Saving Face:
Cutaneous Manifestations of Internal Disease

Heather Roebuck, DNP, FNP-BC, FAANP
West Bloomfield, Michigan
roebuckderm2015@gmail.com

Disclosures: Any Baggage?

• Abbvie
• Celgene
• Leo
• Lilly
• OrthoDermatologics

Psoriasis
Current Contract:
• Bayer
• Onychomycosis

Objectives

Objective 1
Identity at least two dermatologic findings indicative of internal disease.

Objective 2
Create at least one pharmacologic treatment plan for a patient with a cutaneous condition, including the recognition of common pharmacologic interactions with OTC medications, herbal, and nutritional supplements.

Objective 3
Evaluate appropriate pharmacologic vehicles to prescribe based on patients age, gender, location and severity of the dermatologic disease, while demonstrating the ability to use at least two resources to determine the FDA approved indications, usage, and adverse reactions.

Neck

- Hyperpigmentation
- Hyperkeratinization
- Patches that Thicken and Darken over Time
- Velvety Thickening of Skin Folds

Acanthosis Nigricans: Benign

- Acromegaly
- Insulin Resistance
- Hypothyroidism
- Polycystic Ovarian Syndrome: PCOS

Acanthosis Nigricans: Malignant

Rapid Onset of Seborrheic Keratoses (SK) and/or Skin Tags indicative of:

Paraneoplastic Syndrome:
- Gastrointestinal Adenocarcinomas
- Breast
- Prostate
- Ovary

Dermatosis Papulosa Nigra (DPNs)

- Benign Neoplasm
- Subtype of SK
- Occurs on Skin of Color
- Treat if Symptomatic only
- Cryotherapy
- Shave/snip excision
- Pharmacology
- Ammonium lactate &
- Alpha-hydroxy acids reduce appearance
- Hydrogen Peroxide (Eskata™)
Acanthosis Nigricans:

Pharmacology

Linked to use of Nicotinic Acid, Glucocorticoid use, OCP, and Hormone Therapy

- Not Related to Hygiene
- Helpful Medications:
  - Topical Retinoids: adapalene, tazarotene, tretinoin
  - Salicylic Acid: OTC and RX
  - Ammonium Lactate: cream or lotion
  - Urea 20%
  - Alpha Hydroxy Acids, Medical Devices
- Consult: Endocrinology if metabolic disorder suspected

Rachel a 42 year old with severe acne and acanthosis nigricans is suspected of having PCOS. Her quantitative HCG is 2 and her 75-G oral glucose tolerance test (OGTT) results show her 2 hour post-load glucose value is 152 mg/dL which indicates she has:

A. Gestational diabetes
B. Type 1 diabetes mellitus
C. Type 2 diabetes mellitus
D. Impaired glucose tolerance

According to the National Institutes of Health (NIH) the diagnostic criteria for PCOS must include all of the following except:

A. Hyperandrogenism and/or hyperandrogenemia
B. Presence of polycystic ovaries
C. Anovulation or oligo-ovulation
D. Exclusion of possible related disorders

Laboratory Testing

None Routinely Recommended Unless:
- Abnormal Menses
- Acanthosis Nigricans
- Hair Loss/Thinning
- Hirsutism
- Refractory to Conventional Therapy

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Must include all of the following:</td>
<td>Must include one of the following:</td>
<td>Must include one of the following:</td>
<td>Must include all of the following:</td>
</tr>
<tr>
<td>Hyperandrogenism and/or hyperinsulinism</td>
<td>- Anovulation and/or oligo-ovulation</td>
<td>- Anovulation and/or oligo-ovulation</td>
<td>- Androgenization and/or hyperinsulinism</td>
</tr>
<tr>
<td>Anovulation and/or oligo-ovulation</td>
<td>- Clinical and biochemical signs of hyperandrogenism</td>
<td>- Clinical and biochemical signs of hyperandrogenism</td>
<td>- Clinical and biochemical signs of hyperandrogenism</td>
</tr>
<tr>
<td>Exclusion of other possible related disorders</td>
<td>- Polycystic ovaries</td>
<td>- Polycystic ovaries</td>
<td>- Polycystic ovaries</td>
</tr>
<tr>
<td>The presence of pelvic mass is not necessary for diagnosis</td>
<td>Any possible related abnormality must be ruled out for diagnosis of PCOS to be made</td>
<td>Any possible related abnormality must be ruled out for diagnosis of PCOS to be made</td>
<td>Any possible related abnormality must be ruled out for diagnosis of PCOS to be made</td>
</tr>
<tr>
<td>Prevalence and/or common disorders listed in the body</td>
<td>Prevalence and/or common disorders listed in the body</td>
<td>Prevalence and/or common disorders listed in the body</td>
<td>Prevalence and/or common disorders listed in the body</td>
</tr>
</tbody>
</table>

Yawn, V. (2015). Best Approaches to PCOS. Advance HealthCare Network
Cutaneous Manifestations of Internal Disease
Heather Roebuck, DNP, FNP-BC, FAANP

Pathogenesis: A Focus on PCOS

**Androgens** → Sebocyte and Keratinocyte

- Increased sebum & Abnormal follicular keratinization

Non-inflammatory  -------------------------  Inflammatory lesions

- comedones
  - papules, pustules, nodules

**Microcomedones**

**Acne Lesion: Life Cycle**

- **Topical Retinoids**
- **Benzoyl Peroxide**
- **Azelaic Acid**

**Noninflammatory**

- **Benzoyl Peroxide**
- **Antibiotics**
- **Dapsone**
- **Phenylated Benzoyl Peroxide**
- **Sulfacetamide/Sulfur**

**Intralesional Corticosteroids**

**Isotretinoin**

**Pharmacologic Treatment of hyperandrogenism**
can include:

- A. Oral contraceptive pills (OCP)
- B. Spironolactone
- C. Metformin
- D. All of the above

**Pharmacology**

- **OCP**
- **Metformin**
- **Spironolactone**

**Additional Medications.**

- Spironolactone 100mg QD
- Dapsone 5% cream BID
- Tretinoin cream QHS
- Enalopril 5 mg QD (HTN)
- Ibuprofen 800mg (Dysmenorrhea)
- Trimethoprim 100mg BID (UTI)
- Pseudoephedrine OTC Allergy/Sinus
**Which of her medications can contribute to Hyperkalemia?**

A. Dapsone, Pseudoephedrine, & Spironolactone  
B. Ibuprofen, Pseudoephedrine, & Tretinoin  
C. Enalapril, Spironolactone, & Trimethoprim  
D. Pseudoephedrine, Spironolactone, & Tretinoin

---

**Utilize Resources**

---

**Case Study**

- 24 Year Old Female  
- Painful odorous nodules  
- Abdomen  
- Axillae  
- Buttocks  
- Groin  
- Smokes  
- Previously utilized BPO wash and Minocycline  
- Uses Turmeric OTC  
- Looking for new options

---

**Hidradenitis Suppurativa: Mission Impossible?**
Proper Dosing for Hidradenitis Suppurativa:
Utilizing 40 mg adalimumab single dose pen

Day 1: Administers 4 injections
Day 15: Administers 2 injections
Day 29: Maintenance dosing of one injection weekly

Hertoghe
Queen Anne’s Sign

- Lateral 1/3 of eyebrow missing
- Hypothyroidism
- Pharmacologic treatment based on labs

Xanthelasma

- Develop from deposition of lipids in the skin
- Yellowish due to cholesterol
- Occur after age 50: uncommon in children
- Labs: fasting lipids

Pharmacology
- Treat Dyslipidemia
- ? Medications
- ? Cosmetic Concerns

Syringomas

- Benign: Eccrine Sweat Gland
- Flesh-colored: 1-3 mm papules
- Onset: Puberty
- Treat if Symptomatic
- Scissor Excision
- Electrocautery/Laser
- Cryotherapy/Dermabrasion

Pharmacology
- TCA
- Retinoids
- Ibotretinoin

Goal:

Unlock Resources
- www.hs-foundation.org
- www.hsline.com
- www.abbieviusertfamilyfoundation.com

Mission Complete:
- Minimize Morbidity and Mortality
- Maximize Quality of Life

Too Much Sun? 90% of skin aging is caused by the Sun!
Botulinum Toxin A Treatment

Botulinum Toxin A will diffuse approximately 1 cm in a radius from the injection site when reconstituted with 2.5ml saline.

IncobotulinumtoxinA (Xeomin®) and OnabotulinumtoxinA (Botox®): Avoid the area less than 1 cm above the orbital rim over the iris. Diffusion of the toxin into this area can cause ptosis.

With ABOT-botulinumtoxin A (Dysport®), avoid the area 1 cm above the brow.

Pharmacology Concepts

Diffusion vs Spread

- Diffusion is slow and resolves
- Spread is fast and active

Side Effects

- Ptosis of upper eyelid. This may occur after injection of glabellar frown lines if the toxin migrates to the upper eyelid levator muscle. May appear as early as 12 hours or as late as 12 weeks after injection and may last from 2 to 12 weeks.
- Naphcon-A®/Opcon-A® or Apraclonidine 0.5% eye drops (one or two drops three times a day) can be used until ptosis resolves.
- Antitoxin available from CDC: 770-488-7100

Minimum Skin Care

1. Cleanse the skin twice a day
2. Moisturizer within 3 minutes after cleansing

For Day: Sunscreen
For Night: Retinol, Retinoid or Retin-aldehyde

Molluscum Contagiosum

- Double Stranded DNA Virus
- 2-5 mm firm pearly dome-shaped white or flesh papules
- Central dell or umbilication
- Incubation. 1-7 weeks

Molluscum Contagiosum

- Self limiting, usually 2 months
- Not associated with Malignancy
- First: Repair epidermal barrier
- Cochrane Review
- No evidence one method more effective
- Cryotherapy
- Curettage
- Cantharidin
- Sterile Needle or 11 Blade
- Duct Tape (90% cure rate)
- BOYE Sign

Cutaneous Manifestations of Internal Disease
Heather Roebuck, DNP, FNP-BC, FAANP

Red Carpet Ready!
Angular Chelitis: B12 Deficiency Polyglandular Autoimmune Disease

Herpes Labialis: HSV 1
- tingling/burning/itching 12-24 hours
- Prodrome
  - Acyclovir (Sitavig): MBT 50 mg single dose
  - Topical: Docosanol 10% (Abreva), penciclovir 1% Denavir, acyclovir 1% Zovirax; acyclovir 5% and hydrocortisone 1% (Xerese)
- Oral famciclovir for recurrence 1,500 mg as single dose
- Oral valacyclovir: 2 g and repeat in 12 hr.

CDC recommends reassessing need for ongoing therapy on a yearly basis. Treat if 6 or more outbreaks per year.

Herpes Zoster: Pharmacologic Treatment Based on Location
- **Nose:** Consider V1 involvement
  - Ophthalmic Emergency: refer STAT!
  - Intravenous: Acyclovir 10 mg/kg Q8 hrs
  - Other Locations:
    - Acyclovir (Zovirax®) 800 mg five times a day for 7-10 days: Adjusted dosing for pediatric and renal impairment
    - Famciclovir (Famvir®) 500 mg Q 8 hrs for 7 days
    - start within 72 hours of rash onset
    - Valacyclovir (Valtrex®) 1 g taken 3 times a day for 7 days

Interaction

Pharmacology: Vehicle Matters
- Cream
- Foam
- Gel
- Lacquer
- Lotion
- Paste
- Powder
- Ointment
- Spray
- Tincture or Solution

Skin Cancer is the most common cancer diagnosed in the United States.
- Melanoma is the most common cancer for adults 25-29 years old
- 2nd most common form of cancer for adolescents and young adults 15-29 years old
- Costs 2 Billion Annually
- 1 person dies every hour of melanoma (every 52 minutes)

Actinic Keratosis (AK)
- Precancer
  - Affects 58 million Americans
  - Rough, red, crust or patch
  - Various sizes
  - Typically on head & neck
  - 90% caused by UV radiation
Actinic Keratosis (AK)

https://www.skincancer.org/skin-cancer-information/actinic-keratosis/actinic-keratosis-treatment-options

Cutaneous Horn AK/KA/SQ?

- Treatment based on location and progression
- Surgical/Dermabrasion/Laser
- Cryotherapy (Clearance: 88%)

Pharmacology
- Imiquimod (87%)
- 5-fluorouracil (86%)
- Ingenol mebutate (85%)
- Photodynamic Therapy (78%)
- Diclofenac (64%)
- Chemical Peels (High)


Squamous Cell Carcinoma

- Second most common skin cancer
- Thought to arise from previous Actinic Keratoses
- Indoor tanning increases risk of SQ by 67%
- Organ transplant patients are 100 times more likely to develop SQ
- Annual cost of treating skin cancers is $8.1 billion


Basal Cell Carcinoma

- Most common skin cancer
- Small shiny papule that is red, pink, or white, pearly raised border
- A sore that won’t heal, scar–like
- Typically located on the head, neck
- ED & C/Moh’s Surgery

Pharmacology
- Determined by tumor, and recurrence history, size, subtype, location

- Multiple New Options


**Sebaceous Hyperplasia**

- 2-3 mm papules with a central dell (umbilication)
- Surrounded by “crown vessels”

**Basal Cell Carcinoma**

- Usually have erratic pattern of blood vessels found across center

---

**Tinea or Trouble?**

---

**Level 1:**

Macro-screening for the outlier lesion

- Patient History of a Changing or Symptomatic Lesion
  - Context:
    - Patient Age
    - Family History
    - Number of Nevi
    - New or changed Lesion
    - Differential recognition of the “ugly duckling” lesion

---

**Biopsy**

Basal Cell Carcinoma: Mohs Surgery

---

**“Ugly Duckling Sign”**

Which of these is... Not like the others?

---

52 year old Female presents with a lesion on her upper posterior leg that has been changing over the past 4 months.

**Skin Cancer?**

---

Illustration used with Permission @BethRaynerart.com
Dermoscopy: A Microlevel Evaluation Tool

Dermoscopy

Angiogenesis Evaluation: Veinlite

ABCDEF: 3 or More...
cut it or refer it out

Asymmetry
A line through the Middle
Would not create matching halves

Border
Irregular, Scalloped or Poorly Defined

Color Variation
Shades of brown, tan, or black are often the First Sign
As Melanomas progress the colors red, white, and blue may appear
Diameter

Images Used With Permission From bethraynerart.com

Evolving or Funny
Evolving or Changing
Out of Character or Funny Looking: Compared to the Other Moles

Images Used With Permission From bethraynerart.com

Melanoma: Can Vary In Appearance
Are you at risk?
Hair Color:
Eye Color:
Number of Nevi:
Type of Nevi:
Genetics:
Sun Exposure:
Tanning Salon Use:

Skin Cancers: Not Just In Sun Exposed Areas!

Excision and Suturing: Specimen evaluated by Dermatopathologist for confirmation of Melanoma

DecisionDx-Melanoma uses tumor biology to determine risk of metastasis independent of the route of spread
Cutaneous Manifestations of Internal Disease
Heather Roebuck, DNP, FNP-BC, FAANP

New FDA Sunscreen Regulation
- Timing
- Labeling
- No Waterproof or Sweat proof Claims
- Dosage Forms
- Education

http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm258416.htm

A Shot of Prevention
- Wear Sunglasses for UV protection daily
- Sun Strongest 10am-4pm
- 1 oz. sunscreen 20 minutes before going outdoors
- Reapply every 2-3 hours
- Avoid Tanning beds or lamps
- Healthy People 2020 Objectives: Prevent sunburns!

Skin Cancer is over 98% curable if detected early!
- One tanning bed exposure increases risk of melanoma by 75%.
- Collaborative Educational Endeavors saves the US more than $30 Million in medical costs a year.
- Decreases Morbidity & Mortality
- Fall Down 7 Times… ...Get Up 8
- Tanning Bans For Minors: Ethical Considerations

House Resolution
Developed after providing free Skin Cancer Screening:
National Health Care Policy
Dr. Katrina Masterson kmaster@tctc.com

Free Skin Cancer Programs
- May is Melanoma Month
- November is Healthy Skin Month
- Free national skin cancer screenings
- www.aad.org enter zip code to find free screenings
- www.skincancerprevention.org/programs/dont-fry-day
- www.melanoma.org screenings, free medication assistance links, patient advocacy, provider programs
- http://rtips.cancer.gov/rtips/ research tested intervention programs
- www.epa.gov/sunwise free community programs, elementary educational programs, research grants

www.epa.gov/sunwise/statefacts.html
Cutaneous Manifestations of Internal Disease
Heather Roebuck, DNP, FNP-BC, FAANP

- Shade Structure Grant Program & Free Camp For Children

www.aad.org
www.campdiscovery.org

Holistic Care: A Cutaneous Journey

Holistic Therapies
- Acupuncture/Pressure
- Electrical devices: Alpha-Stim
- Energy Work
- Magnet therapy
- Massage
- Meditation
- Music
- Nutritional Therapy

Reducing Inflammation
- Foods that often encourage inflammation
  * Dairy
  * Gluten (Grains)
  * Eggs
  * Refined sugars

Fish Oil 1,000 mg BID
- Acne: fish oil supplements reduced the number and severity of acne lesions
  * Jung et al
- Anxiety: reduction in inflammation and anxiety symptoms in healthy young adults
  * Keicolt-Glaser et al
- Diabetic Retinopathy: 48% reduced risk of DR
  * Sala-Vila et al

Fish Oil Cautions:
- Antiplatelet activity
- Hypotension
- High doses may cause diarrhea
- Can interfere with chemotherapy

www.clinicaltrials.gov

Fish Oil

Holistic Therapies

Reducing Inflammation

Fish Oil 1,000 mg BID

Fish Oil Cautions:
### Turmeric - 500mg TID
- Psoriasis: Skin lesions and psoriatic arthritis
- Anxiety/Depression: reduced symptoms of anxiety and depression in patients with Major Depressive Disorder
- Kurd, et al
- Rheumatoid Arthritis: reduction in disease activity scores
- Chandran and Goel

### Turmeric Cautions:
- Gallbladder stimulation
- Kidney stones
- Anti-platelet activity
- Hypoglycemia
- Iron deficiency
- Piperene inhibits some CYP enzymes
- Avoid using with phenytoin, rifampin, amlodipine

### Resources for Patients and Clinicians
- **Consumer Lab**: Identifies quality health and nutritional products through independent testing
- **American Botanical Council**: Reliable herbal medicine information

### Guided Meditation
- Reduces expression of pro-inflammatory genes
- Kaliman et al
- Reduces IL-6
- Rosenkranz et al
- Increase the rate of resolution of psoriatic lesions
- Kabat-Zinn et al

### Anesthesia
- **Vibrational Anesthesia**
  - Gate Theory of Pain Control
  - Pain sensitivity decreases as vibration amplitude increases
  - Vibrational Tool within 2 cm from procedure
  - www.lovethatface.com/_media/pdfs/lovenpaincontro07.pdf
Cutaneous Manifestations of Internal Disease
Heather Roebuck, DNP, FNP-BC, FAANP

Three Mile Point
What would shape your treatment plan?
- Location: 4 cm below patella
- Massage in circular motion
- 5 minutes each day
- Improves tone of skin and muscles

Treatment Plan:

Ethical & Professional Responsibility:
Adverse Reactions

- 1800-FDA-1088
- www.accessdata.fda.gov
- World Health Organization:
  - Medication without harm
  - www.who.int/patientsafety/medication-safety/en/
  - www.fda.gov/health-professionals

Thank you for joining this Dermatologic journey:
Safe Travels!

Questions?
More Information?

Heather Roebuck, DNP, PNP-BC, FAANP
roebuckderm2015@gmail.com
Office: 248-862-6269
5799 West Maple Road
Suite 165
West Bloomfield, MI 48322

References


References


