DERMATOLOGY

Hair Disorders (Alopecia)

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FROM SLIDES DOCTOR'S NOTES TEAM'S NOTES FROM BOOK IMPORTANT

Objectives:

- Normal anatomy of hair follicle and hair cycle
- Causes, features and management of non scarring alopecia, Particularly:
  - Alopecia areata
  - Androgenetic alopecia
  - Telogen effluvium
  - Anagen effluvium
- Causes and features of scarring alopecia

Introduction:

Alopecia (i.e. hair loss) is a descriptive term & not a diagnosis by itself.

There is about 5 millions hairs in human body.

Growth rate is 0.3 mm per day & 1 cm per month (scalp terminal hair)

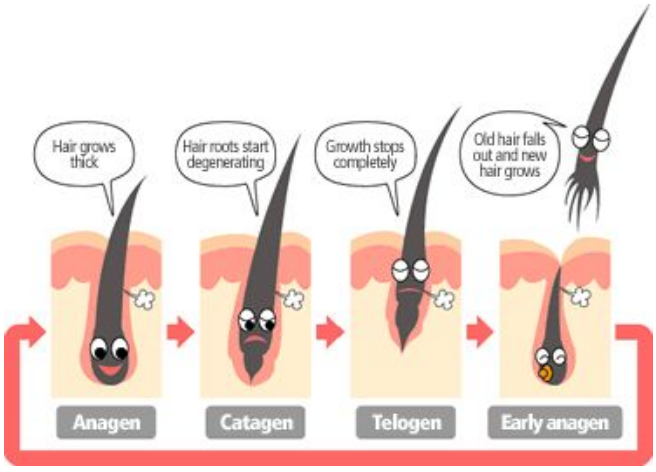
Scalp hair is between 80,000 to 130,000 hairs. Hair count is less in dark skin people having black hair & more in pale skin people having red hair.

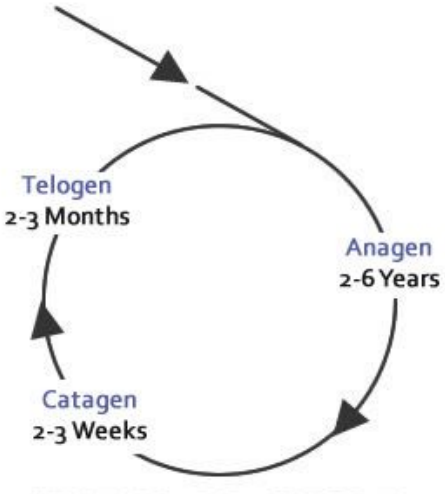
Hair Types (classification)	
Lanugo hair	Fine hairs covering the fetus, may present at birth.
Villous hair	Fine short hairs covering whole body except soles, palms, glans penis in males and labia minora in female. Originate from the superficial portion of dermis.
Terminal hair	Long coarse thick hair seen, for example, on scalp, eyebrow or axilla. Originate from deep dermis (sub cutis).
Androgenic hair	Grow during & after puberty in males & females (e.g. axilla, pubic area).

Hair cycle:

Hair cycle have a great impact on the clinical presentations in surgeries, for example, small portion of scalp hair fall after 3 months of the surgery. Also, chronic diseases, burns, malnutrition and other body insults effect telogen phase meaning that a varying portion of scalp hair may fall after about 3 months after the insult.

Phase	Region	Time	Ratio	Description
Anagen	Scalp	2-6 years	80%	Growing of hair. The length of this phase determines the length of the hair.
Catogen	Scalp	3 weeks	5%	A short phase of conversion from active growth to the resting phase with degradation of hair follicles.
Telogen	Scalp	3 moths	15%	A resting phase at the end of which the hair is shed and new hair grow.



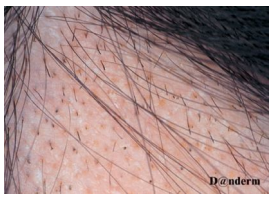


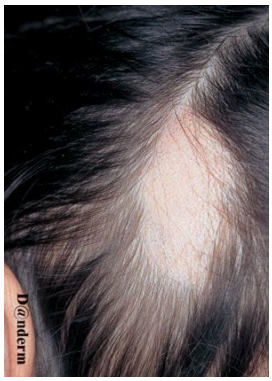
Alopecia

Non-scarring (Reversible)	Scarring (Irreversible)
Skin is normal	Fibrosis & inflammation

Nonscarring alopecia	Scarring alopecia
Telogen effluvium	Developmental defects (e.g., Aplasia cutis)
Anagen effluvium	Infections (bacterial, viral, fungal)
Alopecia areata	Trauma (irradiation, thermal or caustic burns)
Androgenetic alopecia	Neoplastic disorders
Hair shaft abnormalities	Lichen planus (lichen planopilaris), lupus erythematosus, morphea, scleroderma, sarcoidosis
Trauma (e.g., traction)	Keratosis pilaris atrophicans
Infectious disorders (e.g., dermatophyte, syphilis)	Folliculitis decalvans
Systemic diseases (e.g., thyroid, systemic lupus erythematosus, iron-deficiency anemia)	Dissecting cellulitis of the scalp
Intoxications (e.g., vitamin A, Bismuth)	Acne keloidals
Nutritional deficiencies (e.g., zinc, biotin)	Pseudopelade
Medications	Alopecia mucinosa

Alopecia Areata:





- Reversible.
- Sudden hair loss (localized or generalized).
- Alopecia Areata affects up to 2% of population.
- 75% Self recovery, 2-6 months duration
- Found in 30% of Down syndrome patients.
- No inflammation or scarring.
- Coexist with autoimmune thyroiditis.
- Affect any age, but more in children & young adults.
- White or graying hairs are frequently spared "going gray overnight".

Causes:

30% of patients have positive family history. Autoimmune in origin.

Clinical Findings:

Well demarcated

Exclamation point

Characteristic around the hair follicle. Normally the hair is thick near the follicle and it becomes thinner as we go up, in this case the hair is thin near the follicle resembling an exclamation point

Normal scalp

Nail: pitting, ridges (indicating severe alopecia).

Nail Pitting

Types Of Alopecia Areata	
Localized partia	1-2 Patches, complete recovery and most common type.
Localized extensive	5-6 patches and could reach 10.
Alopecia ophiasis	At the periphery of the scalp, for e.g. in the occipital region Having this type of alopecia is a bad prognostic factor
Alopecia totalis	Total hair loss in the scalp.
Alopecia universalis	The whole body is affected (i.e. all over the body).

Alopecia Totalis

Diagnosis:

Clinically, an area with no hair and the skin under it is normal.
Swarm bees; collection of lymphocytes around the hair follicle.

Bad Prognostic Factors:

Young age, atopy, alopecia totalis, universalis, ophiasis.
nail changes, loss of eyebrows and eyelashes.

Treatment:

Intalesional corticosteroids: treatment of choice for localized types in adults, but in children topical steroids are suitable because they have thin skin and the hair follicle are superficial at young ages.

Skin sensitizers: (e.g. Grarlic) Anthraline, Diphencyclopropenone (DPCP). For large alopecia.

MOH: when applying the sensitizer (e.g. garlic) topically the immune cell will project and attack the garlic instead of the hair follicle.

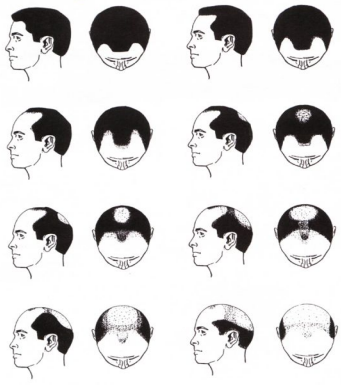
Systemic steroids: last option. High rebound. Taper cautiously.

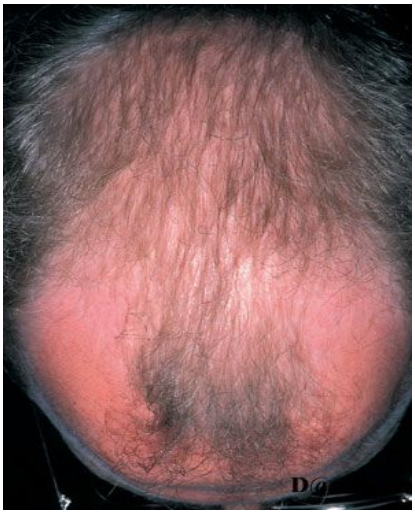
Minoxidil: acts through hormonal web, it makes the hair thicker and the hair growth faster; it is used as an adjuvant treatment.

Androgenetic Alopecia (male & female pattern hair loss):

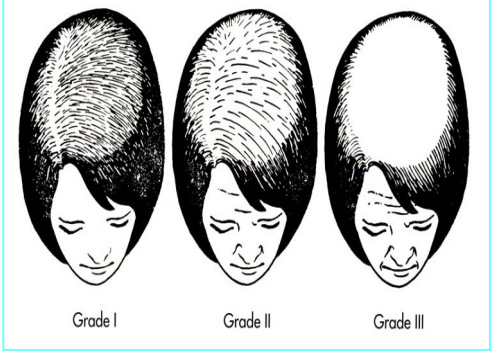
- Androgen dependent loss of scalp hair.
- Androgenetic Alopecia affects up to 50% of males and 40% of females.
- Autosomal dominant with variable penetrance.
- 85% of patients have positive family history.

Male pattern hair loss (Hamilton stages)





Female pattern hair loss

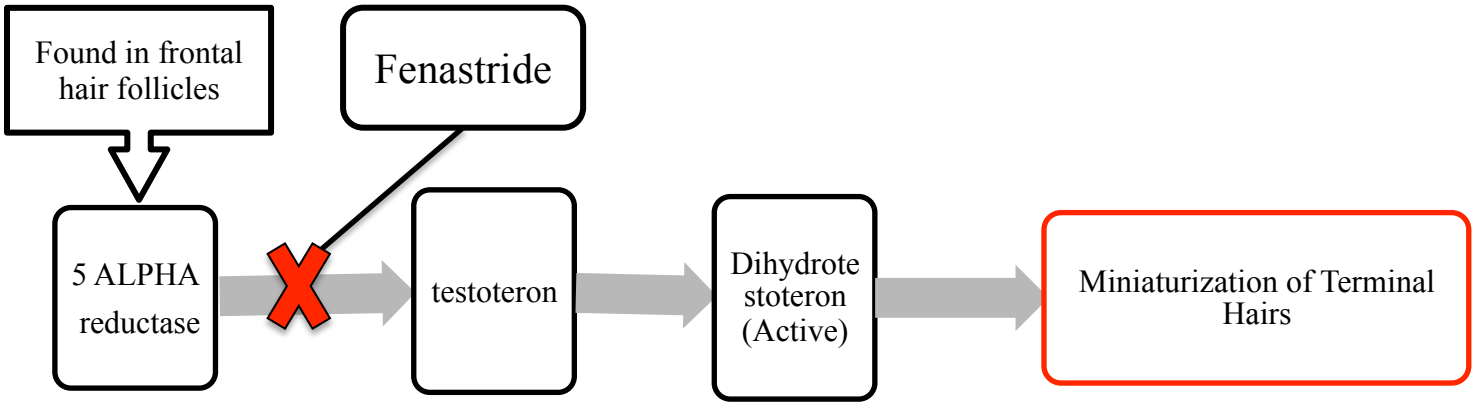


Male pattern hair loss: It starts with thinning; it is called fronto- parietal recession and then it goes upwards. It usually spares the Temporal and occipital areas.

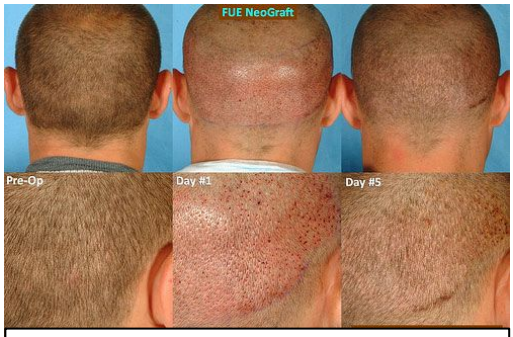
Female pattern hair loss: There is no fronto-parietal recession and no frontal recession, so the frontal hairline is preserved. There is never complete boldness, there is thinning only. It is more common in postmenopausal women.

Treatment:

- Lifelong treatment unlike Alopecia Areata.
- Topical:
  - **Minoxidil 2%-5% solution.**
    - For HTN originally.
    - Active during anagen phase
    - Causes initial hair loss.
    - For male & female pattern hair loss.
- Systemic:
  - **Fenastride:**
    - It is a 5-alpha reductase inhibitor.
    - Used as adjunct to other drugs.
    - It is also used for prostate enlargement.
    - It makes the hair thicker and makes it grow faster.



- Hair Transplant
  - Done under local anesthesia.
  - Procedure: take the hair from the occipital area and then implant it on the frontal area.
  - It is time consuming.



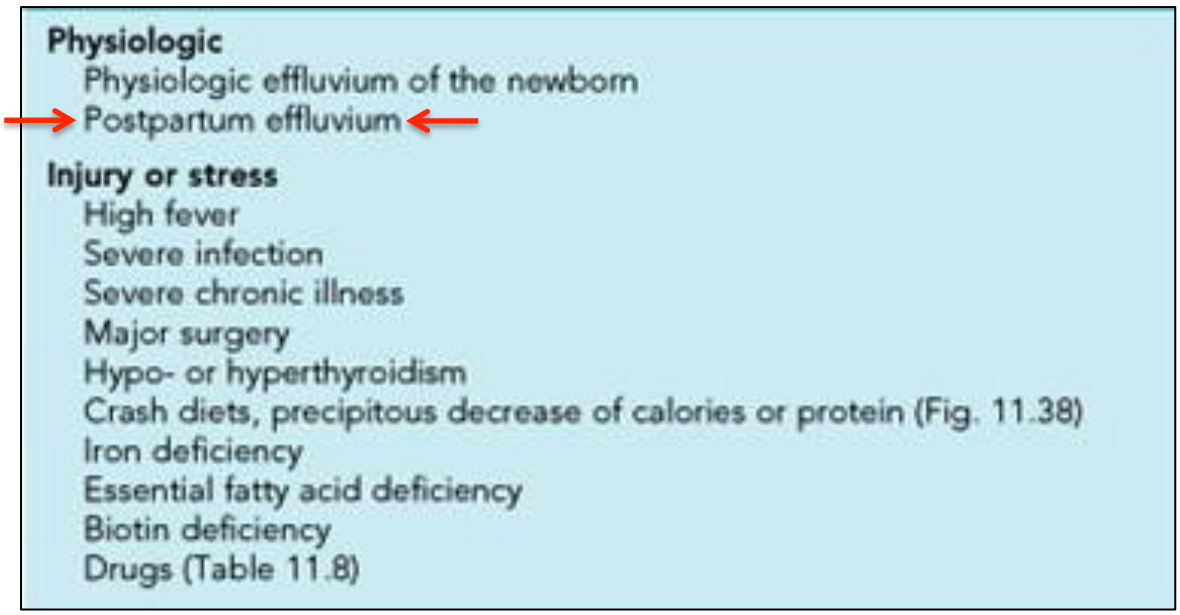
Hair Transplant

Anagen effluvium:

- Always related to cytotoxic chemotherapy.
- The hair falls prematurely and all of it.
- Acute and severe alopecia.
- Mostly reversible but not always.

Telogen Effluvium:

- Chronic alopecia, reversible (but may be become chronic).
- Hairs falling begin after 3-4 months from the insult.
- Causes are chronic diseases, malnutrition, blood loss or low iron.



- Treatment:
  - Remove or treat the cause.
  - Minoxidil 2% Solution.

Summary			
Disease	Features	Clinical Findings	Treatment
Alopecia Areata	Reversible 30% of Down syndrome 75% self recovery	Well demarcated Exclamation point Normal scalp	Adults: Localized: Intralesional steroids Generalized: sensitizers Children: topical steroids
Androgenetic Alopecia	50% of males 40% of females Autosomal dominant	Males: fronto- parietal recession Females: After menopause No baldness	Minoxidil 2%-5% solution. Fenastride
Anagen Effluvium	From chemotherapy	Acute complete hair loss, but reversible	
Telogen Effluvium	From any chronic disease	Chronic	Treat the cause & Minoxidil