

## Treatment of Hair Loss

Dr. Alec FUNG, Dr. Philip HSIEH, Dr. Walter KING  
Plastic & Reconstructive Surgery Centre, Hong Kong Sanatorium & Hospital

Hair loss or alopecia roughly accounts for about 1% of all general practice consultation. The hair root below the skin is enclosed within a hair bulb at the base of which is the vascularized dermal papilla which contains receptors for male hormones or androgens. It is now known that the male hormone dihydrotestosterone (DHT) which is converted from testosterone by the enzyme 5 alpha reductase causes hair follicle to become progressively smaller and the hairs to become finer. In individuals genetically predisposed to androgenetic alopecia (male pattern baldness/female pattern baldness), concentrated level of 5 alpha reductase leads to increased DHT in the hair follicle which shrinks with each hair growth cycle consisting of the growth phase (anagen), the transitional phase (catagen) and the resting phase (telogen).

Approximately 95% of all hair loss is due to androgenetic alopecia which can affect both men (Male Pattern Baldness) and women (Female Pattern Baldness). Affected man gradually develops a receding temporal hairline which is followed by thinning of the top of the head. Affected woman usually complains of diffuse hair loss. Other common causes of hair loss include alopecia areata, telogen effluvium (e.g. stress related hair loss), anagen effluvium (chemotherapy or radiation related hair loss), scarring alopecia (dermatoses, trauma, burns), self-induced hair loss and hair loss secondary to underlying diseases (e.g. thyroid dysfunction, fungus infection etc.).

The clinical approach to hair loss consists of 1) history taking; 2) physical examination; 3) laboratory investigation and 4) treatment/counselling.

1. **History Taking.** It is important to note the duration, approximate number of hair loss per day or patchy hair loss, family history, previous surgery or pregnancy, menstrual and drug history. Normal hair loss averages about 60-80 per day. Hair loss more than 60 per day over a long period of time may suggest male pattern baldness or non-endocrine related female pattern baldness. Patchy loss suggests alopecia areata, fungal infection etc. Accelerated hair loss over a short period (i.e. hair loss more than 100 per day over a few weeks) may suggest serious underlying illnesses (e.g. SLE) and irregular menstruation plus other signs of androgenetic excess suggest endocrine causes of hair loss (e.g. androgen secreting ovarian tumour). Positive family history suggests genetic predisposition as in androgenetic alopecia. Pregnancy can cause transient hair loss.
2. **Physical Examination.** A general physical examination is required with emphasis on specific clinical signs: thyroid enlargement, skin rash of secondary syphilis, anemia, hirsutism and other signs of androgenizations in females. The scalp should be examined for dermatitis, bacterial and fungal infection etc.
3. **Laboratory Investigations.** Useful initial investigations include FBC (CBP), ESR, thyroid function test, serum iron and other additional tests as indicated e.g. VDRL, ANF (to exclude SLE) etc.
4. **Treatment/Counselling.**

- a. **Alopecia Areata** - Topical Minoxidil (Regaine) and immunotherapy with intralesional steroid injection can be tried. The patients should be reassured about the benign nature of alopecia areata.
- b. **Androgenetic Alopecia** - Topical Minoxidil (Regaine) is the first line treatment for male pattern baldness and female pattern baldness due to androgenetic alopecia. Patients typically report decreased loss of hair. The benefits of Minoxidil is only evident after continuous use for 3 to 6 months and the benefits abate after discontinuation of Minoxidil. Minoxidil may cause localized allergic dermatitis, and may rarely cause peripheral edema, etc.

Oral Propecia taken once a day is approved for use in men only. Propecia is a 4 oza steroid that is a specific inhibitor of 5 alpha reductase enzyme that converts testosterone into DHT. Similarly, Propecia must be taken for 6 months or more before any benefit is evident and must be continued to maintain any clinical response.

Oral Diane 35 (cyproterone acetate with ethinyloestradiol) can be considered in the treatment of female Pattern Baldness. Diane 35 is a contraceptive that blocks the peripheral action of male hormones commonly present, It can minimize additional hair loss. It is also useful in the treatment of severe acne in woman. Possible side effects include headaches, breast tenderness etc.

Medical treatment may not be successful in all patients. For example, clinical studies over 24 months showed that 86% of 1879 men aged 18 to 41 who were treated with Propecia had reduced hair thinning and significantly increased hair growth. Propecia can cause birth defects in pregnant women and can rarely decrease men's libido. For those failing medical therapy or those not willing to take long-term medications, surgical treatment in the form of hair transplantation is a safe and viable alternative.

## **Hair Transplantation**

Hair transplantation is a common operation especially for men with male pattern baldness. Many bald men and women have elected to have this surgical procedure worldwide. Besides hair transplantation, other surgical approaches to alopecia include scalp reduction or moving sections of scalp with healthy hair to replace sections of scalp with alopecia.

Hair transplantation involves removing a small strip of hair-bearing scalp from the back of the head (occipital area) which is then carefully sliced into tiny micrografts (1-2 hair grafts) or minigrafts (3-4 hair grafts) for implantation into small slits or needle punctured sites in the front or top of the head where new hairs are needed the most.

A typical 4 to 6 hours hair transplant session allows 800-1200 hair follicles to be successfully transplanted by a team of nurses and doctors under local anesthesia. More than one hair transplantation may be required depending on the density of hair expected. The survival of the successfully transplanted hair usually is longer than adjacent native hair upfront because the transplanted hair follicles behave like the original hairs in the occiput where they are less adversely affected by DHL and will continue to grow for many years.

In general, appropriate medical and surgical treatments are available for majority of the patients with persistent hair loss. Management of persistent hair loss is worthwhile because the treatments are associated with minimal side effects and the results are gratifying to both the doctor and patient.

### **Corrigendum**

Can Calcium Supplements Prevent Tooth Loss?  
Dr. Arthur See-king SHAM and Dr. Lim-kwong CHEUNG

We regret that the author name of this Special Feature article was incorrectly presented as Kwong-cheung LIM in the October 2001 issue of the Medical Diary.