Chapter 40

Alterations of the Integument in Children
Acne Vulgaris

- Most common skin disease
- Affects 85% of the population between ages 12 and 25 years
- Develops at sebaceous follicles located primarily on the face and upper parts of the chest and back
• Noninflammatory acne
  – Blackheads
  – Whiteheads
• Inflammatory acne
  – Caused by follicular wall rupture in closed comedones
  – Cystic nodules develop when inflammation is deeper
Physiologic factors:
- Follicular hyperkeratinization
- Excessive sebum production
- Colonization of *Propionibacterium acnes*
- Inflammation secondary to the action of inflammatory products produced by *P. acnes*
- The excessive production of sebum is related to androgenic hormones
• Clinical management:
  – Topical treatments
  – Systemic therapies
  – Surgery
  – Scarring treated with dermabrasion, lasers, and resurfacing techniques
Acne Vulgaris

(Courtesy Department of Dermatology, School of Medicine, University of Utah, Salt Lake City, Utah.)
Acne Vulgaris

• Acne conglobata
  – Highly inflammatory form of severe acne
  – Characterized by the formation of communication cysts and abscesses beneath the skin

  – Acne Conglobata
Atopic Dermatitis

• Most common form of eczema in children
• The cause is unknown, but 80% of individuals demonstrate a personal or family history of asthma or allergic rhinitis
• Manifestations:
  – Increased IgE levels
  – Elevated interleukin-4
  – Positive allergen skin tests
  – Eosinophilia
• Clinical manifestations:
  – Severe pruritus, eczematoid appearance and age-dependent distribution of skin lesions
    • Young: rash to face, scalp, trunk, arms and legs
    • Older: rash to neck, antecubital and popliteal fossae, hands and feet
• Clinical management:
  – Accurate diagnosis and identification
  – Elimination of exacerbating factors
  – Reduction of emotional stresses
  – Hydration of skin
  – Anti-inflammatory agents
  – Immunomodulator and systemic therapies
Atopic Dermatitis
Atopic Dermatitis

Infants affected on face, elbows, and knees
Diaper Dermatitis

• Group of inflammatory disorders affecting the lower abdomen, genitalia, buttocks, and upper thigh
• Diaper dermatitis is an irritant contact dermatitis
  – Inflammation encouraged by prolonged exposure to irritation by urine and feces, maceration by wet diapers, airtight plastic diaper covers, and possible association with intercurrent illness and early introduction of cereals
• Clinical manifestations:
  – Vary from mild erythema to erythematous papular lesions

• Treatment:
  – Frequent diaper changes to keep area clean and dry
  – Frequent exposure of perineal area to air
  – Topical antifungal medications
  – Short-term topical steroids
  – Barrier creams or pastes
Diaper Dermatitis

(A) 

(B) 

(Courtesy Department of Dermatology, School of Medicine, University of Utah, Salt Lake City, Utah.)
Infections of the Skin

• Bacterial infections:
  – Impetigo contagiosum
    • Superficial skin infection usually caused by *Staphylococcus* or group A streptococci
    • High incidence in hot, humid climates
  – Bullous impetigo
  – Vesicular impetigo
Impetigo

(Courtesy Department of Dermatology, School of Medicine, University of Utah, Salt Lake City, Utah.)
Infections of the Skin

• Bacterial infections
  – Staphylococcal scalded-skin syndrome (SSSS)
    • Serious skin infection caused by exfoliative toxin producing group II staphylococci
    • The exfoliative toxin causes separation of the skin just below the granular layer of the epidermis
    • Manifestations:
      – Fever, malaise, rhinorrhea, and generalized erythema and skin tenderness, skin sloughing, and secondary infections
    • Treatment with oral and intravenous antibiotics, and aseptic technique to prevent infection
Infections of the Skin

• Fungal infections:
  – Tinea capitis (scalp)
    • Most common fungal infection of childhood
    • Causative organisms found on cats, dogs, and rodents
    • Lesions circular and manifested by broken hairs at site, scaling and raised borders
  – Tinea corporis (ringworm)
    • Kittens and puppies common source
    • Lesions erythematous, round scaling patches that spread peripherally with clearing in the center
  – Treatment with antifungals
Tinea Capitis

(Courtesy Department of Dermatology, School of Medicine, University of Utah, Salt Lake City, Utah.)
Infections of the Skin

• Fungal infections
  – Thrush
    • The presence of *Candida* in the mucous membranes of the mouths of infants, and less commonly in adults
  • Characteristics:
    – White plaques or spots in the mouth that lead to shallow ulcers
    – Tongue appears to have white covering
  • Thrush can spread to the groin, buttocks, and other parts of the body
  • Treatment with oral antifungal suspension
Infections of the Skin

- Viral infections
  - Molluscum contagiosum
    - Highly contagious viral infection of the skin
    - Transmission is skin to skin and contact with contaminated items
    - The virus encourages epidermal cell proliferation
    - Lesions slightly umbilicated dome-shaped papules primarily on the face, trunk, and extremities
    - No specific treatment but self-limiting and clears in 6 to 9 months
Molluscum Contagiosum
Viral infections

- Rubella (German measles or 3-day measles)
  - RNA virus
  - The disease is mild in most children
  - Manifestations:
    - Enlarged cervical and postauricular lymph nodes, low-grade fever, headache, sore throat, runny nose, cough
    - Faint pink to red maculopapular rash caused by virus dissemination to the skin
  - Vaccination for rubella combined with mumps and rubeola (measles) (MMR)
Infections of the Skin

- Viral infections
  - Rubeola
    - RNA paramyxovirus
    - High fever, malaise, enlarged lymph nodes, runny nose, conjunctivitis, barking cough
    - Koplik spots over buccal mucosa
  - Roseola
    - Characterized by fever and an erythematous macular rash that lasts about 24 hours
Infections of the Skin

• Viral infections
  – Herpes zoster (shingles)
    • Occurs mainly in adults
    • Varicella virus persists for life in sensory nerve ganglia and reactivates
    • Lesions consist of groups of vesicles situated on an inflammatory base and follow the course of a sensory nerve
    • Therapy similar to that for chickenpox
Infections of the Skin

• Viral infections (cont’d)
  – Chickenpox (varicella)
    • Highly contagious DNA virus
    • Spread by close person-to-person contact and airborne droplets
    • First signs of illness include fever, itching, and appearance of vesicles on face, trunk, and scalp
    • Uncomplicated infection requires no therapy
    • Vaccine available
Rash relatively profuse on trunk

Rash sparse distally

Figure A and B show the distribution of chickenpox lesions, with a profuse rash on the trunk and a sparse rash distally.
Infections of the Skin

• Viral infections (cont’d)
  – Smallpox
    • Highly contagious and deadly
    • Caused by poxvirus variolae
    • Eradicated in 1977 and vaccines discontinued in 1972
    • Concern that bioterrorists have virus led to implementation of vaccination and isolation criteria by the CDC
Insect Bites and Parasites

• Scabies
  – Contagious disease caused by the itch mite *Sarcoptes scabiei*
  – Transmitted by personal contact and infected clothing and bedding
  – Female mite tunnels millimeters to 1 cm into the stratum corneum, deposits eggs, and over a 3-week period the eggs mature into adult mites
Insect Bites and Parasites

• Scabies (cont’d)
  – The primary lesions are burrows, papules, and vesicular lesions with severe itching
  – Patient is at risk for secondary infections from scratching
  – Treated with application of scabicide and linen cleaning
Insect Bites and Parasites

• Pediculosis
  – Pediculus capitis (head), pediculus corporis (body), and *Phthirus pubis* (crab or pubic)
  – Highly contagious parasite that survives by sucking blood
    • Acquired through personal contact and shared clothing, combs, or brushes
  – Treated with pediculicides; all clothes, towels, bedding, and brushes should be washed in hot water
Insect Bites and Parasites

• Flea bites
  – Cat, dog, and human fleas
  – Bites occur in clusters along the arms and legs
  – The characteristic lesion is an urticarial wheal with a central hemorrhagic puncture
  – Treatment includes:
    • Spraying home
    • Treating infected animals
    • Washing clothing and bedding in hot water
Insect Bites and Parasites
Insect Bites and Parasites

• Lyme disease
  – Multisystem inflammatory disease
  – Spirochete, *Borrelia burgdorferi* causative agent transmitted by tick bite
  – Occurs in stages:
    • Localized infection
    • Disseminated infection 9 months after bite
    • Late persistent infection continuing for years
  – Treatment with antibiotics
Insect Bites and Parasites

• Bedbugs
  – Live in the crevices and cracks of floors, walls, and furniture and in bedding or furniture stuffing
  – 3 to 5 mm long and reddish brown
  – Bedbugs feed in the darkness
    • Attach to the skin, suck blood, and leave
  – Lesions are red macules that develop into nodules
Hemangiomas

• **Strawberry hemangiomas**
  – Raised vascular lesions that usually emerge 3 to 5 weeks after birth
  – The lesions proliferate, become bright red, and elevate with small capillary projections

• **Cavernous hemangiomas**
  – Present at birth
  – Cavernous hemangiomas involve larger and more mature vessels than strawberry hemangiomas
Strawberry and Cavernous Hemangiomas
Vascular Malformations

• Port-wine stains
  – Congenital malformation of dermal capillaries
  – Flat, pink, to dark reddish purple lesions

• Salmon patches
  – Macular, pink lesions resulting from distended dermal capillaries
    • Usually fade by 1 year of age
  – Common on the nape of the neck, forehead, upper eyelids, or nasolabial folds
Port-Wine Hemangioma

(Courtesy Department of Dermatology, School of Medicine, University of Utah, Salt Lake City, Utah.)
Miliaria

- Vesicular eruption after prolonged exposure to perspiration, with subsequent obstruction of eccrine ducts
  - Miliaria crystallina
    - Ductal rupture within the stratum corneum
    - Clear vesicles without erythema
  - Miliaria rubra (prickly heat)
    - Erythematous papules and papulovesicles
Miliaria Rubra

(Courtesy Department of Dermatology, School of Medicine, University of Utah, Salt Lake City, Utah.)