
Problems in Family Practice

Dermatoses of the Scalp

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By judicious consideration of the clinical appearance, by direct examination with magnification, and by culture results, skin biopsy, and other laboratory results, the clinician is able to diagnose most pathological conditions of the scalp. The scalp participates in many systemic disorders and frequently is the chief site of involvement. Similarly, many generalized disorders limited to the skin exhibit their most typical manifestations in the scalp. Whenever a diagnosis eludes the investigator, more than likely he or she has not considered all of the etiological possibilities or has not pursued an adequate laboratory investigation.

A few scalp diseases initially present nonspecific clinical pictures. By utilizing follow-up examinations at appropriate intervals, the diagnosis can eventually be made.

Once a diagnosis is made, appropriate treatment will generally produce satisfactory improvement or cure. Nevertheless, a few generally rare conditions will defy the physician's most enlightened and aggressive therapy.

The scalp is subject to numerous inflammatory lesions. Most scalp conditions encountered by the practitioner reflect local manifestations of generalized inflammatory dermatoses. However, in these conditions at any given time the scalp may be the sole site of involvement. Secondly, the scalp can be involved with localized microbial infections. In many instances these microbial infections also involve areas other than the scalp, but often the scalp alone is involved. An example of this type of disorder is tinea capitis. Thirdly, there are inflammations involving chiefly the scalp. In such instances there may be no lesions or very few lesions elsewhere on the body. An example of this type of condition is chronic discoid lupus. Conditions of the scalp not included in the above schema are numerous but are beyond the scope of this

paper. These would include systemic diseases with major scalp pathology, such as dermatomyositis or progressive systemic sclerosis. Tumors of the scalp will not be covered in this paper (Table 1). An excellent discussion of the alopecias was recently presented in this Journal and therefore will be omitted here.¹

Generalized Inflammatory Dermatoses with Prominent Scalp Involvement

Seborrheic Dermatitis

The scalp possesses numerous hair follicles and sebaceous glands. Lesions may appear and remain unnoticed for considerable periods of time. There is little need for the practitioner to become involved in the argument as to whether seborrheic dermatitis and dandruff are the same condition. Some authors separate the two based on differen-

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Table 1. Scalp Disease²⁻⁵**1. Generalized Inflammatory Dermatoses with Prominent Scalp Involvement**

Seborrheic dermatitis
 Localized neurodermatitis
 Contact dermatitis
 Psoriasis
 Lichen planus (lichen planopilaris)
 Pemphigus
 Pemphigoid
 Dermatitis herpetiformis

2. Localized Microbial Infections and Infestations

Zoster
 Pyoderma and folliculitis
 Tinea and kerion
 Infestations

3. Inflammations Involving Chiefly the Scalp

Alopecia areata
 Pseudopelade
 Folliculitis decalvans
 Graham-Little disease
 Alopecia mucinosa
 Acne necrotica miliaris
 Perifolliculitis
 Keloidal acne
 Discoid lupus
 Morphea

4. Systemic Disease with Major Scalp Pathology

Systemic lupus
 Exfoliative dermatitis
 Dermatomyositis
 Scleroderma
 Syphilis
 Lupus vulgaris
 Leprosy
 Sarcoidosis
 Necrobiosis lipoidica

5. Mechanical Problems

Factitial dermatitis
 Hot comb alopecia
 Traumatic alopecia
 Traction alopecia

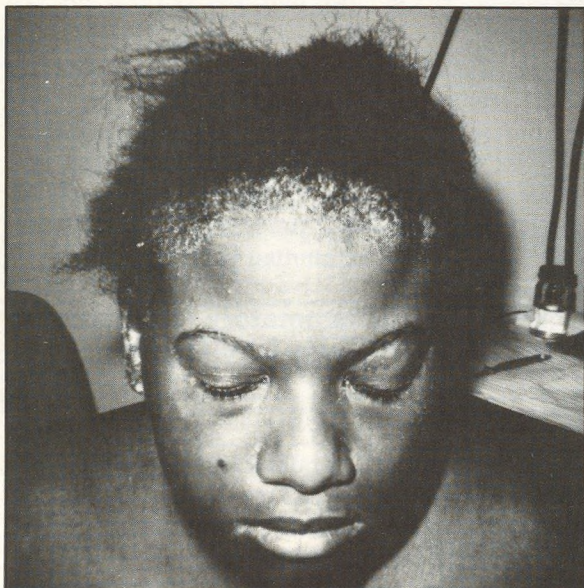
6. Tumors

Figure 1. Seborrheic dermatitis. Scaling and erythema of frontal hairline

tial microbiology and the inflammation present in seborrheic dermatitis, but they may be considered the same for purposes of treatment. The yellowish scales of seborrheic dermatitis and dandruff are shed very slowly due to their adherence to the hair shafts. Seborrheic dermatitis in its most severe form is accompanied by erythematous greasy scaly lesions of the midline and flexural parts of the body and extremities and the butterfly area of the face (Figure 1). Such full-blown cases are not the rule. Some scalp hair may be lost in severe seborrheic dermatitis but return is complete once the condition is corrected. Organisms such as *Pityrosporum ovale*, gram-negative cocci, and *Corynebacterium acnes* are frequently recovered from the scalp in seborrheic dermatitis. These organisms are not thought to be causative but appear due to their attraction to the milieu. The patient with seborrheic dermatitis of the scalp or dandruff should wash his/her hair daily. Nonmedicated bland shampoos may be tried initially. If these fail,

selenium sulfide shampoo (Selsun, Exsel) may be effectively used by substituting it for the regular shampoo twice weekly. Pruritis and inflammation may be treated with topical steroid preparations (Synalar solution applied with the fingertips once daily). If a preparation for the face is needed, one percent hydrocortisone cream is adequate.

Localized Neurodermatitis

This condition is also called lichen simplex chronicus and is characterized by localized pruritis with lichenification. It may occur on various parts of the body including the elbows, wrists, ankles, and the neck. One of the more common locations is on the occipital scalp, frequently at the site of a flat angiomatic birthmark. Women are especially susceptible. Localized neurodermatitis is the result of a habit analogous to fingernail biting or cigarette smoking. Presumably such habits are tension release mechanisms. A non-messy topical steroid such as Synalar solution may be used effectively in the treatment of this disorder. Occasionally, the oral administration of low doses of benzodiazepines augment successful therapy. Recurrences are frequent.

Contact Dermatitis

While contact dermatitis is a common disorder affecting many different parts of the body, the scalp is frequently spared in the involvement. Even in mild allergic contact dermatitis due to hair dyes, the scalp is less severely inflamed than the surrounding forehead, ears, and nuchal skin.

The primary lesions of contact dermatitis, whether of the allergic variety or the primary irritant variety, are vesicles. Chronic contact dermatitis is characterized by the same type of lichenification and scaliness seen in localized neurodermatitis.

The most frequent type of contact dermatitis of the scalp seen by the practitioner is the primary irritant variety caused by either excessive exposure to permanent wave solutions, their neutralizers, or to bleaches. This sort of scalp dermatitis is characterized by bogginess, erythema, and severe blistering. Usually there is a small amount of secondary infection with pus. In addition to the great discomfort of the patient, there is usually concern for permanent hair loss, which is rarely a problem. The satisfactory treatment of severe con-

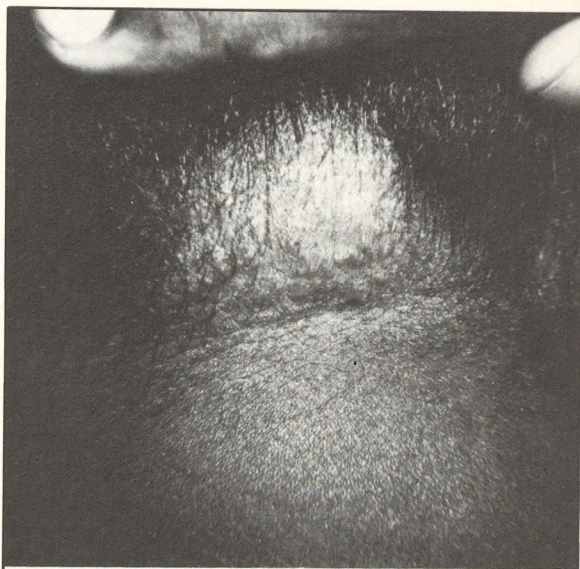


Figure 2. Psoriasis. Scaly plaque

tact dermatitis of the scalp requires decrease in physical activity, compresses with plain water in thick turkish towels, topical steroids (Topsyn cream, Synalar solution), mild sedatives or antipruritics (Periactin, Tamaril), and antibiotics if secondary infection is present. Only in the allergic contact dermatitis of the scalp are systemic corticosteroids of any great help. Whenever systemic steroids are used for this purpose, they must be continued for a period of no less than two weeks.

Psoriasis

Psoriasis of the scalp frequently masquerades for many years as persistent seborrheic dermatitis. At this stage it is characterized by mild erythema and moderate scaliness. As the manifestations become more obvious the scaliness increases and the lesions become more circumscribed (Figure 2). When fully developed, the lesions have a thick white scale and are identical to those on other parts of the body. Psoriasis may be generalized but the scalp, knee, elbow, penis, and nails are the predominant sites of involvement. The scalp is more regularly involved than any of the other areas. Itching is usually only mild. Proper treatment consists of daily shampoos. Tar shampoos, such as Pentrax, have been found useful.

Lichen Planus

Lichen planus is a chronic disease characterized by itchy, purplish papules. The disorder

is frequently generalized, and mucous membranes are typically involved. Follicular lichen planus is called lichen planopilaris, and may occur in the scalp where scarring alopecia may result. It is difficult to diagnose lichen planus by inspection of the scalp unless typical lesions are present elsewhere. The histopathology, however, is quite characteristic.

Generalized Bullous Disorders: Pemphigus, Pemphigoid, and Dermatitis Herpetiformis

The chronic bullous eruptions are uncommon but present unusual diagnostic problems when encountered. All of these eruptions are generalized, but the scalp may be a site of involvement in each. Differential diagnosis of chronic bullous eruptions depends on the clinical morphology, the histopathology, and certain characteristic immunofluorescent antibody reactions.

Pemphigus Vulgaris

This is a bullous eruption which may be fatal, especially if the condition is not adequately treated. The blisters are fragile and develop on an uninflamed base. The characteristic histopathology shows bullae in the prickle cell layer of the epidermis. Immunofluorescent techniques show immunoglobulin deposits (chiefly IgG) between epidermal cells.

Bullous Pemphigoid

This for the most part is a disorder of elderly people. The lesions are rarely found on the scalp, preferring the flexural areas of the body. The blisters are large, tense, and often pruritic. The general health of patients with bullous pemphigoid is usually not affected, in contrast to the malaise experienced by untreated patients with pemphigus. Histologically, the blisters are located subepidermally. The immunopathological findings are characterized by a linear deposition of anti-IgG antibodies at the basement membrane zone of the epidermis.

Dermatitis Herpetiformis

Of all the chronic bullous eruptions, dermatitis herpetiformis is most likely to be associated with scalp lesions. The eruption, however, is generalized with prominent lesions over the shoulder gir-

dle and pelvic girdle areas as well as the knees and elbows. The disorder is characterized by intense pruritis. There is usually an associated asymptomatic, gluten-sensitive enteropathy. The histopathology is characteristic in that the blisters form below the epidermis and there is an increased number of eosinophils in the dermis. Anti-IgA immunofluorescence is noteworthy at the dermal-epidermal junction.

Both pemphigus and pemphigoid may be treated with systemic corticosteroids. While dermatitis herpetiformis also responds to systemic corticosteroids, the treatment of choice is sulfapyridine or diaminodiphenyl sulfone.

Infections of the Scalp

Just as other parts of the body, the scalp may be infected with various microbial agents. Generally these diseases do not vary in appearance from the same infections elsewhere on the body, but in some instances are distinctive enough to justify special description.

Herpes Zoster

Viral infections of the scalp other than warts and herpes zoster are not common. Herpes zoster is caused by the virus responsible for chicken pox. Individuals suffering from shingles have presumably had varicella earlier in life. The blisters of herpes zoster appear in a segmental fashion because the virus usually originates in the dorsal ganglion or its branches, and produces a cutaneous eruption along the comparable dermatome (Figure 3). The scalp is frequently involved during infections of the ophthalmic branch of the trigeminal nerve. Occasionally, infections of C-3 or C-4 are seen. Most cutaneous lesions are rather superficial, but deeper infections produce scarring and atrophy with permanent alopecia. One of the most characteristic aspects of herpes zoster is severe pain, which may precede the actual onset of the rash.

Pyoderma and Folliculitis of the Scalp

The majority of pustular eruptions in the scalp represent acneform lesions. Primary bacterial infections of the scalp are perhaps not so numerous as secondarily infected inflammatory lesions of other types. The appearance of primary bacterial infections of the scalp, such as impetigo and

bacterial folliculitis, do not differ greatly from their counterparts elsewhere. However, the nature of the lesions is frequently obscured by the presence of hair. It is not unusual to see both impetigo and folliculitis in the same individual. *Staphylococcus aureus* is the organism most frequently implicated. Impetigo-like lesions are superficial and thin walled. Folliculitis takes the form of dome-shaped pustules with a penetrating hair shaft. The exudate is generally yellowish and messy. After adequate treatment the lesions heal without scarring. The practitioner should be cautioned to also suspect a primary underlying disorder such as contact dermatitis, seborrheic dermatitis, or pediculosis.

During treatment, shampoos should be administered frequently but gently. Antibacterial shampoos are unnecessary since oral erythromycin is curative. Topical medications are rarely needed and tend to increase the messiness.

Tinea Capitis

This disorder is also known as ringworm of the scalp. *Tinea capitis* is a fungus infection which affects mainly children, rarely adults. Boys are more likely than girls to be afflicted since there is less protective scalp hair. The human type of ringworm is contracted from other children. The animal type of ringworm is derived from infected animals, mostly dogs or cats, or from contaminated soil. School epidemics are common. Some infected hairs show a green fluorescence under Wood's light, but *trichophytic* infections do not fluoresce. The animal type of ringworm caused by *Microsporum canis* is manifested by inflammatory patches covered with short broken hairs, scales, crust, and vesicles. A mass of deep seated pustules is known by the special name of *kerion*. Most other types of ringworm are manifested by noninflammatory patches with fine gray scales and short broken hairs. All types are patchy. Infection caused by microsporum species heal spontaneously at puberty, but those that are caused by trichophyton are also seen in adults. These latter types are not common.

Kerions last one or two months and heal spontaneously with scarring. Griseofulvin is effective in the treatment of tinea capitis and should be continued for six weeks. Diagnosis can be made with a Wood's light examination and cultures on



Figure 3. Herpes zoster. Shallow ulcers and crusts extending into scalp in ophthalmic branch nerve distribution

Sabouraud media of hairs taken from the area of infection.

Pediculosis Capitis

Head louse disease is relatively common and found mainly in children with poor hygiene. School epidemics are frequent since the disorder is transmitted through intimate personal contact, sharing items such as hats, caps, brushes, and combs. The disorder is characterized by itching and small red papules with a central punctum typical of insect bites. Secondary impetigo and folliculitis are common. The posterior aspect of the scalp is more frequently involved than the total scalp. Insects may be difficult to find, but the diagnosis may be confirmed by the observation of ova (nits) which are usually abundant. The white nits are "glued" to the hair near the base of the hair shaft and fluoresce white under Wood's light. The course of the disorder is chronic after an insidious onset and may last for months if untreated.

The causative louse has a characteristic appearance and is different from the louse causing pediculosis pubis. The latter organism rarely infests the scalp but is frequently found in the beard, axillae, trunk, eyebrows, and eyelashes. All types of pediculosis respond to treatment with gamma

benzene hexachloride in the form of shampoos, lotions, and creams. The nits are difficult to remove from the hairs with even a fine-tooth comb. Vinegar rinses aid in removal. Medicated shampoos should be used and repeated a week later.

Inflammations Involving Chiefly the Scalp

Alopecia Areata

This is a common disorder and is usually described as well demarcated totally bald patches of normal skin. The reason for including alopecia areata as an "inflammation" lies in the fact that the skin does not appear so entirely normal as we have been led to believe. Early alopecia areata is characterized by oval and round pinkish patches indicating that some small degree of inflammation is present. The areas may be even slightly atrophic. If the initial phase of alopecia areata is more than mildly severe, it may be confused with morphea, discoid lupus, secondary syphilis, and pseudopelade.

Cases occur at any age but typically between the ages of 5 and 40 years. Both sexes are equally affected. Some cases are familial. Patches are few, but when numerous, the scalp is cosmetically compromised.

Certain clinical varieties bear special description. Ophiasis is a type affecting the occipital region and the sides of the scalp in a band-like pattern. The prognosis for return of hair in the ophiasis type is poor. The term alopecia totalis is used to describe complete loss of scalp hair and alopecia universalis is used to describe hair loss over the entire body.

The prognosis for return of hair is good when the patches are small and few in number. Spontaneous return of the hair is common in these instances. Regrowth of hair may be speeded somewhat by the intralesional injections of repository corticosteroids diluted with lidocaine. The same type of treatment can be used for ophiasis and alopecia totalis. *Systemic corticosteroids cause return of hair but are not suggested because of the necessity for long-term usage.* Topical applications of corticosteroids under shower cap occlusion are helpful. Exposure to ultraviolet light may be effective in conjunction with the application of such phototoxic compounds as 0.1 percent methoxalen solution.

Pseudopelade, Folliculitis Decalvans, Graham-Little Disease, Alopecia Mucinosa, Acne Necrotica Miliaris

There exists a group of uncommon scarring alopecias whose etiology is unknown. In at least one case, pseudopelade, the disorder is a morphological syndrome rather than an etiological entity. These disorders are likely to be limited to the scalp, although the lesions of some have occurred on other parts of the body. They are frequently cicatrizing, irreversible, and result in permanent hair loss. Since they are rarely encountered in the practitioner's office, only a brief description of each will be given.

Early patches of pseudopelade greatly resemble early patches of alopecia areata in that the areas of hair loss are completely bald, white, and shiny. Later lesions become highly irregular in shape, several spots having coalesced to form finger-like projections. Folliculitis decalvans also causes permanent hair loss but begins as a localized cluster of follicular pustules and develops exudates and crusts. These lesions are atrophic and totally devoid of hairs. Pustules are seen but only at the periphery of spreading margins. Graham-Little disease is a rare syndrome characterized by cicatricial alopecia of the scalp in conjunction with keratosis pilaris in the trunk and extremities. Alopecia mucinosa is an inflammatory disorder consisting of infiltrated plaques with scaliness and loss of hair. The characteristic histopathological picture consists of the accumulation of mucin in the sebaceous glands and outer root sheath of the hair follicles. Some cases are associated with cutaneous and systemic lymphoblastomas.

Acne necrotica miliaris is frequently associated with acne vulgaris of the face and trunk. This condition can best be described as being acneform and located in the scalp. In older men and women it may occur around the frontal hairline. Some conditions seem to be nothing more than "pickers nodules." Affected persons have the habit of unconsciously picking at the crusts and keeping the lesions active.

Dissecting Cellulitis

This disorder is actually one member of the follicular occlusion triad, the two associated conditions being acne conglobata and hidradenitis sup-

purativa. Any one of this triad may occur as a solitary entity. Dissecting cellulitis is seen almost exclusively in black males between the ages of 18 and 40 years. It is a chronic, relentless disease consisting of painless, fluctuant nodules and connecting sinus tracts that drain pus spontaneously or after incision. Hairs are easily removed within the areas of involvement and will not regrow after inflammation has been caused to subside by drainage or by antibiotic therapy. The diagnosis is not usually difficult and can be made by inspection. Lesions may be improved by a simple marsupialization procedure in which the sinus tracts are unroofed. Continuous antibiotic therapy may prove very helpful, but it is usually necessary to continue tetracycline or erythromycin for many years over the entire duration of the disease. Total scalp excision and split thickness grafting have been successfully utilized for completely recalcitrant cases.

Acne Keloidalis

This is another condition occurring almost exclusively in black males. While there seems to be no relationship to dissecting cellulitis of the scalp, there is a common association with acne. The clinical manifestation is a chronic inflammatory process involving the hair follicles of the nape of the neck. Follicular pustules as well as an occasional subcutaneous abscess are seen. Recurring of hairs in this region is undoubtedly in part responsible. The end result consists of keloidal papules and plaques. In the early stages, plucking of hairs and oral antibiotic therapy may be helpful. Such measures are not usually effective in the later stages. In this latter circumstance, excision with a plastic repair generally yields good cosmetic results.

Discoid Lupus

Any part of the body may be affected by this distinctive scaling erythema. The most frequent distribution involves the face, scalp, ears, and arms. Occasionally, the scalp may be the sole site. The course is chronic. End-stage lesions consist of atrophy and scarring with a resulting alopecia. Single lesions are not uncommon and consist of a sharply margined plaque which gradually extends in area. The border shows a hyperkeratotic adherent scale with prominent follicles. The histopathologic picture is characteristic. Lesions of

discoid lupus may also be associated with some of the systemic manifestations of acute disseminated lupus erythematosus. When the scalp is extensively involved, the patient generally has major manifestations of the more serious disorder. Topical and intralesional steroids are generally useful in the management of the active phases of chronic discoid lupus.

Morphea

Localized scleroderma is called morphea and is entirely unrelated to progressive systemic sclerosis. Lesions may be solitary or extensive and numerous. In the early stages a violaceous border may be present in a lesion that gradually extends peripherally. When fully developed, the lesions are tense and indurated and may occur as linear bands especially on the scalp and forehead where they are known as coup de sabre. Early lesions may be confused with alopecia areata because induration is not yet present but hair loss is visible. Later lesions may be confused with burned-out lesions of discoid lupus of the scalp. The process is completely benign and lesions tend to heal spontaneously but only after years have passed. Treatment is generally unsuccessful, the most common modality being intralesional corticosteroids.

Other Conditions of the Scalp

The discussion of lesions of the scalp associated with major lesions in systemic disease such as lupus vulgaris and sarcoidosis is beyond the scope of this paper, since major pathology generally occurs elsewhere on the body where diagnosis can be made more easily. Alopecia due to mechanical factors, such as traction alopecia, have been adequately discussed earlier.¹ Tumors of the scalp are also beyond the scope of this review.

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