Learning Dermatology
Again for the First Time

Pascal Ferzli, MD
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ACCREDITATION

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SESSION OBJECTIVES

• Discuss common and less common dermatologic problems seen in primary care for both children and adults.
• Provide a systematic approach to lesion identification including appearance, etiology and associated symptoms.
• Discuss treatment and when to refer.
Learning Dermatology Again for the First Time

Pascal Ferzli, MD, FAAD, MSc.

Session 29, Friday, 2:30-3:45 pm
Dartmouth-Hitchcock
Concord, NH
No Conflicts of Interest

I will be discussing some Off-Label indications and some Brand names of medications
Learning Subjects

- Acne
- Rosacea
- Eczema/Dermatitis
- Non Melanoma Skin Cancer
- Moles and Melanoma
Learning Objectives

1) To review the multifactorial nature of acne, rosacea, eczema, and skin cancer.
2) To focus on diagnostic clues that will help you with selecting the best treatment strategy.
3) To highlight exciting new discoveries and treatment options.
Acne

- What’s new: the causes of acne
- Evolution of thinking
Acne

- Inflammatory response to a nonpathogenic bacterium and the byproducts of its metabolism
- Propionobacterium Acnes
- Lives in the sebaceous portion of the hair follicle
- Uses sebum (oil) as a source of energy
Acne types

- Comedonal acne
- Inflammatory acne
- Steroid induced acne
- Hormonal induced acne
- Acne excoriee
- Exercise induced acne
- Gear induced acne
- Nodulocystic acne
Who gets Acne? Everyone

- Babies: infantile acne. Self resolving.
- Teenagers: hormonal changes increase sebum production.
- Adults: more and more common. Sex specific.
Acne and Food?

- Food causing acne?
  - Show of hands
Food and Acne

- 1950s: some foods, chocolate causes acne!
- 60’s, 70’s, 80’s, 90’s: food does not cause acne!
- 2015: it’s clear that certain foods are responsible for real acne!
Culprit: Whey Protein

- One of the main proteins in milk
- Found in many other sources
- Protein shakes, protein supplements, protein bars!
- Cereal
- Many processed foods
- One way for commercial food companies to add protein content on labels
No milk or some milk?

- Acne experts agree: cut out milk completely to see a difference
- Only in patients where large consumption seems to be the culprit
- 3 months to see a difference
- Soy milk? Not much better, phytoestrogen
- What then: Almond Milk
- Culture: cow milk consumption is cultural!
- Patients unwilling to make change
Other causes

- High glycemic index foods...
- Sodas, sweets, refined sugars
- What about the chocolate story: likely combination of whey protein and high content of refined sugars
OTC Treatment Options

- Topicals
- Start with mild options
- Salicylic acid washes
- Spot treatment with salicylic acid: anti-inflammatory and mild comedolytic properties
Avoid

- Frequent exfoliation
- Scrubbing
- Rotating brushes: very popular!
Topicals: Benzoyl Peroxide

- Bleaches clothes and fabric
- Irritating
- Lower concentration is better!
- FDA warning 2014: cases of deaths following anaphylactic shock from topical benzoyl peroxide.
- Remind patient of risks
- No risk of resistance: resistant strains of P. acnes decreases to <1% after one week of use
Topicals: Retinoids

- Adapalene
- Tretinoin
- Tazarotene: category X. Label indicates you should administer a pregnancy test in office for all women of child bearing potential prior to prescribing.

   Harsh! More effective?
Topicals: Retinoids

- Works very slowly: 3 months for initial results
- Preventive: unclog pores, treat blackheads and whiteheads, “mini chemical peel”
- Dry skin, irritation, photosensitivity
- Ask young patients about waxing!
- Emollient use... or they will give up
Typical application regimen

- Wash face with gentle cleanser
- Wait for face to be completely dry, about 10 minutes
- Thin layer to cover all areas involved
- Avoid eyelids, immediate perioral area, nasal creases
- Do not rinse off.
- Apply emollient on top of prescription
- Still effective!
- Start every other night application
Challenge patient not to give up after 2 weeks
All the side effects and none of the benefits!
Don’t prescribe if not willing to be persistent
Combination products

- becoming more popular
- fewer applications means better compliance!
Compliance

O What percentage of patients are consistent about the use of the prescribed topical regimen?
O Estimates: 15% (1 in 6)
O Often, lack of efficacy is related to patient noncompliance.
Emollient

- For face
- Noncomedogenic
- Water based not oil based
- Avoid oil on face
- Dry skin will cause more acne by triggering sebaceous glands to overproduce in the week following use
Oral therapies

- Tetracycline Family: still the mainstay of therapy for inflammatory papules
- Tetracycline: not readily available in pharmacies. Can still be compounded.
- Doxycycline
- Minocycline
Doxycycline

- Photosensitivity
- Esophageal ulceration: not before going to sleep, always with a big glass of water
- Avoid long term therapies:
  - 3 to 4 months
  - Risk of resistance if using high doses
- Long term use associated with ceruloderma, hepatitis!
- Yearly blood test recommended if patient is on long term treatment!
Doxycycline continued

- Low doses
- Lower risk of tolerance and resistance
- Lower risk of side effects
- Anti-inflammatory, NOT antibacterial
- Brand name formulation, Oracea: delayed release and immediate release combination
- Expensive! Insurance coverage
Minocycline

- Considered to be stronger and more effective than doxycycline
- Much higher risk of lupus like reactions
- Higher risk of hepatitis
Oral Contraceptive Pills

- Very effective at improving female hormonal acne
- Requires at least two cycles
- Only 4 FDA approved OCP’s for acne: Yaz, B-Yaz, Estrostep, Orthotricyclen Lo.
- Your experience counts! Dermatologists will count on you!
- Other hormonal adjustment treatments: spironolactone
Tx Recs for this patient?
Isotretinoin

- Still the end all be all for most!
- Use only in recalcitrant or scarring cases
- 65% of patients will never have to deal with acne again
- 5 months course
- Risk of recurrence in hormonal induced female acne! Higher than initial impressions
- Easy: no concomitant acne treatment, only one or two pills a day.
- Warning: doxycycline and isotretinoin combination= life threatening pseudotumor cerebri!
IPLEDGE system

- Not so easy: Ipledge system!
- For women: unfair but true... fear of birth defects if pregnant while on accutane.
- 2 forms of contraception!
- 31 days from moment they register
- Missing f/u appts: kicked out of system
- Blood tests every 4 weeks
- Post treatment pregnancy test
Isotretinoin

- Only about 28% of dermatologists are prescribing isotretinoin
- Skilled staff needed
- IPledge issues: timing of medication pick up, confirming patients, keeping logs and tracking patients, education of patients
- Despite that: about 120 pregnancies per year are reported to Ipledge. Of those, about 40% will spontaneously abort, risk of birth defects and learning disabilities is the norm!
- Goal is: Zero!
New Alternative Therapies

- Nicomide Prescription Supplement
- Zinc, Folic Acid, Copper, Niacinamide
- Natural alternative
- Anti-inflammatory
- Anti-redness
- Can be used in conjunction with other treatments
- Disadvantages: Cost, cannot be used in liver disease, avoid with other Multi-vitamins
Light Therapy

- Home use or in-office
- Usually Blue light, but in Europe red light
- Bactericidal effect on P. acnes
- Modest results
- Safe
- Very small cohorts, no controlled studies
- Patients unable to tolerate topical or oral therapy
No comment!

Picture from Ulta.com
Diagnosis?
Rosacea

- Not Adult acne!
- No comedones!
- Very common in Northern European Ancestry
- Rosacea underdiagnosed and undertreated in darker skin
Multifactorial

- Every rosacea patient should be encouraged to look for culprits
  - Alcohol, caffeine, hot foods, spicy foods
  - Environmental factors
  - Working close to ovens, heat sources
  - Working outdoors: dry weather strips away protective barrier and increases inflammation
  - Sun exposure: strong exacerbating factor
Multifactorial

- Stress! Stress! Stress! Perceived or real stress has the same effect: discuss it with your patient
- Studies have shown that the inflammatory response of rosacea is related to bacteria inside the gut of Demodex mites living in the hair unit

Think about that!
Types

- Erythematous Rosacea
- Telangiectatic Rosacea
- Inflammatory Rosacea
- Ocular Rosacea
- Perioral/Periorificial Dermatitis
- Rhinophymatous Rosacea
- Mixed Types
Mixed Type
Rhinophymatous
Treatment: where do I start?
Tx: Gentle Cleansers

- Patient education: they don’t foam, but they work very well
- Avoid: Sodium Lauryl Sulfate foaming agent
Tx: Emollients!

- Use gentle moisturizers twice a day
- Use as a barrier from the elements
- Moisturizers with sunscreen: two in one!
- Avoid chemicals
- Avoid fragrances
Tx: Topical Antibiotics

- Work well for inflammatory rosacea
- Has some effect on redness (20%)
- Metrogel 1%: first line treatment
- Metrocream generic: 0.75%
- Metronidazole is Category X: do not prescribe in women interested in pregnancy
- Alternative: erythromycin 2% gel, may not be as effective
- Risk of resistance: low but real
“No Antibiotics, Please!”

- Patients and physicians are aware of antibiotic abuse
- Many patients want to avoid antibiotics
Topical Non Antibiotics

- Finacea gel 15% Azelex 20%: Azeleic acid
- occurs naturally in plants and yeast when faced with infection
- Antibacterial 25%
- Anti inflammatory 50%
- Anti redness 25%
- Burning sensation after application: Reassure
Topical Non Antibiotics

- Newer topicals
- Soolantra: ivermectin 1% cream
- New
- Focus on Demodex mites as a real contributing factor
- Appears to be safe: still early
Redness

- Mirvaso Gel: brimonidine 0.33%
- Localized vasoconstrictor: alpha adrenergic agonist, used for glaucoma
- Results in 30 minutes
- Lasts for 6 hours
- No rebound effect
- Avoid in patients with Raynaud’s, ocular problems, cardiac problems.
Before and After (3 hrs)
Before and After (3hrs)
End of Part I

Lakesregionhome.com
Eczema
Eczema

- From the Greek: boiling over
- Greatly enhanced understanding of the pathophysiology of atopic dermatitis and eczema
- Enhanced treatment options
Eczema

- Juvenile or adult forms
- Nummular eczema: coin shaped
- Lichenification: thickened skin from scratching
- Hand eczematous dermatitis
- Plantar dermatitis
- Allergic eczematous dermatitis: Delayed onset (48 to 72 hrs)
- Irritant dermatitis: not allergic, within 1 Hr.
Think about Associations

- Asthma
- Seasonal Allergies
- Food Allergies
- Contact Allergies
- Ichthyosis

- All seem to be on the same chromosome!
New Association

- Hygiene Hypothesis: getting traction and more acceptance
- Based on the observation that atopic dermatitis and eczema is rare in third world countries, but its rate is increasing.
- Being TOO Clean prevents the immune system from distinguishing self from nonself
- Hence: a strong immune reaction to nonpathogenic environmental factors.
Food causing Eczema

- Only in 10% of cases
- There may be a group of patients who are intolerant rather than allergic
- Gluten intolerant patients: certainly overdiagnosed in the past decade
- Patients who are allergic to nickel (metal component in jewelry): break out in rashes from high nickel containing foods: chocolate, almonds, soya beans,...
Eczema/Atopic Derm

- Think about the Eczema rash
- “It’s a rash that’s itchy, right?”
an ITCH that RASHES!

- Vicious circle that starts with itching.
- Itching is an indication of an inflammatory reaction of the nerves conducting pruritus signal
- The itching starts as a result of an exposure: airborne allergen, contactant (clothing, detergent, soap), environmental (dry heat inside)
Remember Antihistamines

- Antihistamines: should be used to break itch scratch cycle
- Rely on nonsedating antihistamines
- Fexofenadine, cetirizine
20th Century Treatment

- Recommendations to treat eczema focused on treating rash
- Mainstay of treatment: topical or oral steroids
- Moisturizers were not very effective.
Genetic Basis

- Patients who have eczema are missing components of their outermost protective barrier called the LIPID BILAYER.
- The missing components are:
  - A protein called filaggrin
  - A cholesterol derivative called ceramide
20th Century Emollients

- Petroleum Jelly sits on skin. Cheap artificial barrier, still very effective
- One ingredient
Traditional Gentle Emollients

Add water to the skin
Require continuous application
21st Century: we can Repair!

- Contain Ceramides
- May contain Filaggrin
- Repair the skin barrier with continued use
- Minimize Allergic and irritation reaction due to skin barrier repair
Other Ceramide containing emollients
Ceramides: Many new ones, but...

- No Ceramide concentrations published
- Unable to compare
- Some companies are using ceramide derivatives: not effective but much cheaper
- Read labels: patients might be allergic to some ingredients
- Prescription ceramides are available: Epiceram
End of Part II
Skin Cancer

Early Diagnosis is Key
Skin Cancer: Risk Factors

- Multifactorial
- Family History: Genetic predisposition
- Cumulative Sun exposure/ Sunburns
- Tanning Bed Use
- Exposures leading to Skin Burns
- Non healing wounds
Leading by Example

- Patients recognize our sunburns and sun damage
- Don’t let them assume it is ok to tan
21st Century: Skin Cancer Epidemic

- Nonmelanoma Skin cancer: 3.5 million per year just in the US
- Melanoma: 73,000 per year
  - Localized: 98% 5 year survival
  - Regional LN: 60% 5 year survival
  - Distant LN: 15% 5 year survival
Remembering the basics

- One in five Americans will develop skin cancer during his or her lifetime.
- Melanoma is the number one cancer for young adults 25-29 years old
Remembering the basics

- Ultraviolet rays are a known carcinogen
- No one can dispute that
- I.e: causes cancer with excessive exposure
- Sun exposure damage is cumulative: skin has memory
Tanning Beds: known carcinogen
Tanning beds

1. UVA rays not UVB
2. penetrates deeper
3. several fold more dangerous than a regular sunburn by natural sunlight
4. increased melanoma risk undeniable
5. Remember studies have shown it is as addictive as cocaine
6. young adolescent girls: most at risk, bonding with their mothers
7. be UNEQUIVOCAL: no tanning bed use for teenagers!... Or adults!
May 2015

- New Hampshire passes law banning minors from tanning!
- NH dermatology society and NH dermatologists have been very active
- Other states that ban tanning for minors: California, Delaware, Hawaii, Illinois, Louisiana, Minnesota, Nevada, Oregon, Texas, Vermont and Washington
Your Turn, MA!

Ncsl.org
Who’s going to develop Skin Cancer?

- Long-term ultraviolet flux, other potential risk factors, and skin cancer risk: a cohort study.
- Wu S¹, Han J², Laden F³, Qureshi AA⁴
- They evaluated the association between a number of potential risk factors and skin cancer risk in a cohort of 108,916 US women
Sunburns and Skin Cancer

- More than 5 significant sunburns before age 18: 80% increased risk of MELANOMA!
- Sunburns after the age of 18 did increase the risk of Nonmelanoma Skin Cancer
- It didn’t matter whether it actually happened: all that mattered was their recollection of those sunburns
Vitamin D: essential

- Anti-cancer: higher levels of vitamin D in the blood are associated with a reduced risk of colorectal cancer
- Evidence suggests that about 10 to 15 minutes is enough for most lighter-skinned people to produce the needed amount of vitamin D
Vitamin D: essential

- Daily need: 600 IU
- New England: inconsistent sun exposure
- Vitamin D-fortified orange juice, milk or other enriched products.
- Salmon and other fatty fish.
- Supplement containing 600 units of vitamin D
Moles and Freckles: What should I look for?

“I have a suspicious looking mole on my shoulder.”
## The ABCDEs of Melanoma

Skin cancer can develop anywhere on the skin. Ask someone for help when checking your skin, especially in hard-to-see places. If you notice a mole that is different from others, or that changes, itches, or bleeds (even if it is small), you should see a dermatologist.

1. **Asymmetry:** One half unlike the other half.
2. **Border:** Irregular, scalloped, or poorly defined border.
3. **Color:** Varied from one area to another; shades of tan and brown, black; sometimes white, red, or blue.
4. **Diameter/Size:** Malignant moles are usually greater than 6 mm (the size of a pencil eraser) when diagnosed, they can be smaller.
5. **Evolving:** A mole or skin lesion that looks different from the rest or is changing in size, shape or color.

## Skin Cancer Self-Examination

How to check your spots:

1. Examine body front and back in mirror, then right and left sides, arms raised.
2. Bend elbows, look carefully at forearms, back of upper arms, and palms.
3. Look at backs of legs and feet, spaces between toes, and soles.
4. Examine back of neck and scalp with a hand mirror. Part hair and lift.
5. Finally, check back and buttocks with a hand mirror.

### Body Mole Map

<table>
<thead>
<tr>
<th>MOLE #</th>
<th>A: Asymmetrical? Shape of Mole</th>
<th>B: Type of Border?</th>
<th>C: Color of Mole</th>
<th>D: Diameter/Size of Mole. Use ruler provided.</th>
<th>E: How has mole changed?</th>
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Diagnosis? ABCDEF?
Biopsy of a mole: then what?

- Interpretation: normal or melanoma, right?
- Unfortunately: Not so clear
- Dysplasia: “funny looking” cells
- Mild dysplasia, mild to focally moderate, moderate, moderate to focally severe dysplasia, severe
Treatment of Dysplastic Nevi

- Severe dysplasia: excise as if melanoma in situ with 5 mm margins
- Moderate dysplasia: many dermatologists would recommend a similar excision, but many factors to consider (age, location, cosmetic defect)
- Mild dysplasia: watchful waiting. However, a few documented cases of malignant transformation
- Unknown rate of transformation
Other Views on Dysplastic Nevi

- Most dysplastic moles have no concerning features and do not necessarily need reexcision.
- Dermatopathologist needs to help you document the absence of concerning features: “there are no microscopic features that compel reexcision.”
Management Dilemma: the Dysplastic Nevus Syndrome
The Dysplastic Nevus Syndrome

- Patients with >50 moles
- Many of the moles look “atypical”
- Biopsies show varying levels of dysplasia
- Those patients are at an increased risk of life threatening melanoma
- Mole Mapping
New: MelaFind

- software-driven optical imaging and data analysis device
- up to 2.5 mm beneath the surface of the skin at the point-of-care
- High Sensitivity
- Many Restrictions: size, location
- Disadvantages: unable to distinguish different growths (SK versus mole)
- Result: low risk, high risk, intermediate
Melafind

- Financial: 25 dollars per mole
- Takes 30 seconds per mole
- Large lesions, acral lesions, small lesions, light lesions: all excluded
- LOW specificity: FALSE positive
- Dermatologists: underwhelmed
- Great first step!
Gold standard: Biopsy suspicious moles!
what else should I worry about?
Actinic Keratosis=AK
AK= PreK

- 80% disappear on their own: great!
- 20% go on to develop roots.... Not so great!

- AK can turn into....
Bowens Disease: in situ
SCC: Squamous Cell Skin Cancer
Actinic Keratosis Treatment

- Express to patient need to treat AGGRESSIVELY to prevent progression to SCC
- Many different treatment modalities based presentation, number of lesions, lifestyle and patient preferences
- The only incorrect course of action: nonaction
Actinic Keratosis Treatment

- Most common treatment: cryotherapy
- 2 freeze-thaw cycles
- 6 seconds
- 2 to 3mm beyond lesion edge
- Do not freeze if you are unsure about DX
- Risk of overfreezing: scarring, hypopigmentation, hyperpigmentation, nerve damage, pain
Field Therapy Options

- 5-Fluorouracil cream: 1960’s
  - Very effective 86%
  - 2 week treatment, 2 week recovery
  - Risks: phototoxicity, pain, secondary infection, reactivation of viral infections
  - Advantages: unlikely to cause scarring, home treatment
5-FU
5-FU
Post 5-FU
Photodynamic Blue Light Therapy

- Field Therapy option
- 50% effective
- Little to no downtime: recovery within 3 days
- No scarring reported to date
- In office procedure under physician supervision
- Disadvantages: unpredictable response, burning sensation
Other Field Therapy Options

- Other field therapy options
- Imiquimod: twice a week for 16 weeks
- Or
- 2 weeks on, 2 weeks off, 2 weeks on: 8 week process!
- CO2 laser: very effective, but very high scarring risk and not covered by insurance
- Diclofenac 3% gel: twice a day for 90 days. 30% effective
New!

- Picato gel: Ingenol mebutate
- Extract of a common plant, petty spurge or milk weed (Euphorbia peplus)
- Australian Aborigines: use it for medicinal purposes
- 70% cure rate in 2 days!
- Unknown mode of action
- Disadvantage: poor medical coverage, $900
NonMelanoma Skin Cancer

- Many different types
- 2 major:
  - BCC
  - SCC
Diagnosis: BCC or SCC?
Diagnosis: BCC or SCC?
BCC features
What can you do?
Choose to check the skin!

“It hasn’t been bothering me. Of course, I don’t have to look at it.”
What can you do?

- Catching a lesion early: Cure!
- Health Care Practitioners: major decision regarding Skin Evaluation
- Do not ignore skin cancer risk
- Focus on PREVENTION
- If unsure, refer!
Focus on Prevention

- Photoprotection
- Sunscreen
- Avoiding the 11am to 2pm period
- Seek shade
Sunscreen Facts

SPF 15 blocks what percentage of UVB?

A. 15%
B. 30%
C. 73%
D. 93%
E. It depends on active ingredient
Sunscreen Facts

- SPF 15: blocks 93%!!!
- SPF 30: blocks 97%
- SPF 50: blocks 98%
- SPF 100: blocks 99%
Sunscreen Facts

- How much? One ounce for the entire body or enough to fill a shot glass
- REAPPLY every 3 hours for most SUNSCREENS...
- SPF is only a reflection of UVB protection
- Currently No rating system for UVA protection
Sunscreen Solution

- I recommend PHYSICAL sunblockers
- zinc oxide and titanium dioxide.
- Unlikely to cause allergic reaction
- Demonstrated to stay within epidermis of intact skin
UPF protective clothing! No need to REAPPLY!
My Team: Bridget and Sharon
Thanks for Listening!

- The END
- Any questions?

- Pascal.Ferzli@hitchcock.org