Dermatology Skills for Primary Care

CURRENT ◊ CLINICAL ◊ PRACTICE

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Dermatology Skills for Primary Care

An Illustrated Guide

By

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Left Photo: Bullous Impetigo (*see* color photo section, Part VI)
Right Photo: Vesicle/Bulla (*see* p. 10, Fig. 11)

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Series Editor's Introduction

The diagnosis and treatment of common dermatologic problems is a critical area of skill and knowledge for primary care physicians. According to the US Department of Health and Human Services,[1] patients present to their physicians a skin rash as their chief concern for nearly 12 million office visits each year. In 73% of these office visits, patients see their internist, family physician, or pediatrician. In this respect, astonishingly, primary care clinicians see far more skin disease in their offices than dermatologists. *Dermatology Skills for Primary Care: An Illustrated Guide* advances the targeted skill and knowledge base of primary care physicians, as well as the collaboration between dermatologists and primary care physicians, by its wise choice of organization, scope, and approach.

Dermatology Skills for Primary Care: An Illustrated Guide by Drs. Trozak, Tennenhouse, and Russell is an important addition to the dermatology literature because it has been written collaboratively by a skilled dermatologist and two excellent academic family physicians. As such, the book superbly targets the depth and scope of needs of primary care practitioners in the field of dermatology.

Dermatology Skills for Primary Care: An Illustrated Guide is unique in its approach by opening each chapter with the clinical questions that physicians must answer in approaching patients, and then giving the history, physical examination findings, differential diagnosis, therapeutic options for treatment, and finally explicitly answering the opening questions in each chapter. The book is important in scope, providing in-depth discussions of the most common skin conditions that primary care clinicians encounter.

If a physician knows the contents of this book, he or she will be able to competently take care of more than 90% of the dermatologic problems that are seen in a busy office practice.

That is an accomplishment.

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[1]Source: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Health Statistics, 2002 data. Public Use data file. Table 35a. http://www.aafp.org/x24579.xml (accessed May 2, 2005).

Preface

Skin diseases are a very substantial part of any primary care practice. Unlike most internal conditions, dermatological lesions are apparent to the patient from their inception and the progression is usually readily evident. Accurate prompt diagnosis and appropriate treatment will alleviate a great deal of suffering and reinforce the patient's confidence in the practitioner's skills.

Dermatology Skills for Primary Care: An Illustrated Guide is designed to teach basic skills and to offer an inclusive approach to skin diseases so that primary practitioners can acquire the basic diagnostic and therapeutic skills used by their dermatologic colleagues. Part I reviews the basic skills and tools used in dermatologic diagnosis and also discusses basic principles of topical therapy. The ensuing five parts put these skills into practical scenarios and cover the treatment of specific skin conditions that are frequently encountered in everyday general medicine.

Although *Dermatology Skills for Primary Care: An Illustrated Guide* is not a comprehensive dermatologic reference, practitioners who master the skills in Part I and apply them to the 33 commonly encountered skin conditions in Parts II–VI should be able to practice very credible general dermatology.

Daniel J. Trozak, *MD*
Dan J. Tennenhouse, *MD, JD*
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About the Authors

Daniel J. Trozak, MD, FAAD, is a graduate of the University of Michigan School of Medicine and completed his postgraduate training in dermatology at University of Oregon Health Sciences University. He served as a clinical associate professor of dermatology at Stanford University from 1974 to 1992. He has been a consultant in pharmacological research to the Psoriasis Research Institute (Palo Alto, CA) and a consultant in product research to Product Investigations Inc. (Conshohocken, PA). Dr. Trozak has authored and co-authored publications in the areas of melanoma, contact dermatitis, delayed cutaneous hypersensitivity, neuropeptides, and psoriasis. Dr. Trozak has been in the private practice of dermatology in Modesto, California since 1973 and is familiar on a firsthand basis with the dermatological problems that confront primary practitioners on a daily basis.

Dan J. Tennenhouse, MD, JD, FCLM, is a graduate of the University of Michigan School of Medicine and the University of California Hastings College of the Law. Dr. Tennenhouse is a nationally recognized medico-legal consultant, author, and lecturer and has 25 years experience in the practice of primary care medicine at the University of California San Francisco School of Medicine plus more than 30 years experience on the medical school faculty teaching lecture courses. He is the author or co-author of more than 30 references on risk management and medical law.

John J. Russell, MD, AAFP, is a graduate of Pennsylvania State College of Medicine and completed his postgraduate training in family medicine at Abington Memorial Hospital, Abington, Pennsylvania. Since 1993, Dr. Russell has served as assistant and associate director of the Abington Memorial Hospital Family Medicine Program. He is a clinical associate professor of family and community medicine at Temple University School of Medicine and lectures nationally on a variety of medical subjects including asthma, hyperlipidemia, and various aspects of dermatology. He serves as a contributing editor and reviewer for several primary care journals and has authored or co-authored several papers in the areas of dermatology and general medicine.

Contents

Part I: Basic Skills

INTRODUCTION

Few disciplines evoke more mystery and confusion among health care professionals than the examinations and diagnosis of skin disorders. Frequently, fellow physicians whose diagnostic abilities in other areas are sharp and accurate express a sense of absolute helplessness when faced with a common exanthem.

With the current evolutionary changes in the health care system, primary care practitioners are being called on to improve their skills in all areas of medicine including dermatologic diagnosis. Diseases of the skin are a surprisingly large part of primary care practice. The aim of this book is to improve dermatologic skills by presenting a concise, logical, stepwise approach to skin examination. Mastery of these principles will improve your diagnostic accuracy and minimize use of expensive laboratory testing. This is truly "cost-effective" medicine.

Part I is designed to provide the basic skills upon which subsequent disease-specific chapters are based. A thorough knowledge and understanding of these principles is essential.

As in other medical disciplines, accurate diagnosis of skin disorders requires a history and physical examination. After many years of practice, dermatologists become skilled at cutting through the chaff while obtaining a specific history of the immediate problem. This specific history does not replace a general medical history and may, in fact, reveal areas where the general medical history should be amplified. This book will address salient areas of the specific history.

Physical examination of skin lesions is primarily visual and to a lesser extent tactile. Accurate diagnosis is sometimes dependent on subtle changes in color and surface character. Recognizing these changes is a skill acquired over many years. Mastery of the basic information in this book will allow primary care practitioners to improve their skills in diagnosing common skin diseases. Once these principles have been incorporated into your armamentarium, you can go on to acquire a sense of more subtle aspects of dermatologic diagnosis.

Each word in the description of a skin lesion is a meaningful clue. When faced with a difficult diagnostic challenge, these are the basics that a dermatologist will return to in order to obtain a correct answer.

Ask yourself, for instance, "Is the color red, red-yellow, dusky, or bright red? Are these papules dome-shaped, flat-topped, or polygonal?" In this way you will truly begin to see the physical changes which are present—changes that allow dermatologists to distinguish one condition from another.

1 Specific History

CLINICAL APPLICATION QUESTIONS

A 75-year-old white male presents at your office with a history of tenesmus and perirectal pain. He describes extension of pain onto the left posterior thigh. He also has been aware of developing skin discoloration and surface roughness over the area of pain. Moistness and weeping have been present over some of the skin lesions.

1. Why is it important to accurately establish the date of onset of the problem?
2. Why is it important to elicit from this patient's history whether the onset was acute or chronic, or was associated with recurrent attacks and/or exacerbations?
3. What are the reasons you would elicit the sequence of the patient's subjective complaints and observations?
4. What is the reason for determining the sequence of change in specific skin lesions observed by the patient?
5. What is the reason for asking this patient what medications have been used over what time period? What information should be elicited for a thorough medication history?
6. Why would you ask this patient if he has had possible back injuries or chiropractic manipulations, radiation therapy, or chemotherapy?
7. What are the reasons you would ask this patient about prior bowel habits, rectal bleeding, recent stool tests, prior diagnoses of gastrointestinal (GI) disorders, and previous GI-related pain?

APPLICATION GUIDELINES

Onset

Establish accurately the time of onset of the problem. If it is a chronic disorder, document the frequency and duration of individual attacks, exacerbations, or recurrent episodes. Many skin problems have a fairly characteristic age of onset, gender preference, and duration. Recurrences may follow recognizable fixed patterns, which will aid in diagnosis.

Evolution of the Disease Process

Ask the patient to explain in a stepwise fashion what has happened with respect to (1) onset of symptoms, (2) extension or changes in location, (3) onset of associated symptoms (e.g., itch, pain, tenderness), and (4) correlation of the skin findings with any systemic symptoms, such as fatigue, fever, or myalgia. This will give a global view of the illness and help to determine whether this is purely a cutaneous process or is part of a larger systemic problem.

From: *Current Clinical Practice: Dermatology Skills for Primary Care: An Illustrated Guide*
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Evolution of Skin Lesions

Have the patient describe, and if possible point out, how the individual skin lesions have evolved. Start with the earliest type of lesion, as these "primary lesions" are often critical clues to the correct diagnosis. Have the patient show you the newest spots (usually the most characteristic primary lesions) and the oldest spots (which will usually have evolved secondary changes). The primary lesion and its evolution in the disease process are fundamental to correct dermatological diagnosis. The evolution of these individual lesions must be understood and considered with the evolution of the whole disease process.

Provoking Factors

Find out if the skin lesions are precipitated or aggravated by any external condition or substances such as heat, cold, sunlight, foods, or medications. This history will often offer a clue as to etiology or may be another sign supporting the diagnosis.

Self-Medication

Unlike many other medical problems, patients often feel comfortable self-treating skin disorders. There are myriad topical proprietary medications available, ranging from low-potency steroids to veterinary preparations. These home remedies or potent steroid creams (often borrowed from friends and relatives) can significantly alter the appearance of the eruption, even though they are ineffective at relieving or resolving it. Knowing what has been used will often explain unusual physical findings or, for instance, the negative potassium hydroxide preparation (*see* Chapter 3) that you expected to be positive.

Supplemental Review From General History

Frequently, clues gleaned from the specific history will point out areas in the general medical history that need to be reviewed in greater depth. For example, a 35-year-old man presents a specific history of an intensely pruritic, scaling skin disorder of 6 to 8 months' duration, suggesting the possibility of an ichthyosis. Family history for similar disturbances is negative, which rules out dominant ichthyosis vulgaris. The symptoms suggest the possibility of acquired ichthyosis, a condition that has been frequently reported with underlying systemic disease. The most common association is with Hodgkin's disease, but it has also been linked to other lymphomas, malnutrition, and occasionally other malignancies. This should prompt a supplemental review from the general history of the patient's dietary pattern, weight gain/loss, adenopathy, and a general review of systems.

ANSWERS TO CLINICAL APPLICATION QUESTIONS

History Review

A 75-year-old white male presents at your office with a history of tenesmus and perirectal pain. He describes extension of pain onto the left posterior thigh. He also has been aware of developing skin discoloration and surface roughness over the area of pain. Moistness and weeping have been present over some of the skin lesions.

1. Why is it important to accurately establish the date of onset of the problem?

Answer: If this problem started 6 days earlier, the differential diagnosis would be very different than if it started 6 weeks earlier. For example, if you were considering a diagnosis of sacral herpes zoster, an onset 6 weeks before would be inconsistent with that diagnosis.

2. Why is it important to elicit from this patient's history whether the onset was acute or chronic, or was associated with recurrent attacks and/or exacerbations?

Answer: An acute or chronic pattern characterizes certain disorders and may help rule out some diagnoses. For example, a chronic pattern in this patient would tend to support a diagnosis of chronic perianal cellulitis or perianal monilia, but not sacral herpes zoster.

3. What are the reasons you would elicit the sequence of the patient's subjective complaints and observations?

Answer: The sequence of complaints may be diagnostic. In this patient, this history can help you distinguish peri-anal cellulitis from sacral herpes zoster.

For example, the history revealed initial tenesmus followed by perirectal pain radiating down one thigh. Four days later, skin lesions were observed to localize in the areas of pain. This sequence is most consistent with sacral herpes zoster. Perianal cellultis can cause tenesmus and local perianal dermatitis, but the pain and skin lesions do not radiate in a segmental fashion. Perianal monilia is usually pruritic and tender but does not cause radiating pain or dermatitis.

4. What is the reason for determining the sequence of change in specific skin lesions observed by the patient?

Answer: On physical examination you should attempt to distinguish among primary lesions, primary lesions with secondary change, and secondary lesions. Determining the sequence of change observed by the patient will assist you in this process.

In addition, the sequence of change may suggest a pattern characteristic of a specific disease process. For example, this patient describes the following sequence of skin changes:

a. Red discoloration 4 days after the onset of pain.
b. Surface roughness 48 hours after redness appeared.
c. Moistness and weeping 12 hours after surface change.

Based on the above sequence, a diagnosis of sacral herpes zoster would be likely.

5. What is the reason for asking this patient what medications have been used over what time period? What information should be elicited for a thorough medication history?

Answer: Antibiotics are a common provoking factor for perianal monilia. Also, when you examine this patient the appearance of the lesions may have been

altered by the use of medication. Your history should include over-the-counter (OTC) medications, which often have as great an impact on the morphology of lesions as do prescription medications. You should inquire about use of topical as well as systemic products and treatments borrowed from friends or relatives.

6. Why would you ask this patient if he has had possible back injuries or chiropractic manipulations, radiation therapy, or chemotherapy?

Answer: Back injuries, chiropractic manipulations, radiation therapy, chemotherapy, or other sources of immunosuppression could precipitate herpes zoster. Such provoking factors are not associated with perianal cellulitis.

7. What are the reasons you would ask this patient about prior bowel habits, rectal bleeding, recent stool tests, prior diagnosis of GI disorders, and previous GI-related pain?

Answer: This history will help you unearth previous complaints referable to the GI tract to be certain you do not miss a primary GI problem that might explain the current findings, such as a malignancy or a perianal cellulitis. Bleeding and mucus discharge are common symptoms with perianal cellulitis.

2 Dermatologic Physical Examination

The four components of the dermatologic physical examination are (1) primary lesions, (2) secondary lesions, (3) distribution, and (4) configuration. Because primary and secondary lesions are rather constant with most dermatitides, they should be relied on heavily to lead to the correct diagnosis. The two other basic components of the physical exam, distribution and configuration, are used for support and confirmation. Some skin disorders lack a distinct distribution or configuration. Occasionally, however, these latter components can be so characteristic for certain diseases that they are by themselves diagnostic. When the distribution and configuration are confusing or fail to support a diagnosis, it is wise to rely most heavily on the information and clues from the primary and secondary lesions.

Learn to internalize what you are observing. It is easy to look at a skin rash but not really see it. Look for and think about each of the distinguishing characteristics of the lesion.

Develop skills in:
1. Recognizing primary lesions.
2. Recognizing secondary lesions.
3. Recognizing distribution.
4. Recognizing configuration.
5. Diagnostic aids.

CLINICAL APPLICATION QUESTIONS

You are asked to evaluate a 60-year-old female patient who is obtunded and cannot give a history. Widespread skin lesions are present; however, family members are not helpful as to the onset or evolution of the lesions.

1. Why do you need to be able to distinguish the various types of primary skin lesions from secondary skin lesions?
2. What is a secondary skin lesion, and how does it assist your diagnostic process?
3. You notice that although there are scattered lesions elsewhere, the patient's eruption is concentrated on the palms and dorsum of the hands, dorsal wrists, and distal dorsal forearms. Why is this information useful for assisting a diagnosis?
4. Scattered lesions on this patient's palms and dorsal hands show an iris configuration. How can this information help you to make a diagnosis?

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APPLICATION GUIDELINES

Recognizing Primary Lesions

The earliest constant recognizable lesions in a skin disease are called the *primary lesions*. Although some dermatitides have primary lesions that are transient and rarely seen, in most conditions the primary lesion is an important clue to the correct diagnosis. Types of primary lesions include the following:

Macule: A circumscribed alteration in skin color, 1 cm or less in size, without any elevation or depression in relation to the adjacent skin (*see* Figs. 1,2; Photos 1,2).

Patch: A circumscribed alteration in skin color greater than 1 cm in size, without any elevation or depression in relation to the adjacent skin (*see* Figs. 3,4; Photos 3,4).

Papule: A solid lesion elevated above the adjacent skin less than 1 cm in diameter (*see* Figs. 5,6; Photos 5,6).

Nodule: A palpable solid lesion usually greater than 1 cm in diameter, which may or may not be elevated above the level of the adjacent skin (*see* Figs. 7,8; Photos 7,8). The term *nodule* implies a lesion with depth. The term *tumor* is sometimes used to denote a large nodule. Because of the associated implication of malignancy we will avoid its usage here.

Plaque: An elevation, solid and fixed, above the level of the adjacent skin. The diameter is large in relation to its degree of elevation. Plaques may have a smooth surface or, if they arise from a confluence of papules, the surface may be pebbly (*see* Figs. 9,10; Photos 9,10).

Vesicle: A circumscribed fluid-filled lesion less than 0.5 cm in diameter, usually elevated above the level of the adjacent skin. Vesicles may be intraepidermal or subepidermal (*see* Fig. 11; Photo 11).

Bulla: A circumscribed fluid-filled lesion greater than 0.5 cm in diameter elevated above the level of the adjacent skin. Bullae may be intraepidermal or subepidermal (*see* Fig. 11; Photo 11).

Pustule: A circumscribed fluid-filled lesion usually less than 0.5 cm in diameter in which the fluid consists of purulent exudate. Pustules may or may not be elevated. Pustules may be intraepidermal or adnexal in location. Adnexal pustules are those that occur within the ostium of an adnexal skin structure such as a hair follicle or sweat gland (*see* Figs. 12,13; Photos 12,13).

In certain skin disorders, some of the preceding primary lesions may occur as a late event, superimposed on otherwise characteristic primary lesions; for example, vesicles and bullae may occur as a secondary event on the characteristic primary plaque lesions in urticaria. Primary and secondary lesions are not always mutually exclusive.

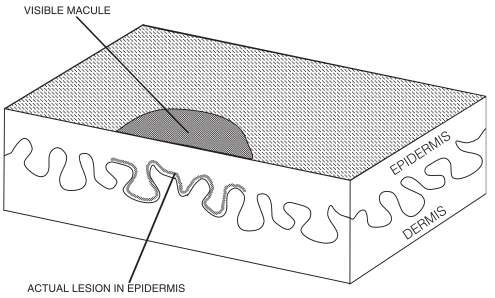

Figure 1: Macule

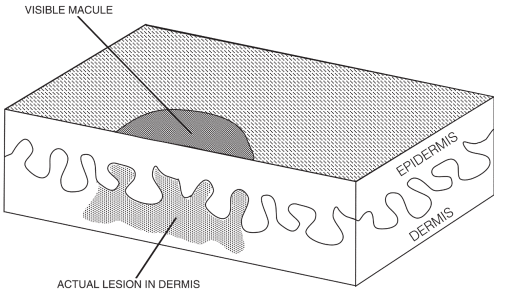

Figure 2: Macule

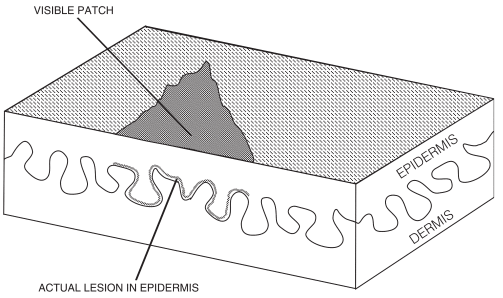

Figure 3: Patch

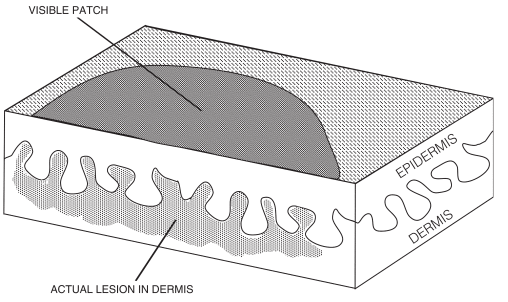

Figure 4: Patch

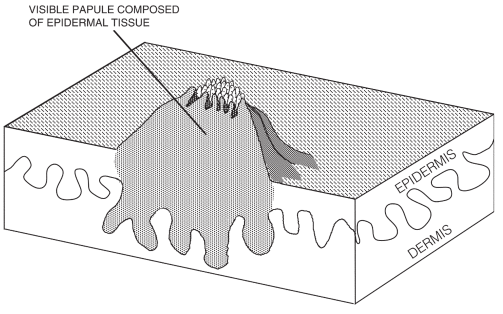

Figure 5: Papule

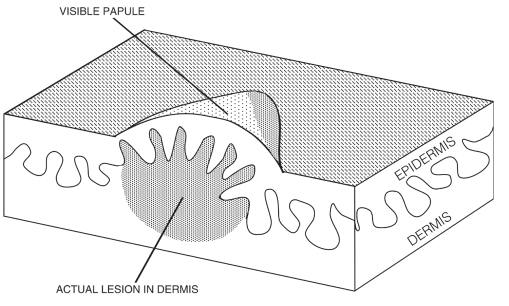

Figure 6: Papule

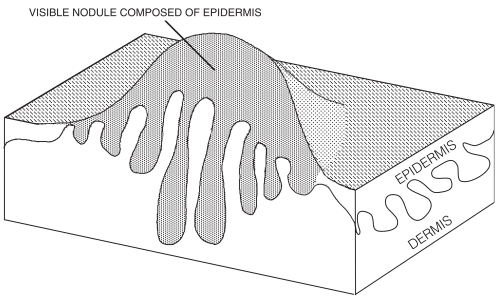

Figure 7: Nodule

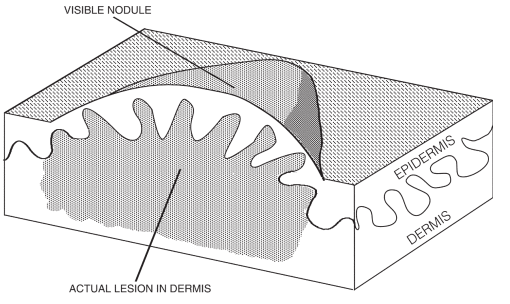

Figure 8: Nodule

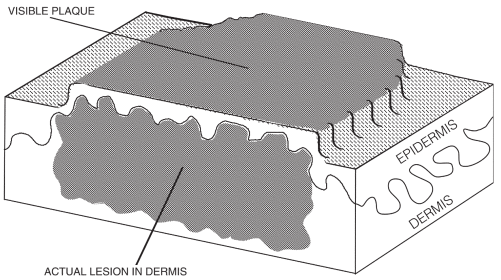

Figure 9: Plaque

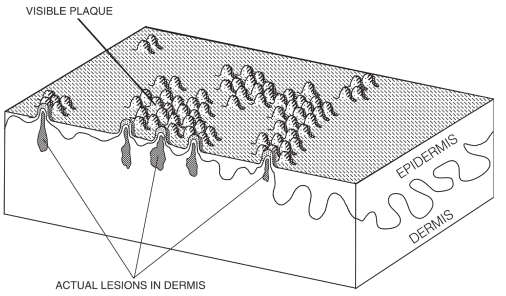

Figure 10: Plaque

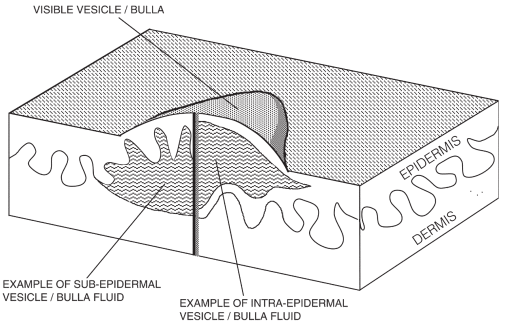

Figure 11: Vesicle/Bulla

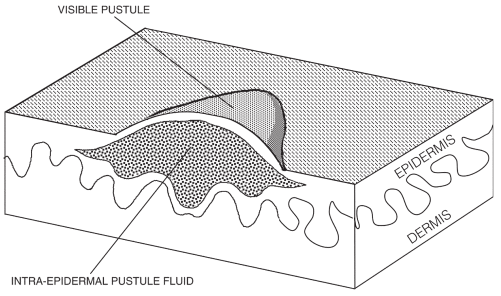

Figure 12: Intra-epidermal pustule

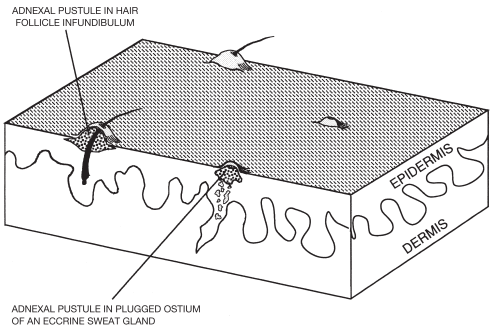

Figure 13: Adnexal pustules

Recognizing Secondary Lesions

Secondary lesions are those that develop as the disease process matures. These secondary lesions may evolve from and replace the primary lesion (e.g., a vesicle may be replaced by crust and scale) or, in other instances, the secondary changes may occur while the primary lesions remain. Under certain conditions, lesions normally considered as primary may in fact be secondary lesions. For example, a group of vesicles become pustular when secondarily infected.

Types of secondary lesions include the following:

Scale: The normal maturation process of the epidermis is called *orthokeratinization*. Small fragments of the outer stratum corneum are continually shed into the environment in an unnoticed fashion. A scale is a grossly visible piece or plate of stratum corneum; the presence of scale signals an alteration of the process of epidermal maturation. The character of the scale usually offers a clue to the correct diagnosis.

1. **White or brown adherent scale:** An adherent scale is usually a sign of hyperkeratosis, which is a microscopic change in the epidermis indicating excessive maturation and retention of the stratum corneum. Hyperkeratosis is typically seen in certain disorders such as dominant ichthyosis, lichen planus, and discoid lupus erythematosus (*see* Photos 14,15).
2. **Silvery loosely adherent scale:** This distinctly white or silvery scale occurs in disorders with enhanced epidermal turnover, where the upper layers of skin show a disordered, incomplete maturation. This process is termed *parakeratosis* when viewed under the microscope. The silvery snow-white color is due to air spaces between the loose, poorly stacked cells of the upper epidermis. This type of scale is seen in many skin conditions but is especially characteristic of psoriasis (*see* Photo 16).
3. **Seborrheic scale:** This yellow, greasy, loose scale is most often associated with seborrheic dermatitis and microscopically shows changes of parakeratosis similar to silver scale. The altered color and consistency are due to heavy sebum secretion; one could draw an analogy to light flakes of pie crust soaked with cooking oil (*see* Photo 17).

Erosion: A moist circular or oval shallow depression caused by loss of the epidermis. Erosions heal without scar formation and often occur at the base of vesicles, bullae, and pustules. This secondary change is very common with impetigo and cutaneous monilia (*see* Fig. 14; Photo 18).

Necrosis: Literally, this means "a condition of death." In the gross sense, it refers to death of parts or portions of skin lesions, not total death of the whole.

Crust: An accumulation of exudate and/or blood (*see* Fig. 15; Photo 19).

Impetiginization: A superficial honey-colored or purulent exudate. Usually a sign of superficial infection, this change is a characteristic finding in cases of bacterial impetigo. It is seen as a secondary change in many other dermatitides (*see* Photo 20).

Sclerosis: An alteration in the dermis due to an abnormal accumulation of fluid, connective tissue, or metabolite. This change is best recognized by palpating the affected skin between the thumb and forefinger. The dermis has an inelastic feel, which varies from doughy to rock-hard consistency. Normal surface wrinkling during palpation is reduced or absent. Surface changes that suggest an area of sclerosis include white macule, white patch or white plaque formation, epidermal atrophy, peau d'orange effect, coarse telangiectases, and blotchy hyperpigmentation. Surface change may be entirely absent and sclerosis, which is strictly a dermal process, can be fully appreciated only by touch. Sclerosis is typically seen with morphea and other forms of scleroderma but can also occur in a large number of unrelated skin disorders (*see* Fig. 16; Photo 21).

Excoriations: A self-excavation usually limited to the epidermis (*see* Photo 22). Excoriations imply the presence of itching, except in dermatitides with heavy psychosomatic overlay or overt delusions. In the latter instances, such changes are deeper and more destructive.

Fissures: Cleavages or splits in the epidermis that have occurred spontaneously without trauma. Painful fissures are an indication that the split has exposed the underlying dermis. This event usually occurs in very thick or dry epidermis and suggests altered maturation, poor water holding capacity, or both (*see* Fig. 17; Photo 23).

Papillomatosis: A pebbly epidermal surface caused by a tight grouping or confluence of papules. Papillomatosis may be of epidermal origin or due to an infiltrate filling the papillary dermis (*see* Figs. 18,19; Photos 24,25).

Hypertrichosis: Excessive hair growth. This change may be generalized or focal. When generalized it suggests a metabolic alteration of the dermis. When focal it is often associated with a focal lesion, scar, or alteration in dermal vasculature.

Hypotrichosis: Diminished hair growth. This change may be generalized or focal. When generalized it suggests a metabolic alteration of the dermis or widespread fibrosis. When focal it is often associated with a focal lesion or scar. Manipulation of hair can produce breakage or premature epilation, which simulates hypotrichosis.

Lichenification: An epidermal thickening with a surface pattern of accentuated skin lines. Lichenification is caused by chronic repeated low-grade rubbing or scratching and implies the presence of severe pruritus or dysesthesia. It is characteristically, but not exclusively, found in cases of atopic dermatitis (*see* Photo 22).

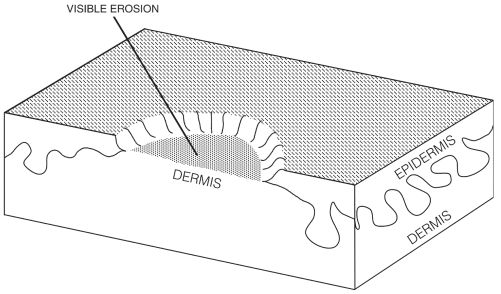

Figure 14: Erosion

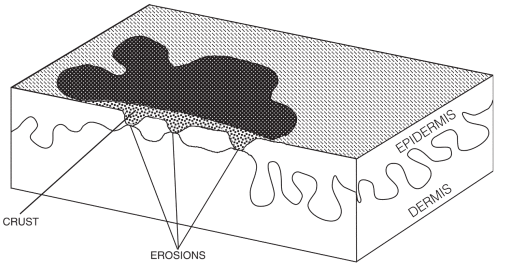

Figure 15: Crust

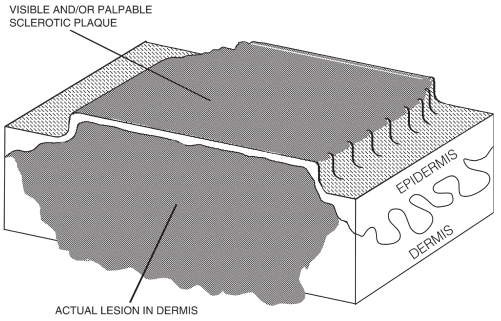

Figure 16: Sclerosis

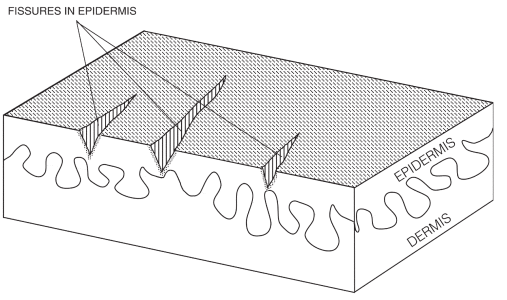

Figure 17: Fissure

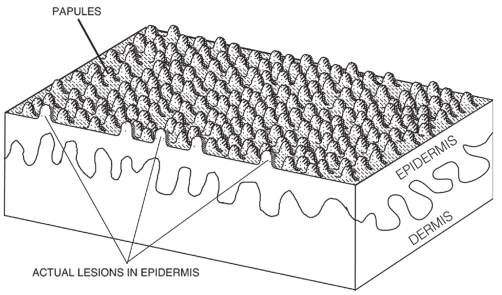

Figure 18: Papillomatosis

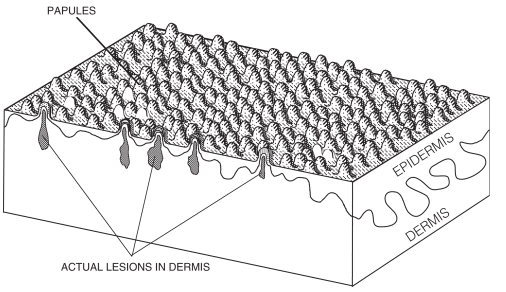

Figure 19: Papillomatosis

Vegetation: A surface alteration caused by tightly packed projections or elevations forming papillary masses. Vegetations may be dry and scaly, soft and smooth, or moist, depending on the underlying cause (*see* Fig. 20; Photo 26).

Eschar: An area of crust and tissue necrosis that will heal with residual scarring (*see* Fig. 21; Photo 27).

Purpura: Discoloration of skin ranging from bright red to deep dusky purple, which is due to extravasation of red blood cells into the skin. Purpura does not blanch with pressure (*see* description diascopy in Diagnostic Aids section).

Atrophy: Loss of tissue by resorption or compression.

1. **Epidermal atrophy:** There is thinning limited to the epidermis, which imparts to the skin surface a translucent, shiny, ironed-out appearance. When the skin is gently pinched between the examiner's fingers, fine, closely aligned wrinkles appear, much like those one would see stretching a cigarette paper (*see* Fig. 22; Photos 4,7,23).
2. **Dermal atrophy:** When limited to the fibrous dermis, this secondary change may or may not be visible. The change is felt by the examiner's finger as a soft area surrounded by a ring of dermis (*see* Fig. 23; Photo 28).
3. **Subcutaneous atrophy:** Usually seen in conjunction with epidermal and dermal atrophy, this atrophy produces a deep visible depression. Vascular structures are often visible at the base of the lesion through the thinned skin layers (*see* Fig. 24; Photo 29).

Ulceration: A loss of epidermis and dermis. Skin ulcers always heal with some residual scar formation (*see* Fig. 25; Photos 30,31).

Scar or Cicatrix: A permanent alteration of normal tissue—in this instance, skin—as a result of injury or disease. Scar formation in skin implies some degree of injury to the dermis with an alteration of the normal connective tissue, which may result in both dermal and epidermal changes.

Gangrene: A sharply demarcated area of tissue death, which usually involves all three skin layers. There are two types of gangrene:

1. **Wet gangrene**, usually due to bacterial infection (*see* Photo 31).
2. **Dry gangrene**, usually due to some vascular event (*see* Photo 32).

Hyperpigmentation: Increased color usually due to deposits of melanin pigment. Hyperpigmentation may be due to enhanced melanin production with storage in the basal epidermis, or to deposits of free melanin or foreign pigment in the dermis following injury or an inflammatory process that disrupts the lower epidermis, releasing basal cell melanin into the dermis (*see* Figs. 26,27; Photos 33,34).

Hypopigmentation: Diminished but not absent melanization due to impaired pigment transfer or enhanced epidermal turnover (*see* Fig. 28; Photo 35).

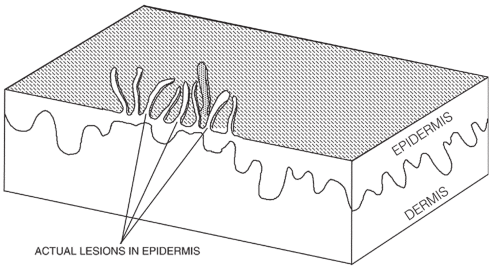

Figure 20: Vegetation

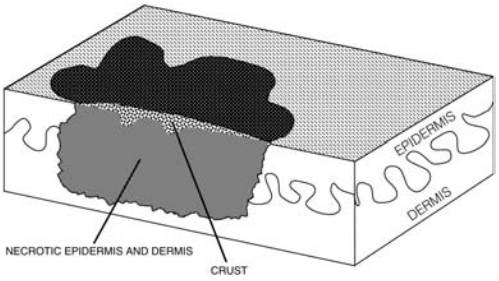

Figure 21: Eschar

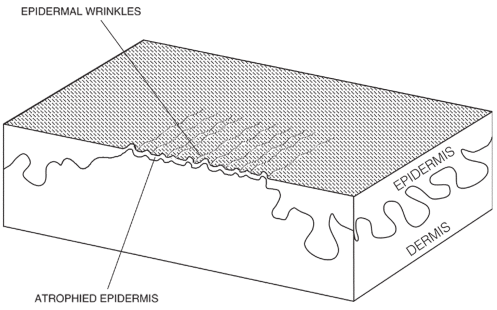

Figure 22: Epidermal atrophy

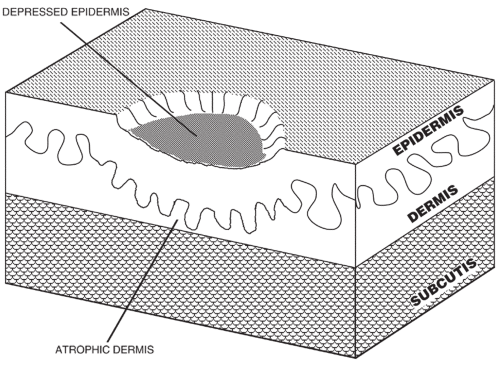

Figure 23: Dermal atrophy

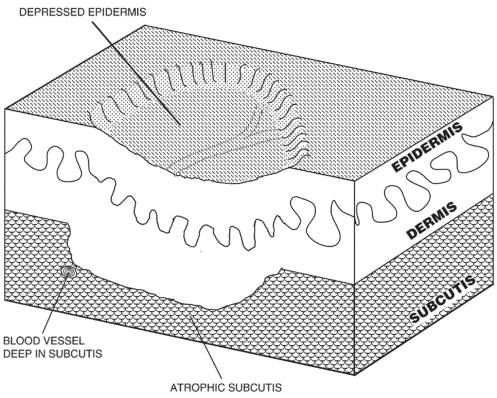

Figure 24: Subcutaneous atrophy

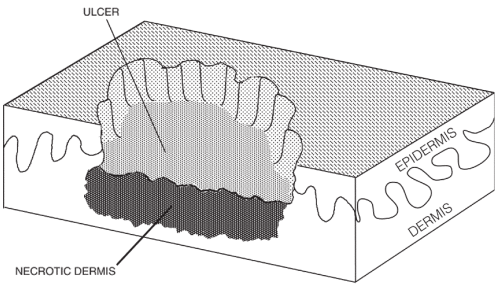

Figure 25: Ulcer

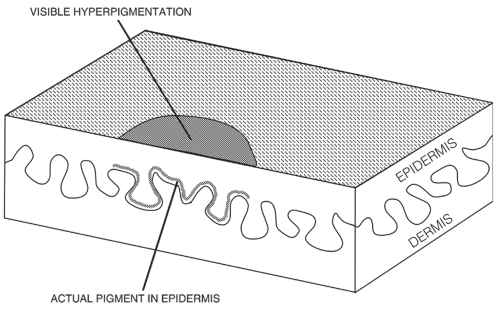

Figure 26: Hyperpigmentation

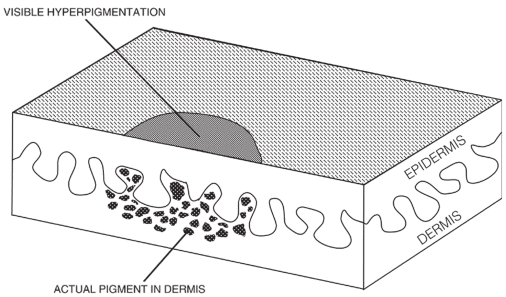

Figure 27: Hyperpigmentation

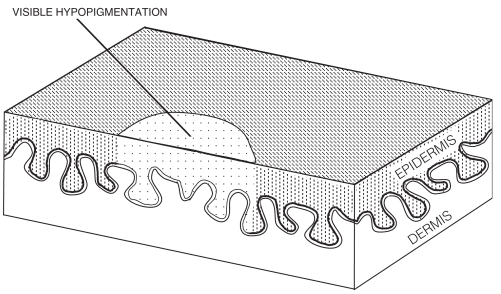

Figure 28: Hypopigmentation

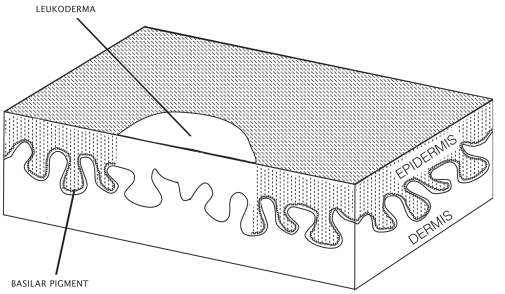

Figure 29: Leukoderma

Telangectasia: Visibly enlarged or dilated small capillaries or slightly larger terminal vessels visible on the skin surface.

Leukoderma: Total depigmentation. A change characteristic of, but not limited to, vitiligo (*see* Fig. 29; Photo 36).

Calcinosis: A pathologic condition in which abnormal amounts of calcium are deposited in a tissue where it does not belong—in this instance, areas of damaged skin.

Poikiloderma: A constellation of secondary features consisting of pigmentary change (hyper, hypo, or both), atrophy, and telangectasia (dilated surface blood vessels). Poikiloderma is a feature of several skin disorders. Its presence, however, directs the dermatologist toward certain specific diagnoses (*see* Photo 37).

Cutaneous horn (cornu cutaneum): A focal area of hyperkeratosis that takes the shape of a miniature horn. These are almost always associated with premalignant or malignant lesions.

Recognizing Distribution

Distribution refers to specific anatomic sites of predilection on the body at which a particular eruption tends to occur. Distribution should be considered in two ways.

Microanatomic distribution: Some skin disorders affect or localize around specific structures, e.g., hair follicles or eccrine or apocrine glands. This can produce specific, recognizable patterns that are diagnostic. Examples are:

1. **Herpes zoster:** Follows the course of specific cutaneous sensory nerve trunks; hence a distribution along sensory dermatomes or in the face and scalp, sites that coincide with cranial nerve distribution (*see* Fig. 30).
2. **Hidradenitis supporativa:** This is a disease of apocrine gland-bearing hair follicles and is found in body regions where these structures are located, such as axillae, groin,

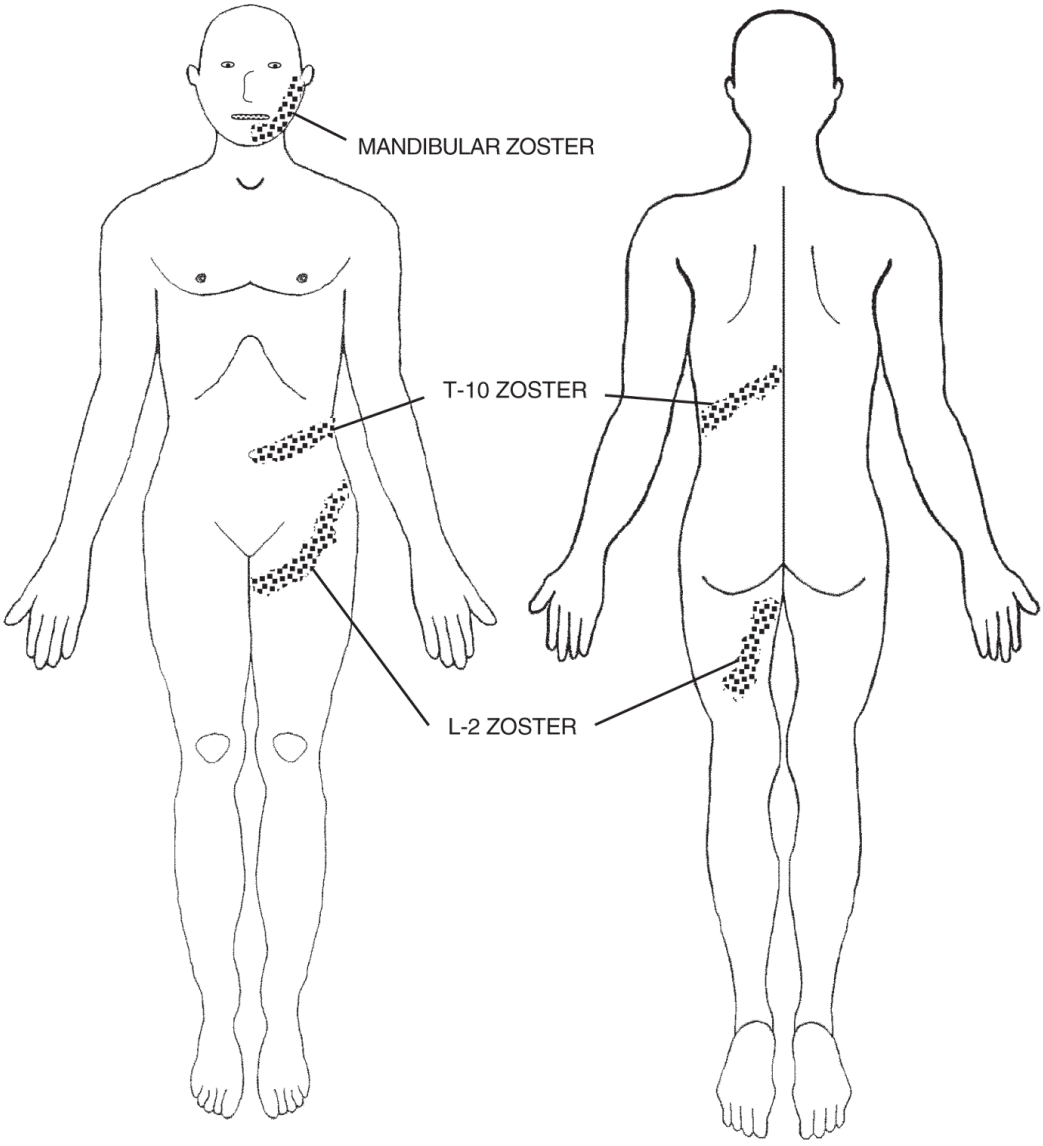

Figure 30: Herpes zoster. Example of microanatomic distribution along neural structures.

inframammary, gluteal, and buttock regions. The examiner must always keep these accessory and adnexal structures in mind and determine whether there is a microanatomic distribution of lesions (*see* Fig. 31).

Macroanatomic distribution: Where on the general skin surface is the eruption? Is it on flexural or on extensor surfaces? Are the lesions grouped around joints or does the rash occur in intertriginous regions? These are important supporting clues to establishing a correct diagnosis.

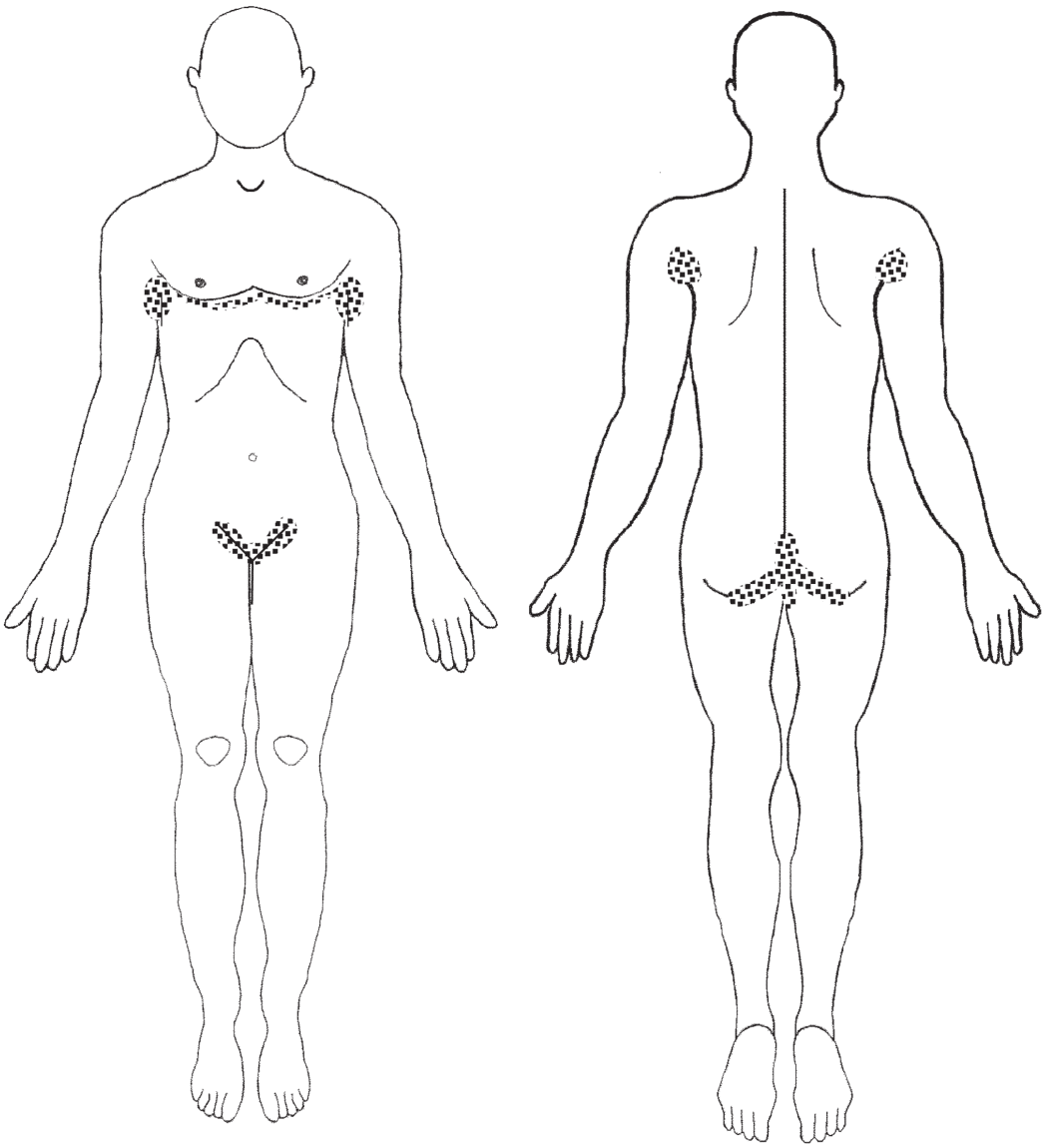

Figure 31: Hidradentis supporativa. Example of microanatomic distribution in region of apocrine glands.

Recognizing Configuration

Configuration is the external form or arrangement of specific skin lesions. When present, configuration may be diagnostic or may point to a very limited list of diagnostic possibilities.

Annular: Round, like a ring. This is one of the more common configurations, and the term is incorporated into the name of several diseases (*see* Photo 38). Other types of annular lesions include the following:

Figure 32: Arciform configuration.

Figure 33: Polycyclic configuration.

1. **Arciform:** Shaped in curves or incomplete circles (*see* Fig. 32; Photo 39).
2. **Polycyclic:** Multiple rings or incomplete circles either contained within one another or overlapping. These latter two variations of annular configuration are uncommon and decidedly limit the number of diagnostic possibilities (*see* Fig. 33; Photo 40).

Iris: This configuration alludes to a many-colored lesion of concentric rings, which may show within itself varied surface morphology. A classic example is the target or iris lesion that is pathognomonic of erythema multiforme. When the margins of such a lesion are vesicular it is referred to as the herpes iris of Bateman (*see* Fig. 34; Photo 41).

Serpiginous: This term applies both to the shape of individual lesions and to the way they evolve and multiply. The term means serpentine or snakelike, and can refer to lesions that have the shape or curl of a resting snake. Serpiginous can also refer to a dermatosis where the individual lesions progress by crawling along in a linear pattern (*see* Fig. 35; Photo 42).

Linear: A dermatosis that occurs along a stripe or line. Linear lesions are quite striking because they often extend across physically diverse skin regions. Keep in mind that linear lesions may have skip areas; one should always look distal and proximal to the main lesion to be certain of the full extent of the problem (*see* Fig. 36; Photo 43).

Zosteriform: Refers to the shape or form of a girdle. This is a classic configuration of herpes zoster. Here is an example of how the various elements of the dermatologic physical exam fit together: Grouped (configuration) vesicles (primary lesions) on an

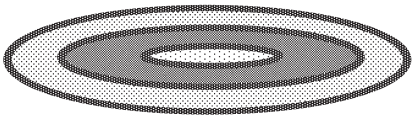

Figure 34: Iris configuration.

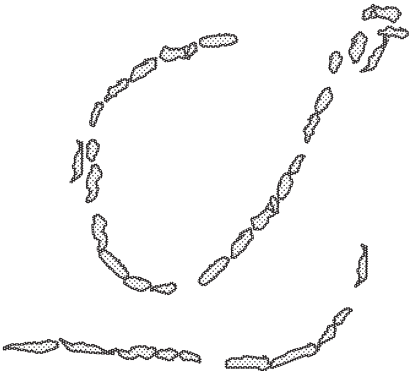

Figure 35: Serpiginous configuration.

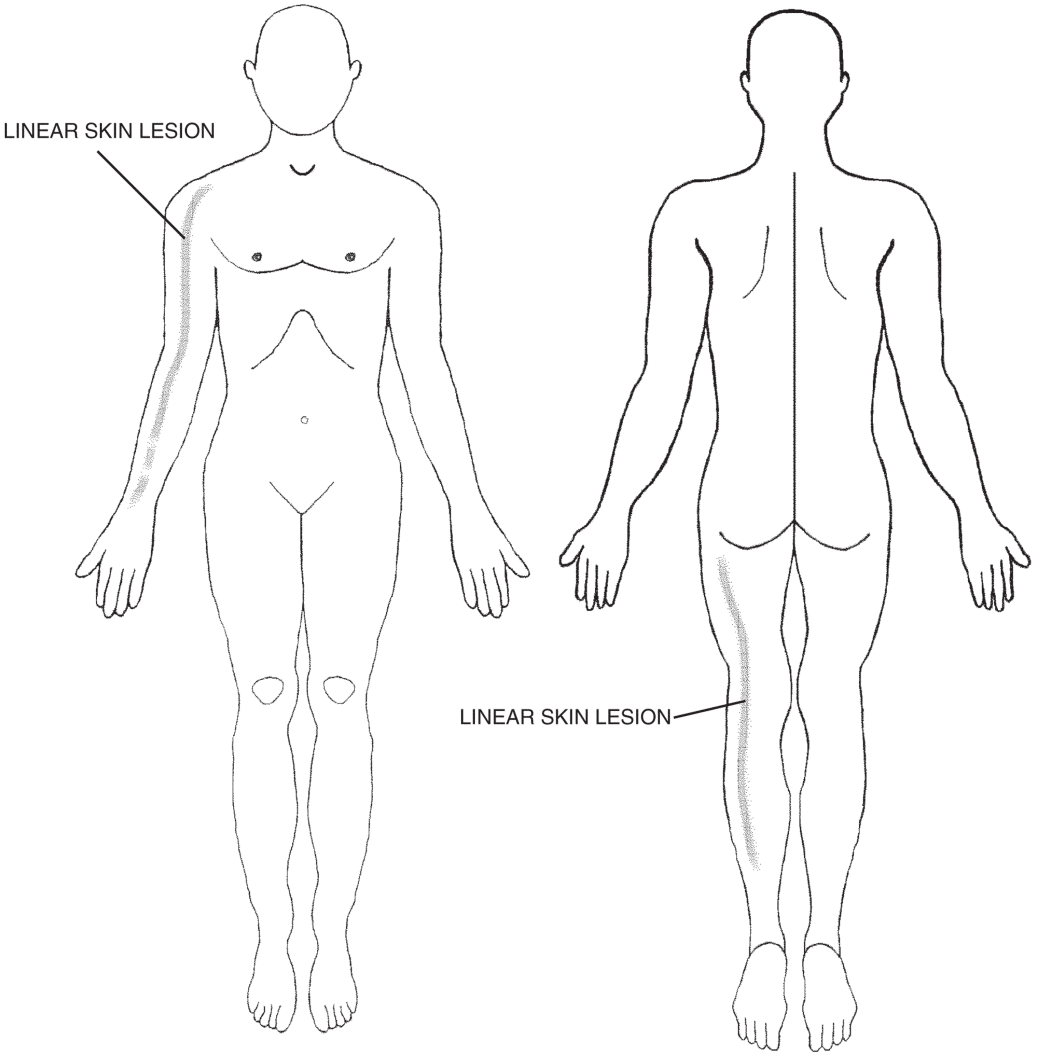

Figure 36: Linear configuration.

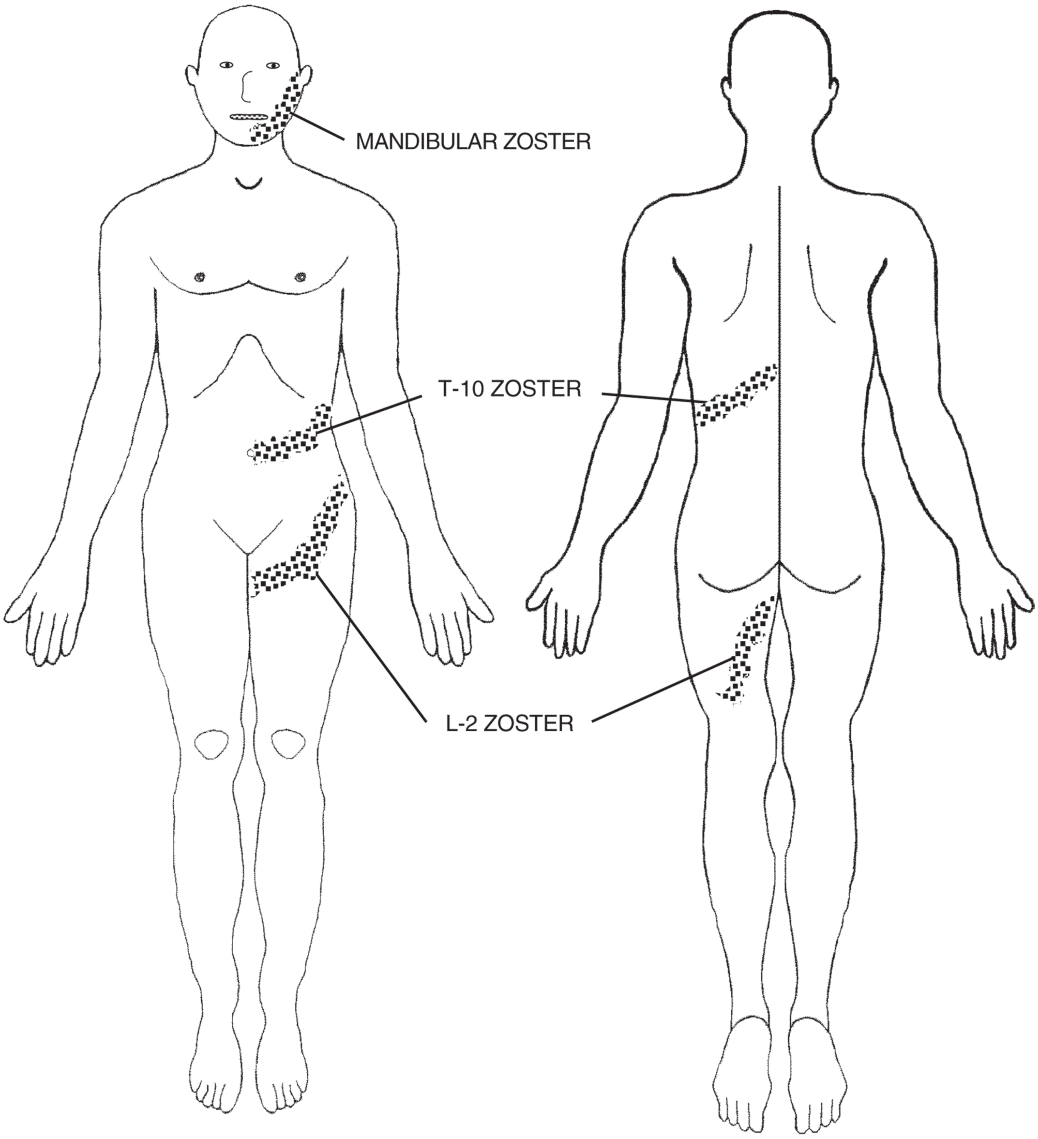

Figure 37: Zosteriform configuration.

urticarial plaque (second primary lesion) following a unilateral, zosteriform pattern (distribution and second configuration) is diagnostic. Many other dermatitides show a zosteriform configuration but other elements of the examination are different (*see* Fig. 37; Photo 44).

Grouped: This configuration is almost self-explanatory and refers to similar skin lesions that occur in proximity to one another to form a distinct larger entity. Grouping is quite common and must be

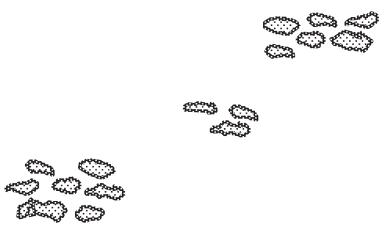

Figure 38: Grouped configuration.

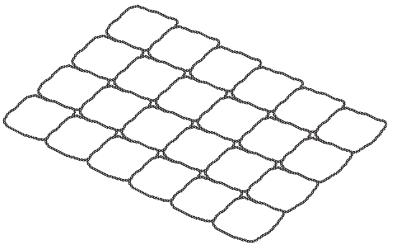

Figure 39: Retiform configuration.

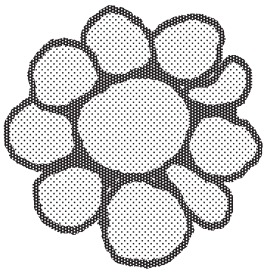

Figure 40: Corymbiform configuration.

combined with the other elements of the exam so that a diagnostic picture can emerge (*see* Fig. 38; Photo 45).

Retiform: Shaped like a net, this is an uncommon configuration that, when present, greatly narrows the diagnostic possibilities (*see* Fig. 39; Photo 46).

Corymbiform: Resembling a cluster of flowers. This configuration is rare, and is characteristic of certain lesions of secondary syphilis. It can also occur occasionally with mosaic types of verrucous warts (*see* Fig. 40; Photo 47).

Diagnostic Aids

The following are some simple diagnostic aids and tips that are peculiar to the dermatologic examination:

Color examination: In addition to the features noted above, the color of an eruption is often a critical clue.

1. Bright to dusky red color usually indicates enhanced blood flow due to hyperemia or flow through ectatic (dilated) vessels. If intravascular, the color should blanch with diascopy.
2. Dark blue to purple-black color suggests a stagnant low blood flow condition. If the color fails to blanch with diascopy (*see* later text), consider extravascular deposits