ATOPIC DERMATITIS

Atopic dermatitis is an allergic skin disease which, as a rule, develops in early childhood in persons with hereditary predisposition to atopic diseases, and which has a chronic recurrent course, age peculiarities of localization and morphology of inflammation foci. Atopic dermatitis is characterized by skin itching and is conditioned by hypersensitivity both to allergens and to non-specific irritants.

Epidemiology. The disease presents a rather frequent pathology which occurs in 13-37% of children, and only in 0.22% of adults. The incidence of atopic dermatitis is especially great in industrially developed countries.

Etiology. The disease has a polyetiological character. In the genesis of atopic dermatitis, hereditary multi-factorial predisposition to atopy plays the key role.

The development of the disease is closely associated with the following exogenous risk factors: unfavourable ecology; artificial feeding; irrational diet; stresses; introduction of vaccines and sera. Food, domestic and aerial allergens play an important role in the genesis of atopic dermatitis.

Susceptibility to triggering factors varies in different persons, and depends on the age and constitutional peculiarities (morphological and functional characteristics of the gastro-intestinal tract and endocrine, nervous and immune systems).

Pathogenesis. The basis of atopic dermatitis is a chronic allergic inflammation of the skin.

The pathogenesis of atopic dermatitis is quite complex and it is characterized by a number of key units:

1. In the organism of the patient with atopic dermatitis there develop *polyvalent sensibilization and autoallergy*. A number of factors, both from the side of the mother and from the side of the child, contribute to it. The factors affecting from the mother's side include: toxicosis of pregnancy; dietary errors during pregnancy; threat of abortion; use of medicines; infections during pregnancy. The factors affecting from the child's side include: infections (ARVI - acute respiratory viral infections, focal infections); vaccinations; food allergens; as well as hypersensitivity to domestic allergens.

2. *Immune impairments* are the leading mechanism of pathogenesis of atopic dermatitis. During the acute phase of the disease there occurs activation of T-helpers of type II which leads to an excessive formation of IgE. The chronic phase of the disease is characterized by the prevalence of T-helpers of type I. The triggering factor is the interaction between the allergens and IgE (reagins) on the surfacre of obese cells and basophils. The existing allergic inflammation persists due to the ejaculation of histamine, neuropeptides and pro-inflammatory cytokines..

3. *Functional impairments from the side of the central* (neuroses; asthenia; sleeplessness) and *vegetative nervous systems* (pronounced pilomotor reflex; white dermographism; impairments of sweat and sebum secretion).

4. *Lesions in the system "hypothalamus – hypophysis – adrenals"*, which contribute to the impairment of adaptation to various irritant.

5. *Functional insufficiency of the hepatobiliary system* and malabsorption which lead to absorption of decomposed proteins – allergens from the intestine.

6. *Impairments of intracellular regulation*, manifesting themselves by the blockage of 13-adrenoreceptors in the cells, which leads to an insufficient production of adenylate cyclase and cAMF (cyclic adenosine monophosphate) deficiency, and causes intensified cell division, development of acanthosis and papillomatosis lying in the basis of formation of infiltration and focal lichenification.

Classification. At present there is no unified classification of atopic dermatitis. Russian physicians use the classification presented in the nationally accepted document on atopic dermatitis. This classification reflects age periods of the disease (the subdivision is not strict because the clinical picture changes gradually), stages of the disease, clinical forms, the degree of severity and spread of the pathological process on the skin, as well as complicated forms of the disease.

CLASSIFICATION OF ATOPIC DERMATITIS

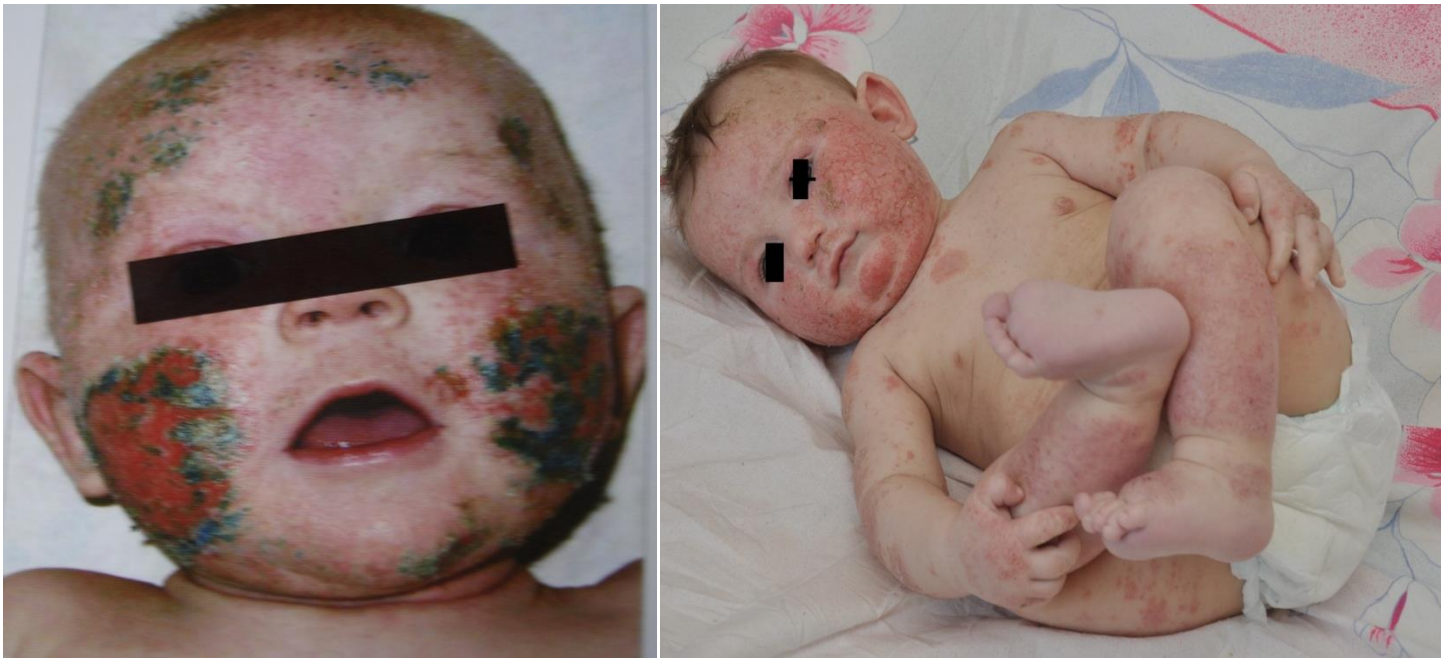
Age periods	Age period I – infantile period (up to 2 years of age); Age period II – children's period (from 2 up to 13 years); Age period III – adolescent and adult period (13 years and older)
Stages	Stage of exacerbation (phase of marked clinical manifestations; phase of moderate clinical manifestations); Stage of remission (incomplete and complete remission)
Clinical forms	Exudative; erythematosquamous; erythematosquamous with lichenization; lichenoid; prurigo-like
Severity degree	Mild; average; severe
Spread	Limited-localized; spread; diffuse
Complicated forms	Pyodermias; mycoses; Kaposis herpetiform eczema

Clinical picture. Age peculiarities of localization and morphology of skin elements distinguish atopic dermatitis from other allergic dermatoses and skin diseases. The basic differences in clinical manifestations, according to age periods, are associated with localization of the lesion foci and with correlation between exudative and lichenoid components.

Itching is a regular symptom in all age periods. As a rule, itching is persistent, and in the stage of exacerbation it is intense, sometimes – paroxysmal.

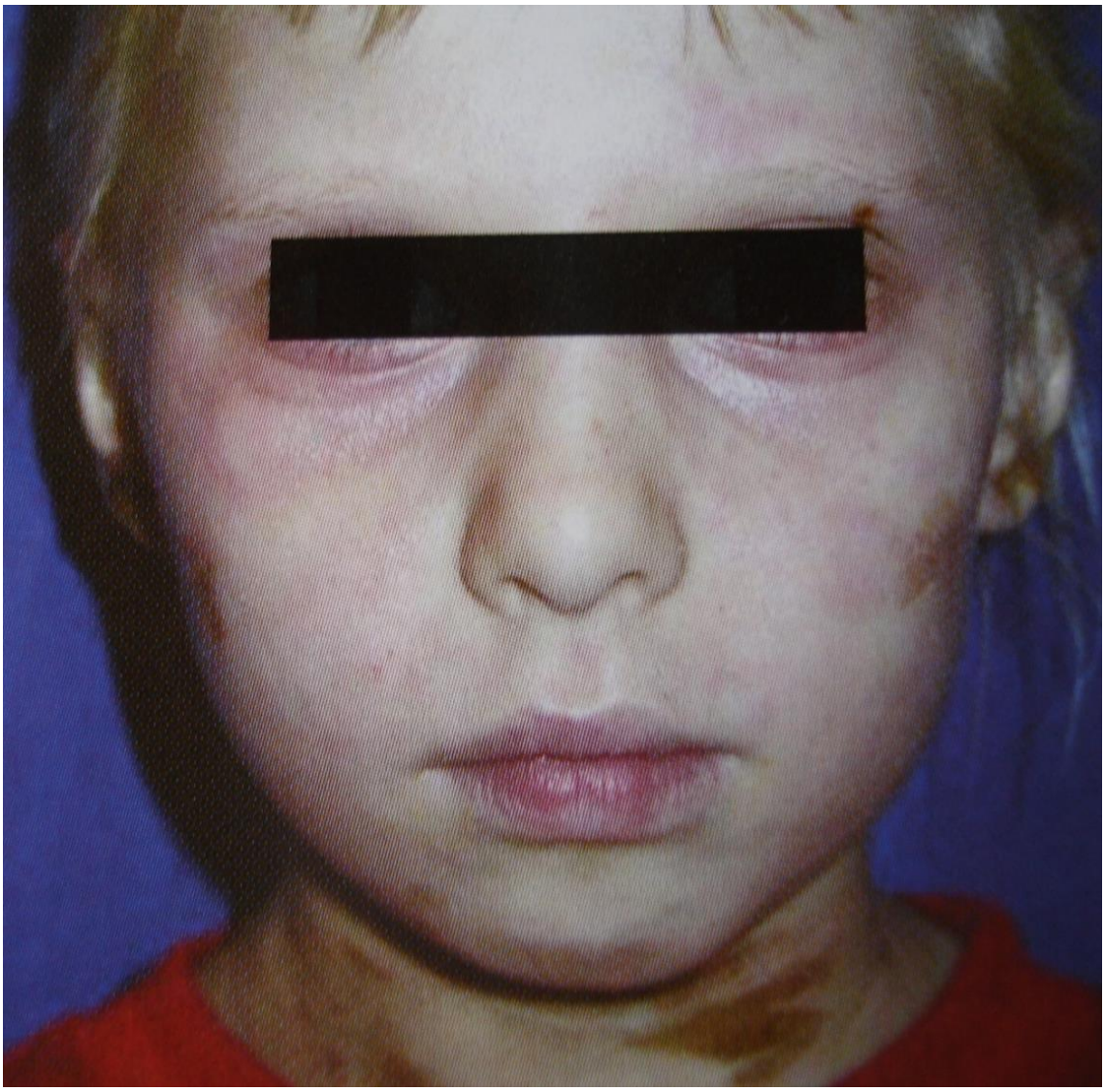
Age periods of atopic dermatitis are characterized by definite clinical peculiarities and different localization of eruptions on the skin.

In the age period I there prevails an exudative form of the disease, in which inflammation has an acute or subacute character and develops with manifestations of erythema, edema, areas of soaking and crust formation. The initial signs of the disease are more frequently localized on the face (the "fully ripe apple" symptom), as well as on the external crural surfaces.

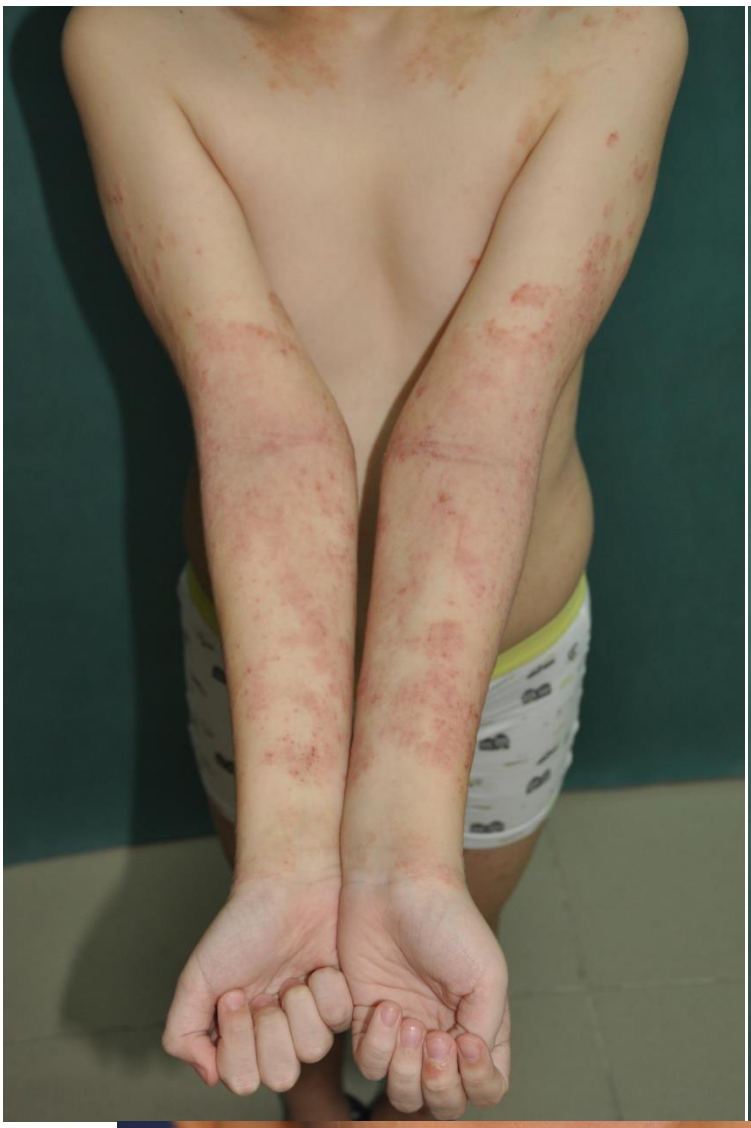


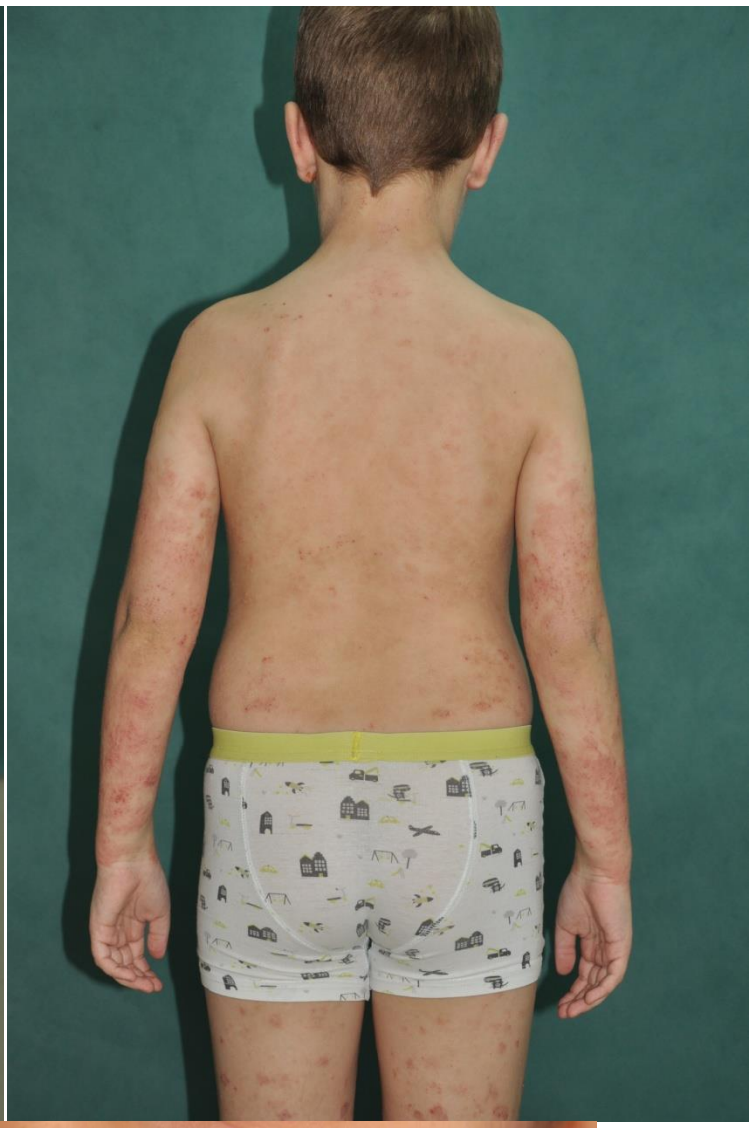
The "fully ripe apple" symptom

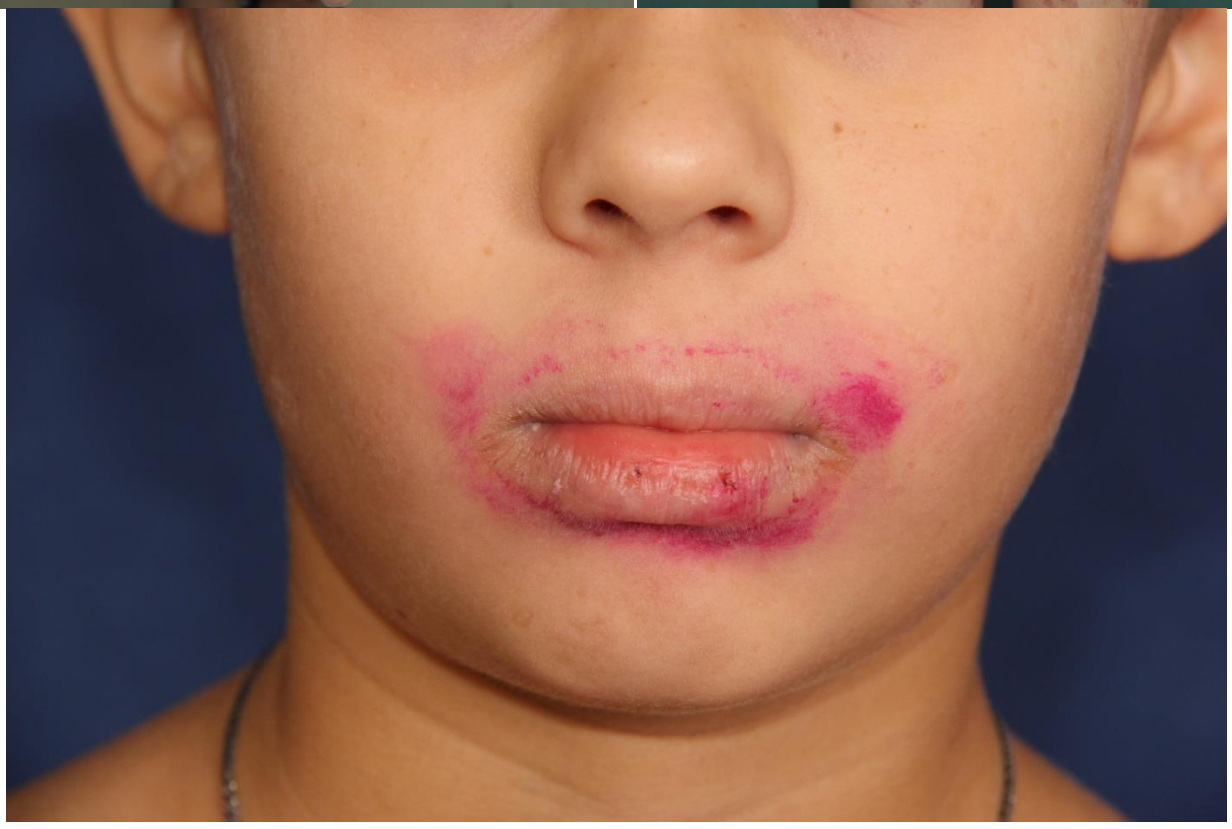
In the age period II inflammatory phenomena are less pronounced. The process has a character of subacute inflammation. The eruptions are localized, as a rule, in the ulnar and popliteal folds, on the posterior surface of the neck, on flexion surfaces of talocrural and radiocarpal articulations, in posterior auricular areas. The eruptions are presented by the erythema (often with a cyanotic trace of congestive nature), papules, desquamation. With time, the skin becomes thick (infiltration), the skin picture intensifies (lichenification). Multiple excoriorations (scratches) and fissures (cracks) appear. At the sites of eruptions' resolution in the damage foci, areas of hypo- or hyperpigmentation remain. In some children during this period an additional fold of the lower eyelid is formed (the symptom of Dennie-Morgan). The skin is dry. The dermographism is white, steady.



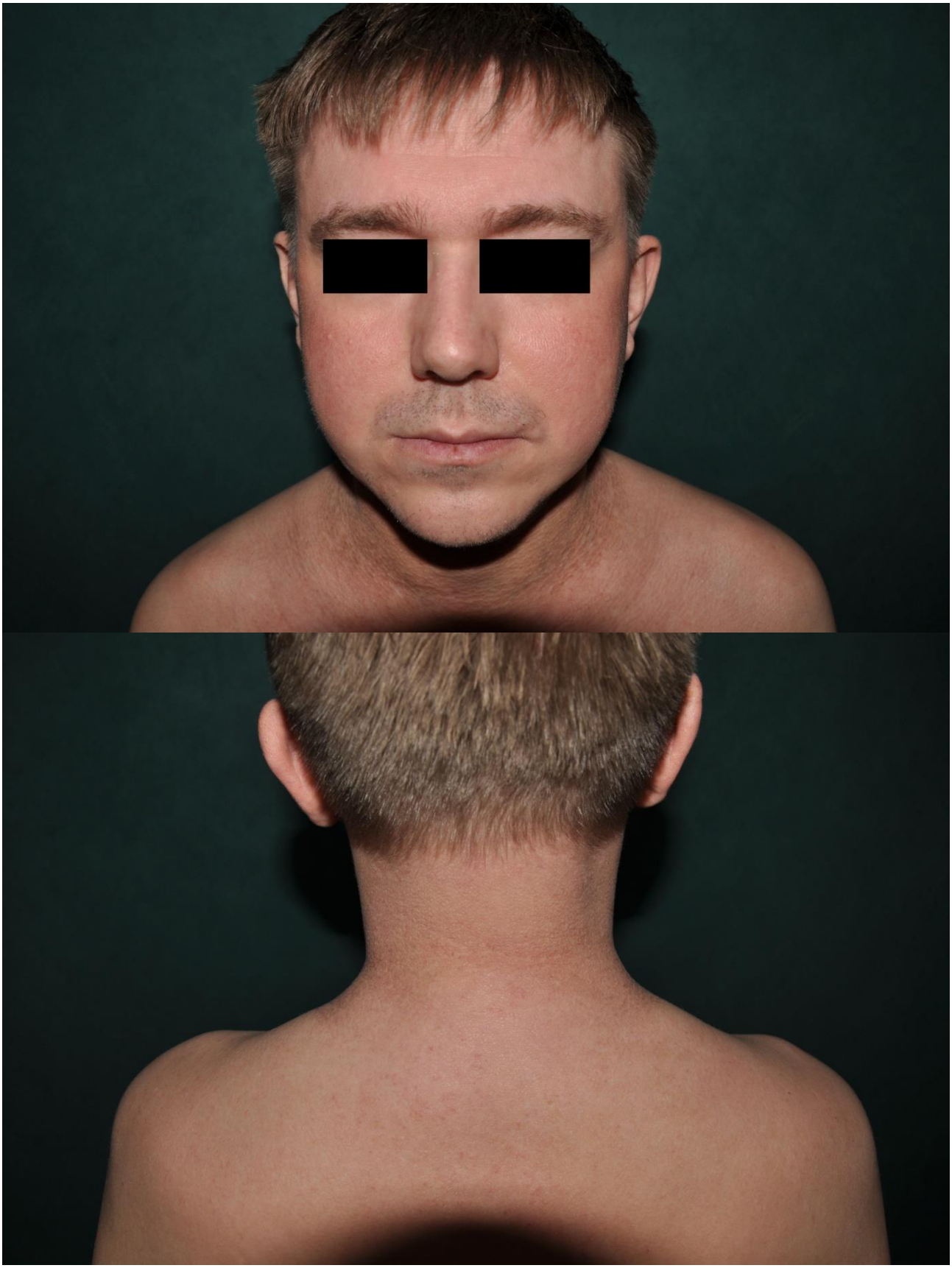
The Dennie-Morgan symptom

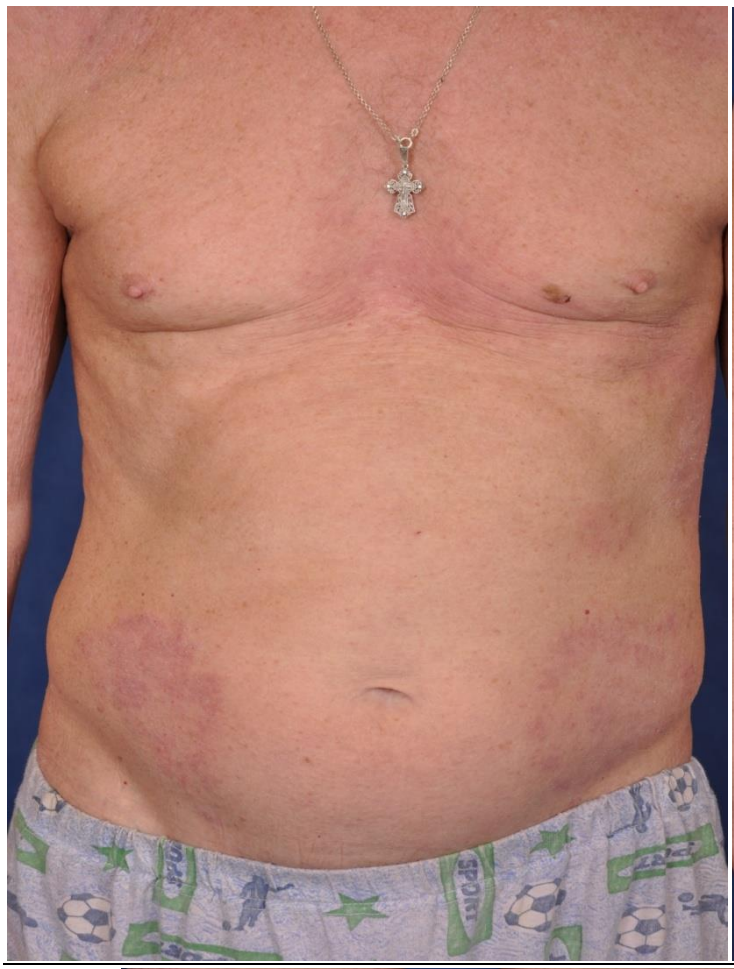


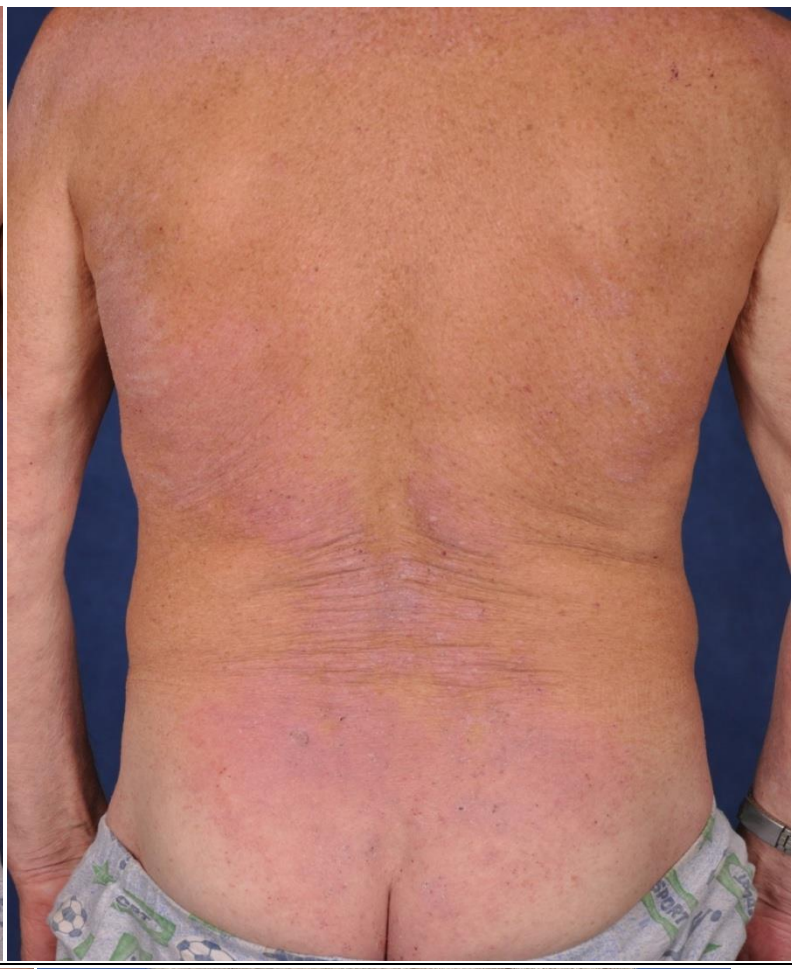


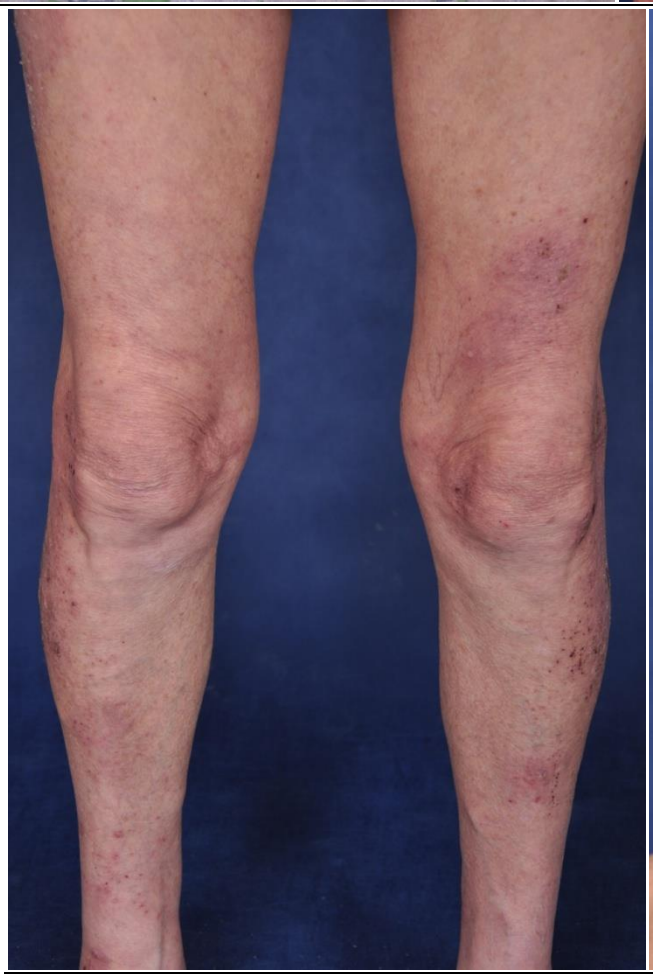


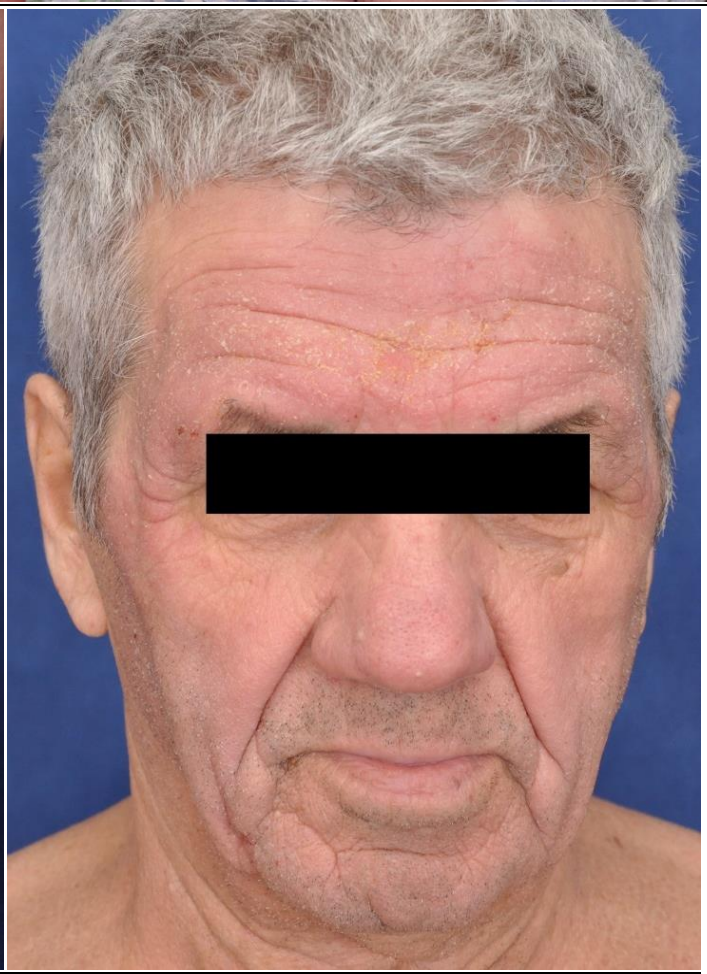
In the age period III there prevail the foci of chronic inflammation, infiltration with lichenization; the erythema has a cyanotic trace. Papules fuse into infiltration foci. The eruptions are, as a rule, localized in the region of the upper half of the trunk, on the face, neck, upper limbs.





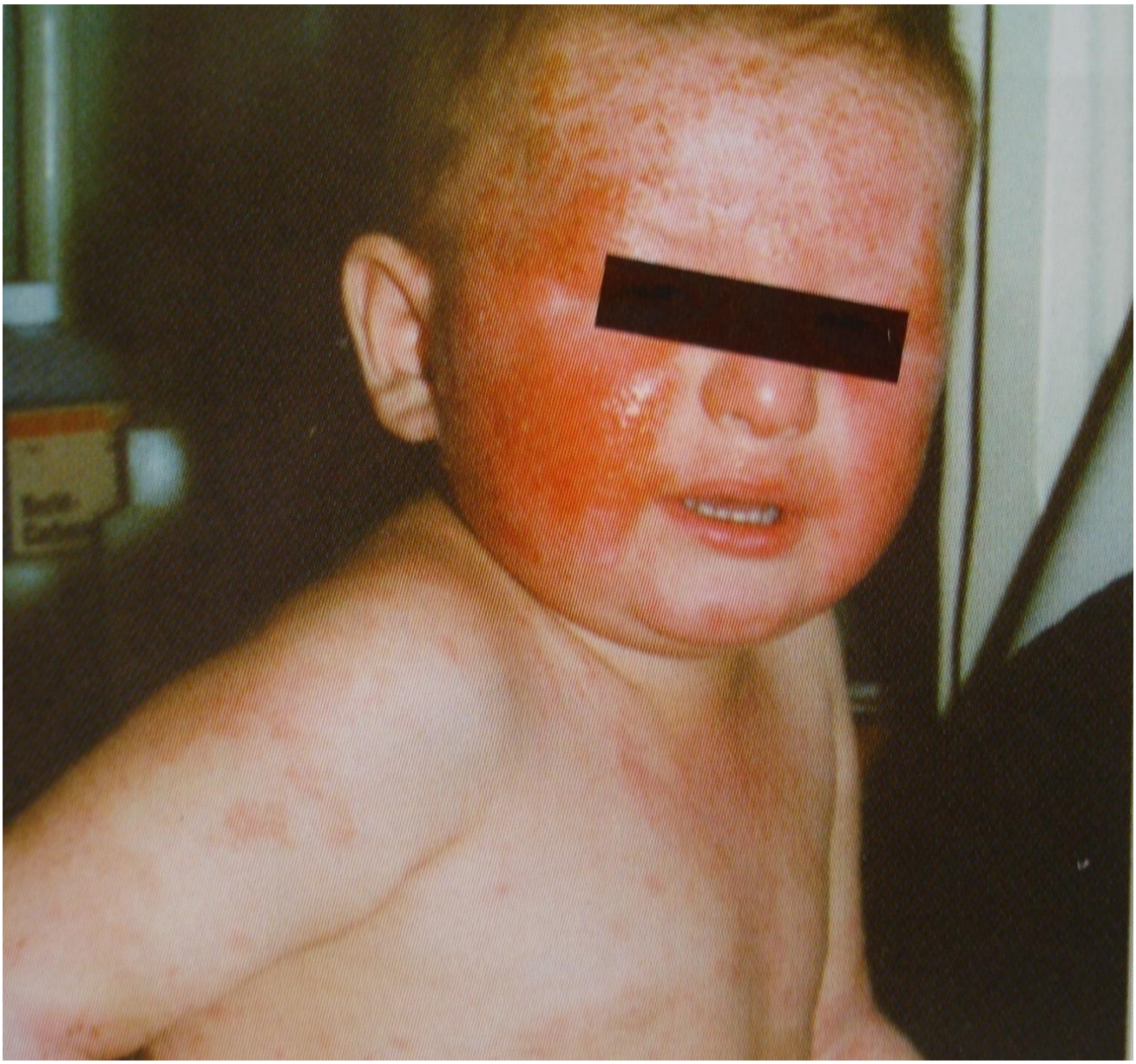




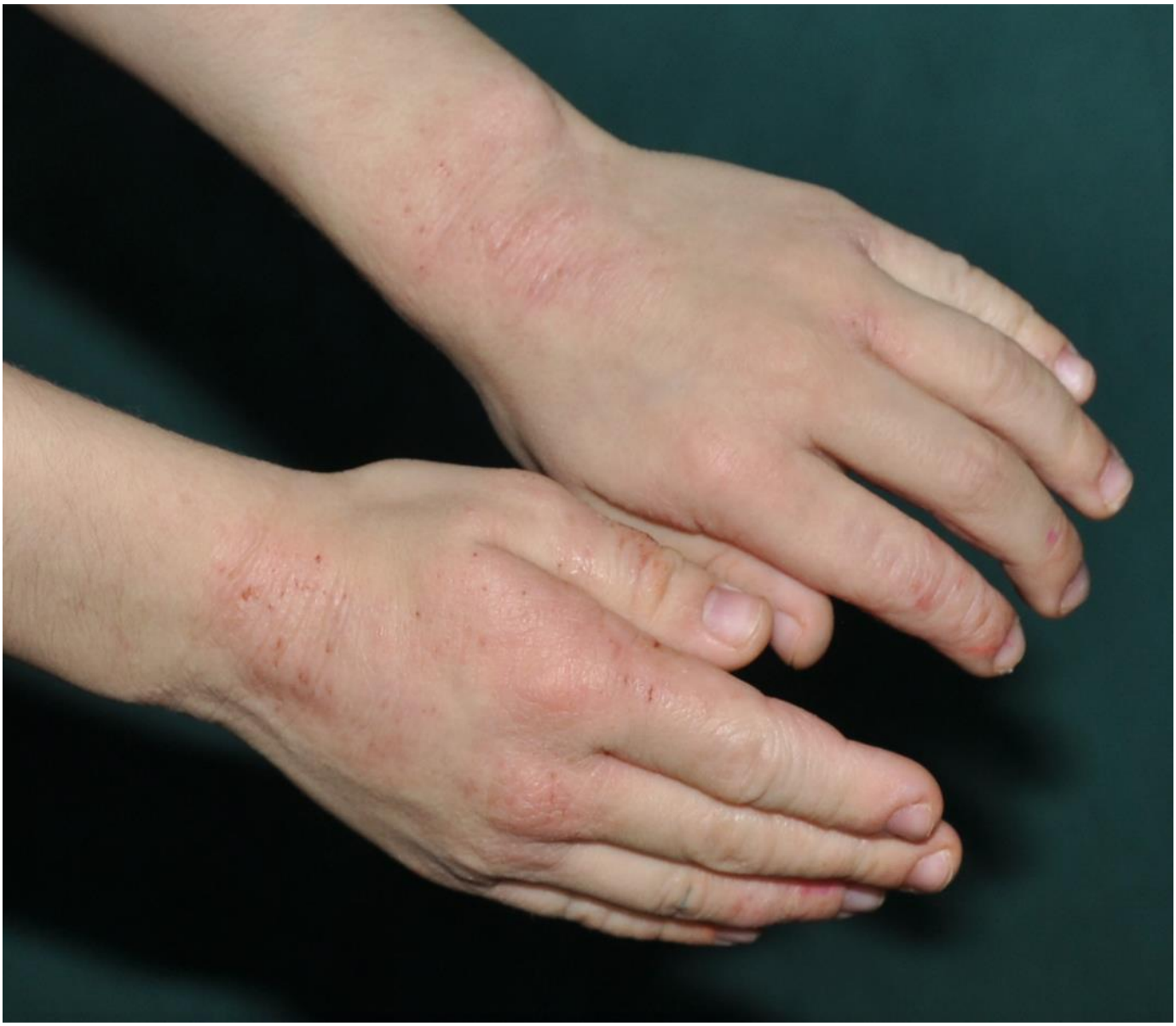


Clinical forms of atopic dermatitis. Differences between separate clinical forms are concerned with a different correlation of morphological elements. The character of correlation of morphological elements emphasizes the relative conventionality of this subdivision. In one and the same patient the clinical picture of the disease may be presented by different forms, for example, by combination of an erythematosquamous form on the skin of the face with a lichenoid form in the folds and exudative manifestations on the hands.

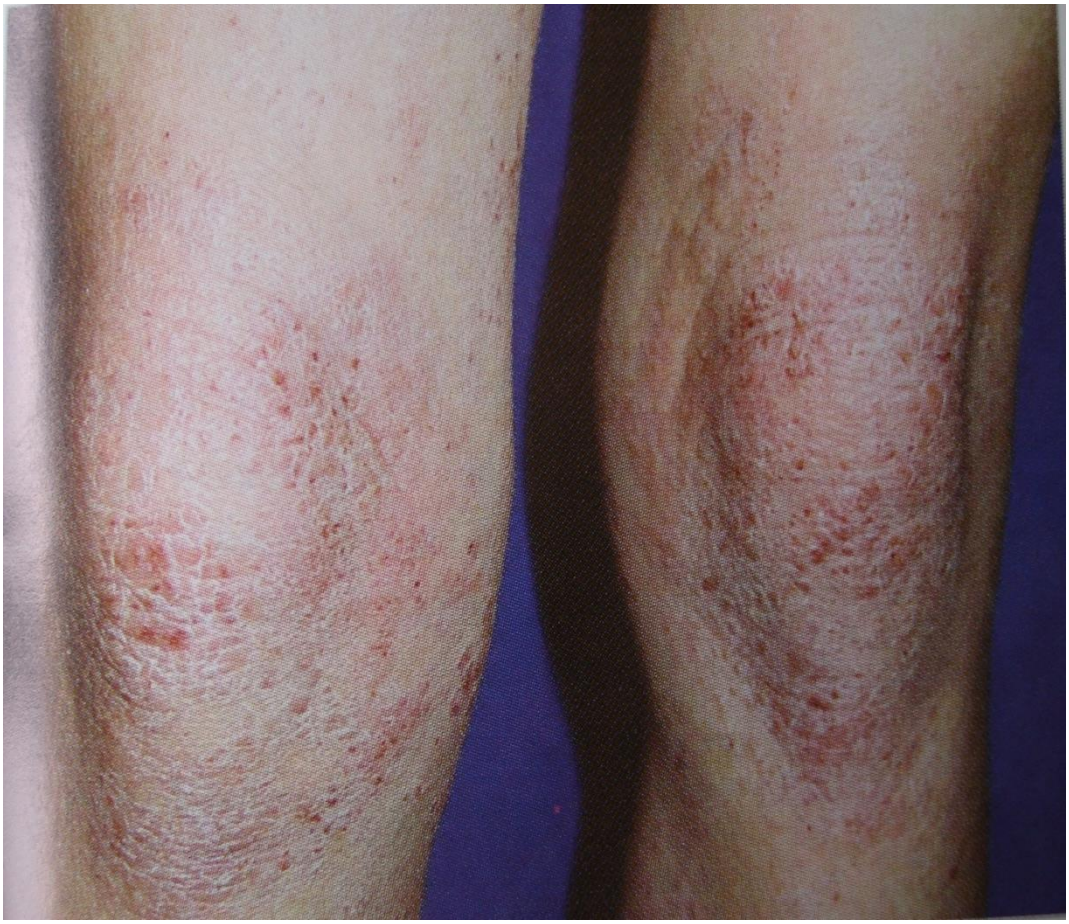
The exudative form is characterized by the prevalence of the erythema, edema, microvesiculation with the development of soaking, with subsequent formation of crusts, which is especially typical for an infantile period of life, though it may be observed in any age in case of exacerbation proceeding with exudation phenomena.

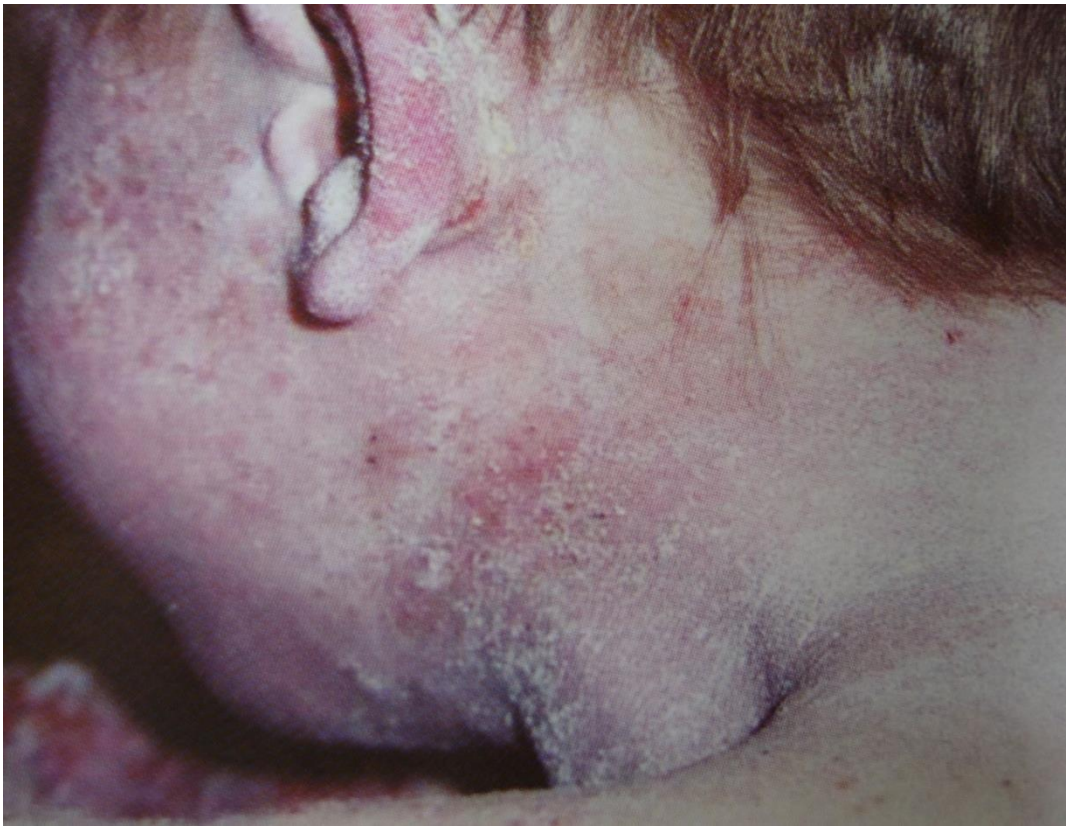


The erythematosquamous form is characterized by the presence of an erythema and desquamation in the form of fused damage foci with indistinct borders, small papules, scratches. This form occurs at the end of the 1-st age period and in the 2-nd age period, it rarely occurs in adult patients.

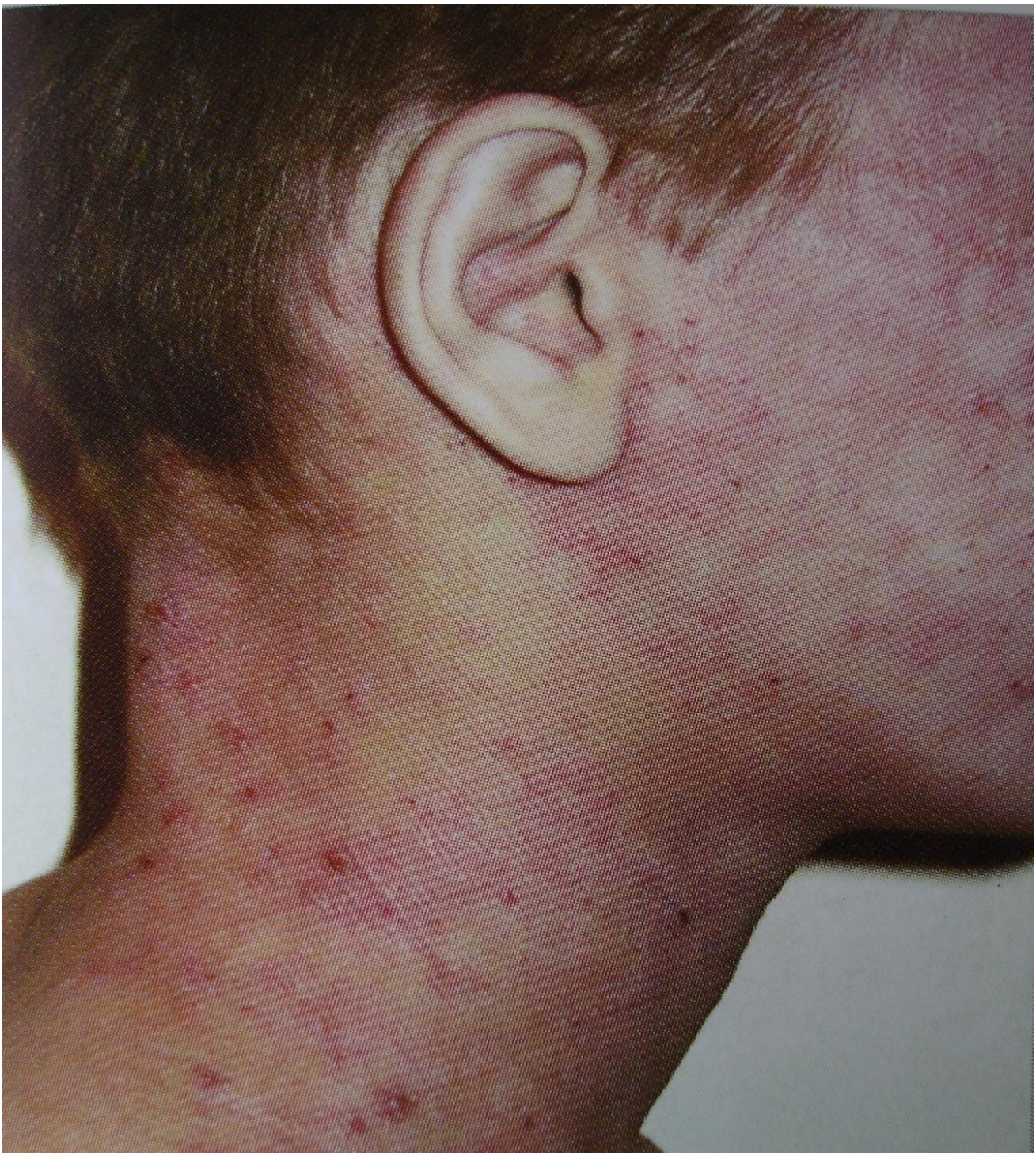


The erythematosquamous form with lichenization differs from the previous form due to the presence of multiple papules and formation of lichenization. This form usually develops in the 2-nd, more rarely in the 3-rd age period.

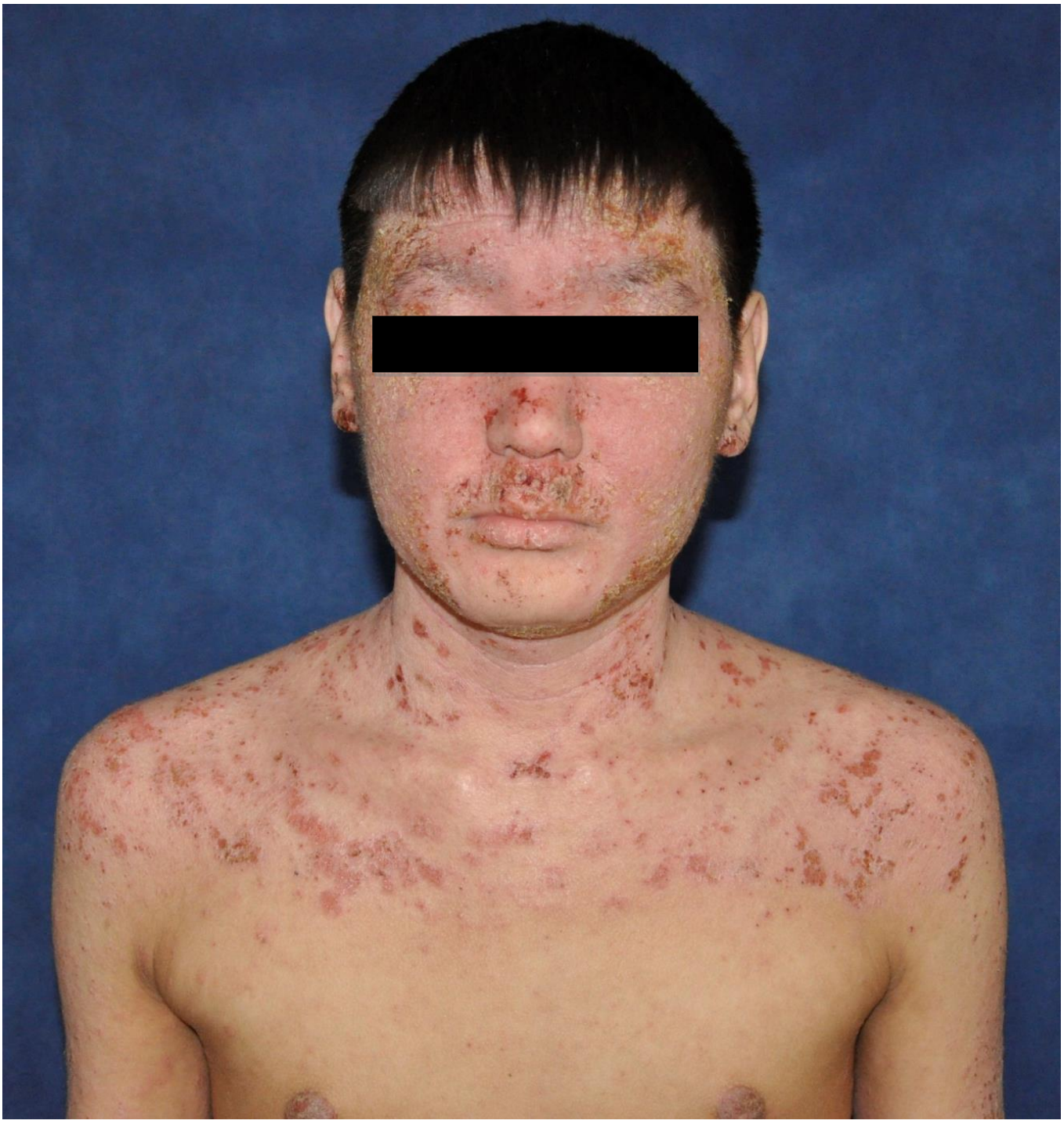




The lichenoid form presents damage foci of a dim grayish colour, with occult or furfuraceous desquamation, scratches, serous-hemorrhagic crusts in the areas of excoriations. The borders of the foci are distinct. This form most frequently occurs in patients in the 2-nd and 3-rd age periods.



The prurigo-like form occurs rarely. There are semi-spherical nodules on the skin, mainly on flexion surfaces of the limbs. This form develops more often in the adolescent and adult period during a prolonged and torpid course of the disease. This form is often combined with other forms of dermatosis (more frequently – with the lichenoid form).



Stages of the disease. The exacerbation of the disease is characterized by appearance of typical clinical symptoms (itching, inflammatory reaction of the skin with or without exudation, infiltration, lichenization, desquamation, etc.). During exacerbation, the phase of pronounced clinical manifestations is changed by the phase of moderate clinical manifestations (itching and acuteness of inflammation are decreased, the demand in medicines is reduced, sleep and general condition are normalized). The stage of remission may be incomplete and complete. In case of incomplete remission, there are small lesions in the form of infiltration, lichenification and dryness on the skin. In case of complete remission, none of the clinical manifestations of the disease are observed. However, histopathological changes of the clinically "normal" skin reflect the subclinical course of the disease or residual manifestations of the observed clinical episode. Marked traces of hyperkeratosis, hyperplasia and intercellular edema are observed in the epidermis. The basal membrane is thickened. Small lymphocytic infiltrates are observed in the derma, endothelial cells are enlarged, lymphatic vessels are dilated.

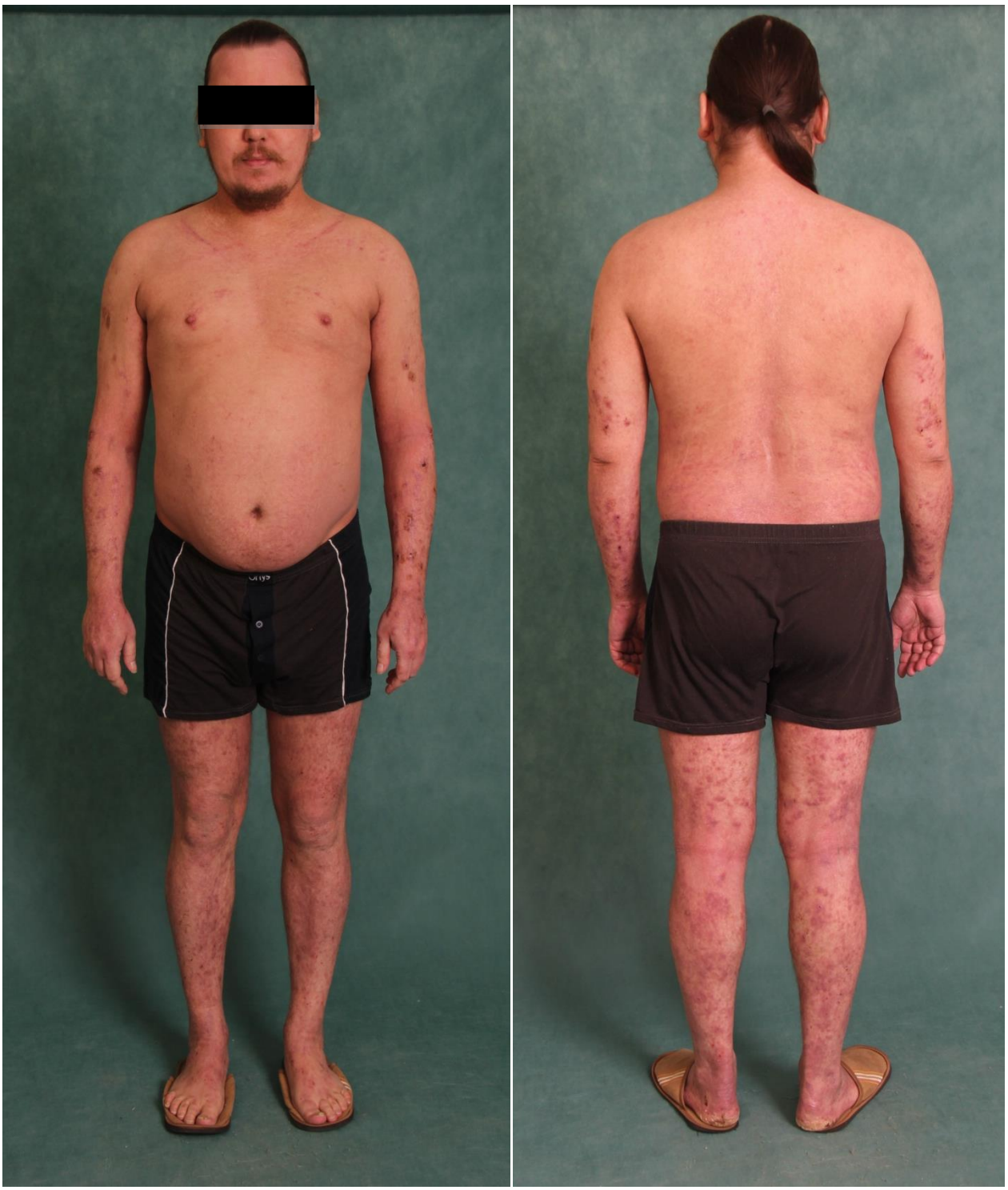
The spread of atopic dermatitis. In a limited-localized process the area of the lesion exceeds 10% of the skin covering; in a spread process it is from 10 up to 50% of the skin covering; in a diffuse process it is more than 50% of the skin covering.

The severity degree of the process is evaluated by considering duration and frequency of exacerbations; duration of remissions; spread of the skin process and its morphological peculiarities; intensity of skin itching, sleep disorder, effectiveness of the conducted therapy.

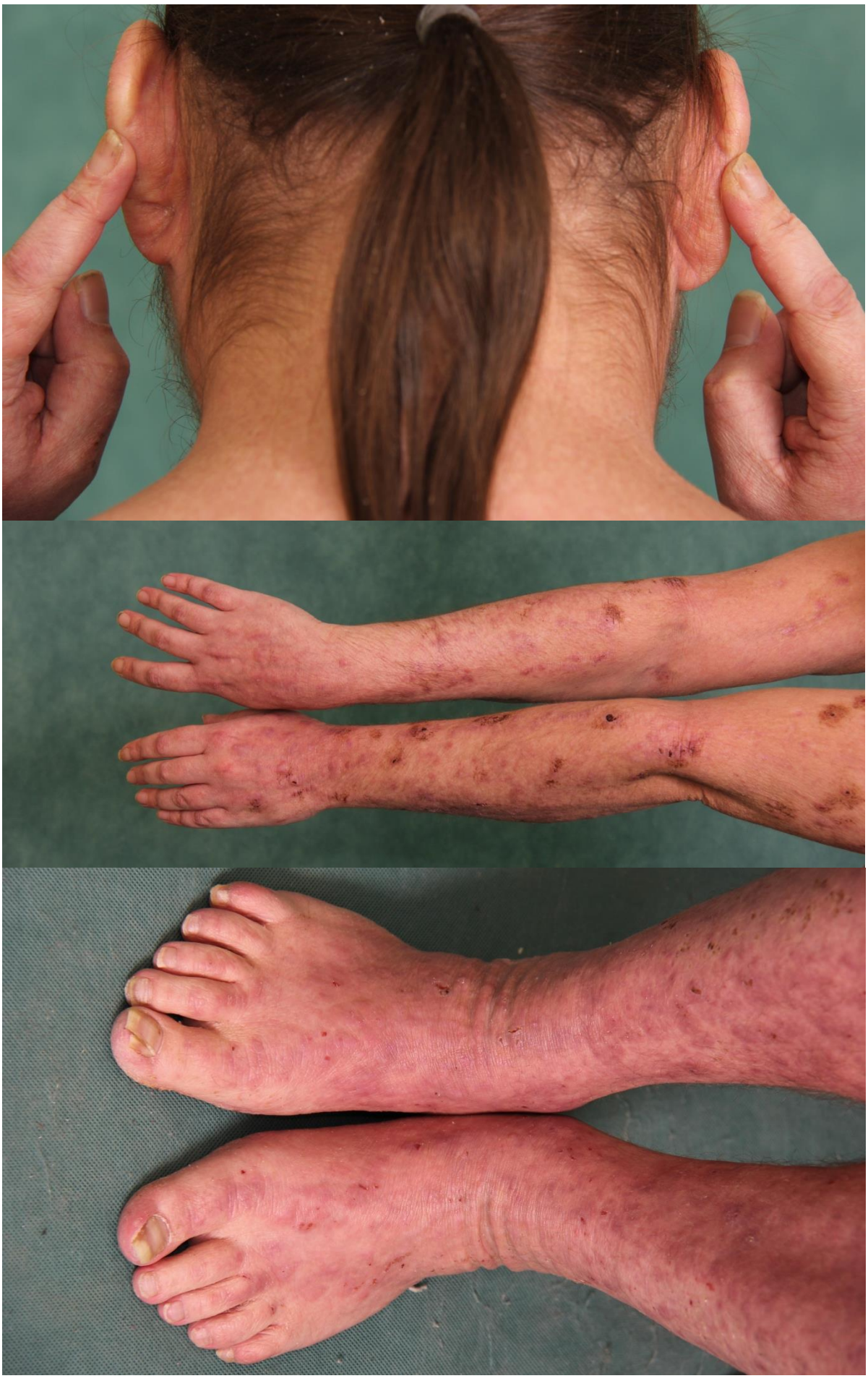
The mild course of the disease is characterized by predominantly limited-localized manifestations of the skin process, minor skin itching, infrequent exacerbations (1-2 times a year and more rarely), mainly in cold seasons, of up to 1 month duration. The duration of remission is 10 months and longer. There is observed a good effect of the conducted therapy.

The course of an average severity is characterized by the spread of the lesion. The incidence of exacerbations is up to 3-4 times a year, their duration is increased; the process has a persistent, torpid course with an unpronounced effect of the conducted therapy.

In a severe course of the disease, the skin process has a spread or diffuse character with prolonged exacerbations, rare and short remissions. The treatment produces a short-termed and insignificant effect. There is observed a marked itching, often with sleep disorder. The most severe manifestation of the disease is *atopic Hill's erythrodermia* which is characterized by a universal lesion of the entire skin covering in the form of an erythema, infiltration, lichenification, desquamation, and which is accompanied by the symptoms of endogenous intoxication (hyperthermia, chills, lymphoadenopathy, change of the blood formula). Some skin areas may have the signs of an exudative inflammation.



Atopic Hill's erythrodermia



Complicated forms of atopic dermatitis. The disease is often complicated by addition of a secondary infection (bacterial, fungal or viral).

Pyodermias manifest themselves in the form of ostial folliculites, streptococcal phlyctenae. More rarely furunculi or ecthymas are registered.

Fungal infections (dermatophytes, yeast-like fungi, mold fungi), by causing sensibilization, often complicate the course of the disease and lead to a more prolonged course of exacerbations, lack of improvement during warm seasons.

Kaposis herpetiform eczema develops after addition of a herpetic viral infection. It is a rare and most severe complication of atopic dermatitis, which, if not adequately treated, may lead to a lethal outcome. The disease is characterized by a spread vesicular rash, intense itching, febrile hyperthermia, damage to the cenral nervous system (CNS) and eyes, as well as the development of sepsis.

Diagnostics. The diagnosis of atopic dermatitis is clinical. The following diagnostic Hanifin - Rajka's criteria (1980) are used to diagnose the disease:

- itching;
- age alterations typical for skin lesions;
- a chronic recurrent course of the disease;
- existence of atopic diseases in the patient or in his relatives;
- initiation of the disease in early age;
- a seasonal character of exacerbations (worsening in cold seasons and improvement in summer);
- exacerbation of the process under the influence of provoking factors (allergens, irritants, food products, emotional stress, etc.);
- dryness of the skin;
- white dermographism;
- tendency toward skin infections;
- chilitis;
- Dennie-Morgan's sympton (an additional fold of the lower eyelid);
- skin hyperpigmentation in the periorbital area;
- an increased amount of total and specific IgE in the blood serum;
- eosinophilia of the peripheral blood.

Evaluation of severity of atopic dermatitis. For this purpose there is used the index SCORAD – Scoring of Atopic Dermatitis (1994). SCORAD unites objective (intensity and spread of the skin process) and subjective (intensity of the daytime skin itching and sleep disorder) criteria.

SCORAD provides for evaluation (in points) of six objective symptoms: erythema, edema/papular elements, crusts/soaking, excoriation, lichenification/desquamation, dryness of the skin.

The intensity of each sign is evaluated by the four-level scale: 0 – lacking, 1 – mild, 2 – average, 3 – severe. For evaluation of the area of the skin covering lesion, it is recommended to use "the rule of nine" in which the unit is assumed as the area of the patient's palm surface which is equivalent to 1% of the entire skin covering. Evaluation of subjective symptoms (sensation of itching, sleep disorder) is carried out in children above 7 years of age and in adults; in children of younger age – with the help of parents who should be beforehand informed on explanation of the principle of evaluation. The index SCORAD is calculated by the formula:

$$SCORAD = A5 + 7B/2 + C, \text{ where:}$$

A – is the sum of points of the skin lesion spread,

B – is the sum of points of intensity of clinical symptoms,

C – is the sum of points of subjective disorders by the visual analogy scale.

The values of the index may vary within the limits from 0 (lack of the disease) up to 103 (the maximally severe course of the disease).

The basic advantage of the use of SCORAD is the possibility to carry out the comparative analysis of the obtained results by means of computerized processing, as well as to objectively evaluate the effectiveness of different methods of therapy.

Treatment. The aim of therapy is to eliminate or maximally reduce the markedness of inflammation and itching; to prevent or eliminate the development of complications; to improve life quality of patients with atopic dermatitis.

Diet. Cow milk and allergenic food products should be excluded from the diet of the mother feeding the child with atopic dermatitis. Infants on breast feeding are administered hypoallergenic prophylactic or therapeutic mixtures (hydrolysates of serum protein). Adult patients should be recommended to exclude obligatory allergens, extractive substances, spicy dishes, alcohol from their diet; and to limit the intake of carbohydrates and table salt.

Elimination measures. Elimination measures imply following the rules of hygiene of the skin, domestic animals and the house (regular moist cleaning up of the rooms and premises, ventilation, refusal of plants in the house).

Antihistamine agents. In the period of a marked exacerbation of atopic dermatitis, intense itching, sleep disorder it is useful to administer antihistamine agents of the 1-st generation with a sedative action (dimedrol, tavegyl, suprastin). School children and persons requiring concentration of attention in their working activity, as well as patients in the period of exacerbation subsiding, reduced itching and sleep normalization should be administered modern antihistamine agents of the 2-nd generation (claritin, aerius, telfast, zyrtec, xyzal, kestine) in standard therapeutic doses.

Hyposensibilization agents. In the period of exacerbation of the disease, there are administered the agents of calcium (gluconate, lactate, glycerophosphate), solutions of sodium thiosulfate, magnesium sulfate.

Detoxication therapy. In spread forms and severe course of the disease, accompanied by endogenous toxicosis, infusions of hepasol, haemodes, rheopolyglukin solutions are indicated. In milder forms enterosorbents (polyphepan, filtrum, lactofiltrum, enterol) are used.

Hydrocolonotherapy has been recently widely used in treatment of atopic dermatitis of any severity degree. The procedure of monitored purgation of the intestine makes it possible to induce solutions with sorbents, phytomixtures and mineral water into the gastro-intestinal tract. Sorbents stimulate excretion of harmful substances – radionuclides, heavy metals, phenols and toxins. Phytomixtures control the pain symdrome and inflammation, and when absorbed into the blood they produce a therapeutic effect on the whole organism. Induction of live lacto- and bifidobacteria provides a therapeutic effect in dysbacteriosis.

Glucocorticosteroid agents. Systemic application of glucocorticosteroid agents in treatment of atopic dermatitis is justified only in Hill's erythrodermia and in the forms which are refractory to other methods of treatment. As a rule, during the first days pulse-therapy is administered in the daily doses of 300-500 mg of prednisolone. Subsequently, a short course of treatment is carried out in the daily doses of 30-40 mg. A prolonged supporting therapy is not advisable.

Immunosuppressive therapy. The indications are as follows: a severe course of the disease in the phase of marked clinical manifestations; spread forms including the universal skin lesion; the forms which are refractory to therapy. Cyclosporin A (sandimmun-neoral) in the dose of 2.5-5 mg/kg/day is administered. After achievement of the therapeutic effect, the dose of cyclosporin A is gradually reduced to complete discontinuation. In the lack of positive results during 1.5 month of the maximum daily dose, the treatment should be stopped. In the process of treatment it is necessary to control the arterial pressure and creatinine amounts in the peripheral bloodflow (if these indices exceed by 30% or more, the dose of the agent must be corrected towards its decrease).

Physiotherapy is one of the most important components in the complex therapy of patients with atopic dermatitis.

Phototherapy has been successfully used in treatment of patients since early times. Recently there has been developed the highly technological technique of combined average-wave and long-wave ultraviolet (UV) therapy (the wave length is 280-400 nm). This technique makes it possible to apply simultaneously the rays of both A and B spectra. The dose of A-rays exceeds approximately twice the dose of B-rays, producing anti-inflammatory, resorptive, hyposensibilization and antitoxic action. The course of treatment is 20 procedures.

Wide-band average-wave UV-therapy with application of ultraviolet radiation in the wave range of 280-320 nm may be administered to the patients of 6 and above years of age. The course of treatment is 20-25 procedures.

Photochemotherapy is a combined application of photosensibilizers of the photocoumarin row and long-wave ultraviolet radiation in the wave range of 320-400 nm. The patient takes oxsoralen, ammifurin in the dose of 0.6-0.8 mg/kg of the body mass 2 hours prior to phototherapy. Usually 4 sessions of photochemotherapy per week are carried out. The course of treatment is 15-20 procedures. Since photocoumarins are toxic, this method is used in treatment of a severe course of atopic dermatitis in patients of 18 and older (in critical cases it may be used in patients of 12 and older).

Electric sleep produces a sedative effect and it is used in treatment of atopic dermatitis in patients with sleep disorder and neuroses. Procedures of electrosleep may be carried out every day or 3-4 times a week. The course of treatment is 10-15 procedures.

Magnetotherapy, or inductothermia onto the adrenal region, makes it possible to stimulate production of glucocorticoid hormones in the organism of the patient with atopic dermatitis. Procedures are carried out 4-5 times a week. The course of treatment is 10-15 procedures.

The course (10-15 procedures) of endonasal electrophoresis (dimedrol – calcium – intal) permits to eliminate the disbalance in the system of hypophysis – adrenals.

External treatment of atopic dermatitis. In external treatment the age period, stage of the disease and markedness of the inflammatory process must be taken into consideration.

As a rule, in order to control acute inflammatory phenomena and soaking which predominate in the 1-st age period, and to provide epithelization of erosions there are used lotions with desinfectant agents (solutions of potassium permanganate, furacin, rivanol).

In subacute forms which predominate especially in the 2-nd age period, pastes are used (boric-naphthalanic, zink, taric).

In marked infiltration, lichenification which predominate in the 3-rd age period, in order to control the inflammatory process oinments are applied.

It should be remembered that in marked lesions of the hairy region of the head it is especially convenient to use lotions, emulsions; in case they are lacking – creams or oinments (pastes are not used!). The skin of the face is better treated with creams and lotions (emulsions). In the areas of folds, especially of axillary and inguinofemoral folds, application of oinments is not recommended.

Recently there has been developed step-by-step therapy of atopic dermatitis with the use of moistening agents, calcinevrin inhibitors and topic glucocorticosteroids.

In the period of remission the patient should be recommended to use external agents which moisten the skin. There are used medicines which have been manufactured on the basis of thermal waters, as well as on the basis of lipids, urea, ceramides, irreplacable fatty acids, lamellar emulsions and which control skin irritation, reinforce epidermal barrier function, produce moistening and softening effects.

EXTERNAL AGENTS USED FOR PROLONGED SUPPORTIVE THERAPY OF ATOPIC DERMATITIS

Agent (Medicine)	Active substances	Medicinal form
Atoderm	Vaseline-glycerin complex; vitamin E, EDTA	Cream
Atoderm P.O. Zinc	Beta-sitosterol; zink gluconate; pyroctonolamine; vaseline-lanoline complex	Cream
Atoderm PP	Phosphorous-organic compounds (POC); rhamnose; mannitol; xylitol; vitamin PP	Cream
Atopalm	Pseudoceramide PC-9S	Emulsion
Balneum	Refined soybean oil; polyunsaturated fatty acids	Bath oil
Balneum plus	Polydocanol; refined soybean oil; polyunsaturated fatty acids	Bath oil
Hydrolipidic	Oil of raspberry grains; fatty acids Omega-6; glycerin	Emulsion “oil in water”
Hydranorm	Preformed lipids	Emulsion
Dardia Lipo Cream	Caprylic triglyceride; glycerin; white wax (beewax); magnesium sulfate; lactic acid; sodium lactate	Emulsion “water in oil”
Dardia Lipo Milk	Caprylic triglyceride; glycerin; 5% urea; magnesium sulfate; lactic acid; sodium lactate	Emulsion “water in oil”
Dardia Lipo Balsam	Micronized urea; liquid paraffin; microcrystalline wax; corn starch	Balsam
Idelt	Irreplacable fatty acids Omega-3,6	Cream
Cold-cream	Thermal water “Avene”; cold-cream; white beewax; paraffin oil	Emulsion “oil in water”
Lipidiose	Pro-Fibril complex (acexamic acid); nano-capsules of vitamin A	Cream
Lipidiose 1	Urea; ammonium lactate	Milk
Lipidiose 2	Preformed lipids	Liquid cream
Lipikar Emulsion	10% Carite oil; allantoin; a-bisabolol; thermal water “La Roche-Posey”	Emulsion
Lipikar Balsam	20% Carite oil; rape oil; glycerin; glycin; thermal water “La Roche-Posey”	Balsam
Lipikar Bath oil	5% Carite oil; sterols; fatty acids	Oil
Lipikar Surgra	Carite oil; glycerin; hermal water “La Roche-Posey”	Gel for face washing
Prurised Cream	Calamine; oil of raspberry grains	Emulsion “water in oil”
Prurised Gel	Calamine; glycocoll; calcium gluconate	Gel
Nutrilogie 1	Sphingolipid; oleosomas; tocopherol (vitamin E)	Cream
Nutrilogie 2	Carite oil; vaseline; wax; sphingolipid; oleosomas; tocopherol (vitamin E)	Cream
SebaMed	Aminoacids; ceramides	Hydrogel
Skin-cap	Activated zink; pyrithione	Cream; aerosol; shampoo
Cu-Zn Cream	Copper pydolate; zink pydolate; zink oxide	Emulsion “water in oil”
Topicream	Glycerin; urea	Emulsion
Topic 10	Urea	Emulsion cream
Trixera	Thermal water “Avene”; lipids; ceramides; unsaturated fatty acids; glycocoll	Emulsion; cream
Exomega	Oat extract “Realba”; fatty acids Omega-6; glycerin; vitamin B3	Oil; cream; milk
A-P	Japanese cypress oil “Chinokiasunaro”	Cream; foam

In moderate and severe course of the disease, to control atopic dermatitis *calcinevrin inhibitors* – pymecrolimus (elidel) and tacrolimus (protopic) – are the medicines of choice. Agents of the non-steroid row effectively block skin inflammation inhibiting proinflammatory cytokines. At present it has been proved that a systemic use of calcinevrin inhibitors makes it possible to modulate the course of atopic dermatitis which proceeds in a milder form.

Topic steroids are the agents of choice in severe atopic dermatitis with infiltration and lichenification. External application of medicinal agents is based on anti-inflammatory, immunosuppressive, anti-allergic, anti-pruritic actions which are conditioned by the following pharmacological effects:

- inhibition of migration of neutrophils, monocytes and eosinophils in the focus of inflammation;
- activization of histaminase and, consequently, histamine level decrease in the focus of inflammation;
- decrease of nerve endings' sensitivity to histamine;
- intensification of production of the protein lipocortin, inhibiting phospholipase A activity, which, in its turn, leads to the decrease of synthesis of mediators of allergic inflammation (arachidonates);
- decrease in activity of hyaluronidase and lysosomal enzymes, which reduces the permeability of the vascular wall and pronouncement of edema;
- decrease of formation of free oxygen radicals;
- inhibition of synthesis of mucopolysaccharides;
- decrease in the amount of antigen-presenting and obese cells;
- inhibition of synthesis of nucleic acids.

Medicines of the last generation are preferable; they are characterized by high effectiveness, minimal side effects and prolonged action (for example, advantan, elocom).

Topic steroids are manufactured in various medicinal forms (lotion, aerosol, gel, cream, oinment); their choice depends on acuteness and localization of skin manifestations. Emulsions or lotions, which contain a small amount of a fatty component and a large amount of water, are designed for treatment of skin with acute inflammatory phenomena, with or without soaking. These remedies reduce exudation, "dry" the foci of the lesion, decrease swelling and have a cooling effect. They may be applied on any skin areas including the hairy region of the head. Creams are used at different stages of the disease, with or without exudation, and they are applied onto any areas of skin covering. It is useful to administer creams in acute or subacute periods, in the erythematosquamous form of atopic dermatitis. In chronic inflammation, creams are used mainly for plotting tender skin areas (face, neck, etc.). Patients with marked skin infiltration, lichenization, skin dryness and cracks are administered oinments.

Contraindications for the use of topic steroids are as follows: - infectious skin diseases of various etiology; - vulgar and pink acne; - perioral dermatitis; - trophic changes of the skin; - increased sensitivity to components of medicinal agents.

Side effects are observed at a prolonged use of fluoridized medicines and manifest themselves as skin atrophy, telangiectases, hypertrichosis, steroid acne, stria, secondary pyodermia, pigmentation disorder. Systemic side effects are noted in case of a large area of application and prolonged use of topic steroids.

It is not recommended to use topic steroids on the skin of the face and neck for a long period of time. Exclusions are medicines of the last generation not containing alclometasone, fluoride – mometasone furoate, hydrocortisone butyrate, methylprednisolone aceponate, which may be used for a more prolonged period of time.

Non-hormonal medicines of the skin-cap line (aerosol, cream, shampoo), manufactured on the basis of activated zink pyrithione, are capable to restore the homeostasis of keratinocytes and to suppress inflammatory reactions; they also have anti-bacterial and antifungal activity. The use of skin-cap aerosol is indicated in case of acute and subacute inflammation with the elements of exudation and soaking according to the dermatological principle "moist agents are to be applied onto the moist skin, oily agents – onto the dry skin", as an alternative to traditionally used lotions and moist-drying dressings, as well as in those cases when application of lotions is impossible (for example, in localization of the process on the hairy region of the head, in the areas of skin folds). The cream is used in case of skin dryness (it has a hydrating property), lichenification, after controlling exudative manifestations and in all other cases when there is no marked soaking. The aerosol and cream are allowed to be used from the 1-st year of life; due to the absence of side effects they may be used in localization of the process on those skin areas (face, skin folds) where application of corticosteroid agents is limited. In case of marked lichenification, the aerosol and cream are recommended to be applied under the occlusive dressing. Skin-cap aerosol and cream are used twice a day; the course of treatment is up to 3 weeks.

Educational programs must be directed on instructing the patient with atopic dermatitis and his relatives on the rules of hygiene, skin care, rational diet, carrying out elimination measures, and principles of external therapy. Provision of clear information on the nature of the disease and its symptoms, questions of social adaptation are also a constituent part of educational programs. Installation of educational programs and the use of effective prescription-free medicines by the patient himself are the essence of the conception of the "controlled self-treatment" in atopic dermatitis.

Prognosis. As a rule, the prognosis is favourable. However, it should be remembered that atopic dermatitis may be the first manifestation of atopic march. Unfavourable prognostic factors include: an early onset, combination with food-stuff or respiratory

atopy, existence of functional and organic diseases of the gastro-intestinal tract and focal infections.