THE APPROACH TO PSORIASIS*

BY

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The fact that psoriasis is compatible with good physical health and that it is not easily treated must account, in part, for the neglect it has suffered. The amazing and alarming advances in science and their application to medicine in this century have by-passed a number of important ills, of which psoriasis is one; but it remains something of a scourge, a curse to the afflicted and an offence to society. It is a common affection, difficult to move, unsightly and disfiguring, and, though it may often avoid exposed parts, it makes the sufferer something of an outcast, unable or unwilling to participate in a full and normally active life, and viewed askance by those who observe his affliction. He is often not appreciated even in the intimate circle of family and friends, where he may leave a trail of dust and scales. The "leper as white as snow" has been a wanderer through the pages of history, and it is little consolation to the psoriatic to say, with Hebra, that "psoriasis is a disease of the healthy." According to our modern conception of health it is indeed a serious disease, and with changing times it is desirable that the position should be repeatedly reviewed to seek some advance.

Research has not been lacking in this field, and was recently reviewed by Gans (1952), but was shown to have produced as yet little that was fruitful.

The cry has gone up in America that research into psoriasis should be organized and financed on a large scale similar to that devoted to such fields as rheumatism and cancer, but there is perhaps much that can be done on a more humble plane that might prepare the way.

What is the nature of the problem of psoriasis, and what can be done with our present knowledge and resources to relieve the position? We must admit to a great deal of ignorance, but without some reasonable hypothesis, based upon such knowledge as we have, there can be no advance.

A Constitutional Reaction

There have been many unsuccessful efforts to find a specific causative agent for psoriasis, but there can be little doubt that, in fact, psoriasis is a constitutional disorder. By that I mean that it is the expression of disturbed adjustment and adaptation as between the patient and his environment. This has nothing to do with allergy, which is a particular pattern of altered reaction to a specific stimulus or allergen and is cured by removal of the allergen. There is nothing to suggest that psoriasis is an allergic disease, and it is perhaps important to realize that. The poor response of psoriasis to cortisone and A.C.T.H. is interesting in this regard. This does not mean that allergic reactions may not occur in the psoriatic or in those subject to constitutional ills, but the allergic field does not embrace the constitutional, though the reverse may occur.

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Influence of Climate and Race

Constitutional disorders are personal and individual affairs, but they do tend to fall into certain groups, in relation to which it is common to find a central or primary sphere of maladjustment. Thus psychological, emotional, and nervous sensitiveness commonly form the core of eczematous ills. In psoriasis this central influence would seem to be the relationship of the patient to his climatic environment. The incidence of psoriasis is highest in the white races resident in temperate climates. Seasonal variation in psoriasis is common, and in general we may say that it tends to be worse in the winter and better in the summer. The incidence diminishes, in general, the warmer and less rigorous the climate—sun and warmth being the material considerations. This is obviously an important matter, and, other things being equal, it is usual for psoriasis to abate or clear if a patient moves into such suitable climate. Even in this country psoriasis is a more troublesome problem in the north than in the south, and in the north it will quite often affect exposed as well as covered parts.

This influence going on through the ages has no doubt become intimately bound up with racial factors, for there is undoubtedly some tendency to the inheritance of psoriasis, even though the pattern of inheritance is not a simple one (Romanus, 1945). This factor may now, with the passage of time and movements of peoples, increasingly confuse the apparent incidence of psoriasis in different regions, but broadly we may say that while the white-skinned inhabitant of temperate climates is most susceptible—the greatest incidence of psoriasis is said to be in Iceland—the full-blooded negro, in his natural environment, is almost immune.

Psoriasis is a serious burden to our dermatological department in Leeds during the winter months, and this is probably the experience of most dermatological units in this country. Psoriasis, on the other hand, is less common in Australia, is uncommon in Indonesia, and is rarely seen in Kenya, Uganda, Nigeria, and similar climates, but it is not possible to gather accurate statistics, and a careful survey is desirable.

It has been reported that psoriasis in Jews of Western origin is seven times as common as psoriasis in Oriental Jews in Palestine, and this is an illustration of the way in which the movements of peoples, especially in the last century, may affect the natural incidence of the disease.

It would seem, however, that the essential disturbance in psoriasis does relate to geographical and climatic factors, and that to some extent these will have been imprinted upon the races found in those climates. What may be involved apart from temperature, humidity, and sunshine, we can only speculate, but it may well be that the characters of soil and water are not without effect.

Secondary Influences: Infective, Endocrine, Nervous

It is, however, a fact that, whatever the primary or central maladjustment in any constitutional ill, other secondary influences are important and may at times assume the predominant aetiological role. Any disturbance of health or tone, whether it arise from infection, from the ordinary physiological changes of puberty, pregnancy, and menopause, or from metabolic, psychological, or physical trauma, for instance, may evoke the pattern of reaction natural to the patient.

Thus in psoriasis we find that endocrine influences, especially those of puberty, pregnancy, and the menopause, and perhaps senility, are very potent provocations. In children acute infections, and particularly upper respiratory tract infections and fevers, almost invariably account for the acute generalized guttate attacks of psoriasis. It is relevant that upon occasion chronic infective foci are responsible for chronic psoriasis. Other most powerful influences, for both good and ill in psoriasis, are the emotional and nervous, and

these may also enter into what we regard as primarily endocrine influences. Evidences of such influence are constantly demonstrated to the dermatologist, and it cannot be doubted that the mere presence of psoriasis itself must exercise a morbid effect upon the mentality and outlook of most psoriatics, so that it is not difficult to realize how easily a vicious circle may arise in this field.

Some of these points are illustrated in a patient of mine who recently suffered her first attack of psoriasis after the age of 70, and as a result of the shock of her son having committed suicide by throwing himself out of the window. This patient's daughter had, however, suffered from psoriasis from puberty until her own second child was born when she was about 30 years of age. The psoriasis then suddenly disappeared, and has not yet recurred after fifteen years. This also illustrates the difficulty of obtaining a true family history of the disease.

As an important digression I would emphasize the seriousness from this angle of the attitude of the physician and nurse to psoriasis, the views they express before the patient, and particularly their reaction to the disease when it first appears or when the patient first presents himself. There is nothing so sad as the despondency of the psoriatic who has been assured that his ill is incurable, nothing so heartening and satisfying in medicine to physician and nurse as the patient who is cleared of his eruption in two or three weeks. If this happens with the first attack of psoriasis it may well determine the absence of relapse, but I have no doubt that chronicity and relapse can be as easily assured by the reverse approach.

Most dermatological patients are intelligent above the average, and even the problem of relapses is accepted and dealt with, provided the position is put clearly to them. There is great individual variation in this tendency to relapse.

The psoriatic reaction often overlaps such other constitutional dermatological responses as the eczematous, lichenoid, seborrhoeic, and various pustular conditions. In such phases psoriasis is often more difficult and intractable. Furthermore, it is not uncommon to observe the same patient presenting, at different times in his life, reactions which at one time are diagnosed with confidence as psoriasis or lichen or seborrhoeic dermatitis, and at other times as intermediate reactions, and again subsequently may present as a different single pattern of reaction. Different members of the same family may be subject to different reactions—one to psoriasis, another to eczema, and so on.

An Epidermal Reaction

To pass now from this consideration of the constitutional and non-allergic aspect of the problem of psoriasis to an appreciation of the site and significance of the reaction itself is profitable. Psoriasis occurs only in the human and not in other animals. It is primarily and essentially an epidermal reaction, and this may account for such distinctive features as the absolute demarcation of the lesions and of the erythema associated with the lesions, the absence of loss of hair, and the frequency of affection of the nails. It may also explain the poor response to cortisone and A.C.T.H., drugs which are particularly effective in mesenchymal diseases. It may explain the important role of local therapy in an affection that is essentially constitutional, and may account for the little effect of internal medication except by drugs, such as arsenic, which have an affinity for the epidermis.

The difficulty of moving a lesion of psoriasis from the skin has already been mentioned; it has literally to be burnt off, and it is strange that this fierce treatment rarely provokes or extends the affection as it would in most other skin diseases.

It is obviously significant that psoriasis does not normally occur on mucous membranes. It is also difficult to correlate this very common skin disease with general medical diseases affecting other organs in the body, and this again is strange. The only association that might suggest itself is that of the vague field of rheumatic disorders of joints and fibrous tissues, and this is of note, first because of the correlation of rheumatic ills with climatic considerations, and, secondly, because of the suggestive biomolecular relationship between keratin and collagen. But this cannot yet be described as more than a promising field for research, and it may be hoped that further attention to histochemical and biomolecular features of the psoriatic reaction may at least give some indication of the local mechanism of the disease (Astbury, 1950).

There is enough here to indicate that the problem of psoriasis is not quite as hopeless as our general ignorance might lead us to suppose. There are at least promising pointers for research into the effects of climatic influences on skin, and particularly upon the epidermis, and into racial and hereditary influences. The details of the physical and chemical aspects of the epidermal mechanism involved in this reaction should provide knowledge that must favour a better understanding of the nature of the disease and the proper approach to treatment.

Treatment

From what is known, however, the clinician can evolve some working hypothesis to guide him in the approach to management and treatment. It is at least possible in almost every case to clear the patient temporarily of his eruption in a matter of two or three weeks, and this knowledge is vitally important to the physician and the patient.

The problem of psoriasis, being a constitutional one, is always an individual problem, and calls for a general and not merely a dermatological approach. The appreciation of this is essential and fundamental to success. It is time-consuming, and may often seem unfruitful, but if this is not accepted and practised then all considerations which follow are of no significance. It is necessary to take a full and detailed medical history in relation to personal and family history, and every aspect of environmental influence. It is necessary to examine the patient thoroughly and not merely superficially. It is, in short, necessary for the physician to know his patient entirely and for the patient to know and to understand the physician's conception of his problem. It is not proposed here to pursue this further, but to pass to the local treatment of the psoriasis itself; yet it must be emphasized that the local is only one part of the treatment.

Because of the epidermal character of the disease local treatment is of more importance than in any other dermatosis except, perhaps, xeroderma, lichen simplex, chronic lupus erythematosus, and cancer—where similar considerations arise. It is important also because it demands scrupulous care and accuracy and is effective only when so conducted, and because it is a valuable discipline to doctor, patient, and nurse. The practitioner must not only know and understand what he is doing here, not only instruct the patient and nurse accurately, but he must demonstrate what is done and must constantly check up to see that it is being done. In this matter of local treatment the skin is to be treated as one organ, and it is unprofitable to treat only a portion of the eruption.

The epidermis in these subjects settles naturally into the psoriatic habit and is not easily moved from it. It is undesirable to let the skin rest in this phase for fear of encouraging the habit and the spread of the habit to other parts of the skin. The presence of some psoriasis will encourage extension, especially if there is any constitutional disturbance. Complete and early clearance of an eruption favours a good prognosis.

The following has been the routine treatment in Leeds for about 20 years. In its complete form the patient for 10 minutes soaks and washes thoroughly in a bath of 20 gallons (90 litres) of water to which has been added 4 oz. (114 ml.) of coal-tar solution. After drying he is exposed to the ultraviolet mercury-vapour lamp, at first for half a minute at a

distance of 3 feet (0.9 metre), but the exposure time is increased to maintain a near-erythema dosage. The treatment is given daily.

Following the light treatment each lesion is obscured by the application of the paste :

Dithranol	2 gr. (0.13 g.)
Salicylic acid	10 gr. (0.65 g.)
Zinc oxide	120 gr. (8 g.)
Starch	120 gr. (8 g.)
Soft paraffin .. to	1 oz. (31 g.)

This is allowed a few minutes to dry and may be powdered with talcum dusting powder. The patients are then covered with a stockinet sleeve dressing—making a vest, arms, and legs, which are tied at the shoulder and hip. They then dress and pursue their normal daily routine, to return for treatment again in 24 hours, when the dressing is removed and the procedure repeated (Figs. 1, 2, 3, and 4).

FIG. 1.—Psoriasis.

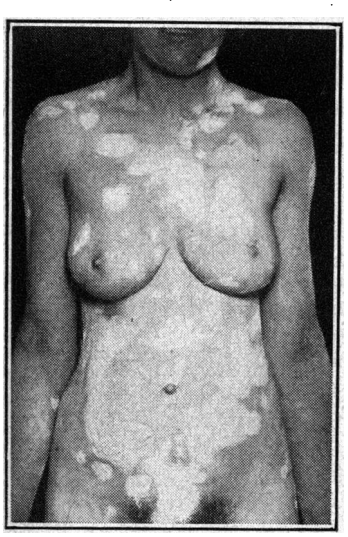

FIG. 2.—Psoriasis obscured by dithranol paste.

Several small points in this routine are to be emphasized. The physical characters of applications used on the skin are usually of more importance than the chemical ingredients they contain. It is to be stressed here that the dithranol paste must be dry and stiff, and for this purpose the paraffin base should have a melting point of 46° C. This is important, for paraffins are now pooled, and the melting-point may vary 20° C. or more between batches. If the paste is too soft it will not be effective.

Dithranol is an oxidizing agent, but in this paste it remains stable for months. As soon as it is applied to the skin, however, it is activated—presumably by skin secretions—and it rapidly and fiercely burns the part treated, making it red and inflamed and stained, and so removes the psoriasis. Here lies the importance of limiting the application to the psoriatic lesions and of not burning the normal skin, or the patient will be distressed and perhaps made ill.

The stockinet sleeve dressing acts like a compress and increases the intensity and efficacy of the treatment. If the daily bath is not taken the concentration in the skin rises and the reaction may be intensified, even to the extent of blistering in two or three days. This must, of course, be avoided.

The zinc paste cannot be applied to the hairy scalp, and here dithranol ointment *B.P.* may be used, or a mercury, salicylic, and tar ointment, or both. If these ointments are applied alternately, activation of the dithranol occurs on the scalp—but the combination of these drugs in a single ointment is not stable, and the dithranol is reduced in the course of a few days.

It is not difficult to appreciate when the psoriasis has been cleared, though this is often recognized by touch by the finger-tip more readily than by the eye, which is confused by the staining and reaction from the dithranol. Many patients clear within a week, though three weeks is a standard period of treatment for most. It is essential to be completely clear and not to leave a single active lesion.

The flexures are easily inflamed by the dithranol paste, and it should be applied to these sites for no more than one or two days; the same is true for psoriasis of the face. The hands and feet are often more resistant, as are the lichenoid plaques sometimes encountered on palms, soles, sacrum, loin, and hips.

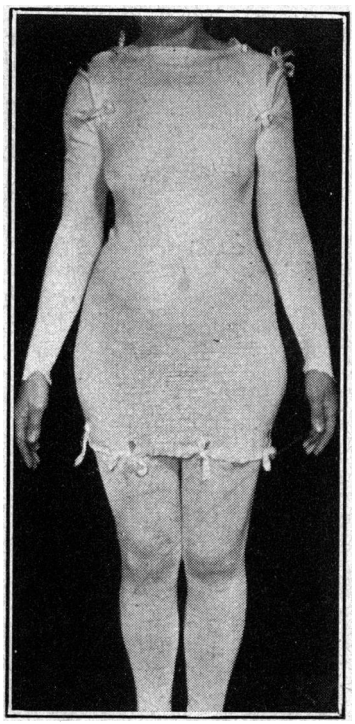

FIG. 3.—Psoriasis covered with stockinet dressing.

The treatment outlined is capable of infinite variation according to patient, site, circumstances, and facilities available, but the essentials remain.

Sometimes treatment is given every second day instead of daily, and this may be determined by pressure of work on the department or toughness of the psoriasis, so that a stronger reaction is tolerated. Usually the strength of the paste is reduced to ½ or 1 gr. to the ounce when treatment is not given daily. If very extensive, and especially if the psoriasis is shallow and of seborrhoeic type, a general application of a milder and softer paste is used. This procedure is much quicker and produces very little reaction :

Dithranol	½ gr. (32 mg.)
Salicylic acid	10 gr. (0.65 g.)
Zinc oxide	60 gr. (4 g.)
Starch	60 gr. (4 g.)
Soft paraffin	to 1 oz. (31 g.)

This may clear the affection or may leave some residual patches which have to be treated by the more vigorous application.

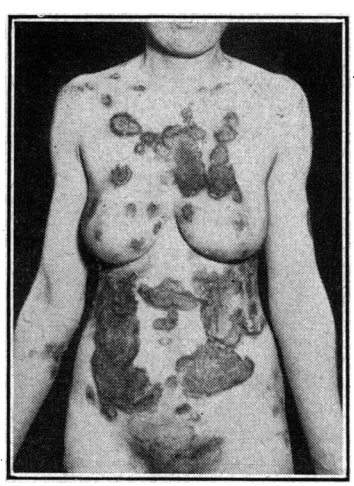

FIG. 4.—Dithranol reaction.

It is often possible to shorten the course and get better results by taking the patient into hospital for the period of treatment. On the other hand, good results can still be obtained by omitting the sunlight therapy and even omitting the tar from the bath, so bringing the treatment within the compass of home facilities.

However, each feature of the regime has a purpose, so that the complete treatment has some advantage. The bath water penetrates the horny layer and softens the epidermis and makes it receptive of treatment; the tar, apart from its value as an antipsoriatic measure, probably potentiates the subsequent light therapy; and the light therapy introduces into the patient's environment something of those climatic

conditions which we believe to be influential in curing psoriasis. It is useful for the patient to receive a first course of treatment in a properly equipped hospital department so that the physician has more opportunity of observing and knowing his patient, and the patient is more efficiently trained in treatment.

Some of this treatment can be continued as maintenance and prophylactic therapy after psoriasis has cleared. Thus the daily bath with tar soap—even a tar bath occasionally—and regular care of the scalp, are desirable. The use of a pomade with mercury, salicylic acid, and tar on the scalp may be adopted as a routine toilet measure. A daily exposure to ultra-violet light is still more profitable, especially when taken after a bath or a tar bath. For this purpose the powerful hospital pattern of lamp is desirable, so that the treatment may take no more than one or two minutes, become part of the toilet routine, and not be a burden.

It is not suggested that this is the only local treatment for psoriasis, but in this climate it is rapidly effective in all but the occasional patient.

A Hospital Service for Psoriatic Patients

It is not unreasonable to suggest that a national health service should, under present circumstances, provide a service of treatment which should be made available for the patient for purposes of clearing attacks of psoriasis, if not for prophylaxis. There is a large psoriatic population in this country, numbering perhaps half a million, and the disability and discomfort involved must be considerable. Such a service should be the responsibility of regional hospital boards, who should provide, under the direction of their dermatologists, facilities for such treatment. It means the provision of baths and sunlight lamps, of nurses or orderlies trained to conduct treatment, and effective supervision; it means, further, a permanent staff, for the uninstructed nurse will not produce results.

Such a service would not only relieve a large number of patients of an intolerable burden, but would place under the constant eye of the dermatologists in the service a mass of clinical material—a circumstance that must favour an advance in our knowledge and encourage research. That fundamental research is necessary and essential to advancement in this field is not to be questioned. It is suggested that the expenditure of money on such services as have been outlined would be profitable to the community and is the proper function of a health service. It cannot be doubted that such a scheme in practice would inevitably stimulate useful research, both clinical and fundamental, and would provide the opportunities likely to make it purposeful and successful.

Summary

It is suggested that psoriasis is a constitutional disorder in which the fundamental maladjustment relates to climate.

There is a tendency for the disease to be inherited and so to be associated with some racial predisposition.

Though climatic influences are primary and fundamental, secondary influences, such as the infective, endocrine, and nervous, may assume major importance.

The significance of the epidermal character of the reaction is stressed, and fundamental research into the mechanism of the reaction is necessary.

Treatment can be rapidly effective in clearing the eruption, and a hospital service should be provided for the treatment of psoriasis under the health scheme.

Such a scheme, in addition to providing a necessary service to the community, would favour the pursuit of purposeful research, both clinical and fundamental.

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URINARY STEROID EXCRETION IN RHEUMATOID ARTHRITIS

CHANGES IN KETONIC AND NON-KETONIC FRACTIONS DURING HORMONE THERAPY

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In 1949 Hench, Kendall, Slocumb, and Polley reported that cortisone (17-hydroxy-11-dehydrocorticosterone) or A.C.T.H. (adrenocorticotropic hormone) would alleviate the symptoms of rheumatoid arthritis and of acute rheumatic fever. This observation stimulated inquiries into the role of the adrenal cortex and its hormones in normal metabolism and in relation to the aetiology of rheumatic conditions. Many workers have shown that A.C.T.H. is capable of stimulating the adrenal cortex to increased secretion, and that prolonged administration of A.C.T.H. or cortisone to man results in the development of the symptoms of Cushing's syndrome associated with increased excretion of steroids.

The present paper gives further details of the excretion of specific 17-ketosteroids following cortisone administration (Copeman *et al.*, 1952) and of work extended to include the administration of A.C.T.H. A new method of analysing the "non-ketonic" fraction has revealed changes following hormone therapy not previously reported.

Material

Urine samples (24-hour) were collected from normal persons (10 males and 10 pre-menopausal females) and from patients suffering from rheumatoid arthritis. The urine was preserved with chloroform, and, in the case of patients, collection was begun 12 days before treatment and continued throughout therapy. The urine was hydrolysed by boiling for 15 minutes with 3.3% hydrochloric acid and extracted with benzene. The neutral extract prepared by washing the benzene solution with 2N sodium hydroxide and water was fractionated by Girard T reagent into ketonic and non-ketonic steroids. Each of these fractions was divided into alcohols and non-alcohols (Dobriner, Lieberman, and Rhoads, 1948) as shown in Fig. 1.

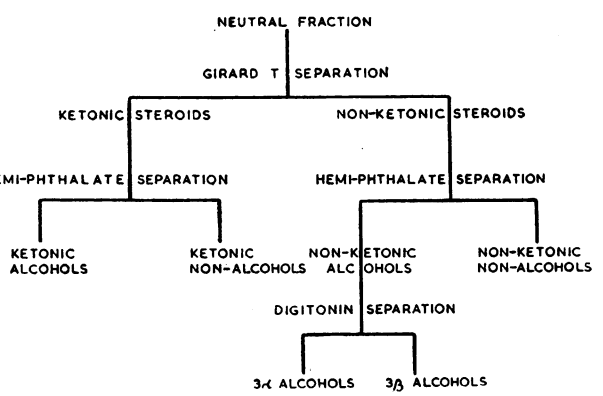

FIG. 1.—Scheme of separation of neutral steroid extracts.