Psoriasis: What every resident needs to know

By Daniel Zaghi, MD, MS, and Caitriona Ryan, MD

As dermatology residents, we are keenly aware of the many facets of psoriasis pathophysiology, quality of life impact, and treatment options. Residents likely already know that psoriasis is a Th1/Th17 immune-mediated disorder that targets the skin, joints, and nails, often culminating in a tremendous reduction in quality of life for patients. Residents may be less aware, however, of other recent developments in the world of psoriasis. Below we highlight three areas that deserve further attention and may improve the care we provide to our psoriasis patients.

Treatment options expanding

Treatment options for psoriasis have expanded tremendously over the past two decades. The first systemic agents for psoriasis were borrowed from other indications. Methotrexate was first used for psoriasis after it showed efficacy in oncology. Cyclosporine was adapted for use in psoriasis after serendipitous clearance of psoriasis was noted in patients taking the drug to prevent renal transplant rejection. Many of the biologic treatments currently used to treat psoriasis, such as rituximab, adalimumab, and etanercept, were first introduced for rheumatoid arthritis or inflammatory bowel disease and later used in psoriasis. As understanding of the pathogenesis of psoriasis has grown, newer treatments more discriminatingly target the inflammatory milieu driving psoriasis. Ustekinumab, a monoclonal antibody to the p40 subunit of IL-12 and IL-23, is one such treatment, which has also recently been approved for psoriatic arthritis.

Though ustekinumab is the newest biologic on the block, it certainly will not be the last biologic treatment designed specifically for psoriasis. Other biologics targeting IL-23 are in development. Also, with the discovery of Th17 cells, newer biologic agents will now block either IL-17 cytokines or their receptor. These biologic agents have demonstrated dramatic and often rapid improvements in plaque psoriasis above and beyond current biologics. Approval of these agents for clinical use is expected in late 2014 and 2015. New oral medicines, such as tofacitinib, a JAK inhibitor, and apremilast, a phosphodiesterase-4 inhibitor, are also currently being studied for use in psoriasis. As our understanding of the pathophysiology of psoriasis grows, we can expect that our treatment armamentarium will continue to expand.

A closer look at psoriasis and comorbidities

As residents who care for psoriasis patients in clinic and read psoriasis studies in journal club, we are likely familiar with the comorbidities associated with the disease. The list of comorbid conditions is exhaustive and continues to grow. Some of the comorbidities include an elevated risk of depression, anxiety, lymphoma, obesity, diabetes, hypertension, hyperlipidemia, obstructive sleep apnea, myocardial infarction, stroke, inflammatory bowel disease, emphysema, and metabolic syndrome. Of particular concern for patients with psoriasis is the elevated rate of cardiovascular disease. A 2010 study demonstrated that patients with severe psoriasis die approximately four years younger than patients without psoriasis, with heart disease as the chief cause of increased mortality. Another landmark prospective cohort study in JAMA demonstrated an increased risk of myocardial infarction even after controlling for traditional risk factors, concluding that psoriasis may be an independent cardiovascular risk factor.

As the association between psoriasis and cardiovascular disease has been well established, attention has now shifted to the ability of treatment to mitigate this increase in cardiovascular risk. A large retrospective cohort study of veterans found that methotrexate reduced the risk of vascular disease among psoriasis patients by 27 percent and that concomitant folic acid further reduced the risk to 44 percent. A retrospective chart review of nearly 9,000 psoriasis patients at Kaiser Permanente of Southern California found reduction approximately 50 percent in the rate of myocardial infarction among patients treated with TNF-α inhibitors, phototherapy, or oral agents compared to patients treated with topical agents. In a 2014 position paper from the Medical Board of the National Psoriasis Foundation (NPF), recommendations for cardiovascular screening in psoriasis patients were set forth. The Board recommended following blood pressure, pulse, and BMI measurements every two years and fasting glucose and lipids every five years, or every two years if additional cardiovascular risk factors are present. With a preponderance of evidence demonstrating an association with cardiovascular disease and the possibility of reducing that risk, it is imperative that we not only discuss with patients the existence of the many psoriasis comorbidities, but the potential for improvement with treatment.
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PSORIASIS from p. 1

Biologic treatments and skin cancer

With the immunosuppression of the biologic therapies comes the potential for an increase in malignancy, in particular, the development of nonmelanoma skin cancer (NMSC) and melanoma — both have been the subject of intensive investigation. Several high-quality studies have found an increased risk of NMSC among psoriasis patients treated with biologic agents compared with biologic-naïve psoriasis patients. A possible association between biologic therapies and melanoma, on the other hand, is less established. One study found a non-statistically significant increase in melanomas among psoriasis patients treated with biologics. A December 2013 study in the Journal of the American Academy of Dermatology (JAAD), however, found that while biologic-naïve psoriasis patients had lower numbers of melanocytic nevi than patients without psoriasis, the odds of a higher nevus count increased by 35 percent for each biologic therapy administered. Interestingly, this finding was independent of psoriasis disease severity. How much of this is confounded by surveillance bias, previous immunosuppressant therapies, or phototherapy remains to be determined. Nonetheless, this emerging body of evidence should not be ignored with some psoriasis experts and studies suggesting regular skin examinations for psoriasis patients on biologic therapies.

The three areas discussed above are just a sample of recent developments in psoriasis. The NPF also helps providers stay current with research, advancements, and treatments by offering an electronic newsletter called CURE. You can sign up for the free newsletter on the NPF website at www.Psoriasis.org.

Also recommended for residents is the article “Research gaps in psoriasis: Opportunities for future studies,” published last year in the JAAD and available online at www.jaad.org.

Keeping connected, staying up to date, and advocating for our psoriasis patients will ensure that we continue to offer the best possible care for them.

AAD psoriasis app

The Academy’s psoriasis app is designed to help users develop the skills required to manage patients with psoriasis and psoriatic arthritis.

The content, which is drawn from the AAD’s comprehensive psoriasis guidelines of care, emphasizes decision-making criteria that enable the clinician to individualize therapy based upon disease type, extent, response to previous treatments, quality of life issues, and comorbidities. It enables clinicians to recognize and diagnose challenging cases and formulate appropriate evidence-based treatment for patients. Visit www.aad.org/psoriasisApp.

References


Dr. Zaghi completed a two-year research fellowship in psoriasis, led original investigative research in psoriasis, and was one of 12 residents awarded a stipend for psoriasis research by the National Psoriasis Foundation (NPF). He is currently a PGY-3 dermatology resident at Baylor University Medical Center in Dallas.

Dr. Ryan has published extensively in psoriasis with the majority of her publications focusing on the immunobiology of psoriasis and pharmogenomics of psoriasis treatment. She commenced her dermatology training in Ireland and is now a PGY-4 dermatology resident at Baylor University Medical Center in Dallas.
Vasculitides

Anna Chacon, MD

**Diagnosis**
- Henoch-Schönlein purpura
- Wegener’s granulomatosis
- Cryoglobulinemia

**Epidemiology**
- Henoch-Schönlein purpura: common in children, < 10 yrs.
- Wegener’s granulomatosis: peak incidence in 2nd and 3rd decades.

**Pathogenesis**
- Henoch-Schönlein: IgA deposits in mesangium.
- Wegener’s: Granulomas in small vessels.

**Pathologic Findings**
- Henoch-Schönlein: Segmental necrosis.
- Wegener’s: Granulomas in vessels.

**Clinical Features**
- Wegener’s: Respiratory symptoms.

**Diagnostic Approach**
- Henoch-Schönlein: Nephrotic syndrome.
- Wegener’s: ANCA positivity.

**Comorbidities**
- Henoch-Schönlein: Renal involvement.
- Wegener’s: Respiratory involvement.

**Treatment**
- Henoch-Schönlein: Corticosteroids.
- Wegener’s: Immunosuppressive therapy.

**Complications**
- Henoch-Schönlein: Renal failure.
- Wegener’s: Pulmonary hemorrhage.

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### Small Vessel Vasculitides

<table>
<thead>
<tr>
<th>Vasculitis Type</th>
<th>Pathology</th>
<th>Clinical Features</th>
<th>Diagnostic Approach</th>
<th>Pathology</th>
<th>Therapy</th>
<th>Complications &amp; Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutaneous small vessel vasculitis (CSVV)</td>
<td>Cutaneous leukocytoclastic vasculitis (CLV)</td>
<td>Small vessel vasculitis</td>
<td>Skin biopsies</td>
<td>Cutaneous involvement</td>
<td>Immunosuppressives</td>
<td>Nondiagnostic in early cases.</td>
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<tr>
<td>Cutaneous leukocytoclastic vasculitis (CLV)</td>
<td>Angiography</td>
<td>Small vessel vasculitis</td>
<td>Biopsies</td>
<td>Skin biopsy</td>
<td>Immunosuppressives</td>
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</tbody>
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**Acute Vasculitides**

- **Acute hemorrhagic edema of infancy**
  - Seen primarily in children 0-24 months of age.
  - Child is well appearing.

- **Erythema elevatum diutinum**
  - Uncommon, rare.
  - Can develop at any age.
  - No racial/gender predilection.

**Secondary Causes of CSVV**

- Drugs: infections, malignancy, most often hematologic.

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**Cryoglobulinemia**

- Cryoglobulins (IgG, IgM, IgA, mixed).
- Frequency varies w/ geography, may reflect prevalence differences in HCV.

**Cryoglobulinemia Pathology**

<table>
<thead>
<tr>
<th>Type</th>
<th>Signs</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Raynaud’s syndrome</td>
<td>Visceral damage</td>
</tr>
<tr>
<td>II</td>
<td>Liver disease</td>
<td>Hepatic fibrosis</td>
</tr>
<tr>
<td>III</td>
<td>Renal involvement</td>
<td>Hematuria</td>
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</table>

**Cryoglobulinemia Treatment**

- Corticosteroids.
- Immunosuppressives.

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**Microscopic Polyangiitis**

- Estimated incidence 3.4-4.6/million.
- Most common in women, >65 yrs.

**Microscopic Polyangiitis Pathology**

- Granulomas in blood vessel walls.
- Characteristic: age correlation.

**Microscopic Polyangiitis Treatment**

- Immunosuppressives.
- Steroids.

Anna Chacon, MD, is a preliminary resident at Orlando Regional Medical Center. She will be a dermatology resident at the University of Maryland Medical Center beginning July 2014.
Vasculitides (cont.)

Anna Chacon, MD

<table>
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<th>Diagnosis</th>
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</tr>
</thead>
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<tr>
<td>Churg-Strauss syndrome</td>
<td>Extremely rare; 0.3/100,000 yearly; possibly associated with atopy.</td>
<td>Unknown. Speculation: role of leukotriene antagonists, vaccines, rapid D/C of corticosteroids, desensitization may trigger disorder.</td>
<td>Asthma &gt; 80%, often presenting symptom. Later pulmonary infiltrates, vasculitis. Transient pulmonary eosinophilic infiltrates occur. Granulomatous inflammation of myocardium = leading cause of death. Skin: involved in 70% - purpura, nodules, urticarial vasculitis.</td>
<td>Tissue dx: skin or lung. Investigate lungs &amp; other organs based on signs &amp; sx. Labs: elevated ESR, hypergammaglobulinemia, elevated IgE, cryoglobulins, immune complexes. Both cANCA &amp; pANCA can be positive, about 20% for each.</td>
<td>Striking palisading granulomas w/ marked necrosis, both associated w/ vessels &amp; at a distance. Marked eosinophilia, nuclear dust, giant cells.</td>
<td>Very steroid responsive – i.e. prednisolone. Reserve immunosuppressants for tx failures or life-threatening dx. Both IFN-a &amp; IFN-g have shown promise.</td>
<td>Multi-organ involvement: mononucleosis multiplex 60%, kidneys 50%, heart 40%. GI tract 40%. Localized granulomas: sometimes limited to skin, mostly associated w/RA, also infections, lymphoma, idiopathic.</td>
</tr>
<tr>
<td>Polyarteritis nodosa (PAN), pararteritis nodosa, Kawasaki-Maier dz)</td>
<td>Rare. Incidence = 0.5/100,000 yearly. Mostly affects middle-aged men. Associations: HBV, HIV/AIDS.</td>
<td>Involvement in segments. Favor areas where branching occurs. Small aneurysms frequently develop.</td>
<td>Fevers, wt loss, arthralgias. Skin: frequent involvement, livedo racemosa, digital gangrene, SQ nodules, ulcers, LCV. Cutaneous PAN limited to skin; benign, chronic course; nodules &amp; punched-out ulcers usually on legs.</td>
<td>Histologic confirmation: usually skin or muscle bx. Imaging: angiography can reveal microaneurysms in GI or renal aa. Labs: few changes, high ESR, anemia, thrombocytosis, microscopic hematuria. Check HBsAg. ANCA+ &lt; 5%.</td>
<td>Segmental involvement makes it hard to find lesions. Initial inflammatory infiltrate is neutrophilic, later replaced by mononuclear cells w/ neovascular proliferation, finally granulomas &amp; fibrosis.</td>
<td>Systemic steroids; can start w/ pulse therapy. Unresponsive or major organ involvement: add cyclophosphamide or other immunosuppressants. If HBsAg+ - start w/ prednisone &amp; plasma exchanges, followed by IFN &amp; tamsulosin – hypertension control.</td>
<td>Thrombosis leads to infants &amp; vessel-wall obliteration. GI tract: “intestinal angina,” ischemic bowel perforation, mesenteric a. thrombosis or rupture. Peripheral neuropathy. Kidney: 10%. Heart: MI or CHF. CNS: stroke risk, HTN changes.</td>
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REFERENCES

Ground-breaking research awarded in Denver

The Resident and Fellows Symposium, which presents the latest laboratory-based and clinical-based research findings, was held on March 23, during the AAD’s 72nd Annual Meeting in Denver. Three winners were selected from each category based on their abstracts and were presented with the prestigious Everett C. Fox Award.

Laboratory-based research:
1st Place: Jubin Ryu, MD, PhD
2nd Place: George Han, MD, PhD
3rd Place: Oleg Akilov, MD, PhD

Clinical-based research:
1st Place: Mara Therese Padilla Evangelista, MD
2nd Place: Young H. Lee, MD
3rd Place: Shivani Tripathi, MD

From left: Jubin Ryu, MD, PhD; George Han, MD, PhD; Oleg Akilov, MD, PhD; Robert P. Dellavalle, MD, PhD (faculty); Sarah T. Arron, MD, PhD (faculty); Edward W. Cowen, MD (director); Mara Therese Padilla Evangelista, MD; Young H. Lee, MD, and Shivani Tripathi, MD.
Race for the Case
By Julia Curtis, MD

A 27-year-old previously healthy male presents with 10-day history of fevers, photophobia, bilateral lower extremity edema, and arthralgias so severe he has difficulty ambulating. Five days into this illness he develops painful subcutaneous nodules on his bilateral lower legs and upper extremities. He has just been released from jail and denies any sick contacts or recent illnesses.

1. What imaging would you do?

2. What is the name of this condition, and which connective tissue disease is this associated with?

3. What is the natural course?

4. What is the treatment for this acute case?

Respond today with the correct diagnosis to Allison Evans, staff editor, at aevans@aad.org, and you will be part of our drawing to win a Starbucks gift card and have your photo in Directions!

Answers to Spring 2014 Race for the Case

A 49-year-old Caucasian male admitted for an ischemic stroke who presents with a 3-year history of petechiae, purpura, and ecchymoses at sites of pressure or minor trauma. On exam, he is noted to have ecchymoses on both eyelids. He has a history of multiple myeloma status post autologous stem cell transplant. The easy bruising started about 1 year prior to the diagnosis of multiple myeloma and is mostly on the face and forearms, usually resulting from straining, lifting objects, coughs, stress, or pressure on the skin. He also reports having several small waxy papules on his dorsal hands and face in the past. He denies fevers, chills, or weight loss, but endorses increased fatigue over the past 6 months. He denies any dyspnea, paresthesias or syncopal episodes. He reports that at times his tongue has felt large and swollen, but is not so currently. Examination of his tongue shows dental impressions along the lateral edges, but no overt macroglossia.

1) What is the name of this sign? “Raccoon eyes”

2) What is the name of this disease? Primary systemic amyloidosis (AL amyloidosis)

3) Name three special stains that can be used to detect the defect in the skin. Congo red, Sirius red, pagoda red, periodic acid-Schiff (PAS), Thioflavin T, crystal violet, methyl violet, Dylon stain

4) If skin findings are not present, name two other preferred biopsy sites. Rectal mucosa or abdominal subcutaneous fat (aspirate)

5) What is the preferred treatment for younger patients (age < 50 years)? Me phápalan (myeloablative chemotherapy) and autologous stem cell transplant

Spring 2014
Race for the Case winner

Jillian Havey Swary, MD

Congratulations to Jillian Havey Swary, MD, for winning the spring 2014 Race for the Case! A second-year dermatology resident at Marshfield Clinic in Wisconsin, Dr. Swary is originally from Chicago, Ill. In her spare time, she enjoys long bike rides with her husband (when the Wisconsin weather permits!), hot yoga, and cooking.
Exciting scholarship opportunity awaits you

The Academy’s World Congress Fund Review Task Force offers a limited number of scholarships to U.S. and Canadian dermatology residents, fellows, or young dermatologists within five years of dermatology residency to attend the 23rd World Congress of Dermatology June 8-13, 2015, in Vancouver, Canada.

This scholarship program is supported by funds from the 18th World Congress of Dermatology held in New York in 1992, and includes complimentary registration and a $1,200 scholarship as partial support for meeting attendance.

To learn more and/or apply online, go to www.aad.org/worldcongress.

Residents make reception a Mile High hit!

In March during the AAD’s 72nd Annual Meeting, residents and guests attended the AAD Resident Reception at the Hyatt Regency in Denver, sponsored by Medicis and Amgen. Shown above, left to right, are...well, more people than we can possibly name, but thanks to everyone for coming out!

New physician editors on board

Welcome to our new physician editors. Lacey Kruse, MD, is a pediatric dermatology fellow at Ann and Robert H. Lurie Children's Hospital of Chicago/Northwestern University Feinberg School of Medicine. Lindsey Hunter-Ellul, MD, is a PGY-3 dermatology resident at University of Texas Medical Branch at Galveston. Along with AAD staff and editors, they will be helping choose and edit Boards’ Fodder, Race for the Case, and other content for the publication.

Residents in Jeopardy!
Fast-paced competition results in new champs

On March 21 during the AAD’s 72nd Annual Meeting in Denver, contestants from seven teams battled it out for the championship at the AAD Resident Jeopardy competition.

Who are Vincent Criscione, MD, and Erik Domingues, MD, of the University of Massachusetts? They are the answer to the question “who won this year’s Resident Jeopardy?” Congratulations to the winners and all the teams!
Message from the Chair

Welcome to the class of 2017 and best wishes to the graduates of 2014! As chief residents exit stage left, we are excited to see their transition to practice and wish them well on the board exam. To each graduate: for the next eight years you will be considered a young physician member of the AAD, and the organization needs your expertise, energy, and enthusiasm as young pioneers in our dynamic field. To each new resident: welcome to the world of dermatology! The treacherous days of intern year are officially over. These next three years will be the most rewarding of your medical training. I encourage everyone to contribute to the Academy — the best medical organization on the planet! Whether it’s through joining a committee or task force, or simply sharing your story and expertise through Directions, there’s no involvement too small.

As dermatology residents, we encounter challenging clinical scenarios frequently. We all have unique interests within the field, but we are unified by our dedication to patient care. Our time to serve patients is limited. The physician-patient relationship is teetering on an edge with shorter visit times, decreasing reimbursement, and clunky EHRs. Regardless, time is the common denominator of patient satisfaction, outcomes of chronic disease, prescribing practices, malpractice risks, and even our own satisfaction. Without hesitation, we should take time to listen to our patients; to properly retrieve old records; to establish a diagnosis; to learn therapeutic regimens that avoid unnecessary risk, including financial ruin; to engage in hospital consults with enthusiasm; and to correct rampant misperceptions in dermatology. Doing the right thing for patients is supreme. We owe it to the community to strive for the highest quality of care delivery, so let’s set the bar unthinkably high.


Familiar friends and new faces: RFC meeting in Denver

The Residents/Fellows Committee (RFC) met in Denver during the 72nd Annual Meeting. Among those who attended the RFC meeting were (left to right) Erica Dommasch, MD (AMA Residents/Fellows Section representative); Brian R. Hinds, MD (chair); Jeanette Jakus, MD; Mark Tye Haeberle, MD; Nishit Patel, MD, MS; Lacey L. Kruse, MD; Nathaniel R. Miletta, MD; Mansi Sarihan, MD; and Lindsey Hunter-Ellul, MD.