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Hair Loss and Contraceptives

Increased loss of hair is a common complaint, particularly in women, and is often a source of serious anxiety. It is a symptom that is exceptionally difficult to quantify and to evaluate. The physiological moulting cycles result in the daily loss of from 70 to 140 hairs. The number of hairs shed varies with age and probably with season. It is said to reach a maximum in November in the north temperate zone.[1] In health the hair thus shed is immediately replaced and there is no alopecia.

Physiological events such as childbirth and pathological events such as haemorrhage or fever often cause a proportion of actively growing follicles to enter the resting phase of their cycles prematurely. Such follicles inevitably shed their hairs two to four months later. There may be some alopecia as the rate of shedding temporarily exceeds the rate of replacement, but the normal balance is soon restored unless hypothyroidism, iron deficiency, or hypoprotinaemia or some other systemic factor retards replacement. Since most women are not aware of the existence of the moulting cycle or of the factors which control it they are gullible victims of plausible advertisements. Moreover, in endocrinologically normal women over 30 who have inherited the appropriate gene some degree of alopecia of male pattern, frontovertical in distribution and more diffuse than in men, is also common. It is irreversible but under physiological conditions rarely becomes severe.

It is the frequency of minor disturbances of follicular cycles and of mild changes in hair pattern that makes it difficult either to incriminate or completely to exonerate the contraceptive pill as a cause of alopecia. F. E. Cormia[2] in 1967 reported alopecia from oral contraceptives. He noted that during administration of the pill some women developed alopecia apparently of the male pattern, and that a month or two after the pill was discontinued some women developed diffuse loss of hair. Such effects could readily be explained in terms of our knowledge of hormonal influences on hair growth. Some of the oral contraceptives in use six or seven years ago had greater androgenic activity and a higher oestrogen content than those now in use. The induction of alopecia of male pattern in genetically predisposed women was understandable, as was the temporarily increased shedding after oestrogen withdrawal, by analogy with postpartum moulting. The subsequent experience of most dermatologists has confirmed that the daily loss of hair increases after withdrawal of the pill in some women but that the resulting alopecia, if indeed it becomes clinically apparent, is slight and is temporary. Whether the pill causes alopecia while it is being administered remains controversial.

The state of activity of a hair follicle can be established by plucking the hair and examining its root under the microscope. It is a simple matter to distinguish between an actively growing hair and a hair in the resting phase of its cycle, and therefore inevitably to be shed within, at most, a few weeks. The microscopy of plucked hairs is a valuable investigative procedure provided a sufficiently large number of hairs is examined and the patient has not washed or vigorously brushed her hair during the previous week, as such activities dislodge prematurely many resting hairs. It is also essential that the same region of the scalp be studied in control subjects of the same age and race. Many reported investigations fail to satisfy these criteria and must be disregarded. Three independent studies of the effect of pregnancy on hair growth[3–5] are in good general agreement. After about the end of the third month the rate of growth is slightly reduced but the proportion of hair follicles in active growth rises, which implies that the proportion spontaneously entering the resting phase falls. The increased shedding that follows childbirth is partly due to the delayed physiological passage of some follicles into the resting phase and partly to the effects of blood loss and, sometimes, of anticoagulants.[5] Studies in men receiving large doses of oestrogen for carcinoma of the prostrate[6] strongly suggest that it is the high oestrogen levels in pregnancy which prolong the duration of the phase of active growth of many follicles.

Similar investigations of the hair cycle have been carried out in women receiving oral contraceptives.[7–9] In half the 50 patients studied there was a temporary increase in the proportion of resting follicles, but the pretreatment status was regained by the sixth month. In 11 of the patients, in whom the pretreatment level of resting follicles was relatively high, the proportion of actively growing follicles actually increased. Such findings suggest that when the pill produces any

clinically significant effect on hair cycles it is likely to be a favourable one.

However, there are many different oral contraceptives on the market and sweeping generalizations are unjustifiable. Women may blame the pill for any changes of which they become aware, and it is by no means easy for the doctor to disprove their assumptions. A recent clinical investigation by W. A. D. Griffiths[10] on diffuse loss of hair and oral contraceptives was therefore well worth undertaking. It should be emphasized that he was concerned with diffuse alopecia, and not with the male pattern alopecia earlier reported by Cormia.[2] He quotes statistics from St. John's Hospital, London, which show no increase in the incidence of diffuse alopecia in women between 1952 and 1971, though the number of women taking the pill has increased dramatically during the past decade. Nineteen of 31 patients with diffuse alopecia examined by Griffiths were not taking oral contraceptives, but in only 10 of these patients could a cause for the alopecia be established. Of 11 women who had taken the pill, two had stopped taking it four and five months before they became aware of the alopecia. The remaining nine were taking the pill when the hair loss was noticed. In three of these another cause for the alopecia was established. Griffiths concludes that some women develop alopecia after they stop taking an oral contraceptive. It seems probable that there is a causal relationship and that oestrogen withdrawal is the essential factor. Griffiths's second conclusion is that some women also develop alopecia while they are taking the pill, but that there is at present no evidence that the pill is responsible.

These latest clinical studies therefore fully support the findings of H. Zaun and colleagues[7-9] that the oral contraceptives do not produce any clinically evident disturbance of hair cycles. However, some authorities believe that some at least of the patients commonly diagnosed as diffuse alopecia are in fact suffering from alopecia of male pattern, but that existing diagnostic criteria are inadequate. This hypothesis is based on the fact that in some women with alopecia which is manifestly androgen-induced the pattern of hair loss is diffuse. It is therefore reasonable to suggest that, though in the great majority of women with "diffuse alopecia" oral contraceptives are in no way responsible, we cannot dismiss the possibility in some genetically susceptible individuals.

R. P. Dickey and C. H. Dorr[11] tabulated the possible side effects of the contraceptive pills according to their probable relationship to progestogen or oestrogen excess or deficiency. Among the changes attributed to excess of progestogen are loss of hair and an oily skin. In practice it is clearly justifiable to assume that hair loss is very rarely indeed caused by oral contraceptives. But if hair loss is accompanied by seborrhoea, or even more definitely if hirsutism is associated, then it would be wise to discontinue the pill or at least substitute one of low progestational potency.

[1] Orentreich, N., in *Advances in Biology of Skin*, vol. 9, p. 99, ed. W. Montagna and R. L. Dobson. Oxford, Pergamon Press, 1969.
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[3] Lynfield, Y. L., *Journal of Investigative Dermatology*, 1960, **35**, 323.
[4] Pecoraro, V., Barman, I. M., and Astore, I., in *Advances in Biology of Skin*, vol. 9, p. 203, ed. W. Montagna and R. L. Dobson. Oxford, Pergamon Press, 1969.
[5] Bosse, K., *Schriften der Alfred-Marchionini-Stiftung*, 1971, **2**, 59.
[6] Bosse, K., *Hautarzt*, 1967, **18**, 180.
[7] Zaun, H., and Gerber, T., *Archiv für klinische und experimentelle Dermatologie*, 1969, **234**, 353.
[8] Zaun, H., and Ruffing, H., *Archiv für klinische und experimentelle Dermatologie*, 1970, **238**, 197.
[9] Zaun, H., in *Ovulationshemmer in der Dermatologie*, p. 17, ed. H. Zaun. Stuttgart, Thieme, 1972.
[10] Griffiths, W. A. D., *British Journal of Dermatology*, 1973, **88**, 31.
[11] Dickey, R. P., and Dorr, C. H., *Obstetrics and Gynaecology*, 1969, **33**, 273.

Tissue Typing in Corneal Grafting

It has often been said that the cornea is a privileged site for transplantation. This would suggest that the graft is hardly ever rejected after keratoplasty. Unfortunately this is not true, for about 25% of such grafts are rejected, though many regain their clarity with the aid of immunosuppressive therapy.

This concept of a "privileged site," which has unhappily tended to discourage research by immunologists, arose because the large majority of grafts were initially done on corneas which had not become vascularized, particularly those affected by hereditary degenerations. Today the corneal surgeon is more often faced with an opaque vascularized cornea ravaged by herpes simplex (made worse by therapeutic steroid drops), an adherent corneal leucoma from perforating ulcers in tropical countries, or a cornea damaged by chemicals, such as ammonia sprayed by bandits. The corneas in such cases retain clear grafts for periods of two weeks to two years, until an immune response causes an outpouring of lymphocytes on the endothelial surface, and the graft then gradually becomes opaque.

It is generally agreed that a good tissue-match of HLA antigens is important in renal transplants, but until the recent report of a carefully observed tissue-matched series from the Queen Victoria Hospital, East Grinstead,[1] no such information was available on corneal grafts. Since this was a random study, only one-fifth of patients and donors shared two antigens, and there was no case of a complete match, but it could be concluded that HLA compatibility is important in cases that are at risk because of considerable vascularization. This study is being continued, and a total of 180 cases have now been analysed[2] which should determine whether, in certain cases, the appropriate tissue match should be sought. This would present daunting logistic difficulties if a method had not already been elaborated ten years ago at Westminster Hospital for storage of deep-frozen material.[3] Though the technique is rather complicated and expensive, it is regularly employed by some eye banks in the United States and for transporting donor material to developing countries. An eye bank with tissue-typed material would be of considerable value in solving some of the remaining problems of corneal transplantation.

[1] Casey, T. A., and Gibbs, D., *Transactions of the Ophthalmological Society of the United Kingdom*, 1972, **92**, 517.
[2] Casey, T. A., Batchelor, R., and Gibbs, D., *Excerpta Medica*, in press.
[3] Mueller, F. O., Casey, T. A., and Trevor-Roper, P. D., *British Medical Journal*, 1964, **2**, 473.

Communication between Psychiatrists

Until the middle of the eighteenth century, long before psychiatry crystallized out as a specialty in its own right, physicians rubbed along with a vague and woolly nosology of diseases attributable to disorders of the mind. Treatment then was entirely arbitrary, so that accurate diagnosis was of academic importance only.

From the end of the nineteenth century onwards the terra incognita was systematically explored by dedicated car-