

# Pyoderma and Scabies

Zaporozhye 2016

# Theoretical part

## *Pathogenesis*

The onset of the disease: pathogenic and virulent properties of cocci; endogenic and exogenic factors. Pathogenic and virulent properties of staphylococcus are due to the presence of toxins, hemolysins, coagulases, and hyaluronidases in the cells. The streptococci have toxins and streptolysin. The exogenic factors include traumas, pollution, overcooling; among the endogenic factors are upset of carbohydrate metabolism, protein and vitamin metabolism, neurosis, hormonal pathology, hereditary factors, weak immune mechanisms.

# Classification

All pyodermas are subdivided into staphylococcal, streptococcal, and mixed according to the etiological factor, superficial and deep according to the depth of the process, and acute and chronic according to the character of their course.

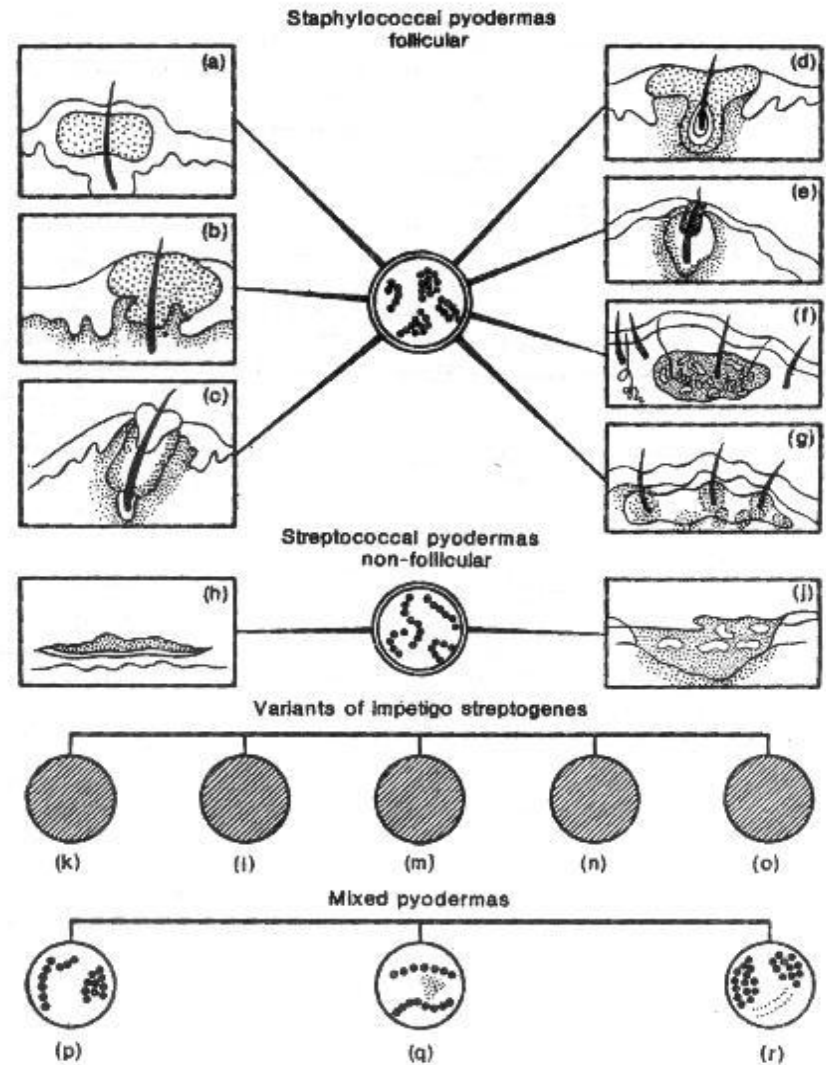


Fig. 1. Classification of pyodermas (diagram).

a, impetigo crassiformis; b, folliculitis avensis; c, acne; d, folliculitis profunda; e, furunculus; f, hidradenitis; g, carbunculus; h, impetigo streptogenes (pharyngotonsillitis); i, erysipelas; k, angulus infectiosus; l, paronychia superficialis; m, impetigo bullosa; n, pemphigus neonatorum syn. epidemicus; o, impetigo papulata syphiloides; p, impetigo streptococcal; q, streptococcal impetigo (simultaneous occurrence of superficial and deep streptococcal and staphylococcal pustules); r, chronic ulcerative vegetative pyoderma.

# Staphylococcal pyodermas

- osteofolliculitis
- sycosis
- folliculitis
- furuncle
- carbuncle
- hydradenitis
- vesiculopustulosis
- multiple abscesses of the skin
- epidemic pemphigus of the newborn
- Reiters's exfoliative dermatitis

# Osteofolliculitis (Ostial folliculitis)

This is an acute inflammatory follicular pustule, situated at the orifice of the hair follicle. Their appearance is caused by mechanical and chemical irritation. In children, ostial folliculitis may occur at the age of 2 or 3, but it is more frequent among elder children; maceration, increased sweating, cooling or overheating, and faulty skin hygiene are the conducive factors.

# Osteofolliculitis

## (Ostia folliculitis)

### *Treatment*

The causes conducive to the origin of ostial folliculitis should be eliminated. Some of the pustules are opened and the pus removed, after which the foci of affection are painted twice a day with 1-2 per cent alcohol solution of aniline dyes in 70 per cent ethyl alcohol or with an aqueous solution of potassium permanganate. The hair in the area of the lesions is cut, but not shaved, and for preventive purposes the surrounding skin is wiped with 2 per cent salicylic or boric acid or with a solution of camphor and alcohol. Powders containing 10 per cent sulfonamide preparations may be used.



# Deep folliculitis

## Histopathology.

The process begins with the formation of an infiltrate around the follicle.

Neutrophils and lymphocytes are found in the infiltrate.

Later, the follicle melts and dies and is replaced by connective tissue.



# Deep folliculitis

## *Treatment.*

The lesions are painted with Castellani's paint, 1-2 per cent alcohol solution of methylene blue or brilliant green. The healthy skin areas close to the pustules are wiped with 2 per cent salicylic or camphor spirit to prevent dissemination. A 'flat cake' of pure ichthammol may be applied to some of the areas of deep folliculitis. Baths and showers are forbidden for some time.



# Staphylogenic sycosis

At the onset of the disease, a few lesions of ostial folliculitis appear on a relatively circumscribed skin area, which tend to spread to larger and larger areas. An inflammatory infiltrate forms around the lesions, as a result of which the affected area thickens and turns bluish-red and is sometimes painful.

Involvement of new follicles in the process leads to slow growth of the focus of affection in which there may be a large number of inflamed follicular orifices forming a conglomerate of pustules. After the top of the pustules opens, the pus dries up into dirty-yellow crusts which stick to the hairs. A hair shaft removed from the focus has a gelatin-like muff around its root; this is the epithelial hair sheath saturated with pus. Sycosis vulgaris is usually a persistent condition which exacerbates now and again and has a depressing effect on the patient's mental condition, especially if it is localized on the face. In some cases there are no subjective disorders, in others the lesions are attended with a sensation of burning, mild itching or pricking.

# Staphylogenic sycosis

## Histopathology.

A pustule filled with neutrophils, similar to the pustule in ostial folliculitis, forms in the ostial epithelium of the hair follicle. The infiltration around the follicles penetrates the entire upper part of the dermis and consists mainly of lymphocytes, plasma cells, and histiocytes, a small number of polymorphonuclear leucocytes, and occasional giant cells.



# Staphylogenic sycosis

## Treatment.

The management of sycosis usually takes a very long time and calls for patience on the part of both the physician and the patient. All identified exogenic irritating factors should be removed. A general effect must be exerted on the patient's organism when deviations in its activity are revealed. Broad spectrum antibiotics are prescribed. External therapy includes disinfectant lotions, e.g. 1:1000 ethoxydiaminoacridine lactate solution, 1:3000 potassium permanganate solution, 2 per cent boric acid solution, as well as 2-5 per cent ammoniated mercury ointment, 5 per cent chlor-tetracycline ointment or ointments and creams containing antibiotics and steroid hormones; 2-3 per cent salicylic ointment is used to remove the crusts. Topical application of synthomycin emulsion or sulfanilamide liniment is indicated in good tolerance. In the period of abatement daily painting with 2 per cent solutions of aniline dyes or the prescription of ointment containing boric acid and tar are advisable.

# Furuncle – furunculosis

## *Pathogenesis.*

Besides pathogenic properties of the pathogens, the important role is played by mechanical traumas, meteorological conditions, metabolic diseases, diseases of digestive tract, endocrinopathy, alcoholism and others.





# Furuncle – furunculosis

## Treatment

Penicillin is given intramuscularly in a dose of 50,000-100,000 U every three or four hours to a total dose of 1,000,000-3,000,000 U in acute forms and 5,000,000-10,000,000 U and more in chronic forms. Outpatients are treated with ecmonovocillin and bicillins which are long-acting penicillin preparations. The former is injected intramuscularly once a day in a dose of 600,000 U, and the latter once in three or four days in a dose of 1,200,000-1,500,000 U.

The skin around the furuncle is disinfected with a solution of salicylic alcohol, camphor spirit, ether, benzine or vodka. The hair is cut in the area of the furuncle and in the area immediately surrounding it this is done from the center to the periphery. The hair is then removed from the furuncle with sterile forceps, pure ichthammol is applied and covered with a thin layer of sterile cotton

# Carbuncle

Is a bilious purulent-necrotic inflammation of deep layers of dermis and hypodermis with the inclusion of some neighboring follicles.

Pathogenesis and treatment resembles that of furunculosis. During extensive infection surgical intervention is recommended.





# Hydradenitis

Is a purulent inflammation of apocrine sweat glands. The main role in pathogenesis is played by general weakness of the organism, increased sweating, deviation of sweat reaction towards the basic side, microtraumas, endocrinopathy.



# Hydradenitis

## *Histopathology.*

The process is localized on the borderline of the dermis and subcutaneous fat. The purulent infiltrate, consisting mainly of neutrophils in the early stage and of lymphocytes and later plasma cells, embraces the apocrine glands and the surrounding connective tissue. The infection then spreads along the lymphatics to other apocrine glands and to the eccrine glands and leads to their purulent melting and death.

# Vesiculopustulosis


Is a disease of the newborn, characterized by multiple pustules, emerging in the openings of ducts of eccrine sweat glands. In pathogenesis the main role is played by maceration of the skin, prematurity, artificial feeding. Bathing is restricted during the disease. Pustules are cleaned with aniline stains. The skin around the pustules is cleaned by disinfectant solutions.

# Multiple abscess in children

It develops in early childhood as a result of penetration of infection into the ducts, and after that in glomerules of sweat glands as a result of unscrupulous contents, overheating, increased sweating, maceration of skin, different intoxications of the newborn. Clinically there are predominate multiple nodes, dense, painful, reddish-blue, nut-sized, which soon soften and open with the outcome of liquid pus, then cicatrize. It is necessary to differentiate the disease from folliculitis during which there is hair in the center of pustule, and papulonecrotic tuberculosis, during which the Pirquet's test is positive

# Epidemic pemphigus of the newborn

Is an acute contagious disease of staphylococcal nature. Pathogenesis: the main pathogenic factor is sensitivity of the skin to infections, prematurity, pregnancy toxicosis, birth injury. The source of infection is often the medical staff, mother and the patients themselves.



# Epidemic pemphigus of the newborn

*Clinical features.* Emergence of small vesicles with thin tensed cover and serous-yellow contents, tendency towards fusion and formation of large vesicles. Fever is possible. Vesicles are converted into pustules, open, erosion slowly epithilizes. It is necessary to differentiate epidemic pemphigus form syphilitic pemphigus. The latter arises on palms and soles, on an infiltrated base, characterized by the presence of T. palladium in the contents of the vesicles, positive compliment fixation test in child and mother.

*Treatment.* Antibiotics, antistaphylococcal serum, transfusion of plasma, locally: aniline stains, creams with antibodies.



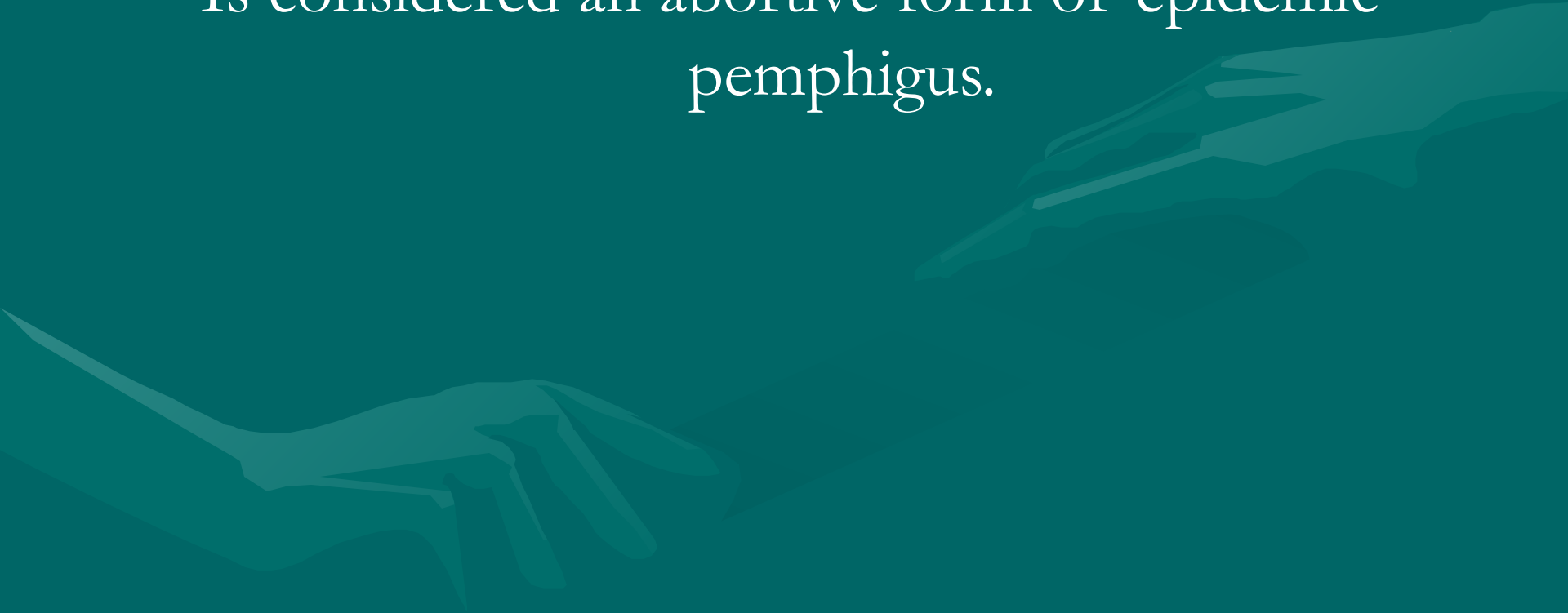
# Reiter's exfoliative dermatitis of the newborn

Is considered to be a serious form of epidemic pemphigus. It starts with a bright edematous erythema around the mouth, which slowly infects the parts of the body lying below. On this basis the vesicles with the above mentioned cycles are formed. Nikolsky's symptom may be present. It is necessary to differentiate it from luxations, bullous epidermolysis, syphilitic pemphigus, Leiner's desquamative erythroderma, and congenital ichthyosiform erythroderma.

**Treatment.** Thorough hygiene of the skin, hormonal and antibiotic creams, antibiotics, specific immunotherapy.

# Bullous impetigo of the newborn

Is considered an abortive form of epidemic pemphigus.



# Streptococcus pyoderma

## *Clinical features.*

Streptococcal pyodermatitis has the following characteristic signs:

- Streptococci infect mainly smooth skin;
- Streptoderma, as a rule, has a surface character;
- The primary element is a flaccid vesicle, tends to grow on periphery; with transparent contents;
- Children and women with soft skin get infected frequently.

# Streptococcal impetigo

Is a surface non-follicular pustule on a hyperemic edematous base. In pathogenesis important role is played by maceration and mechanical destruction of the epidermis. The cycle of the development of the disease takes 3-4 weeks. Highly contagious.



# Streptococcal impetigo

## *Clinical picture and course.*

The disease begins with the appearance of a small red spot on the surface of which a vesicle of the size of a pinhead to a lentil forms in a few hours. In some cases the phlyctena forms on visibly normal skin. The tensed vesicles turn flabby within a very short time and their clear secretions become purulent and sometimes hemorrhagic and then dry into a thin grey crust which is gradually falling off. The phlyctenae are usually separated from each other by healthy skin, but they also may spread to the periphery and coalesce to form annular lesions. The average duration of the disease is three to four weeks. A transient bluish-pink spot is left after the crust falls off. There are neither scars nor atrophy of the skin. The predominant localization of the process is the face and the sides of the trunk and limbs. The disease may spread rapidly due to all child contacts.

# Streptococcal impetigo

- **Impetigo bullosa** Is characterized by eruption of phlyctenae of the size of a hazelnut or a dove's egg. The erosion forming after the bulla ruptures grows gradually and remnants of the top of the bulla are left on its periphery. This form is localized commonly on the dorsal surface of the hands and less frequently of the foot and leg.
- **Fissural impetigo** Angular stomatitis, or perleche is a condition marked by a rapidly rupturing phlyctena in one or both angles of the mouth. Areas at the wings of the nostrils and lateral margin of the palpebral fissure may also be involved in the process. Flabby vesicles form at first in the angles of the mouth, which rupture and expose superficial linear slit-like fissures. The formed honey-yellow crusts drop off because of maceration. The disease is attended with a sensation of itching, salivation, and pain during eating.
- **Streptococcal cheilitis**
- **Simplex lichens**
- **Impetigo of the Nail Folds (Tourniole)**



# Pityriasis simplex

Is considered to be a dry variety of impetigo streptogenes. It is particularly widespread in children and is characterized by round or oval, strictly circumscribed whitish or pink foci, which are abundantly covered with small scales. The foci are especially conspicuous in individuals with pigmented skin. The disease may be cured by exposure to sunrays, but the affected areas are tanned weakly so that mottling of the skin surface occurs. The favored localization is the skin around the mouth, the cheeks, and the region of the lower jaw, sometimes the lesions occur on the skin of the trunk and limbs.

# Intertriginous streptoderma

The disease occurs on contiguous skin surfaces. It develops predominantly in overfed, obese, sweating children or those suffering from exudative diathesis and diabetes. The primary lesion is a phlyctena the size of a millet or lentil. Very many phlyctenae erupt, coalesce, and burst rapidly leaving continuous erosive weeping bright-rose surfaces with scalloped boundaries and a border of peeling epidermis on the periphery. Sitings of separately arranged pustular lesions in various stages of the development are seen next to the main foci of affection. Painful fissures are often found deep in the folds. The disease follows a protracted course with marked subjective disorders. In intertriginous lesions of yeast origin the contents of the bullae and the crusts do not have a yellow hue and elements of yeast-like fungi are discovered in the scraps of epidermis on the periphery of the main foci or in the sitings.

# Ecthyma vulgaris

Is a deep non-follicular dermal pustule. Its emergence is caused by erosion and scratches. Pustules with purulent contents are soon converted into soft greenish, often layered crust; after its removal a bleeding ulcer with soft borders is observed, which heal with cicatrization after 2-3 weeks. The lesion in ecthyma vulgaris is a deep dermal pustule with no involvement of the follicles.



# Ecthyma vulgaris

**Etiology and pathogenesis.** Streptococci are the causative agents although there are reports on the formation of staphylococcal and mixed streptococcal-staphylococcal infections. Factors contributing to the development of ecthyma are erosions and scratches, reduction of general body resistance during or after various infectious diseases, metabolic disorders, chronic alcoholism, localized disturbance in lymph and blood circulation, and hypovitaminosis.

**Treatment.** The lesions are treated as those of impetigo. Mikulicz ointment is prescribed for poorly healing ulcers. General treatment consists of invigorating and stimulation therapy and high-calorie diet. In torpid cases, long acting sulfonamides and antibiotics are prescribed.



# Mixed strepto-staphylococcal pyodermatitis

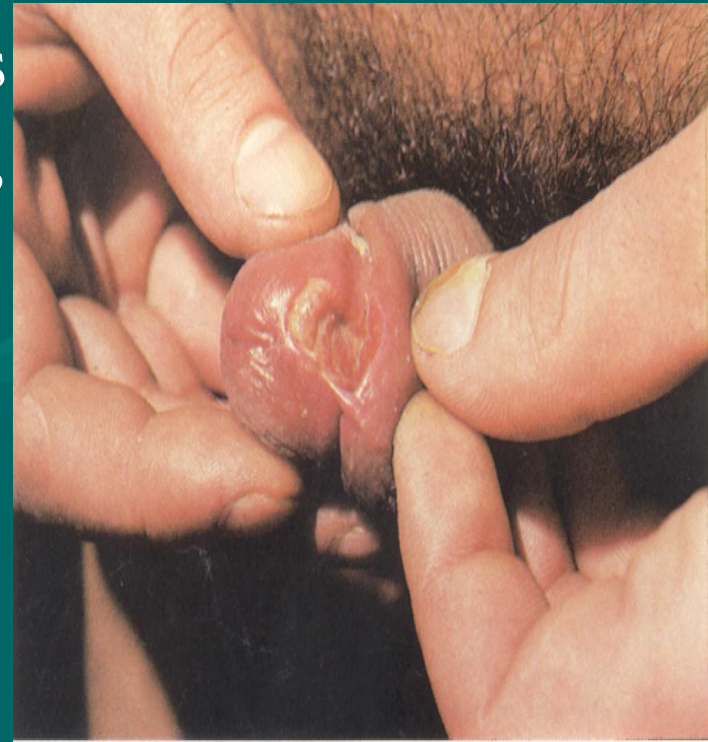
1. Impetigo vulgaris Not only pathogen itself, but also traumas, maceration and dirty skin are of importance in pathogenesis. Starts with the formation of phlyctena, after which the contents become translucent as a result of joining of staphylococcal infection, they dry up into a yellowish-green crust. Mostly on the face in girls and women. The cycle of the development of the disease takes 8-15 days.

Treatment: aniline stains, creams with antiseptics



# Mixed strepto-staphylococcal pyodermatitis

2. Chancriform pyoderma is a rounded erosion or ulcer with torus shaped borders and infiltrated base, mostly single, not very painful, sometimes accompanied by enlargement of regional lymph nodes. In distinction from the chancre, there is no T. palladium, serological reaction is negative, infiltrate basically comes out far away from the erosion and ulcer.





# Mixed strepto-staphylococcal pyodermatitis

3. Chronic ulcerous and  
ulcero-vegetative pyoderma. In  
pathogenesis an important role is  
played by hyporesistance of the  
organism and weak properties of  
the pathogen, which leads to the  
decrease of the reaction of the  
organism to penetration of  
pyococci. The primary pustules  
undergo necrosis, form ulcer with a  
loose base and flaccid grey  
granulations.



# Scabies

This disease often occurs in autumn and spring season. Incubation period is from 7 days to 1 month.

Transmission is through direct or indirect contact. At the places of the mite's penetrations, there appears a vesicle, which is accompanied by intense itching, particularly at night, when the female mite makes new passages in the epidermis.

Localization in adults: folds of hands, side surfaces of the fingers of the hand, wrist, extensor surface of the forearm, abdomen, mammary glands, umbilical region. Localization in children: on the face, head, palms and soles



# Scabies

Pathogen: itch-mite (*sarcopies scabei*)



# Scabies

*Treatment:* different antiparasitic drugs.

- ❖ 20% emulsion benzyl benzoate (for children 10%);
- ❖ Demyanovich's method (1st solution: 10% sodium thiosulfate, 2nd solution: 6% HCl, use one after another);
- ❖ 20-30% sulfur ointment;
- ❖ Wilkinson's ointment: 15% sulfur, 15% tar, 10% calcium carbonate, 30% brilliant green soap and Vaseline.
- ❖ Soap K (5% emulsion).