ABC of Dermatology

D KEMMETT

DISEASES OF THE HAIR AND SCALP

The growth cycle

Anagen effluvium.

Diffuse alopecia caused by cyclosporin.

Hair has no vital function in humans, but the lack or excess of it may cause endless misery. Minor "faults" in hair texture, colour, or shape sustain an industry worth billions of pounds a year.

Each hair on the body goes through a cycle of growth independent of its neighbours. The length of each phase of the cycle, as well as its overall length, varies with site and age. For example, in the scalp anagen, the growing phase, averages 1000 days, catagen, when the follicles involute, only a few days, and telogen, a resting state, 100 days. An average scalp contains 100 000 hairs and sheds about 100 "naturally" each day.

There are also long term trends in hair growth: the number of follicles decreases with age, having been maximal at birth.

Telogen effluvium is a common type of diffuse hair loss occurring after pregnancy or after a severe illness. During pregnancy, most hairs move into anagen. After delivery large numbers of these follicles involute (catagen phase) and pass into the resting state, in which no further growth occurs. When anagen starts again, some eight weeks later, the resting hairs are pushed out and lost, causing a temporary diffuse thinning of scalp hair.

Anagen effluvium follows any insult to the hair follicle which cuts down mitosis or weakens the hair shaft. This is the usual way in which drugs cause alopecia.

Hormonal factors—Hair follicles are under hormonal control: androgens and thyroxine are the most important but many others influence them to some extent. All hair is sensitive to androgens, but this is most striking in the secondary sexual hair of the axillae, pubis, and face.

Diseases of the hair fall into three groups:

- Excess hair—hirsutism, hypertrichosis
- Hair loss—alopecia
- Deformity of hair shafts

Excess of hair

Causes of hirsutism

- Hereditary, racial
- Endocrine
 - Adrenal —virilising tumours
Cushing's syndrome
adrenal hyperplasia
 - Ovarian —virilising tumours
polycystic ovary syndrome
 - Pituitary —acromegaly
hyperprolactinaemia
- Iatrogenic —anabolic steroids,
androgens,
corticosteroids,
danazol, phenytoin,
psoralens (in PUVA)

Hirsutism is an excess of coarse secondary sexual hair in a male distribution. *Hypertrichosis* is an excessive growth in any other pattern.

Idiopathic or hereditary causes are by far the most common causes of hirsutism, especially in women from Mediterranean or Arabic countries. The prevalence of hirsutism also increases with age, and even in Caucasians it is common over the age of 60. There is usually a family history and general health is normal. Endocrine investigation is not needed.

Endocrine disease as a cause of hirsutism is rare but should be considered if the hirsutism develops rapidly or if it is associated with obvious virilisation, menstrual disturbances, infertility, or acne. Measurements of serum testosterone and urinary 17-oxosteroid concentrations are useful screening tests.

Treatment—The treatment of idiopathic hirsutism includes:

- (a) depilatory creams or shaving; there is no evidence that these lead to increased growth or pigmentation of the hair;
- (b) electrolysis and diathermy;
- (c) in severe cases, the antiandrogen cyproterone, but this should be used only under specialist supervision.

Excess hair in men is seldom a problem.

Causes of hypertrichosis

- Congenital (rare)
- Acquired—
 - porphyria
 - hyperthyroidism
 - anorexia nervosa
 - some developmental defects
 - eg Hurler's syndrome
 - tumours (hypertrichosis lanuginosa)
 - drugs (diazoxide, minoxidil, cyclosporin)

Hypertrichosis is rare and usually has an obvious cause. Treatment is directed to any underlying problem.

Hirsuties due to virilising tumours.

Hypertrichosis caused by minoxidil.

Alopecia

Alopecia can be classified into scarring or non-scarring types and the non-scarring types into diffuse or patchy. Scarring alopecia is usually associated with a concurrent skin disease, whereas in non-scarring alopecia the primary process affects the hair follicle.

Destruction of the hair follicle leads to plugging, atrophy (a fine and wrinkled appearance), and loss of the normally visible follicular orifices. The microscopic examination of plucked hairs may be useful, as may be a skin biopsy.

Remember that alopecia may reflect an underlying systemic disease or be a local manifestation of a generalised skin disease. A full history and examination are essential.

Causes of diffuse non-scarring alopecia

- Androgenetic alopecia—male pattern—female pattern
- Endocrine—thyroid disease (hypothyroidism and hyperthyroidism)—hypopituitarism—diabetes mellitus
- Stress—postpartum—postoperative—postfebrile } telogen effluvium
- Drugs—cytotoxics—anticoagulants—antithyroid agents—cyclosporin } anagen effluvium
- Erythrodermic skin disease—psoriasis—eczema—lymphoma
- Deficiency states—protein malnutrition—iron deficiency

Non-scarring alopecia

Androgenetic alopecia (common baldness) in men, starts with frontotemporal thinning and then loss from the crown. These bald areas gradually become confluent, leaving only a rim of hair round the edge of the scalp. In women the pattern is more often diffuse and starts later and only rarely does the pattern resemble that of men. Testosterone is responsible but measuring serum concentrations is unhelpful because the underlying cause is hypersensitivity of the hair follicles to normal circulating concentrations of the hormone.

Treatment is ineffective. The value of topical minoxidil is limited. Meanwhile the "virility" theory (in men) may help some.

In hypothyroidism the hair is coarse, dry, and thin. Often the first indication is that the hair does not take a perm as it should.

Telogen and anagen effluvium have been discussed earlier.

Male pattern baldness.

Diffuse alopecia caused by erythrodermic psoriasis.

Causes of patchy non-scarring alopecia

- Alopecia areata
- Trauma—trichotillomania
- Traction—hair straighteners, rollers
- Severe tinea infection

Alopecia areata.

Alopecia areata, showing exclamation mark hairs.

Alopecia totalis.

Trichotillomania.

Traction alopecia.

Patchy alopecia

Alopecia areata accounts for 2% of dermatological referrals in the United Kingdom. The peak incidence is in early adulthood. It is associated with autoimmune disease and with atopy. There is evidence of an immunological attack on the hair follicle.

There are usually no other signs apart from the alopecia and, sometimes, a slight erythema. The typical exclamation mark hairs are helpful in diagnosis.

The prognosis is unpredictable; often the hairs regrow after a few weeks. However, a gradual loss of scalp hair may lead to total alopecia. In severe cases the body hair may also be lost. Rapid evolution, loss of hair from the eyebrows, alopecia totalis, or loss of occipital hair are poor prognostic factors.

Treatment is disappointing. The injection of intralesional triamcinolone may induce a temporary regrowth and help psychologically. Permanent regrowth may not be achieved.

Trichotillomania is the constant plucking of hair by a patient who may be psychologically disturbed. The unusual pattern and the mental state of the patient usually makes the diagnosis straightforward. Treatment is often unsuccessful.

Traction alopecia is caused by an abnormal tug on the hair shafts from hairdressing accessories, such as tight rollers.

Scarring (cicatricial) alopecia

Hair follicles can be destroyed in several ways (see box). Acute inflammation is usually of infective origin. In preantibiotic days the moth-eaten alopecia of syphilis was common.

Lupus erythematosus may affect the scalp in both its discoid and systemic forms. In the discoid type a heavy scale is seen with plugging of the hair follicles. A similar picture occurs in lichen planus, and the rash of lichen planus may be seen more typically elsewhere. Morphoea (localised scleroderma) may affect the scalp, the *en coup de sabre* pattern being one variant.

A slowly extending area of alopecia may suggest a cicatricial basal cell carcinoma.

The treatment of scarring alopecia must be swift and directed at its underlying cause. Once scarring is present alopecia is irreversible. Potent topical steroids help in lupus erythematosus and lichen planus.

Causes of scarring alopecia

- Trauma —eg burns
- Inflammation
 - Acute —bacterial (pyogenic infection, syphilis)
 - viral (herpes simplex, herpes zoster, varicella)
 - fungal (kerion caused by animal ringworm)
 - Chronic —lupus erythematosus,
 - lichen planus
 - morphoea
 - Rare —pyoderma gangrenosum
 - necrobiosis lipoidica
 - sarcoidosis

Systemic lupus erythematosus.

En coup de sabre.

Hair shaft defects

Monilethrix.

Defects of the hair shaft are rare disorders leading to weakness or breaking of the hairs. Often they are inherited. The hairs may have a distinctive appearance, most evident on microscopy.

Examples of these defects include monilethrix and pili torti. Treatment is unsatisfactory.

Diseases of the scalp

Diseases of the scalp

● Infection and infestation

- Bacterial—staphylococci, streptococci
- Viral—herpes zoster, herpes simplex, warts, molluscum
- Fungal—dermatophyte
- Pediculosis

Other conditions

- Eczema—atopic dermatitis
 - seborrhoeic dermatitis,
 - pityriasis capitis
 - contact dermatitis (hair dyes, formaldehyde)
 - neurodermatitis

Psoriasis

- Other skin diseases—lupus
 - erythematosus
 - lichen planus
 - morphoea

Bullous diseases—pemphigoid

- pemphigus
- dermatitis
- herpetiformis

Neoplasms, naevi, and cysts

The scalp is the site of predilection for several skin diseases, which are listed in the box, but seldom is the scalp the only site affected. Some have been dealt with under scarring alopecia and others in previous chapters.

Pityriasis capitis is the commonest skin complaint after acne, and indeed a mild dandruff is physiological. Reactions to *Pityrosporum ovale*, a normal yeast commensal, may play a part in its pathogenesis. Occasionally masses of sticky scale may heap up, matting adjacent hairs together. This picture is known as *pityriasis amiantacea*. A similar appearance may be seen in scalp psoriasis. The treatment of pityriasis capitis includes tar and salicylic acid preparations, and shampoos containing selenium or zinc pyrithione.

Left: tinea capitis;
right: atopic eczema.

Contact eczema, hair dye.

Pityriasis amiantacea.

Dr D Kemmett, MRCP, is registrar in dermatology, Royal Infirmary, Edinburgh.

MATERIA NON MEDICA

Hip hayseeds

Did I want to go to the British blue grass jazz festival? The urgency in my friend's voice made it sound like an event not to be missed. I had visions of being in a muddy field with 5000 assorted jazz aficionados, watching antlike figures (the only ones under cover) on a stage an eighth of a mile away. What is blue grass jazz anyway? A countrified jazz apparently—by the end of the conversation the tickets were not the only reservations I had. The opportunity to meet a London friend at a halfway venue, Edale, in June, however, easily outweighed any doubts I had about the music.

The only two pubs had been open for an hour by the time we arrived. Enthusiasts with assorted instruments were crammed into corners strumming frenetically, and impromptu renditions were well under way in every room. The mainstream performers, who would be playing later in the evening in the main event, were there—no superstar aloofness, security guards, or teenage hysteria here (the average punter was 40 years old). One chap had humped his double bass from Barnsley by train for just this opportunity. He would tell his grandchildren (and many people before that) that he had jammed with the late, great J D Crowe (who?).

The early festivals had used the village hall as their main venue for the evening's indoor performances. About 20 people had come to the first one, but I met at least 50 people who claimed to be veterans of every one since their inception. In recent years the festival has outgrown its original home, and a sympathetic farmer hired out his barn and outbuildings. As we

migrated from the pub to the farm it did not take long for the musicians to regroup in the cow stalls and run through the repertoire of old favourites again.

The obvious thing to do in the Peak District National Park was to spend the afternoon walking, but for the fans this was their annual "fix" of blue grass and they were determined to overdose on it. Wild horses would not drag them away, let alone a few hills. Returning to the farm in the evening was like entering a 1960s time warp as paunched ex-hippies with various stages of male pattern baldness milled around.

I was puzzled why people were taking fold up garden chairs into the barn. Veterans of previous festivals knew that there was no seating, only bales of hay—tiring on the back by 2 am. There were four basic themes to the songs—having found one's true love, having lost one's true love, having fallen on hard times, or having seen the light—but everyone clapped, stamped, and nodded. This is what they came to hear. My friend pointed out a top band from the USA, one of the best British female vocalists, and one of the best five string banjo players. Pearls before swine.

As I picked my way along the track to my car on a moonless night (veterans bring torches) I reflected on the day. Good company, good conversation, a lovely setting—and the music wasn't *that* bad. I will be back next year. Then I'll be a veteran.—CHARLES ESSEX, clinical medical officer, Huddersfield.