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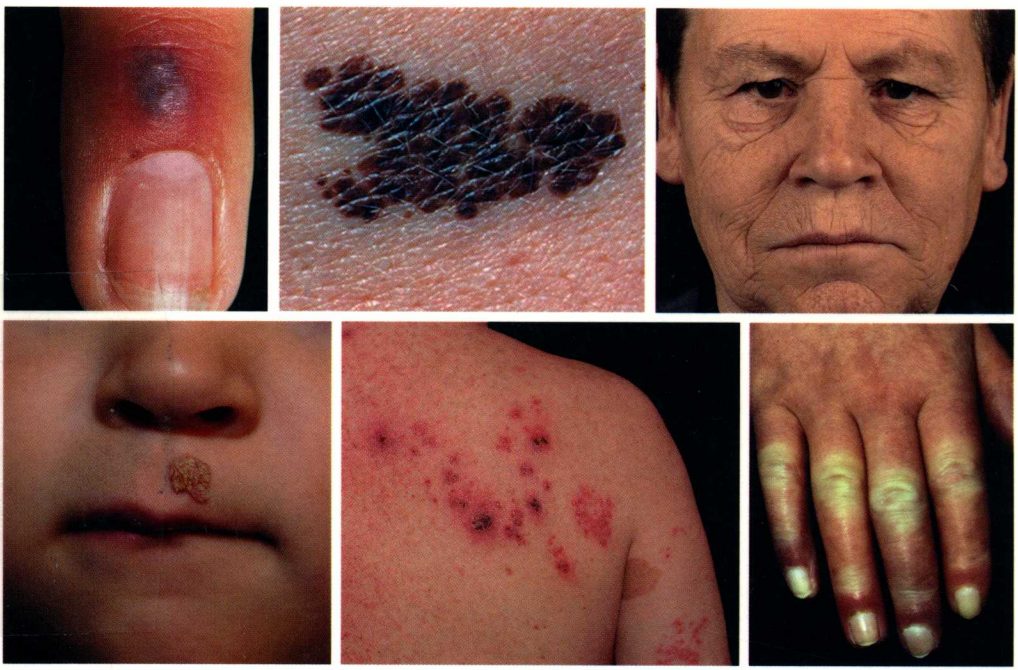
Seventh Edition

Fitzpatrick's
COLOR ATLAS AND SYNOPSIS OF CLINICAL DERMATOLOGY



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COLOR ATLAS AND SYNOPSIS OF CLINICAL DERMATOLOGY

SEVENTH EDITION

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Fitzpatrick's Color Atlas and Synopsis of Clinical Dermatology, Seventh Edition

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NOTICE

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This seventh edition of
Fitzpatrick's Color Atlas and Synopsis of Clinical Dermatology
is dedicated to dermatology residents worldwide.

PREFACE

"Time is change; we measure its passage by how much things alter."
Nadine Gordimer

The first edition of this book appeared 30 years ago (1983) and has been expanded pari passu with the major developments that have occurred in dermatology over the past three and a half decades. Dermatology is now one of the most sought after medical specialties because the burden of skin disease has become enormous and the many new innovative therapies available today attract large patient populations.

The *Color Atlas and Synopsis of Clinical Dermatology* has been used by thousands of primary care physicians, dermatology residents, dermatologists, internists, and other health care providers principally because it facilitates dermatologic diagnosis by providing color photographs of skin lesions and, juxtaposed, a succinct summary outline of skin disorders as well as the skin signs of systemic diseases.

The seventh edition has been extensively revised, rewritten, and expanded by the addition of new sections. Roughly 20% of the old images have been replaced by new ones and additional images have been added. There is a complete update of etiology, pathogenesis, management, and therapy and there is now an online version.

ACKNOWLEDGMENT

Our secretary, Renate Kosma, worked hard to meet the demands of the authors. In the present McGraw-Hill team, we appreciated the counsel of Anne M. Sydor, Executive Editor; Kim Davis, Associate Managing Editor; Jeffrey Herzich, Production Manager, who expertly managed the production process; and Diana Andrews, for her updated design.

But the major force behind this and the previous edition was Anne Sydor whose good nature, good judgment, loyalty to the authors, and, most of all, patience guided the authors to make an even better book.

INTRODUCTION

The *Color Atlas and Synopsis of Clinical Dermatology* is proposed as a "field guide" to the recognition of skin disorders and their management. The skin is a treasury of important lesions that can usually be recognized clinically. Gross morphology in the form of skin lesions remains the hard core of dermatologic diagnosis, and therefore this text is accompanied by over 900 color photographs illustrating skin diseases, skin manifestation of internal diseases, infections, tumors, and incidental skin findings in otherwise well individuals. We have endeavored to include information relevant to gender dermatology and a large number of images showing skin disease in different ethnic populations. This *Atlas* covers the entire field of clinical dermatology but does not include very rare syndromes or conditions. With respect to these, the reader is referred to another McGraw-Hill Publication: *Fitzpatrick's Dermatology in General Medicine*, 8th edition, 2012, edited by Lowell A. Goldsmith, Stephen I. Katz, Barbara A. Gilchrest, Amy S. Paller, and David J. Leffell, and Klaus Wolff.

This text is intended for all physicians and other health care providers, including medical students, dermatology residents, internists, oncologists, and infectious disease specialists dealing with diseases with skin manifestations. For nondermatologists, it is advisable to start with "Approach to Dermatologic Diagnosis" and "Outline of Dermatologic Diagnosis," below, to familiarize themselves with the principles of dermatologic nomenclature and lines of thought.

The *Atlas* is organized into 4 parts, subdivided into 35 sections, and there are 2 short appendices. Each section has a color label that is reflected by the bar on the top of each page. This is to help the reader to find his or her bearings rapidly when leafing through the book.

Each disease is labeled with little symbols to provide first-glance information on incidence (squares) and morbidity (circles).

☐ rare	○ low morbidity
◧ not so common	◑ considerable morbidity
■ common	● serious

For instance, the symbols ■ ● for melanoma are meant to indicate that melanoma is common and serious. There are also some variations in this symbology. For instance, ☐ ➔ ■ means that the disease is rare but may be common in specific populations or in endemic regions or in epidemics. Another example ◑ ➔ ● indicates that the disease causes considerable morbidity and may become serious. In addition, each disease is labeled with the respective ICD9/10 codes.

APPROACH TO DERMATOLOGIC DIAGNOSIS

There are two distinct clinical situations regarding the nature of skin changes:

I. The skin changes are *incidental* findings in *well* and *ill* individuals noted during the routine general physical examination
   - "Bumps and blemishes": many asymptomatic lesions that are medically inconsequential may be present in well and ill persons and are not the reason for the visit to the physician; every general physician should be able to recognize these lesions to differentiate them from asymptomatic but important, e.g., malignant, lesions.
   - *Important skin lesions not* noted by the patient but that must not be overlooked by the physician: e.g., atypical nevi, melanoma, basal cell carcinoma, squamous cell carcinoma, café-au-lait macules in von Recklinghausen disease, and xanthomas.

II. The skin changes are the *chief complaint* of the patient
   - "Minor" problems: e.g., localized itchy rash, "rash," rash in groin, nodules such as common moles and seborrheic keratoses.
   - "4-S": serious skin signs in sick patients

SERIOUS SKIN SIGNS IN SICK PATIENTS

- **Generalized red rash with fever**
  - Viral exanthems
  - Rickettsial exanthems
  - Drug eruptions
  - Bacterial infections with toxin production.
- **Generalized red rash with blisters and prominent mouth lesions**
  - Erythema multiforme (major)
  - Toxic epidermal necrolysis
  - Pemphigus
  - Bullous pemphigoid
  - Drug eruptions
- **Generalized red rash with pustules**
  - Pustular psoriasis (von Zumbusch)
  - Drug eruptions
- **Generalized rash with vesicles**
  - Disseminated herpes simplex
  - Generalized herpes zoster
  - Varicella
  - Drug eruptions
- **Generalized red rash with scaling over whole body**
  - Exfoliative erythroderma
- **Generalized wheals and soft-tissue swelling**
  - Urticaria and angioedema
- **Generalized purpura**
  - Thrombocytopenia
  - Purpura fulminans
  - Drug eruptions
- **Generalized purpura that can be palpated**
  - Vasculitis
  - Bacterial endocarditis
- **Multiple skin infarcts**
  - Meningococcemia
  - Gonococcemia
  - Disseminated intravascular coagulopathy
- **Localized skin infarcts**
  - Calciphylaxis
  - Atherosclerosis obliterans
  - Atheroembolization
  - Warfarin necrosis
  - Antiphospholipid antibody syndrome
- **Facial inflammatory edema with fever**
  - Erysipelas
  - Lupus erythematosus

OUTLINE OF DERMATOLOGIC DIAGNOSIS

In contrast to other fields of clinical medicine, patients should be examined before a detailed history is taken because patients can see their lesions and thus often present with a history that is flawed with their own interpretation of the origin or causes of the skin eruption. Also, diagnostic accuracy is higher when objective examination is approached without preconceived ideas. However, a history should always be obtained but if taken during or after the visual and physical examination, it can be streamlined and more focused following the

objective findings. Thus, recognizing, analyzing, and properly interpreting skin lesions are the sine qua non of dermatologic diagnosis.

PHYSICAL EXAMINATION

Appearance Uncomfortable, "toxic," well
Vital Signs Pulse, respiration, temperature
Skin: "Learning to Read" The entire skin should be inspected and this should include mucous membranes, genital and anal regions, as well as hair and nails and peripheral lymph nodes. Reading the skin is like reading a text. The basic skin lesions are like the letters of the alphabet: their shape, color, margination, and other features combined will lead to words, and their localization and distribution to a sentence or paragraph. The prerequisite of dermatologic diagnosis is thus the recognition of (1) the type of skin lesion, (2) the color, (3) margination, (4) consistency, (5) shape, (6) arrangement, and (7) distribution of lesions.

Recognizing Letters: Types of Skin Lesions

- **Macule** (Latin: *macula*,"spot") A macule is a circumscribed area of change in skin color without elevation or depression. It is thus not palpable. Macules can be well- and ill defined. Macules may be of any size or color (Image I-1). White, as in vitiligo; brown, as in café-au-lait spots; blue, as in Mongolian spots; or red, as in permanent vascular abnormalities such a port-wine stains or capillary dilatation due to inflammation (erythema). Pressure of a glass slide (*diascopy*) on the border of a red lesion detects the extravasation of red blood cells. If the redness remains under pressure from the slide, the lesion is purpuric, that is, results from extravasated red blood cells; if the redness disappears, the lesion is due to vascular dilatation. A rash consisting of macules is called a *macular exanthem*.
- **Papule** (Latin: *papula*, "pimple") A papule is a superficial, elevated, solid lesion, generally considered <0.5 cm in diameter. Most of it is elevated above, rather than deep within, the plane of the surrounding skin (Image I-2). A papule is palpable. It may be well- or ill defined. In papules the elevation is caused by metabolic or locally produced deposits, by localized cellular infiltrates, inflammatory

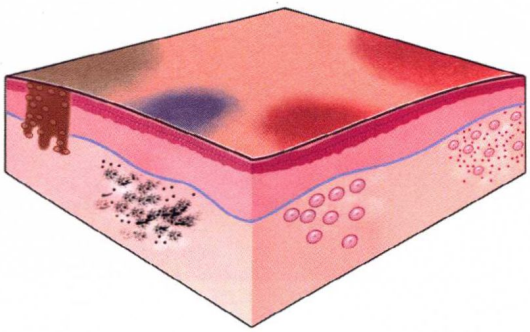
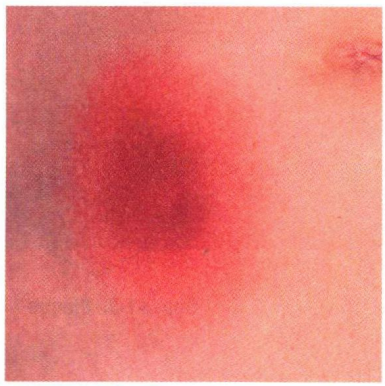


Image I-1. Macule



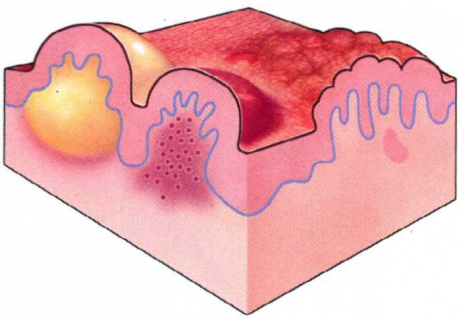
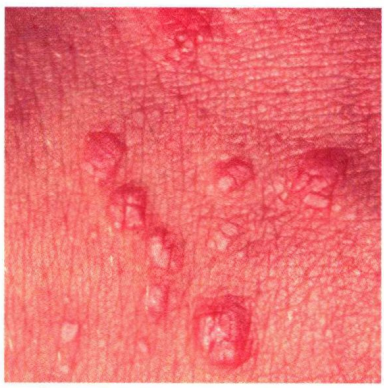
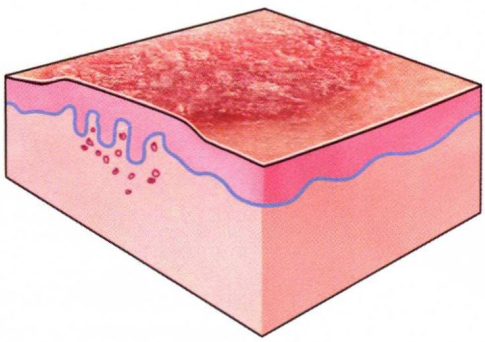


Image I-2. Papule



or noninflammatory, or by hyperplasia of local cellular elements. Superficial papules are sharply defined. Deeper dermal papules have indistinct borders. Papules may be dome-shaped, cone-shaped or flat-topped (as in lichen planus) or consist of multiple, small, closely packed, projected elevations that are known as a *vegetation* (Image I-2). A rash consisting of papules is called a papular *exanthem*. Papular exanthems may be grouped ("lichenoid") or disseminated (dispersed). Confluence of papules leads to the development of larger, usually flat-topped, circumscribed, plateau-like elevations known as plaques (French: *plaque*, "plate"). See below.

- **Plaque** A plaque is a plateau-like elevation above the skin surface that occupies a relatively large surface area in comparison with its height above the skin (Image I-3). It is usually well defined. Frequently it is formed by a confluence of papules, as in psoriasis. *Lichenification* is a less well defined large plaque where the skin appears thickened and the skin markings are accentuated. Lichenification occurs in atopic dermatitis, eczematous dermatitis, psoriasis, lichen simplex chronicus, and mycosis fungoides. A *patch* is a barely elevated plaque—a lesion fitting between a macule and a plaque—as in parapsoriasis or Kaposi sarcoma.
- **Nodule** (Latin: *nodulus*, "small knot") A nodule is a palpable, solid, round, or ellipsoidal lesion that is larger than a papule (Image I-4) and may involve the epidermis, dermis, or subcutaneous tissue. The depth of involvement and the size differentiate a nodule from a papule. Nodules result from inflammatory infiltrates, neoplasms, or metabolic deposits in the dermis or subcutaneous tissue. Nodules may be well defined (superficial) or ill defined (deep); if localized in the subcutaneous tissue, they can often be better felt than seen. Nodules can be hard or



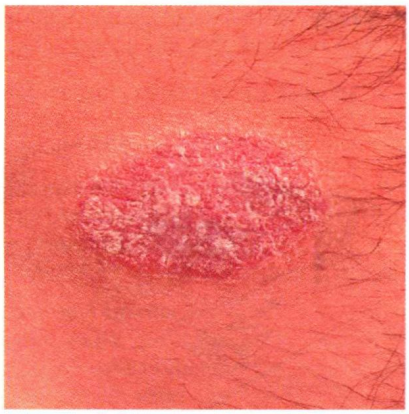
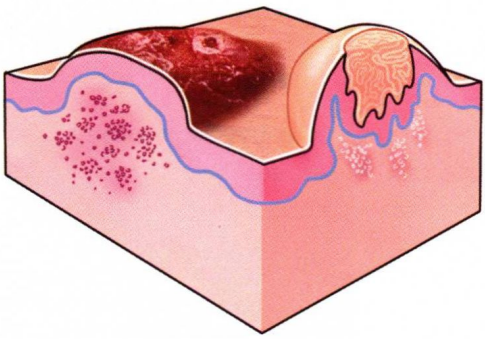


Image I-3. Plaque



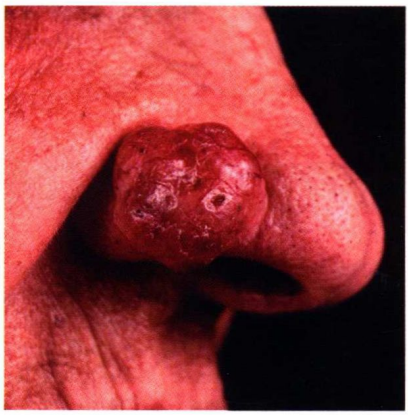


Image I-4. Nodule

soft upon palpation. They may be dome-shaped and smooth or may have a warty surface or crater-like central depression.

- **Wheal** A wheal is a rounded or flat-topped, pale red papule or plaque that is characteristically evanescent, disappearing within 24–48 h (Image I-5). It is due to edema in the papillary body of the dermis. Wheals may be round, gyrate, or irregular with pseudopods—changing rapidly in size and shape due to shifting papillary edema. A rash consisting of wheals is called a *urticarial exanthema* or *urticaria*.
- **Vesicle-Bulla** (*Blister*) (Latin: *vesicula*, "little bladder"; *bulla*, "bubble") A vesicle (<0.5 cm) or a bulla (>0.5 cm) is a circumscribed, elevated, superficial cavity containing fluid (Image I-6). Vesicles are dome-shaped (as in contact dermatitis, dermatitis herpetiformis), umbilicated (as in herpes simplex), or flaccid (as in pemphigus). Often the roof of a vesicle/bulla is so thin that it is transparent, and the serum or blood in the cavity can be seen. Vesicles containing serum are yellowish; those containing blood from red to black. Vesicles and bullae arise from a cleavage at various levels of the superficial skin; the cleavage may be subcorneal or within the visible epidermis (i.e., intraepidermal vesication) or at the epidermal–dermal interface (i.e., sub), as in Image I-6. Since vesicles/bullae are always superficial they are always well defined. A rash consisting of vesicles is called a *vesicular exanthem*; a rash consisting of bullae a *bullous exanthem*.

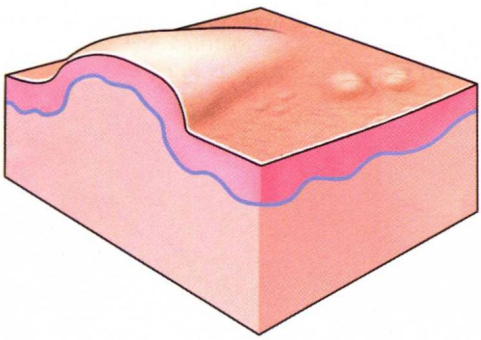
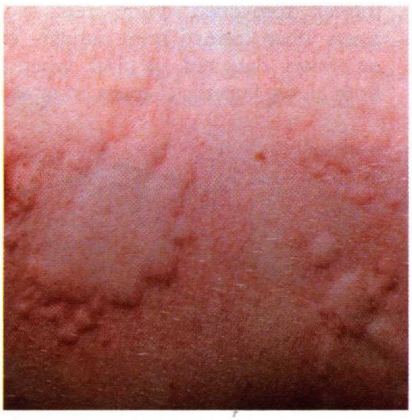


Image I-5. Wheal



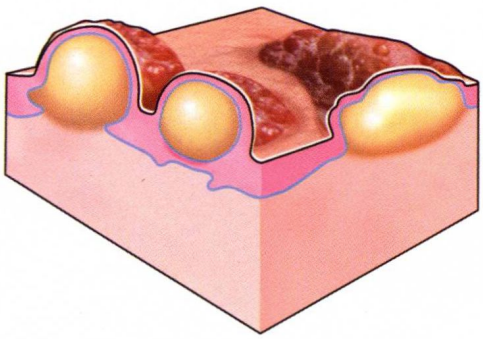
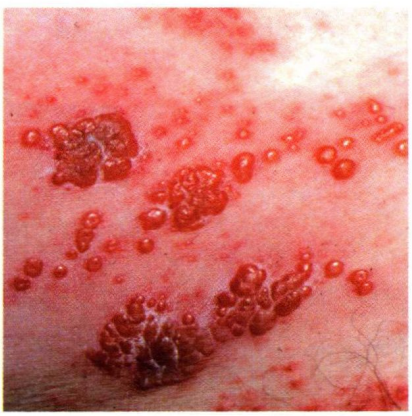


Image I-6. Vesicle



- **Pustule** (Latin: *pustula*, "pustule") A pustule is a circumscribed superficial cavity of the skin that contains a purulent exudate (Image I-7), which may be white, yellow, greenish-yellow, or hemorrhagic. Pustules thus differ from vesicles in that they are not clear but have a turbid content. This process may arise in a hair follicle or independently. Pustules may vary in size and shape. Pustules are usually dome-shaped, but follicular pustules are conical and usually contain a hair in the center. The vesicular lesions of herpes simplex and varicella zoster virus infections may become pustular. A rash consisting of pustules is called a *pustular exanthem*.

- **Crusts** (Latin: *crusta*, "rind, bark, shell") Crusts develop when serum, blood, or purulent exudate dries on the skin surface (Image I-8). Crusts may be thin, delicate, and friable or thick and adherent. Crusts are yellow when formed from dried serum; green or yellow-green when formed from purulent exudate; or brown, dark red, or black when formed from blood. Superficial crusts occur as honey-colored, delicate, glistening particulates on the surface and are typically found in impetigo. When the exudate involves the entire epidermis, the crusts may be thick and adherent, and if it is accompanied by necrosis of the deeper tissues (e.g., the dermis), the condition is known as *ecthyma*.

- **Scales (squames)** (Latin: *squama*, "scale") Scales are flakes of stratum corneum (Image I-9). They may be large (like membranes, tiny [like dust], pityriasiform (Greek: *pityron*, "bran"), adherent, or loose. A rash consisting of papules with scales is called a *papulosquamous exanthem*.

- **Erosion** An erosion is a defect only of the epidermis, not involving the dermis (Image I-10); in contrast to an ulcer, which always heals with scar formation (see below), an erosion heals without a scar. An erosion is sharply defined, is red, and oozes. There are superficial erosions, which are subcorneal or run through the epidermis, and deep erosions, the base of which is the papillary body (Image I-10). Except physical abrasions, erosions are always

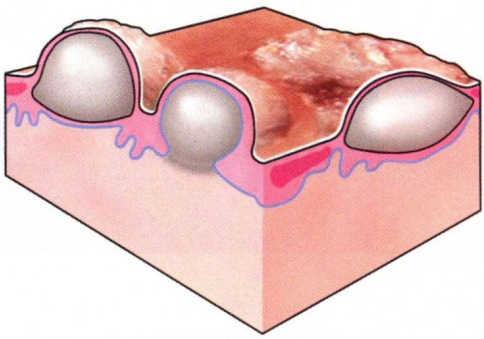
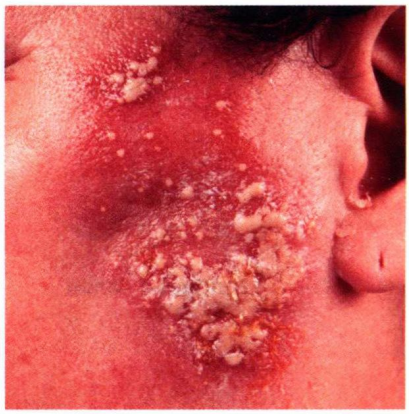


Image I-7. Pustule



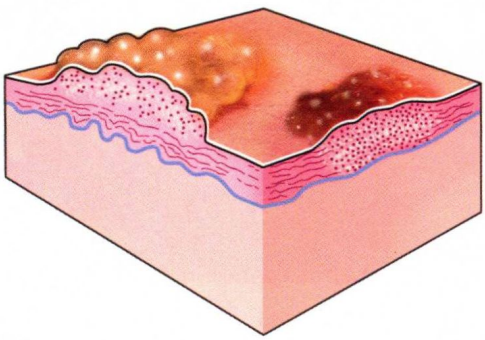
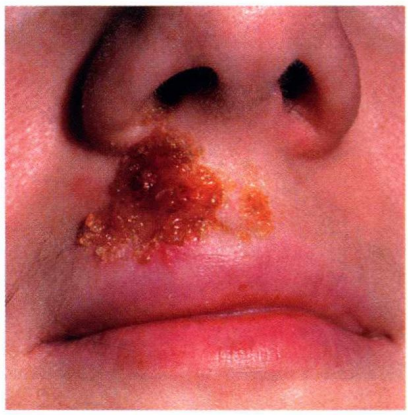


Image I-8. Crust



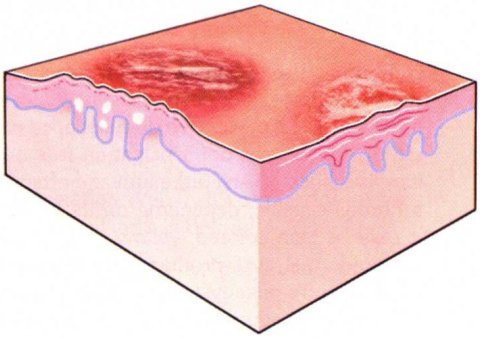
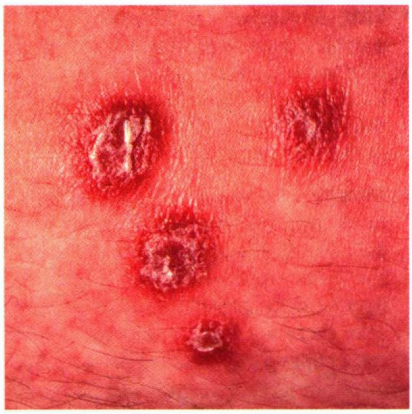


Image I-9. Scale



the result of intraepidermal or subepidermal cleavage and thus of vesicles or bullae.

- **Ulcer** (Latin: *ulcus*, "sore") An ulcer is a skin defect that extends into the dermis or deeper (Image I-11) into the subcutis and always occurs within pathologically altered tissue. An ulcer is therefore always a secondary phenomenon. The pathologically altered tissue giving rise to an ulcer is usually seen at the border or the base of the ulcer and is helpful in determining its cause. Other features helpful in this respect are whether borders are elevated, undermined, hard, or soggy; location of the ulcer; discharge; and any associated topographic features, such as nodules, excoriations, varicosities, hair distribution, presence or absence of sweating, and arterial pulses. Ulcers always heal with scar formation.

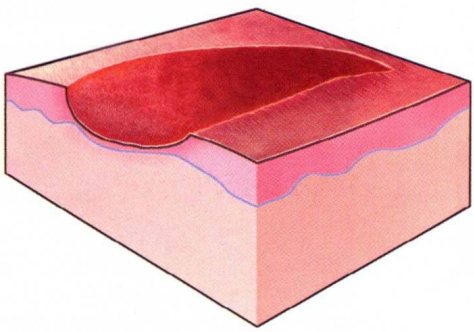


Image I-10. Erosion

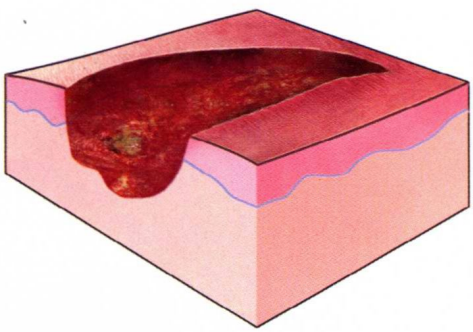
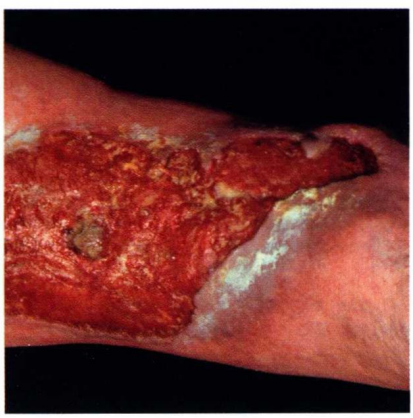


Image I-11. Ulcer



- **Scar** A scar is the fibrous tissue replacement of the tissue defect by previous ulcer or a wound. Scars can be hypertrophic and hard (Image I-12) or atrophic and soft with a thinning or loss of all tissue compartments of the skin (Image I-12).
- **Atrophy** This refers to a diminution of some or all layers of the skin (Image I-13). Epidermal atrophy is manifested by a thinning of the epidermis, which becomes transparent, revealing the papillary and subpapillary vessels; there are loss of skin texture and cigarette paper-like wrinkling. In dermal atrophy, there are loss of connective tissue of the dermis and depression of the lesion (Image I-13).
- **Cyst** A cyst is a cavity containing liquid or solid or semisolid (Image I-14) materials and may be superficial or deep. Visually it appears like a spherical, most often dome-shaped papule or nodule, but upon palpation it is resilient. It is lined by an epithelium and often has a fibrous capsule; depending on its contents it may be skin colored, yellow, red, or blue. An epidermal cyst producing keratinaceous material and a pilar cyst that is lined by a multilayered epithelium are shown in Image I-14.

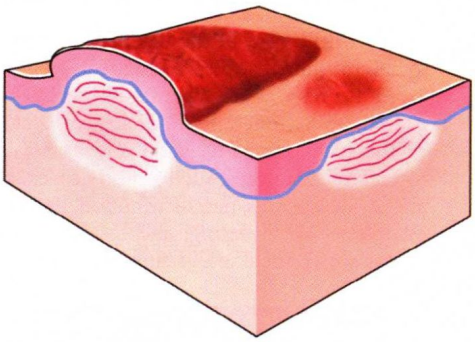
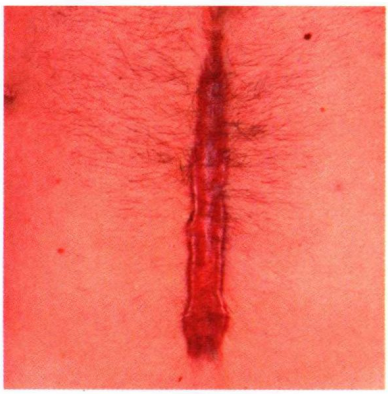


Image I-12. Scar



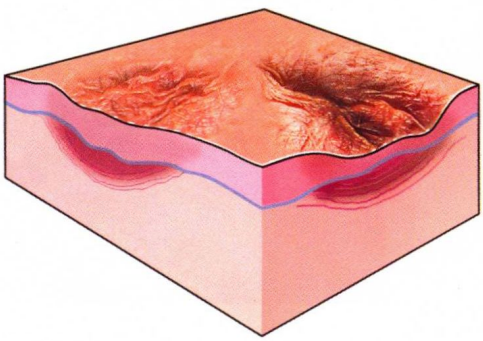
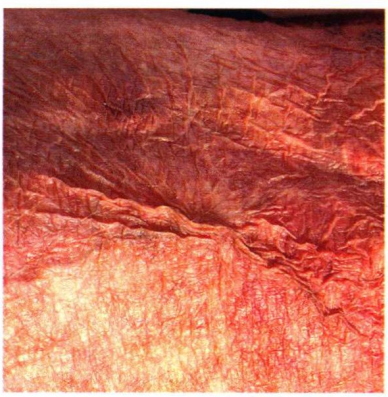


Image I-13. Atrophy



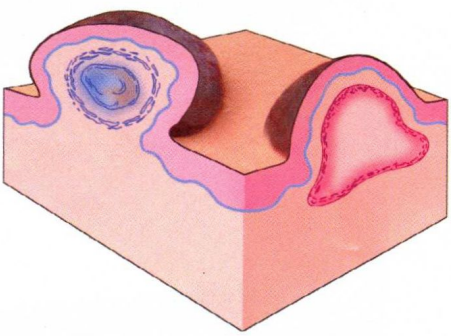
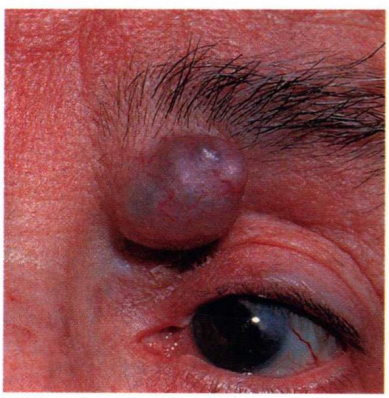


Image I-14. Cyst



Shaping Letters into Words: Further Characterization of Identified Lesions

- **Color** Pink, red, purple (purpuric lesions do not blanch with pressure with a glass slide [diascopy]), white, tan, brown, black, blue, gray, and yellow. The color can be uniform or variegated.
- **Margination** Well (can be traced with the tip of a pencil) and ill defined.
- **Shape** Round, oval, polygonal, polycyclic, annular (ring-shaped), iris, serpiginous (snakelike), umbilicated.
- **Palpation** Consider (1) *consistency* (soft, firm, hard, fluctuant, boardlike), (2) *deviation in temperature* (hot, cold), and (3) *mobility*. Note presence of *tenderness*, and estimate the *depth* of the lesion (i.e., dermal or subcutaneous).

Forming Sentences and Understanding the Text: Evaluation of Arrangement, Patterns, and Distribution

- **Number** Single or multiple lesions.
- **Arrangement** Multiple lesions may be (1) *grouped*: herpetiform, arciform, annular, reticulated (net-shaped), linear, serpiginous (snakelike) or (2) *disseminated*: scattered discrete lesions.
- **Confluence** Yes or no.
- **Distribution** Consider (1) *extent*: isolated (single lesions), localized, regional, generalized, universal, and (2) *pattern*: symmetric, exposed areas, sites of pressure, intertriginous area, follicular localization, random, following dermatomes or Blaschko lines.

Table I-1 provides an algorithm showing how to proceed.

HISTORY

Demographics Age, race, sex, and occupation.

History

1. **Constitutional symptoms**
   - "Acute illness" syndrome: headaches, chills, feverishness, and weakness
   - "Chronic illness" syndrome: fatigue, weakness, anorexia, weight loss, and malaise
2. **History of skin lesions. Seven key questions:**
   - When? Onset
   - Where? Site of onset
   - Does it itch or hurt? Symptoms
   - How has it spread (pattern of spread)? Evolution
   - How have individual lesions changed? Evolution
   - Provocative factors? Heat, cold, sun, exercise, travel history, drug ingestion, pregnancy, season
   - Previous treatment(s)? Topical and systemic
3. **General history of present illness as indicated by clinical situation, with particular attention to constitutional and prodromal symptoms**
4. **Past medical history**
   - Operations
   - Illnesses (hospitalized?)
   - Allergies, especially drug allergies
   - Medications (present and past)
   - Habits (smoking, alcohol intake, drug abuse)
   - Atopic history (asthma, hay fever, eczema)
5. **Family medical history (particularly of psoriasis, atopy, melanoma, xanthomas, tuberous sclerosis)**
6. **Social history, with particular reference to occupation, hobbies, exposures, travel, injecting drug use**
7. **Sexual history: history of risk factors of HIV: blood transfusions, IV drugs, sexually active, multiple partners, sexually transmitted disease?**

REVIEW OF SYMPTOMS

This should be done as indicated by the clinical situation, with particular attention to possible connections between signs and disease of other organ systems (e.g., rheumatic complaints, myalgias, arthralgias, Raynaud phenomenon, sicca symptoms).