Skin Diseases and the Eye

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Skin Diseases and the Eye

Dermatology
- Study of skin, its structure, functions, and diseases
- Skin: Just the facts
  - largest organ; one of heaviest
  - Percent of total body weight: 12-15%
  - 20% of GP visits
  - 1-2% of world population has psoriasis

Reference
- Fitzpatrick’s Color Atlas and Synopsis of Clinical Dermatology
  - 5th Edition
  - Wolff, Johnson, Suumond
  - 2005
  - 1000+ pages
  - 857 photographs

Skin: The Layers
- Epidermis
- Dermis
- Subcutaneous Fat
- Integumentary System

Epidermis
- Stratum Germinativum
- Stratum Spinosum
- Stratum Granulosum
- (Stratum Lucidum)
- Stratum Corneum
  - Langerhans Cells
    - similar structurally to melanocyte
    - “macrophage of epidermis”
  - Merkel Cells
    - touch receptors

Fitzpatrick’s Color Atlas and Synopsis of Clinical Dermatology
- 55th Edition
- Wolff, Johnson, Suumond
- 2005
- 1000+ pages
- 857 photographs
Dermis

- Connective tissue
- Deep to epidermis
- Supports epidermis
- Two Parts
  - Papillary dermis
  - Reticular dermis
  - Langer's Lines

Subcutaneous Fat

- Deep to dermis
- Made up of lipocytes
- Variable thickness
- Functions:
  - Insulation
  - Shock absorber
  - Nutritional depot

Epidermal Appendages

- Hair Follicles
  - lanugo
  - vellus
  - terminal
  - No new follicles after birth
  - Growth is Cyclic
    - Anagen Phase
    - Catagen Phase
    - Telogen Phase
  - 90% of scalp hair is in growth phase

- Hair Erector Muscles
  - "goose bumps"

- Sebaceous Glands
  - sebum
  - usually attached to hairs but can be free

- Eccrine Glands
  - sweat glands
  - most on palms, soles, axillae
  - Apocrine Glands

Epidermal Appendages

- Nails
  - nail plate does not desquamate
  - Continuous growth (0.1 mm /d)
  - 0.5 – 0.75 mm thick
  - function:
    - protection
    - scratching
    - Grasping
  - Diagnostic!!
    - Pale nail bed – anemia
    - White nails – liver disease

Dermal Appendages

- Blood vessels (reticular)
  - Superficial and deep plexus
  - Originate from subcutaneous fat
  - flow exceeds nutritional demand

- Lymphatics
- Nerves
  - Somatic sensory
  - Autonomic motor
  - Specialized end organs
# Factitious Dermatosis

- self-inflicted via mechanical, chemical, or thermal
- Differs from Munchausen’s syndrome
- F >> M
- shape of lesion may be bizarre
  - predominate on one side
  - may persist for years
- R/O other causes!!
- patient MAY appear normal
- management:

# Rosacea

- >14 million Americans
  - 78% of Americans – no knowledge of disease
  - 52% with rosacea – avoid public contact
- unknown etiology
  - NOT related to sebum formation
  - Demodex folliculorum and Demodex brevis
  - *Helicobacter pylori*?
- 2 factors
  - vascular changes
  - acneform eruptions
    - inflammatory infiltration of upper dermis
    - no comedones

## Rosacea – Subjective

- cosmesis
- painful
- facial heat
- exacerbated by:
  - heat
  - alcohol
- ocular complaints
  - up to 58% have ocular involvement

## Rosacea – Objective

- Stage 1
  - intermittent flushing
  - permanent erythema
- Stage 2
  - telangiectasia
- Stage 3
  - papules
  - pustules
- Stage 4
  - rhinophyma

## Trigger Factors?

- Sun exposure (81%)
- Emotional Stress (79%)
- Hot weather (75%)
- Wind (57%)
- Heavy exercise (56%)
- Alcohol consumption (52%)
- Hot baths (51%)
Ocular Rosacea

- Subjective
- Objective
  - blepharitis
  - meibomianitis
  - conjunctivitis
  - episcleritis
  - iritis
  - chalazion
  - corneal changes
  - RCE (up to 15%)

Alodox

- Cynacon / Ocusoft
- 20 mg doxycycline
- Alodox Convenience Kit
  - 20 mg doxycycline
  - Lid scrubs
    - Tranquileyes Moist Heat Therapy Goggles
    - Thermoeyes reusable heat packs
    - Eye Eco Inc.

Nutridox

- Advanced Vision Research
- Meibomian gland health and therapy
  - Doxycycline
    - 75 mg
  - TheraTears Nutrition
    - Fish oil (EPA 450 mg; DHA 300 mg)
    - Flaxseed oil 1000 mg
    - Vitamin E 183 IU
    - 3 gel caps qAM
  - iHeat Warm Compress System

Oracea

- 40 mg doxycycline capsules
  - 30 mg instant
  - 10 mg sustained release
  - qd
- CollaGenex Pharmaceuticals
  - “Efficacy beyond 16 weeks and safety beyond 9 months have not been established”
  - $$ ($230 for 30 d)

Doxycycline

- Side Effects:
  - GI discomfort
  - phototoxicity
  - reversible increased intracranial hypertension
  - superinfections
  - not for use in children
  - reduced efficacy of birth control pills
    - informed consent
  - Secondary yeast infection

Rosacea - Treatment

- metronidazole 0.75% gel
  - bid x 9 weeks
- Finacea® (azelaic acid 15%) gel
  - Bid x 12 weeks
  - topical steroids
  - argon laser
  - dermabrasion
Final Words on Rosacea

- Prognosis
  - Duration varies
  - Can recur
  - Eventually goes away (years)

Seborrheic Dermatitis

- Chronic
- Characteristic patterns
- Unknown etiology
  - *Pityrosporum ovale*?
- Dry form
  - Small powdery scales
- Oily form
  - Greasy scales with erythematous base

Seborrheic Dermatitis

- M > F
- More in winter
- Subjective
  - +/- pruritis
  - Ocular complaints
- Infants
  - "Cradle Cap"
- Adults
  - Head, presternal area

Seborrheic Dermatitis – Management

- Scalp treatment
  - Selenium sulfide (Selsun Blue)
  - Tar preps (Denorex, T/Gel, Tegrin)
  - Zinc pyrithione (Head & Shoulders)

- Face and trunk
  - Steroid cream
  - Ketoconazole cream (Nizoral)
  - Salicylic acid

Salicylic Acid

- Salicylic Acid Shampoo (2%)
  - Ionil
  - Neutrogena Healthy Scalp

- Salicylic Topical (6%)
  - Rx
    - Akurza
    - Salex
    - Koralyt (gel)

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- Eyelids
Atopic Dermatitis

- Chronic, relapsing
- Not allergic
- PHx or FHx of atopy
- “the itch that rashes”
- Etiology?
  - IgE
  - abnormal cell-mediated immune response

Atopic Dermatitis

- onset usually between 2 mo and 1 year
- M > F
- duration: 15-20 years
- associated conditions
  - asthma
  - hay fever
- subjective:
  - PRURITIS!!
  - low cutaneous threshold for drying and itching

Atopic Dermatitis

- Acute
  - erythema
  - excoriation
  - papules / vesicles
  - secondary infections
- Chronic
  - lichenification

Atopic Dermatitis

- Infants (2 mo – 2 years)
  - chest, face, scalp, neck
- Children (< 10 years)
  - less exudative
- Older Children / Adults
  - lichenification
  - flexural areas
    - antecubital, popliteal, neck, periorcular

Atopic Dermatitis

- Exacerbating Factors
  - foods / irritants
  - stress / temperature changes
- Management
  - preventive
    - constant temperature
    - low humidity
  - hydration (Eucerin)
  - tar preps
  - topical steroids
Atopic Dermatitis – Management

- systemic
  - steroids
  - antibiotics
  - antihistamines
- hospitalization
- minimize stress
- relocate!

Atopic Dermatitis – Ocular

- scaling around eyes
- Dennie-Morgan line
- “Allergic Shiner”
- conjunctivitis
- corneal involvement
- Cataracts
  - asc and psc
  - keratoconus
  - retinal detachment
    - Complication of cataract sx

Atopic Dermatitis – Management of Ocular Manifestations

- Cool compresses / decongestants
- topical (lots of options!!)
  - antihistamine
  - mast cell stabilizers
- Combos
  - NSAIDs
  - steroids

Newest... 9/8/2009

- Bepreve®
  - Bepotastine besilate 1.5%
  - ISTA Pharmaceuticals
- Antihistamine + mast cell stabilizer
- Inhibits eosinophil chemotaxis
- IND: allergic conjunctivitis - itching

Bepreve®

- BAK
- Bid
- Category C
- ≥ 2 YO
- 2.5, 5, 10 mL

Skin Treatment

- Elidel cream (pimecrolimus)
  - skin selective inflammatory cytokine inhibitor
  - Relatively new NSAID topical for atopic dermatitis
  - safe for >2 YO
  - can apply to lids
  - similar -> Protopic
  - FDA Black Box Warning
- Cutivate 0.1% (fluticasone)
  - mid-level potency steroid cream
  - safe for >3 months
  - no reports of skin thinning
  - recommended 2 weeks or less
Impetigo

- superficial skin infection
- Staph aureus and/or Strep pyogenes
- children and young adults
- humid or poor hygiene
- contagious
- self-limiting but...

Vesicular Impetigo

- "Impetigo"
- vesicles/pustules -> rupture -> crust
- erythema
- face and extremities
- pruritus
- +/- lymphadenopathy
- afebrile

Bullous Impetigo

- Staph aureus
- vesicle -> bullae -> crust
- no erythema
- extremities, face, trunk

Impetigo

- Lab testing
  - Gm stain
  - culture
- Treatment
  - improve hygiene (Hibiclens)
  - http://hibiclens.com/default.html
  - remove crusts
  - topical antibiotics
    - bacitracin or erythromycin
    - mupirocin 2% tid (Bactroban)
  - treat nares

Ocular TRUST

- Ocular Tracking Resistance in U.S. Today
- The only longitudinal nationwide antimicrobial susceptibility surveillance program specific to ocular isolates
  - S. aureus
    - MRSA
    - MSSA
  - Coagulase-negative Staph
  - S. pneumoniae
  - H. influenzae

Asbell PA, Sahm DF. Longitudinal nationwide antimicrobial susceptibility surveillance in ocular isolates. Results of Ocular TRUST 2. ARVO 2008.
Ocular TRUST: Participating Sites

Ocular TRUST 2: Susceptibility Testing
- In vitro susceptibility testing to nine antimicrobials
  - ciprofloxacin
  - levofloxacin
  - gatifloxacin
  - moxifloxacin
  - azithromycin
  - trimethoprim
  - tobramycin
  - polymyxin B
  - penicillin

MSSA

MRSA

Coagulase-Negative Staphylococci (CNS)
Methicillin-Susceptible CNS

Coagulase-Negative Staphylococci (CNS)
Methicillin-Resistant CNS
Streptococcus pneumoniae

Psoriasis

- 2-8 million people in US
- chronic, unpredictable disease
- disorder of proliferation and inflammation
- erythematous, scaly plaque
- $F = M$
- dominant transmission
- association with arthritis

Psoriasis

- unknown etiology
- increase mitosis
- enlarged, tortuous dermal capillaries
- can be exacerbated by precipitating factors
  - trauma
  - stress

Psoriasis – Objective

- initially – red scaling papules
- eventually
  - round to oval plaque
  - adherent silvery, white scale
- Koebner reaction
  - traumatized normal skin develops psoriatic lesions

Plaque Psoriasis

- most common
- enlarge to certain, stable size
- may have residual macule
Psoriatic Arthritis

- nail involvement in 80%
  - pitting
  - discoloration
  - onycholysis
- 30-50 yo
- F > M

Psoriasis – Management

- Minimize precipitating factors
- Reassurance
- “Psoriasis Therapeutic Ladder”
  - lubricants, emollients
  - tar cpds
  - topical steroids
  - Salicylic acid
  - PUVA
- Two-tiered approach
  - Localized therapy
  - Systemic and/or phototherapy

Psoriasis – Ocular Complications

- Tear film (decreased TBUT, MGD)
- Eyelid – blepharitis, trichiasis, ectropion
- Conjunctiva / Cornea
  - conjunctivitis, KCS, symblepharon
  - Nodular episcleritis
  - Anterior uveitis

Acanthosis nigricans

- diffuse, velvety thickening and hyperpigmentation of the skin
- axillae, other body folds, neck, periocular
- etiology
  - heredity
  - endocrine disorders
    - associated with insulin resistance
  - Polycystic ovary syndrome
  - obesity
  - drug administration
  - malignancy

Acanthosis nigricans

- Testing
  - rule out diabetes, hypothyroidism
- Medications
  - Retin-A
  - 15% urea
  - alpha-hydroxy acid
  - salicylic acid
- Prognosis
  - hereditary – may regress when older
  - may regress with weight loss
  - discontinue causative drug will cause resolution

Obesity and Acanthosis Nigricans in Adolescents

- Prevalence (%)
- Obesity (120% of ideal)
- Acanthosis nigricans

- White
- Hispanic
- Black
- Native American
Scleroderma

- connective tissue disease
- fibrosis
- progressive
- autoimmune
- F > M (4:1)
- 30-50 YO at onset

Scleroderma – Two Forms

- Diffuse – 60%
  - systemic scleroderma
- Limited (CREST) – 20%
  - Calcinosis
  - Raynaud’s phenomenon
  - Esophageal
  - Sclerodactyly
  - Telangiectases
  - CRST, ST, etc.

Scleroderma

- Raynaud’s phenomenon – usually first
- cutaneous disease
  - thinned skin
  - loss of facial expression / swollen look
- internal organs
  - esophagus
  - lungs
  - kidneys
  - heart

Raynaud’s Disease

- episodic constriction of digital arteries
- usually F
- up to 20%
- precipitating factors: cold, stress, smoking
- PHENOMENON when associated with other disease or other cause:
  - rheumatic disorders, drugs, carpel tunnel syndrome

Raynaud’s Disease

- 3 Stages
  - Stage 1: pallor
  - Stage 2: cyanosis
  - Stage 3: hyperemia

Scleroderma – Ocular

- +/- ptosis; +/- lagophthalmos
- KCS
- mucous filaments
- telangiectasia
- cataracts
- uveitis
- HTN retinopathy
Scleroderma – Management

- treat Raynaud’s phenomenon
- steroids
- ocular:
  - lubricants
  - ointments
  - tape
  - ptosis crutch
  - punctal occlusion

Alopecia Areata

- different than androgenetic alopecia
- non-inflammatory, non-scarring hair loss
- idiopathic
- M = F
- children and young adults

Alopecia Areata

- well demarcated areas (1-4 cm)
- skin is normal
- exclamation points (hallmark)
- Sites:
  - Scalp
  - Beard
  - eyebrows
  - +/- “hammered brass” nails

Alopecia Areata

- Alopecia totalis
- Alopecia universalis
- DDX:
  - fungal infections
  - secondary syphilis
  - Management:
    - Prognosis
    - Therapy

Trichotillomania

- Self-inflicted alopecia
- Fractured hairs of unequal lengths
- may need therapy

Latisse™

- Allergan (Medical Aesthetics)
- Approved 12/2008
- 0.03% bimatoprost
- Indication:
  - Hypotrichosis of eyelashes
- Caution:
  - Active intraocular inflammation
  - Aphakia, risk factors for CME