Current Practice

DISEASES OF THE SKIN

Treatment of Psoriasis

R. H. CHAMPION,* M.B., M.R.C.P.

Most of the treatments now used for psoriasis were introduced quite empirically. Nevertheless, though the fundamental aetiology of psoriasis remains elusive, a great deal is now known of the processes occurring within the psoriatic skin, and a fuller understanding is being provided of how such empirical treatments act.^{1 2}

One of the most striking abnormalities in psoriasis is the rapid rate of epidermal turnover. The normal orderly sequence whereby a basal cell becomes keratinized, loses its nucleus, changes into a flattened squame, and is finally shed from the surface requires about 25 days. In psoriasis the time for a cell to pass from the basal layer to the surface is about four days.^{3 4} It is hardly surprising that production of a normal surface layer is not achieved. The mode of action of many treatments, systemic and topical, may be to retard this rapid turnover.

This tendency for the skin to form its horny layer abnormally is genetically determined and irreversible. It affects about 2-3% of the population,^{5 6} though a psoriatic tendency which remains latent is probably much more common. Precipitating factors may be necessary to bring the psoriatic tendency to light and produce clinical manifestations. These include local trauma, respiratory and other infections, emotional disturbances, and other dermatoses. Often, however, no precipitating factors are found.

An appreciation of the natural history of this chronic but fluctuating disease is essential to planning treatment.^{5 7} About one-third of patients have psoriasis so mild as hardly to require any treatment, while one-half of all cases have periods when the skin returns almost completely to normal. In only a quarter are there recurrent attacks of any great severity, and but a small minority are crippled by the disease for much of their lives. Although the prognosis for a complete and permanent cure is poor, the chances of leading an almost normal life are good.

General Management

The biblical ambiguity between leprosy and psoriasis unfortunately persists in the minds of many patients and their friends. In many patients a careful explanation of the nature of the disease is the most important part of treatment. It is seldom justified or even true to say that it is incurable and untreatable. It is nearly always possible to cure the individual attacks of psoriasis by one means or another. Sometimes the treatment is more trouble than the disease, and many patients with mild psoriasis and some patients with quite severe disease prefer to remain without treatment for much of the time. This is a decision which perhaps comes best from the patient.

Precipitating factors must be removed and avoided so far as possible. Unfortunately, once an attack has been initiated removal of the cause is not followed by a rapid recovery.

Physical trauma is responsible for the localization of some lesions—for example, on the hands. Fatigue and emotional factors play an important part in a minority of cases, but there is no evidence that patients with a psoriatic tendency are especially prone to nervous upsets except those caused by the disease. In most of these cases the simple psychotherapy which can best be given by a general practitioner or dermatologist is of great help. Tranquillizing and sedative drugs may be indicated, and for patients who are more disturbed the help of a psychiatrist should be sought. Streptococcal tonsillitis, and to a lesser degree other infections, can cause acute exacerbations of guttate and other forms of psoriasis. Tonsillectomy should be advised when recurrent attacks of tonsillitis are followed by recurrent exacerbations, but indiscriminate removal of tonsils or doubtful areas of focal sepsis leads only to disappointment.

In general, anything which disturbs the general health of the patient is harmful for psoriasis, and anything which promotes a feeling of well-being is helpful both in treatment and prophylaxis.

Adequate rest and relaxation are often an ideal which cannot be achieved but are an essential part of treatment for severe cases of acute psoriasis. Inpatient treatment, even without any specific therapy, is a very powerful weapon.

Many patients find that they improve with natural sunlight, but it is seldom that this effect can be relied upon sufficiently to advise a change of climate. A minority of patients with psoriasis are made worse by sunlight and regularly relapse each summer. Any patient can be made worse by a large overdose of sunlight. Ultraviolet light has obvious advantages, and is best given in courses of a few weeks by a physiotherapist in conjunction with local therapy. It should be avoided if the lesions are acute and inflamed.

The harmful effect of water on all skin diseases is a myth which dies hard. Even in eczema it is doubtful if prohibition of bathing does not do more harm than good. There is no reason why patients with psoriasis should not be allowed to bath normally, and at the same time brush off the loose scales.

Drug Therapy

Systemically administered drugs play little part in the management of psoriasis, with the exception of antipruritic, sedative, and tranquillizing drugs when indicated. Corticosteroids are to be condemned, and should not be given to patients with psoriasis. Although temporarily they may have a dramatic good effect, even exceeding the patient's hopes, severe rebound attacks occur when the dosage is reduced or even while the dosage is maintained at a steady level. These rebounds tend to be worse than the initial eruption, and are sometimes life-endangering. They are often unresponsive to any form of treatment, including even huge doses of corticosteroids.

* Consultant Dermatologist, Addenbrooke's Hospital, Cambridge.

Arsenic has been used for many decades, but its administration has now been abandoned because of its toxic effects, the most serious of which is a carcinogenic action not only on the skin but also on other organs.

Calciferol and vitamin B₁₂ have had their advocates. What few controlled trials have been performed have failed to show that they are effective.

Chloroquine and other antimalarials tend to aggravate psoriasis, and should be avoided even if joint symptoms suggest that they are indicated. They may need to be given cautiously for the prophylaxis and treatment of malaria.

Methotrexate and other inhibitors of mitosis have a limited place in the treatment of psoriasis.³ Though some quite large series of cases have been reported without serious side-effects, toxic effects and even death have occurred.^{8,9} These drugs have been given in short courses or as maintenance dosage given for many months. Treatment can be undertaken only under the strictest clinical and laboratory observation, and should not be given until at least one period of three weeks' inpatient treatment has failed to influence the disease. Even then it should be given only to patients whose lives are sufficiently disrupted to warrant the very real risks.

Local Applications

These are the mainstay in the treatment of psoriasis. So many patients when asked whether they have had any treatment scornfully reply, "No, only ointments," and have to be persuaded that this is the most logical way to treat the skin.

Proper attention to the base is most important, and should follow the general principles for treating any skin condition. A paste is the most effective way of bringing active ingredients like dithranol into contact with the skin, but is rather messy and must obviously be avoided on the scalp, where a water-miscible cream or lotion should be used. Ointment bases are intermediate in both efficacy and acceptability, and are commonly prescribed for outpatients.

There are several active ingredients known to influence psoriasis. The indications for these and the strength at which they are used vary greatly with the type and site of the lesions. It is a very variable disease, and great care must be taken to avoid overtreatment of psoriasis which is in a rapidly spreading or inflammatory phase. At such times any form of active local treatment may be poorly tolerated. Careful attention to concentration is essential, as most of the applications are capable of doing more harm than good if used inappropriately. One patient may well require three or more different applications for different sites.

Most applications are used twice daily, ointments being rubbed in gently, pastes applied to the surface. Prescription of an ointment should always include instructions and preferably a demonstration of how to apply it and how to clean it off. Pastes cannot easily be removed even in the bath, but olive oil, arachis oil, or liquid paraffin are efficient.

Tar

Tar is the oldest and still one of the most valuable treatments for psoriasis. The extreme complexity of its composition has so far precluded the isolation of pure active ingredients. Its mode of action probably depends on its ability to inhibit mitotic activity. It is extracted and diluted in various ways, most clinicians having their own favourites. Liq. pic. carb. 2% (solution of coal tar) in ung. emulsificans is a mild preparation usually well tolerated on guttate or inflamed psoriasis and easy to use on the scalp. The *National Formulary* coal tar and salicylic acid ointment is much stronger and is suitable for routine use in chronic cases. Neat crude coal tar or 5% crude coal tar in zinc paste are too messy to be tolerated for long. Various proprietary preparations containing tar are avail-

able, differing from standard preparations more in their cosmetic acceptability and increased price than in their efficiency. Coal tar baths—4 oz. of liq. pic. carb. to a standard bath—are part of the intensive course of treatment and potentiate the action of ultraviolet light. Coal tar bandages are sometimes the most convenient way of treating chronic psoriasis, especially of the legs, if the lesions are also irritable.

Any tar preparation can have side-effects, of which the most important is an irritant effect due to too great a concentration for the particular lesion. Allergic sensitivity, light sensitivity, and folliculitis may occur; the incidence of carcinogenesis is surprisingly low and for practical purposes can be ignored.

Wood tars are traditionally used for chronic psoriasis of the scalp in a strength which is apt to cause irritant effects elsewhere. A suitable preparation is: oil of cade 6%; precipitated sulphur 3%; salicylic acid 2%; emulsifying ointment to 100%.

Dithranol and Exolan

Chrysarobin, a yellow product of varying composition derived from a Brazilian tree, has now been superseded by the synthetic dithranol. It is probably the most effective single agent for the treatment of chronic psoriasis. Its side-effects include unpleasant staining of the skin and clothing. It is also a powerful irritant and must be used with caution; the strength of the application should be increased in stages. It should be avoided in inflammatory and acute psoriasis, should be used with care in the flexures, and must be kept away from the face, as it causes severe irritation if it comes into contact with the eyes. The risks of absorption and renal toxicity are very slight, but patients having extensive applications should have periodic urine tests for albuminuria. Dithranol is most effective if it is supplied in Lassar's paste, preferably when a specially hard form of paraffin is used for the paste.¹⁰ The initial concentration should be 0.1%, increasing to 0.2% and to the standard 0.5% at intervals of a few days. Greater strengths are seldom of much greater efficacy. The paste is most effective if applied fairly thickly and covered with a cotton or tube gauze bandage. The surrounding skin may need to be protected with zinc paste. This treatment is the basis of the most effective regimen for ordinary chronic psoriasis developed by Professor Ingram.^{6,10,11} This method may be used as an inpatient or outpatient treatment, and includes a daily tar bath, general ultraviolet light, and application of dithranol. The majority of cases are clear after two to three weeks.¹¹

Dithranol may be used with caution on the scalp, great care being taken to avoid any contamination of the eyes. Obviously Lassar's paste cannot be used as a vehicle, and the following is acceptable: dithranol 0.4 to 0.8% in liquid paraffin 75% and Lanette wax 25%.

Exolan is a recently developed synthetic derivative of dithranol. The active ingredient is preferentially liberated by hydrolysis on the surface of the psoriatic plaques. The molecule is so adapted that the staining and much of the irritant properties of dithranol are avoided with loss of only some of its potency. It is rather slower in action. It is still too new to have received full evaluation, but preliminary trials are encouraging.¹² If it fulfils the makers' hopes it will replace dithranol except perhaps for inpatient treatment, where the quicker effect of dithranol is important. It may also be tolerated in cases where the psoriasis is too inflamed or acute for dithranol, or where staining makes it cosmetically unacceptable. At present the cost of Exolan is considerably greater than that of dithranol. A lotion suitable for the scalp will shortly become available, though, as with dithranol, care with the eyes will be necessary.

Corticosteroids

Hydrocortisone itself is relatively ineffective in psoriasis. The newer fluorinated derivatives—for example, betamethasone

valerate, fluocinolone, and triamcinolone ointments—are capable of suppressing the lesions of psoriasis. Their mode of action is not known. They are not the panacea for all forms of psoriasis but are extremely valuable when their limitations are realized. They are clean and easy to use and their effect is more rapid than tar or dithranol. However, on stopping treatment relapse is more rapid. Their efficacy is greatly enhanced when their absorption is increased by occlusion under polyethylene.¹³ Frequently these drugs improve lesions but fail to clear them completely even if used for a long period. The most important side-effect of such steroids, especially if used under polyethylene, is systemic absorption—with all the disadvantages of systemic administration. Whether this is responsible for the rebound of psoriasis which sometimes occurs when treatment is stopped or even when it is continued is uncertain, but such rebounds do occur, may be severe, and are the most important factor in limiting the use of this treatment. For this reason, as well as cost, the concentration of the steroid should be reduced if possible. A tenfold dilution of betamethasone valerate cream to 0.01% is often almost as effective as 0.1%. The use of polyethylene is best restricted to eight to twelve hours a day to prevent the complications of prolonged occlusion—staphylococcal infection and sweat retention. It has been suggested that any patients receiving more than 20 g. of one of the newer steroid creams daily, especially if used under polyethylene, should be treated as if they were on systemic corticosteroids.¹⁴

We prefer to restrict the use of corticosteroids to such localized areas as the face, flexures, ears, and genitalia, where absorption is satisfactory without polyethylene. For these sites it may be used for many months if necessary. It may be used under polyethylene for persistent localized plaques or for more widespread psoriasis in conjunction with other therapy—for example, for a few days to cause rapid improvement at the start of inpatient therapy or for a few days after intensive inpatient therapy has apparently failed to achieve a rapid cure or is causing some irritation.

Very localized persistent plaques of psoriasis a few centimetres across can often be cleared, at least for a few months, by the intralesional injection of corticosteroids—for example, triamcinolone suspension. A total not exceeding 1 ml. may be injected immediately under the lesions. Care should be taken to avoid the risk of ulceration which may occur after too superficial injections.

Other Topical Remedies

Salicylic acid 2–10% has some slight effect on psoriasis but is mainly used as a keratolytic to remove the excess horny layer and to aid penetration of other ointments. Pyrogallol is much stronger but response is very variable, so that it is seldom employed.

Mercury has been used for centuries. It is relatively ineffective, although it does have some measurable effect on psoriasis. Local reactions and systemic absorption, sometimes with severe toxic effects on the kidney, may occur, and there is little justification for its use.

Iodochlorhydroxyquinoline (Vioform) cream has mild antibacterial, antifungal, and other effects, especially when combined with a corticosteroid, and is useful for flexural psoriasis.

Different Types of Psoriasis

A brief summary of the recommended treatment for different types of psoriasis is given below:

ORDINARY CHRONIC PSORIASIS

Coal tar and salicylic acid ointment (or other similar preparation). Dithranol paste 0.1–0.5%—or Exolan.

Newer corticosteroids, preferably only for short periods, with or without polyethylene occlusion if the site is suitable.

Severe cases require the full regimen of tar baths, ultra-violet light, and dithranol applications, preferably as an inpatient.

INFLAMMATORY AND ACUTE PSORIASIS

Adequate rest is important. Great caution should be used with any active medicaments. If in doubt the condition is best treated as for eczema.

FLEXURAL PSORIASIS

Diluted corticosteroids; weak concentrations of tar or dithranol.

PSORIASIS OF THE SCALP

Regular shampoos, which need not be medicated, should be given. Tar, 2 to 4% liq. pic. carb. in ung. emulsificans; oil of cade ointment; dithranol in washable base; Exolan cream; Betnovate 0.01% or stronger, alone or under polyethylene.

GUTTATE PSORIASIS

Often self-limiting in two to three months. Avoid overtreatment. Liq. pic. carb. 2% in ung. emulsificans.

ERYTHRODERMIC PSORIASIS

May require methotrexate and/or systemic steroids, but these should be avoided if possible. Bland local applications. Avoid overtreatment.

MIXED LESIONS

Lesions with features of psoriasis and some other dermatoses—for example, eczema—can often be given compromise treatment suitable for both. If in doubt it is safer to treat as the other dermatosis, at least initially.

PUSTULAR PSORIASIS OF PALMS AND SOLES

Intractable with any form of treatment. Some response to 4% liq. pic. carb. in Vioform cream 1 part, zinc paste 2 parts; or Betnovate cream with or without polyethylene. Exolan may be helpful.

GENERALIZED PUSTULAR PSORIASIS

Fortunately very rare. Rest and no active local medicaments. Systemic antibiotics, methotrexate, and/or steroids may be required.

PSORIATIC ARTHRITIS

There is a definite association between psoriasis and polyarthritides. The two should be treated in their own right. Chloroquine and systemic corticosteroids should be avoided if possible.

PSORIASIS OF THE NAILS

Virtually no effective treatment. Avoid trauma if possible.

REFERENCES

- Shelley, W. B., and Arthur, R. F., *Arch. Derm.*, 1958, 78, 14.
- Scott, A., in *Modern Trends in Dermatology*, ed. R. M. B. MacKenna, 1966. Butterworth, London.
- Van Scott, E. J., Auerbach, R., and Weinstein, G. D., *Arch. Derm.*, 1964, 89, 550.
- Weinstein, G. D., and Van Scott, E. J., *J. Invest. Derm.*, 1965, 45, 257.
- Lomholt, G., *Psoriasis, Prevalence, Spontaneous Course and Genetics*, 1963. Gad, Copenhagen.
- Ingram, J. T., *Brit. med. J.*, 1954, 2, 823.
- Church, R., *Brit. J. Derm.*, 1958, 70, 139.
- Ryan, T. J., Vickers, H. R., Salem, S. N., Callender, S. T., and Badenoch, J., *ibid.*, 1964, 76, 555.
- , Boddington, M. M., and Spriggs, A. I., *ibid.*, 1965, 77, 541.
- Ingram, J. T., *Brit. med. J.*, 1953, 2, 591.
- MacLennan, A., and Hellier, F. F., *Brit. J. Derm.*, 1961, 73, 439.
- Yarrow, H., Whitefield, M., and Hellier, F. F., in press.
- Stevenson, C. J., and Whittingham, G. E., *Brit. med. J.*, 1963, 1, 1450.
- Vickers, C. F. H., *Percutaneous Absorption in Modern Trends in Dermatology*, 3rd ed., MacKenna, R. M. B., 1966, p. 84. Butterworth, London.