General Dermatology

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General Dermatology Objectives

- Learn to recognize some common dermatologic disorders and some associated with systemic diseases
- Learn the causative organism or basic pathogenesis of these conditions
- Learn some diagnostic clinical or laboratory clues to aid in diagnosis
- Learn to recognize common skin cancers
- Learn the risk factors, prognostic factors and clinical clues to melanoma
General Dermatology

- Papulosquamous disorders
- Infections
- Blistering disorders
- Acneiform eruptions
- Disorders of pigmentation
- Benign tumors
- Malignant tumors
- Urticaria / Vasculitis
Papulosquamous Disorders

Primary skin disorders that effect the squamous epithelium

- Eczema
- Psoriasis
- Seborrheic dermatitis
- Pityriasis rosea
Question 1

This postoperative rash is most like a form of which of the following?

A. Eczema
B. Seborrheic dermatitis
C. Psoriasis
D. Tinea corporis
E. Tinea versicolor
Question 2

Which of the papulosquamous disorders is associated with the development of a sero-negative rheumatoid arthritis-type of arthritis?

A. Ezcema
B. Psoriasis
C. Seborrheic dermatitis
D. Pityriasis rosea
Eczema

- Inflammatory condition of the epidermis
  - Acute
    - Weeping, draining, frequently warm and red
  - Chronic
    - Dry, scaly, frequently hyperkeratotic
- Wide variety of causes
  - Intrinsic
    - Atopic dermatitis, dyshidrosis
  - Extrinsic
    - Allergic or irritant contact dermatitis
Acute Eczema
Acute Eczema – Contact Dermatitis
Acute Eczema – Poison Ivy
Acute Eczema - Spongiosis
Chronic Eczema
Chronic Eczema
Chronic Eczema
Acute Eczema – Atopic Dermatitis
Chronic Eczema – Nummular Eczema (Nickle Allergy)
Chronic Eczema
Psoriasis Vulgaris

- Heritable primary skin disorder
  - Affects 1-2% of general population
  - Multifactorial inheritance

- Characteristic clinical presentation
  - Typical lesion
    - Well demarcated plaques with silvery-white scale
  - Typical distribution
    - Knees, elbows, gluteal cleft, scalp
    - Nail changes

- Associated with sero-negative arthritis
Psoriasis
Psoriasis
Psoriasis
Psoriasis
Psoriasis
Psoriasis
Psoriasis
Psoriasis

Psoriasis – Koebnerization
Psoriasis – Nail Changes
Psoriatic Arthritis
Seborrheic Dermatitis

- AKA: dandruff
- Chronic cutaneous disorder involving sites of sebaceous gland activity
  - “Cradle cap” as infant
  - 15% of the population affected
- Thought to be due to a hypersensitivity reaction to *pityrosporum* (Malassezia)
- More common in HIV and CNS disease
Seborrheic Dermatitis
Seborrheic Dermatitis
Seborrheic Dermatitis
Cradle Cap
Pityriasis Rosea

- Common exanthem
  - More common in spring and fall
  - Unknown etiology
- Classic clinical presentation
  - Herald patch
  - “Christmas tree” pattern
- Secondary syphilis may mimic this disorder
Pityriasis Rosea
Pityriasis Rosea
Question 3

A positive Tzanck test confirms the diagnosis of which of the following infections?

- A. Molluscum contagiosum
- B. Dermatophytosis
- C. Impetigo
- D. Erysipelas
- E. Herpes
Superficial Fungal Infections

- **Dermatophytes**
  - 3 common genera
    - *Microsporum, Trichophyton, Epidermophyton*

- **Yeast**s
  - *Pityrosporum* (Malassezia)
  - Candidiasis

Diagnosis frequently made by KOH
Superficial Fungal Infections

- **Dermatophytes** - AKA: “ring worm”
  - Thrive on non-viable keratinized structures: stratum corneum, hair, nails
  - **Tinea corporis** -- body
  - **Tinea capitis** -- head *Trichophyton tonsurans*
  - **Tinea pedis** -- feet *Trichophyton rubrum*
  - **Tinea cruris** -- groin
  - **Tinea unguium** (onychomycosis) -- nails

- KOH of scale shows branching hyphae
Superficial Fungal Infections

- Yeasts
  - *Pityrosporum* (Malassezia)
    - Tinea versicolor -- most commonly on torso
    - More common in humid environments
    - KOH: short non-branching hyphae and spores
  - Candidiasis: commonly due to *candida albicans*
    - Affects warm, moist places
    - Many predisposing factors
      - Diabetes, antibiotics, immunosuppression
    - KOH: pseudohyphae
Tinea Corporis
Tinea Corporis
Tinea Faciei
Tinea Manuum
Tinea Cruris
Tinea Pedis
Tinea unguium (onychomycosis)
Tinea Capitis
Tinea Versicolor
Candidiasis
Common Warts – Verruca Vulgaris
Viral Infections - Warts

- Human papilloma viruses
  - Over 70 subtypes: specific subtypes prefer specific anatomic sites:
    - Verruca vulgaris, plantar warts, verruca plana, condyloma acuminata ......
    - Some have malignancy potential
      - Cervical carcinoma

- Molluscum contagiosum - Poxvirus
  - Common in childhood
  - Sexually transmitted disease in adults
  - Can be extensive in HIV infection
HPV-Related Mucosal Changes
Molluscum Contagiosum
Molluscum Contagiosum
Viral Infections - Herpes

- Herpes simplex
  - Primary infection vs recurrent outbreak
  - HSV type 1 -- Cold sores / fever blisters
  - HSV type 2 -- Genital herpes
  - Herpetic whitlow

- Varicella zoster virus
  - Primary - chickenpox
  - Recurrent - shingles

Diagnosis made with (+) Tzanck test
Primary HSV1  /  Recurrent HSV1
Recurrent HSV 2
Chronic HSV Ulcer
Herpetic Whitlow
Primary Varicella – Chickenpox
Recurrent Varicella - Shingles
Recurrent Varicella – Herpes Zoster
Recurrent Varicella - Shingles
Recurrent Varicella - Shingles
Tzanck Preparation
Bacterial Infections

- Impetigo
  - An acute and superficial skin infection
    - Characteristic: honey-colored crust
- Cellulitis
  - Suppurative inflammation involving the subcutaneous tissue layer
- Erysipelas
  - Group A beta-hemolytic strep infection of the superficial dermal lymphatics
Impetigo
Cellulitis
Erysipelas
Infestations

- **Scabies**
  - Female *sarcoptes scabiei* burrows into the stratum corneum and lays eggs
  - Identified by wet prep

- **Lice (Pediculosis)**
  - Can carry and transmit infectious disease
    - Body louse - *Pediculus humanus var corporis*
    - Head louse - *Pediculus humanus var capitis*
    - Pubic or crab louse - *Pthirus pubis*
  - Nits frequently found in hair and lashes
Scabietic Mite
Scabies
Scabies
Lice
Lice
For which of the following primary blistering disorders is caused by autoantibodies to the desmosomal structural proteins?

A. Epidermolysis bullosa
B. Pemphigoid
C. Pemphigus
Vesiculobullous Disorders

- Pemphigus
  - Autoimmune disorder: desmosome
  - Acantholysis with intraepidermal blister

- Bullous pemphigoid
  - Autoimmune disorder: Hemidesmosome
  - Subepithelial blister

- Epidermolysis bullosa
  - Genetic defects in structural proteins of cutaneous basement membrane
Cartoon of Epidermis
Bullous Pemphigoid
Bullous Pemphigoid
Primary Subepidermal Blistering Disease
Bullous Pemphigoid
Pemphigus
Pemphigus
Epidermolysis Bullosa Simplex
Question 5

Which of the following organisms is pivotal to the development of acne vulgaris?

A. Beta-hemolytic group A streptococcus
B. Staphylococcus aureus
C. Pityrosporum (Malassezia)
D. Propionibacterium
E. Pseudomonas aeruginosa
Folliculitis

- Common and superficial pyogenic infection of the hair follicles
- *Staphylococcus aureus* is the most common organism
  - Others may also cause folliculitis
    - *Pityrosporum*
    - Candida species
    - *Pseudomonas* sp. -- “hot tub folliculitis”
- Occurs anywhere there is hair
Folliculitis
Hot Tub Folliculitis / Pityrosporum
Acne Vulgaris

- Disorder of pilosebaceous units
- Pathobiology
  - Obstruction of follicular orifice
    - Abnormal keratinization
  - Increase in sebum production
    - Role of androgens
  - Over growth of *Propionibacterium acnes*
    - Produces lipase which breaks down sebum to release proinflammatory free fatty acids
Pathogenesis of Acne Vulgaris

**PATHOGENESIS OF ACNE**

**A**
- Early comedone
  - Infundibulum
  - Hyperkeratosis
  - Ceramocyte cohesion
  - Androgen stimulation of sebum secretion

**B**
- Later comedone
  - Accumulation of shed keratin and sebum
  - Formation of whorled lamellar concretions

**C**
- Inflammatory papule/pustule
  - *Propionibacterium acnes* proliferation
  - Sebaceous lobule regression
  - Mild inflammation

**D**
- Nodule/cyst
  - Marked inflammation
  - Scarring
Acne Vulgaris – Comedones
Acne Vulgaris
Acne Vulgaris
Acne Vulgaris
Acne Rosacea

- Common inflammatory condition
  - Northern European ancestry
  - Significant sun exposure
- Peculiar increase in vascular reactivity
  - Flush and blush
  - Fixed erythema
  - Telangiectasia
- Inflammatory papules and facial edema
  - Rhinophyma may occur in men
Acne Rosacea
Acne Rosacea

Disorders of Pigmentation

All disorders deal with alterations in melanin production

- Tanning
- Vitiligo
- Albinism
A defensive response to UV light
- Skin types are partially defined by this

Immediate tan -- UVA exposure
- Alteration in oxidized state of melanin
- Occurs immediately, fades quickly

Delayed tan -- UVB exposure
- Increases production of melanin
- Occurs in a few days, fades in weeks
Tanning
Vitiligo

- Acquired, local loss of melanocytes
  - May be extensive and devastating

- Idiopathic
  - Autoimmune disease
  - Assoc. with FH, DM, thyroid disease, etc

- Results in DEPIGMENTATION
  - Increase risk of skin cancer
  - Variety of patterns
Vitiligo
Vitiligo
Vitiligo
Albinism - Oculocutaneous

- Genetic abnormality
  - Autosomal recessive disorder

- Affects skin, hair and eyes
  - Variably hypopigmented
  - Increased risk of skin cancer
  - Reduction in visual acuity and nystagmus

- Several different genetic defects
  - All result in defective melanin production or transfer
Albinism
Question 6

Which of the following cutaneous tumors is the most common cause of cutaneous malignancy?

- A. Basal cell carcinoma
- B. Dermatofibroma
- C. Seborrheic keratosis
- D. Squamous cell carcinoma
- E. Malignant melanoma
Cutaneous Tumors

**Benign**
- Seborrheic keratosis
- Melanocytic nevi
- Hemangioma
- Cysts
- Dermatofibroma

**Malignant**
- Basal cell carcinoma
- Squamous cell carcinoma
- Melanoma
- Cutaneous T-cell lymphoma
Seborrheic Keratosis

- Common and benign
- Familial
- Occurs after age of 30 years
  - “Age spots” etc
- More common on the face, trunk and upper extremities
- Localized and benign epidermal proliferation
  - “Stuck on appearance”
Seborrheic Keratoses
Seborrheic Keratoses
Melanocytic Nevi

- Most are acquired lesions
  - Occur 5 years to 60 years
  - May be congenital
- Benign melanocyte proliferation
  - Sharply demarcated
  - Flat or raised
  - Flesh-colored to dark brown
- Risk of any one mole becoming malignant is miniscule
Melanocytic Nevus
Melanocytic Nevi
Melanocytic Nevi
Hemangioma

- All are a result of a vascular process
- Some are hypertrophic changes, some are proliferative disorders, some are caused by vasodilation, some are true arterio-venous abnormalities
- Some are congenital, some acquired
- Only a few have a health risk
Hemangiomas
“Stork Bite” Port Wine Stain
Cysts

- All have a cellular, epithelial lining
- Contents may be fluid or semi-solid
  - Depends on cell type lining
- Most common:
  - Follicular cyst, infundibular type (epidermal inclusion cyst)
    - Common on face, neck, torso, scrotum
    - Stratified squamous epithelium
    - Keratinous material content
Cysts
Cysts
Cysts
Dermatofibroma

- Common, benign dermal tumor
- Composed of dermal fibroblasts
- Most common on extremities
- Cause unknown
  - ?? Trauma with abnormal scarring
- Clinical: Dermal tumor, tightly adherent to epidermis, with “dimple sign”
Dermatofibroma
Basal Cell Carcinoma

- Most common cutaneous malignancy
  - > 400,000 cases this year
- Develops from the basal cell layer
- Most common on the head and neck
- Background of sun damage
- Pearly translucent papule with telangiectasia
- Nickname: “rodent ulcer”
Basal Cell Carcinoma - Nodular
Basal Cell Carcinoma
Basal Cell Carcinoma
Basal Cell Carcinoma
Squamous Cell Carcinoma

- Second most common skin cancer
- Arises within the squamous epithelium
- Setting of sun damage and precancerous lesions: actinic keratosis
  - Upper extremities, trunk, face and neck
  - Associated with other exogenous insults
- Poorly demarcated scaly, indurated plaques
- Higher metastatic potential than BCC
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Melanoma

- Deadliest of the skin cancers
- Increasing at an alarming rate
- May arise in mole, but more often occurs *de novo*
- Risk factors
  - Family history
  - Skin type
  - UV light exposure
  - Number of moles, or giant congenital nevus
Melanoma

- Diagnostic clues: ABCD’s
  - A: Asymmetry
  - B: Border
  - C: Color
  - D: Diameter
  - E: Evolution

- Completely excise suspicious lesions

- Most important prognostic indicator: Lesional thickness
Melanoma
Melanoma
Melanoma
Melanoma

Acral Lentiginous Melanoma
Melanoma - Metastatic
Cutaneous T-Cell Lymphoma

- Most uncommon of skin malignancies
  - AKA: Mycosis fungoides
- Malignancy of lymphocytes
  - Predominately CD4 cells
- Presents as patches and poikiloderma
- Long term disease
  - 20-40 years
- Risk of systemic lymphoma
- Leukemic phase: Sezary syndrome
Mycosis Fungoides

Patches Stage / Tumors
Mycosis Fungoides
Sezary Syndrome
Urticaria

- Very common condition
- Transient wheals, “hives”
  - Lesions last < 24 hours
  - Generally very itchy
  - Many causes or associations
- Acute urticaria, < 30 days
  - Likely IgE mediated allergy
- Chronic urticaria, > 30 days
  - Most likely not allergic in mechanism
Urticaria
Vasculitis

- Due to vascular inflammation
- Different diseases affect different vessels and vessel sizes
  - Arterioles, capillaries, venules … etc.
- Clinical picture represents affected vessel
  - Palpable purpura — small sized vessels
  - Cutaneous nodules — medium and large
  - Ulcers — may suggest larger sized vessel
Vasculitis

- Skin nodules
- Purpura
- Small artery
- Arteriole
- Capillary
- Venule
- Vein

- Large to medium-sized artery
- Cutaneous leukocytoclastic angiitis
- Henoch-Schönlein purpura and essential cryoglobulinemic vasculitis
- Microscopic polyangiitis (microscopic polyarteritis)
- Wegener's granulomatosis and Churg-Strauss syndrome
- Polyarteritis nodosa and Kawasaki disease
- Giant cell (temporal) arteritis and Takayasu's arteritis
Vasculitis – Palpable Purpura
Vasculitis
Question 1

This postoperative rash is most like a form of which of the following?

- A. Eczema
- B. Seborrheic dermatitis
- C. Psoriasis
- D. Tinea corporis
- E. Tinea versicolor

Correct answer: A. Eczema
Question 2

Which of the papulosquamous disorders is associated with the development of a sero-negative rheumatoid arthritis-type of arthritis?

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