pigmentosum	Nicholas Whitling, MD
116	Vulvar syringoma: Case report	George Garib, MD
117	Widespread cutaneous metastases from Rectal Adenocarcinoma	Elan Newman, MD
118	Squamous cell carcinoma with rhabdoid features	Meenakshi Bhasin, MD
119	Collapsing Angiokeloidal Dermatofibroma	Alicia Schnebelen, MD
120	A case of pleomorphic sclerotic fibroma	Ying Pei, MD
121	Epidermolytic acanthoma presenting on the nasal bridge	Harty Ashby-Richardson, MD
122	Cutaneous carcinosarcoma of the scapha of the ear	Priyadharsini Nagarajan, MD
123	Mapping toll-like receptor activity in different stages of cutaneous T-cell lymphoma	Jessica Kado, MD
124	Trichilemmal Cyst Nevus	Goli Compoginis, MD
125	Papillary Sebaceous Adenoma	Manjunath Vadmal, MD
126	Heterotopic ossification associated with the integra dermal regeneration template mimicking recurrent melanoma: A potential diagnostic pitfall	Monisha Dandekar, MD
127	Intravascular Schwannoma	Sudeep Gaudi, MD
128	Atypical vascular lesions of the breast following radiotherapy	Kerith Spicknall, MD
129	Sebaceous carcinoma occurring in an anophthalmic eye socket	Anna Harris, MD
130	Autosomal dominant familial angiolipomatosis: A Case Report	George Garib, MD
131	Trichilemmal Carcinoma: Perineural invasion corroborated and vascular invasion identified	Sudeep Gaudi, MD
132	Sebaceous hyperplasia following cyclosporine treatment	Neil Shah, MD
133	A papular puzzle: A case of generalized eruptive syringomas	Michelle Tarbox, MD
134	Adult polycystic kidney disease and multiple eccrine spiradenomas, a novel association with a possible genetic link	Michelle Tarbox, MD
135	Atypical vascular lesions of the right chest wall	Rahul Chavan, MD
136	A case of cutaneous gamma/delta T-cell lymphoma simulating mycosis fungoides	Mark Samols, MD
137	Matrical differentiation in basal cell carcinomas: a clinicopathological study of 15 cases	Roy King, MD
138	Descriptive terminology in partial samples of atypical squamous tumors	Harty Ashby-Richardson, MD
139	Epithelioid hemangioendothelioma of the skin mimicking granuloma annulare	Neil Coleman, MD
140	CD99 expression in Merkel cell carcinoma: a novel pattern of expression for differentiation from other cutaneous malignancies	Ashwyn Rajagopalan, MD
141	DEK expression in merkel cell carcinoma	Linglei Ma, MD
142	Both Fli-1 and D2-40 help distinguish atypical fibroxanthoma from angiosarcoma	Uma Sundram, MD

## Posters

Poster Number	Title	Presenter
143	Atypical cutaneous leiomyoma vs leiomyosarcoma	Justin Hardin, MD
144	The Prevalence of merkel cell carcinoma polyomavirus in squamous cell carcinoma and sun damaged skin : An immunohistochemical study	Sanam Loghavi, MD
145	Extramammary Pagets Disease coexistent with syringoma	Jyoti Kapil, MD
146	Spiradenocarcinoma: Series of cases and review of literature	Jyoti Kapil, MD
147	Epithelioid Cell Histiocytoma Composed of Granular Cells - A Second Case	Michael Rabkin, MD
148	Solid variant of Angiomatoid Fibrous Histiocytoma: A case report	Namrata Setia, MD
149	Ripple-pattern spiradenoma	Jiong Zhang, MD
150	Pitfalls in the diagnosis of cutaneous Rosai-Dorfman disease: Report on 2 cases	Vineet Mishra, MD
151	Atypical angiolymphoid hyperplasia with eosinophilia mimicking cutaneous lymphoma	Kevin Boyd, MD
152	The utility of clinical photographs in dermatopathology diagnosis: A survey study	Melinda Mohr, MD
153	Keratoacanthoma is the major cutaneous side effect of a new BRAF inhibitor treatment of metastatic melanoma	<b>WITHDRAWN</b> James Troy, MD
154	Psoriasiform pemphigus foliaceus presenting as an exfoliative erythroderma	Sarah Grekin, MD
155	A Case of acquired blaschko dermatitis	Jun Ye, MD
156	Complex endophytic/cystic squamous proliferation arising during treatment with sorafenib	Jennifer Kaplan, MD
157	Comparative diagnostic accuracy in virtual dermatopathology	Ellen Mooney, MD
158	Ischemic Fascitis (Atypical Decubital Fibroplasia) : A case report	Roya Setarehshenas, MD
159	Hematoidin: the forgotten pigment we have all seen	Nooshin Brinster, MD
160	Multinucleated epidermal giant cells in a patient with dermatitis artefacta	Julia Adams, MD
161	Macrolides-Lincosamides-Streptogramins family of antibiotics associated with nodular mucinosis of the breast	Cary Chisholm, MD
162	Dermatopathology workforce in the United States: A survey	Mahsa Abdollahi, MD
163	Cutaneous decidual: a report of two cases of an unusual pseudomalignancy.	Kristen Natale, MD
164	Solitary fibrous tumor of the skin	Jean Kemp, MD
165	Rapid onset of argyria induced by a silver-containing dietary supplement	Lynden Bowden, MD
166	Follicular mucinosis and Mycosis-Fungoides-Like drug eruption due to Leuprolide Acetate	Sara Shalin, MD
167	Apocrine nevus: A report of three cases	Steven Cordero, MD
168	Model for Teledermatopathology in Africa: From concept to consultation	Devon Gimbel, MD
169	A unique case of an intraepidermal squamomelanocytic tumor	Albert Su, MD
170	Histologic findings of nail cosmetics and enhancements	Rachel Anolik, MD
171	Embryonal rhabdomyosarcoma arising in a congenital melanocytic nevus	Jennifer Kaplan, MD
172	Melanoma staged excision: A technique to conquer your fears	Sarah Walsh, MD
173	Clinical and histologic features of facial papules in Cowden syndrome	Chyi-Chia Lee, MD
174	Onychotillomania: Clinicopathologic correlations	Jennifer Reese, MD

## Resident Posters

Poster Number	Title	Presenter
175	Beaded aggregates perpendicular to dermal-epidermal junction by GMS stain: An unusual and unexpected finding in secondary Syphilis	Melanie Fox, MD
176	Grover's Disease with a contagious twist	Adrienne Jordan, MD
177	Cutaneous alternariosis histologically mimicking blastomycosis.	Gregory Osmond, MD
178	Leishmaniasis- a parasite without border	Bichchau Michelle Nguyen, MD
179	A rare case of Tinea Corporis Purpurica	Emma Lanuti, MD
180	Lues Maligna: A rare variant of secondary syphilis	Paul Hillesheim, MD
181	Leukocytoclastic vasculitis as the presenting feature of dermatitis herpetiformis	Elizabeth Naylor, MD
182	Siliconomas	Kristen Fernandez, MD
183	Keratosi s Lichenoides Chronica	Ilana Rosman, MD
184	Tumid lupus-like eruption secondary to Vitallium	Shanon Lacy, MD
185	Identification of helicobacter pylori in skin biopsy of Prurigo Pigmentosa	Laurel Fohn, MD
186	Palisaded neutrophilic and granulomatous dermatitis: a histopathologic reaction pattern representing a spectrum of disease	Meena Singh, MD
187	The reticular variant of mid-dermal elastolysis: Thinking beyond fine-wrinkling in young women	Donna Hepper, MD
188	Lobular panniculitis and lymphocytic vasculitis: A new cutaneous drug reaction to Leflunomide (Arava)	Scott Wenson, MD
189	A case of equestrian pemio (chilblains) masquerading as cutaneous lupus erythematosus	Heather Froehlich, MD
190	Churg-Strauss syndrome with skin involvement limited to Koebnerization of a prior injury site	Anna Harris, MD
191	Lupus panniculitis presenting as scalp ulcerations	Natasha Atanaskova Mesinkovska, MD
192	Multiple Pauci-inflammatory paraffinomas on the forehead of an HIV+ Male	Swetha Kandula, MD
193	Follicular mycoses fungoides	Brooks Smith, MD
194	Primary cutaneous anaplastic large cell lymphoma in the spectrum of monomorphic post-transplant lymphoproliferative disorder following stem cell transplant	Shanon Lacy, MD
195	Composite localized marginal zone lymphoma and diffuse large B-cell lymphoma in the dermis	Shanon Lacy, MD
196	Persistent agmination of lymphomatoid papulosis	Swetha Kandula, MD
197	A case report of plasma cell leukemia with skin manifestation	Mariana Canepa, MD
198	Gamma-Delta T-cell lymphoma arising in a long-standing cutaneous plaque	Liaqat Ali, MD
199	Folliculotropic mycosis fungoides presenting as basaloid folliculolymphoid hyperplasia	Justin Kerstetter, MD
200	An incidental finding: Solitary cutaneous Rosai-Dorfman disease	Andrea Haws, MD
201	Leukemia cutis in B-cell chronic lymphocytic leukemia presenting as a recurrent papulovesicular eruption	Ilana Rosman, MD
202	Primary cutaneous gamma/delta T-cell lymphoma with aberrant CD20 coexpression	Goli Compoginis, MD
203	Subcutaneous panniculitis like t-cell lymphoma associated with lipodermatosclerosis	Daniel Russell, MD
204	Concurrent malignant melanoma and cutaneous involvement by Hodgkin Lymphoma in a 63 year-old man	Alejandro Gru, MD
205	Dramatic metastatic melanoma in african american man with primary acral melanoma	Nasir Aziz, MD
206	Canine melanoma: A comparison with human pigmented epithelioid melanocytoma	Weiguo Liu, MD
207	Pigmented extramammary Pagets Disease of the abdomen: A potential mimicker of melanoma	Jeremy Vincent, MD
208	Amelanotic melanoma in a patient with albinism	Marier Hernandez Perez, MD
209	Subungual melanoma in-situ arising in a 9 year-old child	Jerome Jean-Gilles Jr., MD
210	Malignant melanoma with metaplastic chondroid differentiation	Zarry Tavakkol, MD
211	Utility of cystic fibrosis Transmembrane Conductance Regulator (CFTR) in the differential of extramammary Paget's Disease and Squamous Cell Carcinoma In-situ (Bowen's disease)	Rick Bains, MD

## Resident Posters

Poster Number	Title	Speaker
212	Primary cutaneous rhabdomyosarcoma	Trent Marburger, MD
213	Cutaneous metastasis of urothelial carcinoma	Georgia Liles, MD
214	Aural nevus sebaceus of Jadassohn with a myxoma in a patient with Carney's Syndrome	Rick Bains, MD
215	A case of granular-cell basal cell carcinoma resembling sebaceous carcinoma	hui chen, MD
216	Metastatic micropapillary adenocarcinoma to the skin	Tamara Lazic, MD
217	Primary cutaneous nodular amyloid	Donna Hepper, MD
218	Signet-ring squamous cell carcinoma of the skin	David Lortscher, MD
219	Metastatic basal cell carcinoma with extensive perineural infiltration	Devon Gimbel, MD
220	Panfolliculoma	Natasha Atanaskova Mesinkovska, MD
221	Fluoroscopy-induced Chronic Radiation Dermatitis: A report of two additional cases	Julia Boncher, MD
222	Unilateral Nevoid Telangiectasia Syndrome: A case report and review of the literature	Scott Wenson, MD
223	Cutaneous lesions and neurologic symptoms: More than skin deep?	Kimberly Neyman, MD
224	Intravascular histiocytosis (reactive angioendotheliomatosis with histiocytic differentiation) presenting as cellulitis in an 82 year-old woman.	Ashley Gullett, MD
225	Elective amputation in keratosis-ichthyosis-deafness syndrome due to intractable pain and dermatophyte infection	Shanon Lacy, MD
226	Giant pilomatricoma with atypia	Hillary Elwood, MD
227	A case of livedoid vasculopathy unassociated with a hypercoagulable state	Stephanie Daniel, MD
228	Histologic review of the first face transplant in the United States	Jason Stratton, MD
229	Verrucous cyst with prominent melanocytic proliferation	Justin Hardin, MD
230	A rare case of multiple tumors of the follicular infundibulum	Christopher Simons, MD
231	Traumatic degeneration of collagen, elastosis and activated APC-Wnt pathway in the pathogenesis of extra nuchal-type fibroma: a case report	Konstantinos Linos, MD
232	Combined adnexal and melanocytic tumor in a patient with phacomatosis pigmentokeratolica	Jennifer Toyohara, MD
233	Persistent pruritic pustules: A classic presentation of a rare disease	Anisha Patel, MD
234	Rapidly involuting congenital hemangioma	Swetha Kandula, MD
235	Superficial giant cell fibroblastoma in an adult: An extremely rare presentation	Harleen Sidhu, MD
236	Epithelioid sarcoma of the scalp with psammomatous calcifications: A case report	Nora Frisch, MD
335	Composite B-cell and T-cell lineage post-transplant lymphoproliferative disorder of the lung with unusual cutaneous manifestations of mycosis fungoides	Kyle Mills, MD

## Fellow Posters

Poster Number	Title	Speaker
237	Lichen planopilaris (LPP) in a patient with Apert syndrome	Dipti Anand, MD
238	Trichodysplasia of Immunosuppression	Arlene Ruiz de Luzuriaga, MD
239	Trichodysplasia spinulosa in a lung transplant patient	Zendee Elaba, MD
240	Cicatricial Pemphigoid of the scalp in a 12 Year Old	Andrew Armstrong, MD
241	Dermatophytoma: an underrecognized clinico-pathologic entity which has a significant impact on treatment response to antifungal therapies	Daniel Bennett, MD
242	Herpes Syringitis - A report of Herpes Simplex infection in a burn victim	Ryan Matherne, MD
243	Nodular cutaneous amyloidosis of the vulva with concurrent herpes simplex viral infection	Holly McIntire, MD
244	Dual infection with mycobacterium leprae and mycobacterium hemophilum in an iatrogenically immunosuppressed patient initially diagnosed as sarcoidosis	Javad Beheshti, MD
245	Novel Insight Into the Pathogenesis of Erythema Nodosum	Mary Altmeyer, MD
246	Diagnostic value of periadnexal direct immunofluorescence findings	Julia Lehman, MD
247	Pyoderma gangrenosum in a patient with multiple sclerosis- a rare association.	Pushkar Phadke, MD
248	Macular Lymphocytic Arteritis with Eosinophils in an HIV positive patient	Ann-Marie Hyatt, MD
249	Purpura of levamisole-tainted cocaine	Angela Bohlke, MD
250	Fibrosing Dermopathies and Pseudoxanthoma Elasticum	Brittney DeClerck, MD
251	The crucial role of cutaneous pathology for diagnosis of Systemic Lupus Erythematosus in the setting of chronic Hepatitis-C cirrhosis	Anthony Fernandez, MD
252	Granulomatous Panniculitis with neutrophilic microabscesses: A rare presentation of cutaneous metastatic Crohns disease	Anthony Fernandez, MD
253	Sclerodermoid graft-versus-host disease presenting as lichen sclerosis.	Gregory Wells, MD
254	Clinicopathologic correlation of anti-TNF- agent induced psoriasiform dermatitis: Drug reaction or true psoriasis?	Dipti Anand, MD
255	An Interesting case of paraneoplastic bullous dermatomyositis.	John Papalas, MD
256	Cocaine-associated ANCA-positive vasculitis: A potential diagnostic pitfall	Benjamin Stoff, MD
257	Retiform purpura - a new stigmata of illicit drug use?	Stephen Mercer, MD
258	Graft versus host disease-like Rash in a patient with metastatic thymoma	May Chan, MD
259	Primary cutaneous diffuse large cell B-cell lymphoma, leg type simulating the histologic features of Merkel Cell Carcinoma	Aparche Yang, MD
260	Cutaneous PTLD: An unusual presentation	Jacqueline Russo, MD
261	EBV associated mucocutaneous ulceration secondary to Azathioprine	Jamie McGinness, MD
262	An unusual case of folliculotropic mycosis fungoides	Jessica Ghaferi, MD
263	Spongiotic cutaneous T-cell Lymphoma with Oligoclonal T-cell Gene Rearrangement	Bryan Coffing, MD
264	The Diagnostic Challenge of Rituximab-Induced CD20 Negative B-cell Lymphomas	Jessica Risser, MD
265	CD30-Positive Mycosis Fungoides in a Nine Year-Old Boy	John Miedler, MD
266	An unusual presentation of primary cutaneous T-cell lymphoma with a gamma/delta phenotype	Pitiporn Suwattee, MD
267	The necessity of sufficient tissue in a diagnostically challenging case of CD56-positive natural killer (NK) cell lymphoma	Daniel Miller, MD
268	An unusual case of leukemia cutis arising concurrently with Sweet's syndrome	Aparche Yang, MD
269	Lymphomatoid papulosis (LyP): Unique clinical and histological presentation of two cases	Dipti Anand, MD
270	Panniculitic T-Cell lymphoma in a pediatric patient: a difficult diagnosis	Ife Rodney, MD
271	Type B Follicular Lymphomatoid Papulosis	Andrew Armstrong, MD

## Fellow Posters

Poster Number	Title	Speaker
272	Complete Regression of a Nodular Mucosal Penile Primary Malignant Melanoma	Aparche Yang, MD
273	Predicting extractable DNA of paraffin embedded skin biopsies using digital imaging algorithms	Wells Chandler, MD
274	Phosphohistone H3 Improves the accuracy of counting mitotic figures in stage I melanoma	Jie Song, MD
275	Focally cytokeratinpositive metastatic desmoplastic melanoma	Lindsey Dohse, MD
276	The significance of melan-a positive pagetoid melanocytosis in dysplastic nevi	Hassan Huwait, MD
277	combined blue nevus-smooth muscle hamartoma: a series of 7 cases	Julia Tzu, MD
278	Eccrine origin of epidermal hyperplasia in verrucous melanomas: an immunohistochemical analysis	Terrence Keaney, MD
279	Metastatic melanoma to the lung with extensive cartilaginous differentiation: a case report of a rare but perilous diagnostic pitfall	Kristopher McKay, MD
280	A critical evaluation of current evidence- based recommendations for management of melanocytic lesions	John Miedler, MD
281	Clinically occult amelanotic melanoma mimicking a persistent Lichenoid Dermatitis: A cautionary tale	John Miedler, MD
282	The CD34 Fingerprint: A clue to distinguish neurofibroma from Desmoplastic Melanoma	Iwei Yeh, MD
283	Atypical histology in a melanocytic nevus after cryotherapy and pregnancy mimicking melanoma	Casey Wilford, MD
284	Keloid-like change in nevi mimicking desmoplastic melanoma in adults with type IV-V skin.	David de Vinck, MD
285	Nests with numerous MITF-positive cells in lichenoid inflammation: pseudonests or true melanocytic neoplasm?	Claudine Silva, MD
286	Regressing Merkel cell carcinoma: case report and characterization of the inflammatory reaction	Radoslaw Bieniek, MD
287	Basal cell carcinoma of the ear is more likely to be of an aggressive phenotype in both men and women	Abel Jarell, MD
288	Cutaneous Apocrine Carcinoma	Laila Elkeeb, MD
289	A case of plexiform xanthomatous tumor	Limin Yu, MD
290	Paraneoplastic pemphigus and Herpes simplex virus in a 14-year-old with Castleman's syndrome	Laine Koch, MD
291	Immunotype of tumor infiltrating immune cells and its correlation with clinical outcome in metastatic melanoma	Gulsun Erdag, MD
292	Scar metastasis of adrenocortical carcinoma	Gabrielle Baker, MD
293	Porokeratosis ptychotropa involving the scrotum	Daniel Bennett, MD
294	Malignant peripheral nerve sheath tumor masquerading as a plexiform fibrohistiocytic tumor	Michi Shinohara, MD
295	Neurothekeoma of the palm: an unusual location	Johanna Baran, MD
296	Familial diffuse sebaceous gland hyperplasia	Ryan Matherne, MD
297	Primary synovial sarcoma of the subconjunctiva	Anthony Fernandez, MD
298	Sclerodermoid Kaposi's sarcoma	Jena Auerbach, MD
299	Giant proliferating trichilemmal tumor of the scalp	Michi Shinohara, MD
300	Gangliocytic paraganglioma in an axillary dermal nodule: A unique presentation	Brian Roehmholdt, MD
301	Primitive non-neural granular cell tumor: A case report and review of the literature	Chad Jessup, MD
302	An unusual tumor presenting in an unusual location: An Infiltrating Intramuscular Spindle Cell Lipoma of the chin	Jessica Risser, MD
303	Mucin as a clue to the diagnosis of Elastomas	Jessica Risser, MD
304	Cutaneous ganglioneuroma with induction-like changes in the overlying epidermis: A case report	qinghong yang, MD
305	Focal acantholytic dyskeratosis overlying a dermatofibroma.	Chukwuemeka Etufugh, MD
306	Cutaneous Metastasis of Prostatic Adenocarcinoma	Chukwuemeka Etufugh, MD
307	Mirrored longitudinal axis sectioning of melanoma specimens: A novel technique for acquiring fresh melanoma tissue for research	Chukwuemeka Etufugh, MD

## Fellow Posters

Poster Number	Title	Speaker
308	Kaposi Sarcoma in an AIDS Patient with Multicentric Castleman Disease	John Miedler, MD
309	Kaposiform hemangioendothelioma with Kasabach-Merritt syndrome masquerading as child abuse in an infant	Gert Smalberger, MD
310	Factor XIIIa (FXIIIa) positive cutaneous sarcoma: a potential pitfall in the diagnosis of dermatofibroma (DF)	Dipti Anand, MD
311	Histologic features as a predictor of basal cell carcinoma depth	Michael Welsch, MD
312	Cutaneous Myoepithelioma	Michael Welsch, MD
313	Metastatic tumors to the vulva: A clinicopathologic study	John Papalas, MD
314	Twice diagnosed with primary digital papillary adenocarcinoma, eleven years apart	Joya Sahu, MD
315	Dual S-100 - AE1/3 immunohistochemistry to detect perineural invasion in non-melanoma skin cancers	John Cangelosi, MD
316	Induction of ATF3 by Interferon-gamma is mediated by EGFR activation	Benjamin Stoff, MD
317	SOX2 and Nestin Expression in human melanoma: Implications for potential clinical impact	Alvaro Laga, MD
318	High grade malignant fibrous histiocytoma of the dermis with features of giant cell fibroblastoma arising from an atypical fibrous histiocytoma	Amin Maghari, MD
319	Histopathologic characterization of reticulin fibers in Reticulohistiocytomas and Xanthogranulomas	Samuel Pruden, MD
320	Atypical mixed tumors of the digits: report of two cases	May Chan, MD
321	The Utility of PAX-8 in identifying the primary site of origin of subcutaneous metastases in patients with a history of mammary and ovarian carcinoma	Reena Sachdev, MD
322	A case report of a cutaneous solitary fibrous tumor histologically mimicking a schwannoma	Palak Parekh, MD
323	Acquired elastotic hemangioma	lindsey Dohse, MD
324	Primary cutaneous amyloidosis of the auricular concha: a clinicopathological and immunohistochemical review of 16 cases	Chad Jessup, MD
325	Congenital Lipomatous Overgrowth, Vascular Malformations, and Epidermal Nevi (CLOVE) Syndrome: A case report with histopathologic findings	Heather Carney, MD
326	Angiolymphoid hyperplasia with eosinophils of the vulva	Amanda Mullins, MD
327	Utilization of digital slides for remote quality assurance in dermatopathology	Adar Berghoff, MD
328	Idiopathic calcinosis cutis of the penis	John Cangelosi, MD
329	Linear IgA bullous disease presenting clinically as toxic epidermal necrolysis following acute generalized exanthematous pustulosis	Stephen Mercer, MD
330	Congenital supernumerary nostril and encephalocele: A rare congenital anomaly	Andrew Armstrong, MD
331	Disseminated superficial porokeratosis with alopecia. a new variant?	Veselina Korcheva, MD
332	Vesiculopustular eruption in an infant with transient myeloproliferative disorder	Andrew Armstrong, MD
333	Spindled pattern in cutaneous angiosarcoma: A diagnostic pitfall	Jeffrey Uchin, MD
334	Poorly differentiated spindled and epithelioid neoplasms: electron microscopy remains an important diagnostic tool	Jeffrey Uchin, MD
336	Verrucous Hailey-Hailey Disease mimicking condyloma acuminata	Julie Chu, MD





## Posters

### Poster 1

#### Sebaceous gland loss and inflammation in scarring alopecia: a potential role in pathogenesis

Tariq Al-Zaid MD

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Background: Primary scarring alopecia comprises a group of disorders with poorly defined etiologies. Improving diagnostic and therapeutic capabilities requires a better understanding of their pathogenesis. Objectives: To assess the frequency of sebaceous gland loss in scarring alopecia and to identify the role of sebaceous gland and sebaceous gland duct inflammation in the pathogenesis of scarring alopecia. Methods: 90 specimens submitted with a clinical history of alopecia, both scarring and non-scarring, were reviewed. Samples were scored based upon sebaceous gland, sebaceous duct, and follicle inflammation. Results: Sebaceous gland loss was much more common in cases of scarring alopecia (>53% of follicles on average) than non-scarring alopecia (<5% of follicles on average). Many cases of scarring alopecia showed residual affected follicles with an absence of sebaceous glands. Sebaceous gland duct inflammation was often more frequent and severe than gland inflammation in scarring alopecia. Limitations: Sample size was limited in some alopecia entities. Inflammation was graded by means of subjective observation. Conclusions: This study demonstrates that sebaceous gland loss is a common and early finding among scarring alopecias. Additionally, sebaceous gland and/or duct inflammation may play a role in initiating or accelerating follicular damage during the development of scarring alopecia.

### Poster 2

#### Combined features of alopecia areata and discoid lupus erythematosus in a case of alopecia

Olga Speck MD, PhD

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Alopecia areata (AA) is a common autoimmune tissue-restricted disorder characterized by inflammatory infiltrates around anagen hair follicles. The result of this inflammation is premature entry into catagen and telogen causing non-scarring alopecia initially but can ultimately lead to follicle dropout after repeated cycling. Histopathologic findings of peri-bulbar inflammation and inversion of anagen:telogen ratio are classic for AA. Chronic cutaneous lupus erythematosus (discoid lupus erythematosus, DLE) of the scalp also represents an immune-mediated attack on the hair follicle. However, in contrast to AA, the inflammatory infiltrate in DLE is predominantly at the level of the infundibulum and isthmus with additional perivascular and peri-adnexal distribution. Moreover, scalp DLE lesions are characterized by vacuolar interface alteration of the follicular and epidermal epithelium with eventual destruction of the follicle. Here we present a case of a 15-year-old female with new onset of alopecia with clinical and histological findings of both AA and DLE. To our knowledge, this is the first report of an alopecia lesion with coincident features of AA and DLE. We review current advances

in the understanding of the immune pathophysiology of these two disorders with emphasis on the possible common etiologic immune and cellular mechanisms.

### Poster 3

#### The histopathology of frontal fibrosing alopecia involving scalp, eyebrows and body hair: further evidence of a common pathogenesis

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Frontal fibrosing alopecia (FFA) is a cicatricial lymphocytic alopecia showing histopathologic features of lichen planopilaris (LPP). Clinically, FFA is characterized by a progressive symmetrical band of frontotemporal or frontoparietal hairline recession, mostly affecting postmenopausal women. Many FFA patients also report loss of eyebrow hair and of body hair. While the histopathologic findings of the scalp and eyebrow have been documented to be in keeping with LPP, little investigation has been undertaken concerning the loss of body hair. We report a 52 year-old menopausal woman who presented with recession of the frontal and temporal hairline and with eyebrow loss. The patient had also axillary, pubic and body hair loss. Biopsies taken from the scalp, eyebrow and the arm all showed similar findings, with perifollicular lymphoid cell infiltrate, perifollicular fibrosis and follicular dropout, consistent with LPP. This case provides further evidence that the process of body hair loss affecting such patients is also part of the spectrum of FFA, and, although previously thought of as non-scarring alopecia on clinical grounds, histopathologically it shows signs of active follicular inflammation with perifollicular fibrosis similar to that seen for the scalp and eyebrows, thus indicating a scarring process.

### Poster 4

#### A case of atypical human papillomavirus infection on inguinal area resembling condyloma accuminatum without koilocytes

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Vacuolization of granular cells in condyloma accuminatum (CA) is not as prominent as in other varieties of warts, although there are usually some vacuolated koilocytes in the upper Malpighian layer. Cases of CA resembling seborrheic keratoses were reported and they usually contained human papillomavirus (HPV). CA with only coarse keratohyaline granules was also reported. Negative cases for HPV DNA chip test containing many well-known HPV genotypes may show positive for PCR-based DNA test. They are defined as atypical HPV infection and its clinical significance is uncertain now. Herein we report a case of atypical HPV infection on his inguinal area resembling CA without koilocytes. And its clinical significance will be discussed. A 44-year-old male patient visited to our clinic due to multiple fleshy exophytic lesions on his right inguinal area for several months. First biopsy revealed compact hyperkeratosis, mild acanthosis with dilatation of upper dermal vessels. Koilocyte of Malpighian layer suggesting HPV infection was not found except mildly increased coarse keratohyaline granules on focal limited area. Formal pathologic reports were squamous

papilloma. He was healthy immunocompetent individual. Second biopsy after total excision of lesions revealed typical histology of condyloma accuminatum with many koilocytes. All specimens were negative for HPV DNA chip test. But PCR-based DNA sequencing using HPV DNA chip kit (MyGene. Co., Seoul, Korea) on both specimens revealed the same positive bands at 150bp and 450bp. The final HPV typing confirmed atypical HPV.

## Poster 5

### **Erythema chronicum migrans: a spectrum of histologic changes**

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Early cutaneous Lyme disease, erythema chronicum migrans (ECM), manifests as an erythematous annular expanding patch at the site of a tick bite. The classic histologic description is that of a superficial and deep perivascular lymphocytic infiltrate in which plasma cells are identified at the periphery of the lesion and eosinophils in the center. Herein, we describe three cases of ECM, all biopsied at the periphery of the lesion and confirmed by Western blot studies, demonstrating a variety of histologic patterns. The first, a 41-year-old male with multiple annular patches on the trunk and legs, demonstrated a superficial and deep perivascular lymphocytic infiltrate with no increased plasma cells. The second case was that of a 23-year-old male with one large annular patch on the trunk, demonstrating a mild superficial perivascular lymphocytic infiltrate with no increased plasma cells. The third, a 63-year-old male with multiple annular patches on the trunk, demonstrated a superficial perivascular lymphocytic infiltrate with interface change and increased eosinophils but no increased plasma cells. These cases highlight the varied and non-specific histologic changes that can be seen in ECM including the absence of plasma cells and the need for serologic confirmation in the absence of non-specific histologic findings.

## Poster 6

### **Eumycotic mycetoma of the scalp**

**Dianne Kovacic, MD**

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Mycetoma is a slow-growing, granulomatous, bacterial or fungal infection that most often affects the skin and subcutaneous tissues of the foot. Eumycotic mycetoma is endemic in arid climates such as Africa, India, and parts of South America. The fungal organisms are present in the soil and are introduced by traumatic inoculation. The infection presents as a gradual enlargement of painless, firm, cutaneous nodules which eventually develop draining sinus tracts. Our patient is a 36-year-old African female who presented with an extended history of multiple, raised, tan-brown nodules on the scalp clinically suspicious for neoplasm. The nodules measured up to 7 x 7 x 3 mm and were ulcerated with draining sinuses. Histologic examination revealed a granulomatous infiltrate in the dermis with numerous multinucleated giant cells and neutrophils. Fungal organisms were seen in extracellular masses. Gomori silver methenamine and periodic acid Schiff stain further highlighted the extra- and intracellular fungal hyphae and spores. A gram stain was negative for bacteria. This case has an unusual presentation with

mycetoma limited to the scalp. This case also highlights the global nature of pathology practice and the necessity of including exotic diagnoses in differentials, even in cases of suspected neoplasm.

## Poster 7

### **Fatal case of cutaneous rhizopus**

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Cutaneous mucormycosis is an uncommon, often fatal, fungal infection characterized by vascular invasion, leading to infarction and tissue necrosis. Patients are usually diabetic or severely immunosuppressed. We present a case of a previously healthy male with no evidence of immunosuppression diagnosed with *Rhizopus* infection of the skin. A 53 year-old comatose male was transferred to our hospital to the ICU in septic shock with severe multi-organ failure. He originally presented to emergency services with infected lower extremity ulcers, and became progressively unstable. Physical exam revealed purpura, ecchymosis, and necrotic hemorrhagic bullae in the axilla, upper, and lower extremities. The largest was a 10 cm firm, dark purple to black necrotic plaque on the right dorsal forearm. Ulcers and erosions with areas of greenish-black necrosis were observed on his bilateral lower extremities. Two biopsy sites on the right forearm and left axilla revealed similar histopathology of numerous ribbon-like hyphae present within the dermis, necrotic tissue, abscesses, vascular walls, and vascular lumina. A fungal culture grew *Rhizopus*. The patient was treated with surgical debridement and Amphotericin B, but succumbed to multi-organ failure. This is an unusual case of cutaneous *Rhizopus* infection in this previously healthy male.

## Poster 8

### **Mucormycosis of the forearm in a non-immunosuppressed patient**

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A 64 year old male with well-controlled diabetes was admitted to the hospital for a suspected cellulitis of the right forearm that was unresponsive to vancomycin and ceftriaxone. The patient experienced severe pain and a progressive motor paralysis of his ipsilateral digits. Several 4-5mm subcutaneous nodules were palpated on physical exam with scant overlying purpura and no lymphadenopathy. A biopsy of a nodule revealed a mixed granulomatous inflammatory process extending to the subcutis. Large fragments of branching, PAS-positive, non-septated hyphal elements were in proximity to deep vessels, consistent with cutaneous mucormycosis. The patient was started on posaconazole and later amphotericin and micafugin. An extensive workup failed to reveal an immunodeficiency. Despite systemic therapy and three separate surgical debridements, he continued to manifest clinical signs of local infection. This case will highlight the features and management of cutaneous mucormycosis in non-immunosuppressed patients.

## Poster 9

### Novel Use of DNA-based Techniques to Identify Atypical Mycobacterial Organisms in Paraffin Embedded Cutaneous Biopsies

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We present the case of a 66-year-old female who developed sudden redness and swelling of her left thumb. She was initially treated with ciprofloxacin and cephalexin for presumed cellulitis. After a lack of response, a biopsy was done that showed well formed granulomas, mixed inflammation with neutrophil predominance, and acid fast bacilli. After negative culture results, tissue samples were sent for PCR-based typing which classified the pathogenic organism as *Mycobacterium avium-intracellulare*. The patient was started on clarithromycin, rifabutin, and ethambutol leading to slow improvement. *M. avium-intracellulare* is present in soil, fresh water, sea water, daily products and some animal tissues. Cutaneous manifestations may be from primary inoculation or disseminated disease. They can occur in immunocompetent hosts but are more common in those with underlying immunocompromise. As cultures may be negative or can take up to 3 weeks to grow, PCR-based methods offers an opportunity for more rapid and specific diagnosis. We are currently in the process of further evaluating the sensitivity and specificity of the use of DNA-based techniques to identify atypical mycobacterial organisms in paraffin embedded cutaneous samples.

## Poster 10

### Herpes simplex vegetans: a report of two cases

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Herpes simplex vegetans is a rarely recognized condition, occurring among immunocompromised patients, in whom infection with HSV-1 or HSV-2 manifests as exophytic, vegetative growths, predominantly affecting the external genitalia, perianal or perioral skin, or sometimes the skin of the digits. The lesion may clinically resemble condyloma acuminatum or verrucous carcinoma (giant condyloma of Lowenstein-Buschke). Histologically, the characteristic nuclear features of Herpes virus infection may be subtle, and can be missed in the plane of section. We present two HIV patients that are illustrative of the range in clinical findings in this entity. The first case is a 46-year-old man receiving HAART, with a viral load of 140,000 copies/mL, CD4 count 2/mcL, and multiple painful, fungating, ulcerated masses, circumferentially involving the perianal skin. The second is a 51-year-old woman receiving HAART, with a viral load of <50 copies/mL, CD4 count 200/mcL, a known high-risk HPV infection with cervical dysplasia (CIN III), and a history of Herpes infection, who presented with discrete papillomatous lesions of the mons pubis and perianal skin. Both patients' biopsies demonstrated pseudoepitheliomatous hyperplasia (PEH), with dense plasma cell rich infiltrates, superficial ulceration, and rare multinucleated keratinocytes with scattered herpetic inclusions. HSV-1/2 immunohistochemistry was diffusely positive, and special stains for microorganisms were negative. Clinical clues suggestive

of Herpes simplex vegetans in cases of exophytic lesions at the above sites include a history of congenital or acquired immunodeficiency, pain and/or ulceration, and a history of Herpes infection; concurrent HPV infection may confound the diagnosis. Pathologists should consider this entity when examining a genital verrucoid skin specimen with ulcerated PEH, and a plasma cell rich infiltrate.

## Poster 11

### A case of cutaneous Scedosporium in an immunocompromised patient

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*Scedosporium apiospermum* is a fungus ubiquitous in organically polluted areas, where nitrogen-containing compounds are abundant. It is an emerging opportunistic pathogen that can range from cutaneous to disseminated infection and can be fatal within months of diagnosis. Lungs and soft tissues are most commonly affected, but brain abscesses have been reported, particularly in association with pulmonary scedosporiosis. Here we present a case of disseminated *S. apiospermum* infection with cutaneous manifestations in an immunocompromised patient. A 59-year-old woman with myelodysplastic syndrome, in remission from chronic lymphocytic leukemia, presented with pneumonia and deteriorating mental status. A CT scan showed 3 non-contrast-enhancing hypodensities affecting the brain. Many erythematous, indurated skin lesions, measuring 3-5 mm in diameter, were noted on her chest, shoulders, and arms. Biopsies were taken from both shoulders and submitted for culture and histology. Histopathologic examination revealed superficial and deep perivascular and periadnexal inflammatory infiltrates of lymphocytes and neutrophils. Scattered collections of fungal organisms were noted near the eccrine glands. The PAS-D stain showed the presence of variable sized spores and hyphae with some acute angle branching. Both tissue and blood cultures were positive for a single *Scedosporium* species. Histologically, eccrine or peri-eccrine involvement by fungi may be an important finding for *Scedosporium* infection of the skin.

## Poster 12

### Case report of molluscum contagiosum with concurrent calcinosis cutis

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*Molluscum contagiosum* is a skin lesion caused by a DNA poxvirus, often occurring in children and young adults with an incubation period of 14 days to 6 months. These lesions typically resolve within 1 year. *Calcinosis cutis* occurs in a variety of clinical scenarios and is usually categorized into metastatic, dystrophic, idiopathic, and iatrogenic subsets. In this case we present a 12 year old female with two raised dome-shaped lesions on the medial and lateral left knee measuring 8 mm in greatest dimension. These lesions had been present for 2 years. The patient also had a history of traveling to India, and an infectious etiology was a clinical consideration. Histologic examination demonstrated a crateriform invagination of squamous epithelium containing eosinophilic viral inclusions consistent with molluscum bodies. Surrounding this was a dense rim

of basophilic mineralized material, consistent with calcium. Calcinosis cutis may mimic molluscum contagiosum clinically, but to our knowledge, calcinosis cutis has yet to be reported in association with histologically confirmed lesions of molluscum contagiosum. While a direct causative mechanism would be speculative, this may be an example of dystrophic calcification, in this case, in association with a viral infection.

## Poster 13

### **Neutrophilic dermatosis redux: Yet another presentation of lupus erythematosus?**

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Background: Herein, we report on seven patients with a distinct and unusual eruption consisting of a neutrophilic dermatosis in conjunction with lupus erythematosus. The significance of these findings and their relevance to lupus erythematosus are discussed. Methods: Seven original cases were collected over ten years at a tertiary referral center, and were reviewed by a single board-certified dermatopathologist. All patient demographics were tabulated and analyzed. Eleven articles reporting fifteen similar cases were obtained from a literature review. Results: Out of a total of 7 adult patients, 14% (1/7) had a prior history of lupus erythematosus, while 86% (6/7) exhibited a synchronous initial presentation of neutrophilic dermatosis with lupus erythematosus. Of note, 100% (7/7) of the cases exhibited cutaneous lesions on sun-exposed sites. Conclusions: Our data and literature review suggest the existence of a neutrophilic dermatosis sui generis distinct from conventional Sweets syndrome that may herald conventional signs and symptoms or represent a forme fruste of cutaneous lupus erythematosus. This neutrophilic dermatosis may share a similar pathogenic mechanism related to ultraviolet exposure.

## Poster 14

### **Bullous transient acantholytic dermatosis: A report of two cases and review of the literature**

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Bullous transient acantholytic dermatosis (TAD), or Bullous Grover's disease, is the least common histologic presentation of TAD. Nine previous cases of bullous TAD have been reported in the literature. Nonetheless, numerous authors have argued that bullous TAD should not be considered as a distinct entity. We present two additional cases of bullous TAD. The first occurred in a 75 year-old man with a history of Chronic Lymphocytic Leukemia shortly after receiving a combination chemotherapy regimen of cyclophosphamide, fludarabine, alemtuzumab, and rituximab. The second case occurred in a 68 year-old man admitted to the hospital with viral encephalitis. Both patients responded well to conservative treatment with topical emollients and corticosteroid creams. We review the literature regarding bullous TAD, and encourage practitioners to consider bullous TAD in their differential diagnosis of bullous dermatoses and as one of the histologic variants of TAD.

## Poster 15

### **Paraneoplastic autoimmune multiorgan syndrome (paraneoplastic pemphigus) occurring in association with primary peritoneal carcinomatosis and presenting with eosinophilic spongiosis: Case report and review of the literature**

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We present an 80 year-old woman who developed painful oral ulcers and a widespread, pruritic dermatosis over the course of six months. Throughout this time period, she also experienced generalized malaise, nausea, abdominal discomfort, and a twenty-five pound weight loss. Histopathology, direct immunofluorescence, indirect immunofluorescence, and serologic studies confirmed the diagnosis of paraneoplastic autoimmune multiorgan syndrome (PAMS), formerly known as paraneoplastic pemphigus. A thorough search for an underlying neoplasm revealed primary peritoneal carcinomatosis. She is the first described case in the literature of paraneoplastic autoimmune multiorgan syndrome occurring with an associated primary peritoneal carcinomatosis. She also displayed prominent eosinophilic spongiosis on histopathologic examination, which has only rarely been described with PAMS in the past. We provide a thorough, current review of paraneoplastic autoimmune multiorgan syndrome and its many associated malignancies.

## Poster 16

### **Paraneoplastic autoimmune multiorgan syndrome (Paraneoplastic Pemphigus) occurring without a known neoplasm**

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We present a 46-year-old white woman with a nine-year history of recurrent vesiculobullous lesions on her extremities and the more recent development of painful oral erosions and ulcers. Her histopathology results, immunofluorescence studies, and laboratory workup were most consistent with the diagnosis of paraneoplastic autoimmune multiorgan syndrome (PAMS), formerly known as paraneoplastic pemphigus. Extensive laboratory and imaging studies did not reveal an identifiable neoplasm. Regular follow-up imaging and laboratory testing for two years after her diagnosis has not revealed an occult malignancy or lymphoproliferative disorder. We provide a comprehensive review of previously described cases of PAMS occurring without a known neoplasm, and provide further evidence that an underlying neoplasm is not required for the diagnosis of PAMS.

## Poster 17

### Simple and practical approach to inflammatory skin condition

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Inflammatory skin conditions are difficult to diagnose. There are many algorithms to differentiate these conditions, however, many of them are lengthy and difficult to remember. Inflammatory skin diseases can mimic each other histologically. We have a simplified approach for histological evaluation of inflammatory skin conditions, which can be easily learned and applied. Our approach divides predominately epidermal inflammatory conditions into subcorneal, intraepidermal, subepidermal, and interface dermatitis. The intraepidermal inflammation is further divided into acantholytic, spongiotic, papulosquamous, and reticular degeneration. The subepidermal inflammation is further divided into inflammatory and non-inflammatory dependent on the predominant cell type. Interface dermatitis is further divided into lichenoid and non-lichenoid. The dermal inflammation is further subdivided into six categories: superficial dermatitis, superficial and deep, granulomatous, sclerosing/fibrosing, deposition, and vascular. Both superficial dermatitis and superficial and deep inflammation are further differentiated into the type of inflammation being polymorphous or monomorphous. Granulomatous is further divided into 3 main categories, palisading, sarcoid, and necrotizing granulomatous. Vascular inflammation is divided into small vessel, small and medium vessel, and large vessel vasculitis. The last categories inflammation of subcutaneous tissue is divided into septal and lobular, which is further subdivided into primary and secondary.

## Poster 18

### Granulomatous variant of pigmented purpuric dermatosis: Report of the first case in the caucasian population

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Pigmented purpuric dermatosis (PPD) or capillaritis represents a group of diseases characterized by petechiae and bronze discoloration of the skin, commonly on the lower extremities of the middle-aged or elderly. Histologically, extravasation of red blood cells with marked hemosiderin deposition, a perivascular T-cell lymphocytic infiltrate centered on the superficial capillaries, and endothelial cell swelling and activation are seen. The granulomatous variant of PPD was described in 1996, and to our knowledge, only eight cases have been reported since in the literature; all in patients of East Asian descent and predominantly involving the lower extremities. We present a case of granulomatous PPD in a Caucasian, Ashkenazi Jewish woman involving the thighs and back with concomitant non-granulomatous PPD of the shins. She presented with spreading of an asymptomatic, cayenne pepper-appearing rash, which had been present for over fifteen years, on bilateral lower extremities with accompanying pink papules on the lower back, wrists, and forearms. Microscopic examination revealed superficial lichenoid, non-necrotizing granulomatous dermatitis with palisading lymphocytes and focal interface changes. Extravasated red blood

cells from damaged capillaries were present, but vasculitis was not identified. No lymphocytic atypia was noted, and T-cell gene rearrangement studies of the lesions revealed that the lymphocytes were non-clonal. To our knowledge, this is the first case of granulomatous variant of PPD arising in a non-Asian patient, and involving sites other than the extremities.

## Poster 19

### Atypical Morphology in Bowel Associated Dermatitis Arthritis Syndrome

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Bowel associated dermatitis arthritis syndrome (BADAS) is a neutrophilic dermatosis with articular and systemic symptoms in the setting of gastrointestinal illness. It is thought to be due to the deposition of circulating immune complexes that deposit in the synovium and skin with subsequent activation of immune complement cascade. The most common reported cutaneous eruption starts as erythematous macules that progress into papules, papulovesicles, and nodules within 48 hours. We discuss a patient who presented with an atypical cutaneous eruption associated with unilateral hip pain and fevers. We also suggest that this entity may have another non-papulonodular clinical presentation.

## Poster 20

### A case of inflammatory vitiligo mimicking CD8+ hypopigmented mycosis fungoides

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Vitiligo histologically exhibits subtle lymphocytic inflammation in approximately 10% of cases. These lymphocytes are generally CD8+ and tend to be seen tagging melanocytes. Cases with significant exocytosis of lymphocytes are rare and can be challenging to distinguish from CD8+ hypopigmented mycosis fungoides. We present a case of a 12-year-old female with a 2 year history of approximately fifty 1-2 cm hypopigmented macules and patches on her face, arms, legs, chest, abdomen, and lower back. Histologic examination showed a patchy perivascular and band-like lymphocytic infiltrate with focal, but significant epidermotropism and exocytosis. The intraepidermal lymphocytes expressed CD8 and only rare lymphocytes expressed CD4. A marked reduction of melanocytes was confirmed by MiTF and Melan A immunostains. The histologic differential diagnosis was of inflammatory vitiligo versus CD8+ hypopigmented mycosis fungoides. The patient was started on narrow band UVB treatment with ensuing repigmentation. Her father then presented for evaluation of his long-standing depigmented macules and patches, which were classic for vitiligo. In light of the newly-established family history of vitiligo, we believe that this case represents a rare example of inflammatory vitiligo mimicking CD8+ hypopigmented mycosis fungoides.

## Poster 21

### Neutrophilic sebaceous adenitis in an HIV positive patient

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Neutrophilic sebaceous adenitis is a rare dermatosis first described in 1993 by Renfro et al (*Arch Dermatol* 1993;129:910-1) which is characterized by acute and chronic inflammation centered around sebaceous units. We believe that we present the fourth reported case of neutrophilic sebaceous adenitis. The patient is a 46-year-old African American male with a history of HIV/AIDS with a CD4 count of 19. On admission to the hospital he was noted to have erythematous papules with central ulcerations on his face, trunk and extremities. He was not able to specify how long the lesions had been present. Histologic examination revealed an acute necrotizing inflammation in the dermis centered around sebaceous units. Acid fast, gomori silver methenamine, periodic acid Schiff, and Steiner stains were negative for infectious agents. The presentation of our patient parallels those described in the literature. Although more cases are needed in order to elucidate the mechanisms and predisposing factors underlying the neutrophilic assault of the sebaceous glands, this is the first reported case of neutrophilic sebaceous adenitis in a patient with HIV.

## Poster 22

### Spongiotic keratosis: a variant of lichen planus-like keratosis

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Lichen planus-like keratosis is a common solitary, slightly scaly, oval, tan-red papule or plaque often on the trunk or upper extremities of adults in their 5th to 7th decades. Histologically, this common lesion resembles lichen planus but is easily clinically distinguished. We describe 52 cases of a common but previously undescribed lesion we term spongiotic keratosis that shares many of the clinical and histologic characteristics of lichen planus-like keratosis. The lesion is important to characterize due to the disparity in clinical and pathologic diagnoses - the dermatopathologist may classify these lesions as spongiotic dermatitis although malignancy is the most common clinical diagnosis. This incongruence in clinical and pathologic analysis is distressing to the clinician and could be eliminated with acceptance that these lesions likely represent spongiotic variants of LPLK. In this article, we review the histologic and clinical characteristics of 52 spongiotic keratoses and provide our case for their classification as variants of LPLK.

## Poster 23

### Granulomatous changes associated with pigmented purpuric dermatosis

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Granulomatous pigmented purpuric dermatosis (GPPD) is a rare entity with only 10 cases reported in the literature. We describe a case of isolated GPPD and a case of pigmented purpuric dermatosis arising in a lesion of biopsy-proven cutaneous sarcoidosis. Patient #1 is a 9 year-old boy with an asymptomatic 2.6 x 1.9 cm light brown patch on his right posterior thigh with yellow papules and a non-blanching violaceous center. Histology revealed a lichenoid lymphohistiocytic infiltrate with marked red blood cell (RBC) extravasation and hemosiderin-laden macrophages, a superficial and deep perivascular lymphocytic infiltrate, and numerous small granulomas consisting of epithelioid histiocytes. Stains for microorganisms were negative. Patient #2 is a 49 year-old woman with a 1.7 x 1.8 cm dark brown lichenified patch on her right lateral thigh that was initially biopsied and revealed granulomatous dermatitis with negative stains for microorganisms. The same lesion increased in size over one year, and repeat biopsy revealed a lichenoid lymphohistiocytic infiltrate with abundant extravasated RBCs and pigmented macrophages. The histopathologic changes observed in granulomatous pigmented purpuric dermatosis will be compared to those seen in pigmented purpuric dermatosis in a lesion of cutaneous sarcoidosis, raising the question of a relationship between these two entities.

## Poster 24

### Hyalinized verruciform xanthoma of the Vulva: A case report with immunohistochemical study and a review of the literature

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Verruciform xanthoma is an uncommon, benign mucocutaneous lesion that occurs mainly in oral mucosa, with only few cases reported in extra-oral mucosa. The lesion is characterized by proliferation of non-Langerhans lipid-rich histiocytes in the papillary dermis with an underlying hyperkeratotic and hyperplastic epithelium. We report a rare case of hyalinized verruciform xanthoma of the vulva in a 31 year old woman who presented with a 7.0 mm exophytic hypopigmented lesion, located in the midportion of the left labia majora. An excisional biopsy of the lesion was performed. Microscopic evaluation revealed an exophytic papillary growth with parakeratosis and hyperkeratosis with evidence of verrucous hyperplasia. The papillary dermis showed a dense hyalinization with clusters of histiocytes with abundant foamy cytoplasm. Staining with periodic acid-Schiff (PAS) stain with diastase showed dense deposits of basement membrane-like material. Immunohistochemical studies revealed the foamy histiocytes were strongly positive for CD68 and negative for S-100; confirming the non-Langerhans histiocytic origin of the cells. Polymerase chain reaction (PCR) for human papilloma virus (HPV) was negative.

## Poster 25

### **Transepidermal perforation in gout entails intraepithelial deposition of urate crystals**

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Gouty tophi above hard surfaces tend to perforate and urate crystals will be extruded. Fissuring above a hard tophus could be the effect of decubital pressure breaking the skin, not different to what happens in chondrodermatitis nodularis helices. Outbound pressure from hard uric acid deposits may also contribute to the fissuring by disruption of the epidermis. It has become apparent to us that another phenomenon associated with tophi can be seen in the skin above the tophus. Urate crystals may be found in the cytoplasm of keratinocytes of nearby epidermis and adnexa. This may be a first step or a contributing factor to the epidermal necrosis that precedes the perforation channel in tophaceous gout. In rheumatologic circles is known that monosodium urate crystals may be within cells when synovial fluid is examined. In our seminal case, occurring in a 62 year-old man with a tophus on the left ear, the Weavers method, i.e., thick unstained sections used to rescue birefringence of urates in formalin-fixed, paraffin-embedded tissue, demonstrated the presence of minute perinuclear polarizable crystals within keratinocytes of epidermis and follicles near the tophus. There were also birefringent crystals among some of the corneocytes of the area. In the past, Goldman (AJDP, 1981) found clusters of urate crystals associated to psoriatic plaques, particularly around sweat pores and Munro microabscesses, but also only occasionally in epidermal tissue. Goldman gave no specifics about the intracellular location of the crystals. This precursor observation has not been replicated in dermatopathology until this report. In sum, the presence of intracellular crystals of monosodium urate crystals in epithelial structures of the skin is a newly recognized event, unique among crystallization of any moiety in the skin.

## Poster 26

### **Necrolytic migratory erythema in a patient with celiac sprue: A case report of Pseudoglucagonoma Syndrome.**

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Necrolytic migratory erythema (NME) is a cutaneous eruption that is a hallmark of both glucagonoma and pseudoglucagonoma syndrome. Features of glucagonoma syndrome include NME, hyperglucagonemia, anemia, nausea, vomiting, stomatitis, weight loss, diabetes mellitus, and thromboembolic disease, and are associated with a glucagon-secreting tumor of the pancreas. In pseudoglucagonoma syndrome, NME occurs without a pancreatic tumor, and it may be associated with intestinal malabsorption syndromes, cirrhosis, acute renal failure, malignancy, pancreatitis, and hepatitis. Abnormal liver function tests and low plasma zinc levels may be present. We present a case of a 36-year-old female with one month of vomiting, watery diarrhea, and bilateral lower extremity red, painful rash, petechiae and ulcers. Her past medical history was notable for DM type 1, non-alcoholic steatohepatitis, gastroesophageal reflux disease, and celiac sprue. She recently

stopped her gluten-free diet. A biopsy from the right lower leg showed ulceration, however, the adjacent epidermis showed superficial pallor and vacuolated keratinocytes in the upper epidermis with scattered neutrophils. There was papillary dermal edema and a mixed cell interstitial infiltrate of neutrophils, lymphocytes and rare eosinophils. The clinicopathologic findings were consistent with NME. No pancreatic lesions were identified with CT scan; therefore, the NME was most likely secondary to chronic malnutrition from her celiac disease. The patient improved considerably with TPN and restoration of a gluten-free diet. This case illustrates that the subtle pathologic findings of NME may be overlooked in ulcerated lesions as epidermal and dermal neutrophils, spongiosis, and edema may be non-specific reactive changes. The focal vacuolated cells in the superficial epidermis were a clue to the diagnosis. In conclusion, we present a rare case of NME associated with celiac sprue (pseudoglucagonoma syndrome).

## Poster 27

### **A case of Fox-Fordyce Disease following axillary laser hair removal**

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Fox-Fordyce disease (FFD) is a relatively rare entity with a typical clinical presentation. Numerous studies have described unifying histopathological features which together suggest a defect in the follicular infundibulum resulting in follicular dilation with keratin plugging, subsequent apocrine duct obstruction and apocrine gland dilation with eventual extravasation of the apocrine secretions as the primary histopathogenic events in the evolution of FFD. We report a case of FFD developing in the axillae of a 41 year old woman three months after completing treatment of this area with a hair laser (Candela 755 nm). We summarize various histopathologic descriptions of FFD in the literature. To our knowledge, this is the first description of FFD arising after axillary hair removal using a laser.

## Poster 28

### **Multicentric reticulohistiocytosis: A unique case with pulmonary fibrosis**

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Multicentric reticulohistiocytosis (MRH) is a rare disease of uncertain etiology that most commonly presents as a papulonodular cutaneous eruption accompanied by erosive polyarthritis. Although MRH is considered a systemic disorder, involvement of thoracic and visceral organs is uncommon. We report an unusual case of MRH in a patient with underlying undifferentiated connective tissue disease and diffuse dermatologic involvement who developed severe pulmonary symptoms. Lung biopsy showed a histologic pattern of idiopathic pulmonary fibrosis accompanied by notable lymphoid and histiocytic infiltrates. These findings raise the intriguing possibilities of direct pulmonary involvement by reticulohistiocytosis and/or secondary fibrosing lung disease developing in the setting of a systemic autoimmune inflammatory disorder. Although the causal relationships and reasons for dermatotropism remain unclear, our findings uniquely tie together undifferentiated connective tissue disorder, pulmonary fibrosis, and MRH, and strongly support the notion that MRH is promoted by an inflammatory milieu.



## Poster 29

### Eosinophils in interface dermatitis: How specific are they?

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Eosinophils may be present in skin biopsies that show the pattern of interface dermatitis. However, the diagnostic sensitivity and specificity of eosinophils in the differential diagnosis of interface dermatitis has not been extensively evaluated. We retrospectively identified 96 examples of interface dermatitis, including acute, sub-acute, and chronic cutaneous lupus erythematosus, dermatomyositis, lichen planus, pityriasis lichenoides, drug reactions (including Stevens-Johnson syndrome and toxic epidermal necrolysis), and graft-versus-host disease. Each case was reviewed by at least two dermatopathologists and clinically confirmed by two board-certified dermatologists. The average eosinophil count measured per ten fields (20x objective) was highest for drug reactions (13) and lowest for pityriasis lichenoides (0.2), dermatomyositis (0.2), graft-versus-host disease (0.4), and lupus erythematosus (0.5). Comparing disorders with an a priori expectation of rare to absent eosinophils (lupus erythematosus, dermatomyositis, pityriasis lichenoides) with the other disorders, the sensitivity and specificity for an eosinophil count <1 was 86% and 61%, respectively. In conclusion, eosinophils are usually rare to absent in pityriasis lichenoides, connective tissue disorders, and graft-versus-host disease. These results suggest that, in routine practice, identifying even a single eosinophil within ten 20x fields argues most strongly against these three disorders.

## Poster 30

### Keratosis lichenoides chronica: A case report

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Keratosis lichenoides chronica is a rare cutaneous entity. We present a twenty-eight year old Asian male with an eight year history of a pruritic cutaneous eruption mainly confined to his upper extremities. The eruption had been resistant to topical and oral medications in the past. On examination, the patient had multiple erythematous-violaceous keratotic papules that displayed a reticulated, linear and confluent pattern in a symmetric distribution on the arms and dorsal hands. Histopathologic examination revealed irregular epidermal hyperplasia and acanthosis with a patchy band-like lymphocytic infiltrate in the papillary dermis. Columns of parakeratosis with underlying hypogranulosis were evident as well as vacuolar alteration along the dermoepidermal junction and scattered individually necrotic keratinocytes. A diagnosis of keratosis lichenoides chronica was established based on clinical and histopathologic features. Whether keratosis lichenoides chronica represents a distinct inflammatory skin condition has been the subject of controversy in the past. By presenting this case, we hope to contribute to the collection of data regarding this rare cutaneous entity.

## Poster 31

### Smokeless tobacco keratosis simulating histologic features of lipid proteinosis

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Lipoid proteinosis (Urbach-Wiethe disease) is a very rare genetic disorder that presents with systemic, skin, oral and neurological findings. There are variable clinical presentations for patients with this disorder. Some patients may present with dramatic skin and neurologic findings while others present with more subtle findings. There are no consistent clinical laboratory findings; however, there are well-defined histologic findings from skin and oral biopsies. We present a patient with unusual histologic features of smokeless tobacco keratosis (snuff dippers keratosis), simulating lipoid proteinosis and propose that these features are more commonly associated with tobacco use than this rare genetic disease. A 40 year old male with a long history of smokeless tobacco use presented to the ENT clinic for evaluation of lower lip leukoplakia of several month duration. Upon examination a granular pale area was identified on the mucosa of the lower lip extending onto the gingival surface. The remaining oral mucosa, tongue and larynx were unremarkable. There was no lymphadenopathy or significant skin findings. A biopsy was performed to exclude epithelial dysplasia. Routine histologic examination of the biopsy revealed parakeratosis and acanthosis of the squamous mucosa with amphophilic hyaline thickening of several submucosal capillary vessels. No epithelial dysplasia was identified. The capillary vessels were demonstrated to be strongly Periodic Acid Schiff (PAS) positive and diastase resistance. These histologic features are considered characteristic of the rare genetic disorder lipoid proteinosis. However, these features have rarely been described with smokeless tobacco keratosis. The more common and expected finding of smokeless tobacco induced leukoplakia are epithelial changes ranging from hyperkeratosis to dysplasia. Subepithelial findings are not expected.

## Poster 32

### Lipodermatosclerosis showing histopathology of subcutaneous fat necrosis of newborn

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Lipodermatosclerosis (LDS), also known as sclerosing panniculitis, is characterized clinically by painful, indurated erythema and hyperpigmented scleroderma-like hardening of the lower legs. Disturbances in vascular flow and chronic venous insufficiency are regarded as the common etiological agent in its pathogenesis. The most common and consistent histopathologic feature includes lobular panniculitis with lipomembranous or membranocystic fat necrosis and varying degrees of sclerosis. Lipogranulomas, dermal sclerosis and vascular proliferation have also been reported. We report a 38-year-old man with a long standing history of diabetes mellitus, hypertension and gout who presented with recurring, painful, erythematous, subcutaneous plaques of lower extremities associated with skin tightness. Due to deteriorating kidney function, the patient had discontinued his gout medications. The clinical features were diagnostic of LDS. Other possibilities included erythema nodosum and gout panniculitis. The skin biopsy demonstrated lobular panniculitis with hyaline sclerosis and chronic inflammatory infiltrate composed of macrophages, lymphocytes and

many multinucleated giant cells. The interesting histopathologic feature noted was radiating, needle shaped crystals in many giant cells that resembled subcutaneous fat necrosis of the newborn. To date subcutaneous fat necroses like changes have not been reported in LDS.

## Poster 33

### **Granuloma gluteale adutorum (erosive papulonodular dermatosis) associated with chronic application of topical benzocaine preparations**

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A 40-year old female presented with chronic vulvar pain and pruritis. Clinically, there were multiple, oval to polygonal, red-purple, moist flat-topped papules and nodules on the mons pubis, labia majora and labia minora. The biopsies demonstrated epidermal hyperplasia with parakeratosis, dyskeratosis and kerinocytic pallor of the upper portion. The histology was initially interpreted as a psoriasiform dermatitis with the differential diagnosis including acrodermatitis enteropathica, irritant dermatitis and macerated eczematous dermatitis. Additional clinical information revealed that the patient has been applying an over-the-counter topical benzocaine preparation at least once an hour to relieve her symptoms. Thus, this represents granuloma gluteale adutorum (erosive papulonodular dermatosis), which is a florid form of an irritant contact dermatitis associated with chronic use of topical benzocaine preparations. Benzocaine is an external analgesic that is the active ingredient in over-the-counter gynecologic anti-itch preparations. Although benzocaine is more commonly associated with an allergic contact dermatitis, it is also recognized as a potent irritant with chronic use. This case illustrates the importance of recognizing topical benzocaine preparations as a potential cause of granuloma gluteale adutorum. The patient was educated about the causative nature of the product and the lesions resolved with discontinued use of all benzocaine products.

## Poster 34

### **Severe refractory thyroid dermopathy masquerading as recurrent keloids and occurring at a skin graft site**

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Pre-tibial myxedema results from excess mucopolysaccharides deposited in the dermis of patients with Graves hyperthyroidism, leading to diffuse skin thickening or discrete nodules and papules. This phenomenon associated with Graves hyperthyroidism is infrequent and may be diagnostically challenging. We present an unusual case of a 34 year old woman with Graves hyperthyroidism who developed multiple, large nodules with a clinical diagnosis of keloids along her shins, ankles, and at a previous bunionectomy site on her toes. Despite the striking clinical appearance of exuberant keloid formation, histologic evaluation of multiple specimens repeatedly showed dermal mucinosis, consistent with thyroid

dermopathy. She also developed severe bone pain and radiologic imaging consistent with thyroid acropachy. As these lesions were unresponsive to multiple medical therapies, including prednisone, pamidronate, steroid injections, and plasmapheresis, she underwent large resections of the nodules with skin grafting taken from the right buttock. Large keloid-like lesions subsequently developed at the graft donor site. These were histologically identical to the prior resections, showing dermal mucinosis with the absence of hyperplastic scar or keloidal collagen. This is a very unusual presentation of a severe and refractory case of thyroid dermopathy that clinically masquerades as recurrent keloids, and occurs at a skin graft site.

## Poster 35

### **Annular lichenoid dermatitis of youth**

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A 15-year-old Italian-American boy presented with a 15-month history of thin annular plaques with red-brown borders and nonindurated hypopigmented centers on his right flank. The lesions had faded after treatment with intralesional and systemic corticosteroids but subsequently recurred. He had no extracutaneous symptoms and negative Lyme serologies. A punch biopsy revealed a band-like lymphocytic infiltrate in the papillary dermis with vacuolar change at the dermoepidermal junction. Necrotic keratinocytes were present at the tips of the rete ridges, which were elongated with alternating thinned and quadrangular bases. These clinicopathologic findings were diagnostic of Annular Lichenoid Dermatitis of Youth (ALDY). First described in 2003 in 23 Italian children and adolescents, ALDY presents with red-brown annular patches and plaques with central hypopigmentation that favor the flank and groin. Histologically, it features a band-like infiltrate of predominantly CD4+, polyclonal T-cells in the papillary dermis with keratinocyte necrosis localized to the tips of quadrangular rete ridges, which alternate with thin rete ridges. Almost all reported ALDY patients have lived in Mediterranean countries, raising the possibility of an underlying infectious or environmental agent. To our knowledge, this represents the first report of ALDY in an American; however, our patient has vacationed in Italy.

## Poster 36

### **Acne inversa (hidradenitis suppurativa) in a patient with axillary breasts**

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Acne inversa (AI) is one of the follicular occlusion triad conditions, in which poral occlusion followed by bacterial infection is presumed to be pathogenic. AI is a chronic inflammatory disorder of the axillary, inguinal and perineal regions. The precise pathogenesis of AI is disputed. One proposal is that occlusion of hair follicles by keratinaceous material leads to folliculitis and follicular rupture and the development of deep dermal abscesses with sinus tract formation and fibrosis. We report, to our knowledge, the first case of a young woman with axillary hidradenitis and bilateral axillary accessory breasts. The

patient developed axillary masses peri-pubertally and shortly after, developed AI in the axillae. This progressed to lesions with fibrosis and drainage, causing chronic pain. The skin surrounding the accessory breast was heavily diseased and showed typical changes of AI on histologic exam, with formation of cysts, dermal abscesses and fibrosis. Interestingly, the adjacent skin over her accessory breasts was clinically spared and this zonal involvement of the axillary skin is unusual in AI. Histologically, clinically spared skin contained hair follicles dilated by keratinaceous material, but showed no evidence of folliculitis. Follicular distension and plugging by keratinaceous material appears insufficient for the development of AI in this area.

## Poster 37

### Evaluation for secondary features lichenoid keratosis

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Lichenoid keratosis (benign lichenoid keratosis/lichen planus-like keratosis) is a common clinicopathologic entity characterized histologically by lichenoid interface dermatitis. Several well-described histopathologic patterns have been reported. The lesion is often clinically diagnosed as a seborrheic keratosis, verrucous keratosis, superficial basal cell carcinoma, squamous cell carcinoma, actinic keratosis or Bowen's disease. After IRB approval we performed a retrospective study of 100 lesions histopathologically diagnosed as lichenoid keratosis during the period January 1, 2006- December 31, 2007 to identify associated secondary histological features (acantholysis, epidermolytic hyperkeratosis, blister formation, necrosis, verrucous architecture, spongiosis and acantholytic dyskeratosis). This study was performed in the Department of Dermatology of Warren Alpert Medical School of Brown University. In our series, lichenoid keratosis lesions occurred most commonly in older-aged individuals in their sixth decade, on the trunk (52%) and extremities (32%) and head and neck (16%) with a slight predominance in women (57%). Among the 7 histologic parameters that were studied, spongiosis (15%), blister formation (14%), verrucous architecture (12%), and acantholysis (6%) were the most common secondary features observed.

## Poster 38

### The lollipop lesion: its prevalence and potential diagnostic significance in nephrogenic systemic fibrosis

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Nephrogenic systemic fibrosis (NSF), first described as a distinct clinical entity in 2000, is a severe, disabling, systemic fibrosing disease which usually presents clinically as thickening and hardening of the skin of the extremities in renally-compromised patients exposed to gadolinium-containing contrast agents. Histologic features range from subtle to striking and include increased thickened collagen bundles and elastic fibers, mucin deposition, and proliferation of CD34/procollagen dual-positive spindle cells in the dermis and sometimes subcutaneous tissue without significant inflammation. Calcification, osteoclast-like giant cells, and osseous metaplasia are

variably present in more advanced stages of the disease. Recently, two cases of NSF were reported which showed a peculiar histologic variant of osseous metaplasia, termed "sclerotic bodies", characterized by the formation of discrete islands of amorphous eosinophilic material and surrounding spindle cells. We interpret this finding as focal bone formation with entrapped elastic fibers rimmed by osteoblasts, and propose the term "lollipop lesion" for these unique structures. To determine the prevalence of lollipop lesions in NSF, all slides from the International NSF Registry, representing 309 of the 355 patients diagnosed with NSF to date, were reviewed. Biopsies from 19 of these 309 patients (6%) were notable for lollipop lesions. Ultrastructural analysis was undertaken to reveal characteristic findings. Although the lollipop lesion is regarded as highly specific to NSF and may prove diagnostically useful, its full pathologic significance remains unclear. Further studies are needed to elucidate the pathophysiology behind this complex disease.

## Poster 39

### Cutaneous blastic plasmacytoid dendritic cell neoplasm: A rare but easily recognizable neoplasm; learning from 2 cases

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Blastic plasmacytoid dendritic cell neoplasm (BPDCN) is a rare myeloid neoplasm that primarily affects elderly adults. Skin involvement is frequent at presentation and the disease could be incidentally detected during a routine dermatologic examination. The prognosis is usually dismal and most of the patients progress to acute myeloid leukemia. Here, we describe the overall features of two cases of BPDCN. Both were 87 years old men and presented with bruise-like erythematous papules and plaques on the face, arms, trunk and back. Otherwise, both were asymptomatic and without evidence of acute leukemia. In both cases the neoplastic infiltrate was diffuse involving the dermis but sparing the epidermis and adnexa. The tumor cells were intermediate in sized with fine nuclear chromatin (blastic appearance), indistinct nucleoli and moderate amounts of vesicular cytoplasm. Characteristically, extravasated red blood cells were dispersed within the tumor. The tumor cells were positive for CD4, CD56, TCL-1, TdT (variably positive), BCL-6 (weak) and BCL-2 and were negative for CD3 and CD20. One patient was treated with oral methotrexate and the other with chemotherapy (CHOP). Ultimately, both patients progressed to acute leukemia. Histological features are usually characteristic and help to perform the proper immunophenotypic profile to confirm the diagnosis.

## Poster 40

### Primary cutaneous anaplastic large cell lymphoma, regressing atypical histiocytosis type with pyogenic granuloma like clinical presentation

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Regressing atypical histiocytosis (RAH) was coined in 1982 (Flynn)

for an entity characterized by proliferation of atypical histiocyte-like cells, clinical regression and recurrence. The cells were subsequently found to be of lymphoid lineage and is now recognized to be a variant of primary cutaneous anaplastic large cell lymphoma (PCALCL). Some of these cases are accompanied by pseudoepitheliomatous hyperplasia (PEH), simulating a keratoacanthoma or squamous carcinoma. In some cases, the number of atypical cells are so few that the diagnosis is easily missed. Lesions are most often solitary although these can recur, and in rare cases disseminate. Here we report a case of RAH-like PCALCL showing few diagnostic cells and presenting clinically most like a pyogenic granuloma. We highlight diagnostic challenges associated with this condition.

## Poster 41

### CD31+ Blastic Plasmacytoid Dendritic Cell Neoplasm

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Blastic Plasmacytoid Dendritic Cell Neoplasm (BPDCN) is a rare aggressive tumor derived from the precursors of plasmacytoid dendritic cells. Presentation in the skin is common, but the clinical appearance may vary greatly, from nodules to papules to ecchymotic plaques. The tumor may exhibit immunophenotypic and morphologic variability as well, adding to diagnostic difficulties. We describe a BPDCN in a 74 year old male referred to us with the clinical impression of angiosarcoma. In addition to CD4, CD56, CD123, and other markers characteristic of BPDCN, the neoplastic cells also expressed CD31. Dermatopathologists must be aware of this entity and its diagnostic criteria, but also the apparent variability in its clinical, histopathologic and immunohistochemical characteristics.

## Poster 42

### IRF4 translocations in skin biopsies help differentiate cutaneous anaplastic large cell lymphoma from other T-cell lymphoproliferative disorders

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Cutaneous anaplastic large cell lymphoma (cALCL) may be histologically indistinguishable from other T-cell lymphoproliferative disorders (TLPDs), particularly lymphomatoid papulosis (LyP) and systemic ALK-negative ALCL with skin involvement. We previously reported translocations involving the IRF4 (interferon regulatory factor-4) gene in TLPDs (Leukemia 2009;574). These translocations were seen mostly in cALCLs. The present study was undertaken to determine the clinical utility of FISH testing for IRF4 translocations by correlating clinical, histologic, and genetic findings in a large, multicenter cohort of patients. Skin biopsies involved by TLPDs from 193 patients at four institutions were classified by WHO/EORTC criteria. FISH for IRF4 was performed using a laboratory-developed breakapart probe and was successful in 188

cases (97%) that were included in the analysis. Among cALCLs, 9 of 45 (20%) demonstrated an IRF4 translocation, and 1 of 32 LyPs (3%) had a similar abnormality. All remaining cases were negative for a translocation, including: 7 systemic ALCLs (4 ALK-negative ALCLs; 3 ALK-positive); 44 cases of MF or Szary syndrome (13 transformed MF); 24 peripheral T-cell lymphomas, NOS; 12 CD4-positive small/medium-sized pleomorphic T-cell lymphomas; 10 CD30-positive TLPDs, not further subclassified; 5 extranodal NK/T-cell lymphomas, nasal type; 4 cutaneous gamma-delta T-cell lymphomas; and 5 other uncommon cutaneous TLPDs. Our findings suggest that FISH testing for IRF4 translocations has clinical utility in the differential diagnosis of TLPDs in skin biopsies, with a positive result favoring the diagnosis of cALCL. However, IRF4 testing must be interpreted in the context of morphology, phenotype, and clinical features since rare extracutaneous peripheral T-cell lymphomas and rare cases of LyP can have IRF4 translocations.

## Poster 43

### Indeterminate cell histiocytosis in a 65-year old male

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The patient is a 65-year old male with myelodysplastic syndrome who presented to dermatology for a widespread, extremely pruritic skin eruption that began on his trunk and spread to his upper and lower extremities. Oral corticosteroids brought some relief, but all other treatments including light therapy and oral antihistamines failed to clear the rash or relieve pruritus. Multiple biopsies performed over the course of 4 years repeatedly showed a sparse, interstitial histiocytic dermatitis. The most recent biopsy revealed a lymphohistiocytic infiltrate in the upper dermis containing cells with bean-shaped nuclei and nuclear grooves that expressed S100, CD68, and CD1a via immunohistochemistry. Electron microscopy showed no Birbeck granules, confirming a diagnosis of Indeterminate Cell Histiocytosis (ICH). The patient also had worsening pulmonary symptoms, nocturia, and joint/bone pain and a referral to hematology/oncology was made to evaluate for systemic involvement. ICH is rare disorder typically confined to the skin typically occurring in adults. The neoplastic cell is thought to be a precursor to the Langerhans cell. Interestingly, this patient has systemic symptoms typically associated with LCH. The relationship between the patients ICH and myelodysplastic syndrome is unclear, given that ICH has been reported in a patient who later developed leukemia. As our case illustrates, ICH can be a challenging diagnosis to make, and multiple biopsies may be necessary before the disease completely manifests itself.

## Poster 44

### Canine mycosis fungoides

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Epitheliotropic cutaneous T-cell lymphomas occur in dogs. Most are reactive for CD3 and CD8, and most show clonal T cell gene rearrangements. Affected dogs are typically advanced in age and present with mucosal, paramucosal and cutaneous lesions. The histopathology shows striking epitheliotropism of lymphocytes involving hair follicles, sweat glands and surface epithelium. We

present an illustrative case of a 13 year old female black Labrador with malodorous, weeping lesions of conjunctiva, lips, oral mucosa, perianal area, vulva, interdigital folds and skin. Cervical lymphadenopathy, weight loss and lassitude were observed. Histopathology showed extensive infiltrates of small irregular lymphocytes involving surface epithelium, hair follicles and sweat glands. The lesions showed little response to CCNU, but improved with oral prednisone and doxycycline. Canine epitheliotropic cutaneous T cell lymphoma of a mycosis fungoides pattern offers an animal model of human disease for biological and therapeutic studies.

## Poster 45

### ALK+ lymphoma presenting as an axillary abscess

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Background: ALK+ anaplastic large cell lymphoma is an aggressive systemic CD30+ lymphoma. Anaplastic large cell lymphomas that express ALK have a better prognosis than ALK- tumors. These aggressive lymphomas may have an atypical presentation. Case report: We present a case of a 34 year old Caucasian male with a painful fluctuant mass in the left axilla. Multiple areas of fibrinopurulent exudate were seen grossly. Histologic examination revealed acute and chronic inflammation with aggregates of large pleomorphic lymphoid cells in the dermis and subcutis. The cells stained positive with CD30, CD34, and ALK. The cells were negative for melanoma markers, CD3, CD5, CD10, CD20, and keratin. The patient was referred to oncology for additional workup, staging and started on salvage chemotherapy. The patient expired before additional studies were completed. Conclusion: ALK+ anaplastic large cell lymphoma is an aggressive lymphoma which typically presents with both nodal and extranodal sites. The skin is the most common extranodal site involved. A review of the literature describes abscess formation in the spleen and liver with ALK+ lymphomas. Our case reports an ALK+ lymphoma presenting as an axillary abscess. The presentation of these lesions is variable and requires prompt recognition and diagnosis.

## Poster 46

### CD4/CD56 hematodermic neoplasm

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This 49-year-old African American male presented with a chief complaint of progressively enlarging lesions of the lower extremity for the past 6 months. His past medical history was significant for Hepatitis C, Hypertension, Diabetes Mellitus II and carpal tunnel syndrome. He denied associated cutaneous symptoms of pruritus and pain as well as systemic symptoms of fever, chills, night sweats or loss of appetite. He did, however, admit to a 40lb weight loss during this period. There were two large violaceous, firm, well circumscribed tumors measuring 3cm x 4cm and 2cm x 2cm of the posterior left calf. Multiple, diffuse violaceous oval plaques ranging from 1-2cm in size oriented in a christmas tree distribution were also observed. No lymphadenopathy was present. Laboratory Data was significant for pancytopenia. Multiple punch biopsies were performed. The biopsy showed a dense dermal atypical infiltrate

consisting of intermediate sized lymphoid cells with slight irregular nuclei. By immunostains, the tumor cells were strongly positive for CD4, CD56; weakly positive for CD45, CD43; and negative for CD5, CD7, CD8, CD20, CD79A, and CD30. Flow cytometric analysis displayed blasts comprising 85% of nucleated cells and immunophenotype positive for HLA-DR, CD4, CD56, and CD38. The peripheral blood smear showed normocytic/normochromic red blood cells and rare nucleated red blood cells. Scattered circulating cells with similar morphology to neoplastic/blastic cells in the bone marrow were identified. CT Scans of chest/abdomen/pelvis were within normal limits. A chemotherapeutic regimen of Hyper CVAD (which includes, Cyclophosphamide, Vincristine, Doxorubicin, Dexamethasone) was subsequently initiated. The above was alternated with high dose methotrexate and ARA-C with each cycle. The patient has completed all four cycles of this regimen with complete regression of lesions clinically.

## Poster 47

### Myxoid variant of anaplastic large cell lymphoma

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We report a case of a 62-year-old white male who presented with a 2.6cm ulcerating mass on the skin of the left buttock and ipsilateral inguinal lymphadenopathy. Histologic sections showed a nodular and plaque-like growth pattern of a mixed cellular infiltrate throughout the dermis and subcutaneous tissue with prominent myxoid change. There was a dominant population of medium-sized, mitotically active, atypical cells that expressed CD30, CD4, and EMA. These atypical cells were mixed with eosinophils, neutrophils, mature lymphocytes, and histiocytes. A diagnosis of anaplastic large cell lymphoma, myxoid variant, was rendered at the time of complete excision of the buttock mass. The patient received five cycles of CHOP (cyclophosphamide, doxorubicin, vincristine, and prednisone) chemotherapy with complete resolution of lymphadenopathy and no residual cutaneous disease. He was disease-free by PET/CT scan and physical examination at sixteen months after chemotherapy. We present this case to highlight the histologic and immunophenotypic features of this entity with a discussion of the histologic differential diagnosis and a review of the literature.

## Poster 48

### Anetoderma-like changes in primary cutaneous marginal zone lymphoma: Polychronotopic clonal expansion and involution

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Primary cutaneous marginal zone B-cell lymphoma (PCMZBCL) is an indolent lymphoma composed of centrocyte-like cells, lymphoplasmacytoid cells and monotypic plasma cells, clinically presenting with multiple papulo-nodular lesions of the trunk and limbs. We describe a case of PMZBCL in a 33-year-old male who presented with red to violaceous papulo-nodules and atrophic lesions of the back and arms. He had hepatitis-B virus (HBV)-related chronic hepatitis, but no evidence of systemic malignancy. Multiple biopsy

samples showed a polymorphic immunomorphology, with the atrophic lesions being characterized by anetoderma-like changes with loss of dermal elastic fibers and increased dermal mucin with thickened collagen bundles. Light chain restriction was demonstrated; however this was kappa or lambda in different nodules. Anetoderma has been described associated with PCMZBCL and/or with spontaneously resolving lesions of PCMZBCL. The presence of different plasma cell clones in different lesions of PCMZBCL in the same patient has not, to our knowledge, been previously documented. We speculate that a chronic antigenic stimulus (e.g. HBV) could be responsible for a polychronotopic (i.e.: different in time and location) clonal plasma cell expansion and involution, resulting in skin atrophy.

## Poster 49

### Primary cutaneous CD30(+) T-cell lymphoproliferative disorder presenting as paraphimosis

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**Objectives** Primary cutaneous CD30(+) T-cell lymphomas comprise the second largest group of primary cutaneous T-cell lymphomas, and include the lesions of lymphomatoid papulosis and primary cutaneous anaplastic large-cell lymphoma. We report an unusual presentation of primary cutaneous anaplastic large-cell lymphoma. **Methods** A 90-year old, uncircumcised male presented with a 3 week history of painful penile swelling and minimal discharge. Diagnosed with balanitis, the patient was treated with Keflex, and underwent emergent circumcision for paraphimosis. The unsuspected diagnosis was made on microscopic evaluation of the foreskin along with follow-up staging studies. **Results** A literature review of primary lymphomas of the penis revealed only one primary penile CD30(+) T-cell lymphoma similar to ours. Our case is the first of its kind to present as paraphimosis. **Conclusions** While rare, lymphomas must be included in the differential of penile lesions and paraphimosis, especially in the setting of unresolving infections. In addition, when present, clinicians should be able to differentiate primary cutaneous lymphoma from lymphomas with secondary skin involvement. Finally, all foreskins from adults should be submitted to pathology for microscopic evaluation in order more accurately ascertain the etiology of penile lesions.

## Poster 50

### Cutaneous intravascular CD30+ large T-cell lymphoma arising in the setting of chronic patch mycosis fungoides

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A 70 year old white male with an established eight year history of chronic patch mycosis fungoides, stage Ib, developed a single, morphologically distinct, asymptomatic new onset facial plaque. Incisional biopsy revealed dilated ectatic vascular structures in the dermis and subcutis filled with large, pleomorphic neoplastic cells. Phenotypic analysis revealed CD2+, CD3+, CD4+, CD7+, CD5-, CD8-, CD56- tumor cells characteristic of T cell derivation. Uniquely, CD30 was also strongly positive. Alk-1, EMA, and

Epstein-Barr virus in situ hybridization studies were negative. Full body PET CT scan was unremarkable. Bone marrow biopsy was normocellular with trilineage hematopoiesis. Repeat incisional biopsy of a representative antecedent patch of mycosis fungoides confirmed a CD3+, CD4+, CD8-, CD30- epidermotropic lichenoid infiltrate without evidence of large cell transformation. On the basis of the exclusive intraluminal location of the neoplastic cells, the anaplastic cytology, the negative staging workup, and the CD30+/Alk-1 negative phenotype, a diagnosis of cutaneous intravascular CD30+ large cell lymphoma was rendered. Since initial presentation, the patient has developed no other similar plaques and the previous patches of mycosis fungoides remain stable. This case represents the exceptional association of a purely cutaneous intravascular CD30+ T cell lymphoma in a patient with mycosis fungoides. While the immunophenotype is consistent with cutaneous intravascular anaplastic large cell lymphoma, a unique presentation of mycosis fungoides with evolving large cell transformation cannot be completely excluded, although the indolent clinical behavior to date is more consistent with an associated independent CD30+ lymphoproliferative process.

## Poster 51

### Extramedullary plasmacytoma in oral cavity

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Plasma cell (PC) neoplasms have been classified as multiple myeloma, solitary plasmacytoma, and extramedullary plasmacytoma. This condition occurs as a solitary plasmacytoma, it could progress to PC myeloma. Extramedullary plasmacytoma (EP) is a neoplastic proliferation of PC in soft tissues. It occurs in upper respiratory tract, (nasal cavity or posterior oropharynx). EP is a rare PC proliferative disorder of upper aerodigestive tract. Clinical features in mouth are erythematous mucosa with papillomatous, cobblestone, nodular, or velvety surface changes. Symptoms: oral pain, dysphagia, persistent hoarseness, pharyngitis. Patients have autoimmune or immunologically mediated diseases. A 49-year-old woman with a surgically treated thymoma; chronic obstructive pulmonary disease, cutaneous pigmented lichen planus and dacriocystitis, was evaluated due to chronic ulcerations in mouth. She presented extensive, clean, superficial and painful ulcers affecting soft & hard palate, buccal mucosa and tongues dorsum. Clinica initial diagnoses were pemphigus vulgar, erosive lichen planus and erythema multiforme. The first biopsy was compatible with lichen planus. Steroid therapy was administered. Following biopsies on nodule in tongues dorsum was diagnosed as EP. The histopathologic features of a dense, submucosal plasma cell infiltrate are not specific and must be differentiated from other reactive and neoplastic conditions. Proper diagnosis depends on clinical pathologic correlations.

## Poster 52

### Dendritic cell hyperplasia post-scabies

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A 70 year old male with a history of multiple scabies infestations was seen several times by the Dermatology service over a two-year for treatment with ivermectin and permethrin. Several months

following his last treatment for scabies, a new asymptomatic widespread nodular eruption developed on his upper trunk and arms. The new soft nodules were 7-19mm in size and brown to flesh-colored. A scabies preparation screen was repeatedly negative. Several biopsies were taken over this period and each revealed a diffuse superficial and deep dermal lymphohistiocytic infiltrate. Immunostains revealed a CD4-rich T-cell population scattered among B-lymphocytes and large S-100 positive, CD-1a positive histiocytes in the dermis. T-cell gene rearrangements were negative. After review of the clinical and histological data, a diagnosis of dendritic cell hyperplasia post-scabies was rendered. Clinically, the eruption resolved without further treatment, although histological evidence of the eruption was still present. This will discuss reactive dendritic cell hyperplasia in the context of scabies and the differentiation of this entity from true Langerhan's Cell Histiocytosis and cutaneous lymphoma.

## Poster 53

### **Extranodal natural killer cell lymphoma, nasal type presenting as painful cutaneous tumors**

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We report a case of extranodal natural killer cell lymphoma, nasal type; an uncommon lymphoma of T cell lineage with a geographic predominance in Asia and a probable etiologic link to Epstein-Barr virus. A 53-year old Liberian female presented with an eight month history of enlarging painful nodules of her right elbow and right knee with central ulceration and yellow exudate. Biopsy of the tumor rim showed an atypical lymphoid infiltrate with prominent en masse necrosis admixed with histiocytes and eosinophils extending throughout the dermis. Fite, AFB, PAS, GMS and spirochete stains were negative for microorganisms. Histopathology of a surgical excision of the knee mass showed a dense diffuse medium- to large- sized atypical lymphoid infiltrate throughout the dermis, subcutaneous fat, and into the underlying skeletal muscle with angioinvasion and focal angioneurosis. By immunohistochemistry, a CD3, granzyme B, CD56, CD30 positive neoplastic lymphoid population, CD4 negative, and with a proliferation rate greater than 90% was noted. T-cell receptor gene rearrangement was negative. Epstein-Barr virus DNA PCR and EBV-encoded RNA by in situ hybridization were both positive. Despite aggressive treatment with hyperfractionated CVAD chemotherapy (cyclophosphamide, vincristine, adriamycin, dexamethasone, cytarabine, methotrexate, and intrathecal methotrexate) she has suffered from persistent disease at seven months.

## Poster 54

### **CD30+ large-cell transformation of mycosis fungoides resembling CD30+ lymphoproliferative disorders**

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In the setting of the diagnosis of mycosis fungoides (MF), large-cell transformation (LCT) is defined by at least one skin biopsy demonstrating a population of large cells that are greater than 4 times the size of small lymphocytes and exceeding 25% of the total lymphoid infiltrate. LCT most commonly occurs in advanced stage MF, typi-

cally as defined by tumor lesions (T3) / clinical stage IIB or greater. LCT is not specifically defined by CD30 expression, and the large cells may be CD30-positive or CD30-negative.

CD30+ LCT of MF can have morphologic and immunophenotypic resemblance to CD30+ lymphoproliferative disorders (LPDs) such as cutaneous anaplastic large cell lymphoma (c-ALCL). Therefore by current WHO criteria the diagnosis of c-ALCL is excluded in patients with a known history of MF. However, the coexistence of other CD30+ LPDs such as lymphomatoid papulosis (LyP) is well-documented in the setting of MF.

We have encountered patients with a well-defined diagnosis of plaque lesion MF, who also develop waxing and waning papules and/or more stable nodules which demonstrate marked CD30 positivity of a large T-cell infiltrate, which resemble CD30+ LPDs. Although there are significant differences in the clinical, pathologic, and immunophenotypic features of these lesions compared to the plaques of MF, some of these cases have been clonally-related by T-cell gene rearrangement studies, thus favoring LCT of MF.

This again emphasizes the importance of the clinical history and pathologic correlation in arriving at an accurate diagnosis when the pathologist is faced with a CD30+ large T-cell infiltrate.

## Poster 55

### **Cutaneous gamma-felta T-cell lymphomas: pathological features of a large multicenter study**

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We reviewed our multicenter experience with 39 patients (49 biopsies) with gamma-delta lymphomas first presenting with skin lesions at average age of 59 years (7-86). Eight patients presented with a single lesion resembling cellulitis/pyoderma associated with rapid disease progression (<6months). Chronic patches resembling mycosis-fungoides, psoriasis or a lichenoid process were initially noted in 11 patients. The third pattern was a panniculitis-like (7) process. The most common site of presentation was the legs followed by torso and head/neck. Lymphadenopathy (3/32) and bone marrow involvement (6/24) were uncommon. Significant PMH included lymphoproliferative process (4), autoimmunity (12), internal carcinomas (3) and hepatitis (2). Disease progression was associated with extensive ulcerated tumors and plaques resulting in 22 deaths including complications of hemophagocytic syndrome (3) and CNS involvement (2). The infiltrate was predominantly dermal (25), intraepidermal (8) or subcutaneous (16) with frequent interface (16), ulcerated (8) and pagetoid (3) features. The predominant cell type was irregular/elongated intermediate-size lymphocytes. Signs of cytotoxicity included extensive necrosis (8), hemorrhage (9), vasculitis (6) and karyorrhexis (8). The most common pheno-

type was CD3+/CD4-/CD5-/CD8-/BF1-/gamma M1+/TIA-1+/granzymeB+/CD45RA-/CD7-/EBER-. Fourteen cases were CD8+ and 3 EBV+. This largest study to date on cutaneous GDL shows a variety of patterns and cytotoxic changes with a fairly reliable immunophenotype.

## Poster 56

### **Pitfalls in diagnosis of extranodal NK/T-cell lymphoma, nasal type: A case report**

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We present a case of a 27-year-old Caucasian male who presented to an outside hospital with nasal obstruction which was initially thought to be a refractory sinusitis along with an inflammatory nasal polyp. Suspicion for an EN-NK/TCL arose after an enlarging sub-mandibular lymph node was histologically examined. It revealed a diffuse infiltrate of large and very atypical lymphoid cells with a high mitotic rate. An angiocentric and angiodestructive growth pattern was also observed. Flow cytometry further supported the diagnosis when revealing a population of CD56+, CD71+, CD3-, and CD20-cells. However, the EBV immunohistochemical stain was negative and did not support the diagnosis. The slides were then reviewed at our institution where the morphologic features along with a strongly positive in situ hybridization for Epstein-Barr virus encoded RNA (EBER) established the diagnosis. Imaging studies revealed involvement of multiple sinuses and the right orbit. Extensive cervical lymphadenopathy and diffuse thickening of Waldeyers rings were also noted. In conclusion, a thorough otorhinolaryngology examination, imaging studies and a large biopsy should be performed when the clinical diagnosis of nasal obstruction is uncertain. In addition, EBV immunohistochemical stain may be falsely negative in EN-NK/TCL and EBER should be performed.

## Poster 57

### **Keratosis lichenoides chronica histologically mimicking mycosis fungoides: Unusual presentation or novel entity**

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Keratosis lichenoides chronica (KLC) is a condition characterized by markedly hyperkeratotic papules and plaques symmetrically arranged with accentuation on the extremities. The histopathologic features include lichenoid interface dermatitis with dyskeratosis, mixed inflammation including plasma cells, and epidermal atrophy alternating with acanthosis. We report two patients with clinical findings consistent with keratosis lichenoides chronica, but histopathologic findings suggesting mycosis fungoides. Some biopsies showed classic features of KLC while other biopsies demonstrated band-like inflammation with intraepidermal lymphocyte atypia and Pautrier microabscesses without interface dermatitis or dyskeratosis. While there have been 2 cases of mycosis fungoides histologically mimicking KLC reported in the literature, the inverse scenario of KLC histologically mimicking mycosis fungoides to our knowledge has not been previously described. These cases may represent unusual histologic features of KLC or a novel entity.

## Poster 58

### **Influence of clinical information in the histopathologic diagnosis of mycosis fungoides**

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We sought to investigate and quantify the role of clinical information in the histopathologic diagnosis of MF compared to its inflammatory mimics, as well as determine how practitioners rely upon distinct histopathologic features in diagnostically differentiating MF from inflammatory dermatitis. The study design involved presenting dermatopathologists with a series of 30 computer-based histopathologic images, including 15 images from confirmed MF cases and 15 from inflammatory dermatitis cases. For each set of either MF or inflammatory dermatitis images, five of the images were accompanied by no clinical information, five by MF clinical scenarios, and five by inflammatory dermatitis scenarios. Subjects indicated their diagnostic impression for each slide on a scale from 1 (most compatible with inflammatory dermatitis) to 5 (most compatible with MF). Preliminary results show that for the MF images, the subjects provided a higher diagnostic impression score when no clinical information was given versus when a MF clinical scenario or an inflammatory dermatitis scenario was provided. For the inflammatory dermatitis images, the diagnostic impression scores were identical when accompanied by no clinical information or an inflammatory dermatitis scenario, but deviated further from a score of 1 when a MF scenario was provided. This study offers novel data on how the integration of clinical and histopathologic information is processed by the pathologist in rendering a diagnosis of MF.

## Poster 59

### **EBV associated cutaneous B-cell lymphoma and immunomodulation therapy: A series of four cases**

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Epstein-Barr virus (EBV) associated B-cell lymphoma is a rare complication in the setting of immunomodulation. We describe the clinical and histopathologic features of four such cases presenting with cutaneous involvement. Patients ranged from 63 to 73 years of age. All were treated with methotrexate, and two were receiving concurrent infliximab for rheumatoid arthritis (3/4) or psoriasis (1/4). The patients had solitary or multiple, flesh-colored or ulcerated lesions on the forehead, abdomen, or leg. Histologically, they consisted of a nodular to diffuse infiltrate involving the dermis and subcutis. One case demonstrated focal epidermotropism. The infiltrate consisted of large pleomorphic lymphocytes with prominent nucleoli admixed with smaller lymphocytes. The atypical cells were positive for CD20 (4/4), CD30 (4/4), BCL-6 (3/4), and MUM-1 (3/3). The atypical cells were positive for EBV encoded RNA (EBER) by in situ hybridization. Follow-up information, available on three patients, revealed spontaneous resolution with discontinuation of methotrexate (n=2) and one death from disease at the time of diagnosis. Although rare, it is important to recognize this entity as a complication of treatment with immunomodulation. Patients may respond to withdrawal of immunosuppressive medications obviating the need for systemic chemotherapy. EBV-associated



B-cell lymphoma should be considered in the differential diagnosis in any patient on immunomodulatory drugs including methotrexate and infliximab.

## Poster 60

### **Amyloidosis: an unrecognized cause of basement membrane alteration**

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An altered and thickened basement membrane is a histologic feature commonly associated with lupus erythematosus, and other causes for this change are rarely recognized. We present a series of biopsy specimens from a sixty-eight-year-old man with a history of primary systemic (AL) amyloidosis who had a variety of distinct clinical lesions over a period of weeks, which included an ulceration of the glans penis, and macular erythema with hemorrhagic papules in bilateral inguinal creases. The penile biopsy showed non-specific ulceration, and the groin biopsies showed folliculitis. These biopsies showed characteristic histologic features of systemic amyloidosis, with amyloid deposits in the superficial papillary dermis, as well as in a perivascular and perieccrine distribution pattern. Additionally, there was the peculiar finding of amyloid deposition within a thickened basement membrane. Cutaneous amyloid deposition in primary systemic amyloidosis is typically seen as masses of fissured amyloid present in the papillary dermis, or more diffusely in the dermis, which may involve dermal blood vessels and pilosebaceous units. Here we illustrate systemic amyloidosis as an unrecognized cause of basement membrane alteration. This information will help dermatopathologists incorporate systemic amyloidosis into the differential diagnosis for this histologic finding, and improve diagnostic accuracy for this occasionally elusive disorder.

## Poster 61

### **Coexistence of EBV-associated diffuse large B-cell lymphoma and peripheral T-cell lymphoma involving the skin**

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A 57 year old woman presented for evaluation of widespread cutaneous nodules. She had a history of cutaneous Epstein-Barr Virus-associated diffuse large B-cell lymphoma (EBV-DLBCL) on the right leg. Several years after successful completion of systemic chemotherapy with R-CHOP, she began to develop numerous erythematous and hyperpigmented, indurated plaques and nodules on the trunk and extremities. A biopsy from a nodule was consistent with peripheral T-cell lymphoma, not otherwise specified (PTCL). She had no lymph node or visceral involvement. She was treated with ICE systemic chemotherapy. Although some of the skin lesions improved, she continued to develop new nodules. Additional biopsies were obtained. A biopsy from an ulcerated right ankle nodule showed recurrent EBV-DLBCL. There was an extensive infiltrate of large atypical CD20+ & CD30+ lymphoid cells in the dermis associated with necrosis & angiodestruction. The atypical B-cells showed lambda restriction & EBV positivity. A biopsy performed from a right wrist nodule revealed PTCL. The biopsy showed an atypi-

cal lymphohistiocytic infiltrate with granulomatous features in the dermis. The atypical cells were positive for CD2, CD3, CD4, and CD5, weakly CD7+, and co-expressed PD-1 (CD279) & CXCL13. Another biopsy from a left wrist nodule also showed PTCL as well as some involvement by LBCL as it contained areas of CD20+ & CD30+ large B cells associated with necrosis. The simultaneous presentations of both EBV-DLBCL and PTCL in the skin make this case unique.

## Poster 62

### **D-penicillamine is a potential adjuvant treatment in melanoma therapy**

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Treatment of melanoma in its early phase is primarily surgical and leads to relatively successful. Survival in more advanced disease is dismal. Most treatments lead then only to modest increases in patients life span. Several experimental treatments are being developed targeted in different aspects of melanocyte biology including BRAF, VEGFR, PDGFR, MAP, Bcl-2, Kit, NF-kappaB and others. These treatments focus on proliferative capacity of melanoma cells similar to other neoplasms. Rare treatments focused on melanocyte function specific to its biology: pigment-producing cell.

D-penicillamine is an FDA approved drug used for treatment of Wilson disease. Its copper-chelating function may not only serve to remove excess copper from the body. It actually can inhibit several enzymes requiring copper as a co-factor including a rate limiting enzyme in melanogenesis: tyrosinase.

We used standard human melanoma cell lines and human peripheral lymphocytes to test a concept that D-penicillamine increases sensitivity of melanoma cells to standard chemotherapeutic agent and to the attack of the immune system. We first documented that D-penicillamine inhibits pigmentation of melanoma cells. Then human SKMEL-188 melanoma cells were incubated with and without D-penicillamine in the presence of cyclophosphamide. Addition of D-penicillamine at 10<sup>-6</sup> M indeed increased cells death (p<0.05). Human melanoma cells were pre-incubated with or without D-penicillamine and then co-incubated with peripheral blood lymphocytes. Addition of D-penicillamine increased lymphocyte-mediated cytotoxicity (p<0.000005).

These results provide proof of the concept and support the potential of D-penicillamine for melanoma treatment. Further phases of testing are necessary to provide more data if this indeed is viable option for the patients.

## Poster 63

### **Sentinel Node biopsy in childhood atypical melanocytic neoplasms: a single institution experience in 24 patients**

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Introduction: Sentinel lymph node (SLN) biopsy is a controversial but frequently used adjunct to wide excision of histologically

difficult-to-diagnose melanocytic proliferations of childhood. We herein report our institutional experience with SLN biopsy in pediatric patients with atypical melanocytic neoplasms (AMP).

**Methods:** Our prospectively-collected melanoma database was queried for patients <21 years of age undergoing SLN biopsy for a diagnosis of AMP in which the diagnosis of melanoma >1 mm in depth was considered in the differential diagnosis by one or more expert dermatopathologists, but for which no diagnostic consensus could be reached.

**Results:** Of 24 patients identified over 17 years, 7 patients (29%) had a positive SLN. Six SLN-positive patients underwent complete lymph node dissection, with 1 (14%) having additional nodal involvement identified. With a median follow-up of 18 months (range <1 to 177 months), all patients showed no evidence of disease.

**Conclusions:** Despite a significant rate of identification of melanocytic cells in SLN of children with AMP, survival appears favorable, and controversy surrounding the significance of nodal involvement remains. Further studies with larger numbers of patients and long-term follow-up are needed before the true prognostic value of SLN biopsy in this setting can be determined.

## Poster 64

### **Animal-type melanoma (pigmented epithelioid melanocytoma) in an African-American female**

**Katherine Caretti, BS**

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An 89 year-old African-American female presented with an asymptomatic black nodule on her back that had been present since birth, but growing in size for the past six months. There was no history of bleeding or ulceration of the lesion. Examination revealed a verrucous, black, soft nodule located over the back measuring 1.4 cm x 1.2 cm. An excisional biopsy was done and subsequent histological examination showed sheets of heavily pigmented, polygonal, rounded, and spindled-shaped melanocytes filling the dermis and extending to the subcutaneous fat. The tumor cell cytoplasm contained fine to coarse melanin granules that obscured the nuclear morphology and necessitated bleaching of the slide. Examination of the bleached slide revealed pleomorphic nuclei with coarse chromatin and prominent nucleoli. The pathological picture was diagnostic of malignant melanoma, animal-type. Animal-type melanoma is a rare variant of melanoma originally described to emphasize the similarity of these tumors to the heavily pigmented melanocytic lesions found in gray horses. It has since been shown to be histologically indistinguishable from epithelioid blue nevus resulting in the term pigmented epithelioid melanocytoma to encompass both types of lesions. This case is unique in that only a handful of such tumors have been reported in African-American individuals.

## Poster 65

### **Primary dermal melanoma**

**Ying Pei, MD, PhD**

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Primary dermal melanoma is a recently identified rare variant of melanoma, which has also been designated solitary metastasizing melanoma of unknown primary origin with unexpectedly prolonged survival. The histological features include well defined tumor nodules deep in the dermis or subcutis without any connection to the epidermis or skin appendages. The most important differential diagnoses include nodular melanoma and metastatic melanoma, both of which have a worse prognosis than this variant. Here we present a case of primary dermal melanoma in the skin of the back of a 54 year old male. The patient had no previous history of melanoma. Histology showed a large lobulated and circumscribed nodule of tumor in the dermis without epidermal or follicular connection. Tumor cells were variably spindled and epithelioid. Mitoses, including atypical mitoses, and focal geographic necrosis were noted. The lesion showed low expression of p53 and Ki-67, further supporting a diagnosis of primary dermal melanoma. The relatively favorable prognosis of this variant of melanoma may suggest a different pathogenesis.

## Poster 66

### **Carcinoma or melanoma? Biphenotypic tumors with both malignant epithelial and melanocytic components**

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The first case of a cutaneous malignancy with both epithelial and melanocytic components was reported by Nivick in 1977 and since then approximately 60 cases have been reported in the English literature. In 2009, Satter proposed dividing these cases into 4 categories: collision tumor, colonization, combined tumor and biphenotypic tumor. The biphenotypic tumor refers to lesions apparently arising from a common stem cell precursor that undergoes divergent differentiation, displaying a biphenotypic morphology but overlapping immunostaining. Here we report three additional cases of cutaneous malignancy with both epithelial and melanocytic components. Case 1 is an 87 year old male who presented with a pigmented lesion on the nose. Case 2 is a 55 year old male who presented with a lesion on the left ala. Both tumors showed a malignant nodular neoplasm with two intimately admixed populations of cells: one basal cell carcinoma and the other melanoma. S100, HMB45, MART-1 and Ber-EP4 were all positive in a majority of the nests of tumor cells. Case 3 is an 80 year old male who presented with a lesion on the left arm. The lesion showed features of both a squamous cell carcinoma as well as a melanoma. The tumor cells were positive for S-100, HMB45, MART-1, p63 and EMA. The cell of origin of such biphenotypic tumors appears to be a common stem cell precursor that undergoes divergent differentiation, as evidenced by the fact that the same tumor cells are positive for both epithelial and melanocytic markers. Molecular studies could

potentially be helpful to prove if the two populations of malignant cells are from the same precursor. The biologic behavior of such biphenotypic tumors remains uncertain. For practical purposes a conservative approach was taken and all three cases were treated as a malignant melanoma. Ongoing studies are needed to investigate the prognostic difference of such tumors from conventional melanoma or carcinoma.

## Poster 67

### **Small cell malignant melanoma with balloon cell differentiation resembling high grade sebaceous carcinoma; report of 1 case and review of literature**

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Small cell melanoma is a rare variant of naevoid melanoma. It is composed of sheets of small cells with hyperchromic nuclei with mild cytological atypia. The malignant cells are nested in epidermis and dermis and show high mitotic rate. Due to the resemblance of the malignant cells to benign cells of conventional naevus, this entity could easily be misdiagnosed as atypical naevus. We present an unusual case of malignant melanoma, exhibiting small cell morphology with focal balloon cell differentiation resembling a high grade sebaceous carcinoma. The clinical and histopathological features and histological differential diagnoses of this entity is discussed. The tumor consisted of high grade small dark blue cells. Tumor cells showed vertical growth and high mitotic rate. Angiolymphatic invasion was present. The malignant cells were strongly positive for S-100 protein, Mart-1 and HMB-45. Neuroendocrine and lymphocytic markers were negative.

## Poster 68

### **Characterizing regression in melanomas: a population-based study**

Kathryn Martires, BA

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Spontaneous regression is considered as partial or complete resolution of a tumor in the absence of any treatment. The true incidence and prognostic impact of regression is unknown. The purpose of this study is to examine the epidemiology of melanomas demonstrating regression, which is reported to occur, at least partially, in a significant number of cases. Using data from the NCI SEER (Surveillance, Epidemiology, and End Results) Program, we analyzed cases of regressing malignant melanoma on skin between 1973 and 2006, as specified by International Classification for Diseases in Oncology 3 (ICDO3). Only cases of primary, malignant, histologically-confirmed regressing melanoma were utilized. These cases were compared with all other malignant melanoma of skin. Statistical analysis utilized parametric measures. Cox Proportional Hazards model was used to examine survival. Of the 92,813 cases of melanoma identified, 351 cases were regressing melanomas. There was no significant difference in age between regressing and non-regressing cases ( $p=0.2170$ ). Regression occurred significantly more frequently in males than did all other malignant melanoma ( $p<0.0001$ ). Regressing melanoma cases were more likely to occur on the trunk than all other melanoma, and less likely to occur on the head and neck ( $p<0.0001$ ). Breslows depth was higher in cas-

es of non-regressing melanoma ( $p<0.0001$ ). Ulceration occurred less frequently in cases of regressing melanoma, though this difference was only marginally significant ( $p=0.0636$ ). Regional LN invasion was more frequent in regressing melanoma cases ( $p=0.0429$ ). Cases of regressing melanomas had 37.2% increased odds of survival than all other malignant melanoma ( $p=0.0007$ ), even when controlling for other prognostic factors. Regressing melanomas are characterized by generally better prognostic factors than other malignant melanomas, and have better survival overall. Regression may represent a strengthened immune response to tumor.

## Poster 69

### **Ulceration in thin melanoma**

Paul Googe, MD

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Ulceration in melanoma is considered to be an important independent prognostic variable and has been used in staging of cutaneous melanoma. Ulceration predicts a worse prognosis and higher risk for metastatic disease. There is very little published information to verify the prognostic value of ulceration in thin melanomas (< 1 mm thickness, Clark level II or radial growth phase tumors). We performed a retrospective review of invasive melanomas reported in our laboratory with ulceration between 1998 and 2007. We used the definition of ulceration as published by Spatz et al. There were 156 of 2752 (5.7 %) melanomas with ulceration, of which 16 were less than 1mm in thickness tumors. In only 2 cases was the ulceration > 3 mm across. Three of 1493 (0.2%) Clark level II melanomas had ulceration. The rest were vertical growth phase lesions. Ulceration was rarely observed in radial growth phase melanomas, and may not be of prognostic significance in this subset of melanomas.

## Poster 70

### **Squamomelanocytic tumor with features of animal-type melanoma**

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Squamous cell carcinoma and malignant melanoma are relatively common cutaneous tumors. The incidence of these two malignancies intermingled in a single cutaneous tumor is rare and has been reported previously in literature under the appellation of squamomelanocytic tumor. We describe a case of a 74-year-old male who presented with a pigmented papule on the lower back. Histopathology showed a dermal neoplasm composed of an intimate admixture of two distinct neoplasms. The squamoid component consisted of cytologically atypical epithelioid cells with squamous differentiation, including keratin pearl formation. The melanocytic component was composed of heavily pigmented, cytologically atypical, medium to large stellate-shaped cells with prominent dendritic processes. Immunohistochemistry showed reactivity of the epithelioid cells for cytokeratins AE1/AE3, MNF116 and p63, and the dendritic cells for S-100 protein, HMB-45 and Melan-A using a red chromogen method. The melanocytic component in this rare squamo-melanocytic tumor had a distinct morphology consistent with animal-type melanoma, which in itself is a rare histopathological variant of melanoma. To our knowledge, this is the first report of a squamo-melanocytic tumor with the melanocytic portion of the lesion dem-

onstrating an animal-type melanoma phenotype. We discuss the possible histogenesis and prognosis of this rare tumor.

## Poster 71

### **PET-positive tumoral and nodal melanosis arising in a patient with metastatic melanoma receiving IL-2**

Christine Nelsen, MD

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We present a case of tumoral and nodal melanosis arising in a 64 year-old man with a history of Stage 3b, upper back, nodular malignant melanoma, with metastatic disease involving the mid and upper back, lungs, liver, paratracheal nodes, left axilla and bone. The patient was started on IL-2 systemic therapy within weeks of discovery of his extensive metastatic disease and to date has received six total courses with good clinical response. Shortly following his sixth course of IL-2, persistent disease was identified within the right upper back and left axilla by PET scan. A wide local excision of the right upper back lesion and a left axillary node dissection was performed. On gross examination of the wide local excision specimen, two dark black colored nodules were identified within the deep dermis extending into the subcutaneous tissue. Histologically, nodular collections of melanin laden macrophages with foal areas of necrosis were identified. Two of the four lymph nodes from the left axillary node dissection showed similar histological findings. The melanophages stained positively with CD68. Mart 1/Melan A and HMB-45 failed to highlight any melanocytes within these nodules. Only a small number of patients with tumoral melanosis have been described in the literature thus far and the majority of patients have had metastatic disease. To our knowledge, this is the first case report of PET-positive tumoral melanosis arising in a patient with metastatic melanoma receiving IL-2 systemic therapy.

## Poster 72

### **A combined and collision baso-squamous-melanocytic malignant tumor of the skin**

Kristine Cornejo, MD

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We report a very unusual combined/collision baso-squamous-melanocytic malignant tumor which presented as an 8.0 mm pearly papule on the chest of an 84 year-old man. The patient had a history of multiple actinic keratoses and basal cell carcinomas with no personal or family history of melanoma. Biopsy of the lesion showed a non-pigmented, well-demarcated, expansile tumor forming distinct lobules, abutting the markedly attenuated epidermis. The main tumor lobules were composed of frankly malignant epithelioid cells with marked nuclear pleomorphism and brisk mitotic activity. The adjacent tumor lobules, however, are typical basal cell carcinomas composed of uniform basoloid cells forming small nests with peripheral palisading. Immunohistochemistry studies revealed that the main tumor lobules were composed of two distinct yet intermingled tumor cell populations, one that is diffusely positive for CKAE1/3 and CK903, the other that is positive for S-100, Mart-1 and HMB-45. The adjacent basoloid tumor cells stained mainly for CKAE1/3 with a few scattered melanocytes. Interestingly, CD10 highlighted only the peripheral tumor cells of the lobules. Thus, this seems to

be a tumor with divergent differentiation and meets the criteria for both combined and collision tumors, which to our knowledge, have not been reported. We attempt to address the diagnostic challenge and importance of early diagnosis of this rare entity with unknown biologic potential.

## Poster 73

### **Differential expression of Glypican-3 in melanocytic lesions**

Jennifer Raible, MD

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Glypican-3 (GPC3), a cell surface heparan sulfate proteoglycan that adheres to the cell membrane via glycosylphosphatidylinositol anchors, has been identified as a novel and useful marker of hepatocellular carcinoma and melanoma. These data have been supported by findings of GPC3 expression in patients with melanoma, both serologically and by tissue immunohistochemistry (IHC). In the current retrospective study, we explored the GPC3 expression profile of several melanocytic lesions; junctional and compound melanocytic nevi, blue nevi (BN), Spitz nevi, melanoma in-situ (MIS), and invasive melanoma (IM) were stained with anti-GPC3 antibodies. Hepatocellular carcinoma and dermatofibroma were used as positive and negative controls, respectively. Spitz nevi, BN, MIS, and IM all demonstrated GPC3 expression. Contrary to previously reported data, benign junctional and compound melanocytic nevi were largely devoid of GPC3 expression. These findings imply that GPC3 possesses discriminating power between conventional junctional and/or compound nevi and other melanocytic lesions but not between malignant and benign melanocytic lesions. Further research is necessary to accurately identify the utility of GPC3 IHC in the routine practice of dermatopathology as we continue to search for a specific and sensitive discriminating tool for melanoma versus benign melanocytic lesions.

## Poster 74

### **A malignant neurocristic tumor with both malignant peripheral nerve sheath tumor and melanoma components**

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Here we present a complicated case of a malignant neurocristic tumor with both melanoma and malignant peripheral nerve sheath tumor components in a 52 year old female. The patient has a remote history of congenital giant nevus and melanoma of the mid-sacral region at birth and a metastatic melanoma to an inguinal lymph node at the age of 6. Now she presents with a 10 cm left buttock lesion. Histologically, it is a malignant neoplasm arising in a background nevocytic lesion with neurofibromatous features and scattered nests of nevoid cells. The tumor is multinodular with several areas showing a sheet-like proliferation of spindle cells with nuclear pleomorphism and high mitosis, which are consistent with a malignant peripheral nerve sheath tumor. The spindle cells are S-100 and Factor 13A positive and negative for Mart-1, HMB45, SMA, CK5/6, CD68 and CD31. A separate nodular area shows

features of melanoma with a trabecular or lace-like proliferation of cells with prominent nucleoli and melanin pigment. These cells are positive for S-100, Mart-1, HMB-45 and Factor 13A, and negative for SMA, CK5/6, CD68 and CD31. The cells surrounding these melanocytic tumor cells show features of neurofibroma or peripheral nerve sheath tumor, with some cells positive for Mart-1. This suggests that these cells may be showing divergent nerve sheath tumor and melanoma differentiation. We think this is a neurocristic tumor with a spectrum of differentiation from benign to malignant and from melanocytic to peripheral nerve sheath tumor. Malignant melanocytic tumor in such cases tends to be more indolent than common malignant melanoma.

## Poster 75

### Malignant melanoma arising in association with a cellular blue nevus

Jennifer Kaplan, MD

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Melanoma arising in association with a cellular blue nevus is unusual and can be diagnostically challenging. We report the case of an older woman with malignant melanoma arising in association with a deep-seated and atypical plexiform melanocytic proliferation with cellular blue nevus-like features. Previously healthy, she presented with a left temporal lump. Incisional biopsy showed melanoma. A radical resection contained an infiltrative plexiform proliferation of variably pigmented spindle cells centered on the temporalis muscle. This in turn contained expansile nodules of pigmented melanoma with typical epithelioid cytomorphology. The plexiform component had low density areas with bland and mitotically inactive cells, as well as higher density areas with atypia and rare mitoses. MART-1, HMB-45 and MiTF immunostains were positive in spindle and epithelioid areas. ~ 10 % of epithelioid nuclei were positive for MiB1. The plexiform component has features suggesting a pre-existing cellular blue nevus, with some areas of atypia. The expansile nodules of epithelioid melanoma within the spindle cell proliferation suggest malignant transformation. Melanoma arising within blue nevi are typically aggressive and metastasize to the lymph nodes and lungs. No nodal metastases were present in the radical resection in this patient, who is recurrence-free at four months.

## Poster 76

### Assessment of histologic quality in melanomas sampled by different techniques

Garth Fraga, MD

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Melanomas are the leading cause of death from cutaneous malignancy. Scalpel excisions are traditionally recommended over other methods for sampling clinically suspected melanoma, but many dermatologists prefer to use either shaves or trephine punches to sample pigmented lesions. We reviewed 103 consecutive, newly-diagnosed melanomas from our laboratory and graded the quality of hematoxylin-eosin slide preparations and MART-1 immunohistochemical slide preparations for shaves, punches and scalpel excisions. The cases were submitted by 22 dermatologists, 6 dermatology physician assistants, 4 plastic surgeons, 1 general surgeon, and 2 family practitioners. Most cases came from dermatology

offices (89%). 73% of the melanomas were sampled by shave technique, 17% by scalpel excision, and 10% by trephine punch. Shaves had higher mean hematoxylin-eosin and MART-1 quality scores than either punches or scalpel excisions, but only the difference in hematoxylin-eosin scores achieved statistical significance. There were fewer mean slides per paraffin block required for pathologic diagnosis in shaves than in punches or scalpel excisions, but the difference was not statistically significant. Dermatologists and their Physician Assistants were more likely to use shaves than surgeons/family practitioners (80% vs. 18%). Our findings suggest marginally better quality histopathologic preparations are obtained from shaves than scalpel excisions or trephine punches. Possible explanations include superior tissue processing and microtomy due to the smaller size and more uniform tissue composition of shaves, lesser procurement artifact, and a smaller field to ground ratio. This study is limited by its subjective nature, small number of punches and scalpel excisions studied, and possible laboratory-unique variables, but challenges conventional wisdom that scalpel excisions are invariably the best way to sample suspected melanomas.

## Poster 77

### Ex vivo dermoscopy: experience with 200 cases

Garth Fraga, MD

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Diagnosis of pigmented skin lesions by routine pathologic methods is fraught. In difficult cases, complete discordance rates between expert dermatopathologists have been reported to be as high as 25%. Dermoscopy is a commonly used diagnostic adjunct in dermatology that involves looking at skin lesions in vivo under magnification and polarized light, primarily to assess anomalous pigment patterns that are associated with melanoma. Scope and co-workers previously validated ex vivo dermoscopy on excised skin samples in a series of six cases. We implemented ex vivo dermoscopy as a routine part of the pathologic evaluation of pigmented lesions received in our laboratory in 2009. We used a Sony Cybershot DSC-W170 10.1MP camera and DermLite II ProHR dermoscope to photograph all pigmented lesion samples in which either dysplasia or melanoma was clinically suspected. We describe our experience with 200 cases. Ex vivo dermoscopy made it easier to determine whether skin samples included pigmented lesions in their entirety, whether histopathologic sampling was adequate, and whether the peripheral margins were involved. It provided useful ancillary information on pigment pattern in difficult "borderline" cases. The images were generally inferior and more difficult to obtain than those obtained via in vivo dermoscopy. Punches and scalpel excisions were more difficult to photograph than shaves. Use of a pre-drilled mold for punches facilitated ex vivo dermoscopy. Ex vivo dermoscopy may be a useful technique to improve diagnostic accuracy and clinical-pathologic correlation in melanocytic neoplasia.

## Poster 78

### Protein expression profile of melanoma and nevus from formalin fixed tissue using mass spectrometry

Wang Cheung MD, PhD

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Profiling protein expression levels in melanoma cells could be helpful in identifying potential new diagnostic and prognostic markers. In addition, it can provide new targets for future therapy. Since RNA expression profile does not always correlate with protein expression, it is prudent to detect protein levels directly. However, frozen tissue can be difficult to obtain and the protein quality is unstable, therefore, formalin fixed paraffin embedded tissues (FFPE) is a better choice. For this purpose, we have improved existing techniques in harvesting cells from FFPE for mass spectrometry studies. Using the Leica laser microdissector, we can dissect out melanocytes from melanoma and nevus. We optimized the process so that 30,000 cells or 15 mm<sup>2</sup> area of cells in a 10 micron thick section can yield 900 unique proteins with 95% confidence using tandem mass spectrometry. We will present some of the mass spec data from a metastatic melanoma, a primary melanoma and a benign nevus. Thus far, we have found some published biomarkers that are highly expressed in melanoma and other novel markers that are being validated with immunohistochemical staining using at least 20 cases of each of the following lesions: metastatic melanoma, primary melanoma, dysplastic nevi, and benign nevi.

## Poster 79

### Homogeneous staining regions (HSRs) - as a novel prognostic FISH marker in malignant melanoma

Liaqat Ali, M.D

Moved to Oral Presentation 1.  
Thursday, October 7  
3:40 p.m.

## Poster 80

### Persistence of melanocytic nevi after seeming complete removal

Yann Charli-Joseph, MD

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Persistent melanocytic nevi (PMN) after partial removal have been thoroughly characterized. We have observed a collection of melanocytic nevi that persisted with seemingly clear biopsy margins. Eight cases were identified by computer search; both the original slides and level sections underwent evaluation. The average age of patients was 37.1 years. Most appeared on the back (7/8). The time between initial biopsy and rebiopsy averaged 7.9 months. The initial specimens consisted of 7 shaves and 1 punch. Most melanocytic nevi were compound (6/8); all but one were of the Clarks/dysplastic type. In the original slides the average breadth of uninvolved margin was 1.41 mm lateral and 1.35 mm deep. Level sections demonstrated focal extension to the biopsy edge in 4/8 cases; in 3 of those with uninvolved margins, prominent follicular extension was evident. Most PMN developed centrally above the scar (6/8). Our results indicate that the appearance of the margin in shave excisions of melanocytic lesions may be misleading if level sections are not scrutinized. This could falsely reassure physicians managing melanocytic proliferations of ambiguous potential. Careful wording of pathology reports is required in this context.

## Poster 81

### Pigmented epithelioid melanocytoma in an African American man

Lisa Pitelka-Zengou, MD

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A 52-year-old African American male presented to his dermatologist with a 0.6 cm black-blue macule on his upper middle back. A punch biopsy was performed and grossly showed a well-circumscribed black nodule within the dermis upon sectioning. Histologic sections showed a nodule of heavily pigmented melanophages, and a smaller component of large cells with prominent nucleoli in the background. These larger cells stained positively for S-100 protein, pan-melanocytic marker and MART-1, confirming the presence of a melanocytic proliferation in combination with melanophages. The histology and immunoprofile lead to a diagnosis of pigmented epithelioid melanocytoma (PEM). PEM is a rare low grade variant of melanoma which encompasses epithelioid blue nevi and pigment synthesizing melanoma (animal-type melanoma). Over 40% of documented cases have associated sentinel lymph node metastases, but death is an uncommon manifestation. This entity was first described under the name of PEM in 2004, and is known to be associated with the Carney complex. Histologically, the lesion is composed of sheets and nodules of heavily pigmented epithelioid or spindled melanocytes within the deep dermis. The differential diagnosis in our patient included nodular melanosis and the possibility of regressed primary or metastatic melanoma. A complete work-up for lymph node metastases or primary melanoma was performed and no additional lesions were found. To the best of our knowledge, this is the first case of pigmented epithelioid melanocytoma reported in an African American individual. The patient is currently doing well.

## Poster 82

### Cutaneous leiomyosarcoma: a case series

Brian Hall, MD

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Primary cutaneous leiomyosarcoma (PCL) is a rare neoplasm that can occur in almost any age group and is most commonly found on the extremities and hair-bearing extensor surfaces. Most cutaneous leiomyosarcomas are separated according to whether they arose within the dermis as they tend to carry a much favorable prognosis. We report a retrospective case series of 20 PCLs and compare the histologic and immunohistochemical features of these exceedingly rare tumors. Twenty patients from three different institutions were included in the study. Ages ranged from 32 to 90 years. Scalp was the most common location (4/20) followed by chest, shoulder, knee, hand and finger. Five cases were of diffuse type and the remaining 15 showed a nodular architecture. Fascicle formation was present in all the cases and nuclear pleomorphism ranged from mild to moderate. Mitotic figures varied from 1 to 28/10 hpf and 11 cases showed atypical mitoses. Perineural invasion was present in 3 cases and tumor necrosis was seen in 4 cases. Immunohistochemically, all cases showed focal or diffuse MSA, SMA and vimentin staining. PTEN was positive in 4 cases, but CK5/6 was negative in all cases. Treatment included either wide local excision or MOHS micrographic surgery. None of our cases showed distal metastases. Because of the rarity of these tumors, clinically and even histologically these tumors can be mistaken for other more commonly occurring entities such as spindle cell carcinoma, atypical fibrous xanthogranuloma or malignant fibrous histiocytoma. Of note one case that was not included was an undifferentiated sarcoma showing a similar staining pattern, highlighting the importance of a broad differential and generous use of immunohistochemical stains in suspected PCL cases.

## Poster 83

### Anal apocrine carcinoma 2nd reported case

Brian Hall, MD

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Apocrine carcinoma (AC) is an exceedingly rare neoplasm that is most often reported in the axilla. We discovered a recent case of apocrine carcinoma of the anus, which to the best of our knowledge is only the second reported case in this region. A 71 year-old man presented to clinic with soreness in the anal region for approximately six weeks. Physical examination revealed a very hard lesion with a fissure present posteriorly. An excisional biopsy was performed and revealed a tan fibrotic lesion with multiple cysts. Histopathologically, the tumor showed an infiltrating, poorly circumscribed neoplasm composed of small to medium sized glands. An apocrine adenoma was centrally located with dilated larger glands and minimal epithelial atypia. In the periphery, there were infiltrating smaller glands, in which the neoplastic epithelium appeared low cuboidal with minimal eosinophilic cytoplasm, numerous mitotic figures, and moderate cytologic atypia. Perineural invasion was identi-

fied. Immunohistochemical stains showed the neoplastic glandular cells to be strongly positive for CK7, CEA and focally positive for CK20. The apocrine adenoma demonstrated the presence of a myoepithelial layer highlighted with an MSA stain. Gross cystic fluid protein-15 (GCSF-15) showed focal positivity. Based on the histopathologic and immunohistochemical findings, a diagnosis of AC arising from an apocrine adenoma in the anal region was made. ACs are very rare neoplasms that show apocrine differentiation demonstrated by the classic apocrine-type decapitation secretion of the glands. The most reliable criteria for diagnosis of AC include: decapitation secretion, PAS-positive diastase resistant material in the cells or lumina and positive staining for GCSF-15. All three were present in this case. Our patient was treated with wide local excision with negative margins, which is the standard of treatment. The major differential diagnosis in this region is colorectal adenocarcinoma.

## Poster 84

### Multicentric basal cell carcinoma arising in an epidermal inclusion cyst

Douglas Lynch, MD

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An epidermal inclusion cyst is a common benign skin lesion; however, malignancy arising in an epidermal inclusion cyst is rare and estimated to occur in 1% of cases. Squamous cell carcinoma is the most common malignancy associated with an epidermal inclusion cyst followed by basal cell carcinoma, melanoma and metastatic adenocarcinoma. We report a case of a 39-year-old male who presented to the Emergency Department with a 2.0 x 2.0 cm erythematous, slightly fluctuant, and painful supraclavicular mass that had been present for approximately one year. The mass had become enlarged and painful four days prior to presentation. After referral to otolaryngology, an incision and drainage was performed with a post-procedure impression of an epidermal inclusion cyst, low-grade abscess. The patient was treated with oral antibiotics and underwent an excision three days later. Histological examination revealed a superficial multicentric basal cell carcinoma arising in an epidermal inclusion cyst with an extensive acute and chronic inflammatory infiltrate with multinucleated giant cells and abscess formation. This case therefore emphasizes the need for histological examination of clinically benign and cystic skin lesions.

## Poster 85

### Clear cell dermatofibroma: A rare variant with an extensive differential

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Dermatofibroma is a commonly diagnosed benign cutaneous fibrohistiocytic lesion. However, the clear cell variant is rare and must be distinguished from entities with more serious sequelae. A 45-year-old female presented with a 5mm firm pigmented nodule on her left upper arm. The patient first noticed the nodule six months prior and observed a change in size and color within the previous week. No history of prior malignancy was reported. A shave biopsy

revealed a superficial dermal nodule with an epithelial collarette. The cells have abundant clear cytoplasm and central nuclei. The lesion is negative for melanocytic markers as well as markers of smooth muscle and epithelial differentiation. Weak CD68 reactivity in combination with the morphologic features support the diagnosis of clear cell dermatofibroma. Clear cell dermatofibroma is a rare variant and poses a wide differential diagnosis that includes primary neoplasms of the skin with clear cell features as well as cutaneous manifestations of metastatic tumors. This benign neoplasm is important to discuss as a diagnostic work-up must exclude both benign and more aggressive diagnoses such as clear cell sarcoma, balloon cell melanoma, clear cell squamous cell carcinoma, and metastases such as clear cell renal cell carcinoma.

## Poster 86

### Verrucous carcinoma in a 17-year-old male

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Cutaneous verrucous carcinoma (CVC) is a tumor with low malignant potential which usually develops in middle-aged patients. The youngest patient previously reported with CVC was 26 years old. We report a case of CVC from a 17-year-old boy who presented with a flesh-colored, well-circumscribed, friable plaque with heaped borders on the elbow. The plaque reportedly grew to 5 cm in approximately one month. A biopsy showed marked epidermal acanthosis and infiltration of the dermis by broad, blunt strands of keratinocytes with only minimal to mild cytologic atypia. The overlying stratum corneum demonstrated parakeratosis with admixed erythrocytes, serum, and inflammatory cells including neutrophils. Scattered occasional lesional keratinocytes with mitotic figures were noted. The associated stroma was fibrotic, edematous, and contained a chronic inflammatory cell infiltrate. In situ hybridization for low-risk and high-risk human papillomavirus strains was negative. A re-excision performed 3-4 months later showed no residual tumor. The case reported herein represents the youngest patient reported with CVC. This diagnosis should be considered in patients younger than previously considered.

## Poster 87

### Large cell acanthoma-like changes (large cell acanthosis) in other lesions

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Large cell acanthoma (LCA) is a clinically distinct entity that presents in adults as a usually solitary, rough surfaced, variably pigmented lesion less than 10 mm in diameter. Histologically, it is characterized by uniformly enlarged keratinocytes without a prominent increase in nuclear/cytoplasmic ratio or dysplasia. Basal hyperpigmentation, acanthosis and orthohyperkeratosis are variably present. The pathogenesis is unclear but clonal proliferation, actinic damage and HHV6 infection have been linked to its development. Although LCA has been described as a variant of solar lentigo and

actinic keratosis in the past, the current trend is to regard it as a distinctive lesion. Focal large cell change in other lesions has not been well defined. In this study, we document LCA type changes in association with 9 seborrheic keratoses, 6 actinic keratoses, 3 solar lentigines and 5 other lesions. In most cases large cell changes (LCC) were interspersed with areas typical of the primary lesions, excluding LCA. The focal change and absence of a clinical correlate suggest that LCC is an incidental finding. We propose that LCC occurs as an incidental change in other lesions and that large cell acanthosis (LCS) may be an appropriate term for this phenomenon.

## Poster 88

### Angiolipoma in a 14-month-old child

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Angiolipomas, benign lipomatous tumors with an associated vascular proliferation, are rarely encountered in young children. Review of the literature reveals that the youngest child previously reported with an angiolipoma was 2 years of age. Herein, we present the earliest known presentation of angiolipoma in a 14-month old female. The patient presented with a 1.5 cm subcutaneous mass in the right chest wall which had progressively enlarged over a period of 3 weeks. There was no history of regional trauma and no overlying skin changes were noted. Ultrasound studies demonstrated a solid versus a semi-solid, cystic mass. Excisional biopsy revealed a well-circumscribed, firm, tan, pink mass. Microscopic sections demonstrated lobules of mature adipocytes surrounded by a thin capsule of bland fibrous tissue. A prominent branching network of small vessels, focally with fibrin thrombi, was admixed within the adipocytic component and comprised greater than 75% of the tumor volume. One-month follow-up demonstrated no evidence of a recurrent lesion. Awareness of the occurrence of angiolipomas in this age group is important in order to exclude more aggressive lesions such as various vascular true malformations and neoplasms, which are more common in this age group and carry a much higher risk of locally destructive recurrences and/or consumptive coagulopathy.

## Poster 89

### Eccrine angiomatous hamartoma: A case report

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A 19 year old young lady developed multiple asymptomatic violaceous nodules on her toes and arch of the right foot for more than ten years. The nodules gradually enlarged. She feels more sweating at the area of lesions. She denied any preceding trauma of the local site. On physical examination, she had clusters of small palpable nodules at the dorsal aspect of the toes and arch of the right foot. The size of the nodules ranged from 0.5-1.0cm in diameters. They were soft but fixed with no tenderness. Local increased temperature and hypertrichosis or hyperhidrosis was not significant. A skin biopsy from one of the nodules at arch of the foot demonstrated proliferation of eccrine glands in association with foci of dilated capillaries at deep dermal level, and presence of



mucinous around eccrine glands. A diagnosis of eccrine angiomatous hamartoma was made. The spectrum of clinical differential diagnoses of this disease is broad, including vascular lesions, eccrine nevus, sudoriparous angioma and smooth muscle hamartoma. The patient is under clinical surveillance with no treatment.

## Poster 90

### A case of primary cutaneous CD30-positive anaplastic large cell lymphoma

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A 25-year-old female patient presented with progressive face swelling and scattered subcutaneous masses of the whole body for 1 month, hyperthermia for 3 days. Physical examination confirmed multiple enlarged cervical, axillary and inguinal lymph nodes. Laboratory examinations revealed hypereosinophilia, anemia and increased hsCRP. Stool concentrations of ova were negative. Bone marrow biopsy indicated bone marrow hyperplasia with mild eosinophils hyperplasia. Histopathologically, the neoplasms were composed of anaplastic pleomorphic cells with abundant cytoplasm, and large nucleus with distinct nucleolus. By immunohistochemical staining, tumor cells were positive for CD30, CD3, CD8 and CD68, and negative for CD20. In view of the histologic and immunohistochemical findings, the diagnosis of primary cutaneous CD30-positive anaplastic large cell lymphoma was given. Chemotherapy of CHOP regimen (cyclophosphamide, hydroxydoxorubicin, oncovin and prednisone) was started with a remarkable response, but the patient was ultimately lost to follow up after two months.

## Poster 91

### Acquired bullous dermatosis associated with iga multiple myeloma

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We describe here the case of a 75-year-old man who presented with pruritic vesiculo-bullous eruption on his back and was subsequently found to have an IgA kappa multiple myeloma. Skin lesion biopsy displayed subepidermal vesicles and bullae with infiltration of numerous monocytes and eosinophils. However, direct immunofluorescence test (DIF) did not show Ig deposition at the dermal-epidermal junction or at the intercellular level in the basal layer of the epidermis. A blood test revealed an IgA kappa paraprotein. Combined with hematological studies including bone marrow biopsy and immunohistochemistry, multiple myeloma was diagnosed. Plasma exchange and chemotherapy were applied, leading to a dramatic resolution of the vesiculo-bullous lesions, which paralleled the fall in serum IgA paraprotein level. Our case might be the second report of acquired bullous dermatosis with IgA kappa paraprotein that appears prior to the diagnosis of an IgA multiple myeloma. We propose that the patient's rash was the preceding manifestation of his multiple myeloma, and could be a possible consequence of transudation of IgA kappa paraprotein into the dermis, though the reason for the negative IgA staining in DIF test in our case remains unclear.

## Poster 92

### Large dendritic cells in pigmented basal cell carcinoma on Reflectance Confocal Microscopy (RCM)

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Reflectance confocal microscopy (RCM) is a new imaging technique for non-invasive diagnosis of skin lesions. Atypical dendritic cells on RCM have been identified in melanoma and pigmented basal cells. Herein, we report a case of exceptionally atypical dendritic cells, in RCM alone was not conclusive in ruling out malignant melanoma. An 86 year old male presents with a 5x6 mm, slightly ulcerated, bluish papule on the left nasal wall. The lesion revealed markedly atypical (plump and pleomorphic) dendritic cells. A biopsy was performed which revealed a pigmented BCC. Basal cell carcinoma on RCM is characterized by dark cleft like spaces palisading, bright nucleated dendritic cells with tumor aggregates, refractile dots and granular structures scattered among tumor cells. Bright, round or dendritic, pagetoid cells in the spinous or granular cell layer, large bright cells with dendritic or roundish morphology, and non-edged papillae characterize melanoma. Large and plump dendritic cells in RCM can be seen in pigmented BCC.

## Poster 93

### A case of leiomyoma of the scrotum

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A 52-year-old male farmer complained of a 10-year history of a painful pink nodule on his scrotum. Twenty years ago the patient's scrotum was pinched with unknown substance. It was hurt and he noticed redness at the local site which disappeared spontaneously about 2 weeks later. After ten years, there appeared a hemisphere tiny nodule with prickling senses, and it enlarged gradually into a soya bean size at the same site of injury. No pain was induced with cold, tactile stimuli or pressure. Physical examination showed a solitary flesh-colored firm nodule of 1.0 cm in diameter with smooth surface and tender to palpation. Skin biopsy of the nodule showed epidermal hyperplasia, perivascular mononuclear cells infiltration in the upper dermis and a tumor in dermis composed of palisading bundles of spindle-shaped cells with abundant cytoplasm, and notable mucinous degeneration. Immunohistochemical staining of SMA was positive. A diagnosis of solitary leiomyoma of the scrotum was given. The nodule was excised half a year ago and has not recurred so far. This disease is rare and should be differentiated with dermatofibroma, neurofibroma and neurilemmoma.

**Poster 94**

**The utility of p75 in small biopsies of cellular spindle cell lesions**

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Dermatofibrosarcoma protuberans (DFSP) are poorly circumscribed, cellular spindle cell lesions with an infiltrative growth pattern. They often present as a dermal nodule and a large incisional biopsy reveals their classic architecture and storiform growth pattern. In limited biopsies of small spindle cell lesions, DFSPs can be difficult to distinguish from benign entities, such as cellular dermatofibromas and other malignant spindle cell neoplasms; immunostains are an important adjunct to the diagnosis in this situation. While not conventionally recognized as a marker for DFSP, our experience is that p75, a low affinity nerve growth factor receptor, is diffusely and strongly positive in DFSPs. Additionally, p75 is negative in dermatofibromas, including cellular variants with areas of focal CD34 positive staining. The utilization of p75 immunostaining in limited biopsies of small, cellular, spindle cell lesions may help confirm the diagnosis of DFSP. A discussion of the complex nature of the p75 protein is also undertaken since p75 positivity is not evidence alone of neural differentiation in spindle cell neoplasms.

**Poster 95**

**Localized epidermolytic hyperkeratosis of the vulva**

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Epidermolytic hyperkeratosis (EHK) results from defects in keratin genes KRT1 and KRT10. EHK localized to the female genitalia is a rare entity, with few cases reported in the literature. These lesions may mimic human papillomavirus (HPV) related lesions both clinically and histologically. Here we report two cases of localized epidermolytic hyperkeratosis of the vulva. Both patients presented with tan-white papillomatous lesions on the vulva. Histologic findings included epidermal intracellular edema with perinuclear clear spaces, cytolysis, reticular degeneration of the granular and spinous layers and irregular keratohyaline granules. In situ hybridization studies for HPV low risk and high risk DNA probes were negative. The clinical presentation of EHK may mimic various HPV-induced lesions such as verruca vulgaris, verruca plana, bowenoid papulosis, condyloma acuminatum and vulvar intraepithelial neoplasia. The distinction is important because the misdiagnosis of EHK as various HPV-induced lesions can cause inappropriate treatment of the patient. EHK of the female genitalia is not a premalignant process and may be treated with keratolytic or mildly destructive modalities but should not be overtreated as an HPV-induced process.

**Poster 96**

**Metastatic histiocytoid carcinoma of the breast masquerading as granular cell tumor**

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Histiocytoid carcinoma of the breast is a rare variant of probable lobular origin comprised of large cells with granular eosinophilic cytoplasm. We present a case of a 54 year-old woman with a history of bilateral primary breast histiocytoid carcinomas who developed a 1 cm axillary dermal nodule adjacent to her mastectomy scar. The initial histologic impression was of a granular cell tumor with progressively worsening cytologic atypia with descent deeper in the dermis. Upon review of the patient's history, suspicion arose for metastatic/recurrent histiocytoid breast carcinoma mimicking granular cell tumor. Immunohistochemical stains were performed. The cytologically atypical granular cells deep in the biopsy expressed cytokeratins and Her 2-neu. The overlying, more banal-appearing granular cells, as well as some co-mingled cells deep expressed S100, neuron specific enolase, inhibin and PAS. We diagnosed metastatic/recurrent histiocytoid carcinoma of the breast due to the morphologic appearance and staining profile of the deep, atypical-appearing granular cells. The overlying, banal-appearing granular cells may represent induction of a more granular cell-like phenotype in the environment of the superficial dermis.

**Poster 97**

**NUT midline carcinoma with cutaneous metastases: A case report and brief review of the literature**

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NUT midline carcinoma is a rare malignancy with a characteristic translocation involving chromosomes 15 and 19. It has an aggressive clinical course and a high mortality rate. Although dissemination to the skin is common, the entity has received little attention in the dermatology and dermatopathology literature. We report an 11 year old girl with a NUT carcinoma arising in the mediastinum who developed cutaneous metastases in the form of papules, plaques, and nodules on her neck, chest, and flank. Knowledge of this entity and appropriate clinicopathologic correlation is important in identifying and reporting cutaneous metastases.

**Poster 98**

**Eruptive infundibulomas: a kind of cutaneous reaction pattern?**

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A 49-year-old Chinese female presenting with multiple itchy lesions in the arms, shoulders, legs, upper back and buttocks for 3 years is reported. Diagnoses as eczema and prurigo had been made, but therapies with oral antihistamines, topical glucocorticoids showed ineffective. Upon physical examination we found hundreds of erythematous maculopapules scattered over the affected areas, the individual lesions were minimally elevated, irregularly shaped, round or rectangular, and slightly scaly, distributed in a relatively symmet-

rical manner, some lesions coalesced into small plaques, measuring about 0.5cm to 3cm in diameter. Interestingly, around Cupping Glass(A kind of therapy in TCM) were the lesions annulated with hypopigmented center and hyperpigmented periphery, reflecting an obvious kbners phenomenon. Histopathological investigation identified a benign plate-like proliferation of pale-staining keratinocytes in continuity with epidermis and follicular structures in the papillary dermis, which is typical of an infundibuloma, accompanying large amounts of lymphatic infiltration. These striking clinical and histological findings were favourable for the diagnosis as eruptive infundibulomas with an cutaneous reaction pattern.

## Poster 99

### Malignancies presenting as chronic wounds

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**Background:** Chronic wounds often present difficult diagnostic and therapeutic challenges. Although the aetiology of some wounds can be diagnosed clinically, other wounds can be associated with several different diagnostic possibilities. The skin biopsy can provide valuable diagnostic histological findings. Unfortunately, a number of misdiagnoses do occur because of atypical presentation of a common disease. When managing chronic wounds, clinicians should review the details of patient history, examine the patient for more clues about the wounds cause. A simple skin biopsy will often uncover an unsuspected skin cancer, infections or systemic disease that, if treated properly can avoid patient suffering and disability and promote healing of a stalled or enlarging wound. **Objectives:** 1. To highlight the role of wound biopsy in a non healing wounds. 2. To review the available techniques for wound biopsy and appropriate location for the biopsy based on the underlying etiologies **Methods:** We reviewed the documents of patients with chronic wounds who attended a Toronto regional wound clinic (Mississauga) during the period of Jan 2008 to May 2009. In this retrospective case series we included 25 cases with leg ulcer and biopsy proven malignancy. The types of malignancies were diverse with the majority represented by basal cell carcinoma (50%), followed by Squamous cell carcinoma (25%), Sarcomas 16% (including Kaposi Sarcoma 8%), Miscellaneous (8%) . **Conclusion:** Wound biopsy is a safe and easy way that facilitates accurate diagnosis and proper management of chronic wounds and associated dermatological disease. Appropriate selection of lesion, biopsy method and timing of the biopsy is an important factor for the accurate diagnosis. Wounds are dynamic and with new signs and symptoms in the wounds, repeat biopsy need to be considered. Early detection of wound etiologies will improve the prognosis and health outcome in patients with chronic wounds.

## Poster 100

### Long lasting discoid lupus erythematosus leading to basal cell carcinoma in a Haitian patient

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Discoid lupus erythematosus (DLE) is the most common form of Cutaneous Lupus Erythematosus. It typically presents with erythema, pigment alteration, telangiectasia and scarring. Lesions in localized DLE are confined to the face and neck, whereas in generalized DLE, lesions can occur anywhere on the body. Basal cell carcinoma (BCC), and squamous cell carcinoma has rarely been associated with DLE lesions. We present a case of BCC arising in association with DLE. A 38-year-old Haitian woman presented with multiple, confluent erythematous and atrophic patches on her face. Skin examination revealed well defined, geographic, atrophic, depigmented plaques with irregular hyperpigmented margins, distributed all over the face, helix and concha of ears. One of the atrophic plaques on root of nose has elevated border, which was suspicious for neoplasm. Histology of the plaque with rolled border revealed a basal cell carcinoma with basaloid cell hyperplasia, cleft formation, focal necrosis of basaloid cells. Adjacent to that, there was vacuolar degeneration, follicular hyperkeratosis, perivascular and peri adenaxal lymphocytic infiltrate. ANA serology was negative. It is important to recognize that patients with chronic DLE can develop BCC at the lesion site.

## Poster 101

### A case of cranial fasciitis occurred in facial area

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Nodular fasciitis is a reactive myofibroblastic proliferation that can be mistaken for sarcoma because of initial rapid clinical growth and presence of many mitotic figures in histologic sections. Although its etiology is unknown, there is often history of preceding trauma. A small number of intradermal cases that are unusual because of the nature of sparing dermal location of nodular fasciitis have been described, most of them occurring in the head and neck lesions . Similar case are cranial fasciitis that is a benign, painless, fibroblastic tumor but rapidly growing lesion of the skull. Despite its rapid growth, it has a benign clinical course and is cured by excision. It is histologically similar to nodular fasciitis, a fibroblastic proliferation of varying size. Clinically, nodular fasciitis arises on the extremities of young adults, whereas cranial fasciitis occurs in the cranial region of young children. So, Lauer and Enzinger first described it as a subgroup of nodular fasciitis. A 11-year-old boy presented with asymptomatic, solitary, skin-colored, movable nodule on the right temple of face. At first we considered the lesion to be an epidermal cyst. An excision biopsy of the lesion was done. Histopathologic study showed a proliferating spindle cell lesion and immunohistochemical stain revealed a positive for CD68 and smooth muscle actin. Therefore, the diagnosis of cranial fasciitis was established. Patient recurred 2 months after excision and transferred to department of plastic surgery for reexcision. Also, the histological examination result confirmed cranial fasciitis. Herein, we report the unusual case of a child with cranial fasciitis of the temple area of face.

## Poster 102

### Accuracy of histologic subtyping of basal cell carcinoma in biopsy

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Basal cell carcinoma (BCC) is a common skin cancer whose treatment and risk of recurrence depend on the histologic subtype. Our aim is to determine the accuracy of biopsy in correctly identifying the true subtype of BCC. We reviewed 237 cases of primary BCC that were biopsied with subsequent total excision. The biopsy accurately identified the BCC subtype in 80% of the cases. A mixed histology (MH) was seen in 56% of the cases, of which 53% contained an aggressive BCC subtype. A MH-BCC was missed in 26% of biopsies, while an aggressive component was missed in 13% of biopsies. Biopsies showing only nodular subtype also showed superficial subtype in 21% of the final excisions, and a more aggressive tumor growth pattern in 15% of cases. Tumor ulceration led to the misidentification of nodular as infiltrative subtype in 21% of the cases that were classified as having an infiltrative component in the biopsy. In conclusion, biopsy has a high diagnostic accuracy rate in the classification of BCC. Tumor ulceration and natural BCC growth pattern can contribute to misidentification of the true BCC subtype in biopsy. Accurate reporting of BCC subtypes is crucial for appropriate patient care.

## Poster 103

### Histological clues in primary cutaneous ganglioneuroma

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Ganglioneuromas are benign mature neoplasms of the sympathetic nervous system, composed of both ganglion cells and schwann cells. They most often arise in the posterior mediastinum, retroperitoneum, and adrenal glands. Cutaneous ganglioneuromas are rare, with only 14 reported cases. We report a case of a primary cutaneous ganglioneuroma arising on the abdomen of an 82 year old female, and review the histopathological findings of these tumors. Our experience suggests that the S100 immunohistochemical stain is particularly helpful in making the diagnosis, as it identifies ganglion cells. Clinically, primary cutaneous ganglioneuromas are indistinct, often presenting as flesh-colored or pink asymptomatic papules or nodules that may exhibit hyperplastic epidermal change or seborrheic keratosis-like features. Histologically, they are distinct, highlighting the importance of the dermatopathologist in securing the diagnosis. A combination of immunohistochemical markers, including S100, correlated with hematoxylin and eosin findings, is necessary to properly identify these lesions.

## Poster 104

### Using D2-40 to further classify cutaneous angiosarcomas

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Cutaneous angiosarcoma is an uncommon malignant neoplasm that commonly occurs on the face and scalp of elderly men. Similar neoplasms occurring secondarily to chronic lymphedema and post radiation therapy for breast cancer have been interpreted as lymphangiosarcoma. Cutaneous angiosarcomas are multifocal and present clinically as bruise-like, large, or violaceous patches, with or without nodules. Histologically, there is a proliferation of vessel-forming endothelial cells. CD31 is a routinely used, reliable marker for vascular endothelial cells; however, it cannot distinguish blood vessel endothelial cells from lymphatic endothelial cells. D2-40, a recently applied antibody is both sensitive and specific for lymphatic endothelial cells. Using D2-40, we stained 13 cases diagnosed histologically as angiosarcoma from the Pathology Department and the Dermatology Department of Saint Louis University in order to assess if these lesions are from lymphatic endothelium origin. Our results showed that D2-40 stained 11 of 13 cases of angiosarcomas, indicating that a subset of these tumors can undergo at least partial differentiation along the lymphatic endothelial lineage and could be classified as lymphangiosarcomas.

## Poster 105

### Atypical fibroxanthoma with lymphomatoid reaction

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Background: Atypical fibroxanthoma (AFX) is an uncommon skin tumor typically occurring on sun-damaged skin of the elderly. Histologic variants include spindle cell, clear cell, osteoid, osteoclastic, chondroid, pigmented, granular cell and myxoid AFX. To date, an atypical lymphoid infiltrate, including CD30-positive large cells mimicking lymphomatoid papulosis (LyP), has not been described in AFX. Methods: The clinical and histopathologic characteristics of two AFX cases inciting an atypical lymphoid infiltrate, along with immunohistochemical profiles and T-cell receptor gamma (TCR) gene rearrangement (GR) results, were reviewed. Results: Both lesions occurred as solitary nodules in elderly patients. Histopathologically, both lesions demonstrated a cellular proliferation composed of pleomorphic spindle cells, associated with a prominent intralesional atypical lymphoid infiltrate. The spindle cells were positive for CD10, but were negative for S100, cytokeratins and muscle markers, confirming the diagnosis of AFX. CD30 highlighted a significant subset of large mononuclear cells in the lymphoid infiltrate of one case. TCR GR analyses were negative for both cases. Conclusion: An atypical lymphoid infiltrate, including one resembling lymphomatoid papulosis, associated with AFX has not been previously described. It is important to recognize the reactive nature of the infiltrate to avoid a misdiagnosis of lymphoma.

## Poster 106

### **Squamous cell carcinoma arising in syringocystadenoma papilliferum?**

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Syringocystadenoma papilliferum is a benign hamartomatous tumor of the skin with a controversial histopathogenesis. We describe a case of syringocystadenoma papilliferum with an underlying squamous cell proliferation, which we believe to be a squamous cell carcinoma. To our knowledge, the occurrence of keratinizing squamous epithelium in syringocystadenoma papilliferum has only been reported in one previous case. We describe in further detail the immunohistochemical patterns of several cytokeratins in typical syringocystadenoma papilliferum and compare those to our case as further support of our diagnosis. Pluripotent precursor epithelial germ cells as the cells of origin in syringocystadenoma papilliferum reinforces the possibility of a squamous cell carcinoma arising in such a lesion.

## Poster 107

### **Cytokeratin 20-negative merkel cell carcinoma with squamous differentiation.**

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Merkel cell carcinoma (MCC) is a rare primary cutaneous neuroendocrine malignancy that occurs predominantly on sun-exposed skin of the elderly. It is almost universally positive for cytokeratin 20, typically in a perinuclear dot-like fashion, though rare exceptions exist. MCC occasionally coexists with other neoplasms of the skin, usually squamous cell carcinoma. We report a case of MCC with squamous differentiation that arose on the neck of an 89-year-old man. The tumor consisted of an admixture of squamous cell carcinoma and tumor cells with neuroendocrine features. Specifically, the neuroendocrine component had round nuclei with a stippled chromatin pattern and scant cytoplasm. Initial immunohistochemical stains demonstrated that the MCC was positive for synaptophysin and exhibited a dot-like staining pattern with cytokeratin AE1/3. It was negative for cytokeratin 20, chromogranin and TTF-1. A subsequent immunostain for neurofilament protein demonstrated dot-like staining in the MCC component. This report highlights the fact that MCC may have a mixed histologic phenotype and that MCC occasionally lacks cytokeratin 20 expression. In such cases neurofilament protein is an effective secondary marker that supports the diagnosis of MCC.

## Poster 108

### **BerEp4 staining of dermatofibromas with epidermal induction and basaloid proliferation**

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Dermatofibromas are common benign fibrous skin lesions of unknown etiology that most commonly involve the lower extremities. Histologically, dermatofibromas are dermal based, poorly

circumscribed proliferations composed of spindled fibroblastic cells displaying collagen trapping. Epidermal hyperplasia is commonly seen with associated induction of adnexal structures, hyperpigmentation and proliferation of the basal cell layer. These epidermal changes may simulate a superficial multifocal basal cell carcinoma, making interpretation of a superficial shave biopsy challenging. BerEp4 is an antibody to two cell membrane glycoproteins and is a sensitive marker of basal cell carcinoma. We collected 20 shave biopsies of superficial multifocal basal cell carcinoma and 20 shave biopsies of dermatofibromas with epidermal induction and basaloid proliferation from the Department of Dermatology at Saint Louis University. We stained all 40 cases with Ber-Ep4 and our results showed positive staining within the basaloid proliferations of all 40 cases. These results indicate that BerEp4 may not be used as a diagnostic tool to help differentiate superficial multifocal basal cell carcinoma from dermatofibromas with epidermal induction and basaloid proliferation in superficial shave biopsies.

## Poster 109

### **Giant pigmented clear cell acanthoma**

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Clear cell acanthomas are typically small (5-10 mm in diameter), solitary, broad based papules that often arise on the legs of middle-aged or older individuals. Histologically, this slowly growing tumor appears as a sharply demarcated acanthotic lesion composed of pale glycogenated cells that spare the adnexa. Neutrophils often percolate upward through the lesion. We present an unusual and clinically alarming clear cell acanthoma arising in a 26 year old patient. The lesion was unusual because of: 1) its large size (2.4 cm in diameter), 2) its polypoid growth pattern, and 3) its colonization by dendritic melanocytes with numerous melanophages in the adjacent dermis. While both giant variants of clear cell acanthoma and pigmented variants of clear cell acanthoma have been previously reported; this case presents a unique combination of these two unusual variants.

## Poster 110

### **Merkel cell polyomavirus: Frequency of expression by immunohistochemistry in pure versus combined merkel cell carcinomas**

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Most Merkel cell carcinomas (MCC) display pure neuroendocrine differentiation (PMCC) while a minority show combined neuroendocrine and non-neuroendocrine elements (CMCC). The identification of Merkel cell polyomavirus (MCV) in a majority of MCCs has suggested a viral-induced oncogenesis. A recent study showed lack of expression of MCV in CMCCs contrasted with findings in PMCCs. We studied 28 MCCs (14 PMCCs and 14 CMCCs) diagnosed at our institution between 1989 and 2009. Our goal was to examine the frequency and pattern of MCV expression, by immunohistochemistry (CM2B4), in both groups. The CMCCs exhibited neuroendocrine areas associated with in situ or invasive squamous cell carcinoma, an overlying actinic keratosis or intratumoral squamous differentiation. MCV was detected in 0/14 (0%) CMCCs and in

7/14 (50%) PMCCs. Among the positively stained PMCCs, 4/7 showed > 50% and 3/7 showed < 50% positivity in the tumor cell populations respectively. The frequency of MCV expression in our group of PMCCs is less than that previously reported in the literature and invokes a role for additional etiologic factors in the pathogenesis of these tumors. The absence of MCV expression in the CMCCs concurs with earlier findings and suggests that the oncogenesis of these lesions is MCV-independent.

## Poster 111

### Primary adenocarcinoma arising in anogenital mammary-like glands

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A 60-year-old woman with an unremarkable prior medical history presented clinically with urinary stress incontinence and a periclitoral mass. The mass was biopsied, and microscopic sections demonstrated adenocarcinoma with histomorphologic features resembling primary breast carcinoma. Immunohistochemically, the tumor cells were positive for pancytokeratin, CK7, estrogen receptor, and progesterone receptor. They failed to stain with CK5/6, p63, and CEA. Additionally, the malignant cells exhibited a high Ki-67 proliferation index. The tumor was infiltrative and exhibited significant perineural invasion, but no evidence of lymphovascular invasion. Adjacent to the adenocarcinoma were well-formed benign, anogenital mammary-like glands. The histologic differential diagnosis included metastatic breast carcinoma and a primary adnexal carcinoma. Additional questioning revealed a recent negative breast exam and screening mammogram. We speculate our case represents an adenocarcinoma of anogenital mammary-like gland origin based upon the location of the tumor, the breast-like histomorphologic features, immunohistochemical staining pattern, the presence of normal mammary-like glands associated with the tumor, and the absence of a primary breast lesion. A review of the recent literature indicates these tumors are locally aggressive with low metastatic potential. Recognition of primary adenocarcinoma arising in anogenital mammary-like glands is of obvious importance as distinction of this lesion from metastatic breast carcinoma has significant prognostic implications for the patient.

## Poster 112

### Syringocystadenoma papilliferum with tubular adenoma of the vulva: A case series

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Syringocystadenoma papilliferum (SCP) and tubular adenomas (TA) are benign adnexal neoplasms typically seen in the head and neck region. These lesions may demonstrate overlapping features or exist as a combined form. These lesions have similarity to hidradenoma papilliferum and mammary gland adenoma, but have more similarity to their non-genital counterparts, and are considered by some to represent distinct entities. Only rarely has this combination been reported to arise on the genitalia. We report a series of five cases of combined SCP/TA arising on the vulva, seen in our pathology consultation service. The patient population ranged in age from 29 to 77 years of age (mean 52.4 years). Histologically, they demonstrated combined features of both syringocystadenoma

and tubular adenoma. Specifically, they were glandular neoplasms with epidermal connections and dermal islands, apocrine differentiation, variable papillary projections, and plasma cell infiltration. We describe the histologic appearance of these lesions to highlight the relationship between the two entities and their occurrence in this unusual location.

## Poster 113

### Mast cells in non-mast cell dyscrasia: Innocent bystander or maestro conductor?

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Background: Evidence favouring a critical role for mast cells (MC) in select cutaneous malignancies is conflicting. Methods: Using the immunohistochemical stain tryptase, MC counts were performed in the following categories epithelial [basal cell carcinoma (BCC): nodular (N), n= 10, infiltrative (I), n= 10; squamous cell carcinoma (SCC): well differentiated (W), n= 9, moderate/poorly differentiated (MP), n= 15], melanocytic [intradermal nevus, n= 10, malignant melanoma in situ (MMIS), n= 8, invasive melanoma, n= 15], vascular [hemangioma (HEM), n= 11, Kaposi sarcoma (KS), n= 14, angiosarcoma (AS) n= 8], fibrohistiocytic [dermatofibroma (DF), n= 7, atypical fibroxanthoma (AFX), n= 5, dermatofibrosarcoma protuberans (DFSP), n= 5]. MC (intra and peri-tumoral) were expressed as cells per 10 high power fields. Results: Mean MC counts were the following: BCCN-166.30, BCCI-130; SCCW-167.22, SCCMP-133.80; nevus-156.40, MMIS-93, MM radial growth phase-73.86, MM vertical growth phase-82.13; HEM-165.18, KS-120.57, AS-168.13; DF-247.86, AFX-280.20, DFSP-83.60. Using a one-way ANOVA, statistically significant differences were observed in the following pairs: AFX and DF vs DFSP, nevus vs invasive melanoma, AS and HEM vs KS. Conclusions: Our findings favour a dichotomous role for mast cells in fibrohistiocytic and vascular neoplasms and argue against the preferential recruitment of mast cells in epithelial malignancies and malignant melanoma.

## Poster 114

### Epstein barr virus-associated leiomyosarcoma arising as a cutaneous abdominal mass in an HIV-positive african child with human immunodeficiency virus (HIV)

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Although Epstein-Barr virus associated smooth muscle tumors (EBV-SMT) are infrequently encountered lesions and are restricted to immunocompromised patients, they represent the second most common tumor in children with Human Immunodeficiency Virus (HIV) infection. We report a case of a progressively enlarging cutaneous mass arising on the abdomen of an HIV infected, 4 year-old Malawian girl with clinical Acquired Immunodeficiency Syndrome (AIDS) on highly active antiretroviral therapy (HAART). Analysis of the excisional specimen revealed a spindle cell neoplasm with histologic and immunohistochemical features of a well differentiated leiomyosarcoma, and subsequent studies revealed diffuse nuclear

positivity for EBV-early RNAs (EBER) in lesional cells. We present a report of this case, provide a summary of the literature regarding EBV-SMTs in pediatric AIDS patients and draw attention to this entity as a potential cutaneous complication of Human Immunodeficiency Virus (HIV) infection in children.

## Poster 115

### Primary cutaneous carcinosarcoma in the setting of xeroderma pigmentosum

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A 17 year-old female with a history of xeroderma pigmentosum presented with a rapidly growing friable mass on the lip. She had a history of multiple non-melanoma skin cancers. Clinically, a 0.7cm erythematous, crusted nodule on the right lower lateral oral commissure was present. Microscopically, there was a mixed basal cell carcinoma, squamous cell carcinoma, and an adenocarcinoma component, in the mid-dermis. Within the stroma there was an atypical fibroxanthoma-like component. The epithelial components were positive for cytokeratin (AE1/AE3) and negative for vimentin, whereas the mesenchymal component was positive for vimentin and negative for cytokeratin (AE1/AE3). Carcinosarcoma is a biphasic malignant neoplasm composed of a dual population of malignant epithelial and mesenchymal components. Approximately 65 reports of primary cutaneous carcinosarcoma exist to date. Herein we report a unique case of primary cutaneous carcinosarcoma in the setting of xeroderma pigmentosum, with a complex carcinoma pattern of basal cell carcinoma, squamous cell carcinoma, and adenocarcinoma.

## Poster 116

### Vulvar syringoma: Case report

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Syringomas are benign tumors of the eccrine sweat glands which usually present as multiple, small, firm, skin-colored papules in the eyelids and periorbital area of women. Rarely, syringomas may occur in atypical locations in which case they may cause diagnostic problems. We present a case of a 51 year-old African American woman with history of breast cancer who presented with dyspareunia, vulvar discomfort, and vulvar nodularities of one month evolution. A biopsy performed at an outside institution was diagnosed as vulvar syringoma versus microcystic adnexal carcinoma. After discussing treatment options with the patient, a bilateral partial radical vulvectomy with reconstruction was performed. Following gross and histological examination of the specimen, the diagnosis of vulvar syringoma was favored. Although most vulvar syringomas are asymptomatic and require no treatment, some cases with persistent symptoms or indefinite histology might benefit from surgical resection. Awareness of this entity avoids the potential pitfall of misdiagnosis.

## Poster 117

### Widespread cutaneous metastases from rectal adenocarcinoma

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A 49 year old male presented with a 4 month history of a painful non-healing ulcer on his left inguinal crease. Three years prior, he had been diagnosed with rectal adenocarcinoma and continued to suffer from progressive disease despite primary resection and multiple courses chemoradiation. Six months before presentation, a follow-up CT scan found no evidence of visceral disease, although a collection of necrotic left inguinal lymph nodes were noted. Surgical resection of these nodes with follow-up radiation to the area was performed. Frozen-section examination of these lymph nodes revealed metastatic rectal adenocarcinoma. Despite proper wound care he developed a non-healing wound at the surgical site. Clinical examination revealed a large ulcer extending to muscular fascia with a wood-like induration of the surrounding skin. Biopsies of the tissues and the wound edge revealed collections of atypical rectal epithelium within the dermis consistent with metastatic rectal carcinoma. This session will review the features and management of cutaneous metastases from gastrointestinal adenocarcinoma.

## Poster 118

### Squamous cell carcinoma with rhabdoid features

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Cutaneous squamous cell carcinoma (SCC) can exhibit a wide variety of unique morphological patterns, some of which are associated with more aggressive behavior characterized by local recurrences and increased incidence of metastases. One of the least commonly encountered histologic subtypes is SCC exhibiting rhabdoid features with only five cases reported to date. We report two additional cases of SCC exhibiting rhabdoid features in a 60 year old female on the nasal bridge and 73 year old male on the right medial calf. Both biopsies were characterized by invasive lobules, nests, and sheets of rhabdoid tumor cells characterized by eccentrically located nuclei containing vesicular chromatin with prominent nucleoli and abundant eosinophilic cytoplasm. Both cases revealed immunohistochemical positivity for pankeratin, keratin 5/6, P63, and vimentin and negativity for S100, CEA, SMA, desmin, myogenin, and myoD1. Both patients underwent Mohs micrographic surgery and are free of disease after 3 months. These two cases expand the morphologic spectrum of SCC; however, more experience is necessary with this histologic subtype to determine its behavior.

## Poster 119

### Collapsing angiokeloidal dermatofibroma

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A heterogeneous group of benign fibrohistiocytic lesions have been grouped under the umbrella-term, dermatofibroma. Although the true etiologic nature of dermatofibromas remains elusive, a progenitor cell possessing both myofibroblastic and fibrohistiocytic differentiation is broadly accepted. A myriad of morphologic variants have been described: atrophic, aneurismal/hemosiderotic, myxoid, lipidized (ankle-type) and more recently, signet-ring, to name a few. Here, we present a distinct and previously unreported dermatofibroma variant henceforth known as collapsing angiokeloidal dermatofibroma (CAD). A 34 year-old man presents with a slowly growing 8mm nodule of the left buttock. Histologic examination reveals a hyperorthokeratotic surface with an atrophic epidermis. The superficial dermis is involved by poorly cohesive sheets and islands of monotonous cells whose nuclei are oval-to-spindled. Their cytoplasm is copious and amphophilic and cell borders are indistinct. The deeper portion of the lesion assumes a more classic dermatofibroma appearance and contains spindled-cells intercalating between collagen bundles. A striking small-caliber vascular component is present throughout and thick eosinophilic keloid-like material collapses concentrically around their walls. Erythrocytes are noted within the lumina and perivascular focal hemorrhage is observed. Immunohistochemistry confirms the dermatofibroma designation. CAD is a novel variant of dermatofibroma and serves to expand the morphologic spectrum of benign fibrous histiocytomas while highlighting the difficulty in distinguishing between it and similar lesions.

## Poster 120

### A case of pleomorphic sclerotic fibroma

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Pleomorphic sclerotic fibroma, also called giant cell collagenoma by some authors, is a recently described benign neoplasm. These are well demarcated nodular lesions composed of coarse hyalinized collagen cords with scattered multinucleated giant cells. So far, less than 20 cases have been reported in the indexed literature. The patient is a 59 year old male who presented with a 1 cm nodular lesion on the skin of the left postauricular area. Histologically, there was a marked thinning of the overlying epidermis with an epidermal collarette. The tumor was not encapsulated but well demarcated and composed of a paucicellular hyalinized collagenous stroma with prominent clefting. Both mononucleated and multinucleated giant cells were observed in the lesion. The giant cells displayed multiple large bizarre nuclei without predominant nucleoli. These cells were negative for CD34, SMA, S-100, Factor 13A and Ki-67. Due to rarity of this entity, the etiology is not yet clear. The prognosis of such lesions appears to be good, and so far no recurrences have been reported.

## Poster 121

### Epidermolytic acanthoma presenting on the nasal bridge

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Epidermolytic acanthoma (EA) usually presents as a verrucous papule in patients of all ages. The lesions are usually solitary and occur in various sites such as the eyelid, leg, anus, back, forearm, scrotum and vulva, although multiple lesions have also been described. We present an 82-year-old female with a 6 month history of an asymptomatic, solitary, 3mm, skin-colored, firm, verruciform papule on her nasal bridge. A punch biopsy revealed an invaginated, acanthotic epidermis with features of epidermolytic hyperkeratosis (i.e. marked cytoplasmic vacuolation accompanied by eosinophilic keratin inclusions) involving the upper levels of the epidermis. Based on the clinical findings and histopathological features, a diagnosis of EA was rendered. The histological changes of epidermolytic hyperkeratosis can be seen in congenital bullous ichthyosisform erythroderma, epidermolytic palmoplantar keratoderma, linear epidermolytic epidermal nevus or can be non-specific as commonly seen in normal skin, nevi, seborrheic keratoses, and squamous cell carcinoma. EA was initially described in 1970 by Shapira and Baraf and since then, there have been very limited recent publications and to our knowledge, this is the first report of EA occurring on the nose. In this case, the clinical differential diagnosis included a verruca, nevus or seborrheic keratosis.

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## Poster 122

### Cutaneous carcinosarcoma of the scapha of the ear

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Carcinosarcoma of the skin is a relatively rare neoplasm composed of co-existing malignant mesenchymal and epithelial elements. The head and neck are the most common sites of involvement. Several cases have been reported on the ear, with the helix being the most frequent site. We report a case of cutaneous carcinosarcoma arising on the scapha of the ear in an 86-year-old man. Clinically, the lesion was an umbilicated papule with pink borders. Microscopically, the tumor showed a biphasic morphology with a predominant mesenchymal component, represented by an undifferentiated pleomorphic sarcoma, and a minor epithelial component, represented by basal cell carcinoma. The epithelial component was positive with p63 and cytokeratins (CK903 and AE1/AE3), whereas staining with CD10 and CD68 was negative. The mesenchymal component showed a reversed pattern of staining. Given the site, size and the origin of the epithelial component, the prognosis in this case is most likely favorable. To the best of our knowledge, this is the first report in the English literature of cutaneous carcinosarcoma arising on the scapha of the ear.



**Poster 123**

**Mapping toll-like receptor activity in different stages of cutaneous T-cell lymphoma**

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Toll like receptors (TLRs) are a type of pattern recognition receptor involved in the innate immune response in the skin. Activation of Toll-like receptors induces cytokine production and elicits a cytotoxic Th1 antitumor environment. It is known that human keratinocytes express TLRs; however, information regarding the expression profile of TLR in skin of CTCL patients is sparse. In this study we attempt to more clearly define the pattern of expression and detect any differences of TLR 1-9 expression in keratinocytes, dendritic cells, tumor infiltrate and endothelial cell types through various stages of MF by immunohistochemical staining. Patients with multiple biopsies of mycosis fungoides over a 1-10 year time span and average of 4 years follow up, showing evidence of disease progression were stained by immunohistochemical technique for TLR 1-9. We also stained for p65 to verify NF- $\kappa$ B activation, a known end product of TLR activation. Keratinocyte staining was strongest for TLRs 2,4,5,6 and 7. Endothelial cell staining was strongest with TLRs 4 and 6. Tumor infiltrate staining was strongest with TLRs 5 and 7. P65 staining was noted in the tumor infiltrates, with increased staining correlating to advanced stages of MF. Overall, no loss or gain of TLRs 1-9 expression was identified throughout the stages of MF. However, independent patient cases with disease progression demonstrated an increased intensity of TLRs 4-7 staining in the epidermis, tumor infiltrate and endothelial cells. In conclusion, the significance of TLRs 4,5,6 and 7 expression may be involved in disease progression. Our relationship of p65 staining with disease stage validates previous studies that demonstrated increased staining of p65 within MF tumors but also suggests possible NF- $\kappa$ B activation by TLR pathways. We plan to validate our immunohistochemistry results by measuring midstream signaling/adaptor proteins and end products of the TLR activation cascade with real time PCR.

**Poster 124**

**Trichilemmal cyst nevus**

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Trichilemmal cyst nevus, or nevus trichilemmocysticus, is a recently described variant of organoid epidermal nevus characterized by multiple trichilemmal cysts arranged in a linear pattern. We report a 24 year old male who presented with an asymptomatic, slowly growing plaque on his scalp since 5 years of age. The lesion began as a nodule on his frontal scalp which spread to involve the left upper forehead. Clinical examination revealed a linear, flesh-colored multinodular plaque measuring 10 by 5 by 1.5 centimeters without any overlying hair. The plaque was excised and histologic examination showed numerous trichilemmal cysts of varying sizes in the dermis with foci of chronic inflammation and keratin granulomas. The clinical and histopathologic features of this case are consistent with the recently termed trichilemmal cyst nevus, of which only one case has been reported in the literature.

**Poster 125**

**Papillary sebaceous adenoma**

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We report an interesting case of papillary sebaceous adenoma in a patient with chronic actinic damaged skin and multiple skin cancers, who presented with a slow growing lesion on his left forehead of four months duration. An initial biopsy and completely re-excised specimen showed a well circumscribed sebaceous neoplasm in the dermis. The neoplasm was composed of varying sized sebaceous lobules that exhibited cystic and solid features. The smaller solid sebaceous units showed an equal mixture of mature and immature sebocytes. However, the majority of the tumor showed cystic sebaceous structures. These units were lined by an outer layer of immature sebocytes and multiple intraluminal papillary projections lined by one to several layers of maturing sebocytes. Occasional lobules showed solid papillary proliferations. Based on these histopathological features the diagnosis of papillary sebaceous adenoma was rendered. Patient did not had other stigmata of Muir Torre syndrome. Follow up in six months revealed a well healed surgical scar and no new similar lesions.

**Poster 126**

**Heterotopic ossification associated with the integra dermal regeneration template mimicking recurrent melanoma: A potential diagnostic pitfall**

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The INTEGRA dermal regeneration template is widely used in reconstruction of full-thickness skin defects following resection of malignant cutaneous neoplasms. Aside from mild foreign body reaction, there are minimal reports of associated dystrophic changes. We report the case of a 62 year-old man with treated stage I melanoma of the right pretibial skin, presenting with local recurrence. This was excised, followed by INTEGRA graft placement, but found to have a positive deep margin, necessitating removal of the graft for margin control. Histologic examination revealed granulation tissue, inflammation, and foreign body giant cell reaction, but also a suspicious population of large epithelioid cells in its deep aspects, containing eccentric nuclei with vesicular chromatin and prominent nucleoli, basophilic cytoplasm, and conspicuous mitotic activity. These cells were S100 and Mart-1 negative, and on extensive sectioning, found floridly rimming spicules of osteoid. No residual melanoma was identified, and this process was classified as heterotopic ossification with reactive osteoblasts. This phenomenon is well described following multiple types of musculoskeletal trauma, including around joint prosthesis, however, to our knowledge, has not been reported in association with INTEGRA graft material. In this context, it could represent an important potential pitfall in the evaluation of tumor recurrence.

**Poster 127**

**Intravascular schwannoma**

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Schwannomas are defined as benign nerve sheath neoplasms of Schwann cell origin. Cutaneous schwannomas typically manifest along the course of peripheral nerves as solitary, well-defined, skin-colored nodules within the deep dermis or subcutis of the flexor aspects of the extremities. Schwannomas enlarge slowly and typically follows a benign course, with local recurrence and malignant transformation being exceedingly rare. While on rare occasions, involvement of the vasculature by neurofibromas has been reported, an intravascular schwannoma has not been documented to date. We present a unique case of cutaneous schwannoma within the dermal venous system. Presentation of this case is followed by a discussion of the differential diagnoses of schwannoma, the possible etiologies of the extension of this lesion into the vasculature, and the significance of such a phenomenon.

**Poster 128**

**Atypical vascular lesions of the breast following radiotherapy**

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A 56 year-old woman with a history of infiltrating ductal carcinoma of the right breast presented with a two year history of minimally tender red lesions on the same breast. Her cancer had been treated seven years previous with lumpectomy, adjuvant chemotherapy, and radiation followed by tamoxifen for five years. Physical examination revealed fourteen 3-6mm well-circumscribed, ruby red, angiomatous papules without erythema, crust or ulceration scattered on all quadrants of the right breast. In addition, there were four poorly-circumscribed deeper blue nodules, all less than 1 cm in size, that were admixed with the angiomatous papules. Biopsy of four lesions revealed a proliferation of poorly-circumscribed, small vascular channels in the superficial and mid reticular dermis that dissected through collagen and were lined by a single layer of hobnailed endothelial cells without atypia. One specimen revealed nodular aggregates of lymphocytes admixed with the vascular proliferation. Atypical vascular lesions following radiotherapy may become more common as breast-conserving therapy has become the standard of care in early breast cancer. Atypical vascular lesions are thought to have benign biologic behavior, despite resembling well-differentiated angiosarcoma histologically. The multifocality of our patient's lesions is unique and presented a treatment challenge.

**Poster 129**

**Sebaceous carcinoma occurring in an anophthalmic eye socket**

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Biopsies of periocular, eyelid and conjunctival lesions are frequently reviewed by dermatopathologists. Sebaceous carcinoma usually arises from ocular adnexa (Meibomian and Zeis glands, caruncle, or eyebrow), and only rarely from other ocular structures. Carcinoma can arise in anophthalmic eye sockets. These are usually squamous carcinomas, likely secondary to chronic irritation from ocular prostheses. We report a very unusual case of a 68 year old man developing sebaceous carcinoma in his anophthalmic socket. There is only one other reported case to our knowledge. The patient experienced traumatic enucleation as a child and wore an ocular prosthesis for many years. He presented for assessment of a mal-fitting prosthesis and was found to have a mass within the inferior conjunctival cul-de-sac. Biopsy showed lobules of mitotically-active and malignant epithelial cells with vacuolated cytoplasm, peripheral basaloid cells and areas of necrosis. Pagetoid spread and stromal invasion were seen. The morphology is typical of sebaceous carcinoma, and immunohistochemical stains supported this diagnosis. No deep orbital involvement was found on imaging but biopsy margins were positive. All of the conjunctival tissue was removed via a lid-sparing orbital exenteration. Although very unusual, sebaceous carcinoma should be considered in such patients to ensure prompt and effective treatment.

**Poster 130**

**Autosomal dominant familial angiolipomatosis: a case report**

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Angiolipomas are benign tumors which usually present as multiple subcutaneous nodules. These tumors are most often found on the arms and trunk of young adults and have a predilection for males. As their name suggests, they are thought to be of mesenchymal origin and contain mature adipose tissue in a background of bland, benign blood vessels. Some of these vessels contain scattered fibrin thrombi which cause pain upon palpation, particularly during the initial growth period. Angiolipomas most often occur sporadically but in about 5% to 10% of the cases a family history can be elicited. Familial angiolipomatosis is a rare syndrome with an autosomal recessive transmission pattern most commonly identified. The multiple subcutaneous tumors are not associated with malignant transformation. In this presentation, we report a case of a 31-year-old man with multiple angiolipomas who has several family members with a similar history highly suggestive of familial angiolipomatosis but transmitted in an autosomal dominant fashion. Only a few cases of autosomal dominant familial angiolipomatosis have been reported in the English language peer-reviewed literature. Some of these cases were initially misdiagnosed as neurofibromatosis type 1. Here we describe the genetic pedigree, distribution of lesions, histopathologic changes and clinical outcome. From analysis of this case we conclude that in individuals with multiple subcutaneous tumors and a family history of similar lesions, histological examination of these tumors is appropriate.

## Poster 131

### **Trichilemmal carcinoma: Perineural invasion corroborated and vascular invasion identified**

Sudeep Gaudi, MD

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*University of South Florida, Tampa, FL, USA*

Trichilemmal carcinoma (TLC) was first described by Headington in 1976 as an invasive, cytologically atypical clear cell neoplasm of adnexal keratinocytes, which is in continuity with the epidermis and/or follicular epithelium. TLC remains a relatively uncommon cutaneous adnexal malignancy and rarely exhibits deep invasion, or local recurrence, following excision. To date, vascular invasion remains undocumented, while a single case report associates this malignancy with perineural invasion. We present an additional instance of TLC invading into perineural tissue as well as a case of TLC exhibiting vascular invasion. Additionally, we review the pertinent microscopic differential diagnoses. Clinicians should be aware of the potentially aggressive nature of this tumor and may need to reconsider current recommendations regarding follow-up.

## Poster 132

### **Sebaceous hyperplasia following cyclosporine treatment**

Neil Shah, MD

N. Shah

*UT-Southwestern Dallas TX USA*

Sebaceous hyperplasia following cyclosporine treatment Shah N, Hick R, Patel MJ, Hosler GA. Sebaceous hyperplasia has been reported as an uncommon occurrence in transplant patients receiving cyclosporine. The pathogenesis is unclear as this condition is seen exclusively in male patients, and its incidence does not appear dependent on dosage/duration of cyclosporine, longevity of the transplant, or other readily identifiable factors in the medical history. Additionally, there are no clear histologic distinctions between idiopathic/sporadic sebaceous hyperplasia and lesions in the setting of transplantation and cyclosporine treatment. We present an unusual case of a 57 year old man with numerous flesh-to-yellow-colored papules, virtually covering his face and neck, histologically confirmed as sebaceous hyperplasia. The patient is on cyclosporine following a solid organ transplant. We present this unusual case and review the literature to explore potential pathogenesis, clinical and histologic features of cyclosporine-induced sebaceous hyperplasia compared with other forms, and potential therapies.

## Poster 133

### **A papular puzzle: A case of generalized eruptive syringomas**

Michelle Tarbox, MD

M. Tarbox; W. F. Bergfeld

*Cleveland Clinic, Cleveland, OH, USA*

A 35 year-old woman presented with a 10-year history of a puzzling papular rash which initially began on her upper extremities, and then spread to involve the neck, abdomen, and lower extremities. Upon physical exam, hundreds of firm tan papules were appreciated on the patients upper extremities, neck, abdomen, and lower extremities. Similar appearing papules were also appreciated under the patients eyes. Upon further questioning the patient related that her father had similar lesions under his eyes, but nowhere else on

his body. A biopsy was preformed which revealed a proliferation of strands of basaloid cells within the dermis some of which were encasing ductal lumina, embedded within a fibrous stroma. The patient was diagnosed with generalized eruptive syringomas. This case serves the highlight the characteristic clinical presentation of this rare and often puzzling condition.

## Poster 134

### **Adult polycystic kidney disease and multiple eccrine spiradenomas, a novel association with a possible genetic link**

Michelle Tarbox, MD

M. Tarbox; P. Adenunga; W. F. Bergfeld

*Cleveland Clinic, Cleveland, OH, USA*

A 46 year old woman with adult polycystic kidney disease presented with a history of multiple small painful papules on her left inner arm and forearm. She underwent biopsy of three of the papules with a pre-biopsy clinical diagnosis of glomangioma due to the slight bluish tinge to the papules and their painful nature. Histology revealed that all three papules were eccrine spiradenomas. Since that time the patient underwent over 20 subsequent excisions of similar papules for symptom relief, all of which were discovered to be eccrine spiradenomas. The coupling of adult polycystic kidney disease and multiple eccrine spiradenomas is intriguing because one genetic allele for adult polycystic kidney disease (ADPKD1) resides on chromosome 16 as does the CYLD gene locus which has been implicated in the development of eccrine spiradenomas. To our knowledge this patient is the first patient reported with this association. Further study will be required to determine whether this represents a co-segregation of the ADPKD1 gene and the CYLD gene.

## Poster 135

### **Atypical vascular lesions of the right chest wall**

Rahul Chavan, MD, PhD

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Atypical vascular lesions (AVLs) comprise cases that were included in the past as acquired progressive lymphangioma and benign lymphangiomatous papules of the skin. They occur in the postirradiation setting and rarely progress to angiosarcoma. Currently, there are no guidelines for clinical management, treatment or AVL-specific immunohistochemical markers of these lesions. AVLs can be divided into the more common lymphatic AVLs and vascular AVLs. Vascular AVLs have a higher risk of transformation to angiosarcoma. This patient developed skin-colored and hemorrhagic papules four years after lumpectomy and irradiation for breast carcinoma. Histological examination demonstrated superficial thin walled dilated vascular channels lined by normotypic endothelial cells without atypia more superficially as well as dilated vascular spaces lined by atypical endothelial cells with atypia dissecting through the deep collagen fibers. The Endothelial cells were D2-40, CD31 and Fli-1 positive. The patient underwent wide local excision of the lesions and pathological examination demonstrated residual AVLs. The lesions were re-excised with 5 mm margins and histological examination again demonstrated residual AVL proliferation. In summary, this case is notable for the multifocal nature of AVLs and the importance of close surveillance, periodic biopsies and the need to better define the risk of transformation to angiosarcoma in these patients.

**Poster 136**

**A case of cutaneous gamma/delta T-cell lymphoma simulating mycosis fungoides**

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Cutaneous gamma delta T cell lymphoma (CGD-TCL) is one of the provisional subtypes of T-cell lymphoma recognized as a distinct disease by the European Organization for Research and Treatment of Cancer (EORTC) and the WHO Classification. This subtype of cytotoxic lymphoma expresses the gamma/delta TCR, and carries a poor prognosis. Clinically, the lesions frequently present as ulcerated or necrotic plaques and tumors, arising de novo, without the associated patches and plaques typical of mycosis fungoides (MF). We report a case of a 60 year old man initially diagnosed with MF who later presented with rapidly enlarging ulcerated tumors in a background of scaly patches and plaques. Biopsy of the tumor showed an ulcerated dermal infiltrate of atypical lymphocytes with focal epidermotropism. The cells were positive for CD3 and TIA1, with minimal CD4, and negative for CD5, CD7, CD8, CD30, CD56, EBER, and Beta F1. TCR gamma was positive, confirming a diagnosis of CGD-TCL. Review of his prior MF biopsies showed a similar immunophenotype of a patch/thin plaque lesion. The patient died shortly after the diagnosis was made. We discuss CGD-TCL, and the differential diagnosis.

**Poster 137**

**Matrical differentiation in basal cell carcinomas: a clinicopathological study of 15 cases**

Roy King, MD

R. King; N. Coleman; P. Googe; R. Page  
*Knoxville Dermatopathology Laboratory, Knoxville, TN, USA*

The presence of shadow cells is indicative of matrical differentiation. Basal cell carcinomas (BCC) with matrical differentiation have been rarely reported in the literature, and usually as case reports. We present a series of 15 patients with matrical differentiation in BCC. There were twelve male and three females and with the exception of one case, all patients were 64 years or older (mean=74 yr). The tumors were located on the head and neck (n=10), upper extremity (n=3), chest (n=1) and shoulder (n=1). Histologically, the tumors were characterized by the following growth patterns: solid (n=10), solid-infiltrating (n=3), and solid pigmented (n=2). All tumors had matrical differentiation characterized by the presence of shadow (mummified) cells in varying amounts. In addition, follicular differentiation, characterized by isthmic and infundibular cornified epithelium was note in several cases. All cases demonstrated nodular growth with peripheral palisading of basaloid cells with retraction artifact, changes typical for BCC. In the 2 cases with pigmented cells, there was superficial resemblance to melanocytic matricoma and pilomatrical tumors. BCC with matrical differentiation is rare and may indicate association or origin with the follicular apparatus. Awareness of this line of differentiation in BCC will aid in distinguishing this from other tumors with matrical differentiation.

**Poster 138**

**Epithelioid hemangioendothelioma of the skin mimicking granuloma annulare**

Neil Coleman, MD

N. Coleman; P. Googe; R. King; R. Page  
*Knoxville Dermatopathology Laboratory, Knoxville, TN, USA*

Epithelioid hemangioendothelioma is a rare malignant angiocentric vascular tumor that typically originates from a vessel in the soft tissue of the extremities. We present a case of epithelioid hemangioendothelioma from the left thigh of a 79 year old woman that showed histologic features similar to what may be seen in a palisaded granulomatous dermatitis such as granuloma annulare. A punch biopsy of skin demonstrated a proliferation of epithelioid and histiocytoid cells palisading around hypocellular areas with a myxoid appearance within the superficial and mid dermis. Further review of the clinical history revealed the lesion to be a local superficial recurrence of epithelioid hemangioendothelioma which arose in association with a thrombosed vein in the soft tissue of the patient's left thigh, diagnosed three years previously. The tumor cells stained with CD31 and CD34 with focal reactivity for smooth muscle actin, consistent with the diagnosis and the pattern seen in the initial tumor. In the absence of clinical history and immunohistochemistry studies, this diagnosis could be overlooked.

**Poster 139**

**Epithelioid hemangioendothelioma of the skin mimicking granuloma annulare**

Neil Coleman MD

N. Coleman MD  
*Knoxville Dermatopathology Laboratory, Knoxville, TN, USA*

Epithelioid hemangioendothelioma is a rare malignant angiocentric vascular tumor that typically originates from a vessel in the soft tissue of the extremities. We present a case of epithelioid hemangioendothelioma from the left thigh of a 79 year old woman that showed histologic features similar to what may be seen in a palisaded granulomatous dermatitis such as granuloma annulare. A punch biopsy of skin demonstrated a proliferation of epithelioid and histiocytoid cells palisading around hypocellular areas with a myxoid appearance within the superficial and mid dermis. Further review of the clinical history revealed the lesion to be a local superficial recurrence of epithelioid hemangioendothelioma which arose in association with a thrombosed vein in the soft tissue of the patient's left thigh, diagnosed three years previously. The tumor cells stained with CD31 and CD34 with focal reactivity for smooth muscle actin, consistent with the diagnosis and the pattern seen in the initial tumor. In the absence of clinical history and immunohistochemistry studies, this diagnosis could be overlooked.

**Poster 140**

**CD99 expression in Merkel cell carcinoma: a novel pattern of expression for differentiation from other cutaneous malignancies**

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Merkel cell carcinoma (MCC) is a rare form of neuroendocrine cancer of the skin, with potentially aggressive behaviour. The histological differential diagnosis includes metastatic small cell carcinoma of

the lung, among other small round cell tumors. The utility of CD99 (MIC-2) in the diagnosis of MCC has been previously reported, with rates of expression ranging from 13-55%. CD99 expression in virtually all malignant tumors has been reported as membranous. We report an unusual and novel pattern of paranuclear and membranous dot-like staining identified in ten cases of MCC using CD99 (clone 1E27) using a polymer detection system following heat induced antigen retrieval. These cases also expressed cyto-keratin markers (including CK20) in the usual dot-like paranuclear staining pattern. To our knowledge, paranuclear dot-like staining has only been reported once with the use of CD99, not in the setting of MCC. This novel expression pattern appears of use to differentiate MCC from other cutaneous malignancies.

## Poster 141

### DEK expression in merkel cell carcinoma

Linglei Ma, MD, PhD

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The chromatin remodeling factor DEK maps to chromosome 6p and is frequently overexpressed in several neoplasms, including invasive and metastatic melanomas where it can have a dual effect on melanoma cell proliferation and chemoresistance. DEK may represent a target for therapeutic intervention in melanoma. DEK expression has not been studied in Merkel cell carcinoma (MCC). To this end we applied a DEK monoclonal antibody (BD Pharmingen, 1:400) to a tissue microarray of 17 MCC and 1 Basal cell carcinoma (BCC). Clinically, the ages of MCC patients ranged from 51 to 86 with an average of 74. The male to female ratio was 8:9. DEK nuclear immunoreactivity was scored based on percentage (0=negative; 1=50%) and intensity (weak, moderate or strong). All 17 cases (100%) of MCC demonstrated diffuse (3+) positivity (14 strong, 3 moderate). The single basal cell carcinoma showed diffuse (3+) and weak positivity. Our results suggest that DEK overexpression may serve as a diagnostic or therapeutic marker in MCC. DEK could also represent a relevant target for therapeutic intervention in MCC. Additional study of a larger number of MCC and tumors in its differential is needed to determine the ultimate diagnostic, prognostic and therapeutic utility of DEK expression in MCC.

## Poster 142

### Both Fli-1 and D2-40 help distinguish atypical fibroxanthoma from angiosarcoma

Uma Sundram, MD, PhD

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Both Fli-1 and D2-40 Help Distinguish Atypical Fibroxanthoma from Angiosarcoma Neda Mizramani MD, Ramya Kantipudi, and Uma Sundram, MD, PhD While in most cases, one can easily distinguish between atypical fibroxanthomas and angiosarcomas, hemorrhagic atypical fibroxanthomas can pose a problem. Recently, we established that the vascular marker CD31 can highlight histiocyte-rich lesions as well, including atypical fibroxanthomas. In rare cases, the large atypical cells of atypical fibroxanthoma can stain with this marker, leading to the erroneous diagnosis of angiosarcoma. We elected to further study this conundrum with two additional markers of lymphatic and vascular elements, namely, D2-40 (podoplanin) and Fli-1, respectively. We studied 17 cases of atypical fibroxantho-

ma and 16 cases of angiosarcoma with Fli-1 and D2-40. We found that both Fli-1 and D2-40 stained a majority of cases of angiosarcoma (12/16 and 10/16, respectively) while only staining a minority of cases of atypical fibroxanthoma (5/17 and 4/17, respectively). In addition, D2-40 staining of atypical fibroxanthoma was uniformly weak, and Fli-1 staining of angiosarcomas was mostly strong and nuclear. Both D2-40 and Fli-1 appear to be effective markers in distinguishing between atypical fibroxanthomas and angiosarcomas.

## Poster 143

### Atypical cutaneous leiomyoma vs. leiomyosarcoma

Justin Hardin MD

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Smooth muscle tumors of the skin may arise from arrector pili muscles, blood vessel walls, or specialized muscle found in the genitals and nipples. Typical cutaneous leiomyomas are well circumscribed lesions with bland cytologic features and minimal to no mitotic activity. Histologic features favoring malignancy include increased cellularity and mitotic activity, nuclear pleomorphism, infiltrative growth pattern, lymphocytic infiltrate, and tumor giant cells. Despite these features, lesions with overlapping features can cause diagnostic dilemmas; complete excision is often recommended in these ambiguous cases. We present two cases of cutaneous smooth muscle tumors with large atypical cells and an infiltrative growth pattern, but minimal mitotic activity and no additional features favoring malignancy. Both of these lesions were diagnosed as leiomyomas with atypical cells. Both lesions involved the surgical margins, and complete resection was recommended. The first patient was a 50 year old male with a 1cm left buttock lesion. The second patient was a 19 year old female with a long history of a slowly growing right hip mass that required a 9cm excision to completely remove the 4.5cm tumor. We present the differential diagnosis for these lesions and a review of the pertinent literature.

## Poster 144

### The prevalence of merkel cell carcinoma polyomavirus in squamous cell carcinoma and sun damaged skin: An immunohistochemical study

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Introduction: Merkel cell carcinoma (MCC) is an uncommon and aggressive skin cancer. Approximately 80% of primary MCCs occur on sun exposed skin. Recently it has been described that 80% of MCCs are caused by a polyomavirus known as Merkel Cell polyomavirus (MCPyV) that expresses a large T cell antigen in tumor cells. Interestingly, recent studies have shown that a percentage of basal cell carcinomas (BCC) and squamous cell carcinomas (SCC) are MCPyV positive using polymerase chain reaction. It has also been shown that low copy numbers of MCPyV are present in a small number of Kaposi sarcomas. Materials and Methods: We retrieved a set of 25 cases including 6 previously established MCCs, 11 actinic keratoses (AK) and 8 squamous cell carcinomas (SCC) from our departmental files and examined the presence of Merkel cell polyomavirus large T cell antigen in corresponding sections prepared from paraffin blocks by immunohistochemistry (IHC) with the novel monoclonal antibody against MCPyV large

T-antigen, CM2B4. Results: Of the MCCs, 5 (50%) showed strong positivity with CM2B4, 2 (33%) showed weak positivity and were interpreted as equivocal, and 1(17%) was negative. All (100%) of the SCCs and AKs failed to react with CM2B4. Conclusions: Our study shows that MCPyV large T-antigen is strongly detected in at least 50% of MCC by immunohistochemical methods. In contrast all SCCs and actinic keratoses are negative for the expression of this protein which might be due to low number of viral copies within these conditions that would fall below the threshold of immunohistochemical detection. The role of this virus in the pathogenesis of these latter conditions remains unclear, future molecular studies would be beneficial in the clarification of this issue.

## Poster 145

### Extramammary Pagets Disease coexistent with syringoma

Jyoti Kapil, MD

J. Kapil<sup>1</sup>; M. Royer<sup>2</sup>; W. Rush<sup>3</sup>; G. Lupton<sup>3</sup>

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Extramammary Pagets Disease (EMPD) and syringoma each can present in the vulva as pruritic lesions. Syringomas are common in the vulvar region. Patients with vulvar EMPD may have underlying adenocarcinoma. Vulvar EMPD has been described in coexistence with hidradenoma papilliferum and basal cell carcinoma. We present the first described case of a 73 year-old, G0P0 female with EMPD and syringoma of the vulva. She presented with a reddish, indurated papule between the left labium majora and minora. Biopsy (0.3 X 0.3 X 0.3cm) showed an intraepidermal proliferation of cells with abundant, pale cytoplasm, atypical nuclei and mitotic figures. These cells were positive for CEA, CK7, kermix (cytokeratin cocktail) and negative for S100 and Melan A. In addition, the dermis contained small ductal structures surrounded by a fibrotic stroma. The ducts were lined by two layers of bland flat cells with amorphous luminal contents. A diagnosis of EMPD and Syringoma was rendered with recommendation for evaluation of underlying adenocarcinoma. EMPD can go misdiagnosed, mistaken for fungal infections, Bowens disease, psoriasis and eczema. EMPD is rarely seen coexisting with other lesions. This case illustrates a potential diagnostic pitfall in over-calling an incidental syringoma as adenocarcinoma associated with EMPD.

## Poster 146

### Spiradenocarcinoma: Series of cases and review of literature

Jyoti Kapil, MD

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Introduction: Spiradenocarcinomas(malignant spiradenomas) are aggressive neoplasms of eccrine derivation which may be misdiagnosed due to their rare occurrence. Methods: We review and describe the pathology and follow-up of four recent malignant spiradenomas received at the AFIP. Results: All patients were male, aged 64, 65, 70 and 77 y/o, presenting with lesions on the right hand, upper back, scalp and right shoulder, respectfully. Two of the patients had history of progressively enlarging lesions with

one being associated with rapid growth after trauma. Histologically, a proliferation of basaloid cells with nuclear atypia, pleomorphism and necrosis was seen in all four cases; all four malignant lesions showed an associated spiradenoma or spiradenocylindroma. In addition to surgery, two patients received chemotherapy and/or radiation therapy. Follow-up revealed recurrence and/or metastatic disease in three of the patients, all less than 1 year from initial presentation. Three of the patients had other tumors (SCC, BCC, cloacogenic carcinoma, glioblastoma multiforme). Spiradenocarcinomas deserve notice for their rare occurrence and often aggressive behavior.

## Poster 147

### Epithelioid cell histiocytoma composed of granular cells — A second case

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Epithelioid Cell Histiocytoma (ECH), often considered to be a variant of benign fibrous histiocytoma, most commonly presents as a well-circumscribed, polypoid lesion composed of a uniform population of epithelioid cells having large, vesicular nuclei, small nucleoli, and abundant eosinophilic cytoplasm centered in the papillary dermis, accompanied by a rich vascular network that may be staghorn-like (hemangiopericytoma-like), and bordered by an epidermal collarette. We report a case of histologically and immunohistochemically classic ECH in which the cytoplasm of virtually the entire epithelioid cell population are filled with eosinophilic granules, raising differential possibilities of conventional granular cell tumor and (primitive polypoid) nonneural granular cell tumor. The primary cell population of this lesion stains with antibodies to factor XIIIa, but not with HMB 45 or with antibodies to S-100 protein, MART-1, tyrosinase, broad-spectrum cytokeratins MNF116, CD68, or h-caldesmon. Antibodies to CD31, CD34, and smooth muscle actin stain the lesion's rich vascular network, but not the primary cell population. To our knowledge, this is the second reported case of granular-cell ECH.

## Poster 148

### Solid variant of angiomatoid fibrous histiocytoma: A case report

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Angiomatoid Fibrous Histiocytoma is an uncommon soft tissue tumor of intermediate malignant potential and uncertain histogenesis. These tumors are more commonly seen in the deep dermis and subcutaneous tissue of the extremities of children and young adults. Even though prominent pseudovascular spaces and hemosiderin-laden macrophages are a characteristic feature, their absence does not rule out the diagnosis. We present a unique case of the solid variant of Angiomatoid fibrous histiocytoma. A 6-year-old male presented with a soft, painless right shoulder nodule measuring 1 cm in diameter of uncertain duration. Gross examination revealed a white-pink, rubbery nodule measuring 1.1 x 1.0 x 0.6 cm. Microscopically, the lesion was composed of pleomorphic spindle cells surrounded by a pseudocapsule and exhibited a prominent lymphoplasmacytic infiltrate. However, hemorrhagic spaces were not present. Positive immunohistochemical stains for EMA,

desmin and CD99, and morphological features helped establish a diagnosis of solid variant of Angiomatoid Fibrous Histiocytoma. Additional genetic testing is pending. This case highlights the morphological variations of this rare entity with discussion of the differential diagnosis of its solid variant.

## Poster 149

### Ripple-pattern spiradenoma

Jiong Zhang, MD

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A 61 year old male had multiple indolent nodular lesions on the posterior neck for years. The growth of these lesions then increased and biopsies were performed. Histopathological examination demonstrate areas of conventional spiradenoma as well as foci demonstrating double layers or single cells filing in a arciform pattern resembling water ripple lines. It is well established that a ripple pattern can be seen in association with trichoblastomas and sebaceomas. However, a ripple pattern has not been previously reported in association with spiradenoma. Interestingly, our rippled spiradenoma also showed focal sebaceous differentiation. Based upon our observations, we hypothesize that a ripple pattern can be seen in a broad spectrum of adnexal neoplasms. The presence of a ripple pattern may be linked to follicular or sebaceous differentiation.

## Poster 150

### Pitfalls in the diagnosis of cutaneous Rosai-Dorfman disease: Report on 2 cases

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Rosai-Dorfman disease (RD) is a rare entity; therefore, atypical histological presentations may pose diagnostic problems. We present two cases with a unique diagnostic challenge due to the lack of characteristic histologic features in the initial punch biopsies. In both cases, the patients presented with a hyperpigmented, indurated plaque on the extremity. Punch biopsies were performed showing a mixed dermal infiltrate with abundant histiocytes that was negative for S100 as well as microorganisms both on special stains (GMS and AFB) and tissue cultures. Given these findings, a diagnosis of an atypical xanthogranuloma was given. Several months later, excisional biopsies were performed showing the classic histology of RD with a dense dermal infiltrate composed of large foamy cells exhibiting emperipolesis in a background of mixed acute and chronic inflammation. The foamy cells decorated with CD68 and S100 but were negative for CD1a. The diagnosis of cutaneous RD was subsequently sealed. In conclusion, our study documents a pitfall in the diagnosis of RD in small biopsies in which due to sampling errors a non-specific histology and immunophenotype may be encountered. Awareness of this diagnostic challenge is essential in establishing the correct diagnosis.

## Poster 151

### Atypical angiolymphoid hyperplasia with eosinophilia mimicking cutaneous lymphoma

Kevin Boyd, MD

K. Boyd; M. Woods; V. Groysman; A. Andea

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We present a 65-year old male with a 6-month history of a multifocal rash that erupted three weeks after an accidental electrocution. Physical examination revealed erythematous scaly papules and subcutaneous nodules scattered over his forehead, back, and legs and a large plaque within a background of edema on the right lower leg. There was no lymphadenopathy; absolute blood eosinophilia was 998. Clinical diagnosis included a cutaneous lymphoma. A biopsy from the left calf showed a subcutaneous, nodular infiltrate of lymphocytes admixed with numerous eosinophils in association with increased numbers of arborizing vessels focally with plump endothelial cells suggesting angiolymphoid hyperplasia with eosinophilia (ALHE). However, some of the lymphocytic nodules were composed of small to intermediate, monomorphic lymphocytes with pale cytoplasm and distinct cell membranes. Scattered large atypical Hodgkin-like cells were seen, the overall pattern resembling angioimmunoblastic T-cell lymphoma. Immunohistochemical stains revealed a population of both T- and B-cell lymphocytes as well as plasma cells and rare small follicles. In situ hybridization for EBV-encoded RNA was also negative. The clinical and histopathologic characteristics were most consistent with angiolymphoid hyperplasia with eosinophilia (ALHE). The patient had complete resolution of his lesions with both oral and intralesional corticosteroids. This case illustrates an unusual presentation of ALHE showing clinical and histological features mimicking a lymphoma. Awareness of this phenomenon is important for a correct diagnosis.

## Poster 152

### The utility of clinical photographs in dermatopathology diagnosis: A survey study

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Prior reports have emphasized the importance of clinicopathologic correlation and the usefulness of clinical photography as an aid in dermatopathology diagnosis. An anonymous, voluntary, web-based survey was e-mailed to all board-certified dermatopathologist members of the American Society of Dermatopathology. There were 135 complete responses and 13 partial responses from all regions of the United States and from both dermatology and pathology trained individuals. More respondents stated that clinical photography is beneficial in the evaluation of inflammatory skin diseases (92%) than in pigmented lesions (73%) or non-melanocytic tumors and growths (56%). 91% of respondents stated that they are able to provide a more specific diagnosis with the aid of clinical photographs. 94% of dermatopathologists stated that they would like to receive photographs more frequently. The most preferred methods of photograph delivery included printed out photos (54%) and encrypted e-mail (50%) followed by a secure website (21%) and compact disc with images (10%). Additionally, several respondents suggested integration into electronic medical records when available. Drawbacks to using photography identified included time and cost, both for the clinician and the dermatopathologist. Though clinical photographs may be of benefit, especially in inflammatory dermatoses, they should not replace a good clinical history and differential diagnosis.

**Poster 153**

**Keratoacanthoma is the major cutaneous side effect of a new braf inhibitor treatment of metastatic melanoma**

James Troy, MD

WITHDRAWN

**Poster 154**

**Psoriasiform pemphigus foliaceus presenting as an exfoliative erythroderma**

Sarah Grekin, MD

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A 71-year-old African-American man presented with erythroderma and pruritus with scaling and malodor. He had a previous diagnosis of psoriasis confirmed by biopsy in 1996. Physical exam revealed diffuse erythroderma with significant scale and desquamation. A biopsy revealed psoriasiform epidermal hyperplasia, mild spongiosis, papillomatosis, hypergranulosis, confluent parakeratosis, and subtle acantholysis focally within the superficial epidermis. A superficial perivascular infiltrate of lymphocytes with many plasma cells, a few eosinophils, and scattered melanophages was present. The histologic differential diagnosis included a chronic lesion of pemphigus foliaceus or pityriasis rubra pilaris. Direct immunofluorescence demonstrated intercellular binding of granular IgG in the epidermis and focal granular C3, consistent with the pemphigus group. Serologic testing revealed an elevated anti-desmoglein 1 and normal anti-desmoglein 3. Overall, the diagnosis was most consistent with pemphigus foliaceus (PF). The patient was started on prednisone at 1 mg/kg daily and received two infusions of Rituximab two weeks apart, resulting in near complete clearing of his erythroderma. A subsequent review of this patient's biopsy from 1996 showed psoriasiform epidermal hyperplasia resembling psoriasis with a small focus of superficial acantholysis. Thus, it seems more likely that our patient did not have psoriasis but rather an unusual chronic psoriasiform variant of PF.

**Poster 155**

**A case of acquired blaschko dermatitis**

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Acquired Blaschko dermatitis is a rare disease with acquired unilateral relapsing inflammatory linear lesions along Blaschko's lines. A 43 years old Chinese female presented with repeated unilateral erythematous, itchy grouped papules and papulovesicles on her left chest with 10 years duration. The lesions were arranged in a reticulate pattern, following the lines of Blaschko. Topical glucocorticoids were not effective. The lesions regressed spontaneously in 1-2 months. A potassium hydroxide preparation was negative for hyphae. Histologic examination showed hyperkeratosis and features suggestive of sub-acute spongiotic dermatitis with lymphocytic infiltrate around the blood vessels in the dermis. The patient was responsive to narrow-band UVB therapy.

**Poster 156**

**Complex endophytic/cystic squamous proliferation arising during treatment with sorafenib**

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Sorafenib therapy has been associated with multiple adverse cutaneous side effects including a maculopapular rash, hand and foot skin reactions, alopecia, and stomatitis. There are an increasing number of reports of keratoacanthoma (KA) and squamous cell carcinoma (SCC) associated with sorafenib therapy. A recent case report described a patient with multiple endophytic epithelial-lined invaginations with variable keratinocytic atypia and a separate invasive SCC with features of a KA. We report two additional patients who presented with similar complex endophytic and cystic squamous lesions during treatment with sorafenib. A 53-year-old male with a two year history of metastatic renal cell carcinoma presented with multiple, 8-15 mm hyperkeratotic, violaceous plaques on bilateral elbows and forearms, left lower buttock, left calf, and right thigh one month after initiating therapy with sorafenib. A 44-year-old female with metastatic lung adenocarcinoma presented with a 3 cm pink plaque on the left lateral arm and multiple 3-4 mm papules with hyperkeratotic centers on her thigh a month after initiating therapy with sorafenib. The larger left arm lesion was a KA. Biopsy specimens from the smaller lesions of both patients showed endophytic/cystic proliferations lined by squamous epithelium without significant atypia. The differential diagnosis of these cystic squamous lesions included a resolving KA, a perforating disorder, and follicular cyst. The complex architecture of these lesions showing merging cystic structures is not readily classifiable and suggests an unusual cystic squamous proliferation as a result of sorafenib therapy. These cases and those recently reported support that there is a range of squamous proliferative lesions that may be observed in association with sorafenib treatment. These lesions vary from non-atypical follicular cysts and complex cystic proliferations to atypical lesions such as KA and frankly malignant SCC.



## Poster 157

### Comparative diagnostic accuracy in virtual dermatopathology

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Background: Virtual microscopy is used for teaching in US medical schools and for in-training and certification examinations. However, no studies exist comparing diagnostic accuracy (DA) using virtual slides versus photomicrographs. Objectives: To compare dermatopathologists' and pathologists' DA using photomicrographs versus digitized images, through a self-assessment examination and to elucidate participants' assessment of virtual dermatopathology (VDP) Methods: 45 dermatopathologists and pathologists received a randomized combination of 15 virtual slides and photomicrographs with corresponding clinical photographs and information in a self-assessment examination format. Descriptive data analysis and comparison of groups were performed using a chi-square test. Results: DA in dermatopathological disorders using VDP or photomicrographs was similar: 0.70 versus 0.73 respectively,  $p=0.465$ . Order of administration of VDP and photomicrographs did not affect DA. 93% of the participants felt the virtual slides were adequate for diagnosis and that VDP is useful tool for learning. 90% felt and that VDP is useful tool for teaching dermatopathology. Conclusion: No significant difference was observed in participants' DA using VDP versus photomicrographs. Most participants felt VDP was adequate for diagnostic purposes and a useful tool for learning and teaching dermatopathology.

## Poster 158

### Ischemic Fasciitis (Atypical Decubital Fibroplasia) : A case report

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Objective: The purpose of this presentation is to describe ischemic fasciitis clinically presented as a hip mass. Clinical History: The patient is a 65 years old obese man with painless hip mass for 6 months. CT scan showed a subcutaneous nodule along the left greater trochanter. Pathologic Findings: CT-guided needle biopsy reveals reactive spindle cells with possibility of low-grade spindle cell neoplasm. Resected specimen consists of two irregular soft tissue fragments (6.0 x 4.5 x 3.4 cm and 4.0 x 2.0 x 0.5 cm) with an ill-defined tan soft nodule (3.5 cm) in larger fragment. Microscopic examination of both parts show fibrinoid material with coagulative necrosis, myxoid changes, granulation tissue, reactive fibroblasts and atypical ganglion-like cells, and inflammation. Special stains (AFB, GMS, Gram) are negative for microorganisms. Discussion: Ischemic fasciitis or atypical decubital fibroplasia is rare, occurring predominantly in elderly bedridden individuals as an ill-defined mass overlying a bony prominence. The main differential diagnosis is sarcoma such as myxoid liposarcoma, myxoid chondrosarcoma and myxoid MFH. The most likely benign lesion to be

mistaken for ischemic fasciitis is proliferative fasciitis. Conclusion: Ischemic fasciitis simulates soft tissue sarcoma clinically, radiologically and histologically. Accurate diagnosis is essential to prevent unnecessary interventions or overtreatment.

## Poster 159

### Hematoidin: The forgotten pigment we have all seen

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Hematoidin is a bilirubin-like pigment derived during the breakdown of hemoglobin. It was first identified by Virchow in 1847, when its exact etiology was unknown. Recent literature describes it in Pap smears and in the brain in the setting of hemorrhage and long standing hypoxia. It is identifiable by its yellow color and crystalline structure free in tissue and in histiocytes. We encountered hematoidin in two skin specimens both as the primary feature and as an incidental finding. Both patients were immunosuppressed. Their biopsies demonstrated bright yellow, homogenous pigmented material extracellularly in a background of hemorrhage. In one patient it was also present within histiocytes and giant cells as polygonal structures, mimicking a foreign body. This pigment stained black with Fontana-masson and was negative for iron. We confirmed its relationship to bilirubin with Hall's stain. Fontana masson positivity is explained by the gold chloride solution in the silver stain which also stains hematoidin black. Hematoidin is a readily recognizable pigment seen in the setting of hemorrhage. Although it is an established entity in cytopathology, there are no reports of it in the dermatopathology literature. In one of our cases it created a diagnostic conundrum, supporting the importance of being aware of its presence.

## Poster 160

### Multinucleated epidermal giant cells in a patient with dermatitis artefacta

Julia Adams, MD

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Multinucleated epidermal giant cells are most frequently associated with viral and neoplastic processes. They have only rarely been described in other conditions, primarily inflammatory skin diseases with frequent rubbing or scratching. These cells typically contain two or three nuclei and are thought to result from long-term repetitive trauma leading to an increased rate of epidermal proliferation. We present a case of probable dermatitis artefacta in a 14-year-old female with multiple, identically shaped and oriented geometric erythematous plaques limited to the abdomen. Histology showed numerous multinucleated epidermal giant cells, some containing greater than 20 nuclei, rare necrotic keratinocytes, and focal mixed lichenoid inflammation.

## Poster 161

### Macrolides-lincosamides-streptogramins family of antibiotics associated with nodular mucinosis of the breast

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Nodular mucinosis of the breast is an extraordinarily rare mucinous lesion that typically affects young women with no significant past medical history and manifests as a nodule under one nipple. We present the case of an 18 year old male with a history of mixed acne being treated with clindamycin for 4 months who subsequently developed a small painless nonpruritic nodule under the left areola. There is no family history of breast cancer, and the patient does not have Carney syndrome. Microscopically, there was a 0.6 x 0.5 cm, well circumscribed, unencapsulated, vaguely multinodular mucinous lesion in the superficial dermis with capillaries, spindled cells and histiocytes yet lacking any epithelial component. Alcian blue and periodic acid-Schiff staining confirmed the presence of acidic mucopolysaccharides, consistent with nodular mucinosis of the breast. We have previously reported a case of nodular mucinosis which we have since determined also developed after treatment with azithromycin. The finding of similar lesions in two patients who have different demographics, histories and physical examinations lends support to the presence of a causal mechanism between the macrolide-lincosamide-streptogramin B family of antibiotics and this rare lesion.

## Poster 162

### Dermatopathology workforce in the United States: A survey

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Background: While several studies have documented an undersupply of dermatologic services in the United States (U.S.), little is known about the dermatopathology workforce. Objective: Objectives included the following: 1) describe the dermatopathology workforce in the United States; 2) identify characteristics associated with academic dermatopathologists; and 3) explore issues surrounding dermatopathology training. Methods: We conducted a cross-sectional survey of all Fellows of the American Society of Dermatopathology practicing in the U.S. and its territories. Results: Of 913 ASDP Fellows, 437 (48%) returned a completed questionnaire. Most were male (72.2%), Caucasian (85%), and had graduated from U.S. medical schools (88%). Approximately half (49%) had completed a dermatology residency and a quarter (24%) were in academia. As compared to those in private practice, academic dermatopathologists were more likely to be female ( $p = 0.0028$ ), have additional degrees besides MD/DO ( $p = 0.0197$ ), and have a lower salary ( $p < 0.0001$ ). While most respondents were satisfied overall with their training, the most common areas identified as inadequate included coding/billing (47%), biostatistics (38%), pediatric clinical dermatology (27%) and electron microscopy (27%). Limitations: Moderate response rate and potential recall bias. Conclusions: This study on the U.S. dermatopathology workforce provides benchmarks for future studies and strategies for workforce planning.

## Poster 163

### Cutaneous deciduosis: a report of two cases of an unusual pseudomalignancy

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Cutaneous deciduosis is a rare manifestation of cutaneous endometriosis in which the typical endometrial glands and stroma are morphologically and physiologically transformed under hormonal influence. The transformed glands and stroma usually take on the histologic appearance of uterine decidua, but may mimic malignancy. We describe two cases of cutaneous deciduosis which presented in the post-partum period but were not biopsied until a much later date. The first case involves the perineum of a thirty-one year-old female six years status-post vaginal delivery. The second case involves a twenty-six year-old female six years status-post cesarean section delivery with a history of adnexal endometriosis and a persistent post-operative hematoma, which throbs in synchrony with her menstrual cycles. Histologically both specimens showed similar findings. Sections showed a multinodular proliferation of pale staining epithelioid cells without significant nuclear atypia or conspicuous mitotic figures. Both showed focal glands which ranged from slit-like to slightly dilated, and which contained a flattened epithelial lining without atypia. These unusual cases are presented to instruct about the histologic findings of this entity in order to prevent the unnecessary diagnosis of malignancy.

## Poster 164

### Solitary Fibrous Tumor of the Skin

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Solitary fibrous tumor (SFT) is an uncommon mesenchymal tumor, usually pleural-based, that is increasingly being described in many extrapulmonary sites, including the skin. We describe an unusual case of an SFT of the distal toe, clinically resembling an accessory toenail. A 49-year-old male presented to a podiatrist with a two-year history of a slowly enlarging tender nodule on the dorsal lateral aspect of the right fifth toe. The biopsy revealed a dermal-based circumscribed proliferation of bland fusiform- to spindle-shaped cells arranged in short intersecting fascicles in a background of hyalinized stroma with interspersing thick collagen bundles. Necrosis and mitoses were absent. Immunohistochemical stains supported the diagnosis of SFT with diffuse positivity for CD34 and vimentin and patchy positivity for bcl-2. Epithelial membrane antigen, S-100, smooth muscle antigen, and desmin staining were absent. SFTs are considered borderline tumors with a low risk for metastasis or recurrence. Though they are rarely encountered in the skin, SFT should be considered in the differential of a dermal spindle-cell neoplasm.

## Poster 165

### Rapid onset of argyria induced by a silver-containing dietary supplement

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We describe a 53 year-old, otherwise healthy, male who presented with an eight-month history of progressive gray hyperpigmentation of the face. He denied using any prescription medications; however, he was taking one herbal supplement. Clinically, the differential diagnosis included hemochromatosis, Wilsons disease, and hyperpigmentation secondary to supplement use. Punch biopsies from the left forehead and preauricular region showed heavily sun damaged skin with a sparse superficial perivascular lymphocytic infiltrate. Closer inspection, however, revealed minute scattered black/brown particles predominantly in the basement membranes of eccrine gland and sebaceous glands. Particles were also present in hair follicles, blood vessels, and arrector pili muscles. The particles did not stain with Gomori methenamine silver, Fontana-Masson, or iron stains. Electron microscopy with energy dispersive x-ray analysis showed many, less than 1 micron in greatest dimension, particles that demonstrated peaks for silver and sulfur, thus confirming the impression of argyria (cutaneous deposition of silver-containing compounds). Further history revealed the patient indeed had been taking an additional silver supplement for several months to supposedly boost his immune system. This case is unique in that the patients hyperpigmentation occurred in a relatively short amount of time compared to other reports in the medical literature.

## Poster 166

### Follicular mucinosis and mycosis-fungoides-like drug eruption due to leuprolide acetate

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Introduction: Cutaneous drug reactions may have a widespread number of histologic manifestations, leading to potential pitfalls in diagnosis if clinical correlation is not applied. Leuprolide acetate (trade name Lupron), a gonadotropin-releasing hormone (GnRH) agonist, is used in the treatment of hormone responsive cancers such as prostate cancer, as well as gynecologic disorders such as endometriosis or in vitro fertilization. Drug reactions due to leuprolide acetate are not widely reported, consisting of multiple case reports of drug injection site granulomas and isolated cases of a maculopapular rash and dermatitis herpetiformis-like eruption. Case Report: We report a case of widespread cutaneous drug eruption characterized by coalescing erythematous plaques on a patient taking leuprolide acetate for prostate cancer. The rash appeared after each of two exposures to the drug and resolved with corticosteroid injection. Histologically, two biopsies showed interface damage with eosinophilic folliculitis, as well as follicular mucinosis with atypical intraepidermal lymphocytes, mimicking mycosis fungoides, with atypical immunohistochemical findings (CD4 predominance over CD8 and focal loss of CD7). This case report is the first

describing this histologic pattern as a reaction to leuprolide acetate and underscores the importance of clinical correlation with biopsies to arrive at a true diagnosis.

## Poster 167

### Apocrine nevus: A report of three cases

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Apocrine nevus is a rare tumor composed of increased mature apocrine glands and ductal structures within a fibrous stroma predominantly in the reticular dermis. They have been reported in association with apocrine carcinoma, extramammary Pagets disease, and syringocystadenoma papilliferum, and less commonly as a pure apocrine nevus. Clinically they may appear as solitary or multiple nodules or plaques on the scalp, presternal skin, or most commonly the axillae.

We describe three cases of pure apocrine nevus, all of which appeared clinically as a skin-colored axillary mass - bilateral in one case. Patients denied pruritis, bleeding, or antecedent trauma. Grossly the specimens consisted of subcutaneous, multicystic, ill-defined nodules. Biopsy showed prominent apocrine glands composed of irregularly columnar luminal cells arranged in a somewhat organoid pattern filling the reticular dermis and extending into the subcutaneous fat. There was a paucity of pilosebaceous units and in one case the overlying epidermis was papillomatous. The deepest portion of one specimen had lactational change simulating a lactational adenoma. No atypia was seen in the glandular structures or stroma. The adjacent sebaceous and eccrine structures were normal. The histologic features and immunohistochemical profile in relation to other apocrine lesions will be reviewed.

## Poster 168

### Model for teledermatopathology in Africa: From concept to consultation

Devon Gimbel, MD

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The diagnosis of skin lesions in the developing world is complicated by several factors including shortage of pathologists, lack of subspecialty dermatopathology training, and prohibitive costs associated with immunohistochemical work-up. Limited access to subspecialty trained dermatopathologists and other general pathologists for consultation poses further constraints to pathologists in dealing with challenging skin cases. We describe the implementation and utilization of an asynchronous static-image telepathology program in collaboration with four hospitals in Tanzania and Kenya to provide dermatopathology consultation to local pathologists. Pathologists trained in image acquisition uploaded histologic images captured by microscope-mounted digital cameras to the iPath open source telepathology server (<http://telemet.ipath.ch/rahp/>); images were then viewed by dermatopathologists at our institution. We discuss the benefits of dermatopathology consultation with physicians in Africa employing this technology including providing diagnostic support, contributing a specialist opinion to challenging cases, suggesting focused ancillary testing to better define certain dermatopathologic processes, and supporting a forum for continuing education. We

also identify limitations to the use of still-image technology that are primarily technical and can be overcome with increased training. Overall, this form of telepathology serves as an efficient, cost-effective means for providing diagnostic support and continuing education to pathologists practicing in resource-poor settings.

## Poster 169

### A unique case of an intraepidermal squamomelanocytic tumor

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Squamomelanocytic tumors (SMTs) are uncommon biphasic neoplasms consisting of well circumscribed dermally located lobules of admixed atypical squamous and melanocytic components. We describe an exceedingly rare intraepidermal variant that expands the histologic spectrum of SMTs. A 79 year old male with a history of multiple cutaneous squamous cell and basal cell carcinomas presented with a 0.6 cm papule on the forearm. A shave biopsy revealed an atypical intraepidermal squamous proliferation with features of a hypertrophic actinic keratosis with acantholytic change occurring in a background of severely sun damaged skin. Interspersed amongst the dysplastic squamous cells were dendritic and epithelioid melanocytes singly and in nests. The melanocytes displayed prominent nucleoli with vesicular chromatin and clear cytoplasm. Rare mitoses were seen in both components. No invasion of the dermis was seen by either component. The squamous component revealed immunohistochemical expression of keratin 5/6, P63, and EMA (focal) and negativity for BerEP4. The melanocytic component revealed immunohistochemical expression of S100, MITF, MART1, HMB45, and tyrosinase. The patient underwent re-excision of the lesion and is free of disease after 5 months.

## Poster 170

### Histologic findings of nail cosmetics and enhancements

Rachel Anolik, B.S.

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Nail cosmetics and adornments are popular and include polishes and artificial enhancements. Despite the frequency of use, the histologic features of nail cosmetics are not well characterized. Understanding and recognizing the characteristic histologic features of nail cosmetics is crucial to avoid confusion with dermatoses affecting the nail unit, and will help dermatopathologists render more accurate diagnoses for nail unit specimens. We have observed that nail cosmetics show three distinct histologic morphologies: a hyperpigmented pattern with diffuse fine granular material, hyperpigmentation with a larger granular pattern and flecks of polarizable material, and a layered pattern with a single linear band of polarizable material. We will correlate clinical and histologic features of various nail cosmetics. Histologic findings of nail cosmetics have the potential to be confused with disorders affecting the nail plate, such as subungual hematoma or nail plate pigmentation from a variety of causes. A patient's use of nail cosmetics is seldom recorded on requisition forms, and dermatopathologists can avoid diagnostic confusion by recognizing these newly described histologic patterns.

## Poster 171

### Embryonal rhabdomyosarcoma arising in a congenital melanocytic nevus

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Malignant lesions, most frequently malignant melanoma, have been well documented to arise within congenital melanocytic nevi (CMN). The association between rhabdomyosarcoma and CMN has only been reported in five cases, and we present a sixth case in a 4-month old girl with congenital giant nevus syndrome. She presented for evaluation of a pedunculated lesion at the top of the gluteal crease, which had been present since birth but exhibited rapid growth. There was no associated leptomeningeal or central nervous system melanosis. Microscopic examination revealed a lesion with two distinct components; there was an expansile proliferation of pleomorphic cells with varying degrees of cellularity and a proliferation of banal-appearing nevic cells. The cells of the expansile proliferation displayed a wide range of morphologic features including nests of round cells, spindle-shaped cells, and more differentiated rhabdoid cells within a myxoid and highly vascularized stroma. Cross-striations, a marker of skeletal muscle differentiation, were present in both spindle-shaped and rhabdoid cells. Rhabdomyoblasts were present and spider cells were seen. Numerous mitotic figures were identified. These tumor cells were strongly immunoreactive with desmin, myo-D1, and myogenin. FISH analysis with PAX3/7-FKHR probes was negative. A diagnosis of embryonal rhabdomyosarcoma in association with congenital melanocytic nevus was made. Initial excision revealed tumor at the margins, and the patient underwent re-excision with subsequent chemotherapy with vincristine, actinomycin D, and cyclophosphamide. She remained disease free at her last follow up examination.

## Poster 172

### Melanoma staged excision: A technique to conquer your fears

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Despite the benefits of staged excision (SE) for melanomas, challenges remain. One of us (MAH) has developed a method for the histological assessment of SEs in our laboratory. Most specimens are either straight or curved, contain a center debulk, are divided/inked by the surgeon, and have a map. At gross, the peripheral margins are dotted on the epidermal advancing end of each specimen. The debulk is sectioned serially. After fixation, the peripheral margins are embedded by the dermatopathologist, scored at the tattoo ink dot, and submitted en face. The debulk is submitted on edge. Melan-A is applied to the 1st and 5th section of each peripheral margin with H&Es on sections 2, 3, and 4. The debulk is examined with two H&Es and one Melan-A. Advantages are that the score mark enables precise localization of any residual lesion, and the Melan A on the 1st and 5th sections allows tracking of a problem zone, showing development of the lesion when sectioning from the periphery to the center. Although there are a few articles that address en face SE methods, none are written explicitly to assist the dermatopathologist in the handling of these specimens. This article offers a useful technique to address these problems.

**Poster 173**

**Clinical and histologic features of facial papules in Cowden syndrome**

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Background: Cowden syndrome is a hereditary syndrome with autosomal dominant pattern of inheritance and increased risk for cancer, and is commonly due to loss of function of the PTEN tumor suppressor gene. There are dermatologic features that are part of the diagnostic criteria that allow early recognition of the disease; however, many of the dermatologic manifestations associated with Cowden syndrome may also be seen in the general population and may be easy to overlook. Methods: We examined the clinical features and analyzed biopsies of 30 facial papules from 7 patients with Cowden syndrome and documented PTEN mutations between 2008 and 2010 at the National Cancer Institute and carried out a detailed clinical pathologic correlation for each of these lesions. Results: Biopsies of facial papules and plaques revealed either characteristic trichilemmomas (46.7%; n=14), tumors of the follicular infundibulum (16.7%; n=5), benign verrucous acanthomas (20%; n=6), or benign verrucous acanthomas with incipient trichilemmomas (16.7%; n=5). Intriguingly, characteristic trichilemmomas are seen in only 2 out of the 7 patients enrolled in this study, while 2 other patients presented with multiple tumors of the follicular infundibulum but not characteristic trichilemmomas. Conclusion: Our results indicate that many of the papillomatous facial papules and plaques of Cowden syndrome patients do not show characteristic histology of trichilemmoma but may be unique to this condition. Differences in histology may be related to different mutational spectra. Defining the clinical and histologic features of facial papules other than characteristic trichilemmomas in Cowden syndrome can potentially lead to earlier recognition and diagnosis of this rare condition.

**Poster 174**

**Onychotillomania: Clinicopathologic correlations**

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Onychotillomania is an unusual dermatosis affecting the nail unit, and refers to neurotic picking at a nail until it is permanently altered. It is a self-destructive behavior, characterized by a compulsive or irresistible urge to pick at, pull, bite or chew on the nails. Onychotillomania can be difficult for dermatologists to diagnose, as typically patients will deny the self-destructive behaviors, and the clinical features can mimic other inflammatory dermatoses affecting the nail unit. Aside from the difficulty in establishing the diagnosis clinically, the histologic features of onychotillomania are not well established. With this limited knowledge, dermatopathologists could have difficulty correlating the clinical and histologic features, and determining the correct diagnosis. Establishing the diagnosis is critical, as onychotillomania is associated with major depression and obsessive compulsive disorder, and can be a clue to uncovering these debilitating psychiatric disorders. Additionally, the Smith-Magenis syndrome is also associated with onychotillomania, and this may be a clue to the overall diagnosis of this genetic disorder. Here we present two cases of onychotillomania, and correlate the unique histologic features in the nail unit with the clinical features, which have not been previously explored in the literature.

## Resident Posters

### Poster 175

#### **Beaded aggregates perpendicular to dermal-epidermal junction by GMS stain: An unusual and unexpected finding in secondary Syphilis**

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Background: Special stains such as a Warthin-Starry (silver stain) or T. Pallidum (IHC stain) can be of great help in the diagnosis of Syphilis. Although GMS stain is also a silver stain, GMS is thought to be of little to no use in the diagnosis of Syphilis. Design: A shave biopsy from the chin of a 33 year-old male was examined by H&E, GMS, Warthin-Starry, and T. pallidum (IHC stain). Results: Histopathologic sections demonstrate pseudoepitheliomatous hyperplasia, in association with a dense lymphoplasmacytic infiltrate within the dermis and neutrophilic abscesses within the epidermis. Warthin-Starry and an IHC stain for T. pallidum demonstrate abundant Treponema at the dermal epidermal junction. Additionally, sections stained with GMS demonstrate dense beaded aggregates perpendicular to the dermal-epidermal junction similar to what was seen by Warthin-Starry. Conclusions: The dense beaded aggregates seen perpendicular to the dermal-epidermal junction in the GMS stain appear to represent T. pallidum. Although both Warthin-Starry and GMS are silver stains, T. pallidum are expected to be visible by Warthin-Starry and not by GMS. This unexpected finding is possibly due to the density of the organisms present, which can be highly variable in secondary Syphilis. Although this histopathologic finding is highly unusual and should not be expected to occur on a consistent basis, when present could provide a clue to the diagnosis of Syphilis in cases where Syphilis might not have been suspected histologically or where a Warthin-Starry or T. pallidum IHC stain has not been performed.

### Poster 176

#### **Grover's disease with a contagious twist**

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A 74 year old male presented with an erythematous papulosquamous rash on the trunk, extremities, palms, and soles. The clinical impression was of a drug hypersensitivity reaction or Grover's disease. Shave biopsy revealed prominent foci of acantholytic dyskeratosis, spongiosis and a mixed dermal infiltrate, consistent with Grover's disease. The patient had a history of high-risk sexual behavior and in light of the involvement of the palms and soles, RPR titers were performed, which came back as highly positive. Subsequent immunohistochemistry with a syphilis-specific anti-treponeme antibody revealed numerous spirochete organisms localized to the acantholytic areas consistent with secondary syphilis. The patient had an abrupt complete resolution of the rash after treatment with doxycycline which in our view deems the diagnosis of concomitant Grover's disease unlikely. The clinical and histopathologic features of secondary syphilis are protean. Prominent acantholysis has not been previously described. In addition to illustrating the need for a careful clinical history in inflammatory skin disorders, this case exemplifies the utility of immunohistochemistry in demonstrating

spirochete infection.

### Poster 177

#### **Cutaneous alternariosis histologically mimicking blastomycosis.**

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A 57 year old man with history of several myocardial infarcts and heart transplant presented with a slowly-growing violaceous plaque on his lateral left knee at the site of prior minor trauma. A biopsy revealed suppurative dermatitis with overlying pseudoepitheliomatous hyperplasia. There were multiple non-pigmented eosinophilic organisms with clear cytoplasmic halos. A methenamine silver stain demonstrated round to oval organisms with slightly variable sizes. Rare uni-polar budding was present, some of which were broad based. Few short hyphae with indeterminate septae were also noted. Fontana-Masson, mucicarmine, alcian blue and Fite stains were negative. These findings were morphologically suggestive of blastomycosis. However, a fungal culture of the tissue grew colonies of *Alternaria* species. *Alternariosis* has been previously shown to possess some morphologic characteristics of other fungal infections. To our knowledge, its striking similarities to blastomycosis in particular, as seen in our case, has not been previously reported in the English literature. *Blastomyces dermatitidis* yeasts are similar in size to *Alternaria* yeasts, can present rarely with hyphal forms in tissue, and can demonstrate budding. *Alternariosis* typically presents with many hyphal forms in immunocompromised patients and rarely demonstrates budding. In summary, pathologists should be aware that *alternariosis* may mimic blastomycosis, especially when hyphal forms are rare or absent in tissue specimens. Culture is necessary for definitive classification.

### Poster 178

#### **Leishmaniasis- a parasite without border**

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Leishmaniasis is classically divided into Old World and New World forms, reflecting the geographic distribution of *Leishmania* species. Old World leishmaniasis is endemic to Africa, Asia, Middle East and the Mediterranean. In contrast, New World leishmaniasis, is endemic from Texas to South America. However, this distinction does not apply in every case. We report a case series of four young Somalian illegal immigrants who contracted New World leishmaniasis after traveling to multiple international destinations including Djibouti, United Arab Emirates, Russia, Cuba, Ecuador, Columbia, Panama, and finally California, United States. All four presented with progressive painful ulcerated plaques on extremities over the several weeks. Biopsies of lesions from all four men were consistent with cutaneous leishmaniasis. A careful history revealed that they all suffered extensive insect bites at the Columbia-Panama border. Tissue cultures grew *Leishmania panamensis*. Imaging studies showed no visceral involvement. The lesions responded to amphotericin B infusions and local wound care. Soon after these cases presented, two young Somalian immigrants with cutaneous leishmaniasis surfaced in Washington state, indicating ongoing migration of the infected hosts to other parts of the United States. Legal authorities are currently utilizing these cases to investigate

illegal international human trafficking networks. These cases emphasize the impact of global travel and social conflict on the epidemiology of leishmaniasis, and highlight an unusual application of medicine for law enforcement.

## Poster 179

### A Rare Case of Tinea Corporis Purpurica

Emma Lanuti, MD

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Our patient is a 62 year-old female with venous insufficiency and a lower extremity chronic venous ulcer who presented with a two week history of intensely pruritic ulcers proximal to the original ulcer. Histopathological examination showing prominent fungal hyphae with a perivascular infiltrate of lymphocytes, histiocytes and eosinophils established the diagnosis of tinea corporis purpurica. The patient was successfully treated with oral terbinafine 250 mg for 14 days and the lesions resolved without any complications or recurrence. Cases of tinea corporis purpurica are rare and only four cases have been reported in the literature. All prior reports have involved the lower extremities of middle-aged to elderly female patients and we postulate that venous insufficiency may be a predisposing factor for tinea corporis purpurica. We recommend PAS-stain be considered when evaluating purpuric lesions in this clinical setting.

## Poster 180

### Lues maligna: A rare variant of secondary syphilis

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Lues maligna is rare, severe variant of secondary syphilis often presenting in patients with HIV and demonstrating variable clinical and histopathologic features. We present a case of a 49 year-old HIV-positive male with a two month history of an erythematous, painful rash developing on his back with progression to his face, hands, and feet. Physical exam showed numerous erosive plaques and scattered vesicles on his back. His palms and soles exhibited erythematous exfoliative lesions. The patient's RPR titer was positive and increased during his hospitalization. A punch biopsy of his back revealed interface dermatitis with a superficial and deep perivascular, histiocytic infiltrate without the presence of plasma cells. Steiner staining and immunohistochemistry confirmed the presence of spirochetes within the epidermis and endothelial cells throughout the dermal vasculature. He was treated with IV Penicillin G with complete resolution of his skin lesions within 14 days without a Jarisch-Herxheimer reaction. Lues maligna was first described in 1859 by Bazin as a nodular form of syphilis with atypical clinical features. It often presents as ulcerative, necrotic nodules differing from the papulosquamous presentation of classic secondary syphilis. Further diagnostic characteristics include a strongly positive RPR titer and rapid resolution with penicillin treatment that may exhibit a severe Jarisch-Herxheimer reaction. The histopathology is similar to classic syphilis comprised of a lymphocytic, perivascular infiltrate with numerous plasma cells in the superficial and deep dermis. In addition, endothelial cell inflammation with fibrinoid necrosis, granulomas, and giant cells may be present in lues maligna. Identifi-

cation of the spirochetes is usually made with special stains and immunohistochemistry. Despite its rare prevalence, lues maligna should be considered in the differential diagnosis of disseminated cutaneous disease in all HIV-positive patients.

## Poster 181

### Leukocytoclastic vasculitis as the presenting feature of dermatitis herpetiformis

Elizabeth Naylor, MD

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Dermatitis herpetiformis (DH) is an autoimmune disease typically characterized by pruritic vesicles located on the extensor surfaces. Classic pathology reveals neutrophils and edema in the dermal papillae, increased fibrin deposition, and formation of subepidermal vesicles; direct immunofluorescence demonstrates granular IgA in the dermal papillae. To expand the known clinical spectrum of DH, we present a 58 year-old man with tender and pruritic erythematous macules and papules ranging from 2-6 mm in diameter on bilateral knees, elbows, forearms, scalp, and neck. Petechiae were also present on the hands. Biopsy initially demonstrated leukocytoclastic vasculitis including perivascular neutrophils, extravasated red blood cells, and fibrin deposition in the vessels. Work-up for systemic vasculitis was negative. Subsequent biopsies and direct immunofluorescence showed histologic evidence of both DH and leukocytoclastic vasculitis in the setting of an elevated serum IgA anti-tissue transglutaminase. There was marked improvement of the lesions with a reduction of gluten in his diet.

## Poster 182

### Siliconomas

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54 year old female with a history of breast cancer treated with bilateral mastectomy and silicone implant reconstruction presented with dozens of 2 to 5 mm asymptomatic hard pink papules and nodules on her forearms. Her left breast implant had ruptured several months before the development of the skin lesions. A 4 mm papule was biopsied and showed granulomatous inflammation with multinucleated giant and variably sized vacuoles giving a Swiss cheese appearance in the dermis, consistent with cutaneous silicone deposition with foreign body reaction. The term siliconoma was first used to describe the local responses to the liquid silicone injection technique that had been developed for breast augmentation in the 1950s. These local siliconomas were painful and disfiguring; the recommended treatment was and remains local excision. The first peripheral siliconomas were described in the 1980s. These usually were granulomas on the chest and abdomen and followed silent leakage of a silicone breast implant, typically with a latency period of decades after the leak began. There are rare reports of siliconomas at distant sites, such as arms, axilla, and legs. Our patient is unusual in that her siliconomas developed after an acute rupture of her implant and occurred within months.

## Poster 183

## **Keratosis lichenoides chronica**

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A 74 year-old woman presented with thirty years of a scaly pruritic rash over her entire body with the recent development of nodules. Examination revealed symmetrical hyperkeratotic red to purple papules and indurated plaques in a reticulate photo-accentuated pattern on the arms and legs. The trunk and scalp were involved, and scaling and erythema were noted on the mid-face. Two skin biopsies demonstrated a lymphocytic infiltrate filling the papillary dermis and obscuring the dermo-epidermal junction. Epidermal changes included parakeratosis, irregular acanthosis, prominent basal cell death and basal vacuolar alteration. Based on the clinical and histopathologic features, a diagnosis of keratosis lichenoides chronica (KLC) was made. KLC is a rare dermatosis of unknown etiology with fewer than 75 cases reported. As KLC shares histologic features with lichen planus (LP), some authors believe that it is a variant of LP or an unusual isomorphic response. While lesions reportedly may improve during the summer or with age, KLC is typically progressive and often refractory to treatment. Having previously failed treatment with topical steroids, psoralen ultraviolet A, and broad-band ultraviolet B, our patient began treatment with acitretin. At two-month follow-up, she had greater than 50 percent improvement in her condition.

## **Poster 184**

### **Tumid lupus-like eruption secondary to Vitallium**

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We present a case of hypersensitivity reaction to a metal implant masquerading histologically as tumid lupus. A 44-year old man presented to dermatology clinic with a papuloerythematous, slightly indurated dermatitis of the upper trunk, upper arms, and shoulders that appeared two days after knee replacement surgery using a Vitallium-containing prosthetic. Initial biopsy showed a dense lymphohistiocytic infiltrate with dermal mucin suspicious for tumid lupus. The possibility of a dermal hypersensitivity reaction was considered. A patch test revealed a strong reaction to gold, and biopsy of the patch test area was performed. This showed papillary dermal edema, epidermal spongiosis, rare necrotic keratinocytes, superficial and deep perivascular and periadnexal lymphocytes and was distinctly different from the first biopsy. A Vitallium disc was obtained from the manufacturer and applied to the patients arm, and an erythematous dermal nodule, similar to those of the patients initial presentation, appeared at the disc site. Biopsy revealed the presence of a perivascular and periadnexal lymphohistiocytic infiltrate with prominent dermal mucin, morphologically similar to tumid lupus and to the initial biopsy. This finding proved that the Vitallium was likely responsible for this tumid lupus-like eruption.

## **Poster 185**

### **Identification of Helicobacter pylori in skin biopsy of prurigo pigmentosa**

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Prurigo Pigmentosa is a rare, pruritic dermatosis with unknown etiology. This case highlights a 23 year old Chinese male who presented with a 3 year history of a pruritic eruption. On exam, there were pink urticarial papules associated with hyperpigmented reticulate patches covering his neck, back, and upper chest. Histopathology of the pink papules revealed vacuolar interface dermatitis and numerous gram negative rods within a dilated hair follicle. The organisms were reactive with anti-Helicobacter pylori immunohistochemistry. The histologic findings and clinical presentation support the diagnosis of prurigo pigmentosa. Additional laboratory testing demonstrated a positive urease breath test and serum studies revealed H. pylori IgG antibodies. The patient was referred to gastroenterology and treated with amoxicillin, clarithromycin, and omeprazole. Following treatment, EGD revealed chronic gastritis without evidence of H. pylori infection and his skin showed reticulated, hyperpigmented patches without evidence of active inflammatory papules. While previous reports have associated prurigo pigmentosa to H. Pylori gastritis or its resolution to various antibiotic regimens, this is the first report of H. pylori organisms identified in a skin biopsy of prurigo pigmentosa.

## **Poster 186**

### **Palisaded neutrophilic and granulomatous dermatitis: A histopathologic reaction pattern representing a spectrum of disease**

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We describe a 26 year-old male who presented with a three-year history of recurrent crops of expanding, annular and polycyclic plaques. Systemic symptoms included low-grade fevers, polyarthralgias, chronic non-productive cough, weight loss, and abdominal pain. Lesional skin biopsies revealed a variety of patterns. This included focal interstitial neutrophilic infiltration and nuclear dust in the superficial dermis, consistent with palisaded neutrophilic and granulomatous dermatitis (PNGD). There were also features consistent with urticarial vasculitis, with superficial and deep dermal perivascular and periadnexal mixed lymphohistiocytic inflammation with numerous neutrophils, occasional eosinophils, and nuclear dust. Frank vascular destruction and red blood cell extravasation were not appreciated. Direct immunofluorescence demonstrated nonspecific deposition of C3 and fibrinogen in vessel walls. A histopathologic diagnosis of palisaded neutrophilic and granulomatous dermatitis (PNGD) was made with patterns ranging from urticarial and leukocytoclastic vasculitis to figurate erythemas. To date, a systemic disease has not been identified. PNGD is recognized as a histopathologic reaction pattern seen in association with underlying systemic conditions. We present this case to highlight an unusual clinical presentation of PNGD with large, annular, gyrate plaques, as well, as the range of histopathology seen with features of urticarial vasculitis and figurate erythema. We also propose that PNGD represents a histopathologic reaction pattern, not a distinct diagnostic entity.



**Poster 187**

**The reticular variant of mid-dermal elastolysis: Thinking beyond fine-wrinkling in young women**

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Mid-dermal elastolysis (MDE) is a rare acquired disorder of elastic tissue affecting usually the trunk and proximal limbs of young women. Most patients present either with asymptomatic fine wrinkling arranged parallel to skin cleavage lines (Type I) or with perifollicular papular protrusions (Type II). We present a case of a 71-year-old man with no history of autoimmune or inflammatory conditions with a persistent diffuse reticular erythema on the upper trunk, representing the third and rarest subtype of MDE, the reticular variant. A punch biopsy from the upper back revealed normal epidermis and a linear band of mononuclear histiocytes (macrophages) and multinucleated macrophagic giant cells between collagen bundles forming an interstitial pattern in the mid-dermis; this was associated with a perivascular lymphohistiocytic infiltrate. With a Verhoeff-Van Gieson (VVG), a band-like loss of elastic fibers in the mid-dermis was identified in the same areas affected by the granulomatous inflammation. Elastic fibers in the papillary and lower reticular dermis remained intact, confirming the diagnosis of MDE. Reticular MDE (Type III) is a rare variant that, in contrast with Types I and II, usually affects older men and should be considered in the differential of any persistent reticulate erythema.

**Poster 188**

**Lobular panniculitis and lymphocytic vasculitis: A new cutaneous drug reaction to leflunomide (Arava)**

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We report on a 50 year old female with rheumatoid arthritis who presented with painful nodules on her legs with the clinical impression of "erythema nodosum" after starting therapy with leflunomide. Histologic examination showed lobular panniculitis with fat necrosis, granuloma formation, and extensive lympho-plasmacytic inflammation. There was also associated lymphocytic vasculitis of predominantly medium and small-sized vessels with focal fibrinoid necrosis. Features of septal panniculitis were not seen, and interface dermatitis or neutrophilia were absent. All special stains for bacterial, fungal, and mycobacterial microorganisms were negative. Leflunomide therapy has been reported in association with a sub-acute lupus erythematosus-like presentation, and rheumatoid arthritis itself may present with neutrophilic panniculitis, neither of which fit the presentation of the current case. Rheumatoid arthritis may very rarely show a cutaneous vasculopathic, lymphocyte-mediated reaction pattern. However, there was marked lymphocytic vasculitis associated with fibrinoid necrosis in the current case. After cessation of leflunomide, the patient experienced complete resolution of her cutaneous symptoms. This case may exhibit features of a new cutaneous reaction to leflunomide therapy. The presentation of lobular panniculitis and frank lymphocytic vasculitis has not been reported to date in relation to therapy with leflunomide.

**Poster 189**

**A case of equestrian pernio (chilblains) masquerading as cutaneous lupus erythematosus**

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A 27 year old female horse trainer presented with a 1.5-year history of indurated violaceous plaques on the posterolateral thighs that worsened in the winter and resolved completely in the summer with occasional pruritis. Distal extremities were uninvolved and her past medical history was noncontributory. A skin biopsy revealed a normal appearing epidermis with a superficial and deep perivascular and periadnexal lymphocytic infiltrate and a mild increase of interstitial mucin. The histology supported the clinical impression of lupus, however, further laboratory analyses were negative for ANA, extractable nuclear antigens, cold hemagglutinins, cryoglobulins, and lupus anticoagulant. Additional history was notable for the below freezing temperatures in the indoor horse arena with tight fitting clothing that would worsen the thigh lesions. Together, the findings were consistent with equestrian pernio as the lesions were limited to the posterolateral thighs after cold exposure with horseback riding. This phenomenon has been described in similar settings and in this case, given the histologic and clinical impressions, a connective tissue disease was excluded by serologic analyses and by appropriate clinical-pathologic correlation.

**Poster 190**

**Churg-Strauss syndrome with skin involvement limited to Koebnerization of a prior injury site**

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Koebnerization, development of a cutaneous rash or lesions in a site of injury, may occur with a number of inflammatory dermatoses. We report the case of a 33 year old female who presented with fever, asthma, and peripheral eosinophilia. The clinical impression was Churg-Strauss syndrome (allergic granulomatosis). Although the prototypical cutaneous manifestations were not present, a scar on her wrist from a prior injury became inflamed and tender. Biopsy showed perivascular palisading granulomatous and neutrophilic inflammation with leukocytoclasia, scattered eosinophils, and focal vascular injury, suggestive of Churg-Strauss syndrome. The inflammatory response was noted to be centered about vessels and polarizable foreign material within the dermis and subcutis compatible with prior injury. Special stains and cultures were negative for infection. The granulomas were not typical of foreign body granulomas or palisading granulomas that may occur as a reaction to foreign material. The mixed inflammatory infiltrate and lack of naked granulomas did not suggest sarcoidosis. Churg-Strauss like granulomas may be observed in Wegeners granulomatosis, systemic lupus erythematosus, and rheumatoid arthritis; however, these disorders will typically lack eosinophils. With infection excluded, the clinicopathologic findings supported a diagnosis of Churg-Strauss syndrome. The patient was treated with oral prednisone and she became afebrile and her clinical symptoms improved. There was decreased erythema of her scar site. While the patient did not have a characteristic rash, biopsying the changing scar proved valuable as it avoided a more invasive procedure and showed significant pathology. Although normally occurring within 10-20 days, Koebnerization may occur anywhere from 3 days to 2 years after injury.

To our knowledge, this is the first report of Koebner phenomenon associated with Churg-Strauss syndrome.

## Poster 191

### Lupus panniculitis presenting as scalp ulcerations

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A 53-year-old African American female with history of discoid lupus, presented with a complaint of large, painful, non-healing ulcers on the scalp. The lesions have been gradually enlarging over the past 6 months despite oral hydroxychloroquine therapy. She denied any history of trauma to the area or self-mutilating behavior. On physical exam involving the bilateral parietal scalp were impressive, large punched-out ulcerations with surrounding erythema, atrophy and hyperpigmentation. Histological sections of the ulcers displayed a mildly atrophic epidermis with interface dermatitis, dermal melanophages, and superficial and deep perivascular lymphohistiocytic infiltrate. There was also prominent hyaline necrosis of the fat accompanied by dense lymphocytic infiltrate, leading to the diagnosis of lupus panniculitis. Subsequently, the patient was started on additional therapy of mycophenolate mofetil with dramatic response in symptoms and size of ulcerations. Lupus panniculitis constitutes 2-3% of all cases of lupus erythematosus. This autoimmune process affects the deep dermis and fat, typically presenting as tender nodules and plaques on the face, proximal extremities and trunk. Rarely lupus panniculitis has overlying skin findings of erythema, scale and ulcerations. Our case illustrates a rare presentation of lupus panniculitis as large, tender, non-healing ulcers on the scalp, that with correct diagnosis and appropriate therapy had hastened resolution.

## Poster 192

### Multiple pauci-inflammatory paraffinomas on the forehead of an HIV+ male

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Injected foreign materials are occasionally encountered within the dermis and subcutis in cutaneous biopsies, often representing intentional acts of the patients themselves. They typically elicit a brisk granulomatous response with polarizable foreign material. Paraffin is a rarely encountered foreign substance, commonly associated with patients seeking cosmetic benefit. It typically induces a brisk granulomatous response and is not directly visible, even under polarization. We present a case of a 44-year-old HIV+ male with multiple, non-tender, erythematous to yellow dermal-based papules scattered over the forehead and glabella. The clinical differential diagnosis included granulomatous rosacea, sarcoidosis, eosinophilic folliculitis, xanthomas and infectious causes. Histology revealed numerous well-demarcated spherical clear spaces throughout the dermis with an associated sparse histiocytic infiltrate. The patients HIV status and the sparse histiocytic infiltrate around clear spherical spaces caused cryptococcus to lead the differential diagnosis. GMS, PAS, mucicarmine, and Fite stains were negative for infectious organisms. CD68 and CD163 stains showed that the clear spaces were actually within the cytoplasm of histiocytes. Extensive additional questioning revealed that the patient had attended a Botox party during which a non-licensed, unidentified individual injected these areas. This case illustrates a

rare example of a paraffinoma and is also unique in its pauci-inflammatory response due to the patients HIV positivity.

## Poster 193

### Follicular mycoses fungoides

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Follicular mucinosis (FM) is a rare chronic inflammatory disease of unknown etiology characterized by the accumulation of mucin within hair follicles. Historically, FM has been divided into two distinct entities: FM of children and young adults not associated with other diseases ("idiopathic" FM) and FM in elderly patients associated with mycosis fungoides and Szary syndrome ("lymphoma-associated" FM). At present, a question remains whether or not idiopathic FM and lymphoma-associated FM are two completely distinct entities or are different names for a single disease with a relatively variable spectrum of clinicopathological presentations and outcomes. A 54 year old man on immunosuppressive therapy for multiple sclerosis presented to his dermatologist with a five week history of persistent pruritic, erythematous papules and plaques on his face and neck. Skin biopsies of the lesions showed deposits of mucin within the epithelium of hair follicles and a mixed inflammatory infiltrate composed of lymphocytes, histiocytes and numerous eosinophils within the dermis. In addition, there were focal granulomas and in one biopsy prominent necrosis of the epithelium of the hair follicles was identified. T-cell gene rearrangement studies were performed and were positive (V gamma). We present a case of follicular mycoses fungoides presenting as an acneiform eruption.

## Poster 194

### Primary cutaneous anaplastic large cell lymphoma in the spectrum of monomorphic post-transplant lymphoproliferative disorder following stem cell transplant

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We present the rare diagnosis of anaplastic large cell lymphoma as a component of a monomorphic post-transplant lymphoproliferative disorder. The patient is a 21-year-old male with a history of T-cell acute lymphoblastic leukemia who subsequently developed therapy-related myelodysplastic syndrome twelve years after his initial diagnosis and ultimately underwent allogeneic stem cell transplant. Five months after transplant, the patient presented with a 2-3 week history of a non-healing erythematous non-fluctuant plaque with a central one centimeter necrotic center on his left groin region. There was no localized adenopathy. Sections showed an ulcerated epidermis with superficial and deep dermal infiltrates of atypical and pleomorphic large cells with irregular nuclei and occasional horse-shoe nuclei, extending deep into the subcutaneous fat. Atypical large cells were positive for CD2, CD7, CD30 and focally for CD3 and CD5. They were negative for CD4, CD8, ALK-1, CD45, as well as B cell, myeloid, monocytic and NK cell markers. Microbiologic studies, EBV (LMP-1), EBER (ISH) and AFB and GMS stains were negative. Clinically and immunophenotypically, the findings are consistent with a monomorphic post-transplant lymphoproliferative disorder presenting as cutaneous anaplastic large cell lymphoma.

**Poster 195**

**Composite localized marginal zone lymphoma and diffuse large B-cell lymphoma in the dermis**

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We present a rare case of a primary composite lymphoma occurring in the soft tissues of the lower back in a 77-year-old otherwise healthy male. The patient experienced an abrupt onset of a palpable, non-tender mass in his lower right back and sought medical attention after one month. Physical examination revealed a 6 x 7 centimeter subcutaneous mass. Microscopic evaluation showed a vaguely nodular infiltrate composed of small to medium lymphocytes, some with plasmacytoid morphology and an adjacent distinct diffuse infiltration of medium to large lymphocytes with irregular nuclei and prominent nucleoli. Immunohistochemical stains revealed positive staining in the larger cells with CD20, PAX5, partial BCL6, and partial CD10 and negative staining with BCL-2. The atypical small cells were positive for PAX5, CD20, BCL-2, and negative for BCL-6, CD10, and showed weak lambda light chain overexpression. The plasmacytoid cells were positive for CD20, PAX5, and negative for CD138, MUM1, and showed lambda light chain overexpression. Cyclin D1 and EBER (ISH) were both negative. Subsequent staging bone marrow and imaging studies did not show any evidence of involvement. These findings are consistent with a localized primary lymphoma composed of a low-grade B cell lymphoma of marginal zone origin and a high-grade B cell lymphoma of germinal center cell origin.

**Poster 196**

**Persistent agmination of lymphomatoid papulosis**

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A 43 yr old Caucasian man with hypertension and hypercholesterolemia presented with a 10 year history of waxing and waning pruritic eruption. Itchy bumps arose in crops on his upper and lower extremities with partial resolution upon chronic sun exposure. Physical examination was notable for erythematous papules coalescing into well demarcated plaques on the right shin and medial aspect of both upper extremities. Eczematous scale was present between the papules. There was no palpable lymphadenopathy. Biopsy was remarkable for hyperkeratosis and spongiosis in the epidermis. A superficial and deep perivascular mixed cell infiltrate comprised of larger CD30+ mononuclear cells admixed among smaller reactive CD3+ lymphocytes was seen. Erythrocyte extravasation was also noted. CD20 staining was negative. These findings were consistent with lymphomatoid papulosis. Given the clinical presentation, a diagnosis of persistent agmination of lymphomatoid papulosis was rendered. Dermatologists need to be aware of this emerging CD30+ lymphoproliferative clinical subtype since some clinicians believe this represents a forme fruste of mycosis fungoides. Dermatopathologists should include this entity amongst the histologic differentials of lymphomatoid papulosis and anaplastic large cell lymphoma.

**Poster 197**

**A case report of plasma cell leukemia with skin manifestation**

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Plasma cell leukemia is a variant of plasma cell myeloma defined by the presence of clonal plasma cells in the peripheral blood exceeding  $2 \times 10^9 / L$  or 20% of the leukocyte differential count at the initial diagnosis. Cutaneous involvement is a well-recognized, yet infrequent occurrence in plasma cell myeloma. We present a case of extraosseous cutaneous mass in a patient with plasma cell leukemia. The patient is a 42 yo female with a history of plasma cell leukemia recurrent after both autologous and allogeneic stem cell transplant. The patient relapsed with gingival mass three months after her last transplant. Radiation directed at the oral lesion was instituted with good initial response. Five months after the radiation a recurrent lesion appeared in the oral mucosa and a new lesion was present in the skin. A 5 cm skin-colored, freely mobile, non-tender subcutaneous nodule with a violaceous hue in the center located in the right upper inner arm was noted on the patient. A punch biopsy was obtained for diagnosis. H&E stained sections showed fragments of a monomorphic proliferation of CD138(+) and lambda-restricted atypical cells with eccentrically located nuclei. These cells were negative for kappa light chain and CD20 immunostains. The immunophenotyping matched the patients plasma cell leukemia and was consistent with cutaneous involvement. The patient is currently receiving salvage chemotherapy.

**Poster 198**

**Gamma-Delta T-cell lymphoma arising in a long-standing cutaneous plaque**

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The precise classification and characterization of primary cutaneous gamma-delta T-cell lymphoma (PCGD-TCL) has been hindered by clinical and morphologic features that overlap with other lymphomas, especially subcutaneous panniculitis-like T cell lymphoma (SPTCL). The recent WHO / EORTC classification separates the more aggressive PCGD-TCL from the usually indolent SPTCL. We report a 30 year old woman with an indurated violaceous plaque on the left cheek that had been present for several years. Biopsies showed a dense lymphocytic infiltrate involving the subcutis and dermis that consisted mostly of small and medium sized lymphocytes, some with irregular nuclear contours and dense chromatin. These cells were positive for CD8, TIA-1 and Granzyme-B, but negative for beta-F1. Staging with PET/CT, CBC, and bone marrow with flow cytometry identified lymphadenopathy as well as blood and marrow involvement by an abnormal TCR- positive T-cell proliferation (Ann Arbor Stage IV). The patients history of a long-standing lesion in this case is unusual since gamma-delta T-cell lymphomas are typically rapidly progressive neoplasms. As such, it raises the possibility of transformation of a long-standing inflammatory process into an overt lymphoma.

**Poster 199**

**Folliculotropic mycosis fungoides presenting as basaloid folliculolymphoid hyperplasia**

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A 62 year-old woman presented with a 3-year history of a 2 cm edematous, erythematous plaque of her right upper eyelid. Biopsy was performed initially showing spongiotic dermatitis; however the lesion persisted with no clinical improvement after topical steroids and calcineurin inhibitors. A second biopsy was performed and a diagnosis of nodular basal cell carcinoma was rendered. The patient subsequently underwent Mohs micrographic surgical excision. Upon surgical resection, the specimen showed an atypical basaloid epithelial proliferation with focal mucin deposition and mildly atypical lymphocytes within the epithelium, but no evidence of basal cell carcinoma. Outside consultation provided a diagnosis of basaloid folliculolymphoid hyperplasia suspicious for mycosis fungoides (MF). The patient underwent additional biopsies on similar lesions located on the neck and arm, revealing a superficial lymphocytic perivascular infiltrate, epidermal lymphocytic exocytosis, including the presence of rare Pautrier-like collections of atypical lymphocytes, and increased numbers of mildly atypical lymphocytes within spongiotic follicular epithelium. The CD4:CD8 ratio was increased. Polymerase chain reaction analysis for T-cell receptor gamma gene rearrangement showed a clonal T-cell population, confirming the diagnosis of folliculotropic MF presenting as basaloid folliculolymphoid hyperplasia. Folliculotropic MF is a diagnostically separate entity based upon its unique clinical and histologic presentations, including variants such as basaloid folliculolymphoid hyperplasia, its resistance to common therapies, and its worse prognosis. Our case illustrates the need for increased awareness of rare histologic variants of folliculotropic MF so that misdiagnosis and subsequent inappropriate treatment is avoided.

**Poster 200**

**An incidental finding: Solitary cutaneous Rosai-Dorfman disease**

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Rosai-Dorfman disease is described as a benign, self-resolving, histiocytic proliferative disorder of unknown etiology, which most commonly affects patients in their first two decades of life. Extranodal involvement is rare but usually accompanies the nodal disease, most commonly affecting the skin and subcutis. Pure solitary, cutaneous involvement, although previously documented, is rare. It is thought to be a distinct entity since it affects primarily White and Asian patients in their forties, and frequently occurs on the face. Furthermore, very few of these patients advance to systemic or nodal disease. We report the case of a 65 year old Black male with a 0.8 cm, solitary, erythematous, firm, non-painful nodule, which was noticed during a routine skin examination. The nodule was located on the abdomen at the level of the waistband, and was clinically thought to be a pyogenic granuloma. There was no evidence of lymphadenopathy or other systemic signs of Rosai-Dorfman disease. Histology showed a polymorphic inflammatory in-

filtrate, including S100 positive and focally CD68 positive feathery histiocytes showing emperipolesis. Due to its incidental discovery, it is feasible that this distinct entity may often be overlooked or misdiagnosed and that its reported rarity might be misleading.

**Poster 201**

**Leukemia cutis in B-cell chronic lymphocytic leukemia presenting as a recurrent papulovesicular eruption**

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A 53-year old man presented with a one week history of a mildly pruritic rash accompanied by painful sores in the mouth and throat. He reported two similar episodes over the previous 18 months that had resolved without treatment within a few weeks. His past medical history was significant for subclinical B-cell chronic lymphocytic leukemia (B-CLL), which had never been treated. On exam, there were erythematous papules and plaques studded with vesicles on the neck, trunk and upper extremities. There were also small erosions on the palate and gingival mucosa. Two skin biopsies showed common features of a perivascular and periadnexal lymphocytic infiltrate in the superficial to mid-dermis. The infiltrate was composed of reactive small lymphocytes and a second population of small lymphocytes with scant pale cytoplasm and slightly irregular nuclei with fine chromatin. Immunohistochemical staining of these lymphocytes showed co-expression of CD20, CD23, CD5 and CD43 positivity, consistent with a diagnosis of cutaneous involvement by the patients B-CLL. Secondary cutaneous lesions are common in B-CLL and include exaggerated insect bite reactions, skin cancer, purpura and paraneoplastic pemphigus. However, specific skin-involvement by B-CLL, termed leukemia cutis, is a rare phenomenon that presents with solitary grouped or generalized papules, plaques, nodules or tumors. This case highlights the importance of considering leukemia cutis in patients with underlying B-CLL presenting with unusual clinical features.

**Poster 202**

**Primary cutaneous gamma/delta T-cell lymphoma with aberrant CD20 co-expression**

Goli Compoginis, MD

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Cutaneous gamma/delta T-cell lymphoma (CGD-TCL) is a rare, clinically aggressive disease classified by the WHO-EORTC as a provisional entity within the "primary cutaneous peripheral T-cell lymphoma (PTL, unspecified" group. Approximately 40 cases have been reported. Histologically, the infiltrate can be epidermotropic, dermal, or subcutaneous, with many patients demonstrating more than one pattern. The gamma/delta phenotype confers a significantly reduced survival when compared to the alpha/beta phenotype, with a median survival of 15 months. Individuals with a predominantly subcutaneous pattern have a further decrease in survival. We report a 35 year old male who presented with a two and half year history of erythematous patches progressing into ulcerating plaques. Biopsies revealed an epidermotropic T-cell lymphoma with atypical lymphocytes staining positively for CD3, CD5, CD7, CD8, CD56, and TIA-1. Aberrant CD20 coexpression was

also observed. A T-cell receptor gene rearrangement was detected by PCR. In addition, gamma M3 staining was positive and beta F1 staining was negative, confirming a gamma/delta phenotype. Prompt recognition and diagnosis of this disease with the aid of immunohistochemical and molecular techniques is important given its particularly aggressive nature. This is the sixth case of primary cutaneous PTL with aberrant expression of CD20 reported in the literature.

## Poster 203

### **Subcutaneous panniculitis like T-cell lymphoma associated with lipodermatosclerosis**

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A 53 year-old man with a eight year history of lipodermatosclerosis presented with fatigue, weight loss and tender subcutaneous nodules on the abdomen and proximal upper extremities. The clinical differential diagnosis included erythema nodosum, erythema nodosum migrans, nodular vasculitis, sclerosing panniculitis, and cytophagic histiocytic panniculitis. Biopsies from the arm showed a diffuse lobular panniculitis with focal fat necrosis, karyorrhexis, and rimming of adipocytes by atypical lymphocytes. The infiltrate extended into the mid dermis, but the overlying epidermis was uninvolved. Given the predominant lobular involvement, lipodermatosclerosis, cytophagic histiocytic panniculitis, angiocentric (NK/T cell) cell lymphoma and subcutaneous panniculitis-like T-cell lymphoma were considered in the histologic differential diagnosis. The T-cells surrounding individual adipocytes were positive for CD3, CD8, and CD7, as well as granzyme B and TIA-1. They showed reduced expression of CD5, and were negative for CD30 or CD56. Immunohistochemical staining for CD138, CD20, and CD4 highlighted scattered rare plasma cells, B-cells, and T-cells and histiocytes respectively. In addition, in situ hybridization for Epstein -Barr virus (EBV) was negative. The lymphocytes also demonstrated a clonal T-cell receptor gamma gene rearrangement and antibodies against beta-F1 weakly highlighted these cells, confirming the diagnosis of subcutaneous panniculitis like T-cell lymphoma. Subcutaneous panniculitis like T-cell lymphoma is a rare lymphoproliferative disorder with a variable clinical course. To our knowledge, the association between lipodermatosclerosis and subcutaneous panniculitis like T-cell lymphoma has not been previously reported.

## Poster 204

### **Concurrent Malignant melanoma and cutaneous involvement by hodgkin lymphoma in a 63 year-old man**

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A 63 year-old man with past medical history of Hodgkin lymphoma (HL), classical nodular sclerosis type, and acute myeloid leukemia (AML) presented with three to four months history of two 4 mm pink papules on the scalp, and a pink-crust 6 mm plaque on the left side of his neck. Both punch biopsies from the scalp showed malignant melanocytic proliferations with a predominant dermal component. They were composed of large nests of atypical melanocytes with light eosinophilic cytoplasm, vesicular nuclei with prominent nucleoli and abundant mitotic figures at the mid dermis and deeper portions of the lesion. An atypical intraepidermal

melanocytic component was present in one of them. The biopsy from the left neck showed a mixed dermal inflammatory infiltrate with scattered atypical multinucleated and mononuclear cells, intermixed with aggregates of neutrophils, small lymphocytes and macrophages. Some hyperchromatic cells with vesicular nuclei resembling Reed-Sternberg cells were seen. The multinucleated and some mononuclear cells were positive for CD30, CD20, CD79a, with dim CD15 staining, but negative for CD45. A Melan-A and S100 stains were negative, morphologically and immunophenotypically consistent with cutaneous involvement by HL. Although the association between Non-Hodgkins lymphoma and melanoma has been previously recognized, no linking has been made with HL. To our knowledge, this the first report of coexisting cutaneous involvement by classical HL and melanoma.

## Poster 205

### **Dramatic metastatic melanoma in African American man with primary acral melanoma**

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An 85 year-old African-American man with a history of Stage IIB acral lentiginous melanoma of the left hallux status post amputation and sentinel lymph node biopsy (negative), presented to his primary physician two years later with painful inguinal lymphadenopathy but declined further investigation. One and a half years later he presented to the melanoma center with a chief complaint of "lumps", difficulty walking, and leg swelling. On physical exam, he was cachectic with temporal wasting. There was non-pitting edema of the left leg extending to the left foot. The amputation site was well healed without nodules or suspicious pigmentation. However, there was en-bloc lymphadenopathy of the left groin with approximately twenty, 0.5-2.0cm bluish-black, firm, non-tender nodules extending along the thigh into the left groin. There was a 2.0cm non-tender mass in the left axilla. On the left shoulder, there was an 8mm blue, fixed, non-tender subcutaneous nodule. There were multiple depigmented patches on the perioral face, glans penis, and right lower extremity. Serum lactic dehydrogenase was 2666 U/L. Whole body PET/CT scan showed numerous metastases to brain, liver, lung, gallbladder, skin, muscle, bone, lungs and metastatic implant causing small bowel intussusception. A skin biopsy from a nodule on the left thigh showed a moderately dense, diffuse infiltrate of atypical cells with conspicuous nucleoli throughout the dermis with sparing of the epidermis. There was extensive necrosis and rare mitotic figures. Vimentin, Melan-A and focal S-100 staining were all positive. Pan-cytokeratin and CD45 stains were negative.

## Poster 206

### **Canine melanoma: A comparison with human pigmented epithelioid melanocytoma**

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A 13 year old male Chihuahua Papillon mix presented with a lesion on the lip of one years duration. Physical examination revealed a 1 cm smooth, symmetric and homogeneous black nodule on the

right upper cutaneous lip. No pigmentation was visible on examination of the buccal mucosa. Complete excision revealed a heavily pigmented dermal melanocytic growth composed of a mixture of epithelioid and spindle melanocytes. The epithelioid cells occupying the central portion of the lesion had heavily pigmented cytoplasm and contained round to oval vesicular nuclei with variably prominent eosinophilic nucleoli. The spindle cells were more numerous toward the periphery of the lesion and had the same nuclear features as those of epithelioid cells. Mitotic activity was infrequent. The lesion was diagnosed by a veterinary pathologist as canine melanoma. Review of the histology revealed findings analogous to "animal-type melanoma" in humans. Features of canine melanoma, "animal-type melanoma", epithelioid blue nevus of the Carney type, and "pigmented epithelioid melanocytoma" will be reviewed.

## Poster 207

### **Pigmented extramammary Pagets disease of the abdomen: A potential mimicker of melanoma**

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Extramammary Pagets disease (EMPD) is a rare condition that usually presents in areas that are rich in apocrine sweat glands such as the vulva, scrotum and perianal areas. The majority represent cutaneous extension from a visceral adenocarcinoma, while a smaller proportion arise in the cutaneous apocrine glands themselves. Women in their sixth to eighth decades are most commonly affected. It is exceedingly rare for EMPD to present on the face, chest or abdomen and even more unusual for it to present as a pigmented lesion. We report the case of a 63 year-old woman with an underlying colon cancer who presented with a pigmented lesion in the midline of the abdomen above the umbilicus. Immunohistochemical stains demonstrated the lesion to be CK7+/ CK20- as well as negative for melanocytic markers (S100, MiTF, Melan-A, HMB-45). Further, the immunophenotype of the EMPD differed from the patients underlying colon adenocarcinoma (CK20+/ CK7-), arguing against an ectopic focus of her established disease. Making the distinction between pigmented EMPD and melanoma is a potential diagnostic pitfall due to the histologic similarities. EMPD should be considered in the morphologic differential diagnosis of melanoma, and if necessary, supporting studies should be performed to aid in this distinction.

## Poster 208

### **Amelanotic melanoma in a patient with albinism**

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Melanoma, although uncommon in albinos, has been known to occur with approximately forty cases to date described in the literature with most of them being amelanotic. A 34-year-old Albino man from the Dominican Republic presented with a shiny purple nodule on the back that was clinically diagnosed as a hemangioma. The lesion was excised and histopathology revealed an amelanotic dermal nodule of malignant melanoma with a greatest thickness of 5.25 mm, confirmed by immunohistochemical stains S100P, HMB45 and Mart-1/Melan-A. No melanocytes were noted in the overlying or adjacent epidermis. Genomic analyses of the neo-

plasm revealed no mutations in BRAF, NRAS1 and 2 and KRAS. Ultrastructural studies revealed complex melanin granules within keratinocytes with unequally-sized stage 1-2 melanosomes. A positive axillary lymph node was identified. The patient had multiple prior biopsies (x3) with a diagnosis of basal cell carcinoma. A retrospective review of these revealed retained basal melanocytes, albeit at a reduced density. We present this case to increase awareness of the occurrence of melanoma in albino patients.

## Poster 209

### **Subungual melanoma in-situ arising in a 9 year-old child**

Jerome Jean-Gilles Jr., MD

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We report a very rare case of malignant melanoma in situ of the nail unit in a 9 year-old male Caucasian child. The patient presented with longitudinal melanonychia of the left great toenail measuring 4 mm in width with a slightly darker streak in the mid-portion. The lesion expanded in size over the previous two years. Histopathologically, sections showed proliferation of moderately to severely atypical melanocytes within the matrix extending into the proximal nail fold. Irregularly dispersed and confluent nests with full thickness pagetoid spread were highlighted with Melan-A stain. There are only rare reported cases of melanoma of the nail unit in children. To our knowledge only 10 cases have been previously documented in the English language literature. Biopsy should be performed on expanding pigmented lesions of the nail apparatus regardless of the age of the patient.

## Poster 210

### **Malignant melanoma with metaplastic chondroid differentiation**

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A 67 year-old man presented with a subcutaneous nodule on the posterior neck. Excisional biopsy was performed, with histology revealing confluent hyperplasia of atypical melanocytes arranged as nests and single cells along the dermoepidermal junction, with prominent pagetoid extension. The underlying dermis demonstrated solar elastosis along with expansile nodules of atypical cells with chondroid differentiation. Immunohistochemical stains revealed that the chondroid nodule contained focally positive cells at the periphery for HMB-45 and Melan-A. Based on the histologic and immunohistochemical findings, the diagnosis of malignant melanoma with metaplastic chondroid differentiation was made. The tumor had a Breslow thickness of at least 7 mm with a Clarks level of at least IV. This is an exceedingly rare presentation of melanoma, with only a handful of previously published case reports of purely chondroid differentiation. Four were on the lower extremity, with two subungual lesions, and one was on the nasal tip. This case represents a lesion that presented as a non-pigmented subcutaneous nodule on the posterior neck, a previously unreported site. An interesting feature of this case is the presence of clear melanoma in situ in the epidermis overlying the chondroid dermal nodules.

**Poster 211**

**Utility of Cystic fibrosis transmembrane conductance regulator (CFTR) in the differential of extramammary Paget's Disease and squamous cell carcinoma in-situ (Bowen's Disease)**

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**BACKGROUND:** Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) is a multipass transmembrane protein that functions as a chloride channel that has been extensively studied in its role in Cystic Fibrosis. CFTR is expressed in glandular epithelium, including apocrine, eccrine and sebaceous glands. One of the major challenges of diagnosing extramammary Paget's disease is distinguishing it from Bowen's disease. Several stains have been used including cytokeratin 7 and ber-EP4 to differentiate the two. The purpose of this study was to evaluate CFTR expression in extramammary Paget's disease and Bowen's disease. **DESIGN:** 25 cases of Bowen's disease and 14 cases of extramammary Paget's disease were pulled from the files at our institution. CFTR monoclonal antibody stain (CFTR C domain, 1:500) was performed on all cases. **RESULTS:** 25 of 25 cases of Bowen's disease were negative for CFTR, with only rare cells showing cytoplasmic staining. 14 of 14 cases of extramammary Paget's disease were positive for CFTR. Staining in all cases showed diffuse granular cytoplasmic staining of greater than 75% of tumor cells (a cutoff of greater than 5% tumor cell staining was considered positive). **CONCLUSION:** Based on these findings Cystic Fibrosis Transmembrane Conductance Regulator is useful in distinguishing extramammary Paget's disease from Bowen's disease and should be considered as an additional stain in addressing this differential.

**Poster 212**

**Primary cutaneous rhabdomyosarcoma**

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We report a case of a cutaneous rhabdomyosarcoma, not otherwise specified, that presented as a single raised pink-purple lesion (1 x 0.8 cm) located on the right cheek of an 87-year-old man. Histologic review revealed an exophytic, nodular tumor within the upper dermis abutting the relatively normal epidermis with a lymphoid cuff surrounding the deep aspects of the lesion. The tumor had a sheet-like growth pattern and was composed of pleomorphic cells with round to ovoid eccentrically positioned nuclei with open chromatin, prominent nucleoli, and abundant eosinophilic cytoplasm. Numerous mitotic figures were present (39 MF/10 HPF). By immunohistochemistry tumor cells were diffusely positive for desmin and were positive for MYOD1, a specific marker of rhabdomyoblastic differentiation. Stains for cytokeratins (AE1/3, 34 E12, CK7, CK20), melanocytic markers (S100 protein, HMB-45, melan A), SMA, myogenin, CD34, CD31, TTF-1, and PSA were negative. The histologic features and immunophenotype supported a diagnosis of rhabdomyosarcoma. FISH demonstrated no evidence of FOXO1A (FKHR) gene region rearrangements, arguing against alveolar rhabdomyosarcoma. No evidence of a deep soft tissue primary lesion was present. Rhabdomyosarcoma may rarely present as a primary cutaneous lesion and should be considered in the differential of tumors with rhabdoid morphology.

**Poster 213**

**Cutaneous metastasis of urothelial carcinoma**

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An 80 year-old white male with a past medical history significant for high grade papillary urothelial carcinoma of the bladder and urethra presented with a 6 week history of an expanding skin lesion on his abdomen. He previously underwent left nephroureterectomy and transurethral resection of bladder tumor (TURBT) with concomitant Bacillus Calmette-Guerin (BCG) chemotherapy for his urothelial carcinoma. He also had a history of Hodgkin lymphoma diagnosed 30 years prior. Histologic evaluation of the excised lesion revealed a malignant epithelial neoplasm involving the full thickness of the skin with nests of tumor cells matriculating into the epidermis. Immunohistochemistry staining revealed the tumor cells to be positive for pankeratin (AE1/AE3), CK7, CK20, CK19 and CD138 and negative for panmelanin stain. These morphologic and immunophenotypic features are consistent with metastatic urothelial carcinoma. The patient is currently being treated with additional cycles of carboplatin and Gemzar chemotherapy. A review of the literature demonstrates that urothelial carcinoma metastases to the skin are extremely uncommon and usually present in the later stages of disease, indicating a poor prognosis. One case in the literature, however, reports a 23 year disease-free survival following treatment of cutaneous metastases with wide local excision and single-agent chemotherapy.

**Poster 214**

**Aural nevus sebaceus of jadassohn with a myxoma in a patient with Carney's Syndrome**

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We report a case of a 53 year old man with Carney's complex who presented with a 5 mm red-pink polypoid mass in his right external ear canal. A biopsy was performed and it demonstrated a circumscribed nodule with a myxoid matrix with prominent capillaries and scattered spindle cells consistent with a cutaneous myxoma. However, underlying the myxoma and adjacent to it the epidermis demonstrated papillomatosis, sebaceous gland hyperplasia and dilated apocrine glands consistent with a Nevus Sebaceus of Jadassohn (NSJ). The finding of an aural myxoma in a patient with Carney's complex is not unusual, however this location for NSJ is rare and the finding of the two entities together has not been described. This may be a rare coincidence however a review of the literature and search for a possible connection was warranted. Carney's complex is an autosomal dominant disease; a mutation in PRKAR1a gene, which is a tumor suppressor gene, has been identified. The epidermal component of myxomas can display keratinous cysts with basaloid budding, suggestive of a trichofolliculoma with and without sebaceous differentiation. NSJ is a hamartoma which is commonly found on the scalp and face, and uncommon for the ear canal. These lesions are slow growing and are present at birth or soon after. Recent studies have identified HPV DNA in the majority of NSJs. A review of the literature shows myxomas associated with other entities, but the association with NSJ has never been reported. It may be that the NSJ in this case is actually a trichofolliculoma with sebaceous differentiation, however the ex-

tent of the lesion beyond the myxoma and its classic resemblance to NSJ favors two lesions. It could also be that NSJ may be part of Carney's complex. To discern an association, inspection of myxomas in patients with and without Carney's complex should focus on underlying lesions, such as NSJ.

**Poster 215**

**A case of granular-cell basal cell carcinoma resembling sebaceous carcinoma**

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Granular-cell basal cell carcinoma (BCC) is a rare variant of BCC characterized by abundant fine eosinophilic granules within the cytoplasm of tumor cells. At present, eleven cases have been reported in the literature. We report a 39-year-old man who presented with a red papule on his right temple, clinically suspicious for basal cell carcinoma. Shave biopsy was performed and followed by electrodesiccation and curettage. Microscopic examination revealed nodules of tumor cells with clear cytoplasm containing abundant fine eosinophilic granules that were PAS positive. The tumor nodules have peripheral palisading and are connected to the epidermis. Some of the tumor cells with granular cytoplasm showed upward pagetoid spread to the granular cell layer of the epidermis, resembling sebaceous carcinoma which can be associated with Muir-Torre syndrome. Further immunohistochemical studies were performed and showed that the tumor cells are negative for EMA, but strongly positive for Ber-EP4. Overall the histologic features and an EMA negative, Ber-EP4 positive immunohistochemical pattern support the diagnosis of granular-cell basal cell carcinoma.

**Poster 216**

**Cutaneous micropapillary adenocarcinoma of undetermined primary**

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A 63-year old male with a history of hypertension, hypercholesterolemia, and atrial fibrillation, presented to his dermatologist for a full skin evaluation. He was found to have a 6 mm asymptomatic erythematous firm nodule on the posterior aspect of his right thigh of unknown duration. A cyst or a dermatofibroma were clinically suspected. Histological examination revealed a deep dermal nodule composed of small glandular structures in a micro papillary configuration with thin fibrovascular cords surrounded by tissue clefts. The glands were composed of cells with enlarged, hyperchromatic and pleomorphic nuclei, with mitotic figures and psammoma bodies, as well as a prominent desmoplastic stroma. An immunohistochemical panel revealed cells that stained positive for CK7, CK19, and EMA, and negative for PSA, CDX-2, CK20, thyroglobulin, TTF-1, GCD-FP-15, uroplakin and vimentin. Furthermore, immunoperoxidase stained sections for chromogranin and synaptophysin were negative. These findings are consistent with a metastatic micropapillary adenocarcinoma of undetermined primary, suspicious for a primary thyroid or urothelial carcinoma. The patient is currently undergoing a malignancy work-up in search of a primary carcinoma.

**Poster 217**

**Primary cutaneous nodular amyloid**

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A 58-year-old woman presented with a six-month history of multiple, 1-3 cm, yellow, non-tender, subcutaneous nodules on the trunk. Clinical differential diagnosis at presentation included xanthomas, lymphoma cutis, and sarcoidosis. Punch biopsy demonstrated subtle pink amorphous material in the dermis that was accentuated around blood vessels and adnexal structures and was accompanied by a lymphoplasmacytic infiltrate. Congo Red stain demonstrated apple green birefringence under polarization. Tissue in-situ hybridization highlighted a kappa to lambda light chain ratio of 1:1, consistent with a reactive plasma cell population. A diagnosis of primary cutaneous nodular amyloid (PCNA) was made only after a thorough workup to exclude systemic involvement because primary systemic amyloidosis is often indistinguishable histopathologically from PCNA. PCNA is the rarest form of primary cutaneous amyloid and presents as waxy yellow-red nodules located preferentially on the lower extremities, face, scalp, and genitals. PCNA, although generally benign with an excellent prognosis, has been observed to progress to systemic amyloidosis in 7-50% of individuals, necessitating continuous follow-up and laboratory evaluation. This case serves to highlight the classification of amyloidosis, the characteristic histopathological features and staining of amyloid, as well as the need to evaluate for systemic disease in patients with PCNA.

**Poster 218**

**Signet-ring squamous cell carcinoma of the skin**

David Lortscher, MD

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A 67-year-old man with a history of multiple non-melanoma skin cancers presented with a discrete 2cm nodule near his left lateral canthus. There was minimal surface change aside from a small area of hemorrhagic crust. Shave biopsy revealed a dermal tumor composed of irregular pale cells with hyperchromatic nuclei, and a majority of the cells demonstrated a prominent, round, perinuclear vacuole, giving a signet-ring appearance. This prompted concern for metastatic adenocarcinoma, and further questioning of patient revealed a history of lung cancer treated several years previously with radiation therapy. A recent PET scan showed no evidence of internal malignancy. The current tumor was positive for cytokeratin 5/6, P63, and EMA, and negative for CK7 and CEA, supporting a diagnosis of signet-ring squamous cell carcinoma. Indeed, when further tissue was obtained for examination, there were areas of keratinization and numerous keratin pearls, in addition to areas of signet ring change. The tumor vacuoles were negative for alcian blue, mucicarmine, and PAS stains, suggesting that the clear spaces were not mucin or glycogen. A prior case in the literature showed on electron microscopy that the round clear spaces represented large outpouchings of the rough endoplasmic reticulum. To our knowledge, this is the fourth reported case of signet ring squamous cell carcinoma of the skin, which histologically resembles an adenocarcinoma.



**Poster 219**

**Metastatic basal cell carcinoma with extensive perineural infiltration**

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While basal cell carcinoma (BCC) is one of the most common cutaneous tumors, metastatic basal cell carcinoma (MBCC) occurs exceedingly rarely, with a reported incidence of less than 0.55%. Risk factors associated with metastasis include large tumor size, ulceration, local recurrence following treatment, and local invasion including lymphovascular and perineural spread. We present the case of a remarkably destructive and metastatic BCC, ultimately requiring forequarter amputation. The patient initially presented for wide resection of a 13 cm ulcerated BCC of the right shoulder involving the skin, subcutis, scapula, and clavicle. The patient underwent radiation therapy and multiple re-excisions for local recurrences over the next decade. Ten years following initial presentation a right middle lobe metastasis was detected, requiring lobectomy. Two years later the patient presented with diffuse involvement of bone by tumor and underwent a right scapulectomy. The following year the tumor recurred as a 7 cm infiltrative mass at the scapulectomy surgical site, encasing the axillary artery and brachial plexus. A right upper extremity forequarter amputation was performed. Histology of this specimen was remarkable for diffuse infiltration of branches of the brachial plexus and complete replacement of the lumen of a branch of the axillary/brachial artery. S100 and elastic stains confirmed involvement of the artery and neural structures. This case represents an extremely unusual example of a locally aggressive and metastatic BCC exhibiting extensive perineural infiltration.

**Poster 220**

**Panfolliculoma**

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82-year-old Caucasian male presented with a gradually enlarging, asymptomatic mass on his right pre-auricular area that appeared within a 2 year period. On physical exam, the patient had a 0.5 cm pink smooth papule without any associated tenderness nor drainage. Clinically, the differential diagnosis was a cyst or basal cell tumor. A shave biopsy of the lesion was performed, and the clinician commented on the cystic appearance of the specimen. Histological evaluation of sections indicate a proliferating cystic follicular tumor with relatively symmetrical and well-circumscribed architectural pattern of epithelial aggregates. The closely arranged solid and cystic structures with scant stroma are comprised of neoplastic cells that show bulbar, stem, isthmic and infundibular differentiation. This lesion is considered to be a panfolliculoma because of the characteristic cellular differentiation towards all of the parts of the hair follicle. Panfolliculoma is a rare follicular neoplasm with differentiation towards the upper (infundibulum and isthmus) and lower (stem, hair matrix, and bulb) segments of the hair follicle. Clinically, it appears as a solitary, slow growing pink papule, primarily on face and scalp resembling a basal cell tumor or cyst. Histological differential diagnosis includes a cystic trichoblastoma with advanced follicular differentiation, likely a neoplasm on the same spectrum as panfolliculoma with different degree of follicular differentiation.

**Poster 221**

**Fluoroscopy-Induced Chronic Radiation Dermatitis: A report of two additional cases**

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Diagnosis of fluoroscopy-induced chronic radiation dermatitis (FICRD) is challenging, due to unreliable history regarding radiation exposure and delays in disease manifestation. Recognition of FICRD is important to avoid unnecessary treatment, and to guarantee appropriate surveillance for radiation-induced squamous cell carcinoma. FICRD characteristically involves the scapula, upper back, or lateral trunk. Lesions frequently present as geometric patches with spontaneous ulceration, but range from erythema to necrosis. Histopathology reveals superficial telangiectasia, thickened, sclerotic collagen bundles, sparse hyperchromatic fibroblasts, and decreased adnexal structures and adipose tissue. Case 1: 44 year-old man with a mildly pruritic, large poikilodermatous lateral back patch, for several years. Case 2: 64 year-old woman with a painful 10 cm left flank plaque with atrophy and ulceration, for one year. Both skin biopsies showed superficial telangiectasia, dermal hyalinization and scattered hyperchromatic fibroblasts. Case 1 gave no history of radiation exposure; however, chart review revealed history of cardiac radiofrequency ablation, and congenital heart disease with correction. Case 2 had a history of mesenteric artery stents prior to FICRD development. Expanding use of minimally invasive procedures are resulting in increased fluoroscopic exposure. A high index of suspicion for FICRD is prudent for lesions in characteristic locations displaying ulcerative, telangiectatic or morpheaform changes.

**Poster 222**

**Unilateral nevoid telangiectasia syndrome: A case report and review of the literature**

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We report on a 43-year-old Caucasian female who presented with bright red macules with focal collarettes of scale in a unilateral distribution in the left C5-8 and L3-5 dermatomes. Histologic examination showed superficial papillary dermal telangiectasia with minimal chronic inflammation and rare eosinophils, overlying layered parakeratosis, rare dyskeratosis, occasional epidermal Langerhans cells, and mild spongiosis. Immunohistochemical stains for estrogen and progesterone receptors (ER/PR) were negative. A diagnosis of unilateral nevoid telangiectasia syndrome (UNTS) was given, with superimposed concurrent hypersensitivity reaction. UNTS is an uncommon disorder first described by Alfred Blaschko in 1899. UNTS consists of telangiectasias occurring in a unilateral dermatomal distribution and often affecting the trigeminal, cervical, and upper thoracic dermatomes. It can be either congenital or acquired and has a 2:1 female:male ratio. While previously believed to be related to hyperestrogenic states, a thorough review of the literature reveals only about half of the cases to be related to pregnancy, puberty, or liver disease, and the vast majority show no increase in ER/PR in lesional skin, as in the current case. UNTS may be more common than previously believed, and shows some response to vascular laser therapy. Differential diagnoses include hemangioma, angioma serpiginosum, and rarely nevus flammeus.

**Poster 223**

**Cutaneous lesions and neurologic symptoms: More than skin deep?**

Kimberly Neyman, MD

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A 19-year-old Caucasian male presented with a four-month history of asymptomatic red papules involving the trunk and upper extremities. His past medical history was unremarkable with the exception of abdominal pain attributed to gastro-esophageal reflux for which he was taking esomeprazole. A recent colonoscopy was unremarkable. Skin examination revealed multiple, 2-5 mm, erythematous papules with central atrophy and porcelain-white discoloration involving the trunk and upper extremities. A skin biopsy showed a wedge-shaped area of necrotic, eosinophilic collagen in the superficial dermis and increased interstitial dermal mucin. Based on the clinical presentation and histopathologic findings, the patient was diagnosed with malignant atrophic papulosis (Degos disease). Subsequent to his initial presentation, he reported numbness and paresthesia of the face, left hand and calf and occasional headaches. Neurological examination was unremarkable and an MRI of the brain showed no evidence of infarction or hemorrhage. Laboratory studies including serum chemistries, CBC, coagulation studies and serum protein electrophoresis were within normal limits. Rapid plasma reagin test and hepatitis serologies were negative. Although malignant atrophic papulosis may present with asymptomatic skin lesions, life-threatening manifestations can develop months to years after cutaneous lesions present and patients require close clinical follow-up for evidence of systemic involvement.

**Poster 224**

**Intravascular histiocytosis (reactive angioendotheliomatosis with histiocytic differentiation) presenting as cellulitis in an 82 year-old woman**

Ashley Gullett, MD

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Reactive angioendotheliomatosis is a very rare condition characterized by an intravascular proliferation of endothelial cells in response to microthrombi or other noxious stimuli. Cases displaying histiocytic differentiation have been termed intravascular histiocytosis. We present a case of reactive angioendotheliomatosis with histiocytic differentiation arising in an 82 year-old woman with mild anemia in the absence of other systemic disease. The patient presented with an 8-month history of a 16 x 8 cm, warm, red, dermal plaque on the right anterior thigh that had been clinically diagnosed as treatment-resistant cellulitis by an outside physician. Histology of the plaque showed a predominately dermal lesion composed of closely packed, variably dilated vascular spaces (mainly capillaries). The endothelial cells were bland-appearing and enlarged with oval or indented nuclei and abundant, finely granular cytoplasm. The intravascular cells were positive for CD45, CD31, and CD68 with focal positivity for S100. There was no expression of keratin, CD3, CD20 or CEA. Our case illustrates an intravascular proliferation expressing both endothelial and histiocytic antigens supporting the theory that intravascular histiocytosis may represent an early stage of reactive angioendotheliomatosis.

**Poster 225**

**Elective amputation in Keratosis-Ichthyosis-Deafness Syndrome due to intractable pain and dermatophyte infection**

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We present a case of an extremely rare entity, Keratosis-Ichthyosis-Deafness (KID) Syndrome, and its sequelae. A 54-year-old female patient with a history of the syndrome (multiple hyperkeratotic plaques covering the body, deafness, and blindness) and multiple previous surgical debridements/skin grafting procedures of her right lower extremity presented for elective below knee amputation due to intractable pain and immobility of the foot. The patient complained of nonhealing, bleeding, necrotic areas of her foot which made it nonfunctional. Gross examination of the amputation specimen revealed a diffuse, red-gray erythematous area on the plantar and mid-dorsal aspects of the foot with diffuse gray-yellow and scaly plaques that extended to the surgical margin of resection. Initial biopsies as well as the subsequent amputation specimen revealed no evidence of ulceration but rather diffuse atypical verrucoid squamous hyperplasia. GMS stain revealed the presence of large numbers of fungal hyphae within the epidermis, consistent with candida infection. Immunohistochemical stains and in-situ hybridization for Human Papillomavirus were negative. This patient appears to have experienced chronic pain associated with very extensive verrucous epithelial hyperplasia and chronic candida infection. This case presents extensive histologic evaluation of KID syndrome and identifies the possible clinically significant sequelae associated with it.

**Poster 226**

**Giant pilomatricoma with atypia**

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Pilomatricoma is a benign skin adnexal neoplasm of hair matrix origin, rarely exceeding 3 cm in size. We report an unusual case of a giant pilomatricoma with an epidermal component demonstrating cytologic atypia in a 23-year old man. The tumor presented as a slowly enlarging calcified mass overlying the right parotid, measuring approximately 10 x 6 cm and projecting 7 cm from the face surface with focal overlying skin ulceration. A partial biopsy was performed and was suggestive of pilomatricoma. The subsequent excisional specimen demonstrated the basaloid cells resembling hair matrix cells and eosinophilic shadow cells typical of a pilomatricoma, confirming this impression. Of note, epidermal colonization by the tumor was also present, consisting of lobules of basaloid cells with focal areas of cytologic atypia including crowding, enlarged nuclei and increased mitotic activity. The tumor lacked other features of malignancy such as asymmetry, an infiltrative growth pattern, and necrosis en masse. Conservative re-excision was recommended. Despite the alarming clinical appearance to the lesion and the cytologic atypia seen in the epidermal component, the patient responded well to the surgery and, 16 months later, there has been no known recurrence of the tumor at the site.

## Poster 227

### **A case of livedoid vasculopathy unassociated with a hypercoagulable state**

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An 18-year old man presented with palpable, tender, stellate purpura with overlying polycyclic, scaling patches on the left foot. Biopsy demonstrated thrombogenic vasculopathy with focal small vessel vasculitis involving both superficial and deep vessels. Although there was fibrin deposition as well as thrombi, there were few neutrophils and some of the involved vessels had little to no surrounding inflammation. Direct immunofluorescence showed staining of vessels with fibrinogen, C3 and IgM. Laboratory examination revealed only an elevated ANA. Hypercoagulation studies and ultrasound evaluation of deep veins were negative. On subsequent examination, the rash progressed to exquisitely painful, reticulate, ulcerating purpura involving bilateral lower legs, feet and toes. Clinical presentation and histopathology were consistent with livedoid vasculopathy. The pathogenesis is presumed to be secondary to a prothrombotic stimulus. In this case, no systemic hypercoagulable state was found. Aspirin and pentoxifylline were started as well as wound care with petrolatum jelly and mild compression with resultant decrease in reticulate erythema and gradual healing of ulcerations. Other therapies such as warfarin and low-molecular weight heparin were deferred due to the potential morbidity in a young, otherwise healthy patient without known systemic disorder. This patient will be monitored for potential development of connective tissue disease.

## Poster 228

### **Histologic review of the first face transplant in the United States**

Jason Stratton, MD

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Recently the most extensive face transplant to date was performed at the Cleveland Clinic. Following transplantation, paired skin and mucosal biopsies were obtained at weekly, biweekly, and monthly intervals to evaluate for rejection. H&E, PAS, investigational immunostaining, and unstained sections for the TUNEL assay for apoptosis were obtained. Biopsies were graded using the Banff 2007 working classification of skin-containing Composite Tissue Allograft (CTA) Pathology. Rejection was clinically suspected on 2 different occasions. A red papule presented on day 314 adjacent to the nose with histological features of both folliculitis and rejection. On day 461 the graft darkened and then reddened with a corresponding histological picture of grade III acute cellular rejection with a dense dermal infiltrate and epidermal apoptosis. Skin histology showed good correlation with clinical findings of acute cellular rejection. The mucosa however, frequently had multifocal interface changes with clusters of apoptotic cells that did not coincide with clinical suspicion for rejection. Of the 33 mucosal biopsies, 25 showed at least interface change and nine had cluster of apoptotic keratinocytes. Although these cases were diagnosed as either grade II or grade III rejection it is our thought that some of these changes are non-specific and require further study.

## Poster 229

### **Verrucous cyst with prominent melanocytic proliferation**

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A 58 year old woman presented with a 1.1cm cystic breast skin lesion. Microscopic examination showed an intradermal cystic lesion lined by acanthotic squamous epithelium with squamous eddies and compact hyperkeratosis with cellular debris in the cyst cavity. The lining also showed hypergranulosis with large coalescing keratohyaline granules typical of verrucous lesions. Along the base of the cyst lining, mature sebaceous cells and a proliferation of dendritic melanocytes were scattered among keratinocytes. To our knowledge, this is the first report of a verrucous cyst with focal areas of sebaceous differentiation and dendritic melanocytes. Verrucous cysts are well known, benign lesions with a clear histologic pattern. These lesions tend to favor the face, back, and extremities. Histologically, they resemble verruca vulgaris with acanthosis, hypergranulosis, dense keratohyaline granules, and viral cytopathic effect often seen in the stratum corneum. Until now, the findings of prominent dendritic melanocytes and mature sebaceous cells in the cyst lining have not been reported. We do not feel that these findings alter the expected benign nature of this lesion. Instead, we report this case to suggest the possible adnexal embryonic origin of this lesion given the presence of sebaceous cells and dendritic melanocytes which support this histologic lineage in our specific case.

## Poster 230

### **A rare case of multiple tumors of the follicular infundibulum**

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A 63 year old Caucasian woman presented to a dermatologist with a history of multiple papules, patches, and plaques scattered on the face. The lesions varied in color from pearly pink to erythematous and some had a thin, scaly crust. Their size ranged from 5-15 millimeters. A shave and a punch biopsy were performed of representative lesions. Histologically, the lesions demonstrated eroded skin with serum crust and hyperkeratosis. The tumor consisted of epithelial cells with eosinophilic cytoplasm and monomorphic nuclei arranged in cords that spread horizontally from the epidermis and superficially into the dermis. Horn cysts were noted. The diagnosis of multiple tumors of the follicular infundibulum was made. Tumor of the follicular infundibulum typically presents as a solitary lesion. Rarely, a patient can have disseminated lesions as in this case. A literature review showed only 17 previously reported cases of disseminated disease since it was first described and named by Mehregan and Butler in 1961. There is a slight predilection for males in patients with multiple tumors, and the age at diagnosis spans from the late twenties to the elderly. The number of lesions can range from several to over 100. Clinically, this lesion is often mistaken for a basal cell carcinoma or a seborrheic keratosis. The tumor acts in a benign manner regardless of whether it is a single lesion or one of many disseminated lesions. Treatment options include topical steroids, curettage, cryotherapy, and excision. This case illustrates an exceedingly rare, and therapeutically difficult, entity.

**Poster 231**

**Traumatic degeneration of collagen, elastosis and activated APC-Wnt pathway in the pathogenesis of extra nuchal-type fibroma: A case report**

Konstantinos Linos, MD

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We report a case of an extra nuchal-type fibroma (NTF) in a 51 year-old male with attenuated Gardners syndrome, who had a longstanding buttock mass excised due to enlargement and pain. Histologically, haphazard, hypocellular, hyalinized collagen bundles replaced the dermis and subcutis and entrapped nerve bundles, mimicking Mortons neuroma. Ramifying nerve twigs found around larger nerve fascicles demonstrated the co-existence of traumatic neuroma. Elastic tissue stain revealed elastosis characterized by large, arborizing fibers lying between and within the hyalinized collagen bundles. Modified Massons trichrome stain showed light blue staining of collagen bundles producing the hyalinized nodules with irregular, light red staining of collagen bundles at their periphery. Compression and/or degeneration of collagen and secondary elastosis with later entrapment by tumor collagen could explain this histologic phenotype. By immunohistochemistry, tumor spindle cells expressed nuclear -catenin and cyclin D1, mostly within regions of fibrosis implicating activation of the APC-Wnt pathway. NTF has been associated with Gardners syndrome and trauma. In this patient, genetic predisposition coupled with repetitive, localized trauma and collagen degeneration may have provided the stimulus for the development of extra-NTF.

**Poster 232**

**Combined adnexal and melanocytic tumor in a patient with phacomatosis pigmentokeratolica**

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Phacomatosis pigmentokeratolica (PPK) is characterized by the co-existence of epidermal nevi and large segmental speckled lentiginous nevi of the papulosa type. We report an 18 year-old female with PPK, who presented with a combined melanocytic and adnexal tumor on the scalp. The adnexal neoplasm demonstrated features of syringocystadenoma papilliferum (SCAP) and tubular adenoma (TA), whereas the melanocytic component consisted of an atypical nevus. PPK is explained by a theory of genetic mosaicism known as twin spotting, in which homologous autosomal gene loci, heterozygous for two different recessive mutations, pair and recombine to exchange segments to form two homozygous daughter cells. This postzygotic crossing-over results in genetically different clones of neighboring cells in a background of normal cells or paired patches of nevi. Epidermal nevi, including those in PPK, are known to contain neoplasms such as trichoblastoma and basal cell carcinoma. Within speckled lentiginous nevi, Spitz nevi and melanoma have been well documented. However, this is the first reported case of PPK with a combined melanocytic and adnexal neoplasm presenting where the nevi conjoined. Furthermore, this may be the first reported case of a combined SCAP/TA and melanocytic neoplasm in any patient, provoking speculation about the histogenesis of some combined neoplasms.

**Poster 233**

**Persistent pruritic pustules: A classic presentation of a rare disease**

Anisha Patel, MD

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A 77 year old female presented with a pruritic pustular eruption on her flexural surfaces, most prominently in her axillae and inframammary folds of twenty-nine years duration. The eruption spread to involve her medial thighs, inguinal folds, arms, and trunk with intermittent involvement of her mouth and scalp, but sparing of the nasal mucosa, eyes, and genitals. The patient experienced intermittent flares, but never complete remission, despite topical, intralesional, and oral steroids. She had no urinary, esophageal, or ocular symptoms. Her exam was remarkable for eroded plaques with a few, intact, 3-4 mm pustules located in the posterior auricular, inframammary, axillary, inguinal, and popliteal folds. An intact vesicle was present on her right palpebral conjunctiva. Microscopic evaluation showed acantholytic subcorneal vesicles associated with collections of neutrophils in the spinous and granular layers of the epidermis. Direct immunofluorescence examination revealed IgA deposition within the intercellular spaces of the epithelium. The patient was diagnosed with IgA pemphigus, subcorneal pustular dermatosis-type. The patient cleared on methotrexate 7.5 mg weekly after one month. To our knowledge, this is the first reported case of IgA pemphigus, subcorneal pustular dermatosis-type that cleared with methotrexate monotherapy.

**Poster 234**

**Rapidly involuting congenital hemangioma**

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An otherwise healthy one week old infant presented with a vascular mass on the ear. The mass had undergone some degree of involution since birth. On examination there was a 6x5 cm vascular nodule overlying the helical rim of the left ear with central ulceration. There was no evident bleeding or palpable thrill. Based on the clinical presentation, a diagnosis of rapidly involuting congenital hemangioma (RICH) was strongly favored. Four days later the patient underwent an emergency resection of the hemangioma due to spontaneous hemorrhage. H&E sections showed large dilated vascular channels throughout the dermis without a prominent lobular architecture, intravascular thrombosis and calcification. Podoplanin (D2-40) immunostain was negative. CD31 immunostain was markedly positive within the endothelial cells lining the blood vessels. Smooth muscle actin highlighted smooth muscle around vessel walls. Glucose transporter-1 protein (Glut-1) immunostain was negative. The histopathologic and immunohistochemical findings were compatible with the clinical diagnosis of RICH. RICH is an uncommon vascular tumor with potential to cause significant patient morbidity and mortality from massive hemorrhage. Although a lobular configuration of vessels is most described, our case illustrates that the histopathological spectrum of this tumor is more variable and requires further consideration in cases of suspected RICH.

**Poster 235**

**Superficial giant cell fibroblastoma in an adult: An extremely rare presentation**

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Giant cell fibroblastoma (GCF) is a rare mesenchymal tumor of childhood and represents the juvenile variant of dermatofibrosarcoma protuberans (DFSP). GCF only rarely occurs in adults. We report this rare case of superficial GCF in a 64 year old male. Clinically, a 1.3 cm firm erythematous nodule with overlying scale was located on the left abdomen. The patient had severe dermatoheliosis and noted the nodule to be present for several months. Punch biopsy revealed a proliferation of hyperchromatic, large somewhat bizarre stromal cells, interstitial spindled and histiocytic cells in the upper and reticular dermis associated with irregular vascular-like spaces and mucin deposition. There were a few foci of deep extension a single atypical mitosis. The larger bizarre and atypical lesional cells demonstrated strong staining with antibodies against the CD34 antigen, as well as the intervening spindled and histiocytic cells. The atypical cells were also CD99 positive. D2-40 highlighted the papillary dermal lymphatic channels. Lesional cells were negative with Melan-A, CD31, cytokeratin, p63, and Factor XIII. Wide re-excision was performed.

**Poster 236**

**Epithelioid sarcoma of the scalp with psammomatous calcifications: A case report**

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Epithelioid sarcoma is a rare neoplasm which often occurs in the extremities of young persons. Herein, we report a case of epithelioid sarcoma in an 11-year-old girl occurring at an unusual location (scalp) and demonstrating unusual psammomatous calcifications. The patient presented with a nodule of the temporal scalp which bled extensively following a recent trauma. Histologically, there was a dermal-based proliferation of pleiomorphic epithelioid cells arranged in sheets, with prominent intralesional dystrophic and psammomatous calcifications. Focally, some tumor cells were spindled and formed fascicles. Immunohistochemically, the tumor cells were positive for cytokeratin AE1/AE3, Cam5.2, EMA, and CD34. They were negative for S100, Melan-A, factor XIIIa, CD31, smooth muscle actin and desmin. Based on the morphology and immunophenotype, the differential diagnosis included epithelioid sarcoma and cutaneous meningioma (malignant variant). Further immunohistochemical stains showed that the tumor cells were negative for INI-1, pointing in favor of epithelioid sarcoma. The loss of INI-1 is a relatively specific finding for epithelioid sarcoma and is seen in great than 90% of cases. At the time of re-excision there was a residual 1.3cm of tumor extending into adipose tissue, and the sentinel lymph node was negative.

## Fellow Posters

### Poster 237

#### Lichen planopilaris (LPP) in a patient with Apert syndrome

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Apert syndrome (acrocephalosyndactyly) is a rare autosomal dominant syndrome caused by FGFR-2 mutations, manifesting as craniosynostosis, dysmorphic facial features, syndactyly of hands and feet and dental malformations. A 20-year-old male with history of Apert syndrome presented with new onset scarring alopecia. His physical attributes included brachycephaly with a flat forehead, hypertelorism, short nose with a bulbous tip and bilateral symmetric syndactyly of both hands. Scalp examination revealed follicular hyperkeratosis with tufted hairs, perifollicular erythema and scarring alopecia involving frontal and central scalp. His back showed multiple yellow flat-topped papules coalescing into plaques. Scalp biopsy showed perifollicular infundibular chronic inflammation and hypergranulosis with fibrosis, compatible with LPP. The back biopsy revealed sebaceous hyperplasia. Severe nodulocystic acne, hyperhidrosis and oculocutaneous hypopigmentation are some of the cutaneous abnormalities reported in this syndrome. This represents the first reported case of LPP in a patient with Apert syndrome. FGFR-2 signal transduction pathway mediates pilosebaceous follicle homeostasis and sebaceous lipogenesis. FGFR-2 gene mutations resulting in an exaggerated androgen-dependent proliferation of infundibular keratinocytes and sebocytes have been postulated as the pathogenetic mechanism for acrogenesis in patients with Apert syndrome. It would be interesting to see if gain of function of FGFR-2 gene plays a pathogenetic role in LPP.

### Poster 238

#### Trichodysplasia of immunosuppression

Arlene Ruiz de Luzuriaga, MD

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Trichodysplasia of immunosuppression (TOI) is a rare condition seen in patients with drug-induced immunosuppression as well as relative immunosuppression due to diseases such as lymphoma. We report a case of an immunosuppressed patient with a history of renal transplant on dialysis, who presented with a 2-year history of increasing numbers of papules with keratotic spicules on the nose and lower extremities. Histopathologic examination revealed greatly distended follicular structures filled with hyperkeratotic and parakeratotic debris. Thickened inner root sheaths with abrupt cornification displayed cells containing numerous large trichohyaline granules. Several layers of outer root sheath epithelium were present in the upper half of the affected hair bulb, but absent in the lower half of the bulb. The pathogenesis of this condition remains unclear. A viral etiology, specifically polyomaviruses, has been proposed based on the finding of intranuclear polyhedral inclusions on electron microscopy in some cases. Treatments found to be effective include oral ganciclovir, minocycline, and discontinuation of cyclosporine treatment. Topical treatments found to be variably effective include tazarotene 0.05% gel, topical cidofovir, and keratolytics. As advancements in transplantation and immunosuppressive treatment regimens continue, it will become increasingly important to be aware of this condition and its distinctive histopathologic characteristics.

### Poster 239

#### Trichodysplasia spinulosa in a lung transplant patient

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We report a case of trichodysplasia spinulosa (TS) in a 62-year old Caucasian man who presented with recurrent spiny follicular papules. The patient underwent bilateral lung transplantation for idiopathic pulmonary fibrosis 14 years ago and has been on chronic immunosuppression with tacrolimus, prednisone and mycophenolate mofetil. The papules first appeared on the central face 6 years post-transplant, associated with generalized alopecia. The lesions disappeared while on treatment with valacyclovir for shingles but would sporadically recur every few months. Normal hair growth was also regained. A biopsy of a recurrent papule on the arm showed a dilated follicular infundibulum plugged with cornified eosinophilic cells containing large trichohyaline granules. An intact hair shaft is not identified. Electron microscopy (EM) on paraffin-embedded tissue showed intracellular viral particles (28nm) morphologically consistent with polyoma virus. TS is a rare condition of immunocompromised patients characterized by a follicular papular eruption with keratotic spicules. The distinctive histologic finding is a proliferation of cells showing inner root sheath differentiation with characteristic large trichohyaline granules. Viral particles within these cells have been shown by EM and recently, by polymerase chain reaction, to be consistent with polyoma virus. Initially described in 1999 with about 7 published cases to date, TS is an emerging disorder that may be under-recognized. We aim to add this case to the existing literature in an effort to increase awareness of this rare but distinct entity.

### Poster 240

#### Cicatricial pemphigoid of the scalp in a 12 year old

Andrew Armstrong, MD

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Our patient is a 12-year-old male with a six-month history of scalp pruritus, progressive scaling and associated alopecia. He was treated for impetigo and tinea without improvement. Physical examination was notable for a 12 x 10 cm alopecic patch extending from the frontal scalp to the vertex associated with extensive crusting and seeping of granulation tissue. No additional lesions were identified. Pustules and lymphadenopathy were not present. The clinical differential diagnosis included tinea, folliculitis decalvans, pemphigus and seborrheic dermatitis. The biopsy is remarkable for subepidermal clefting with dissection down sebaceous glands and hair follicles in addition to a superficial mixed inflammatory infiltrate with occasional eosinophils. There is superficial dermal scarring and a near absence of terminal hair follicles. Direct immunofluorescence was remarkable for focal linear deposition of IgG and C3 along the basement membrane within a hair follicle. PAS stain for fungi was negative. Cultures were unremarkable and prednisone was initiated with addition of mycophenolate mofetil leading to improvement. To our knowledge this is the first case of localized cicatricial pemphigoid involving the scalp without additional mucocutaneous manifestations in this age group.

**Poster 241**

**Dermatophytoma: an underrecognized clinico-pathologic entity which has a significant impact on treatment response to antifungal therapies**

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Fungal nail disease affects 2-14% of Western adults and has been associated with pain, cellulitis and social distress. Treatment of onychomycosis can be costly and has potential side effects; therefore, confirmatory testing prior to treatment is recommended. Histopathologic examination of the nail plate using periodic acid-Schiff (PAS) has been shown to be highly sensitive in the detection of fungal organisms in onychomycotic nails. We present a 64-year old man with a 9-month history of 3 longitudinal linear yellow spikes affecting the right great toenail. Histopathologic evaluation revealed a concentrated mass of fungi, also known as a dermatophytoma. A fungal culture identified the presence of *Trichophyton mentagrophytes*. Dermatophytomas have been associated with poor response to topical and systemic antifungal treatment and are most effectively treated with chemical or surgical avulsion of the affected nail plate in combination with antifungal therapy. Communication between dermatopathologists and dermatologists regarding the observation of this uncommon form of onychomycosis is essential to provide the most accurate diagnosis, and to avoid ineffective, costly and potentially harmful treatments.

**Poster 242**

**Herpes syringitis - A report of herpes simplex infection in a burn victim**

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Herpes simplex is an infection that is ordinarily seen involving the epidermis. We report the case of a 13 month old female that was the victim of a burn involving almost 90% of her body. The patient then underwent burn excision and homografting as per routine treatment in these patients. Several weeks after the grafting procedure, she developed confluent vesicles and ulcerations that involved all areas affected by the burn and grafting procedures. A skin biopsy was performed from one of the lesions, which showed complete absence of the epidermis. Sections of the biopsy also revealed large cells lining the lumens of eccrine glands and ducts. These cells showed margination of chromatin and molding of nuclei, along with ballooning degeneration. HSV immunohistochemical analysis was performed and showed positive staining. Findings were consistent with a herpetic infection involving the eccrine glands and ducts - herpes syringitis. PCR for herpes virus was performed on the patient's serum, and she was noted to have HSV2 viremia. The patient was started on IV acyclovir. The patient also acquired a superinfection with *Pseudomonas* bacteria, which was treated with antibiotics, but she subsequently died from multiple organ failure surrounding these circumstances. We report this case of herpes syringitis in a victim of a large thermal burn. We propose that ballooning degeneration in the eccrine ducts may be a clue to herpes infection in burn patients and severe drug eruption patients when the epidermis is absent.

**Poster 243**

**Nodular cutaneous amyloidosis of the vulva with concurrent herpes simplex viral infection**

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We report the case of a 75-year-old female who presented with a vulvar mass which was biopsied. Within the dermis nodular deposits of amyloid were seen along with scattered plasma cells and multi-nucleated giant cells showing characteristic inclusions of herpes simplex virus. The dermal deposits exhibited apple-green birefringence by polarized light with Congo red staining, and electron microscopy highlighted the non-branching fibrils of amyloid. Immunohistochemical studies for cytokeratin and light chains did not label the amyloid. Nodular cutaneous amyloidosis has previously been reported at female genital sites. However, concurrent herpes simplex viral infection is extremely unusual, and this is, to our knowledge, the first reported case.

**Poster 244**

**Dual infection with *mycobacterium leprae* and *mycobacterium hemophilum* in an iatrogenically immunosuppressed patient initially diagnosed as sarcoidosis**

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A 27-year old Caucasian male presented with indurated red-brown papules and plaques on face, extremities, and trunk six years ago. He was initially treated for eczema and dermatophyte infection without improvement. In September 2008, biopsies of left arm and left upper back showed extensive dermal infiltration with well-formed granulomas. PAS and Fite stains were negative. Prednisone, methotrexate, and hydroxychloroquine were started with a presumptive diagnosis of sarcoidosis. In January 2010, a shallow painful ulcer appeared on patient's left calf. Biopsy showed dermal lymphohistiocytic inflammation with occasional loose aggregates and scattered plasma cells. Fite stain showed acid-fast bacilli and culture grew *M. Hemophilum*. Several days later, biopsies of the lesions in left thigh and right forearm showed loose granulomatous inflammation with positive Fite stain. Nerve twigs were infiltrated by histiocytes containing acid-fast bacilli. PCR study was positive for *M. leprae*. Dapsone, rifampin, and clofazimine were given to treat leprosy and clarithromycin to treat the *M. Haemophilum*. The prednisone was slowly tapered. The ulcer on his calf healed in 4 months, and the other lesions are healing. Sarcoidosis should always be regarded as a diagnosis of exclusion both on clinical grounds and on pathology. This patient's initial presentation was tuberculoid leprosy in which *mycobacterium* is usually very hard to find and lead to erroneous diagnosis of sarcoidosis. Drug-induced immunosuppression probably had a role in the advancement to the lepromatous form of the disease and also acquiring *M. Haemophilum* infection. This dual infection is unique and has not been reported in the literature. High degree of clinical suspicion despite negative Fite stains could have prevented the delay in diagnosis and advancement of leprosy and development of another mycobacterial infection.

## Poster 245

### Novel Insight Into the pathogenesis of erythema nodosum

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Through study of neutrophilic eccrine hidradenitis (NEH), it has been implied that medications and other toxic substances secreted through eccrine structures lead to a surrounding inflammatory infiltrate that clinically results in indurated nodules with associated fever and systemic symptoms. A similar etiopathogenesis is proposed for idiopathic palmoplantar eccrine hidradenitis (IPPEH). In this process, perieccrine inflammation results in deep tender nodules of the palms and soles with associated systemic symptoms. Early reports of plantar erythema nodosum likely represent what is currently believed to be IPPEH. With the similar clinical features of NEH and IPPEH to erythema nodosum (EN) in mind, we sought to detail the involvement of eccrine structures in EN. Current hypothesis to the evolution of EN involves the secretion of toxins/irritants by the deep dermal vasculature with subsequent adipocyte trapping and inflammation. We propose that the eccrine glands also play a role in the development of erythema nodosum. We examined 11 cases of EN for: the stage of the lesion (acute, mature, resolving), and the presence, type, and depth of perieccrine versus perivascular inflammation. All EN cases examined demonstrated deep and mid-dermal perieccrine inflammation. The perieccrine inflammation was most marked in acute and mature stages of disease. While in resolving lesions, deep perivascular inflammation was not seen, all cases demonstrated mid and deep dermal perieccrine infiltrate. The infiltrate consisted largely of neutrophils in the acute stages of EN. The mature and chronic stages demonstrated a predominantly lymphohistiocytic infiltrate. We propose that a mechanism similar to the hidradenitis seen in NEH and IPPEH occurs in the etiopathogenesis of EN. Perhaps due to the nature of the toxin/irritant or the location, the clinical course in EN is more protracted with subsequent involvement of the panniculus.

## Poster 246

### Diagnostic value of periadnexal direct immunofluorescence findings

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Background: Inherent to some immunobullous disorders is the potential for intra-epidermal or dermal-epidermal junction (DEJ) fragility, a phenomenon that may compromise direct immunofluorescence (DIF) interpretation. In these situations, periadnexal structures usually remain intact. Whether periadnexal DIF findings are reliable in the diagnosis of immunobullous conditions is unknown. Methods: We evaluated 85 cutaneous specimens with diagnostic immunoglobulin patterns that also contained adnexal structures. As a corollary, we also examined 145 hematoxylin-eosin-stained frozen section specimens to determine biopsy factors associated with the presence of adnexal structures. Results: Periadnexal DIF findings offer diagnostic value in conditions with linear or cell-surface immunoglobulin deposition, or with a lupus band. As expected, periadnexal DIF findings were unreliable in dermatitis herpetiformis, which spares the epithelium. Biopsy specimens from the scalp and genitalia were most likely to contain pilosebaceous units and sweat apparatus, respectively. Relative depth of biopsy (using Clark's

level as a proxy) correlated directly with the likelihood of identifying sweat apparatus but not pilosebaceous units. Conclusion: When biopsying skin for DIF testing, clinicians may heighten diagnostic yield by selecting anatomic sites and obtaining sufficient biopsy depth to increase the chance of capturing adnexal structures. Periadnexal DIF findings may aid in the diagnosis of immunobullous conditions.

## Poster 247

### Pyoderma gangrenosum in a patient with multiple sclerosis- a rare association.

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Pyoderma gangrenosum, a condition of unclear etiology, is associated with a variety of systemic diseases including arthritis, inflammatory bowel disease, hematologic disease and malignancy, Sweets syndrome, subcorneal pustular dermatosis and Behcets disease. Patients who are otherwise healthy can also acquire the disease. Pyoderma gangrenosum has been rarely reported in association with multiple sclerosis. We present a case of a 59 year-old male with history of multiple sclerosis who presented with multiple tender red papules and pustules on the left calf with gradual enlargement to ulcers over the course of two weeks. Many of the initial lesions were triggered by mechanical trauma. On initial examination he had ulcers on the right and left shin, bilateral plantar feet, and left forearm. The ulcers had an undermined border and surrounding erythema. Biopsy demonstrated ulceration with underlying abscess formation. The dense inflammatory infiltrate consisted predominantly of neutrophils with lymphocytes and histiocytes. Tissue cultures were negative. The diagnosis of pyoderma gangrenosum was made after ruling out other causes of ulceration. Histology, although non-specific, is critical in excluding other causes of cutaneous ulceration. Our patient was treated with a prednisone taper, and he also received an Unna boot. The ulcers eventually healed. In summary, our case highlights a rarely described association between pyoderma gangrenosum and multiple sclerosis.

## Poster 248

### Macular lymphocytic arteritis with eosinophils in an HIV positive patient

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A 43-year-old HIV positive African woman presented with a one year history of an asymptomatic, slowly progressive eruption involving both legs. On physical exam she had moderately well-defined hyperpigmented 1-2-cm patches involving her lower legs, dorsal feet, and to a lesser degree, distal thighs. Two punch biopsies revealed unremarkable epidermis and dermis. A dense infiltrate of lymphocytes and eosinophils was seen infiltrating and surrounding the wall of a muscular arteriole. There was intimal thickening and circumferential fibrin deposition along the intima without vessel wall necrosis. The clinical and histopathologic findings are characteristic of macular lymphocytic arteritis (MLA). MLA has only recently been reported in the literature. While the patients clinical presentation is typical for MLA, the presence of eosinophils has not been reported previously and is likely related to the patients peripheral eosinophilia of 17% that is sometimes present in HIV positive patients.



**Poster 249**

**Purpura of levamisole-tainted cocaine**

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Purpura associated with levamisole-tainted cocaine consumption is a recently described and rarely reported entity. Levamisole has been identified in approximately 70% of the cocaine supply within the United States in recent years, and agranulocytosis secondary to this contamination is well-reported. Adverse cutaneous effects of levamisole were originally described over a decade ago in children with nephrotic syndrome who developed multiple cutaneous manifestations, most notably, purpura of the ears secondary to cutaneous vasculitides with circulating autoantibodies including ANA, ANCA, and antiphospholipid antibodies. We present a 54 year-old male with urine positive for cocaine who presented with a history of several days of pain and swelling of both ears and profound purpuric patches involving the posterior superior aspects of his ears. An additional stellate purpuric lesion was present on one arm. Histopathology of the ear and arm demonstrated mild leukocytoclastic vasculitis with prominent thrombi formation. Although neutrophil count was normal, pANCA was elevated to 1:640. Our patients history of cocaine use, clinical presentation, histopathology and lab results are compatible with levamisole-tainted cocaine consumption. This entity should be included in the differential diagnosis of purpuric lesions or thrombotic vasculitides in the appropriate clinical setting.

**Poster 250**

**Fibrosing dermopathies and pseudoxanthoma elasticum**

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Pseudoxanthoma elasticum (PXE) is a hereditary disorder of connective tissue which is characterized by progressive calcification of elastic fibers of the skin, eyes, and blood vessels. We report a case of pseudoxanthoma elasticum masquerading as refractory and progressive lipodermatosclerosis in a patient with a history of recurrent upper gastrointestinal bleeding. The patient underwent a biopsy of her skin lesions which were clinically consistent with bilateral lipodermatosclerosis. The biopsy showed findings of lipodermatosclerosis with a small focus of calcified elastic fibers within the deep dermis. Bowen, et al discussed the presence of PXE-like fibers as an incidental finding in fibrosing processes; however, this patient had a history of idiopathic recurrent upper gastrointestinal bleeding. Genetic analysis was performed and revealed a homozygous mutation for R1268Q in the ABCC6 gene. The diagnosis of pseudoxanthoma elasticum PXE was made and the cause of the recurrent gastrointestinal bleeding was elucidated. This case represents a case where a fibrosing dermopathy was the only dermatologic manifestation of pseudoxanthoma elasticum. Thus, PXE-like fibers in fibrosing dermopathies may also serve as a useful clinical clue in the diagnosis of PXE when no other skin findings are present.

**Poster 251**

**The crucial role of cutaneous pathology for diagnosis of systemic lupus erythematosus in the setting of chronic Hepatitis-C cirrhosis**

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It is well known that chronic hepatitis-C (HCV) infection can generate a multitude of autoimmune manifestations in affected patients. In addition to associations with cryoglobulinemia and Sjogrens syndrome, chronic HCV can produce clinical and serologic features mimicking systemic lupus erythematosus (SLE). Lupus-specific skin manifestations and photosensitivity, however, are not among the common autoimmune manifestations of chronic HCV. We present a 61-year-old female with chronic HCV cirrhosis who presented with a subtle, intermittent, psoriasiform eruption on sun-exposed areas that had been treated as rosacea for over four years. In addition, she had numerous clinical and serologic autoimmune abnormalities, including fatigue, joint stiffness, high ANA titer (1:10,240), anti-double-stranded DNA antibodies, hypocomplementemia, pancytopenia, positive cryoglobulins, and immunotactoid glomerulonephritis. She had seen numerous medical specialists in the past, all of whom attributed her clinical and serologic abnormalities to chronic HCV infection and deferred initiation of treatment for SLE. A punch biopsy of lesional skin showed an interface dermatitis with increased dermal mucin, consistent with subacute cutaneous lupus erythematosus. Further testing revealed a positive anti-Ro at high titer. She was diagnosed with SLE and started on hydroxychloroquine 200mg twice daily and a sun protection regimen, leading to clinical and serological improvement. As the occurrence of SLE can be extremely difficult to distinguish from autoimmune sequelae of chronic HCV infection, this case highlights the importance of a thorough cutaneous examination, including biopsy of suspicious lesions, in such patients.

**Poster 252**

**Granulomatous panniculitis with neutrophilic microabscesses: a rare presentation of cutaneous metastatic Crohns disease**

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A spectrum of cutaneous entities displaying various morphologic and histopathologic features may occur in patients with Crohns disease. However, metastatic cutaneous Crohns disease, characterized clinically by lesions discontinuous from the gastrointestinal (GI) tract and histopathologically by the presence of non-caseating granulomas, is rare. We present a 55-year-old female with a 25-year history of Crohns disease who presented for evaluation of painful, erythematous nodules on her legs. She had suffered from recurrent bouts of these lesions for many years, especially with flares of her GI disease, and had been treated intermittently with intralesional triamcinolone by a local dermatologist. On examination she was afebrile and had erythematous nodules bilaterally scattered on her legs. A punch biopsy revealed superficial and deep perivascular inflammation, with a prominent mixed septal and lobular granulomatous panniculitis. A large, neutrophilic microabscess was located within the area of panniculitis. In addition, a large

blood vessel in the subcutis contained many inflammatory cells within its wall, without frank evidence of fibrinoid necrosis. Special stains to rule out infection were negative. A diagnosis of metastatic cutaneous Crohn's disease with granulomatous panniculitis with neutrophil microabscesses was made. Here we review the etiology, clinicohistopathologic features, and treatment of cutaneous metastatic Crohn's disease, including granulomatous panniculitis with neutrophil microabscesses.

## Poster 253

### **Scleroderoid graft-versus-host disease presenting as lichen sclerosus**

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A 61 year old woman with a history of acute myelogenous leukemia presented 15 months following stem cell transplant with a month long history of myalgias, weakness, nausea and emesis. She noted a 3 month history of a rash on her inframammary skin that was worsening. Examination showed mottled hyperpigmentation of her back and cheeks with pinpoint spiny keratotic papules extending from her sacrum to her upper back. She had multiple 2-3cm white to pink atrophic plaques on the left flank and inframammary skin. Her labs were significant for a peripheral eosinophilia. Skin biopsies showed epidermal atrophy, hyperkeratosis, follicular plugging, and homogenization of the papillary dermis with diminished elastic fibers. There was an interface reaction with scattered dyskeratotic cells. While these features are characteristic of lichen sclerosus, the clinicopathologic diagnosis corresponds to scleroderoid graft-versus-host disease (SGVHD) with lichen sclerosus-like lesions. Lichen sclerosus has been described as an uncommon first manifestation of SGVHD, which develops into more classic SGVHD over time. These patients also can develop eosinophilic fasciitis. Knowledge of this variant of SGVHD will enable prompt diagnosis and treatment of chronic GVHD, and help patients avoid serious disease related complications.

## Poster 254

### **Clinicopathologic correlation of anti-TNF- $\alpha$ agent induced psoriasiform dermatitis: Drug reaction or true psoriasis?**

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TNF- $\alpha$  antagonists are effective treatments for various chronic autoimmune diseases including psoriasis. Paradoxical induction of psoriasis-like eruptions in these patients is well-known. We describe 8 patients (6 females, 2 males; mean age 50 years) with rheumatoid arthritis (n=4), ankylosing spondylitis (n=1), Crohn's disease (n=1) and psoriasis (n=2). All patients developed psoriasiform eruptions between their 11th and 84th month of anti-TNF-treatment (Infliximab, Adalimumab and Etanercept). These lesions occurring on the trunk, extremities and scalp had plaque-type morphology. One patient exhibited guttate and pustular eruptions on his thigh. 11 biopsies from all patients showed psoriasiform

epidermal hyperplasia with focal areas of overlying parakeratosis and hypogranulosis, including pustular (4 biopsies) and guttate (1 biopsy) morphology. This differed from classic psoriasis in presence of greater amount of spongiosis (all biopsies), focal vacuolar alteration (10 biopsies), dyskeratotic keratinocytes (2 biopsies), dermal eosinophils (6 biopsies) and folliculitis (2 biopsies showing lymphocytic and 1 showing pustular folliculitis). These subtle findings may be used to differentiate psoriasiform eruptions from true psoriasis. All skin eruptions responded to either topical steroids or discontinuation of or decreasing dose of the offending drug. The clinico-histologic presentation reascertains that these psoriasiform eruptions represent biologically induced drug reactions and not true psoriasis.

## Poster 255

### **An Interesting case of paraneoplastic bullous dermatomyositis.**

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Bullous dermatomyositis is a rare subtype of dermatomyositis and is associated with a poor prognosis. Both the conventional idiopathic and the paraneoplastic forms may present with bullous lesions. In both instances, mononuclear cells predominate in a subepidermal blister. We describe a case of a 45 year old female with advanced ovarian serous adenocarcinoma who presented with the diagnostic features of paraneoplastic dermatomyositis. Biopsy from the right hip demonstrated a pauci-cellular subepidermal blister containing neutrophils, while the biopsy from the right arm demonstrated a focal interface dermatitis with vacuolar change. Direct immunofluorescence studies were non-specific. These findings, in the setting of classic features of paraneoplastic dermatomyositis, expand the histopathologic spectrum of paraneoplastic bullous disorders with subepidermal blisters containing neutrophils.

## Poster 256

### **Cocaine-associated ANCA-positive vasculitis: A potential diagnostic pitfall**

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A 52-year-old female presented to an urban hospital with painful, erythematous and purpuric patches and plaques involving the trunk, proximal extremities and ear. Clinical diagnostic considerations included lupus erythematosus, small-vessel vasculitis, and erythema multiforme. Serological evaluation demonstrated elevated mildly elevated antibody titers to double stranded DNA (dsDNA) and histones and markedly elevated antineutrophil cytoplasmic antibody titers (p-ANCA, 1:1280). Histopathology of lesional skin demonstrated leukocytoclastic vasculitis with thrombosis of dermal vascular channels. Epidermal interface alteration and increased dermal mucin were not observed. A provisional clinical diagnosis of systemic lupus erythematosus was made, despite lack of other manifestations of disease. The patient was treated with systemic corticosteroids and discharged. The patient failed to keep follow-up appointments and subsequently presented to another hospital with recurrence of painful skin lesions. On admission, urine drug screen was positive for cocaine and opiates. Based on the occurrence

of vasculitis in the setting of cocaine abuse, prior anti-dsDNA and histone serologies were re-evaluated and interpreted as equivocal. A diagnosis of cocaine-associated, ANCA-positive vasculitis was rendered. Recent evidence has suggested that ANCA-associated vasculitis in cocaine abusers may be related to contaminants, including levamisole. As illustrated in this case, cocaine abuse should be considered in the differential diagnosis of patients presenting with ANCA-positive vasculitis, especially when affecting atypical locations such as the ear.

## Poster 257

### Retiform purpura - a new stigmata of illicit drug use?

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A 50 year old female with a history of arthritis presented with a 6-month history of recurrent tender purpuric patches on her arms, legs, trunk and ears that sometimes ulcerated and healed with atrophic scars. On physical exam, the patient had striking blue-black retiform purpura with central necrosis on her right arm, earlobe, and breast that were reminiscent of meningococcal vasculitis. Despite the worrisome features of her skin lesions, the patient had no systemic signs or symptoms. A comprehensive serological screen and blood cultures were negative. A biopsy showed severe vasculitis in all levels of the dermis with extensive intravascular fibrin thrombi. There was striking leukocytoclasia and erythrocyte extravasation. The adnexal structures, as well as the vessels, were involved by a prominent neutrophilic infiltrate suggestive of an infectious process. The findings were markedly out of proportion with the localized nature of the lesions and the lack of systemic symptoms. Through an additional consult we learned of several similar cases in our areas that were found to be a reaction to cocaine adulterated with levamisole. Upon further questioning, the patient reported a history of polysubstance abuse. After 18 years of sobriety, she had started using cocaine several weeks prior to the onset of lesions. Urine toxicology studies were positive for cocaine. It has been reported that more than 70% of the US cocaine supply has been adulterated with levamisole, which is an antihelminthic and immunomodulator that was taken off the market in 2000 due to serious side effects including agranulocytosis and vasculitis. There is an increasing incidence of cocaine users presenting with purpuric lesions preferentially involving the external ear and neutropenia. If a patient presents with localized purpuric lesions particularly involving the earlobes, a careful drug history and toxicology studies should be performed.

## Poster 258

### Graft versus host disease-like rash in a patient with metastatic thymoma

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Graft versus host disease (GVHD) involving the skin is most often encountered following bone marrow and hematopoietic stem cell transplantation. However, an identical clinical presentation with similar histopathologic findings has also been reported as a rare complication of thymoma. Here we present the case of a middle aged woman with end stage malignant metastatic thymoma, who presented with widespread skin lesions consisting of pink to red

geographic patches and plaques associated with desquamation. Involvement of the palmar surface of the hands was present, with sparing of the soles of the feet and mucous membranes. A punch biopsy was performed that showed epidermal spongiosis and vacuolar interface changes with apoptotic keratinocytes, many of which were present within the upper layers of epidermis as well as within the epidermal appendages. Focal parakeratosis and associated chronic inflammation were also present. Periodic acid-Schiff staining for fungal organisms was negative. The combined clinical and histologic findings are consistent with thymoma-related GVHD-like reaction. This unusual case is presented together with a review of the related literature, particularly with respect to pathophysiology, and the pertinent differential diagnoses are discussed.

## Poster 259

### Primary cutaneous diffuse large cell B-cell lymphoma, leg type simulating the histologic features of merkel cell carcinoma

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Both Merkel cell carcinoma (MCC) and cutaneous B-cell lymphoma (CBCL) have a predilection to arise in sun-exposed skin of the elderly, and both are in the microscopic differential diagnosis of cutaneous small round blue cell tumors. To our knowledge, there has been only one reported case of CBCL simulating MCC. Herein, we present a case of primary cutaneous diffuse large B-cell lymphoma, leg type (DLBCL-L), simulating MCC. A biopsy of a nodular left leg lesion in a 72 year old female showed a nodular and diffuse dermal small blue cell infiltrate with granular-appearing chromatin, areas of nuclear molding, and nuclear crush artifact. Chromogranin was focally and weakly positive, but synaptophysin, pankeratin and CK20 were negative, weakening the case for MCC. Numerous additional stains, including S100, Melan-A, EMA, TTF-1, CD3, CD56, and CD30 were negative, arguing against small cell melanoma, metastatic neuroendocrine carcinoma, or a poorly differentiated carcinoma. However, PAX5 and CD20 highlighted the large cells, consistent with a B-cell lymphoma. Therefore, additional stains including CD79a, bcl-2, bcl-6, and MUM-1 were performed. These showed strong CD79a, bcl-2, and MUM-1 staining, and weak/focal bcl-6 staining, narrowing the diagnosis to DLBCL-L versus systemic DLBCL with secondary cutaneous involvement. Systemic work up of the patient was negative, consistent with DLBCL-L. While this is a seemingly rare case, CBCL mimicking MCC may be underreported, as these diagnoses can have overlapping architectural and immunohistochemical features. As an example, strong Pax-5 expression is found in both B-cell lymphomas and neuroendocrine carcinomas and this marker cannot be relied on alone to distinguish MCC from CBCL.

**Poster 260**

**Cutaneous PTLD: An unusual presentation**

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74 year old male s/p orthotopic heart transplant in 1999 secondary to ischemic cardiomyopathy and subsequent renal transplant in 2009 due to calcineurin nephrotoxicity was admitted to the hospital for possible disseminated fungal infection. A month prior he had several non-tender nodules on the right wrist that were diagnosed and treated for phaeohyphomycosis. Now the patient presents with a new asymptomatic nodule on his right lower extremity that appeared similar to the nodules of phaeohyphomycosis on his wrist. On examination, the patient had a non-tender 2.5 cm pink nodule on the right shin. Punch biopsies were performed and submitted for routine histology and tissue culture for bacteria, fungus and AFB organisms. Tissue cultures were negative. Histology revealed a diffuse infiltration of CD138 positive plasma cells with prominent nucleoli and binucleate forms. and in-situ hybridization demonstrated distinct restriction (>20:1), and Ki-67 labeling index was 40%. Epstein-Barr virus in-situ hybridization showed diffuse labeling of the plasma cells, thus confirming a diagnosis of EBV-associated plasmacytoma like variant of post-transplant lymphoproliferative disorder (PTLD). Serum electrophoresis demonstrated an M-spike of 0.2g/dl and was confirmed to be IgG restricted by immunofixation electrophoresis. PTLD is a process characterized by a lymphoid proliferation in the clinical setting of immunosuppression in the recipient of a solid organ or bone marrow transplant. PTLD is separated into four categories by the WHO. Plasmacytoma-like PTLD is one of the most uncommon variants, and is typified by a late onset (mean 7 years s/p transplant), as opposed to the onset of PTLD overall (mean 1 year). The majority of PTLD cases are EBV driven. PTLD typically presents within lymph nodes, GI tract, liver, lungs, and the allograft itself; initial presentation as a cutaneous nodule is unusual.

**Poster 261**

**EBV associated mucocutaneous ulceration secondary to azathioprine**

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The patient is a 77 year old African American female with a 16 year history of bullous pemphigoid treated previously with prednisone, azathioprine, cyclophosphamide, cyclosporine, mycophenolate mofetil, and IVIG with variable improvement but no complete remission. She presented with a 3 week history of a slightly painful oral lesion on the right buccal mucosa. Physical examination revealed a 1.2 cm brightly erythematous, punched out, well defined ulceration with a thick white fibrinous base. A biopsy revealed ulcer with necrosis and adjacent mild epithelial hyperplasia. The dermis revealed a diffuse mixed infiltrate of small and large lymphocytes. The infiltrating cells stained uniformly positive for CD-45. The vast majority of the cells were positive for CD-3. Most of the large and some of the small lymphocytes were positive for CD-20 and CD-30 and were positive for EBV by in situ hybridization. A clonal B-cell population was detected by PCR, characteristic of an EBV-induced lymphoproliferative disorder. The azathioprine was discontinued and the ulceration healed within approximately 2 weeks. This case represents an EBV associated mucocutaneous ulcer. 1. *Am J Surg Pathol* 2010;34:405-417

**Poster 262**

**An unusual case of folliculotropic mycosis fungoides**

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A 77-year-old woman presented with a two-year history of pruritus and a rash. Physical examination revealed erythematous, well-demarcated plaques affecting the trunk and proximal upper extremities. Atrophic, erythematous patches involved the breasts and buttocks. Biopsy of a plaque demonstrated a CD-4 positive atypical folliculotropic lymphoid infiltrate with concomitant follicular mucinosis, granulomatous inflammation, and prominent eosinophils. Within the dermis, there were large atypical CD30-positive cells, comprising close to 25% of the infiltrate. Perifollicular granulomatous inflammation (CD68-positive histiocytes) was prominent. Intrafollicular granulomas were also seen. Of particular interest, intrafollicular, dense, nodular aggregates of Langerhans cells (CD1a-positive) were identified. These findings resulted in a potential diagnostic pitfall, as they raised the possibility of a granulomatous process or unusual Langerhans cell histiocytosis. A T-cell receptor gamma gene rearrangement was positive. Taken together, these histopathologic findings were felt to be best in keeping with folliculotropic mycosis fungoides (MF) with large cell transformation. Classifications of the histologic patterns of folliculotropic MF have described increased CD1a-positive Langerhans cells within the follicular epithelium. However, intrafollicular nodular aggregates of Langerhans cells have not been previously characterized, to our knowledge, in this variant of MF. This case expands the histopathologic spectrum within which this disease may present.

**Poster 263**

**Spongiotic cutaneous T-cell lymphoma with oligoclonal T-cell gene rearrangement**

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An atopic 71 year old alcoholic man presents with a pruritic rash on the back and stomach associated with the use of an abdominal support brace following abdominal hernia repair. Signs and symptoms initially improve with oral and topical steroids, but the rash returns and spreads to include the arms and legs. Biopsy reveals a spongiotic dermatitis with superficial perivascular lymphocytic infiltrate including numerous eosinophils. The differential diagnosis includes allergic drug, contact dermatitis, and arthropod bite/infestation. After eight months of waxing and waning symptoms on steroid and immunomodulatory therapy, clinical suspicion for CTCL was increasing. However, repeat biopsy again showed lymphoeosinophilic spongiosis without banded lymphocytes, atypical lymphocytes, or significant epidermotropism. T-cell gene rearrangement studies revealed two dominant signal peaks within a polyclonal background. In the absence of histologic features of CTCL, the findings were still suggestive of spongiotic dermatitis. Repeat biopsies one month later, however, showed banded dermal lymphocytes, epidermotropism of atypical lymphocytes, and equivocal immunohistochemical evidence of aberrant loss of CD7 expression. Repeat gene rearrangement studies revealed two signal peaks identical to the prior study. Retrospective gene rearrangement analysis of the original spongiotic biopsy also revealed a monoclonal signal peak identical to one of the two recurring signals, and a diagnosis of CTCL was made. This case illustrates the potential

diagnostic pitfall of spongiotic CTCL and highlights the importance of repeat biopsy and comparison of clonality studies where clinical suspicion of CTCL is high. This case also highlights the difficulty in interpreting oligoclonal gene rearrangement peaks in cutaneous lymphoma where background reactive inflammatory cells are prominent. Finally, technological considerations for following serial gene rearrangement studies are discussed.

## Poster 264

### The diagnostic challenge of rituximab-induced CD20 negative B-cell lymphomas

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Immunohistochemical staining with antibodies to the B-lymphocyte-specific antigen CD20 is routinely performed in the characterization of cutaneous lymphomas. Rituximab, a monoclonal antibody to CD20, is a biologic therapy used for treating B-cell lymphomas that is also being used to treat an increasing variety of inflammatory, rheumatologic and cutaneous diseases. Importantly, when B-cell lymphomas recur or new B-cell lymphomas develop in patients previously treated with rituximab, the immunophenotype of the current lymphocytic population is often rendered CD20 negative. We report an 87-year-old female who presented to her dermatologist in February, 2010, with multiple firm red-purple nodules and tumors of the right cheek. Her past medical history included a CD20 positive, CD10 negative B-cell follicular lymphoma involving her right parotid gland in 2008. At that time, she received treatment with chemotherapy, including rituximab. A punch biopsy was obtained from one of the new cutaneous nodules revealing a thin Grenz zone overlying a diffuse infiltrate of large, atypical, dyshesive cells expanding the upper two thirds of the reticular dermis. The malignant cells were diffusely immunoreactive for CD30 and BCL6. CD20 staining was completely negative. However, the B-cell marker CD79a was diffusely positive. Despite diffuse CD20 negativity, a diagnosis of diffuse large B-cell lymphoma was made based upon the CD79a positivity. This case illustrates the potential alteration B cell lymphocytes to a CD20 negative immunophenotype in patients previously treated with rituximab. It also highlights the potential diagnostic pitfall these CD20 negative lymphomas may present to pathologists unaware of a patients prior exposure to rituximab. The inclusion of CD79a in the immunohistochemical evaluation of CD20 negative cutaneous hematopoietic malignancies is a useful tool with the increasing therapeutic use of rituximab.

## Poster 265

### CD30-Positive mycosis fungoides in a nine year-old boy

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We present a rare case of CD30+ mycosis fungoides (MF) in an otherwise healthy nine year-old boy. He had widespread pruritic, eythematous and hyperpigmented plaques that had slowly developed over a five year period. Approximately 20% of his body surface area was involved. There was no lymphadenopathy. Prior

treatment with topical steroids, moisturizers, and bathing products was unsuccessful. Biopsy demonstrated a superficial lymphocytic inflammatory infiltrate that extended into the overlying epidermis. There was associated mild spongiosis and occasional dyskeratotic keratinocytes. Some of the epidermotropic lymphocytes had enlarged hyperchromatic nuclei. T-cell receptor gene rearrangement study was positive. Immunohistochemical stains performed on subsequent biopsies with similar histologic findings demonstrated an atypical T-cell population that was positive for CD3, CD4, CD30 and TIA-1, consistent with CD30+ patch stage MF. The diagnosis of MF in pediatric patients is often difficult because clinical suspicion can be low and children tend to present with nonspecific clinical and histologic findings. This is only the third reported case of CD30+ MF in a child. In adults CD30+ large cell transformation portends a more aggressive clinical course. However, our patients prognosis is uncertain given the lack of data for pediatric patients.

## Poster 266

### An unusual presentation of primary cutaneous T-cell lymphoma with a gamma/delta phenotype

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Primary cutaneous gamma/delta T-cell lymphoma is an aggressive lymphoma with a median survival of 15 months. We describe a case of a primary cutaneous T-cell lymphoma with a gamma/delta phenotype and an initial clinical course mimicking mycosis fungoides. We discuss how the unique clinical presentation and histologic features of this case differ from classic cases and review pitfalls in the diagnosis of this uncommon entity. A 66-year-old woman had a 6-year history of fluctuating erythematous patches on her abdomen and trunk. An initial biopsy demonstrated a CD8 positive T-cell lymphoma involving the subcutis. A second biopsy revealed a lichenoid infiltrate with epidermotropism compatible with mycosis fungoides. Subsequently she developed new ulcerated plaques and nodules. Immunohistochemical analysis showed a mixture of CD4 and CD8 positive cells. Topical clobetasol, subcutaneous interferon alpha-2b, triamcinolone injections, and radiation therapy led to a complete resolution. When purplish, ulcerated nodules recurred, flow cytometry of lesional skin demonstrated CD8 positive, gamma/delta T-cells. All three skin biopsies were negative for beta-F1, confirming that each cutaneous manifestation had a gamma/delta phenotype. Additional immunohistochemical stains, beta-F1 marker, and flow cytometry can clarify a diagnosis. With initial radiation and subsequent CHOP chemotherapy, there is no evidence of disease at 2-month follow-up.

## Poster 267

### The necessity of sufficient tissue in a diagnostically challenging case of CD56-positive natural killer (NK) cell lymphoma

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A 42-year-old male presented with a one year history of a progressively enlarging painful central facial plaque. Physical examination

revealed a saddle-nose deformity and a large infiltrated plaque with extensive necrosis involving the right cheek, nose and glabella. Initial biopsies performed at an outside facility and reviewed at our institution demonstrated nonspecific pathology, including ulceration with a subjacent pustular and granulomatous infiltrate and pseudocarcinomatous epithelial hyperplasia. Special stains did not demonstrate organisms. Initial incisional biopsies at our facility demonstrated extensive tissue necrosis and a mixed infiltrate which included small collections of hyperchromatic atypical lymphocytes expressing CD56, which was considered suspicious but not diagnostic of lymphoma. In-situ hybridization for Epstein-Barr virus (EBV) was negative. Given persistent clinical and pathologic suspicion, a larger incisional biopsy was completed. The resultant specimen revealed a population of large CD56-positive atypical lymphocytes in the dermis and upper subcutis. In this specimen, in-situ hybridization for EBV showed avid positivity within the natural killer (NK) population. These findings support our observation that deep incisional biopsies may be required in diagnostically challenging cases of nasal type-NK lymphoma, especially when extensive necrosis is present. As illustrated by our case, small or superficial specimens may provide misleading immunohistochemical results.

## Poster 268

### **An unusual case of leukemia cutis arising concurrently with Sweet's syndrome**

Aparche Yang, MD

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Sweet's syndrome was originally described in 1964 by Robert Sweet to describe an acute febrile neutrophilic dermatosis that he encountered in eight women over a 15 year period. Sweet's syndrome occurs in three clinical settings: idiopathic, malignancy-associated and drug-induced. Malignancy associated Sweet's syndrome can precede, follow or concurrently appear with the diagnosis of an underlying malignancy. A review article found that 21% of patients with Sweet's syndrome had either a hematologic malignancy or a solid tumor. There have also been reported cases of concurrent Sweet's syndrome and leukemia cutis. We describe an additional case of a 36 year old female with symptomatic anemia, who after a bone marrow biopsy, was found to have acute myelomonocytic leukemia. After receiving two cycles of chemotherapy, she failed to achieve complete remission. She was subsequently transferred to a tertiary care facility for further treatment. Upon arrival, physical examination showed erythematous, hemorrhagic plaques that were tender to palpation, located on the head, neck, trunk and extremities. A biopsy was performed which revealed marked dermal edema with neutrophilic dermatitis/panniculitis and scattered collections of large myeloblasts. The myeloblasts were positive when stained with antibodies against CD117, myeloperoxidase, CD43 and lysozyme, consistent with concurrent Sweet's syndrome and leukemia cutis.

## Poster 269

### **Lymphomatoid papulosis (LyP): Unique clinical and histological presentation of two cases**

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Lymphomatoid papulosis is a chronic recurring self-regressing CD30+ T-cell lymphoproliferative disorder presenting as papulonecrotic lesions on the trunk and the extremities. We report two elderly patients with dermal-based plaque-like erythematous lesions on the face suggestive of an inflammatory dermatosis. Clinically the differential included sarcoidosis, granuloma annulare and tumid lupus erythematosus. The histology of both lesions was similar and unique showing extensive epidermotropism of small atypical lymphocytes, with formation of Pautrier-like microabscesses with a distinct dermal nodular proliferation of large atypical cells. CD3 stained both the epidermal and dermal lymphocytes, while CD30 diffusely highlighted only the large atypical dermal tumor cells. ALK-1 and EMA stains were negative. Ki-67 revealed high proliferative activity. The histology was reminiscent of a combination of type B and C LyP, with a differential of transformed mycosis fungoides. Clinically however the lesions spontaneously regressed in both patients, consistent with diagnosis of LyP. On the basis of the unique clinical and histological findings we propose the possibility of a distinct form of LyP.

## Poster 270

### **Panniculitic T-Cell lymphoma in a pediatric patient: a difficult diagnosis**

Ife Rodney, MD

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Subcutaneous panniculitis-like T-cell lymphoma is an extremely rare lymphoma in the pediatric population. Histologically, there is infiltration of the subcutaneous tissue by cytotoxic T-cells, resulting in a lobular panniculitis. Although this condition usually has an indolent clinical course, it may be complicated by a hemophagocytic syndrome which portends a poor prognosis. We report a case of a 14 year old African-American female who presented with a 1 year history of recurrent fever, nausea, vomiting, abdominal pain, and multiple non-tender subcutaneous fat lobules on the cheeks, buttocks, lower back and abdomen; with subcutaneous atrophy, but no overlying skin changes. The skin exam was unimpressive due to the absence of erythema, tenderness and ulceration typically associated with lymphoma; and because of the positive ANA, lupus profundus was considered in differential diagnosis. Due to pancytopenia, a fine needle aspirate and core biopsy of a subcutaneous nodule was performed. The biopsy showed a mild lymphocytic infiltrate without significant atypia; with plasma cells and histiocytes. The features overlapped with lupus profundus, but rare foci suspicious for emperipolesis prompted a recommendation for a larger sample. A wedge biopsy revealed a dense atypical cytotoxic T-lymphocytic infiltrate with a clone that was identical to the core biopsy. This case emphasizes the pitfalls of sampling error in diagnosing subcutaneous panniculitis-like T-cell lymphoma; especially in the pediatric age group where large biopsies are discouraged and lymphoma is less suspected.

**Poster 271**

**Type B follicular lymphomatoid papulosis**

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We report a case of type-B lymphomatoid papulosis with follicular involvement. Follicular lymphomatoid papulosis is rare with only twelve case reports published to our knowledge. Rarer yet is the type-B variant with few existing reports. Our patient is a 63-year-old male who presented with a five-year history of intermittent crops of erythematous papules that would subsequently develop crusting and occasionally ulcerate. Over time these crops involute spontaneously. Histologic exam demonstrated an infiltrate of small mildly atypical CD4, CD30 positive cells with epidermotropism. Some biopsies also demonstrated a folliculotropic infiltrate of mildly atypical lymphocytes in the absence of significant epidermotropism. The involved follicles lacked significant mucin. A diagnosis of lymphomatoid papulosis type B with follicular involvement was made on the basis of these histologic and immunohistochemical findings in addition to the clinical presentation of waxing and waning papules with spontaneous involution. Identification of this rare variant of lymphomatoid papulosis is critical in order to direct proper therapy. Additionally, patients must be monitored closely as a significant fraction of those diagnosed with lymphomatoid papulosis will eventually develop a lymphoid dyscrasia.

**Poster 272**

**Complete regression of a nodular mucosal penile primary malignant melanoma**

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Primary malignant melanomas (PMMs) arising on the mucosa comprise < 4% of all melanomas. Even rarer is PMM of the penile mucosa, which constitutes <1% of melanomas. Herein, we report a case of a nodular PMM arising on the glans penis of an eighty-two year old male. The elderly patient refused cystoscopic and urethrographic evaluation. The patient also refused surgical intervention, including a penectomy. At the time of diagnosis, a thorough skin examination showed no evidence of cutaneous melanoma or lymphadenopathy. Furthermore, a total body CT scan showed no evidence of metastasis. The prognosis of PMM of the penile mucosa is comparable to cutaneous PMM with a similar Breslow thickness. In this case the non ulcerated tumor was 3.5 cm in thickness, giving the patient stage IIA (T3a, N0, M0) nodular mucosal penile PMM and an estimated 5 year-survival of 79%. Two years after initial presentation, the nodular mucosal penile PMM had clinically resolved. Now six years after initial presentation, there is no clinical evidence of recurrent mucosal melanoma or evidence of metastatic melanoma elsewhere. A recent total body positron emission tomography scan showed no evidence of metastatic lesions. Melanoma is one of the most common tumors to undergo regression. While 10-35% of documented cutaneous PMM undergo partial regression, a reported 0.22-0.27% of cutaneous PMM undergo complete regression. Taking together the location of this PMM and its complete clinical regression, this is an exceeding unusual case of malignant melanoma which we present for the sake of interest.

**Poster 273**

**Predicting extractable DNA of paraffin embedded skin biopsies using digital imaging algorithms**

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Array comparative genomic hybridization (aCGH) of formalin fixed skin lesions is now possible. aCGH is a relatively expensive multi-day process that requires a quantity of DNA (approximately 50ng) that cannot be met by all small skin biopsies. The aim of this study was to use digital imaging to predict DNA yield in skin biopsies of melanocytic lesions to avoid processing those below a critical threshold. METHODS: 38 H&E slides were scanned by the Aperio ScanScope CS and analyzed by two algorithms tuned to recognize hematoxylin nuclei (building from Aperio algorithms IHC Nuclear v1 and PositivePixelCount v9). A third digital metric was specimen surface area. DNA was extracted from each specimen using eight 10u thick sections and Ambion RecoverAll kits. Extracted DNA was quantified using Invitrogen Qubit. The relationship between the three image metrics and extracted DNA quantified by PicoGreen was analyzed using a general linear model. RESULTS: The customized Aperio IHC Nuclear v1 algorithm was the most predictive of DNA yield, but only accounted for 33.5% of the variability in DNA yield. All three metrics were statistically significant predictors (p<.05). CONCLUSION: Our digital image analysis algorithms, while statistically significant predictors of DNA yield, are not sufficiently predictive for laboratory triage.

**Poster 274**

**Phosphohistone H3 improves the accuracy of counting mitotic figures in stage I melanoma**

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Background: In the AJCC protocol, mitotic rate (MR)  $\geq 1/mm^2$  upstages invasive melanoma from stage IA to IB. Counting mitotic figures (MFs) on H&E sections is subject to inter- and intra-observer variation. Suboptimal histology, MFs of non-melanocytic cells, and apoptotic figures commonly cause difficulty. Phosphohistone H3 (PHH3), a protein expressed in the M phase of cell cycle, can facilitate counting MFs. Methods: 30 cases of stage I (depth 0.22-1.0 mm) primary skin melanoma were studied with immunohistochemistry using anti-PHH3 and anti-Ki67 mAb. MFs were counted independently on both H&E and PHH3, by the "hot spot" method. Proliferation rate (PR) was calculated as the percentage of Ki67-positive invasive melanoma cells, using double-labeling for Ki67 and Melan-A expression. Results: Of the 30 cases, 15 (50%) were mitotically inactive (MR <1) on both H&E and PHH3; 3 (10%) appeared inactive on H&E, but active on PHH3; 12 (40%) were active on both H&E and PHH3. In the last group, the average MR was higher on PHH3 than on H&E (4.2 vs. 2.8). The PR of 15 mitotically inactive tumors was negative (0%, 7 cases) or low (1%, 8 cases). The PR of 15 mitotically active tumors was variable: 1%, 3 cases; 5%, 6 cases; 10%, 6 cases. MR and PR were strongly correlated (Pearson correlation coefficient  $r = 0.8$ ). Conclusions: PHH3 facilitates and improves the accuracy of counting MFs and has significant clinical consequences. In our series, 3 of 15 (20%) cases initially staged as IA by H&E were upstaged to IB after use of

PHH3. PHH3 complements other IHC markers. Specifically, melanomas shown to be mitotically inactive by PHH3 uniformly have a low PR by Ki67. Conversely, mitotically active melanomas typically have a moderate to high PR; however, a significant subset (20%) may be quiescent by Ki67 as well. Thus, the presence of a low PR by Ki67 does not preclude the possibility of mitotic activity, and PHH3 assessment may be particularly useful for accurately staging such tumors.

#### Poster 275

##### **Focally cytokeratin positive metastatic desmoplastic melanoma**

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Background: Desmoplastic melanoma is an uncommon variant of melanoma that often presents a challenge to clinicians and dermatopathologists. Cytokeratin positivity has been identified in rare cases of desmoplastic melanoma metastases. Case Report: An 80 year old female presented with an area of irritation on the left arm. Superficial shave biopsy of the area revealed a non-specific inflammatory process. Deeper biopsy revealed desmoplastic malignant melanoma with a Breslow depth of 1.3cm. Sentinel lymph node biopsy was negative. A lung density was identified on CT scan 10 months after the patients initial biopsy and was treated with surgical resection. This spindle cell tumor was strongly positive for S-100, focally weakly positive for AE1/AE3, and negative for pancytokeratin. The findings are compatible with malignant melanoma metastatic from skin. Adjuvant therapy was continued with temozolomide, sorafenib, and GM-CSF. Conclusion: Desmoplastic melanomas most commonly develop in the elderly on the head and neck followed by the trunk and extremities. Recurrence is common and although metastasis to lymph nodes is rare, the mean rate of metastasis to the lung is 30%. The presence of cytokeratin positivity may be associated with more aggressive malignancy and genetically more unstable forms of metastases.

#### Poster 276

##### **The significance of melan-A positive pagetoid melanocytosis in dysplastic nevi**

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Dysplastic nevi may occasionally display alarming histological features. One of these features is the presence of upward spread of melanocytes (pagetoid melanocytosis), identified either on routine histologic sections or following immunohistochemistry using the melanocytic markers. Forty-five cases of dysplastic nevi with mild to moderate atypia were selected and retrieved, and Melan-A staining was performed. Melan-A positive cells with pagetoid architecture were present in twenty cases (44.4%). Of these, only five cases demonstrated pagetoid architecture on routine staining. We conclude that Melan-A staining should be used only with caution as an adjunct to routine histology in the evaluation of dysplastic nevi with mild to moderate atypia, because the identification of pagetoid melanocytosis using this technique has the potential to lead to an erroneous diagnosis of melanoma.

#### Poster 277

##### **Combined blue nevus-smooth muscle hamartoma: A series of 7 cases**

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Blue nevi are classically described as dark blue papules located on the extremities, with a histologic pattern of dendritic melanocytes interspersed with pigmented melanophages in a sclerotic dermis. Blue nevi are often observed in combination with different nevus cell types, referred to as combined blue nevi. Associations with other cell types, such as those of neural origin, have also been reported in the form of neurocristic hamartomas (NCH). This is consistent with derivation from a common embryonic neural-crest lineage. Associations of blue nevi with myomatous structures have only been observed in one case report in the literature in which smooth muscle hyperplasia was found within a plaque-like blue nevus. However, the specific association of combined blue nevi with smooth muscle hyperplasia has not been reported. We report a series of 7 cases of combined blue nevi with associated smooth muscle hyperplasia, likely representing a hamartomatous complex.

#### Poster 278

##### **Eccrine origin of epidermal hyperplasia in verrucous melanomas: An immunohistochemical analysis**

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Eccrine Origin of Epidermal Hyperplasia in Verrucous Melanomas: An Immunohistochemical Analysis Terrence Keaney, M.D Dermatology Resident, PGY-3 Evangelos V. Badiavas, MD, PhD Associate Professor George Elgart, MD Director of Dermatopathology, Vice-Chairman for Education University of Miami Miller School of Medicine Department of Dermatology & Cutaneous Surgery Background: Nevoid melanomas have been defined as lesions that mimic a benign nevus but exhibit melanoma features such as cellular atypia, mitoses, and the absence of maturation. There are two histologic architectural growth patterns seen in nevoid melanomas; verrucous and nodular. The verrucous variant exhibits a fairly symmetric and well-circumscribed exophytic lesion with a verrucous architecture, hyperkeratosis, and papillomatosis resembling a warty intradermal nevi. Objective: To investigate whether the epidermal hyperplasia in verrucous melanomas is a reactive process to the tumor that is formed through eccrine induction and hyperplasia. Methods: The origin of epidermal hyperplasia in verrucous melanomas was investigated by immunohistochemical techniques detecting unique eccrine markers, carcinoembryonic antigen (CEA) and keratin 77. Results: The epithelium of eccrine ducts within the verrucous melanomas stained with both CEA and keratin 77. The staining patterns highlight the presence of eccrine epithelium within verrucous melanomas and could suggest a pathologic association. Additional studies are warranted.



## Poster 279

### **Metastatic melanoma to the lung with extensive cartilaginous differentiation: A case report of a rare but perilous diagnostic pitfall**

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Establishing a diagnosis of melanoma when the tumor displays an unusual phenotype is a frequently encountered challenge in dermatopathology. Cartilaginous differentiation in melanoma is a rare but well documented occurrence. Furthermore, metastatic melanoma with extensive chondroid differentiation represents a potential diagnostic pitfall. This dilemma is enhanced when the history of a skin primary tumor is remote or non-existent and when it manifests in an age group or body site more typical of chondrosarcoma. Herein we present the case of a twenty-six year-old patient with a remote history of a thin melanoma on the face who presented with a pulmonary nodule showing abundant chondroid matrix. The tumor was positive for S-100 and SOX-9 and negative for keratin, HMB45 antigen, and MART-1 by immunohistochemistry. A diagnosis of mesenchymal chondrosarcoma was rendered. A cutaneous nodule was noted on the back and clinically it was considered to be a metastasis of the pulmonary lesion. Review of the patients prior melanoma revealed focal chondroid formation and an immunoprofile remarkable for the marked expression of SOX-9. Therefore the final diagnosis of both the lung and back lesions was that of metastatic melanoma. This case emphasizes that melanoma can express markers originally considered to be more characteristic of cartilaginous tumors, such as SOX-9. Furthermore, it highlights the diagnostic pitfalls presented when metastatic melanoma displays unusual morphologies and the importance of correlating with the clinical history and previous histologic material.

## Poster 280

### **A Critical evaluation of current evidence-based recommendations for management of melanocytic lesions**

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As the incidence of melanoma has increased over the last several decades, there have been numerous recommendations made in efforts to develop evidence-based approaches for the reporting and management of melanocytic lesions. While such efforts are laudable, it remains essential that they incorporate well established practices and be easily applicable so that pathologists and clinicians may clearly communicate the essential information needed to formulate a treatment plan tailored to a given patient. Use of terms such as MELTUMP and atypical melanocytic hyperplasia are not well defined and are managed inconsistently by clinicians. Other practices such as using micrometer measurements of melanoma margins on histologic sections often yield erroneous information. Although not entirely bereft of merit, the 7th edition of the AJCC manual recommends a management paradigm that is problematic on a number of bases including a generic histologic assessment of ulceration and mitotic activity without regard to factors that could confound their assessment such as trauma. We review the current

recommendations that have been recently proposed and provide a practical approach to the diagnosis and management of melanocytic lesions that will allow for more effective communication between pathologists and clinicians, and ultimately, the best possible care for our patients.

## Poster 281

### **Clinically occult amelanotic melanoma mimicking a persistent lichenoid dermatitis: A cautionary tale**

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We present an extraordinary case of amelanotic melanoma mimicking a persistent lichenoid dermatitis in a fifty-year-old female. She had a long standing history of a lichenified, hypopigmented patch with discreet, telangiectatic, erythematous papules on her left arm. Original clinical and biopsy impression were felt to be consistent with a lichenoid dermatitis. A second biopsy performed six years later demonstrated a dense lichenoid band of lymphocytes partially obscuring a mitotically active, atypical, epithelioid and spindle cell proliferation. The atypical cells were present at the dermal-epidermal junction and also within the dermis (Breslow depth 1.75 mm, Clarks Level III). Focal pagetoid spread was evident, and immunohistochemical stains were diffusely positive for S100 and focally positive for pan melanoma cocktail, consistent with a diagnosis of amelanotic melanoma. The initial biopsy was subsequently reviewed and showed similar histologic findings. The patient is alive and disease free six months after excision. We propose that the unique inflammatory infiltrate may have a role in keeping the disease stable and localized.

## Poster 282

### **The CD34 fingerprint: A clue to distinguish neurofibroma from desmoplastic melanoma**

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We have commonly observed an interesting fingerprint pattern of CD34 immunopositivity in association with perineurioma and neurofibroma. The fingerprint is defined by delicate, somewhat linear, partially parallel, and whorled reactivity created by labeling of exquisitely slender elongated cells between collagen bundles. Occasionally melanoma in situ can be encountered overlying an S100-positive proliferation of spindled cells within collagenous or fibrillar stroma, raising a differential diagnosis including intraepidermal melanoma overlying a neurofibroma or early desmoplastic melanoma. As this differential cannot be resolved utilizing immunostaining for conventional melanocytic markers, we evaluated the CD34 fingerprint as a potential distinction between these two possibilities. We stained 18 desmoplastic melanomas and 50 neurofibromas with CD34. A fingerprint was considered to be present if whorled CD34 immunopositivity was present in greater than one third of the proliferation. By this definition, 49/50 (98%) neurofibromas demonstrated a fingerprint. In contrast, a fingerprint was not found in any of 18 desmoplastic melanomas. We conclude that fingerprint CD34 immunoreactivity is useful in distinguishing neurofibroma from early desmoplastic melanoma.

**Poster 283**

**Atypical histology in a melanocytic nevus after cryotherapy and pregnancy mimicking melanoma**

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Melanocytic nevi often undergo clinical and histologic changes during pregnancy and also after treatment with liquid nitrogen, each of which can result in atypical histologic features. We report the case of a 9-month post partum 29 year old female who presented to her dermatologist with a dark, clinically worrisome nevus. This nevus had been treated with liquid nitrogen by her primary care physician 6 months previously. Histopathologic evaluation revealed a crowded proliferation of atypical melanocytes, as single cells and as nests at the dermal-epidermal junction overlying scar. The dermal component contained scattered mitotic figures. There was maturation of the dermal component with HMB-45, with labeling in the upper portion. A panmelanoma+Ki-67 immunohistochemical study showed a focally increased proliferation rate of melanocytes. These atypical features were interpreted as being the result of both cryotherapy as well as her recent pregnancy. Knowledge of the clinical context in these cases is essential in avoiding misdiagnosis.

**Poster 284**

**Keloid-like change in nevi mimicking desmoplastic melanoma in adults with type IV-V skin**

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We report two examples of unusual large, benign sclerotic nodules arising in congenital nevi in Hispanic adults. In the first case, a 29 year old male developed a firm nodule within a congenital melanocytic nevus on the left posterior shoulder over a period of two years. In the second case, a 48 year old male presented with a mass of the right upper arm. Histological examination of both showed residual areas of typical intradermal congenital nevus. The large nodular areas were composed of dense fibrous tissue with hypocellular, thickened collagen bundles resembling a keloid. Within these were scattered nests of nevus cells that blended with areas that included small fibroblast-like spindle cells without cytologic atypia. These cells showed immunoreactivity for S-100, Melan-A, and HMB-45. Mitotic figures were not identified. Clinical follow up has shown no evidence of recurrence. Although this striking sclerotic stromal reaction is known to occur in giant congenital nevi in childhood, its occurrence in congenital nevi in adults is not well-described in the literature. We present these cases to illustrate that keloidal fibroplasia occurs in congenital nevi in dark-skinned individuals and should not be misinterpreted as desmoplastic melanoma.

**Poster 285**

**Nests with numerous MITF-positive cells in lichenoid inflammation: pseudonests or true melanocytic neoplasm?**

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Pseudomelanocytic nests in the setting of lichenoid inflammation can mimic atypical melanocytic proliferations. Both melanocytic and cytokeratin immunohistochemical stains may be utilized to differentiate these entities. Unlike true melanocytic nests, pseudomelanocytic nests contain Mart-1/MelanA(+) cells and cells positive for pan-cytokeratins, CD-3, and/or CD-68. Recently, rare (1-2 cells/nest) MITF(+) cells were also reported in pseudomelanocytic nests. We present a 48 year old male with a 2 x 3 cm violaceous to hyperpigmented, non-blanching, polygonal patch on the neck. Histopathology showed focal epidermal atrophy, irregularly distributed nests at the dermal epidermal junction, and a lichenoid infiltrate with colloid bodies. Immunoperoxidase studies revealed occasional pan-cytokeratin(+) staining in nests as well as focal S-100 protein(+) cells. Importantly, the majority of nests showed numerous Mart-1/Melan(+) cells as well as MITF(+) cells (>2 cells/nest and some the majority of cells). Thus, we describe nests simultaneously showing both numerous (at least >2) MITF(+) and Mart1/MelanA(+) cells, and interspersed cytokeratin(+) staining, reminiscent of colloid bodies confounding the above described immunohistochemical distinction between pseudo- and true melanocytic nests. Clinically felt to represent unilateral lichen planus pigmentosus/ashy dermatosis and not malignant melanoma in situ, this lesion highlights the importance of clinicopathologic correlation, and suggests either a new melanocytic entity or a novel pattern of benign melanocytic re-organization in a subset of lichenoid dermatitides.

**Poster 286**

**Regressing merkel cell carcinoma: case report and characterization of the inflammatory reaction**

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A 96 year old female presented with a rapidly enlarging skin lesion inferior to the left sternoclavicular joint. The lesion began as a small erythematous macule and within 8 weeks it rapidly increased in size to an ulcerated nodule, measuring 5 cm in diameter, and 4.5 cm in thickness. A four millimeter punch biopsy was performed, and it showed a poorly differentiated neoplasm. The tumor cells were positive for cytokeratin 20 in a dot-like perinuclear pattern, positive for CAM 5.2, and negative for cytokeratin 5/6 and leukocyte common antigen. The diagnosis of Merkel cell carcinoma was made. Following the punch biopsy, the lesion had noticeably decreased in size and within 8 weeks after the biopsy it has completely resolved without any further intervention. CD4 and CD8 immunostains showed that the tumor was infiltrated by CD8 positive cytotoxic T lymphocytes, while CD4 positive T lymphocytes remained outside of tumor nests. Regression of Merkel cell carcinoma is a very rare event, with approximately 20 cases reported, and its cause and mechanism are unknown. This is the first case report of a fully re-

gressed Merkel cell carcinoma with immunohistochemical characterization of the inflammatory reaction to the tumor.

## Poster 287

### Basal cell carcinoma of the ear is more likely to be of an aggressive phenotype in both men and women

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**BACKGROUND:** We observed a trend that basal cell carcinoma (BCC) on the ear demonstrates a more aggressive phenotype compared to other body sites. Currently, there is no publication confirming this observation. **METHOD:** We searched our 2009 database for all BCCs biopsied from the ear. Data points including age, gender, laterality, specimen size, tumor subtype, and risk level were analyzed for the first 100 BCCs on the ear and, for comparison, the first 100 BCCs on the cheek. We considered basosquamous, infiltrative, metatypical, micronodular, and morpheic (sclerosing) subtypes to be high risk. **RESULTS:** At our institution, the diagnosis of BCC on the ear was made 617 times in 2009. Of the first 100 occurrences on the ear, 57% were of a high risk phenotype compared to 38% on the cheek ( $p = 0.01$ ). Men were far more likely to have a BCC on the ear compared to women, 79% male on the ear and 53% male on the cheek ( $p < 0.001$ ). However, when women develop BCC on the ear, the likelihood of it being an aggressive phenotype is also 57% (12 of 21). **CONCLUSIONS:** Basal cell carcinoma occurs on the ear much more frequently in men, and an aggressive phenotype occurs in the majority of cases for both men and women. Knowledge of this information can help guide physicians and ensure that these tumors are adequately biopsied and treated.

## Poster 288

### Cutaneous apocrine carcinoma

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Cutaneous apocrine adenocarcinoma (CAC) is a very rare tumor which often presents a diagnostic conundrum, since it may appear histologically and immunohistochemically identical to breast apocrine carcinoma. Lymph node metastases incidence is estimated to be approximately 42% at presentation. Other metastases have been reported in the lungs, bones, brain, and parotid gland. We present a 75 years old male patient who presented with a left nipple 1.2 x 1cm pedunculated, red, telangiectatic, friable nodule of one month duration. Histological examination showed invasive adenocarcinoma with pagetoid involvement of epidermis. Our differential diagnosis included primary cutaneous apocrine carcinoma versus mammary apocrine carcinoma with invasion into the nipple, but we favored a CAC over mammary carcinoma as the tumor appeared to be dermal-based. However, the re-excision showed features more consistent with primary mammary carcinoma, as there was an underlying Grade II Infiltrating ductal carcinoma, with a ductal carcinoma in situ component. Immunohistochemical stains were positive for Cytokeratin 7, negative for Cytokeratin 20, and positive for Estrogen receptor. The patient was diagnosed with Stage IA Infiltrating mammary apocrine carcinoma, and underwent

modified radical mastectomy of the left breast and Sentinel lymph node biopsy. In conclusion, due to the identical histological and immunohistochemical features of CAC and breast apocrine carcinoma, the diagnosis of CAC in the breast should only be made after close clinical and pathological correlation.

## Poster 289

### A case of plexiform xanthomatous tumor

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Plexiform xanthomatous tumor (PXT) is a rare benign tumor of middle-aged to elderly men. It tends to occur on the extensor surfaces of the knees and elbows and presents as white to yellow nodules ranging up to 5 cm in size. A small subset of patients has hyperlipidemia. Histologically, PXT involves the dermis and subcutis with a distinctive multinodular or plexiform architecture composed of CD68 positive epithelioid and xanthomatous cells admixed with rare multinucleated giant cells. It should be distinguished from plexiform fibrohistiocytic tumor and other xanthomatous tumors, in particular tendinous and tuberous xanthomas. Although benign, it can demonstrate local recurrence. We report a case of a 36-year-old man presenting with multiple nodules on his bilateral elbows. A biopsy revealed plexiform lobules composed of histiocytic-appearing cells, many of which had foamy cytoplasm, separated by thick collagen bundles throughout the dermis. A rare focus of cholesterol clefts was noted. By immunohistochemistry, the xanthomatous cells were positive for CD68 but negative for S100. The morphology and immunohistochemical profile were characteristic of PXT.

## Poster 290

### Paraneoplastic pemphigus and Herpes simplex virus in a 14-year-old with Castleman's syndrome

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14-year-old previously healthy teenager presented from an outlying facility with a three-week history of painful erosions in the mouth and perineum, conjunctival injection, dehydration and respiratory distress. HSV IgM and IgG were positive and treatment with systemic acyclovir was initiated. Upon transfer to our facility, physical exam revealed a retroperitoneal abdominal mass for which incisional biopsy was performed. Pathology demonstrated angiolymphoid hyperplasia with hyalinized germinal centers consistent with Castleman syndrome of hyaline-vascular type. HSV I DFA was again performed on oral erosions and remained positive despite prior treatment with acyclovir. The initial impression was that of Castleman syndrome reactive to overwhelming HSV infection. After dermatology consultation, skin biopsy was obtained from newly formed bullae of the hands and revealed suprabasilar acantholysis with necrosis as well as an upper dermal, perivascular, and interface infiltrate of eosinophils and lymphocytes. Direct immunofluorescence was significant for IgG deposition intercellularly and along the dermo-epidermal junction and focal trace C3 deposition along the dermo-epidermal junction consistent with paraneoplastic pemphigus. There were no viroplasmic changes in the skin biopsy specimen. We report this case of HSV I positive mucosal erosions

resulting in delayed diagnosis of paraneoplastic pemphigus secondary to Castleman syndrome.

## Poster 291

### Immunotype of tumor infiltrating immune cells and its correlation with clinical outcome in metastatic melanoma

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Lymphocytes and other immune cells infiltrating melanoma metastases may be associated with an improved prognosis. We have observed that some melanomas have lymphocytic infiltrates that are limited to the perivascular spaces, and we have hypothesized that differentiation of this presentation from more diffuse infiltration may have both biologic and prognostic significance. We have thus systematically evaluated 189 melanoma metastases on H&E sections and have evaluated immune cells (CD45) and vascular endothelium (CD34) on a tissue microarray. We identified 3 histologic patterns of immune cell infiltration, termed immunotypes: Immunotype A with no immune cell infiltrate; Immunotype B with immune cells cuffing intratumoral blood vessels but not infiltrating among melanoma cells distant from the vessels; Immunotype C with diffuse intratumoral immune cells. These represented 28%, 63%, and 9% of the metastases, respectively. Survival was best for Immunotype C and worst for Immunotype A ( $p=0.0475$ , log-rank test). The cellular composition of the infiltrates differed among immunotypes, with increased B cells (22 vs 4%) and decreased macrophages (8 vs 14%) in Immunotype C tumors compared to Immunotype B tumors. These findings suggest that the pattern of immune cell infiltration is an important factor in patient survival and may represent a potential prognostic parameter to be reported in melanomas. The association of Immunotype C with the best clinical outcomes suggests that these differences are both biologically and clinically significant and may be useful in considering patients and their tumors for immunologic or other therapies.

## Poster 292

### Scar metastasis of adrenocortical carcinoma

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Adrenocortical carcinoma (ACC), a rare and typically aggressive neoplasm, accounts for only 0.02-2% of all malignancies (1,2,3). ACC occurs in both genders with a bimodal distribution (peaks in first and fifth decades) (1,2,3). Metastases are common at diagnosis (typical sites include liver, peritoneum, lung, lymph nodes, bone) (1,2,3). Rarely, cutaneous/subcutaneous metastasis have been reported (1,4,5,6). A 22yo male without significant medical history was found to have an adrenal mass during radiologic evaluation of nephrolithiasis. He endorsed four months of progressive "cushinoid" appearance (rapid weight gain and truncal striae with new onset hypertension and hyperglycemia). Right adrenalectomy yielded a diagnosis of ACC (242g, 11.5cm) with extensive periadrenal fat invasion. Neoplastic cells stained positively for Melan-A and inhibin while keratin was negative. Despite radiation and mitotane therapy, the patient presented with Cushing syndrome seven months later (urine free cortisol 1750; normal range 17.0-47.0mcg/24hr) and

radiologic studies revealed widespread metastases involving the liver, omentum, mesentery, peritoneum, cul-de-sac and retroperitoneum. In addition, a 2.5 x 2 x 2 cm deep dermal/subcutaneous tumor was present in the adrenalectomy scar. The patient underwent surgical debulking. Histologically, highly cellular tumor nodules were demarcated by dense fibrous bands and punctuated by necrosis. The pleomorphic neoplastic cells, arranged in trabecular and solid patterns, displayed variably vacuolated cytoplasm and brisk mitotic activity. Nine months following diagnosis the patient is alive with multifocal disease, undergoing adjuvant mitotane and chemotherapy.

## Poster 293

### Porokeratosis ptychotropica involving the scrotum

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Porokeratosis includes a heterogeneous group of disorders of keratinization typified by the presence of annular plaques with distinct, raised borders called cornoid lamellae. Individual lesions are at risk for the development of squamous cell carcinoma and basal cell carcinoma. Histologically, a cornoid lamella is a column of parakeratotic scale overlying an epidermal invagination with dyskeratotic keratinocytes and loss of the granular layer. Porokeratosis ptychotropica is a rare variant that clinically presents as a plaque on the buttocks, mimics an inflammatory dermatitis, and, upon microscopic examination, contains numerous cornoid lamellae throughout the process. We report a 28-year old man with a 2-month history of burning and itching of the scrotum associated with the development of multiple thin red plaques with distinct elevated borders and a pebbled appearance. Histologic examination revealed psoriasiform acanthosis and multiple cornoid lamellae, most consistent with a diagnosis of porokeratosis ptychotropica. Our patient's presentation with scrotal lesions typical of porokeratosis ptychotropica is unique and instructive. The observation of multiple cornoid lamellae within a biopsy taken from a genito-gluteal location suggests a diagnosis of porokeratosis ptychotropica, and the risk of malignant degeneration should be noted.

## Poster 294

### Malignant peripheral nerve sheath tumor masquerading as a plexiform fibrohistiocytic tumor

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Malignant peripheral nerve sheath tumor (MPNST) is a rare malignancy that accounts for <10% of all soft tissue sarcomas. Approximately half of MPNSTs occur in association with neurofibromatosis, while the remainder are sporadic. MPNST is prone to recurrence and generally has a poor prognosis. A 70 year-old man presented with a 6 x 4cm painful mass present for one year on the left upper arm. Excisional biopsy showed a plexiform proliferation of osteoclast-like giant cells and bone formation in the deep dermis and subcutis, reminiscent of a plexiform fibrohistiocytic tumor, however, there were also distinct areas with fascicles of mitotically active spindle cells with wavy nuclei set in a sclerotic stroma. Immunohistochemical stains were significant for the presence of

S100 protein, CD57, CD34, and focal smooth muscle actin as well as CD68 in the giant cells. Epithelial membrane antigen and desmin were negative. The clinical history, morphologic and immunohistochemical findings were consistent with the diagnosis of MPNST with prominent fibrohistiocytic features and osseous metaplasia. MPNST can exhibit heterologous elements of mesenchymal and even epithelial differentiation, and should be considered in the differential of deep cutaneous spindle cell tumors.

## Poster 295

### Neurothekeoma of the palm: an unusual location

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A 30 year old woman presented with a palmar soft tissue nodule that was thought to be a digital fibroma. The nodule was stable for seven years until it recently increased in size and became more sensitive. The lesion, located at the distal palmar flexion crease, was fixed to the overlying skin but not to underlying structures. The skin was white-tan with mild hyperkeratosis. On removal, histologic examination revealed dermal irregularly shaped myxoid nodules separated by fibrous bands. The round to spindle cells within the nodules were singly spaced or occasionally grouped, with small and round to irregularly shaped nuclei, and scant to moderately eosinophilic cytoplasm. Immunohistochemical stains revealed S100 positive, EMA and NK1/C3 negative neoplastic cells. The nodule was diagnosed as a neurothekeoma (nerve sheath myxoma). Neurothekeoma is a benign neoplasm of neural derivation, and was originally described as occurring most commonly in the superficial dermis of the head, neck and shoulder. Classic neurothekeoma has also been described in the upper or lower extremities, but only rarely in the hand. When described in the hand, it is generally located on a finger or thumb. Neurothekeoma of the palm of the hand is an unusual location.

## Poster 296

### Familial Diffuse Sebaceous Gland Hyperplasia

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We describe a case of a 57 year old male with a history of diffuse sebaceous gland hyperplasia of the face, neck, chest, abdomen and back. The patient presented to his local Dermatologist for evaluation of a 6mm yellow-pink papule on the left nose; the Dermatologist wished to rule out sebaceous neoplasms that may be part of Muir-Torre syndrome. Both the patients father and paternal uncle exhibited the same clinical phenotype of diffuse sebaceous gland hyperplasia. The patient described in this case report also had a history of colon polyps that were removed by his Gastroenterologist. A biopsy was submitted from our patient that showed sebaceous gland hyperplasia with glands that opened both into hair follicles and directly into the epidermis. Clinically, the patient did not have any other lesions suspicious for Muir-Torre syndrome sebaceous adenomas, sebaceomas, sebaceous carcinomas, or keratoacanthomas. This case of familial diffuse sebaceous hyperplasia is a very rare clinical presentation and may signal a novel type of tumor syndrome. It is still to be determined if it represents a manifestation of Muir-Torre syndrome.

## Poster 297

### Primary synovial sarcoma of the subconjunctiva

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Synovial sarcoma is a malignant mesenchymal tumor that most often arises in periarticular sites on the extremities in young adults. Less than 10% of synovial sarcomas arise on the head and neck. Here we present a 26 year-old healthy male who developed a left subconjunctival, cyst-like swelling that was clinically felt to represent a lymphangioma. This was followed without treatment for 8 months until the area rapidly enlarged in association with ocular swelling, blurry vision, and subconjunctival hemorrhage, prompting biopsy. Initial examination of the biopsy and subsequent outside consultation for histologic diagnosis was inconclusive, with various diagnoses including nodular fasciitis, low-grade sarcoma, and Kaposi sarcoma suggested. The specimen was subsequently sent to our institution for additional consultation. Histology revealed a cellular spindle cell neoplasm composed of plump spindled cells with a fascicular growth pattern. Focal stromal hyalinization, heman-giopericytoma-like vessels and admixed mast cells were identified. Immunohistochemical studies showed the neoplastic population to be diffusely positive for TLE-1 with focal positivity for cytokeratin AE1/3, EMA, CK7 and S100. CD34 was negative in the lesional cells. Interphase FISH was positive for a translocation involving the SYT gene (18q11). A diagnosis of primary synovial sarcoma of the subconjunctiva was made. Although there has been a rise in the incidence of ocular and ocular adnexal sarcomas, mostly in the setting of HIV or irradiation for hereditary retinoblastoma, synovial sarcoma of the subconjunctiva is exceedingly rare.

## Poster 298

### Scleroderoid Kaposi's sarcoma

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A 53 year-old woman with HIV presented with bilateral sclerotic indurated plaques on her thighs and several grouped pink compressible plaques on her right plantar foot. The clinical differential for the thigh lesions included morphea, eosinophilic fasciitis, scleromyxedema, and nephrogenic systemic fibrosis and, for the foot lesions, poroma, piezogenic pedal papules or depositional disease (myx-edema or amyloid). Biopsies of her right thigh and right plantar foot revealed fascicles of spindled cells with extravasated red blood cells and slit like spaces within a dense sclerotic dermis. An HHV-8 immunohistochemical stain was positive and the diagnosis of Kaposi sarcoma was confirmed. This rare presentation of Kaposi sarcoma has only been reported in the literature once previously, but is an important entity on the differential of morphea-like lesions in patients with HIV. This case complements the previously described case of Kaposi sarcoma mimicking nephrogenic systemic fibrosis.

**Poster 299**

**Giant proliferating trichilemmal tumor of the scalp**

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A 56 yo gentleman presented with an enlarging, soft, 20cm mass on the scalp present for over 10 years. It occasionally drained oily, foul smelling fluid and had developed overlying alopecia. An excisional biopsy grossly showed a multiloculated cystic mass weighing 2kg. Histologic sections showed multiple well-circumscribed lobules and cystic structures comprised of banal keratinocytes surrounding abundant, dense, eosinophilic keratinous debris. No granular layer was identified in the majority of the epithelial lobules. There were few mitoses, and heterotopic calcification was noted. Based on the clinical presentation and histologic findings, the diagnosis of proliferating trichilemmal tumor (PTT) was made. PTT is a benign adnexal neoplasm that most commonly affects the scalp of elderly women. It is thought to arise from the outer root sheath epithelium of the hair follicle. Malignant transformation is rare, and can be difficult to distinguish from benign PTT as both can demonstrate mitotic activity and cytologic atypia. Lack of an infiltrative growth pattern can be helpful, but clinicopathologic correlation with clinical behavior is often necessary to establish the diagnosis of PTT.

**Poster 300**

**Gangliocytic paraganglioma in an axillary dermal nodule: A unique presentation**

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A 73 year old, otherwise healthy man presented with a left axillary subcutaneous nodule. Biopsy showed a dermal-based tumor composed of nests of spindled-to-rounded endocrine-like cells intermixed with ganglion-like cells and surrounding nerve sheath-like supporting elements. Tumor cells infiltrated surrounding fibroadipose tissue and rare, atypical mitoses were seen. Immunohistochemistry showed nested cells to be positive for synaptophysin and negative for chromogranin, while ganglion-like cells were positive for cytokeratin and supporting cells were S100 positive. These features are most consistent with a diagnosis of gangliocytic paraganglioma. Gangliocytic paraganglioma is a rare tumor found in the 2nd portion of the duodenum. Other reported locations include jejunum, pylorus, esophagus, pancreas, appendix, and lung. Characteristic findings include the presence of three cell types: nested carcinoid-like endocrine cells that stain for synaptophysin and other neuroendocrine markers, ganglion-like cells and spindled/sustentacular cells. These tumors are reported to have a benign course, although rare cases of local lymph node metastasis have been reported along with a single case of distant metastases to the liver and bone. The current case represents the first report of a possible distant metastasis presenting as an axillary dermal nodule from an unknown primary.

**Poster 301**

**Primitive non-neural granular cell tumor: A case report and review of the literature**

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Primitive non-neural granular cell tumors (PNGCTs) are rarely encountered dermal neoplasms with an unknown histogenesis. Pathologically, they can be a diagnostic challenge. The lesional cells tend to be large with spindled, epithelioid or polygonal shaped cells with a finely granular eosinophilic cytoplasm. Immunohistochemical stains show absence of S100 protein, smooth muscle actin, cytokeratins, and melanoma markers (Melan-A, HMB45). However, neuron specific enolase (NSE), the lysosomal marker NKI-C3 and CD68 are generally strongly positive in the majority of cases. Mitotic activity, nuclear pleomorphism and occasional atypia are not uncommon. We report a case of PNGCT occurring on the shoulder of a 10 year old girl with positive margins. Despite the typically indolent and non-aggressive nature of these lesions, PNGCTs have been reported to metastasize to local regional lymph nodes posing a management dilemma. We review the literature to report clinical and histologic features of this rare entity.

**Poster 302**

**An unusual tumor presenting in an unusual location: An infiltrating intramuscular spindle cell lipoma of the chin**

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Spindle cell lipomas are uncommon benign neoplasms predominantly occurring in the neck and shoulder region of adult men. Spindle cell lipomas are composed of well-circumscribed mature fat cells and uniform spindle cells in a mucinous matrix. The ratio of mature fat cells to spindle cells varies between lesions with some being composed almost entirely of mature adipocytes and others predominantly spindle cells. Uncommonly, these neoplasms may infiltrate skeletal muscle. We present a case of an infiltrating intramuscular spindle cell lipoma located on the chin of a 63 year old man. The patient had a long standing history of an asymptomatic subcutaneous mass of the chin. A recent incremental increase in size prompted consultation for removal because of annoyance with the bulk of the nearly 2 cm spherical mass. At surgical excision, the tumor was deeply located in the subcutaneous tissue and grossly infiltrating skeletal muscle. An excision of the tumor revealed a large neoplasm composed of a proliferation of mature adipocytes, admixed ropey collagen bundles, slender monomorphic spindle cells, and focal myxoid stroma in the subcutaneous tissue infiltrating skeletal muscle bundles. The neoplasm was poorly circumscribed, but appeared completely banal. No pleomorphism nor mitoses were observed. Spindle cell lipomas are themselves uncommon, but there have only been approximately ten reported cases of the infiltrating intramuscular subtype. These have previously been described on the extremities, the oral cavity and once on the nose. This is the second case of this benign, but often recurrent neoplasm of fat, to be reported on the face.

## Poster 303

### Mucin as a clue to the diagnosis of elastomas

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Connective tissue nevi are hamartomas composed of variable amounts of collagen, elastic tissue, and mucopolysaccharides. In cases where an increase in elastic tissue dominates the histologic picture, these connective tissue nevi are termed elastomas. Elastomas may be solitary or multiple and most commonly present as flesh to yellow colored papules or plaques on the lower trunk or extremities. Multiple lesions are associated with the autosomal dominant Buschke-Ollendorf syndrome which is also characterized by osteopoikilosis or bone sclerosis. The histologic findings in elastomas can be very subtle with only a minimal increase in elastic tissue and a normal appearance to the collagen fibers, thus presenting a diagnostic challenge to the dermatopathologist. We describe 5 cases of elastomas in which increased levels of mucin in the background of subtle alterations of collagen alerted the dermatopathologist to the possible diagnosis of elastomas prior to staining of the biopsies for elastic tissue to confirm the diagnosis. Staining with colloidal iron was performed to highlight the observed increased levels of dermal mucin localized to lesional areas identified by Weigert's elastic stain. These cases demonstrate the utility of dermal mucin displayed between subtly altered collagen in the absence of other histologic findings as a helpful clue in the diagnosis of elastomas. The diagnosis can subsequently be confirmed by elastic tissue staining highlighting the increased thickness and branching nature of elastic tissue in the dermis.

## Poster 304

### Cutaneous ganglioneuroma with induction-like changes in the overlying epidermis: A case report

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Ganglioneuromas are rare, benign peripheral nerve tumors arising from the neural crest. They are usually located along the sympathetic chains from the base of the skull to the pelvis, in the mediastinum, retroperitoneum or adrenal gland. Ganglioneuromas of the skin are extremely rare. Since its first report by Dr. Collins in 1972, only 17 cases of primary cutaneous ganglioneuroma have been reported in the literature to date. 4 of these cases were reported to be associated with overlying hyperkeratotic epidermal changes resembling seborrheic keratosis or verrucous keratosis. We report here a solitary cutaneous ganglioneuroma on the abdomen of a 77 year-old woman who has no history of malignancy. Her lesion was present as a verrucous, hyperkeratotic plaque with a central red pearly papule. Histological examination and immunohistochemical studies revealed that the lesion is comprised of a proliferation of mature ganglion cells intermingled with Schwann cells and axons. The epidermis overlying the lesion showed not only seborrheic keratosis but also basal cell hyperplasia, reminiscent of the typical epidermal changes induced by some dermatofibromas. After extensive literature search, we were not able to find a reported case showing this type of dermatofibroma induction-like epidermal changes in association with primary cutaneous ganglioneuromas.

## Poster 305

### Focal acantholytic dyskeratosis overlying a dermatofibroma.

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Focal acantholytic dyskeratosis (FAD) as an overlying epidermal change in dermatofibroma is a rare reported event. We present a case of a 49 year old man with history of psoriasis who presented with a 7mm pink irritated plaque on the left medial ankle. Shave biopsy of the lesion revealed an acanthotic epidermis with a circumscribed unencapsulated area with increase in fibroblasts, histiocytes and trapped collagen bundles within the dermis, consistent with a dermatofibroma. The epidermis overlying the dermatofibroma showed basaloid and squamous cell proliferation with suprabasilar acantholytic dyskeratosis. Induction of the overlying epidermis is commonly seen in dermatofibroma with acanthosis being the most common change. FAD is a distinctive histological alteration. In the right clinical context, it is a key feature of Darier's disease or transient acantholytic dyskeratosis. However, incidental FAD has been seen in epithelial, fibrohistiocytic, inflammatory and melanocytic lesions with the epidermal alteration occurring within the lesion or in clinically normal appearing adjacent epithelium. Sunlight or UV radiation has been speculated to be a cause of incidental FAD, however in the context of its association with dermatofibroma this may represent a mesenchymal-epithelial interaction. To our knowledge, this association has been reported twice previously in the literature.

## Poster 306

### Cutaneous metastasis of prostatic adenocarcinoma

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We present a case of a 67 year old man who presented with multiple papules on the medial aspect of both thighs. The patient had a history of prostate adenocarcinoma, initially diagnosed one year prior to presentation with complaints of bone pain and urinary difficulty. He was found to have a PSA level in the 1000s with bone and liver metastases. A shave biopsy of one of the lesions was performed. At scanning magnification, monotonous sheets and a few nests of neoplastic cells involving the superficial dermis with an overlying grenz zone was seen, resembling an interdermal nevus. Higher magnification showed poorly formed glandular elements, nuclei with open vesicular chromatin, scattered apoptotic bodies, and mitosis. An immunohistochemical work up showed the neoplastic cells to be positive for cytokeratin cocktail (CKAE1/3), PSA, prostate specific acid phosphatase (PSAP) and negative for panmelanoma antigen and S100. These findings were consistent with metastatic prostatic adenocarcinoma. Prostate cancer is the second most common malignancy in men, however cutaneous metastases of this neoplasm is a rare event accounting for less than 1% of all cutaneous metastases. To our knowledge under 80 cases of this phenomenon have been published in the literature.

**Poster 307**

**Mirrored longitudinal axis sectioning of melanoma specimens: A novel technique for acquiring fresh melanoma tissue for research**

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Acquisition of fresh melanoma tissue from excision specimens for research purposes is difficult. The process may interfere with ability to accurately render a diagnosis, thus compromising patient care. Currently a biopsy or excision specimen is typically halved with one half used for diagnosis and the other used for research purposes. The research half of the specimen may contain findings most pertinent to an accurate diagnosis. We describe a technique in which an excision specimen is bread loafed into three smaller sections by making incisions perpendicular to the skin surface. The middle section containing the melanoma lesion is cut to a thickness of approximately 3 mm and is used for investigational purposes. Diagnostic staging sections are then taken from the two vertical surfaces facing the 3mm middle section used for research. These vertical sections are embedded enface with the surfaces opposing the 3mm middle section facing down. This mirrors the histology of the corresponding surfaces of the middle section. The remaining specimen is sectioned in the routine fashion. This maintains diagnostic accuracy while allowing acquisition of pertinent tissue for research. We also describe the use of this technique to test the selectivity of a novel targeted melanoma drug, a doxorubicin-hyaluronan bioconjugate

**Poster 308**

**Kaposi sarcoma in an AIDS patient with multicentric castleman disease**

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We describe a case of Kaposi sarcoma (KS) in a 29 year old African American male AIDS patient with multicentric Castleman disease (CD). He initially presented in septic shock, with acute renal failure and diffuse lymphadenopathy. CD4 count on admission was 10/μL. Lymph node biopsy demonstrated features consistent with multicentric CD. Over the following two weeks he developed firm necrotic-appearing plaques on bilateral lower extremities with gangrenous changes of the distal tips of multiple toes. Punch biopsy from the right shin demonstrated nodular aggregates of spindle cells forming occasional slit-like vascular spaces and prominent extravasation of erythrocytes. Immunohistochemical stain for HHV-8 latency-associated nuclear antigen-1 was positive in the spindle cell population in a nuclear staining pattern, consistent with KS. HHV-8 infection is implicated in the pathogenesis of multicentric CD and KS in HIV/AIDS patients, and it is not uncommon to see KS in patients with HIV-associated multicentric CD. However, it is unusual for KS to present with necrotic-appearing plaques and distal gangrene, which are more often seen in calciphylaxis or an acute thrombotic vasculopathy. This case demonstrates the spectrum of HHV-8 related disease in patients with HIV/AIDS and also highlights the diverse clinical presentation of cutaneous KS.

**Poster 309**

**Kaposiform hemangioendothelioma with Kasabach-Merritt syndrome masquerading as child abuse in an infant.**

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A 2 week old baby girl presented to her pediatrician's office with a large bruise over her left leg and was subsequently placed into protective custody on suspicion of child abuse. The bruise remained unchanged over several weeks in foster care. She was re-examined at Montefiore Medical Center: a 6 x 4cm, red/blue, poorly circumscribed, indurated, fixed, non-blanching and non-tender plaque was present over her left antero-medial lower leg. The remainder of the physical exam was unremarkable. Laboratory examination was significant for severe thrombocytopenia and increased fibrin split products. A biopsy demonstrated a vascular neoplasm composed of glomeruloid tufts of small blood vessels surrounded by ectatic spaces lined by thin spindle endothelial cells, extending from the mid-dermis to the subcutaneous tissue consistent with kaposiform hemangioendothelioma/tufted angioma. In concert with the patients hematological findings, a diagnosis of Kasabach-Merritt syndrome was made. Through reviewing the clinicopathological findings, imaging, and differential diagnoses, key points regarding the clinical course, management and prognosis of this rare tumor are highlighted, the importance of correlating clinical with histological findings is emphasized, and clinical simulators of bruises that may raise suspicion of child abuse are discussed.

**Poster 310**

**Factor XIIIa (FXIIIa) positive cutaneous sarcoma: a potential pitfall in the diagnosis of dermatofibroma (DF)**

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We present a case of an otherwise healthy 82-year-old male with two firm, painless subcutaneous nodules on his left shoulder. Punch biopsy of the lesion showed a densely cellular, mildly atypical, non-pleomorphic, mitotically active (8/10 HPFs) spindle cell neoplasm. The process extended from the dermo-epidermal junction into the superficial subcutis. The tumor showed a fascicular pattern with insinuation around and entrapment of fat and dermal collagen fibers at its lateral aspect. Immunohistochemically, tumor cells were strongly FXIIIa positive and negative for CD34. Pancytokeratins, S100, melanoma markers, SMA, desmin, procollagen 1 and CD63 were also negative. The excision specimen showed similar features and final diagnosis of an intermediate grade spindle cell sarcoma, not further classifiable was rendered. The patient received post-operative radiotherapy with no evidence of tumor recurrence. FXIIIa in combination with CD34 is routinely used to distinguish DF from dermatofibrosarcoma protuberans (DFSP). This unique presentation re-ascertains that staining of lesional cells with FXIIIa, especially in a superficial biopsy, must be interpreted with caution and in context of the case.



**Poster 311**

**Histologic features as a predictor of basal cell carcinoma depth**

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Basal cell carcinoma is the most common malignancy among Caucasians. Assessing the tumor risk prior to treatment selection is frequently based on histologic subtypes. Histologically, tumors graded as high risk are those with the morpheic, infiltrative or micronodular types and those as low risk as the superficial types. We sought to determine if variables such as site, linear depth, spacing of tumor lobules, contour of lobules, necrosis, calcification, elastosis, and elastosis characteristics in standard excision specimens of basal cell carcinoma correlated with depth of basal cell carcinoma. 83 histologic slides stained with hematoxylin and eosin of basal cell carcinoma excisions were reviewed. Data of the anatomic site, type of basal cell carcinoma, measurement of the maximum depth of the carcinoma, spacing of basal cell lobules, contour of the lobules, presence of necrosis, presence of calcification, and presence of elastosis were recorded. Tumor depth with jagged borders ranged from 0.3 to 5.5 mm and was significant when compared with smooth bordered tumors that ranged from 0.38 to 0.87 mm ( $p < 0.0001$ ). Superficial elastosis location was associated with a mean tumor depth of 1.07 mm compared to generalized elastosis with mean tumor depth 2.48mm ( $p < 0.0092$ ). Severe elastosis was associated with a greater linear depth (mean 1.74 mm) compared to mild elastosis (mean 0.98 mm) ( $p < 0.0173$ ). The presence of necrosis ( $p < 0.0029$ ) was also associated with greater linear depth. Calcification, presence of elastosis, color of elastosis, and spacing of tumor lobules did not correlate with tumor depth. Basal cell carcinomas with jagged borders, severe elastosis, generalized elastosis, or necrosis tend to have a greater linear depth. Histologic reporting or subtype along with histologic characteristics may be useful clinically to select the appropriate treatment intervention.

**Poster 312**

**Cutaneous Myoepithelioma**

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A 36-year-old white female presented with a 1 cm well-circumscribed, round, pink, and firm papule on her left forearm. She reported that the lesion was asymptomatic and had grown slowly over the ten months prior to presentation. Histopathologic examination of a shave biopsy revealed an unencapsulated, well-circumscribed, polypoid dermal nodule with nests and sheets of pale, eosinophilic, ovoid to spindle cells with uniform, round to ovoid, vesicular nuclei. Foci of myxoid stroma and superficial adipocytes were identified within the lesion. Scattered regular mitotic figures were present in the absence of cellular atypia or pleomorphism. Immunohistochemical staining of the lesion was diffusely positive for S-100 and epithelial membrane antigen (EMA). A diagnosis of cutaneous myoepithelioma was given. Myoepithelial cells are contractile cells that surround glandular structures. Morphologically, they exhibit variation in shape, appearing spindle, ovoid, plasmacytoid with hyaline cytoplasm, or epithelioid with clear cytoplasm. Clinically, myoepitheliomas present as well-circumscribed, often

lobulated, firm or rubbery papulo-nodules. Lesions are most commonly found on the limbs and limb girdles. The histologic diagnosis of myoepitheliomas is challenging because of the variability of cytomorphology, stromal composition, and immunohistochemistry. Most myoepithelial neoplasms follow a benign course, but lesions with atypical features, such as moderate cytologic atypia, numerous mitoses, and/or necrosis, have demonstrated the potential for local recurrence and metastasis. Complete surgical excision remains the treatment of choice.

**Poster 313**

**Metastatic tumors to the Vulva: A clinicopathologic study**

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The spectrum of malignancies encountered in the vulva is broad, and includes site-specific entities that pose a challenge to pathologists. Metastatic tumors to the vulva are much less common than primary malignancies and are infrequently reported. We describe a series of 12 patients with metastasis to the vulva to better characterize the clinicopathologic spectrum. The average patient age at presentation is 64 years old with an average time between diagnosis of primary tumor and metastasis of 4 years. 58% of patients had primary tumors arising from a gynecologic location while 42% of patients had non-gynecologic primaries. Patients presented with lesions that were mostly identified by follow-up examination. By physical exam, lesions ranged from nodular subcutaneous masses to multiple firm papules with slight erythema and somewhat waxy appearances. Some lesions lacked epidermal changes. The average tumor size at presentation was 2.15 cm. By histopathology, 84% of the tumors demonstrated moderately to poorly differentiated adenocarcinomas consistent with the known primary. 8% of metastases were squamous cell carcinoma and 8% were malignant melanoma. Of tumors from gynecologic origin, the most common primary site was the endometrium followed by the vagina. Of metastatic tumors originating in extra-gynecologic sites, colorectal primaries were the most common tumor accounting for 60% of the cases followed by melanoma and ductal adenocarcinoma of the breast representing 20% each. In summary, metastatic tumors to the vulva represent a rare but important category of vulvar malignancies. Most women develop metastatic tumors 4 years after diagnosis of either their gynecologic or colorectal primaries. These data confirm the notion that the vulva is an important site to monitor for the development of distant cutaneous metastatic disease.

**Poster 314**

**Twice diagnosed with primary Digital Papillary Adenocarcinoma, eleven years apart.**

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A 59-year-old man presented with angina and dyspnea. Evaluation revealed a lobular mass in his chest wall. Dermatology was consulted for evaluation of multiple violaceous, subcutaneous nodules on his right hand. Biopsy revealed a dermal tumor composed of solid and cystic spaces with tubuloalveolar and focal papillary architecture, consistent with primary digital papillary adenocarcinoma. Subsequent biopsies of lung and buttock nodules confirmed metastatic

disease. The patient recalled being diagnosed eleven years prior with digital papillary adenocarcinoma. It had been initially misdiagnosed as an adenoma due to inadequate sampling. After evaluation of a re-excision specimen, he was treated with distal amputation of his right thumb. This is the first report of a patient surviving one primary digital papillary adenocarcinoma and developing a second, more biologically aggressive, primary digital papillary adenocarcinoma eleven years later. Although we cannot exclude the possibility of metastasis or local recurrence, the prolonged time interval and the pattern of metastasis to adjacent skin render this unlikely. Adequate incisional biopsy specimens and a high index of suspicion are necessary in diagnosing this entity, which routinely appears benign due to the lack of obvious architectural and cytologic atypia.

## Poster 315

### Dual S-100 - AE1/3 Immunohistochemistry to detect perineural invasion in non-melanoma skin cancers

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Background: Perineural invasion (PNI), particularly for squamous cell carcinoma, is considered an adverse prognostic histologic finding and increases the risk of recurrence and metastasis. Purpose: We aimed to determine if dual staining with both S-100 and AE1/3 would increase the detection of PNI of non-melanoma skin cancers. Methods: We collected 46 specimens of non-melanoma skin cancers in which there was clinical suspicion for PNI based on the clinical history (e.g., pain, suspicious foci on Mohs frozen section samples, etc.). We then applied immunohistochemistry (IHC) using a dual staining method for S-100 and AE1/3. Two dermatopathologists independently reviewed the H&E sections and IHC sections for the unequivocal presence of PNI. Results: Ten of the 46 sections showed unequivocal PNI on the H&E stains. IHC staining revealed unequivocal PNI on 15 of 46. All involved nerves were small, ranging in size from 0.02 to 0.15 mm. Conclusions: PNI detection may be increased using this IHC dual staining method. The clinical significance, particularly given the small size of the involved nerves, is unclear.

## Poster 316

### Induction of ATF3 by interferon-gamma is mediated by EGFR activation

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Activating transcription factor 3 (ATF3) is a member of the ATF/CREB family of transcription factors, which has been implicated in the control of immune responses, the response to ultraviolet radiation and the development of non-melanoma skin cancer. We previously reported that ATF3 is detectable in normal human keratinocytes and that ATF3 levels are increased in inflammatory skin diseases, such as erythema multiforme. In addition, the induction of ATF3 by interferon (IFN)-gamma in human keratinocytes is mediated by both transcriptional and non-transcriptional mechanisms. Since epidermal growth factor receptor (EGFR) cross-activation has been reported to occur in response to IFN-gamma, and EGFR activation drives keratinocyte proliferation, we investigated the influence of EGFR activity on the induction of ATF3 by IFN-gamma in human keratinocytes. We found that inhibition of EGFR activity

using the irreversible EGFR tyrosine kinase inhibitor, PD168393, attenuated the induction of ATF3 by IFN-gamma by ~70%. Thus, in keratinocytes, the induction of ATF3 by inflammatory cytokines can be modulated by EGFR activity. This suggests that EGFR activation status may influence the expression/induction of ATF3 and that EGFR inhibitors, such as erlotinib and cetuximab, may function in part by attenuating ATF3 levels.

## Poster 317

### SOX2 and nestin expression in human melanoma: Implications for potential clinical impact

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SOX2 is an embryonic neural crest stem cell transcription factor recently shown to be expressed in human melanoma and to correlate with experimental tumor growth. SOX2 binds to an enhancer region of the gene that encodes for nestin, also a neural progenitor cell biomarker. To define further the potential relationship between SOX2 and nestin, we examined co-expression patterns in 135 melanomas and 37 melanocytic nevi. SOX2 immunoreactivity in 27 melanoma tissue sections correlated with cell shape and nestin distribution pattern (diffuse cytoplasmic versus peripheral). In tissue microarrays, co-expression correlated with tumor progression, with only 6% of nevi co-expressing SOX2 and nestin in contrast to 70% of metastatic melanomas, and preliminarily, with clinical outcome. Examination of human melanoma lines that differentially expressed constitutive SOX2 mRNA and protein revealed a positive correlation between SOX2 and nestin mRNA and protein expression. Experimental melanomas grown from these respective cell lines in murine subcutis and dermis of xenografted human skin maintained this relationship between SOX2 expression, cell shape, and nestin distribution patterns. Moreover, this relationship between SOX2 and nestin distribution was also observed in xenograft tumors derived from SOX2-knockdown A2058 melanoma cells, but not in tumors generated with A2058 melanoma cells transfected with non-target shRNA (control). In aggregate, these data further support a biologically significant linkage between SOX2 and nestin expression in human malignant melanoma.

## Poster 318

### High grade malignant fibrous histiocytoma of the dermis with features of giant cell fibroblastoma arising from an atypical fibrous histiocytoma

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We present a case of a 63 year old female who presented with a 4 cm left peri-tibial skin tumor, which was surgically resected. Pathological analysis of the lesion showed atypical fibrous histiocytoma (AFH) with abrupt transition to a high grade malignant fibrous histiocytoma (MFH) ulcerating the overlying skin. It also exhibited features of giant cell fibroblastoma, namely floret-like multi-nucleated tumor giant cells. Immunohistochemistry was performed to confirm AFH as the precursor lesion. CD68 and factor XIIIa were diffusely positive in both areas (AFH and MFH), whereas CD34, S100, pan-cytokeratin and EMA were negative, supporting AFH over dermatofibrosarcoma protuberans (DFSP). AFH is an uncommon variant

of cutaneous fibrous histiocytoma. Malignant transformation of atypical fibrous histiocytoma in the skin is very rare, as high grade sarcoma at this site usually represents invasion of the dermis by an underlying deep-seeded sarcoma. However, in this case, the MFH derived from malignant transformation of a cutaneous AFH. In addition, it exhibited histological features of giant cell fibroblastoma, which is a rare variant of DFSP presenting primarily in children. These features were found within the highly malignant sarcomatous component of MFH, which has not been previously reported.

## Poster 319

### Histopathologic characterization of reticulin fibers in reticulohistiocytomas and xanthogranulomas

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Reticulohistiocytomas and xanthogranulomas can both occur as a single cutaneous lesion, multiple cutaneous lesions, or cutaneous lesions in conjunction with systemic lesions. Both are positive for CD 68 and negative for S100, and possibly share a common lineage from the dermal dendrocyte. Typically the histopathology, along with the patients age, sex, and any systemic findings are adequate for an accurate diagnosis. Up to 30% of xanthogranulomas can present in adult life, however, and early lesions can lack some of the characteristic features of Touton giant cells and foam cells. Thus, early xanthogranuloma and reticulohistiocytoma both can appear as a circumscribed dermal nodular infiltrate of histiocytic cells with a background inflammatory infiltrate. We were faced with an otherwise healthy thirty year old man who recently developed multiple lesions that were histologically suggestive of reticulohistiocytomas. The cells were CD68 positive, S100 negative, and a reticulin stain demonstrated a fine meshwork of reticulin fibers encompassing histiocytic cells. Reticulin stain of a small series of reticulohistiocytomas and xanthogranulomas was performed. We try to answer the question whether reticulin stain is a useful tool to differentiate these two entities.

## Poster 320

### Atypical mixed tumors of the digits: report of two cases

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Cutaneous mixed tumors are uncommon neoplasms with a predilection for the head and neck regions. Only few case reports have described its occurrence in the digits. The term "atypical mixed tumor" is used for tumors that exhibit infiltrative borders, cytologic atypia, and/or tumor necrosis, but apparently lack metastatic potential. Here we describe two cases of atypical mixed tumor occurring in the toe and the thumb, respectively, and compare the features with a benign mixed tumor of the digit. Both atypical tumors are largely circumscribed with focal infiltrative borders and no epidermal involvement. They consist of nests, cords, and sheets of large ovoid to polygonal cells with prominent nucleoli, set in a hyalinized and chondromyxoid stroma. One case is rich in hyaline cells that contain eccentric nuclei and glassy eosinophilic cytoplasm,

consistent with myoepithelial differentiation. Occasional bizarre multinucleated cells are also observed. Immunohistochemistry reveals diffuse staining for CK7 and CK5/6; the hyaline cells also react strongly with S100. MIB-1 shows a proliferation index of 5%, notably sparing the bizarre giant cells. Both tumors are negative or only focally positive for GCDPF-15, ER, PR, EMA, and CK20. Given the unusual locations, focally infiltrative borders, cytologic atypia, and proliferative activity, these tumors are best classified as atypical mixed tumors that warrant complete excision and close clinical surveillance.

## Poster 321

### The Utility of PAX-8 in identifying the primary site of origin of subcutaneous metastases in patients with a history of mammary and ovarian carcinoma

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Case: The patient is a 40-year-old female with a 6 month history of vulvar discomfort and itching. A previous biopsy performed at this site showed psoriasiform dermatitis. Upon return for suture removal, a protuberant 1.0 cm periumbilical nodule reminiscent of an accessory tragus became apparent when the patient was reclined to a supine position. Of note, she has a history of breast and ovarian carcinoma. The patient is status post mastectomy as well as total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAHBSO), followed by adjuvant chemotherapy. The biopsy of the periumbilical lesion showed a subepidermal nested and sheet-like proliferation of cytologically atypical cells with numerous mitoses. Areas of gland formation were identified. The working differential diagnosis included metastatic breast versus ovarian carcinoma. Immunohistochemical stains with breast (BRST2) and ovarian (PAX8 and WT1) markers were performed to provide insight into the site of origin. The neoplastic cells were diffusely immunoreactive for PAX8 and WT1, and non-reactive for BRST2, consistent with an ovarian primary (Sister Mary Josephs nodule). There can be extensive histomorphologic overlap between metastatic carcinoma of ovarian and breast origin. The strong diffuse staining pattern of PAX8, coupled with positive WT1 and negative BRST2 expression, provides strong support for the diagnostic utility of PAX8 in deciphering the site of origin in patients with a history of both tumors.

## Poster 322

### A case report of a cutaneous solitary fibrous tumor histologically mimicking a schwannoma

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Solitary fibrous tumors are uncommon mesenchymal neoplasms which occur only rarely in the skin. A case of a 64-year-old female with a solitary fibrous tumor on the lower back is presented. This case was interesting and challenging as the histology mimicked that of a schwannoma. The absence of S100 immunostaining and the morphology of the tumor cell nuclei helped lead to the correct diagnosis. A brief discussion of cutaneous solitary fibrous tumors with an emphasis on the histological and immunohistochemical features is presented.

**Poster 323**

**Acquired elastotic hemangioma**

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Background: Acquired Elastotic Hemangioma is a recently defined benign vascular proliferation acquired later in life on sun damaged skin. Two case series have been reported to date. Case Report: A 91 year old female presented with an enlarging 1cm red plaque on her left extensor upper arm. Excision revealed a diffuse dermal proliferation of benign elongated capillary-sized blood vessels with no atypia. The vessels were arranged in horizontal lobules parallel to the epidermis with significant intervening solar elastosis. The findings were consistent with an acquired elastotic hemangioma. Discussion: The term Acquired Elastotic Hemangioma accurately describes the clinicopathologic hallmarks of this rarely reported variant of benign hemangioma. It is characterized as a slow-growing, red-violaceous plaque commonly acquired on sun exposed areas. The most common site to date is the extensor surface of the upper extremities. It has distinct histologic features that include a band-like proliferation of capillary vessels in the upper portions of the reticular dermis arranged parallel to the epidermis, lack of endothelial atypia, and a background of solar elastosis. In a recent report, D2-40 expression of many endothelial cells suggested that these benign proliferations are derived from lymphatic tissue.

**Poster 324**

**Primary cutaneous amyloidosis of the auricular concha: a clinicopathological and immunohistochemical review of 16 cases**

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Primary cutaneous amyloidosis of the auricular concha is a rarely described entity affecting the external ear. There have been a paucity of cases in the literature since its first report a little over two decades ago resulting in our limited understanding of its etiology. Early immunohistochemical staining of the amyloid has identified specific cytokeratins, including CK5, which is also found in basal keratinocytes. Commonly reported entities such as macular and lichen amyloid, which are seen on the back and shins respectively, also stain for cytokeratins. The shared immunohistochemical profile between primary cutaneous amyloidosis and keratinocytes has been hypothesized to occur secondary to apoptosis and drop out of the basal keratinocytes into the papillary dermis. We report the largest clinicopathological and immunohistochemical review of sixteen cases of primary cutaneous amyloidosis of the auricular concha. In this study, we report the patients clinical presentations, and the cytokeratin profiles (AE1/AE3, CK5/6, CK34E12) of the amyloid deposits.

**Poster 325**

**Congenital Lipomatous Overgrowth, Vascular Malformations, and Epidermal Nevi (CLOVE) Syndrome: a case report with histopathologic findings**

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Overgrowth syndromes with complex vascular anomalies include Proteus syndrome, Klippel-Trenaunay syndrome, Bannayan-Riley-Ruvalcaba syndrome and CLOVE syndrome (congenital lipomatous overgrowth, vascular malformations, and epidermal nevi). Some authors have proposed the expanded acronym CLOVES to encompass scoliosis, skeletal and spinal anomalies which are frequently seen. We present a case of a 19 year old male with a history of vascular malformations and lipomas beginning in early childhood. He developed paraspinal masses leading to cord compression at T1-T4, as well large bilateral, posterior truncal masses. CT and MRI imaging demonstrated vascular anomalies in the spleen and right kidney. These features are consistent with CLOVES syndrome. This is largely a clinical diagnosis and there is little reported in the literature with regard to the histopathologic findings. Histologic sections from a 27 x 24.5 x 6.8 cm mass, resected from our patients left back showed lipomatous overgrowth with numerous dilated, thick-wall vascular channels. The vascular spaces were highlighted by immunohistochemical staining for CD31, but were negative for D2-40, excluding lymphatic channels. Immunohistochemical staining for actin showed variable perivascular smooth muscle. We review the diagnosis of CLOVES syndrome in this patient and discuss the differentiating features of overgrowth syndromes with complex vascular anomalies (OSCVA).

**Poster 326**

**Angiolymphoid hyperplasia with eosinophils of the vulva**

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Angiolymphoid hyperplasia with eosinophils (ALHE) is an uncommon lesion seen most frequently on the head and to a lesser extent on the trunk and upper extremities. Occasionally, however, it can be seen in unusual locations. We present a 51 year old female with a left labial lesion that had been present for awhile but had recently become more irritated and pruritic. Examination revealed a raised, solid red nodule without pigmentary changes. An excisional biopsy was performed. Histologic examination revealed an unremarkable mucosa with overlying parakeratosis. Within the submucosal tissues was a fairly well circumscribed collection of thick and thin walled vessels lined by plump endothelial cells. Many endothelial cells had an epithelioid morphology with eosinophilic cytoplasm that was sometimes vacuolated. Also present was an inflammatory cell infiltrate composed predominantly of eosinophils and lymphocytes. Extravasated erythrocytes and hemosiderin laden macrophages were seen. Mitotic activity was not prominent. Atypia was not identified. ALHE is a benign dermal proliferation of uncertain histogenesis that is believed to be more reactive than neoplastic in nature. It may recur if incompletely excised. The differential diagnosis includes other vascular proliferations, both benign and malignant. A recent search of PubMed produced only two other reports of ALHE in the vulva.

## Poster 327

### Utilization of digital slides for remote quality assurance in dermatopathology

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Utilization of digital slides (DS) is rapidly increasing in modern pathology centers. Technological advances enabled this expansion to applications including research, telepathology, consultation and quality assurance (QA). In our academic dermatopathology center, we are studying the feasibility of DS for remote QA. A Mirax scanner was used to scan the cases into an online database from which they were reviewed. Glass slides (GS) are sent when required due to slide volume or other issues. QA teleconferences are held to discuss workup and diagnosis of difficult cases and facilitate teaching of trainees. Currently, we have reviewed 30 cases total (one month period) - 21 (70%) by DS only, 6 (30%) by GS only, and 3 in combination (GS were sent after the initial review of DS). 177 slides total were reviewed digitally while 196 were reviewed by glass. Advantages of DS for QA include rapid turnaround and facilitation of remote teaching. Difficulties comprise slow scanning times and the requirement to send some cases for review of GS (mainly due to number of actual slides in the case). Overall, our experience is that DS for remote QA are an effective, viable methodology to perform quality assurance in dermatopathology.

## Poster 328

### liliopathic calcinosis cutis of the penis

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Background: Originally described by Virchow in 1855, calcinosis cutis describes a group of disorders in which insoluble compounds of calcium are deposited within the skin due to local and/or systemic factors. Calcinosis cutis is classified into 4 main forms, according to etiology: dystrophic, iatrogenic, idiopathic, and metastatic. While idiopathic calcinosis of the scrotum is not uncommon, those reported in the penis are exceedingly rare. Results: We report a 16-year-old white male with several white tan, firm papules on the shaft of his penis, present for greater than six months. Ranging in size from 1-2 mm in diameter, they appeared clinically to be closed comedones or molluscum lesions. A subsequent biopsy showed a large deposit of calcium within the dermis surrounded by a small rim of foreign-body type giant cells. No cysts, associated tumor cells, or calcium deposits within the walls of surrounding blood vessels were seen. A CBC with differential was unremarkable and calcium/phosphorus levels were within normal limits. No other lesions were seen on physical exam. The patient denied trauma to the area, excessive intake of vitamin D, or other medical abnormalities. Conclusions: We present a rare case of idiopathic calcinosis cutis of the penis within an otherwise young, healthy male. With only 5 cases reported in the literature thus far, we present another case with discussion of possible pathophysiological mechanisms.

## Poster 329

### Linear IgA bullous disease presenting clinically as toxic epidermal necrolysis following acute generalized exanthematous pustulosis

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A 24-year-old woman admitted for abdominal pain, nausea, and vomiting developed an acute onset of fever and pustules on erythematous patches. Five days prior she had received intramuscular ketorolac for treatment of presumed menstrual pain. Biopsy confirmed the clinical suspicion of acute generalized exanthematous pustulosis (AGEP) thought to be secondary to ketorolac. She developed respiratory distress and was started on antibiotics including vancomycin for presumed pneumonia. She then developed acute renal failure. Renal biopsy revealed acute interstitial nephritis with granulomatous features, most likely secondary to ketorolac. The rash began resolving with intravenous methylprednisolone. Four days later she developed annular erythematous patches and bullae on the extremities, trunk and face. Over the course of 12 hours she developed massive bullae over greater than 40% of her body with marked desquamation and mucosal involvement. A frozen section performed to rule out toxic epidermal necrolysis (TEN) instead revealed linear IgA bullous disease (LABD) thought to be secondary to vancomycin. LABD mimicking TEN is an extremely rare condition with high mortality. Our rapid diagnosis by frozen section allowed us to begin life-saving treatment with dapsone allowing a full recovery. This case is also notable in that LABD has not previously been associated with AGEP.

## Poster 330

### Congenital supernumerary nostril and encephalocele: A rare congenital anomaly

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Nasal dysplasia can vary from supernumerary nostril to complete duplication of the nose. Supernumerary nostril or accessory nostril, originally described by Lindsay in 1906, is a rare congenital anomaly with only few reports published in the literature. Our patient is a female infant delivered at 38 weeks gestation. Physical examination was notable for a 3cm x 2cm soft mass in the left infraorbital area and a 1.6cm x 1.2cm hard mass on the left nasolabial crease with an external communication on the distal aspect. Imaging of the head revealed a left lobular intraorbital mass with no communication to the nasal cavity, paranasal sinuses or overlying skin. Histology of the resected mass on the left nose revealed benign adnexal structures, cartilage, bone and seromucous glands consistent with the clinical diagnosis of supernumerary nostril. Histology of the left infraorbital mass was consistent with encephalocele. This anomaly is due to a localized abnormality of the mesenchymal proliferation to form the lateral nasal process leading to formation of fissure within the process hence resulting in two nostrils. It can occur in isolation or in association with other craniofacial anomalies. We present an uncommon case of supernumerary nostril associated with encephalocele.

**Poster 331**

**Disseminated superficial porokeratosis with alopecia: a new variant?**

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Porokeratosis comprises a diverse group of disorders, characterized clinically by annular lesions with an elevated border. At least five clinical variants are now recognized; however, terminology and classification are debated. Apart from disseminated superficial actinic porokeratosis (DSAP) and porokeratosis palmaris et plantaris disseminata (PPPD), there are rare reports of generalized porokeratosis involving photo-protected anatomic sites. One such clinical variant reported as disseminated superficial porokeratosis rarely has been described in the literature in association with organ transplantation, infection, and immunosuppressive therapy. We report a 22-year-old female with disseminated superficial porokeratosis who presented with a nine month history of arthritis, alopecia, and generalized hyperkeratotic papules and plaques on the trunk and extremities. Biopsy demonstrated a thin column of parakeratotic cells emanating from an epidermal depression, beneath which were dyskeratotic keratinocytes (cornoid lamella). This patient's eruption represents a rare generalized porokeratosis variant (disseminated superficial porokeratosis) associated with alopecia, a finding not described previously.

**Poster 332**

**Vesiculopustular eruption in an infant with transient myeloproliferative disorder**

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We report a case of a vesiculopustular eruption in a 5-week-old Hispanic male with Down Syndrome and associated transient myeloproliferative disorder (TMD). Our patient with known TMD presented with a florid, confluent vesiculopustular facial rash. Additional pustules were noted on the trunk and arms. At presentation our patient's white blood cell count had been improving steadily to 9.3 k/cumm from a high of 60 k/cumm. Initially believed to be a herpetic rash, the patient was started on acyclovir. This was discontinued when cultures and PCR were negative for HSV. Histologic examination revealed subcorneal pustules with an inflammatory infiltrate consisting predominantly of neutrophils and a subpopulation of medium-sized mononuclear cells in the papillary dermis. Immunohistochemistry showed this mononuclear population to be reactive with CD34, CD117, CD43 and focally reactive for lysozyme and myeloperoxidase, confirming the presence of a blast cell population. PAS and Grams stains were negative for microorganisms. Recognizing that TMD is a rare cause of vesiculopustular lesions in Down Syndrome infants is crucial for accurate diagnosis and proper management of these patients.

**Poster 333**

**Spindled pattern in cutaneous angiosarcoma: A diagnostic pitfall**

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Cutaneous angiosarcoma typically is a vasoformative tumor characterized by complex interanastomosing neoplastic vessels with multilayering of atypical endothelial cells. We describe 4 diagnostically challenging cases of angiosarcoma with a spindled pattern with only subtle evidence of vasoformation. All cases presented on the scalp/face of elderly patients. One tumor was clinically suspected to represent angiosarcoma. One was initially considered a lipoma, before it developed into a large erythematous plaque. Available clinical information was limited on two cases. In three cases the tumor was largely composed of solid sheets of atypical spindled cells with little to no apparent vasoformation on the original biopsy. One case was initially misdiagnosed as a spindle cell malignancy: AFX vs. pleomorphic sarcoma; evidence of vascular differentiation was only seen in the re-excision specimen. The fourth case was composed of discrete fascicles in a somewhat packeted arrangement without hemorrhage and with only subtle evidence of vasoformation in the superficial dermis. In 2 cases, intratumoral hemorrhage was a clue to the diagnosis. In all cases, the tumor cells were positive for CD31. Spindle cell angiosarcoma can be a subtle diagnosis. Evidence of vasoformation at the tumor periphery and intratumoral hemorrhage are clues to the diagnosis.

**Poster 334**

**Poorly differentiated spindled and epithelioid neoplasms: Electron microscopy remains an important diagnostic tool**

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Herein, we describe a middle-aged female patient with Von Recklinghausens disease who was referred to Dermatology by her primary care physician for biopsy of a rapidly growing lesion. Physical examination revealed an 18.5 x 14.0 cm partially mobile, nodular, pink-red fungating malodorous mass w/ purulent discharge overlying the right lower back. A small excisional biopsy was performed. Histology revealed an ulcerated epidermis overlying a markedly pleomorphic spindled and epithelioid tumor effacing the entire dermis. Centrally, the tumor formed fascicles of spindled cells; peripherally and at the dermal-epidermal junction, the tumor showed areas with a nested configuration. The tumor was mitotically active (30 mitoses per 10 hpf). H&E impressions were equally divided between melanoma and malignant peripheral nerve sheath tumor; immunohistochemical stains only added to the confusion. The tumor was strongly and diffusely positive for S100 and focally positive for Microphthalmia transcription factor. It was negative for Melan A, tyrosinase, HMB45, and CK5/6. While electron microscopy did not demonstrate any melanosomes or premelanosomes, it did reveal intercellular spaces with identifiable basal lamina. This ultrastructural finding indicated the tumor was of neural origin, and supported our diagnosis of malignant peripheral nerve sheath tumor with epithelioid features.

**Poster 335**

**Composite B-cell and T-cell lineage post-transplant lymphoproliferative disorder of the lung with unusual cutaneous manifestations of mycosis fungoides**

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We present the case of a 17-year-old male kidney transplant recipient who presented with numerous hypopigmented scaly plaques with follicular prominence and geographic borders scattered over the trunk, arms, and legs. Biopsy of the skin revealed changes consistent with mycosis fungoides. Approximately two weeks later the patient became febrile and short-of-breath. A PET-CT scan demonstrated multifocal interstitial and airspace consolidation in both lungs. Physical examination revealed no lymphadenopathy or hepatosplenomegaly. An open lung biopsy was performed to reveal an EBV-negative monomorphic T-cell post-transplant lymphoproliferative disorder (PTLD) with a concomitant EBV-positive B-cell PTLD involving the same lesion of the lung. PCR analysis demonstrated clonal TCR gene rearrangement in both the skin and lung biopsies. Interestingly, one T-cell clone was shared between the skin and lung, while a second clone was present only in the lung. Cutaneous manifestations of PTLD remain rare. Furthermore, the concomitant occurrence of bilineal B- and T-cell PTLD in the same patient is extremely rare. To our knowledge, this is the first reported case of a PTLD presenting in the skin in which there was a subsequent discovery of composite, bilineal B- and T-cell PTLD of the lung.

**Poster 336**

**Verrucous Hailey-Hailey Disease mimicking condyloma acuminata**

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Background: Hailey-Hailey disease (familial benign chronic pemphigus, FBCP) is an uncommon autosomal dominant skin disorder characterized by intermittent eruptions of small vesicles on an erythematous base. Rare clinical variants of Hailey-Hailey disease have been described.

Objective: We report a verrucous presentation of Hailey-Hailey disease, for which a clinical diagnosis of condyloma was initially favored. We also briefly review atypical clinical presentations of Hailey-Hailey disease.

Methods and Results: A 69 year old man with a history of Hailey-Hailey disease presented to his primary physician with a new groin eruption. Physical exam revealed discrete, skin-colored verrucous papules in the inguinal folds. A shave biopsy revealed papillomatosis, hyperkeratosis, and pronounced suprabasal acantholysis with a dilapidated brick wall appearance, consistent with Hailey-Hailey disease. A review of the literature demonstrates a range of atypical gross morphologies including papular, annular, vesiculopustular, and verrucous. Only three reported cases of verrucous Hailey-Hailey disease, including this current example, have been described thus far.

Conclusions: We describe a rare case of Hailey-Hailey disease manifesting as discrete verrucous lesions that clinically mimicked condyloma acuminata. Awareness of such atypical presentations of Hailey-Hailey can have profound implications on therapeutic decisions and patient counseling

**A**

Abdollahi, Mahsa ..... 147  
 Abraham, Nina ..... 76  
 Adams, Julia ..... 111, 146  
 Ali, Liaqat ..... 127, 156  
 Altmeyer, Mary ..... 169  
 Alvarez, Rudy ..... 76  
 Al-Zaid, Tariq ..... 107  
 Anand, Dipti ..... 167, 171, 175, 185  
 Anolik, Rachel ..... 149  
 Armstrong, Andrew ..... 167, 176, 190, 191  
 Arthur, Allison ..... 122  
 Ashby-Richardson, Harty ..... 137  
 Auerbach, Jena ..... 182  
 Aziz, Nasir ..... 158

**B**

Bains, Rick ..... 160  
 Baker, Gabrielle ..... 181  
 Bandhlish, Anshu ..... 124  
 Baran, Johanna ..... 182  
 Barnhill, Raymond ..... 73  
 Behesht, Javad ..... 168  
 Bennett, Daniel ..... 168  
 Bennett, Daniel D. .... 181  
 Berghoff, Adar ..... 190  
 Bhasin, Meenakshi ..... 136  
 Bieniek, Radoslaw ..... 179  
 Biswas, Asok ..... 135  
 Bohlke, Angela ..... 170  
 Boncher, Julia ..... 162  
 Bowden, Lynden ..... 148  
 Boyd, Kevin ..... 117, 144  
 Brinster, Nooshin ..... 146  
 Brown, Allison ..... 133, 134

**C**

Calder, Kenneth ..... 86  
 Camp, Brendan ..... 78  
 Canepa, Mariana ..... 156  
 Cangelosi, John ..... 187, 190  
 Cappel, Mark ..... 120  
 Caretti, Katherine ..... 123  
 Carlos, Casey ..... 109  
 Carney, Heather ..... 189  
 Chandler, Wells ..... 176  
 Chan, May ..... 172, 188  
 Charli-Joseph, Yann ..... 127  
 Chavan, Rahul ..... 140  
 Cheng, Hao ..... 130  
 Chen, Hui ..... 161  
 Cheung, Wang ..... 82, 109, 127  
 Chisholm, Cary ..... 83, 147  
 Cho-Vega, Jeong Hee ..... 116  
 Clarke, Loren ..... 91, 131  
 Coffing, Bryan ..... 173  
 Coleman, Neil ..... 141  
 Compoginis, Goli ..... 138, 157  
 Cordero, Steven C. .... 148  
 Cornejo, Kristine ..... 125

**D**

Dabiri, Salma ..... 83  
 Dandekar, Monisha ..... 138

Daniel, Stephanie ..... 164  
 D'Auria, Andrea ..... 77  
 DeClerck, Brittney ..... 170  
 Dekker, John P. .... 162  
 Depcik-Smith, Natalie ..... 131  
 Dohse, Lindsey ..... 177, 189

**E**

Eaton, Joseph ..... 131, 134  
 Elaba, Zende ..... 167  
 Elkeeb, Laila ..... 180  
 Elwood, Hillary ..... 163  
 Erdag, Gulsun ..... 181  
 Esparza, Edward ..... 79  
 Etufugh, Chukwuemeka ..... 184, 185

**F**

Fakhari, Farnaz ..... 76  
 Fernandez, Anthony ..... 170, 182  
 Fernandez, Kristen ..... 152  
 Ferrara, Gerardo ..... 118  
 Finn, Alexander ..... 87, 88  
 Fischer, Max ..... 109  
 Fisher, Kristopher ..... 87  
 Fohn, Laurel ..... 72, 153  
 Fox, Melanie ..... 151  
 Fraga, Garth ..... 126  
 Frisch, Nora ..... 166  
 Froehlich, Heather ..... 154  
 Furmanczyk, Paul ..... 87

**G**

Gable, Ashley ..... 118  
 Garib, George ..... 121, 136, 139  
 Gaudi, Sudeep ..... 139, 140  
 Ghaferi, Jessica ..... 88, 173  
 Gimbel, Devon ..... 148  
 Googe, Paul ..... 117, 124  
 Grekin, Sarah ..... 145  
 Gru, Alejandro ..... 158  
 Guitart, Joan ..... 120  
 Gullett, Ashley ..... 163

**H**

Hall, Brian ..... 128  
 Hardin, Justin ..... 142, 164  
 Harris, Anna ..... 139, 154  
 Haws, Andrea ..... 133, 157  
 Hayek, Sylvia ..... 112  
 Hazy, Matthew ..... 72  
 Hendryx, April ..... 135  
 Hepper, Donna ..... 154, 161  
 Hillesheim, Paul ..... 152  
 Hocker, Thomas ..... 80  
 Holbrook, Christopher ..... 83  
 Huwait, Hassan ..... 177  
 Hyatt, Ann-Marie ..... 169

**I**

Irlam, John ..... 109

**J**

Jackson, Michelle ..... 77  
 Jacobson-Dunlop, Erick ..... 78  
 Jarell, Abel ..... 180  
 Jenkins, Jennifer ..... 120  
 Jennings, Charay ..... 90  
 Jessup, Chad ..... 183, 189  
 Jin, Na ..... 130  
 Jordan, Adrienne ..... 151  
 Jr., Jerome Jean-Gilles ..... 116, 159

**K**

Kado, Jessica ..... 138  
 Kandula, Swetha ..... 155, 156, 165  
 Kapil, Jyoti ..... 143  
 Kaplan, Jennifer ..... 111, 126, 145, 149  
 Keaney, Terrence ..... 177  
 Kemp, Jean ..... 147  
 Kerkvliet, Amy ..... 78, 128  
 Kerstetter, Justin ..... 157  
 Kim, Gyongmoon ..... 132  
 King, Roy ..... 141  
 Knopp, Eleanor ..... 88  
 Koch, Laine ..... 180  
 Korcheva, Veselina ..... 191  
 Kovacic, Dianne ..... 108, 112

**L**

Lacy, Shanon ..... 76, 153, 155, 156, 163  
 Laga, Alvaro ..... 187  
 Lanuti, Emma ..... 152  
 Lazic, Tamara ..... 161  
 Lee, Chyi-Chia ..... 150  
 Legacy, Michelle ..... 111  
 Leger, Marie ..... 115  
 Lehman, Julia ..... 169  
 Liles, Georgia ..... 160  
 Linos, Konstantinos ..... 165  
 Liu, Weiguo ..... 158  
 Liu, Yen-Chun ..... 84  
 Loghavi, Sanam ..... 142  
 Lortscher, David ..... 77, 161  
 Louis, Shesly Jean ..... 132  
 Lu, Zhongfa ..... 131  
 Luzuriaga, Arlene Ruiz de ..... 167  
 Lynch, Douglas ..... 128  
 Ly, Thai Yen ..... 134

**M**

Maghari, Amin ..... 187  
 Mahalingam, Meera ..... 90  
 Meera Mahalingam ..... 90  
 Ma, Linglei ..... 73, 142  
 Marburger, Trent ..... 160  
 Martires, Kathryn ..... 124  
 Matherne, R. .... 182  
 Matherne, Ryan ..... 168  
 Mathew, Rahel ..... 87  
 McGinness, Jamie ..... 173  
 McIntire, Holly ..... 168  
 McKay, Kristopher ..... 178  
 McLemore, Michael ..... 82  
 MD ..... 118  
 Mercer, Jessica ..... 121



Mercer, Stephen . . . . . 86, 172, 190  
 Mesinkovska, Natasha Atanaskova 155, 162  
 Meulener, Marc . . . . . 112  
 Michael . . . . . 143  
 Miedema, Jayson . . . . . 134  
 Miedler, John . . . . . 174, 178, 185  
 Miller, Daniel . . . . . 174  
 Miller, Eric . . . . . 129  
 Milless, Tiffani . . . . . 79, 116  
 Mills, Kyle . . . . . 192  
 Mills, Omie . . . . . 110, 119, 122  
 Mishra, Vineet . . . . . 144  
 Mohr, Melinda . . . . . 144  
 Mooney, Ellen . . . . . 146  
 Morrissey, Kelly . . . . . 112  
 Mullins, Amanda . . . . . 189

**N**

Nagarajan, Priyadharsini . . . 73, 83, 137  
 Napekoski, Karl . . . . . 121  
 Natale, Kristen . . . . . 147  
 Naylor, Elizabeth . . . . . 152  
 Nelsen, Christine . . . . . 125, 133, 134  
 Newman, Elan . . . . . 108, 119, 136  
 Neyman, Kimberly . . . . . 163  
 Nguyen, Bichchau Michelle . . . . . 151  
 Niakosari, Firouzeh . . . . . 132  
 Noor, Omar . . . . . 111, 130  
 North, Jeffrey . . . . . 86, 88

**O**

Oh, Chee Won . . . . . 107  
 Onwudiwe, Oge . . . . . 118  
 Osmond, Gregory . . . . . 151

**P**

Palla, Beth . . . . . 129  
 Papalas, John . . . . . 171, 186  
 Parekh, Palak . . . . . 188  
 Patel, Anisha . . . . . 165  
 Patel, Tejesh . . . . . 114  
 Pavlidakey, Peter . . . . . 118  
 Pei, Ying . . . . . 123, 125, 131, 137  
 Perez, Marier Hernandez . . . . . 159  
 Pettitt, Matthew . . . . . 78  
 Phadke, Pushkar . . . . . 169  
 Pitelka-Zengou, Lisa . . . . . 127  
 Podjasek, Joshua . . . . . 110  
 Pruden, Samuel . . . . . 188  
 Pulitzer, Melissa . . . . . 90

**Q**

Queenan, Maria . . . . . 90

**R**

Rabkin . . . . . 143  
 Raible, Jennifer . . . . . 125  
 Rajagopalan, Ashwyn . . . . . 141  
 Rangel, Javier . . . . . 82  
 Reese, Jennifer . . . . . 122, 150  
 Risser, Jessica . . . . . 174, 183, 184  
 Robens, Judith . . . . . 115  
 Rodney, Ife . . . . . 175

Roehmholdt, B. . . . . 183  
 Rosman, Ilana . . . . . 153, 157  
 Ross, Hillary . . . . . 135  
 Rovner, Rebecca . . . . . 121  
 Russell, Daniel . . . . . 158  
 Russo, Jacqueline . . . . . 173

**S**

Sachdev, Reena . . . . . 188  
 Sahu, Joya . . . . . 186  
 Samols, Mark . . . . . 141  
 Sayedian, Farzaneh . . . . . 124  
 Schnebelen, Alicia . . . . . 137  
 Seidel, Gregory D. . . . . 115  
 Sepehr, Alireza . . . . . 91  
 Setarehshenas, Roya . . . . . 146  
 Setia, Namrata . . . . . 143  
 Shah, Neil . . . . . 140  
 Shalin, Sara . . . . . 148  
 Sharon, Victoria . . . . . 114  
 Shinohara, Michi . . . . . 181, 183  
 Sidhu, Harleen . . . . . 79, 166  
 Silva, Claudine . . . . . 179  
 Simons, Christopher . . . . . 164  
 Singh, Meena . . . . . 153  
 Sluzevic, Jason . . . . . 119  
 Smalberger, Gert . . . . . 185  
 Smith, Brooks . . . . . 155  
 Song, Jie . . . . . 176  
 Sorrells, Timothy . . . . . 114  
 Speck, Olga . . . . . 107  
 Spicknall, Kerith . . . . . 139  
 Srivastava, Bhaskar . . . . . 77  
 Stearns, Laurel . . . . . 108  
 Stefanato, Catherine . . . . . 107, 118  
 Stoff, Benjamin . . . . . 171, 187  
 Storm, C. . . . . 86  
 Stratton, Jason . . . . . 164  
 Streber, Maria . . . . . 119  
 Su, Albert . . . . . 149  
 Sundram, Uma . . . . . 142  
 Suwattee, Pitiporn . . . . . 174  
 Swick, Brian . . . . . 72, 108

**T**

Tan, Belinda . . . . . 79  
 Tanhuanco-Kho, Grace . . . . . 116, 129  
 Tarbox, Michelle . . . . . 140  
 Tavakkol, Zarry . . . . . 159  
 Tetzlaff, Michael . . . . . 113, 135  
 Tirado, Mariantonieta . . . . . 113  
 Toyohara, Jennifer . . . . . 165  
 Troy, James . . . . . 145  
 Tzu, Julia . . . . . 177

**U**

Uchin, Jeffrey . . . . . 191

**V**

Vadmal, Manjunath . . . . . 114, 138  
 Vincent, Jeremy . . . . . 159  
 Vinck, David de . . . . . 179

**W**

Wada, David . . . . . 117  
 Walsh, Noreen . . . . . 73  
 Walsh, Sarah . . . . . 149  
 Wanat, Karolyn . . . . . 80  
 Wang, Wei-Lien (Billy) . . . . . 82  
 Wells, G. . . . . 86  
 Wells, Gregory . . . . . 171  
 Welsch, Michael . . . . . 186  
 Wenson, Scott . . . . . 154, 162  
 West, Kelly . . . . . 113  
 Whitling, Nicholas . . . . . 136  
 Wilford, Casey . . . . . 179  
 Williams, Gretchen . . . . . 113, 115

**Y**

Yang, Aparche . . . . . 172, 175, 176  
 Yang, Qinghong . . . . . 184  
 Yeh, Iwei . . . . . 178  
 Ye, Jun . . . . . 145  
 Young, Michelle . . . . . 117  
 Yu, Limin . . . . . 180

**Z**

Zbytek, Blazej . . . . . 122  
 Zhang, Jiong . . . . . 72, 144  
 Zheng, Rui . . . . . 133  
 Zhou, Qiang . . . . . 130  
 Zhu, Kejian . . . . . 129





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