On completion of this chapter, the learner will be able to:

1. Describe the general management of the patient with an abnormal skin condition.
2. Use the nursing process as a framework for care of the patient with psoriasis.
3. Describe the health education needs of the patient with infections of the skin and parasitic skin diseases.
4. Use the nursing process as a framework for care of patients with noninfectious, inflammatory dermatoses.
5. Describe the management and nursing care of the patient with skin cancer.
6. Use the nursing process as a framework for care of the patient with malignant melanoma.
7. Describe characteristics of the various types of Kaposi’s sarcoma.
8. Compare the various types of dermatologic and plastic reconstructive surgeries.
9. Use the nursing process as a framework for care of the patient undergoing facial reconstructive surgery.
Nursing care for patients with dermatologic problems includes administering topical and systemic medications, managing wet dressings and other special dressings, and providing therapeutic baths. The four major objectives of therapy are to prevent additional damage, prevent secondary infection, reverse the inflammatory process, and relieve the symptoms.

**Skin Care for Patients With Skin Conditions**

Some skin problems are markedly aggravated by soap and water, and bathing routines are modified according to the condition. Denuded skin, whether the area of desquamation is large or small, is excessively prone to damage by chemicals and trauma. The friction of a towel, if applied with vigor, is sufficient to produce a brisk inflammatory response that causes any existing lesion to flare up and extend.

**Protecting the Skin**

The essence of skin care and protection in bathing a patient with skin problems is as follows: a mild, lipid-free soap or soap substitute is used; the area is rinsed completely and blotted dry with a soft cloth; and deodorant soaps are avoided.

Special care is necessary when changing dressings. Pledgets saturated with oil, sterile saline, or another prescribed solution help to loosen crusts, remove exudates, or free an adherent dry dressing.

**Preventing Secondary Infection**

Potentially infectious skin lesions should be regarded strictly as such, and proper precautions should be observed until the diagnosis is established. Most lesions with pus contain infectious material. The nurse and physician must adhere to standard precautions and wear gloves when inspecting the skin or changing the dressing. Proper disposal of any contaminated dressing is carried out according to Occupational Safety and Health Administration (OSHA) regulations.

**Reversing the Inflammatory Process**

The type of skin lesion (eg, oozing, infected, or dry) usually determines the type of local medication or treatment that is prescribed. As a rule, if the skin is acutely inflamed (ie, hot, red, and swollen) and oozing, it is best to apply wet dressings and soothing lotions. For chronic conditions in which the skin surface is dry and scaly, water-soluble emulsions, creams, ointments, and pastes are used. The therapy is modified as the responses of the skin indicate. The patient and the nurse should note whether the medication or dressings seem to irritate the skin. The success or failure of therapy usually depends on adequate instruction and motivation of the patient and the interest of and support by the health care personnel.

**Wound Care for Skin Conditions**

There are three major classifications of dressings for skin conditions: wet, moisture-retentive, and occlusive. During the 1980s and 1990s, new product development quadrupled the available choices for wound care, especially within the moisture-retentive dressing classification. Products classified as moisture-retentive dressings include hydrogels, foams, and alginates. Biologicals and biosynthetics containing collagen and growth factor are being researched and will soon be available. Chart 56-1 lists generic wound care products. Consultation with a wound care specialist can be very helpful in choosing the product most appropriate for the patient.

**Dressings and Rules of Wound Care**

Even with the increased availability of dressings, an appropriate selection can be made if certain principles are maintained, referred to as the five rules of wound care (Krastner, et al, 2002).

**Rule 1: Categorization.** The nurse should learn about dressings by generic category and compare new products with those that already make up the category. As hundreds of choices become available, the nurse should become familiar with the generic categories and develop a systematic approach to product selection. The nurse should become familiar with indications, contraindications, and side effects. The best dressing may be created by combining products in different categories to achieve several goals at the same time. These categories are discussed in subsequent sections.

**Rule 2: Selection.** The nurse should select the safest and most effective, user-friendly, and cost-effective dressing possible. In

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**Glossary**

- **acantholysis:** separation of epidermal cells from each other due to damage or abnormality of the intracellular substance
- **balneotherapy:** a bath with therapeutic additives
- **carbuncle:** localized skin infection involving several hair follicles
- **cheilitis:** dry, cracking, inflamed skin at the corners of the mouth
- **comedones:** the primary lesions of acne, caused by sebum blockage in the hair follicle
- **débridement:** removal of necrotic or dead tissue by mechanical, surgical, or autolytic means
- **dermatitis:** any inflammation of the skin
- **dermatosis:** any abnormal skin lesion
- **epidermopoiesis:** development of epidermal cells
- **furuncle:** localized skin infection of a single hair follicle
- **hydrophilic:** a material that absorbs moisture
- **hydrophobic:** a material that repels moisture
- **hygroscopic:** a material that absorbs moisture from the air
- **lichenification:** thickening of the horny layer of the skin
- **liniments:** lotions with added oil for increased softening of the skin
- **plasmapheresis:** removal of whole blood from the body, separation of its cellular elements by centrifugation, and reinfusion of them suspended in saline or some other plasma substitute, thereby depleting the body’s own plasma without depleting its cells
- **Propionibacterium acnes:** bacteria that live on the skin; the primary causative agent of acne
- **pyodermas:** bacterial skin infections
- **suspensions:** liquid preparations in which powder is suspended, requiring shaking before use
- **tinea:** a superficial fungal infection on the skin or scalp
Unit 12
INTEGUMENTARY FUNCTION

**Chart 56-1**

### Wound Care Products

<table>
<thead>
<tr>
<th>Additives</th>
<th>Adhesive Removers</th>
<th>Adhesive Skin Closures</th>
<th>Adhesive Tapes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creams or Skin</td>
<td>Protecant Pastes</td>
<td>Dressing Covers</td>
<td>Enzyme Debriding Agents</td>
</tr>
<tr>
<td>Lubricating, Stimulating Sprays</td>
<td>Moisturizers</td>
<td>Moisture Barrier Ointments</td>
<td>Ointments</td>
</tr>
</tbody>
</table>

### Chart 56-2

**Moisture-Retentive Dressings**

Newer, commercially produced moisture-retentive dressings can perform the same functions as wet compresses but are more efficient at removing exudate because of their higher moisture-vapor transmission rate; some have reservoirs that can hold excessive exudate. There is also evidence that moist wound healing results in wound resurfacing 40% faster than with air exposure. A number of moisture-retentive dressings are already impregnated with saline solution, petrolatum, zinc-saline solution, hydrogel, or antimicrobial agents, thereby eliminating the need to coat the skin to avoid maceration. The main advantages of moisture-retentive dressings over wet compresses are reduced pain, fewer infections, less scar tissue, gentle autolytic débridement, and decreased frequency of dressing changes. Depending on the product used and the type of dermatologic problem encountered, most moisture-retentive dressings may remain in place from 12 to 24 hours; some can remain in place as long as a week. Table 56-1 is a guide to wound dressing functions and categories.

Hydrogels are polymers with a 90% to 95% water content. They are available in impregnated sheets or as gel in a tube. Their high moisture content makes them ideal for autolytic débridement of wounds. They are semitransparent, allowing for wound inspection without dressing removal. They are comfortable and soothing for the painful wound. They have no inherent adhesive and require a secondary dressing to keep them in place. Hydrogels are appropriate for superficial wounds with high serous output, such as abrasions, skin graft sites, and draining venous ulcers.

Hydrocolloids are composed of a water-impermeable, polyurethane outer covering separated from the wound by a hydrocolloid material. They are adherent and nonpermeable to water vapor and oxygen. As it evaporates over the wound, water is absorbed into the dressing, which softens and discolors with the increased water content. The dressing can be removed without damage to the wound. As the dressing absorbs water, it produces a foul-smelling, yellowish covering over the wound. This is a normal chemical interaction between the dressing and wound exudate and should not be confused with purulent drainage from the wound. Unfortunately, most of the hydrocolloid dressings are opaque, limiting inspection of the wound without removal of the dressing.

Available in sheets and in gels, hydrocolloids are a good choice for exudative wounds and for acute wounds. Easy to use and comfortable, hydrocolloid dressings promote débridement and formation of granulation tissue. They do not have to be removed for bathing. Most can be left in place for up to 7 days.

Many cases, nurses carry out the physician’s prescriptions for dressings, but they should be prepared to give the physician feedback about the dressing’s effect on the wound, ease of use for the patient, and other considerations when applicable.

**Rule 3: Change.** The nurse changes dressings based on patient, wound, and dressing assessments, not on standardized routines. Traditional nursing care plans recommended changing dressings on a routine schedule, often three or four times each day.

**NURSING ALERT** It is believed that the natural wound-healing process should not be disrupted. Unless the wound is infected or has a heavy discharge, it is common to leave chronic wounds covered for 48 to 72 hours and acute wounds for 24 hours.

**Rule 4: Evolution.** As the wound progresses through the phases of wound healing, the dressing protocol is altered to optimize wound healing. It is rare, especially in cases of chronic wounds, that the same dressing material is appropriate throughout the healing process. The rule assumes that the nurse and the patient or family have access to a wide variety of products and knowledge about their use. The nurse teaches the patient or family caregiver about wound care and ensures that the family has access to appropriate dressing choices.

**Rule 5: Practice.** Practice with dressing material is required for the nurse to learn the performance parameters of the particular dressing. Refining the skills of applying appropriate dressings correctly and learning about new dressing products are essential nursing responsibilities. Dressing changes should not be delegated to assistive personnel; these techniques require the knowledge base and assessment skills of professional nurses.

**Wet Dressings**

Wet dressings (ie, wet compresses applied to the skin) were traditionally used for acute, weeping, inflammatory lesions. They have become almost obsolete in light of the many newer products available for wound care. Wet dressings are sterile or nonsterile (clean), depending on the skin disorder. They are used to reduce inflammation by producing constriction of the blood vessels (thereby decreasing vasodilation and local blood flow in inflammation); to clean the skin of exudates, crusts, and scales; to maintain drainage of infected areas; and to promote healing by facilitating the free movement of epidermal cells across the involved skin so that new granulation tissue forms. Wet dressings can be used for vesicular, bullous, pustular, and ulcerative disorders, as well as for inflammatory conditions.

Before applying these dressings, the nurse performs hand hygiene and puts on sterile or clean gloves. The open dressing requires frequent changes because evaporation is rapid. The closed dressing is changed less frequently, but there is always a danger that the closed dressing may cause not only softening but actual maceration of the underlying skin. Wet-to-dry dressings are used to remove exudate from erosions or ulcers. The dressing remains in place until it dries. It is then removed without soaking so that crusts, exudate, or pus from the skin lesion adhere to the dressing and are removed with it.
Foam dressings consist of microporous polyurethane with an absorptive hydrophilic (ie, water-absorbing) surface that covers the wound and a hydrophobic (ie, water-resistant) backing to block leakage of exudate. They are nonadherent and require a secondary dressing to keep them in place. Moisture is absorbed into the foam layer, decreasing maceration of surrounding tissue. A moist environment is maintained, and removal of the dressing does not damage the wound. The foams are opaque and must be removed for wound inspection. Foams are a good choice for exudative wounds. They are especially helpful over bony prominences because they provide contoured cushioning.

Calcium alginates are derived from seaweed and consist of tremendously absorbent calcium alginate fibers. They are hemostatic and bioabsorbable and can be used as sheets, mats, or ropes of absorbent material. As the exudate is absorbed, the fibers turn into a viscous hydrogel. They are quite useful in areas where the tissue is more irritated or macerated. The alginate dressing forms a moist pocket over the wound while the surrounding skin stays dry. They also react with wound fluid to form a foul-smelling coating. Alginates work well when packed into a deep cavity, wound, or sinus tract with heavy drainage (Krastner et al, 2002). They are nonadherent and require a secondary dressing.

**Occlusive Dressings**

Occlusive dressings may be commercially produced or made inexpensively from sterile or nonsterile gauze squares or wrap. Occlusive dressings cover topical medication that is applied to a dermatosis (ie, abnormal skin lesion). The area is kept airtight by using plastic film (eg, plastic wrap). Plastic film is thin and readily adapts to all sizes, body shapes, and skin surfaces. Plastic surgical tape containing a corticosteroid in the adhesive layer can be cut to size and applied to individual lesions. Generally, plastic wrap should be used no more than 12 hours each day.

**AUTOLYTIC DÉBRIDEMENT**

Autolytic débridement is a process that uses the body’s own digestive enzymes to break down necrotic tissue. The wound is kept moist with occlusive dressings. Eschar and necrotic debris are softened, liquefied, and separated from the bed of the wound.

Several commercially available products contain the same enzymes that the body produces naturally. These are called enzymatic débriding agents; examples include Accu Zyme, collagenase (Santyl), Granulex, and Zymase. Application of these products speeds the rate at which necrotic tissue is removed. This method is still slower and no more effective than surgical débridement. When enzymatic débridement is being used under an occlusive
dressing, a foul odor is produced by the breakdown of cellular debris. This odor does not indicate that the wound is infected. The nurse should expect this reaction, and help the patient understand the reason for the odor.

**Advances in Wound Treatment**

Increasing understanding of how skin heals has led to several advances in therapy. Growth factors are cytokines or proteins that have potent mitogenic activity (Valencia et al., 2001). Low levels of cytokines circulate in the blood continuously, but activated platelets release increased amounts of preformed growth factors into a wound. This increase in cytokines in the wound stimulates cellular growth and granulation of skin. Regranex gel contains becaplermin, a platelet-derived growth factor, which is applied to the wound to stimulate healing. Apligraf is a skin construct (ie, bioengineered skin substitute) imbedded in a dressing that also contains cytokines and fibroblasts. When applied to wounds, these agents stimulate platelet activity and potentially decrease wound healing time (Paquette & Falanga, 2002).

Some oral medications are being investigated for their benefits in healing chronic venous ulcers of the lower legs. Pentoxifylline (Trental) increases peripheral blood flow by decreasing the viscosity of blood. It has some fibrinolytic action and decreases leukocyte adhesion to the wall of the blood vessels. Enteric-coated aspirin has also been shown to be of value, although its exact mechanism is still not clear (Valencia et al., 2001).

**Medical Management**

**THERAPEUTIC BATHS (BALNEOTHERAPY) AND MEDICATIONS**

Baths or soaks, known as balneotherapy, are useful when large areas of skin are affected. The baths remove crusts, scales, and old medications and relieve the inflammation and itching that accompany acute dermatoses. The water temperature should be comfortable, and the bath should not exceed 20 to 30 minutes because of the tendency of baths and soaks to produce skin maceration. Table 56-2 lists the different types of therapeutic baths and their uses.

### PHARMACOLOGIC THERAPY

Because skin is easily accessible and therefore easy to treat, topical medications are often used. High concentrations of some medications can be applied directly to the affected site with little systemic absorption and therefore with few systemic side effects. However, some medications are readily absorbed through the skin and can produce systemic effects. Because topical preparations may induce allergic contact dermatitis (ie, inflammation of the skin) in sensitive patients, any untoward response should be reported immediately and the medication discontinued.

Medicated lotions, creams, ointments, and powders are frequently used to treat skin lesions. In general, moisture-retentive dressings, with or without medication, are used in the acute stage; lotions and creams are reserved for the subacute stage; and ointments are used when inflammation has become chronic and the skin is dry with scaling or lichenification (ie, leathery thickening).

With all types of topical medication, the patient is taught to apply the medication gently but thoroughly and, when necessary, to cover the medication with a dressing to protect clothing. Table 56-3 lists some commonly used topical preparations.

**Lotions.** Lotions are of two types: suspensions and liniments. Suspensions consist of a powder in water, requiring shaking before application, and clear solutions, containing completely dissolved active ingredients. Lotions are usually applied directly to the skin, but a dressing soaked in the lotion can be placed on the affected area. A suspension such as calamine lotion provides a rapid cooling and drying effect as it evaporates, leaving a thin, medicinal layer of powder on the affected skin. Lotions are frequently used to replenish lost skin oils or to relieve pruritus. Lotions must be applied every 3 or 4 hours for sustained therapeutic effect. If left in place for a longer period, they may crust and cake on the skin. Liniments are lotions with oil added to prevent crusting. Because lotions are easy to use, therapeutic compliance is generally high.

**Powders.** Powders usually have a talc, zinc oxide, bentonite, or cornstarch base and are dusted on the skin with a shaker or with cotton sponges. Although their therapeutic action is brief, powders act as hygroscopic agents that absorb and retain moisture from the air and reduce friction between skin surfaces and clothing or bedding.

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**Table 56-2 • Types of Therapeutic Baths**

<table>
<thead>
<tr>
<th>BATH SOLUTION</th>
<th>EFFECTS AND USES</th>
<th>NURSING INTERVENTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Same effect as wet dressings</td>
<td>• Fill the tub half full.</td>
</tr>
<tr>
<td>Saline</td>
<td>Used for widely disseminated lesions</td>
<td>• Keep the water at a comfortable temperature.</td>
</tr>
<tr>
<td>Colloidal (Aveeno, oatmeal)</td>
<td>Antipruritic, soothing</td>
<td>• Do not allow the water to cool excessively.</td>
</tr>
<tr>
<td>Sodium bicarbonate (baking soda)</td>
<td>Cooling</td>
<td>• Use a bath mat—medications added to bath can cause the tub to be slippery.</td>
</tr>
<tr>
<td>Starch</td>
<td>Soothing</td>
<td>• Apply an emollient cream to damp skin after the bath if lubrication is desired.</td>
</tr>
<tr>
<td>Medicated tars</td>
<td>Psoriasis and chronic eczema</td>
<td>• Because tars are volatile, the bath area should be well ventilated.</td>
</tr>
<tr>
<td>Bath oils</td>
<td>Antipruritic and emollient action; acute and subacute generalized eczematous eruptions</td>
<td>• Dry by gently blotting with a towel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Keep room warm to minimize temperature fluctuations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Encourage the patient to wear light, loose clothing after the bath.</td>
</tr>
</tbody>
</table>

---
### Table 56-3: Common Topical Preparations and Medications

<table>
<thead>
<tr>
<th>PREPARATION</th>
<th>PRODUCT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath preparations</td>
<td></td>
</tr>
<tr>
<td>With tar</td>
<td>Balneta, Doak Oil, Lavater</td>
</tr>
<tr>
<td>With colloidal oatmeal</td>
<td>Aveeno Oiled Bath Powder</td>
</tr>
<tr>
<td>With oatmeal and mineral oil</td>
<td>Aveeno Bath Oil, Nutra Soothe</td>
</tr>
<tr>
<td>With mineral oil</td>
<td>Nutraderm Bath Oil, Lubath, Alpha-Keri Bath Oil</td>
</tr>
<tr>
<td>Moisturizer creams</td>
<td>Acid Mantle Cream, Curel Cream, Dermasil, Eucerin, Lubriderm, Noxzema Skin Cream</td>
</tr>
<tr>
<td>Moisturizer ointments</td>
<td>Aquaphor Ointment, Eutra Swiss Skin Cream, Vaseline Ointment</td>
</tr>
<tr>
<td>Topical anesthetics</td>
<td>lidocaine (Xylocaine) of various strengths in the form of spray, ointment, gel; EMLA cream (lidocaine 2.5% and prilocaine 2.5%)</td>
</tr>
<tr>
<td>Topical antibiotics</td>
<td>bacitracin, Polysporin (bacitracin and polymixin B), Bactroban ointment or cream (mupirocin 2%), erythromycin 2% (Engel, Eryderm Solution), clindamycin phosphate 1% (Cleocin cream, gel, solution), gentamicin sulfate 1% (Garamycin cream or ointment), 1% silver sulfadiazine cream (Silvadene)</td>
</tr>
</tbody>
</table>

**Creams.** Creams may be suspensions of oil in water or emulsions of water in oil, with additional ingredients to prevent bacterial and fungal growth. Both may cause an allergic reaction such as contact dermatitis. Oil-in-water creams are easily applied and usually are the most cosmetically acceptable to the patient. Although they can be used on the face, they tend to have a drying effect. Water-in-oil emulsions are greasier and are preferred for drying and flaking dermatoses. Creams usually are rubbed into the skin by hand. They are used for their moisturizing and emollient effects.

**Gels.** Gels are semisolid emulsions that become liquid when applied to the skin or scalp. They are cosmetically acceptable to the patient because they are not visible after application, and they are greaseless and nonstaining. The newer water-based gels appear to penetrate the skin more effectively and cause less stinging on application. They are especially useful for acute dermatitis in which there is weeping exudate (eg, poison ivy).

**Pastes.** Pastes are mixtures of powders and ointments and are used in inflammatory blistering conditions. They adhere to the skin and may be difficult to remove without using an oil (eg, olive oil, mineral oil). Pastes are applied with a wooden tongue depressor or gloved hand.

**Ointments.** Ointments retard water loss and lubricate and protect the skin. They are the preferred vehicle for delivering medication to chronic or localized dry skin conditions, such as eczema or psoriasis. Ointments are applied with a wooden tongue depressor or by hand (gloved).

**Sprays and Aerosols.** Spray and aerosol preparations may be used on any widespread dermatologic condition. They evaporate on contact and are used infrequently.

**Corticosteroids.** Corticosteroids are widely used in treating dermatologic conditions to provide anti-inflammatory, antipruritic, and vasoconstrictive effects. The patient is taught to apply this medication according to strict guidelines, using it sparingly but rubbing it into the prescribed area thoroughly. Absorption of topical corticosteroid is enhanced when the skin is hydrated or the affected area is covered by an occlusive or moisture-retentive dressing. Inappropriate use of topical corticosteroids can result in local and systemic side effects, especially when the medication is absorbed through inflamed and excoriated skin, under occlusive dressings, or when used for long periods on sensitive areas. Local side effects may include skin atrophy and thinning, striae (ie, band-like streaks), and telangiectasia. Thinning of the skin results from the ability of corticosteroids to inhibit skin collagen synthesis (Odom et al., 2000). The thinning process can be reversed by discontinuing the medication, but striae and telangiectasia are permanent. Systemic side effects may include hyperglycemia and symptoms of Cushing’s syndrome. Caution is required when applying corticosteroids around the eyes because long-term use may cause glaucoma or cataracts, and the anti-inflammatory effect of corticosteroids may mask existing viral or fungal infections. Concentrated (fluorinated) corticosteroids are never applied on the face or intertriginous areas (ie, axilla and groin), because these areas have a thinner stratum corneum and absorb the medication much more quickly than areas such as the forearm or legs. Persistent use of concentrated topical corticosteroids in any location may produce acnelike dermatitis, known as steroid-induced acne, and hypertrichosis (ie, excessive hair growth). Because some topical corticosteroid preparations are available without prescription, patients should be cautioned about prolonged and inappropriate use. Table 56-4 lists topical corticosteroid preparations according to potency.

**Intralesional Therapy.** Intralesional therapy consists of injecting a sterile suspension of medication (usually a corticosteroid) into or just below a lesion. Although this treatment may have an anti-inflammatory effect, local atrophy may result if the medication is injected into subcutaneous fat. Skin lesions treated with intralesional therapy include psoriasis, keloids, and cystic acne. Occasionally, immunotherapeutic and antifungal agents are administered as intralesional therapy.

**Systemic Medications.** Systemic medications are also prescribed for skin conditions. These include corticosteroids for short-term therapy for contact dermatitis or for long-term treatment of a chronic dermatosis, such as pemphigus vulgaris. Other frequently used systemic medications include antibiotics, antifungals, anti-histamines, sedatives, tranquilizers, analgesics, and cytotoxic agents.

**Nursing Management**

Management begins with a health history, direct observation, and a complete physical examination. Chapter 55 provides a description of integumentary assessment. Because of its visibility, a skin condition is usually difficult to ignore or conceal from others and may therefore cause the patient some emotional distress. The major goals for the patient may include maintenance of skin integrity, relief of discomfort, promotion of restful sleep, self-acceptance, knowledge about skin care, and avoidance of complications.
Nursing management for patients who must perform self-care for skin problems, such as applying medications and dressings, focuses mainly on teaching the patient how to wash the affected area and pat it dry, apply medication to the lesion while the skin is moist, cover the area with plastic (eg, Telfa pads, plastic wrap, vinyl gloves, plastic bag) if recommended, and cover it with an elastic bandage, dressing, or paper tape to seal the edges. Dressings that contain or cover a topical corticosteroid should be removed for 12 of every 24 hours to prevent skin thinning (ie, atrophy), striae, and telangiectasia (ie, small, red lesions caused by dilation of blood vessels).

Other forms of dressings, such as those used to cover topical medications, include soft cotton cloth and stretchable cotton dressings (eg, Surgitube, TubeGauz) that can be used for fingers, toes, hands, and feet. The hands can be covered with disposable polyethylene or vinyl gloves sealed at the wrists; the feet can be wrapped in plastic bags covered by cotton socks. Gloves and socks that are already impregnated with emollients, making application to the hands and feet more convenient, are also available. When large areas of the body must be covered, cotton cloth topped by an expandable stockinet may be used. Disposable diapers or cloths folded in diaper fashion are useful for dressing the groin and the perineal areas. Axillary dressings can be made of cotton cloth, or a commercially prepared dressing may be used and taped in place or held by dress shields. A turban or plastic shower cap is useful for holding dressings on the scalp. A face mask, made from gauze with holes cut out for the eyes, nose, and mouth, may be held in place with gauze ties looped through holes cut in the four corners of the mask. See the Plan of Nursing Care 56-1 for more information.

**Pruritus**

**GENERAL ITCHING**

Pruritus (ie, itching) is one of the most common symptoms of patients with dermatologic disorders. Itch receptors are unmyelinated, penicillate (ie, brushlike) nerve endings that are found exclusively in the skin, mucous membranes, and cornea. Although pruritus is usually caused by primary skin disease with resultant rash or lesions, it may occur without a rash or lesion. This is referred to as essential pruritus, which generally has a rapid onset, may be severe, and interferes with normal daily activities.

Pruritus may be the first indication of a systemic internal disease such as diabetes mellitus, blood disorders, or cancer. It may also accompany renal, hepatic, and thyroid diseases (Chart 56-2). Some common oral medications such as aspirin, antibiotics, hormones (ie, estrogens, testosterone, or oral contraceptives), and opioids (ie, morphine or cocaine) may cause pruritus directly or by increasing sensitivity to ultraviolet light. Certain soaps and chemicals, radiation therapy, prickly heat (ie, miliaria), and contact with woolen garments are also associated with pruritus. Pruritus may also be caused by psychological factors, such as excessive stress in family or work situations.

**Pathophysiology**

Scratching the itchy area causes the inflamed cells and nerve endings to release histamine, which produces more pruritus, generating a vicious itch–scratch cycle. If the patient responds to an itch by scratching, the integrity of the skin may be altered, and excoriation, redness, raised areas (ie, wheals), infection, or changes in pigmentation may result. Pruritus usually is more severe at night and is less frequently reported during waking hours, probably because the person is distracted by daily activities. At night, when there are few distractions, the slightest pruritus cannot be easily ignored. Severe itching is debilitating.

**Gerontologic Considerations**

Pruritus occurs frequently in elderly people as a result of dry skin. Elderly people are also more likely to have a systemic illness that triggers pruritus, are at higher risk for occult malignancy, and are more likely to be on multiple medications than is the younger population. All of these factors increase the incidence of pruritus.

**Medical Management**

A thorough history and physical examination usually provide clues to the underlying cause of the pruritus, such as hay fever, allergy, recent administration of a new medication, or a change of cosmetics or soaps. After the cause has been identified, treatment of the condition should relieve the pruritus. Signs of infection and environmental clues, such as warm, dry air or irritating bed linens, should be identified. In general, washing with soap and hot water

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*OTC, over the counter*
### Plan of Nursing Care

**Patients With Dermatoses (Abnormal Skin Conditions)**

<table>
<thead>
<tr>
<th>Nursing Interventions</th>
<th>Rationale</th>
<th>Expected Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nursing Diagnosis:</strong> Impaired skin integrity related to changes in the barrier function of the skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Goal:</strong> Maintenance of skin integrity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Protect healthy skin from maceration (excessive hydration of stratum corneum) when applying wet dressings.</td>
<td>1. Maceration of healthy skin can cause skin breakdown and extension of the primary condition.</td>
<td>• Maintains skin integrity</td>
</tr>
<tr>
<td>2. Remove moisture from skin by blotting gently and avoiding friction.</td>
<td>2. Friction and maceration play a major role in some skin diseases.</td>
<td>• Absence of maceration</td>
</tr>
<tr>
<td>3. Guard carefully against risks of thermal injuries from excessively hot wet dressings and from subtle heat injuries (heating pads, radiators).</td>
<td>3. Patients with dermatoses may have decreased sensitivity to heat.</td>
<td>• No signs of thermal injury</td>
</tr>
<tr>
<td>4. Advise patient to use sunscreening agents.</td>
<td>4. Many cosmetic problems and virtually all cutaneous malignancies can be attributed to chronic skin damage.</td>
<td>• Absence of infection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Applies prescribed topical medication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Takes prescribed medication on schedule</td>
</tr>
</tbody>
</table>

| Nursing Diagnosis: Acute pain and itching related to skin lesions | | |
| **Goal:** Relief of discomfort | | |
| 1. Examine area of involvement. | 1. Understanding the extent and characteristics of the skin involved helps in planning interventions. | • Achieves relief of discomfort |
| a. Attempt to discover cause of discomfort. | a. Helps to identify appropriate comfort measures. | • Verbalizes that itching has been relieved |
| b. Record observations in detail, using descriptive terminology. | b. An accurate description of a cutaneous lesion is necessary for diagnosis and treatment. Many skin conditions appear similar but have different etiologies. Cutaneous inflammatory response may be muted in elderly patients. | • Demonstrates absence of skin excoriation from scratching |
| c. Anticipate possible allergic reaction; obtain a medication history. | c. A generalized rash, particularly of sudden onset, may indicate a medication allergy. | • Complies with prescribed treatment |
| 2. Control environmental and physical factors. | 2. Itching is aggravated by heat, chemicals, and physical irritants. | • Keeps skin hydrated and lubricated |
| a. Keep humidity about 60%; use a humidifier. | a. At low humidity, the skin loses water. | • Demonstrates intact skin; skin regaining healthy appearance |
| b. Maintain a cool environment. | b. Coolness deters itching. | |
| c. Use mild soap for sensitive skin (Dove, Cataphyl, Aveeno). | c. These contain no detergents, dyes, fragrances, or hardening agents. | |
| d. Remove excess clothing or bedding. | d. Promotes cool environment. | |
| e. Wash bed linens and clothing with mild fragrance-free soap. | e. Strong soaps and laundry additives can cause skin irritation. | |
| f. Stop repeated exposures to detergents, cleansers, and solvents. | f. Any substance that removes water, lipids, or protein from the epidermis alters the skin’s barrier function. | |
| 3. Use skin care measures to maintain skin integrity and promote comfort. | 3. The skin is an important barrier that must be maintained intact to function properly. | |
| a. Provide tepid cooling baths or cool dressings for itching. | a. Gradual evaporation of water from dressings cools the skin and relieves pruritus. | |
| b. Treat dryness (xerosis) as prescribed. | b. Dry skin can produce areas of dermatitis with redness, itching, scaling, and, in more severe forms, swelling, blistering, cracking, and weeping. | |
| c. Apply skin lotion or cream immediately after bathing. | c. Effective hydration of the stratum corneum prevents compromise of the barrier layer of the skin. | |

(continued)
### Plan of Nursing Care

**Patients With Dermatoses (Abnormal Skin Conditions) (Continued)**

<table>
<thead>
<tr>
<th>Nursing Interventions</th>
<th>Rationale</th>
<th>Expected Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>d. Keep nails trimmed.</td>
<td>d. Trimming decreases skin damage from scratching.</td>
<td>• Achieves restful sleep</td>
</tr>
<tr>
<td>e. Apply prescribed topical therapy.</td>
<td>e. This helps to relieve symptoms.</td>
<td>• Reports relief of itching</td>
</tr>
<tr>
<td>f. Help the patient accept possibly prolonged treatment.</td>
<td>f. Effective coping measures usually promote comfort.</td>
<td>• Maintains appropriate environmental conditions</td>
</tr>
<tr>
<td>g. Advise the patient to refrain from using salves or lotions that are commercially available.</td>
<td>g. The patient’s problem may be aggravated by self-medication.</td>
<td>• Avoids caffeine in late afternoon and evening</td>
</tr>
</tbody>
</table>

#### Nursing Diagnosis: Disturbed sleep pattern related to pruritus

**Goal:** Achievement of restful sleep

1. Prevent and treat dry skin.
   - a. Advise patient to keep bedroom well ventilated and humidified.
   - b. Keep skin moisturized.
   - c. Bathe/shower only as necessary if skin is excessively dry. Use no soap or only mild soap. Apply skin lotion/cream immediately after bathing while skin is damp.
2. Advise patient of the following measures that may be helpful in promoting sleep:
   - a. Keep a regular schedule for sleeping. Go to bed at the same time; get up at the same time.
   - b. Avoid caffeinated drinks in the evening.
   - c. Exercise regularly, particularly in late afternoon.
   - d. Use a bedtime routine or ritual.
   - e. Use an antihistamine at bedtime if prescribed.

1. Nocturnal pruritus interferes with normal sleep.
   - a. Dry air will make skin feel itchy. A comfortable environment promotes relaxation.
   - b. This prevents water loss. Dry, itchy skin can usually be controlled but not cured.
   - c. These measures preserve skin moisture.

#### Nursing Diagnosis: Disturbed body image related to unsightly skin appearance

**Goal:** Development of increasing self-acceptance

1. Assess patient for disturbance of self-image (avoidance of eye contact, self-negating verbalizations, expression of disgust about skin condition).
2. Identify psychosocial stage of development.
3. Provide opportunity for expression. Listen (in an open, nonjudgmental way) to expressions of grief/anxiety about changes in body image.

• Develops increasing acceptance of own body
• Follows through and participates in self-care measures
• Reports feeling in control of situation
• Gives self positive reinforcement
• Verbalizes a more healthful self-regard
• Appears less self-conscious; is not afraid to socialize and be seen by others
• Uses concealing and highlighting techniques to enhance appearance

(continued)
Plan of Nursing Care

Patients With Dermatoses (Abnormal Skin Conditions) (Continued)

### Nursing Interventions

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Rationale</th>
<th>Expected Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Assess the patient’s concerns and fears.</td>
<td>4. This gives health care personnel opportunity to neutralize undue anxiety and restore reality to the situation. Fear is destructive to adaptation.</td>
<td></td>
</tr>
<tr>
<td>5. Support patient’s efforts to improve body image (participation in skin treatments; grooming), develop self-acceptance, socialize with others, and use cosmetics to conceal disfigurement.</td>
<td>5. A positive approach and suggestions about cosmetic techniques are often helpful in promoting self-acceptance and socialization.</td>
<td></td>
</tr>
</tbody>
</table>

### Nursing Diagnosis:
Deficient knowledge about skin care and methods of treating skin ailment

**Goal:** Understanding of skin care

1. Determine what the patient knows (understands and misunderstands) about the condition.
2. Keep the patient informed; correct misconceptions/misinformation.
3. Demonstrate application of prescribed therapy (wet compresses; topical medication).
4. Advise the patient to keep skin moist and flexible with hydration and application of skin cream and lotion.
5. Encourage the patient to attain a healthy nutritional status.

1. Provides baseline data for developing the teaching plan.
2. Patients need to have a sense that there is something they can do. Most patients benefit from explanations and reassurance.
3. Allows patient the opportunity to observe the correct way to perform therapies.
4. The stratum corneum needs water to stay flexible. Application of skin cream or lotion to damp skin prevents dry, rough, cracked, and scaly skin.
5. The appearance of the skin reflects a person’s general health. Changes may signal abnormal nutrition.

### Collaborative Problems: Infection

**Goal:** Absence of complications

1. Have a high index of suspicion for an infection in patients with compromised immune systems.
2. Instruct the patient clearly and in detail about the therapeutic regimen.
3. Apply intermittent wet dressings as prescribed to reduce intensity of inflammation.
4. Provide tub baths and soaks as prescribed.
5. Administer prescribed antimicrobial agents.

1. Any condition that compromises the immune status increases the risk of cutaneous infection.
2. Effective patient education is dependent on the interpersonal skills of the health professionals and on giving clear instructions reinforced through written instructions.
3. A wet dressing produces evaporative cooling, causing constriction of superficial cutaneous vessels and thereby decreasing erythema and serum production. Wet dressings help in debridement of vesicles and crusts and control inflammatory processes.
4. Loosens exudates and scales.
5. Kills or prevents the growth of the infectious organism.

- Remains free of infection
- Describes skin care measures that promote cleanliness and prevent skin breakdown
- Identifies signs and symptoms of infection to report
- Identifies adverse effects of medications that should be reported to health care personnel
- Participates in skin care measures (e.g., dressing changes, soaks)

(continued)
comfortable sleep. Nonsedating antihistamine medications such as fexofenadine (Allegra) should be used to relieve daytime pruritus. Tricyclic antidepressants, such as doxepin (Sinequan), may be prescribed for pruritus of neuropsychogenic origin. If pruritus continues, further investigation of a systemic problem is advised.

**Nursing Management**

The nurse reinforces the reasons for the prescribed therapeutic regimen and counsels the patient on specific points of care. If baths have been prescribed, the patient is reminded to use tepid (not hot) water and to shake off the excess water and blot between intertriginous areas (ie, body folds) with a towel. Rubbing vigorously with the towel is avoided because this overstimulates the skin and causes more itching. It also removes water from the stratum corneum. Immediately after bathing, the skin should be lubricated with an emollient to trap moisture.

The patient is instructed to avoid situations that cause vasodilation (ie, expansion of the blood vessels). Examples include exposure to an overly warm environment and ingestion of alcohol or hot foods and liquids. All can induce or intensify itching. Using a humidifier is helpful if environmental air is dry. Activities that result in perspiration should be limited because perspiration may irritate and promote pruritus. If the patient is troubled at night with itching that interferes with sleep, the nurse can advise wearing cotton clothing next to the skin rather than synthetic materials. The room should be kept cool and humidified. Vigorous scratching should be avoided, and nails kept trimmed to prevent skin damage and infection. When the underlying cause of pruritus is unknown and further testing is required, the nurse explains each test and the expected outcome.

**PERINEAL AND PERIANAL ITCHING**

Pruritus of the genital and anal regions may be caused by small particles of fecal material lodged in the perianal crevices or attached to anal hairs or by perianal skin damage caused by scratching, moisture, and decreased skin resistance as a result of corticosteroid or antibiotic therapy. Other possible causes of perianal itching include local irritants such as scabies and lice, local lesions such as hemmorhoids, fungal or yeast infections, and pinworm infestation. Conditions such as diabetes mellitus, anemia, hyperthyroidism, and pregnancy may also result in pruritus. Occasionally, no cause can be identified.
HYDRADENITIS SUPPURATIVA

A condition called hydradenitis suppurativa can occur in certain individuals. The cause is unknown.

Pathophysiology

Abnormal blockage of the sweat glands causes recurring inflammation, nodules, and draining sinus tracts. Eventually, hypertrophic bands of scar tissue form in the area of the sweat glands.

Clinical Manifestations

The condition occurs more frequently in the axilla but also appears in inguinal folds, on the mons pubis, and around the buttocks. The patients can be extremely uncomfortable with multiple suppurative lesions within a small area. This condition does not appear before puberty and does appear to have a genetic basis.

Management

The patient is instructed to follow proper hygiene measures and to discontinue home and over-the-counter remedies. The perineal or anal area should be rinsed with lukewarm water and blotted dry with cotton balls. Premoistened tissues may be used after defecation. Cornstarch can be applied in the skinfold areas to absorb perspiration.

As part of health teaching, the nurse instructs the patient to avoid bathing in water that is too hot and to avoid using bubble baths, sodium bicarbonate, and detergent soaps, all of which aggravate dryness. To keep the perineal or perianal skin area as dry as possible, patients should avoid wearing underwear made of synthetic fabrics. Local anesthetic agents should not be used because of possible allergic effects. The patient should also avoid vasodilating agents or stimulants (eg, alcohol, caffeine) and mechanical irritants such as rough or woolen clothing. A diet that includes adequate fiber may help maintain soft stools and prevent minor trauma to the anal mucosa.

SEBORRHEIC DERMATOSES

Seborrhea is excessive production of sebum (ie, secretion of sebaceous glands) in areas where sebaceous glands are normally found in large numbers, such as the face, scalp, eyebrows, eyelids, sides of the nose and upper lip, malar regions (ie, cheeks), ears, axillae, under the breasts, groin, and gluteal crease of the buttocks. Seborrheic dermatitis is a chronic inflammatory disease of the skin with a predilection for areas that are well supplied with sebaceous glands or lie between skin folds, where the bacteria count is high.

Clinical Manifestations

Two forms of seborrheic dermatoses can occur, an oily form and a dry form. Either form may start in childhood and continue throughout life. The oily form appears moist or greasy. There may be patches of sallow, greasy skin, with or without scaling, and slight erythema (ie, redness), predominantly on the forehead, nasolabial fold, beard area, scalp, and between adjacent skin surfaces in the regions of the axillae, groin, and breasts. Small pustules or papulopustules resembling acne may appear on the trunk. The dry form, consisting of flaky desquamation of the scalp with a profuse amount of fine, powdery scales, is commonly called dandruff. The mild forms of the disease are asymptomatic. When scaling occurs, it is often accompanied by pruritus, which may lead to scratching and secondary infections and excoriation.

Seborrheic dermatitis has a genetic predisposition. Hormones, nutritional status, infection, and emotional stress influence its course. The remissions and exacerbations of this condition should be explained to the patient. If a person has not previously been diagnosed with this condition and suddenly appears with a severe outbreak, a complete history and physical examination should be considered.

Medical Management

Because there is no known cure for seborrhea, the objective of therapy is to control the disorder and allow the skin to repair itself. Seborrheic dermatitis of the body and face may respond to a topically applied corticosteroid cream, which allays the secondary inflammatory response. However, this medication should be used with caution near the eyelids, because it can induce glaucoma and cataracts in predisposed patients. Patients with seborrheic dermatitis may develop a secondary candidal (yeast) infection in body creases or folds. To avoid this, patients should be advised to ensure maximum aeration of the skin and to clean carefully areas where there are creases or folds in the skin. Patients with persistent candidiasis should be evaluated for diabetes.

The mainstay of dandruff treatment is proper, frequent shampooing (daily or at least three times weekly) with medicated shampoos. Two or three different types of shampoo should be used in rotation to prevent the seborrhea from becoming resistant to a particular shampoo. The shampoo is left on at least 5 to 10 minutes. As the condition of the scalp improves, the treatment
can be less frequent. Antiseborrheic shampoos include those containing selenium sulfide suspension, zinc pyrithione, salicylic acid or sulfur compounds, and tar shampoo that contains sulfur or salicylic acid.

Nursing Management
A person with seborrheic dermatitis is advised to avoid external irritants, excessive heat, and perspiration; rubbing and scratching prolong the disorder. To avoid secondary infection, the patient should air the skin and keep skin folds clean and dry.

Instructions for using medicated shampoos are reinforced for those with dandruff that requires treatment. Frequent shampooing is contrary to some cultural practices; the nurse should be sensitive to these differences when teaching the patient about home care.

The patient is cautioned that seborrheic dermatitis is a chronic problem that tends to reappear. The goal is to keep it under control. Patients need to be encouraged to adhere to the treatment program. Those who become discouraged and disheartened by the effect on body image should be treated with sensitivity and an awareness of their need to express their feelings.

ACNE VULGARIS
Acne vulgaris is a common follicular disorder affecting susceptible hair follicles, most commonly found on the face, neck, and upper trunk. It is characterized by comedones (ie, primary acne lesions), both closed and open, and by papules, pustules, nodules, and cysts.

Acne is the most commonly encountered skin condition in adolescents and young adults between ages 12 and 35. Both genders are affected equally, although onset is slightly earlier for girls. This may be because girls reach puberty at a younger age than boys. Acne becomes more marked at puberty and during adolescence because the endocrine glands that influence the sebum of the sebaceous glands are functioning at peak activity. Acne appears to stem from an interplay of genetic, hormonal, and bacterial factors. In most cases, there is a family history of acne.

Pathophysiology
During childhood, the sebaceous glands are small and virtually nonfunctioning. These glands are under endocrine control, especially by the androgens. During puberty, androgens stimulate the sebaceous glands, causing them to enlarge and secrete a natural oil, sebum, which rises to the top of the hair follicle and flows out onto the skin surface. In adolescents who develop acne, androgenic stimulation produces a heightened response in the sebaceous glands so that acne occurs when accumulated sebum plugs the pilosebaceous ducts. This accumulated material forms comedones.

Clinical Manifestations
The primary lesions of acne are comedones. Closed comedones (ie, whiteheads) are obstructive lesions formed from impacted lipids or oils and keratin that plug the dilated follicle. They are small, whitish papules with minute follicular openings that generally cannot be seen. These closed comedones may evolve into open comedones, in which the contents of the ducts are in open communication with the external environment. The color of open comedones (ie, blackheads) results not from dirt, but from an accumulation of lipid, bacterial, and epithelial debris.

Although the exact cause is unknown, some closed comedones may rupture, resulting in an inflammatory reaction caused by leakage of follicular contents (eg, sebum, keratin, bacteria) into the dermis. This inflammatory response may result from the action of certain skin bacteria, such as Propionibacterium acnes, that live in the hair follicles and break down the triglycerides of the sebum into free fatty acids and glycerin. The resultant inflammation is seen clinically as erythematous papules, inflammatory pustules, and inflammatory cysts. Mild papules and cysts drain and heal on their own without treatment. Deep pustules and cysts may result in scarring of the skin. Acne is usually graded as mild, moderate, or severe based on the number and type of lesions (eg, comedones, papules, pustules, cysts).

Assessment and Diagnostic Findings
The diagnosis of acne is based on the history and physical examination, evidence of lesions characteristic of acne, and age. Acne does not occur until puberty. The presence of the typical comedones (ie, whiteheads and blackheads) along with excessively oily skin is characteristic. Oiliness is more prominent in the midfacial area; other parts of the face may appear dry. When there are numerous lesions, some of which are open, the person may exude a distinct sebaceous odor. Women may report a history of flare-ups a few days before menses. Biopsy of lesions is seldom necessary for a definitive diagnosis.

Medical Management
The goals of management are to reduce bacterial colonies, decrease sebaceous gland activity, prevent the follicles from becoming plugged, reduce inflammation, combat secondary infection, minimize scarring, and eliminate factors that predispose the person to acne. The therapeutic regimen depends on the type of lesion (eg, comedonal, papular, pustular, cystic).

There is no predictable cure for the disease, but combinations of therapies are available that can effectively control its activity. Topical treatment may be all that is needed to treat mild to moderate lesions and superficial inflammatory lesions (ie, papular or pustular).

NUTRITION AND HYGIENE THERAPY
Although food restrictions have been recommended from time to time in treating acne, diet is not believed to play a major role in therapy. However, the elimination of a specific food or food product associated with a flare-up of acne, such as chocolate, cola, fried foods, or milk products, should be promoted. Maintenance of good nutrition equips the immune system for effective action against bacteria and infection.

For mild cases of acne, washing twice each day with a cleansing soap may be all that is required. These soaps can remove the excessive skin oil and the comedo in most cases. Providing positive reassurance, listening attentively, and being sensitive to the feelings of the patient with acne are essential contributors to the patient’s psychological well-being and understanding of the disease and treatment plan. Over-the-counter acne medications contain salicylic acid and benzoyl peroxide, both of which are very effective at removing the sebaceous follicular plugs. However, the skin of some people is sensitive to these products, which can cause irritation or excessive dryness, especially when used with some prescribed topical medications. The patient should be instructed to discontinue their use if severe irritation occurs. Oil-free cosmetics and creams should be chosen. These products are usually designated as useful...
for acne-prone skin. The duration of treatment depends on the extent and severity of the acne. In severe cases, treatment may extend over years.

**TOPICAL PHARMAOCOLOGIC THERAPY**

**Benzoyl Peroxide.** Benzoyl peroxide preparations are widely used because they produce a rapid and sustained reduction of inflammatory lesions. They depress sebum production and promote breakdown of comedo plugs. They also produce an antibacterial effect by suppressing *P. acnes*. Initially, benzoyl peroxide causes redness and scaling, but the skin usually adjusts quickly to its use. Typically, the patient applies a gel of benzoyl peroxide once daily. In many instances, this is the only treatment needed. Benzoyl peroxide, benzoyl erythromycin, and benzoyl sulfur combinations are available over the counter and by prescription. Vitamin A acid (tretinoin) applied topically is used to clear the keratin plugs from the pilosebaceous ducts. Vitamin A acid speeds the cellular turnover, forces out the comedones, and prevents new comedones.

The patient should be informed that symptoms may worsen during early weeks of therapy because inflammation may occur during the process. Erythema and peeling also frequently result. Improvement may take 8 to 12 weeks. Some patients cannot tolerate this therapy. The patient is cautioned against sun exposure while using this topical medication because it may cause an exaggerated sunburn. Package insert directions should be followed carefully.

**Topical Antibiotics.** Topical antibiotic treatment for acne is common. Topical antibiotics suppress the growth of *P. acnes*; reduce superficial free fatty acid levels; decrease comedones, papules, and pustules; and produce no systemic side effects. Common topical preparations include tetracycline, clindamycin, and erythromycin.

**SYSTEMIC PHARMAOCOLOGIC THERAPY**

**Antibiotics.** Oral antibiotics, such as tetracycline, doxycycline, and minocycline, administered in small doses over a long period are very effective in treating moderate and severe acne, especially when the acne is inflammatory and results in pustules, abscesses, and scarring. Therapy may continue for months to years. The tetracycline family of antibiotics is contraindicated in children younger than age 12 and in pregnant women. Although these medications are considered safe for long-term use in most cases, administration during pregnancy can affect the development of teeth, causing enamel hypoplasia and permanent discoloration of teeth in infants. Side effects of tetracyclines include photosensitivity, nausea, diarrhea, cutaneous infection in either gender, and vaginitis in women. In some women, broad-spectrum antibiotics may suppress normal vaginal bacteria and predispose the patient to candidiasis, a fungal infection.

**Oral Retinoids.** Synthetic vitamin A compounds (ie, retinoids) are used with dramatic results in patients with nodular cystic acne unresponsive to conventional therapy. One compound is isotretinoin (Accutane). Isotretinoin is also used for active inflammatory popular pustular acne that has a tendency to scar. Isotretinoin reduces sebaceous gland size and inhibits sebum production. It also causes the epidermis to shed (ie, epidermal desquamation), thereby unseating and expelling existing comedones. The most common side effect, experienced by almost all patients, is cheilitis (ie, inflammation of the lips). Dry and chafed skin and mucous membranes are frequent side effects. These changes are reversible with the withdrawal of the medication. Most important, isotretinoin, like other vitamin A metabolites, is teratogenic in humans, meaning that it can have an adverse effect on a fetus, causing central nervous system and cardiovascular defects and structural abnormalities of the face. Contraceptive measures for women of childbearing age are mandatory during treatment and for about 4 to 8 weeks thereafter. To avoid additive toxic effects, patients are cautioned not to take vitamin A supplements while taking isotretinoin (Odom et al., 2000).

**Hormone Therapy.** Estrogen therapy (including progesterone-estrogen preparations) suppresses sebum production and reduces skin oiliness. It is usually reserved for young women when the acne begins somewhat later than usual and tends to flare up at certain times in the menstrual cycle. Estrogen in the form of estrogen-dominant oral contraceptive compounds may be administered on a prescribed cyclic regimen. Estrogen is not administered to male patients because of undesirable side effects such as enlargement of the breasts and decrease in body hair.

**SURGICAL MANAGEMENT**

Surgical treatment of acne consists of comedo extraction, injections of corticosteroids into the inflamed lesions, and incision and drainage of large, fluctuant (ie, moving in palpable waves), nodular cystic lesions. Cryosurgery (ie, freezing with liquid nitrogen) may be used for nodular and cystic forms of acne. Patients with deep scars may be treated with deep abrasive therapy (ie, dermabrasion), in which the epidermis and some superficial dermis are removed down to the level of the scars. Comedones may be removed with a comedo extractor. The site is first cleaned with alcohol. The opening of the extractor is then placed over the lesion, and direct pressure is applied to cause extrusion of the plug through the extractor. Removal of comedones leaves erythema, which may take several weeks to subside. Recurrence of comedones after extraction is common because of the continuing activity of the pilosebaceous glands.

Table 56-5 summarizes the treatment modalities for acne vulgaris.

**Nursing Management**

Nursing care of patients with acne consists largely of monitoring and managing potential complications of skin treatments. Major nursing activities include patient education, particularly in proper skin care techniques, and managing potential problems related to the skin disorder or therapy.

**PREVENTING SCARRING**

Prevention of scarring is the ultimate goal of therapy. The chance of scarring increases as the grade of acne increases. Grades III and IV (25 to more than 50 comedones, papules, or pustules) usually require longer-term therapy with systemic antibiotics or isotretinoin. Patients should be warned that discontinuing these medications can exacerbate acne, lead to more flare-ups, and increase the chance of deep scarring. Moreover, manipulation of the comedones, papules, and pustules increases the potential for scarring.

When acne surgery is prescribed to extract deep-seated comedones or inflamed lesions or to incise and drain cystic lesions, the intervention itself may result in further scarring. Dermabrasion, which levels existing scar tissue, can also increase scar formation. Hyperpigmentation or hypopigmentation also may affect the tis-
Teaching Patients Self-Care. In addition to receiving instructions for taking prescribed medications, patients are instructed to wash the face and other affected areas with mild soap and water twice each day to remove surface oils and prevent obstruction of the oil glands. They are cautioned to avoid scrubbing the face, acne is not caused by dirt and cannot be washed away.

Mild abrasive soaps and drying agents are prescribed to eliminate the oily feeling that troubles many patients. At the same time, patients are cautioned to avoid excessive abrasion because it makes acne worse. Excessive abrasion causes minute scratches on the skin surface and increases possible bacterial contamination. Soap itself can irritate the skin.

All forms of friction and trauma are avoided, including propping the hands against the face, rubbing the face, and wearing tight collars and helmets. Patients are instructed to avoid manipulation of pimples or blackheads. Squeezing merely worsens the problem, because a portion of the blackhead is pushed down into the skin, which may cause the follicle to rupture. Because cosmetics, shaving creams, and lotions can aggravate acne, these substances are best avoided unless the patient is advised otherwise. There is no evidence that a particular food can cause or aggravate acne. In general, eating a nutritious diet helps the body maintain a strong immune system.

Bacterial Infections: Pyodermas

Also called pyodermas, pus-forming bacterial infections of the skin may be primary or secondary. Primary skin infections originate in previously normal-appearing skin and are usually caused by a single organism. Secondary skin infections arise from a pre-existing skin disorder or from disruption of the skin integrity from injury or surgery. In either case, several microorganisms may be implicated (eg, *Staphylococcus aureus*, group A streptococci). The most common primary bacterial skin infections are impetigo and folliculitis. Folliculitis may lead to furuncles or carbuncles.

**IMPETIGO**

Impetigo is a superficial infection of the skin caused by staphylococci, streptococci, or multiple bacteria. Bullous impetigo, a more deep-seated infection of the skin caused by *S. aureus*, is characterized by the formation of bullae (ie, large, fluid-filled blisters) from original vesicles. The bullae rupture, leaving raw, red areas.

The exposed areas of the body, face, hands, neck, and extremities are most frequently involved. Impetigo is contagious and may spread to other parts of the patient’s skin or to other members of the family who touch the patient or use towels or combs that are soiled with the exudate of the lesions. Although impetigo is seen at all ages, it is particularly common among children living in poor hygienic conditions. It often follows pediculosis capitis (head lice), scabies (itch mites), herpes simplex, insect bites, poison ivy, or eczema. Chronic health problems, poor hygiene, and malnutrition may predispose an adult to impetigo. Some people have been identified as asymptomatic carriers of *S. aureus*, usually in the nasal passages.

**Clinical Manifestations**

The lesions begin as small, red macules, which quickly become discrete, thin-walled vesicles that soon rupture and become covered with a loosely adherent honey-yellow crust (Fig. 56-1). These crusts are easily removed to reveal smooth, red, moist surfaces on which new crusts soon develop. If the scalp is involved, the hair is matted, which distinguishes the condition from ringworm.

**Medical Management**

Systemic antibiotic therapy is the usual treatment. It reduces contagious spread, treats deep infection, and prevents acute glomerulonephritis (ie, kidney infection), which may occur as an aftermath of streptococcal skin diseases. In nonbullous impetigo, benzathine penicillin or oral penicillin may be prescribed. Bullous impetigo is treated with a penicillinase-resistant penicillin (eg, cloxacillin,

**Table 56-5** Commonly Prescribed Treatments of Acne Vulgaris

<table>
<thead>
<tr>
<th>TYPE OF THERAPY</th>
<th>PRESCRIBED TREATMENT AGENT</th>
</tr>
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<tbody>
<tr>
<td>Topical</td>
<td>benzoyl peroxide wash, gel</td>
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<tr>
<td></td>
<td>benzoyl peroxide and erythromycin (Benzamycin gel)</td>
</tr>
<tr>
<td></td>
<td>benzyol peroxide and sulfur (Benzulfoid cream)</td>
</tr>
<tr>
<td></td>
<td>salicylic acid (as ingredient in other preparations)</td>
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<tr>
<td></td>
<td>tretinoin (Retin A, Avita)</td>
</tr>
<tr>
<td>Systemic</td>
<td>oral antibiotics (erythromycin, tetracycline, doxycycline, minocin, penicillins)</td>
</tr>
<tr>
<td></td>
<td>isotretinoin (Accutane)</td>
</tr>
<tr>
<td></td>
<td>hormones: isotretinoin (Accutane)</td>
</tr>
<tr>
<td></td>
<td>corticosteroids</td>
</tr>
<tr>
<td></td>
<td>high dose for anti-inflammatory action</td>
</tr>
<tr>
<td></td>
<td>low dose to suppress androgenic action</td>
</tr>
<tr>
<td></td>
<td>intralesional for anti-inflammatory action</td>
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<td></td>
<td>antiandrogens</td>
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<td></td>
<td>oral contraceptives (women only)</td>
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<tr>
<td>Surgical</td>
<td>extraction of comedo contents</td>
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<td>drainage of pustules and cysts</td>
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<td>excision of sinus tracts and cysts</td>
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<td>intralesional corticosteroids for anti-inflammatory action</td>
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<td>cryotherapy</td>
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<td>dermabrasion for scars</td>
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<td>laser resurfacing of scars</td>
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*Treatments listed are common but do not include all available forms of therapy.*

Sue involved. The patient should be informed of these potential outcomes before choosing surgical intervention for acne.

PREVENTING INFECTION

Female patients receiving long-term antibiotic therapy with tetracycline should be advised to watch for and report signs and symptoms of oral or vaginal candidiasis, a yeastlike fungal infection.

PROMOTING HOME AND COMMUNITY-BASED CARE

**Teaching Patients Self-Care.** In addition to receiving instructions for taking prescribed medications, patients are instructed to wash the face and other affected areas with mild soap and water twice each day to remove surface oils and prevent obstruction of the oil glands. They are cautioned to avoid scrubbing the face; acne is not caused by dirt and cannot be washed away.

Mild abrasive soaps and drying agents are prescribed to eliminate the oily feeling that troubles many patients. At the same time, patients are cautioned to avoid excessive abrasion because it makes acne worse. Excessive abrasion causes minute scratches on the skin surface and increases possible bacterial contamination. Soap itself can irritate the skin.

All forms of friction and trauma are avoided, including propping the hands against the face, rubbing the face, and wearing tight collars and helmets. Patients are instructed to avoid manipulation of pimples or blackheads. Squeezing merely worsens the problem, because a portion of the blackhead is pushed down into the skin, which may cause the follicle to rupture. Because cosmetics, shaving creams, and lotions can aggravate acne, these substances are best avoided unless the patient is advised otherwise. There is no evidence that a particular food can cause or aggravate acne. In general, eating a nutritious diet helps the body maintain a strong immune system.
Bacterial content in the infected area, and prevent spread. Povidone-iodine (Betadine) may be used to clean the skin, reduce pustules or papules close to the hair follicles. Lesions may be superficial or deep. Sinus tracts are indicated for patients who are very ill or suffering with systemic symptoms. Intravenous fluids, fever reduction, and other supportive treatments are indicated to prevent the spread of the infection.

When the pus has localized and is fluctuant, a small incision with a scalpel can speed resolution by relieving the tension and ensuring direct evacuation of the pus and slough. The patient is instructed to keep the draining lesion covered with a dressing.

Nursing Management

In treating staphylococcal infections, it is important not to rupture or destroy the protective wall of induration that localizes the infection. The boil or pimple should never be squeezed.

Follicular disorders, including folliculitis, furuncles, and carbuncles, are usually caused by staphylococci; although if the immune system is impaired, the causative organisms may be gram-negative bacilli. Systemic antibiotic therapy, selected by sensitivity study, is generally indicated. Oral cloxacillin, dicloxacillin, and flucloxacillin are first-line medications. Cephalosporins and erythromycin are also effective. Bed rest is advised for patients who have boils on the perineum or in the anal region, and a course of systemic antibiotic therapy is indicated to prevent the spread of the infection.

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When the pus has localized and is fluctuant, a small incision with a scalpel can speed resolution by relieving the tension and ensuring direct evacuation of the pus and slough. The patient is instructed to keep the draining lesion covered with a dressing.
of staphylococci. Disposable gloves are worn when caring for these patients.

**NURSING ALERT** Nurses must take special precautions in caring for boils on the face, because the skin area drains directly into the cranial venous sinuses. Sinus thrombosis with fatal pyemia can develop after manipulating a boil in this location. The infection can travel through the sinus tract and penetrate the brain cavity, causing brain abscess.

### PROMOTING HOME AND COMMUNITY-BASED CARE

**Teaching Patients Self-Care.** To prevent and control staphylococcal skin infections such as boils and carbuncles, the staphylococcal pathogen must be eliminated from the skin and environment. Efforts must be made to increase the patient’s resistance and provide a hygienic environment. If lesions are actively draining, the mattress and pillow should be covered with plastic material and wiped off with disinfectant daily; the bed linens, towels, and clothing should be laundered after each use; and the patient should use an antibacterial soap and shampoo for an indefinite period, often for several months.

Recurrent infection is prevented with the use of prescribed antibiotic therapy (eg, a daily dose of oral clindamycin to be taken continuously for about 3 months). The patient must take the full dose for the time prescribed. The purulent exudate (ie, pus) is a source of reinfection or transmission of infection to caregivers. When the patient has a history of recurrent infections, a carrier state may exist, which should be investigated and treated with an antibacterial cream such as mupirocin.

### Viral Skin Infections

**HERPES ZOSTER**

Herpes zoster, also called shingles, is an infection caused by the varicella-zoster virus, a member of a group of DNA viruses. The viruses causing chickenpox and herpes zoster are indistinguishable, hence the name varicella-zoster virus. The disease is characterized by a painful vesicular eruption along the area of distribution of the sensory nerves from one or more posterior ganglia. It is assumed that herpes zoster represents a reactivation of latent varicella virus infection and reflects lowered immunity. After a case of chickenpox runs its course, it is thought that the varicella-zoster viruses responsible for the outbreak lie dormant inside nerve cells near the brain and spinal cord. Later, when these latent viruses are reactivated, they travel by way of the peripheral nerves to the skin, where the viruses multiply and create a red rash of small, fluid-filled blisters. About 10% of adults get shingles during their lifetimes, usually after age 50 years. There is an increased frequency of herpes zoster infections among patients with weakened immune systems and cancers, especially leukemias and lymphomas (Odom et al., 2000).

**Clinical Manifestations**

The eruption is usually accompanied or preceded by pain, which may radiate over the entire region supplied by the affected nerves. The pain may be burning, lancinating (ie, tearing or sharply cutting), stabbing, or aching. Some patients have no pain, but itching and tenderness may occur over the area. Sometimes, malaise and gastrointestinal disturbances precede the eruption. The patches of grouped vesicles appear on the red and swollen skin. The early vesicles, which contain serum, later may become purulent, rupture, and form crusts. The inflammation is usually unilateral, involving the thoracic, cervical, or cranial nerves in a bandlike configuration. The blisters are usually confined to a narrow region of the face or trunk (Fig. 56-2). The clinical course varies from 1 to 3 weeks. If an ophthalmic nerve is involved, the patient may have eye pain. Inflammation and a rash on the trunk may cause pain with the slightest touch. The healing time varies from 7 to 26 days.

Herpes zoster in healthy adults is usually localized and benign. However, in immunosuppressed patients, the disease may be severe and the clinical course acutely disabling.

### Medical Management

The goals of herpes zoster management are to relieve the pain and to reduce or avoid complications, which include infection, scarring, and postherpetic neuralgia and eye complications. Pain is controlled with analgesics, because adequate pain control during the acute phase helps prevent persistent pain patterns. Systemic corticosteroids may be prescribed for patients older than age 50 years to reduce the incidence and duration of postherpetic neuralgia (ie, persistent pain of the affected nerve after healing). Healing usually occurs sooner in those who have been treated with corticosteroids. Triamcinolone (Aristocort, Kenacort, Kenalog) injected subcutaneously under painful areas is effective as an anti-inflammatory agent.

There is evidence that infection is arrested if oral antiviral agents such as acyclovir (Zovirax), valacyclovir (Valtrex), or famciclovir (Famvir) are administered within 24 hours of the initial eruption. Intravenous acyclovir, if started early, is effective in significantly reducing the pain and halting the progression of the disease. In older patients, the pain from herpes zoster may persist as postherpetic neuralgia for months after the skin lesions disappear (Hall, 2000).

Ophthalmic herpes zoster occurs when an eye is involved. This is considered an ophthalmic emergency, and the patient should be referred to an ophthalmologist immediately to prevent the possible sequelae of keratitis, uveitis, ulceration, and blindness.

![Figure 56-2 Herpes zoster (shingles).](image-url)
People who have been exposed to varicella (ie, chicken pox) by primary infection or by vaccination are not at risk for infection after exposure to patients with herpes zoster.

**Nursing Management**

The nurse assesses the patient’s discomfort and response to medication and collaborates with the physician to make necessary adjustments to the treatment regimen. The patient is taught how to apply wet dressings or medication to the lesions and to follow proper hand hygiene techniques to avoid spreading the virus. Diversionary activities and relaxation techniques are encouraged to ensure restful sleep and to alleviate discomfort. A caregiver may be required to assist with dressings, particularly if the patient is elderly and unable to apply them. Relatives, neighbors, or a home care nurse may need to help with dressing changes and food preparation for patients who cannot care for themselves or prepare nourishing meals.

**HERPES SIMPLEX**

Herpes simplex is a common skin infection. There are two types of the causative virus, which are identified by viral typing. Generally, herpes simplex type 1 occurs on the mouth and type 2 in the genital area, but both viral types can be found in both locations. About 85% of adults worldwide are seropositive for herpes type 1. The prevalence of type 2 is lower, type 2 usually appears at the onset of sexual activity. Serologic testing shows that many more people are infected than have a history of clinical disease.

Herpes simplex is classified as a true primary infection, a nonprimary initial episode, or a recurrent episode. True primary infection is the initial exposure to the virus. A nonprimary initial episode is the initial episode of type 1 or type 2 in a person previously infected with the other type. Recurrent episodes are subsequent episodes of the same viral type.

**OROLABIAL HERPES**

Orolabial herpes, also called fever blisters or cold sores, consists of erythematous-based clusters of grouped vesicles on the lips. A prodrome of tingling or burning with pain may precede the appearance of the vesicles by up to 24 hours. Certain triggers, such as sunlight exposure or increased stress, may cause recurrent episodes. Fewer than 1% of people with primary orolabial herpes infections develop herpetic gingivostomatitis. This complication occurs more in children and young adults. The onset is often accompanied by high fever, regional lymphadenopathy, and generalized malaise. Another complication of orolabial herpes is the development of erythema multiforme, an acute inflammation of the skin and mucous membranes with characteristic lesions that have the appearance of targets.

**GENITAL HERPES**

Genital herpes, or type 2 herpes simplex, manifests with a broad spectrum of clinical signs. Minor infections may produce no symptoms at all; severe primary infections with type 1 can cause systemic flulike illness. Lesions appear as grouped vesicles on an erythematous base initially involving the vagina, rectum, or penis. New lesions can continue to appear for 7 to 14 days. Lesions are symmetric and usually cause regional lymphadenopathy. Fever and flulike symptoms are common. Typical recurrences begin with a prodrome of burning, tingling, or itching about 24 hours before the vesicles appear. As the vesicles rupture, erosions and ulcerations begin to appear. Severe infections can cause extensive erosions of the vaginal or anal canal. For further information see Chapter 47.

**Assessment and Diagnostic Findings**

Herpes simplex infections are confirmed in several ways. Generally, the appearance of the skin eruption is strongly suggestive. Viral cultures and rapid assays are available, and the type of test used depends on lesion morphology. Acute vesicular lesions are more likely to react positively to the rapid assay, whereas older, crusted patches are better diagnosed with viral culture. In all cases, it is imperative to obtain enough viral cells for testing, and careful collection methods are therefore important. All crusts should be gently removed or vesicles gently unroofed. A sterile cotton swab premoistened in viral culture preservative is used to swab the base of the vesicle to obtain a specimen for analysis.

**Complications**

Eczema herpeticum is a condition in which patients with eczema contract herpes that spreads throughout the eczematous areas. The same type of spread of herpes can occur in severe seborrhea, scabies, and other chronic skin conditions.

Herpes Whitlow is an infection of the pulp of a fingertip with herpes type 1 or 2. There is tenderness and erythema of the lateral fold of the cuticle. Deep-seated vesicles appear within 24 hours.

Most cases of neonatal infection with herpes occur during delivery by contact of the infant with the mother’s active ulcers. Rarely, in mothers who have primary infections during pregnancy, intrauterine neonatal infections occur. Fetal anomalies include skin lesions, microcephaly, encephalitis, and intracerebral calcifications.

**Medical Management**

In many patients, recurrent orolabial herpes represents more of a nuisance than a disease. Because sun exposure is a common trigger, those with recurrent orolabial herpes should use a sunscreen liberally on the lips and face. Topical treatment with drying agents may accelerate healing. In more severe outbreaks or in patients who have identified a trigger, intermittent treatment with 200 mg of acyclovir administered five times each day for 5 days is often started as soon as the earliest symptoms occur.

Treatment of genital herpes depends on the severity, the frequency, and the psychological impact of recurrences and on the infectious status of the sexual partner. For people who have mild or rare outbreaks, no treatment may be required. For those who have more severe outbreaks, but for whom outbreaks are still infrequent, intermittent treatment as described for oral lesions can be used. Because intermittent treatment reduces the duration of the infection by only 24 to 36 hours, it should be initiated as early as possible.

Patients who have more than six recurrences per year may benefit from suppressive therapy. Use of acyclovir, valacyclovir, or famciclovir suppresses 85% of recurrences, and 20% of patients are free of recurrences during suppressive therapy. Suppressive therapy also reduces viral shedding by almost 95%, making the person less contagious. Treatment with suppressive doses of oral antiviral medications prevents recurrent erythema multiforme.
Eczema herpeticum is managed with oral or intravenous acyclovir.

Management of genital herpes in pregnancy is controversial. Routine prenatal cultures do not predict shedding at the time of delivery. Because the risk for neonatal herpes is greater in women with their initial episode during pregnancy, suppression therapy should be started in these women to reduce outbreaks during the third trimester. All women with active lesions at the time of delivery undergo cesarean section.

In immunocompromised patients, suppression therapy should be considered. In severe infections of the hospitalized patient, intravenous acyclovir is prescribed.

Fungal (Mycotic) Infections

Fungi, tiny members of a subdivision of the plant kingdom that feed on organic matter, are responsible for various common skin infections. In some cases, they affect only the skin and its appendages (ie, hair and nails). In other cases, the internal organs are involved, and this disease may be life-threatening. Superficial infections, however, rarely cause even temporary disability and respond readily to treatment. Secondary infection with bacteria, *Candida*, or both organisms may occur.

The most common fungal skin infection is *tinea*, which is also called ringworm because of its characteristic appearance of ring or rounded tunnel under the skin. Tinea infections affect the head, body, groin, feet, and nails. Table 56-6 summarizes the tinea infections.

To obtain a specimen for diagnosis, the lesion is cleaned, and a scalpel or glass slide is used to remove scales from the margin of the lesion. The scales are dropped onto a slide to which potassium hydroxide has been added. The diagnosis is made by examination of the infected scales microscopically for spores and hyphae or by isolating the organism in culture. Under Wood’s light, a specimen of infected hair appears fluorescent; this may be helpful in diagnosing some cases of *tinea capitis*.

**Tinea Pedis: Athlete’s Foot**

Tinea pedis (ie, athlete’s foot) is the most common fungal infection. It is especially prevalent in those who use communal showers or swimming pools (Odom et al., 2000).

**Clinical Manifestations**

Tinea pedis may appear as an acute or chronic infection on the soles of the feet or between the toes. The toenail may also be involved. Lymphangitis and cellulitis occur occasionally when bacterial superinfection occurs. Sometimes, a mixed infection involving fungi, bacteria, and yeast occurs.

**Medical Management**

During the acute, vesicular phase, soaks of Burow’s solution or potassium permanganate solutions are used to remove the crusts, scales, and debris and to reduce the inflammation. Topical antifungal agents (eg, miconazole, clotrimazole) are applied to the infected areas. Topical therapy is continued for several weeks because of the high rate of recurrence.

**Nursing Management**

Footwear provides a favorable environment for fungi, and the causative fungus may be in the shoes or socks. Because moisture encourages the growth of fungi, the patient is instructed to keep the feet as dry as possible, including the areas between the toes.

<table>
<thead>
<tr>
<th>Table 56-6 • Tinea (Ringworm) Infections</th>
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<tbody>
<tr>
<td><strong>TYPE AND LOCATION</strong></td>
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<tr>
<td>Tinea capitis (head)</td>
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<tr>
<td>Contagious fungal infection of the hair shaft</td>
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<tr>
<td>Tinea corporis (body)</td>
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<tr>
<td>Tinea cruris (groin area; “jock itch”)</td>
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<tr>
<td>Tinea pedis (foot; “athlete’s foot”)</td>
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<tr>
<td>Tinea ungum (toenails; affects about 50% of adults)</td>
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</tbody>
</table>
Small pieces of cotton can be placed between the toes at night to absorb moisture. Socks should be made of cotton, and hosiery should have cotton feet, because cotton is an effective absorber of perspiration.

For people whose feet perspire excessively, perforated shoes permit better aeration of the feet. Plastic- or rubber-soled footwear should be avoided. Talcum powder or antifungal powder applied twice daily helps to keep the feet dry. Several pairs of shoes should be alternated so that they can dry completely before being worn again.

**Tinea corporis:** Ringworm of the Body

In tinea corporis (ie, ringworm of the body), the typical ringed lesion appears on the face, neck, trunk, and extremities (Fig. 56-3). Animal (nonhuman) varieties are known to cause an intense inflammatory reaction in humans because they are not adapted to living on human hosts. Humans make contact with animal varieties through contact with pets or objects that have been in contact with an animal.

**Medical Management**

Topical antifungal medication may be applied to small areas. Oral antifungal agents are used only in extensive cases. Side effects of oral antifungal agents include photosensitivity, skin rashes, headache, and nausea. Newer antifungal agents, including itraconazole, fluconazole, and terbinafine, have been more effective with fewer systemic side effects than griseofulvin in patients with chronic fungal (dermatophyte) infections.

**Nursing Management**

The patient is instructed to use a clean towel and washcloth daily. Because fungal infections thrive in heat and moisture, all skin areas and skin folds must be dried thoroughly. Clean cotton clothing should be worn next to the skin.

**Tinea capitis:** Ringworm of the Scalp

Ringworm of the scalp is a contagious fungal infection of the hair shafts and a common cause of hair loss in children. Any child with scaling of the scalp should be considered to have tinea capitis until proven otherwise. Clinical examination reveals one or several round, red scaling patches. Small pustules or papules may be seen at the edges of such patches. As the hairs in the affected areas are invaded by the fungi, they become brittle and break off at or near the surface of the scalp, leaving bald patches or the classic sign of black dots, which are the broken ends of hairs. Because most cases of tinea capitis heal without scarring, the hair loss is only temporary.

**Medical Management**

Griseofulvin, an antifungal agent, is prescribed for patients with tinea capitis. Topical agents do not provide an effective cure because the infection occurs within the hair shaft and below the surface of the scalp. However, topical agents can be used to inactivate organisms already on the hair. This minimizes contagion and eliminates the need to clip the hair. Infected hairs break off anyway, and noninfected ones may remain in place. The hair should be shampooed two or three times weekly, and a topical antifungal preparation should be applied to reduce dissemination of the organisms.

**Nursing Management**

Because tinea capitis is contagious, the patient and family should be instructed to set up a hygiene regimen for home use. Each person should have a separate comb and brush and should avoid exchanging hats and other headgear. All infected members of the family must be examined because familial infections are relatively common. Household pets should also be examined.

**Tinea cruris:** Ringworm of the Groin

Tinea cruris (ie, jock itch) is ringworm infection of the groin, which may extend to the inner thighs and buttock area. It occurs most frequently in young joggers, obese people, and those who wear tight underclothing. The incidence of tinea cruris is increased among people with diabetes.

**Management**

Mild infections may be treated with topical medication such as clotrimazole, miconazole, or terbinafine for at least 3 to 4 weeks to ensure eradication of the infection. Oral antifungal agents may be required for more severe infections. Heat, friction, and maceration (from sweating) predispose the patient to the infection. The nurse instructs the patient to avoid excessive heat and humidity as much as possible and to avoid wearing nylon underwear, tight-fitting clothing, and a wet bathing suit. The groin area should be cleaned, dried thoroughly, and dusted with a topical antifungal agent such as tolnaftate (Tinactin) as a preventive measure, because the infection is likely to recur.

**Tinea unguium:** Onychomycosis

Tinea unguium (ie, ringworm of the nails) is a chronic fungal infection of the toenails or, less commonly, the fingernails. It is usually caused by Trichophyton species (T. rubrum, T. mentagrophytes) or Candida albicans. It is usually associated with long-standing fungal infection of the feet. The nails become thickened, friable (ie, easily crumbled), and lusterless. In time, debris accumulates under the free edge of the nail. Ultimately, the nail plate separates. Because of the chronicity of this infection, the entire nail may be destroyed.
Management
An oral antifungal agent is prescribed for 6 weeks when the fingernails are involved and 12 weeks when the toenails are involved. Selection of the antifungal agent depends on the causative fungus. Candidal infections are treated with fluconazole (Diflucan) or itraconazole (Sporanox). Griseofulvin is no longer considered effective therapy because of its long treatment course and poor cure rate. Response to oral antifungal agents in treating infections of the toenails is poor at best. Frequently, when the treatment stops, the infection returns.

Parasitic Skin Infestation

PEDICULOSIS: LICE INFESTATION
Lice infestation affects people of all ages. Three varieties of lice infest humans: Pediculus humanus capitis (ie, head louse), Pediculus humanus corporis (ie, body louse), and Phthirus pubis (ie, pubic louse or crab louse). Lice are called ectoparasites because they live on the outside of the host’s body. They depend on the host for nourishment, feeding on human blood approximately five times each day. They inject their digestive juices and excrement into the skin, which causes severe itching.

PEDICULOSIS CAPITIS
Pediculus capitis is an infestation of the scalp by the head louse. The female louse lays her eggs (ie, nits) close to the scalp. The nits become firmly attached to the hair shafts with a tenacious substance. The young lice hatch in about 10 days and reach maturity in 2 weeks.

Clinical Manifestations
Head lice are found most commonly along the back of the head and behind the ears. The eggs are visible to the naked eye as silvery, glistening oval bodies that are difficult to remove from the hair. The bite of the insect causes intense itching, and the resultant scratching often leads to secondary bacterial infection, such as impetigo or furunculosis. The infestation is more common in children and people with long hair. Head lice may be transmitted directly by physical contact or indirectly by infested combs, brushes, wigs, hats, and bedding.

Medical Management
Treatment involves washing the hair with a shampoo containing lindane (Kwell) or pyrethrin compounds with piperonyl butoxide (RID or R&C Shampoo). The patient is instructed to shampoo the scalp and hair according to the product directions. After the hair is rinsed thoroughly, it is combed with a fine-toothed comb dipped in vinegar to remove any remaining nits or nit shells freed from the hair shafts. They are extremely difficult to remove and may have to be picked off one by one with the fingernails.

All articles, clothing, towels, and bedding that may have lice or nits should be washed in hot water—at least 54°C (130°F)—or dry-cleaned to prevent re-infestation. Upholstered furniture, rugs, and floors should be vacuumed frequently. Combs and brushes are also disinfected with the shampoo. All family members and close contacts are treated. Complications such as severe pruritus, pyoderma, and dermatitis are treated with antipruritics, systemic antibiotics, and topical corticosteroids.

Nursing Management
The nurse informs the patient that head lice may infest anyone and are not a sign of uncleanliness. Because the condition spreads rapidly, treatment must be started immediately. School epidemics may be managed by having all of the students shampoo their hair on the same night. Students should be warned not to share combs, brushes, and hats. Each family member should be inspected for head lice daily for at least 2 weeks. The patient should be instructed that lindane may be toxic to the central nervous system when used improperly.

PEDICULOSIS CORPORIS AND PUBIS
Pediculosis corporis is an infestation of the body by the body louse. This is a disease of unwashed people or those who live in close quarters and do not change their clothing. Pediculosis pubis is extremely common. The infestation is generally localized in the genital region and is transmitted chiefly by sexual contact.

Clinical Manifestations
Chiefly involved are those areas of the skin that come in closest contact with the underclothing (ie, neck, trunk, and thighs). The body louse lives primarily in the seams of underwear and clothing, to which it clings as it pierces the skin with its proboscis. Its bites cause characteristic minute hemorrhagic points. Widespread excoriation may appear as a result of intense itching and scratching, especially on the trunk and neck. Among the secondary lesions produced are parallel linear scratches and a slight degree of eczema. In long-standing cases, the skin may become thick, dry, and scaly, with dark pigmented areas.

Itching is the most common symptom of pediculosis pubis, particularly at night. Reddish brown dust (ie, excretions of the insects) may be found in the patient’s underclothing. The pubic area should be examined with a magnifying glass for lice crawling down a hair shaft or nits cemented to the hair or at the junction with the skin. Infestation by pubic lice may coexist with sexually transmitted diseases such as gonorrhea, herpes, or syphilis. There may also be infestation of the hairs of the chest, armpit, beard, and eyelashes. Gray-blue macules may sometimes be seen on the trunk, thighs, and axillae as a result of either the reaction of the insects’ saliva with bilirubin (converting it to biliverdin) or an excretion produced by the salivary glands of the louse.

Medical Management
The patient is instructed to bathe with soap and water, after which lindane (Kwell) or 5% permethrin (Elimite) is applied to affected areas of the skin and to hairy areas, according to the product directions. An alternative topical therapy is an over-the-counter strength of permethrin (1% Nix). If the eyelashes are involved, petrolatum may be thickly applied twice daily for 8 days, followed by mechanical removal of any remaining nits.

Complications, such as severe pruritus, pyoderma, and dermatitis, are treated with antipruritics, systemic antibiotics, and topical corticosteroids. Body lice can transmit epidemic rickettsial disease to humans such as epidemic typhus, relapsing fever, and trench fever. The causative organism may be in the gastrointestinal tract of the insect and may be excreted on the skin surface of the infested person.
Nursing Management

All family members and sexual contacts must be treated and educated in personal hygiene and methods to prevent or control infestation. The patient and partner must also be scheduled for a diagnostic workup for coexisting sexually transmitted disease. All clothing and bedding should be machine washed in hot water or dry-cleaned.

SCABIES

Scabies is an infestation of the skin by the itch mite Sarcoptes scabiei. The disease may be found in people living in substandard hygienic conditions, but it is also common in very clean individuals and among the sexually active, although infestations do not depend on sexual activity. The mites frequently involve the fingers, and hand contact may produce infection. In children, overnight stays with friends or the exchange of clothing may be a source of infection. Health care personnel who have prolonged hands-on physical contact with an infected patient may likewise become infected.

The adult female burrows into the superficial layer of the skin and remains there for the rest of her life. With her jaws and the sharp edges of the joints of her forelegs, the mite extends the burrow, laying two or three eggs daily for up to 2 months. She then dies. The larvae hatch from the eggs in 3 to 4 days and progress through larval and nymphal stages to form adult mites in about 10 days.

Clinical Manifestations

It takes approximately 4 weeks from the time of contact for the patient’s symptoms to appear. The patient complains of severe itching caused by a delayed type of immunologic reaction to the mite or its fecal pellets. During examination, the patient is asked where the itch is most severe. A magnifying glass and a penlight are held at an oblique angle to the skin while a search is made for the small, raised burrows. The burrows may be multiple, straight or wavy, brown or black, threadlike lesions, most commonly observed between the fingers and on the wrists. Other sites are the extensor surfaces of the elbows, the knees, the edges of the feet, the points of the elbows, around the nipples, in the axillary folds, under pendulous breasts, and in or near the groin or gluteal fold, penis, or scrotum. Red, pruritic eruptions usually appear between adjacent skin areas. The burrow, however, is not always visible. Any patient with a rash may have scabies.

One classic sign of scabies is the increased itching that occurs at night, perhaps because the increased warmth of the skin has a stimulating effect on the parasite. Hypersensitivity to the organism and its products of excretion also may contribute to the itching. If the infection has spread, other members of the family and close friends also complain of itching about a month later.

Secondary lesions are quite common and include vesicles, papules, excoriations, and crusts. Bacterial superinfection may result from constant excoriation of the burrows and papules.

Assessment and Diagnostic Findings

The diagnosis is confirmed by recovering S. scabiei or the mites’ byproducts from the skin. A sample of superficial epidermis is scraped off the top of the burrows or papules with a small scalpel blade. The scrapings are placed on a microscope slide and examined through a low-powered microscope to demonstrate the mite at any stage (eg, egg, egg casing, larva, nymph, adult) and fecal pellets.

Gerontologic Considerations

Elderly patients living in long-term care facilities are more susceptible to outbreaks of scabies because of close living quarters, poor hygiene due to limited physical ability, and the potential for incidental spread of the organisms by nursing staff.

Although the older patient itches severely, the vivid inflammatory reaction seen in younger people seldom occurs. Scabies may not be recognized in the elderly person; the itching may erroneously be attributed to the dry skin of old age or to anxiety.

Health care personnel in extended-care facilities should wear gloves when providing hands-on care for a patient suspected of having scabies until the diagnosis is confirmed and treatment accomplished. It is advisable to treat all residents, staff, and families of patients at the same time to prevent reinfection. Because geriatric patients may be more sensitive to side effects of the scabicides, they should be closely observed for reactions.

Medical Management

The patient is instructed to take a warm, soapy bath or shower to remove the scaling debris from the crusts and then to dry thoroughly and allow the skin to cool. A prescription scabicide, such as lindane (Kwell), crotamiton (Eurax), or 5% permethrin (Elimite), is applied thinly to the entire skin from the neck down, sparing only the face and scalp (which are not affected in scabies). The medication is left on for 12 to 24 hours, after which the patient is instructed to wash thoroughly. One application may be curative, but it is advisable to repeat the treatment in 1 week.

NURSING ALERT The patient must understand medication instructions, because application of a scabicide immediately after bathing and before the skin dries and cools increases percutaneous absorption of the scabicide and the potential for central nervous system abnormalities such as seizures.

Nursing Management

The patient should wear clean clothing and sleep between freshly laundered bed linens. All bedding and clothing should be washed in hot water and dried on the hot dryer cycle, because the mites can survive up to 36 hours in linens. If bed linens or clothing cannot be washed in hot water, dry-cleaning is advised.

After treatment is completed, the patient should apply an ointment, such as a topical corticosteroid, to skin lesions because the scabicide may irritate the skin. The patient’s hypersensitivity does not cease on destruction of the mites. Itching may continue for several weeks as a manifestation of hypersensitivity, particularly in atopic (allergic) people. This is not a sign that the treatment has failed. The patient is instructed not to apply more scabicide because it will cause more irritation and increased itching and advised not to take frequent hot showers because they can dry the skin and produce itching. Oral antihistamines such as diphenhydramine (Benadryl) or hydroxyzine (Atarax) can help control the itching.

All family members and close contacts should be treated simultaneously to eliminate the mites. Some scabicides are approved for use in infants and pregnant women. If scabies is sexually
transmitted, the patient may require treatment for coexisting sexually transmitted disease. Scabies may also coexist with pediculosis.

Contact Dermatitis

Contact dermatitis is an inflammatory reaction of the skin to physical, chemical, or biologic agents. The epidermis is damaged by repeated physical and chemical irritations. Contact dermatitis may be of the primary irritant type, in which a nonallergic reaction results from exposure to an irritating substance, or it may be allergic (ie, allergic contact dermatitis), resulting from exposure of sensitized people to contact allergens. Allergic dermatoses are discussed in Chapter 53. Common causes of irritant dermatitis are soaps, detergents, scouring compounds, and industrial chemicals. Predisposing factors include extremes of heat and cold, frequent contact with soap and water, and a preexisting skin disease (Chart 56-3).

Clinical Manifestations

The eruptions begin when the causative agent contacts the skin. The first reactions include itching, burning, and erythema, followed closely by edema, papules, vesicles, and oozing or weeping. In the subacute phase, these vesicular changes are less marked, and they alternate with crusting, drying, fissuring, and peeling. If repeated reactions occur or if the patient continually scratches the skin, lichenification and pigmentation occur. Secondary bacterial invasion may follow.

Medical Management

The objectives of management are to rest the involved skin and protect it from further damage. The distribution pattern of the reaction is determined to differentiate between allergic and irritant contact dermatitis. A detailed history is obtained. If indicated, the offending irritant is removed. Local irritation should be avoided, and soap is not generally used until healing occurs.

Many preparations are advocated for relieving dermatitis. In general, a bland, unmedicated lotion is used for small patches of erythema (ie, red, inflamed skin). Cool, wet dressings also are applied over small areas of vesicular dermatitis. Finely cracked ice added to the water often enhances its antipruritic effect.

Wet dressings usually help clear the oozing eczematous lesions. A thin layer of cream or ointment containing a corticosteroid then may be used. Medicated baths at room temperature are prescribed for larger areas of dermatitis. For severe, widespread conditions, a short course of systemic corticosteroids may be prescribed.

Noninfectious Inflammatory Dermatoses

PSORIASIS

Psoriasis is a chronic noninfectious inflammatory disease of the skin in which epidermal cells are produced at a rate that is about six to nine times faster than normal. The cells in the basal layer of the skin divide too quickly, and the newly formed cells move so rapidly to the skin surface that they become evident as profuse scales or plaques of epidermal tissue. The psoriatic epidermal cell may travel from the basal cell layer of the epidermis to the stratum corneum (ie, skin surface) and be cast off in 3 to 4 days, which is in sharp contrast to the normal 26 to 28 days. As a result of the increased number of basal cells and rapid cell passage, the normal events of cell maturation and growth cannot take place. This abnormal process does not allow the normal protective layers of the skin to form.

One of the most common skin diseases, psoriasis affects approximately 2% of the population, appearing more often in people who have a European ancestry. It is thought that the condition stems from a hereditary defect that causes overproduction of keratin. Although the primary cause is unknown, a combination of specific genetic makeup and environmental stimuli may trigger the onset of disease. There is some evidence that the cell proliferation is mediated by the immune system. Periods of emotional stress and anxiety aggravate the condition. Trauma, infections, and seasonal and hormonal changes also are trigger factors. The onset may occur at any age but is most common between the ages of 15 and 50 years. Psoriasis has a tendency to improve and then recur periodically throughout life (Champion et al., 1998).

Clinical Manifestations

Lesions appear as red, raised patches of skin covered with silvery scales. The scaly patches are formed by the buildup of living and dead skin resulting from the vast increase in the rate of skin-cell growth and turnover (Fig. 56-4). If the scales are scraped away, the dark red base of the lesion is exposed, producing multiple bleeding points. These patches are not moist and may be pruritic. One variation of this condition is called guttate psoriasis because the lesions remain about 1 cm wide and are scattered like raindrops over the body. This variation is believed to be associated with a recent streptococcal throat infection. Psoriasis may range in severity from a cosmetic source of annoyance to a physically disabling and disfiguring disorder.

Particular sites of the body tend to be affected most by this condition; they include the scalp, the extensor surface of the elbows and knees, the lower part of the back, and the genitalia. Bilateral symmetry is a feature of psoriasis. In approximately one fourth to one half of patients, the nails are involved, with pitting, discoloration, crumbling beneath the free edges, and separation of the nail plate. When psoriasis occurs on the palms and soles, it can cause pustular lesions called palmar pustular psoriasis.

Chart 56-3 • PATIENT EDUCATION

Strategies for Avoiding Contact Dermatitis

The following precautions may help prevent repeated cases of contact dermatitis. Follow these instructions for at least 4 months after your skin appears to be completely healed.

- Study the pattern and location of your dermatitis and think about which things have touched your skin and which things may have caused the problem.
- Try to avoid contact with these materials.
- Avoid heat, soap, and rubbing, all of which are external irritants.
- Choose bath soaps, laundry detergents, and cosmetics that do not contain fragrance.
- Avoid using a fabric softener dryer sheet (Bounce, Cling). Fabric softeners that are added to the washer may be used.
- Avoid topical medications, lotions, or ointments, except those specifically prescribed for your condition.
- Wash your skin thoroughly immediately after exposure to possible irritants.
- When wearing gloves (for example, for washing dishes or general cleaning), be sure they are cotton-lined. Do not wear them more than 15 or 20 minutes at a time.
Complications

The disease may be associated with asymmetric rheumatoid factor–negative arthritis of multiple joints. The arthritic development can occur before or after the skin lesions appear. The relation between arthritis and psoriasis is not understood. Another complication is an exfoliative psoriatic state in which the disease progresses to involve the total body surface, called erythrodermic psoriasis. In this case, the patient is more acutely ill, with fever, chills, and an electrolyte imbalance. Erythrodermic psoriasis often appears in people with chronic psoriasis after infections or after exposure to certain medications, including withdrawal of systemic corticosteroids (Champion et al., 1998).

Assessment and Diagnostic Findings

The presence of the classic plaque-type lesions generally confirms the diagnosis of psoriasis. Because the lesions tend to change histologically as they progress from early to chronic plaques, biopsy of the skin is of little diagnostic value. There are no specific blood tests helpful in diagnosing the condition. When in doubt, the health professional should assess for signs of nail and scalp involvement and for a positive family history.

Medical Management

The goals of management are to slow the rapid turnover of epidermis, to promote resolution of the psoriatic lesions, and to control the natural cycles of the disease. There is no known cure.

The therapeutic approach should be one that the patient understands; it should be cosmetically acceptable and not too disruptive of lifestyle. Treatment involves the commitment of time and effort by the patient and possibly the family. First, any precipitating or aggravating factors are addressed. An assessment is made of lifestyle, because psoriasis is significantly affected by stress. The patient is informed that treatment of severe psoriasis can be time consuming, expensive, and aesthetically unappealing at times.

The most important principle of psoriasis treatment is gentle removal of scales. This can be accomplished with baths. Oils (eg, olive oil, mineral oil, Aveeno Oiled Oatmeal Bath) or coal tar preparations (eg, Balnetar) can be added to the bath water and a soft brush used to scrub the psoriatic plaques gently. After bathing, the application of emollient creams containing alphahydroxy acids (eg, Lac-Hydrin, Penederm) or salicylic acid will continue to soften thick scales. The patient and family should be encouraged to establish a regular skin care routine that can be maintained even when the psoriasis is not in an acute stage.

PHARMACOLOGIC THERAPY

Three types of therapy are standard: topical, intralesional, and systemic (Table 56-7).

Table 56-7 • Current Treatments for Psoriasis

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<tr>
<th>TOPICAL AGENTS</th>
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<th>SELECTED AGENTS</th>
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<tr>
<td>Topical corticosteroids</td>
<td>Mild to moderate lesions</td>
<td>Aristocort, Kenalog, Valisone</td>
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<td></td>
<td>Moderate to severe lesions</td>
<td>Lidx, Psorcon, Cutivate</td>
</tr>
<tr>
<td></td>
<td>Severe lesions</td>
<td>Temovate, Diprole, Ultravate</td>
</tr>
<tr>
<td></td>
<td>Lesions on face and groin</td>
<td>Aclovate, DesOwen, Hynote 2.5%</td>
</tr>
<tr>
<td>Topical nonsteroidals</td>
<td>Mild to severe</td>
<td>Retinoids such as tazarotene (Tazorac)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vitamin D₃, derivative calcipotriene (Dovonex)</td>
</tr>
<tr>
<td>Coal tar products</td>
<td>Mild to moderate lesions</td>
<td>Coal tar and salicylic acid ointment (Aquaear, Estar gel, Fototar, Zetar); anthralin (AnthaDerm, Drih-.Cream); Neutrogena T-Derm, Psori Gel</td>
</tr>
<tr>
<td>Medicated shampoos</td>
<td>Scalp lesions</td>
<td>Neutrogena T-Gel, T-Sal, Zetar, Head &amp; Shoulders, Desenex, Selsun Blue, Bakers P&amp;S (emulsifying agent with phenol, saline solution, and mineral oil)</td>
</tr>
<tr>
<td>Intralesional therapy</td>
<td>Thick plaques and nails</td>
<td>Kenalog, Cordran-impregnated tape, Fluoroplex</td>
</tr>
<tr>
<td>Systemic therapy</td>
<td>Extensive lesions and nails</td>
<td>Methotrexate (Folex, Mexate); hydruorea (Hydra); retinoic acid (Tegison)</td>
</tr>
<tr>
<td></td>
<td>Psoriatic arthritis</td>
<td>Oral gold (auranofin), enretinate, methotrexate</td>
</tr>
<tr>
<td>Photochemotherapy</td>
<td>Moderate to severe lesions</td>
<td>UVA or UVB light with or without topical medications; PUVA (combines UVA light with oral psoralens, or topical tripsoralen)</td>
</tr>
</tbody>
</table>

FIGURE 56-4 Psoriasis. Courtesy of Roche Laboratories.
a retinoid compound, tazarotene (Tazorac). Treatment with these agents tends to suppress epidermopoiesis (i.e., development of epidermal cells) and cause sloughing of the rapidly growing epidermal cells.

Topical formulations include lotions, ointments, pastes, creams, and shampoos. Older treatments, including tar baths and application of tar preparations on involved skin, are rarely used. Tar and anthralin cause irritation of the skin at the sites of application, are malodorous and difficult to apply, and do not give reliable results. Newer preparations that cause less irritation and have more consistent results are becoming more widely used.

Topical corticosteroids may be applied for their anti-inflammatory effect. Choosing the correct strength of corticosteroid for the involved site and choosing the most effective vehicle base are important aspects of topical treatment. In general, high-potency topical corticosteroids should not be used on the face and intertriginous areas, and their use on other areas should be limited to a 4-week course of twice-daily applications. A 2-week break should be taken before repeating treatment with the high-potency corticosteroids. For long-term therapy, moderate-potency corticosteroids are used. On the face and intertriginous areas, only low-potency corticosteroids are appropriate for long-term use (see Table 56-4).

Occlusive dressings may be applied to increase the effectiveness of the corticosteroid. For the hospitalized patient, large plastic bags may be used—one for the upper body with openings cut for the head and arms and one for the lower body with openings for the legs. This leaves only the extremities to wrap. In some dermatologic units, large rolls of tubular plastic are used, such as those used by dry-cleaners. For patients being treated at home, a vinyl jogging suit may be used. The medication is applied, and the suit is put on over it. The hands can be wrapped in gloves, the feet in plastic bags, and the head in a shower cap. Occlusive dressings should not remain in place longer than 8 hours. The nurse should very carefully inspect the skin for the appearance of atrophy and telangiectasias which are side effects of corticosteroids.

When psoriasis involves large areas of the body, topical corticosteroid treatment can become expensive and involve some systemic risk. Some potent corticosteroids, when applied to large areas of the body, have the potential to cause adrenal suppression through percutaneous absorption of the medication. In this event, other treatment modalities (e.g., nonsteroidal topical medications, ultraviolet light) may be used instead or in combination to decrease the need for corticosteroids.

Newer nonsteroidal topical preparations are available and effective for many patients. Calcipotriene 0.05% (Dovonex) is a derivative of vitamin D3. It works to decrease the mitotic turnover of the psoriatic plaques. Its most common side effect is local irritation, and the intertriginous areas and face should be avoided when using this medication. Patients should be monitored for symptoms of hypercalcemia. It is available as a cream for use on the body and a solution for the scalp. Calcipotriene is not recommended for use by elderly patients because of their more fragile skin or for pregnant or lactating women.

The second advance in topical treatment of psoriasis is tazarotene (Tazorac). Tazarotene, a retinoid, causes sloughing of the scales covering psoriatic plaques. As with other retinoids, it causes increased sensitivity to sunlight, so patients should be cautioned to use an effective sunscreen and avoid other photosensitizers (e.g., tetracycline, antihistamines). Tazarotene is listed as a Category X drug in pregnancy; reports indicate evidence of fetal risk, and the risk of use in pregnant women clearly outweighs any possible benefits. A negative result on a pregnancy test should be obtained before initiating this medication, and an effective contraceptive should be continued during treatment. Side effects of tazarotene include burning, erythema, or irritation at the site of application and worsening of psoriasis.

**Intralosional Agents.** Intralosional injections of triamcinolone acetonide (Aristocort, Kenalog-10, Trumex) can be administered directly into highly visible or isolated patches of psoriasis that are resistant to other forms of therapy. Care must be taken to ensure that normal skin is not injected with the medication.

**Systemic Agents.** Although systemic corticosteroids may cause rapid improvement of psoriasis, their usual risks and the possibility of triggering a severe flare-up on withdrawal limit their use. Systemic cytotoxic preparations, such as methotrexate, have been used in treating extensive psoriasis that fails to respond to other forms of therapy. Other systemic medications in current use include hydroxyurea (Hydrea) and cyclosporine A (CyA).

Methotrexate appears to inhibit DNA synthesis in epidermal cells, thereby reducing the turnover time of the psoriatic epidermis. However, the medication can be toxic, especially to the liver, which can suffer irreversible damage. Laboratory studies must be monitored to ensure that the hepatic, hematopoietic, and renal systems are functioning adequately. Bone marrow suppression is another potential side effect. The patient should avoid drinking alcohol while taking methotrexate, because alcohol ingestion increases the possibility of liver damage. The medication is teratogenic (i.e., producing physical defects in the fetus) and should not be administered to pregnant women.

Hydroxyurea also inhibits cell replication by affecting DNA synthesis. The patient is monitored for signs and symptoms of bone marrow depression.

Cyclosporine A, a cyclic peptide used to prevent rejection of transplanted organs, has shown some success in treating severe, therapy-resistant cases of psoriasis. Its use, however, is limited by side effects such as hypertension and nephrotoxicity.

Oral retinoids (i.e., synthetic derivatives of vitamin A and its metabolite, vitamin A acid) modulate the growth and differentiation of epithelial tissue. Etretinate is especially useful for severe pustular or erythrodermic psoriasis. Etretinate is a teratogen with a very long half-life; it cannot be used in women with childbearing potential.

**Photochemotherapy**

One treatment for severely debilitating psoriasis is a psoralen medication combined with ultraviolet-A (PUVA) light therapy. Ultraviolet light is the portion of the electromagnetic spectrum containing wavelengths ranging from 180 to 400 nm. In this treatment, the patient takes a photosensitizing medication (usually 8-methoxypsoralen) in a standard dose and is subsequently exposed to long-wave ultraviolet light as the medication plasma levels peak. Although the mechanism of action is not completely understood, it is thought that when psoralen-treated skin is exposed to ultraviolet-A light, the psoralen binds with DNA and decreases cellular proliferation. PUVA is not without its hazards;
CARE OF THE PATIENT WITH PSORIASIS

Assessment

The nursing assessment focuses on how the patient is coping with the psoriatic skin condition, appearance of the normal skin, and appearance of the skin lesions, as described previously. The notable manifestations are red, scaling papules that coalesce to form oval, well-defined plaques. Silver-white scales may also be present. Adjacent skin areas show red, smooth plaques with a macerated surface. It is important to examine the areas especially prone to psoriasis: elbows, knees, scalp, gluteal cleft, fingers, and toenails (for small pits).

Psoriasis may cause despair and frustration for the patient; observers may stare, comment, ask embarrassing questions, or even avoid the person. The disease can eventually exhaust the patient's resources, interfere with his or her job, and make life miserable in general. Teenagers are especially vulnerable to the psychological effects of this disorder. The family, too, is affected, because time-consuming treatments, messy salves, and constant shedding of scales may disrupt home life and cause resentment. The patient's frustrations may be expressed through hostility directed at health care personnel and others.

The nurse assesses the impact of the disease on the patient and the coping strategies used for conducting normal activities and interactions with family and friends. Many patients need reassurance that the condition is not infectious, not a reflection of poor personal hygiene, and not skin cancer.

Diagnosis

NURSING DIAGNOSES

Based on the nursing assessment data, the patient’s major nursing diagnoses may include the following:

- Deficient knowledge about the disease process and treatment
- Impaired skin integrity related to lesions and inflammatory response
- Disturbed body image related to embarrassment over appearance and self-perception of uncleanliness

COLLABORATIVE PROBLEMS/POTENTIAL COMPLICATIONS

Based on the assessment data, potential complications include the following:

- Infection
- Psoriatic arthritis

Planning and Goals

Major goals for the patient may include increased understanding of psoriasis and the treatment regimen, achievement of smoother skin with control of lesions, development of self-acceptance, and absence of complications.

Nursing Interventions

PROMOTING UNDERSTANDING

The nurse explains with sensitivity that, although there is no cure for psoriasis and lifetime management is necessary, the condition can usually be controlled. The pathophysiology of psoriasis is reviewed, as are the factors that provoke it—irritation or injury to the skin (eg, cut, abrasion, sunburn), current illness (eg, pharyngeal streptococcal infection), and emotional stress. It is emphasized that repeated trauma to the skin and an unfavorable environment (eg, cold) or a specific medication (eg, lithium, beta-blockers, indomethacin) may exacerbate psoriasis. The patient is cautioned about taking any nonprescription medications because some may aggravate mild psoriasis.

Reviewing and explaining the treatment regimen are essential to ensure compliance. For example, if the patient has a mild condition confined to localized areas, such as the elbows or knees, application of an emollient to maintain softness and minimize scaling may be all that is required. However, if the patient uses anthralin, the dosage schedule, possible side effects, and problems to report to the nurse or physician should be explained.

Most patients need a comprehensive plan of care that ranges from using topical medications and shampoos to more complex and lengthy treatment with systemic medications and phototherapy, such as PUVA therapy. Patient education materials that include a description of the therapy and specific guidelines are helpful but cannot replace face-to-face discussions of the treatment plan.

INCREASING SKIN INTEGRITY

To avoid injuring the skin, the patient is advised not to pick at or scratch the affected areas. Measures to prevent dry skin are encouraged because dry skin worsens psoriasis. Too-frequent washing produces more soreness and scaling. Water should be warm, not hot, and the skin should be dried by patting with a towel rather than by rubbing. Emollients have a moisturizing effect,
providing an occlusive film on the skin surface so that normal water loss through the skin is halted and allowing the trapped water to hydrate the stratum corneum. A bath oil or emollient cleansing agent can comfort sore and scaling skin. Softening the skin can prevent fissures (see Plan of Nursing Care 56-1).

**IMPROVING SELF-CONCEPT AND BODY IMAGE**

A therapeutic relationship between health care professionals and the patient with psoriasis is one that includes education and support. After the treatment regimen is established, the patient should begin to feel more confident and empowered in carrying out and in using coping strategies that help deal with the altered self-concept and body image brought about by the disease. Introducing the patient to successful coping strategies used by others with psoriasis and making suggestions for reducing or coping with stressful situations at home, school, and work can facilitate a more positive outlook and acceptance of the chronicity of the disease.

**MONITORING AND MANAGING POTENTIAL COMPLICATIONS**

**Psoriatic Arthritis**

The diagnosis of psoriasis, especially when it is accompanied by the complication of arthritis, is usually difficult to make. Psoriatic arthritis involving the sacroiliac and distal joints of the fingers may be overlooked, especially if the patient has the typical psoriatic lesions. However, patients who complain of mild joint discomfort and some pitting of the fingernails may not be diagnosed with psoriasis until the more obvious cutaneous lesions appear.

The complaint of joint discomfort in the patient with psoriasis should be noted and evaluated. The symptoms of psoriatic arthritis can mimic the symptoms of Reiter’s disease and ankylosing spondylitis, and a definitive diagnosis must be made. Treatment of the condition usually involves joint rest, application of heat, and salicylates.

The patient requires education about the care and treatment of the involved joints and the need for compliance with therapy. The incidence of psoriatic arthropathy is unknown because the symptoms are so variable. It is believed, however, that when the psoriasis is extensive and a family history of inflammatory arthritis is elicited, the chance that the patient will develop psoriatic arthritis increases substantially. It is recommended that a rheumatologist be consulted to assist in the diagnosis and treatment of the arthropathy.

**PROMOTING HOME AND COMMUNITY-BASED CARE**

**Teaching Patients Self-Care**

Printed patient education materials may be provided to reinforce face-to-face discussions about treatment guidelines and other considerations. For example, the patient and the family caregiver may need to know that the topical agent anthralin leaves a brownish purple stain on the skin but that the discoloration subsides after anthralin treatment stops. The patient should also be instructed to cover lesions treated with anthralin with gauze, stockinette, or other soft coverings to avoid staining clothing, furniture, and bed linens.

Patients using topical corticosteroid preparations repeatedly on the face and around the eyes should be aware that cataract development is possible. Strict guidelines for applying these medications should be emphasized because overuse can result in skin atrophy, striae, and medication resistance.

Phototherapy, known as PUVA treatments, are reserved for moderate to severe psoriasis, produces photosensitization, which means that the skin is sensitive to the sun until methoxsalen has been excreted from the body in about 6 to 8 hours. Patients undergoing PUVA treatments should avoid exposure to the sun. If exposure is unavoidable, the skin must be protected with sunscreen and clothing. Gray- or green-tinted, wraparound sunglasses should be worn to protect the eyes during and after treatment, and ophthalmologic examinations should be performed on a regular basis. Nausea, which may be a problem in some patients, is lessened when methoxsalen is taken with food. Lubricants and bath oils may be used to help remove scales and prevent excessive dryness. No other creams or oils are to be used except on areas that have been shielded from ultraviolet light. Contraceptives should be used by sexually active women of reproductive age, because the teratogenic effect of PUVA has not been determined. The patient is kept under constant and careful supervision and is encouraged to recognize unusual changes in the skin.

If indicated, referral may be made to a mental health professional who can help to ease emotional strain and give support. Belonging to a support group may also help patients acknowledge that they are not alone in experiencing life adjustments in response to a visible, chronic disease. The National Psoriasis Foundation publishes periodic bulletins and reports about new and relevant developments in this condition.

Chart 56-4 is a Home Care Checklist for the patient with psoriasis.

**Evaluation**

**EXPECTED PATIENT OUTCOMES**

Expected patient outcomes may include the following:

1. Demonstrates knowledge and understanding of disease process and its treatment
   a. Describes psoriasis and the prescribed therapy
   b. Verbalizes that trauma, infection, and emotional stress may be trigger factors

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**Chart 56-4**

**Home Care Checklist • The Patient With Psoriasis**

*At the completion of the home care instruction, the patient or caregiver will be able to:*

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<thead>
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<th>Patient</th>
<th>Caregiver</th>
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EXFOLIATIVE DERMATITIS

Exfoliative dermatitis is a serious condition characterized by progressive inflammation in which erythema and scaling occur in a more or less generalized distribution. It may be associated with chills, fever, prostration, severe toxicity, and an itchy scaling of the skin. There is a profound loss of stratum corneum (ie, outermost layer of the skin), which causes capillary leakage, hypoproteinemia, and negative nitrogen balance. Because of widespread dilation of cutaneous vessels, large amounts of body heat are lost, and exfoliative dermatitis has a marked effect on the entire body.

Exfoliative dermatitis has a variety of causes. It is considered to be a secondary or reactive process to an underlying skin or systemic disease. It may appear as a part of the lymphoma group of diseases and may precede the appearance of lymphoma. Preexisting skin disorders that have been implicated as a cause include psoriasis, atopic dermatitis, and contact dermatitis. It also appears as a severe reaction to many medications, including penicillin and phenylbutazone. The cause is unknown in approximately 25% of cases (Odom et al., 2000).

Clinical Manifestations

This condition starts acutely as a patchy or a generalized erythematous eruption accompanied by fever, malaise, and occasionally gastrointestinal symptoms. The skin color changes from pink to dark red. After a week, the characteristic exfoliation (ie, scaling) begins, usually in the form of thin flakes that leave the underlying skin smooth and red, with new scales forming as the older ones come off. Hair loss may accompany this disorder. Relapses are common. The systemic effects include high-output heart failure, intestinal disturbances, breast enlargement, elevated levels of uric acid in the blood (ie, hyperuricemia), and temperature disturbances.

Medical Management

The objectives of management are to maintain fluid and electrolyte balance and to prevent infection. The treatment is individualized and supportive and should be initiated as soon as the condition is diagnosed.

The patient may be hospitalized and placed on bed rest. All medications that may be implicated are discontinued. A comfortable room temperature should be maintained because the patient does not have normal thermoregulatory control as a result of temperature fluctuations caused by vasodilation and evaporative water loss. Fluid and electrolyte balance must be maintained because there is considerable water and protein loss from the skin surface. Plasma volume expanders may be indicated.

Nursing Management

Continual nursing assessment is carried out to detect infection. The disrupted, erythematous, moist skin is susceptible to infection and becomes colonized with pathogenic organisms, which produce more inflammation. Antibiotics, prescribed if infection is present, are selected on the basis of culture and sensitivity.

Hypothermia may occur because increased blood flow in the skin, coupled with increased water loss through the skin, leads to heat loss by radiation, conduction, and evaporation. Changes in vital signs are closely monitored and reported.

As in any acute dermatitis, topical therapy is used to provide symptomatic relief. Soothing baths, compresses, and lubrication with emollients are used to treat the extensive dermatitis. The patient is likely to be extremely irritable because of the severe itching. Oral or parenteral corticosteroids may be prescribed when the disease is not controlled by more conservative therapy. When a specific cause is known, more specific therapy may be used. The patient is advised to avoid all irritants in the future, particularly medications.

Blistering Diseases

Blisters of the skin have many origins, including bacterial, fungal, or viral infections; allergic contact reactions; burns; metabolic disorders; and immunologically mediated reactions. Some of these have been discussed previously (eg, herpes simplex and zoster infections, contact dermatitis). Immunologically mediated diseases are autoimmune reactions and represent a defect of IgM, IgE, IgG, and C3. Some of these conditions are life-threatening; others become chronic problems.

The diagnosis is always made by histologic examination of a biopsy specimen by a dermatopathologist. A specimen from the blister and surrounding skin demonstrates acantholysis (ie, separation of epidermal cells from each other because of damage to an abnormality of the intracellular substance). Circulating antibodies may be detected by immunofluorescent studies of the patient’s serum.

PEMPHIGUS

Pemphigus is a group of serious diseases of the skin characterized by the appearance of bullae (ie, blisters) of various sizes on apparently normal skin (Fig. 56-5) and mucous membranes. Available evidence indicates that pemphigus is an autoimmune disease involving immunoglobulin G. It is thought that the pemphigus antibody is directed against a specific cell-surface antigen in epidermal cells. A blister forms from the antigen–antibody reaction. The level of serum antibody is predictive of disease severity. Genetic factors may also play a role in its development, with the highest incidence among those of Jewish or Mediterranean descent. This disorder usually occurs in men and women in middle and late adulthood. The condition may be associated with penicillins and captopril and with myasthenia gravis.
Clinical Manifestations

Most patients present with oral lesions appearing as irregularly shaped erosions that are painful, bleed easily, and heal slowly. The skin bullae enlarge, rupture, and leave large, painful eroded areas that are accompanied by crusting and oozing. A characteristic offensive odor emanates from the bullae and the exuding serum. There is blistering or sloughing of uninvolved skin when minimal pressure is applied (ie, Nikolsky’s sign). The eroded skin heals slowly, and huge areas of the body eventually are involved. Bacterial superinfection is common.

Complications

The most common complications of pemphigus vulgaris arise when the disease process is widespread. Before the advent of corticosteroid and immunosuppressive therapy, patients were very susceptible to secondary bacterial infection. Skin bacteria have relatively easy access to the bullae as they ooze, rupture, and leave denuded areas that are open to the environment. Fluid and electrolyte imbalance results from the loss of both fluid and protein as the bullae rupture. Hypoalbuminemia is common when the disease process includes extensive areas of the body skin surface and mucous membranes.

Management

The goals of therapy are to bring the disease under control as rapidly as possible, to prevent loss of serum and the development of secondary infection, and to promote re-epithelization (ie, renewal of epithelial tissue).

Corticosteroids are administered in high doses to control the disease and keep the skin free of bullae. The high dosage level is maintained until remission is apparent. In some cases, corticosteroid therapy must be continued for life.

Corticosteroids are administered with or immediately after a meal and may be accompanied by an antacid as prophylaxis against gastric complications. Essential to therapeutic management are daily evaluations of body weight, blood pressure, blood glucose levels, and fluid balance. High-dose corticosteroid therapy has its own serious toxic effects (see Chap. 42).

Immunosuppressive agents (eg, azathioprine, cyclophosphamide, gold) may be prescribed to help control the disease and reduce the corticosteroid dose. Plasmapheresis (ie, plasma exchange) temporarily decreases the serum antibody level and has been used with variable success, although it is generally reserved for life-threatening cases.

BULLOUS PEMPHIGOID

Bullous pemphigoid is an acquired disease of flaccid blisters appearing on normal or erythematous skin. It appears more often on the flexor surfaces of the arms, legs, axilla, and groin. Oral lesions, if present, are usually transient and minimal. When the blisters break, the skin has shallow erosions that heal fairly quickly. Pruritus can be intense, even before the appearance of the blisters. Bullous pemphigoid is common in the elderly, with a peak incidence at about 60 years of age. There is no gender or racial predilection, and the disease can be found throughout the world.

Management

Medical treatment includes topical corticosteroids for localized eruptions and systemic corticosteroids for widespread involvement. Systemic prednisone may be continued for months, in alternate-day doses. The patient needs to understand the implications of long-term corticosteroid therapy, including loss of bone mass, osteoporosis, cataracts, peptic ulcers, psychotic reactions, increased risk for infection, weight gain from fluid retention, and the potential for adrenal suppression.

DERMATITIS HERPETIFORMIS

Dermatitis herpetiformis is an intensely pruritic, chronic disease that manifests with small, tense blisters that are distributed symmetrically over the elbows, knees, buttocks, and nape of the neck. It is most common between the ages of 20 and 40 years but can appear at any age. Most patients with dermatitis herpetiformis have a subclinical defect in gluten metabolism.

Management

Most patients respond to dapsone (combination of tetracycline and nicotinamide) and to a gluten-free diet. All patients should be screened for glucose-6-phosphate dehydrogenase deficiency, because dapsone can induce severe hemolysis in those with this deficiency. Patients benefit from dietary counseling because the dietary restrictions are lifelong, and a gluten-free diet is often difficult to follow. They need emotional support as they deal with the process of learning new habits and accepting major changes in their life.

HERPES GESTATIONIS

Herpes gestationis is a disease that occurs during or shortly after pregnancy. It shares several clinical features with bullous pemphigoid, and despite its name, it has no relation to the herpes virus. This disease is uncommon, with an incidence of approximately 1 case in every 50,000 pregnancies. It appears in the second or third trimester. It begins with urticarial papules on the abdomen and spreads to the trunk and extremities. It usually resolves within a few weeks of delivery but can recur in subsequent pregnancies, with menses, or with the use of oral contraceptives (Odom et al., 2000).

Management

Herpes gestationis is best managed with systemic corticosteroids. There is debate about whether there is any risk for fetal morbidity or mortality in babies born to mothers with herpes gestationis. As in other blistering diseases, special attention is required to prevent secondary infection.
**NURSING PROCESS: CARE OF THE PATIENT WITH BLISTERING DISEASES**

**Assessment**

Patients with blistering disorders may experience significant disability. There is constant itching and possible pain in the denuded areas of skin. There may be drainage from the denuded areas, which may be malodorous. Effective assessment and nursing management become a challenge.

Disease activity is monitored clinically by examining the skin for the appearance of new blisters. Areas where healing has occurred may show signs of hyperpigmentation. Particular attention is given to assessing for signs and symptoms of infection.

**Diagnosis**

**NURSING DIAGNOSES**

Based on nursing assessment data, the patient’s major nursing diagnoses may include the following:

- Acute pain of skin and oral cavity related to blistering and erosions
- Impaired skin integrity related to ruptured bullae and denuded areas of the skin
- Anxiety and ineffective coping related to the appearance of the skin and no hope of a cure
- Deficient knowledge about medications and side effects

**COLLABORATIVE PROBLEMS/POTENTIAL COMPLICATIONS**

Based on the assessment data, potential complications include the following:

- Infection and sepsis related to loss of protective barrier of skin and mucous membranes
- Fluid volume deficit and electrolyte imbalance related to loss of tissue fluids

**Planning and Goals**

The major goals for the patient may include relief of discomfort from lesions, skin healing, reduced anxiety and improved coping capacity, and absence of complications.

**Nursing Interventions**

**RELEIVING ORAL DISCOMFORT**

The patient’s entire oral cavity may be affected with erosions and denuded surfaces. A necrotic slough may develop over these areas, adding to the patient’s discomfort and interfering with food intake. Weight loss and hypoproteinemia may result. Meticulous oral hygiene is important to keep the oral mucosa clean and allow the epithelium to regenerate. Frequent rinsing of the mouth is prescribed to rid the mouth of debris and to soothe ulcerated areas. Commercial mouthwashes are avoided. The lips are kept moist with lanolin, petrolatum, or lip balm. Cool mist therapy helps to humidify environmental air.

**ENHANCING SKIN INTEGRITY AND RELIEVING DISCOMFORT**

Cool, wet dressings or baths are protective and soothing. The patient with painful and extensive lesions should be premedicated with analgesics before skin care is initiated. Patients with large areas of blistering have a characteristic odor that decreases when secondary infection is controlled. After the patient’s skin is bathed, it is dried carefully and dusted liberally with nonirritating powder, which enables the patient to move freely in bed. Fairly large amounts are necessary to keep the patient’s skin from sticking to the sheets. Tape should never be used on the skin because it may produce more blisters. Hypothermia is common, and measures to keep the patient warm and comfortable are priority nursing activities. The nursing management of patients with bullous skin conditions is similar to that for patients with extensive burns (see Chap. 57).

**REDUCING ANXIETY**

Attention to the psychological needs of the patient requires listening to the patient, being available, giving expert nursing care, and educating the patient and the family. The patient is encouraged to express freely anxieties, discomfort, and feelings of hopelessness. Arranging for a family member or a close friend to spend more time with the patient can be supportive. When patients receive information about the disease and its treatment, uncertainty and anxiety are reduced, and the patient’s capacity to act on his or her own behalf is enhanced. Referral for psychological counseling may assist the patient in dealing with fears, anxiety, and depression.

**MONITORING AND MANAGING POTENTIAL COMPLICATIONS**

**Infection and Sepsis**

The patient is susceptible to infection because the barrier function of the skin is compromised. Bullae are also susceptible to infection, and sepsis may follow. The skin is cleaned to remove debris and dead skin and to prevent infection.

Secondary infection may be accompanied by an offensive odor from skin or oral lesions. C. albicans of the mouth (ie, thrush) commonly affects patients receiving high-dose corticosteroid therapy. The oral cavity is inspected daily, and any changes are reported. Oral lesions are slow to heal.

Infection is the leading cause of death in patients with blistering diseases. Particular attention is given to assessment for signs and symptoms of local and systemic infection. Seemingly trivial complaints or minimal changes are investigated, because corticosteroids can mask or alter typical signs and symptoms of infection. The patient’s vital signs are taken, and temperature fluctuations are monitored. The patient is observed for chills, and all secretions and excretions are monitored for changes suggesting infection. Results of culture and sensitivity tests are monitored. Antimicrobial agents are administered as prescribed, and response to treatment is assessed. Health care personnel must perform effective hand hygiene and wear gloves.

In the hospitalized patient, environmental contamination is reduced as much as possible. Protective isolation measures and standard precautions are warranted.

**Fluid and Electrolyte Imbalance**

Extensive denudation of the skin leads to fluid and electrolyte imbalance because of significant loss of fluids and sodium chloride from the skin. This sodium chloride loss is responsible for many of the systemic symptoms associated with the disease and is treated by intravenous administration of saline solution.

A large amount of protein and blood is lost from the denuded skin areas. Blood component therapy may be prescribed to maintain the blood volume, hemoglobin level, and plasma protein.
TEN and SJS are potentially fatal skin disorders and the most severe form of erythema multiforme. The mortality rate from TEN approaches 30%. Both conditions are triggered by a reaction to medications known to precipitate TEN or SJS may approach 1 case per 1000 (Odom et al., 2000). Most patients with TEN have an abnormal metabolism of the culprit medication, and the mechanism leading to TEN seems to be a cell-mediated cytotoxic reaction (Wolkenstein, 2000).

Complications
Sepsis and keratoconjunctivitis are complications of TEN and SJS. Unrecognized and untreated sepsis can be life-threatening. Keratoconjunctivitis can impair vision and result in conjunctival retraction, scarring, and corneal lesions.

Analysis and Diagnostic Findings
Histologic studies of frozen skin cells from a fresh lesion and cytodiagnosis of collections of cellular material from a freshly denuded area are performed. A history of ingestion of medications known to precipitate TEN or SJS may confirm medication reaction as the underlying cause.

Immunofluorescent studies may be performed to detect atypical epidermal autoantibodies. A genetic predisposition to erythema multiforme has been suggested but is not confirmed for all cases.

Medical Management
The goals of treatment include control of fluid and electrolyte balance, prevention of sepsis, and prevention of ophthalmic complications. Supportive care is the mainstay of treatment.

All nonessential medications are discontinued immediately. If possible, the patient is treated in a regional burn center, because aggressive treatment similar to that for severe burns is required. Skin loss may approach 100% of the total body surface area. Surgical debridement or hydrotherapy in a Hubbard tank (ie, large, steel tub) may be performed to remove involved skin.

Tissue samples from the nasopharynx, eyes, ears, blood, urine, skin, and unruptured blisters are obtained for culture to identify pathogenic organisms. Intravenous fluids are prescribed to maintain fluid and electrolyte balance, especially in the patient who has severe mucosal involvement and who cannot easily take oral nourishment. Because an indwelling intravenous catheter may be a site of infection, fluid replacement is carried out by nasogastric tube and then orally as soon as possible.

Initial treatment with systemic corticosteroids is controversial. Some experts argue for early high-dose corticosteroid treatment. However, in most cases, the risk for infection, the complication of fluid and electrolyte imbalance, the delay in the healing process, and the difficulty in initiating oral corticosteroids early in the course of the disease outweigh the perceived benefits. In patients

TEN and SJS are characterized initially by conjunctival burning or itching, cutaneous tenderness, fever, cough, sore throat, headache, extreme malaise, and myalgias (ie, aches and pains). These signs are followed by a rapid onset of erythema involving much of the skin surface and mucous membranes, including the oral mucosa, conjunctiva, and genitalia. In severe cases of mucosal involvement, there may be danger of damage to the larynx, bronchi, and esophagus from ulcerations. Large, flaccid bullae develop in some areas; in other areas, large sheets of epidermis are shed, exposing the underlying dermis. Fingernails, toenails, eyebrows, and eyelashes may be shed along with the surrounding epidermis. The skin is exquisitely tender, and the loss of skin leaves a weeping surface similar to that of a total-body, partial-thickness burn; hence the condition is also referred to as scalded skin syndrome.

Expected patient outcomes may include the following:

1. Achieves relief from pain of oral lesions
   a. Identifies therapies that reduce pain
   b. Uses mouthwashes and anesthetic or antiseptic aerosol
      mouth spray
   c. Drinks chilled fluids at 2-hour intervals
2. Achieves skin healing
   a. States purpose of therapeutic regimen
   b. Cooperates with soaks and bath regimen
   c. Reminds caregivers to use liberal amounts of nonirritating powder on bed linens
3. Is less anxious and better able to cope
   a. Verbalizes concerns about condition, self, and relationships with others
   b. Participates in self-care
4. Experiences no complications
   a. Has cultures from bullae, skin, and orifices that are negative for pathogenic organisms
   b. Has no purulent drainage
   c. Shows signs that skin is clearing
   d. Has normal temperature
   e. Keeps intake record to ensure adequate fluid intake and normal fluid and electrolyte balance
   f. Verbalizes the rationale for intravenous infusion therapy
   g. Has urine output within normal limits
   h. Has serum chemistry and hemoglobin and hematocrit values within normal limits

TOXIC EPIDERMAL NECROLYSIS AND STEVENS-JOHNSON SYNDROME
TEN and SJS are characterized initially by conjunctival burning or itching, cutaneous tenderness, fever, cough, sore throat, headache, extreme malaise, and myalgias (ie, aches and pains). These signs are followed by a rapid onset of erythema involving much of the skin surface and mucous membranes, including the oral mucosa, conjunctiva, and genitalia. In severe cases of mucosal involvement, there may be danger of damage to the larynx, bronchi, and esophagus from ulcerations. Large, flaccid bullae develop in...
with TEN thought to result from a medication reaction, corticosteroids may be administered; however, the patients should be closely monitored for the previously stated adverse effects.

One report stated that intravenous administration of immunoglobulin (IVIG) to 10 patients led to improvement within 48 hours and skin healing within 1 week. This response is dramatically better than that obtained with immunosuppressives, and IVIG may soon become the treatment of choice (Rutter & Luger, 2001).

Protecting the skin with topical agents is crucial. Various topical antibacterial and anesthetic agents are used to prevent wound sepsis and to assist with pain management. Systemic antibiotic therapy is used with extreme caution. Temporary biologic dressings (eg, pigskin, amniotic membrane) or plastic semipermeable dressings (eg, Vigilon) may be used to reduce pain, decrease evaporation, and prevent secondary infection until the epithelium regenerates. Meticulous oropharyngeal and eye care is essential when there is severe involvement of the mucous membranes and the eyes.

NURSING PROCESS: CARE OF THE PATIENT WITH TOXIC EPIDERMAL NECROLYSIS

Assessment

A careful inspection of the skin is made, including its appearance and the extent of involvement. The normal skin is closely observed to determine if new areas of blisters are developing. Seepage from blisters is monitored for amount, color, and odor. Inspection of the oral cavity for blistering and erosive lesions is performed daily; the patient is assessed daily for itching, burning, and dryness of the eyes. The patient’s ability to swallow and drink fluids, as well as speak normally, is determined.

The patient’s vital signs are monitored, and special attention is given to the presence and character of fever and the respiratory rate, depth, rhythm, and cough. The characteristics and amount of respiratory secretions are reviewed. Assessment for high fever, tachycardia, and extreme weakness and fatigue is essential, because these factors indicate the process of epidermal necrosis, increased metabolic needs, and possible gastrointestinal and respiratory mucosal sloughing. Urine volume, specific gravity, and color are monitored. The insertion sites of intravenous lines are inspected for signs of local infection. Daily body weights are recorded.

The patient is asked to describe fatigue and pain levels. An attempt is made to evaluate the patient’s level of anxiety. The patient’s basic coping mechanisms are assessed, and effective coping strategies are identified.

Diagnosis

NURSING DIAGNOSES

Based on the assessment data, the patient’s major nursing diagnoses may include the following:

- Impaired tissue integrity (ie, oral, eye, and skin) related to epidermal shedding
- Deficient fluid volume and electrolyte losses related to loss of fluids from denuded skin
- Risk for imbalanced body temperature (ie, hypothermia) related to heat loss secondary to skin loss
- Acute pain related to denuded skin, oral lesions, and possible infection
- Anxiety related to the physical appearance of the skin and prognosis

COLLABORATIVE PROBLEMS/ POTENTIAL COMPLICATIONS

Based on the assessment data, potential complications include the following:

- Sepsis
- Conjunctival retraction, scars, and corneal lesions

Planning and Goals

The major goals for the patient may include skin and oral tissue healing, fluid balance, prevention of heat loss, relief of pain, reduced anxiety, and absence of complications.

Nursing Interventions

MAINTAINING SKIN AND MUCOUS MEMBRANE INTEGRITY

The local care of the skin is an important area of nursing management. The skin denudes easily, even when the patient is lifted and turned; it may be necessary to place the patient on a circular turning frame. The nurse applies the prescribed topical agents that reduce the bacterial population of the wound surface. Warm compresses, if prescribed, should be applied gently to denuded areas. The topical antibacterial agent may be used in conjunction with hydrotherapy in a tank, bathtub, or shower. The nurse monitors the patient’s condition during the treatment and encourages the patient to exercise the extremities during hydrotherapy.

The painful oral lesions make oral hygiene difficult. Careful oral hygiene is performed to keep the oral mucosa clean. Prescribed mouthwashes, anesthetics, or coating agents are used frequently to rid the mouth of debris, soothe ulcerative areas, and control foul mouth odor. The oral cavity is inspected several times each day, and any changes are documented and reported. Petrolatum or a prescribed ointment is applied to the lips.

ATTAINING FLUID BALANCE

The vital signs, urine output, and sensorium are observed for indications of hypovolemia. Mental changes from fluid and electrolyte imbalance, sensory overload, or sensory deprivation may occur. Laboratory test results are evaluated, and abnormal results are reported. The patient is weighed daily (with a bed scale if necessary).

The nurse regulates intravenous fluids at prescribed infusion rates and assesses for systemic (ie, overinfusion or underinfusion) and local (eg, infection) complications. Oral lesions may result in dysphagia, making tube feeding or parenteral nutrition necessary. Prescribed enteral nourishment or enteral supplements can be administered by tube feeding until oral ingestion can be tolerated. A daily calorie count and accurate recording of all intake and output are essential.

PREVENTING HYPOTHERMIA

The patient with TEN is prone to chilling. Dehydration may be made worse by exposing the denuded skin to a continuous current of warm air. The patient is usually sensitive to room temperature changes. Measures implemented for a burn patient, such as cotton blankets, ceiling-mounted heat lamps, and heat shields, are useful in maintaining body temperature. To minimize shivering and heat loss, the nurse should work rapidly and efficiently...
when large wounds are exposed for wound care. The patient’s temperature is monitored frequently.

**RELIEVING PAIN**
The nurse assesses the patient’s pain, its characteristics, any factors that influence the pain, and the patient’s behavioral responses. Prescribed analgesics are administered, and the nurse documents pain relief and any side effects. Analgesics are administered before painful treatments are performed. Providing thorough explanations and speaking calmly to the patient during treatments can allay the anxiety that may intensify pain. Offering emotional support and reassurance and implementing measures that promote rest and sleep are basic in achieving pain control. As the pain diminishes and the patient has more physical and emotional energy, self-management techniques for pain relief, such as progressive muscle relaxation and imagery, may be taught.

**REDUCING ANXIETY**
Because the lifestyle of patients with TEN has been abruptly changed to one of complete dependence, an assessment of their emotional state may reveal anxiety, depression, and fear of dying. Patients can be reassured that these reactions are normal. They also need nursing support, honest communication, and hope that their situation can improve. They are encouraged to express their feelings to someone they trust. Listening to their concerns and being readily available with skillful and compassionate care are important anxiety-relieving interventions. Emotional support by a psychiatric nurse, chaplain, psychologist, or psychiatrist may be helpful to promote coping during the long recovery period.

**MONITORING AND MANAGING POTENTIAL COMPLICATIONS**

**Sepsis**
The major cause of death from TEN is infection, and the most common sites of infection are the skin and mucosal surfaces, lungs, and blood. The organisms most often involved are *S. aureus, Pseudomonas, Klebsiella, Escherichia coli, Serratia*, and *Candida*. Monitoring vital signs closely and noticing changes in respiratory, renal, and gastrointestinal function may quickly detect the beginning of an infection. Strict asepsis is always maintained during routine skin care measures. Hand hygiene and wearing sterile gloves when carrying out procedures are necessary. When the condition involves a large portion of the body, the patient should be in a private room to prevent possible cross-infection from other patients. Visitors should wear protective garments and wash their hands before and after coming into contact with the patient. People with any infectious disease should not visit the patient until they are no longer a danger to the patient.

**Conjunctival Retraction, Scars, and Corneal Lesions**
The eyes are inspected daily for signs of itching, burning, and dryness, which may indicate progression often to keratoconjunctivitis, the principal eye complication. Applying a cool, damp cloth over the eyes may relieve burning sensations. The eyes are kept clean and observed for signs of discharge or discomfort, and the progression of symptoms is documented and reported. Administering an eye lubricant, when prescribed, may alleviate dryness and prevent corneal abrasion. Using eye patches or reminding the patient to blink periodically may also counteract dryness. The patient is instructed to avoid rubbing the eyes or putting any medication into the eyes that has not been prescribed or approved by the physician.

**Ulcerations**
Superficial loss of surface tissue as a result of death of the cells is called an ulceration. A simple ulcer, such as the kind found in a small, superficial, partial-thickness burn, tends to heal by granulation (ie, new tissue granules) if kept clean and protected from injury. If it is exposed to the air, the serum that escapes will dry and form a scab, under which the epithelial cells will grow and cover the surface completely. Certain diseases cause characteristic ulcers; tuberculous ulcers and syphilitic ulcers are examples. Ulcers related to problems with arterial circulation are seen in patients with peripheral vascular disease, arteriosclerosis, Raynaud’s disease, and frostbite. In these patients, treatment of the ulcers is concurrent with treatment of the arterial disease (see Chap. 31). Nursing management includes the use of the dressings discussed at the beginning of this chapter. If nursing interventions are instituted early in the progression of an ulcer, the condition can often be effectively improved. Surgical amputation of an affected limb is a last resort.

Pressure ulcers involve breakdown of the skin due to prolonged pressure and insufficient blood supply, usually at bony prominences. Information about these ulcers is presented in chapter 11.

**Benign Tumors of the Skin**

**CYSTS**
Cysts of the skin are epithelium-lined cavities that contain fluid or solid material. Epidermal cysts (ie, epidermoid cysts) occur frequently and may be described as slow-growing, firm, elevated tumors found most frequently on the face, neck, upper chest, and back. Removal of the cysts provides a cure.
Pilar cysts (ie, trichilemmal cysts), formerly called sebaceous cysts, are most frequently found on the scalp. They originate from the middle portion of the hair follicle and from the cells of the outer hair root sheath. The treatment is surgical removal.

**ACTINIC AND SEBORRHEIC KERATOSES**

Seborrheic keratoses are benign, wartlike lesions of various sizes and colors, ranging from light tan to black. They are usually located on the face, shoulders, chest, and back and are the most common skin tumors seen in middle-aged and elderly people. They may be cosmetically unacceptable to the patient. A black keratosis may be erroneously diagnosed as malignant melanoma. The treatment is removal of the tumor tissue by excision, electrodesiccation and curettage, or application of carbon dioxide or liquid nitrogen. However, there is no harm in allowing these growths to remain, because there is no medical significance to their presence.

Actinic keratoses are premalignant skin lesions that develop in chronically sun-exposed areas of the body. They appear as rough, scaly patches with underlying erythema. A small percentage of these lesions gradually transform into cutaneous squamous cell carcinoma; they are usually removed by cryotherapy or shave excision.

**VERRUCAE: WARTS**

Warts are common, benign skin tumors caused by infection with the human papillomavirus, which belongs to the DNA virus group. All age groups may be affected, but the condition occurs most frequently between ages 12 and 16 years. There are many types of warts.

As a rule, warts are asymptomatic, except when they occur on weight-bearing areas, such as the soles of the feet. They may be treated with locally applied laser therapy, liquid nitrogen, salicylic acid plasters, or electrodesiccation (ie, destruction of skin lesions by monopolar high-frequency electric current).

Warts occurring on the genitilia and perianal areas are known as condylomata acuminata. They may be transmitted sexually and are treated with liquid nitrogen, cryosurgery, electrosurgery, topically applied trichloracetic acid, and curettage. Condylomata (see Chapter 47) that affect the uterine cervix predispose the patient to cervical cancer.

**ANGIOMAS**

Angiomas are benign vascular tumors that involve the skin and the subcutaneous tissues. They are present at birth and may occur as flat, violet-red patches (ie, port-wine angiomas) or as raised, bright-red, nodular lesions (ie, strawberry angiomas). The latter tend to involute spontaneously within the first few years of life, but port-wine angiomas usually persist indefinitely. Most patients use masking cosmetics (ie, Covermark or Dermablend) to camouflage the lesion. The argon laser is being used on various angiomas with some success. Treatment of strawberry angiomas is more successful if undertaken as soon after birth as possible (Odom et al., 2000).

**PIGMENTED NEVI: MOLES**

Moles are common skin tumors of various sizes and shades, ranging from yellowish brown to black. They may be flat, macular lesions or elevated papules or nodules that occasionally contain hair. Most pigmented nevi are harmless lesions. However, in rare cases, malignant changes occur, and a melanoma develops at the site of the nevus. Some authorities believe that all congenital moles should be removed, because they may have a higher incidence of malignant change. However, depending on the quantity and location, this may be impractical. Nevi that show a change in color or size or become symptomatic (eg, itch) or develop irregular borders should be removed to determine if malignant changes have occurred. Moles that occur in unusual places should be examined carefully for any irregularity and for notchting of the border and variation in color. Early melanomas may display some redness and irritation and areas of bluish pigmentation where the pigment-containing cells have spread deeper into the skin. Late melanomas have areas of paler color, where pigment cells have stopped producing melanin. Nevi larger than 1 cm should be examined carefully. Excised nevi should be examined histologically.

**KELOIDS**

Keloids are benign overgrowths of fibrous tissue at the site of a scar or trauma. They appear to be more common among dark-skinned people. Keloids are asymptomatic but may cause disfigurement and cosmetic concern. The treatment, which is not always satisfactory, consists of surgical excision, intralesional corticosteroid therapy, and radiation.

**DERMATOFIBROMA**

A dermatofibroma is a common, benign tumor of connective tissue that occurs predominantly on the extremities. It is a firm, dome-shaped papule or nodule that may be skin colored or pinkish brown. Excisional biopsy is the recommended method of treatment.

**NEUROFIBROMATOSIS: VON RECKLINGHAUSEN’S DISEASE**

Neurofibromatosis is a hereditary condition manifested by pigmented patches (ie, café-au-lait macules), axillary freckling, and cutaneous neurofibromas that vary in size. Developmental changes may occur in the nervous system, muscles, and bone. Malignant degeneration of the neurofibromas occurs in some patients.

**Malignant Tumors of the Skin: Skin Cancer**

Skin cancer is the most common cancer in the United States. If the incidence continues at the present rate, an estimated one of eight fair-skinned Americans will develop skin cancer, especially basal cell carcinoma (Chart 56-5). Because the skin is easily inspected, skin cancer is readily seen and detected and is the most successfully treated type of cancer (Odom et al., 2000).

Exposure to the sun is the leading cause of skin cancer; incidence is related to the total amount of exposure to the sun. Sun damage is cumulative, and harmful effects may be severe by age 20 years. The increase in skin cancer probably reflects changing lifestyles and the emphasis on sunbathing and related activities in light of changes in the environment, such as holes in the Earth’s ozone layer. Protective measures should be used throughout life, and nurses need to inform patients about risk factors associated with skin cancer.
BASAL CELL AND SQUAMOUS CELL CARCINOMA

The most common types of skin cancer are basal cell carcinoma (BCC) and squamous cell (epidermoid) carcinoma (SCC). The third most common type, malignant melanoma, is discussed separately. Skin cancer is diagnosed by biopsy and histologic evaluation.

Clinical Manifestations

BCC is the most common type of skin cancer. It generally appears on sun-exposed areas of the body and is more prevalent in regions where the population is subjected to intense and extensive exposure to the sun. The incidence is proportional to the age of the patient (average age of 60 years) and the total amount of sun exposure, and it is inversely proportional to the amount of melanin in the skin.

BCC usually begins as a small, waxy nodule with rolled, translucent, pearly borders; telangiectatic vessels may be present. As it grows, it undergoes central ulceration and sometimes crusting (Fig. 56-6). The tumors appear most frequently on the face. BCC is characterized by invasion and erosion of contiguous (adjoining) tissues. It rarely metastasizes, but recurrence is common. However, a neglected lesion can result in the loss of a nose, an ear, or a lip. Other variants of BCC may appear as shiny, flat, gray or yellowish plaques.

SCC is a malignant proliferation arising from the epidermis. Although it usually appears on sun-damaged skin, it may arise from normal skin or from preexisting skin lesions. It is of greater concern than BCC because it is a truly invasive carcinoma, metastasizing by the blood or lymphatic system.

Metastases account for 75% of deaths from SCC. The lesions may be primary, arising on the skin and mucous membranes, or they may develop from a precancerous condition, such as actinic keratoses (ie, lesions occurring in sun-exposed areas), leukoplakia (ie, premalignant lesion of the mucous membrane), or scarred or ulcerated lesions. SCC appears as a rough, thickened, scaly tumor that may be asymptomatic or may involve bleeding (see Fig. 56-6). The border of an SCC lesion may be wider, more infiltrated, and more inflammatory than that of a BCC lesion. Secondary infection can occur. Exposed areas, especially of the upper extremities and of the face, lower lip, ears, nose, and forehead, are common sites (Odom et al., 2000).

Prognosis

The prognosis for BCC is usually good. Tumors remain localized, and although some require wide excision with resultant disfigurement, the risk for death from BCC is low. The prognosis for SCC depends on the incidence of metastases, which is related to the histologic type and the level or depth of invasion. Usually, tumors arising in sun-damaged areas are less invasive and rarely cause death, whereas SCC that arises without a history of sun or arsenic exposure or scar formation appears to have a greater chance for spread. Regional lymph nodes should be evaluated for metastases (Odom et al., 2000).

Medical Management

The goal of treatment is to eradicate the tumor. The treatment method depends on the tumor location; the cell type, location, and depth; the cosmetic desires of the patient; the history of previous treatment; whether the tumor is invasive, and whether metastatic nodes are present. The management of BCC and SCC includes surgical excision, Mohs’ micrographic surgery, electrosurgery, cryosurgery, and radiation therapy.

Surgical Management

The primary goal is to remove the tumor entirely. The best way to maintain cosmetic appearance is to place the incision properly along natural skin tension lines and natural anatomic body lines. In this way, scars are less noticeable. The size of the incision depends on the tumor size and location but usually involves a length-to-width ratio of 3:1.
The adequacy of the surgical excision is verified by microscopic evaluation of sections of the specimen. When the tumor is large, reconstructive surgery with use of a skin flap or skin grafting may be required. The incision is closed in layers to enhance cosmetic effect. A pressure dressing applied over the wound provides support. Infection after a simple excision is uncommon if proper surgical asepsis is maintained.

Mohs’ Micrographic Surgery. Mohs’ micrographic surgery is the technique that is most accurate and that best conserves normal tissue. When the surgical technique was introduced, the excision followed an application of zinc chloride paste to the tumor, but Mohs’ surgery is now performed without the initial chemosurgery component. The procedure removes the tumor layer by layer. The first layer excised includes all evident tumor and a small margin of normal-appearing tissue. The specimen is frozen and analyzed by section to determine if all the tumor has been removed. If not, additional layers of tissue are shaved and examined until all tissue margins are tumor free. In this manner, only the tumor and a safe, normal-tissue margin are removed. Mohs’ surgery is the recommended tissue-sparing procedure, with cure rates for BCC and SCC approaching 99%. It is the treatment of choice and the most effective for tumors around the eyes, nose, upper lip, and auricular and periauricular areas (Odom et al., 2000).

Electrosurgery. Electrosurgery is the destruction or removal of tissue by electrical energy. The current is converted to heat, which then passes to the tissue from a cold electrode. Electrosurgery may be preceded by curettage (ie, excising the skin tumor by scraping its surface with a curette). Electrodesiccation is then implemented to achieve hemostasis and to destroy any viable malignant cells at the base of the wound or along its edges. Electrodesiccation is useful for lesions smaller than 1 to 2 cm (0.4 to 0.8 in) in diameter.

This method takes advantage of the fact that the tumor in each instance is softer than surrounding skin and therefore can be outlined by a curette, which “feels” the extent of the tumor. The tumor is removed and the base cauterized. The process is repeated twice. Usually, healing occurs within a month.

Cryosurgery. Cryosurgery destroys the tumor by deep freezing the tissue. A thermocouple needle apparatus is inserted into the skin, and liquid nitrogen is directed to the center of the tumor until the tumor base is −40°C to −60°C. Liquid nitrogen has the lowest boiling point of all cryogens tried, is inexpensive, and is easy to obtain. The tumor tissue is frozen, allowed to thaw, and then refrozen. The site thaws naturally and then becomes gelatinous and heals spontaneously. Swelling and edema follow the freezing. The appearance of the lesion varies. Normal healing, which may take 4 to 6 weeks, occurs faster in areas with a good blood supply.

RADIATION THERAPY
Radiation therapy is frequently performed for cancer of the eyelid, the tip of the nose, and areas in or near vital structures (eg, facial nerve). It is reserved for older patients, because x-ray changes may be seen after 5 to 10 years, and malignant changes in scars may be induced by irradiation 15 to 30 years later.

The patient should be informed that the skin may become red and blistered. A bland skin ointment prescribed by the physician may be applied to relieve discomfort. The patient should also be cautioned to avoid exposure to the sun.

Nursing Management
Because many skin cancers are removed by excision, patients are usually treated in outpatient surgical units. The role of the nurse is to teach the patient about prevention of skin cancer and about self-care after treatment (Chart 56-6).

PROMOTING HOME AND COMMUNITY-BASED CARE
Teaching Patients Self-Care. The wound is usually covered with a dressing to protect the site from physical trauma, external irritants, and contaminants. The patient is advised when to report for a dressing change or is given written and verbal information on how to change dressings, including the type of dressing to purchase, how to remove dressings and apply fresh ones, and the importance of hand washing before and after the procedure.

The patient is advised to watch for excessive bleeding and tight dressings that compromise circulation. If the lesion is in the perioral area, the patient is instructed to drink liquids through a straw and limit talking and facial movement. Dental work should be avoided until the area is completely healed.

After the sutures are removed, an emollient cream may be used to help reduce dryness. Applying a sunscreen over the wound is advised to prevent postoperative hyperpigmentation if the patient spends time outdoors.

Chart 56-6
Health Promotion: Preventing Skin Cancer

Because skin cancer rates are rising, taking preventive measures such as the ones outlined below may help individuals avoid increasing their skin cancer risk.

- Do not try to tan if your skin burns easily, never tans, or tans poorly.
- Avoid unnecessary exposure to the sun, especially during the time of day when ultraviolet radiation (sunlight) is most intense (10 AM to 3 PM).
- Avoid sunburn.
- Apply sunscreen when in the sun; sunscreens block harmful sun rays.
- Use a sunscreen with an SPF of 15 or higher. Sunscreens are rated in strength from 4 (weakest) to 50 (strongest). The SPF indicates the solar protection factor, or how much longer you can stay in the sun before getting burned. Look for sunscreens that protect against both ultraviolet-A (UVA) and ultraviolet-B (UVB) light.
- Reapply water-resistant sunscreens after swimming, if heavily sweating, and every 2 to 3 hours during prolonged periods of sun exposure.
- Avoid oils. Applied before or during sun exposure, oils do not protect against sunlight or sun damage.
- Use a lip balm that contains a sunscreen with the highest SPF number.
- Wear protective clothing, such as a broad-brimmed hat and long sleeves.
- Remember that up to 50% of ultraviolet rays can penetrate loosely woven clothing.
- Remember that ultraviolet light can penetrate a cloud cover, and a sunburn can still occur.
- Do not use sun lamps for indoor tanning, and avoid commercial tanning booths. These rays are just as harmful.
- Teach children to avoid all but modest sun exposure and to use a sunscreen regularly for lifelong protection.
Follow-up examinations should be at regular intervals, usually every 3 months for a year, and should include palpation of the adjacent lymph nodes. The patient should also be instructed to seek treatment for any moles that are subject to repeated friction and irritation, and to watch for indications of potential malignancy in moles as described previously. The importance of lifelong follow-up evaluations should be emphasized.

**Teaching About Prevention.** Studies show that regular daily use of a sunscreen with a solar protection factor (SPF) of at least 15 can reduce the recurrence of skin cancer by as much as 40%. The sunscreen should be applied to head, neck, arms, and hands every morning at least 30 minutes before leaving the house and reapplied every 4 hours if the skin perspires. Discretionary application (ie, applied only when sun exposure is anticipated) has not shown the same preventive response (Barton, 2001).

**MALIGNANT MELANOMA**

A malignant melanoma is a cancerous neoplasm in which atypical melanocytes (ie, pigment cells) are present in the epidermis and the dermis (and sometimes the subcutaneous cells). It is the most lethal of all the skin cancers and is responsible for about 2% of all cancer deaths (Odom et al., 2000).

It can occur in one of several forms: superficial spreading melanoma, lentigo-maligna melanoma, nodular melanoma, and acral-lentiginous melanoma. These types have specific clinical and histologic features as well as different biologic behaviors. Most melanomas arise from cutaneous epidermal melanocytes, but some appear in preexisting nevi (ie, moles) in the skin or develop in the uveal tract of the eye. Melanomas occasionally appear simultaneously with cancer of other organs.

The worldwide incidence of melanoma doubles every 10 years, a rate that is probably related to increased recreational sun exposure and better methods of early detection. Peak incidence occurs between ages 20 and 45. The incidence of melanoma is increasing faster than that of almost any other cancer, and the mortality rate is increasing faster than that of any other cancer except lung cancer. The estimated number of new cases in 2002 is 53,600 and the number of deaths is 7400 (American Cancer Society, 2002).

**Risk Factors**

The cause of malignant melanoma is unknown, but ultraviolet rays are strongly suspected, based on indirect evidence such as the increased incidence of melanoma in countries near the equator and in people younger than age 30 who have used a tanning bed more than 10 times per year. In general, 1 in 100 Caucasians will get melanoma every year. Up to 10% of melanoma patients are members of melanoma-prone families who have multiple changing moles (ie, dysplastic nevi) that are susceptible to malignant transformation. Patients with dysplastic nevus syndrome have been found to have unusual moles, larger and more numerous moles, lesions with irregular outlines, and pigmentation located all over the skin. Microscopic examination of dysplastic moles shows disordered, faulty growth. Chart 56-7 lists risk factors for malignant melanoma.

Research has identified a gene that resides on chromosome 9p, the absence of which increases the likelihood that potentially mutagenic DNA damage will escape repair before cell division.

The absence of this gene can be identified in melanoma-prone families (Piepkorn, 2000).

**Clinical Manifestations**

Superficial spreading melanoma occurs anywhere on the body and is the most common form of melanoma. It usually affects middle-aged people and occurs most frequently on the trunk and lower extremities. The lesion tends to be circular, with irregular outer portions. The margins of the lesion may be flat or elevated and palpable (Fig. 56-7). This type of melanoma may appear in a combination of colors, with hues of tan, brown, and black mixed with gray, blue-black, or white. Sometimes a dull pink rose color can be seen in a small area within the lesion.

**LENTIGO-MALIGNA MELANOMAS**

Lentigo-maligna melanomas are slowly evolving, pigmented lesions that occur on exposed skin areas, especially the dorsum of the hand, the head, and the neck in elderly people. Often, the lesions are present for many years before they are examined by a physician. They first appear as tan, flat lesions, but in time, they undergo changes in size and color.

**NODULAR MELANOMA**

Nodular melanoma is a spherical, blueberry-like nodule with a relatively smooth surface and a relatively uniform, blue-black color (see Fig. 56-7). It may be dome shaped with a smooth surface. It may have other shadings of red, gray, or purple. Sometimes, nodular melanomas appear as irregularly shaped plaques.

**FIGURE 56-7** Two forms of malignant melanoma: superficial spreading (left) and nodular (right). From Bickley, L. S., & Szilagyi, P. (2003). Bates’ guide to physical examination and history taking (8th ed.). Philadelphia: Lippincott Williams & Wilkins.
The patient may describe this as a blood blister that fails to resolve. A nodular melanoma invades directly into adjacent dermis (ie, vertical growth) and therefore has a poorer prognosis.

**ACRAL-LENTIGINOUS MELANOMA**

Acral-lentiginous melanoma occurs in areas not excessively exposed to sunlight and where hair follicles are absent. It is found on the palms of the hands, on the soles, in the nail beds, and in the mucous membranes in dark-skinned people. These melanomas appear as irregular, pigmented macules that develop nodules. They may become invasive early.

**Assessment and Diagnostic Findings**

Biopsy results confirm the diagnosis of melanoma. An excisional biopsy specimen provides histologic information on the type, level of invasion, and thickness of the lesion. An excisional biopsy specimen that includes a 1-cm margin of normal tissue and a portion of underlying subcutaneous fatty tissue is sufficient for staging a melanoma in situ or an early, noninvasive melanoma. Incisional biopsy should be performed when the suspicious lesion is too large to be removed safely without extensive scarring. Biopsy specimens obtained by shaving, curettage, or needle aspiration are not considered reliable histologic proof of disease.

A thorough history and physical examination should include a meticulous skin examination and palpation of regional lymph nodes that drain the lesional area. Because melanoma occurs in families, a positive family history of melanoma is investigated so that first-degree relatives, who may be at high risk for melanoma, can be evaluated for atypical lesions. After the diagnosis of melanoma has been confirmed, a chest x-ray, complete blood cell count, liver function tests, and radionuclide or computed tomography scans are usually ordered to stage the extent of disease.

**Prognosis**

The prognosis for long-term (5-year) survival is considered poor when the lesion is more than 1.5 mm thick or there is regional lymph node involvement. A person with a thin lesion and no lymph node involvement has a 3% chance of developing metastases and a 95% chance of surviving 5 years. If regional lymph nodes are involved, there is a 20% to 50% chance of surviving 5 years. Patients with melanoma on the hand, foot, or scalp have a better prognosis; however, only a few agents (eg, dacarbazine, nitrosoureas, cisplatin) have been effective in controlling the disease. When the melanoma is located in an extremity, regional perfusion may be used; the chemotherapeutic agent is perfused directly into the area that contains the melanoma. This approach delivers a high concentration of cytotoxic agents while avoiding systemic, toxic side effects. The limb is perfused for 1 hour with high concentrations of the medication at temperatures of 39°C to 40°C (102.2°F to 104°F) with a perfusion pump. Inducing hyperthermia enhances the effect of the chemotherapy so that a smaller total dose can be used. It is hoped that regional perfusion can control the metastasis, especially if it is used in combination with surgical excision of the primary lesion and with regional lymph node dissection.

**Medical Management**

Treatment depends on the level of invasion and the depth of the lesion. Surgical excision is the treatment of choice for small, superficial lesions. Deeper lesions require wide local excision, after which skin grafting may be needed. Regional lymph node dissection is commonly performed to rule out metastasis, although new surgical approaches call for only sentinel node biopsy. This technique is used to sample the nodes nearest the tumor and spares the patient the long-term sequelae of extensive removal of lymph nodes if the sample node is negative (Wagner, 2000).

Immunotherapy has had varied success. Immunotherapy modifies immune function and other biologic responses to cancer. Several forms of immunotherapy (eg, bacillus Calmette-Guérin [BCG] vaccine, *Corynebacterium parvum*, levamisole) offer encouraging results. Some investigational therapies include biologic response modifiers (eg, interferon-alpha, interleukin-2), adaptive immunotherapy (ie, lymphokine-activated killer cells), and monoclonal antibodies directed at melanoma antigens. One of these, proleukin, shows promise in preventing recurrence of melanoma (Demis, 1998). Under investigation is the laboratory assay of tyrosinase, an enzyme believed to be produced only by melanoma cells (Demis, 1998). Several other studies are attempting to develop autologous immunization against specific tumor cells. These studies are still in the early experimental stage but show promise of producing a vaccine against melanoma (Piepkorn, 2000).

Current treatments for metastatic melanoma are largely unsuccessful, with cure generally impossible. Further surgical intervention may be performed to debulk the tumor or to remove part of the organ involved (eg, lung, liver, or colon). The rationale for more extensive surgery, however, is for relief of symptoms, not for cure. Chemotherapy for metastatic melanoma may be used; however, only a few agents (eg, dacarbazine, nitrosoureas, cisplatin) have been effective in controlling the disease.

When the melanoma is located in an extremity, regional perfusion may be used; the chemotherapeutic agent is perfused directly into the area that contains the melanoma. This approach delivers a high concentration of cytotoxic agents while avoiding systemic, toxic side effects. The limb is perfused for 1 hour with high concentrations of the medication at temperatures of 39°C to 40°C (102.2°F to 104°F) with a perfusion pump. Inducing hyperthermia enhances the effect of the chemotherapy so that a smaller total dose can be used. It is hoped that regional perfusion can control the metastasis, especially if it is used in combination with surgical excision of the primary lesion and with regional lymph node dissection.

**NURSING PROCESS: CARE OF THE PATIENT WITH MALIGNANT MELANOMA**

**Assessment**

Assessment of the patient with malignant melanoma is based on the patient’s history and symptoms. The patient is asked specifically about pruritus, tenderness, and pain, which are not features of a benign nevus. The patient is also questioned about changes in preexisting moles or the development of new, pigmented lesions. People at risk are assessed carefully.

A magnifying lens and good lighting are needed for inspecting the skin for irregularity and changes in the mole. Signs that suggest malignant changes are referred to as the ABCDs of moles (Chart 56-8).

Common sites of melanomas are the skin of the back, the legs (especially in women), between the toes, and on the feet, face, scalp, fingernails, and backs of hands. In dark-skinned people, melanomas are most likely to occur in less pigmented sites: palms, soles, subungual areas, and mucous membranes. Satellite lesions (ie, those situated near the mole) are inspected.

**Diagnosis**

**NURSING DIAGNOSES**

Based on the nursing assessment data, the patient’s major nursing diagnoses may include the following:
be necessary when large defects are created by surgical removal of
may be necessary. A split-thickness or full-thickness skin graft may
centers on promoting comfort, because wide excision surgery
presents different challenges, taking into consideration the re-
regions is discussed in the appropriate chapters.
Nursing management of the patient having surgery in these re-
moval of the primary melanoma, the intervening lymphatic

- Acute pain related to surgical excision and grafting
- Anxiety and depression related to possible life-threatening
  consequences of melanoma and disfigurement
- Deficient knowledge about early signs of melanoma

COLLABORATIVE PROBLEMS/
POTENTIAL COMPLICATIONS
Based on the assessment data, potential complications include the
following:
- Metastasis
- Infection of the surgical site

Planning and Goals
The major goals for the patient may include relief of pain and dis-
comfort, reduced anxiety and depression, knowledge of early signs
of melanoma, and absence of complications.

Nursing Interventions
RELEIVING PAIN AND DISCOMFORT
Surgical removal of melanoma in different locations (eg, head,
neck, eye, trunk, abdomen, extremities, central nervous system)
presents different challenges, taking into consideration the re-
moval of the primary melanoma, the intervening lymphatic
vessels, and the lymph nodes to which metastases may spread.
Nursing management of the patient having surgery in these re-
regions is discussed in the appropriate chapters.

Nursing intervention after surgery for a malignant melanoma
centers on promoting comfort, because wide excision surgery
may be necessary. A split-thickness or full-thickness skin graft may
be necessary when large defects are created by surgical removal of
a melanoma. Anticipating the need for and administering appro-
priate analgesic medications are important.

REDUCING ANXIETY AND DEPRESSION
Psychological support is essential when disfiguring surgery is per-
formed. Support includes allowing patients to express feelings
about the seriousness of this cutaneous neoplasm, understanding
their anger and depression, and conveying understanding of these
feelings. During the diagnostic workup and staging of the depth,
type, and extent of the tumor, the nurse answers questions, clar-
ifies information, and helps clarify misconceptions. Learning that
they have a melanoma can cause patients considerable fear and
anguish. Pointing out patients’ resources, past effective coping
mechanisms, and social support systems helps them to cope with
the problems associated with diagnosis, treatment, and continuing
follow-up. The patient’s family should be included in all discus-
sions to clarify the information presented, ask questions that the
patient might be reluctant to ask, and provide emotional support.

MONITORING AND MANAGING
POTENTIAL COMPLICATIONS
Metastasis
The prognosis for malignant melanoma is related to metastasis:
the deeper and thicker (more than 4 mm) the melanoma, the
greater is the likelihood of metastasis. If the melanoma is grow-
ning radially (ie, horizontally) and is characterized by peripheral
growth with minimal or no dermal invasion, the prognosis is fa-
vorable. When the melanoma progresses to the vertical growth
phase (ie, dermal invasion), the prognosis is poor. Lesions with
ulceration have a poor prognosis. Melanomas of the trunk appear
to have a poorer prognosis than those of other sites, perhaps be-
cause the network of lymphatics in the trunk permits metastasis
to regional lymph nodes.

The role of the nurse in caring for the patient with metastatic
disease is holistic. The nurse must be knowledgeable about the
most effective current therapies and must deliver supportive care,
provide and clarify information about the therapy and the ratio-
nale for its use, identify potential side effects of therapy and ways
to manage them, and instruct the patient and family about the
expected outcomes of treatment. The nurse monitors and docu-
ments symptoms that may indicate metastasis: lung (eg, difficulty
breathing, shortness of breath, increasing cough), bone (eg, pain,
decreased mobility and function, pathologic fractures), and liver
(eg, change in liver enzyme levels, pain, jaundice). Nursing care
is based on the patient’s symptoms.

Although the chance of a cure for malignant melanoma that
has metastasized is poor, the nurse encourages the patient to have
hope in the therapy employed while maintaining a realistic per-
spective about the disease and ultimate outcome. Moreover, the
nurse provides time for the patient to express fears and concerns
regarding future activities and relationships, offers information
about support groups and contact people, and arranges palliative
and hospice care if appropriate (see Chap. 17).

PROMOTING HOME AND COMMUNITY-BASED CARE
Teaching Patients Self-Care
The best hope of controlling the disease lies in educating patients
about the early signs of melanoma. Patients at risk are taught
to examine their skin and scalp monthly in a systematic manner
(Chart 56-9). The nurse also points out that a key factor in the
development of malignant melanoma is exposure to sunlight. Be-
because melanoma is thought to be genetically linked, the family
and the patient should be taught sun-avoiding measures.
Step 1
Make sure the room is well lighted, and that you have nearby a full-length mirror, a hand-held mirror, a hand-held blow dryer, and two chairs or stools. Undress completely.

Step 2
Hold your hands with the palms face up, as shown in the drawing. Look at your palms, fingers, spaces between the fingers, and forearms. Then turn your hands over and examine the backs of your hands, fingers, spaces between the fingers, fingernails and forearms.

Step 3
Now position yourself in front of the full-length mirror. Hold up your arms, bent at the elbows, with your palms facing you in the mirror, look at the backs of your forearms and elbows.

Step 4
Again using the full-length mirror, observe the entire front of your body. In turn, look at your face, neck, and arms. Turn your palms to face the mirror and look at your upper arms. Then look at your chest and abdomen; pubic area; thighs and lower legs.

Step 5
Still standing in front of the mirror, lift your arms over your head with the palms facing each other. Turn so that your right side is facing the mirror and look at the entire side of your body, your hands and arms, underarms, sides of your trunk, thighs and lower legs. Then turn, and repeat the process with your left side.

Step 6
With your back toward the full-length mirror, look at your buttocks and the backs of your thighs and lower legs.

Step 7
Now pick up the hand-held mirror. With your back still to the full-length mirror, examine the back of your neck, and your back and buttocks. Also examine the backs of your arms in this way. Some areas are hard to see, and you may find it helpful to ask your spouse or a friend to assist you.

Step 8
Use the hand-held mirror and the full-length mirror to look at your scalp. Because the scalp is difficult to examine, we suggest you also use a hand-held blow dryer turned to a cool setting, to lift the hair from the scalp. While some people find it easy to hold the mirror in one hand and the dryer in the other, while looking in the full-length mirror, many do not. For the scalp examination in particular, then, you might ask your spouse or a friend to assist you.

(continued)
Evaluation

EXPECTED PATIENT OUTCOMES

Expected patient outcomes may include the following:

1. Experiences relief of pain and discomfort
   a. States pain is diminishing
   b. Exhibits healing of surgical scar without heat, redness, or swelling
2. Is less anxious
   a. Expresses fears and fantasies
   b. Asks questions about medical condition
   c. Requests repetition of facts about melanoma
   d. Identifies support and comfort provided by family member or significant other
3. Demonstrates understanding of the means for detecting and preventing melanoma
   a. Demonstrates how to conduct self-examination of skin on a monthly basis
   b. Verbalizes the following danger signals of melanoma: change in size, color, shape, or outline of mole, mole surface, or skin around mole
   c. Identifies measures to protect self from exposure to sunlight
4. Experiences absence of complications
   a. Recognizes abnormal signs and symptoms that should be reported to physician
   b. Complies with recommended follow-up procedures and prevention strategies

METASTATIC SKIN TUMORS

The skin is an important, although not a common, site of metastatic cancer. All types of cancer may metastasize to the skin, but carcinoma of the breast is the primary source of cutaneous metastases in women. Other sources include cancer of the large intestine, ovaries, and lungs. In men, the most common primary sites are the lungs, large intestine, oral cavity, kidneys, or stomach. Skin metastases from melanomas are found in both genders. The clinical appearance of metastatic skin lesions is not distinctive, except perhaps in some cases of breast cancer in which diffuse, brawny hardening of the skin of the involved breast is seen. In most instances, metastatic lesions occur as multiple cutaneous or subcutaneous nodules of various sizes that may be skin colored or different shades of red.

Other Malignancies of the Skin

KAPOSI’S SARCOMA

First described by Moritz Kaposi in 1872, Kaposi’s sarcoma (KS) has received renewed attention since its association with HIV infection and AIDS. Its occurrence with AIDS involves a more varied and aggressive form of KS than was seen previously. Before the AIDS epidemic, KS was considered a rare malignancy. It was subdivided into three categories: classic KS, African (endemic) KS, and KS associated with immunosuppressant therapy. Classic KS occurs predominantly in men of Mediterranean or Jewish ancestry between the ages of 40 and 70 years. Most patients have nodules or plaques on the lower extremities that rarely metastasize beyond the lower extremities. This KS is chronic, relatively benign, and rarely fatal.

African KS affects people predominantly in the eastern half of Africa near the equator. Men are affected more often than women, and children can be affected as well. The disease may resemble classic KS, or it may infiltrate and progress to lymphadenopathic forms.

KS associated with immunosuppressive therapy, as in transplant recipients, is characterized by local skin lesions and disseminated visceral and mucocutaneous diseases. The greater the degree of immunosuppression, the higher is the incidence of KS.

AIDS-related KS was identified in the early 1980s as distinctly different from previously described types of KS. Typically, it is an aggressive tumor that involves multiple body organs. Its presentation resembles that of KS associated with immunosuppressive therapy. Most patients are between the ages of 20 and 40 years (Odom et al., 2000). More information on this topic can be found in Chapter 52.

BASAL AND SQUAMOUS CELL CARCINOMAS IN THE IMMUNOCOMPROMISED POPULATION

The incidence of basal cell carcinoma and squamous cell carcinoma is increased in all immunocompromised individuals, including those infected with HIV. Clinically, the tumors have the same appearance as in non–HIV-infected people; however, in HIV patients, the tumors may grow more rapidly and recur more frequently. These tumors are managed the same as for the general population. Frequent follow-up (every 4 to 6 months) is recommended to monitor for recurrence.
Dermatologic and Plastic Reconstructive Surgery

The word plastic comes from a Greek word meaning to form. Plastic or reconstructive surgery is performed to reconstruct or alter congenital or acquired defects to restore or improve the body’s form and function. Often, the terms plastic and reconstructive are used interchangeably. This type of surgery includes closure of wounds, removal of skin tumors, repair of soft tissue injuries or burns, correction of deformities, and repair of cosmetic defects. Plastic surgery can be used to repair many parts of the body and numerous structures, such as bone, cartilage, fat, fascia, mucous membrane, muscle, nerve, and cutaneous structures. Bone inlays and transplants for deformities and nonunion can be performed, muscle can be transferred, nerves can be reconstructed and spliced, and cartilage can be replaced. As important as any of these measures is the reconstruction of the cutaneous tissues around the neck and the face; this is usually referred to as aesthetic or cosmetic surgery.

WOUND COVERAGE: GRAFTS AND FLAPS

Various surgical techniques, including skin grafts and flaps, are used to cover skin wounds.

Skin Grafts

Skin grafting is a technique in which a section of skin is detached from its own blood supply and transferred as free tissue to a distant (recipient) site. Skin grafting can be used to repair almost any type of wound and is the most common form of reconstructive surgery.

Skin grafts are commonly used to repair defects that result from excision of skin tumors, to cover areas denuded of skin (e.g., burns), and to cover wounds in which insufficient skin is available to permit wound closure. They are also used when primary closure of the wound increases the risk for complications or when primary wound closure would interfere with function.

Skin grafts may be classified as autografts, allografts, or xenografts. An autograft is tissue obtained from the patient’s own skin. An allograft is tissue obtained from a donor of the same species. These grafts are also called allogeneic or homograft. A xenograft or heterograft is tissue from another species.

Grafts are also referred to by their thickness. A skin graft may be a split-thickness (i.e., thin, intermediate, or thick) or full-thickness graft, depending on the amount of dermis included in the specimen. A split-thickness graft can be cut at various thicknesses and is commonly used to cover large wounds or defects for which a full-thickness graft or flap is impractical (Fig. 56-8). A full-thickness graft consists of epidermis and the entire dermis without the underlying fat. It is used to cover wounds that are too large to be closed directly.

DONOR SITE

The donor site is selected with several criteria in mind:

- Achieving the closest possible color match
- Matching the texture and hair-bearing qualities
- Obtaining the thickest possible skin graft without jeopardizing the healing of the donor site (Fig. 56-9)
- Considering the cosmetic effects of the donor site after healing, so that it is in an inconspicuous location

![Figure 56-8 Layers of skin appropriate for split-thickness and full-thickness graft.](image-url)
For a graft to survive and be effective, certain conditions must be met:

- The recipient site must have an adequate blood supply so that normal physiologic function can resume.
- The graft must be in close contact with its bed to avoid accumulation of blood or fluid.
- The graft must be fixed firmly (immobilized) so that it remains in place on the recipient site.
- The area must be free of infection.

The nurse instructs the patient to keep the affected part immobilized as much as possible. For a facial graft, strenuous activity must be avoided. A graft on the hand or arm may be immobilized with a splint. When a graft is placed on a lower extremity, the part is kept elevated because the new capillary connections are fragile and excess venous pressure may cause rupture. When ambulation is permitted, the patient wears an elastic stocking to counterbalance venous pressure.

The nurse instructs the patient, family member, or other caregiver to inspect the dressing daily. Unusual drainage or an inflammatory reaction around the wound margin suggests infection and should be reported to the physician. Any fluid, purulent drainage, blood, or serum that has collected is gently evacuated by the surgeon, because accumulation of this material would cause the graft to separate from its bed.

When the graft appears pink, it is vascularized. After 2 to 3 weeks, mineral oil or a lanolin cream is massaged into the wound to moisten the graft. Because there may be loss of feeling or sensation in the grafted area for a prolonged period, the application of heating pads and exposure to sun are avoided to prevent burns and further skin trauma.

**Flaps**

Another form of wound coverage is provided by flaps. A flap is a segment of tissue that remains attached at one end (ie, a base or pedicle) while the other end is moved to a recipient area. Its survival depends on functioning arterial and venous blood supplies and lymphatic drainage in its pedicle or base. A flap differs from a graft in that a portion of the tissue is attached to its original site and retains its blood supply. An exception is the free flap, which is described later.

Flaps may consist of skin, mucosa, muscle, adipose tissue, omentum, and bone. They are used for wound coverage and provide bulk, especially when bone, tendon, blood vessels, or nerve tissue is exposed. Flaps are used to repair defects caused by congenital deformity, trauma, or tumor ablation (ie, removal, usually by excision) in an adjacent part of the body.

Flaps offer an aesthetic solution because a flap retains the color and texture of the donor area, is more likely to survive than a graft, and can be used to cover nerves, tendons, and blood vessels. However, several surgical procedures are usually required to advance a flap. The major complication is necrosis of the pedicle or base as a result of failure of the blood supply.

**Free Flaps**

A striking advance in reconstructive surgery is the use of free flaps or free-tissue transfer achieved by microvascular techniques. A free flap is completely severed from the body and transferred to another site. A free flap receives early vascular supply from microvascular anastomosis (ie, attachment) with vessels at the recipient site. The procedure usually is completed in one step, eliminating the process of revascularization.
the need for a series of surgical procedures to move the flap. Microvascular surgery allows surgeons to use a variety of donor sites for tissue reconstruction.

**CHEMICAL FACE PEELING**

Chemical face peeling, a technique that involves applying a chemical mixture to the face for superficial destruction of the epidermis and the upper layers of the dermis, treats fine wrinkles, keratoses, and pigment problems. It is especially useful for wrinkles at the upper and lower lip, forehead, and periorbital areas.

Pretreatment may consist of cleansing the face and hair for several days before the procedure with a hexachlorophene detergent. Pretreatment medication (ie, analgesic and tranquilizer for moderate sedation) may be prescribed to alleviate apprehension and control pain. This permits the patient to be sedated but conscious during the procedure, although some patients request general anesthesia.

The type of chemical used depends on the planned depth of the peel. A phenol-based chemical in an oil–water emulsion is commonly used because it produces a controlled, predictable chemical burn. The chemical is applied systematically to the face with cotton-tipped applicators. The conscious patient feels a burning sensation at this time. A mask of waterproof adhesive may then be applied directly to the skin and molded closely to the contours of the face, thereby acting as an occlusive dressing that increases the chemical penetration and action. Some surgeons believe that equally good results can be obtained with occlusive tape. After the tape mask is applied, the burning sensation continues, and the tape mask remains in place for 12 to 24 hours. Frequent small doses of analgesics and tranquilizers are prescribed to keep the patient comfortable.

**Complications**

Complications may arise when control of the chemically induced burn cannot be sustained. Complications include pigment changes, infection, milia (ie, small inclusion cysts that disappear after several months), scarring, atrophy, sensitivity changes, and long-term (4 to 5 months) erythema or pruritus.

**Management**

Because chemical face peeling is performed in the physician’s office or in an outpatient surgical department, most care takes place in the home. After 6 to 8 hours, the face becomes edematous and the eyelids usually swell shut. The patient should be reassured that this reaction is expected and normal. The patient is cautioned to move the mouth as little as possible so that the tape continues to adhere to the skin. The head of the bed is elevated, and liquids are administered through a straw. Most of the burning sensation and discomfort subside after the first 12 to 24 hours.

By the second day, the patient may feel moisture under the dressings as serious exudate seeps from the chemically exfoliated skin. Dressings are usually removed 24 to 48 hours after treatment, exposing skin resembling a second-degree burn. The patient may be alarmed by the appearance of the skin and should be reassured. After the tape mask is removed, some surgeons dust the treated skin surface with thymol-iodine powder for its drying and bacteriostatic effects. Application of triple-antibiotic ointment may be substituted in some cases. The skin surface is left uncovered to dry. The patient may be permitted to wash the face with lukewarm water or advised to shower several times daily to help remove any remaining facial crusting. An ointment is prescribed to cover the face and soften and loosen the crust between washings.

The nurse reinforces the physician’s explanation that the redness of the skin will gradually subside over the next 4 to 12 weeks. Although a line between treated and untreated skin may be seen, makeup is usually permitted after the first few weeks. The patient is cautioned to avoid exposure to direct or reflected sunlight, because the treatment reduces the natural protection of the skin from sun. The skin will probably never tan evenly again. Blotchy pigmentation can occur with exposure to the sun.

**DERMABRASION**

Dermabrasion is a form of skin abrasion used to correct acne scarring, aging, and sun-damaged skin. A special instrument (ie, motor-driven wire brush, diamond-impregnated disk, or serrated wheel) is used in the procedure. The epidermis and some superficial dermis are removed, while enough of the dermis is preserved to allow re-epithelization of the treated areas. Results are best in the face because it is rich in intradermal epithelial elements.

**Preparation and Procedure**

The primary reason for undergoing dermabrasion is to improve appearance. The surgeon explains to the patient what can be expected from dermabrasion. The patient should also be informed about the nature of the postoperative dressing, what discomfort may be experienced, and how long it will be before the tissues look normal.

Dermabrasion may be performed in the physician’s office, the operating room, or an outpatient setting. It is performed under local or general anesthesia. During the procedure, some surgeons use refrigerant anesthetics to turn the skin into a numb, solid mass of rigid tissue and to provide a momentarily bloodless surgical field. During and after planning, the area is irrigated with copious amounts of saline solution to remove debris and allow the surgeon to see the area. A dressing impregnated with ointment is usually applied to the abraded surface.

**Management**

The nurse instructs the patient about postoperative effects. Edema occurs during the first 48 hours and may cause the eyelids to close. The head of the bed is elevated to hasten fluid drainage. Erythema occurs and can last for weeks or months. After 24 hours, the dressing may be removed if the physician approves. When the serum oozing from the skin begins to gel, the patient applies the prescribed ointment to the face several times each day to prevent hard crustling and to keep the abraded areas soft and flexible. With the physician’s approval, clear-water cleansing or soaking of the face is started to remove crusts from the healing skin.

The patient is advised to avoid extreme cold and heat and excessive straining or lifting, which may bruise delicate new capillaries. Direct or reflected sunlight should be avoided for 3 to 6 months and a sunscreen used.

**FACIAL RECONSTRUCTIVE SURGERY**

Reconstructive procedures on the face are individualized to the patient’s needs and desired outcomes. They are performed to repair deformities or restore normal function as much as possible. They may vary from closure of small defects to complicated procedures involving implantation of prosthetic devices to conceal a
large defect or reconstruct a lost part of the face (eg, nose, ear, jaw). Each surgical procedure is customized and involves a variety of incisions, flaps, and grafts.

In correcting a primary defect, the surgeon may have to create a secondary defect. Although the procedure may restore some function, such as eating or talking, the cosmetic or aesthetic results may be limited. The original appearance of a patient who has severe damage to soft tissue and bone structure can seldom be restored. Multiple surgical procedures may be required. The process of facial reconstruction is usually slow and tedious.

**NURSING PROCESS: CARE OF THE PATIENT WITH FACIAL RECONSTRUCTION**

**Assessment**

The face is a part of the body that every person desires to keep at its best or improve, because most human interactions involve the face. When the face loses its appearance and function by injury or disease, significant emotional reactions often occur. Changes in appearance frequently cause anxiety and depression. Patients with facial changes frequently mourn for the lost part, suffer a loss of self-esteem because of reactions or rejection by others, and withdraw and isolate themselves. Health care personnel can acknowledge that anxiety and depression are appropriate for what the patient is experiencing.

The nurse assesses the patient’s emotional responses and identifies strengths as well as usual coping mechanisms to determine how the patient will handle the surgical procedure. Any area in which the patient and family need extra support is identified.

The preoperative assessment determines the extent of disfigurement and improvement that can be anticipated, as well as the patient’s understanding and acceptance of these limitations. The nurse is in a better position to reinforce facts and clarify misinformation and improve the patient’s understanding and acceptance of these limitations.

**Diagnosis**

**NURSING DIAGNOSES**

- Ineffective airway clearance related to tracheobronchial secretions
- Acute pain related to facial edema and effects of the procedure
- Imbalanced nutrition: less than body requirements related to altered physiology of oral cavity, drooling, impaired chewing and swallowing, or excision affecting the tongue
- Impaired verbal communication related to trauma or surgery producing anatomic and physiologic abnormalities of speech
- Disturbed body image related to disfigurement
- Interrupted family processes related to grief reaction and disruption of family life

**COLLABORATIVE PROBLEMS/POTENTIAL COMPICATIONS**

Based on the assessment data, potential complications that may develop include:

- Infection

**Planning and Goals**

The major goals for the patient may include a patent airway and adequate pulmonary function, increased comfort, adequate nutritional status, an effective communication method, positive self-concept, effective family coping, and absence of infection.

**Nursing Interventions**

**MAINTAINING AIRWAY AND PULMONARY FUNCTION**

The immediate concern after facial reconstruction is maintenance of an adequate airway. If the patient has regained consciousness, mental confusion with combative, anxious behavior is a sign of hypoxia (ie, reduced oxygen supply to tissues). Sedatives or opioids are not prescribed in this situation because they may impair oxygenation. If the patient shows signs of restlessness, the airway is carefully inspected to detect laryngeal edema or accumulation of tracheobronchial mucus. Secretions are suctioned as necessary until the patient can manage the secretions without help. If the patient has a tracheostomy, suctioning is performed with sterile technique to prevent infection and cross-contamination. Chapter 25 provides information on care of the patient with a tracheostomy.

**RELIEVING PAIN AND ACHIEVING COMFORT**

Facial edema is an uncomfortable but natural consequence of facial reconstructive surgery. The patient’s head and upper torso are kept slightly elevated (if the blood pressure is stable) to help reduce facial edema. Catheters attached to closed drainage may be in place to keep the tissue in close apposition and to remove serous discharge. If extensive reconstruction has been performed, the patient’s head should be properly aligned and supported so that minimal stress is placed on the suture line.

Analgesics are prescribed to relieve pain. If bone grafts have been used for reconstruction, there is usually considerable pain in the donor area. If the patient has head and neck cancer and increasing levels of pain, comprehensive nursing management is required (see Chap. 13).

**MAINTAINING ADEQUATE NUTRITION**

Fluids may be offered to the patient after oral and pharyngeal edema diminish, the incisional areas and flaps heal, and the patient can swallow saliva. Gradually, soft foods are added as tolerated. If the patient cannot meet nutritional needs by the oral route, parenteral nutrition (ie, infusion of nutrients, water, and vitamins into the stomach or proximal small intestine through a tube) is initiated. The formula strength and feeding rate are gradually increased until the desired daily caloric level is attained. Chapter 36 provides information on care of the patient requiring enteral feedings. Patients who have had radical surgery for large, encroaching neoplasms may have difficulty resuming eating. Positive nutrition is reflected in weight gain, and nutritional status is monitored by measuring body weight daily and assessing serum protein and electrolyte levels periodically.
ENHANCING COMMUNICATION
Communication problems may range from minimal difficulty to the loss of oral speech. Some tumors and injuries require extensive surgery involving the larynx, tongue, and mandible. Paper, pen or pencil, and a firm writing surface should be provided. If the patient cannot write, a pictograph board may be used. Referral to a speech therapist may be necessary for the patient who has undergone structural changes. The family may become frustrated by the patient’s inability to communicate. The nurse soon senses this, and both parties may withdraw. Allowing the family to vent their feelings and fears (away from the patient) is important.

IMPROVING SELF-CONCEPT
Success in rehabilitating the patient undergoing reconstructive surgery depends on the relationships among the patient and the nurse, the physician, and other health care personnel. Mutual trust, respect, and clear lines of communication are essential. Unhurried care provides emotional reassurance and support.

The kinds of dressings worn, the unusual positions to be maintained, and the temporary incapacity experienced can upset the most stable person. Reinforcement of the patient’s successful coping strategies improves self-esteem. If prosthetic devices are used, the patient is taught how to use and care for them to gain a sense of greater independence. Once involved in self-care activities, the patient may feel some control over what was previously an overwhelming situation.

Patients with severe disfigurement are encouraged to socialize to experience the reactions of others in a more protected environment. Gradually, they can widen their sphere of contact. Every effort is made to cover or mask defects. Patients may require support by members of the mental health team to accept their changed appearance.

PROMOTING FAMILY COPING
The family is informed about the patient’s appearance after surgery, the supportive equipment, and the ways that the equipment aids recovery. It is helpful to join the family for a few minutes during their first postoperative visit to help them cope with the changes they will see.

A major role of the nurse is to support the family in their decision to participate (or not to participate) in the patient’s treatment. Nursing interventions also include helping the family members communicate by suggesting ways to reduce anxiety and stress and to promote problem solving and decision making. These activities encourage family members and promote growth.

MONITORING AND MANAGING POTENTIAL COMPLICATIONS

Infection
Secondary infection is a primary concern after reconstructive surgery. The source of infection depends on the location and extent of the procedure, the suture line, and the pedicle flap.

The mouth is inspected to determine the location of sutures (when present) so that they are not accidentally disturbed during the cleaning process. The mouth is cleaned according to protocol several times daily. Loose blood clots may be removed with gentle swabbing. The patient is advised not to loosen clots with the tongue because this may cause fresh bleeding. The patient is instructed not to use fingers to clean or remove blood clots because this may introduce organisms that cause infection.

The suture line remains under stress for several days after surgery because of edema, increased drainage, and hematoma formation. The nurse assesses the suture line carefully for signs of increased tension and infection (ie, elevated temperature, increasing edema, redness, bleeding, and increased pain) with each dressing change. Dressings may need to be changed many times each day until the drainage begins to decrease. Drainage and edema are expected after reconstructive surgery; however, both should decrease, and the process is hastened by using properly placed, functioning suction devices and elevating the head of the bed about 45 degrees. The nurse inspects the suction devices, empties them promptly, and documents the amount and consistency of drainage, as well as any unusual odor. When drainage is not removed or if saturated dressings are left unchanged for long periods, infection is likely to occur. Strict asepsis must be maintained in wound care.

A pedicle flap used in reconstruction may become a source of infection if its circulation becomes compromised. Poor circulation may result from a hematoma forming beneath the flap and causing increased pressure on the underlying vasculature. The nurse inspects the flap for changes in color and temperature indicative of poor circulation. Signs of necrosis, increased drainage, or an odor may be a warning of an infection and should be reported promptly. Reinforcing preoperative teaching about wound healing, the need for strict sterile technique, good personal hygiene, and the need to restrict movement and stress on the operative site is an important part of the nurse’s role in postoperative care and in the prevention of secondary infection.

Evaluation

EXPECTED PATIENT OUTCOMES
Expected patient outcomes may include the following:

1. Maintains patent airway
   a. Demonstrates respiratory rate within normal limits
   b. Exhibits normal breath sounds
   c. Demonstrates no signs of choking or aspiration
2. Achieves increasing comfort
   a. Reports decreasing pain
   b. Follows instructions on proper positioning
   c. Avoids movements that stress the operative site
3. Attains adequate nutrition
   a. Consumes adequate amounts of food and fluids
   b. Maintains weight within normal range or progressively regains weight lost in the early postoperative period
   c. Maintains serum protein and electrolyte levels within normal range
4. Communicates effectively
   a. Uses appropriate aids to enhance communication
   b. Interacts with health care team members, family, and other support people using new communication strategies
5. Develops positive self-image
   a. Expresses positive feelings about surgical changes
   b. Demonstrates increasing independence in self-care activities
   c. Uses prosthetic devices independently (when appropriate)
   d. Verbalizes plans for resuming usual activities (eg, work, recreation)
6. Family members cope with situation
   a. Demonstrate decreasing anxiety and conflict
   b. Verbalize what to expect
7. Absence of complications
   a. Demonstrates vital signs within normal limits
   b. Undergoes normal wound healing without signs of infection or sepsis
c. Lists signs of infection that should be reported
d. Understands the need for asepsis (ie, sterile procedures) and good personal hygiene

FACE LIFT

Rhytidectomy (ie, face lift) is a surgical procedure that removes soft tissue folds and minimizes cutaneous wrinkles on the face. It is performed to create a more youthful appearance.

Psychological preparation requires that the patient recognize the limitations of surgery and the fact that miraculous rejuvenation will not occur. The patient is informed that the face may appear bruised and swollen after the dressings are removed and that several weeks may pass before the edema subsides.

The procedure is performed under local or general anesthesia, often in the outpatient setting. The incisions are concealed in natural skin folds and creases and areas hidden by hair. The loose skin, separated from underlying muscle, is pulled upward and backward. Excess skin that overlaps the incision line is removed. Liposuction-assisted rhytidectomy is being performed more frequently. In this procedure, fat is suctioned from the body through a cannula inserted through a small incision.

Management

The nurse encourages the patient to rest quietly for the first 2 postoperative days until the dressings are removed. The head of the bed is elevated, and neck flexion is discouraged to avoid compromising the circulation and the suture line. The patient may feel some tightness of the face and neck from pressure created by the newly tightened muscles, fascia, and skin. Analgesics may be prescribed to relieve discomfort. A liquid diet may be given by means of straws, and a soft diet is permitted if chewing is not too uncomfortable.

When the dressings are removed, the skin is gently cleaned of crusting and oozing and coated with the prescribed topical ointment. Any hair matted with drainage may be combed with warm water and a wide-toothed comb.

The patient is advised not to lift or bend for 7 to 10 days because this activity may increase edema and provoke bleeding. Activities are gradually resumed. When all sutures are removed, the hair may be shampooed and blown dry with warm, not hot, air to avoid burning the ears, which may be numb for a while.

The patient needs to know that a face lift will not stop the aging process and that, with time, the tissues will resume the downward drift. Some patients have two or more face lifts.

Sudden pain indicates that blood is accumulating underneath the skin flaps; it should be reported to the surgeon immediately. Complications include sloughing of the skin, deformities of the face and neck, and partial facial paralysis. Cigarette smoking has been implicated as a cause of skin slough in some patients.

Laser Treatment of Cutaneous Lesions

Lasers are devices that amplify or generate highly specialized light energy. They can mobilize immense heat and power when focused at close range and are valuable tools in surgical procedures. The argon laser, carbon dioxide (CO₂) laser, and tunable pulse-dye laser are used in dermatologic surgery. Each type of laser emits its own wavelength within the color spectrum.

ARGON LASER

The argon laser produces a visible blue-green light that is absorbed by vascular tissue and is therefore useful in treating vascular lesions: port-wine stains, telangiectases, vascular tumors, and pigmented lesions. The argon beam can penetrate approximately 1 mm of skin and reach the pigmented layer, causing protein coagulation in this area. An immediate effect is that tiny blood vessels under the skin coagulate, causing the area to turn a much lighter color. A crust forms within a few days.

During the procedure, the patient may require local anesthesia (lidocaine) but only if the lesion, such as a port-wine stain, is wider than 0.5 cm. Laser beams, regardless of type, are reflected and scattered in all directions during the treatment. Laser radiation is hazardous to the eye, and the eyes of the patient and all personnel involved in the surgical procedure and those who are within the immediate surgical environment must be protected with orange, argon light–absorbing safety goggles.

Management

Cold compresses are usually applied over the treatment area for approximately 6 hours to minimize edema, exudate, and loss of capillary permeability. The nurse advises the patient that swelling will subside in 1 to 2 days and will be followed by a crust that will last 7 to 10 days. The nurse instructs the patient to avoid picking at the crust, to apply an antibacterial ointment sparingly until the crust separates, to avoid applying makeup until the wound heals, and to avoid exposure to the sun. Sunscreen is to be used when exposure is unavoidable.

CARBON DIOXIDE LASER

The CO₂ laser emits invisible light in the infrared spectrum that is absorbed at the skin surface because of the high water content of the skin and the long wavelength of the CO₂ light. As the laser beam strikes tissue, it is absorbed by the intracellular and extracellular water, which vaporizes, destroying the tissue. The CO₂ laser is a precise surgical instrument that vaporizes and excises tissue with minimal damage. Because the beam can seal blood and lymphatic vessels, it creates a dry surgical field that makes many procedures easier and quicker. It is therefore safe to use on patients with bleeding disorders or those receiving anticoagulant therapy. It is useful for removing epidermal nevi, tattoos, certain warts, skin cancer, ingrown toenails, and keloids. Incisions made with the laser beam heal and scar much like those made by a scalpel.

In addition to wearing safety goggles, the patient and personnel wear laser-grade surgical masks to avoid inhaling the byproduct smoke, referred to as a plume.

Management

Immediately after undergoing CO₂ laser surgery, the treated area turns a charcoal color. The wound is covered with antibacterial ointment and a nonadhesive dressing. The patient is instructed to keep the wound dry except for gentle cleansing with mild soap several times each day. After the skin is cleaned, a prescribed ointment and light dressing are applied.

Because nerve endings and lymphatic vessels are sealed by the laser, less edema and pain follow the laser procedure than follow conventional surgery. A mild analgesic is sufficient to maintain
patient comfort. Wound healing occurs by secondary intention, with granulation tissue appearing within a week; complete healing occurs in several weeks. Sun exposure to the area should be avoided for approximately 6 months. Application of a sunscreen with an SPF value of at least 15 is recommended. People at high risk for skin cancer from sun exposure are advised to use a sunscreen with an SPF greater than 15 to block ultraviolet-B and ultraviolet-A light.

**PULSE-DYE LASER**

The tunable pulse-dye laser with various wavelengths is the latest laser available for dermatologic surgery. It is especially useful in treating cutaneous vascular lesions such as port-wine stains and telangiectasia. Eye protection used for the argon and CO₂ lasers is insufficient when the pulse-dye laser is in use. Special eye-glasses, such as those made of didymium glass, are required for the patient and all personnel. The procedure is generally painless. For procedures requiring anesthesia, lidocaine without epinephrine induces is unnecessary.

**Management**

The patient should be informed that there may be stinging in the treated area for several hours. Applying ice to the area and a light antibacterial ointment followed by a nonstick dressing (eg, Telfa) usually eases discomfort.

If crusting occurs, the patient is advised to wash the area gently with soap and water and reapply the antibacterial cream twice daily until the crust disappears. The nurse also advises the patient to avoid wearing makeup until all crust is removed. Sun exposure should be avoided as well; sunscreens with an SPF value of 15 or greater should be used for 3 to 4 months after the treatment. Complete removal of the lesion at one session, especially a port-wine stain, is rare. The patient should be informed that several treatments may be necessary.

**NURSING ALERT** Telfa pads contain latex and should not be used on patients who are latex sensitive. Other dressings such as petrolatum-impregnated gauze should be used to prevent the dressing from adhering to the wound.

If crusting occurs, the patient is advised to wash the area gently with soap and water and reapply the antibacterial cream twice daily until the crust disappears. The nurse also advises the patient to avoid wearing makeup until all crust is removed. Sun exposure should be avoided as well; sunscreens with an SPF value of 15 or greater should be used for 3 to 4 months after the treatment. Complete removal of the lesion at one session, especially a port-wine stain, is rare. The patient should be informed that several treatments may be necessary.

**Critical Thinking Exercises**

1. A patient is admitted with generalized psoriasis in an acute flare. About 70% of his skin is involved. What type of treatment will you be expected to administer? What nursing interventions would you anticipate in caring for this man? Explain the physiologic basis for these interventions.

2. You are caring for an elderly man who has had surgery. He is a regular resident of a long-term care facility. When giving him a bath, you find two ulcerations on his buttocks. What are some of the considerations in taking care of this man? What will help prevent further breakdown of the skin?

3. A middle-aged woman is admitted to same-day surgery for a wide excision of a melanoma on her back. She is very anxious about the cause of this cancer and about her prognosis. What issues would you address in helping her diminish her anxiety? What should she be told about sun exposure? What should she tell her children about their risk for melanoma?

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