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Dermatovenereology and Cosmetology

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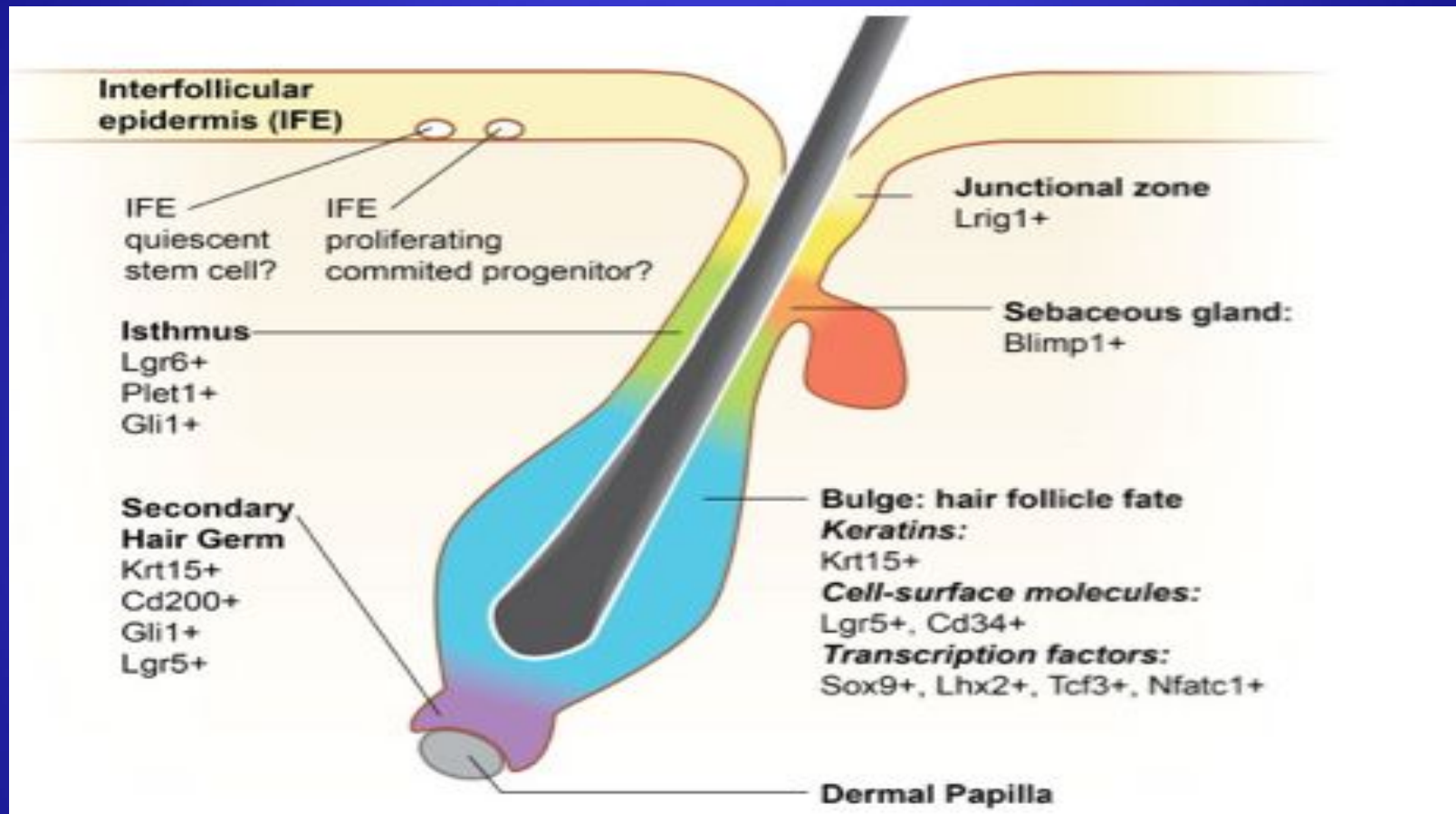
Skin and Venereal Diseases Department

**Alopecia. Etiopathogenesis and  
classification. Clinical forms. Algorithm of  
diagnostics . Principles of therapy.**

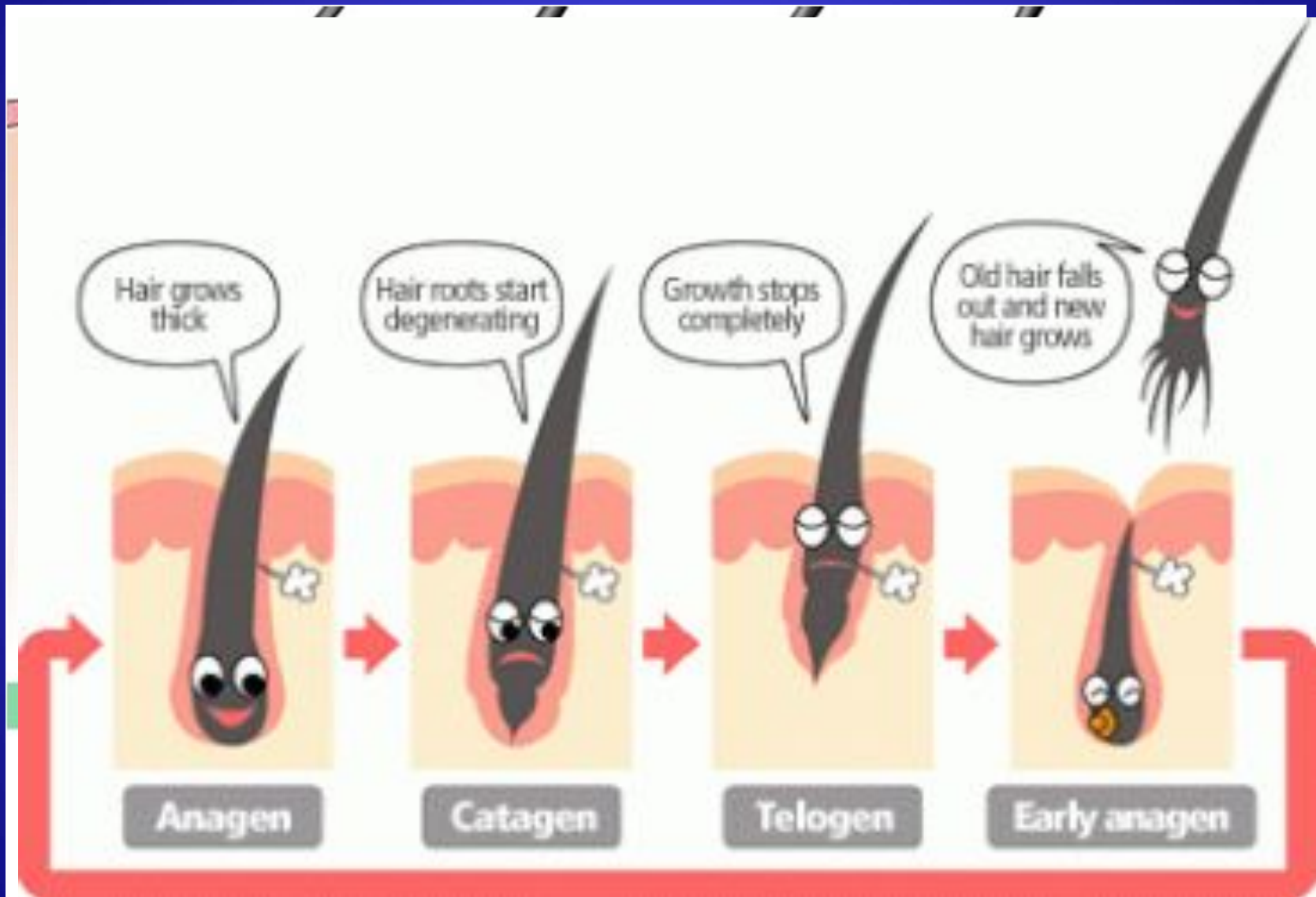
# Alopecia

- Alopecia (baldness, from ancient Greek. Ἀλωπεκία through Latin. Alopecia - hair loss, baldness) is abnormal hair loss, leading to their thinning or complete disappearance in certain areas of the head or torso.

# Anatomy of Hair Follicle



# Hair Development Cycle



## Interesting Facts

- The total amount of hair averages: on the head of Blond 140 thousand; in Brown – 109000; in Brunettes - 102 thousand, and in Red - 88 000.
- On one square centimeter there are 240-350 hairs, follicle growth averages from 2 to 4 hairs.
- The diameter of normal hair is 65-78 microns.
- Papila for its life is able to grow 25 hairs , with an average growth of hair for 3 years running up to the age of 75 in a human.
- Baldness gene is inherited through the maternal line, female chromosome is responsible for it.

# Classification of alopecia

1. Diffuse (reactive) alopecia:
  - 1.1. Telogenic alopecia;
  - 1.2. Anagenic alopecia;
2. Endrogenic alopecia;
3. Circumscribed alopecia;
4. Traumatic alopecia.

# Diffuse Alopecia



Diffuse alopecia is characterized by strong uniform hair loss over the entire surface of the scalp in men and women as a result of failure of hair development cycles. Since diffuse alopecia is a consequence of disturbances in the whole body, it is sometimes called symptomatic. Prevalence of diffuse alopecia ranks second after androgenetic alopecia. Women are prone to it more than men.



# Factors contributing to the development of diffuse telogenic alopecia

- The seasonal loss (fall-spring);
- Postnatal stress;
- Lactation;
- Nervous stress;
- Intake of certain medications (antibiotics, hormonal contraceptives, psychotropic drugs, etc.);
- Diets, hypovitaminosis, lack of micronutrients;
- Hormonal disorders;
- Spinal problems, hypodynamia;
- Head trauma, circulatory disorders;
- General anesthesia;
- Diseases such as anemia, diabetes, meningitis, typhoid, tuberculosis, syphilis, malaria, encephalitis.

# History of Diffuse Telogenic Alopecia

- Telogenic hair loss can be acute or chronic. The acute form occurs all of a sudden, its duration is less than 12 months. The chronic form often begins gradually and lasts more than 12 months.
- Number of daily hair loss is often very large, it is clearly visible and it depresses the patient.
- Hair loss typically begins after 3 months after the stress factor (sharp transition of anagen to telogen).
- Most commonly it affects women of middle age with thick hair.

# History of Diffuse Telogenic Alopecia (Continued)

- Primarily it affects the hair on the head; hair thickness decreases equally over the entire surface.
- Test on hair pulling is positive - with a slight twitch of the lock of hair on different parts of the head, you can get more than 3 telogenic hairs.
- Thinning of hair on both temples can be observed.
- Horizontal Beau lines can be observed on the nails of fingers which show a similar growth arrest that took place a few months ago.
- This type of hair loss affects not all hair, hair loss is never total.

# Factors Contributing to the Development of Diffuse Anagenic Alopecia

Anagenic type of diffuse alopecia occurs after the effects on the body and hair follicles in particular of more powerful and fast-acting factors resulting in the hair follicles having no time to "hide" in the resting phase. The hair starts to fall out immediately from the growth phase (anagen). These factors are as a rule radioactive radiation (including radiotherapy), chemotherapy, poisoning with strong poisons.

# Androgenetic Alopecia

Androgenetic alopecia (the same as androgenic alopecia) in men is a thinning of hair leading to baldness of parietal and frontal areas, in women - to hair thinning in the central parting of the head with the spread on its lateral surfaces.



# Factors Causing Androgenetic Alopecia

- The excess of the male sex hormone dihydrotestosterone in the blood;
- Average number of DHT, but increased sensitivity to it by the hair follicles;
- Increased activity of 5 $\alpha$ -reductase enzyme, resulting in the conversion  
of testosterone to dihydrotestosterone.

## Clinical History in Men

- Follicles of terminal hair are transformed and remind vellus hair;
- Terminal hairs are replaced by thin light vellus hair length of which is shorter, and with smaller diameter;
- Eventually atrophy progresses, leaving the vertex bare and shiny, follicles disappear;
- Process begins with hair thinning at the temples (M-shaped recession), then the loss of hair on the vertex starts, until a complete loss of hair in the center of the head;
- Increased growth of secondary sexual hair is observed.

# The Severity of Androgenetic Alopecia in Men by Norwood

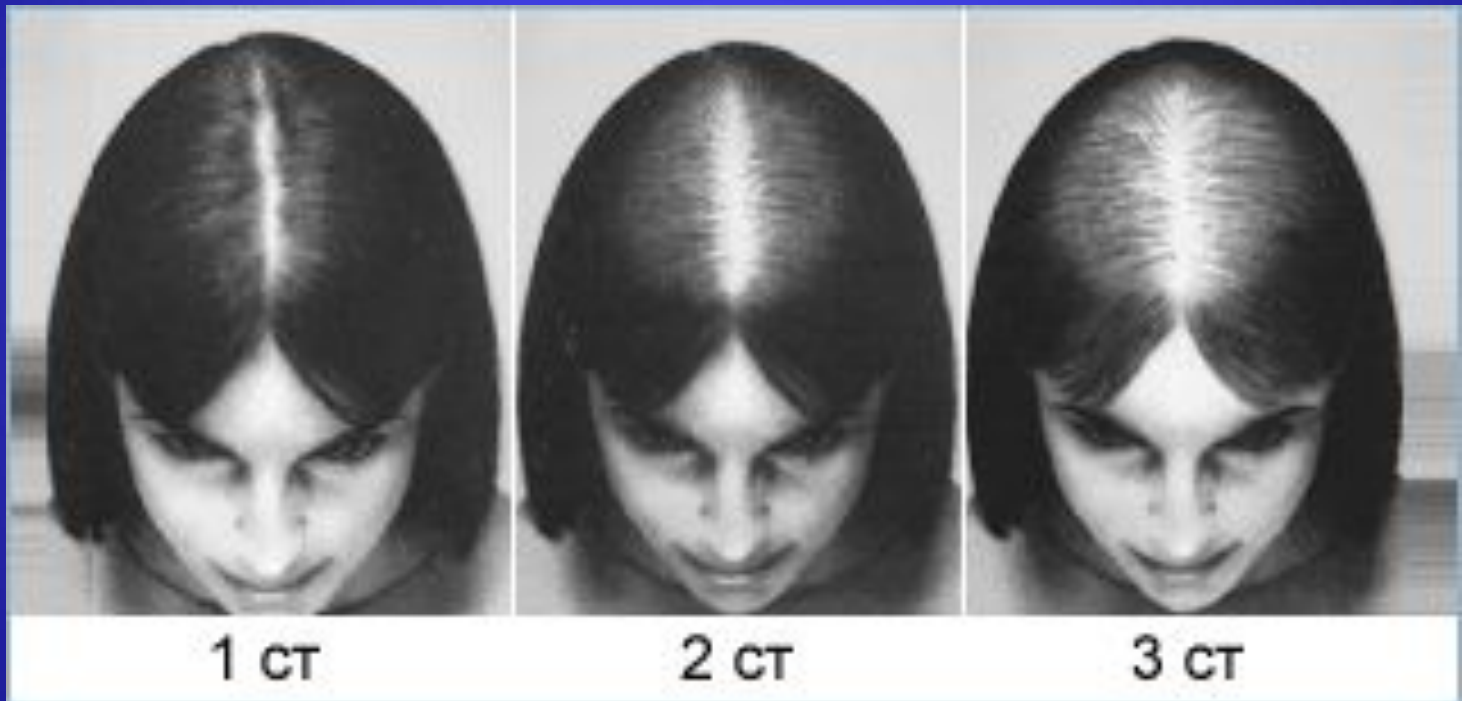




# Clinical History in Females

- Hereditary hair thinning begins in adolescence and is usually fully expressed by 50;
- Loss of hair occurs gradually and does not happen suddenly and massively, unlike men
  - women are not completely bald;
- In majority of women gradual hair loss occurs in the central portion of vertex, but there is no frontotemporal recession;
- The distance between separate hairs increases, there are often small round areas where visible hair is absent;
- The diameter of the hair on the vertex of the scalp is different; many hairs are tiny, but the hair along the anterior border of growth remains normal.

# The Severity of Androgenetic Alopecia in Females by Ludwig



# Differential Diagnosis of Androgenetic and Telogenetic Alopecia

	Androgenetic Alopecia	Telogenetic Alopecia
Symptoms	Absent	Hair falls out on the pillow, hairbrush, in the bathroom
Quality of hair	They are thinning and not elastic at all	Normal
Fall out a day	They are thinning, and not elastic at all	Normal
Baldness location	Scalp zone (vertex)	Diffusely throughout the vertex

# Alopecia Areata



Alopecia areata is the autoimmune disease of hair follicles, mediated by T lymphocytes in genetically predisposed individuals.

# Clinical History of Alopecia Areata

- Disease begins abruptly with the appearance on the vertex, less in the area of the beard, eyebrows, pubic hair, one or more small, round-shaped areas of baldness;
- The foci slowly increase in size, may merge with each other;
- Hair on the edges of foci is easily pulled out, the root is thinned (type 1);
- The skin on the bald areas is normal, sometimes slightly swollen and pink;
- In some cases baldness of the entire vertex may develop (total alopecia or universal alopecia with loss of not only long, but vellus hair on the head and body).

# Examination Algorithm of Patients With Various Types of Alopecia

- Phototrichogram;
- CBC;
- Ferritin, Serum iron tests;
- Biochemical blood test;
- RPR, HIV, hepatitis;
- Blood cortisol level test;
- Blood test on regulating pituitary hormones and thyroid;
- CT of Turkish saddle;
- The Ultrasound of internal organs;
- The spectral analysis of hair;
- Endocrinologist, gynecologist, neurologist, psychotherapist consultations.

# Treatment of Diffuse Anagenic and Telogenic Alopecia

1. Provoking factor elimination;
2. High nutritional diet (meat, fish, seafood, liver, cheese, eggs, nuts, vegetables, fruits, cerealsporridges);
3. Multivitamin and microelement complexes (Merz, Perfectil, PANTOVIGAR);
4. Massage of collar and vertex areas;
5. Physical exercises;
6. Sedatives;
7. Mesotherapy, Plazmolifting;\_
8. Means of improving blood rheology (Pentoxifylline, Trental);
9. D'Arsonval photo and laser therapy;
10. Positive emotions.

# Androgenetic Alopecia Treatment

- 2% minoxidil solution for women and 5% for men;
- Anti-androgenic oral contraceptives for women;
- Finasteride (Propecia) for men 1 mg per day;
- Surgical hair transplantation



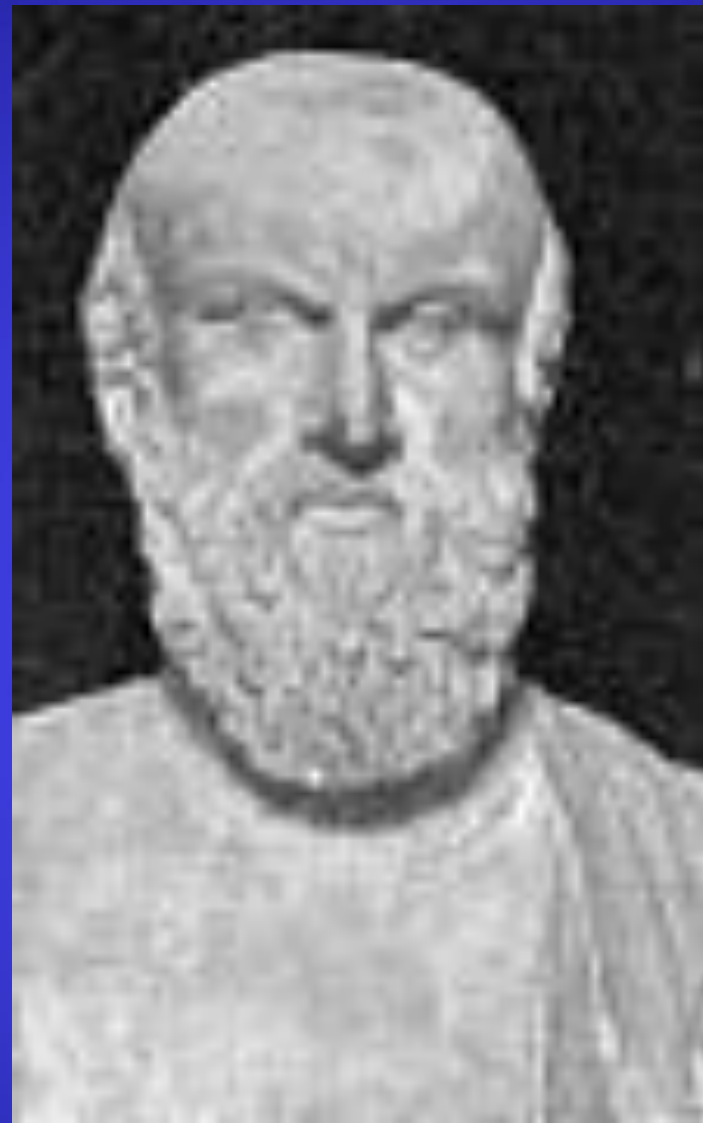
# Treatment of Alopecia Areata

Benign course of alopecia areata does not require obligatory treatment. In medicine, there are cases of self-healing, spontaneously occurring long-term remission and relapse of the pathological process.

Therapeutic procedures are mostly aimed at stimulating the growth of hair. Individually chosen course of treatment usually depends on the duration of alopecia areata course, the patient's age, area of lesions and the patient's wishes.

Much attention should be given to evaluating the effectiveness of the therapy to make the most accurate prediction of disease course and prevent relapses.

Spontaneous remission may confuse the doctor, masking the real effectiveness of the treatment.



















• Thank you for your attention!