Herbert B. Allen

Dermatology Terminology

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This book is dedicated to the three teachers who have had the biggest impact in my life in dermatology.

Dr. Wallace Clark was a pathologist with a special interest in dermatology. He was the first person to figure out that how deep a melanoma went into the tissue mattered; he was also the first to show that a melanoma grew horizontally, before it grew vertically. Further, he recognized the importance of genetics in melanoma with his work on the B–K mole syndrome ("B and K" were the initials of his first patients with the disorder). Beyond melanoma, he could "breathe life" into fixed tissue, and he was always contemplating matters that others did not focus on, such as "Why doesn't scarring occur in granuloma annulare when there is so much necrobiosis of the connective tissue?" My favorite anecdote about Wally was when I showed him a slide of a pigmented lesion that I was struggling with, and he said "It's OK." I said, "That's great for the patient, but I need to know how you went from the point where I was, to the point where you said it was OK." He then gave me a stepwise analysis from point to point.

Dr. Albert Kligman is a dermatologist researcher with an incredible passion to teach and share his knowledge. Further, anywhere one turns in dermatology, his footprints will be found. Some of his discoveries I find most intriguing are the pathogenesis of both acne vulgaris and steroid acne, his early warnings about the effect of sunlight on skin (he called the consequences "baleful"), and the pathogenesis of telogen effluvium, miliaria, and symptomatic athlete's foot. His inventions, such as the maximization test, the comedogenic assay, the PAS stain, all-*trans*-retinoic acid for acne, wrinkles, and actinic cheilitis, the irritancy assay for soaps, the development of baby shampoo, and a depigmenting formula are still in use today. Beyond these major achievements, the image of Albert Kligman that stands out in my mind is him at the chalkboard during Journal Club. He would write down the title of the paper and then launch into a "flight of ideas" on that or on any pertinent subject. His reviews of the literature were and remain the most stimulating I have ever been exposed to.

Dr. Samuel Moschella is a clinical dermatologist who has been called a "Dean" of dermatology and the "dermatologist's dermatologist." He has incredible recall of diseases he has seen (and there are not many he has not seen), and an incredible ability to integrate the skin findings into a patient's pathobiology. I vividly remember him diagnosing an elderly patient's ichthyosis and integrating it into her apathetic hyperthyroidism, and another patient who looked like she had scleroderma, but he showed that she had porphyria. Sam is a retired Captain in the US Navy Medical Corps and, as such, took special interest in the Navy residents and dermatologists. He made our training in leprosy at the USPHS Hospital at Carville, Louisiana, memorable. Further, any meeting where he is present will be much more informative because of his comments.

Acknowledgement

The author thanks Diana Winters from Drexel University College of Medicine Academic Publishing Services for her superb assistance in compiling, editing, and proofreading this book. She has been an ever-present and always pleasant guide in its production.

Preface

Dermatology Terminology is an attempt to describe and catalog dermatologic diseases with the verbiage dermatologists actually use while speaking to each other. With many disorders, the description can be reduced to a word, a phrase, or an acronym. I call this the "keyword" phenomenon, where such a keyword substitutes for a much fuller and much lengthier formal presentation.

Dermatology is unusual in medicine in that the language of medicine does not fill the needs of the specialty. In other words, we have our own formal language that is so distinctive, it takes approximately 6 months to learn to speak it. In this regard, it is very similar to learning a foreign language. In like manner, dermatopathology has its own language that differs dramatically from the language of pathology.

In addition to the formal language of the specialty, there is another way dermatologists communicate with each other. This is an informal language that I call the "keyword" phenomenon. An example of this is the term "nutmeg grater," which brings to mind the whole disease presentation of pityriasis rubra pilaris, just as the term "oil spots" calls forth the image of psoriasis of the nails. In other words, to portray pityriasis rubra pilaris, one does not have to describe "nutmeg grater" as "hyperkeratotic, follicular papules on the dorsal fingers, or another location associated with a diffuse pink follicular eruption with prominent areas of uninvolvement." One has only to say "nutmeg grater."

"Argot" is a term that represents a specialized and sometimes secret vocabulary used by a group; theoretically, it would be an excellent term for the "keyword" phenomenon. However, the association of "argot" with groups such as thieves, drug dealers, and the like prevents it from serious discussion in a medical forum. Synonyms such as "cant, jargon, lingo, and patois" either have similar objectionable connotations or are so informal as to be unusable.

Perhaps the first keyword to pique my interest was the "butterfly" rash that every medical student knows represents lupus. Add "flaccid bullae" and "tense bullae," and the concept began to gather focus. I have been particularly drawn to contrasts, such as "ivory white, porcelain white, and silvery," all of which represent different diseases. "Blue (nose), blue (papule), blue (cyst), and blue (painful tumor)" are similarly representative. Paradoxes are also intriguing: Coumadin (warfarin) and heparin are both anticoagulants that are associated with severe clotting in certain situations.

Colors deserve a special place in dermatologic description. Doctors and patients alike can observe the change in the shade of red when a rash goes from its acute presentation to its resolution phase. In other words, the color goes from bright to dull red as the rash resolves. Blue, as a color, has already been mentioned; red is another useful color in dermatologic descriptions, with "red leg, coral red, strawberry tongue, red man, cayenne pepper, and cherry red" all having representative diseases. Black is so important (because it is the color of most melanomas) that it deserves a keyword; however, many different benign tumors are black, so its mention is not specific to melanoma. Melanoma itself is nonetheless so important to dermatology that with some stretching, I arrived at "ABCD" as its keyword.

The different sections of this book include papulosquamous, vesiculobullous (including dermatitis and eczema), infectious, hypersensitivity, and genetic disorders, dermatology in systemic disease, tumors, and miscellaneous disorders. One might predict that it would be easy to classify all the dermatologic disorders and their keywords in these sections, but there is considerable overlap. Diseases that come to mind for the papulosquamous section that are not ordinarily considered with that group include eczema, which often presents with scaling plaques (the very definition

of papulosquamous); subacute cutaneous lupus erythematosus, which frequently presents with psoriasis-like plaques; discoid lupus erythematosus, superficial basal cell carcinoma, seborrheic dermatitis, actinic keratosis, seborrheic keratosis, erythrokeratoderma variabilis, and Netherton syndrome. Other sections have similar challenges.

What follows is a compilation of "keywords"; if they do not evoke an image in the mind of the reader or listener, then they are incomplete, obsolete, or not so key. The keyword, together with a photo of the disease it represents, is coupled with a short description and a literature reference for that disease. The photos are from my own collection or the collection at Drexel Dermatology. The descriptions have been prepared by many of our residents and medical students, as well as by me.

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Contributors

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Scabies, trichotillomania, trichorrhexis nodosa

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Artwork: Trichorrhexis invaginata, trichorrhexis nodosa, pili torti

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Chapter 1
Papulosquamous Diseases

Papulosquamous diseases are characterized by scaling papules and plaques. "Scaling" is synonymous with "squamous" in this regard. This group of diseases traditionally includes psoriasis, parapsoriasis, pityriasis rosea, pityriasis rubra pilaris, lichen planus, tinea corporis, secondary syphilis, mycosis fungoides, and drug eruptions. These diseases represent diverse infectious, proliferative, reactive, and neoplastic conditions.

The papules and plaques may have different shapes and sizes. Papules may be pinpoint, follicular, round, oval, polygonal, or even atrophic but are never square or rectangular. It is a truism of dermatology that "nature abhors straight lines." Lesions with straight lines suggest extrinsic sources. Papules may be dome-shaped, acuminate (or pointed), ulcerated, verrucoid, telangiectatic, bleeding, oozing, excoriated, or crusted.

Colors of the papules range from white to black and almost every color in between, including multiple shades of red. The intensity of red often indicates chronicity in a lesion: i.e., the brighter the red, the more acute the lesion. A duller red generally indicates a resolving lesion. Red-pink, red-yellow, and red-orange often represent acute lesions, whereas red-blue, red-brown, and violet represent older lesions. Color recognition is very important, and individual colors make up some of the keywords, including blue for blue nevus, cherry red for carbon monoxide poisoning, and black for melanoma.

H.B. Allen, *Dermatology Terminology,*
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When scaling is identified together with papules, the spectrum of diseases narrows considerably and includes those diseases considered above. This classification is not perfect, however, and contains many exceptions. One of these is chronic atopic dermatitis, which may present with scaling papules or plaques but by convention is included in the dermatitis/eczema group of diseases. The chronic, acute, and subacute types of atopic dermatitis histologically have variable amounts of fluid in the epidermis (spongiosis), so this is perhaps why this disease is not classified in the papulosquamous group. Seborrheic dermatitis and lichen simplex chronicus are rashes with red scaling plaques but are also included in the dermatitis/eczema group even though they may present with a psoriasiform appearance. This rash also shows spongiosis histologically, similar to atopic dermatitis. Actinic keratosis, another exception, often presents as a red scaling papule, but this lesion is precancerous and not part of a rash. Seborrheic keratosis is also a scaling papule, but it is a tumor and not a rash. Other diseases that present with scaling plaques and a rash include Darier disease, erythrokeratodermia variabilis, and Netherton syndrome; however, these diseases are considered genetic disorders.

Scale may be further classified and may itself represent a keyword (e.g., "micaceous" in psoriasis and "greasy" in Darier disease). Further characterizations in scale also representing keywords include "dirty" for X-linked recessive ichthyosis; "platelike" for ichthyosis vulgaris; "peripheral" for pityriasis rosea; and "trailing" for erythema annulare centrifugum. Scale may be thin, and the thinness may be further classified, as in "branny" or "cigarette paper" as seen in pityriasis rosea. Scale may be thick or adherent, pinpoint or ostraceous, rocklike or nutmeg grater–like, or yellow or brown.

Carpet-tack scale is seen in discoid lupus erythematosus: when the scale is examined from underneath, spicules are seen to correspond to follicular orifices. Some authors consider discoid lupus erythematosus one of the papulosquamous diseases. I have included it here in the "Dermatology in Systemic Disease" chapter. Similarly, subacute cutaneous lupus erythematosus can be considered a papulosquamous disease because it often presents with plaques that have the appearance of psoriasis.

Different papulosquamous diseases affect different areas of the body, each of which may represent a keyword. An example

is “natal cleft” for psoriasis; involvement there is indicated by the Abramowitz sign. Scaling red plaques on the elbows, knees, and scalp, however, strongly suggest psoriasis. If the keyword “silvery” or “Auspitz sign” is mentioned, the picture comes into focus as psoriasis. This concept is also useful if the predominance of the rash is in the body folds but there is a silvery scaling plaque on the trunk. The diagnosis is still psoriasis, but it is called inverse psoriasis instead of psoriasis vulgaris because of its presentation in the flexures (and not on the extensors). The same holds true for inverse pityriasis rosea. At a completely different site, i.e., the scrotum in an older man, a dark red papule (sometimes with scale) is an angiokeratoma, a benign growth of blood vessels. This lesion differs markedly in significance from angiokeratomas on the trunk, which represent Fabry disease.

On the palms and soles, scaling papules and plaques suggest secondary syphilis, but psoriasis, eczema, tinea manus, mycosis fungoides, and even pityriasis rosea (rarely) can present there with similar lesions. Syphilis could be included exclusively in the infectious disease classification, but by convention secondary syphilis that presents with scaling papules and plaques has been considered with the papulosquamous diseases. Spirochetes can be easily recovered from primary lesions, “painless ulcers,” and from moist secondary lesions, condyloma lata; rarely can they be recovered from scaling papules and plaques (even though they are present and can be seen microscopically with Warthin-Starry stains and with the recently developed *Treponema pallidum* immunoperoxidase stain). The lesions on the palms and soles, the most characteristic lesions of secondary syphilis, have no keyword except “ham colored,” which refers to the color of fresh (rather than cured) ham. The color is therefore somewhat duller and is more tan than red. Regardless of scaling papules and plaques, the differential diagnosis for significant lesions on the palms and soles includes secondary syphilis, erythema multiforme, and Rocky Mountain spotted fever. These lesions need an addition to “palms and soles” to form a specific keyword: target lesions on the palms and soles in erythema multiforme; hemorrhagic papules on the palms and soles in Rocky Mountain spotted fever; and ham-colored papules on the palms and soles for secondary syphilis.

Ordinarily, the scaling on papules and plaques is dry as in tinea cruris (caused by a dermatophyte), a disease presenting with dry,

scaling plaques in the groin. In crural candidiasis (caused by a yeast), the scale becomes moist and macerated. One possibility if the plaque is moist is that the area involved is intertriginous and sweating is a prominent clinical finding. This cannot be the only reason, because tinea cruris and erythrasma occur in the same area and are dry.

The face can be a presenting site for all of the papulosquamous diseases but is significantly less favored than the trunk or extremities. For example, pityriasis rosea occurs on the face 5% of the time or less. When lichen planus occurs on the face it often assumes a form different from purple papules (large brown-purple plaques of lichen planus actinicus). Psoriasis on the face is often accompanied by seborrheic dermatitis.

In pityriasis rubra pilaris, where the papules and plaques are *not* present is important and is represented by the keyword "skip areas." These areas are commonly found on the trunk and contrast dramatically with the red rash. Another characteristic finding in pityriasis rubra pilaris is markedly thickened, keratotic, confluent plaques on the palms and soles. Psoriasis and keratoderma palmaris et plantaris are important in the differential diagnosis, but the latter is confined to the palms and soles, and psoriasis generally involves other areas and also has prominent nail changes that are represented by keywords.

1.1 Psoriasis

Keywords: Silvery scale, oil spots, Auspitz and Abramowitz signs, Woronoff rings

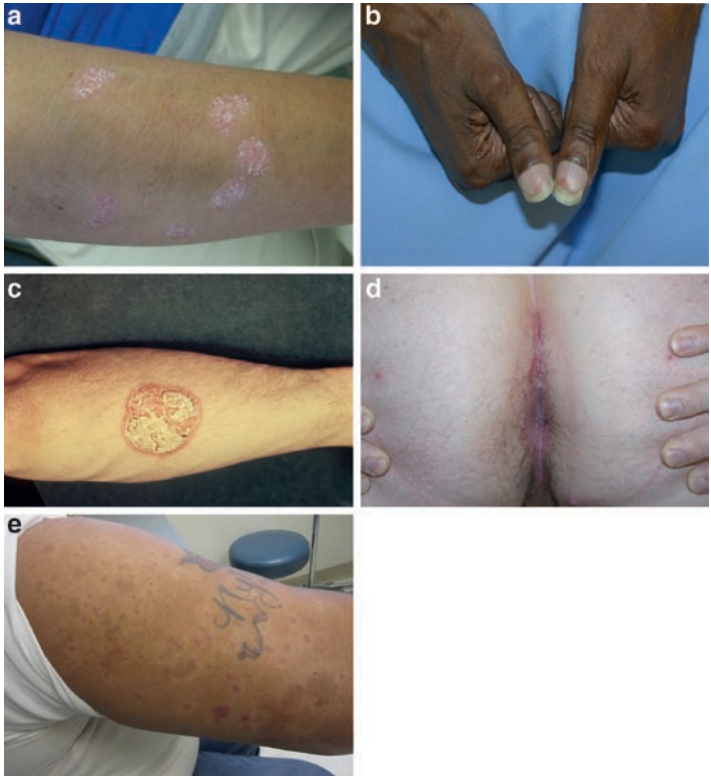

FIGURE 1.1. (**a**) Silvery scaling is present on the plaques in psoriasis. (**b**) Yellow to red discoloration beneath the nails represents "oil spots" appearing like drops of oil on a piece of paper. (**c**) Auspitz sign is bleeding when scale is removed from a plaque. Hemorrhagic crusts represent this. (**d**) Redness and maceration in the natal cleft form the Abramowitz sign. (**e**) Woronoff rings are white rings around the psoriatic plaques.

Round, silvery scaling papules and plaques that are found most commonly on the elbows, knees, scalp, and trunk characterize psoriasis. Another favored location is the natal cleft. Psoriatic plaques have either a thin scale or a thick, layered, micaceous scale; removing this scale exposes punctate bleeding points (Auspitz sign). Sometimes a hypopigmented rim, Woronoff ring, can be found surrounding the plaques. Psoriasis affecting the nail may present with pits, subungual hyperkeratosis, onycholysis, dystrophy, and "oil spots," translucent, yellow-red discolorations in the nail bed resembling drops of oil on a piece of paper. Guttate psoriasis is a form of psoriasis that presents with an eruption of small, scaly, circular "rain-drop-like" papules. This type is often preceded by pharyngitis.

Lebwohl M. Advances in psoriasis therapy. *Dermatol Clin*. 2000;18: 13-19.

1.2 Pityriasis Rosea

Keywords: Herald patch, Christmas tree

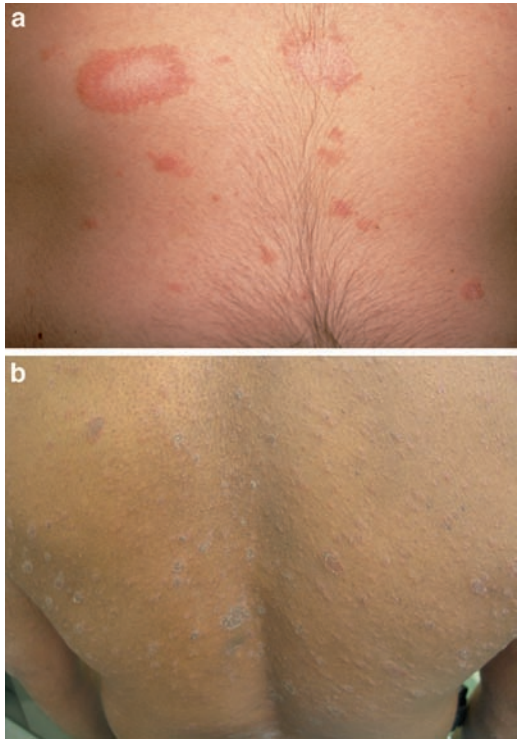

FIGURE 1.2. (**a**) The "herald patch" is the largest lesion seen in pityriasis rosea. It predicts the more extensive eruption. (**b**) "Christmas tree" distribution refers to lesions that align on the trunk like the branches of an evergreen.

Pityriasis rosea (PR) typically begins with a herald patch that predicts the forthcoming rash. This is usually a pink macule that enlarges over a few days to become a plaque that has a collarette of fine scale (referred to as cigarette paper scale) just inside the well-demarcated border. Approximately 2 weeks after the herald

patch, the more generalized eruption appears. It consists of pink to salmon-colored macules or patches 0.5–1.5 cm in diameter that eventuate into scaling plaques. Lesions are distributed diffusely but may be arranged such that they have a pattern that looks like "Christmas tree" branches. PR is a relatively asymptomatic rash that lasts 6–8 weeks and resolves with lifelong immunity. This, plus the spring/fall seasonality, lends credence to a viral etiology.

Allen RA, Janniger CK, Schwartz RA. Pityriasis rosea. *Cutis*. 1995;56: 198-202.

1.3 Syphilis, Secondary

Keywords: Split papule, nickel and dime lesions

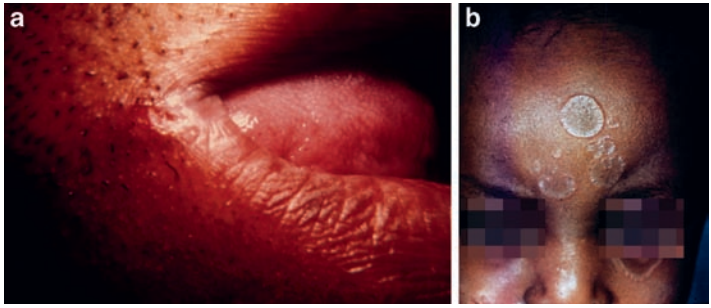

FIGURE 1.3. (**a**) A "split papule" is a fissured papule at the angle of the mouth in secondary syphilis. (**b**) Small and medium-sized circular, scaling plaques represent "nickel and dime" lesions.

Syphilis has so many presentations that it may be included in most differentials. Primary syphilis begins with a chancre (a painless ulcer); secondary syphilis is characterized by a diffuse, scaling, papular eruption. It also includes ham-colored (fresh, not cured) macules and papules on the palms and soles; hypertrophic fissured papules (split papules) at the oral commissures or the alae nasi; "corymbose" lesions in which a large central papule is surrounded by a group of minute satellite papules; and flat-topped, variably sized circular papules, and plaques called "nickel and dime" lesions. Years later, cutaneous tertiary syphilis follows with the occurrence of the gumma. In congenital syphilis, snuffles, a form of rhinitis, usually appears as the earliest sign followed by other lesions such as Hutchinson teeth and linear scars radiating from the mouth called rhagades.

Brown DL, Frank JE. Diagnosis and management of syphilis. *Am Fam Physician*. 2003;68:283-290.

1.4 Lichen Planus

Keywords: Purple, Wickham striae

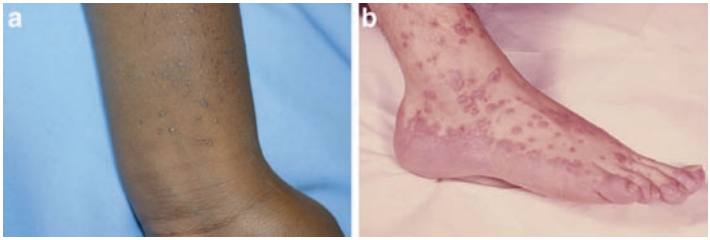

FIGURE 1.4. (**a**) Lesions of lichen planus are purple, pruritic, polygonal, scaling papules. (**b**) Wickham striae are white streaks on the purple plaques.

Lichen planus (LP) is characterized by purple, polygonal, pruritic, flat-topped papules. The early lesions, ranging from 1 mm to greater than 1 cm in diameter, may be pink but on progression become purple. Older lesions have a hyperpigmented, purple-brown appearance. Lesions can be discrete, grouped, or "lined up" (Koebner phenomenon). Fine, white streaks across their surfaces (Wickham striae) are often found. LP is most commonly found on the flexor surfaces of the upper extremities, on the genitalia, and on the mucous membranes, but it may present anywhere. It is advisable to check for the presence of the hepatitis C virus, exposure to color film developer, and exposure to drugs (such as gold or antimalarials) capable of causing LP.

Katta R. Lichen planus. *Am Fam Physician*. 2000;61(3319–3324):3327-3328.

1.5 Darier Disease

Keyword: Greasy papules

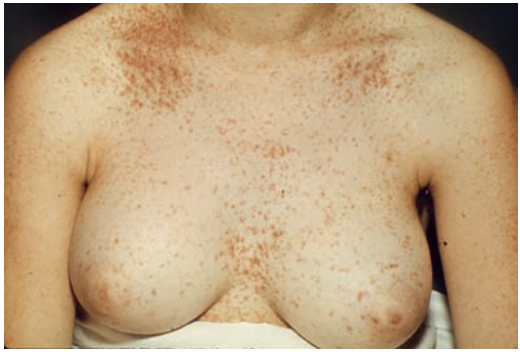

FIGURE 1.5. Papules with a "greasy" feel are noted in Darier disease.

Darier disease is an autosomal dominant disease of faulty cell adhesion and keratinization caused by a mutation in the gene *ATP2A2*. Clinically, there are wart-like, greasy papules that tend to coalesce into plaques on symmetrical areas of the body. Lesions first appear as small, firm skin-colored papules; soon they become covered with a greasy, yellow-brown to black crust. These lesions are especially common on the scalp, face, chest, and back. Flexural, inframammary, and intragluteal regions are also commonly affected. Dry papules feel like coarse sandpaper; larger, moist, intertriginous, warty lesions may become odoriferous. Nails may have a wedge-shaped "nick" at their free margin.

Burge SM, Wilkinson JD. Darier-White disease: a review of the clinical features in 163 patients. *J Am Acad Dermatol*. 1992;27:40-50.

1.6 Parapsoriasis

Keywords: Fawn colored, digitate

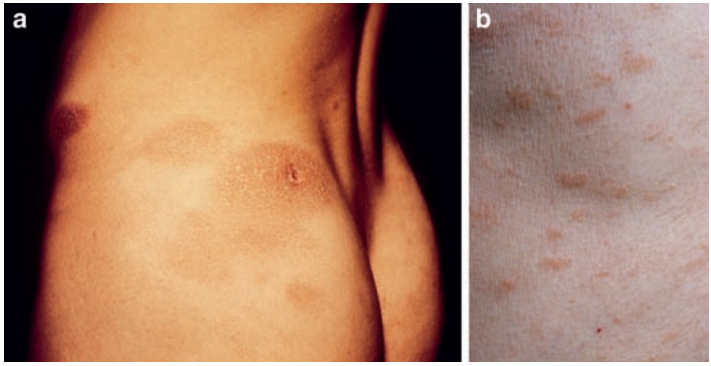

FIGURE 1.6. (**a**) Fawn-colored patches are noted in parapsoriasis. (**b**) Oval digitate papules and plaques are seen in parapsoriasis.

Parapsoriasis may look like psoriasis, hence its name. Lesions of small-plaque parapsoriasis are well-circumscribed, slightly scaly, and salmon-colored patches/plaques that measure less than 5 cm in diameter are scattered over the trunk and extremities. This digitate dermatosis type of parapsoriasis is considered, by most, a benign disorder that rarely, if ever, progresses. Large-plaque parapsoriasis may present as well-defined, fawn-colored patches/plaques that favor the trunk and proximal extremities. Each lesion tends to be greater than 6 cm in diameter. Large-plaque parapsoriasis is more ominous in that approximately 10% of patients develop cutaneous T-cell lymphoma. The small- and large-plaque variants are chronic, while acute parapsoriasis is pityriasis lichenoides et varioliformis acuta (PLEVA).

Kikuchi A, Naka W, Harada T, Sakuraoka K, Harada R, Nishikawa T. Parapsoriasis en plaques: its potential for progression to malignant lymphoma. *J Am Acad Dermatol*. 1993;29:419-422.

1.7 Pityriasis Rubra Pilaris

Keywords: Islands of sparing, nutmeg grater

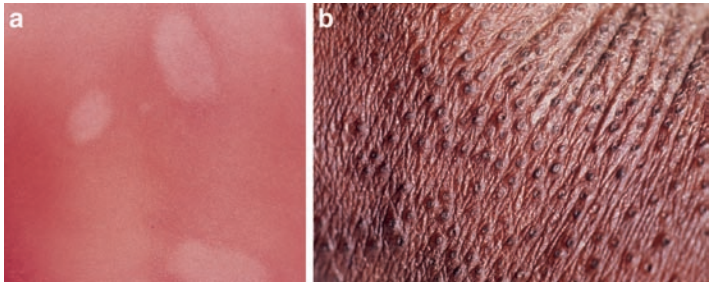

FIGURE 1.7. (**a**) Islands of sparing in a confluent, red, scaling eruption are seen in pityriasis rubra pilaris. (**b**) Small, aggregated circular, horn-like papules make up the "nutmeg grater."

A characteristic finding in pityriasis rubra pilaris is small hyperkeratotic, follicular papules that feel like the surface of a nutmeg grater. They feel this way because the pinpoint-sized papules have a central horny plug. Other findings include pink to orange-red scaling, sharp-bordered plaques, and palmoplantar hyperkeratosis. Sharply marginated plaques of varying sizes typically spread in a craniocaudal direction; these may coalesce over the entire body causing erythroderma. Typically, areas of uninvolved, normal skin ("skip areas") are present within affected regions. Treatment with oral retinoids is generally helpful.

White KL. Pityriasis rubra pilaris. *Dermatol Online J*. 2003;9:6.

Chapter 2
Vesiculobullous Disorders (Including Dermatitis/Eczema)

The vesiculobullous disorders include rashes that occur in all age groups and all locations of the body. Consequently, the spectrum of disease presentations is very wide, although the keywords in this group are not as rich and varied or numerous as they are in the papulosquamous group.

"Linear vesicles" is the keyword for poison ivy, and if linear vesicles are seen in the presence of a very pruritic rash, the diagnosis of an allergic plant contact dermatitis can confidently be made. The linear vesicles are formed wherever the plant resin (a dodecacatechol chemical called urushiol) touches the skin, or wherever the resin is transported to the skin by a vector. One such vector is a pet that has the resin on its coat from touching any part of the weed, and another is clothing that has contacted the plant and which the allergic individual then touches. A third is autotransfer (by the hands) from one body site to another before the resin is removed.

The rash from a poisonous plant is a classic form of delayed hypersensitivity; the eruption does not occur immediately on touching the plant. Twelve to 24 hours later (up to 2–3 days) the eruption appears. The patient may deny contacting the plant, but the linear vesicles are so powerful a keyword that the diagnosis is secure. Three diagnoses are possible. One is poison ivy (or poison oak or poison sumac depending on the geographic locale and the plant that was touched). Although no poison oak is found east of the Rocky Mountains in the USA, most patients in the eastern USA complain of touching "poison oak"; but in truth this is oak leaf

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poison ivy. All these plants contain the same urushiol chemical. A second, more formal, diagnosis is allergic plant contact dermatitis; and a third is rhus dermatitis. A fourth, dermatitis venenata, means a rash from an outside source.

Vesicles in a line, or linear vesicles, indicate poison ivy; a linear vesicle (singular) is the hallmark lesion of hand-foot-and-mouth disease. Such vesicles are found on the hands and feet and are associated with oral erosions. These lesions in the mouth begin as vesicles, but they quickly become erosions. This viral disease is caused by either coxsackie A16 or enterovirus 71. This disorder could thus be included with the infectious diseases, but the counterplay between linear vesicles (plural) and linear vesicle (singular) is intriguing. Symptomatically, the patients with this disease experience pain in the mouth, in contrast with poison ivy, which causes lesions that are exceedingly pruritic, but not painful.

Herpes zoster is another disease in which the vesicles and bullae are arranged in a linear fashion; however, these lesions are arranged in a dermatomal fashion. Rarely, more than one dermatome is involved. Again, this is a viral disease, and so it could have been included in the infectious diseases category; however, the counterplay between linear vesicles and dermatomal vesicles is also intriguing. Occasionally, these lesions will be pruritic; however, the ordinary sensation is pain. When the pain occurs prior to the onset of the rash, the diagnosis can be very difficult and the condition may mimic a myocardial infarction or acute appendicitis depending on the location of the symptoms.

Location is a key feature of contact dermatitis, but one cannot derive keywords simply from location. Some areas come very close, such as the eyelid, which often is the site of a contact dermatitis. Commonly, it is necessary to add other information, such as onset, symptoms, and appearance, to reach a definitive diagnosis. However, an acute red, itchy rash on the eyelids is likely to be a contact dermatitis. Again, more information is necessary to define the etiologic agent because the rash may derive from a topical agent (soap, lotion, makeup), a vector (nail polish on the fingernails), or an airborne particle. In the latter case, a chemical (such as poison ivy in wood smoke) is carried through the air and touches the skin of the eyelid. This devastating skin rash often causes the eyelids to swell shut.

It is intriguing that there is a keyword for the upper eyelid, that is, "spared areas" in photodermatitis. The upper eyelid skin is protected from the sunlight rays by the supraorbital ridge and is a spared area, as is the submentum. Thus, if a rash on the face or the neck spares those areas (and also the subnasal region), the diagnosis of photodermatitis can be confidently made. Other diseases (not contact dermatitides) occur on the eyelid and also have keywords: heliotrope for dermatomyositis and pinch purpura for primary systemic amyloidosis. Even tumors can occur on the eyelids, and examples range from acrochordons to xanthelasmas; these also include malignancies from basal cell carcinoma to melanoma and sebaceous carcinoma. "Eyelid," therefore, is not a keyword even though it invokes all the above possibilities.

The same may be said for another locale, the axilla. A rash in the axilla is likely to be a contact dermatitis, but there are too many exceptions for this to be a keyword. Even when contact dermatitis occurs solely within the axillary region, a rash in the vault is almost always due to an allergic or irritant reaction to deodorants or antiperspirants. Front and back pillar involvement is likely from sensitivity to a dye in clothing or a chemical in a "wrinkle-free" dryer sheet, a perfume in laundry detergent, or a fabric softener.

The axilla is also a site for Fox Fordyce disease, which is a very pruritic papular eruption in the vault. This disease, which has been considered apocrine miliaria, can be seen in other areas where apocrine glands are found, such as the breasts or groin. Even though the disease is easily recognizable, there is no keyword to help delineate it. Further, the axilla is a site for distinctive genetic and autoimmune diseases, such as Hailey–Hailey disease and pemphigus vegetans. Oddly, there are pathology keywords for these diseases: for Hailey–Hailey disease, the pathology shows a dilapidated brick wall, and for pemphigus vegetans, a vegetative rash in the axilla. Intercellular IgG on immunopathology indicates that disease and that disease only.

Other lesions, such as cysts, may be part of a keyword. "Tetrad" is the keyword for the tetrad of the follicular occlusion syndrome, which includes nodulocystic acne, hidradenitis suppurativa, dissecting cellulitis of the scalp, and pilonidal sinus. Thus cysts or abscesses in the axilla can be part of a larger picture. Tumors can also be found in the axilla and range from acrochordons to

fibrofolliculomas. If the latter are present, it is important to check for renal carcinoma because they are part of the Birt-Hogg-Dube syndrome.

The scalp is a location where seborrheic dermatitis, rather than contact dermatitis, is prevalent. In simplistic terms, scaling scalp diseases may be considered on a continuum from normal to dandruff to seborrheic dermatitis to psoriasis. Seborrheic dermatitis, in this scheme, is dandruff with inflammation. Psoriasis would show larger scaling plaques (associated with psoriatic lesions elsewhere; there are many keywords for those). Sometimes it is difficult to distinguish between seborrheic dermatitis and psoriasis, and this has been settled by calling it "seborrhiasis." It is my belief that most of what is called seborrheic dermatitis in children is atopic dermatitis; we are presently evaluating this concept in our clinic. Like atopic dermatitis elsewhere, where frequent bathing with strong soaps is an issue, washing the scalp frequently with antiseborrheic shampoos only prolongs the process. Shifting away from this tactic yields significant improvement.

Seborrheic dermatitis has no keyword, but the mention of a red, scaling rash on the eyebrows, nasolabial folds, anterior scalp line, and postauricular creases leads one to that diagnosis. There is also age predilection for seborrheic dermatitis, with the condition affecting predominantly children and the elderly. Further, its occurrence in Parkinson disease and HIV disease is striking. It may also occur in patients taking certain medications, such as chlorpromazine.

Another special region is the feet; this locale is partially covered by keywords: "moccasin," "one hand-two foot syndrome," and "toeweb." All these terms refer to differing presentations of tinea pedis, a fungal disease. Other diseases that occur on the feet have keywords that refer to presentations elsewhere on the body; for example, psoriasis has Auspitz sign, silvery scale, and others. These terms do not apply to lesions on the feet, so the disease must be considered in toto. The same holds true for eczema, which has the keyword "flexural," a term that does not evoke an image for the foot lesions that begin as vesicles and commonly display scaling plaques similar to psoriasis.

Another disease that may present on the feet has the keyword "HHV 8" for human herpesvirus 8, namely, Kaposi sarcoma.

This angiosarcoma presents with red-purple patches, plaques, and tumors. In the classic form, the feet and lower legs are a favored site. "APLS," "HIT," and "blue nose" representing antiphospholipid syndrome, heparin-induced thrombocytopenia, and purpura fulminans, respectively, present frequently on the feet with hemorrhagic patches and vascular-induced necrosis of the toes. Palpable purpura is the keyword for leukocytoclastic vasculitis, the prototype of which is Henoch–Schönlein purpura, which ordinarily presents initially on the feet, lower legs, and buttocks.

"Hutchinson sign" is a keyword that applies to an acral lentiginous melanoma on a toenail (or a fingernail). ABCDs (asymmetry, border, color, and diameter) do not necessarily apply to a melanoma on the foot, because those findings are more characteristic of a superficial spreading melanoma and not of an acral lentiginous melanoma. Although the dermatoscope is often useful, a high index of suspicion must be maintained in examining such lesions. Biopsy becomes the final arbiter in rendering a definitive diagnosis. A larger problem is uncovered by this situation: whereas ABCDs or ABCDEs (E for "evolving") are found primarily in superficial spreading melanomas (no longer the most common type of melanoma), their usefulness may be less than in previous years.

Other diseases in the dermatitis/eczema group have a keyword designator: "nummular," for nummular eczema. This is very likely a variant of atopic dermatitis, as is "oid-oid" disease (discoid, lichenoid exudative dermatosis). The response to decreased use of strong soaps (bar, liquid, lotion, and gel types) and hot water is the same as in atopic dermatitis. It is interesting that nummular, which means "coin shaped," refers to dermatitis/eczema, and "nickel and dime" lesions refer to secondary syphilis.

Atopic dermatitis has the keyword "flexural"; however, this term only partially covers the various presentations of this disease. Our group has recently described a lichen planus–like variant in black patients that needs inclusion, as do facial-extensor, nummular, pityriasis alba, juvenile plantar dermatosis, and probably dyshidrotic eczema. The various lesions in these presentations are easily recognizable but do not have keyword associations. The classic description of atopic dermatitis includes acute, subacute, and chronic forms; the only one that matches the derivation of the

word eczema is acute, in which the lesions are weeping and oozing vesicles. The chronic form shows scaling papules and plaques that fit better with the papulosquamous diseases.

Recent reports show that as many as 50% of patients with atopic dermatitis may have a genetic variation in the filaggrin gene. This genetic cause is likely only part of the story, because simple skin care maneuvers, such as less frequent bathing, less use of strong soaps, less use of hot water, and increased use of moisturizers, dramatically and permanently improve the condition; relapse occurs if the earlier practices are reinstituted. Consequently, this pathway to atopic dermatitis traverses through skin dryness, as those skin care maneuvers are all aimed at reducing dry skin. Alternatively, less than optimal skin care habits uncover a pathway that the gene influences.

Simply stated, if the skin becomes dry, it becomes "itchy"; and, when that happens, an atopic individual is at risk for atopic dermatitis (the "itch that rashes" to use the colloquial phrase). If that dryness is significant enough to impact the skin barrier function, then the gene (filaggrin) that is most applicable has a large impact. The role of *Staphylococcus aureus*, which colonizes the atopic plaques, still requires elucidation, as does the role of sweating, and the possible role of *Staphylococcus epidermidis*, currently under investigation by our group.

Photodermatitis has the keyword "submentum spared"; this denotes a rash that does not involve an area that is shielded from sunlight. Photodermatitis frequently is caused by a reaction in the skin when light interacts with a medication or its metabolite. The most commonly seen photoallergic drug-induced dermatitis arises from hydrochlorothiazide, but many other medications cause similar reactions. The most common phototoxic dermatitis arises from doxycycline. This eruption presents with an intense sunburn-like reaction. It may also be induced by an exuberant psoralen-UVA (ultraviolet A) interaction. Moreover, topical photosensitizers elicit a rash when they are used in a sensitive person exposed to sunlight. Such topicals include, for example, furocoumarins and musk ambrette.

The most common non–drug-induced photodermatitis is polymorphous light eruption (PMLE). Patients often refer to this as "sun poisoning"; it is typically worse early in the season, only to

"harden" later. Over the past 30 years, the spectrum that causes PMLE has changed from being primarily ultraviolet B (UVB) to UVA. Other photodermatitides have keywords: "follicular plugging" and "butterfly rash" for discoid lupus erythematosus and systemic lupus erythematosus, respectively. Porphyria, with the keyword "werewolf," and pellagra, with the keyword "Casal's necklace," are also photodermatitides and are all included in the "Dermatology in Systemic Disease" chapter. Subacute cutaneous lupus erythematosus is the most sun-sensitive form of lupus, but it does not have an associated keyword, although it is an important differential in photodermatitis.

Purely bullous diseases include pemphigus and all its variants: bullous pemphigoid, epidermolysis bullosa acquisita, linear IgA bullous dermatosis, and dermatitis herpetiformis. Bullae may also arise in other disorders such as lupus erythematosus and lichen planus, but they are not the ordinary presentations of these disorders. Keywords exist for many of these diseases, but not all. Pemphigus vulgaris is characterized by flaccid bullae, but pemphigus vegetans, occurring in the axillae, is an acantholytic blistering disorder that presents with verrucoid plaques. In the mouth, a favorite location for pemphigus vulgaris, the roofs of the bullae, as in hand-foot-and-mouth disease, quickly tear away and leave painful erosions and ulcerations.

In the pemphigus family, vulgaris and vegetans are the only types that have keywords. Pemphigus foliaceus and its subtypes, pemphigus erythematosus, IgA pemphigus, and paraneoplastic pemphigus, do not have keywords even though their presentations are quite typical. Pemphigus foliaceus presents with superficial blisters that rapidly become small erosions and crusts on the upper trunk. This condition has been shown to have the identical antigen, desmoglein 1, to bullous impetigo; hence the clinical features of those two diseases are similar. A drug-induced variety of pemphigus foliaceus is seen with use of penicillamine and other drugs such as nifedipine and captopril. IgA pemphigus and paraneoplastic pemphigus are very rare.

Bullous pemphigoid presents with tense bullae in elderly patients. Perhaps the leading differential diagnosis of epidermolysis bullosa acquisita is rare enough that it does not share in the "tense bullae" keyword. The linear IgG immunopathol-

ogy pattern is the same in the two diseases with the exception of salt split skin: in bullous pemphigoid the immunoreactants are on the epidermal side of the bulla (the roof), and in epidermolysis bullosa acquisita those reactants are on the dermal side (the floor). Cicatricial pemphigoid has tense blisters on the skin, but its name comes from scars that derive from blisters on the mucous membranes. The immunopathology of this disease reveals a lower frequency of linear IgG at the basement membrane than in bullous pemphigoid. This may be due to the fact that laminin 5 is the main antigen, as opposed to BP 180 antigen in bullous pemphigoid.

Herpes gestationis, now called gestational pemphigoid, is a bullous disease seen in pregnancy. It is virtually identical to bullous pemphigoid except for the patient age, sex, and associated pregnancy (usually second or third trimester). The bullae are smaller and may arise on red plaques in a peripheral herpetiform arrangement. The red plaques may be a presenting sign of bullous pemphigoid in what has been called the "urticarial phase" of bullous pemphigoid. The bullae in bullous pemphigoid may be filled with eosinophils, but in the urticarial phase there is eosinophilic spongiosis with eosinophils in the epidermis.

2.1 Rhus Dermatitis

Keyword: Linear vesicles

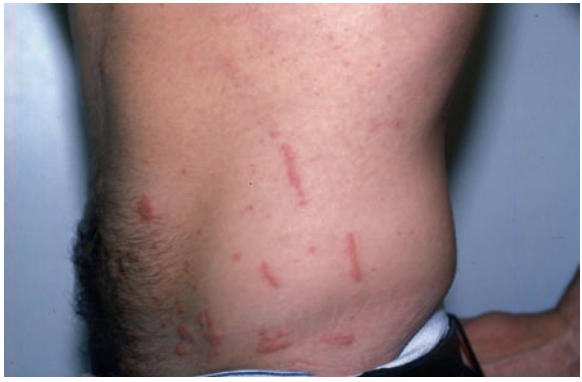

FIGURE 2.1. Linear vesicles are present in rhus dermatitis.

Rhus dermatitis, also known as poison ivy (also poison oak and sumac), is characterized by linear vesicles. These may be differentiated from herpes zoster because they are exceedingly pruritic and are distributed wherever the plant touches the skin and not in a dermatome. The rash is a classic contact dermatitis arising many hours after touching either the plant or the plant resin present on clothing or on pets (vectors). All parts of the plant contain the allergen (urushiol): leaves, stems, vines, and roots. Mild cases can be treated with high-potency topical corticoids; more severe presentations require systemic corticoids, which are best given for at least 2 weeks to prevent "rebound."

Guin JD, Gillis WT, Beaman JH. Recognizing the Toxicodendrons (poison ivy, poison oak, and poison sumac). *J Am Acad Dermatol*. 1981;4:99-114.

2.2 Hand-Foot-and-Mouth Disease

Keyword: Linear vesicle

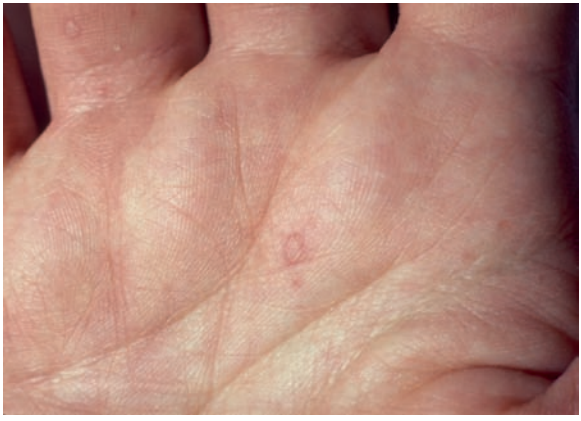

FIGURE 2.2. A linear vesicle is the primary lesion of hand-foot-and-mouth disease.

This viral disease, primarily coxsackie A16 and enterovirus 71, causes oral ulcers and vesicles on the hands and feet. These vesicles tend to be linear (or elliptical) and oriented along skin lines; oral lesions are painful, but peripheral lesions are not. Ordinarily, infection is uneventful; but infection during pregnancy may cause fetal death, and infection with enterovirus (as noted in Taiwan, Singapore, and Australia) may also be fatal.

Adams SP. Hand-foot-and-mouth disease. *Can Fam Physician*. 1998;44: 985-993.

2.3 Herpes Zoster

Keyword: Dermatomal vesicles

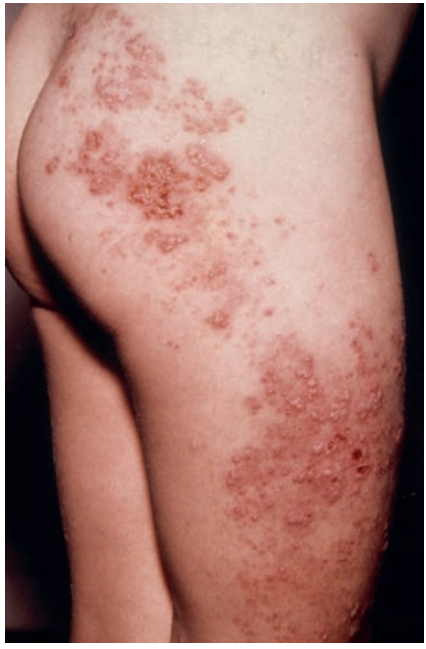

FIGURE 2.3. Vesicles in a dermatomal distribution represent herpes zoster.

Herpes zoster or "shingles" is caused by the varicella zoster virus and is characterized by a dermatomal eruption. The lesion begins as pink-red macules that progress to vesicles/bullae and then to crusts (over a 3-week interval) similar to what happens in varicella. Differences from varicella include not only the distribution but also the accompanying pain, which arises from involvement of the affected nerve. This neuralgia-type pain, occurring before the rash, may be misidentified as acute appendicitis or a myocardial infarction, depending on location. Ophthalmic and bladder involvement assume importance depending on the nerve involved. The etiology

is thought to be recrudescence of the virus after it goes into a dorsal root ganglion following a varicella infection. Immunity is such that the rash is limited to one nerve segment; diffuse herpes zoster is seen with altered immune states. Treatment with oral antivirals, begun early in the course, helps prevent postherpetic neuralgia. Topical ice water compresses are soothing.

Brody MB, Moyer D. Varicella-zoster virus infection: the complex prevention-treatment picture. *Postgrad Med*. 1997;102:187-190, 192-194.

2.4 Pemphigus Vulgaris

Keyword: Flaccid bullae

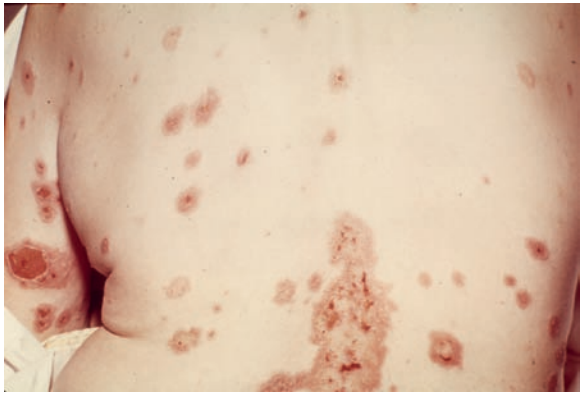

FIGURE 2.4. Flaccid bullae, often disrupted, are seen in pemphigus vulgaris.

Flaccid bullae are seen in pemphigus vulgaris; they arise because of acantholysis, or pulling apart, of the keratinocytes in the lower epidermis. These cells pull apart because an autoantibody reacts with the antigen, desmoglein 3, that coats their surface. The condition is seen more commonly in the elderly and in certain population groups, namely Sephardic Jews. The blisters become flaccid largely because of the Nikolsky phenomenon, which allows for the lateral spread of the bulla as the skin is stretched. Tops of blisters pull off readily and large erosions are left in their place. Often, only the erosions are apparent. The lesions occur in the oral mucosa (frequently as the presenting sign). They have a characteristic pathology and may be treated with prednisone, immunosuppressives, or perhaps intravenous immunoglobulin.

Anhalt GJ, Díaz LA. Pemphigus vulgaris: a model for cutaneous autoimmunity. *J Am Acad Dermatol*. 2004;51(1 Suppl):S20-S21.

2.5 Bullous Pemphigoid

Keyword: Tense bullae

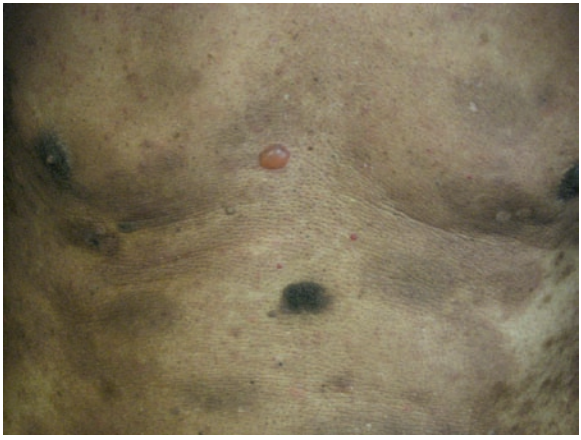

FIGURE 2.5. Tense bullae are the hallmark of bullous pemphigoid.

Bullous pemphigoid is characterized by tense bullae occurring in elderly individuals. The disease is mediated by an autoantibody directed against one of two different hemidesmosomal antigens in the basement membrane zone of the epidermis (180 and 230 kDa). The pathogenic one is more commonly 180 kDa. These bullae also may break leaving large, eroded, ulcerated areas. Pruritus may be present and may be a prominent symptom in the urticarial phase of bullous pemphigoid in which large wheal-like plaques present with few blisters. Treatment with tetracycline has been recommended and leads to notable clearing of the eruption. Prednisone and immunosuppressives have also been employed, as have strong topical corticoids.

Chan LS, Woodley DT. Pemphigoid: bullous and cicatricial. *Curr Ther Allergy Immunol Rheumatol*. 1996:93–96.

2.6 Linear IgA Bullous Dermatosis

Keyword: Sausage-shaped vesicles

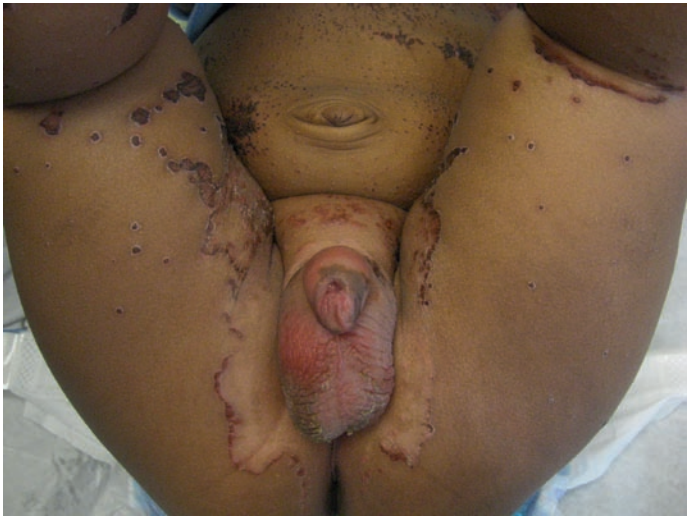

FIGURE 2.6. Vesicles with a "sausage shape" are often present at the borders of the lesions in linear IgA bullous dermatosis In this photograph, crusts have replaced the vesicles.

Linear IgA bullous disease of childhood is a subepidermal blistering disease that is characterized by large, tense, clear, or hemorrhagic bullae measuring 1–2 cm in diameter on an erythematous base. Lesions are widespread and pruritus is variable. Bullae may form annular lesions composed of "sausage-shaped blisters" resembling a cluster of jewels surrounding a central crust, the "string of pearls" sign. The disease usually presents in the first decade of life with spontaneous remission following after 3 months to 3 years of active disease. Deposition of IgA immunofluorescence in a linear pattern at the basement membrane gives the disease its name. Sulfapyridine is the drug of choice; dapsone is used if response is inadequate. Adult disease is generally caused by a reaction to vancomycin.

Hurwitz S. *Clinical Pediatric Dermatology*. Philadelphia, PA: W.B. Saunders; 1993.

2.7 Atopic Dermatitis

Keywords: Flexural, nummular

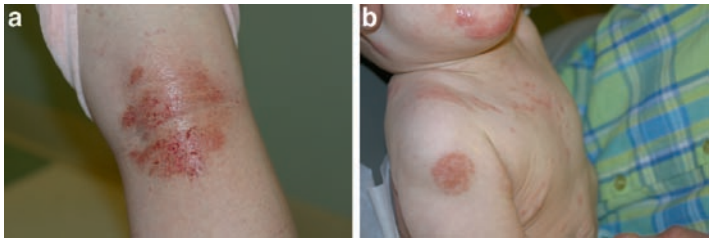

FIGURE 2.7. (**a**) Vesicular or lichenified plaques are present in the flexures in atopic dermatitis. (**b**) Nummular, or coin-shaped, papulovesicular plaques may also be seen in atopic dermatitis.

The most frequent presentation of atopic dermatitis, eczema, is flexural with characteristic involvement of the antecubital and popliteal fossae. The disease has been described as an "itch that rashes," so the primary lesion is unknown. With the intense itching and scratching that occur, papulovesicular papules and plaques arise. Other (presumed) types of atopic dermatitis include facial-extensor, nummular, frictional lichenoid, juvenile plantar dermatosis, and pityriasis alba. Treatment consists of topical corticosteroids or immunomodulators, such as tacrolimus or pimecrolimus. Skin care advice is focused on decreasing the use of soap and increasing the use of moisturizers.

Williams HC. On the definition and epidemiology of atopic dermatitis. *Dermatol Clin*. 1995;13:649-657.

2.8 Photodermatitis

Keyword: Submentum spared

FIGURE 2.8. Photo-protected areas such as the submentum are spared in sunlight-derived rashes.

The photodermatitides represent a broad range of disorders that share a common distribution. These eruptions predominantly affect sun-exposed areas such as the forehead, nose, and cheeks but spare shaded areas, such as the submentum, nasolabial folds, and upper eyelids. Polymorphous light eruption, the most common photoinduced disorder, can occur at any age, is more common in women, and typically presents with a pruritic, pink-red, papular, or papulovesicular rash.

Drugs can be associated with both photoallergic and phototoxic reactions: phototoxic drug eruptions, associated with sulfonamides, thiazides, tetracyclines, and loop diuretics, typically present as an exaggerated sunburn response. Photoallergic drug eruptions present with an eczematous eruption most commonly associated with topical photosensitizers, musk ambrette, furocoumarins, and various sunscreens. A host of oral agents including antibiotics, chemotherapy drugs, nonsteroidal anti-inflammatory drugs, and diuretics have also been implicated. Photosensitivity is also a diagnostic criterion for systemic lupus erythematosus and can present with annular, arcuate, or psoriasiform eruptions. A history of exposure to plants, especially lime juice, and also lemons, parsley, celery, carrots, and figs, should raise the suspicion of phytophotodermatitis, a phototoxic response to plant chemicals. Metabolic disorders such as pellagra and porphyria also present in a photodistributed pattern. Therapy for all photoinduced disorders includes sun avoidance, cessation of exacerbating factors, and use of sun blocks. Severe eruptions may require systemic corticoids.

Morison WL. Clinical practice. Photosensitivity [review]. *N Engl J Med*. 2004;350:1111-1117.

Chapter 3
Infectious Diseases

Infectious diseases have keywords that represent viral, bacterial, mycobacterial, treponemal, borrelial, fungal, and yeast organisms. Viruses include herpes simplex, varicella zoster, and variola. Even though variola (smallpox) is not present anywhere in the world, because bioterrorism is a constant threat, it is included here. Terroristic use of this organism could lead to devastating plagues because few people are immunized. The clearing of this scourge worldwide has been a remarkable achievement, but it could all be undone by individuals with no sense of humanity.

"Lesions all in the same stage" is the keyword for variola infection, but the phrase gives little information as to the incredible infectivity of this virus. In the French and Indian War (Seven Years' War in Europe), a group of American Indians, after a victory at Fort William Henry, dug up recent graves to obtain more scalps. The only problem was these scalps belonged to British and colonial subjects who had recently died from smallpox. The Indians who perpetrated this deed all died, for they had limited natural immunity, and the virus was still present and infectious in those scalps.

Variola begins on the extremities and moves centrally, as opposed to varicella, which does the reverse. The "pox" (vesicopustules) are all in the same stage, as contrasted with varicella, in which the lesions are all in different stages. The fever, prostration, and overwhelming general malaise are much higher and much more devastating in variola infection. This is characteristic of variola major; the symptoms of variola minor are more like varicella. In variola

H.B. Allen, *Dermatology Terminology,*
DOI 10.1007/978-1-84882-840-7_3,

minor, the pox are limited mostly to the arms and legs and face (also all in the same stage). Severe scarring is seen in both major and minor forms.

Varicella has two keywords: "all in different stages" and "dewdrop on a rose petal." The latter phrase refers to the initial diagnostic presentation of this disease. Varicella begins centrally on the body and spreads peripherally; also, the scalp is characteristically involved. "Crops" could be a keyword, but varicella shares this characteristic with pityriasis lichenoides et varioliformis acuta and lymphomatoid papulosis. Scarring is not nearly as prominent in varicella as in variola and may be related more to the lesions becoming secondarily infected with bacteria. The pox that form in varicella result from the viral infection of the epidermal cells, which in turn become balloon cells and giant cells. As these cells form, they separate and fluid fills the space, creating a vesicle. This process occurs in both herpes simplex virus and varicella zoster. The nature of these two diseases is different, with varicella affecting primarily children and zoster affecting older adults. The varicella vaccine has dramatically lowered the number of cases; hopefully, it will have a similar impact on zoster. Other differences include location and neuropathy. Also, with the availability of antiviral medications, postherpetic neuropathy appears to be much less prevalent.

Herpes simplex, in its ordinary presentations of fever blisters, cold sores, or herpes progenitalis, is a relatively minor medical disease. In its primary form, with a widespread eruption and more severe symptoms, it is more serious. Specialized forms, such as herpes gladiatorum in wrestlers or herpes progenitalis in a near-term pregnant woman, are also more significant.

Orf and milkers' nodules ("farm pox," according to Shelley) have very characteristic clinical presentations, but no separate keywords. The lesions spread from infected animals to the hands, or other exposed sites, of farm workers and form characteristic pox. This lesion is ordinarily larger than the pox of varicella or variola but may be hemorrhagic, like the latter.

Bacterial diseases with keywords include staphylococcal scalded skin syndrome, impetigo, subacute bacterial endocarditis, chancroid, lymphogranuloma venereum, erythrasma, pseudomonal infection, and scarlet fever. Unfortunately, keywords are lacking for infections that are seen commonly, such as abscesses and cellulitis.

These infections could be included under the five signs of Galen: "dolor, rubor, calor, tumor, and functio laesa," but although recognition of these signs is time-honored and very important, the terms are not specific. The popular concept that abscesses arise from "ingrown" hairs or from ruptured cysts has considerable truth. The portal of entry for the microorganism in both cases is the follicle. Folliculitis itself is often a bacterial disease frequently associated with staphylococcal organisms. An exception is the recently recognized eosinophilic folliculitis in HIV disease, which presents with follicular pustules but is not bacterial in origin. In fact, it responds to topical steroids. Further, corticosteroid-induced folliculitis is not bacterial when it initially presents.

Nonbacterial pustules (follicular or nonfollicular) that appear very similar to infectious lesions can be present in diverse diseases, such as pustular psoriasis, pustular "id" reaction, acquired generalized exanthematic pustulosis, and the initial lesion of pyoderma gangrenosum. These pustules contain neutrophils, but they are sterile. They are also treated differently from infections because antibiotics have no role in clearing the lesions.

Lesions that have the appearance of cellulitis are not uncommon. We frequently receive requests from our hospital partners for consultations for bilateral lower leg "cellulitis." These lesions are almost always stasis dermatitis. In contrast to this common situation, cellulitis-like lesions may be part of very rare syndromes such as Muckle-Wells syndrome, hereditary Mediterranean fever, familial cold autoinflammatory syndrome (FCAS), Schnitzler syndrome, hyperimmunoglobulinemia D and periodic fever syndrome (HIDS), chronic infantile neurologic cutaneous and articular syndrome (CINCA)/neonatal-onset multisystem inflammatory disease (NOMID), and tumor necrosis factor receptor–associated periodic syndrome (TRAPS). It is most interesting that the genetics and protein abnormalities of these rare syndromes have been elucidated.

Another disease that may have the appearance of cellulitis is urticarial vasculitis, which not only resembles cellulitis nearly as much as it does urticaria but also may have systemic signs, such as fever. This disease is most often idiopathic, but it may be associated with a rheumatologic disease such as systemic lupus erythematosus or Sjögren syndrome, a drug eruption (angiotensin-converting enzyme inhibitor), or a viral disease. An arthropod bite in an exquisitely

sensitive individual can cause a very large edematous plaque that has the cutaneous, but not the systemic, signs of cellulitis.

The bacteria with keywords include gram-positive strains *Streptococcus viridans* in subacute bacterial endocarditis, *Streptococcus pneumoniae* in scarlet fever, *Staphylococcus aureus* in impetigo and staphylococcal scalded skin syndrome, *Corynebacterium minutissimum* in erythrasma; gram-negative strains *Haemophilus ducreyi* in chancroid, and *Pseudomonas aeruginosa* in hot tub folliculitis; and the gram-indeterminate strain *Chlamydia trachomatis* in lymphogranuloma venereum. Bacteria may not directly cause the disease under consideration: in scarlet fever, the erythrogenic toxin causes the "scarlet"; in subacute bacterial endocarditis, only the Janeway lesion has bacteria. The Osler node and the splinter hemorrhage are immunologic and microembolic, respectively. In staphylococcal scalded skin syndrome and bullous impetigo, exfoliative toxins cause the disease.

Mycobacteria with keywords include *Mycobacterium leprae* (Hansen disease or leprosy), "red leg" phenomenon; *Mycobacterium tuberculosis* (lupus vulgaris), apple jelly nodules; and *Mycobacterium marinum*, fish tank. To choose a little known reaction in leprosy may seem spurious, but it allows the discussion of the entire spectrum of this disease, which affects millions worldwide. The disease, after beginning with an indeterminate state, occurs on a spectrum from tuberculoid to lepromatous, with borderline tuberculoid, borderline, and borderline lepromatous in between. The two ends represent polarity in immunity, with tuberculoid representing good immunity and lepromatous representing little or no immunity. This polarity is also reflected in the number of organisms in each state: lepromatous lesions teem with mycobacteria, whereas tuberculoid lesions are paucibacillary.

Leprosy is problematic even in its ordinary presentations; however, the reactions that occur can be even more troubling. The red leg phenomenon is seen in borderline leprosy; but erythema nodosum leprosum, in lepromatous leprosy, occurs much more commonly. The Lucio phenomenon, a severe vasculitic reaction in lepromatous leprosy, is relatively less frequent, as are downgrading and reversal reactions in less stable states. One would presume reversal reactions would be beneficial because the immunity of the host was getting stronger. However, some of the worst destruction of nerves is seen in that setting.

Lupus vulgaris, a form of tuberculosis, presents with a characteristic tan to violaceous plaque with papules in the border. These plaques have the appearance of apple jelly on diascopy. Lupus vulgaris is the most common presentation seen in reinfection tuberculosis, with scrofuloderma occurring half as frequently and tuberculosis verrucosa cutis occurring 10 times less frequently. Even though tuberculosis currently is three times more prevalent than leprosy in the world, leprosy has many more associated skin findings.

Keywords regarding syphilis and congenital syphilis include painless chancre and rhagades. The chancre, seen in primary syphilis, contains spirochetes that are filamentous organisms with 6–12 coils. Lyme disease is caused by *Borrelia burgdorferi*, a filamentous organism with three coils. The difference in number of coils becomes important in the mouth, where borrelia are normal inhabitants. Counting the coils helps differentiate a true chancre from an aphthous lesion, for instance. Other differences include the characteristic movements the spirochete makes on darkfield examination. Location of lesions has already been mentioned in the "Papulosquamous Diseases" chapter, but primary syphilis should be in the differential diagnosis for penile lesions, and secondary syphilis should be in the differential diagnosis for lesions on the palms and soles. Tertiary syphilis can have gummas that present anywhere internally or externally, but below the knee is the most common site.

Fungal and yeast infections are represented by "moccasin," "black dot," and "scaling patches" as keywords. Scaling patches is a misnomer, but it seems appropriate for the lesions in tinea versicolor. Scaling, by convention, is seen only in plaques, but the lesions in tinea versicolor are both completely flat and nonpalpable, so "patches" seems more applicable. Tinea pedis is manifested by moccasin and toeweb space and is the most common dermatophyte infection. The most common organism is *Trichophyton rubrum*, although others occur. This organism also is the leading cause of tinea cruris and tinea corporis. Tinea capitis, caused almost exclusively by *Trichophyton tonsurans*, has the keywords "black dot" and "kerion" (the most severe form of the disease.) When a kerion is present, the fungus can be recovered only from the peripheral scaling at the edge of the lesion.

3.1 Variola

Keyword: All in the same stage

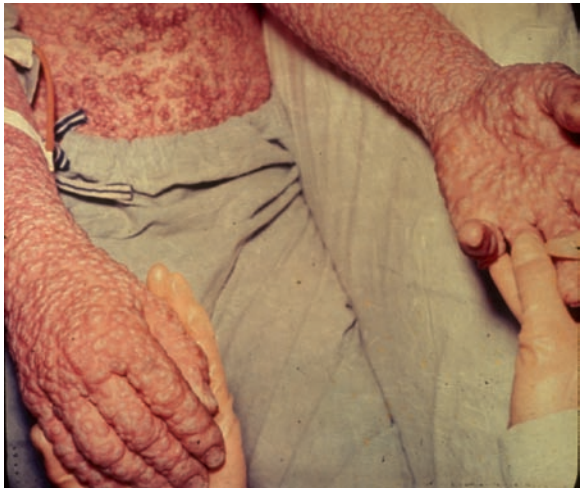

FIGURE 3.1. Vesicopustules all in the same stage of development represent variola.

Vesicopustules all in the same stage are characteristic for smallpox, caused by the variola virus. The disease is of historical interest because there have been no cases for more than 25 years; smallpox was a scourge to humanity and its eradication by worldwide vaccination is a success story. Variola has generated interest recently because of its possible use as an agent of bioterrorism. Employed as such an agent, variola could inflict large-scale morbidity and mortality on an unvaccinated public. The disease begins with a viral prodrome of high fever and extreme prostration for 2–4 days. The pox that follow are distributed centrifugally, on the face, arms, legs, and mucosal surfaces. With variola minor, these lesions resolve with crusting and scarring, but with no mortality.

With variola major, the lesions may become hemorrhagic or necrotic and are associated with multiorgan system failure and death in as many as 30% of the patients infected.

Hogan CJ, Harchelroad F. Smallpox. http://emedicine.medscape.com/article/830328-overview. Accessed October 31, 2009.

3.2 Varicella

Keywords: All in different stages, dewdrop on a rose petal

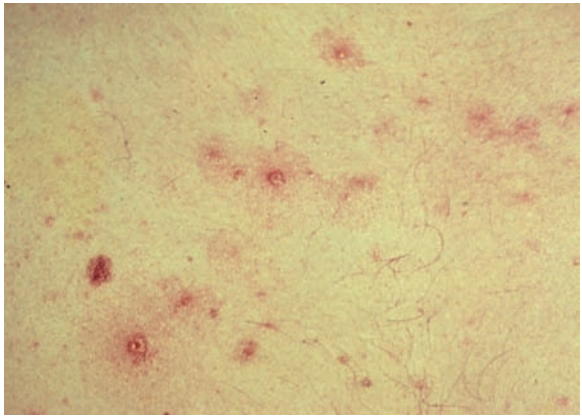

FIGURE 3.2. Vesicopustules all in different stages represent varicella.

Lesions all in different stages occur in infection with varicella, a herpes virus; vesicles, pustules, and crusts may be found in the same locale. After an incubation period of 10–21 days and a prodrome of fever, chills, myalgias, arthralgias, and malaise lasting 1 day, the characteristic exanthem develops. This eruption begins as a pink macule on which a vesicle rapidly develops, described as a "dewdrop on a rose petal." Eruptions initially are centrally distributed but may move rapidly to the extremities. Lesions have a predilection for the scalp, may rapidly become pustules and crusts, and occur in "crops." Lesions generally heal without scarring unless bacterial superinfection occurs.

Neurologic complications, including Reye syndrome, may occur. Pneumonia occurs more often in adults and during pregnancy, and varicella in immunocompromised patients can be lethal. Currently, a vaccine is available for this virus that, incidentally, is the same virus that is responsible for herpes zoster.

McCrary ML, Severson J, Tyring SK. Varicella zoster virus. *J Am Acad Dermatol*. 1999;41:1-14, quiz 15-16.

3.3 Staphylococcal ("Staph") Scalded Skin Syndrome

Keyword: Hot iron

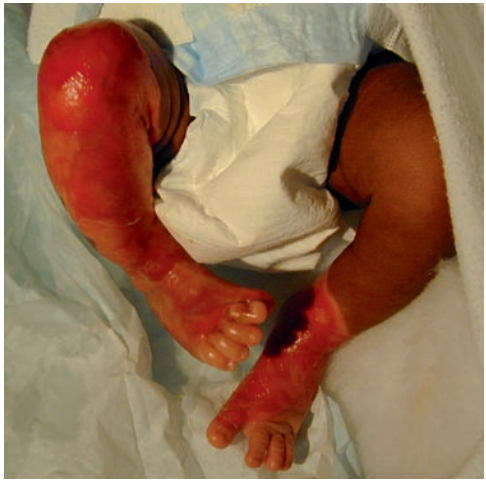

FIGURE 3.3. Skin that looks like it was touched with a "hot iron" is characteristic of staphylococcal scalded skin syndrome.

Staphylococcal ("staph") scalded skin syndrome (SSSS) is caused by exotoxins (A and B) elaborated by group II *Staphylococcus* phage types 55, 3A–C, and 71. The SSSS toxin is active against desmoglein 1 antigen in the granular layer of the epidermis and causes such severe peeling that the skin looks like it was hit by a "hot iron." Children generally have a fever and a very tender erythematous rash that has a positive Nikolsky sign and dramatically exfoliates.

Anzai H, Stanley JR, Amagai M. Production of low titers of anti-desmoglein 1 IgG autoantibodies in some patients with staphylococcal scalded skin syndrome. *J Invest Dermatol*. 2006;126:2139-2141.

3.4 Impetigo

Keyword: Honey crust

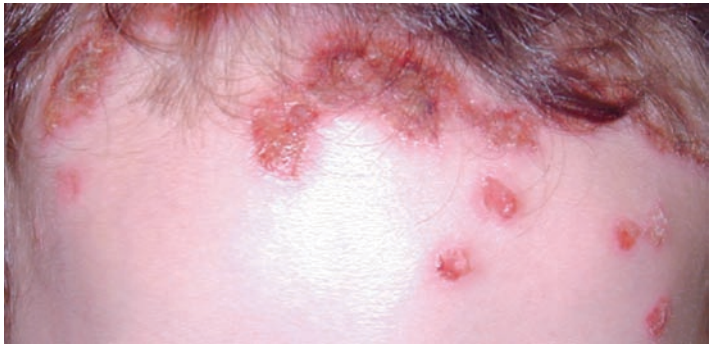

FIGURE 3.4. Honey-crusted lesions are prototypical for impetigo.

Honey-colored crusts are the hallmark of impetigo. They arise after tiny macules become fragile vesicles that rupture and release a thin, cloudy, yellow fluid that dries and forms the classic crust. Fever and regional lymphadenopathy may be present. Classically, *Streptococcus pyogenes* is the causative organism in nonbullous impetigo, and *Staphylococcus aureus* has been the cause of bullous impetigo. Bullous impetigo has the same desmoglein 1 antigen as staphylococcal ("staph") scalded skin syndrome and pemphigus foliaceus. The rash usually occurs on the face and extremities of young children in areas of trauma, such as insect bites. Nonbullous impetigo is treated with topical mupirocin on the lesion and in the nares, a common location for *S. pyogenes* colonization. Bullous impetigo requires a course of antibiotics. The rash is usually self-limited; however, sequelae including acute glomerulonephritis and scarlet fever may occur in cases caused by *S. pyogenes*.

Darmstadt GL, Lane AT. Impetigo: an overview. *Pediatr Dermatol*. 1994;11:293-303.

3.5 Subacute Bacterial Endocarditis

Keywords: Splinter hemorrhages, Osler node, Janeway spot

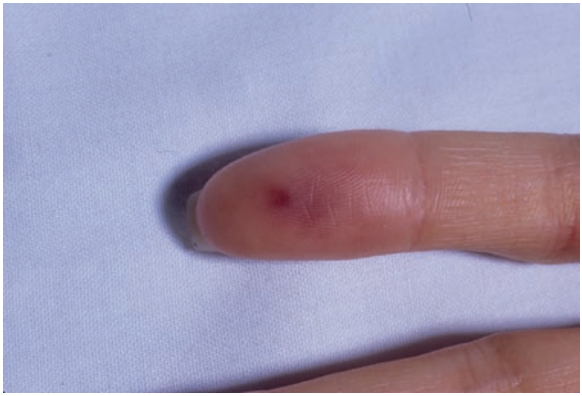

FIGURE 3.5. Osler nodes are small red nodules in the fingertips in subacute bacterial endocarditis.

Typical skin manifestations of subacute bacterial endocarditis include splinter hemorrhages beneath the nails, Osler nodes, and Janeway lesions. Osler nodes, which are an immunologic phenomenon, are tender, subcutaneous nodules, often located on the digits. Janeway lesions, which may contain bacteria, are nontender, erythematous, hemorrhagic, or pustular lesions, commonly on the palms and soles. Many different bacteria have been implicated in this disease at the top of the differential diagnosis in fever of unknown origin; however, *Streptococcus viridans* is the most likely organism.

Predisposing conditions include mitral valve prolapse, prosthetic valves, intravenous drug abuse, and HIV infection. Signs and symptoms are varied and include fever, anorexia, weight loss, malaise, and night sweats. Heart murmurs are universally present although some patients may have an existing murmur prior to infection. Treatment with parenteral antibiotics depends on the organism isolated.

Mylonakis E, Calderwood SB. Infective endocarditis in adults [review]. *N Engl J Med*. 2001;345:1318-1330.

3.6 Hansen Disease (Leprosy)

Keyword: Red leg

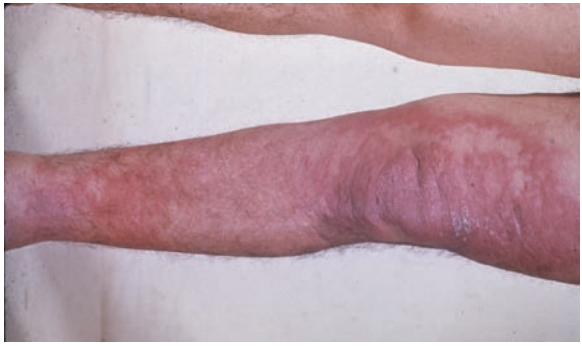

FIGURE 3.6. A swollen red leg is seen in dimorphous Hansen disease (leprosy).

Leprosy has been divided into three clinical phases: tuberculoid (TT), borderline (BB), and lepromatous (LL). Preceding these is an indeterminate (IL) phase that presents with a white patch, usually on the back. The two polar phases, tuberculoid and lepromatous, represent the extremes in the immunity of the patient; namely, the patient with TT type has good immunity against the *Mycobacterium leprae* organism, and the patient with LL type has poor immunity. To complete the diagram of the different phases, borderline tuberculoid (BT) and borderline lepromatous (BL) are found on either side of the borderline.

Each phase has characteristic clinical and histologic findings, and each phase has reaction states that accompany it. An unusual borderline reaction is the "red leg" phenomenon, in which the patient develops a swollen red leg from the thigh to the foot. This presentation is not seen with other reaction states. The Lucio phenomenon is the development of vasculitic, necrotic lesions on the extremities and represents the most severe reaction in lepromatous leprosy.

Whitty CJ, Lockwood DN. Leprosy: new perspectives on an old disease. *J Infect*. 1999;38:2-5.

3.7 Mycobacterium Marinum Infection

Keyword: Fish tank granuloma

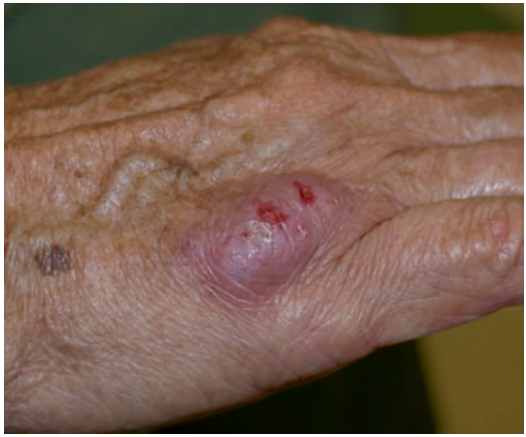

FIGURE 3.7. A scratch in a fish tank may lead to a *Mycobacterium marinum* infection.

Mycobacterium marinum is a photochromogen (a Runyon group I mycobacterium). It is found as a free-living organism in saltwater and freshwater and can infect humans as a single papulonodular lesion on an extremity. The patient may describe preceding minor trauma, and as a rule exposure to water is required. Often, exposure to a household aquarium yields this "fish tank granuloma." In 20% of the cases, multiple nodules or ulcerating lesions spread proximally up the lymphatics to regional lymph nodes. This disease process is considered in the differential diagnosis of sporotrichoid spread. Cultures are positive in 6 weeks. *M. marinum* infection is resistant to treatment with isoniazid. Successful treatment regimens include minocycline or tetracycline, rifampin and ethambutol, or trimethoprim-sulfamethoxazole and usually must continue for 4–6 weeks or more.

Gluckman SJ. Mycobacterium marinum. *Clin Dermatol*. 1995;13: 273-276.

3.8 Lupus Vulgaris

Keyword: Apple jelly nodules

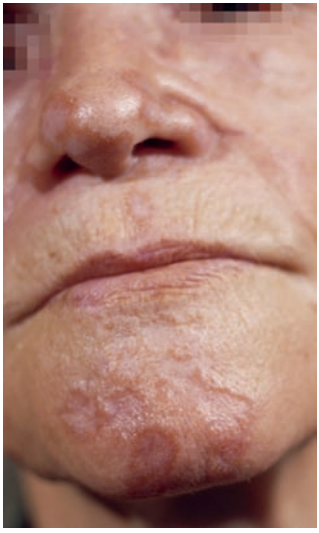

FIGURE 3.8. Diascopy demonstrates nodules with an apple jelly color on the borders of the plaques in lupus vulgaris.

Lupus vulgaris is a form of cutaneous tuberculosis that occurs in sensitized patients and represents a reactivation of *Mycobacterium tuberculosis* infection. Lupus vulgaris can develop secondarily from earlier hematogenous spread, warty tuberculosis, scrofuloderma, or a bacille Calmette-Guérin inoculation. The initial lesion is a group of brown-red papules that coalesce into a plaque most commonly found on the face. When observed on diascopy, the plaque has a characteristic "apple jelly" color. In later stages, lupus vulgaris can have several clinical expressions, including a plaque form with an annular border and central atrophy, a hypertrophic form with a tumor-like nodule, and an ulcerative form. Lupus vulgaris is less common in the USA than in Europe and in developing countries.

MacGregor RR. Cutaneous tuberculosis. *Clin Dermatol*. 1995;13:245-255.

3.9 Chancroid

Keyword: Painful penile ulcer

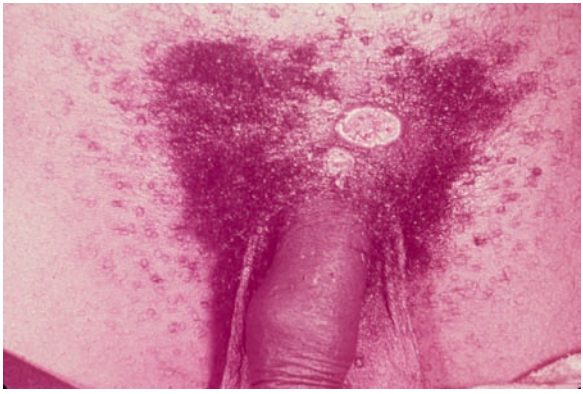

FIGURE 3.9. A painful penile ulcer is characteristic of chancroid. As in the figure, multiple ulcers can occasionally be present.

Chancroid, the name for the lesion caused by *Haemophilus ducreyi*, is included in the differential diagnosis of genital ulcers. This painful ulcer is a well-demarcated superficial ulceration without induration and is transmitted by sexual intercourse. The incubation period is 3–5 days after contact. The ulcers are accompanied by unilateral, regional lymphadenopathy. "Kissing" ulcers may form by autoinoculation from the original lesion. *H. ducreyi* is a gram-negative rod identified as a "school of fish" on Gram stain and should be cultured on both an enriched gonococcal agar base and enriched Mueller-Henton agar. Chancroid is treated with a single 1-g dose of azithromycin orally or a single 250-mg dose of ceftriaxone intramuscularly.

Sehgal VN, Srivastava G. Chancroid: contemporary appraisal. *Int J Dermatol*. 2003; 42:182-190.

3.10 Primary Syphilis

Keyword: Painless penile ulcer

FIGURE 3.10. A painless ulcer (chancre) is seen in primary syphilis.

Known as "the great imitator," syphilis is an infectious disease with many dermatologic manifestations. Syphilis is caused by the spirochete *Treponema pallidum*. Primary syphilis is characterized by a chancre, an indurated, nonpurulent, painless ulcer at the site of inoculation. Typical lesions have a raised border with a rubbery consistency and appear 3 weeks after exposure. In patients with HIV infection, multiple chancres may emerge. This primary stage of syphilis is cleared in 3–6 weeks by a delayed-type hypersensitivity response. Often, the chancre escapes detection because the ulcer is painless.

T. pallidum is not cultured but is demonstrated by darkfield microscopy. On biopsy, the organism is confirmed by Warthin-Starry stain. Nonspecific, nontreponemal tests—the rapid plasma reagin (RPR) test or the Venereal Disease Research Laboratories (VDRL) test—are 78–86% sensitive in primary syphilis. Treatment for primary syphilis is a single dose of benzathine penicillin G, 2.4 million units intramuscularly, or doxycycline 100 mg two times daily for 14 days orally for patients with penicillin allergy.

Zeltser R, Kurban AK. Syphilis. *Clin Dermatol*. 2004;22:461-468.

3.11 Congenital Syphilis

Keywords: Rhagades, Hutchinson teeth, saber shins

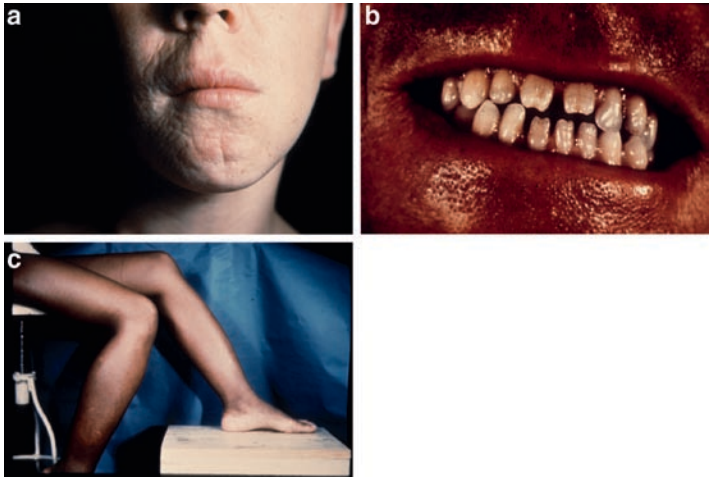

FIGURE 3.11. (**a**) Rhagades (wrinkles) are seen on the chin in congenital syphilis. (**b**) Notched incisors are noted in congenital syphilis. (**c**) Saber "bowed outwards" shins are a feature of this disease.

Congenital syphilis, with the keyword "rhagades," occurs when a child has a mother with secondary or tertiary syphilis. Rhagades are furrows and scars on the chin that develop from secondarily infected skin lesions. Congenital syphilis is severe and may cause death in the fetus as spontaneous abortion, stillbirth, or after birth in the natal period. If the symptoms of syphilis are not recognized in infancy, symptoms of late syphilis can become evident later. Further, syphilis not detected by maternal laboratory examination can result in the transplacental transmission of spirochetes with an end result of "snuffles" in the newborn; this refers to the prominent rhinorrhea that is present and is a strong indicator of this disease. Other more severe signs and symptoms develop later. Bullous lesions can be seen in early congenital syphilis; along

with syphilis in HIV, this is the only setting where bullae are a part of syphilis. The signs of congenital syphilis are many; dermatologists may encounter the snuffles, rhagades, Hutchinson triad (deafness, notched incisors, and interstitial keratitis), mulberry molars, frontal bossing, saber shins, Higoumenakis sign, and saddle nose deformity. Penicillin remains the treatment for syphilis and the fetus has almost a nil chance of developing congenital syphilis if the mother is treated early.

Chakraborty R, Luck S. Managing congenital syphilis again? The more things change . . . *Curr Opin Infect Dis*. 2007;20:247-252.

3.12 Lymphogranuloma Venereum

Keywords: Bubo, groove sign

FIGURE 3.12. Prominent enlarged nodes are a feature of lymphogranuloma venereum.

Lymphogranuloma venereum (LGV) is considered in the differential diagnosis of genital ulcer disease with lymphadenopathy. The disease is caused by sexual transmission of the obligate intracellular bacteria *Chlamydia trachomatis* serotypes L1, L2, and L3. Clinically, LGV begins as a painless papule that erodes to form an ulcer after an incubation period of 3–30 days. The ulcer heals without scarring within 1 week. The second stage of LGV begins within 2–6 weeks after onset of the ulcer. Painful lymph nodes, known as buboes, form in the inguinal and femoral region filled with infected macrophages. Approximately one third of the patients develop the "groove sign": enlargement of nodes above and below Poupart's ligament. In untreated patients, chronic lymphangitis leads to the enlargement of the genitalia and rectal tissue, a feature known as esthiomene.

Definitive diagnosis is made by isolation of *C. trachomatis* from the aspirate of the involved bubo. The disease is also detected by a complement fixation test. The recommended treatment is oral doxycycline, 100 mg twice daily for 21 days.

Brown TJ, Yen-Moore A, Tyring SK. An overview of sexually transmitted diseases. Part I. *J Am Acad Dermatol*. 1999;41:511-532.

3.13 Immersion Foot

Keyword: Jungle rot

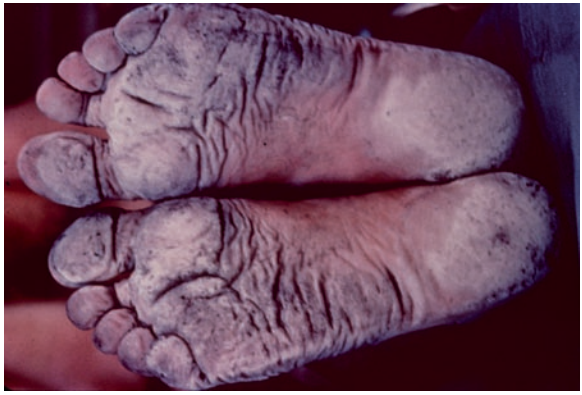

FIGURE 3.13. Feet with "jungle rot" (immersion foot) show severe maceration, hyperkeratosis, and wrinkling.

Immersion foot results from injuries to the feet from prolonged exposure to water in a range of temperatures. Immersion foot syndromes have been referred to as trench foot, swamp foot, foxhole foot, and jungle rot. The disease results from extreme hyperhydration of the stratum corneum. In cold water, immersion foot develops in three stages: a prehyperemic stage with stocking anesthesia, a painful hyperemic stage, and a posthyperemic stage with hyperhidrosis.

Immersion foot is complicated by cellulitis resulting from infection with streptococci, staphylococci, corynebacteria, and gram-negative bacilli. In warm temperatures, immersion foot begins with brief exposure (1–3 days) to water without proper drying. Prevention includes the application of silicone to the plantar surface of the feet, use of dry socks, and elevation of the feet in a dry environment. Treatment focuses on a dry environment, bed rest, analgesics, and antibiotics and antifungal agents as indicated.

Humphrey W, Ellyson R. Warm water immersion foot: still a threat to the soldier. *Mil Med*. 1997;162:610-611.

3.14 Erythrasma

Keyword: Coral red

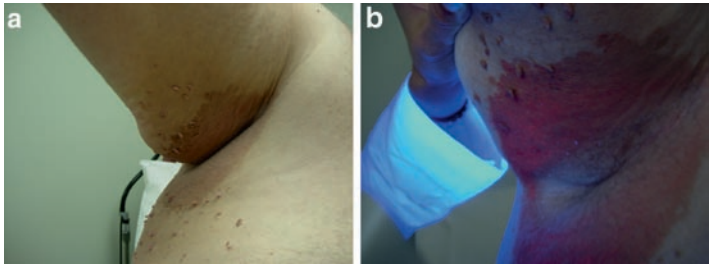

FIGURE 3.14. (**a**) and (**b**) Coral red is the color seen with fluorescence in erythrasma.

Erythrasma is a superficial, chronic skin infection found in moist, occluded areas such as the axillae, groin, inframammary and periumbilical areas, and interdigital webs. Erythrasma appears as well-defined plaques with fine scale and fissuring. Infection outside of the intertriginous areas is associated with diabetes. Erythrasma is caused by a proliferation of a gram-positive bacillus (*Corynebacterium minutissimum*) in the stratum corneum. The diagnosis is made by coral red fluorescence under Wood light examination. The coral red color results from porphyrin production by the bacteria. Effective topical treatments include 2% clindamycin solution, Whitfield ointment, erythromycin cream, antibacterial soaps, and miconazole cream. Resistant or disseminated disease is treated with erythromycin, 250 mg four times daily for 2 weeks.

Holdiness MR. Management of cutaneous erythrasma. *Drugs*. 2002;62: 1131-1141.

3.15 Lyme Disease

Keyword: Large "target" lesion

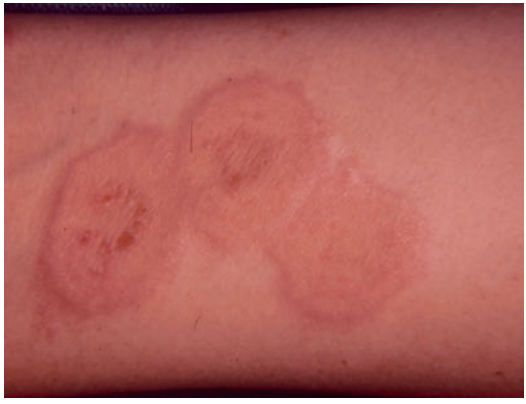

FIGURE 3.15. A large "bull's eye" or target lesion is the hallmark of Lyme disease. Three lesions are present in this photograph.

Lyme disease, caused by the spirochete *B. burgdorferi*, is the most common vector-borne illness in the USA. The disease is found in the northeast from Maine to Maryland and in the West from northern California to Oregon. In the Northeast, the tick *Ixodes scapularis* transmits *B. burgdorferi*, whereas in the West it is transmitted by *Ixodes pacificus*.

Clinically, Lyme disease begins with a slowly expanding "target" lesion, known as erythema migrans, at the site of the tick bite. The target lesion is an annular red plaque surrounded by normal skin that is encircled by an expanding red border. Erythema migrans occurs in at least 80% of the patients in the USA with Lyme disease. The rash is followed by disseminated infection that may lead to meningitis, atrioventricular block, and arthritis. The diagnosis, made clinically by the rash of erythema migrans, can be confirmed by culture of *B. burgdorferi* on Barbour-Stoenner-Kelly medium. Early infection in Lyme disease is treated with doxycycline, 100 mg orally twice daily for 21 days in adults, and with amoxicillin, 250 mg orally three times daily for 21 days in children.

Steere AC. Lyme disease. *N Engl J Med.* 2001;345:115-125.

3.16 Tinea Pedis

Keywords: One hand-two feet syndrome, moccasin, toeweb

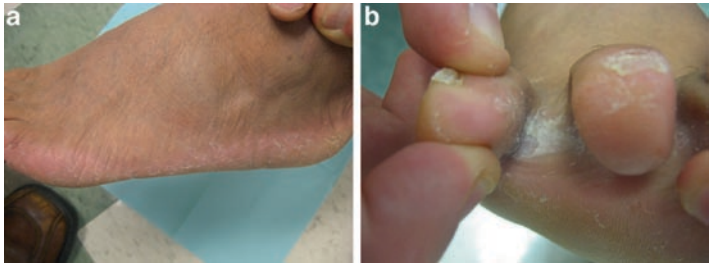

FIGURE 3.16. (**a**) Redness and scaling of the soles and sides of the feet are prominent in chronic tinea pedis. (**b**) The toeweb is the most characteristic lesional location of tinea pedis.

Tinea pedis is a dermatophyte infection of the plantar surface of the foot or interdigital spaces. Moccasin-type distribution is characterized by chronic, diffuse scaling, hyperkeratosis, and fissuring of the plantar surfaces that expands up the medial and lateral sides of the foot. One hand-two feet syndrome is a result of contact of the infected feet with the person's (usually dominant) hand and spread of the dermatophyte infection to that hand (tinea manuum). The affected hand has a clinical appearance similar to diffuse hyperkeratosis. The interdigital toeweb infection is the most common presentation of tinea pedis. It presents clinically with maceration, scaling, and pruritus and classically affects the two lateral web spaces. Maceration and disruption of the skin barrier from scratching may allow for bacterial infection. Typical dermatophytes implicated in tinea pedis include *Trichophyton rubrum*, *Trichophyton mentagrophytes* var. *interdigitale*, and *Epidermophyton floccosum*. Additional presentations include ulcerative and vesicular tinea pedis. Tinea pedis is occasionally associated with a dermatophytid reaction and, in addition to tinea manuum, can be associated with tinea cruris and onychomycosis.

Leyden JJ, Kligman AM. Interdigital athlete's foot: the interaction of dermatophytes and resident bacteria. *Arch Dermatol*. 1978;114(10):1466-1472.

3.17 Tinea Capitis

Keywords: Kerion, black dot

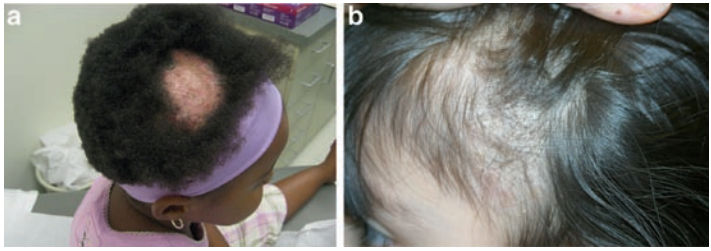

FIGURE 3.17. (**a**) Kerion is a boggy, crusted tumefaction in the most inflammatory type of tinea capitis. (**b**) Scaling with black dots (representing broken hairs) is noted in noninflammatory tinea capitis.

Tinea capitis is a dermatophyte infection of the scalp, most commonly seen in children. Tinea capitis may present as dry, scaly patches with or without alopecia; lymphadenopathy is often present. Severe forms of tinea capitis may demonstrate pustules or kerion formation. In the USA, tinea capitis is almost exclusively caused by *Trichophyton tonsurans*. This organism causes endothrix infections, and these are nonfluorescent by Wood light examination. Black dot tinea capitis is a result of an endothrix infection resulting in breakage of the hair at the scalp. A kerion is an extreme hypersensitivity and inflammatory reaction to the presence of a dermatophyte infection on the scalp that results in a boggy, tumefactive, alopecic plaque. This plaque is often accompanied by lymphadenopathy. Kerions are best treated with immunosuppressive agents such as prednisone followed by treatment of the dermatophyte infection. Favus is a severe infection associated with *Trichophyton schoenleinii*, presenting as thick yellow crusts on the scalp.

Arenas R, Toussaint S, Isa-Isa R. Kerion and dermatophytic granuloma: mycological and histopathological findings in 19 children with inflammatory tinea capitis of the scalp. *Int J Dermatol*. 2006;45(3): 215-219.

3.18 Tinea Versicolor

Keyword: Scaling patches

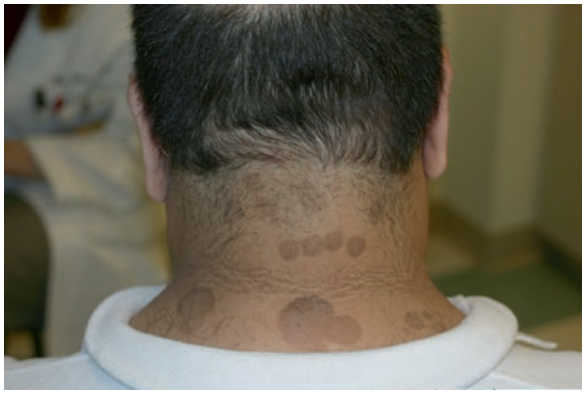

FIGURE 3.18 Hypopigmented or hyperpigmented scaling patches are noted in tinea versicolor.

The keyword for tinea versicolor is "scaling patches," which is a misnomer because, by convention, scaling occurs only on plaques. With no visible palpable elevation, the lesions are completely flat. Consequently, the term seems appropriate. In this very common disease, the lesions, caused by the yeast *Malassezia furfur*, present on the trunk, although they can be found elsewhere. The color of the lesions is either off-white, as in hypopigmented tinea versicolor, or brown, as in hyperpigmented tinea versicolor. Generally, the lesions are asymptomatic, but on occasion they can be pruritic. Treatment assumes many configurations and can be topical, systemic, or both. Selenium sulfide lotion as a wash and shampoo with various regimens is very effective. It can also be applied overnight one time (repeat once a week later) and washed off the next morning. With shampooing twice weekly for several weeks, this is the least expensive of the effective treatments. Ketoconazole cream is an effective topical agent but must be applied for several weeks. Other "azole"-type creams are similarly effective. Ketoconazole orally is also very effective with a variety of regimens.

To prevent recurrence, periodic shampooing with selenium is helpful. The hypopigmentation is caused by the organisms elaborating dicarboxylic acids, primarily azelaic acid, that interfere with the formation of melanin.

Lim SL, Lim CS. New contact stain for the rapid diagnosis of pityriasis versicolor. *Arch Dermatol*. 2008;144:1058-1059.

3.19 Pseudomonal Infection

Keyword: Green nail

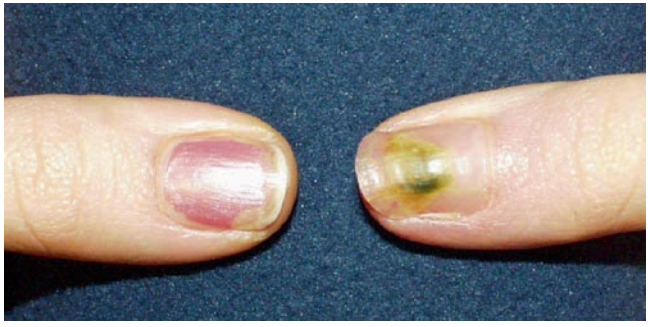

FIGURE 3.19. Green discoloration of the nail is common in pseudomonal infection.

Pseudomonal infection has the keyword "green nail," referring to its color when it contributes to a paronychial infection. The color derives from a blue-green pigment called pyocyanin. In systemic (much more severe) pseudomonal infections, the cutaneous lesions are black, crusted, necrotic pustules. The gram-negative rod that is *Pseudomonas aeruginosa* can colonize tissue easily, as is the case with the green nail. Frequently, this situation begins with a candidal paronychia that becomes secondarily colonized. With *Candida* infection, extruded pus is creamy in contrast to the green color seen with *Pseudomonas*. Treatment with 5% acetic acid solution soaks (3 T white vinegar in 1 pint of water) two to three times daily is very effective against both the *Pseudomonas* and *Candida*. Oral and topical antiyeast medications, such as ketoconazole, are also effective. Green nail phenomenon occurs in patients whose hands are wet constantly, which breaks the stratum corneum barrier and allows the organisms into the skin. The moisture is also an important factor in allowing the *Pseudomonas* into the skin in gram-negative toeweb infection and in otitis externa.

Pollack M. Pseudomonas aeruginosa. In: Mandell GL, Bennett JE, Dolin R, eds. *Principles and Practice of Infectious Diseases*, 5th ed. New York, NY: Churchill Livingstone; 2000:2310-2327.

3.20 Herpes Simplex

Keywords: Whitlow, grouped vesicles, umbilicated vesicles

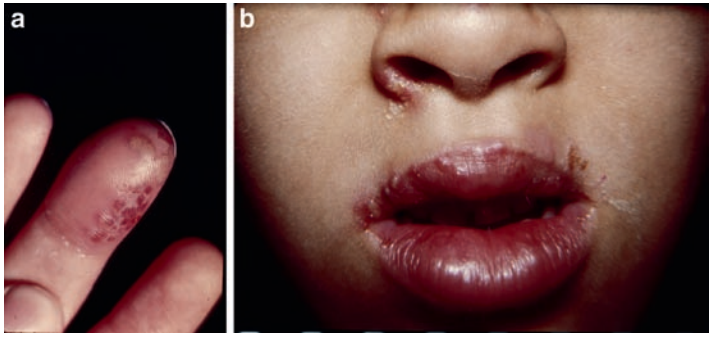

FIGURE 3.20. (**a**) Whitlow refers to localized herpes simplex infection of a digit. (**b**) Grouped vesicles are the hallmark of recurrent herpes simplex. In this photograph of primary herpes, vesicles are seen on the lips.

Herpes simplex viruses (HSV) are members of the alpha herpesviriae family of linear double-stranded encapsulated DNA viruses. HSV-1 and HSV-2 are ubiquitous human pathogens that mainly cause oralabial and genital lesions, with genital herpes being one of the world's most common sexually transmitted diseases. Lesions begin as grouped vesicles on an erythematous base, subsequently progress to ulcerations that form crusts, and resolve over a period of 2 weeks. Primary infections tend to be much more severe and last much longer (6–8 weeks) than recurrent lesions. Recurrences of HSV lesions are extremely common as the virus resides in a latent state in dorsal root ganglia and gets reactivated after a stimulus such as ultraviolet radiation, stress, fever, tissue damage, or immunosuppression. Eczema herpeticum is a more widely disseminated form of HSV that is seen in infants and children with atopic dermatitis. Herpetic whitlow refers to vesicular lesions on the digits, again more frequently in children

and, in the past, in dental health care providers who did not wear gloves. Herpes gladiatorum results from HSV infection acquired through contact sports such as wrestling and produces a more widespread eruption after the athlete comes in direct contact with an infectious lesion.

Decman V, Freeman ML, Kinchington PR, Hendricks RL. Immune control of HSV-1 latency. *Viral Immunol*. 2005;18:466-473.

3.21 Scarlet Fever

Keywords: Strawberry tongue, sandpaper

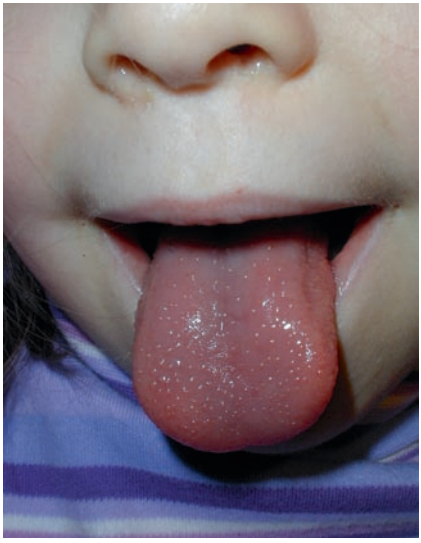

FIGURE 3.21. A red, visibly papillated tongue is noted in scarlet fever; a white strawberry tongue is white with red papillae.

Scarlet fever is due to systemic effects of the erythrogenic toxin produced by *S. pyogenes*. Patients develop a sore throat, fever, headache, chills, and malaise followed by a cutaneous eruption 12–48 hours later. This rash has a blanchable pink background with minute papules that feel like sandpaper on palpation. Patients also develop linear petechial streaks called Pastia's lines in the axillary, antecubital, and inguinal areas. The tongue is initially white with red papules (white strawberry tongue) but then develops a bright red background (red strawberry tongue). Desquamation occurs last, resulting in thick peeling of the hands and feet and diffuse fine scale on the body that may last as long as 6 weeks. Scarlet fever has become increasingly rare due to the availability of antibiotics and rapid antistreptolysin O testing.

Manders S. Toxin-mediated streptococcal and staphylococcal disease. *J Am Acad Dermatol*. 1998;39:383-398.

3.22 Fifth Disease

Keyword: Slapped cheeks

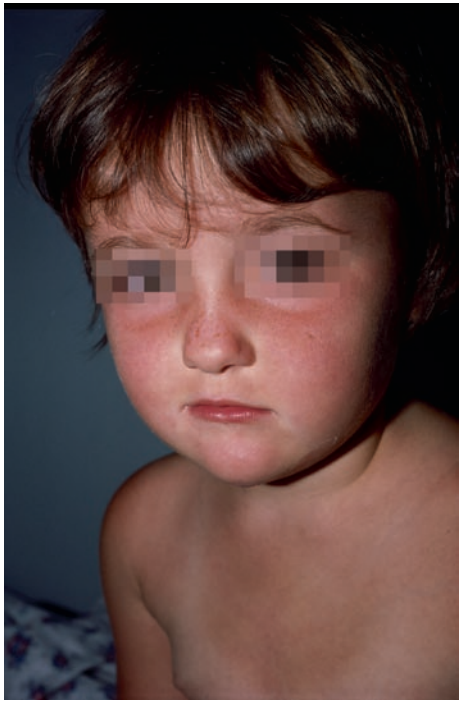

FIGURE 3.22. Bright red cheeks are a prominent feature of Fifth disease.

Fifth disease, erythema infectiosum, has the keyword "slapped cheeks" because the children with this disease have bright red cheeks. A prodrome occurs in approximately 20% of the children and consists of fever, nasal congestion and discharge, headache, pharyngitis, myalgias, and arthralgias. The rash follows a week later. Transmission of this disease occurs from nasal secretions, from mother to fetus, or from blood transfusions. Seen more commonly in the winter and spring, this viral exanthem is caused by parvovirus B19, a single-stranded DNA virus; in children,

along with the red cheeks, a pink reticulate eruption develops on the trunk, arms, and thighs. In adults, there is often a reticulate eruption that is accompanied by arthritis in 50% of the patients. Although it is very mild in children, Fifth disease may cause fetal death, primarily by hydrops fetalis, in a pregnant woman.

Cohen B. Parvovirus B19: an expanding spectrum of disease. *Br Med J*. 1995;311:1549–1552.

Chapter 4
Hypersensitivity Disorders

The classic hypersensitivity disease is a drug eruption; such eruptions can assume many forms and are included in all dermatologic differential diagnoses including bullous diseases. Other diseases included on many differential listings include syphilis, lupus erythematosus, sarcoidosis, and Hansen disease (leprosy); but with the exception of lupus and special situations in syphilis (congenital syphilis and HIV infection), bullous lesions are not included. The triggering factor for the classic hypersensitivity situations is an antigen in the dermis that creates inflammation visible both clinically and histologically. Clinically, the inflammation is red or pink, and histologically there is a lymphohistiocytic perivascular infiltrate along with eosinophils. On occasion, the neutrophil mediates the inflammation, but typically it is the eosinophil.

Erythema multiforme is thought by many to represent a hypersensitivity disease at the end of a spectrum that includes Stevens–Johnson syndrome and toxic epidermal necrolysis at the other. The "target lesion" that is the keyword for this disease is small in contrast to the large target of Lyme disease. The lesion generally is 1–2 cm, and the large target is 10 or more times that size. The two diseases can be differentiated by pathology as well, with Lyme disease showing a "coat-sleeving" arrangement of lymphocytes around upper and mid dermal blood vessels and erythema multiforme showing necrotic keratinocytes, marked upper dermal edema, and extravasated red blood cells in the upper dermis along with a stromal and perivascular lymphohistiocytic infiltrate. The most

H.B. Allen, *Dermatology Terminology,*
DOI 10.1007/978-1-84882-840-7_4,

common cause of erythema multiforme is a reaction to herpes simplex virus; if recurrences are numerous and clinically disturbing, they can be suppressed with daily acyclovir or valacyclovir. If the erythema multiforme reaction has not been suppressed with antiviral agents, prednisone in a short tapered dose begun at the very first symptom prevents widespread eruption.

Papular urticaria is the dermatologic name for insect bites or arthropod assault. Depending on what is biting, the distribution of the lesions may be different: arms and legs for fleas, trunk for bedbugs, exposed surfaces for black flies, and legs for chiggers. The keyword "central punctum" represents this disease, and the punctum may be found on many or just a few of the papules. The bedbug bites from *Cimex lectularius* are the most clinically recognizable because of their "breakfast, lunch, and dinner" arrangement on the trunk. The pink-red papules with an identifiable central punctum line up in a row on the trunk.

Intense pruritus is the hallmark symptom of insect bites. Patients usually recognize the most common insect bite, the mosquito bite, because they see the mosquito. The other organisms are small and fast or bite at night, so they are extremely difficult to see. Demonstrating the central punctum is thus more convincing because the patient may not have seen the insect.

In the case of a spider bite, especially the brown recluse spider bite, the central punctum rapidly becomes necrotic, and pain becomes a more prominent symptom. Black widow spiders cause a larger array of systemic symptoms.

Among biting organisms, mosquitoes cause the most disease in humans, from yellow fever to malaria to the hemorrhagic viral diseases. Next in numbers of diseases caused are ticks and black flies. Some diseases are isolated to certain geographic locations, such as Oroya fever caused by the *Bartonella* organism carried by the *Lutzomyia* black fly in the valleys of the Peruvian Andes, and Rift Valley fever caused by the Bunyaviridae virus carried by mosquitoes in East Africa. Other diseases such as malaria are found worldwide in tropical and subtropical climates.

Pruritic urticarial papules and plaques of pregnancy (PUPPP) syndrome has the keyword "striae" because the exceedingly pruritic papules localize first in the striae of a pregnant abdomen. (Ordinary urticaria, with the keyword "hives," can occur anywhere on the body.) The anti-

gen to which the pregnant woman is responding has remained elusive, but most believe it is related to the placenta. Cholinergic urticaria, which is a physical (nonallergic) urticaria, differs in that the wheals favor the trunk but may arise anywhere on the body. Other differences with this type of urticaria include provoking factors (e.g., pressure, heat, cold, sweating), the small size of the wheals, and their subsidence within minutes. The wheals of cholinergic urticaria last for minutes; those of ordinary urticaria last 24–48 hours and those of urticarial vasculitis last for days. The wheal-like lesions of the rarer syndromes such as familial cold autoinflammatory syndrome (familial cold urticaria), Schnitzler syndrome, familial Mediterranean fever, and familial Hibernian fever are frequently very large and behave much like urticarial vasculitis in time till resolution.

The keyword "red man" for erythroderma refers to the total body redness of this state. The etiology involves three major categories: drug eruptions in 50% or more of cases, Sézary syndrome in approximately 25%, and preexisting dermatoses such as psoriasis or pityriasis rubra pilaris in the remaining cases. The history often differentiates between the conditions, and the biopsy is usually very helpful. In recent years, a vancomycin drug reaction has been termed the "red man" syndrome. This phenomenon is much more transient, and the erythema resolves within hours. Because of the more common occurrence of the vancomycin reaction, the keyword for the longer-lasting, classic erythroderma may lose specificity and significance.

Pyoderma gangrenosum has the keyword "overhanging border," which calls to mind this disease but in itself does not reflect the large, nonhealing ulcers of this disease. The ulcers, usually on the lower leg, are the end stage of an inflammatory nodule or pustule that becomes an ulcer. Early in the disease, at the nodular/pustular stage, treatment with high-concentration triamcinolone (40 mg/mL) intralesionally causes resolution of the lesion without progression to the ulcerative lesion. The disease is a hypersensitivity to another inflammatory disease such as Crohn disease or rheumatoid arthritis or a neoplastic disease such as leukemia. Recent anti-tumor necrosis factor-α therapeutic approaches to the underlying diseases have helped the ulcers heal more rapidly. These ulcers can be differentiated from venous stasis ulcers by the overhanging

borders, size, the presence of significant edema or varicosities, and the presence of one of the associated diseases. They may also be distinguished from hypertensive ulcers by location as well as size.

Erythema annulare centrifugum, with the keyword "trailing scale," is an eruption in which the scale is 1 or 2 cm behind the leading edge of the erythema. This is in direct contrast to pityriasis rosea and tinea corporis, in which the scale is found at the border and is part of the description of the lesions; for example, pink-red plaques with an elevated scaling border for tinea and pink-red plaques with fine or branny cigarette paper scale on the border for pityriasis rosea. The flakes of scale in tinea pedis are larger than those in pityriasis rosea.

4.1 Erythema Multiforme

Keyword: Small target

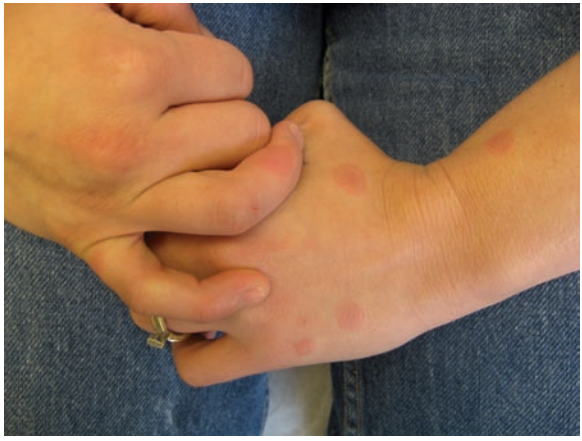

FIGURE 4.1. Small "bull's-eye" or "target" lesions are the hallmark of erythema multiforme.

The hallmark lesion of erythema multiforme (EM) is the "bull's-eye" or "target" lesion whose center is dark red or red blue and is surrounded by concentric rings of pale pink and varying shades of red. Lesions can be distributed anywhere, including mucous membranes, but this is one of a small number of diseases that have lesions on the palms and soles. The leading causes for EM are herpes viral infections (HSV) or reactions to drugs. Severe EM with involvement of more than one mucous membrane is the Stevens–Johnson syndrome, and there appears to be a continuum of severity from EM, to Stevens–Johnson, to toxic epidermal necrolysis. HSV more commonly causes EM, and drugs cause toxic epidermal necrolysis. Prednisone is helpful for EM, and, for severe reactions, intravenous immunoglobulin may be considered. EM may be recurrent.

Bastuji-Garin S, Rzany B, Stern RS, Shear NH, Naldi L, Roujeau JC. Clinical classification of cases of toxic epidermal necrolysis, Stevens-Johnson syndrome, and erythema multiforme. *Arch Dermatol*. 1993;129:92–96.

4.2 Papular Urticaria

Keyword: Central punctum

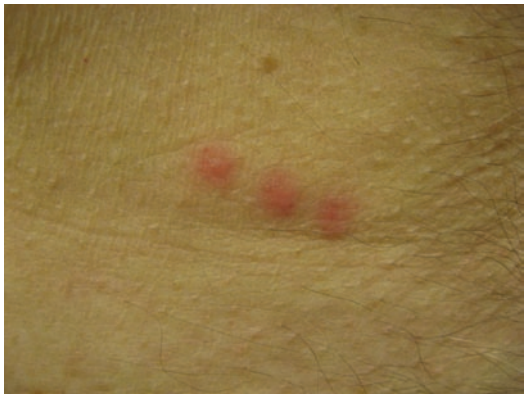

FIGURE 4.2. Papules with a central punctum indicate an arthropod assault. The bites in a line are most indicative of bedbug bites ("breakfast, lunch, and dinner").

Individuals with hypersensitivity to various arthropod bites may develop papular urticaria, characterized by persistent, pruritic, pink, edematous papules. The lesions may develop both at the site of the primary assault and as a widespread, symmetrically distributed "id reaction." Lesions at the primary bite sites can be identified clinically by a central punctum (or two puncta depending on the nature of the bite). Treatment includes antipruritic agents, such as topical applications containing camphor and menthol, and oral antihistamines. Topical steroids may also be used to speed resolution. For severe cases, a short course of oral steroids may be used.

Jordaan HF, Schneider JW. Papular urticaria: a histopathologic study of thirty patients. *Am J Dermatopathol*. 1997;19:119-126.

4.3 Pruritic Urticarial Papules and Plaques of Pregnancy

Keyword: Striae

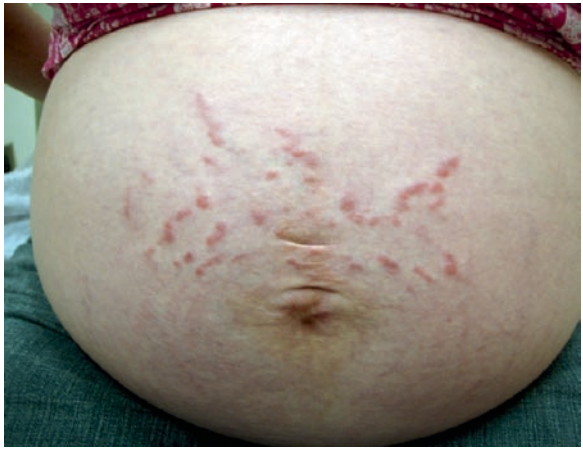

FIGURE 4.3. In PUPPP (pruritic urticarial papules and plaques of pregnancy), the papules often first localize in the abdominal striae.

PUPPP is an acronym for pruritic urticarial papules and plaques of pregnancy. PUPPP is characterized by polymorphic 1- to 2-mm pink-red papules that coalesce into urticarial plaques. The rash often begins on the abdominal striae and expands within days to involve the abdomen, buttocks, and thighs. Vesicles may or may not be present. PUPPP usually develops in primigravida women during the third trimester of pregnancy and resolves early in the postpartum period. It may occur earlier in subsequent pregnancies. A possible predisposing factor for this condition may be rapid and excessive weight gain during the pregnancy or maternal hypersensitivity to placental antigens. The fetus is unaffected. Symptomatic patients are generally treated with oral antihistamines and topical steroids. More severely symptomatic patients may require oral corticoids.

Ahmadi S, Powell FC. Pruritic urticarial papules and plaques of pregnancy: current status. *Australas J Dermatol*. 2005;46:53–58.

4.4 Pyoderma Gangrenosum

Keyword: Overhanging border

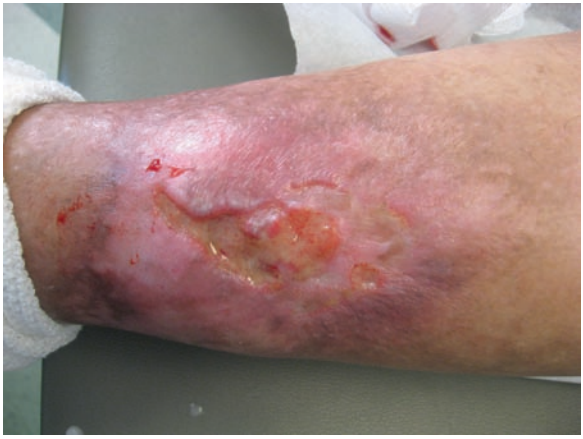

FIGURE 4.4. A large ulcer with an overhanging border is present in pyoderma gangrenosum.

Pyoderma gangrenosum lesions begin as tender, folliculocentric pustules or fluctuant nodules with a surrounding red halo. They expand peripherally and form ulcers with sharply demarcated, red-blue raised edges, overhanging borders, and areas of necrosis. The lesions usually occur on the lower extremities and exhibit an isomorphic response. They are associated with inflammatory bowel disease, rheumatoid arthritis, and hematologic malignancies, such as monoclonal gammopathy, leukemias, and lymphomas. The exact pathogenesis is unknown; however, studies support a vasculopathic mechanism. Treatment is directed towards the underlying disease along with hydrocolloid dressings to support reepithelialization and perhaps systemic steroids and/or dapsone.

Crowson AN, Mihm MC Jr, Magro C. Pyoderma gangrenosum: a review. *J Cutan Pathol*. 2003;30:97–107.

4.5 Urticaria

Keywords: Wheals, “hives”

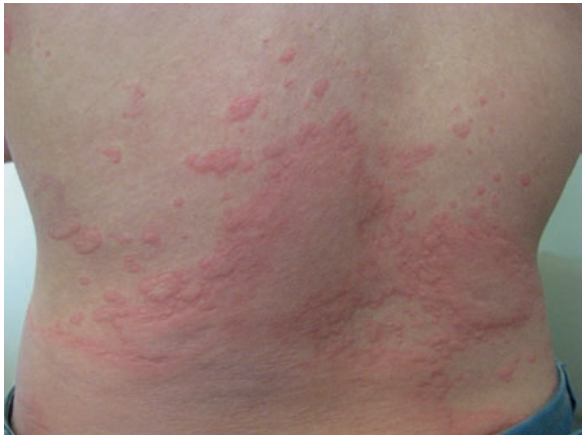

FIGURE 4.5. Hives or wheals are found in urticaria.

Urticaria affects up to 20% of the population and is manifested by pruritic wheals or “hives” that individually last 24 hours or less. Wheals lasting longer may be an indicator of another disorder such as urticarial vasculitis. Urticaria can be either acute (4–6 weeks) or chronic. The cause of acute hives is often easily elicited: a new drug, a recent or impending virus, or a food allergen. The cause of chronic hives may be obscure and may be as subtle as the yellow dye in a vitamin capsule or the benzoic acid in margarine. The hives of cholinergic urticaria, caused by heat, sweating, and other physical and emotional factors, tend to be smaller and shorter-lived. Therapy is H1 antihistamines or nonsedating variants.

Beltrani VS. Urticaria and angioedema. *Dermatol Clin*. 1996;14:171–198.

4.6 Erythroderma

Keyword: Red man

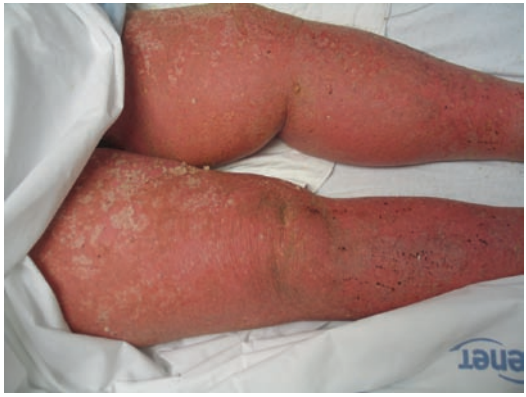

FIGURE 4.6. Diffuse redness is the compelling feature of erythroderma.

Erythroderma is the diagnosis for the red man syndrome. It arises from the Sézary syndrome, which is the systemic form of mycosis fungoides, from drug allergy, or from flare of preexisting dermatoses. The preexisting disorders may be psoriasis, pityriasis rubra pilaris, or eczema, among others. Drugs tend to be responsible for nearly 50% of the cases while Sézary and preexisting conditions cause between 20% and 30%. Allopurinol and antibiotics lead the list of drugs, but many different agents may cause the rash. The condition itself is very pruritic and may be associated with diffuse exfoliation, thickened and peeling skin on the palms and soles, and shedding of the nails. Thermal regulation may be lost, and forward failure may occur. Treatment is aimed at the cause.

Sigurdsson V, Toonstra J, Hezemans-Boer M, van Vloten WA. Erythroderma: a clinical and follow-up study of 102 patients, with special emphasis on survival. *J Am Acad Dermatol*. 1996;35:53-57.

4.7 Pseudopelade

Keyword: Footprints in the snow

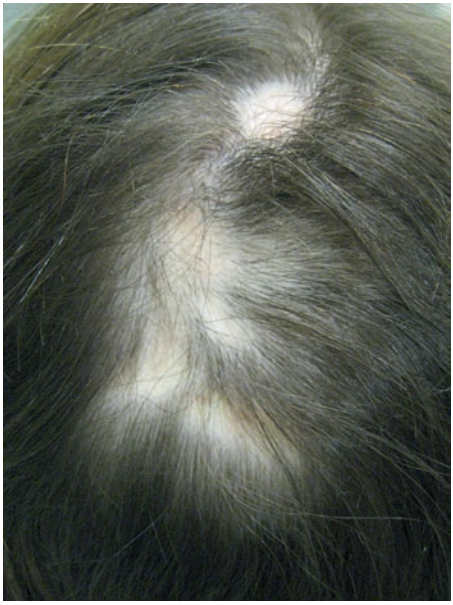

FIGURE 4.7. Footprints in the snow are a feature of pseudopelade, a scarring alopecia.

Pseudopelade is described as a slowly progressive scarring alopecia without evidence of inflammation or folliculitis. "Footprints in the snow" refers to the alopectic patches distributed through the scalp. These affected patches are small, oval or round, smooth, and slightly depressed. The initial patch tends to appear first on the vertex but may occur anywhere on the scalp. Over time, irregular bald patches may occur due to the confluence of many smaller lesions. Hair on the uninvolved scalp is histologically normal. The condition is most common in women over the age of 40 years. Very likely, the scarring originates as lichen planopilaris, folliculitis decalvans, or some other inflammatory process.

Dawber R, Van Neste D. *Hair and Scalp Disorders: Common Presenting Signs, Differential Diagnosis, and Treatment*. London: Martin Dunitz; 1995:121-124.

4.8 Erythema Annulare Centrifugum

Keyword: Trailing scale

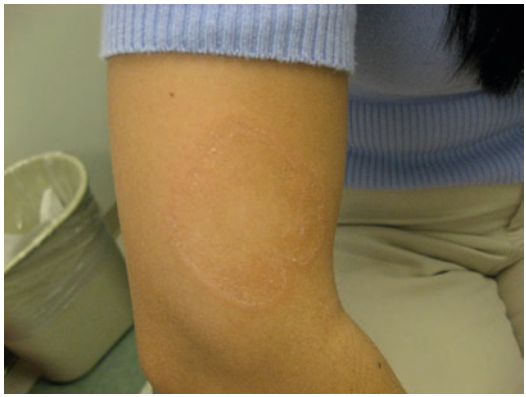

FIGURE 4.8. Scaling in this plaque "trails" the leading edge of erythema annulare centrifugum.

Erythema annulare centrifugum (EAC) is a pink-red eruption that begins as a small papule that gradually enlarges centrifugally while clearing centrally. Nearby lesions may join to form polycyclic lesions. EAC may exist in both a superficial and deep form. The superficial form exhibits the classic "trailing scale," a fine white scale 1–2 cm behind the expanding edge. This contrasts with the scale of tinea corporis or cruris, which is at the very edge of the advancing border. The deep form of EAC has an indurated border without scale; this form has also been called erythema figuratum. EAC is in the group of figurate or gyrate erythemas. The etiology of EAC is not known exactly, but many cases are thought to be idiopathic or a hypersensitivity reaction to an antigen or disease state. Potential triggers for the hypersensitivity reaction include fungal infections, especially dermatophytes (e.g., tinea pedis), drugs, bacterial infections, viruses, neoplasms, parasites, liver disease, and autoimmune diseases.

Minni J, Sarro R. A novel therapeutic approach to erythema annulare centrifugum. *J Am Acad Dermatol*. 2006;54(3 Suppl 2):S134-S135.

4.9 Scabies

Keywords: Finger webs, burrows

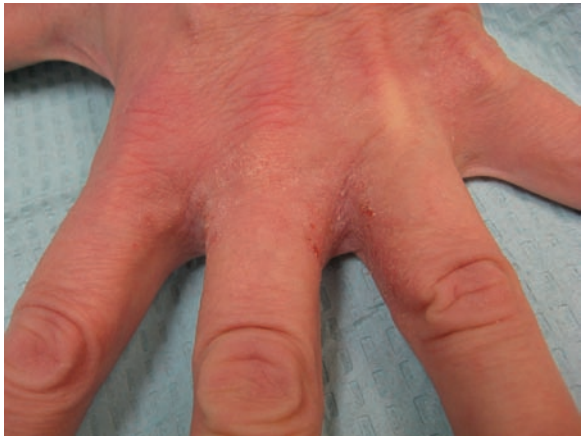

FIGURE 4.9. The finger webs are a classic location for the lesions of scabies.

Scabies is caused by an infestation with the mite *Sarcoptes scabiei* var. *hominis.* Transmission occurs by direct contact with the mite or, less commonly, the fomite. It is often seen in crowded living quarters, such as nursing homes and prisons. Typical lesions are seen in the finger web spaces and flexural areas. Common sites also include the nipple, male genitalia, and the belt line. The mite lives its entire life cycle in the epidermis and burrows from movement are best seen with a hand lens. Other lesions may present as crusted, excoriated, or urticarial papules. Patients complain of severe pruritus with worsening at night. The diagnosis can be confirmed by finding mites, eggs, or fecal pellets in microscopic skin scrapings. Treatment can be either topical or oral. Topical treatments include permethrin 5% cream or lindane 1% lotion applied from the neck down overnight and repeated 7 days later. Following the initial

topical treatment, treating any persistent pruritic focus with mid- to high-potency topical corticoids is beneficial. At the time of each treatment, linens and clothing should be washed in hot water. If topical treatments are not effective, oral ivermectin may be used.

Chouela E, Abeldano A, Pellorano G. Equivalent therapeutic efficacy and safety of ivermectin and lindane in the treatment of human scabies. *Arch Dermatol*. 1999;135:651-655.

Chapter 5
Genetic Diseases

Many dermatologic diseases have a genetic component, and so this group of diseases may be expanded as more evidence is unearthed. Atopic dermatitis, for instance, is currently included in the dermatitis/eczema group. Filaggrin gene defects have been found in approximately 50% of the patients with atopic dermatitis, but the relationship of this defect to the pathogenesis of this disease has yet to be explained. Psoriasis also likely has a genetic background, but the story is not as well advanced as in atopic dermatitis.

Fabry disease, with the cutaneous finding of angiokeratomas, has the keyword "Maltese cross," referring to the peculiar pattern seen in the urine under fluorescence microscopy. The angiokeratomas, although very descriptive, may be found in other disorders such as Klippel–Trenaunay–Weber syndrome and are found routinely on the scrotum of elderly men (Fordyce type). Angiokeratomas of Mibelli are solitary lesions found most commonly on the extremities. Fabry disease generally is recognized when the angiokeratoma clusters are seen on the abdomen, buttocks, or legs; they are part of a systemic disease with manifestations in other organs such as the kidneys, liver, or heart. Thus, they are an important marker for this systemic disease that results from an accumulation of ceramides in the affected organs. The genetic defect in α-galactosidase results in this accumulation.

Ichthyosis vulgaris has the keyword "plate-like scale" and is the most common form of ichthyosis. It is a dominant genetic disease

H.B. Allen, *Dermatology Terminology,*
DOI 10.1007/978-1-84882-840-7_5,

resulting from a defect in profilaggrin, a molecule important in the formation of the stratum corneum, the outermost layer of the epidermis and the most important external barrier of the skin. The plate-like scales are generally easily visualized on the lower legs but can occur in any location; they also tend to spare the flexures. This is an interesting counterplay: atopic dermatitis is found in the flexures (a keyword) and ichthyosis vulgaris, with which it is frequently associated, spares the flexures. As mentioned previously, atopic dermatitis has been found to share the same gene defect as ichthyosis.

X-linked ichthyosis has the keyword "dirty scale." The scale has a brown-gray color as opposed to the flesh to off-white color of other scale. X-linked ichthyosis may be found in similar locations to ichthyosis vulgaris but occasionally is found in the flexures, offering a differential marker. In addition to the diffuse scaling, corneal opacities may be present in both the male patient and the female carrier. These ordinarily represent an indicator of the disease rather than a process affecting vision.

The five original phakomatoses (tuberous sclerosis, neurofibromatosis, Sturge–Weber syndrome or SWS, ataxia telangiectasia, and Von Hippel–Lindau syndrome) have had a relatively new addition, phakomatosis pigmentovascularis. These diseases have cutaneous lesions ("phakos" is "spot" in Greek) associated with central nervous system (CNS) findings. Three of the original group have keywords: tuberous sclerosis has Koenen tumor, ash leaf macule, and shagreen patch; SWS has first trigeminal port-wine stain; and neurofibromatosis has coast of California and Lisch nodules. The other phakomatoses, although far less common, but no less important, have no keywords.

Tuberous sclerosis has keywords as listed above; the ash leaf macules appear early in life and are an important marker for this disease. Koenen tumors (periungual fibromas) and shagreen patches (collagen nevi) appear later. Again, note the misnomer: shagreen patch is actually a flesh-colored, pebbly-surfaced plaque found most commonly on the back. Mental retardation is more commonly seen in tuberous sclerosis than in the other diseases under consideration.

The gene defect in tuberous sclerosis is represented by changes in the proteins tuberin and hamartin while that of neurofibromatosis

is neurofibromin. Neurofibromatosis has the keyword "coast of California," referring to the contour of the café au lait macule (more correctly, "patch"), which is smooth on its borders. Comparatively, the border of the café au lait lesion in McCune–Albright syndrome (Albright disease) is referred to as resembling the "coast of Maine" because it is much more irregular in its contour. Also, neurofibromatosis has CNS findings, whereas McCune–Albright has mostly bone and endocrine findings.

Although porphyria cutanea tarda (PCT) is more common than congenital porphyria, it has no keyword. "Werewolf" is the keyword for congenital porphyria, which involves a gene defect in uroporphyrinogen III synthase. Much more hair growth is seen in this type of porphyria than in PCT, even though hypertrichosis is an important component of PCT. Other differences in the two are red-stained teeth in congenital porphyria and the relationship of hepatitis C virus and hemochromatosis in PCT. Both exhibit exceeding sensitivity to sunlight and show porphyrins in the urine.

Another type of porphyria, erythropoietic porphyria (EPP), also has no keyword. It is characterized by a defect in ferrochelatase that is found in the last step in the enzymatic production of hemoglobin. The findings of EPP also include extreme photosensitivity, but the lesions differ in being painful, unlike those of PCT and congenital porphyria. Acute intermittent porphyria, a type of porphyria without cutaneous findings, is a neurologic, abdominal, and psychiatric disease. Porphyria variegata combines acute intermittent porphyria and PCT and shows abdominal findings along with the cutaneous findings previously mentioned for PCT. Porphyria variegata is seen in patients who have a common South African ancestor.

"Coumadin necrosis" (warfarin necrosis) is an impressive blue-black necrotic change in the skin of a "soft" body part, such as a breast, buttock, or thigh. It has the keyword "Coumadin" and results from a defect in protein S. This defect leads to paradoxical clotting of blood vessels even though warfarin is a "blood thinner." The lesions resolve spontaneously with scarring and the anticoagulant can be switched to another agent such as heparin even though it is not an allergy or hypersensitivity phenomenon. Theoretically, warfarin could be continued.

Pseudoxanthoma elasticum, with the keyword of "plucked chicken skin," shows yellow, pebbly-surfaced plaques on the neck

or other body sites. These plaques often occur in folds, such as the axillae or antecubitals. They differ from atopic dermatitis by the color, the pebbly surface, and the lack of lichenification. The disease results from a genetic defect with altered (fragmented and mineralized) elastic tissue that is found in the skin, eyes, and arteries. The defect in ABCC6, a calcium transporter, is primarily found in the gastrointestinal tract and in the liver, so the presence of the disease in the skin still requires elucidation.

Netherton syndrome, with the keywords "bamboo hairs" and "double-track scale," is a rare disease with a genetic defect in a serine proteinase inhibitor. The scale is very characteristic, forming a double track with the scale lifting on the inner edge of each "track." The inner portion of the track is free of scale. The hair has a "node" that looks like bamboo; this differentiates it from the nodes of trichorrhexis nodosa. Menkes syndrome has the keyword "kinky hair" and is often termed Menkes kinky hair syndrome. The hair in this rare X-linked recessive disorder is flattened and twisted. The genetic defect is in a copper-binding protein that affects many organs; replacement of copper helps the neurologic component but has no impact on the hair.

5.1 Fabry Disease

Keyword: Maltese cross

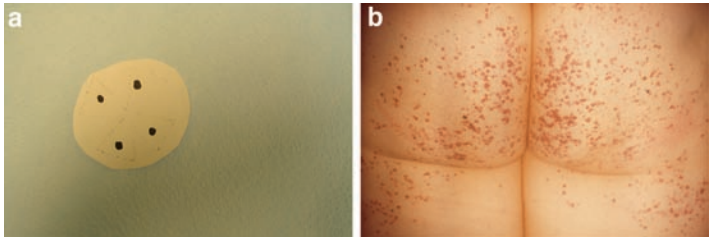

FIGURE 5.1. (**a**) "Maltese cross"-like particles are seen in the urine of patients with Fabry disease. (**b**) Angiokeratomas (not a keyword) are the skin finding in Fabry disease.

Fabry disease is an X-linked recessive deficiency in the α-galactosidase A gene (GLA). This defect leads to a lack of lysosomal GLA enzyme and results in cellular accumulation of glycosphingolipids. The cellular deposition occurs primarily in the vascular endothelium, heart, brain, and kidney but may occur in any tissue in the body. Symptoms include angiokeratomas of the skin and mucous membranes, hearing loss, painful crises of the hands and feet, acroparesthesias, myocardial infarction, stroke, corneal opacities with whorl-like configuration, and progressive proteinuria with "Maltese crosses" seen on polarized microscopy. The characteristic Maltese cross is due to birefringent lipid globules. Treatment with 1 mg/kg intravenous recombinant GLA every other week has been shown to improve the painful physical manifestations and to reduce the vascular endothelial damage.

Eng CM, Guffon N, Wilcox WR, et al. Safety and efficacy of recombinant human alpha-galactosidase A: replacement therapy in Fabry's disease. *N Engl J Med*. 2001;345:9-16.

5.2 Ichthyosis Vulgaris

Keyword: Plate-like scale

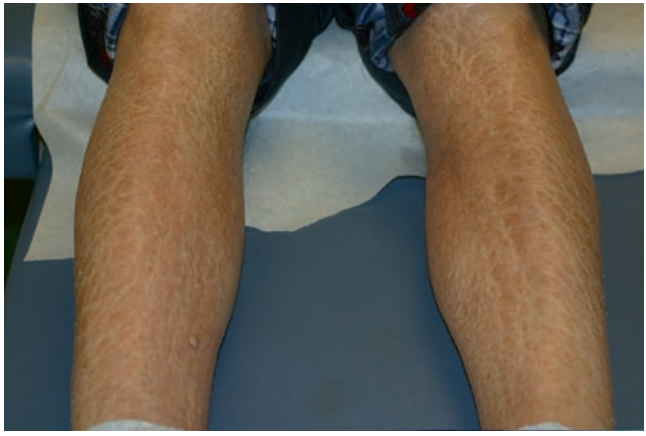

FIGURE 5.2. Large plate-like scales are seen in ichthyosis vulgaris.

Ichthyosis vulgaris is the most common of a group of skin disorders characterized by dry, thickened, fish-like and plate-like scale. It can be either inherited or acquired. Inherited ichthyosis vulgaris is an autosomal dominant genetic disorder affecting the profilaggrin gene on chromosome 1q21. Defects in this gene result in an impaired skin barrier. It is also associated with atopic dermatitis, which is also associated with defects in profilaggrin maturation. Underlying causes of acquired ichthyosis include malignancy, lymphoma, HIV infection, hypothyroidism, use of certain drugs such as nicotinic acid, and sarcoidosis. Clinical features manifest during infancy or childhood for the inherited form and in adulthood for the acquired form. Disease severity may vary widely from localized disease with "plate-like scales" affecting the shins or forearms to widespread disease affecting almost all body surface areas; ordinarily, severity is decreased in the body folds. Complications arising from ichthyosis include overheating, decreased range of motion,

and secondary infections. Treatment includes emollients, retinoids, α-hydroxy acids, lactic acids, salicylic acids, urea, propylene glycol, and topical steroids. In acquired ichthyosis, treatment of the underlying condition can also result in improvement.

DiGionanna JJ, Robinson-Bostom L. Ichthyosis: etiology, diagnosis and management. *Am J Clin Dermatol*. 2003;4:81-95.

5.3 X-Linked Ichthyosis

Keyword: Dirty scale

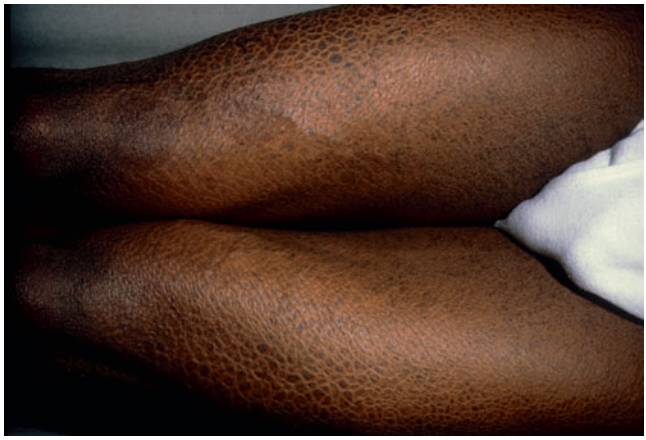

FIGURE 5.3. "Dirty" (hyperpigmented) scale is seen in X-linked ichthyosis.

The ichthyoses are defined by their cutaneous manifestations, which run an entire gamut of severity. X-linked ichthyosis is a sex-linked recessive form of ichthyosis that results from a deficiency of the enzyme steroid sulfatase. It is usually regarded as of moderate severity within the family of ichthyoses. At or shortly after birth, infants with this disease present with a lamellar membrane, which desquamates after 10–14 days. Thereafter, large scales begin to form, most severely on the neck and extensor surfaces, that have a characteristic "dirty" appearance. This dirt-stained appearance stems from oxidation of keratinaceous debris in the scale. Thus, the classic keyword "dirty scale" is used to describe the cutaneous appearance of these patients. In addition, nearly all affected males, as well as some female carriers, show corneal opacities on slit-lamp examination. Cryptorchidism is also common among males with the disease.

Elliott ST. X-linked ichthyosis: a metabolic disease. *J Am Acad Dermatol*. 1979;1:139-143.

5.4 Tuberous Sclerosis

Keywords: Ash leaf, shagreen patch, Koenen tumor

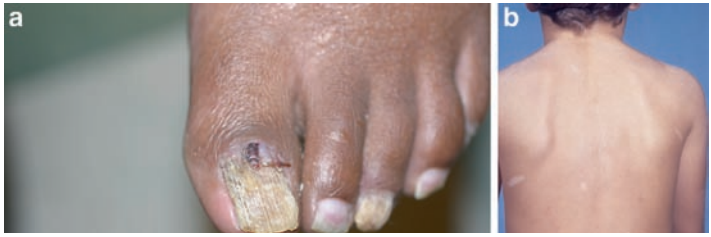

FIGURE 5.4. (**a**) Koenen tumors are periungual fibromas in tuberous sclerosis. (**b**) Ash leaf macule is a white patch in tuberous sclerosis.

Tuberous sclerosis is an autosomally dominant inherited neurocutaneous disorder with variable clinical expression among individuals. Mutations in the genes *TSC1* and *TSC2* and their respective protein products hamartin and tuberin lead to hamartomas of the eye, brain, kidneys, heart, and lungs. Neurologic manifestations may include epilepsy, mental retardation, autism, and developmental delay. A unique brain finding is a subependymal giant cell astrocytoma, which can lead to increased intracranial pressure. Dermatologic signs are numerous and may include hypomelanotic macules, such as confetti macules or ash leaf macules, angiofibromas on the face, known as adenoma sebaceum, forehead plaques, collagenomas (shagreen patches), and periungual fibromas. Characteristic oral findings include dental enamel pits and gingival fibromas. Renal involvement is not uncommon and includes renal cysts, angiomyolipomas, and rarely renal cell carcinoma. Cardiac rhabdomyomas may lead to significant morbidity and mortality. Treatment for patients is organ specific and includes, but is not limited to, control of seizures, surgical removal or laser ablation of facial lesions or periungual fibromas, surgical resection of giant cell astrocytomas, and kidney transplant for patients with renal failure.

Kandt RS. Tuberous sclerosis complex and neurofibromatosis type 1: the two most common neurocutaneous diseases [review]. *Neurol Clin*. 2003;21:983-1004.

5.5 Sturge–Weber Syndrome

Keyword: First trigeminal port-wine stain

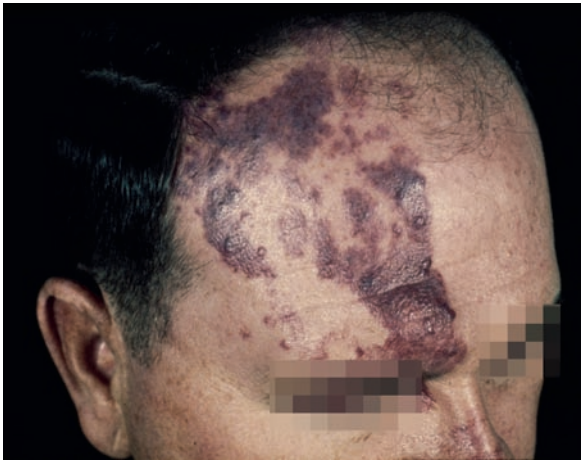

FIGURE 5.5. A port-wine stain in the first division of the trigeminal nerve is the skin finding in Sturge–Weber syndrome.

Sturge–Weber syndrome (SWS) is a rare neurocutaneous syndrome in which an intracranial vascular anomaly (leptomeningeal angiomatosis) is found in association with a trigeminally (V1) distributed ipsilateral port-wine stain. The clinical course in SWS is variable but may include intractable seizures, mental retardation, glaucoma, and recurrent stroke-like episodes. Additional findings include contralateral hemiparesis and hemiatrophy, as well as developmental delays, emotional disturbances, and migraine headaches. Treatment is aimed at monitoring and controlling seizures, headaches, stroke-like episodes, and glaucoma through medical and surgical means. Laser therapy for facial cutaneous vascular lesions should be initiated soon after diagnosis.

Thomas-Sohl KA, Vaslow DF, Maria BL. Sturge-Weber syndrome: a review. *Pediatr Neurol*. 2004;30:303-310.

5.6 Neurofibromatosis

Keyword: Coast of California

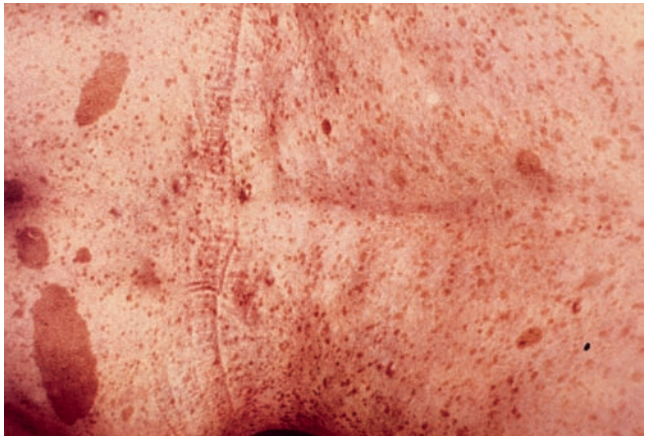

FIGURE 5.6. A café au lait macule with a smooth border is seen in neurofibromatosis.

Neurofibromatosis 1 (NF-1) is an autosomally dominant phakomatosis in which cutaneous as well as central and peripheral nervous system neoplasms are seen. The gene defect in NF-1 has been localized to *NF-1* and its protein product neurofibromin, a negative regulator of the *ras* protooncogene. Another subtype of this neurocutaneous disorder is neurofibromatosis 2, a less common form characterized by acoustic schwannomas. The hallmark dermatologic feature of NF-1 is the café au lait macule, sometimes referred to as having a "coast of California" configuration. Other cutaneous features are neurofibromas, plexiform neurofibromas, and axillary or inguinal freckling (Crowe sign). Ocular findings may include optic nerve gliomas or iris hamartomas (Lisch nodules). Unique skeletal findings include sphenoid wing dysplasia as well as pseudoarthrosis, scoliosis, and thinning of the long bone

cortex. Patients with neurofibromatosis should be monitored carefully, as they are at risk for developing various internal tumors, such as malignant peripheral nerve sheath tumors, juvenile chronic myelogenous leukemia, and central nervous system tumors, among others. The two most common types of malignant tumors are neurofibrosarcomas and optic nerve gliomas. Variable neurologic and cardiac manifestations are associated with this disorder. NF-1 is treated symptomatically, as there is not yet a cure.

Barbagallo JS, Kolodzieh MS, Silverberg NB, Weinberg JM. Neurocutaneous disorders. *Dermatol Clin*. 2002;20:547-560, viii.

5.7 McCune–Albright Syndrome

Keyword: Coast of Maine

FIGURE 5.7. A café au lait macule with a jagged, irregular border is seen in McCune–Albright syndrome.

McCune–Albright syndrome was first documented in 1937 and is defined as the presence of at least two of the triad of mono- or polyostotic fibrous dysplasia, café au lait macules, and hyperfunctioning endocrinopathies. The syndrome has been linked to a defect in the *GNAS1* gene on 20q13.2 leading to constitutive activation of the gene. Little evidence exists for familial inheritance. The café au lait macules of McCune–Albright are present at birth, often linear in arrangement, and, in contrast to the smooth-bordered lesions of neurofibromatosis, have a serrated, "coast of Maine" appearance. Bony lesions are most commonly polyostotic and can present with bony deformity, pathologic fracture, or pseudoarthrosis. "Shepherd's crook" deformity of the proximal femur is characteristic. Precocious puberty is the most common form of endocrine dysfunction associated with McCune–Albright syndrome and presents in over half of the females, with menstruation beginning in the first few months of life. Hyperthyroidism, excess secretion of growth hormone (rarely presenting with acromegaly as the affected population is still growing), and Cushing syndrome have also been documented.

Bhansali A, Sharma BS, Sreenivasulu P, et al. Acromegaly with fibrous dysplasia: McCune-Albright Syndrome – clinical studies in 3 cases and brief review of literature–. *Endocr J*. 2003;50:793-799.

5.8 Congenital Erythropoietic Porphyria

Keyword: Werewolf

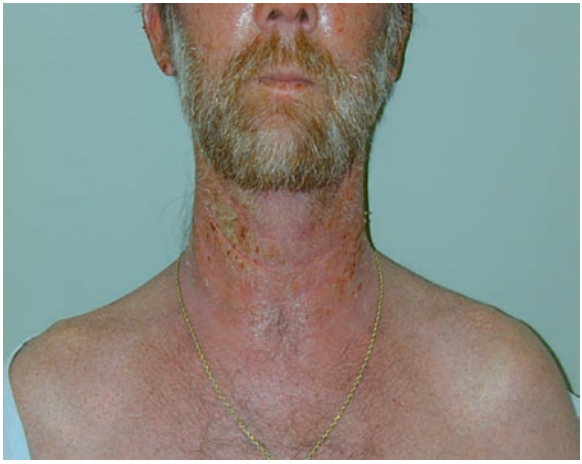

FIGURE 5.8. Increased hair growth (note side of neck) and photodermatitis are present in congenital erythropoietic porphyria.

The porphyrias, of which there are seven known types, are defined by excess production of porphyrins due to enzyme deficiencies in the heme biosynthesis pathway. Congenital erythropoietic porphyria (CEP, or Gunther disease) is a rare, autosomal recessive disorder caused by a defect in uroporphyrinogen III synthase with accumulation of uroporphyrin I. The clinical hallmarks of CEP include hypertrichosis, scarring alopecia, red-brown teeth, and severe photosensitivity causing fear of sunlight and blistering with scarring. This constellation of signs and symptoms is the inspiration for the legendary werewolf. Other features include hypersplenism, thrombocytopenia, and hemolytic anemia. Wood light examination will reveal fluorescent urine and teeth. Diagnosis is made by porphyrin detection in urine, blood, and stool. The

differential diagnosis includes other porphyrias, including porphyria cutanea tarda, which is the most common but typically has a milder course. Treatment options are limited, with bone marrow transplant being the only curative intervention. Oral charcoal and transfusions will reduce circulating porphyrins, and splenectomy will improve the hemolytic anemia and thrombocytopenia.

Murphy GM. Diagnosis and management of the erythropoietic porphyrias. *Dermatol Ther*. 2003;16:57-64.

5.9 Coumadin (Warfarin) Necrosis

Keyword: Coumadin

FIGURE 5.9. Coumadin (warfarin) necrosis is hemorrhage and marked soft tissue damage of thighs, breast, and buttocks.

Coumadin (warfarin) necrosis, a disease of proteins C and/or S deficiency, is a rare and serious complication of oral anticoagulation therapy. It generally occurs between the 3rd and 8th day of therapy. Approximately 85% of the reported patients are females, with the breasts, buttocks, thighs, and abdomen as the most commonly affected sites. The earliest complaint may be a sensation of pain or cold that is followed by the development of a large ecchymosis that progresses to full-thickness skin necrosis. Discontinuation of the warfarin and anticoagulation with heparin are advisable.

Chan YC, Valenti D, Mansfield AO, Stansby G. Warfarin induced skin necrosis. *Br J Surg*. 2000;87:266-272.

5.10 Pseudoxanthoma Elasticum

Keyword: Plucked chicken skin

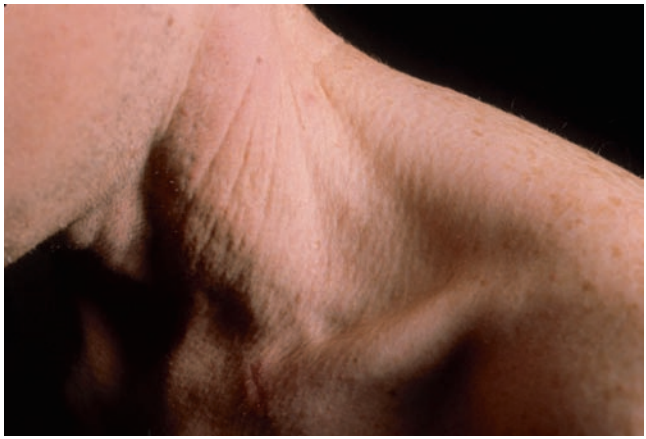

FIGURE 5.10. Yellowish papules resembling plucked chicken skin are noted in pseudoxanthoma elasticum.

Pseudoxanthoma elasticum (PXE) is a genodermatosis that affects elastic tissue in the skin, blood vessels, gastrointestinal tract, and eyes. The cutaneous lesions are small yellow papules that coalesce into plaques of redundant, inelastic skin, which resembles chicken skin. The plaques are found in the antecubital fossae and on the sides of the neck. The skin change is primarily of cosmetic concern, but its presence signifies internal pathology. Patients can have ocular angioid streaks from breaks in Bruch's membrane that can cause progressive loss of visual acuity. The arterial blood vessels become calcified leading to gastrointestinal bleeding, intermittent claudication, and myocardial infarctions before the age of 50 years. The disease is characterized by calcification of elastic structures and accumulation of elastotic material on histopathologic analysis of the skin. Mutations of

the *ABCC6* gene on the short arm of chromosome 16 are responsible for PXE. The *ABCC6* gene encodes the transmembrane transporter MRP6, expressed primarily in the liver and kidneys. MRP6 is likely a metabolic pump, and many think that PXE is a metabolic disorder.

Pulkkinen L, Ringpfeil F, Uitto J. Progress in heritable skin diseases: molecular bases and clinical implications. *J Am Acad Dermatol*. 2002;47: 91-104.

5.11 Netherton Syndrome

Keywords: Bamboo hair, double-track scale

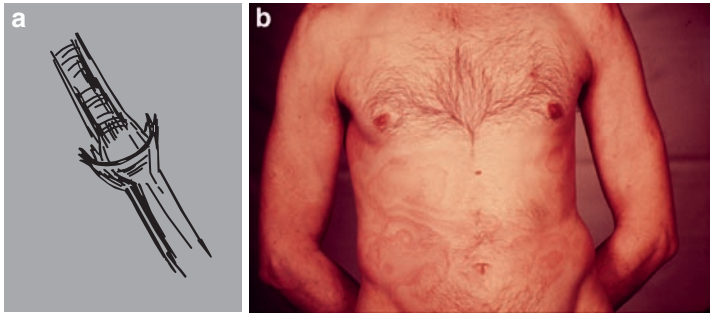

FIGURE 5.11. (**a**) Hair shaft with a "bamboo" type node in Netherton syndrome. (**b**) Double-track (facing) scale in Netherton syndrome.

Netherton syndrome is an autosomal recessive disorder caused by a mutation in the *SPINK5* gene encoding LEKT1, a serine protease inhibitor. Symptoms are often noted at birth and vary from generalized erythema and scaling to a collodion membrane. Those born with the latter have more severe manifestations and may also have associated hypernatremia and failure to thrive. Later in infancy, the erythema evolves into ichthyosis linearis circumflexa, classically showing erythematous, polycyclic serpiginous plaques with a double-edged scale. Trichorrhexis invaginata is characterized by the more proximal element of the node overlapping the distal portion, causing an intussusception and resulting in a "bamboo" shape to the hair. Finally, atopic dermatitis, seborrheic-like scale, and anaphylactic reactions to food may also be seen.

Cheng A, Bayliss S. The genetics of hair shaft disorders. *J Am Acad Dermatol*. 2008;59:1-21.

5.12 Menkes Syndrome

Keywords: Kinky hair, Cupid's bow

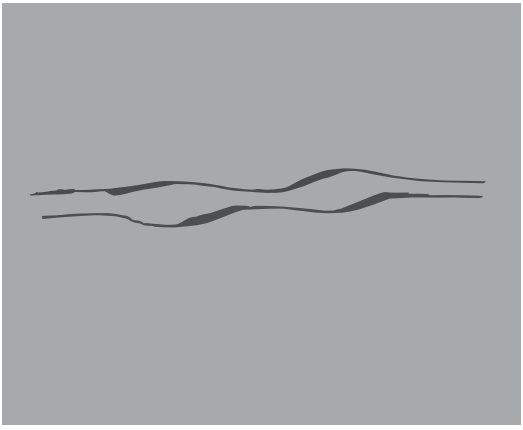

FIGURE 5.12. The hair in Menkes syndrome is twisted and breaks easily.

Menkes syndrome is an X-linked recessive disorder characterized by a mutation in *ATP7a* or *MKN*, encoding the copper-binding ATPase, leading to deficient copper transport and metabolism with subsequently low serum copper. Characteristically, there are high copper levels in intestinal enterocytes and renal tubular cells, and low calcium levels in the heart and brain. Pili torti is the most common hair manifestation, showing flattening and twisting at 180° angles. Patients also show doughy skin and a Cupid's bow shape to the mouth. Children with this disease demonstrate progressive neurologic degeneration with mental retardation, failure to thrive, and hypotonia. Additional findings include tortuous arteries, hypothermia, genitourinary abnormalities, occipital horns, and wormian bones. Early treatment with copper histidine may help prevent neurologic degeneration but will not help the connective tissue manifestations.

Kodama H, Murata Y, Kobayashi M. Clinical manifestations and treatment of Menkes disease and its variants. *Pediatr Int*. 2002;41:423-429.

5.13 Vitiligo

Keyword: Speckled hyperpigmentation

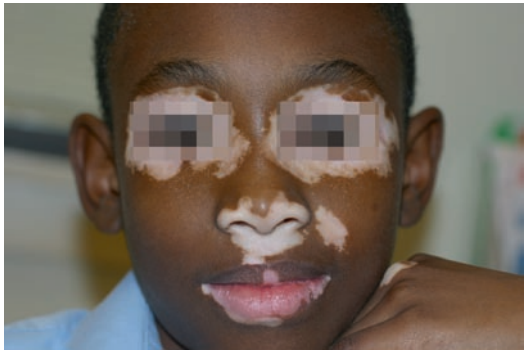

FIGURE 5.13. Speckled hyperpigmentation is present in these white patches in a patient with vitiligo.

The keyword for vitiligo is "speckled hyperpigmentation," which refers to the early repigmentation seen in the white patches. The pigmentation returns at the follicles from melanocytes situated at their depth. These melanocytes proliferate and create pigment in and around the follicles. This causes the speckled appearance. The "speckles" enlarge, fill more space, and, if completely effective, repigment the entire site. Facial lesions fill better and more rapidly because they contain more follicles than the extremities. The white patches of vitiligo are due to a loss of epidermal melanocytes from an autoimmune reaction of the patient's T lymphocytes against those cells. This disease tracks together with other autoimmune states, especially thyroid diseases. Treatments aimed at this immune reaction have had some efficacy: psoralen and ultraviolet A (PUVA) treatments that diminish the antigen-presenting cells in the epidermis and immune-modulating calcineurin inhibitors are the currently used modalities. The white patches tend to involve sites of trauma, especially bony prominences, and periorificial

sites, such as around the mouth or eyes. In ancient times, the patches of vitiligo were confused with the hypopigmented patches of indeterminate Hansen disease (leprosy), and patients with vitiligo were separated from society for this reason.

Ongenae K, Van Geel N, Naeyaert JM. Evidence for an autoimmune pathogenesis of vitiligo. *Pigment Cell Res*. 2003;16:90-100.

Chapter 6
Dermatology in Systemic Disease

Keywords in this section refer to diseases in many different areas of internal medicine. These diseases include, among others, collagen vascular, endocrine, hematologic, gastrointestinal, and neoplastic diseases. The collagen vascular disorders include lupus erythematosus, scleroderma, and dermatomyositis. Polyarteritis nodosa has two main components: systemic and cutaneous, but has no keyword. The livedo pattern on the lower legs in cutaneous polyarteritis is very characteristic but may be seen in other disorders, including other collagen diseases. The dull red nodules on the lower legs seen in both cutaneous and systemic polyarteritis are similarly nondiagnostic.

Lupus erythematosus has two variants with keywords: systemic lupus erythematosus (SLE) with butterfly rash and discoid lupus erythematosus (DLE) with follicular plugging. Other variants such as lupus tumidus, subacute cutaneous lupus, and lupus profundus, even though clinically recognizable, have no keywords. Lupus tumidus has red, edematous plaques generally distributed over the upper trunk and extremities; on occasion it resembles what formerly was described as "reticulate erythematosus mucinosis" syndrome. Otherwise, the plaques are relatively nondescript. A biopsy and laboratory findings help clarify the diagnosis.

Subacute cutaneous lupus (SCLE) also has no keyword; one term, anti-Ro (SSA antibody), is nearly specific. SCLE is one of the most photosensitive of the different forms of lupus and qualifies for the "submentum spared" keyword for photodermatitis.

H.B. Allen, *Dermatology Terminology,*
DOI 10.1007/978-1-84882-840-7_6,

The plaques of SCLE interestingly often appear like psoriasis, but the photodistribution militates against that diagnosis. The same argument may be applied to polymorphous light eruption. Also, the other keywords for psoriasis, such as Auspitz sign, are lacking in SCLE. Lupus profundus begins with an elevated plaque or nodule and resolves with an atrophic plaque or scar. These lesions frequently leave impressive atrophy involving half a cheek or a 4-cm area on the upper arm. They have characteristic histopathologic changes and may be suspected clinically, but the cutaneous changes are not diagnostic.

Systemic lupus erythematosus has the keyword "butterfly rash" recognizable by a medical student early in training. This was one of the progenitor terms important in the formulation of this book. In fact, in describing the concept of this book, the use of this term immediately brings it into focus. However, as can be seen in these pages, butterfly rash is one of many terms.

Discoid lupus erythematosus has atrophic plaques with prominent follicular plugging. The atrophic plaque is not a keyword, but the follicular plugging is. Atrophic plaques can be seen in diseases ranging from basal cell carcinoma to necrobiosis lipoidica, but the follicular plugging sets this term apart. Location in the ears is very typical, similar to the location of other diseases in certain areas, but this location is not specific, either. The atrophic plaques often have prominent scarring and dyspigmentation, but neither of these characteristics is specific.

As with lupus, scleroderma has a cutaneous form (morphea), a systemic form (CREST, for calcinosis, Raynaud phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia), and a more widespread and severe form (progressive systemic sclerosis). The new classification of scleroderma terms CREST limited systemic sclerosis and the more widespread and severe form progressive systemic sclerosis. Morphea has the keyword "lilac border," which refers to the light purple color at the edge of an indurated plaque. The induration is very typical, but is not diagnostic; the lilac border is thought by some to be shared with lichen sclerosis et atrophicus. Moreover, these two disorders are thought to be so similar that many call them "lichen sclerosis et morphea." Nonetheless, the white atrophic plaques differentiate lichen sclerosus et atrophicus from morphea.

CREST was first described as an entity and was compared with hereditary hemorrhagic telangiectasia (HHT). The other features of

CREST distinguished it from HHT. The sclerosis, seen as sclerodactyly, helps differentiate it as a form of scleroderma. The lack of more severe systemic disease, especially pulmonary fibrosis, helps differentiate it from PSS. PSS also has more gastrointestinal involvement beyond the esophageal disturbance in CREST, and more diffuse sclerosis than in the more limited form. Cardiac, renal, and central nervous system involvement are also differentiating features.

Diabetes is represented by two keywords: necrobiosis lipoidica diabeticorum and dermopathy; but there are other cutaneous presentations associated with the disease. These presentations include mal perforans ulcer, which is associated with diabetic neuropathy. This type of ulcer is not specific because it can occur in other diseases with neuropathy, such as Hansen disease (leprosy). Other presentations include bullous diabeticorum, scleredema, eruptive xanthomas, polycystic ovary syndrome (PCOS), acanthosis nigricans, candidiasis, and rarely with autoimmune states such as alopecia areata and vitiligo. Mucormycosis, which is a very rare disease, is associated with severe diabetes.

Bullous diabeticorum is a subepidermal blistering disease generally on the lower legs of patients with diabetes. This is a diagnosis of exclusion and other subepidermal bullae, especially bullous pemphigoid and epidermolysis bullosa, should be ruled out. Scleredema has three forms: One is poststreptococcal and occurs in children and young adults. The second is a rarer form that is seen with a blood dyscrasia, which manifests as a monoclonal gammopathy. The third type is seen in older patients, especially male patients, and is associated with diabetes. Usually the diabetes in this instance is type 1. In the diabetic form, the back is the most frequently involved and the skin is so indurated that it feels like wood. Patients are distressed when the process involves the tongue and causes dysarthria. The diabetic form is much more persistent than the postinfectious form, which lasts up to 2 years and resolves spontaneously.

Eruptive xanthomas occur in type IV lipoproteinemia, in which serum triglycerides are elevated much more than cholesterol. This disease is associated with diabetes, and treatment is surprisingly more involved with lowering blood glucose than lowering blood lipids. Polycystic ovary syndrome is an endocrine disorder in which the blood sugar is routinely elevated. Other signs of the syndrome include nodulocystic acne, hirsutism (especially on the face), alopecia of the scalp, acanthosis nigricans (a marker in this

syndrome for diabetes), obesity, and infertility. The acne, along with the dichotomy of too much hair on the face and too little in the scalp, is related to androgen effect. As PCOS is treated and hormone levels return to normal, many of the symptoms improve.

Acanthosis nigricans is the most common presenting cutaneous sign of diabetes, but it occurs in other diseases and is consequently not specific. With the recent epidemic of obesity and the diabetes associated with obesity, acanthosis nigricans is becoming even more common. Diabetes is so prevalent in obese adolescents, it now has its own designator, namely maturity-onset diabetes of youth (MODY). This form of diabetes routinely presents with acanthosis nigricans. For this reason, the dermatologist often is the first to discover elevated blood sugar levels. Acanthosis nigricans ordinarily presents on the neck; in more dramatic forms, it can present on the chest, back, and face as well. Other autoimmune states such as alopecia areata and vitiligo theoretically may be associated with juvenile-onset (type 1) diabetes, but this association is not as actual as it is theoretical, and both diseases seem to be associated more commonly with thyroid abnormalities.

Alopecia areata has two keywords: exclamation point hairs and plaid nails. The nail dystrophy is seen in only 40% of patients, but the condition is specific for alopecia areata. The nail pits in this situation show linear, small, uniform, horizontal and vertical pits. This finding contrasts specifically with the larger, irregular, and deeper pits of psoriasis. Further distinction from psoriasis is possible with the oil spots, subungual hyperkeratosis, and onycholysis seen in that disease. The exclamation point hairs are also specific for alopecia areata. Depending on their location in the alopectic patch, they can be vertical (like the classic punctuation mark), horizontal, diagonal, or "upside down." This keyword represents the presentation of alopecia areata with one (80% of patients) or a few (19%) patches. They can also be present in more diffuse alopecia areata, but become "moot" in alopecia totalis and universalis. The plaid nails are a more common feature in these more dramatic states.

Graves disease has the keyword "proptosis," and the presence of this feature makes the diagnosis evident on first seeing the

patient. Other cutaneous findings such as skin and hair texture are suggestive for Graves disease, but are not specific. Pretibial myxedema is nearly a keyword, but mucinous plaques may be found in hypothyroidism as well as in scleromyxedema. Pretibial myxedema is usually found together with proptosis, and this pairing helps differentiate other lesions that occur on the shins, such as necrobiosis lipoidica, erythema nodosum, and sarcoidosis.

Diseases of a vascular nature are represented by amyloid; heparin-induced thrombocytopenia (HIT); warfarin (Coumadin) necrosis; antiphospholipid syndrome (APLS); purpura fulminans; leukocytoclastic vasculitis (LCV); Schamberg disease; and spider angioma. Amyloid, with the keyword "pinch purpura," is more appropriately called as primary systemic amyloidosis. This, in itself, is a misnomer because the disease is associated with a plasma cell dyscrasia, in which there is overproduction of monoclonal immunoglobulin IgL. The keyword refers to hemorrhage at the site of trauma that occurs because of the amyloid deposits in the blood vessel walls, which become weakened and leak red blood cells. The cutaneous purpura is especially apparent around the eyes. Other sites of deposition include muscles, both smooth and striated, connective tissues, and peripheral nerves.

With the keyword "heparin," HIT is a severe disorder that can become life-threatening. This disease could also be included in the "Hypersensitivity Disorders" section because the phenomenon involves antibody production against the unfractionated form of heparin when it has bound to platelet factor 4. Platelets become activated and initiate blood clots that consume more platelets. Subsequently, the platelet count falls. The clots can be formed in arteries or veins and, in either case, are very serious. In the skin, the clots cause ecchymoses, necrosis of the tissue, and gangrene. Treatment with a different form of heparin, such as lepirudin, argatroban, enoxaparin, or fondaparinux does not induce similar reactions and is associated with better survival and a greater chance of avoiding amputations. Interesting in the overall observation of this situation is the formation of clots in the presence of an anticoagulant: heparin with the HIT syndrome and Coumadin with Coumadin necrosis. The mechanism may be different (see discussion in "Hypersensitivity Disorders" for warfarin), but a similar end result occurs. Another paradoxical

situation occurs in the antiphospholipid syndrome when, in the test tube, there is an anticoagulant effect, hence the name "lupus anticoagulant." However, in the body, the reaction that occurs creates clots similar to those in HIT. The mechanism of the clot induction in APLS is not as well understood as in HIT.

Purpura fulminans (keyword "blue nose") is a variant of disseminated intravascular coagulation that presents mostly in children in association with sepsis. In this age group, *Meningococcus* or other gram-negative organisms are most common. The hemorrhagic patch that occurs on the nose is responsible for the keyword "blue nose." The other patches that occur on the flanks, axillae, and extremities can be quite large and also can be associated with gangrenous change in the digits. If patients survive the illness, they can lose one or more of those digits. Similar to warfarin (Coumadin) necrosis, purpura fulminans may be associated with an abnormality in the protein C anticoagulant pathway.

Cutaneous leukocytoclastic vasculitis (keyword "palpable purpura") is a severe inflammation of the small vessels in the dermis. It may be associated with preceding bacterial or viral illnesses, drugs, collagen vascular diseases, paraprotein states, or occasionally malignancies. In 30–50% of patients, it is idiopathic. *Streptococcus* is the most common bacterial cause and hepatitis C is the leading viral cause. Henoch-Schönlein purpura (HSP), the prototype disease with LCV, frequently is preceded either by a streptococcal infection or by a viral upper respiratory syndrome. The rash occurs in children and presents mostly on the lower legs and buttocks. The distinctive finding of immunoglobulin A around the damaged vessels is pathognomonic. The other features of HSP include arthralgias or arthritis, nephritis, and gastrointestinal pain, or bleeding.

LCV has four critical components on pathologic analysis: leukocytoclasia (fragmentation of neutrophils), neutrophils in the walls of vessels, endothelial cell damage, and fibrinoid necrosis. These likely are initiated in HSP by the inflammation accompanying the IgA deposition and its subsequent activation of the alternate pathway of complement. The mechanism for LCV induced by drugs and collagen vascular diseases is not well understood, but it could also be present because of antigen–antibody reactions as in HSP.

The most common drugs that cause LCV are β-lactam antibiotics and the reaction presents mostly on the lower legs after a new antibiotic has been introduced. The lesions are quite similar to those of HSP and other causes. The timing of the medications, the age group, and the absence of viral or autoimmune serologies all are differential factors; drug-induced LCV is often a diagnosis rendered after all others have been ruled out. The situation is even less clear when one considers that up to 50% of cases may not have an identifiable cause.

Schamberg disease, with the keyword "cayenne pepper," has different types: progressive pigmented purpura (typical Schamberg), purpura annularis telangiectoides (Majocchi), pigmented purpuric lichenoid dermatitis (Gougerot-Blum), lichen aureus, and eczematous (Doucas-Kapetanakis). All these diseases involve the capillaries with leakage of red blood cells and subsequent hemosiderin pigmentation. They are important to differentiate because they are accompanied by no internal pathology. The findings, consequently, are limited to the upper dermis; no deeper vessels, such as those at risk in LCV, disseminated intravascular coagulation, warfarin (Coumadin) necrosis, and polyarteritis nodosa, are involved. In our clinic, we have found avoidance of nonsteroidal anti-inflammatory drugs, mint, and yellow dye to be very useful in managing this disease.

Degos disease has the keyword "porcelain white"; this disease also has been termed malignant atrophic papulosis, which is a misnomer at least as regards the "malignant." This disease is characterized by bright white atrophic papules primarily on the trunk and arms that are associated with bowel disease. Recently, some authors have suggested that this disease is another variation of systemic lupus erythematosus. The antinuclear antibody, the hallmark of systemic lupus erythematosus, is generally negative in this disease; this casts doubt on this assertion.

Spider angiomas involve the upper dermal blood vessels where there is a dilated central vessel (body of the spider) and smaller "feeder vessels" that form the "legs" of the spider. They are important in liver disease, where they are more numerous, and in states in which estrogen levels are elevated, such as anovulatory use or pregnancy. Those lesions associated with hepatic disease occur for similar reasons: the estrogen is elevated because it does not get metabolized.

6.1 Systemic Lupus Erythematosus

Keyword: Butterfly rash

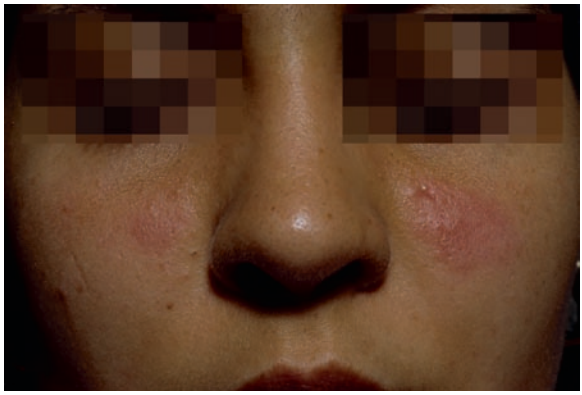

FIGURE. 6.1. A pink-red eruption is present on the cheeks in systemic lupus erythematosus.

Systemic lupus erythematosus (SLE) is a chronic autoimmune disorder associated with a wide array of systemic manifestations, many of which involve the skin. The most common mucocutaneous finding in SLE, found in 40% of patients, is the nonscarring, confluent erythema found over the malar eminences and nasal bridge. This is called a butterfly rash due to its resemblance to wings across the bilateral cheeks. The malar erythema is often abrupt in onset and can herald an acute flare of the systemic disease. The cutaneous aspects of SLE are often collectively called acute cutaneous lupus erythematous. The butterfly rash is one of the 11 diagnostic criteria for SLE; four criteria are needed for the diagnosis. Of interest to the dermatologist, SLE can be diagnosed strictly on the mucocutaneous findings of malar erythema, discoid lesions, photosensitivity, and oral ulcers.

Werth VP. Clinical manifestations of cutaneous lupus erythematosus. *Autoimmun Rev*. 2005;4:296-302. Epub 2005 Feb 10.

6.2 Discoid Lupus Erythematosus

Keyword: Follicular plugging

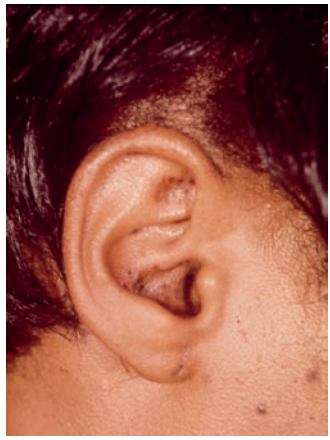

FIGURE 6.2. Follicular plugging is present in the atrophic plaque in discoid lupus erythematosus.

Discoid lupus erythematosus (DLE) has the keyword "follicular plugging." It represents the polar opposite of systemic lupus erythematosus (SLE) as the strictly cutaneous form of the disease. True, a small percentage of patients with DLE have arthritis, and another small group of patients with SLE have discoid lesions, but for 95% of patients the skin is the organ involved. Women are affected twice as often as men, in contrast to SLE, where they are 10 times more likely to have the disease. DLE is somewhat more common in blacks and most commonly affects people in their mid-30s, a decade earlier than SLE. The follicular plugging is seen as the follicle develops hyperkeratosis in the widened follicular ostium. It may be somewhat more obvious because it occurs frequently in an atrophic or scarred area of a plaque. The plaque itself begins as a red or violaceous papule that expands peripherally. Lesions favor the head and neck but may occur anywhere; scarring alopecia is prominent when lesions are

present on the scalp. One nearly diagnostic location is the conchal bowl. Although photosensitivity is a feature of the disease, it is less frequently seen when compared with SLE and subacute cutaneous lupus erythematosus.

Callen JP. Cutaneous lupus erythematosus: a personal approach to management. *Australas J Dermatol*. 2006;47:13-27.

6.3 Scleroderma

Keywords: Sclerodactyly, CREST

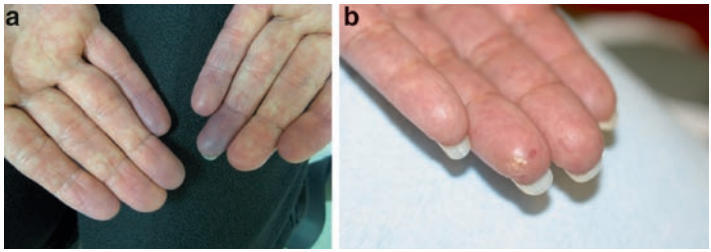

FIGURE 6.3. (**a**) Blue color change of the skin of the fingers is present (the "R" for Raynaud phenomenon of CREST) in scleroderma. (**b**) Telangiectasias (the "T" of CREST) are prominent.

Scleroderma or progressive systemic sclerosis (SSc) is a connective tissue disorder characterized by cutaneous induration. Scleroderma can be subcategorized into two clinical entities: limited and diffuse systemic scleroses. Limited SSc was formerly called CREST syndrome, which stands for calcinosis, Raynaud phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia. Scleroderma involving the face with associated telangiectasia results in a characteristic facial appearance of pursed lips and a beak-like nose, commonly referred to as pinched facies. Limited SSc carries a more benign prognosis and can be distinguished from diffuse SSc by the presence of anticentromere antibodies, which are 90–100% specific for limited SSc or CREST. Diffuse SSc can be confirmed by the antitopoisomerase I (Scl 70) antibody.

Haustein UF. Systemic sclerosis-scleroderma [review]. *Dermatol Online J*. 2002;8:3.

6.4 Morphea

Keyword: Lilac border

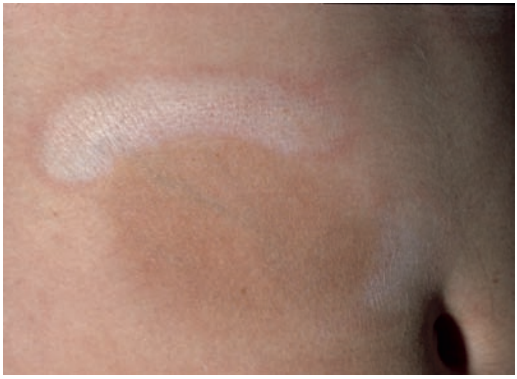

FIGURE 6.4. Morphea. A light purple-pink border is present on this plaque.

Morphea, also known as localized scleroderma, is characterized by discrete plaques of skin induration due to excessive collagen deposition. The lesions are classically smooth and shiny, with loss of hair follicles and hypohidrosis. The border of the lesion has a characteristic purple-to-pink halo referred to as the lilac border. Morphea can be generalized, closely resembling systemic sclerosis; however, the absence of Raynaud phenomenon, sclerodactyly, and internal organ involvement is suggestive of morphea. Morphea can also be seen in a linear variant. The lilac border can also be seen in lichen sclerosus et atrophicus, an entity known to overlap clinically with morphea.

Sehgal VN, Srivastava G, Aggarwal AK, Behl PN, Choudhary M, Bajaj P. Localized scleroderma/morphea. *Int J Dermatol*. 2002;41:467-475.

6.5 Eosinophilia–Myalgia Syndrome

Keyword: Tryptophan

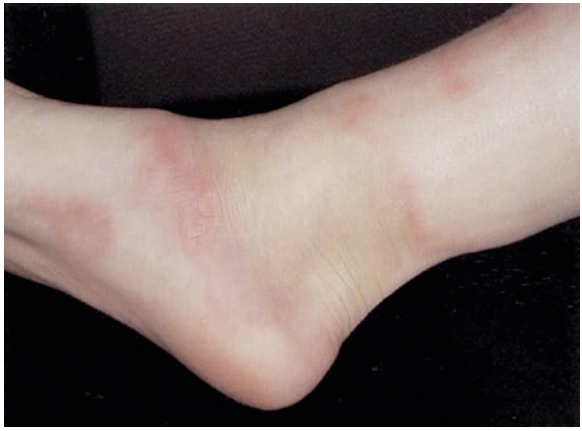

FIGURE 6.5. A pink-red atrophic plaque is present in eosinophilia–myalgia syndrome.

Eosinophilia–myalgia syndrome is a multisystem disease with prominent eosinophilia that occurs in individuals with a history of L-tryptophan ingestion. Eosinophilia–myalgia syndrome presents with severe myalgia, muscle weakness, fever, dyspnea, abdominal pain, and cutaneous erythema or edema. The cutanous lesions evolve into indurated plaques, which clinically are identical to those found in eosinophilic fasciitis. A review of patients in whom eosinophilic fasciitis was diagnosed found that several patients had a history of L-tryptophan use with a form of this amino acid that had been incompletely processed. The treatment is principally discontinuation of all products containing L-tryptophan.

Blackburn WD Jr. Eosinophilia myalgia syndrome. *Semin Arthritis Rheum*. 1997;26:788-793.

6.6 Necrobiosis Lipoidica Diabeticorum

Keyword: Yellow plaque (on shin)

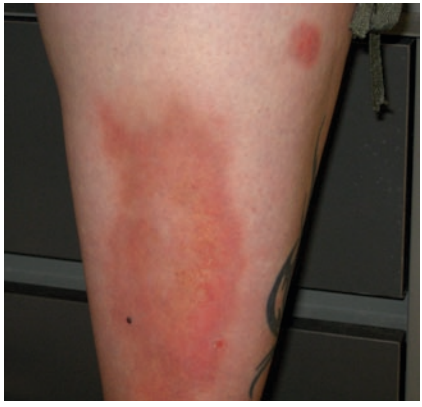

FIGURE 6.6. A yellow plaque is present on the shin in necrobiosis lipoidica diabeticorum.

Necrobiosis lipoidica diabeticorum (NLD) is characterized by yellow plaque(s) found on the shin. The name is a bit of a misnomer in that "lipoidica" refers to the color, and diabetes is not present in 15% or more of patients. Generally, the necrobiosis histologically is distinguishable from other necrobiotic processes such as granuloma annulare. When diabetes is present, NLD may present with associated dermopathy, peripheral vascular disease, and peripheral neuropathy. Treatment is challenging, but immunomodulators may hold some promise.

Clayton TH, Harrison PV. Successful treatment of chronic ulcerated necrobiosis lipoidica with 0.1% topical tacrolimus ointment. *Br J Dermatol*. 2005;152:581-582.

6.7 Graves Disease

Keyword: Proptosis

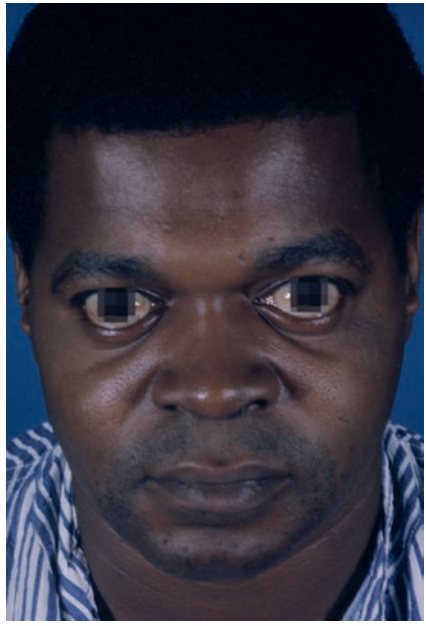

FIGURE 6.7. Marked bulging of the eyes is present in Graves disease.

Graves disease is an autoimmune disorder of uncertain etiology that accounts for approximately 85% of all cases of hyperthyroidism. It has been associated with HLA-B8 and HLA-DR3, has a strong familial component, and is much more common in women. Thyroid-stimulating immunoglobulin is present in the serum of most patients with Graves disease and is considered a reliable marker for the disease. General cutaneous manifestations of hyperthyroidism include warm moist skin, hyperpigmentation, vitiligo, dermatographism, fine hair, alopecia, onycholysis, and koilonychia. In addition, Graves has several distinctive dermatologic

manifestations including pretibial myxedema and exophthalmos/proptosis. Pretibial myxedema occurs in up to 10% of patients with Graves disease and presents with bilateral, asymmetric, raised, firm, flesh-colored, violaceous plaques or nodules. Although primarily associated with Graves disease, pretibial myxedema has also been documented in Hashimoto thyroiditis. The lesions tend to persist even after the resolution of thyroid disease. Topical and intralesional steroids are the primary therapies for pretibial myxedema. Exophthalmos, and its severe form, proptosis, are specific for Graves disease and occur in nearly all patients with the disorder. They result from the infiltration of the retroorbital tissue with mucopolysaccharides and mononuclear cells.

Callen J, Jorizzo J, Bolognia J, Piette W. *Dermatological Signs of Internal Disease*, 3rd ed. Philadelphia, PA: W.B. Saunders; 2003:176-177.

6.8 Amyloidosis

Keyword: Pinch purpura

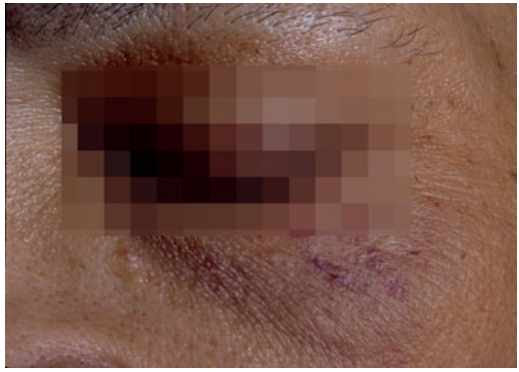

FIGURE 6.8. Small purpuric lesions are noted around the eye in amyloidosis.

Amyloidosis encompasses many diseases in which there is abnormal deposition of fibrillar proteinaceous material in tissue. It can be seen in a variety of clinical settings including, but not limited to, hematologic malignancies, chronic inflammation or infection, familial polyneuropathies, Alzheimer disease, skin tumors, endocrine abnormalities, and primary cutaneous forms. Skin lesions vary according to the clinical forms, from smooth waxy facial papules and plaques to deep purple patches on the eyelids (pinch purpura). Patients with periorbital ecchymoses should be screened for an underlying plasma cell dyscrasia. Other cutaneous lesions may include alopecia, nail changes, pigmentary changes, and bullous lesions. The amyloid stains, with a variety of materials including crystal violet, Congo red, and thioflavine-T, demonstrate a characteristic apple-green birefringence under polarized light.

Boyce S, Harper J. Paraneoplastic dermatoses. *Dermatol Clin*. 2002;20: 523-532.

6.9 Heparin-Induced Thrombocytopenia

Keyword: Heparin

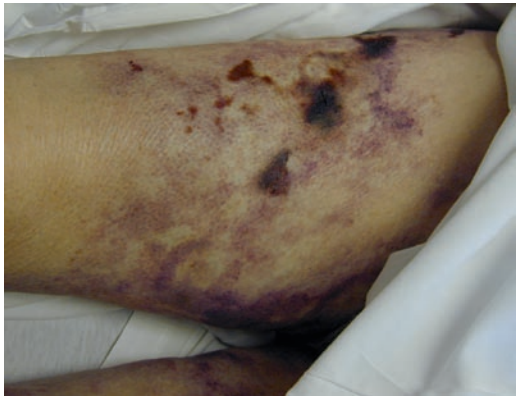

FIGURE 6.9. Hemorrhagic, necrotic crusts are present in a field of ecchymoses in a patient with heparin-induced thrombocytopenia.

Heparin-induced thrombocytopenia (HIT) presents with necrotic skin changes and is unusual because the low platelet count in this disease is associated not with bleeding but with thrombosis. A hypercoagulable state, induced by an antibody reaction to heparin-bound platelet factor 4, occurs in nearly 3% of the 12 million patients treated each year with heparin and may cause loss of life or limb. Treatment includes discontinuation of all heparin exposure and alternative anticoagulation such as lepirudin administered together with warfarin.

Rice L, Nguyen PH, Vann AR. Preventing complications in heparin-induced thrombocytopenia: alternative anticoagulants are improving patient outcomes. *Postgrad Med*. 2002;112:85-89.

6.10 Antiphospholipid Syndrome

Keyword: Lupus anticoagulant

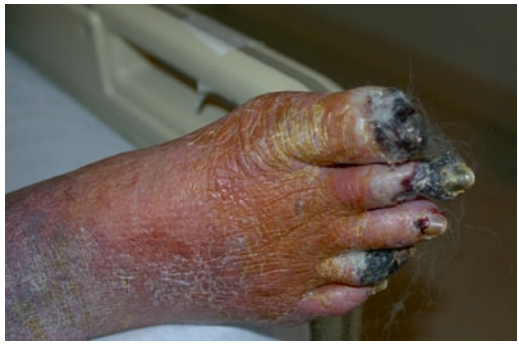

FIGURE 6.10. Gangrenous toes are noted in antiphospholipid syndrome.

Antiphospholipid syndrome, or AP(L)S, a disease associated with persistently elevated levels of anticardiolipin-type antibodies (lupus anticoagulant), manifests in the skin as a reticulate, purpuric, or necrotic eruption due to recurrent venous or arterial thrombosis. Fetal loss may also be a prominent feature of the disease. Autoimmune and rheumatologic syndromes are frequently associated, but other diseases, such as drug allergy, may be implicated. Treatment includes anticoagulation; therapies such as intravenous immunoglobulin, plasmapheresis, and immunosuppressives are reserved for the most severe cases.

Asherson RA, Cervera R, Piette JC, et al. Catastrophic antiphospholipid syndrome: clues to the pathogenesis from a series of 80 patients. *Medicine (Baltimore)*. 2001;80:355-377.

6.11 Purpura Fulminans

Keyword: Blue nose

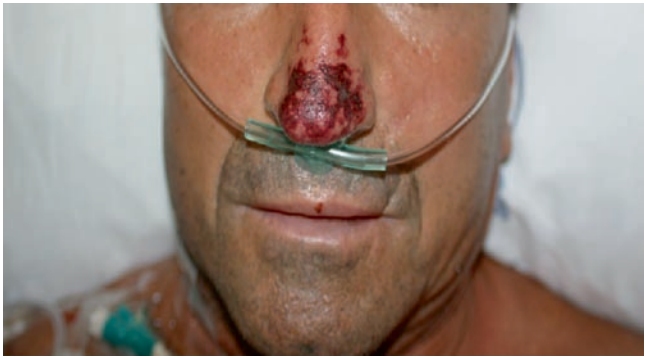

FIGURE 6.11. A blue-red ecchymotic nose is present in purpura fulminans.

Purpura fulminans, the cutaneous lesion resulting from infarction secondary to disseminated intravascular coagulation (DIC), can occur at any age. Generally, DIC is triggered by massive tissue destruction, or damage to endothelial surfaces. Specific clinical circumstances include breakdown of large tumors, crush injuries, extensive surgery, obstetric complications (such as amniotic fluid embolism), leukemia, Rocky Mountain spotted fever, meningococcemia, and group A streptococcal infection. Any of these triggering factors may cause an unchecked activation of the coagulation cascade, with widespread thrombosis leading to consumption of platelets and clotting factors. Small-vessel thrombosis leads to infarction and the characteristic purpura fulminans, large ecchymoses with geographic borders. Lesions are multiple and symmetric, typically involving the nose ("blue nose"), lips, and distal extremities. Hemorrhage from mucous membranes and catheter sites often follows as coagulation factors are consumed. The differential diagnosis for purpura fulminans includes warfarin (Coumadin) necrosis, calciphylaxis, and atheroembolism. Clinical

suspicion of DIC can be confirmed with coagulation studies, fibrin split products, and complete blood count. In the acute setting, any reversible cause, such as infection, should be corrected and bleeding/thrombosis should be controlled. The mortality rate associated with DIC is extremely high. Patients who survive often require extensive wound management, including debridement of necrotic tissue and skin grafting.

Fitzpatrick T, Johnson R. *Color Atlas and Synopsis of Clinical Dermatology*. New York, NY: McGraw-Hill; 2001.

6.12 Leukocytoclastic Vasculitis

Keyword: Palpable purpura

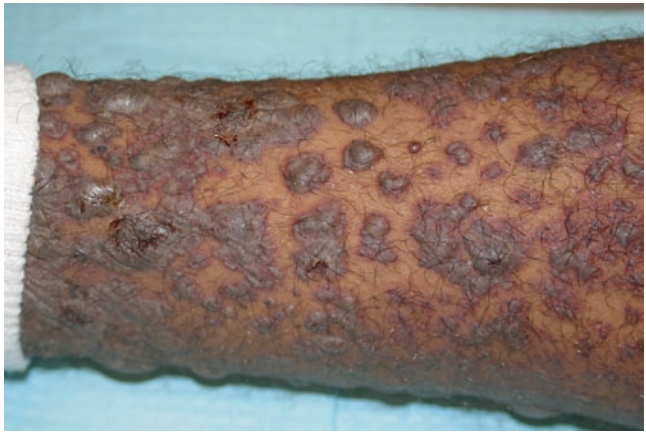

FIGURE 6.12. Purpuric papules and bullae are noted in leukocytoclastic vasculitis.

Palpable purpura is the prime clinical feature of leukocytoclastic vasculitis, and Henoch–Schönlein purpura (HSP) is the classic leukocytoclastic vasculitis. This IgA-mediated small-vessel vasculitis predominantly affects children after an upper respiratory infection, but it is also seen in adults. Preceding events may also include allergies to foods, drugs, or insect bites and reactions to cold or vaccines. Clinical manifestations include palpable purpura, usually found on the lower extremities and buttocks, arthralgia/arthritis, abdominal pain, gastrointestinal bleeding, and nephritis. The most serious long-term complication from HSP is progressive renal failure.

Ansell BM, Falcini F. Cutaneous vasculitis in children. *Clin Dermatol*. 1999;17:577-580.

6.13 Schamberg Disease

Keyword: Cayenne pepper

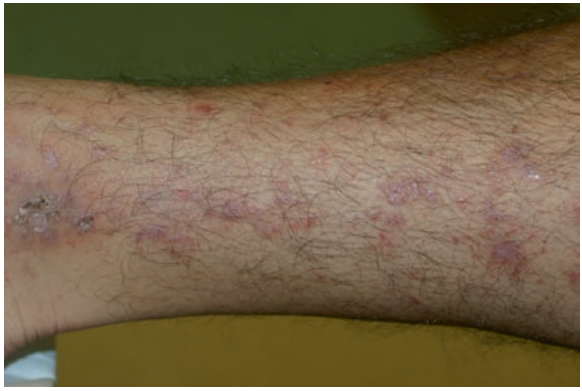

FIGURE 6.13. In this patient with Schamberg disease, on the ankle there are small and medium purpuric lesions and focal red-brown pigmentation.

The pigmented purpuric dermatoses (PPD) represent a collection of morphologically varied but pathologically similar disorders. The common feature of these diseases is their distinctive, pinpoint "cayenne pepper" pattern of nonpalpable purpura, localized primarily to the lower extremities. PPDs are more common in men, with the exception of Majocchi disease, and can occur at any age. Although the exact etiology remains unknown, the primary process is believed to be a cell-mediated capillaritis leading to extravasation of red blood cells. Other potential causes include venous hypertension, exercise, trauma, and drugs, such as nonsteroidal anti-inflammatory drugs, acetaminophen, chlordiazepoxide, and hydralazine. The lesions normally present insidiously, are asymptomatic, and can persist for months to years. Schamberg disease, or progressive pigmented dermatosis, the most common of the PPDs, is characterized by numerous red puncta, on the lower extremities. As the lesions age they may confluesce to form tan-brown plaques, as extravasated erythrocytes are degraded and hemosiderin is deposited.

Majocchi disease, also known as purpura annularis telangiectodes, presents similarly to Schamberg but with annular plaques and telangectasias. Lichen aureus is characterized by the sudden onset of lichenoid and purpuric lesions, forming solitary rust-colored or purple plaques, most commonly on the lower extremities. Notably, the itching and eczematoid purpura of Doucas and Kapetanakis is, as its name suggests, severely pruritic. PPDs are difficult to treat and primarily of cosmetic concern. A 4- to 6-week trial of low- to medium-potency topical steroids may be attempted. Systemic minocycline and psoralen plus ultraviolet A (PUVA) represent alternatives for more severe disease.

Sardana K, Sarkar R, Sehgal VN. Pigmented purpuric dermatoses: an overview. *Int J Dermatol*. 2004;43:482-488.

6.14 Alopecia Areata

Keyword: Exclamation point hair

FIGURE 6.14. In this patient with alopecia areata, in the circular, hairless patch, there are single, thin, short hairs.

Alopecia areata is an autoimmune-mediated hair loss disorder characterized by recurrent, nonscarring lesions. Clinically, the alopecia is sharply demarcated, round to oval, noninflammatory patch. The patches can be singular or multiple and can extend at their periphery. A hallmark of the lesion is the presence of small hairs that are narrow proximally and widen as the hair extends distally, resembling exclamation points. These exclamation point hairs connote impending hair loss in the follicles surrounding that hair. This condition is most often limited to the scalp but can occur on any hair-bearing area. This condition has been reported in association with other autoimmune diseases such thyroid disorders, pernicious anemia, and diabetes; however, most often it is an isolated finding.

Madani S, Shapiro J. Alopecia areata update [comment in *J Am Acad Dermatol.* 2001, 45:640-642]. *J Am Acad Dermatol*. 2000;42:549-566, quiz 567-570.

6.15 Dermatomyositis

Keywords: Gottron papules, heliotrope, mechanic's hands

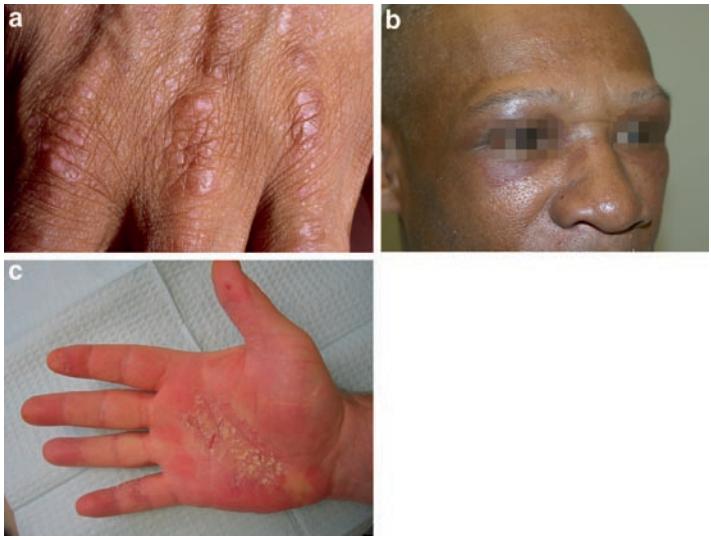

FIGURE 6.15. Dermatomyositis. (**a**) On the knuckles, there are atrophic papules. (**b**) The eyelids show a purple-brown hue. (**c**) Red fissured plaques are present on the hands.

Dermatomyositis is characterized by a dermatitis coupled with myositis. Among the cutaneous signs, disheveled cuticles, heliotrope periorbital coloration, and Gottron papules are classic for the diagnosis. The presence of irregular, ragged cuticles helps to delineate dermatomyositis from other collagen diseases with periungual telangiectasias. Dermatomyositis frequently manifests as symmetric, dusky, periorbital plaques. The coloration of the plaque is violaceous to dusky red, often likened to the heliotrope flower. Gottron papules are violaceous papules and plaques found overlying bony prominences, particularly the metacarpophalangeal and

proximal interphalangeal joints. The skin findings can precede or follow the development of muscle weakness. In addition, skin disease can occur in the absence of muscle pathology (dermatomyositis sine myositis).

Callen JP. Dermatomyositis. *Lancet*. 2000;355:53-57.

6.16 Degos Disease

Keyword: Porcelain white

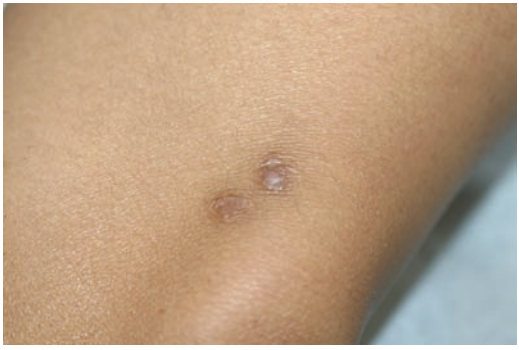

FIGURE 6.16. Atrophic white papules are present in Degos disease.

Atrophic, porcelain white papules are pathognomonic for Degos disease. These lesions may be found anywhere on the body and usually have a thin red border. Degos disease is a rare multisystem disorder that manifests as thrombotic papules in the skin, central nervous system (CNS), and gastrointestinal (GI) tract that may bleed before undergoing mucinous degeneration due to localized thrombotic vasculitis. Skin lesions often precede CNS and GI symptoms, which may aid in early diagnosis and management. Despite proper diagnosis, Degos disease can be a fatal disease. Only a few nonfatal, familial, and HIV-related cases have been reported.

Boh EE, al-Smadi RM. Cutaneous manifestations of gastrointestinal diseases. *Dermatol Clin*. 2002;20:533-546.

6.17 Sarcoidosis

Keyword: Bulging lacrimals

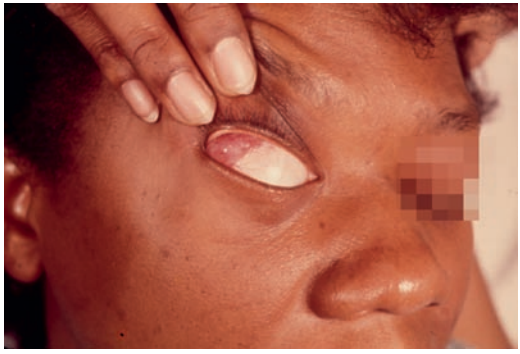

FIGURE 6.17. The lacrimal glands are markedly enlarged in sarcoidosis.

One of the most striking features of sarcoidosis is the presence of bulging lacrimal glands. Also, in addition to being grossly enlarged, sarcoidal granulomas (pinpoint- to pinhead-sized white to gray lesions) can often be seen on the surface of the gland. Other sarcoidal lesions are violaceous papules and plaques that occur on the face, especially on the nose and the eyelids, as well as anywhere on the skin and internal organs. For reasons unknown, lesions may also be found on scars and tattoos. Also for unknown reasons, sarcoidosis may be associated with erythema nodosum, ichthyosis, and hypopigmentation. Because of its many different presentations, sarcoidosis can be included in a wide differential diagnosis of cutaneous and internal diseases.

Jones E, Callen JP. Hydroxychloroquine is effective therapy for control of cutaneous sarcoidal granulomas. *J Am Acad Dermatol*. 1990;23(3, Pt 1):487-489.

6.18 Acanthosis Nigricans

Keyword: Velvety plaque

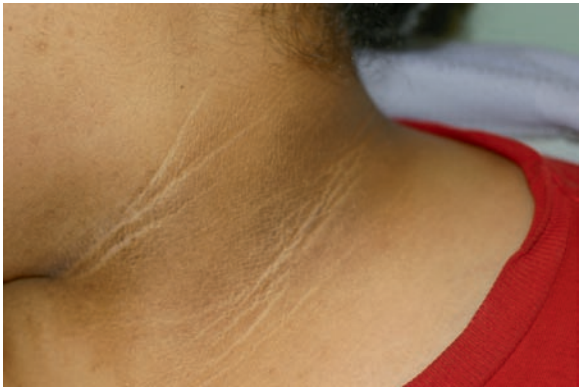

FIGURE 6.18. On the neck, a velvety brown plaque is present in acanthosis nigricans.

The clinical hallmark of acanthosis nigricans is symmetric, velvety, hyperpigmented areas of skin of the neck, groin, or axillae. Acanthosis nigricans presents in two forms: benign and malignant. The benign form usually presents over a long period in obese patients. Occasionally, this type may be associated with an endocrinopathy, most commonly type 2 diabetes mellitus, but adenomas of the pituitary or adrenal glands, chronic hepatitis, and niacin are also reported sources. The malignant form, often of new onset, is seen in thin, elderly patients and foreshadows the discovery of a gastric or other abdominal adenocarcinoma.

García Hidalgo L. Dermatological complications of obesity. *Am J Clin Dermatol*. 2002;3:497-506.

6.19 Follicular Mucinosis

Keyword: Pig skin

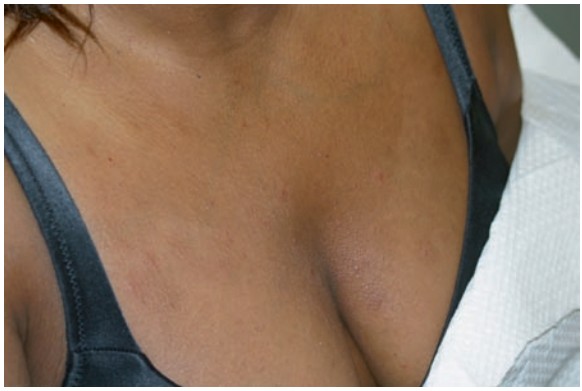

FIGURE 6.19. A pebbly surfaced plaque is evident in follicular mucinosis.

Follicular mucinosis is an inflammatory condition characterized histologically by mucin deposition in the follicular epithelium and sebaceous glands. Clinically, follicular papules merge to form indurated plaques resembling pig skin; these plaques may be accompanied by widened follicular ostia and hair loss. The lesions are found on the head and the neck and are included in the differential diagnosis of scarring alopecia on the scalp. Two distinct aspects of the follicular mucinosis disease spectrum exist: primary idiopathic and mycosis fungoides–associated disease. On biopsy, no single criterion favors mycosis fungoides–associated disease, but the following are suggestive in combination: Pautrier microabscesses in the follicular epithelium; diffuse rather than perifollicular cellular infiltrate, atypical cells, and epidermotropism. No specific treatment exists. Idiopathic follicular mucinosis requires follow-up with consideration for serial biopsies, but it may also resolve spontaneously within 2 years.

Ross EK, Tan E, Shapiro J. Update on primary cicatricial alopecias [published correction appears in *J Am Acad Dermatol*. 2005; 53:496]. *J Am Acad Dermatol*. 2005;53:1-37, quiz 38-40.

6.20 Spider Angioma

Keyword: Spider

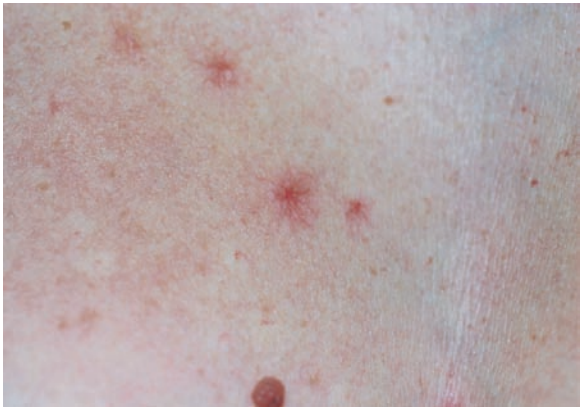

FIGURE 6.20. Ectatic vessels with the appearance of spiders are present in spider angioma.

Spider angioma gets its name because it looks like a spider. The body of the spider is the central dilated blood vessel and the legs are the vessels emanating from the center. Compressing the central vessel blanches the other vessels. Spiders are benign and frequently arise spontaneously, especially in childhood. However, they may be associated with liver disease or estrogen abundance, such as during pregnancy or with the use of anovulatory drugs. In children, they may resolve spontaneously, usually over a period of years. They can be treated with either electrodesiccation or laser treatment. Electrodesiccation may leave a scar, whereas the laser tends not to because it targets the iron molecule in the red blood cell inside the vessel and vaporizes it.

Requena L, Sangueza OP. Cutaneous vascular anomalies. Part I. Hamartomas, malformations, and dilation of preexisting vessels. *J Am Acad Dermatol*. 1997;37:523-549, quiz 549-552.

6.21 Pellagra

Keyword: Casal's necklace

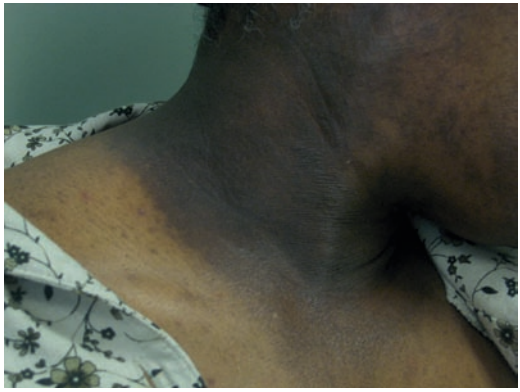

FIGURE 6.21. A brown, circumferential patch/plaque is noted on the neck in a patient with pellagra.

Pellagra is a systemic disease caused by severe cellular deficiency of niacin. Classically, it is characterized by the 4 "D's": diarrhea, dermatitis, dementia, and death. Although the disease is rare, sporadic cases of pellagra still occur among chronic alcoholics, fad dieters, chronic users of certain medications (e.g., 5-fluorouracil), and individuals with chronic malabsorption. Niacin is required for the production of nicotinamide derivatives (NAD and NADP), which, in turn, are vital for oxidation–reduction reactions within the cell.

Clinically, pellagra presents as a photodermatitis, diarrhea, and dementia. Untreated pellagra results in death due to multiorgan failure. The cutaneous lesions of pellagra tend to be symmetric on sites of sun exposure (neck, dorsum of hands, etc.). The initial lesions frequently begin as well-demarcated, bright red erythematous plaques and can progress to an exudative eruption with vesicles and bullae. Any sun-exposed site can be involved. The classic "Casal's necklace" is a well-circumscribed eruption that extends as a band around the entire neck. In the later stages of the disease, the skin lesions become rough, cracked, and brittle and may appear like "goose skin."

Hegyi J, Schwartz RA, Hegyi V. Pellagra: dermatitis, dementia, and diarrhea. *Int J Dermatol*. 2004;43:1-5.

6.22 Diabetes

Keyword: Dermopathy

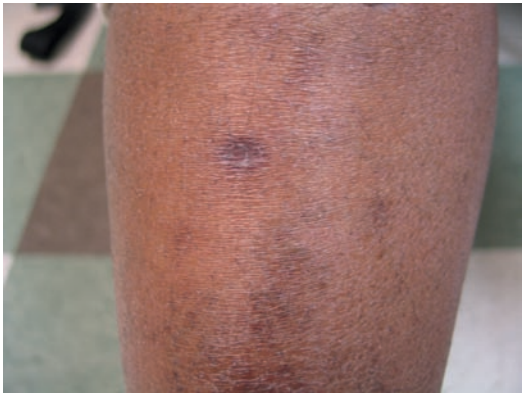

FIGURE 6.22. Diabetes. On the legs, there are atrophic brown papules.

Diabetes mellitus is a systemic disease of either insulin deficiency or resistance that may have effects on many organ systems, including the skin. Although diabetes can have varied cutaneous manifestations, one such presentation is considered classic, and indeed, pathognomonic for the disease. Diabetic dermopathy describes well-demarcated, hyperpigmented, atrophic depressions that are usually less than 1 cm in size. These lesions are painless, nonpruritic, and characteristically present in a bilateral, but asymmetric, distribution. Early lesions have been described as red or purple, scaly macules and papules that may either persist or resolve, but once resolved take on the aforementioned characteristic appearance of dermopathy. Although this skin finding may precede the diagnosis of diabetes mellitus, dermopathy, as previously stated, is virtually pathognomonic for diabetes mellitus. Therefore, those who present with these lesions must be evaluated for diabetes.

Morgan AJ, Schwartz RA. Diabetic dermopathy: a subtle sign with grave implications. *J Am Acad Dermatol*. 2008;58:447-451.

6.23 Addison Disease

Keywords: Dark scars, dark creases

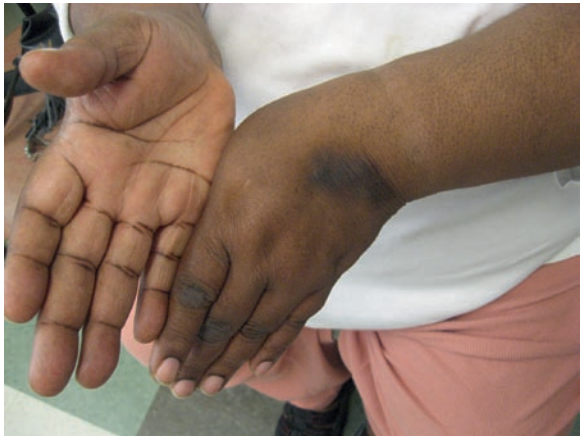

FIGURE 6.23. Dark scars and dark creases are present in this patient with Addison disease.

Addison disease, also known as primary adrenal insufficiency, results in glucocorticoid and mineralocorticoid deficiency. Patients have an increase in adrenocorticotropin (ACTH) level in a failing attempt to stimulate the adrenal glands. Dermatologic effects of this disease are related to this overproduction of ACTH as it is a potent stimulator of melanogenesis. Hyperpigmentation is seen over the vermilion border, oral mucosa, genitalia, and frictional surfaces, with the palmar creases and recent scars being the darkest. In many patients, the skin appears diffusely tan with accentuation of the hyperpigmentation in sun-exposed areas. It is important to note that in darkly pigmented individuals, darkly pigmented palmar creases may be normal, and a diagnosis of Addison disease should not be made without other signs of the disease.

Nieman LK, Chanco Turner ML. Addison's disease. *Clin Dermatol*. 2006;24:276-280.

Chapter 7
Tumors

Tumors are numerous on the skin, but like dermatitis/eczema, they have few keywords. The keyword "stuck on" refers to seborrheic keratosis, which ordinarily presents with brown, hyperkeratotic, sometimes scaly papules and plaques that appear as if they were affixed to the skin. Seborrheic keratoses are derived from keratinocytes and are typical both clinically and histologically—until they are not. Colors range from light tan to black, and they may be waxy, hyperkeratotic, or crusted. The colors within the tumors may be variable and the borders may be poorly circumscribed; if they were not hyperkeratotic and were not present in a field of other seborrheic keratoses, they would appear to be melanomas.

"Judge a lesion by the company it keeps" is not always true, but it is an excellent guideline for skin tumors. Disorders in this subset include an atypical molluscum in the field of ordinary mollusca, a flesh-colored nevus among ordinary brown dermal nevi, or a crusted verruca amidst warts.

Histologically, lesions formerly called "intraepidermal epithelioma" and "inverted follicular keratosis" are now termed "clonal" and "inflamed" seborrheic keratoses, respectively. Although the older designations seem richer and more clearly denote the dermatopathologist's view of the tissue, the newer terms will not likely be replaced. Occasionally, atypical keratinocytes in a tumor judged clinically to be a seborrheic keratosis are diagnosed as squamous cell carcinoma (SCC) by the dermatopathologist.

H.B. Allen, *Dermatology Terminology,*
DOI 10.1007/978-1-84882-840-7_7,

The seborrheic keratosis may be solitary, but most often it is found together with many others. The number of keratoses a person has appears to be a familial trait. The trunk is the favored location, but the extremities and face can also be involved. Removal of these lesions is relatively straightforward using any of the destructive methods. If one lesion within the many normal lesions has an atypical appearance, or if the patient notes a clinical change in an individual lesion (size, shape, color, or symptoms), then it is appropriate to remove that lesion for biopsy. Most will turn out to be inflamed seborrheic keratoses, but all dermatopathologists can cite lesions thought clinically to be typical seborrheic keratoses that were actually melanomas. The dermatoscope may help distinguish between the two (the seborrheic keratosis shows "horn cysts"), but the microscope is always the final arbiter.

The dermatofibroma is generally a solitary lesion that is recognizable by appearance, but is identified even more reliably on palpation. Its keyword, "stony hard," fits its texture exceedingly well. Interestingly, if there are more than 12 dermatofibromas, other diagnoses such as lupus erythematosus and HIV infection should be entertained. The ordinary location on the leg, especially on the lower leg, suggests that these lesions are scars resulting from isolated trauma such as insect bites. Locations elsewhere, such as the shoulder, test this hypothesis. Rarely does a patient remember any antecedent trauma. Most, although not all, lesions show a "dimple" sign or a "button-like" change. When present, this sign is most characteristic.

The small central dell of the molluscum contagiosum makes an interesting juxtaposition to the large central dell of the keratoacanthoma. The keratoacanthoma is a variant of SCC; and although the SCC is a common type of skin cancer, it has no keyword of its own. It presents ordinarily as a pink-red, crusted tumor that arises in a sun-exposed area. Like the basal cell carcinoma, the SCC may bleed, but unlike the basal cell carcinoma, the bleeding is infrequently a presenting sign. If the tumor arises on a mucous membrane, it is most likely an SCC; and, because the mucous membranes have a rich vascular supply, these lesions have a much greater risk of metastasis and are similar to SCCs arising in chronic wounds or scars, especially those of burns or epidermolysis bullosa dystrophica. Tumors at other locations, such as the ears,

may also have a greater risk both of metastasis and recurrence. Other presentations of SCC include those associated with genetic syndromes such as xeroderma pigmentosum and those resulting from viral oncogenes such as epidermodysplasia verruciformis.

The keratoacanthoma itself has been referred to as a self-healing SCC. These tumors arise spontaneously, or after a superficial injury, and grow very rapidly, doubling in size over 2–4 weeks. In addition to the rapid growth, they are red and tender, causing the often mistaken initial impression that they are infectious. For this reason, patients frequently appear at the dermatologist's office on oral antibiotics. The rapid growth phase lasts for approximately 6 weeks, and if the lesion undergoes incomplete removal before its growth has stopped, it will both recur rapidly and continue to grow. This is especially true for keratoacanthomas on the nose. Those that are not surgically excised usually resolve over 4–6 months. The risk remains that the tumor is an SCC, so ordinarily these lesions are excised and the spontaneous involution is not a consideration. The dell itself is filled with keratin, as opposed to the dell of the molluscum, which is filled with Henderson–Patterson bodies.

Other factors favoring metastasis in SCC include size and apparent clinical depth. The histologic depth is becoming more of a consideration in this disease, as is perineural invasion. As in melanoma, depth and perineural invasion are very significant factors. I believe the depth of the SCC may have been a large factor behind Dr. Wallace Clark's original observation that "how deep a melanoma goes matters." He assigned levels to invasion, and the deeper levels were associated with markedly reduced survival rates because of metastasis. At the time of his discovery, histologic depth of an SCC was used to determine the appropriate dose of radiation necessary to treat the tumor (half the total dose was delivered to the base of the tumor). Thus, accurately determining the depth of the tumor was extremely important. As a student of "cancer," I believe that Dr. Clark transposed melanoma into the SCC model for depth and arrived at his monumental discovery. Ironically, renewed interest in the depth of the SCC itself as an important factor in metastasis has developed only recently. SCCs with depths of 2 mm rarely metastasize, and those with depths greater than 4 mm metastasize in nearly 50% of patients.

It is surprising that melanoma does not have a specific keyword, given that it is such an important disease in dermatology. The "ABCD(E)" mnemonic has been included here but is admittedly a stretch. "Black" was a possibility, but melanoma shares that color with many other lesions, especially seborrheic keratosis. The keyword "blue veil" has recently emerged from the dermatoscopic examination. "Blue veil" is the specific term for melanoma seen using this tool. It refers to a bluish discoloration in the tumor.

The keyword for subungual melanoma, "Hutchinson sign," refers to diffusion of pigment into the surrounding nail fold from a subungual site. This diagnosis has clinical differentials: trauma (see "turf toe or tennis toe"), glomus tumor, and nevi; thus, the pigment behaving in this way is most useful. Subungual melanoma is a type of acral lentiginous melanoma that together with lentigo maligna melanoma, superficial spreading melanoma, and nodular melanoma are the classic variants of this disease. ABCD(E) fits best with superficial spreading melanoma, and when this type of melanoma was the most common (75% in Dr. Clark's time), these guidelines were useful. Currently, with melanoma in situ the most common type of melanoma presenting in the clinic, this acronym is not as valuable. Melanoma in situ perhaps fits best, in the above classification, with lentigo maligna melanoma, but that disease is seen in older patients with severe sun damage, and melanoma in situ ordinarily presents at younger ages at any site.

"Blue angel" refers to a mnemonic for painful tumors. Many tumors are painful on manipulation (e.g., squeezing a plantar wart), but the true painful tumor is painful all by itself. Other mnemonics exist for this group, but the blue angel seems useful and workable. Otherwise, these tumors have no specific keywords, but certain sites are favored: lower legs for leiomyomas, fingernails for glomus tumors, and head and neck for eccrine spiradenomas. Angiolipomas are commonly found on the trunk and arms and are uncommon on the head, neck, or legs. Neurilemmomas are tumors of the nerve sheath and may be found in neurofibromatosis. In these cases, they are generally multiple. The presence of pain helps differentiate them from neurofibromas.

Mycosis fungoides is cutaneous T-cell lymphoma (CTCL) caused when CD4 T cells infiltrate the skin, especially the epidermis.

They are drawn to the skin by the skin-homing antigen HECA and to the Langerhans cell (the antigen-presenting cell of the skin) by several antigens, including lymphoma cell integrin, CCR4, CD4 with E-cadherin, MHCII, and CCL22. The infiltration of these cells creates the patches, plaques, and tumors of this disease. The exuberant form, which is tumor-stage mycosis fungoides, gives it its name. Surprisingly, there is no keyword for this lesion; the related keywords represent infiltrative (hypertrophic) and atrophic plaques (crinkling atrophy). For patch stage, the keyword "digitate dermatosis," representing chronic parapsoriasis, is patch-stage mycosis fungoides for some observers. This view is not widely held, however. Large-cell transformation is a deadly ending to this indolent disease, as is Sézary syndrome, which has the keyword "red man." Patients with those forms of the disease have a 3- to 5-year life expectancy, and those with visceral or lymph node involvement less than 18 months.

Porokeratosis has five clinical variants including disseminated superficial actinic porokeratosis (DSAP), the most common; porokeratosis of Mibelli, the classic form; linear porokeratosis; porokeratosis punctata; and porokeratosis palmaris et plantaris disseminata. The characteristic clinical finding is a rimlike border that histologically shows a cornoid lamella. The DSAP lesions (disseminated superficial actinic porokeratoses) are induced by sunlight and, like all forms of porokeratosis, are premalignant. In fact, all forms of porokeratosis may be considered premalignant. The DSAP lesions also respond similarly to treatments as compared with actinic keratosis.

Similar to mycosis fungoides, Kaposi sarcoma has patch, plaque, and tumor stages. It is associated with human herpesvirus 8 and was the first disease recognized in HIV disease. Four variants of Kaposi sarcoma include AIDS-related, immunocompromised, classic, and endemic (African). The AIDS-related variant is very common and is also the most aggressive form of the disease. AIDS-related KS usually develops in patients with HIV infection, who have the most severe immunodeficiency, manifest by low CD4 T-cell counts and high viral loads. Two to 3 years after transplantation, immunocompromised Kaposi becomes evident. It is more common in patients from the Mediterranean or Eastern Europe, who are more likely to have classic Kaposi sarcoma.

In the immunocompromised group, treatment with sirolimus, which not only protects the transplanted organ from rejection but also has an anti-VEGF (vascular endothelial growth factor) effect, may help revolutionize the treatment and the conceptualization of the disease. A group of renal transplant patients with Kaposi sarcoma, who were treated with sirolimus had all their cutaneous lesions disappear. This finding shows not only that this disease has a vascular origin, but also that if the stimulus to making blood vessels is blocked, the lesions resolve.

The color "blue" is a keyword for three lesions: a blue papule is a blue nevus; a blue cyst is an apocrine hidrocystoma; and a blue, painful tumor is a blue rubber bleb nevus. Blue nevus, the most common of these, is a benign tumor that consists of an aggregate of melanocytes in the dermis. Three other diseases with melanocytes in the dermis are nevus of Ito, nevus of Ota, and Mongolian spot. The Mongolian spots disappear, yet the others, including the blue nevus, persist. Nevi of Ito on the face and eye and Ota on the upper trunk are very likely the same lesion, except for location. Interestingly, if a blue nevus is incompletely removed, the base is black. That is the color inside the tumor; the color reflected to the observer is blue. This is a good example of the Tyndall effect. There is dark brown-black pigment inside the cyst of an apocrine hidrocystoma, so the color appreciated clinically in this lesion is also an example of the Tyndall effect.

Atypical nevus has the keyword "ugly duckling" and is a lesion that differs significantly from surrounding nevi. Recently, Bolognia has identified a group of nevi that also have a different appearance from their neighbors, called "signature" nevi, and this group behaves in a benign clinical and histopathologic manner. The main signature nevus is the "eclipse" nevus, which has its own keyword. The other atypical nevi represent a quandary in dermatology and dermatopathology. Before Clark's seminal observation of the B-K mole syndrome, those lesions were referred to as "active junction nevi" and were considered benign. The B-K mole syndrome represented atypical nevi in families with documented melanomas. Clark taught that when these atypical moles were present in the setting of familial melanoma, the patient had a 100% chance of having a melanoma. Most observers agree with Clark regarding the familial setting. Ironically, the melanomas often arose de novo and not in the atypical moles.

The quandary arises in the single atypical mole, not arising in the setting of familial melanoma. Some pathologists have answered this by terming the lesion "Clark's nevus" and consider it prognostically benign. Others term it a dysplastic (or atypical) nevus, assign levels of atypia (mild, moderate, or severe), and hedge their consideration of benignity by advising complete surgical excision with clear margins. A smaller group does not distinguish severe atypia from melanoma and advises treatment as such. The last consideration is likely an important factor in the marked increase in melanoma seen recently. Incidentally, many insurance companies consider the diagnosis of dysplastic nevus the same as melanoma in rating patients.

7.1 Lymphangioma Circumscriptum

Keyword: Frog spawn

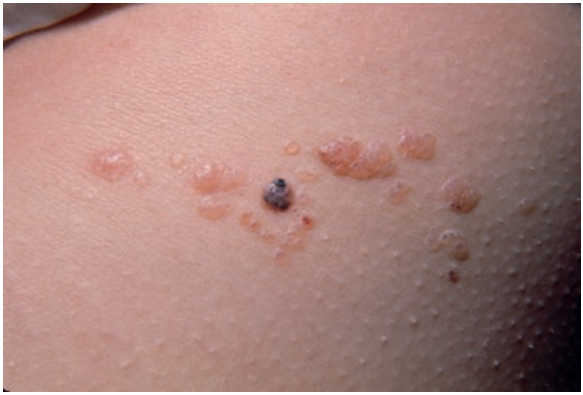

FIGURE 7.1. Many vesicles, some hemorrhagic, are present in a linear array in lymphangioma circumscriptum.

A plaque composed of many translucent vesicles has the appearance of "frog spawn." Such a lesion is characteristic of lymphangioma circumscriptum, which is usually present at birth and may be found anywhere on the skin or mucosal surfaces but favors the axillary folds, shoulders, flanks, proximal limbs, lower back, and perineum. The tongue may also be involved. The vesicles may appear blue or black, instead of clear, when red blood cells are present. The presentation may also be that of a verruca when the surface is more wart-like. The tumor is composed of dilated lymphatic vessels in the upper dermis and actually communicates with deeper channels and cisternae. This is the primary reason that many recur after excision.

Peachey RD, Lim CC, Whimster IW. Lymphangioma of skin: a review of 65 cases. *Br J Dermatol*. 1970;83:519-527.

7.2 Dermatofibroma

Keywords: Stony hard, button-like

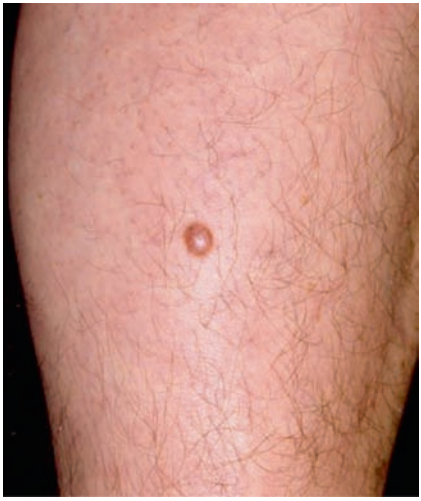

FIGURE 7.2. A red-brown papule is present in dermatofibroma.

Dermatofibromas are often described as being stony hard or button-like and are most commonly found on the anterior lower extremities. These lesions are derived from the proliferation of dermal fibroblasts (dendrocytes) as idiopathic benign tumors possibly from local trauma or insect bites. Clinical diagnosis can be aided by observing dimpling of the lesion with lateral compression, known as Fitzpatrick sign. Multiple dermatofibromas may be correlated with autoimmune diseases and immunosuppression.

Niiyama S, Katsuoka K, Happle R, Hoffmann R. Multiple eruptive dermatofibromas: a review of the literature. *Acta Derm Venereol*. 2002;82:241-244.

7.3 Seborrheic Keratosis

Keyword: Stuck on

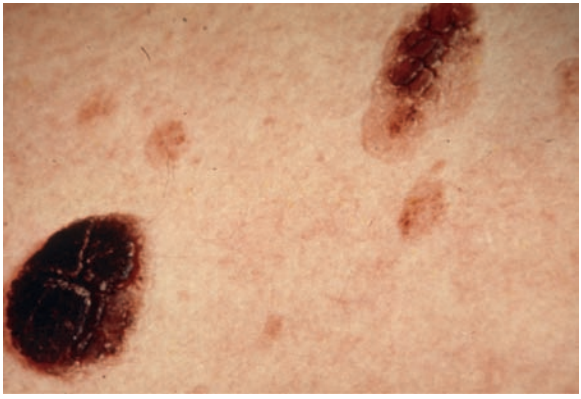

FIGURE 7.3 Tan and brown keratotic papules and plaques are present in seborrheic keratosis.

A seborrheic keratosis is a benign neoplasm of keratinocytes that feels and appears stuck on the surface of a patient's skin. These sharply demarcated dark brown growth feel waxy and may crumble when scraped with a fingernail. They present most commonly on the face or upper torso of the elderly, where they darken and increase in number with the passing years. Although these lesions are usually harmless and reassurance is all that is required, if they are irritated or become a significant cosmetic issue, they may be easily removed. Although rare, the sign of Leser-Trélat is characterized by the sudden appearance of hundreds of seborrheic keratoses associated with an underlying malignancy.

Toussaint S, Salcedo E, Kamino H. Benign epidermal proliferations. *Adv Dermatol*. 1999;14:307-357.

7.4 Molluscum Contagiosum

Keyword: Small central dell

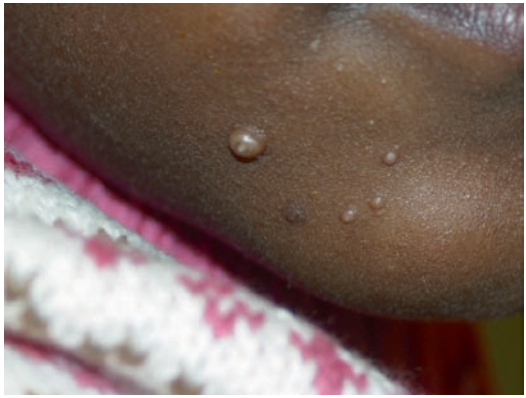

FIGURE 7.4. Flesh-colored papules with small central dells are evident in molluscum contagiosum.

Molluscum contagiosum papules have small central dells that contain the molluscum (Henderson–Patterson) bodies. The Molluscum virus is a large, double-stranded DNA poxvirus that primarily affects children, but may affect adolescents or adults as well. HIV-infected persons are at special risk for the development of tens or hundreds of lesions. Lesions in children resolve with time, but resolution can sometimes take 2 or more years. Treatment with unoccluded cantharidin, left on for 1–3 hours before washing off, is effective, as is cantharidin with occlusion for 1 hour or less before washing. Destructive treatments such as cryosurgery, electrodesiccation, or curettement may be employed. Imiquimod may also be used and may become the treatment of choice.

Gottlieb SL, Myskowski PL. Molluscum contagiosum. *Int J Dermatol*. 1994;33:453-461.

7.5 Keratoacanthoma

Keyword: Large central dell

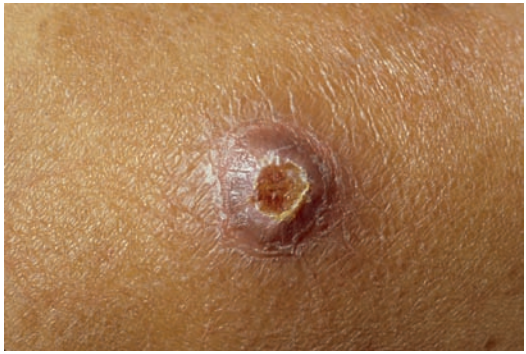

FIGURE 7.5. A large, central, keratin-filled dell is the main feature of a keratoacanthoma.

Keratoacanthomas are fast-growing, abortive tumors on exposed hair-bearing areas with a characteristic central dell formed over a keratinous core. This central dell makes them look like a small volcano. Lesions develop as papular lesions that can grow as large as 2–3 cm in as little as 1 month before involuting around the central dell, leaving a fibrous hypopigmented scar. Risk factors for keratoacanthoma formation include human papillomavirus infection, ultraviolet light exposure, and prolonged coal tar exposure.

Schwartz RA. Keratoacanthoma: a clinico-pathologic enigma. *Dermatol Surg*. 2004;30(Pt 2):326-333; discussion 333.

7.6 Basal Cell Carcinoma

Keywords: Pearly, rolled border; rodent ulcer

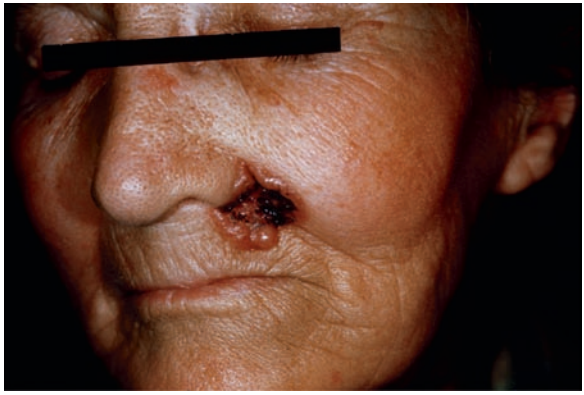

FIGURE 7.6. The border of this basal cell carcinoma is translucent.

"Rolled border," "telangiectasia," "mushy," and "rodent ulcer" are keywords used to describe basal cell carcinoma (BCC). BCC is found mostly on sun-exposed areas, such as the head and neck, in elderly persons, with more than 30% found on the nose. Growth is slow over several years, and there is potential for local invasion, but exceedingly low rates of metastasis. BCCs are elevated, pearly nodules often with telangiectasias present on the surface and demonstrate a rolled border when stretched. As these tumors outgrow their vasculature, the central area breaks down, creating a lesion known as a rodent ulcer.

Wong CS, Strange RC, Lear JT. Basal cell carcinoma. *BMJ*. 2003;327: 794-798.

7.7 Melanoma

Keyword: ABCD

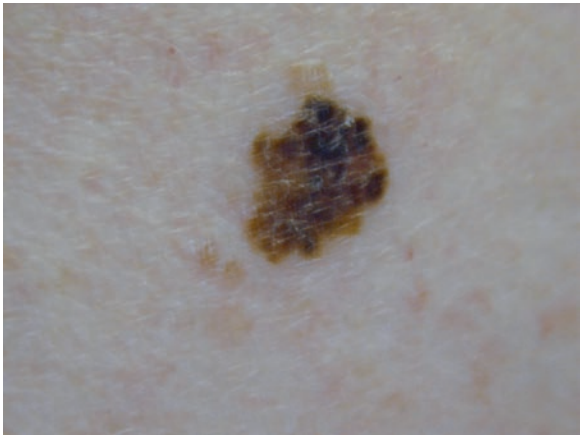

FIGURE 7.7. Asymmetry, irregular borders, color variability, and diameter greater than 6 mm are present in this melanoma lesion.

The ABCDs of melanoma are asymmetry, border, color, and diameter. The presence of a lesion with changes in any of these four qualities requires further evaluation to rule out melanoma. Usually, a nevus has a uniform color and is oval or circular without change in its boundaries. Crucial indicators include (a) asymmetry, referring to a lesion that when cut into half, one half does not look like the other; (b) borders that are irregular, not smooth, round, or oval; (c) color variability from black-brown to red-blue-gray, to white; and (d) a diameter of >6 mm. Melanoma has the highest annual mortality of any dermatologic malignancy; thus, vigilance must remain high.

Zalaudek I, Ferrara G, Argenziano G, Ruocco V, Soyer HP. Diagnosis and treatment of cutaneous melanoma: a practical guide. *Skinmed*. 2003;2:20-31.

7.8 Subungual Melanoma

Keyword: Hutchinson sign

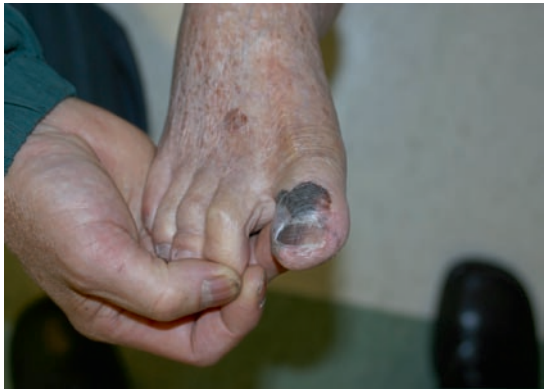

FIGURE 7.8. In subungual melanoma, pigmentation is present beneath the nail and extends to the proximal nail fold.

Born in 1828, Sir Jonathan Hutchinson was an English surgeon and pathologist who published more than 1,200 medical articles. His name appears in the dialect of many dermatologists today with Hutchinson sign for subungual melanoma and for herpes zoster ophthalmicus. Hutchinson made the first English language description of subungual melanoma. Both subungual melanoma and benign subungual nevi present as linear pigmented bands in the nail plate. Hutchinson sign, the periungal spread of pigment to the proximal or lateral nail folds, is regarded as an important indicator of subungual melanoma. Hutchinson sign can also be associated with ethnic pigmentation, Laugier–Hunziker syndrome, and use of certain medications. For herpes zoster ophthalmicus, Hutchinson sign is the presence of crusted lesions on the tip of the nose, which indicates a 96% risk of ocular involvement.

Levit EK, Kagen MH, Scher RK, Grossman M, Altman E. The ABC rule for clinical detection of subungual melanoma [comment in *J Am Acad Dermatol.* 2001;44:875]. *J Am Acad Dermatol*. 2000;42 (2, Pt 1):269-274.

7.9a Blue Rubber Bleb Nevus

Keyword: Painful tumor
Blue angel

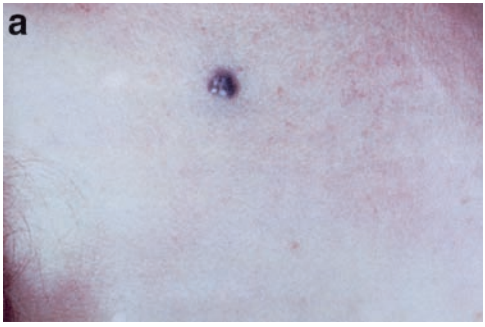

FIGURE 7.9. Blue angel. (**a**) Blue rubber bleb nevus. A compressible, blue-purple soft nodule is present.

Blue rubber bleb nevus syndrome, a rare autosomal dominant disease, is characterized by multiple, fragile, bluish, rubbery hemangiomas of both skin and mucous membranes. These lesions tend to be painful, especially at night. Blebs increase in number and size with age and are most concentrated on the trunk, extremities, and small intestine. Small bowel hemangiomas bleed spontaneously, leading to chronic anemia. Other associated signs of blue rubber bleb nevus syndrome include hyperhydrosis, intussusception, volvulus, bowel infarction, and systemic bone deformities.

McKinlay JR, Kaiser J, Barrett TL, Graham B. Blue rubber bleb nevus syndrome. *Cutis*. 1998;62:97-98.

7.9b Angiolipomas

Keyword: Painful tumor
Blue *a*ngel

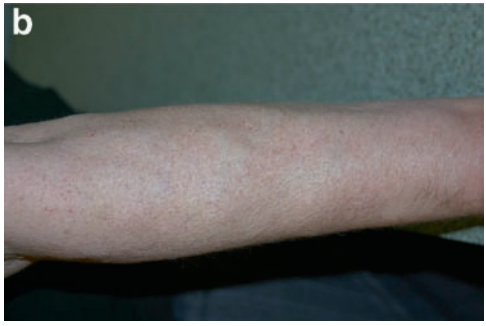

FIGURE 7.9. Blue angel, continued (**b**) Angiolipomas. Many large, flesh-colored subcutaneous tumors are present on the arm.

Angiolipomas are benign encapsulated growths of mature capillaries and lipid cells found on the upper body and extremities that are freely mobile and vaguely tender on palpation. These tumors are bluish due to their vascular component, differentiating them from lipomas. Not present at birth, these growths usually present during adolescence or young adulthood. Excision and biopsy are diagnostic and curative for these rarely invasive tumors. Removal of multiple lesions by liposuction offers reduced size and number of scars with more discreet placement. Patients with comorbid alcoholism, depression, and obesity should be evaluated for Dercum disease.

Haustein UF, Uhl J. Multiple bluish subcutaneous nodules: multiple angiolipomas. *Arch Dermatol*. 1990;126:666-667, 669.

7.9c Neurilemmoma

Keyword: Painful tumor
Blue a*n*gel

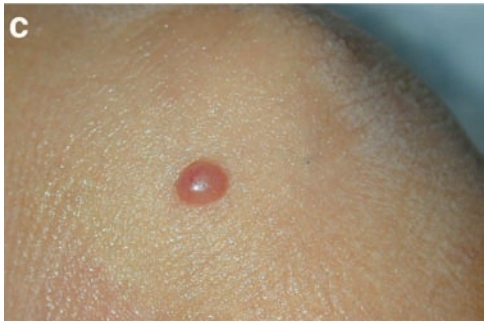

FIGURE 7.9. Blue angel, continued (**c**) Neurilemmoma. A pink nodule is present on the posterior shoulder.

Neurilemmomas, also known as schwannomas, are benign encapsulated tumors of the nerve sheath. These tumors are often found on the head or on the flexor surfaces of the arms, wrists, or knees, where they present as a solitary, slow-growing mass with moderate pain on palpation. They are mobile laterally, but tethered to the vertical axis of the nerve they encapsulate. Usually, they are a cosmetic concern, but they can cause compressive neuropathy causing pain, paresthesias, and loss of cranial nerve function. When multiple neurilemmomas are found, neurofibromatosis must be considered and patients must be carefully examined.

Purcell SM, Dixon SL. Schwannomatosis: an unusual variant of neurofibromatosis or a distinct clinical entity? *Arch Dermatol*. 1989; 125:390-393.

7.9d Glomus Tumor

Keyword: Painful tumor
Blue angel

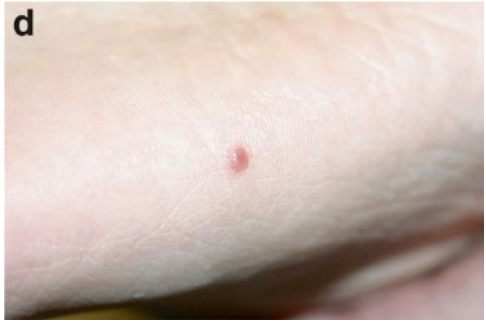

FIGURE 7.9. Blue angel, continued **(d)** Glomus tumors. A pink papule is present on the lateral foot.

Glomus tumors arise from glomus cells to form modified smooth muscle cell tumors usually found on the acral skin, especially the nail beds. These growths can be extremely painful with pressure and temperature changes, especially cold. Tumors are usually <1 cm, blanchable, blue or purple solitary nodules with pain elicited by pinpoint pressure (Love test). A positive Hidreth sign, which is a decrease in pain after tourniquet application, is additionally helpful in diagnosis. Multiple glomus tumors are inherited as an autosomal dominant disease with incomplete penetrance and have been associated with neurofibromatosis type 1.

D'Acri AM, Ramos-e-Silva M, Basílio-de-Oliveira C, et al. Multiple glomus tumors: recognition and diagnosis. *Skinmed*. 2002;1:94-98.

7.9e Eccrine Spiradenoma

Keyword: Painful tumor
Blue angel

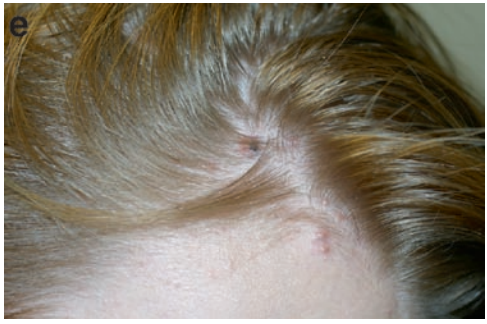

FIGURE 7.9. Blue angel, continued **(e)** Eccrine spiradenomas. Pink papulonodules, one crusted, are present on the upper forehead and scalp.

Eccrine spiradenomas (ES) are soft painful nodules on the scalp, neck, or upper torso that arise from apocrine and epithelial tissue of hair follicles. These lesions are generally <1 cm in diameter and can be gray, pink, purple, red, or blue. These tumors are usually solitary, but nevoid, linear, and zosteriform patterns of multiple ES have been described. When the tumors are part of Brooke-Spiegler syndrome, these patients have mutations in the *CYLD* gene. Malignant degeneration of ES is uncommon but has a high mortality once metastasis occurs. Malignant ES tends to be larger than benign ES, ulcerates as it outgrows its blood supply, and is found almost exclusively on the trunk and upper extremities at diagnosis.

Kazakov DV, Soukup R, Mukensnabl P, Boudova L, Michal M. Brooke-Spiegler syndrome: report of a case with combined lesions containing cylindromatous, spiradenomatous, trichoblastomatous, and sebaceous differentiation. *Am J Dermatopathol.* 2005;27:27-33.

7.9f Leiomyoma

Keyword: Painful tumor
Blue angel

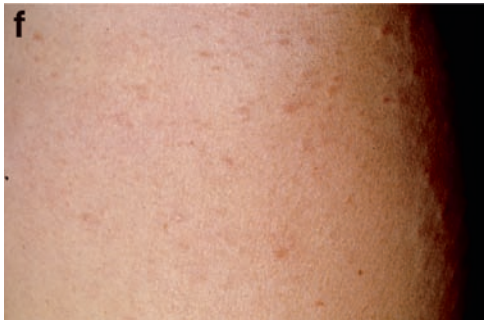

FIGURE 7.9. Blue angel, continued **(f)** Leiomyomas. Small flesh-colored papules are present on the leg.

Leiomyomas occur in three types: piloleiomyomas, angioleiomyomas, and genital leiomyomas. Piloleiomyomas, which ordinarily arise from arrector pili muscles on the legs, are the most common type. When multiple, they may be cosmetically disfiguring. Angioleiomyomas originate from smooth muscle cells surrounding blood vessels and tend to be deep seated. Genital leiomyomas originate in the nipples or dartos muscle and are rare. Leiomyomas are associated with pain from cold or tactile stimulus.

Holst VA, Junkins-Hopkins JM, Elenitsas R. Cutaneous smooth muscle neoplasms: clinical features, histologic findings, and treatment options. *J Am Acad Dermatol*. 2002;46:477-490; quiz 491-494.

7.10 Mycosis Fungoides

Keywords: Infiltrated plaque, crinkling atrophy

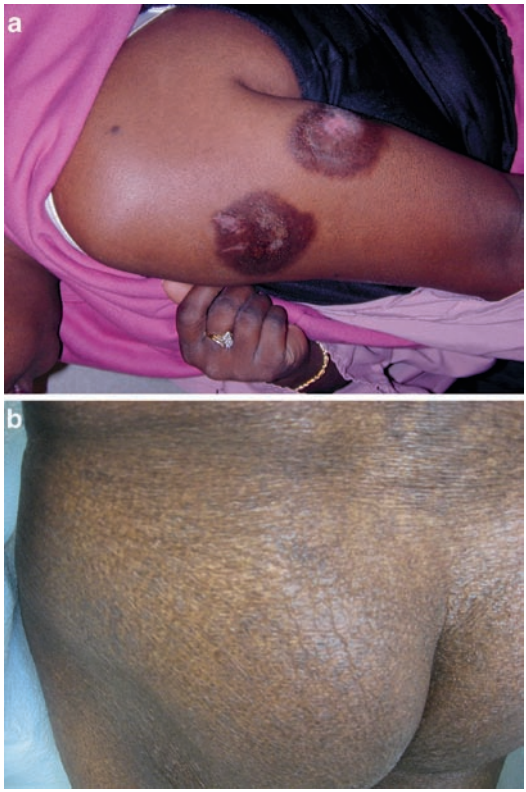

FIGURE 7.10. (**a**) Large, dull red plaques are present in mycosis fungoides. (**b**) Marked wrinkling overlying atrophy is noted.

Mycosis fungoides, or cutaneous T-cell lymphoma (CTCL), is a malignancy of mature (CD 4) T cells that infiltrate the skin. The disease manifests itself in three phases. In the patch phase, well-circumscribed, nonpalpable faint pink to yellow patches are found scattered over the body. As the lymphoma progresses

to the more palpable, "infiltrated" plaque phase, the patches thicken to form dark red or violaceous, palpable, dense plaques that frequently itch. Finally, in the tumor phase, large nodules develop in preexisting plaques, which may undergo necrotic ulceration or become secondarily infected. A skin biopsy early in the disease may not be definitive; therefore, many biopsies are often performed before a diagnosis is made. Treatment is specific to the phase of the disease. Early lesions are treated with topical steroids, topical nitrogen mustard, and psoralen and ultraviolet A (PUVA) therapy. Once the cancer progresses to the tumor stage, however, total body electron beam therapy may be required. Sézary syndrome occurs when malignant T cells are found in the peripheral blood and carries a poor prognosis.

Lorincz AL. Cutaneous T-cell lymphoma (mycosis fungoides) [comment in *Lancet.* 1996;348:130-131]. *Lancet*. 1996;347:871-876.

7.11 Porokeratosis

Keyword: Rim

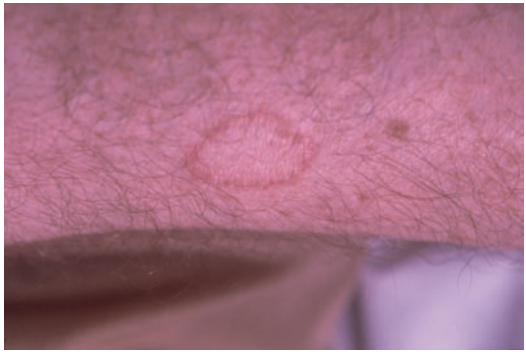

FIGURE 7.11. Porokeratosis. A prominent elevated rim is at the border of this plaque.

Porokeratosis is a clonal disorder of keratinization characterized by one or more atrophic patches surrounded by a distinctive ridge-like border called a "cornoid lamella." This rim is formed by the hyperproliferation of atypical keratinocytes, which peripherally expand. Five clinical variants of porokeratosis exist, of which disseminated superficial actinic porokeratosis (DSAP) is the most common. It presents with multiple brown to red, annular, keratotic lesions on the extensor surfaces of the arms and legs. Risk factors for the development of all forms of porokeratosis include genetic inheritance, ultraviolet radiation, and immunosuppression. The formation of squamous or basal cell carcinoma has been reported in all forms of the disease. Treatment is individualized based on symptoms and risk of malignancy. Topical 5-fluorouracil may also be employed.

Spencer LV. Porokeratosis. Emedicine, updated 2/10/05. http://www.emedicine.com/derm/topic343.htm. Accessed October 31, 2009.

7.12 Atypical Nevus

Keyword: Ugly duckling

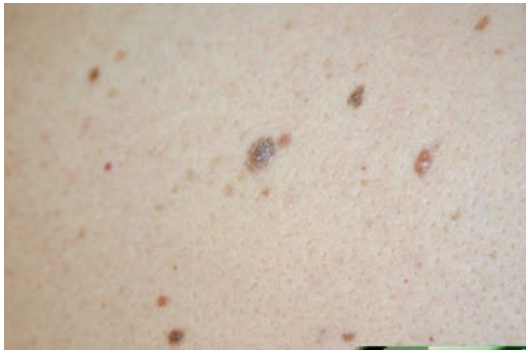

FIGURE 7.12. Atypical nevus. In a field on nevi, this lesion is markedly different in appearance.

Atypical, or dysplastic, nevi are described clinically as intermediates between common nevi and melanoma. In the midst of all the other moles, one is often very different from the other and is referred to as an "ugly duckling." The atypical nevus is usually >5 mm in diameter, irregularly pigmented, and has indistinct borders and a textured surface. These nevi can occur anywhere but are most common on the trunk and the upper extremities. Some are described as having a "fried egg" appearance due to having a raised central papule surrounded by a macular component. Patients who have multiple atypical nevi are at a greater risk for developing a melanoma, and those with the autosomal dominant dysplastic nevi syndrome should be followed very closely. Patients should do self-examinations, use sun protection, and strongly consider having serial photographs taken.

Goldstein BG, Goldstein AO. Diagnosis and management of malignant melanoma [published correction appears in *Am Fam Physician.* 2001; 64:1682]. *Am Fam Physician*. 2001;63(1359-1368):1374.

7.13 Atypical Nevus

Keyword: Eclipse nevus

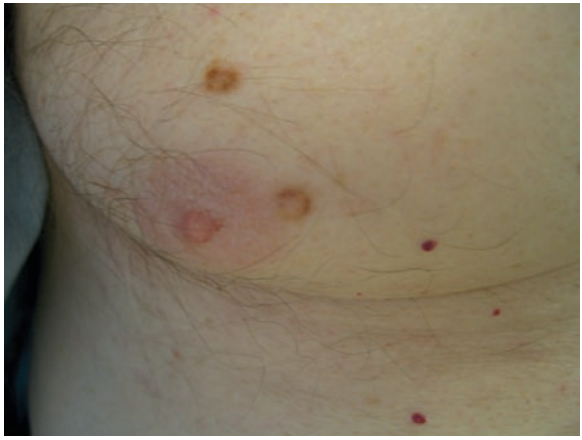

FIGURE 7.13. Eclipse nevus. A brown papule with a lighter brown center is evident.

This type of atypical nevus has the keyword "eclipse" nevus; as such, it has a lighter center and a darker rim of pigment around the center. The surrounding darker pigment may not be uniform and may not even be continuous around the entire lesion. A variation of this ordinary presentation is the eclipse nevus with a darker center and a lighter border. Both appear to have the same clinical significance; they are benign and do not require further examination by biopsy. A possible further variation of this nevus is the "cockade" nevus, which has a dark center, a surrounding area of normal pigment, and a darker rim beyond that (similar to a "target" lesion). On dermatoscopy, all the pigmented areas of these lesions have regular pigment networks, further indicating their benign nature. Further, they are often accompanied by other similar lesions on another body site, including the scalp; they have been termed "signature" nevi as they represent that patient's type of nevi.

Schaffer JV, Glusac E, Bolognia JL. Eclipse naevus: tan center with stellate brown rim. *Br J Dermatol*. 2001;145:1023-1026.

7.14 Kaposi Sarcoma

Keyword: Human herpesvirus 8

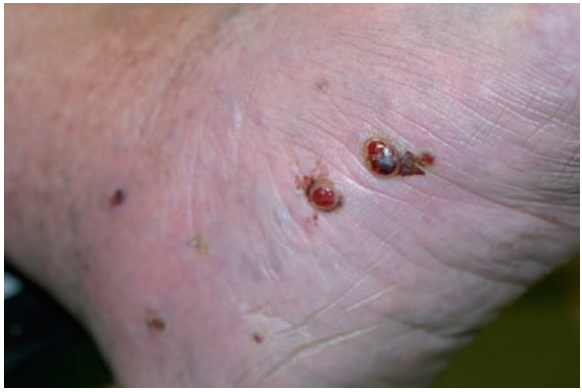

FIGURE 7.14. Red-blue hemorrhagic nodules are present on the foot in a patient with Kaposi sarcoma.

Kaposi sarcoma (KS) is a malignancy characterized by red to violaceous patches, plaques, nodules, and tumors. In the classic form, lesions typically start on the soles or toes, disseminating slowly to involve the upper extremities, palate, trunk, and groin. HIV-associated KS has a predilection for the head, neck, and mucosa. Both forms may be locally aggressive, but they are typically indolent and rarely fatal. Visceral involvement is not uncommon, with the small intestines most frequently affected. Human herpesvirus 8 (HHV-8) infection is necessary for KS development, and the virus may be isolated from tissue. HHV-8 is transmitted both sexually and fecal-orally. Treatments for cutaneous KS include cryotherapy, excision, radiation therapy, and intralesional chemotherapy.

Jacobson LP, Jenkins FJ, Springer G, et al. Interaction of human immunodeficiency virus type 1 and human herpesvirus type 8 infections on the incidence of Kaposi's sarcoma. *J Infect Dis*. 2000;181:1940-1949.

7.15 Blue Nevus

Keyword: Blue papule

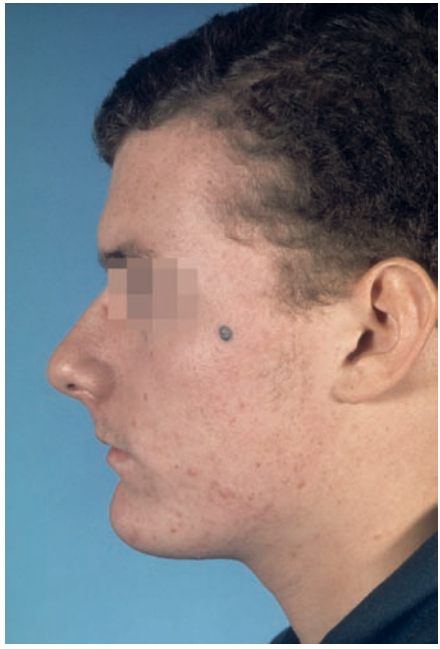

FIGURE 7.15. Blue nevus. A blue papule is present on the temple.

Blue nevus, with the keyword "blue papule," is a common lesion with an unusual color. Most skin growths, such as nevi, are flesh colored, pink, or brown. The blue papule contrasts with the "blue" cyst of the apocrine hidrocystoma; interestingly, the color derives from a similar situation in each lesion. Due to the Tyndall effect, the color reflected back to the eye from dark pigment in the dermis in the blue nevus and from the darkly pigmented fluid in the cyst cavity in the apocrine hidrocystoma is blue. The blue nevus is completely benign and can also be recognized on dermatoscopy by an aggregate of "globules and dots" along with a background of dark gray-blue color.

Blue nevi are easily removed surgically, but total excision is favored, because a shave excision often does not get beneath the dermal black pigment and further levels must be taken. On complete excision with sutures, that phenomenon is bypassed. Microscopically, the blue nevus shows melanocytes in the dermis; this finding is also present in Mongolian spots, nevus of Ito, and nevus of Ota. Of these four lesions, the only one to resolve over time is Mongolian spots.

Maize JC, LeBoit PE, Metcalf JS, et al. Neoplasms in melanocytes. In: Maize JC, Burgdorf WHC, Hurt MA, et al. (eds). *Cutaneous Pathology*. Philadelphia, PA: Churchill Livingstone;1998:677-682.

7.16 Apocrine Hidrocystoma

Keyword: Blue (cyst)

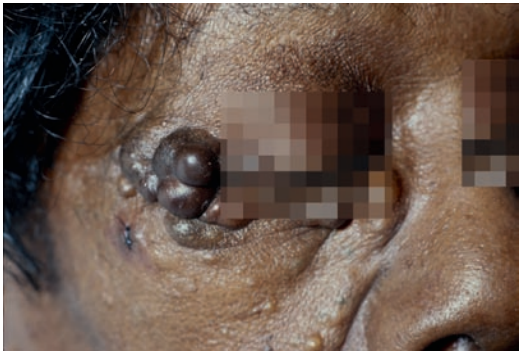

FIGURE 7.16. Blue to brown cysts are present on the eyelids in a patient with an apocrine hidrocystoma.

Apocrine hidrocystoma has the keyword "blue (cyst)" that distinguishes it from blue papule for blue nevus and blue rubber bleb nevus, which is part of the "blue angel" mnemonic for painful tumors. The cysts occur on the face, especially around the eyes and may have a blue hue. They also can be flesh colored or gray-brown. They represent a cystic proliferation of apocrine secretory cells; thus the cyst has an apocrine lining with columnar cells and "decapitation" secretions. The fluid within the cyst may be clear, brown, or black, and the blue color seen may be a result of the Tyndall effect. These lesions are completely benign and may be removed for diagnostic or cosmetic reasons. They differ clinically from eccrine hidrocystomas by being larger and less numerous.

Alessi E, Gianotti R, Coggi A. Multiple apocrine hidrocystomas of the eyelids. *Br J Dermatol*. 1997;137:642-645.

7.17 Pyogenic Granuloma

Keyword: Collarette

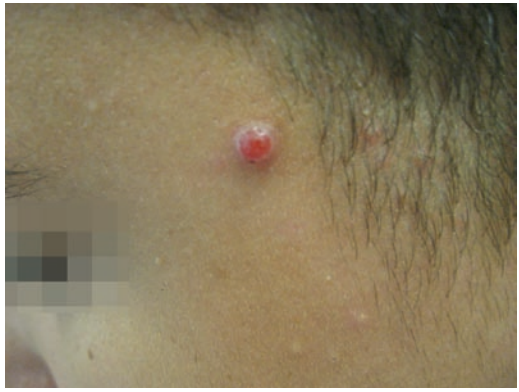

FIGURE 7.17. Pyogenic granuloma A prominent white strip surrounds the base of this red-blue nodule.

Pyogenic granuloma has the keyword "collarette," referring to the process at the base of the lesion. This lighter-colored tissue surrounding the base ranges from barely visible to one eighth the height of the growth. The friable mass of the tumor overhangs the collarette, sometimes dramatically. The pyogenic granuloma, found mostly in children, is a misnomer because it is neither pyogenic nor a granuloma; rather it is an aggregate of blood vessels in a mucinous stroma. Often there are inflammatory cells in the stroma; this is perhaps when the "pyogenic" was derived. The tumor frequently arises at a site of trauma and perhaps represents a faulty progression of wound healing. Wounds need to reepithelialize; blood vessels need to form to nourish the tissue; lastly, the connective tissue needs to knit together. If the blood vessel formation gets out of sequence, then the epidermis cannot close the wound and a pyogenic granuloma can form. Connective tissue out of sequence could cause a reactive perforating collagenosis to occur. Interestingly, the easily removed pyogenic granuloma has the same keyword clinically and histologically.

Lin RL, Janniger CK. Pyogenic granuloma. *Cutis*. 2004;74:229-233.

7.18 Halo Nevus

Keyword: Halo

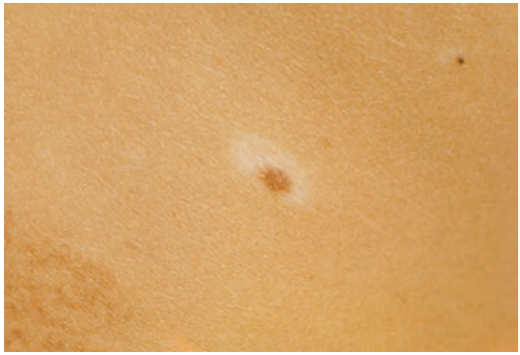

FIGURE 7.18. Halo nevus. A white rim surrounds this brown papule.

A halo nevus is a melanocytic nevus with a surrounding rim of depigmentation. This phenomenon often indicates the beginning of regression of a melanocytic nevus in a process that extends over several months. Halo nevi usually occur on the back during childhood or adolescence and multiple lesions are found in 50% of cases. In addition to occurring around benign melanocytic nevi, the halo phenomenon can occur around other benign and malignant lesions including dermatofibromas, seborrheic keratoses, blue nevi, basal cell carcinomas, and malignant melanomas. Histopathologically, halo nevi are typified by progressive degeneration and disappearance of melanocytes, with an often brisk inflammatory infiltrate composed of mainly $CD8^+$ T lymphocytes.

Halo nevi tend to evolve through four stages. Stage I is the pigmented nevus with a surrounding rim of depigmentation. In stage II, the central pigmentation is lost and appears pink with a surrounding halo. Stage III involves the disappearance of the central nevus leaving circular depigmentation. Finally, stage IV involves the repigmentation of the site leaving no trace of the previous lesion.

Mooney MA, Barr RJ, Buxton MG. Halo nevus or halo phenomenon? A study of 142 cases. *J Cutan Pathol*. 1995;22:342-348.

Chapter 8
Miscellaneous Disorders

The miscellaneous disorders by definition have no central finding but do include many diseases in one category, namely, hair disorders. Thus, trichorrhexis nodosa, trichotillomania, and loose anagen syndrome are in this group. Telogen effluvium, alopecia areata, Netherton syndrome, Menkes kinky hair syndrome, and tinea capitis are all diseases that involve the hair but have relationships with conditions in other sections of this book. These entities could easily have been included here.

Trichorrhexis nodosa, with the keyword "broomsticks," has nodes in the hair shaft that on microscopy have the appearance of two brooms pushed together. This node breaks easily, leaving one broom intact. In our clinic, this phenomenon occurs frequently in young to middle-aged black women; the nodes generally reside 2–4 cm from the scalp, so that on breakage the hair involved ends up at that length. In white patients, nodes may be situated more distally, where the node undergoes fracture, and the hair has the appearance of a "split end."

This condition contrasts with the "bamboo" nodes in Netherton syndrome, which are more variably placed in the scalp and are also present in the eyebrows. The hair that remains on breakage of the "bamboo" nodes tends to be shorter and less uniform in length than in trichorrhexis nodosa. Contrasted with both of these hair disorders is trichotillomania, in which the typical finding is "hairs of different length" (keyword). This finding is often more evident on palpation than it is on visual inspection. The hairs, if they are

H.B. Allen, *Dermatology Terminology,*
DOI 10.1007/978-1-84882-840-7_8,

present at all in trichotillomania, are also shorter than in the other two conditions.

Age is a factor in the hair disorders. Netherton syndrome is a genetic disease and the broken "bamboo" hairs are found in infancy. Trichotillomania occurs in children from ages 5–15 years, and trichorrhexis nodosa is seen mostly in young adults.

Loose anagen syndrome, with the keyword "floppy sock," is a variety of hair loss seen mostly in young, white, light-haired girls. It occurs ordinarily in the 2- to 5-year-old age range; the hair is not only sparse, but it is also easily plucked from the scalp. Anagen hair loss, as a rule, is seen with cancer chemotherapy treatments, and it involves the entire scalp. In loose anagen syndrome, many hairs are easily plucked from the scalp, and the patients have marked thinning. Total hair loss, as in chemically induced alopecia, is not a feature of loose anagen syndrome.

Pityriasis lichenoides et varioliformis acuta (PLEVA; keyword "varioliform") is acute parapsoriasis, in contrast to the chronic parapsoriasis considered in the "Papulosquamous Disorders" chapter. The keyword means "like variola" and refers to the deep scarring seen in smallpox. The disease may present in "crops" of papules that can become necrotic, leading to the severe scarring. Interestingly, the pathology of pityriasis is similar, in many patients, to that of pityriasis rosea.

Subungual hematoma (keyword "turf toe") is seen in athletes and results from trauma occurring during the foot strike on a firm surface. The other possible keyword would be the color black because these hematomas form from bleeding under the nail and must be distinguished from subungual melanoma. The subungual hematoma has distinguishing characteristics: it moves outward as the nail grows (the melanoma does not), and it has no Hutchinson sign (which is the keyword for acral lentiginous melanoma under the nail). Trauma itself must be weighed carefully: some of the more challenging presentations have included known trauma to a nail where a melanoma was present.

The color black contrasts with the cherry red color of carbon monoxide poisoning. This coloration is noted on the face or neck most frequently; the poisoning is a true medical emergency because extended exposure to the source of carbon monoxide, a leaky furnace

or a nonventilated engine, can lead to coma and death. The other color that is included in this section is ivory white, which is the keyword for atrophie blanche. The pathogenesis of this disease is considered by many to be a livedoid vasculitis; others consider it the end stage of stasis dermatitis. In either case, treatment is not curative, and in some patients it is not even helpful. Studies with more recently available imaging of the venous system would help sort out the pathobiology. For instance, imaging studies of lipodermatosclerosis, in which there are no evident varicosities, show a markedly deranged venous system.

Cutaneous larva migrans, with the keyword "moving lesion," is caused by the penetration and migration of various nematodes, the most common of which is *Ancylostoma braziliense*. This hookworm infests both dogs and cats, and it is found in the southern tier of the USA, the Caribbean, and Central and South America. Larva currens, where the lesions "move" at a much more rapid rate, is rarely seen in the USA and represents a *Strongyloides* infestation.

8.1 Cutaneous Larva Migrans

Keyword: Moving rash

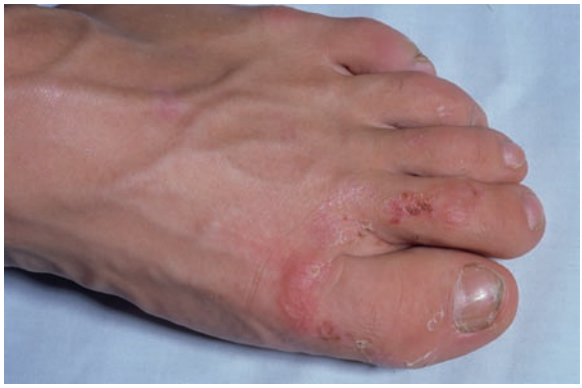

FIGURE 8.1. Cutaneous larva migrans. On the foot is a red, serpiginous, thread-like lesion.

The keyword for cutaneous larva migrans is "creeping eruption" or "moving rash," which refers to the fact that this rash moves. It is caused by hookworms found in the soil generally from a canine or feline source. The organism, *A. braziliense*, penetrates exposed skin or enters through a surface abrasion and then begins its wormian, serpiginous journey in the skin at a rate of 1 mm per day. Its geographic locale is the southern USA, Caribbean, and Central and South America; it localizes preferentially in sandy soil. The rash is intensely pruritic and the scratching that is provoked can induce a secondary bacterial infection. Treatment is oral albendazole, although thiabendazole either topically or systemically is also effective. Ivermectin is a possible substitute therapy, as it is in scabies. The rash gradually resolves, but the pruritus is such that treatment is important. Larva currens, in which the rash is capable of moving up to 10 cm/h, is caused by *Strongyloides stercoralis*.

Vqn den Enden E, Stevens A, Van Gompel A. Treatment of cutaneous larva migrans. *N Engl J Med*. 1998;339:1246-1247.

8.2 Pityriasis Lichenoides et Varioliformis Acuta (PLEVA)

Keyword: Varioliform

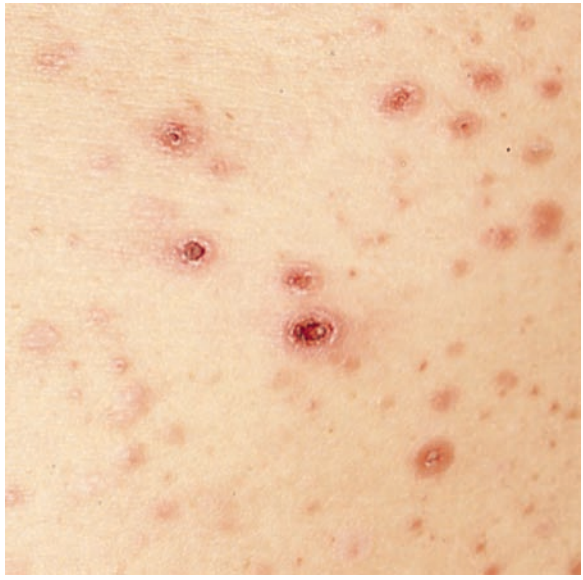

FIGURE 8.2. Dull, red, scaling, and crusted papules eventuate into small pox-like scars in PLEVA.

PLEVA, or pityriasis lichenoides et varioliformis acuta, with the keyword "varioliform" is a rash that occurs in children and young adults. The most typical presentation is an eruption of red papules that become papulovesicles and pustules. These vesicopustular lesions undergo necrosis and crusting and resolve with scars that have a similar appearance to smallpox scars. The lesions tend to occur in successive "crops" and either resolve over several weeks or last for many years. Some observers have referred to PLEVA as a lymphocytic vasculitis, but neither fibrin nor thrombi are present.

Because of its association with CD30 cells, others consider PLEVA a lymphoproliferative process. This is probably closer to the etiology because it shares many features with lymphomatoid papulomatosis, which also occurs in "crops" and has CD30 cells (albeit many more) and may resolve spontaneously. Because of its relatively rare nature, a lack of randomized clinical trials, and its tendency towards spontaneous resolution, there is no specific treatment for PLEVA. Most clinicians therefore treat it with oral antibiotics and potent topical corticoids. Ultraviolet light has also been useful. This disease notoriously relapses even after successful treatment.

Bowers S, Warshaw EM. Pityriasis lichenoides and its subtypes. *J Am Acad Dermatol*. 2006;55:557-572.

8.3 Atrophie Blanche

Keyword: Ivory white

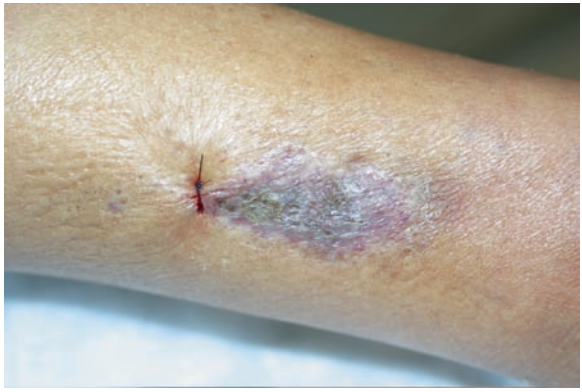

FIGURE 8.3. A white plaque is present in the larger gray-red-purple plaque in atrophie blanche.

The keyword for atrophie blanche is "ivory white" referring to the color of the scars resulting from inflammation and ulceration on the lower legs. This coloration contrasts with the bright white of vitiligo, the off-white of tinea versicolor (and many other lesions), and the porcelain white of Degos disease. Atrophie blanche is considered by most observers to be a livedoid vasculopathy. Fibrinoid change, focal thrombosis, and the presence of immunoglobulins and complement in the dermal blood vessels support this concept. The differential diagnosis includes polyarteritis nodosa that may present with livedo and scars on the legs, stasis dermatitis, and certain other states. These include deficiencies in factor V Leiden or protein C and elevation in antiphospholipid antibodies and homocysteine. The marked improvement in imaging currently available may help clarify this situation. Treatment with calcium channel blockers such as pentoxifylline or nifedipine or antiplatelet therapy has been recommended. These therapies and others have not been routinely successful.

Hairston BR, Davis MD, Pittelkow MR, Ahmed I. Livedoid vasculopathy. *Arch Dermatol*. 2006;142:1413-141.

8.4 Carbon Monoxide Poisoning

Keyword: Cherry red

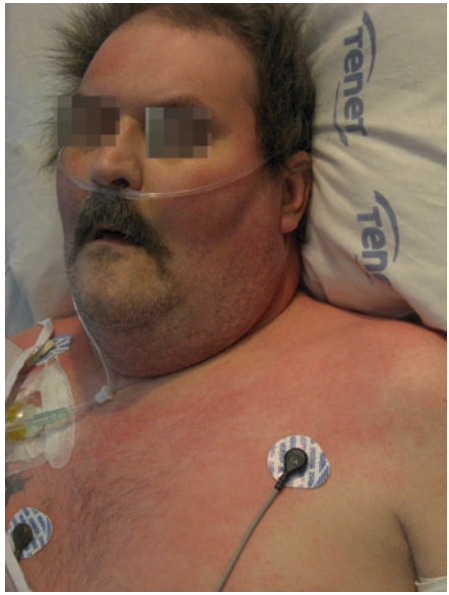

FIGURE 8.4. The cheeks and neck are red in this patient with carbon monoxide poisoning.

The keyword for carbon monoxide poisoning is "cherry red," referring to the red color of the face, especially the cheeks, and the neck. More commonly, however, the patient presents with pale skin rather than red. Carbon monoxide poisoning is the most common type of poisoning, intentional or unintentional, seen in the USA. Most frequently, it arises from faulty heaters or obstructed exhaust systems that release the colorless, odorless, tasteless gas into the living space. The symptoms range from malaise to coma; one of the most sensitive physical signs, bright red retinal veins, mimics the cherry red keyword of the skin. Treatment includes removing the patient from the tainted atmosphere and administering oxygen. Hyperbaric oxygen may be helpful.

Gorman D, Drewry A, Huang YL. The clinical toxicology of carbon monoxide. *Toxicology*. 2003;187:25-38.

8.5 Loose Anagen Syndrome

Keyword: Floppy sock

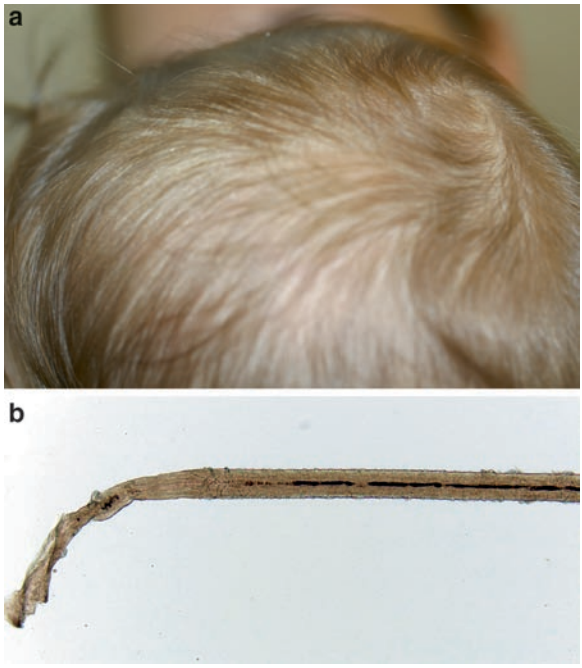

FIGURE 8.5. Loose anagen syndrome. (**a**) Mild thinning of scalp hair is noted. (**b**) The root shows a ruffled cuticle similar to a floppy sock.

Loose anagen syndrome usually presents in young blond girls. Parents often report that the child's hair seldom needs cutting and stays short. Hairs are easily and painlessly plucked from the scalp, revealing a ruffled cuticle and no root sheath, giving it the appearance of a "floppy sock." This pathology is thought to result from premature keratinization of the inner root sheath and poor anchoring of the growing hair. Most cases improve slowly with age.

Li VW, Baden HP, Kvedar JC. Loose anagen syndrome and loose anagen hair. *Dermatol Clin*. 1996;14:745-751.

8.6 Trichorrhexis Nodosa

Keyword: Broomsticks

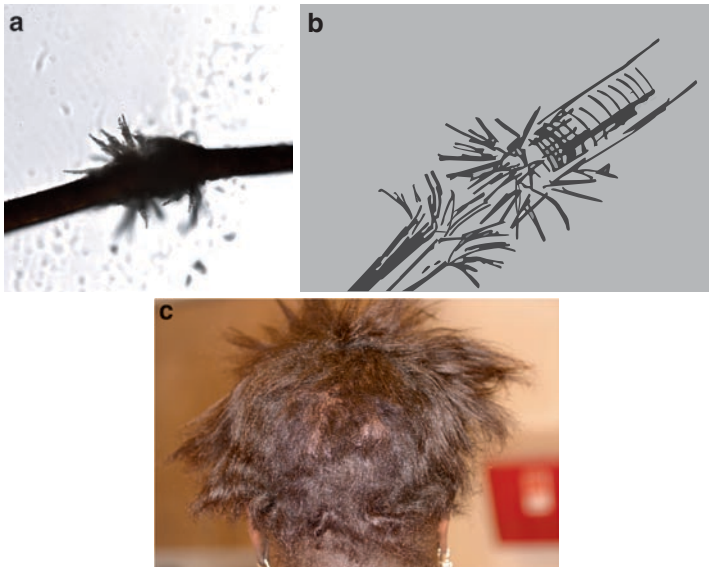

FIGURE 8.6. Trichorrhexis nodosa. (**a**) The node (that breaks) has the appearance of two brooms stuck together. (**b**) The node has the same appearance (artist's representation). (**c**) Diffuse breakage of hair is evident.

Trichorrhexis nodosa is a structural hair abnormality in which nodes are formed along the hair shaft. These nodes break easily, leaving the hair with the appearance of two brooms. The condition can be either acquired or congenital. The acquired form can occur in normal hair secondary to chemical or physical trauma, such as chemical perms and heat styling. The proximal form is more common in blacks, whereas distal trichorrhexis nodosa is more common in whites. The congenital form may be associated with metabolic disorders such as arginosuccinicaciduria, a rare autosomal recessive disorder involving the urea cycle. In this disease,

the hair shaft is fragile due to a deficiency in arginine and breaks in response to minimal trauma. Treatment for trichorrhexis nodosa is limited and involves minimizing trauma to the hair. Heat, chemicals, and excessive brushing should be avoided. Any associated metabolic disorders should also be addressed.

Fichtel J, Richards J, Davis LS. Trichorrhexis nodosa secondary to argininosuccinicaciduria. *Pediatr Dermatol*. 2007;24:25-27.

8.7 Trichotillomania

Keyword: Different length hair

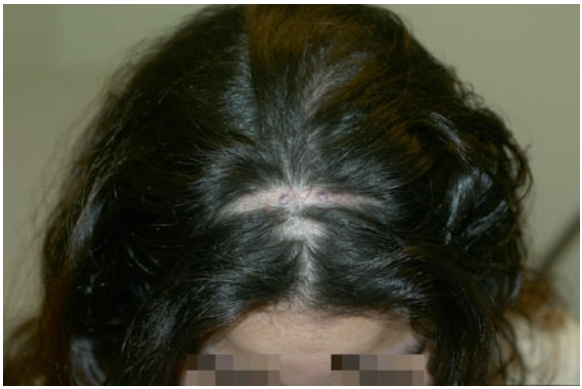

FIGURE 8.7. Trichotillomania. Mild alopecia is present in the frontal scalp. Hairs of different lengths are present on palpation.

Trichotillomania, a disorder in which one pulls one's own hair out, is derived from the Greek and loosely translated means "hair pulling madness." Most commonly, hair is plucked from the scalp, but eyebrows, eyelashes, and pubic hair may also be involved. Patients are left with patches of alopecia containing hairs of different lengths. The disorder has been classified as an impulse control disorder; however, many patients do not fulfill the criteria for this. Some believe trichotillomania is better classified as an anxiety disorder. It usually presents between the ages of 9 and 12 years and is more common in girls. First-line therapy should include familial support and behavioral counseling. Substitution behavior, replacing the harmful plucking with topical administration of a lotion, has been helpful. Some studies have shown improvement with adjunctive therapy with selective serotonin reuptake inhibitors.

Tay Y-K, Levy M, Metry D. Trichotillomania in childhood: case series and review. *Pediatrics*. 2004;113:e494-e498.

8.8 Subungual Hematoma

Keyword: Turf toe

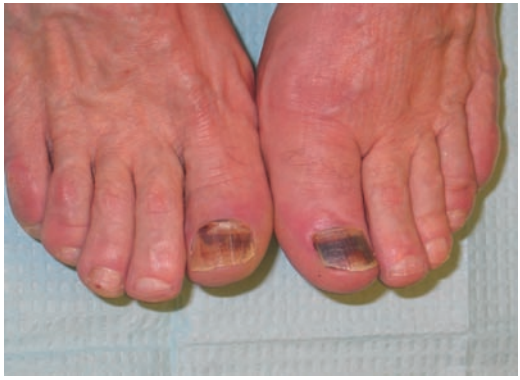

FIGURE 8.8. Black discoloration is present beneath the great toenails in subungual hematoma.

Subungual hematomas appear as a purple-black discoloration of the nail plate and proximal nail fold. If acute, these lesions may appear red and are painful, whereas chronic lesions are purple-black and are not painful. Athletes may develop sports-related subungual hematomas. Particularly, athletes who play on artificial turf develop subungual hematomas secondary to repeated trauma each time the toe contacts the inside of the sneaker. In addition to the hematoma, athletes may damage the periarticular structures of the metatarsophalangeal joint complex ("orthopedic turf toe.") The differential diagnosis of subungual hematoma can include malignant tumors, onychomycosis, and subungual exostosis. A radiograph of the digit may be indicated if a fracture of the underlying phalanx is suspected. Treatment of subungual hematomas involves puncturing the nail plate to drain the hematoma (trephination). This typically provides pain relief and minimizes further damage to the nail plate and matrix. Trephination can be accomplished with a hot 18-gauge needle, a hand engine with a dental burr, or a handheld cautery unit among other possible modalities.

Cohen PR, Schulze KE, Nelson BR. Subungual hematoma. *Dermatol Nurs*. 2007;19:83-84.

8.9 Telogen Effluvium

Keyword: Defluvium

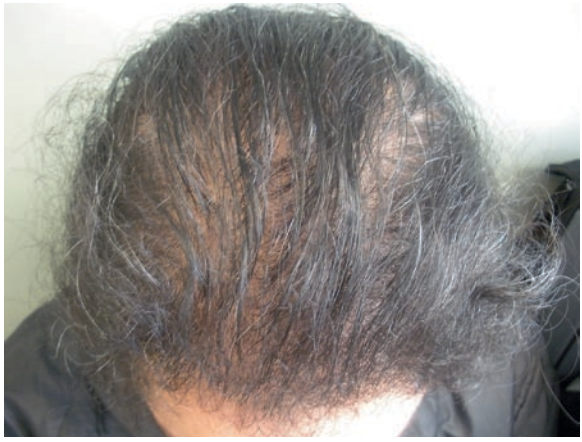

FIGURE 8.9. This patient with telogen effluvium has marked alopecia. A tiny root is present on the telogen hairs.

Telogen effluvium is a nonscarring alopecia that is characterized by increased hair shedding in response to one or more of a variety of insults. The insults can come in many forms such as postpartum stress, iron deficiency, emotional distress, illness, thyroid disease, vaccinations, crash dieting, excess vitamin A intake, or discontinuation of hormonal medications/supplementations. These stressors result in an increase in the percentage of telogen hair follicles that are recognized by a positive pull test with at least four hairs per tug. Once in the telogen phase, hair follicles are no longer actively growing and are easily shed. In 1994, Headington stated that for "semantic accuracy" telogen effluvium should be referred to as telogen defluvium, reflecting the fact that the disease is a pathologic loss of telogen hairs. Shed telogen hairs are characterized by having a small bulb of keratin on the root end. Telogen effluvium does not result in complete hair loss, but hair can become noticeably thinner. Hair loss is usually limited to the scalp, but in severe cases eyebrows and pubic hair can be affected.

In addition, there should be no clinical signs of scarring or inflammation. Treatment for telogen effluvium requires identification and correction or removal of the inciting insult. In acute telogen effluvium, the insult is short-lived and the balance between telogen and anagen hairs is restored within 6 months and normal hair density is usually achieved within 1 year.

Hadshiew IM, Foitzik K, Erck PC, Paus R. Burden of hair loss: stress and the underestimated psychological impact of telogen effluvium and androgenetic alopecia. *J Invest Dermatol*. 2004;123:356-363.

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