Dermatomycosis

Zaporozhye 2016

Pathogenesis

Despite the abundance of fungi in the surroundings of man, only a few of them possess marked pathogenicity. Moreover, it should be recognized that they are facultatively pathogenic forms because favourable factors are needed for the diseases to develop: the age, sometimes the sex, the condition of endocrine gland activity, pH of the water-lipid mantle, sweat chemism, and increased sweating. In children, for instance, keratin of the epidermal and hair cells undergoing keratinization is insufficiently dense and compact, which facilitates the development and vital activity of the keratinophils that have gained entry. Infectious and chronic diseases reduce body reactivity, change sweat chemism and the condition of the skin and hair and in this way lead to nervous and endocrine disorders and promote the transformation of saprophytic fungal flora to pathogenic forms.

Classification of fungal diseases

There differentiate 4 basic groups:

a) **Keratomycosis**: pityriasis versicolor; conditional: erythrasma, nodosal trisporum; trichomycosis axillaris

b) Dermatomycosis: *Epidermophyton*, rubromycosis, *Trichophyton*, *Microsporum*, favus, trichomycosis. This is the most widespread group.

c) Candidiasis of the skin, mucous membrane, internal organs

d) **Systemic mycosis:** actinomycosis, blastomycosis, chromomycosis. These are found rarely.

Keratomycosis

Coloured lichens

Etiology and pathogenesis. The pathogen is *Pityrosporum orbiculare*. It lies in the stratum corneum. The predisposing factors are increased sweating, pH of the skin, upset of stratum corneum, decreased immunity. The disease is not very contagious. The diseases is of a long duration. Recurrences are frequent after clinical cure. It should be borne in mind that patients may be cured rapidly by sunrays and in such cases the skin in places of previous eruption does nor become tanned and white spits are formed.

Keratomycosis

Histopathology. In the absence of inflammatory phenomena, there is looseness of the horny layer, in which threads of mycelium and spores of the fungus are found.

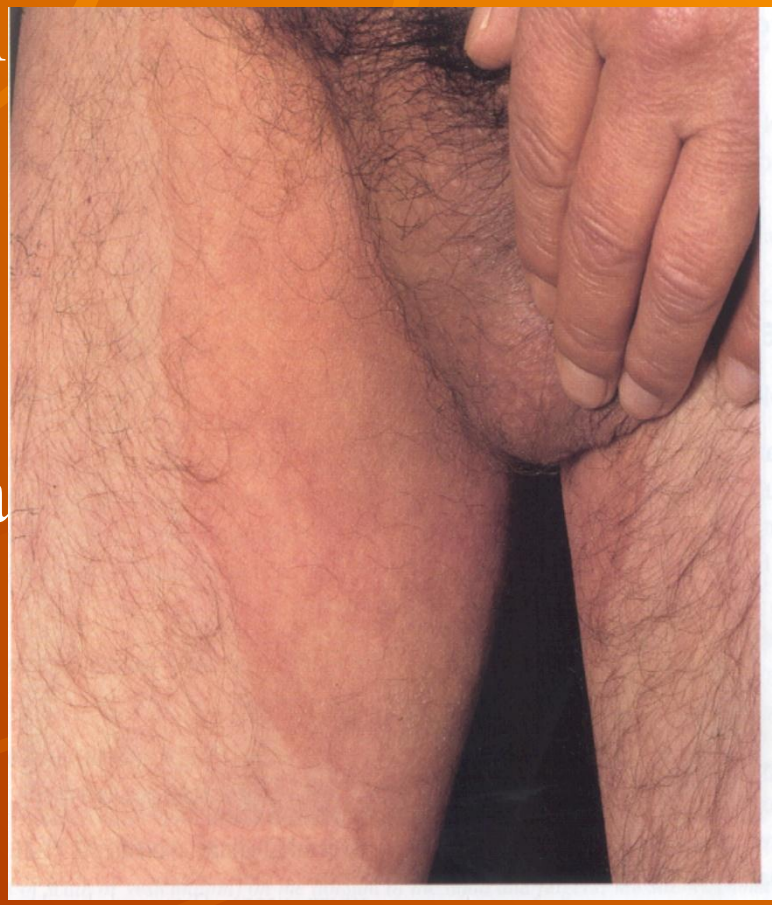
The clinical characteristics are formation of spots of different size and shape on the skin of the abdomen, rarely on the neck and the hairy part of the head. The spots are of different colours: from yellow to dark brown. They are covered with branny squamule. The Bolster test is positive. Itching is insignificant or may be absent.

Treatment: keratolytes and fungicides. 5% iodine solution, 5% salicylic spirit, 10-20%, resorcinol 3-5%; 10-20% sulfur ointment, Demyanovich's method, benzyl benzoate, etc.

Prevention. Increased sweating is treated and measures for improvement of general condition are prescribed. Patients should avoid overheating. Skin hygiene should be strictly observed. As a preventive measure, rub bing of the skin with vodka or 8 per cent vinegar once or twice a week is prescribed after recovery.

Erythrasma

Etiology and pathogenesis. The pathogen is cornebacteria, which infects only stratum corneum, usually in big folds. The surface may be smooth, or there may be small scales. The disease is chronic with many relapses. As a rule, there are no subjective feelings, but there may be insignificant itching.



The ***histopathological*** changes are the same as those in pityriasis versicolor.

Erythrasma

Treatment. The same agents as in pityriasis versicolor are applied in the treatment but in lower concentration because the erythrasma lesions are localized in more delicate skin folds. The application of 5 per cent erythromycin ointment is particularly recommended because in erythrasma, as distinct from fungus skin lesions, it produces a pronounced therapeutic effect. The ointment is rubbed into the skin for 12 to 18 days. In a diffuse process, 1.0 g of erythromycin is given daily per os.

Prevention. The skin is wiped with 2 per cent boric acid-salicylic alcohol and powdered with an acid powder.

Dermatomycosis

This is a large group of fungus diseases, in which not only the skin but its appendages are involved. All dermatomycoses causing fungi are contagious to a greater or lesser degree and widely spread in nature. The soil is evidently a reservoir of infection for some of them (zoophilic *Trichophytons* and *Microsporum lanosum)*. The study of dermatomycoses is of great epidemiological importance while the organization of their control is a problem of social significance.

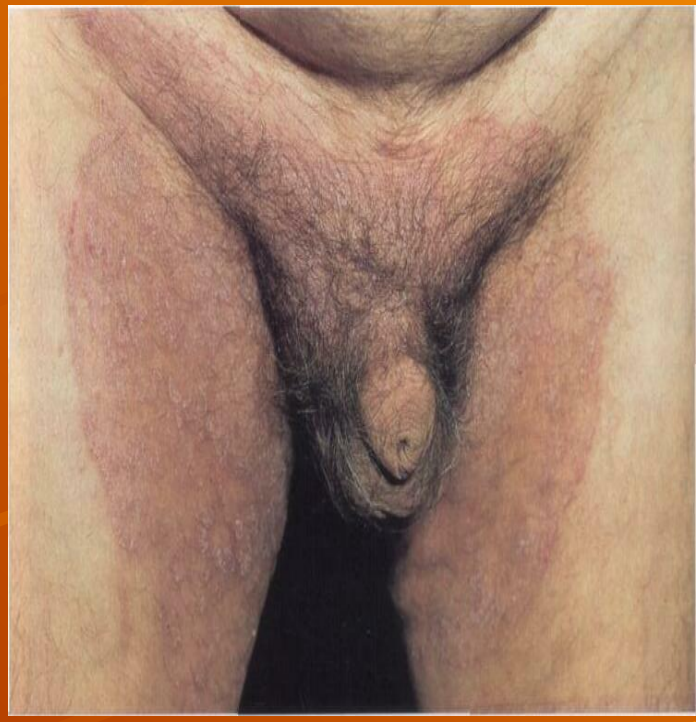
Epidermophytosis (Epidermophytia)

Epidermophytosis is a contagious disease of the superficial layers of the smooth skin and the nail plates caused by fungi of the genus *Epidermophyton*. The hair is not involved. Two clinical forms of epidermophytosis are distinguished: epidermophytosis of the large folds, or epidermophytosis (tinea) inguinalis, and epidermophytosis of the feet, or tinea pedis.

Epidermophytosis of the Large Skin Folds

Etiology. The causative agent is the fungus *Epidermophyton inguinale* Sabouraud *(E. floccosum).*

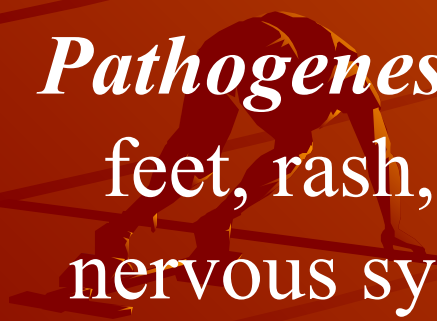
Pathogenesis. Increased sweating in the inguinofemoral folds and axillae, particularly in obese individuals and in those with diabetes mellitus, moistening of the skin with compresses are the factors, which facilitate the development of the disease. The disease occurs most frequently in men; children and adolescents have it rarely.



Epidermophytosis of feet is a widespread disease.

Etiology. The pathogen is *Trichophyton mentagrophytes*. The disease is contagious. Infection takes place in bathhouses, swimming pools, showers, on the beaches; through shoes and socks.

Pathogenesis: increased sweating, tight shoos, flat feet, rash, disturbance of central and peripheral nervous system, change in the temperature of the surroundings, etc.



The intertriginous form

May occur independently but more frequently it develops when there is a mildly pronounced squamous form.

The squamous form

Moderate scaling on a slightly hyperemic skin is revealed on the arches of the feet. The scaling may be restricted to small areas or may extend over large surfaces. Some patients complain of slight itching felt now and again.

The dyshidrotic form

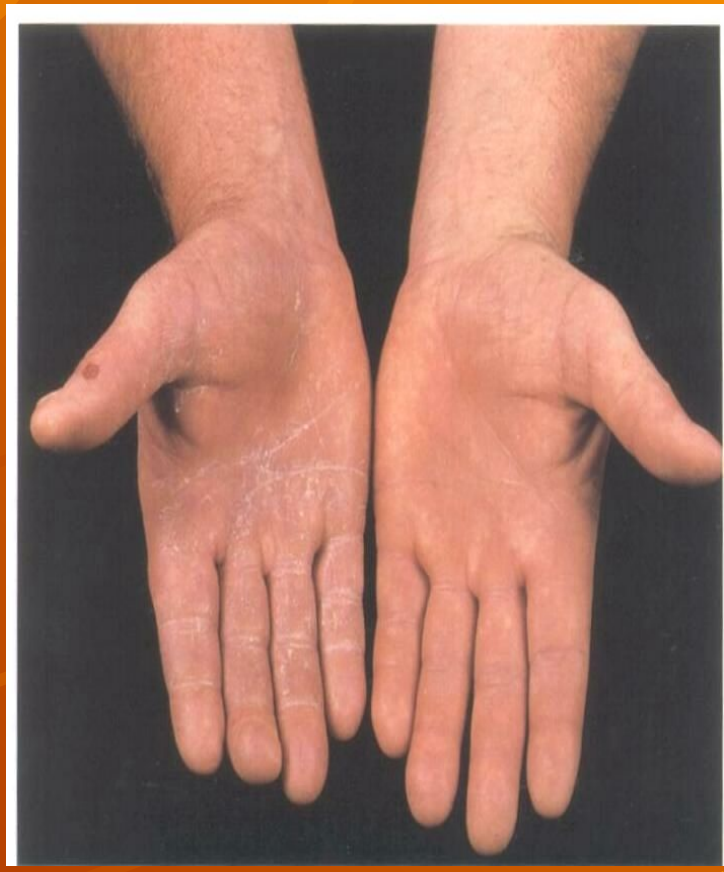
Is characterized by the formation of a group of vesicles on the arch of the foot. The vesicles resemble soft-boiled sago grains, they have a hard top and their size ranges from the size of a pinhead to that of a small pea. The vesicles coalesce and form multilocular bullae in place of which eroded surfaces with a ridge of macerated epidermis on the periphery form. The process may extend to the lateral and medial surfaces of the foot and thus forms a single pathological focus with the intertriginous form.

Rubromycosis or rubrophytes.

The pathogen is tinea rubrum. It occupies the central position between *Epidermophyton* and *Trichophyton*. It effects not only the skin, but also the hair. It is highly contagious and widespread. The transmission is by the same way as in case of epidermophytosis; so it is necessary to pay attention to towels, mittens, gloves; handshake.

Clinical features: some forms are differentiated: Tinea pedis, Tinea manuum, general rubromycosis and rubromycosis of the nails.

Treatment: Keratolytes, fungicides. In some conditions it is necessary to use hyposensibilizing and general therapy.



Trichophytosis

Trichophytosis corporis and chronic trichophytosis, purulent infiltrative trichophytosis. Such fungi include large spored and small spored *Trichophytons*. Transmission takes place from sick people and things of general use.

Clinical features. Superficial trichophytosis of the scalp, smooth skin, and nails are distinguished.

Superficial trichophytosis of the scalp (Trichophytosis capitis).

Superficial trichophytosis of the smooth skin

Microsporia

Etiology. Pathogen is anthropophilic fungi and zoo-antropophilic. Epidemiology is the same as in trichophytosis.

Affection of the scalp.

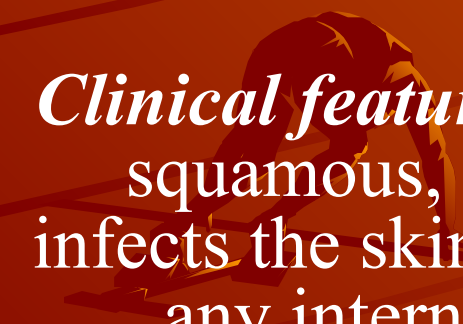
The foci on the smooth skin .

Favus

Etiology. Pathogen is *Trichophyton schoenleinii* of endothrix species.

Epidemiology. Favus is less contagious. Chronic in nature. Infection from sick people and through things. Children are often infected. Usually the hairy part of the head, rarer nail plates and still rarer skin.

Pathogenesis. Analogous to other mycoses. Weak children are frequently infected.



Clinical features. There are many forms of the favus: scutula, squamous, impetigo of the hairy part of the head, which infects the skin and nail plates. Visceral favus, the infection of any internal organ (lungs, digestive tract, meninx and substance of the brain), is possible.

Diagnosis is based on the typical clinical features and is confirmed by laboratory findings.

Treatment of trichophyton, microsporum and favus.

During the infection of the skin iodine solutions are used. Salicylic spirit, keratolytic and fungicidal ointments. If infection of the hairy part of the head is present: griseofulvin, 1tab. 3 times a day, for 3 weeks. Later on, in absence of fungi: griseofulvin 1 tab. 3 times every other day for about 3 weeks. The use of griseofulvin is contraindicated in diseases of blood, liver, kidneys, malignant diseases and porphyrinic diseases.

In the presence of mikids: hyposensibilizing treatment, for weak patients: general therapy. Locally 2-3% iodine solutions alternating with Wilkinson's ointment. 10-15% sulfur-tar ointment.

In the presence of contraindication or reaction to griseofulvin, it is necessary to carry out epilation of the hair with future local fungicidal therapy. Control: 3 months after the treatment.

Candidiasis

Is an infection of the skin, mucous membrane, nail plates and internal organs, caused by yeastlike fungi of *Candida albicans* species. ***Pathogenesis.*** Yeastlike fungi vegetate on the fetus, vegetables, and fruits. It is found on the skin and mucous membrane of man as saprophytes. In pathogenesis exogenic and endogenic factors are differentiated. Exogenic factors include traumas of the skin and mucosa, onychia and paronychia during manicures, high humidity and high sensitivity to fungi. Endogenic factors include depletion of the organism due to different diseases.

Candidiasis

Clinical features and classification. Superficial infection (candidiasis of skin folds, mucous membrane, onychia, paronychia) and systemic or visceral infection are differentiated. General form (granulamatous candidiasis) is a form transitional to systemic diseases. Candidamycosis also occurs.

Candidiasis

Treatment. First of all, remove the factors causing the diseases. Locally spirit and water solutions. 1-2% aniline stains, ointments and pastes which contain salicylic acid, sulfur, tar, benzoic acid and others. Internally prescribe nystatin, and levorin in 2-3 million units per day, (in ¾ doses), vitamins of group B, C, rutin, to children: vitamin A. Locally: 0.5-1% nitrofurilin ointment, 0.5-1% decamin ointment, ointment with nystatin and levorin (on 1 gram base: 3-5 million units of antibiotic), amphotericin or mycogectin ointment.

- Thank you for attention