Current Practice

DISEASES OF THE SKIN

Disorders of the Hair and Scalp

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Subjected as they are to the advertised suggestions of incipient baldness or offensive scurf, it is not surprising that increasing numbers of patients seek medical advice concerning their hair and scalp. However, myths concerning hair growth persist in medical practice almost as much as among the hidden persuaders, and some knowledge of the natural history of hair is essential before advice can be given about its disorders.

Hair is derived from epidermis during foetal life, but after birth the epidermis loses its capacity to generate new follicles. Thus any skin disease or injury which destroys the hair follicles produces permanent hair loss.

The hair shaft consists of a homogeneous mass of keratinized cells surrounded by a cuticle and containing melanin pigment distributed throughout the length of the shaft. As the hair shaft is a dead structure, cutting or singeing has no influence on hair growth, nor is it possible for a hair to become white overnight. Each hair goes through cycles of growth, the growing phase being known as anagen and the resting phase as telogen. About 10% of scalp hairs are in a resting phase, and when the hair follicle recommences activity by producing a new hair the old one is shed. The average daily shed from the normal scalp varies from 20 to 100 hairs.

Telogen Effluvium

During pregnancy conversion of hair from anagen to telogen is slowed, and in the postpartum period there is an accelerated conversion to telogen with the result that two to four months after parturition some women shed sufficiently large numbers of hairs to produce frontal alopecia.¹ Reassurance that the hair loss will cease within two to five months and that complete regrowth will occur is the only treatment necessary.

A similar sudden loss of hairs sometimes occurs after a febrile illness and may last for three to four weeks.² This, too, is due to sudden cessation of the growing phase during the illness and subsequent telogen shed; and here again assurance can be given that the hair growth will rapidly return to normal.

Drug-induced Alopecia

Not only does the hair on the scalp grow more rapidly than hair on the rest of the body, but also 90% of the scalp hairs are in an active stage of growth, the matrix cells of the hair bulb showing great mitotic activity. This makes the scalp hairs sensitive to irradiation and cytotoxic drugs, the intensity of damage depending on dosage and length of treatment. When there is severe damage owing to cyclophosphamide or NNN'-triethylenethiophosphoramide (thiotepa) hair growth stops

and the hair breaks off above the keratogenic zone.³ The risk of serious loss of hair from the action of cytotoxic drugs can be minimized by the use of a special sphygmomanometer cuff for scalp occlusion⁴ (made by Charles F. Thackray Ltd., of Leeds), inflated to a pressure of 10 mm. Hg above systolic pressure before injection, and maintained for five minutes after injection. This prevents high blood levels of the drug reaching the scalp hair roots.

Alopecia Areata

The commonest cause of sudden shedding of hair is alopecia areata. At the beginning of a first attack the prognosis cannot be judged; in recurrences the presence of ophiasiform alopecia (winding streaks of baldness) round the scalp margin or of nail changes suggests a poor prognosis. Fortunately the majority of patients recover completely and rapidly. If there is already a downy regrowth when the patient is first seen reassurance and a placebo application such as lotio acid. salicyl. et hydrarg. perchlor. *B.N.F.*, is all the treatment necessary. It is unlikely that the application of irritant lotions to the scalp has any effect on hair growth, and painting with iodine or cantharides should be a thing of the past. If the disease is progressing intradermal injection of the bald patches with hydrocortisone acetate *B.P.* produces regrowth of pigmented hairs in the infiltrated area within a month. The amount injected varies from 1-2 ml. according to the size of the patch, and can be repeated every two to four weeks. In 10% of patients atrophy of the subcutaneous tissues occurs, but this is only temporary.⁵ Multiple punctures with needleless injectors can be used, but many patients prefer one needle prick. The results of the application of fluocinolone acetonide or betamethasone valerate in ointment or lotion to the bald areas, followed by occlusion under polyethylene or a rubber bathing cap, are difficult to assess. Gill and Baxter⁶ successfully treated alopecia totalis by this method, occluding the scalp for 48 out of each 72 hours for three months. A patient of mine treated one half of an ophiasiform alopecia of seven years' duration using fluocinolone acetonide ointment and occlusion each night, and regrew normal hair. Subsequent treatment of the "control" side produced complete regrowth. Not every patient responds as well, partly because conscientious occlusion is important, but the treatment is worth a trial in cases too extensive for injection. Ultraviolet light applied in "erythema" doses to the scalp is probably therapeutically inactive, but twice-weekly encouragement by the therapist, combined with sedation, are of great psychological benefit to the patient whose hair is falling out rapidly, causing an anxiety state.

Systemic corticosteroid therapy will produce regrowth of hair in many cases of alopecia totalis, but even on a sustained maintenance dose the hair gradually thins, and it falls again completely when the drug is stopped. In such patients a wig, if acceptable, is the only help one can give.

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Hereditary Male-pattern Baldness

This is still to be regarded with resignation as one of the variants of the male physique. Hopes were stirred by Papa and Kligman's⁷ account of hair growth in frontocentral areas of baldness after the daily application of 0.5 g. of 1% testosterone propionate in hydrophilic ointment, but others have not been able to repeat their success.

It is possible to transplant homologous punch grafts from a donor site on the normal scalp to the bald frontal areas.⁸ The grafts, 3.5 mm. in diameter, are removed under local anaesthesia, punching in the direction of the growth of the hair follicles, and are placed in similarly prepared obliquely punched holes in the frontal area, directing the hair shafts in the appropriate line of growth. Within 12 weeks of grafting hairs resembling in colour and growth the hair of the donor site will be growing strongly. About 20 such grafts can be implanted at a session, and they retain their growth even though frontal recession of hair may progress behind them. This fact, together with the curious tufted pattern of hair growth achieved, makes the procedure of academic interest but of doubtful cosmetic value.

Diffuse Alopecia in Women

Dermatologists in many countries have encountered increasing numbers of women suffering from diffuse thinning of the frontocentral areas of the scalp hair with retention of a normal hair line.^{9 10}

In well over half these patients no cause can be found, nor can any treatment be offered. In about 10% of patients hypothyroidism can be detected, and treatment with thyroxine 0.1 to 0.2 mg. daily improves some but not all such cases. Hyperthyroidism can cause similar hair loss, and when it is treated hair growth returns to normal. Hypopituitarism may cause hair loss, but treatment of these patients is more specialized, as, though they have evidence of hypothyroidism, they are abnormally sensitive to thyroxine and require the addition of cortisone, when regrowth of scalp hair can be satisfactory. Iron deficiency, as measured by a serum iron level below 60–70 mg./100 ml., or anaemia with haemoglobin below 11 g./100 ml. has been found in association with diffuse hair loss,¹¹ and treatment with oral iron is claimed to restore hair growth. In my experience the incidence of such iron deficiency is about 5%, and the response to treatment is convincing in only a small proportion of this group.

Seborrhoeic Dermatitis

The mildest form of seborrhoeic dermatitis is scurf or dandruff, and it is the commonest of all skin diseases. Innumerable proprietary shampoos are available for which curative properties are claimed. In fact there is no cure, and repeated use of some form of suppressant is necessary in sufferers from dandruff. Cetrimide used in 1–2% solution about every five days controls most mild attacks. More severe cases can be controlled by selenium sulphide shampoos used weekly. Four weeks' treatment suppresses scurf in 94% of cases, and most remain free if they continue treatment. In about one-third of patients the hair and scalp become very oily after three to four weeks' treatment,¹² but this can be suppressed by using an ordinary shampoo such as cetrimide and reverting back to the selenium sulphide every three to four weeks. In patients with grey hair there is a risk of orange tinting from the use of selenium sulphide, and it has also been suggested that prolonged weekly use may cause thinning of the hair.

An alternative suppressant of scurf is the following lotion:

Hydrarg. perchlor. ...	...	gr. $\frac{1}{2}$
Acid. salicyl. ...	...	gr. 20
Spirit ...	...	ad 1 ounce

to which can be added a few drops of lavender oil for those men who use a grease on their hair.

When the scalp is red and inflamed selenium sulphide should be avoided. If there is no weeping or crusting the application of 2% sulphur and 2% acid. salicyl. in Eucerine Hydrous each night after washing the scalp in cetrimide is usually successful, but if there is excessive adherent scale the following ointment can be used:

Acid. carbol. ...	...	minims. 15
Camphor ...	...	gr. 15
Acid. salicyl. ...	...	gr. 15
Sulph. praecip. ...	...	gr. 10
Paraff. moll. ...	...	ad 1 ounce

Many saprophytic organisms grow profusely on seborrhoeic skin, and their role in the aetiology of seborrhoeic dermatitis is minimal. However, secondary pyogenic infection with *Staphylococcus aureus* and the haemolytic streptococcus undoubtedly causes a flare of seborrhoeic dermatitis and is responsible for the weeping, crusted, matted scalps which are nowadays infrequently seen. Tetracycline is the most useful antibiotic in such cases and the application of Terra-Cortril ointment twice daily to the scalp, a daily shampoo with cetrimide, and tetracycline, 250 mg. q.i.d. for five days, control the infection and can be followed by sulphur and salicylic acid applications. Rarely the scalp is so severely crusted that shampooing alone will not suffice. In such a case crusts can be removed by the use of emp. plumb. et paraff. moll. flav. (Sheffield Royal Infirmary) applied thickly on lint strips and left in place as a cap over the scalp for 24 hours.

Psoriasis

It is important to differentiate psoriasis of the scalp from seborrhoeic dermatitis, as treatment which improves one may irritate the other.

In the absence of evidence of psoriasis elsewhere, the localization of lesions with intervening areas of normal scalp and the palpable heaping up of scales differentiates it from seborrhoeic dermatitis.

Daily shampooing with 2% cetrimide shampoo is necessary to remove the scales and in mild cases the following lotion has the merit of not gumming down the hair:

Liq. pic. carb. }	} equal parts
Spirit	
Water	

For increased scaling 2% liq. pic. carb. in E45 cream (Boots) is easy to wash out. A stronger, more greasy, preparation is 4% pic. carb. in Eucerine Hydrous. In cases where scaling is very adherent the only really effective applications are so unpleasant that it requires considerable determination on the part of the patient to apply sufficient ointment to be effective. Where determination is deficient it may have to be reinforced by attendance for daily dressings or even admission to hospital for the application of:

Ac. pyrogall. ...	...	gr. 10
Ac. salicyl. ...	...	gr. 15
Ac. carbol. ...	...	gr. 10
Ung. hydrarg. oxy. flav. ...	...	ad 1 ounce

In mild cases the application of corticosteroid ointments (fluocinolone acetonide or betamethasone valerate) under the occlusion of a polyethylene bag or rubber bathing cap during the night improves some, but in my experience has not the dramatic effect on the scalp that it has on hairless skin.

In resistant cases ultraviolet light therapy to the scalp in suberythema doses at least three times weekly can be usefully combined with local applications.

Hair-dye Dermatitis

The reaction to hair dyes and rinses containing paraphenylenediamine dyes may resemble an acute weeping seborrhoeic dermatitis, though oedema of the face and involvement of the margins outside the hairy scalp produce a more florid picture. However, a chronic scaly dermatitis involving the scalp, nape of the neck, and ears may be produced, and this cause should be suspected if the hair is tinted.

Rest in bed is necessary in severe cases until the oedema subsides. The weeping scalp should be treated with a corticosteroid cream such as betamethasone valerate three times daily and shampooed daily.

Ringworm of the Scalp

The treatment of ringworm of the scalp has been revolutionized by the use of griseofulvin,¹³ but even before the drug was available the incidence of this infection was declining in Britain, and in the past 10 years microsporon infections of the scalp have become rare. It is now commoner to see kerion produced by cattle ringworm *Trichophyton verrucosum*. Before embarking on griseofulvin therapy the diagnosis of microsporon infection should be confirmed by examination under Wood's light and preferably by microscopic examination of infected hairs and culture of the fungus. It is necessary to keep the child away from school if the diagnosis is confirmed, as it is still potentially infectious while under treatment. Dose depends on the child's age and varies from 125 mg. of fine particle griseofulvin to the adult dose, which is four times as great. Some greasy local application such as Whitfield's ointment to the scalp prevents scattering of infectious stumps. Progress can be hastened by removing fluorescent stumps under Wood's light, and it is normal for clinical evidence of infection to be absent in three to four weeks, while most cases are culturally negative in ten weeks.

In cattle ringworm relapse is common if the drug is stopped after about four weeks, when the lesion appears healed; in such infections eight to ten weeks' treatment is usually necessary.

Outbreaks of microsporon infections in schools serving poor populations have been successfully controlled by single-dose treatment, giving 3 g. of griseofulvin to all those children showing infection under Wood's light.¹⁴ Most were clinically cured in seven weeks and culturally negative in ten weeks; those who had not cleared responded to a second single dose. Fortunately the success of griseofulvin has eliminated the need for x-ray epilation of the scalp in ringworm infections.

Acne Necrotica

This is caused by staphylococcal infection, but the patient's habit of picking at the lesions not only appears to aggravate and spread them but it is also responsible for varioliform scarring. Such patients are often suffering from psychological stress or an anxiety state, and treatment of this with an appropriate antidepressant drug or simple sedation such as sodium amytal 60 mg. twice daily helps them to stop scratching. Where the lesions are mild application of chlortetracycline ointment three times daily may control them; but when this fails administration of tetracycline by mouth 250 mg. twice daily heals the skin lesions in a fortnight. Relapse on cessation of treatment is common, and many patients require a maintenance dose of 250 or 100 mg. of tetracycline daily for several months.

Chronic Discoid Lupus Erythematosus

There are many causes of scarring alopecia for which treatment is not possible because hair follicles have been entirely destroyed and cannot be regenerated by the epidermis. The commonest cause of scarring alopecia in this country is discoid lupus erythematosus, and, while regrowth is unlikely on severely scarred areas, active patches of lupus erythematosus can contain many viable hair follicles which regrow hair when the disease is suppressed. The treatment of this condition will be described in a later article in this series.

Traumatic Fragility of the Hair

Those women who are fortunate enough not to have shed their hair or to have disease of the scalp spend what must total tens of millions of pounds each year having their straight hair curled, curly hair straightened, or dark hair bleached. The active ingredients of permanent-waving solutions are usually salts of thioglycolic acid, which break the bond of the keratin molecule, causing the hair to become soft so that it can be shaped. An oxidizing agent is then applied to set the hair to the desired shape. If the reducing process is carried too far the hair will break or become frizzled. Hair straighteners contain strong alkalis such as sodium and barium hydroxide which hydrolyse keratin and enable the hair to be straightened, after which it is fixed with formalin.

Bleaches contain hydrogen peroxide and if used excessively may make the hair dry and lustreless, as well as making it more prone to damage by permanent-waving solutions. Once the hair has begun to break as the result of overapplication or too-frequent use of any of these methods, little can be done to help, apart from reassuring the patient that if the offending process is avoided the damaged hair will grow out. However, some of the lack of lustre of the hair is due to damage to the cuticle, and if the hair is hydrated by being wetted, then greased with a hydrophobic oil such as olive oil, there is a temporary improvement in its appearance. Fortunately such cosmetic casualties mainly consult their doctor for medico-legal advice, there being plenty of hairdressers ready with complicated routines claimed to revive the hair.

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"Child Care."—This book is composed of articles originally published in the Current Practice section and since revised by their authors. Copies are now available from the Publishing Manager, British Medical Journal, B.M.A. House, Tavistock Square, London W.C.1. Price 30s., postage 2s. 6d.