
DERMATOLOGIC DISORDERS OF THE EYELIDS

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BASIC DERMATOLOGY

The skin is made of three integrated layers: the epidermis, dermis, and subcutis. The epidermis is the outermost layer and immediate buffer to the external environment, consisting almost entirely of keratinocytes (squamous cells) and a sparse splattering of dendritic Langerhans cells (the antigen-presenting cells) and dendritic melanocytes (pigment cells). The latter cells share the basement layer with the replicating keratinocytes (one melanocyte to eight keratinocytes). Epidermal thickness varies over different parts of the body; it is thickest on the palms and soles, adapted for the everyday friction of gripping and walking, and thinnest on the eyelids, which must be light and flexible. The dermis lodges all the accessory structures seen in the skin (i.e., hairs, sebaceous and eccrine sweat glands, nerves, and blood vessels). The thinness of the dermis of the eyelid is a requisite to maintain its flexibility, thus allowing for very few accessory structures, but it is particularly abundant in arteriovenous anastomoses. Mast cells and fibroblasts are the normal cellular residents, but inflammatory (basophils, eosinophils, T cells) are summoned when needed to ward off all "non-self" invasions. The subcutis is virtually absent in the eyelids, consisting of a fine, loose, fibrous layer of connective tissue containing practically no fat cells. Thus, the epidermis and dermis may slither easily over the palpebral musculature.

Because dermatology is a visual specialty, diagnoses can be made almost entirely from the clinical presentation. Recognizing the few specific changes from "normal" skin, combined with awareness of their

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evolution and course, allows the assignment of the change to a specific pathologic process (disease). The clinical presentation is identified as *primary* (the pathophysiologic result of the stimulus causing the disease) or *secondary* (the later evolutionary change attributable to persistence of the primary lesion).

Clinical Lesions

Clinical lesions are what the diagnostician must observe, palpate, and sometimes, “whiff” to arrive at a diagnosis. Almost all diseases present with a primary lesion, but it is not unusual to see combinations of primary lesions (i.e., maculopapules, papulopustules) that often, later, make evident secondary characteristics.

Primary Lesions

Identifying the “primary” presentation of a skin disease is very helpful in arriving at the correct diagnosis.

Macules. The purely visual presentation of a lesion is its color change. Most often it is an erythematous hue, a result of the vascular dilation, induced by heat or inflammation, and less often by malformation (telangiectasia). Brown discoloration is determined almost entirely by the intensity of melanin deposition in the epidermis. Its absence is seen in *albinism*, a markedly decreased concentration is noted in *vittiligo*, and higher concentrations are present in *lentigine* (freckles). Less common color changes include yellow (the result of cholesterol present in infiltrating foam cells [*xanthomas*]) or an ecchymotic, purple-blue-black of trauma (“black eye”), or as the gray-black discoloration due to homogentisic acid in *ochronosis*. Pigmentary changes may be seen from the deposit of fine metallic particles in the skin, silver (*argyria*), gold (*chrysoderma*), and acquired from tattoos, either traumatic or decorative.

Papules. These solid lesions are usually dome-shaped and smaller than 1 cm in diameter, and can be palpated when their surface is lightly stroked. Larger palpable lesions are referred to as *plaques*. When light pressure is applied, inflammatory papules may disappear whereas non-inflammatory (but infiltrative) lesions remain palpable. *Milia*, *syringomas*, *nevi*, *sarcoid* and *trichoepitheliomas* are common papules of the eyelids.

Pustules. Palpable purulent lesions may present as tiny follicular accretions (*hordeolum*) or large, flaccid, sometimes ballotable sheets (*impetigo*). Often the purulent material is sterile and may represent the result of a very inflammatory (noninfectious) reaction.

Vesicle. A well-circumscribed, thin-walled, elevated lesion containing serum of less than 1 cm in diameter (*hidrocystoma*). When these lesions are larger than 1 cm they are identified as *bulla* (poison ivy).

Wheals. A dermal phenomenon that presents as a smooth, normal epidermis, nonpitting, edematous, most often erythematous, infiltrative plaque (periorbitally most common as *angioedema*). Papular urticaria

(arthropod bites) are wheals that are usually less than 1 cm in diameter whereas on the trunk they may occur as giant scalloped plaques (resembling continents on a map) that are usually allergic. Serpiginous, arcuate plaques have been labeled *multiforme*.

Nodule. Any palpable solid lesion that can be grasped between two fingers is labeled a nodule. Many benign tumors and some malignant tumors are noncompressible “nut-like” masses.

Secondary Lesions

These are features that are most often seen with the primary lesions, but can also occur without them. Scales are characteristic of the ichthyoses. The most common factitial dermatosis is *neurotic excoriations*. They occur as a result of pathologic evolution, environment, or factitial effects on a primary lesions.

Scale. Sheets of partially attached stratum corneum from overproduction of epidermis or delayed desquamation. The squames may vary in size and thickness from fine flake-like to large (fish scale) plates. When the scale is thick it may crack and fissure. Maceration is seen when scale appears white and moist, which occurs when scale becomes saturated with fluid (water, sweat, other body fluids).

Erosion. An irregularly outlined absence of some of or the entire epidermis. Erosions may result from chronic rubbing trauma or a slight impairment in the vascular supply to the area.

Excoriations. Linear, craterform disruption of the epidermal surface, and sometimes dermis, resulting from mechanical (or external) implements, most often the nails; however, they can be caused by instruments such as hairpins, coins, and other objects.

Ulcers. A well-circumscribed absence of the epidermis, and sometimes the dermis, and some subcutis. Almost always the result of vascular damage, depriving the upper layers of its required nutrients.

Lichenification. Thickened, more prominent dermatoglyphics (normal skin markings [i.e., fingerprints]). This results from chronic scratching or rubbing.

Pathogenesis

Categorizing dermatologic entities according to their origin can be very helpful in making the diagnosis and prescribing the appropriate therapy. Obtaining an accurate history from onset and progression to its observed presentation should allow consideration of the differential diagnosis.

Genetic

These abnormalities are noted at birth or shortly thereafter. Most genetic lesions are morphologic (i.e., nevi, angiomatous [port-wine

marks)). Their evolution is usually gradual and they are rarely inflammatory. The inflammatory genetic presentations are "reaction-patterns," i.e., atopics that eczematize and lichenify, seborrheics that develop blepharitis, as do patients with rosacea. Some hyperlipemics form xanthelasma.

Infection

Like infection in any other area, its presentation is usually dependent on the organism present. A confusing issue regarding the bacteriology of the skin is the presence of normal flora. Many of the normal organisms are opportunistic and will proliferate to abnormal concentrations on abnormal skin (i.e., *Pityrosporon ovale* in seborrheic dermatitis; *Demodex* in rosacea). Bacterial cultures of most inflammatory rashes will yield false-positive results of *Staphylococcus aureus*; thus, basic tenets of infection should be applicable to eyelid infections, namely rubor, calor, tumor, and dolor (i.e., cellulitis). *S. aureus* can also act as a "super-antigen," especially in atopic dermatitis, when its presence may not produce pus, but exacerbate the itchy spongiosis.

Not all round lesions are ringworm. Fungal infections of the skin are usually scaly, mildly inflammatory, and easily confirmed by KOH examination or fungal culture. Yeast (monilia) are opportunistic organisms seen most often in diabetics and immunocompromised patients.

Allergic

Immunologic mechanisms of defense are inflammatory responses resulting from an upregulation of the body's "natural" defenses. The four Gell & Coombs classifications are all referred to as *allergic*, but the type I immediate (IgE mast cell-mediated) is the best recognized allergic reaction. These allergic rashes are always itchy and red, except periorbitally, where they present as a disfiguring, virtually nonpruritic angioedema. Contact urticaria is rare despite the sensitivity of eyelid skin. The prototypic type IV delayed reaction manifests itself on the skin as spongiosis (eczema [i.e., atopic dermatitis or contact dermatitis]). Contact dermatitis must always be considered if there is a history of exposure that includes almost everything the patient touches with his hands or applies to his face, especially his eyelids. Except for dilantin and bleomycin, systemic drug allergies do not cause eczematous (spongiotic) rashes. Systemically administered drug eruptions, if not urticarial, are usually type III (immune-complex type) reactions.

Tumor

These lesions are self-explanatory, as described previously. The history (new or old), progression (slow or rapid growth), and secondary changes should determine the course of management.

Dermatologic Disorders

There are dermatologic disorders that cannot be assigned to any of the previously mentioned categories that are unique to the skin: psoriasis, lichen planus, and granuloma annulare; rarely do these involve the eyelid. More important, however, is the importance of examining the skin of the entire body to detect the presence of these skin diseases.

Dermatologic Testing

The skin's ready accessibility allows for easy examination. When the diagnostic impression needs confirmation, tests are used. Cultures on appropriate media for bacteria, fungi, yeast, or viruses, are available for identification. Fungi and yeast can be microscopically (after KOH digestion) identified from scrapings. Tzanck smears from blisters can demonstrate the giant viral bodies of herpes.

Biopsies, with all their limitations, are especially helpful in identifying a tumor, but may be less diagnostic for inflammatory lesions. Biopsy of a tumor may be shaven off whereas inflammatory lesions are more amenable to a "punch"-type procedure. Unless the tissue obtained is properly processed and interpreted, the biopsy is of little value. All dermatologic biopsies should be reviewed by a dermatopathologist. The clinical differential for all eczemas includes 23 diagnoses; therefore, these biopsies are helpful in confirming the impression of eczema (spongiosis) and are very valuable in ruling out other clinical simulators (i.e., psoriasis, cutaneous T cell lymphoma [CTCL]).

Patch testing is indicated for all persisting, eczematous eruptions of the eyelids. It is recommended that these patients all be tested to the "standard" patch tests provided by Hermal Laboratories or the T.R.U.E. test (Glaxo). Special antigens are available for those patients in contact with substances not found on the "standard" trays. Although applying patch tests is simple, interpreting the reaction is often a challenge, even to the most experienced.

Dermatologic Therapy

"Primum non nocere" remains the basis of dermatologic therapy. Getting the patients to confess all the "treatments" applied to the problem often is more difficult than making the right diagnosis. Applying any nonphysiologic substance to abnormal skin can only cause more (superimposed) inflammation. The very thin eyelid skin is more vulnerable to all noxious substances.

Eliminating the cause of a dermatologic problem should be the goal of treatment; unfortunately this is not always possible. Symptom relief should always be a high priority of therapy. All itches are not caused by the same mediator. Whereas antihistamines are most effective in

eliminating the itch of histamine in the skin, they are most ineffective when the itch is caused by kinins, prostaglandins, and so forth. Histamine-induced itches must be accompanied by the Triple Response of Lewis (i.e., wheal, erythema, and a flare). Other than corticosteroids (topically or systemically), antagonists to other mediators are wanting. Cold dressings (wet or dry) are effective antipruritics (and they are mildly anti-inflammatory).

Topical steroids produce their effect by inducing local vasoconstriction and decreasing inflammation and mitotic rate. A basic rule for topical corticosteroid therapy is *never* apply potent (fluorinated) steroids to thin skin, including the eyelids. Chronic use of potent steroids inevitably causes atrophy of both the epidermis and collagen. Telangiectasia and rosacea-type inflammation also are common side effects. Chronic inflammatory dermatoses (eyelid dermatitis of any cause) should be managed with the least potent topical steroid, and only very acute (contact) dermatitis deserves a short course (less than 7 days) of more potent topical steroid. Cataract formation from topical application of mild or midpotent corticosteroids to the eyelids is rare.⁵ Glaucoma is more often associated with topical ocular or periocular steroids than with systemic steroids. Recommended screening includes a baseline intraocular pressure measurement, then routine pressure measurements taken every few weeks initially, then every few months. Topical ocular steroids decrease the immunologic competence of the eye and render it more vulnerable to bacterial, viral, or fungal infection. The mechanism of action of systemic steroids include immunosuppression, inhibition of inflammation, and suppression of the hypothalamic-pituitary-adrenal axis.⁵⁹

Pyodermas respond nicely to topical antibacterials (polysporon, mupirocin). Rarely is a culture and sensitivity required. No antifungal or antimonilial drug should be used without documentation that the organism is present. Relying on clinical impression alone is often disappointing.

Combination therapy (i.e., anti-inflammatory with an antibacterial or antifungal agent) is to be condemned. Rarely does a disease need both therapies for the same duration. When two therapies are desirable (blepharitis) it is wiser to apply each separately as needed.

Other systemic therapies are discussed with specific diseases.

MACULAR LESIONS

Seborrheic Dermatitis

Seborrheic dermatitis is considered the dermatitis (inflammation) of "well-oiled" skin, affecting 2% to 5% of the population. It is very symmetric, localizing itself almost exclusively to the scalp (particularly along the anterior hairline), central area of the face (especially the nasolabial folds), the eyelids, eyebrows, ears (most common retroauricularly),

presternal area, axilla, groin, and pubic area. The prototypic seborrheic lesion consists of an adherent "greasy" scale overlying an (inflammatory) erythema. In its acute or eruptive stages it can be quite pruritic. It most frequently presents on the eyelid as seborrheic blepharitis. The margins of the eyelid are red, with small adherent scale (squame). Crusts may form, especially on arising. In rare cases, it may destroy the eyelash follicle. This problem could be recurrent or chronic and then may resolve spontaneously. Because the blepharitis may occur independent of involvement of the classical seborrheic areas, its relation to the seborrheic state is controversial. It is often confused with psoriasis, except that psoriasis almost never involves the face, and when it does, it is usually labeled *seborrhiasis*.

The most recent evidence supports the cause of seborrheic dermatitis as being an infection by the lipophilic organism *P. ovale*, an organism more often considered to be part of the normal flora of the skin. The lipid which the *P. ovale* thrives on is produced by mature sebaceous glands. Seborrheic dermatitis seen in the newborn (as "cradle cap" or blepharitis) is a result of maternal androgens that activate the newborn's sebaceous glands. At puberty endogenous androgens can bring about the seborrhea necessary for the appearance of dermatitis. It is more common in males of all ages. Meibomianitis and recurrent hordeola can complicate ocular seborrhea.⁷⁸

Seborrheic dermatitis may be a complication of neurologic disorders, especially Parkinsonism, epilepsy, and multiple sclerosis. More recently, seborrheic dermatitis has been identified as a common early sign of HIV infection.

Treatment

Seborrheic dermatitis is easily managed, but not cured. Eyelid crusting and scale can be managed with warm saline compresses as needed. It is extremely steroid sensitive. One percent (and rarely 2.5%) hydrocortisone is potent enough to clear the dermatitis. Response to topical ketoconazole has been most rewarding in some patients, and systemic ketoconazole is reserved for the more severe cases. Prophylaxis can be achieved with the regular use of zinc pyrithione (1%) or selenium sulfide (2.5%) shampoos, which must be left on the skin (on all the seborrheic areas) for at least 3 to 4 minutes twice a week. Persistent or recurrent *meibomian inflammation* requires 8 to 12 weeks of systemic antibiotics (erythromycin 250 mg qid or tetracycline 500 mg bid).

Vitiligo

The insidious, progressive, symmetrical, patchy loss of pigment is often a devastating cosmetic problem. Vitiligo is a common acquired heritable melanocytopenic disorder. The scope of the problem is directly proportional to the color of the normal skin (no race is spared) and the

location afflicted. Classically, the loss of pigment is noted in areas of trauma (Koebnerization) and periorificially; thus, the eyelids are frequently involved. Many patients attribute onset of their disease to some emotional life crisis. Iris and retinal pigmentary abnormalities are seen in up to 10% of patients.⁴⁰ The hypopigmented (chalk-white) macules present with a normal epidermis, lacking the scale noted in pityriasis alba (seen often in atopsics) and tinea versicolor. Postinflammatory hypopigmentation may occur following the resolution of an eyelid dermatitis. Vitiligo usually occurs in healthy patients, but if a few white eyelashes are noted, Vogt-Koyanagi syndrome must be ruled out. An association between vitiligo and autoimmune thyroid disease has been suspected based on an increased incidence of patients with thyroid dysfunction and thyroid autoantibodies.³¹ *Diabetes mellitus*, both juvenile and adult-onset, occurs in 1% to 7.1% of vitiligo patients,⁵⁴ conversely, vitiligo occurs in 4% of diabetics.¹⁶

Treatment

Eyelid vitiligo can best be camouflaged with cover-up, skin-matching (customized) cosmetics (DermaBlend, Covermark). Topical or systemic psoralens plus ultraviolet (PUVA) therapy should be reserved for extensive (or psychological) involvement, and it should be administered by physicians experienced with its use.

Dermatomyositis (Heliotrope)

A purplish-red (violaceous) erythema of the eyelids, the adjacent upper cheeks, the forehead, and the temples is regarded as the diagnostic cutaneous manifestation of *dermatomyositis*. As the disease progresses, edema of the eyelids and periorbital tissues is not uncommon. The typical cutaneous manifestations may precede the development of muscle weakness⁷¹ or occur in the absence of laboratory or other diagnostic evidence of an inflammatory myopathy. Muscle disease seems to appear in most patients after 2 years. Some patients may present with clinically undetectable muscle disease. There is a subset of patients with only cutaneous disease. It has been recommended that the appropriate evaluation of patients with dermatomyositis include a search for an occult malignancy,⁶⁹ and patients with only cutaneous findings should also be evaluated in the same manner.¹²

Obtaining a skin biopsy specimen may be required to differentiate the persistent, violaceous discoloration of the heliotrope from the subtle, chronic eyelid dermatitis of some patients with contact dermatitis. The superficial perivascular lymphocytic infiltrate with vascular interface changes, plus the presence of necrotic, apoptotic keratinocytes along the epidermal basement membrane, is pathognomonic for dermatomyositis.⁵³

Treatment

The cutaneous eruption of dermatomyositis is often resistant to therapy.¹¹ Response to therapy (systemic corticosteroids, hydroxychloroquine) must disassociate the cutaneous response from the muscle disease so a reduction in dosage is not delayed.

Port-Wine Stains

The vascular birthmark, or *naevus flammeus*, is a vascular malformation that is present at birth and remains throughout life; there is no involution. The port-wine stain is flat and sharply demarcated and grows proportionally with the child. The color ranges from pale pink to deep red; the hue varies with all vasodilatory or vasoconstrictive situations. With aging the lesion darkens, and often becomes raised and studded with nodular lesions.⁴⁶ Port-wine stains can accompany other developmental defects, i.e., *Sturge-Weber syndrome*. There is a 45% chance of a child having ipsilateral *glaucoma* if there is a port-wine stain of the eyelid.⁴⁶

Treatment

Treatment includes a cosmetic cover (i.e., Covermark, and Derma-blend), or scarification, best achieved by laser therapy.

Nevus of Ota

The nevus fusco-ceruleus ophthalmomaxillaris, is a confluent, unilateral, blue-gray, macular pigmentation with trigeminal distribution, which commonly appears during the first year of life, and is associated with ocular and palatal pigmentation.⁵⁶

PAPULES OR PLAQUES

Xanthelasma

Xanthelasma palpebrum⁷ is the most common type of xanthoma. Its prevalence is higher in women and it tends to increase with age. These usually bilateral, symmetrical, yellow-tan, velvety plaques start medially as a papule on the upper eyelids and slowly spread laterally, and may cover a large portion of the lid. The lower eyelid is rarely extensively involved. The plaques are composed of foamy histiocytes (filled with cholesterol) and an occasional Touton giant cell. Xanthelasma usually represent localized cutaneous phenomenon, but they may herald a systemic hyperlipidemia, which may be associated with increased risk of

arteriosclerotic vascular disease and, less often, with pancreatitis. In general, only half the patients with xanthelasma palpebrum are hyperlipidemic. Patients with xanthelasma had a higher prevalence of personal and familial history of cardiovascular disease and were more overweight than control subjects.⁶⁰ The possible risk for atherosclerosis in normolipidemic patients with xanthelasma is obscure.⁷ Xanthelasma occurs more frequently in diabetics than the normal population.³ Most recent studies^{16, 54, 71} underline the need to determine a full lipid profile in patients with xanthelasma palpebrum to detect those potentially at increased risk of cardiovascular disease.

Treatment

Cosmetically, the xanthomatous plaques can be surgically excised, lasered, and treated with liquid nitrogen or trichloroacetic acid; however, it is not unusual for the lesions to recur within a few years.

Seborrheic Keratosis

These "barnacles of old age" present as greasy, thick, keratotic papules, varying in color, including skin-colored, tan, and black. They can appear anywhere on the body, but there is a predilection for the bitemporal skin. Unlike the sun-induced actinic keratoses, seborrheic keratoses are frequently seen on the eyelids; in black skin the genetic form is called *dermatosis papulosa nigra*.²⁷ Seborrheic keratoses are not sun-induced, but slow growing, and benign.

Treatment

Treatment is predominantly for cosmesis. Their exophytic nature allows them to be best removed by curettage, cryosurgery, and lasers. Pedunculated, polypoid lesions can be easily excised. All black lesions warrant histologic examination to rule out malignant melanoma.

Rosacea

Rosacea is a chronic "blushing syndrome." Although the cause is unknown, factors that induce blushing are precipitative, including alcohol, spices, hot beverages, emotional stress, and extremes of environmental temperature. It is characterized by redness (that looks like a blush), telangiectasia, and the episodic or chronic presence of inflammatory papules and pustules. Unlike acne vulgaris, the nose is almost always involved in rosacea. The famous "W.C. Fields nose" (rhinophyma) is a rare complication. It is most common in the third and fourth decade, but it may be seen in adolescents and the elderly. Although rosacea is

more common in females, ocular rosacea occurs with equal frequency in men and women.¹⁹

Ocular complications occur in 50% of patients with rosacea.¹⁰ The most common ocular complication is conjunctivitis, with soreness and grittiness of the eyes. Blepharitis, trichinosis, episcleritis, chalazion, and hordeolum are also seen in patients with rosacea. Ocular rosacea can be severe despite relatively minor typical facial involvement. The most common corneal finding is an inferior punctate keratopathy.⁴⁴ Ocular lesions may precede cutaneous lesions by many years,⁹ and they are usually chronic and progressive.²⁶

Treatment

The blephritis, keratitis, and the inflammatory papules and pustules respond best to tetracyclines (especially minocycline 100 mg/d and doxycycline 100 mg/d), and these agents are beneficial in diminishing the erythema. Spontaneous exacerbations of ocular rosacea are the rule, and maintenance treatment is usually desirable. Lid hygiene is the mainstay of treatment of ocular rosacea. Five to 10 minutes of warm compresses on the eyelids serve to heat and melt the lipid secretions in the meibomian glands. Gentle massage of the tarsal plate can be used to express secretions from the glands. Many patients have moderate to severe dry eyes, and treatment with artificial tears can often dramatically improve a patient's symptoms. Topical antibiotics applied to the lid margins can be useful in decreasing the bacterial flora. Topical glucocorticoids reduce the inflammatory component, but treatment should be of short duration because they may accentuate the telangiectasia.⁷⁰ Metronidazole (250 mg, one to three times per day) is reserved for the more severe cases of rosacea.

Comedones

Comedones, better known as *blackheads*, represent a plugged-up sebaceous gland. They are most easily recognized as the primary lesion of acne vulgaris, occurring on the forehead, cheeks, and chin of most teenagers. Larger, more distinctive comedones are also seen in the actinically damaged periorbital skin of elderly people, although inflammatory papules and pustules do not develop from the latter.²⁴ The ultraviolet damage to the supporting dermis allows the pilosebaceous duct to become easily distended with impacted keratinocytes. Similar lesions may be seen in pseudoxanthoma elasticum. Grouped periorbital comedones have been reported in female patients with urinary tract disease, hypertension, or diabetes mellitus.¹

Treatment

Treatment is expression of the ductal cast with a comedone extractor and then application of topical retinoic acid (0.25–0.1% cream hs) indefinitely.

Syringoma

Syringomas are common, benign, periorbital adnexal tumors that usually pose nothing more than a cosmetic dilemma for both patients and physicians. These crops of individual, small, skin-colored, yellowish, sometimes translucent papules appear symmetrically over the eyelids and malar area. They vary in size from 1 to 5 mm. Their surface may be dome shaped or flat-topped, and the outline is angular. It is an uncommon benign tumor of the sweat ducts. It is more common in females, most likely to appear at adolescence, and more lesions may develop during adulthood. It is not hereditary. Palpebral syringomas have been reported to be more frequent in patients with Down's syndrome than in the normal population.⁶⁵

Treatment

Treatment is entirely for cosmesis. Each papule can be destroyed by electrodesiccation.³⁶ Dermabrasion is often followed by regrowth.

Carcinoma (Basal or Squamous)

Early basal cell and squamous cell carcinomas may look like any papular lesion. Upon stretching the skin, inflammatory lesions tend to disappear whereas a carcinoma usually becomes more visible. Telangiectasia surrounding a papule is more suggestive of a carcinoma. The classical "pearly" appearance is noted when the lesion becomes more nodular.

Molluscum Contagiosum

Molluscum contagiosum, as the name implies, is an infectious disease caused by a poxvirus. The age of peak incidence is reported between 2 and 10 years old. Eyelid lesions are most common in patients who are immunosuppressed (i.e., HIV,²¹ transplant patients, atotics, sarcoidosis).⁴⁸ The individual lesion is an asymptomatic, discrete, waxy, pearly white, dome-shaped, umbilicated papule that may show a macroscopic central pore. Although they usually are 1 to 3 mm in diameter, they may attain larger sizes (i.e., 1 cm) and are usually grouped in one or two areas. Most adults are resistant to infection. It is not unusual to appear in crops in immunosuppressed patients. Chronic conjunctivitis and superficial punctate keratitis may complicate lesions on or near the eyelids.²⁹

The diagnosis of molluscum contagiosum is usually obvious when multiple lesions are present. Rapid freezing with ethyl chloride or liquid nitrogen (especially on the eyelid) accentuates the distinctive umbilication. Direct microscopic examination on a curetted lesion crushed on

a slide establishes the diagnosis.⁶⁸ Molluscum contagiosum must be differentiated from flat warts, varicella, pyoderma, and epitheliomas.

Treatment

Cryotherapy is the treatment of choice for eyelid lesions, but it is often reasonable to leave mollusca to resolve spontaneously, especially in young children.⁵² Individual lesions may last 2 to 4 months, but the development of new lesions by autoinoculation is common. Most cases resolve spontaneously in 6 to 9 months, but some may persist for 3 years or longer.⁴¹

Flat Warts

Most warts represent no more than a transient viral infection of the skin. Human papillomavirus (HPV), however, has recently received increased recognition as a more serious agent in the immunocompromised patient. HPV is inoculated into viable epidermis through breaks in the skin, and more easily through very thin skin, as found on the eyelids. To date, at least 60 HPV types have been identified.¹⁷ Each HPV type has been organized in a clinically relevant way, based on clinical behavior and location of preference. Thus, the majority of verruca vulgaris (common wart)-causing HPVs do not infect the eyelid (or genitalia). Flat warts, or verruca plana, are less exophytic and less hyperkeratotic than other cutaneous warts; color ranges from tan to pink. They are most often seen on the face, particularly the eyelid and chin areas. They are often present in large numbers and usually are most difficult to eradicate.⁴⁵

Treatment

Recalling that HPV infections are "transient," the least destructive modalities should be used. Very light electrodesiccation, or lightly touching each lesion with liquid nitrogen, can be most rewarding.

Milia

Milia are whitish, dome-shaped, firm, benign lesions that are 1 to 2 mm in size. They usually arise spontaneously, but may be the result of frequent or severe sunburns, surgical trauma, and bullous disease. Numerous milia have been noted in areas of atrophy and telangiectasia secondary to prolonged use of topical steroids.⁷⁵ They are found most often in the areas of vellus hair follicles, particularly on the cheeks and eyelids.⁴² Histologically, they are small subepidermal keratin cysts.

Treatment

A very effective treatment consists of a "prick" incision of the lesion, made with a #30 needle, and then gentle expression of the contents with a comedone extractor. (Should no sebaceous material extrude, consider sebaceous carcinoma, an aggressive, malignant tumor⁴⁹ often associated with an underlying malignancy.¹⁸) Recurrence is uncommon. Topical treatment (retinoids) is disappointing.

Lipoid Proteinosis

This genetic disorder of protein deposition forms papular and nodular lesions on the face. The classic ophthalmic sign is the "string of pearls" along the eyelid margins. When the entire lid is involved, trichiasis, punctal occlusion, and meibomian gland dysfunction may result.¹³

WHEELS OR EDEMA

Angioedema

Angioedema is characterized by nonpruritic, nonpitting, well-circumscribed swellings with a normal, skin-colored epidermis. This is a variant of urticaria, in which the subcutaneous tissues, rather than the dermis, are mainly involved. Almost any part of the body may be involved, but the most common sites are the lips, eyelids, and genitalia. Less common is the more precarious involvement of the tongue, uvula, epiglottis, and larynx, which may result in serious obstruction of the airway. The lesions may last from 1 to 2 hours and occasionally persist for 2 to 3 days. Acute angioedema is defined as a single, short-lived episode, in which case a cause is more likely to be identified. Although the almost daily appearance of angioedema, which lasts for 4 to 6 weeks, is labeled as "chronic," the specific cause is rarely identified. Chronic angioedema is associated with urticaria in 50% of cases and occurs without urticaria in 10% of cases. They show the same multiple causes and prognosis as chronic idiopathic urticaria. It is no more associated with neurotic tendencies than is urticaria, and the term *angioneurotic* should not be used.

Food usually causes "acute" angioedema by an IgE-mediated mechanism. The incidence of allergic reactions to food is significantly higher in atopic patients.²⁰ The foods most frequently involved are shellfish, peanuts, eggs, and milk. In some highly allergic patients, contact with nuts, peanuts,⁴³ and shellfish can cause angioedema. Drugs that frequently cause angioedema by an IgE-mediated mechanism are β -lactams (penicillin and first- and second-generation cephalosporins), sulfonamides, insulin, vaccines, and allergenic extracts. Hymenoptera and fire ants may cause angioedema as a local or systemic allergic reaction.⁵⁸

A common identifiable cause of angioedema is not "allergic," but non-IgE-induced mechanisms. Sodium sulfite and metabisulfite, which are added to wine and salad dressings, have not only caused acute asthma, but urticaria and angioedema, and even anaphylactoid reactions in susceptible individuals.²⁸ Drugs (aspirin,⁶⁷ nonsteroidal anti-inflammatory drugs, tartrazine³⁵) that inhibit the cyclooxygenase pathway can cause angioedema, urticaria, and anaphylactoid reactions in some patients. Opiates and radiocontrast media can cause urticaria and angioedema as mast cell degranulators. Penicillin and antisera may cause IgE-mediated reactions, as well as an immune-complex mechanism that activates the complement pathway and releases histamine. Due to the increasing use of angiotensin-converting enzyme (ACE) inhibitors,⁵⁷ angioedema is seen more often in elderly (hypertensive) patients.⁴ These patients may develop serious facial and laryngeal edema several months after the initiation of treatment.²²

Angioedema may result from the activation of the complement pathway (which causes mast cells to release histamine) following blood transfusions, collagen vascular disease, and infections (viral, parasitic, and rarely bacterial). Angioedema has been associated with physical factors (i.e., cold, heat, pressure and vibratory). Periorbital and conjunctival edema may be early signs of hypothyroidism.

Hereditary angioedema patients become symptomatic within the second decade of life. Perioral and periorbital involvements, which are often seen in idiopathic angioedema, are not characteristic of hereditary angioedema.² Hereditary angioedema is characterized by episodic, painless, nonpruritic swelling of subcutaneous tissues and abdominal organs. The presence of urticaria associated with angioedema usually suggests a diagnosis other than hereditary or acquired angioedema.²³ Abdominal symptoms generally subside within 12 to 24 hours whereas the subcutaneous swellings may last for 2 to 5 days.

Treatment

Treatment of angioedema is the same as the treatment of urticaria. When "acute," the goal is to remove the trigger. When there is no obvious cause for the angioedema, and it continues to occur episodically, the aggressiveness of therapy depends on the duration and cosmetic unacceptability. Often any H₁ antagonist is sufficient; when more persistent, the addition of H₂ antagonists may prove very rewarding.²⁰ "Chronic" angioedema presents the same challenge of chronic urticaria. "Round-the-clock" antihistamines are needed, and adding or switching to H₁ antagonists from different classes has been helpful. A tricyclic antidepressant (doxepin 10–25 mg) has been shown to be a very potent H₁ and H₂ antagonist. When resistant to 100 to 150 mg of doxepin, consider oral β -agonists. Corticosteroids should be considered as the treatment of last resort.

Allergic Contact Dermatitis

Edema of the eyelid may accompany any inflammatory process involving that tissue. Plant dermatitis (poison ivy, chrysanthemums, tulips) frequently present or accompany more typical contact dermatitis on other parts of the body. Unlike angioedema, this eyelid swelling is itchy and red. The epidermis, or surface of the eyelids, usually demonstrates tiny, fine vesicles. Because it is not histamine-induced, antihistamines are usually of little value. Nonfluorinated topical steroids usually offer adequate relief, but when the eyes are swollen shut, oral corticosteroids (0.5–1 mg/kg/d for at least 14 days) may be indicated.

Heliotrope (Dermatomyositis)

When acute, the inflammatory immune complex disease may present with a violaceous swelling. The epidermis appears normal.

Erysipelas

This bacterial infection of the dermis and subcutaneous tissue is nearly always caused by *Streptococcus pyogenes*. Eyelid involvement is unilateral, and the red, tender edema is preceded by a high fever, malaise, headache, and vomiting. The lids feel tense and are very tender to touch.

It is often impossible to culture the streptococcus from the lesion, but it may be present in the nose, throat, or conjunctiva. Penicillin or erythromycin should be given as soon as the diagnosis is made and usually leads to rapid improvement.⁶¹

Trichinosis

The most important diagnostic clue for trichinosis is edema of the eyelids or a history of puffy eyelids.³⁸ The eyelid involvement is accompanied by systemic symptoms (i.e., high fever, nausea, diarrhea, myositis). Parasites should be identified on the muscle biopsy or larvae seen in the blood.

NODULES OR TUMORS

Chalazion

The circumscribed nodular quiet or inflammatory enlargement of a meibomian gland as a result of stoppage of its duct usually appears 3 to 4 mm from the lid margin, and slowly may reach the size of a small

pea. It feels hard and the overlying skin moves freely. It is adherent to the tarsus and not to the skin. On everting the lid a reddish-purple discoloration is noted of the conjunctiva. Chalazia are annoying for their disfigurement, and occasionally may cause conjunctival irritation. When small, they need no treatment; when larger, surgical excision is indicated.

Carcinoma

Basal cell and squamous cell carcinomas are sun-induced lesions that must be considered in the differential diagnosis of all growths of the eyelid. Patients with type I skin (always burn, never tan) are most susceptible. Basal cell carcinoma is the most common eyelid cancer.⁶⁶ It tends to grow slowly, and rarely, if ever, metastasizes. Ten percent of all basal cell carcinomas of the face involve the eyelids, usually the lower.⁶³ Squamous cell carcinomas of the eyelids are less common, favoring the upper eyelid, and are potentially more likely to metastasize. Sebaceous carcinomas⁵⁵ of the ciliate margins are often mistaken for a wart; thus, a biopsy is indicated for all wart growths involving the eyelid.

The shave biopsy (a single, shallow, horizontal incision made with a scalpel sweeping through an exophytic lesion) readily provides a specimen for histologic examination. Less exophytic lesions are best biopsied by a 3-mm skin punch. The punch biopsy is used to remove a small tissue cylinder from a lesion to obtain an adequate specimen from the depth of the lesion.

Basal cell carcinomas account for the overwhelming majority of malignancies in the periorbital area. Clues to diagnosis include effacement of the meibomian gland orifices with loss of adnexal structures, particularly the cilia. They present most frequently on the lower lid as pearly, *umbilicated papulonodules with discernible telangiectasia*.⁶⁴ These lesions are quite friable and are made to bleed with the slightest provocation. When the tumor "outgrows" its blood supply, a central ulceration (and scalp) develops. Lesions of a few millimeters in diameter on the eyelid respond nicely to electrodesiccation and curettage. Good results can be obtained with surgical excision, chemosurgery, cryosurgery, and radiotherapy in the hands of the physician highly skilled in the technique. All large lesions and those involving the inner and outer canthus require more aggressive treatment. Recurrent lesion should be excised by a Mohs' surgeon.⁶² Basal cell carcinomas rarely metastasize. Their importance resides in their ability to cause local tissue destruction.

Squamous cell carcinomas usually arise on skin that shows previous damage from the effects of sunlight, such as excessive wrinkling, multiple actinic keratosis, or irregular pigmentation. Squamous cell carcinomas represent about 5% of all eyelid malignancies. It frequently presents on the lower eyelid as a shallow ulcer surrounded by an elevated, ridge-like border. Often the ulcer is crusted, concealing a reddish, granular

base. Rapid growth of a lesion with a central horn-filled crater indicates a keratoacanthoma. Because squamous cells have a greater tendency to metastasize (up to 10%), they should be treated more aggressively than basal cell carcinomas, and surgical excision is preferred to ensure complete eradication of the entire tumor.⁶²

Sebaceous gland carcinoma is another malignant tumor of the eyelid, accounting for 1% to 5.5% of malignant tumors in that site.⁷⁴ This tumor has a 30% to 40% recurrence rate, and the tumor may be locally invasive, metastatic to regional lymph nodes or to the viscera with a fatal outcome.³⁷ Their most common site of origin is the meibomian gland, and they are notorious for mimicking benign inflammatory processes and for being subtle in appearance. Chronic blepharitis and persistent chalazia are the most common diagnoses made. A small full-thickness biopsy of the involved eyelid is most appropriate for good diagnosis. Wide local excision or Mohs' micrographic surgery is required.⁶⁶

Malignant melanoma of the eyelid is relatively uncommon and accounts for approximately 1% of eyelid tumors.²⁵ Approximately 40% are of the superficial spreading type and 50% are nodular. The clinical signs suggestive of a melanoma include asymmetry, variegate pigmentation, and border irregularity; approximately 40% of lid melanomas are nonpigmented.¹⁴ Tumor thickness is the most important predictor of prognosis.³⁹

Nevus

Compound or intradermal "moles" are the easily recognizable pigmented growths that have been present as long as the patient can remember. This collection of nevomelanoblasts (nevi cells) can occur in different layers of the skin, and thus are labeled according to their location. Congenital nevi are noted at birth and have a higher risk for becoming a melanoma. Acquired nevomelanocytic nevi evolve throughout life. When the pigment cells are confined to the epidermis they are called a *junctional nevus*. The majority of these macular, homogeneously pigmented lesions, usually measuring less than 5 mm in diameter, are round or oval and well demarcated with smooth borders, become clinically visible after the first 6 months of life, and have but the slightest risk of becoming a melanoma. Intradermal nevi histologically collect the nevi cells in the dermis and are considered the acquired nevi of adulthood. These present as homogeneously pigmented, clearly demarcated, sessile or pedunculated, dome-shaped soft polypoid masses with or without hairs. Compound nevi have nevi cells in both the epidermis and dermis. These nevi present as slightly elevated or papillomatous lesions. The potential for malignant transformation for intradermal and compound nevi is slight. The darker the pigmentation, the more variegated the color, and the more irregular or indistinct the borders of pigmented lesions, the greater the suspicion of it being a melanoma.

Treatment

The vast majority of cutaneous nevomelanocytic nevi may be left alone. Indications for removal are cosmetic, continual irritation, atypical appearance or evolution, lesions at high risk (i.e., congenital, dysplastic), or intensely pigmented lesions.

Sarcoid

Bilateral millet seed, violaceous, infiltrated nodules on the eyelids, including the lid margin, may be the presenting sign (lupus pernio) of sarcoidosis.³² These asymptomatic, persistent growths, which may also be present on the external nares, ears, or along the vermilion border of the lips, in an otherwise healthy (especially melanotic) person warrants an ACE level or a (punch) biopsy for diagnosis.³⁴ Lupus pernio is an indicator of chronic fibrotic sarcoidosis. Intrathoracic pulmonary infiltration progresses to fibrosis with little tendency to resolution, requiring maintenance prednisone, which happens to be the best treatment for the skin lesions (which are usually resistant to topical and intralesional therapy).

Hemangioma

Hemangiomas are the most common tumors of infancy. Usually hemangiomas are not seen at birth; however, they characteristically proliferate rapidly during the first 2 to 3 weeks after birth. A superficial hemangioma has a bright scarlet color that gradually deepens during the first year. Not all hemangiomas look like strawberries. Hemangiomas feel firm or rubbery and rather dense in comparison with the soft and easily compressible vascular malformation. They cannot be completely emptied of blood with compression, unlike a port-wine stain. Small hemangiomas must be differentiated from pyogenic granulomas, a suddenly appearing, reactive vascular lesion commonly seen on the cheeks, eyelids, or extremities.

Most clinical studies confirm that complete resolution of hemangiomas occurs in over 50% of children by age 5 and in over 70% by age 7, with continued improvement in remaining children until age 10 to 12.⁴⁷

VESICLES

Acute Contact Dermatitis

Contact dermatitis, whether irritant or allergic, is one of the most common problems afflicting the eyelids. The clinical presentation may encompass the entire spectrum of the histologic spongiolysis. The acute

allergic contact dermatitis can demonstrate large bulla overlying a very itchy, papular erythema, or the erythematous lid may be covered by a myriad of microscopic vesicles. Subacute allergic dermatitis consists of histologic vesicles that are less erythematous, less pruritic, scaly, and thickened (lichenified). Chronic allergic contact dermatitis is often a diagnostic challenge. Basically, any long-lasting (spongiotic) eyelid dermatitis must have a contactant identified or ruled out as a cause. Irritant contact dermatitis is more common than "allergic" contact dermatitis. The reaction elicited by the contactant is determined by many factors, including its potency, duration of contact, condition of the lid prior to contact, and so forth. Clinically, irritant contact dermatitis is much less pruritic and more likely to sting and burn. The erythema appears more "angry," and can be violaceous to necrotic. Eyelid edema can be clinically unnoticeable to most disfiguring. Histologically irritant dermatitis is spongiotic.

Although the diagnosis can be suspected from the history and physical examination, even the most expert can identify nickel as an "allergic" contactant no more than 80% of the time, and much less often with other allergens. The recommendation is to "patch test" when a patient presents with a "chronic" or "recurring" vesicular (spongiotic) dermatitis. The availability of the ready-to-use T.R.U.E. test has allowed almost anyone to patch test. Unfortunately, applying the test is the easiest part of the procedure. Interpreting the results and using the information requires expertise and experience. Most difficult is the interpretation of the "irritant" reaction. The latter reactions are not caused by the "delayed-type" hypersensitivity, but are the result of a direct pharmacologic or toxic effect on the epidermis.

The primary objective in the management of contact dermatitis is to remove the cause. The most common cause of allergic contact dermatitis is poison ivy (rhus) or chrysanthemums. Patch testing for this is not necessary. Cosmetics can be the cause of acute or chronic allergic contact dermatitis. Patch testing with the standard trays (T.R.U.E. [25 antigens] or Hermal [24 antigens]) may not contain all the antigens required to make the diagnosis. Access to more antigens must be available.

Treatment

Symptomatic relief requires corticosteroids. In chronic patients topical steroids may be most helpful, but always consider the medication (including the corticosteroid) as a possible cause of the rash if no improvement is noted. The very acute patients will require oral steroids, as stated previously, but bear in mind that the natural history of poison ivy with or without therapy is subsequent to a 24- to 48-hour incubation period from contact and the rash lasts 14 to 28 days, thus, the steroid therapy may be required for that entire period. Other than making the patient drowsy, the "sedating" antihistamines are of minimal value.

Eyelid Dermatitis

The clinical presentation of itchy, scaly, puffy, weeping eyelids can be diagnostically and therapeutically challenging to both dermatologists and allergists. Whether eyelid dermatitis is more commonly attributed to atopic dermatitis, allergic contact, or irritant contact dermatitis is a subject of debate, and reported incidences reflect factors such as referral bias, clinical practice setting, or availability of patch testing. Atopic dermatitis affecting the eyelids has been reported as the most common cause of chronic eyelid dermatitis. Svensson⁷³ found 39% of patients, Nethercott⁵⁰ had 23%, and Valssecchi⁷⁶ reported 14% of patients with eyelid dermatitis to have an atopic background. Allergic contact dermatitis has been reported in 65%⁷⁶ and 46%⁵⁰ of patients in their respective series. Irritant contact dermatitis has been reported to occur in 24%,⁷³ 16%,⁷⁶ and 15%⁵⁰ in their respective series. Allergic contact dermatitis tended to occur in older patients than patients with irritant contact dermatitis in each series. Marked female predominance was confirmed. Contact urticaria is generally underdiagnosed.⁷⁸ The frequency of ocular rosacea ranges from 3% to 58% of patients with rosacea, with peak age of onset being later than cutaneous rosacea (51–60 years).¹⁰ Seborrheic dermatitis of the eyelids is seen in many of the patients with this very common disorder. The greasy, patchy, erythematous, scaly eyelid margins can be seen with rosacea and acne vulgaris. Eyelid psoriasis is an uncommon finding, and the symptoms are nonspecific and may be a marker of more severe psoriasis.⁸

CHRONIC CONTACT DERMATITIS

Atopic Skin

Almost all patients having atopic diathesis have a xerotic, hyper-reactive skin. Therefore, the term *atopic skin*, and all its attributes, can be seen in atopics with or without a history of eczema (the author prefers to identify these patients with a “twitchy skin syndrome”). Atopy is a genetic predisposition to mount an IgE response to allergen exposure and the predilection to elicit a Th₂ lymphocytic inflammatory response. It is well recognized that although the increased IgE levels are helpful in objectively identifying atopics and may allow for the occurrence of positive skin or RAST tests (the afferent limb of the immediate-type immune response), the latter is not always cause for clinical symptoms (this requires the concomitant efferent limb of the response). Atopics are also noted to have a cutaneous hyperaesthesia (labeled *allokinesis* by Wahlgren and Hagermark⁷⁷), meaning their skin can be made to itch with stimuli that nonatopics do not react to. Itchy skin is common in many atopics whether they have eczema or not.⁶ The basic tenet that eczema is an itch that erupts rather than an eruption that itches should be amended with “when scratched.” Thus, the scenario is set for the

eyelid dermatitis so often seen in atopics, or it is not surprising to find so many patients with eyelid dermatitis who are also atopic. The eyelid dermatitis of the atopic runs a more chronic course. In some it may accompany the eruption on other parts of the body, but often it is the sole manifestation of dermatitis in an atopic.⁶⁴ Symmetrical, mildly lichenified, scaly erythematous medial upper eyelids is the most common presentation, but concomitant medial lower eyelid dermatitis is often present. "Allergic shiners" can often be noted with their eyelid dermatitis. Loss of eyelashes, lid edema, itching, burning, tearing, chemosis, and mucoid discharge can be seen with conjunctival involvement.

The most common "provoker of itch" in the atopic is heat and perspiration.⁷⁷ Wool and exposure to cigarette smoke are the next most common triggers of atopic eyelid dermatitis. Interest in the role of *Pityrosporum* in atopics grew when it was reported that patients with atopic dermatitis, particularly those with dermatitis of the head and neck (a preferential area of colonization by *Pityrosporon*), produced specific IgE antibodies to *P. ovale*.³⁰

Although the incidence of contact dermatitis superimposed on atopic dermatitis is still controversial, one should suspect a contactant in all patients with a persistent eczematous eruption when it is not responding to "appropriate" therapy or when it suddenly flares. It is not unusual for patients to apply many "things" (cosmetics, salves, ointments, teabags, etc.) to the face. Contact dermatitis to hydrocortisone, although rare, has recently been appreciated and confirmed by tixocortol patch testing.^{77a} Flare-ups of eczema in atopics have been noted by specific allergens regardless of whether the allergen reaches the skin by contact, ingestion, inhalation, or injection.^{5a, 51a} Therefore, some atopics should avoid hyposensitization injections while their eczema is in the acute or subacute phase.

Treatment

Preventing the itch and instructing patients not to scratch should be the aim of treating atopic dermatitis anywhere on the body. A complete history should be checked to search for "triggers" at home (including hypoallergenic toiletries) and the workplace. Emphasizing their avoidance once identified is time-consuming, but extremely rewarding. The itch is best relieved with the application of cold compresses. Low-potency corticosteroids are effective in abating the scratch-produced dermatitis. Patients with dandruff or clinically apparent seborrheic dermatitis harbor the *P. ovale* organism and may profit from the application of ketoconazole cream or the prophylactic use of ketoconazole shampoo (applied to the eyelids once or twice a week while shampooing).

Herpes Simplex

Herpes simplex virus infection of the eye most commonly causes recurrent erosions of the conjunctiva and cornea, and if untreated, may

lead to herpes simplex keratitis, which is regarded as the leading cause of infectious blindness in the United States.¹⁵ The initial HSV infection is usually asymptomatic. After inoculation the virus settles in a sensory ganglion, which for the eye and adnexa are the trigeminal and superior cervical ganglia. Recrudescence may be due to trauma, UV exposure, cold wind, upper respiratory infections, stress, immunosuppressant agents, and menstruation.⁸⁶ Eyelid-clustered vesicles on an erythematous base, heralded by itching and burning, may precede conjunctival involvement or may occur without ocular involvement. The diagnosis can be easily confirmed by scraping the floor of a vesicle and staining the material with Wright's or Giemsa stain; the presence of epithelial giant cells confirm a viral infection. A viral culture or the immunofluorescent slide test can be most helpful. The lesions normally heal in 7 to 10 days without scarring. Recurrences tend to be in the same area, but not always on the identical site. The usual number of recurrent orofacial herpes simplex infections is 3 or 4 per year. HSV infections are a major cause of infectious problems in patients who are immunosuppressed. In such patients the lesions are larger and they may develop disseminated infections.

Treatment

A systemic antiviral (acyclovir 200 mg five times daily or famciclovir 125 mg bid for 5 days) is the treatment of choice for HSV infections. Treatment should be started as soon as possible. In fact, the value of starting the antivirals is questionable after the second day. Topical acyclovir is of established value for herpetic keratitis.⁵¹ Prophylactic therapy is indicated for all immunocompromised patients and for those having more frequent recurrences.

Herpes Zoster (Varicella)

The first manifestation of herpes zoster is pain. After 3 or 4 days, closely grouped red papules rapidly become vesicular and then pustular in a dermatomal distribution. Mucous membranes within the affected dermatome are also involved. New vesicles continue to appear for several days. In uncomplicated cases recovery is complete in 2 to 4 weeks, with the longer duration more common in the older patients. Trigeminal neuralgia, including ophthalmic involvement, is reported to occur in 15% of older patients.⁴⁸ Varicella (chickenpox) is the primary viral infection, and zoster is the result of reactivation of residual latent infection, usually of a sensory neurone, infected by the viremia of chickenpox.

In ophthalmic zoster, ocular complication occurs in 50% of cases, and is to be expected when vesicles are noted on the side of the nose, indicating involvement of the nasociliary nerve. In those cases the conjunctiva is red and swollen, and either a superficial or deep keratitis

may develop. Involvement of the ciliary ganglion may result in an Argyll Robertson pupil. A common and most intractable sequel of zoster is neuralgia. It occurs in about 30% of patients over the age of 50. The pain, continuous or intermittent, varies in intensity from inconvenient to most disabling.

Typical zoster presents no diagnostic problem, but may be confused with zosteriform herpes simplex. Tzanck smears from either will reveal epithelial giant cells. The two can be differentiated with serologic tests (varicella/zoster serum antibody titers, or simplex titers). Viral cultures or immunofluorescent slide test from early lesions are most diagnostic.

Treatment

Rest and analgesics may be adequate for mild attacks of zoster in otherwise healthy patients. Larger doses of the antivirals are indicated for more severe cases. Acyclovir (800 mg five times per day for 7 days), famciclovir (500 mg tid for seven days), or valacyclovir (1000 mg bid for 7 days), started as early as possible (preferably during the aura), reduces the length of involvement and reduces the systemic complications in immunocompromised patients. Systemic corticosteroids given during the acute stages of zoster has been recommended by some to prevent severe postherpetic neuralgia whereas others have found it of no value. The amount of analgesic required for pain can be spared with the concomitant use of amitriptyline (10–25 mg hs). Severe pain may require neurologic consultation.

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