Chapter 43

Care of the Patient with an Integumentary Disorder
Overview of Anatomy and Physiology

• Functions of the skin
  ▪ Protection
  ▪ Temperature regulation
  ▪ Vitamin D synthesis

• Structure of the skin
  ▪ Epidermis
    • The outer layer of the skin
    • No blood supply
    • Composed of stratified squamous epithelium
    • Divided into layers: Stratum germinativum, pigment-containing layer, stratum corneum
• Structure of the skin
  - Dermis
    - “True skin”
    - Contains blood vessels, nerves, oil glands, sweat glands, and hair follicles
  - Subcutaneous layer
    - Connects the skin to the muscles
    - Composed of adipose and loose connective tissue
Structures of the skin.

Basic Structure of the Skin

- Appendages of the skin
  - Sudoriferous glands—sweat glands
  - Ceruminous glands—secrete cerumen (earwax)
    - Located in the external ear canal
  - Sebaceous glands—“oil glands”
    - Secrete sebum
- Hair
  - Composed of modified dead epidermal tissue, mainly keratin
- Nails
  - Composed mainly of keratin
Assessment of the Skin

• Inspection and palpation
  ▪ Ask the patient about:
    • Recent skin lesions or rashes
      ▪ Where the lesions first appeared
      ▪ How long the lesions have been present
    • Recent skin color changes
    • Exposure to the sun without sunscreen
    • Family history of skin cancer
  ▪ Observe the skin color
  ▪ Assess any skin lesions
Assessment of the Skin

• Inspection and palpation *(continued)*
  - Assess for rashes, scars, lesions, or ecchymoses
  - Assess temperature and texture
  - Inspect nails for normal development, color, shape, and thickness
  - Inspect hair for thickness, dryness, or dullness
  - Inspect mucous membranes for pallor or cyanosis
  - Assess the ceruminous and sebaceous gland for overactivity or underactivity
Assessment of the Skin

• Assessment of dark skin
  ▪ Degree of lightness or darkness is genetically determined
  ▪ Melanocytes account for skin color
  ▪ Lips and mucous membranes are easier to assess as the skin is thinner
  ▪ Rashes may be difficult to see and will require palpation
Assessment of the Skin

- Primary skin lesions
  - Macule
  - Papule
  - Patch
  - Plaque
  - Wheal
  - Nodule
  - Tumor
  - Vesicle

- Secondary skin lesions
  - Bulla
  - Pustule
  - Cyst
  - Telangiectasia
  - Scale
  - Lichenification
  - Keloid

- Other skin changes
  - Scar
  - Excoriation
  - Fissure
  - Erosion
  - Ulcer
  - Crust
  - Atrophy

(See Table 43-1.)
Assessment of the Skin

• Chief complaint assessment tool
  - P = Provocative and Palliative factors
  - Q = Quality and Quantity
  - R = Region
  - S = Severity of the signs and symptoms
  - T = Time the patient has had the disorder
Assessment of the Skin

• Identification of a potential malignancy
  ▪ A = Asymmetrical lesion
  ▪ B = Borders irregular
  ▪ C = Color (even or uneven)
  ▪ D = Diameter of the growth (recent changes)
  ▪ E = Elevation of the surface
Benign

Malignant

A. Asymmetry
Symmetrical
Asymmetrical

B. Border
Even edges
Uneven edges

C. Color
One shade
Two or more shades

D. Diameter
Smaller than 6 mm
Larger than 6 mm
Psychosocial Assessment

- May affect body image and self-esteem
  - Assess coping abilities
  - Nurse’s attitude should be nonjudgmental, warm, and accepting
  - Provide consistent information
  - Include family in treatment plan
  - Provide positive feedback
Viral Disorders of the Skin

• Herpes simplex
  ▪ Etiology/pathophysiology
    • \textit{Herpesvirus hominis}
      ▪ Type 1
        ◦ Most common
        ◦ Common cold sore
      ▪ Type 2
        ◦ Genital herpes
  ▪ Transmission
    ▪ Direct contact with an open lesion
    ▪ Type 2—primarily sexual contact
Viral Disorders of the Skin

- Herpes simplex (continued)
  - Clinical manifestations/assessment
    - Type 1
      - Vesicle at the corner of the mouth, on the lips, or on the nose—“cold sore”
      - Erythematous and edematous
      - Malaise and fatigue
    - Type 2
      - Various types of vesicles on the cervix or penis
      - Flu-like symptoms
Herpes simplex.

Viral Disorders of the Skin

- **Herpes simplex (continued)**
  - **Diagnostic tests**
    - Culture of lesion
  - **Medical management/nursing interventions**
    - Pharmacological management
      - Antiviral medications and analgesics
    - Comfort measures
    - Patient education
Viral Disorders of the Skin

• Herpes simplex *(continued)*
  
  ▪ Prognosis
    • No cure
      ▪ Type 1
        o Lesions heal within 10 to 14 days
        o Recur with depression of immune system: physical and/or emotional stress
      ▪ Type 2
        o Lesions heal within 7 to 14 days
        o Recur with depression of immune system
Viral Disorders of the Skin

- Herpes zoster (shingles)
  - Etiology/pathophysiology
    - *Herpes varicella* (same virus that causes chickenpox)
    - Inflammation of the spinal ganglia (nerve)
    - Occurs when immune system is depressed
  - Signs and symptoms
    - Erythematous rash along a spinal nerve pathway
    - Vesicles are usually preceded by pain
    - Rash usually in the thoracic region
    - Vesicles rupture and form a crust
    - Extreme tenderness and pruritus in the area
Herpes zoster.

(Courtesy of the Department of Dermatology, School of Medicine, University of Utah.)
Herpes zoster (shingles) *(continued)*

- Diagnostic tests
  - Culture of lesion
- Medical management/nursing interventions
  - Pharmacological management
    - Analgesics, steroids, Kenalog lotion, corticosteroids, acyclovir (Zovirax)
    - Ativan and Atarax: decrease anxiety
  - Comfort measures
  - Patient teaching
Viral Disorders of the Skin

• Pityriasis rosea
  ▪ Etiology/pathophysiology
    • Virus
  ▪ Clinical manifestation/assessment
    • Begins as a single lesion that is scaly and has a raised border and pink center
    • Approximately 14 days later, smaller matching spots become widespread
  ▪ Diagnostic tests
    • Inspection and subjective data from patient
Figure 43-4

Pityriasis rosea herald patch.

(Courtesy of the Department of Dermatology, School of Medicine, University of Utah.)
Viral Disorders of the Skin

• Pityriasis rosea (continued)
  ▪ Medical management/nursing interventions
    • Usually requires no treatment
    • Moisturizing cream for dryness
    • 1% hydrocortisone cream for pruritus
    • Ultraviolet light may shorten the course of the disease
Bacterial Disorders of the Skin

• Cellulitis
  ▪ Common pathogens
    • *Staphylococcus aureus*
    • *Haemophilus influenzae*
  ▪ Risk factors
  ▪ Transmission of the infection
Bacterial Disorders of the Skin

- Cellulitis
  - Clinical manifestations
    - Erythema
    - Pain
    - Tenderness
    - Vesicle formation
    - Enlarged lymph nodes
Bacterial Infections of the Skin

- Cellulitis
  - Assessment parameters
  - Diagnostic tests
  - Medical management
  - Nursing interventions
Bacterial Disorders of the Skin

- Impetigo contagiosa
  - **Etiology/pathophysiology**
    - *Staphylococcus aureus* or streptococci
    - Common in children
    - Highly contagious
  - **Clinical manifestations/assessment**
    - Lesions begin as macules and develop into pustules
    - Pustules rupture—form honey-colored exudate
    - Usually affects face, hands, arms, and legs
    - Highly contagious—direct or indirect contact
    - Low-grade fever; leukocytosis
Bacterial Disorders of the Skin

• Impetigo contagiosa (*continued*)
  - Diagnostic tests
    • Culture of exudate from lesion
  - Medical management/nursing interventions
    • Pharmacological management
      • Antibiotic therapy
    • Medical management
    • Nursing interventions
Bacterial Disorders of the Skin

• Folliculitis, furuncles, carbuncles, and felons
  ▪ Etiology/pathophysiology
    • Typically attributed to *S. aureus*
    • Folliculitis
      ▪ Infected hair follicle
    • Furuncle (boil)
      ▪ Infection deep in hair follicle; involves surrounding tissue
    • Carbuncle
      ▪ Cluster of furuncles
    • Felons
      ▪ Infected soft tissue under and around an area
Bacterial Disorders of the Skin

• Folliculitis, furuncles, carbuncles, and felons (continued)
  - Clinical manifestations/assessment
    • Pustule
    • Edema
    • Erythema
    • Pain
    • Pruritus
  - Diagnostic tests
    • Physical examination
    • Culture of drainage
Bacterial Disorders of the Skin

- Folliculitis, furuncles, carbuncles, and felons (continued)
  - Medical management/nursing interventions
    - Warm soaks two to three times per day (promote suppuration)
    - May require surgical incision and drainage
    - Topical antibiotic cream or ointment
    - Medical asepsis
Fungal Infections of the Skin

• Dermatophytoses
  • Etiology/pathophysiology
    • *Microsporum audouinii* major fungal pathogen
      • Tinea capitis
        o Ringworm of the scalp
      • Tinea corporis
        o Ringworm of the body
      • Tinea cruris
        o Jock itch
      • Tinea pedis (most common)
        o Athlete’s foot
Tinea capitis.

Fungal Infections of the Skin

- Dermatophytoses *(continued)*
  - Clinical manifestations/assessment
    - Tinea capitis
      - Erythematous around lesion with pustules around the edges and alopecia at the site
    - Tinea corporis
      - Flat lesions—clear center with red border, scaliness, and pruritus
    - Tinea cruris
      - Brownish-red lesions in groin area, pruritus, skin excoriation
    - Tinea pedis
      - Fissures and vesicles around and below toes
Dermatophytoses (continued)

- Diagnostic tests
  - Visual inspection
  - Ultraviolet light for tinea capitis
    - Infected hair becomes fluorescent (blue-green)

- Medical management/nursing interventions
  - Griseofulvin—oral
  - Antifungal soaps and shampoos
  - Tinactin or Desenex
  - Keep area clean and dry
  - Burow's solution (tinea pedis)
Inflammatory Disorders of the Skin

- Contact dermatitis
  - Etiology/pathophysiology
    - Direct contact with agents of hypersensitivity
      - Detergents, soaps, industrial chemicals, plants
  - Clinical manifestations/assessment
    - Burning
    - Pain
    - Pruritus
    - Edema
    - Papules and vesicles
Inflammatory Disorders of the Skin

• Contact dermatitis
  ▪ Diagnostic tests
    • Health history
    • Intradermal skin testing
    • Elimination diets
  ▪ Medical management/nursing interventions
    • Remove cause
    • Burow's solution
    • Corticosteroids to lesions
    • Cold compresses
    • Antihistamines (Benadryl)
Inflammatory Disorders of the Skin

- Dermatitis venenata, exfoliative dermatitis, and dermatitis medicamentosa
  - Etiology/pathophysiology
    - Dermatitis venenata: Contact with certain plants
    - Exfoliative dermatitis: Infestation of heavy metals, antibiotics, aspirin, codeine, gold, or iodine
    - Dermatitis medicamentosa: Hypersensitivity to a medication
  - Clinical manifestations/assessment
    - Mild to severe erythema and pruritus
    - Vesicles
    - Respiratory distress (especially with medicamentosa)
Inflammatory Disorders of the Skin

- Dermatitis venenata, exfoliative dermatitis, and dermatitis medicamentosa \textit{(continued)}
  - Medical management/nursing interventions
    - All dermatitis
      - Colloid solution, lotions, and ointments
      - Corticosteroids
    - Dermatitis venenata
      - Thoroughly wash affected area
      - Cool, wet compresses
      - Calamine lotion
    - Dermatitis medicamentosa
      - Discontinue use of drug
Inflammatory Disorders of the Skin

• Urticaria
  - Etiology/pathophysiology
    • Allergic reaction (release of histamine in an antigen-antibody reaction)
    • Drugs, food, insect bites, inhalants, emotional stress, or exposure to heat or cold
  - Clinical manifestations/assessment
    • Pruritus
    • Burning pain
    • Wheals
Urticaria
Inflammatory Disorders of the Skin

- Urticaria (continued)
  - Diagnostic tests
    - Health history
    - Allergy skin test
  - Medical management/nursing interventions
    - Identify and alleviate cause
    - Antihistamine (Benadryl)
    - Therapeutic bath
    - Epinephrine
    - Teach patient possible causes and prevention
Inflammatory Disorders of the Skin

• Angioedema
  - Etiology/pathophysiology
    • Form of urticaria
    • Occurs only in subcutaneous tissue
    • Same offenders as urticaria
    • Common sites: eyelids, hands, feet, tongue, larynx, GI, genitalia, or lips
Angioedema (continued)

- Clinical manifestations/assessment
  - Burning and pruritus
  - Acute pain (GI tract)
  - Respiratory distress (larynx)
  - Edema of an entire area (eyelid, feet, lips, etc.)

- Medical management/nursing interventions
  - Pharmacological management
    - Antihistamines, epinephrine, corticosteroids
  - Comfort measures
Inflammatory Disorders of the Skin

- Eczema (atopic dermatitis)
  - Etiology/pathophysiology
    - Allergen causes histamine to be released and an antigen-antibody reaction occurs
    - Primarily occurs in infants
  - Clinical manifestations/assessment
    - Papules and vesicles on scalp, forehead, cheeks, neck, and extremities
    - Erythema and dryness of area
    - Pruritus
Inflammatory Disorders of the Skin

- Eczema (atopic dermatitis) (continued)
  - Diagnostic tests
    - Health history (heredity)
    - Diet elimination
    - Skin testing
  - Medical management/nursing interventions
    - Pharmacological management
      - Corticosteroids
      - Coal tar preparations
    - Reduce exposure to allergen
    - Hydration of skin
    - Lotions—Eucerin, Alpha-Keri, Lubriderm, or Curel three to four times/day
Inflammatory Disorders of the Skin

• Acne vulgaris
  ▪ Etiology/pathophysiology
    • Occluded oil glands
      ▪ Androgens increase the size of the oil gland
    • Influencing factors
      ▪ Diet
      ▪ Stress
      ▪ Heredity
      ▪ Overactive hormones
Inflammatory Disorders of the Skin

• Acne vulgaris (*continued*)
  ▪ Clinical manifestations/assessment
    • Tenderness and edema
    • Oily, shiny skin
    • Pustules
    • Comedones (blackheads)
    • Scarring from traumatized lesions
  ▪ Diagnostic tests
    • Inspection of lesion
    • Blood samples for androgen level
Inflammatory Disorders of the Skin

• Acne vulgaris (*continued*)
  • Medical management/nursing interventions
    • Pharmacological management
      • Topical therapies (benzoyl peroxide, vitamin A acids, antibiotics, sulfur-zinc lotions)
      • Systemic therapies (tetracycline, isotretinoin)
    • Keep skin clean
    • Keep hands and hair away from area
    • Wash hair daily
    • Water-based makeup
**Psoriasis**

- **Etiology/pathophysiology**
  - Noninfectious
  - Skin cells divide more rapidly than normal
- **Clinical manifestations/assessment**
  - Raised, erythematous, circumscribed, silvery, scaling plaques
  - Located on scalp, elbows, knees, chin, and trunk
Psoriasis.

(Courtesy of the Department of Dermatology, School of Medicine, University of Utah.)
Inflammatory Disorders of the Skin

• Psoriasis (continued)
  ▪ Medical management/nursing interventions
    • Pharmacological management
      ▪ Topical steroids
      ▪ Keratolytic agents
        ○ Tar preparations
        ○ Salicylic acid
      ▪ Photochemotherapy: PUVA
        ○ Oral psoralen
        ○ Ultraviolet light
Inflammatory Disorders of the Skin

- Systemic lupus erythematosus
  - Etiology/pathophysiology
    - Autoimmune disorder
    - Inflammation of almost any body part
      - Skin, joints, kidneys, and serous membranes
    - Affects women more than men
    - Contributing factors
      - Immunological, hormonal, genetic, and viral
Systemic lupus erythematosus (continued)

- Clinical manifestations/assessment
  - Erythema butterfly rash over nose and cheeks
  - Alopecia
  - Photosensitivity
  - Oral ulcers
  - Polyarthralgias and polyarthritis
  - Pleuritic pain, pleural effusion, pericarditis, and vasculitis
  - Renal disorders
  - Neurological signs (seizures)
  - Hematological disorders
Systemic lupus erythematosus (SLE) flare.

(From Habif, T.P., et al. [2005]. Skin disease: diagnosis and treatment. [2nd ed.]. St. Louis: Mosby.)
Systemic lupus erythematosus (continued)

- Diagnostic tests
  - Antinuclear antibody
  - DNA antibody
  - Complement
  - CBC
  - Erythrocyte sedimentation rate
  - Coagulation profile
  - Rheumatoid factor

- Rapid plasma reagin
- Skin and renal biopsy
- C-reactive protein
- Coombs’ test
- LE cell prep
- Urinalysis
- Chest x-ray film
Inflammatory Disorders of the Skin

- Systemic lupus erythematosus (*continued*)
  - Medical management/nursing interventions
    - No cure; treat symptoms, induce remission, alleviate exacerbations
  - Pharmacological management
    - Nonsteroidal anti-inflammatory agents, antimalarial drugs, corticosteroids, antineoplastic drugs, anti-infective agents, analgesics, diuretics
  - Avoid direct sunlight
  - Balance rest and exercise
  - Balanced diet
Parasitic Diseases of the Skin

- Pediculosis
  - Etiology/pathophysiology
    - Lice infestation
    - Three types of lice
      - Head lice (capitis)
        - Attaches to hair shaft and lays eggs
      - Body lice (corporis)
        - Found around the neck, waist, and thighs
        - Found in seams of clothing
      - Pubic lice (crabs)
        - Looks like crab with pincers
        - Found in pubic area
Pediculosis (continued)

- Clinical manifestations/assessment
  - Nits and/or lice on involved area
  - Pinpoint raised, red macules
  - Pinpoint hemorrhages
  - Severe pruritus
  - Excoriation

- Diagnostic tests
  - Physical examination
Eggs of *Pediculus* attached to shafts of hair.

(From Baran R., Dawber, R.R., & Levene, G.M. [1991]. *Color atlas of the hair, scalp, and nails*. St. Louis: Mosby.)
Pediculosis (continued)

- Medical management/nursing interventions
  - Pharmacological management
    - Lindane (Kwell); pyrethrins (RID)
    - Topical corticosteroids
  - Cool compresses
  - Assess all contacts
  - Wash bed linens and clothes in hot water
  - Properly clean furniture or nonwashable materials
Parasitic Diseases of the Skin

• Scabies
  • Etiology/pathophysiology
    • *Sarcoptes scabiei* (itch mite)
    • Mite lays eggs under the skin
    • Transmitted by prolonged contact with infected area
  • Clinical manifestations/assessment
    • Wavy, brown, threadlike lines on the body
    • Pruritus
    • Excoriation
Parasitic Diseases of the Skin

• **Scabies (continued)**
  
  ▪ **Diagnostic tests**
    - Microscopic examination of infected skin
  
  ▪ **Medical management/nursing interventions**
    - Pharmacological management
      - Lindane (Kwell), pyrethrins (RID), crotamiton (Eurax), 4% to 8% solution of sulfur in petrolatum
    - Treat all family members
    - Wash linens and clothing in hot water
Tumors of the Skin

- **Keloids**
  - Overgrowth of collagenous scar tissue; raised, hard, and shiny
  - May be surgically removed, but may recur
  - Steroids and radiation may be used

- **Angiomas**
  - A group of blood vessels dilate and form a tumor-like mass
  - Port-wine birthmark
  - Treatment: electrolysis; radiation

**Keloids.**
Tumors of the Skin

• Verruca (wart)
  - Benign, viral warty skin lesion
  - Common locations: Hands, arms, and fingers
  - Treatment: Cauterization, solid carbon dioxide, liquid nitrogen, salicylic acid

• Nevi (moles)
  - Congenital skin blemish
  - Usually benign, but may become malignant
  - Assess for any change in color, size, or texture
  - Assess for bleeding or pruritus
Tumors of the Skin

- Basal cell carcinoma
  - Skin cancer
  - Caused by frequent contact with chemicals, overexposure to the sun, radiation treatment
  - Most common on face and upper trunk
  - Favorable outcome with early detection and removal

- Squamous cell carcinoma
  - Firm, nodular lesion; ulceration and indurated margins
  - Rapid invasion with metastasis via lymphatic system
  - Sun-exposed areas; sites of chronic irritation
  - Early detection and treatment are important
Basal cell carcinoma.

Squamous cell carcinoma.

(Courtesy of the Department of Dermatology, School of Medicine, University of Utah.)
Tumors of the Skin

• Malignant melanoma
  ▪ Cancerous neoplasm
    • Melanocytes invade the epidermis, dermis, and subcutaneous tissue
  ▪ Greatest risk
    • Fair complexion, blue eyes, red or blond hair, and freckles
  ▪ Treatment
    • Surgical excision
    • Chemotherapy
      ▪ Cisplatin, methotrexate, dacarbazine
Superficial spreading melanoma
Lentigo melanoma
Acral Lentiginous melanoma
Figure 43-18

The ABCDs of melanoma.

Disorders of the Appendages

• Alopecia
  ▪ Loss of hair
  ▪ Cause: Aging, drugs, anxiety, disease
  ▪ Usually grows back unless from aging

• Hypertrichosis (hirsutism)
  ▪ Excessive growth of hair
  ▪ Causes: Heredity, hormone dysfunction, medications
  ▪ Treatment: Dermabrasion, electrolysis, chemical depilation, shaving, plucking
Hirsutism
Disorders of the Appendages

- **Hypotrichosis**
  - Absence of hair or a decrease in hair growth
  - Causes: Skin disease, endocrine problems, malnutrition
  - Treatment: Identify and remove cause

- **Paronychia**
  - Disorder of the nails
  - Infection of nail spreads around the nail
  - Treatment: Wet dressings, antibiotic ointment, surgical incision and drainage
Burns

- Etiology/pathophysiology
  - May result from radiation, thermal energy, electricity, chemicals

- Clinical manifestations/assessment
  - Superficial (first degree)
    - Involves epidermis
    - Dry, no vesicles, blanches and refills, erythema, painful
    - Flash flame or sunburn
Burns

- Clinical manifestations/assessment *(continued)*
  - Partial-thickness (second degree)
    - Involves epidermis and at least part of dermis
    - Large, moist vesicles, mottled pink or red, blanches and refills, very painful
    - Scalds, flash flame
  - Full-thickness (third degree)
    - Involves epidermis, dermis, and subcutaneous
    - Fire, contact with hot objects
    - Tough, leathery brown, tan or red, doesn’t blanch, dry, dull, little pain
Classification of burn depth.

Burns

• Medical management/nursing interventions
  • Emergent phase (first 48 hours)
    • Maintain respiratory integrity
    • Prevent hypovolemic shock
    • Stop burning process
    • Establish airway
    • Fluid therapy
    • Foley catheter; nasogastric tube
    • Analgesics
    • Monitor vital signs
    • Tetanus
Medical management/nursing interventions (continued)

- Acute phase (48 to 72 hours after burn)
  - Treat burn
  - Prevention and management of problems
    - Infection, heart failure, contractures, Curling’s ulcer
  - Most common cause of death after 72 hours is infection
  - Assess for erythema, odor, and green or yellow exudate
  - Diet: High in protein, calories, and vitamins
  - Pain control
  - Wound care: Strict surgical aseptic technique
• Medical management/nursing interventions (continued)
  ▪ Acute phase (continued)
    • Range of motion
    • Prevent linens from touching burned areas
    • CircOlectric bed
    • Clinitron bed
    • Topical medication: Sulfamylon; Silvadene
    • Skin grafts
      ▪ Autograft
      ▪ Homograft (allograft)
      ▪ Heterograft
Smoke inhalation
Rule of 9’s

- Front: 4.5%, 4.5%, 18%, 9%
- Back: 4.5%, 4.5%, 18%, 4.5%, 9%, 9%, 9%, 9%
Medical management/nursing interventions (continued)

- Rehabilitation phase
  - Goal is to return the patient to a productive life
  - Mobility limitations: Positioning, skin care, exercise, ambulation, ADLs
  - Patient teaching
    - Wound care and dressings
    - Signs and symptoms of complications
    - Exercises
    - Clothing and ADLs
    - Social skills
Nursing Process

- Nursing diagnoses
  - Anxiety
  - Pain
  - Knowledge, deficient related to disease
  - Infection, risk of
  - Trauma, risk for
  - Social interaction, impaired
  - Self-esteem, risk for situational low