

PEDIATRIC DERMATOLOGY

Report of a Round Table Discussion

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THIS DISCUSSION of dermatologic therapy contrasted the opinions of an empiricist, Dr. Perlman, with those of a nihilist, Dr. Falk. Both speakers based their comments upon personal experience. Participants were forewarned that these remarks would frequently be contrary to classic dermatologic teaching.

Histologic examination reveals that the infant's skin lacks a well-developed stratum corneum. This keratinized outer layer of the epidermis is loosely organized and lace-like, thereby providing a poor defensive barrier against the entrance of bacteria. Poor cornification also explains the frequency of weeping, exudative dermatoses during infancy. Fungus infections of the skin are rare during infancy because the loose stratum corneum does not provide a favorable surface for superficial growth of fungi. The delicacy of the infant's skin and its scanty protective cornification make it particularly vulnerable to damage by over-treatment. Indeed, 40% of the dermatoses seen by dermatologists today are due to the effects of overly-enthusiastic topical therapy.

Dermatologic problems commonly seen by pediatricians were discussed under the following general headings:

(1) Eczematous dermatoses: contact dermatitides, dermatitis venenata (poison ivy), diaper dermatitis, intertrigo, infectious eczematoid dermatitis, atopic dermatitis, atopic erythroderma, nummular eczema and circumscribed neurodermatitis.

(2) Pyodermas: dermatitis exfoliativa neonatorum (Ritter's disease), impetigo

contagiosa, ecthyma, erythema streptogenes, dermatitis gangrenosum infantum and perioritis staphylogenes.

(3) Maculopapular squamous dermatoses: pityriasis rosea, seborrheic dermatitis (cradle cap), psoriasis, parapsoriasis, lichen planus, pityriasis rubra pilaris, lichen nitidus and lichen striatus.

Comments regarding the diagnosis and treatment of certain of these conditions, which seemed to be of special interest to participants in the round table discussion, follow.

DERMATITIS VENENATA (POISON IVY)

The irritant principle of poison ivy is a dihydric phenol, urushiol, a catechol-like substance which is contained in every portion of the poison-ivy plant, including leaves, stem, flowers and fruit. When it has become attached to the skin, this oil cannot be removed by any method now known.

The rash due to contact with poison ivy is characterized by erythema, edema, vesiculation, crusting and exudation. The erythema develops rapidly and is intense. Lesions are poorly demarcated. Vesicles may be arranged in linear sequence on an extremity (the so-called Koebner phenomenon, which is characteristic of poison-ivy dermatitis but also occurs in other conditions).

If treatment can be initiated within 15 minutes after exposure to poison ivy, thorough bathing with old-fashioned strong laundry soap, plus dry-cleaning or thorough washing of all clothing, are recommended.

Presented at the Annual Meeting, October 8 and 9, 1957.

Report prepared by Robert D. Gauchat, M.D.

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Dr. Perlman uses the following prescription for the early treatment of poison ivy dermatitis:

℞: Zinc permanganate (¼%) 0.08 gm
Aerosol (10% solution) 0.60 ml
Distilled water q.s. ad 30.00 ml

Apply by cotton applicator.

Precaution: Do not apply directly to eyes.

If treatment cannot be started within 15 minutes of exposure, Dr. Falk still recommends thorough bathing, and also favors the administration of an antihistaminic drug by mouth. He also prescribes a short course of treatment with an adrenocorticosteroid drug or adrenocorticotropin (ACTH) when the rash is severe and extensive. Choice of agents for topical treatment should be based upon the severity of the dermatitis, and might include potassium permanganate dressings, calamine lotion, bland pastes or cortisone ointment.

Prophylaxis against poison-ivy dermatitis by means of tincture of poison ivy administered orally is probably all right, but neither speaker had had much experience with this method. According to Dr. Perlman, desensitization by poison ivy extracts is not 100% effective, and may be dangerous; he has had no personal experience with this method of prophylaxis.

DIAPER DERMATITIS (AMMONIACAL DERMATITIS)

Diaper dermatitis is rarely seen during the first month of life because the ammonia-forming organism, *Bacillus ammoniagenes*, is not usual in the infant's gastrointestinal tract before the age of 1 month. Both this bacillus and urea must be present, in an alkaline medium, to permit formation of ammonia.

Rashes similar to that produced by ammonia may be caused by strongly alkaline soaps and detergents retained in diapers, and by the local irritation of rough cloth.

Dr. Perlman uses the classification of Jacquet to describe the stages of severity of ammoniacal dermatitis. The stages are: (1)

simple erythematous; (2) erythematovesicular or erosive; (3) papular or posterosive; and (4) ulcerated stages (which may be mistaken for luetic lesions).

Two prescriptions are favored by Dr. Perlman for the treatment of diaper dermatitis:

(1) ℞: Bentonite 8.0 gm
Bismuth subnitrate 8.0 gm
Peruvian balsam 8.0 gm
Zinc oxide ointment q.s. ad 120.0 gm

Sig: Apply p.r.n.

(2) ℞ Scarlet red (¼%) 0.9 gm
Bismuth subnitrate 16.0 gm
Peruvian balsam 8.0 gm
Hydrophilic petrolatum } equal parts
Zinc oxide ointment } q.s. ad 180.0 gm

Sig: Apply p.r.n.

To prevent ammoniacal diaper rash, the frequent changing of diapers is recommended. Detergents should not be used for laundering of diapers, because enough detergent remains in the diapers to cause considerable irritation of skin. Plain soaps should be used for laundering. Acidification of the urine will prevent formation of ammonia by *B. ammoniagenes*. This may be accomplished effectively by prescribing an acidifying salt, such as Phospho-soda®, from 5 to 15 drops in orange juice 5 to 6 times per day. The pH of the urine should be checked with litmus paper to confirm effective acidification.

ATOPIC DERMATITIS (ECZEMA)

Major clinical features of atopic dermatitis are: Erythema, vesiculation, oozing, and scaling, which always occur sometime during the course of the disease. These manifestations help to differentiate atopic dermatitis from superficially similar dermatoses such as seborrheic dermatitis. In young infants, the lesions tend to be generalized in their distribution. In older children the eruption usually localizes on the face and in body creases.

Histopathologic studies have shown that the "shock organ" is located in the blood vessels of the upper corium. The first change is an infiltration of histiocytes

and lymphocytes around the capillaries of the corium. Subsequently these blood vessels dilate. Exudation of serum occurs, and both interstitial and intracellular edema develop within the corium and epidermis. As this process continues, the epidermal squamous cells hypertrophy, producing acanthosis. As the condition becomes chronic, lichenification, with increased linear markings on the skin due to epidermal creasing and thickening, is characteristic.

Because wool contains an allergenic protein which can be both inhaled and absorbed and is known to act as a local irritant to produce contact dermatitis, all wool should be removed from the environment of an infant with atopic dermatitis.

Choice of topical therapy for atopic dermatitis depends upon the stage of the disease which is present when treatment is begun.

During the first stage, when exudation and edema are present, ointments or salves should never be used because these agents occlude the epidermis and complicate the skin's problem of eliminating accumulated fluid. Wet compresses are the treatment of choice during this stage, and should be used continuously for at least 24 to 48 hours. Dr. Perlman recommends the following:

- (1) Burows solution (1:10 dilution);
- (2) *Matricaria*, N. F. (German chamomile flowers), used as a tea (infusion). The azulene in this preparation has an anti-inflammatory effect. Dr. Perlman adds 4 tbsp of *Matricaria*, N.F., to 1 qt of warm water, simmers this mixture for 20 minutes, strains to yield a clear infusion, and uses this as a cool wet dressing; or
- (3) Potassium permanganate solution, made by dissolving one 0.3 gm tablet in 3 qt of hot water to provide a 1:10,000 solution, which is applied as a cool wet dressing. Potassium permanganate has antiseptic properties, and is the treatment of choice for exudative dermatoses complicated by secondary infection.

During the subacute, nonexudative stage

of atopic dermatitis, Dr. Perlman uses Laszar's plain zinc-oxide paste for local treatment.

For treatment of the third, or chronic phase, when lichenified plaques and increased linear markings are present, Dr. Perlman utilizes "reducing agents" which will promote return of the thickened skin to normal. Tars, such as Ichthymal®, salicylic acid, and oatmeal or starch baths are preferred for this purpose. In Dr. Perlman's practice, the following prescription has been very successful for treatment of chronic atopic dermatitis:

℞: Ichthymal® (Ammonium Ichtho-
sulfonate) (½%) 0.45 gm
Salicylic acid (½%) 0.45 gm
Hydrophilic petrolatum } equal parts
Zinc oxide ointment { q.s. ad 90.0 gm
Sig: Apply 3 to 4 times daily and bandage.
(Note: To remove old ointment, a little mineral oil
or olive oil is effective.)

Dr. Falk emphasized that the etiology and pathogenesis of atopic dermatitis are still unknown. Acceptance of the unproved hypothesis that atopic dermatitis (eczema) represents an allergic reaction may blind investigators to other etiologic factors, such as emotional disturbances. Careful search of the contact histories of these eczematous infants has not yielded satisfactory evidence of an allergic etiology. In Dr. Falk's experience, half of these infants get well no matter what therapy is given, and thereafter have no manifestations of allergy. He recommends that therapy should be as simple as possible, designed to keep the child comfortable until he eventually outgrows his eczema.

Dr. Falk prefers treatment which employs agents frequently found in the family's kitchen. During the exudative phase, wet dressings are prescribed, only small areas of the body being covered at any one time. If many areas are involved, the wet dressings should be rotated from one area to another, because there is danger of secondary pneumonia if all areas of the body are covered by wet dressings at the same time. During the subacute stage, Dr. Falk

uses Spry®, a pure vegetable oil, as a salve. For treatment of chronic atopic dermatitis, starch baths or potassium permanganate baths are useful.

Both discussors agree that corticosteroids are rarely needed for the treatment of atopic dermatitis, although they may be useful for short-term therapy of severe cases. When corticosteroids are prescribed, both local and systemic treatment should be given.

RITTER'S DISEASE

Ritter's disease (dermatitis exfoliativa neonatorum, keratolysis neonatorum) is due to a poor immunologic response of the newborn infant to infection by the streptococcus. Earliest lesions usually occur around the mouth. Rapid spread of erythema and profuse exudation may lead to separation of the entire epidermal layer from the underlying dermis, producing the classic "boiled-lobster" appearance of these infants. Body temperature is only slightly elevated and the leukocyte count is reduced below normal. Antibiotics and corticosteroids administered systematically comprise the recommended therapy for this condition.

IMPETIGO CONTAGIOSA NEONATORUM

The primary lesion of impetigo contagiosa neonatorum is a vesicle or bulla situated quite superficially in the stratum corneum, and occasionally extending into the epidermis. The responsible streptococcus or staphylococcus causes secretion of a protective crust. Because of the superficial location of the lesions, topical therapy is usually sufficient to cure this condition. Dr. Perlman recommends the use of soap and water to remove the crusts, and a topically applied antibiotic ointment (bacitracin or neomycin) to combat the responsible bacteria. All of these patients should be isolated. If good results have not been achieved within 1 or 2 days, antibiotic-sensitivity tests should be made to find an effective agent. Penicillin should never be used topically because of the danger of sensitization.

As the stratum corneum and epidermis contain no blood vessels and are nourished only by lymph, and inasmuch as the lesion in impetigo contagiosa is very superficial, the systemic administration of antibiotics is usually unnecessary.

When large areas of the skin are covered by the crusting lesions of impetigo, Dr. Falk prefers to avoid soap and water washing, in order to minimize trauma to the skin. He recommends frequent applications of antibiotic ointment to affected areas of the skin. If ointment is applied every hour, the crusts usually begin to loosen after 5 or 6 hours.

The epidermis contains no fibroblasts. Therefore uncomplicated impetigo can be expected to heal without scarring. Whenever Dr. Falk encounters a child with chronic recurrent impetigo, he investigates the possibility of agammaglobulinemia.

ECTHYMA

When the superficial lesion of impetigo contagiosa is allowed to go untreated, invasion of the underlying corium may occur, producing the condition known as ecthyma. Because the corium contains fibroblasts, healing of the deeply ulcerated lesions is by scarification. Vigorous antibiotic therapy should be given to minimize the extent of scar formation. Appropriate antibiotics should be administered intramuscularly as well as topically, because the corium contains a rich network of blood vessels.

MILIARIA AND PERIPORITIS

Miliaria or heat rash usually responds well to removal of excess clothing and frequent baths. Starch or Aveeno® baths are also useful. Dr. Perlman occasionally employs the following prescription for treatment of severe miliaria:

℞: Hexachlorophene (½%) 0.9 ml
Ethyl alcohol, 70%, q.s. ad 180.0 ml
Sig: Apply freely 3 to 4 times daily

Periporitis is a miliarial dermatitis secondarily infected by staphylococci. Topical therapy is usually ineffective. The intra-

muscular administration of an antibiotic agent effective against the offending staphylococcus is recommended.

SEBORRHEIC DERMATOSES

All seborrheic dermatoses are manifested by sharply demarcated dry or scaly lesions localized on seborrheic areas of the skin such as the scalp, paranasal portions of the face and deep creases of the extremities. In uncomplicated seborrheic dermatitis the lesions are never wet and exudative, in contrast to those of atopic eczema.

Cradle cap is seborrheic dermatitis of the scalp. Dr. Perlman recognizes three varieties of this condition, a dry type (*sicca*), an oily type (*oleosa*) and a waxy type (*steatoides*). Iodochlorohydroxyquinoline, N.F. (*Vioform*®), is very effective for the treatment of cradle cap, according to Dr. Perlman, who also uses the following prescription for treating this condition:

℞: Precipitated sulfur (3%)	2.7 gm
Salicylic acid (3%)	2.7 gm
Rosewater ointment, unscented,	
q.s. ad	90.0 gm

Leiner's disease (*erythroderma desquamativa*) formerly was believed to be due to dermal reaction to an unknown factor in human milk. More recently, this condition has been considered as a severe generalized seborrheic dermatitis. For treatment of Leiner's disease and other seborrheic dermatoses characterized by dry, inflamed, scaly skin, Dr. Perlman strongly favors the use of Rosen's Emulsion, containing aluminum acetate and prepared as follows:

℞: Lanolin	30.0 gm
Olive oil	120.0 ml
Heat in a mortar and mix very well.	
Add Zinc oxide	30.0 gm
Talcum	30.0 gm
Mix very well.	
Add Aluminum acetate solution (Burow's)	6.0 ml
Mix very well.	
Add Calcium hydroxide solution (0.14%)	
(lime water) q.s. ad	300.0 ml
Mix very well.	
Dispense in wide mouth bottle.	
Sig: Apply to affected skin by means of paint brush.	

This preparation supplies much-needed oil to the skin, and is effective even during warm weather. If the patient is sensitive to wool, one should substitute *Aquaphor*® for the lanolin in this prescription. This emulsion is not antipruritic. If one wishes to include an antipruritic agent, 1/8 to 1/4% phenol, or 1/10 to 1/4% menthol, may be added to the lanolin-olive oil mixture.

TINEA CAPITIS

The diagnosis of tinea capitis should always be based upon an examination under a Wood's lamp, when characteristic fluorescence is seen, and by culture of the organisms. For selected cases, Dr. Falk uses radiation therapy, but warns that this should only be used by an experienced radiologist employing superior x-ray equipment. Dr. Perlman never used radiation therapy for children, and warns of the possible danger of permanent epilation if radiation therapy is prescribed for tinea capitis by inexperienced dermatologists. Dr. Perlman prefers the following prescription for treatment of this condition:

℞: Quinine bisulfate (3%)	3.0 gm
Polyethylene glycol	
(Carbowax 400®)	75.0 ml
Distilled water q.s. ad	100.0 ml

Sig: Rub gently into scalp once daily.
Wear cap overnight.

Caution: Do not get on skin of neck (very irritating).

ACNE

Dr. Falk prefaced his remarks about acne with the precaution that very little is known about its pathogenesis. Therefore, philosophies of therapy currently employed are widely variable. The basic lesion of acne is a "black-head." Endocrine stimulation of the sebaceous apparatus plays an etiologic role in the development of the lesion. The disease afflicts adolescents of both sexes, and usually disappears spontaneously by the age of 20 to 22 years. The therapist must remember that he is treating a symptom of endocrine activity. His main objective should be avoidance of scarring.

Frequent washing of the face and scalp

with soap and water is recommended. Dr. Falk prefers to use laundry soap or Selsun®, to remove grease and open the pores of the skin. Drying lotions are also useful. Ultra-violet irradiation, in doses which cause only slight erythema, is sometimes beneficial (one should be sure to protect the patient's eyes by dark glasses). Avoidance of greasy and spicy foods is also advisable.

Dr. Falk never uses radiation to treat acne in patients less than 17 to 18 years of age. Radiation is worthless for the treatment of cystic, indurated, pustular acnes, for which tetracycline ointments and sulfur-containing lotions should be used. Wire-brushing and sand-paperying may produce a cosmetically more acceptable scar, but still a permanent and irreversible scar.

These techniques should only be employed by skilled plastic surgeons for treatment of already severely scarred patients.

During his concluding remarks, Dr. Falk emphasized that treatment of all dermatoses is based upon what the dermatologist sees when he examines the patient's skin. Choice of therapy depends upon location and extent of the lesion, its phase of activity, and the presence or absence of complicating infection. Biopsies of affected skin are nearly always helpful, and should be liberally employed. Therapeutic agents should never cause additional irritation. Worthy of re-emphasis is the fact that 40% of the problems seen by dermatologists are due to overtreatment given by referring physicians and friendly neighbors.

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