local corticosteroid therapy as it does not stop the occurrence of bullae and does not heal the anabrosis.

At appearance of contractures, symphasodyctalies and other cicatricial complications the surgical reconstructive maneuver is carried out.

Labor expertise. The labor expertise and reasonable career guidance of adult patients are carried out depending on severity and complications of disease. For the patients with heritable bullous epidermolysis the disability status could be settled.

Ichthyosis

There are changes in epidermis, leading to appearance of the crusts reminding the fish-scale on skin typical for this group of diseases.

Clinically the ichthyosis is characterized by dryness and scabrities of skin, cornual fusions of different sizes – from small tender whitish crusts to greyish-black-green fusions tightly connected with skin in center and little bit raised by the edges. In some cases the cornual fusions could reach few millimeters in width.

Aetiology and pathogenetic mechanism. Ichthyosis is the genetous diseases; its clinical types are conditioned by different genetic mutations which biochemical effect is still unknown. At ichthyosis the malfunctions of proteometabolism and amino acid exchange, changing of activity of some biocatalyzers, gaseous exchange through the skin and oxygen tension in it are discovered. The lack of vitamin A and endocrinopathy (insufficient activity of thyroid hormones, butterfly adrenal, reproductive hormones) play a role. In some cases the changes on skin of non-heritable nature are observed because of which it reminds fish-flake, – heritable ichthyosis. Such changes have symptomatic nature and could serve by evidence of hypovitaminosis, senile involution of skin, neoplastic diseases and others.

Classification. On the basis of clinical-genetic and pathomorphological data the ichthyosis is divided by heritable and non-heritable.

Heritable ichthyosis includes regular (vulgaris) ichthyosis with autosomal-dominant and autosomal-recessive X-sex-linked types, ichthyosis of fetus, congenital ichthyosiform erythroderma, single-sided, linear circumflex porcupine disease and syndromes providing the ichthyosis as a symptom.

Non-Heritable ichthyosis (ichthyosis-typed conditions) are divided by symptomatic, disk-typed and senile.

Let's bring into focus the most widespread clinical forms of heritable ichthyosis.

Ichthyosis vulgaris. Ichthyosis vulgaris is a most widespread form of disease which is up to 80% of all ichthyosis events. The frequency of spreading of this ichthyosis' form among population is 1:20000 births. Ichthyosis vulgaris is run in the blood by autosomal-dominant type.

First signs of disease in view of dryness, folding of epithelium, especially at belly-band surfaces of body, and sloughing of skin appear firstly on second or third month

of life. As a rule, ichthyosis vulgaris occurs in first three years of life but the occurrence in latest time is not excluded (up to 12-year age).

Ichthyosis vulgaris progresses gradually and reaching its maximum at adulthood. Since that time diseases become stable but the magnitude could change. Usually, process is weak in summer and is strong in late autumn and in winter.

Depending on intensity of clinical evidences there are following *clinical forms* of ichthyosis vulgaris:

- ichthyosis follicularis
- xerodermia
- ichthyosis nitida
- ichthyosis serpentine
- ichthyosis hystrix.

Ichthyosis follicularis is characterized by (together with barely perceptible dryness of skin and its scabrities in extensor surfaces of upper and lower extremities) presence of corneal plugs in openings of hair follicles having pin-head's size on which the hair is noticeably extends – *lanugo*. The significant folding of epithelium is observed at slight displacement of the skin on the belly-band surfaces of body.

At ***xerodermia*** the dryness of skin and defurfuration are more evidenced. Sin if face is dry, tensioned, covered by erubescene (face of "doll"). The folding of epithelium is noticed on the skin of body and alvus. There are underlined natural figured lines on the palms.

At ***nitida*** from of usual ichthyosis the evidenced dryness of skin comes to the fore. Skin is covered by freely sitting thin mess crusts of up to lens in size and some larger. Fusion of crusts and their size at this clinical form are more evidenced. Grooves between crusts are superficial usually but at presence of more thick crusts they become deeper. Because of air contained under peripheral part of crusts the crusts are off-

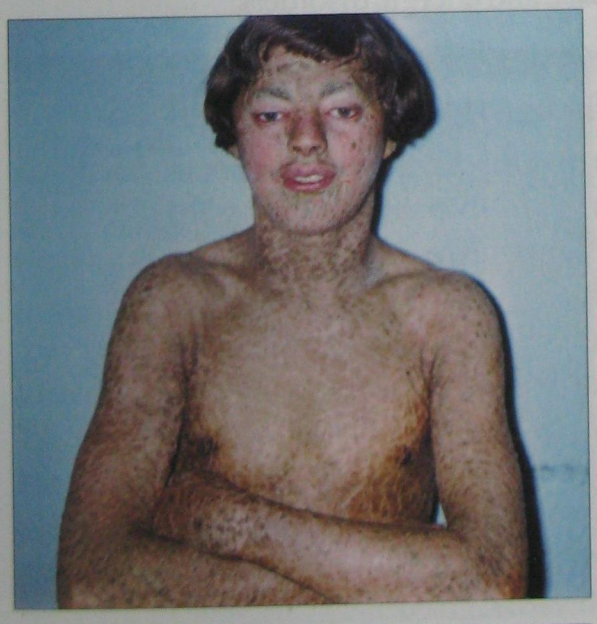


Fig. 19.3. Ichthyosis vulgaris.

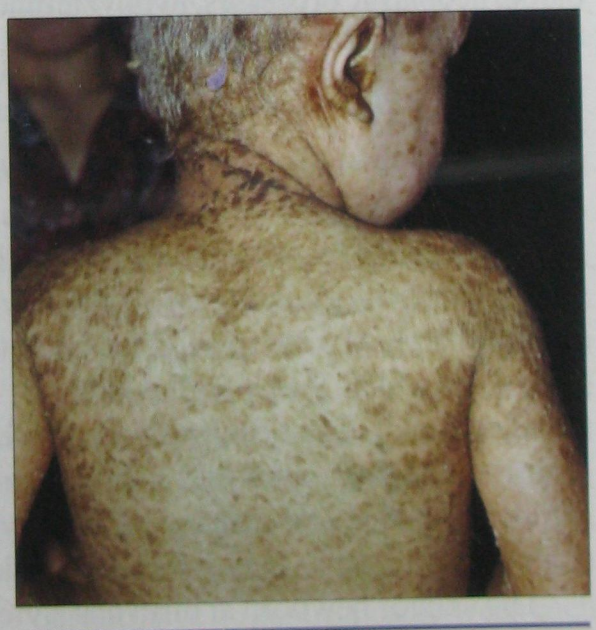


Fig. 19.4. Ichthyosis vulgaris.

white, and the central part is tightly close to the underlying skin and is darkest. As result of oscillation of peripheral parts of crusts at patient's move and of typical glare they remind fish's scale (therefore the name – glare or nacreous ichthyosis). The skin of face is dry, tensioned and strenuously flaked.

At ***ichthyosis serpentine*** there are wide shells of dark-brown, dirty-grey, dark-yellow color sitting tightly observed on the extensor surfaces of extremities and body. In some places they are divided by deep and superficial grooves. The shells gives to skin cover the similarity with skin of snake or crocodile. Corneal shells could cover either small or wide areas of skin forming the affinity of carapace and left the folds of skin and bends of elbows free. At this clinical form the nails affection in view of lengthwise and diametrical streaks is registered more often than at xerodermia and nitida form.

Ichthyosis hystrix in addition to low-grade dryness of skin is characterized by presence of verruciformis appearances in view of spears or acus highly extrude over level of skin. Usually these corneal appearances are located on localized areas of skin. It has brown, brownish-black, and dirty-grey color.

At histological examination the mediate hyperkeratosis, lowering or even complete absence of stratum granulosum, large follicular plugs the pressure of which leads to atrophy of lower part of follicles and oil glands are observed. The imperceptible perivascular infiltrates, containing from lymphocytes are appear in dermis and the hyalinization of collagen fibers, oil glands and erector muscles of hairs occur in deep layers.

Diagnostics and differential diagnostics. Clinical and morphological changes at ichthyosis vulgaris are characterized by uniformity and hence the diagnostics is not so hard. Differential diagnostics of non-heritable ichthyosis is based on origination of ichthyosis vulgaris in childhood and heritable one is on the background of diseases of blood, neoplastic processes, hypovitaminosis, and allergic disorders.

Curing. Individual care includes assigning of vitamins A, E, C, ultraviolet irradiation, and hydrotherapy. The emollients containing ureal are used topically.

Ichthyosis congenita, ***synonyms: heritable keratosis, universal heritable keratoma, ichthyosis foetal, hyperkeratosis universal heritable, ichthyosis of fetus, harlequin fetus.*** Ichthyosis congenita progresses in fetal life and child is born with evidences of ichthyosis. Babies with this disease are low-birth-weight in approximately 80% of cases. The mediate oscillation of expressivity is observed, from severe fatal forms with dead birth or low-birth-weight with range of early complications to forms compatible with life, non-disabling, but always with expressed cosmetic defect as a result of crude violation of cornification. The ichthyosis congenita is inheriting in autosomal-recessive way with complete penetrance and variable expressivity of gene. This defect is considered to be rare.

The skin of newborn at birth has a view of rough corneal carapace of greyish-white color. In first hours after birth the carapace begins to dark and becomes violet-

grey and even brown and then crisped by polygonal sites divided by deep breaks. This anomaly of skin has universal nature. The rough corneal carapace on distalis of extremities creates such impression as like fingers are interlocked. The hairs on head are short and thinned out, also could be absent at all. The face is deformed and covered by large corneal sheets. Mouth is open widely because of strong infiltration of soft tissues, and the breaks in its corners. The lips are thickened and mucosal coat is inverted, hypertrophied and remind "jaw of fish". Ectropion is evidenced clearly. The corneal fusions in form of plugs are observed in nostrils and auditory pathways.

Expressed formation of scaly crusts is left for whole life. Periodically, once per 3-4 months the peeling-off is noticed. The patients with heritable ichthyosis have underlying risk for impetiginous infection, especially in childhood. Differential diagnostics is carried out with lamellar ichthyosis and range of syndromes such as Rode's syndrome, Refsum's syndrome and others.

The curing is the same as for ichthyosis vulgaris.

Brok's congenital ichthyosiform erythroderma. Congenital ichthyosiform erythroderma has bullous and non-bullous clinical form and belongs to group of ichthyosiform diseases. It is inherited by autosomal-recessive type. In recent days in medical literature a non-bullous (dry) form is called as lamellar ichthyosis and a bullous one is called as congenital porcupine skin, congenital ichthyosiform epidermolysis, and congenital universal acanthokeratolysis.

Non-bullous (dry) ichthyosiform erythroderma is evidenced with birth of child. The surface of newborn's skin reminds colloidal film or sheepskin. Corneal layer is yellowish-green, some retracted, at first movements it begins to broke and during few days or weeks is detached by large layers so some children could recuperation happen.

Bullous ichthyosiform erythroderma is characterized by expressed inflammatory evidences, especially in folds of skin. The disease begins from birth. The newborn has a skin of red color at first time, such skin is soft, manageable, wet but it becomes dry fast and in area of large folds the bullae, areas of hyperplastic peeling-off of skin appear, the superficial anabrosis are cropped out.

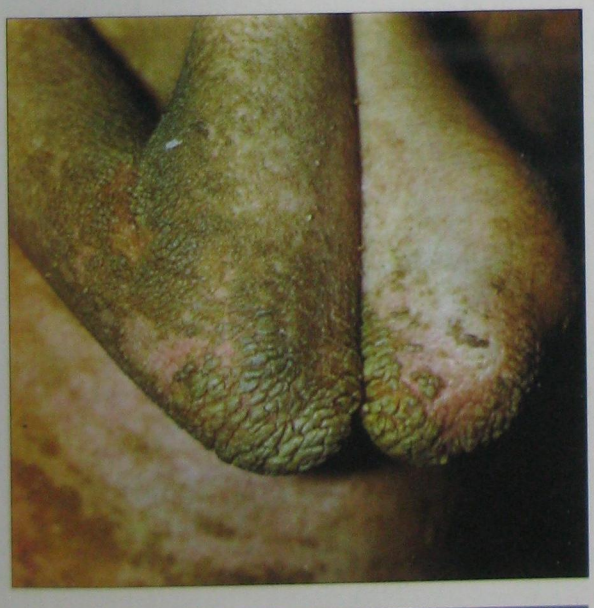


Fig. 19.5. Congenital ichthyosiform erythroderma.

Histologically the massive hyperkeratosis is evidenced in which the conglomerates of spinous cells with indistinct borders are involved. The spontaneous arrangement of epithelial cells and absence of border between epidermal cells is observed in injured areas in spinous layer. Spinous cells are burned-out and have no connection between each other.

At carrying out the differential diagnostics with ichthyosis vulgaris the attention is obligatory paid to the fact that at ichthyosis vulgaris the folds of skin are remain free of injuries. At distinguishing from bullous epidermolysis it is taken into consideration that there are no erythroderma and bullae appear on places of mechanical irritation. Epidermal pemphigus of newborns (staphylococcus) is accompanied by high temperature and occurrence of bullae on erythematous and edematous background.

Principles of curing of congenital ichthyosiform erythroderma are the same as principles of curing of ichthyosis vulgaris but for enhancement of further prognosis it is reasonable for the patients to assign one of the oral steroids right after determination of diagnosis (not later than ten days after birth).

At ***bullous ichthyosiform erythroderma*** of children older than ten years at spread bullae the positive effect is observed at assigning per os of sulfanilamide drugs in curative doses to bullae disappearance and the dose is further decreased up to the maintenance one.

1. Name the diseases belonging to congenital ones:

A. Atopic dermatitis
B. Lichen acuminatus
C. Strumoderma
D. Ichthyosis vulgaris
E. All of mentioned above is correct

2. The basis of genodermatosis are:

A. Somatic mutations
B. Genetic mutations
C. Induced mutations
D. Chromosomal mutations
E. All of mentioned above is correct

3. Congenital ichthyosis is evidenced by:

A. Bullae and peeling-off
B. Papules and plaques
C. Nodules and ulcerations
D. Lichenification
E. All of mentioned above is correct

4. Regular ichthyosis is characterized by:

A. Symmetric location
B. Unique contour of palms
C. Symmetric location and unique contour of palms only
D. Injury of mucosal coats
E. All of mentioned above is correct

5. The group of genetically conditioned ichthyosis includes:

A. Xerodermia
B. Symptomatic ichthyosis
C. Senile ichthyosis
D. Lichenification
E. All of mentioned above is correct

6. The following are the clinical forms of ichthyosis vulgaris:

A. Follicular
B. Nacreous
C. Xerodermia
D. Serpentine
E. All of mentioned above is correct

7. The following belongs to the group of bullous epidermolysis:

A. Hyperplastic form of dominant dystrophic congenital bullous epidermolysis
B. Albopapuloid variant of dominant dystrophic congenital bullous epidermolysis
C. Atrophic variant of dominant dystrophic congenital bullous epidermolysis
D. Autosomal-recessive bullous epidermolysis
E. All of mentioned above is correct

8. What clinical form the ichthyosis vulgaris has no:

A. Follicular
B. Xerodermia
C. Nitida
D. Lenticular
E. Serpentine

9. Individual care at ichthyosis does not provide of assigning of:

A. Vitamins A, E, C
B. Clotrimazole
C. Ultraviolet irradiation
D. Hydrotherapy
E. Prednisolone

Task 1. Since 11 days after birth the girl was discovered the anabrosis on buttock (conditioned by breech presentation) and bullae near the nails of first fingers. The bullae began to spread fast. Because of this the antibiotics were assigned which were no effect. There were no similar diseases in her family before.

a) What disease is talking about:
- **A.** Regular generalized bullous epidermolysis
- **B.** Albopapuloid variant of dominant dystrophic congenital bullous epidermolysis
- **C.** Atrophic variant of dominant dystrophic congenital bullous epidermolysis
- **D.** Delayed bullous epidermolysis
- **E.** Pemphigus

b) Give a prognosis of disease

Task 2. Two-year boy since first days after birth has strained bullae of from 4 to 6 cm in size on places of tight enclosure of clothes. The bullae are filled up with serous and serosal-hemorrhagic content. The Nikolsky's sign is positive. The familial anamnesis regarding skin diseases is not severed.

a) What diseases should be excluded:
- **A.** Congenital bullous ichthyosiform erythroderma
- **B.** Epidemic pemphigus and pemphigus syphiliticus
- **C.** Acrodermatitis enteropathica
- **D.** Congenital erythropoietic porphyria
- **E.** All of mentioned above is correct

b) Assign a curing for the patient.

Task 3. Twelve-year boy since three-month age the dryness of skin appeared especially expressed on the extensor surfaces of upper and lower extremities. The skin of mentioned areas is covered by gentle whitish crusts tightly connected with underlying skin in center and perched by periphery. Similar disease father has but it is less evidenced.

a) What disease is talking about:
- **A.** Divergee's disease
- **B.** Ichthyosis vulgaris
- **C.** Bullous ichthyosiform erythroderma
- **D.** Non-bullous (dry) ichthyosiform erythroderma
- **E.** Divergee's disease

b) What diseases the differential diagnostics should be carried out with?

Task 4. Thirteen-year girl has all her skin excluding natural folds dry, covered by fusions of silver-white crusts central part of which is tightly enclosed with underlying skin and accordingly of darkest color. The evidenced folding of epithelium is on belly-band surfaces of body. The skin of face is dry and strained («face of doll»).

a) What diagnosis will you make:
- **A.** *Ichthyosis follicularis*
- **B.** *Xerodermia*
- **C.** *Ichthyosis nitida*
- **D.** *Ichthyosis serpentine*
- **E.** *Ichthyosis hystrix*

b) What curing should be assigned?

Task 5. The patient of 25 years old who is injured since early childhood (as far back as he can remember) has all his skin dry, including palms and feet, it is covered by flat flake-crusts, which tightly enclosed with underlying skin. The ciliae are inverted, concha of auricles are deformed.

a) What is the most possible diagnosis in this case:
- **A.** Congenital ichthyosiform non-bullous erythroderma
- **B.** Divergee's disease
- **C.** Bullous ichthyosiform erythroderma
- **D.** Weber-Coccain's syndrome

b) What diseases this disease should be distinguished with?

Answers for first level self-control questions
1 – D; **2** – E; **3** – A; **4** – C; **5** – A; **6** – E; **7** – E; **8** – D; **9** – B
Answers for second and third level self-control questions
1a – A; **2a** – E; **3a** – B; **4a** – B; **5a** – D

20 TOPIC

Diseases of hairs

Group of dermatosis to which the diseases of hairs belong is very miscellaneous either by causation with pathogenetic mechanism and by clinical course with prognosis. There is no uniform universally recognized classification of diseases of hairs for the now. It is recommended to separate defluxions and pathologies of hairs by the following groups and subgroups:

1. Non-heritable defluxions – Alopecia areata, androgenic or seborrheal, symptomatic pelade (syphilous, leprous, toxic, including postpartum, after abstinence from food etc.).

2. Heritable defluxions (complete or partial) – hereditary syndromes including hypertrichosis (Gottorn's familial acrogeria), anhidrotic ectodermal dysplasia, Conradi disease, Bushe-Fischer's keratoderma, Grobe's syndrome, Unna's syndrome, trichrinophalangeal syndrome, curly hairs' syndrome, Rothmund's syndrome, and Werner's syndrome.

3. Monilethrix or moniliform hair – heritable, as a rule, familial dystrophy of hairs and hair follicles.

4. Cicatrical alopecies – pseudopelade Brocq, lupus erythematosus, Lassueu-Little syndrome, alopecia after X-ray irradiation.

5. Dystrophies and anomalies of growth of hairs – clastothrix, trichoptilosis, twisted hair, trichiasis, burrowing hairs, Nethertone's syndrome.

6. Hypertrichosis non-heritable and heritable (universal and partial), could be one of the symptoms of Morgagni's syndrome, Paraundler-Gurlier's disease, Stein-Levental's syndrome, Recklinghausen's disease, Arnold-Chiari malformation, hypertrichosis in climacterical period.

7. Mycotic lesions of hairs (microsporia, trichophytosis, favus).

TRAINING AND EDUCATIONAL GOALS

- Determine possible conditions and trigger factors of occurrence of hairs' diseases
- Determine the particularities of different diseases of hairs
- Notice and understand general course of different diseases of hairs
- Determine clinical particularities of typical evidences of hairs' diseases for different groups
- Determine the principles of ethiopathogenetic therapy and preventive measures for occurrence of hair's diseases

20 Alopecia

Alopecia or pelade is a partial or complete heritable or non-heritable absence of hairs. The non-heritable alopecia includes areata, androgenic, seborrheal, syphilous, leprous, toxic, symptomatic, including postpartum, after abstinence from food etc. The group of heritable alopecia includes congenital syndromes which are hypertrichosis, anhidrotic ectodermal dysplasia, Conradi disease, Grobe's syndrome, Unna's syndrome, trichrinophalangeal syndrome, curly hairs' syndrome, Rothmund's syndrome, and Werner's syndrome. There are also cicatrical alopecies – pseudopelade Brocq, lupus erythematosus, Lassueu-Little syndrome, alopecia after X-ray irradiation.

TO KNOW:

- modern conceptions of aetiopathogenesis of clinical forms of alopecia;
- factors precipitating the progression of this disease;
- principle of classification of alopecia;
- symptomatology of different clinical forms of alopecia;
- clinical-laboratory diagnostic criteria of determination of hair's pathology;
- pathomorphological changes in skin at different forms of alopecia;
- general and local approaches of therapy and principles of curing and preventive measures at different forms of alopecia.

TO BE ABLE TO:

- carry out the material intake and determine the structure of hairs correctly;
- carry out the differential diagnostics with diseases having similar clinical presentation;
- assign corresponding laboratory examinations required for confirmation of diagnosis;
- assign balanced curing for the patient taking into consideration his or her age and sex;
- advice required preventive measures of alopecia.

Pathological loss of hair is an obligatory deterministic regular sign of disease at one dermatosis (alopecia areata, pseudopelade Brocq) and non-obligatory and non-regular at other ones (lues venerea, lepromatous leprosy).

Alopecia areata

Alopecia areata, synonyms: alopecia, focal pelade, Cazenae's vitiligo is a widespread form of non-heritable alopecia which is evidenced by spontaneous focal or total loss of hair without occurrence of inflammation, cicatrization and atrophy of skin caused by influence of different pathological factors.

Aetiopathogenesis. The causation and pathogenetic mechanism of alopecia areata are not determined to a full degree. The possible factors include failure of immune status, neurotrophic and endocrine disorders, especially from pituitary-adrenal system, stresses, chronic and acute intoxications, injuries, results of surgical aggressions, presence of chronic focal infection etc.

Unpredictability of course of disease, vast number of clinical forms, presence of numerous comorbid conditions which significantly influence on course of dermatosis, make the explanation of cases of alopecia areata by only reason impossible which is evidence of polygenicity of this disease.

Epidemiology. Incidence of alopecia areata is 3-5% of the total number of dermatosis, the young people suffer mostly but there are cases of alopecia areata of babies and elderly persons also known. According to data of some authors, the incidence of men and women is approximately the same and according to results of others the alopecia areata is mostly encountered of women.

Classification. There are following clinical forms of alopecia areata:

focal – presence of separate or numerous allocated focuses of pelade with round-shaped contours on skin of hairy part of head;

subtotal – there is no hair on the most part of surface of hairy part of head (square of pelade is more than 2/3 of scalp's surface, only separate "bushes" of hair are left);

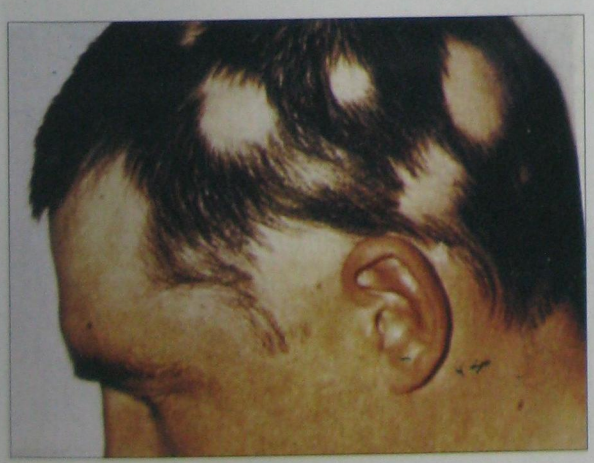


Fig. 20.1. Focal pelade.

total – absence of hair on whole surface of head;

universal – absence of hair on all surface of skin;

band-like or Celsius ophiasis – absence of hair in marginal layer of growth in area of hindhead and temporal fossa.

Clinical findings. Alopecia areata is characterized by focuses of loss of hair of round or oval shape without evidences of cicatrization and atrophy of skin. The

skin in lesion focuses has normal painting (could has pink tone at beginning of disease or be edematous), there are no evidences of peeling, the follicle apparatus is saved.

There are three stages of clinical course of alopecia areata depending on activity of pathological process:

progressive – random loss of hair and presence of area of «loose» hairs on periphery of pelade focuses is observed (at pulling by hairs their painless epilation occurs), there are burned-out recurrently splitting hairs discovered at microscopic examination having no radicular pore;

stable – the random loss of hair is stopped, area of "loose" hairs is not determined, at attempting of mechanical epilation the hairs stay in skin solidly, the growth of hairs in focuses of pelade is absent;

regressive – the growth of hairs in focuses of pelade is observed, the prenatal ones at first instance.

Course and prognosis. At the beginning of disease it is hard to foretell the further course of alopecia areata. Sometimes after 2-4 months of existence of focuses of pelade the growth of hair in affected areas is restored gradually. At first the discolored prenatal hairs grows, then they are pigmented and grows again reaching the length of normal hairs. But more often takes the malignant, chronic, recurrent course. Repeatable back-sets cover new areas and could lead to complete loss of hair. Thus, focal form of pelade is transformed into total one which is often occurs in children or juvenile age.

Pathomorphology. Histological changes at the beginning of disease are mostly in hair follicles: root sheathes are separate from connective tissue membranes of follicles, the structure of outer and inner root sheathes is broke, hair papilla is mummified, and the hair bulb is deformed. The lymphocytic infiltration is formed around the hair

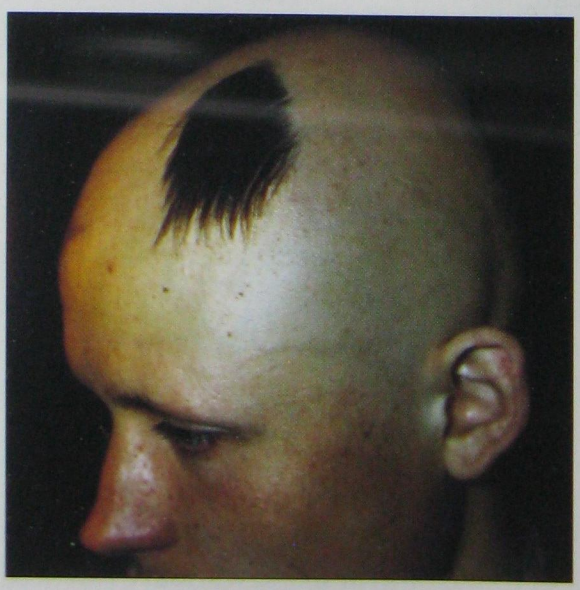


Fig. 20.2. Subtotal pelade.

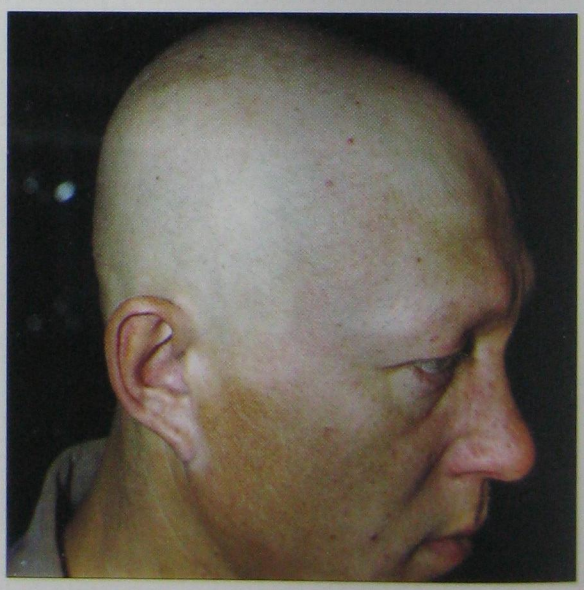


Fig. 20.1. Total pelade.

follicles. Significant changes happen also in nervously-receptor apparatus of skin: numerous nerve terminals located near the hair follicles are destroyed.

The pathomorphological presentation at stable stage is changed: the perivascular lymphohysteocytic infiltrations and enlarged capillary vesicles with thickened walls, partially non-functioning are discovered in dermis. The number of reduced hair follicles is increased; there are residues of hairs in view of striker and accumulations of corneal masses found in its openings. However, most of these follicles remain the ability for formation of hair. At regression of disease the proliferation and restoration of vesicles, hairy and nervously-receptor apparatus processes are in skin.

Diagnostics. The diagnosis of alopecia areata in most cases is not so hard to determine and could be verified by the means of microscopic examination – discovering of burned out hairs and hairs in view of striker.

Differential diagnostics. At presence of patient of pelade locuses' large number on his head it is necessary to exclude secondary syphilis. Lupus erythematosus could remind alopecia areata. In this case it is necessary to carry out the biopsy of patient's skin. At absence of hairs in view of striker and at presence of peeling of skin the dermatomycosis should be excluded. The alopecia areata should be also distinguished with congenital atrophy of scalp, leprous and toxic alopecia. Often the alopecia areata should be distinguished with androgenic alopecia for which the progressive thinning and diffuse loss of hair, signs of hirsuties and acne, significant increasing (up to 30%) of number of hairs which are in stage of telogen are typical.

Curing. Not all clinical forms of alopecia areata could be influenced by therapy. The most favorable prognosis regarding clinical recovery the patients with located clinical forms of pelade have.

Anticipate nature of course of alopecia areata, necessity of long-lasting treatment and refresher courses condition the including in complex therapy of zinc, cuprum, ferrum drugs, and drugs enhancing microcirculation. The photosensitizers – furocoumarins (meladynine, amifurin, psorelen, psoberan, beroxane and others) are used at curing of patients with alopecia areata. The modification of this approach is combined abuse of furocoumarins with ultraviolet irradiation–PUVA-therapy. It is should be noticed that abuse of furocoumarins could cause to range of complications of patients with alopecia areata such as strong headaches, sleeplessness, soreness, vomiting, biliousness, and albuminorrhea.

The assigning to the patients with alopecia areata of corticosteroids is justified at malignant course of disease only.

More often these patients are being assigned the corticosteroid medicines directly into lesion focuses by the way of pharmacopuncture.

Large group of drugs used at curing of alopecia areata are the topic stimulating drugs causing the erythema and improving the metabolism in lesion focuses.

The local abuse of minoxilide hypotensive drug as a stimulator of hairs' growth is efficient. It is reasonable to include in plan of therapy of patients with alopecia areata

the physiotherapeutic approaches – cryomassage by liquid nitrogen, phonophoresis with vitamins and corticosteroids, ultraviolet irradiation, freezing by chlorethyol (to appearance of rime frost), reflexotherapy and sanatorium-resort therapy.

Alopecia seborhoica

Alopecia seborhoica is a form of non-heritable alopecia which is evidenced by progressive loss of hair without evidences of cicatrization and atrophy of skin on the background of stable seborrhea.

Aetiopathogenesis. It is not determined definitively. The possible causative factors include genetic disposition, endocrinal disorders, malfunction of reproductive glands, butterfly adrenal, thyroid body, nervous, immune, alimentary systems, hypertrophia and hypersecretion of oil glands, and change of quality of sebaceous matter. The disease of different intensity begins mostly in adolescence; the patients are both men and women.

Clinical findings. The most reason of progress of alopecia seborhoica is a seborrhea. At this, clinical course and progression of complications are depends on form of seborrhea.

Course and prognosis. The course of disease has chronic nature with short-term incomplete remissions in summer period. More often the process progresses very slowly but implacable. At condition of efficient curing of seborrhea on the background of which the alopecia seborhoica is progresses the prognosis is favorable.

Pathomorphological mechanism. At histological examination the patients with alopecia seborhoica the extremely evidenced in openings of follicles hyperkeratosis, acanthosis, and spongiosis of cells of epidermis' spinous layer are discovered in lesion focuses. The perivascular and perifollicular lymphohysteocytic infiltrates (located more superficially than of patients with alopecia areata) are observed in superficial layers of dermis. The openings of oil-hair follicles are enlarged and filled up with corneal masses.

Diagnostics. It is based on the typical clinical representation, microscopic and histological examination (presence of atrophied hair follicles).

Differential diagnostics. The lupus erythematosus at location of lesion focuses on skin of hairy part of head could remind the alopecia seborhoica. It is necessary to carry out biopsy examination of patient's skin for clarification of diagnosis; in addition, at lupus erythematosus the skin in locuses of pelade is reddened, the follicular hyperkeratosis, peeling, and atrophy with strict borders are.

If patient has large number of fine focuses of pelade on the head the secondary syphilis should be excluded. In such cases it is necessary to find another signs of syphilis and carry out the serologic examination.

The alopecia seborhoica is distinguished from congenital atrophy of scalp by a fact that it is non-heritable disease which is not accompanied by abnormal development. Often the alopecia seborhoica should be distinguished with androgenic alopecia for which the genetic predisposition, progressive thinning and diffuse loss of hair, signs of hirsuties and acne (for women) are typical.

Curing. The complex examination is obligatory and curing of interfacing specialists (gastroenterologist, endocrinologist, gynecologist and others) in case of discovering of pathology.

The nutritional care is assigned for the patients (limitation of carbohydrates, fat and extractive products), anxiolytics. The medicine drugs of zinc, cuprum, ferrum, as well as drugs improving microcirculation and vitamins are used in order to normalize the functioning of oil glands. The significant role the reasonable care for skin and hairs plays. In cases of seborrhea adiposa the skin is lubricated by solution of salycilic acid, resorcinol, tincture of marigold. It is reasonable to use the combined corticosteroid unctures or creams containing antifungal agent. The shampoos containing the ketoconazole and urea are used locally.

Androgenetic alopecia

Androgenic alopecia (*alopecia praematura*), ***synonyms: regular alopecia, psilosis, androgenetic alopecia, alopecia presenilis, male pattern baldness*** is an immature progressive loss of hair.

Aetiopathogenesis. Androgenic alopecia is caused by genetically determined increasing of sensitivity of hair follicles' cells to influence of androgenic hormones and increasing of activity of 5-б-oxidoreductase. The men have the androgenic alopecia is conditioned by autosomal-dominant gene with different penetrance but the polygenic type of inheritance is not excluded. Women have the autosomal-recessive type of inheritance.

Epidemiology. This is most widespread type of loss of hair which diseases both men and women; however it is more often discovered of men.

Clinical findings. The disease of men began in adolescence. The process progresses slowly but implacable and ends by formation of pelade in age of 35-40 years.

There are five stages of alopecia by male pattern:

I stage – front line of hairs is going back;

II stage – thinning hair in temporal areas in view of "M" letter (if you are looking from the top) and in parietal region;

III stage – diffuse loss of hair in central-parietal region;

IV stage – the hairs are left between frontalis and central-parietal areas only;

V stage – complete symmetric pelade of frontalis and parietal area.

Women have first signs of disease at age of 20-30 years, and the full-scaled picture is formed in premenopausal age. Clinical presentation of androgenic alopecia is characterized by thinning hair in central-parietal area and its saving in frontalis and temporal areas as well as by signs of hirsuties and acne.

There are three stages of alopecia by female pattern:

I stage – insignificant thinning hair;

II stage – mediate thinning hair;

III stage – significant thinning hair.

Course and prognosis. The course of androgenic alopecia is characterized by sequence of periods of back-sets and remissions. At this, the rising of activity of oil glands, painfulness, and paresthesias in area of hairy part of head are observed. The process is more often progresses slowly but implacably. The prognosis regarding to restoration of hairs in lesion focuses is unfavorable.

Pathomorphological mechanism. At histological examination it is discovered that hair follicles are smaller in size, miniaturized, and some of them are atrophied.

Diagnostics. The diagnosis of androgenic alopecia is based on typical clinical presentation (progressive thinning and loss of hair, signs of hirsuties and acne) with taking into consideration of anamnesis (genetic predisposition), microscopic and histological examination (misbalance between hair follicles in stage of anagen and telogen to the side of the last one, presence of miniaturized hair follicles).

Differential diagnostics. In contradistinction with androgenic alopecia the alopecia areata is characterized by focuses of loss of hair with roundly or oval form without evidences of cicatrization and atrophy of skin, discovering of burned out hairs and hairs in view of striker at microscopic examination.

Symptomatic or telogen alopecia is conditioned by influence of range of endogenic and exogenic factors (stress, significant loss of blood, surgical maneuver, abuse of some medicamental drugs, inflectional diseases and others). It is characterized by diffuse loss of hair continuing from three months to one year and, as a rule, ends by complete recovery of hair growth.

The diffuse loss of hair, inflammatory evidences of different intensity, peeling, pruritus of skin of hairy part of head, excoriations and hemorrhoidal crusts, and jointing of secondary infection are typical for alopecia seborhoica.

If patient has large number of fine focuses of pelade on the head the secondary syphilis should be excluded. In such cases it is necessary to find another signs of syphilis and carry out the serologic examination.

Curing. The complex examination is obligatory and curing of interfacing specialists (gastroenterologist, endocrinologist, gynecologist and others) in case of discovering of pathology. The curing of androgenic alopecia is low-efficient but in cases of early abuse of calcium, zinc, methionine medicaments, approaches of outer stimulating therapy the decreasing of loss of hair could be observed during several

years. The positive effect is observed at using of as stimulator of hair growth or men. Recovery of hair growth is conditioned by synergizing effect of stimulation of follicle epithelium and suppression of immunological reactions mediated by T-lymphocytes.

At curing of pelade of men the antiandrogens (finasteride) suppressing the activity of 5-б-oxidoreductase are used. At hormonal disorders of women with androgenetic alopecia the assigning of hormone replacement therapy is justified, which gives valuable therapeutic effect. In recent years the approaches of surgical aggression are used widely for transplantation of hairs.

Pseudopelade Brocq or atrophic alopecia

Pseudopelade Brocq (*pseudopelada Brocq, alopecia atrophicans, synonyms: cicatricial atrophic pelade*) is a non-heritable form of alopecia which is evidenced by focal loss of hair which is accompanied by cicatrization and atrophy of skin.

Aetiopathogenesis. The causation and pathogenetic mechanism are not determined definitively.

Epidemiology. The disease occurs mostly at 35-40 years age. The both men and women are suffered.

Clinical findings. The disease begins from appearance of fine cicatricial-atrophic asymmetrically located focuses of pelade which are enlarge in sizes, get irregular crenated contours, and interlock between each other. At the incursion of disease the mediate perifollicular hyperemia, and then the atrophy of skin without evidences of inflammation (skin gets yellowish color, becomes smooth, easily folded) and peelings are observed in lesion focuses, the follicular apparatus is destroyed. Sometimes the separate visually unchanged long hairs are encountered in center of lesion focuses. The patients with pseudopelada Brocq have no subjective sensations.

Course and prognosis. The process progresses slowly but implacable. After some time the loss of hair stops, there is no complete pelade. However, the prognosis regarding the recovery of growth of hair in lesion focuses is unfavorable.

Pathomorphological mechanism. At histological examination of patients with pseudopelada Brocq the acute atrophy of epidermis, the destroyed oil-hair follicles, the perivascular and perifollicular lymphohysteocytic infiltrates located more superficially than of patients with alopecia areata in dermis, and the follicular hyperkeratosis in some places are discovered.

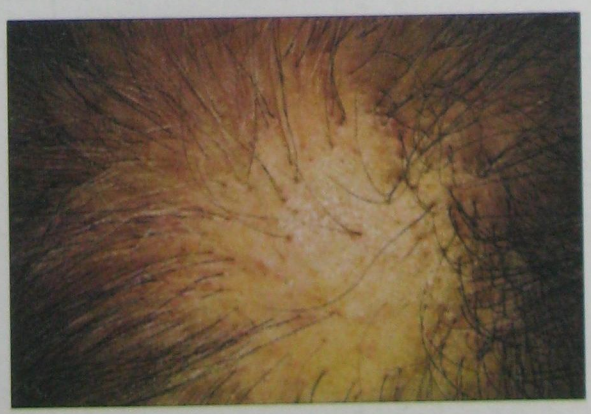


Fig. 20.4. Pseudopelada Brocq.

Diagnostics. It is based on typical clinical representation and could be confirmed by the means of histological examination.

Differential diagnostics. The lupus erythematosus at location of lesion focuses on skin of hairy part of head could remind the pseudopelada Brocq. It is necessary to carry out the biopsy of the patient's skin for confirmation of diagnosis. At lupus erythematosus the skin in locuses of pelade is reddened, the follicular hyperkeratosis, peeling, and atrophy with strict borders are.

In contradistinction with pseudopelada Brocq, the alopecia areata is characterized by focuses of loss of hair of round or oval shape without evidences of cicatrization and atrophy of skin.

If patient has large number of fine focuses of pelade on the head the secondary syphilis should be excluded. The pseudopelada Brocq is distinguished from congenital atrophy of scalp by a fact that it is a non-heritable disease which is not accompanied by abnormal development.

Curing. The cicatricial alopecies are nonreversible so in most cases the curing is not efficient.

For curing of patients with pseudopelada Brocq there are medicamental drugs of vitamin A1 acid (roaccutane, acnetine) used. It is also reasonable to use the physic-therapeutic approaches such as indirect diathermy or neodiathermy of neck sympathetic ganglions and dorsolumbar area, cryomassage by liquid nitrogen etc. The important part of complex curing is a reasonable care for hairs (using of medicated shampoos) and refuse from social habits (smoking, abuse of alcohol and others).

1. The non-heritable alopecies does not include:

A. Alopecia seborhoica
B. Celsius circles
C. Syphilitic alopecia
D. Conradi disease
E. Androgenic alopecia

2. Absence of atrophy and peeling in focuses of pelade is typical for:

A. Pseudopelada Brocq
B. Alopecia areata
C. Lupus erythematosus
D. Superficial Tinea capitis
E. Conradi disease

3. The following diseases proceed with evidences of atrophy of skin of hairy part of head:

A. Pseudopelada Brocq
B. Alopecia areata
C. Androgenic pelade
D. Seborrheal pelade
E. Mycotic lesions of hairs (microsporia, trichophytosis, favus)

4. Which clinical form the pelade areata does not has:

A. Focal
B. Total
C. Universal
D. Band-like or ophiasis of Celsius
E. All of mentioned above is correct

5. At second stage of androgenetic alopecia by male pattern the following is observed:

A. Displacement of front hair line back
B. Thinning of hair in temporal areas in view of "M" letter and in parietal region
C. Diffuse loss of hair in central-parietal region
D. Presence of hairs between frontalis and central-parietal region only
E. Complete symmetrical pelade of frontalis-parietal area

6. Presence of area of "loosen" hairs is typical for:

A. Cicatricial alopecia
B. Stationary stage of alopecia areata
C. Progressive stage of alopecia areata
D. Conradi disease
E. Lupus erythematosus

7. Possible causative factors of progression of alopecia seborhoica include:

A. Genetic disposition
B. Endocrinal disorders
C. Malfunction of reproductive glands
D. Hypertrophy and hypersecretion of oil glands, change of quality of sebaceous matter
E. All of mentioned above is correct

8. What disease the focal alopecia should be distinguished with:

A. Pityriasis versicolor
B. Psoriasis
C. Syphilitic alopecia
D. Lice infestation
E. Herpes zoster

9. The indications for cryomassage are:

A. Alopecia areata (stage of regress)
B. Round-typed alopecia (progressive stage)
C. Herpetic injuries of skin of hairy part of head
D. Pseudopelada Brocq
E. Mycotic lesions of hairs (microsporia, trichophytosis, favus)

10. The cryomassage:

A. Calls a pathophysiological changes in skin
B. Improves the blood circulation and trophic of skin
C. Has antifungal properties
D. Has antibacterial effect
E. Restores the innervation of tissues

Task 1. The female patient of 34 years old had consulted with dermatologist with complains for enhanced loss of hair. *From anamnesis*: had affected about three months ago when suddenly appear at first one focus on the hindhead and after month – numerous focuses of alopecia on whole surface of head. The inheritance is clear. At dermatological examination the fact was discovered that alopecia focuses have rounded contours, size of 1-4 cm in diameter and located on whole surface of head. The skin in affected places is of normal color, the hair follicles have no pathological changes. The area of "loosen" hairs is discovered by periphery of focuses of alopecia. Nail plates are burned out, nycterine and fragile.

a) Determine the provisional diagnosis:
- **A**. Alopecia areata, focal form
- **B**. Alopecia areata, total form
- **C**. Alopecia areata, universal form
- **D**. Ophiasis of Celsius
- **E**. Alopecia areata, subtotal form

b) What diseases the differential diagnostics should be carried out with?

Task 2. The male patient of 19 years old is at outpatient medicine regarding to pelade. *From anamnesis*: had affected at first year of life, lost his hairs during two months from hairy part of head, body, as well as eyebrows. Patient had cured repeatedly in hospital stay and as outpatient curing but there was no positive effect from therapy having been implemented. No trauma or operations. The inheritance is clear. At dermatological examination the absence of hair on head, body, and extremities is discovered. Eyelashes and eyebrows are saved. The skin of hairy part of head has no fire and atrophy. Follicular apparatus is completely saved. Complete lamination of nail plates is discovered.

a) Determine the provisional diagnosis:
- **A**. Alopecia areata, focal form
- **B**. Alopecia areata, total form
- **C**. Alopecia areata, universal form
- **D**. Ophiasis of Celsius
- **E**. Alopecia areata, subtotal form

b) Determine the patient surveillance.

Task 3. The male patient of 43 years old is at outpatient medicine with complains for presence of focuses of pelade. *From anamnesis*: had affected 11 years ago when after severe bronchopneumonia during three weeks all hairs of the head and body as well as eyelashes and eyebrows have been lost. Patient had cured repeatedly in hospital stay and as outpatient curing. Had passed the course of endocrinotherapy (had intake per os of prednisolone according to the schedule during two months), the plasmapheresis, hemosorption, vasodepressors, and vitamins have been assigned but there was no positive effect from therapy having been implemented. *Unbiased*: the patient has absence of all types of hairs (on head, mentum, body, extremities, in inguinal folds as well as eyelashes, eyebrows and mustache) observed. The skin of hairy part of head is of normal color, with no evidences of fire and atrophy. Follicular apparatus is completely saved. The nail plates are burned out; the complete lamination of nails is observed on fingers of upper extremities.

a) Determine the provisional diagnosis:
- **A**. Alopecia areata, focal form
- **B**. Alopecia areata, total form
- **C**. Alopecia areata, universal form
- **D**. Ophiasis of Celsius
- **E**. Alopecia areata, subtotal form

b) Make a plan of examination of patient and give a prognosis regarding to recuperation.

Task 4. The male patient of 24 years old had come for visit of dermatologist with complains for presence of focus of pelade and enhanced loss of hair. There are no subjective sensations. It is known from anamnesis that the disease had begun from occurrence of two fine symmetrically located focuses of pelade which are slowly enlarged and interlocked between each other. Unbiased: there is a round focus of pelade of up to 4 cm in size with evidences of skin's atrophy without signs of fire is discovered on temporal-occipital region of the hairy part of head. The skin in area of affection

is of yellowish color, smooth, and easily folded. The follicular apparatus is destroyed.

a) What is the provisional diagnosis could be though about:

A. Alopecia areata, focal form
B. Alopecia areata, subtotal form
C. Alopecia areata, total form
D. Ophiasis of Celsius
E. Pseudopelada Brocq

b) What examinations should be carried out for clarification of diagnosis?

Task 5. The female patient at dermatological examination had got the "alopecia areata, focal form, progressive stage" diagnosis.

a) What diseases the differential diagnostics should be carried out with:

A. Pityriasis versicolor
B. Psoriasis
C. Lupus erythematosus
D. Syphilitic alopecia
E. Herpes zoster

b) Determine the policy of curing and preventive measures.

Answers for first level self-control questions
1 – D; 2 – B; 3 – A; 4 – E; 5 – B; 6 – C; 7 – E; 8 – C; 9 – A; 10 – B
Answers for second and third level self-control questions
1a – A; 2a – B; 3a – C; 4a – E; 5a – D

21 TOPIC

Peculiarities of skin in children of tender age

TRAINING AND EDUCATIONAL OBJECTS

- Determine the physiological and morphological characteristics of the skin, its appendages and mucous membranes under normal conditions and in various pathological conditions in children of tender age
- Set display of hormonal crisis and major skin diseases of newborns
- Learn the basic general and special methods of examination in children of tender age

TO KNOW:

- peculiarities of anatomical and histological structure of the skin, its appendages and mucous membranes of the oral cavity in children of tender age;
- characteristics of the functional properties of the skin in children of tender age;
- clinical varieties of pathophysiological changes in children of tender age (telangiectasia, mongolian spots, dark line, physiological jaundice, physiological erythema, etc.);
- clinical characteristics of the manifestations of hormonal crisis and major skin diseases in children of tender age;
- methods and principles of medical and preventive measures in case of skin diseases in children of tender age.

TO BE ABLE TO:

- properly collect past medical history and examine the newborn child;
- distinguish between the types of pathological conditions in children of tender age;
- analyze the clinical picture of the main skin diseases in children of tender age;
- carry out differential diagnosis of diseases that have similar clinical picture;
- prescribe a rational treatment in case of detection of skin diseases in children of tender age.

General state of the skin, its appendages and genital organs in new-born children

The skin of a healthy new-born child is red, covered with more or less thick layer of grayish-yellow tyroid oily viscous mass called *vernix caseosa*. It is available on the entire surface of the skin, but is most pronounced on the skin of face, ears, lower back, groin, armpit areas, and the back surface of the body. The composition of *vernix caseosa* includes modified epithelial cells, soluble esters and fats, cholesterol, eleidin, glycogen.

Hair-covering. Immediately after the birth, the major part of the child's skin is covered with soft pappus (*lanugo*), which comes off to the birth or in the first week of life. The head can be covered mostly dark thick hair coming down to the forehead.

Nails. Nails of the new-born children reach the fingertips, but their weaker development does not give grounds to speak of prematurity. Nails may be missing in premature children.

Umbilicus. Umbilical cord is mummified and separated by 6 to 10 days after birth at the junction of the mucous cord with abdomen skin. Blood vessels of the umbilical cord are obliterated only at the end of the third week of life.

Dilatation of capillaries (telangiectasiea, *teleangiectasiea*). Telangiectasia is registered in 50% of new-born children in the form of dilatation of both individual vessels and groups of capillaries at the level of the skin – this is the spot, like a flat hemangioma. Dilatation of blood vessels is a physiological phenomenon. These vessels are located mainly on the back of the head, forehead, nose, eyelashes and lips.

Mongolian, or blue spots (*taches bleues mongoliques*). Mongolian spots are not signs of pathology and have a tendency to self-extinction. Most often, they are located in the sacrum area, at least in the area of the shoulder blades and buttocks. These are more or less dark bluish non-infiltrates spots on which there is no hair and which do not disappear when pressing them.

Dark line *(linea fusca)*. Often between the second and eighth, and most often between the third and sixth weeks of life the children have thin pigmented strip in the midline abdomen that covers the umbilicus, and self disappears in two or three months. Pigmentation on the white line of the abdomen (*lineae albae*) often occurs in a later age.

Physiological erythema of new-born children *(erythema neonatorum)*. As one of the organs which directly experiences a variety of external factors, the skin of new-born child responds to them in the form of different manifestations. After removing of *vernix caseosa* skin of the new-born child is pale cyanotic, and after the first few breaths it turns bright red. In case of true *erythema neonatorum* skin of the whole body gets the color of boiled crawfish. Usually the erythema disappears on the third day of life, then there is a common skin peeling. Cyanotic color remains only on

the hands and soles. Erythema of new-born children is called *physiological inflammation of the skin of newborns*. Erythema – is a direct result of exposure to environmental factors, it is an adaptive response to a sudden change in the conditions of existence.

Physiological jaundice *(icterus neonatorum)*. A few days after birth (on the 2-4 day of life in 60-80% of children), the skin becomes yellowish. If the general condition of the child is not violated, then this yellow color does not matter. Yellowness reaches peaks within 2-3 days, and then weakens and disappears after a few days without treatment. It is believed that the cause of such condition is an increase of the level of bilirubin due to the destruction of red blood cells associated with the transition from placental to pulmonary routes of oxygen delivery in the body

Physiological peeling *(desquamatio neonatorum)*. Due to the increased development of the epidermis of the fruit within the last months of pregnancy, the skin peels off, losing the epidermal cells, which form part of the *vernix caseosa*. On the 3-5 days of age skin peeling gradually increases in the new-born child in the form of the delicate grayish flakes. It can last from two weeks up to 1-2 months.

Sebaceous ichthyosis *(ichthyosis sebacea)*. In the first days after the birth sebaceous glands of some children are intensely functioning at the expense of estrogens derived from the mother. Sebaceous matter dries quickly, in result of which soft and velvety skin of new-born becomes dry and dense. The process continues for about a week and ends in peeling. Thus, sebaceous ichthyosis is a peculiar condition of the skin, which is based on fast drying of the sebaceous matter.

Ichthyosis-like skin dryness. The skin of some children, mostly on the elbows, wrists, ankles, is rough, dry, pale, with cracks. This condition occurs in the second week of life, and has nothing to do with ichthyosis. In case of ichthyosis-like skin dryness the skin is changing from very soft to very rough, "thick".

Mouth and mucous membranes. During the first days of life the tongue of the new-born child is largely coated with white fur. Perhaps this is due to the start of the lactation, and fur has a tendency to disappear when the new-born child begins to drink water.

Frenulum of tongue. Frenulum of tongue of most new-born children is short and taut. It should be noted that the tongue does not take much part in the act of breastfeeding. This state is not a pathology, and requires surgical interference only in exceptional cases.

Genital organs. Foreskin in newborn boys is always tight to the balanus and can not be separated for several months, so it is unacceptable to attempt to pull it back. At the same time, the foreskin may be relatively long, with a narrow opening. There are no indications for genital mutilation in case of normal urination. In 98% of the boys testicle is in the scrotum. At birth labia majora of the girls are underdeveloped and interlabial space is opened.

Skin diseases in new-born children

Reference of children to a separate group of specific neonatal skin diseases is conditional. A significant number of these diseases, even though they start in the first three – four weeks of life, can be continued after the end of this period.

Laner's toxic erythema of new-born children *(erythema neonatorum toxicum, exanthema allergicum, urticaria neonatorum)*. Toxic erythema of new-born children is observed in 20-50% of infants on the 2-3rd day of life, rarely earlier and even more rarely at a later period.

Its symptoms include red spots of various sizes, multiple and very close to each other, which sometimes merge into a field of considerable size. .

Scleredema of new-born children *(scleroedema neonatorum)*. This is a form of edema of the skin and subcutaneous tissue. It develops between 2-4 days of life and even later. It is more common among premature children, but can occur in normal full-term children, especially after hypothermia. Pathological process on the skin reminds a normal swelling, but the skin is smooth and swollen, heavy, cold to the touch. When pressing, a pit forms on it.

Sclerema of new-born children *(sclerema neonatorum)*. It is a severe disease characterized by diffuse thickening of the skin, where it does not swell and a pit is not formed when pressing. It is observed in weak premature infants in the state of dehydration. It is detected on the 3-5 days of life.

Clinically it is an induration of various parts of skin. The sole, palm and scrotum remain free from lesions. Skin is like a tight hard cold shell and is not taken into the fold. The face is like a mask in the affected areas, ankylosis is developing..

Subdermal (focal) necrosis of fatty tissue of new-born children *(adiponecrosis subcutanea neonatorum)*. It is characterized by the appearance of limited dense infiltrates or nodes with thickness of 1-2 cm and a diameter of 1 to 6 cm, and sometimes with a size of the child's hand, in the subcutaneous tissue.

Sweating fever *(miliaria seu sudamina)*. Sweating fever occupies the first place by frequency among the diseases of sweat glands. It is caused by increased secretion of sweat glands. It appears in the form of vesicular and papular rash.

Seborrheic dermatitis of tender age. It occurs on the 1 – 2 weeks of life and disappears under the influence of rational therapy not later than the third month.

Steadfast and persistent symptoms of seborrheic dermatitis include redness of the skin and minor peeling, with grayish-yellow greasy scales. Pathological process is localized at the initial stages in the folds, on the face and hair-covered part of the head, then takes a common character.

In case of the mild form of seborrheic dermatitis, external treatment with disinfectants and keratoplastic means is sufficient.

1. Indicate the characteristic reaction of the newborn skin to an external environment:

A. Swelling of the mammary glands
B. Mongolian spots
C. Physiological erythema
D. Cholecystic impetigo
E. All the above mentioned is true

2. Manifestations of hormonal crisis in newborn children include:

A. *vernix caseosa*
B. Swelling of the mammary glands
C. Salmon patches
D. Mongolian spots
E. All the above mentioned is true

3. Papillary dermis is most manifested in newborn children:

A. On face
B. On hands
C. On soles
D. On hands and soles
E. All the above mentioned is true

Task 1. On the fifth day after the birth the mother found dark bluish white non-infiltrated spots that do not fade when pressing on the shoulder blades and buttocks of the boy.

a) What disease the boy is suspected to have:

A. Physiological erythema of new-born children
B. Toxic erythema
C. Mongolian spots
D. Salmon patches
E. Dark line

b) What is the doctor's tactics?

Task 2. On the background of vomiting and bowel movements 3-4 times a day the two-months child was revealed redness in the folds of the trunk and extremities. The hair-covered part of skin is bright red, infiltrated with marked peeling.

a) Which disease can be suspected:

A. Exfoliative dermatitis
B. Toxic erythema
C. Seborrheic dermatitis
D. Sweating fever
E. Salmon patches

Task 3. In a maternity hospital on the third day of life the premature child has thickening of the skin on the face and legs, which spread to the hips, trunk and upper extremities in a day. The skin in the affected areas is like solid spanned cold shell and is not taken into the fold.

a) Determine the preliminary diagnosis:

A. Scleredema
B. Sclerema
C. Adiponecrosis
D. Subcutaneous oedema
E. Scleroderma

Answers to the questions of the first level of complexity
1 – C; 2 – B; 3 – D
Answers to the questions of the second and third levels of complexity
1a – C; 2a – C; 3a – B

22 TOPIC Skin neoplasms

EDUCATIONAL AND INSTRUCTIONAL OBJECTIVES

- To define skin blastoma among other dermatoses
- To detect classification and pathogenesis of skin neoplasms
- To analyze the course of different skin neoplasms
- To determine the tactical technique and treatment of skin neoplasms

TO KNOW:

- Possible implications and process of skin neoplasms occurrence;
- Classification of these diseases;
- Diagnostic techniques of skin neoplasms;
- The signs of skin precancerous metamorphosis in skin neoplasms with malignant course;
- The basic anatomical and histological changes of structural elements by skin neoplasms;
- The principles of precancer and malignant skin neoplasms treatment;
- The preventative measures of skin blastomas occurrence and precancerous metamorphosis to malignant neoplasms.

TO BE ABLE TO:

- Determine the basic microscopic blastoma developments – papule, bosselation, lump, ulceration, infiltration and cyst;
- The process of palpation, dermatoscopy and evaluation of results;
- Define histogenesis of skin neoplasms on the basis of microscopic picture;
- Distinguish benign and malignant skin neoplasms according to clinical features and nature of growth, finding out the possible implication and mechanism of its development;
- Determine the metastasis clinical features, explain its mechanism of development and possible ways of initiation (lymphogenous, hematogenous, perineural);
- Prognosticate sequellae of benign and malignant skin neoplasms.

Epidemiology. Special group among dermatoses consists of blastomas, by means of its pathological processes variation, which may develop primary or as the result of metastatic disease. Malignant skin neoplasms are instrumental among human blastomas and inferior only to pulmonary mass. Women and men get sick in like manner, preferentially late in life.

Pathogenesis. The causes of skin neoplasms occurrence totally and particularly are not investigated. Skin neoplasms develop as a result of hypernormal regenerative process, hyperplasia, proliferation and metaplasia of the skin cells. This is the most pressing multifactorial theory of neoplasm occurrence, which takes into account the impact on various skin mutations.

There are defined the following risk factors of skin neoplasm development:

- physical: insolation (in nowadays is regarded as the main carcinogen) – from 90% of occasions the skin neoplasm are arising in open areas, ionizing and X-ray radiation, processing carcinogen (coal, coal tar, asphalt, arsenic), smoking;
- Nonspecific skin pathological processes with regeneration phenomenon.
- ***Immunodeficiency disorders***: HIV infection, protracted of immunodepressant admission after Major Organ transplant and etc.;
- ***Virus***: human papilloma virus (NRV), particularly the development of epidermodysplasia verruciformis associated with the 5th and 8th type NRV, skin carcinoma of external genital and perianal area – with a 16-m and 18-m type NRV;
- ***Inherited***: susceptibility to hyperkeratosis, the availability of multinomial nevi, and others;
- ***Anthropometric***: white skin, red or blond hair, blue or grey eyes;
- Aging.

Classification

1. Precancer

Facultativus pre-cancer – skin diseases, during the process of provided timely treatment of skin neoplasms with malignant course which is seldom developed. Among these are cutaneous horns, keratoses, neoplasms with benign course (papillomas, fibromas, adenomas, molluscum sebaceum), vascular and pigmented nevi, chronic skin inflammation, post-burn scars, etc.

Obligate precancerous – are neoplasms of the skin, which always assumes the malignant course. Among these are xeroderma pigmentosum, Bowen precancerous dermatosis, erythroplasia of Queyrat, Paget's disease.

2. Benign neoplasms of the skin
3. Malignant neoplasms of the skin:
   - Basal cell carcinoma (basalioma);
   - Squamous cell carcinoma (epithelioma spinocellulare);
   - Metastatic cancer;

- Melanoma;
- Sarcoma cutis

FACULTATIVUS PRE-CANCER AND SKIN NEOPLASMS WITH (MALIGNANT) BENIGN COURSE

Actinic keratosis

Actinic keratosis – skin pre-malignant condition characterized by reduced thick hyperkeratosis on skin segments which are usually undergo insolation.

Epidemiology. The disease progresses more frequently in middle-aged white people, in response of constant long-term impact on insolation.

Clinic. There are appeared small flat plaques grayish-yellowish of round or oval shape with a rough surface on facial skin, neck and upper extremities. They bloom to the skin surface and might be individual (solitary) and multiple. In due course time, neoplasms become sealed, by the forcible separation of scales where might appear drops of blood. Actinic keratosis is supervened by pruritus. Neoplasm does not subside individually. In case of constant trauma or irrational treatment can be transformed into a malignant neoplasm.

Pathomorphology. While histologic examinations are defined irregular proliferation of malpighian layer, acanthosis and hyper parakeratosis, separate sections of papillomatosis. Malignant transformation of keratomas is supervened by signified atypical cells, mitosis activation.

Differential diagnostics. Actinic keratosis should be differentiated with seborrheic keratosis, Bowen's disease, verruca Vulgaris.

Treatment and preventative measures.

It is recommended to use sun-protection creams on open skin areas. Ectylotics might be used only in the incipient stage of senile keratomas development and beyond the cryodestruction. Formed neoplasm is removed surgically, usually administered the neodymium laser beams, cryodestruction. Good prognosis.

Seborrheic keratosis

Seborrheic keratosis – is a benign epidermal skin neoplasm which consists from cells of epidermis basal layer or keratinocytes or just a superficial part of the follicle.

Epidemiology. Seborrheic keratosis is predominantly exposed in older age (50 years). Blastoma is appeared on haired skin areas rich by sebaceous glands.

Clinic. It is clinically occurred by yellow-brown macules of small-sized. Macules may increase in size and acquire its multiple character. The macules surface with fatty crusts, which are easily removed. Seborrheic keratosis is rarely malignized. In process of dermoscopy signs of degeneration into a malignant neoplasm are absent.

Pathomorphology. While histologic examinations are defined: papillomatosis, acanthosis, proliferation of epidermis basal cells (basaloids), corneal cysts; melanin concentrations.

Diagnostics. The diagnosis assessment is based on clinical implications, histological changes, the results of dermatoscopy. Seborrheic keratosis should be differentiated with simple warts, melanocytic nevi, melanoma, carcinoma basal cell, senile (solar) keratosis nummular papule.

Treatment. In therapeutic interventions are used cryodestruction and / or curettment, laser therapy, radio-wave deletion. Good prognosis.

Cutaneous horn

Cutaneous horn – is a skin precancerous condition which is characterized by epithelial formation from the cells of spinous layer of epidermis. This pathology is determined as a variant of senile keratosis.

Epidemiology. The disease more frequently progressed in people of white race and localized preferentially in the areas of permanent trauma.

Clinic. Clinically the process is displayed by a horn-shaped in size from a few millimeters to a few centimeters. Cutaneous horn consists of indurated pressed keratin.

The course of cutaneous horn is benign, malignancy rarely occurs.

Pathomorphology. While histologic examinations are defined: signified hyperkeratosis, acanthosis and granulomatous disease.

Diagnostics and differential diagnostics. Cutaneous horn should be differentiate with squamous cell carcinoma, senile keratome, seborrheic keratosis.

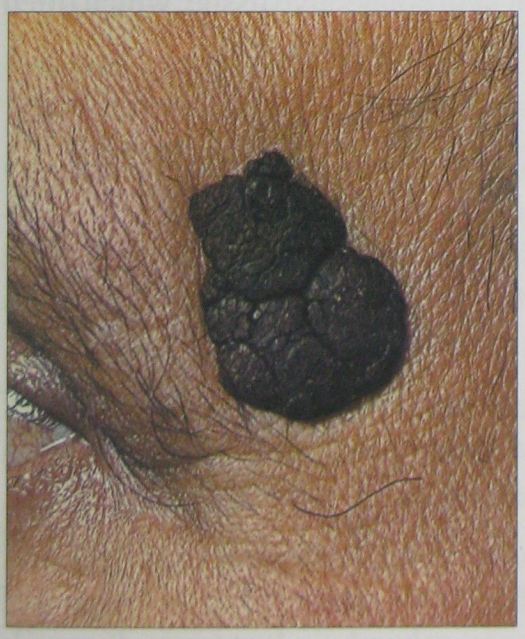


Fig. 22.1. Seborrheic keratosis.

Fig. 22.2. Cutaneous horn.

Treatment: Cutaneous horn should be differentiated from horny molluscum sebaceum types, within the bounds of healthy tissue by aggressive approach, cryodestruction, electroscission. Good prognosis.

SOFT FIBROMA

Soft fibroma – is a neoplasm of connective tissue with benign course.

Epidemiology. It is usually occurs for women.

Clinic. The formation has a soft texture, round or oval shape, different size, pink or dark brown colour. Soft fibroma is placed pedunculated. The skin is wrinkled. The blastoma is usually single, rarely multiple. It has sacculated type, often localized on neck, on the front part of the chest, back, on retromuscular and inguinal folds.

Pathomorphology. While histologic examinations were defined: assembling of posterior pyramid of collagen fibers, which are placed between the intercellular substance and cells of fibroblastic line. Elastic fibers are absent. There is defined atrophy of the epidermis and the growth of connective tissue. Fibroma is clearly distinguished from the surrounding dermis.

Diagnostics and Differential diagnostics. The disease is diagnosed on the basis of definitive histological changes. Soft fibroma should be differentiated with fibropapilloma and papillomas.

Treatment. For treatment of soft fibroma are usually used surgical removal and electroscission. Good prognosis. After removal this neoplasm does not anticipate.

Dermatofibroma

Dermatofibroma – is a benign neoplasm of skin connective tissue, which often occurs on extremities in the form of intradermal site reminded button.

Epidemiology. It is usually occurs for women.

Clinic. It is clinically occurred by the presence of nodules (solitary, rarely multiple) round, dense texture and dark brown form. It has a smooth surface. Size – 0.2-1.5 sm. In palpation is developed a hard «button», fixed within the bounds of the skin, which is moved along the subcutaneous fat layer. On impact between two fingers is formed pouch of low rate surrounding skin.

Pathomorphology. While histologic examinations were defined: accumulation of mature and young collagen fibers disposed in a different direction, fibroblasts and a large number of small capillaries, perivascular edema.

Diagnostics. Diagnosis is based on clinical and histological examinations. Dermatofibroma should be differentiated with melanoma (applying the method of dermatoscopy) dermatofibroma, xanthomatosis, seborrheic keratoses, Kaposi's sarcoma, cicatricial keloid.

Treatment. In the experiment were used surgical treatment, electroscission, cryosurgery. Prognosis: The neoplasm is indolent – from several months to a year.

Keratoakantoma

Keratoakantoma – is a benign blastoma of the epidermis, which is developed from the sebaceous glands and hair follicles and characterized by a hemispherical lump with a crater hole in the center, filled with horny masses. Keratoakantoma can be paraneoplastic development of internal organs neoplasms.

Epidemiology. It occurs predominantly for elderly people on facial skin, neck, extremities rarely on other skin areas.

More than in twice times occurs predominantly for white men older than 50 years.

Etiology. The etiology is acritical. It holds out the prospect about nature of viral disease, in particular due to human papilloma virus of type 9, 16, 19, 25 and 37. Potentially possible unfamiliar character with autosomal dominant inheritance.

Clinic. Clinically keratoakantoma is characterized by presence of dense hemispherical exophytic blastoma up to 20 mm in diameter with a crater-hole depression in the center, covered with horny masses of gray-brown color, which can be easily removed. The lips of neoplasm are wedge; the skin texture on them is smoother. The blastoma has the ability to rapidly progressive growth, but can have predilection to spontaneous regression.

Pathology. In the process of histopathlogical examination in the material are detected such processes as hyperkeratosis, parakeratosis, dyskeratosis and pseudocarcinomatous hyperplasia of epidermis. In contoured section of keratoakantoma epidermis is thickened and pressed by means of crater filled with horny masses. Two-dimensional epithelium strands from thorny layer cells penetrate deep to the dermis, destroying the basement membrane.

Diagnostics. Keratoakantoma should be differentiated with actinic keratosis, common warts, cutaneous horn, giant molluscum contagiosum, basal cell carcinoma, highly differentiated squamous cell carcinoma of the skin.

Treatment. There are represented surgical treatment (excision) electroscission, laser therapy and cryosurgery.

Prognosis. In some cases the blastoma has the predilection to malignant transformation.

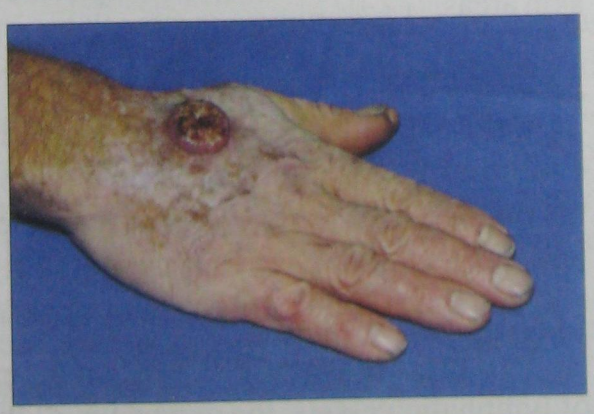


Fig. 22.3. Keratoakantoma.

Hemangioma

Hemangioma – is a benign blastoma formed from blood vessels.

Epidemiology. It usually occurs for 1-2% of children. Generally, people of white race are sick.

Clinic. Hemangioma is localized on any parts of the skin area. The clinical picture depends on process development stage. There is a small red spot or papule, in the phase of proliferation, which grows in size also is potentially prospective the formation of ulcers, bleeding. In the stabilization phase of hemangioma growth rate decreases, the color becomes less intense; there are small patches of pullulation of connective tissue in blastoma. In the phase of regression can occur complete spontaneous resorption or fat connective tissue replacement of blastoma cells with saving of cosmetic defect.

Pathomorphology. While histologic examinations were defined vascular endothelial cell proliferation, expansion of the lumen of the capillaries, increasing its quantity.

Diagnostics is based on anamnesis, physical examination, palpation, ultrasound investigation, angiography, magnetic resonance imaging, dermoscopy.

Hemangioma should be differentiated from lymphangioma, on the surface of which are observed small grouped vesicles and cavernous form are followed by diffuse cutaneous dropsy and flat pigmented mole that have a dense texture and dark brown staining.

Treatment. The method selection depends on age and baby's condition, blastoma localization and phase of its development. It is suggested the erasion by method of electro and criosurgery or chemical sclerotherapy. The courses of hemangiomas are benign in the majority of cases.

Lymphangioma

Lymphangioma (lymphangioma) – is a benign neoplasm from the lymphatic vessel (congenital abnormality of lymphatic vessel), which is localized on any parts of skin areas.

Epidemiology. It is usually occurs for white women.

Clinic. Clinically are characterized isolated capillary (simple), cystic and cavernous lymphangioma. Simple lymphangioma has bumpy surface and fuzzy boundaries. In case of cavernous form the intumescence is expressed and has a soft texture. The skin over lymphangioma is not changed. In this segment the skin is thinning and cyanotic. On palpation appears the feeling of fluctuation

Pathomorphology. While histologic examinations were defined the proliferation of lymphatic vessels, the expansion of the lumen of the capillaries, increasing its quantity.

Diagnostics. Diagnostics is based on clinical performance, X-ray radiography and histological examinations. Lymphangioma should be differentiated with cysts, squamous cells, lipoma, spinal hernia, teratoma and lymphadenitis.

Treatment. In the process is represented surgical removal, sclerotherapy, radiofrequency coagulation, electrocautery. The absence of lymphangioma treatment may lead to significant recurrent deformation of soft tissues and bones of maxillofacial area, serious violations of breathing and ingestion for localization on the neck. There are not observed any metamorphosis into malignant neoplasms.

Nevi

Nevi – are benign congenital abnormality. Their origin is connected with the migration of melanocytes in fetal life from neuroectodermal tubes (neural crest) in the basal layer of epidermis of the embryo. Any melanocytes do not reach the epidermis and remain in dermis.

The huge varieties of nevoid neoplasms have almost 90% of people in number from three to one hundred, and its number increases with age. They are congenital and acquired, appear from pinafore stage of existence and save to an extreme old age.

There are clinically distinguished the following types of nevi: melanocytic nevus, congenital melanocytic nevi, dysplastic nevi, Melanosis circumscripta praeblastomatosa Dubreuilh, congenital vascular nevi, nevus of connective tissue.

Nevocytic nevus

Nevocytic nevus – is a benign skin neoplasm. It is formed as a result of proliferation of melanocytes accumulation.

Epidemiology. It is often formed for representative of white race (on average, every adult has up to 20 of these nevi).

Clinic. There are distinguishing only a few clinical types of melanocytic nevi:

1. Epidermic-dermic nevi – flat, slightly raised, brown or suntan. Usually occurs for children. There are located on palms, soles, genitals.

2. Compound nevi – are pigmented papules. Pigment cells are located on the boundary of the epidermis and dermis, and in the dermis, they are irregularly shaped, symmetrical, their surface is smooth or slightly bumpy with a pigmented center.

3. Intradermal nevi – are papules with moderate spotty pigmentation, on a surface of which are increasably marked increase of hair growth Nevi cells are diffusely located or by way of assumption in the lower parts of epidermis and on the border with the dermis reticular layer .

4. Spotted nevus – is a stain of bronze or light brown color. On its background are a huge number of small monomorphic papulous nevi of dark brown colour.

5. Blue nevus – single blue spots or dense hemispherical papules with dimensions from 0.5 to 2 sm. on head, neck, buttocks. The blue color is associated with rich

melanin (melanocytes) located in deep layers of the dermis. The consistency is dense. Blue nevus does not ail the patient, grows slowly in size, why it keep unnoticed so long.

6. Galonevus (Sutton disease) has a hypopigmentation by means of collar around the pigmented nevus.

Pathomorphology. While histologic examinations were defined increase of melanocytes in the basal layer of the epidermis, in the lower layers of the dermis, around skin appendages.

Diagnostics. Nevocytic nevus should be differentiated with malignant melanoma, hemangioma, basal cell carcinoma, seborrheic keratome.

Treatment. Nevocytic nevi do not require treatment. Surgical removal can be made in cases of traumatic location, signs of malignancy or the presence of a cosmetic defect. Prognosis most of melanocytic nevi is favorable.

Congenital Melanocytic Nevus

Congenital melanocytic nevus (naevus pigmentosus et pilosus), synonyms: Congenital nevocytic melanocytic nevus, giant pigmented nevus, giant hairy nevus – is a benign pigmented neoplasm from nevocytic melanocytes of newborn infants.

Epidemiology. The representatives of the male and female sex of any race such kind of nevus occurs with equal frequency. Large nevi are found in a ratio of 1 to 20,000 of newborn infants

Clinic. Congenital melanocytic nevus is resulted of violation of melanocyte differentiation during intrauterine growth. There were observed plaques and shapes of different sizes on any parts of the skin, light or dark brown color, with a soft texture, protruding the level of the skin, often covered with thick hair. With growth of child the plaque proportionally increases, reaching the large-sized and covering a significant part of the soma, neck and other parts of body. The surface of the nevus in the majority of cases is rough, warty, with deep cracks in the skin.

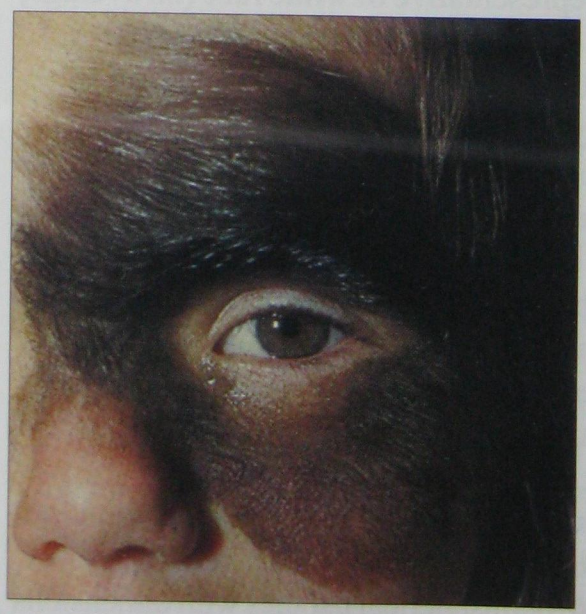


Fig. 22.4. Congenital Melanocytic Nevus.

The possibility of malignant transformation extends to all congenital melanocytic nevi, irrespective of their size. The risk of melanoma development intra vitam comprises 6-12% for giant congenital melanocytic nevi and 1.5% – for the small ones.

Pathomorphology. While histologic examinations can be defined an increase of melanocytes number in basal layer of

the epidermis, in lower layers of the dermis, around the skin appendages, accumulation of them as layers, alveoles or bands.

Diagnostics. Do not withhold the difficulties because of anamnesis and typical clinical picture.

Treatment. There is represented the surgical exsection in cases of trauma or observation.

Dysplastic nevus

Dysplastic nevus (*naevus dysplastica*), synonyms: Clark nevus, abnormal spiloma – it is acquired pigmented neoplasm.

Epidemiology. Dysplastic nevus is observed in 5% of white population. It is almost defined for all patients with familial melanoma and for 30-50% of patients with sporadic melanoma. Men and women are homochronous sicked.

Clinic. Dysplastic nevus occurs on unaffected skin, or as a component of a complex nevocytic nevus. These nevi appear intra vitam. They clinically appear by the process of skin uneven pigmentation from black-brown to red-pink with a dark area in the center of the tumor. Nevus has no clear boundaries, irregular shape, often localized on the back, legs, scalp, chest, buttocks and genitals.

Pathomorphology. While histologic examinations were defined disordered proliferation of polymorphic atypical (large-sized, polymorphism, and hyperchromasia of cores) melanocytes.

Diagnostics. Dysplastic nevus is diagnosed on the basic of clinical performance combined with epiluminescence microscopy and results of microscopic examination.

Treatment. Surgical removal.

Precancerous Dubreuil's melanosis

Precancerous Dubreuil's melanosis is nevoid skin disease predominantly of seniors and regarded to pre melanoma dermhelminthiasis.

Epidemiology. The disease occurs for people over 60, in more often than for women.

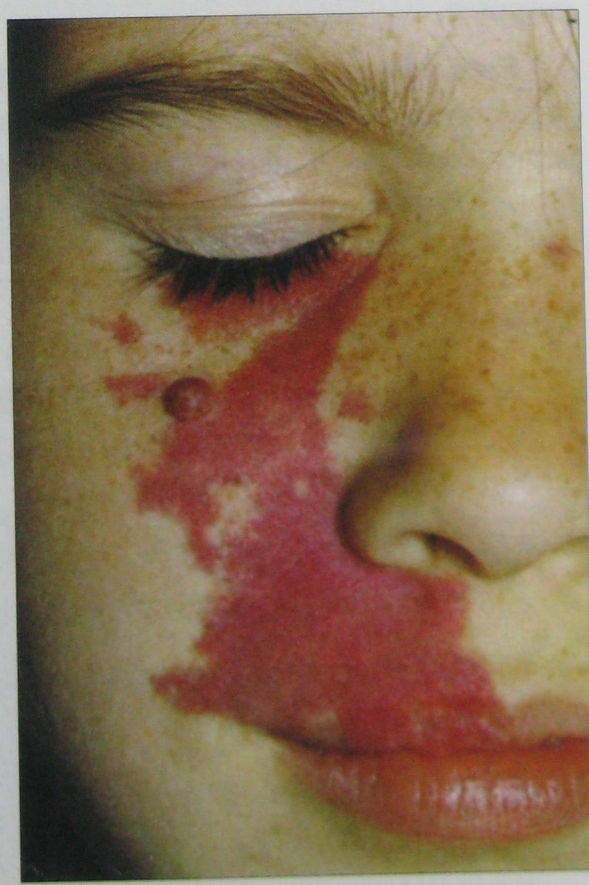


Fig. 22.5. Congenital vascular nevus.

Clinic. ***It is*** clinically characterized by the appearance of a single light-brown spot to 4-5 sm. or more in diameter with irregular polycyclic edges without packless of foundation.

The stain is gradually increased in size, gains on dark brown color, after black.

Within the limits of pathologic focus can exist areas of different colors side by side with depigmented (spontaneous regression of lesions). The most frequent localization – open body areas. For Precancerous Dubreuil's melanosis and his (75%) transformation into malignant melanoma. It is clinically presented by a significant growth, change color (to black), the appearance of lumps and papillomatous proliferation with focal hyperkeratosis, atrophy areas, the mass of erosions and hyperemias around the exposure of diseased area.

Diagnostics. Diagnostics of pigmented nevi is based on clinical presentation, anamnesis, dermoscopy, cytological and histopathlogical examinations. A biopsy is contraindicated. Removed nevus must become material for histopathlogical examination.

The differential diagnosis is primarily realized with melanoma, pigmentary basal-cell, hemangioma, seborrheic keratome.

Treatment. It is used a wide surgical excision in the range of healthy tissue, obliteration regional lymph nodes, roentgenotherapy.

Nevi, which are often injured or irradiated by sunlight, have been surgically removed or used cryo-or laser destruction. It is also performed for cosmetic purposes.

Preventive measures. All people who have such pigmented nevi should be at regular monitoring. It is important to avoid excessive sun exposure and trauma of nevis neoplasms. At the slightest sign of metamorphosis (rapid growth, color change, the appearance of inflammation, subjective symptoms, erosions, ulcers, nevoid satellites, the increase of regional lymph nodes) which is required in radical therapy.

Vascular nevi

Vascular nevus – congenital malformations of blood or lymph vessels of permanent nature (except nevus Unna). They can be combined with vascular malformations of eye and the meninges.

Epidemiology. Represented at 0.3% of newborns.

Etiology. The cause of vascular nevi onset is not determined.

Clinic. Nevi have pink-red or purple color. There are distinguished the following clinical forms:

Unna nevus (congenital telangiectasia neck); Sturge-Weber disease (a combination of blazing nevus in zone of trigeminal nerve innervation with deformities of eye vessels and meninges development);

Klippel-Trenaunay-Weber syndrome (a combination of naevus flammeus with vascular malformations of the soft tissues and bones);

Cobb syndrome (naevus flammeus in the vertebral region in combination with vascular malformations of spinal cord).

Pathomorphology. While histologic examinations can be defined primary neurodystrophy and secondary u angiopathy.

Diagnostics. Diagnostics is based on clinical symptoms and instrumental and histologic methods of examination. Vascular malformations should be differentiated with hemangioma, angiokeratoma, lupus erythematosus and limphemangioma.

Treatment. The main methods of treatment of vascular nevi are cryosurgery, electrocautery, sclerotherapy, method of selective photothermolysis. Prognosis is good.

Connective tissue nevus

Nevus connective tissue – is a skin hamartoma, which primary consists of collagen (collagenoma), elastin (elastomers) or from both simultaneously.

Epidemiology. It usually occurs for men of old age.

Clinic. There are clinically represented by the presence of clinically asymptomatic papules or plaques. They are located around the genitals, palms, nailfold, mucous membranes, has yellowish color.

Pathomorphology. While histologic examinations are revealed dense aggregates of collagen and elastic fibers.

Diagnostics. Diagnostics is based on clinical symptoms and instrumental data (dermatoscopy) and histological (biopsy) studies. Connective tissue nevi should be differentiated with scleroderma, dermatofibroma, xanthoma.

Treatment. The examination of connective tissue nevus represents the surgical removal or observation. Prognosis is good, but in some cases is possible malignant transformation.

OBLIGATE PRECANCEROUS XERODERMA PIGMENTOSUM

Xeroderma pigmentosum (it is innate chronic skin disease that is characterized by high sensitivity to ultraviolet ray, inherited by an autosomal recessive manner.

Clinic. Xeroderma pigmentosum is clinically manifested by erythema, pigmentation, swelling of the dermis, hyperkeratosis, fissures, ulcers, warty growths, lesions of atrophy, telangiectasia particularly on areas of the skin exposed to solar irradiation.

Treatment. Radical methods of therapy do not exist; it is recommended continuing the use of sunblock cream. It is also used an aromatic retinoids. On the stage of appearance of keratinization and tumor formations are recommended surgical excision, cryosurgery, diathermocoagulation.

Bowen's disease

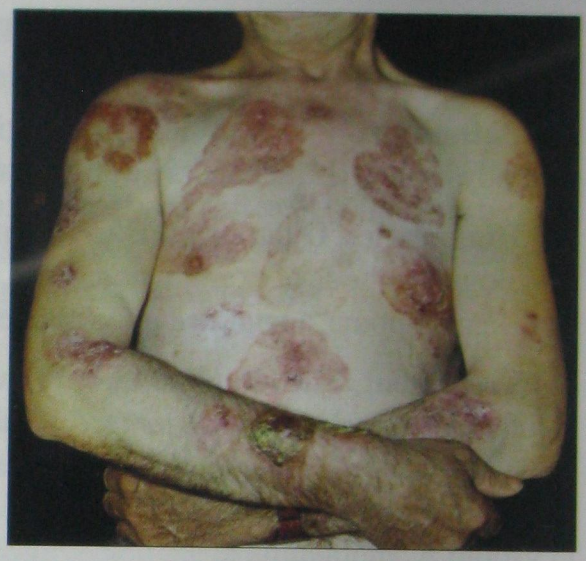


Fig. 22.6. Bowen's disease.

Bowen's disease – is a skin neoplasm, which develops from keratinocytes and occurs on different parts of the skin.

Epidemiology. Men and women over 20 years are often affected.

Clinic. The neoplasm is clinically occurred solitary, rarely multiple plaques with brownish-red of irregular shape with size from 2 mm to a child hand.

The plaque surface may be covered with squamas and serosanguineous scabs; the atrophy may occur. After removing the scabs which cover plaques the velutinate surface remains. In other cases the plaques are covered with warty growth. The tumour is often localized on the body, arms, in perineum, rarely on genitalia mucous. .

The tumour progress is slow and usually results in squamous cell cancer.

Pathomorphology. The histological changes in the epidermis are represented by clear hyperkeratosis, parakeratosis and acanthosis. The cells of spinous layer are placed chaotically, there are many atypical cells with hyperchromic nuclei.

Diagnostics. Diagnosis of the Bowen's disease is based on clinical findings and histological examination. Differential diagnostics is made with the microbial eczema, tuberculosis cutis verrucosa, basalioma, metastatic cancer.

Treatment. For Bowen's disease there is mainly a surgical treatment; laser treatment and cryolysis are also applied.

Erythroplasia of Queyrat

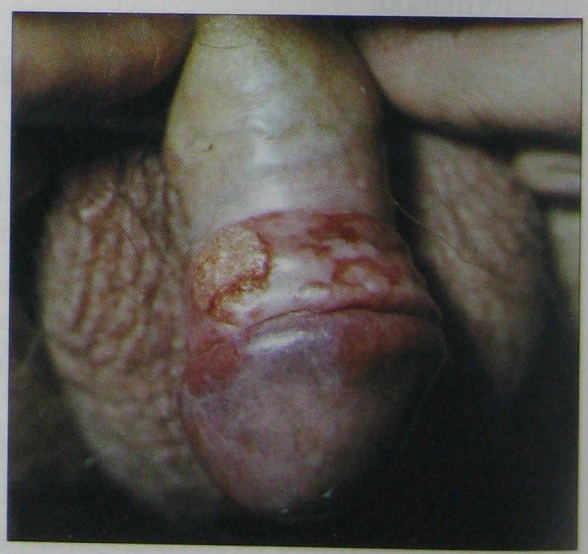


Fig. 22.7. Erythroplasia of Queyrat.

Epidemiology. Elderly men are often affected.

Clinic. On the balanus, rarely on the foreskin, a bright red plaque with clear boundaries and the diameter of 2-5 cm appears. The tumour surface is velutinate or bright and humid, sensitive on palpation. In 30% of cases erythroplasia transforms into squamous cell cancer.

Pathomorphology. Histological and cytological findings correspond to the changes on Bowen's disease.

Diagnostics. Diagnostics is based on clinical findings and the results of histological and cytological research. Erythroplasia of Queyrat shall be differentiated with hard chancre, candidal balanoposthitis, squamous cell cancer.

Treatment. In case of foreskin affection genital mutilation is reasonable; if the erythroplasia is localized in the balanus area the cryolysis is recommended.

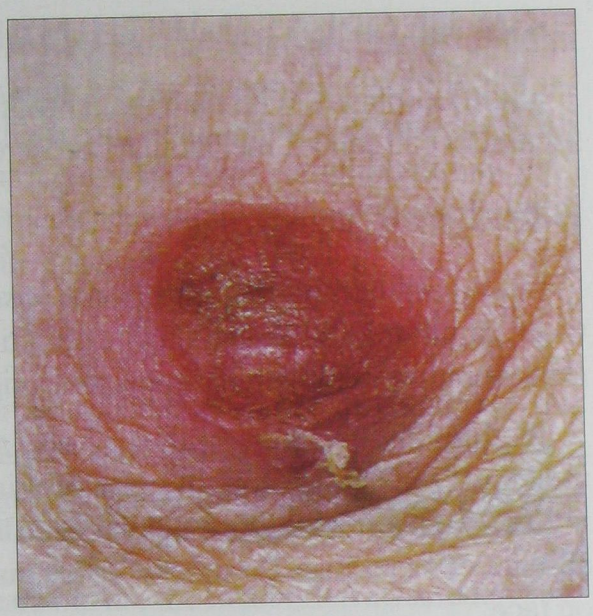


Fig. 22.8. Paget disease.

Paget disease

Paget disease is an intraductal breast cancer which develops in the mouth of output galactophorous ducts. Paget disease is connected with chronic inflammatory processes in mammary gland. Peget cells are also supposed to originate from sweat and oil glands.

Epidemiology. Women at the age of 40-70 years old are the most often affected. Its feature is the long-term progress for several years.

Clinic. Clinical peculiarities are the occurrence of dry scabs, cracks, surface erosions near the nipple, madescence. Itchiness, sometimes pain disturb the ill people. Further the nipple becomes flat, then inverted. When the pathological process is spread over the mammary gland tissue the tumour-like nodule appears and lymph nodes get larger.

Paget disease may occur on such skin areas which have apocrine sweat glands. If the Paget disease is localized near the nipple it should be differentiated with nipple eczema, nipple chronic non-specific disease, adenoma, tuberculosis, in other area it should be differentiated with eczema, sscrapie.

Pathomorphology. Paget cells are detected histologically in basal layer. They are large cells with light cytoplasm, large nucleus, absence of cytoplasmic tectum.

Diagnostics. The diagnosis is confirmed on biopsy and immunohistochemical analysis.

Treatment. Treatment of Paget disease is mainly surgical with compulsory histological control over the cut off edge of the tissue. If there is a tumour-like nodule the disease is treated as cancer of the corresponding stage.

SKIN NEOPLASM WITH MALIGNANT PROGRESS

Skin neoplasms with malignant progress are basal cell carcinoma (basalioma), squamous cell cancer, melanoma, fibrosarcoma.

Basal cell carcinoma

Basal cell carcinoma (*carcinoma basocellulare*), synonyms: basalioma, rodent ulcer, carcinoid of skin, basal cell epithelioma, basal cell cancer, *ulcus-rodens;* is a skin neoplasm with malignant progress, originated from epithelium basal cells.

Epidemiology. Basal cell carcinoma is the most widespread disease which makes up 75-90% всех of all cases of skin cancer. It is similar to cancer by typical infiltrative progressive growth, often with destruction; it is similar to benign tumour by absence of metastasis. Basilioma occurs mainly in elderly age and is localized mainly on face.

Clinic. Clinical findings distinguish five forms of basiliomas: surfacial, sclerodermal, tumoral, nodular ulcerous and pigmental (pagetoid) basilioma. The latter causes atrophy in the center of tumour and a row of small solid pearl nodes along the boundary. Such form of basilioma is prone to peripheral growth.

Surfacial basalioma is located mainly on the body skin. It is represented by a limited round/elliptic focus with a thin, quite solid spindled ring which consists of waxy small solid pearl-bright nodes. The rings turns white in the process of diascopy. There is a depression in the center of neoplasm. Basilioma can be single, rarely multiple.

An ivory black plaque with waxy shine and elevated edges is typical of *sclerodermal basilioma.*

Tumoral basilioma is globular, from lens-size to pea-size. The tumour surface is smooth, the center is sometimes covered with grayish scales.

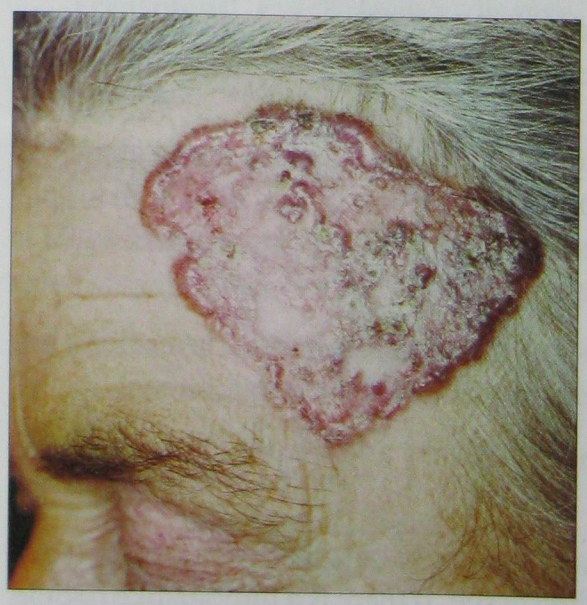


Fig. 22.9. Basal cell carcinoma.

Nodular ulcerous basiloma may be primary or may originate from the further development of tumoral or surfacial basilioma. A small crater-like ulcer with a solid woody basis beyond its boundary is typical thereof.

Diffusive pigmentation is typical of *pigmental basilioma.*

Pathomorphology. Histological research detects tumoral cells which look like epidermis basal layer cells but differ by absence of intercellular processes and large heavy coloured nuclei.

Diagnostics. Diagnostics of basal cell carcinoma is based on clinical findings, cytological and histological research, epifluorescent dermatoscopy

Basalioma shall be differentiated with discoid lupus erythematosus, Bowen's disease, acanthoma verrucosum, melanoma, actinic keratosis, acantholytic nevus.

Treatment. Surgical, radiological and medicamental methods are applied. There is favourable prognosis for basalioma, recurrences meet rarely.

Squamous cell carcinoma

Squamous cell carcinoma (*carcinoma planocellulare*), synonyms: planocellular epithelioma, spinocellular cancer, epidermoid cancer, spinalioma, skin invasive primary cancer; is a skin neoplasm with malignant progress, originated from skin and mucous keratinocytes.

Epidemiology. Men older than 50 years old are the most often affected.

Clinic. Squamous cell cancer is a neoplasm with the most malignant progress from all epithelial tumours. It is localized on any skin areas, mainly on the opened ones, and in borders between skin and mucous (in genitalia, lower lip, nose, anal canal). There are two clinical forms of the squamous cell carcinoma: infiltrative ulcerous and papillar.

In the *infiltrative ulcerous form* first a small nodule arrears, having smooth surface or covered with hyperkeratotic layers. The nodule growth quickly, in its center an ulcer appears with rough bleeding bottom, often covered with haemorrhagic scab. In case of *keratinizing squamous cell carcinoma*, hand-glass may detect yellowish spots in the bottom – the focus of keratosis (cancroid corpuscles). The ulcer is surrounded by a solid spindle based on the solid woody infiltrate (invasive part of neoplasm) beyond its boundary.

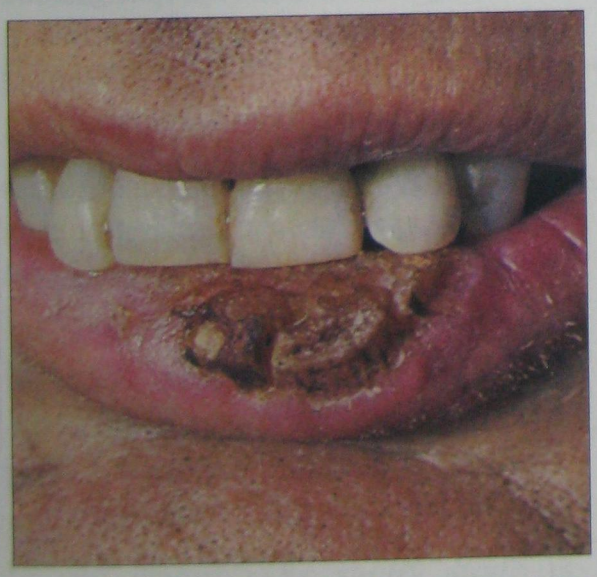


Fig. 22.10. Squamous cell carcinoma.

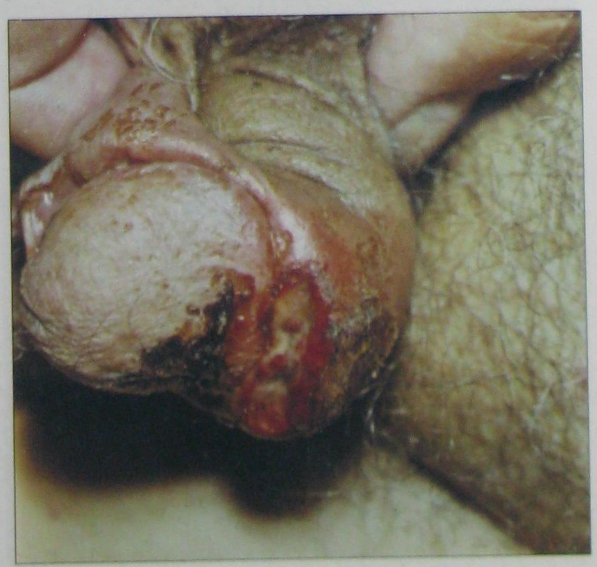


Fig. 22.11. Squamous cell carcinoma.

The warty growths which look like papillas in the bottom of ulcer are typical of *papillomatous form*. They grow quickly and rise over the skin level. Squamous cell carcinoma metastasizes into the regional lymph nodes and other organs. The lymph nodes are solid, painless, immobile and fixed with each other and with the surrounding tissues.

Pathomorphology. From the histological point of view there are keratinizing and non-keratinizing squamous cell carcinomas In case of *keratinizing squamous cell carcinoma* there are epitherlial tenias, expressed polymorphism, discomplection and diskeratosis of certain cells (keratoid pearls). In case of *non-keratinizing squamous cell carcinoma* the cells with hyperchromic nuclei prevail, nest-like layers of epithelial cells flake away from the epidermis, keratosis is slight or absent at all.

Diagnostics. Diagnosis of squamous cell cancer is based on clinical diagnostics, results of histological research and instrumental research (biopsy, vitropression).

Squamous cell cancer shall be differentiated with solar keratosis, basalioma, keratoacanthoma, Paget disease.

Treatment. Surgical, radiological and medicamental methods are applied.

If there are no metastases and in case of early detection the squamous cell cancer is treated nearly in 80-90% of cases.

Melanoma

Melanoma (*melanoma malignum*), synonyms: malignant melanoma, melanocarcinoma, melanoblastoma, melanocytoma, neurocarcinoma; is a skin neoplasm with malignant progress, originated from melanocytes (pigmentary cells) which produce melanin.

Epidemiology. Melanoma is one of the most malignant human neoplasms due to quick growth and rapid metastasis by haematogenous and lymphogenous means. Skin is the most often affected (87–90% of cases). The most malignant progress is typical for melanoma among men, young men and youth.

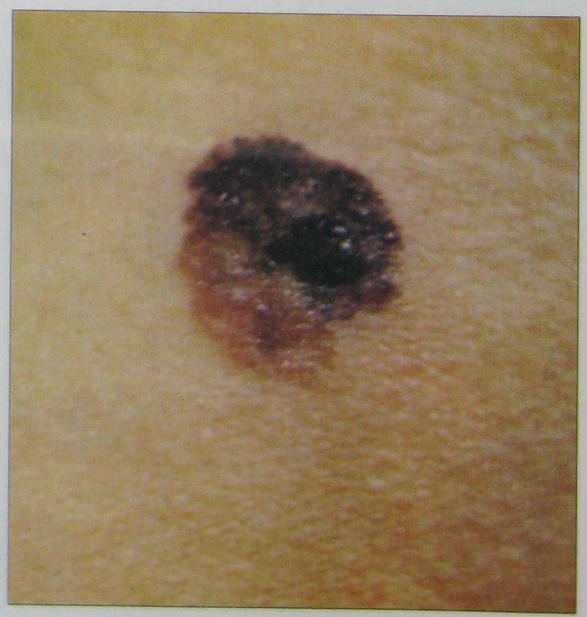


Fig. 22.12. Melanoma.

Etiology. Cause of melanoma as well as of all malignant neoplasms is not defined.

Clinic. Melanoma may occur in different parts of the human body.

Clinical findings distinguish four clinical and anatomic forms: surfacial, nodular, acral lentiginous and mucous melanoma, sort of malignant lentigo.

Intraepidermal surfacial melanoma has two phases of development. The first phase is the horizontal radial spreading of brown plaque, absence of tumoral cell invasion in the derma reticular layer. It has favourable prognosis. The second phase, *nodular melanoma,* occurs in 15% of cases. Melanoma has a shape of flat cyanochrous nodule rising over skin level; it rarely has a form of pedunculated polyp. *Acral lentiginous and mucous melanomas* make up 10% of all melanomas and affect mainly people of elderly age. The tumour has rough black edges.

The fourth form, *malignant lentigo* (melanotic freckles) is very rare, affects mainly people over 60 years old. Multiple small nodules (diameter of 1.5–3 mm) with colour ranged from yellow to black appear on skin.

Pathomorphology. Melanoma has verified histological structure. The most typical features are the expressed polymorphism of chromogenic cell elements, their non-typicality. The tumour consists mainly of round, cubical or polygonal cells which look like epithelial ones.

Diagnostics. The basic methods are anamnesis, clinical examination, palpation of peripheral lymph nodes. Dermatoscopy, tumour thermography, cytological research, radioisotope scanning are held. Melanoma should be differentiated with pigmentary basilioma, seborrheic keratosis, haemangioma, pyogenic granuloma and angiofibroma. In case of suspecting of melanoma biopsy is not allowed.

Treatment is surgical**.** Chemical therapy, immunotherapy (with using interferon alpha, interleukine-2), hormonal therapy are applied..

Preventive measures. Preventive measures suppose elimination or limitation of impact of ultraviolet rays, ionizing radiation, electromagnetic irradiation, chemical cancerogenes, avoidance of nevi traumatization.

Kaposi's sarcoma

Kaposi's sarcoma is a malignant multifocal disease, probably of tumoral nature, which occurs in derma and originates from blood and lymph vessels. Focus is localized mainly in distal parts of arms and legs.

Epidemiology. Persons of male sex are the most often affected.

Clinic. Clinical findings distinguish several stages. *The spotty stage* is featured by separate reddish

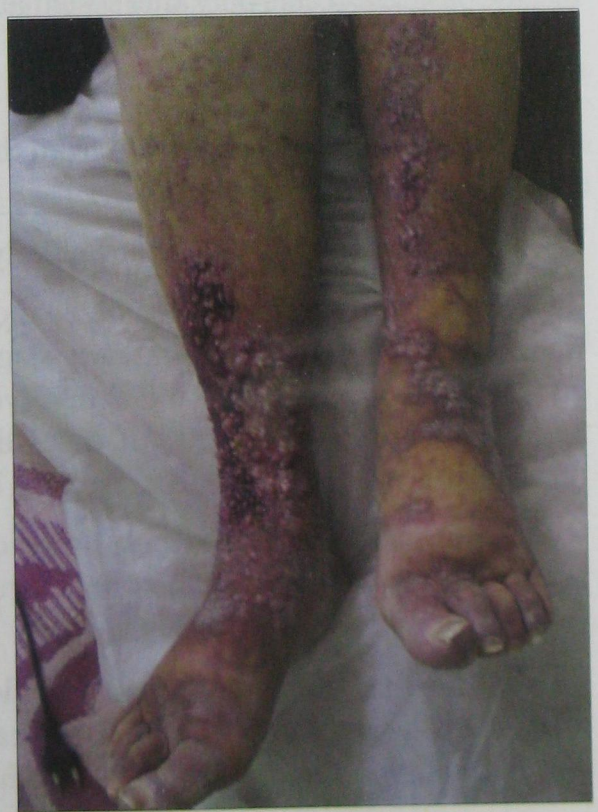


Fig. 22.13. Kaposi's sarcoma.

cyanochrous or reddish brown spots of irregular shape, with smooth surface and with diameter of 1–5 cm. At the *popular stage* the tumour has a spherical or hemispherical shape with diameter of 2 mm – 1 cm, the colour is ranged from pink to reddish cyanochrous with brown shade, the tumour has solid elastic consistence. At the *tumoral stage* there are multiple nodules with diameter 1–5 cm. The nodules may merge and ulcerate. Lymph nodes are increased.

There is also *AIDS-associated* sarcoma.

Classical Kaposi's sarcoma may have a long-term process and a reversive character. AIDS-associated type has disseminated and malignant progress.

Pathomorphology. Patohistological research of the affected skin biopsy sample detects a chaotic incomplete angiogenesis, proliferation of spindle cells, outgrowth of granulating tissue of different maturity degree infiltrated by immune competent cell (lymphocytes, plasma cells and macrophagocytes). At the primary stage the capillary vessels with wide lumens overgrow in the upper layer of derma. Endothelial cells are increased, extended, the nuclei are hyperchromic and have irregular form.

Diagnostics is based on clinical findings and the results of histological research.

Kaposi's sarcoma shall be differentiated with Kaposi's pseudosarcoma, haemangioma, pyogenic granuloma, high differentiated agniosarcoma.

Treatment. Treatment of Kaposi's sarcoma is not always effective; the existing means (radial means, cryotherapy, chemical therapy) cause only temporary remission. X-ray radiation is used for large or painful foci. Visible therapeutic effect during the disease progress occurs only after systematic use of prospidinum and cytostatic agents.

Fibrosarcoma

Fibrosarcoma is a neoplasm from the fibrous tissue with cancerous progress distinguished by quick metastasis.

Epidemiology. Mainly old and elderly men and women are affected.

Clinic. Fibrosarcoma is localized the most often on feet, head, body. Clinical findings are non-specific. At the early stage a solid brownish blue subdermic nodule appears. The skin is intact and is involved in the process only in case of tumour aggressive progress. In 50% of cases there is a pain syndrome. Fibrosarcoma metastasizes inside lungs and bones early, by hematogenous means.

Pathomorphology. On patohistological research the typical bundles of spindle/round cells divided by collagen fibers are detected in the biopsy sample. Also the infiltrative and destructive growth occurs.

Diagnostics. Due to absence of specific peculiarities of the neoplasm diagnostics is based on the results of histological research. Fibrosarcoma shall be differentiated with dermatofibrosarcoma and malignant histiocytoma.

Treatment. The surgical treatment is applied with wide excision within the healthy tissue, X-ray therapy, chemical therapy.

1. Which skin functions are relevant to the tumour occurrence:

A. Protective
B. Immune
C. Receptor
D. Metabolic
E. Resorption

2. Which factors do not provide skin antitumoral function:

A. Killer lymphocytes
B. Urokin acid
C. Interferons
D. Cell necrosis factor
E. Growth factor

3. What belongs to facultative precancer:

A. Paget disease
B. Keratosis
C. Queirat disease
D. Bowen's disease
E. Xeroderma pigmentosum

4. What does not belong to obligatory precancer:

A. Skin atrophy
B. Xeroderma pigmentosum
C. Bowen's disease
D. Paget disease
E. Queirat disease

5. What are the skin neoplasms with non-malignant progress:

A. Basalioma
B. Spinal cell cancer
C. Melanoma
D. Dermatofibroma
E. Metastatic carcinoma

6. What does not belong to the main symptoms of nevi malignization:

A. Subjective feelings
B. Change of colour
C. Clear boundaries
D. Ulcers and erosions on the nevus
E. Hair on the nevus

7. What is typical of basal cell carcinoma:

A. High temperature
B. Slow growth
C. Occurs often in the young age
D. Metastasis into the internal organs
E. Quick metastasis

8. What is typical of squamous cell carcinoma:

A. Quick growth
B. Ulcer formation
C. Solid infiltrate
D. Absence of metastasis into the lymph nodes
E. Everything abovementioned

9. What are the main requirement to the surgical treatment of melanoma:

A. General anesthesia is compulsory for the operation
B. Wide excision of melanoma within 3–5 cm of healthy skin
C. Tumour is eliminated in one block with the subjacent subcutaneous fat and fascia
D. Regional lymph nodes are eliminated
E. Everything abovementioned

10. Which factors do not provide melanoma development:

A. Ultraviolet radiation
B. Permanent traumatization of the nevus
C. Race and sex attribute
D. Skin pigmentation level
E. Smooth skin pelosis level

Task 1. A 60-year old woman visited a dermatologist with complaint on a small bleeding ulcer appeared in the dorsum of nose. The ulcer appeared a year ago, after scratch; then it got larger and was bleeding after slight injury.

a) What is the preliminary diagnosis:
- **A.** Basal cell carcinoma
- **B.** Squamous cell carcinoma
- **C.** Precancerous melanosis of Dubreuilh
- **D.** Metastatic cancer
- **E.** Queirat disease

b) What additional methods of research should be applied?

Task 2. A 52-year old patient visited a doctor with complaint on ulcer in the left side of upper lip. He says that it occurred due to the frequent cigarette burn. *The examination revealed*: the ulcer has spindle-type edges based on a solid woody substance beyond the boundaries of occurrence, covered with haemorrhagic scab. Regional lymph nodes are not increased.

a) What is the preliminary diagnosis:
- **A.** Basal cell carcinoma
- **B.** Squamous cell carcinoma
- **C.** Queirat disease
- **D.** Metastatic cancer
- **E.** Precancerous melanosis of Dubreuilh

b) State the additional methods of examination.

Task 3. A 64-year old patient visited a dermatologist with complaint on neoplasm on the end of the nose which has tripled for two months. *The examination revealed*: the hemispheric pea-size neoplasm of a solid consistence appeared on the end of the nose. In the center there was a cystiform neoplasm covered with keratoid mass. The edges are spindle-type.

a) Make a diagnosis:
- **A.** Warty horn
- **B.** Keratoacanthoma
- **C.** Skin sarcoma
- **D.** Xeroderma pigmentosum
- **E.** Melanoma

b) Prescribe reasonable treatment.

Task 4. A 37-year old patient attended the doctor with complaint on numerous pigmental nevi which appeared after summer holidays at the seaside. The detailed examination detected an innate slate black nevus of solid consistence, with a diameter of 4 cm, under the left shoulder blade. Skin around the nevus is congested. Its surface was covered with hyperkeratotic layers. 11 similar smaller neoplasms (satellites) are at different distances therefrom. In both axillary hollows there are enlargened lymph nodes.

a) What is the preliminary diagnosis:
- **A.** Warty horn
- **B.** Keratoacanthoma
- **C.** Skin sarcoma
- **D.** Xeroderma pigmentosum
- **E.** Melanoma

b) Determine the further plan of diagnostics and treatment.

Task 5. A 53-year old woman visited a dermatologist with complaint on skin congestion in lower abdomination. She noticed changes on the skin nearly three months ago. She did not visit doctors because the neoplasm did not disturb her. Three years ago she was operated on cervical cancer (hystero-oophorectomy). *The examination revealed*: skin in the place of affection was blueish purple, with woody solid consistence, two ulceration foci were visible. Infiltrate had unclear boundaries and was fixed with the tissues adjoining to skin.

a) Make a diagnosis and prove it:
- **A.** Basal cell carcinoma
- **B.** Squamous cell carcinoma
- **C.** Precancerous melanosis of Dubreuilh
- **D.** Metastatic cancer
- **E.** Queirat disease

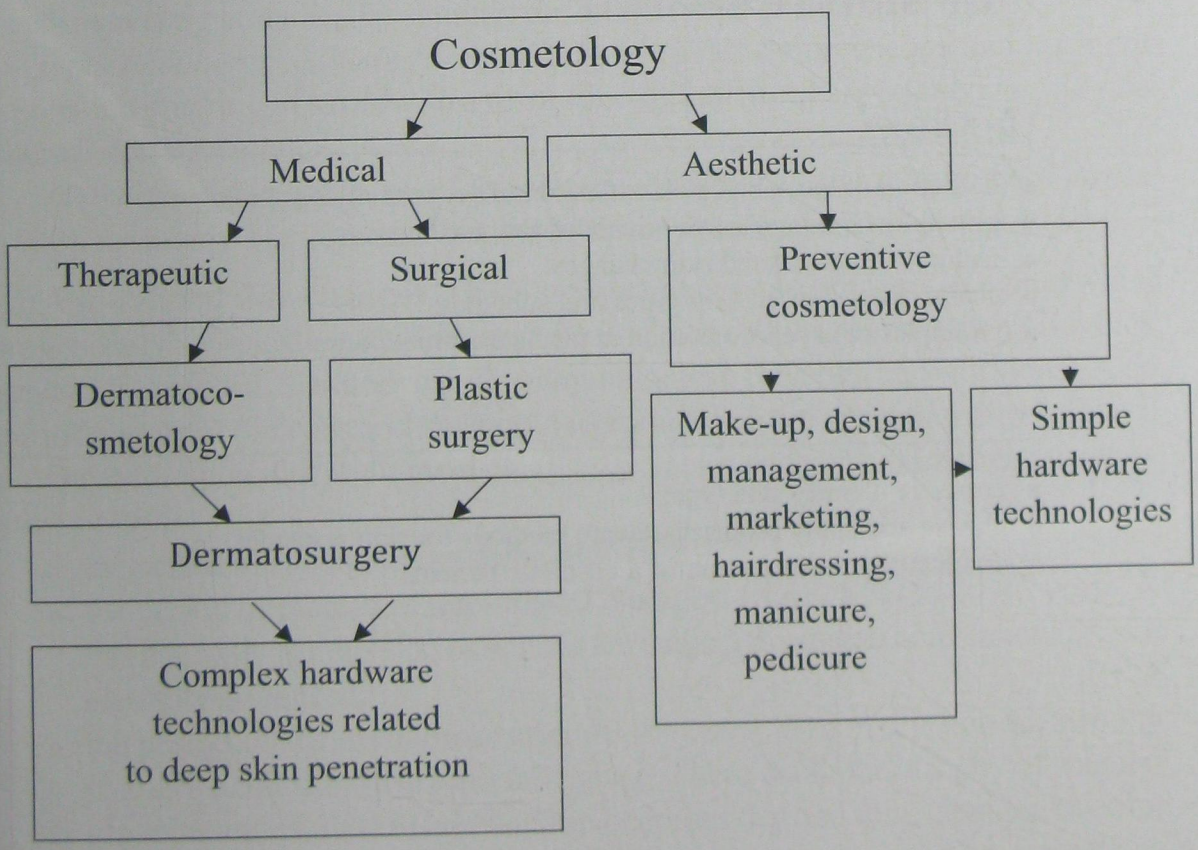
b) State the additional methods of research.

Answers to the questions of the first level of complexity
1 – B; 2 – B; 3 – B; 4 – A; 5 – D; 6 – C; 7 – B; 8 – E; 9 – E; 10 – E
Answers to the questions of the second and third levels of complexity
1a – A; 2a – B; 3a – B; 4a – E; 5a – D

23 TOPIC

Introduction to Cosmetology

Medical Cosmetology is a section of Clinical Medicine that studies mechanisms of development and the nature of cosmetic skin defects, as well as develops methods and ways of their correction, prevention and masking. Depending on applied methods, cosmetology can be medical and aesthetic. More detailed classification of cosmetology is shown in the diagram. It should be noted that the section covers just some aspects of medical cosmetology.



TRAINING AND EDUCATIONAL GOALS

- Properly inspect skin condition
- Determine skin type and subtype
- Learn the principles of skin research with hardware-based methods
- Provide advice on proper skin care
- Determine the stage of cellulite development
- Prepare an appropriate anti-cellulite and body shaping program
- Correctly apply the latest techniques and technologies in cosmetology

23.1 Characteristics of skin types and subtypes and methods of skin research

TO KNOW:

- definition of the subject, classification of sections of cosmetology;
- principles of skin research with hardware methods;
- features of age-related skin changes;
- characteristics of all skin types and subtypes;
- principles of psychocorrection in medical cosmetology.

TO BE ABLE TO:

- correctly identify skin type;
- choose and apply proper hardware methods for skin research;
- conduct psychocorrection of a cosmetic patient.

Cosmetology is strictly a scientific discipline, which determines the principles of gradualism and caution when providing cosmetic care. Cosmetologists and surgeons are unable to radically solve the problem of aging. They are involved in correction of visual external signs of body aging, constitutional features, secondary cosmetic skin, as well as prevention of the above defects.

To select the management of patients with cosmetic defects and prepare correcting programs, certain researches are required.

Research of skin with hardware methods. *Corneometry, measurement of transepidermal water loss (TEWL) and skin conductivity test* help evaluating skin moisture balance.

Sebumetry, visualization test and gas chromatographic analysis help evaluating skin lipid balance.

Mexametry and chronometry are used to study the processes associated with photo-aging.

The study of skin microcirculation is carried out using laser Doppler flowmetry.

Skin topography is researched through the method of optical profilometry and analysis of prints received from digital cameras with high resolution, by means of special computer programs.

Skin peeling is studied by staining furfurs on prints from adhesive tapes.

Optical coherence tomography (OCT), ultrasound microscopy and magnetic resonance imaging of skin (with a resolution of 0.86 mm) are applied to study the internal skin structure.

Methods of vibrating reo-elastography, transverse and longitudinal strain, as well as acoustic method are used to determine mechanical properties of skin.

Age-related skin changes. There are several basic hypotheses of aging, which are generally complementary. These theories include: cellular senescence by Hayflick, genetic, free radical, thermodynamic, immunological, elevating and nutritional. Also, the influence of epiphysis and melatonin it produces on the aging process is proved.

Depending on morphological changes of facial and neck skin, there are *three main periods*:

- the period of age evolution: from birth to 20-25 years;
- the period of plateau of age-related changes: from 25-30 to 40-45 years. At this age, only fibrous skin structures are subject to gradual conversion, i.e. skin elasticity is reduced;
- the period of age involution: after 40-45 years. Within this period, atrophic changes of all skin structures take place. There occur the atrophy of spicular, granular and glare skin layers. Skin becomes dry and thin, changes its color, blood circulation is violated. Atrophic effects develop in cutaneous appendage.

Types of facial skin. Facial skin can be divided into several types and subtypes: *normal skin* with no pathology (filled in or rather soft), *dry skin* (filled in or rather soft), *oily skin* (filled in or rather soft) and *combined skin* (filled in or rather soft).

Normal skin features matte surface, pores are barely visible, not filled with sebum. Test for greasiness is positive, on side surfaces – negative. Rotary compression test is negative (with age, becomes positive). Skin is well protected from external factors and remains in good condition with no cosmetic care for a long period (30-40 years). To prevent rapid age involution of this skin type, the use of cosmetics is to be minimized. After the age of forty years, nutritional creams, hygienic or self-massage are applied.

Dry skin features matte surface, pores are barely visible. Test for greasiness is negative. Skin is elastic; with age, rotary compression test becomes positive, wrinkles appear, skin becomes flabby. This type of skin is sensitive to external stimuli, and therefore requires constant care and protection. In excessive peeling, skin is smeared with rehydrated cream or vegetable oil twice a day.

Oily skin features a shiny oily look and rough texture. Test for greasiness is positive, while elderly people may face a negative test as a result of diffuse atrophy of the sebaceous glands. At a young age, rotary compression test is negative. With age involution of skin, the test becomes positive. This type of skin is sensitive (stands no soap and oily creams), prone to inflammation. Oily skin care also begins with a correct diet. One is to limit consumption of spices, alcohol, fatty and fried foods. Such skin requires systematic cleansing by washing with an indifferent or soft soap.

Combined skin type is determined individually. A characteristic feature of this type is glare in the middle and mattness in other parts of the face. Large pores are filled with sebum. In the middle part of the face, test for greasiness is positive, in the side areas – negative.

Dyschromia. Dyschromia is skin discoloration. Skin color is dependent on the ratio of four shades. Presence of oxidized hemoglobin in capillaries gives skin red tinge; reduced hemoglobin of cutaneous venous wall is responsible for blue color, yellow color depends on carotenoid skin content. Extremely important in terms of influence on skin, brownish tint is dependent on content and distribution of melanin in the epidermis.

Skin Care

TO KNOW:

- basic principles of skin care;
- advanced methods and the latest technology in cosmetics, in particular chemical peeling, application of hyaluronic acid and botulotoxin, the use of laser medicine; lipofilling, the use of embryonic and stem tissues, oxy-mesotherapy;
- particular application of the latest techniques and technologies in cosmetology, indications and contraindications to their use, advantages and disadvantages of each method, possible complications.

TO BE ABLE TO:

- perform proper skin inspection;
- give advice on proper skin care;
- apply the latest techniques and technology.

Cosmetology: Technologies

Dermatologic chemical peeling is a treatment procedure to align skin surface by means of chemical factors, in order to eliminate skin defects and changes caused by aging, excessive sun exposure, acne and its effects, as well as endocrine disorders.

Any chemical action is based on the following principles:

- dosed destruction of skin layers, depending on the task;
- stimulation of the growth of new epidermis;
- induction of aseptic inflammation of the dermis to enhance regeneration.

The main indications for peeling involve hyper-pigmentation, acne and post-acne, enlarged pores, scars on rash spots, pigmentation, skin aging, skin photoaging, uneven skin texture, wrinkles around the eyes, nasolabial triangle, hyperkeratinization.

Depending on the task, peeling can be superficial, medium and deep. In each case, the solution and concentration are selected individually.

Superficial peeling promotes exfoliation of the surface layer of the epidermis.

Agents applied for superficial peeling:

- 10-30% solution of salicylic acid;
- Jessner's solution (a mixture of lactic and salicylic acid, resorcinol, and 70% alcohol);
- 20-70% solution of glycolic acid;
- 10-20% solution of trichloroacetic acid;
- 20% solution of azelaic acid.

This type of peel is useful for mild acne, porous skin, to normalize dry skin, with initial manifestations of aging and as a prophylactic measure.

Often, superficial peeling involves application of glycolic acid. In addition to exfoliating effect, hydroxy acids feature the ability to destroy melanin and partially block its synthesis in melanocytes of the basal layer of the epidermis. *Medium peeling* is designed to fight pigmentation caused by age-related changes, the phenomena of post-acne, wrinkles and photo-aging phenomena. It involves exfoliation of the epidermis to the papillary or even the upper reticular dermis.

Typically, middle peeling involves application of trichloroacetic acid at a concentration of its combinations with the snow of carbonic acid and Jessner's solution. These techniques give rise to a programmed chemical burn followed by exfoliation of the epidermis to the papillary dermis. At a pre-peeling stage, superficial peeling, products of hydroquinone, retinoic and glycolic acid are used. Repeated peeling is performed not earlier than in six months.

Deep peeling is to correct atrophic scars, deep wrinkles, the effects of acne and for skin rejuvenation. After the procedure of deep peeling, skin surface becomes taut; there is a pronounced lifting effect that lasts 5-6 years. Deep peeling involves application of phenol, and sometimes croton oil.

Deep peeling is performed only in a hospital under general anesthesia.

The recovery period lasts an average of six months, during which one should use a sunscreen with a maximum degree of protection.

Contraindications for the procedure of peeling include expressed viral skin process (molluscum contagiosum, herpes, viral warts; pustular acne, exacerbation of chronic skin diseases.

Complications can include prolonged erythema, edema, contamination with secondary microflora; scars, hyper-or hypo-pigmentation.

Laser medicine. In recent years, the use of lasers for skin rejuvenation, removal of tumors and laser hair removal have become quite popular.

The main fields of laser application:

- laser surgery (lasers: CO2, argon, krypton, copper vapor);
- photo-rejuvenation;
- laser hair removal;
- treatment of pigmented structures (lasers: krypton, dual neodymium, copper vapor, pulsed dye);
- tattoo removal (lasers: ruby, neodymium, alexandrite).

Laser resurfacing is based on a phenomenon of ablation, which is flash evaporation of tissues under the influence of high temperature. This occurs when the tissue is heated to a temperature above 300 ° C.

Benefits of laser resurfacing:

- removal of the epidermis is non-contact, so there is practically no risk of infection;
- the ability to accurately dispense the wave penetration depth.

Laser resurfacing applies CO2 lasers and Erbium YAG lasers.

Botulinum toxin. In clinical practice, botulinum toxin type A is used. It is the most toxic agent, while its effect has been well studied. Less likely, toxin type B is used. Short-time effect it provides is considered a disadvantage (1-2 months). Botulinum toxin type B is used in ophthalmology. All botulinum toxins prevent the release of acetylcholine at the neuromuscular contacts in striated muscles, while causing their paralysis. The action of toxin on presynaptic receptors of the neurons is fast and specific. It is called chemical denervation. The first clinical manifestation of the toxin action can be observed after 24 hours, while the maximum effect is achieved at the end of the second week. The effect of chemical denervation is prolonged. In all treated neuromuscular synapses, the recovery of function occurs within 3-6 months.

Intravenous drugs. Hetero-implants. Drugs used for contour correction are divided into synthetic and natural.

Synthetic drugs

1. Preparations based on lactic acid. Provide a more lasting effect than hyaluronic acid, due to the property of lactic acid to cause formation of fibrosis in the injection site, and then being excreted from the body.

2. Preparations based on siloxanes: biopolymer gels.

The drugs are applied for correction of deep wrinkles and to create volume.

3. Preparations based on silicones and acrylamide gels *are not being currently used.*

Natural implants

1. Drugs based on collagen.

Injections of collagen in the dermis allow replacing dermal collagen in its complete lack or stimulate its synthesis in low production. The result appears immediately after the injection. The implants are made from bovine collagen, and contain 95% of the collagen type I, and 5% of collagen type III.

2. Preparations based on hyaluronic acid. Hyaluronic acid is identical in all kinds and types of skin, which explains its high biocompatibility in implantation.

Preparations based on collagen and hyaluronic acid can be used individually or together, depending on the problem to be addressed.

Speed and relative painlessness of the procedure, maintaining the usual way of life for the patient and complete assimilation by the body represent the main advantages of natural implants.

3. Application of autoimplants: lipofilling.

Lipofilling is a surgical technique to administrate human fat to correct defects in appearance. The procedure is performed in a hospital.

Lipofilling is used to correct the defects of nasolabial, periorbital and perioral areas, as well as post-acne scars. Possible complications: infection, hematoma at the spot of fat injection, scarring at the puncture sites.

A combination of lipofilling with liposuction to correct facial or body contours is called liposculpture.

Embryonic cells. The method consists in the active substitution and stimulating effect on the functionally defective cells and tissues, stimulating reparative and metabolic processes in the body, immune correction and stimulation. The drugs based on fetal tissues are applied (*suspension of hematopoietic cells of fetal liver and cryopreserved placenta extract*)

This method has not been widely used.

Stem cells. Cellular therapy is treatment with stem cells and biologically active substances they produce. For treatment, stem cells of the patient or donor are used. Application of cellular technologies allow compensating for age-related manifestations. Preparations of stem cells stimulate the synthesis of collagen and elastin fibers, reinforces derma frame, increase metabolism and improve microcirculation. This helps increase turgor and elasticity, diminish deep and smooth fine wrinkles, fight dryness and exfoliation.

Oxy-mesotherapy. The method represents administration of pure oxygen and small molecules to the level of the basement membrane with no skin penetration by the action of impulsive pressure of oxygen. In the area of administration, the depot of active pharmaceutical ingredients is formed. The procedure has no contraindications and causes no discomfort. It is used to correct and prevent skin aging, treat acne, pigmentation and cellulite.

Physiotherapy and hardware methods in cosmetology. Cosmetology applies therapeutic factors of different physical nature. By origin, they can be divided into natural and artificial.

By type of energy and carriers, factors can be of artificial electromagnetic (electric, magnetic, optical), mechanical and thermal nature. Cosmetology uses such natural factors as climate, mineral waters, therapeutic mud.

Below, there are presented physiotherapy techniques to be most commonly used in cosmetology.

Electromagnetic factors

Galvanising is the use of direct current for therapeutic purposes.

Therapeutic effects: dehydrating, sedation (anode); vasodilating, myorelaxing, secretory, detoxificating (cathode).

Indications: pigmentation disorders, edema, decreased skin turgor and muscle tone.

Contraindications: acute skin inflammation, violation of integrity of skin integument, idiosyncrasy of current.

Therapeutic electrophoresis (ionophoresis) is a combined impact of direct current and substances introduced into the body by means of it. *Deencrustation* is the use of direct current to control epidermal injury. Regular use of deencrustation helps restoring the structure of the upper-papillary dermis, stimulates formation of granulation tissue and angiogenesis in the deeper layers, and improves the ability of resorption.

Therapeutic effects: re-epithelizing, purifying.

Indications: oily skin, blackheads, seborrhea, acne, melasma, post-inflammatory pigmentation, early signs of photoaging.

Contraindications: vitiligo, neurotic excoriations, molluscum contagiosum, neoplasia.

Micro-current therapy: the action of a weak low-frequency current changes the cell membrane potential; ion channels are opened, calcium enters the cell, the activity of calcium ferments is increased. The use of micro-current treatment helps restore atrophied muscles, collagen and elastin fibers, remove spasm, thereby restore color and elasticity of skin, smooth out wrinkles and remove dehydration.

Contraindications: cancer, heart rhythm disturbances, pregnancy, hyperthermic conditions, mental illness, presence of metal objects in the zone of action, intolerance to electric current.

Darsonvalization is a therapeutic effect of weak pulsed AC high frequency and high voltage on peculiar body parts.

Therapeutic effects: vasodilating, catabolic, tropho-stimulating, bactericidal.

Indications: acne, seborrhea, alopecia, inflammatory and parasitic skin diseases, ulcers, long necrotic wounds.

Contraindications: dry skin, dyssebacia, calvities, hypertrichosis, hypersensitivity to current.

The use of factors of mechanical nature includes massage, skin treatment, microdermabrasion, brush-peeling, ultrasound, phonophoresis.

Massage is a dosed mechanical effect on a patient's skin by means of special movements of the corresponding sequence performed by a massage therapist.

Indications: prevention of skin aging, low turgor, edema, dryness and oiliness of skin, cosmetic facial deformities, figure shaping program.

Contraindications: acute skin inflammation, chronic dermatitis, rosacea, molluscum contagiosum, violation of skin integrity, hirsutism, inflammation of facial nerve, hypertension.

Types of facial massage: classic, plastic, Jacquet's therapeutic, self-massage.

Facial cleansing is a mechanical removal of sebaceous plugs and blackheads from face, resulting in the opening of sebaceous and sweat glands, restored renal function of skin, improved microcirculation and lymphatic drainage, stimulated splitting of keratinocytes of the basal layer of the epidermis.

Indications: prevention of inflammatory and aging changes of skin, seborrhea, oily skin, acne, miliums and comedones.

Contraindications: purulent or fungal process on skin, herpes, telangiectasia, hypertension, hyperthermia.

Microdermabrasion is a layer-by-layer skin resurfacing by means of aluminum dioxid microcrystalline powder.

Indications: aging changes, prevention of skin aging, scars, pigmentation, post acne, hyperkeratinization, striae.

Contraindications: inflammatory effects on skin, pyrexia, herpes, telangiectasia.

Brush-peeling is a mechanical removal of the upper layer of the epidermis by means of special brushes that rotate at a certain speed. Brush-peeling helps removing dead skin flakes, stimulates the activity of sweat and sebaceous glands.

Indications: oily and dry skin, comedones, poor complexion, wrinkles, post-acne, hyper-pigmentation, seborrhea, hyperkeratosis.

Contraindications: acute inflammation of skin, violation of skin integrity, herpes simplex, an acute form of rosacea, multiple telangiectasias, exacerbation of chronic dermatoses.

Ultrasound. Ultrasound provides physical, chemical and thermal effect on tissues, depending on the desired effect. The ratio of thermal and non-thermal effect of the treatment is determined by the intensity of light or mode of action.

Indications: seborrhea, acne, skin aging, cellulite, scars.

Phonophoresis is a combined effect caused by the action of ultrasound and substances introduced into the body by means of it.

Contraindications: pregnancy, cancer, thrombosis, acute inflammation of skin, metal objects in the action zone.

Ultrasonic peeling is cleansing of skin by means of ultrasound. Under the action of ultrasonic waves, a break of desmosomes of keratinized epidermis takes place, which promotes its peeling. Reflexively, such action stimulates proliferation of basal layer of the epidermis.

The effect of physical factors includes vacuum massage, vacuum cleaning, vaporization, hydrotherapy, thermotherapy, cryotherapy, hydrotherapy, thalassotherapy, pelotherapy.

Vacuum massage is the impact on deep tissues, resulting in increased blood and lymphatic flow, improved activity of sebaceous and sweat glands, increased metabolism.

Indications: body shaping, pitting edema.

Contra-indications are the same as with other methods.

Vacuum cleaning is cleaning of skin from acne, blackheads, dead skin cells using special cannulas and cones, as well as and the device to create a vacuum.

Contra-indications are the same as with other types of cleaning.

Vaporization is the therapeutic use of aerosol and liquid medications. Ionized steam cleans facial skin, increases sebaceous and sweat glands, promotes the release of metabolic products, causes congestion, tones skin, promotes the resorption of inflammatory infiltrates.

Indications: oily skin, comedones, preparation for brush-peeling and cleaning.

Contraindications: telangiectasis, rosacea, chronic dermatoses with acute bronchial asthma.

Hydrotherapy. Shower is the impact of water sprays of different temperature and intensity on the body. It is often used in body shaping programs and to achieve tonic or relaxing effects.

Treatment effects: epithelizing, restorative, reparative-regenerative, catabolic, immune.

Contraindications: acute inflammation of skin, recrudescence of chronic diseases, cancers.

Thermotherapy. Paraffinotherapy involves the use of a natural mixture of carbohydrates (C18-C35) with a melting point of 40-50 ° C, which has poor thermal conductivity and good heat capacity.

Indications: dry skin and skin with age changes, post acne, pitting edema, stagnant spots.

Contraindications: hypertrichosis, rosacea, acute inflammation of skin.

Cryotherapy is the curative impact on tissues and organs with cold factors. The most commonly used agents are carbon dioxide snow, liquid carbon dioxide, liquid nitrogen.

Indications: oily skin, seborrhea, acne, alopecia, rosacea, warts, keloid scars, bad complexion.

Contraindications: hirsutism, vascular disease, sickle-cell anemia.

Thalassotherapy is the therapeutic use of sea plants, mud and heated sea water. See weed drugs provide a powerful stimulating and thermal effect on the underlying tissues.

Therapeutic effects: lipolytic, vasoactive, keratolytic.

Peloidotherapy involves the therapeutic use of mud. Mud applications allow their contents (volatile substances, ions, peptide and steroid hormonal substances, humic acid and unpolarized gas molecules) penetrating into skin through sebaceous glands and hair follicles.

1. To evaluate skin lipid balance, following procedures are performed:

A. Laser Doppler flowmetry
B. Corneometry
C. Mexametry
D. Sebumetry
E. Assessment of skin electrical conductivity

2. Laser Doppler flowmetry evaluates:

A. Skin lipid balance
B. Microcirculation
C. Skin moisture balance
D. Skin topography
E. Mechanical properties of skin

3. Which of the following is not a melanin type dyschromia:

A. Vitiligo
B. Tattooing
C. Melasma
D. Kaposi's disease
E. Albinism

4. The ablation phenomenon determines high therapeutic effect, when performing:

A. Microdermabrasion
B. Deep peeling
C. Oxy-mesotherapy
D. Laser skin resurfacing
E. Lipofilling

5. The advantages of botulinus toxin Estetox involve:

A. Deep penetration
B. Convenient form of release
C. Lack of human albumin
D. Predefinite effect of lipid denervation
E. Long-term effect

6. What type is not among the base types of skin?

A. Normal skin
B. Elastic skin
C. Dry skin
D. Oily skin
E. Combined skin

7. What action physical factors do not involve:

A. Vaporization
B. Brush-peeling
C. Cryotherapy
D. Thalassotherapy
E. Pelotherapy

8. Varieties of plastic surgery are:

A. Vacuum
B. Tumescent
C. Ultrasound
D. Syringe
E. All of the above

Task 1. A 26 y.o. patient with signs of post-acne visits a cosmetologist.

a) What type of treatment is appropriate?

A. Botulinum toxin
B. Hyaluronic acid
C. Chemical peeling
D. Lipofilling
E. Oxy-mesotherapy

b) What are the contraindications for the chosen treatment?

Task 2. A 27 y.o. woman visits a beauty clinic complaining of greasy skin surface. *On examination*: skin surface is oily, with coarse structure; pores are wide cone-shaped, but empty.

a) What additional research is required?

A. Corneometry
B. Laser Doppler flowmetry
C. Vibration reoelastography
D. Sebumetry
E. Measurement of conductivity

b) Give practical advice on caring for this type of skin.

Answers to the questions of the first level of complexity
1 – D; 2 – B; 3 – B; 4 – D; 5 – C; 6 – B; 7 – B; 8 – E
Answers to the questions of the second and third levels of complexity
1a – B; 2a – D

Sexually Transmitted infections (Venereal Diseases)

Sexually Transmitted Infections (STI) – highly contagious infectious diseases, especially sexually transmitted diseases affecting not only the genital organs. Currently there are more than 30 different infectious diseases, pathogens of which can be transmitted from person to person, primarily sexually. According to the WHO classification, some of the diseases indicated below in the table (scabies, hepatitis B and C, genital warts) are usually transmitted asexually, and therefore are only conditionally referred to the diseases transmitted mainly sexually.

WHO classification of sexually transmitted infections

Nosology	Pathogen
Classic venereal diseases	
1. Syphilis	*Treponema pallidum*
2. Gonococcal infection	*Neisseria gonorrhoeae*
3. Chancroid	*Haemophilus Ducrey*
4. Lymphogranuloma venereum	*Chlamydia trachomatis*
5. Granuloma inguinale (donovanosis)	*Klebsiella granulomatis*
Other sexually transmitted infections	
A. With a predominant damage of genital organs	
1. Urogenital chlamydiosis	*Chlamydia trachomatis*
2. Urogenital trichomoniasis	*Trichomonas vaginalis*
3. Urogenital mycoplasmosis	*Mycoplasma hominis*
4. Candidal vulvovaginitis and balanitis	*Candida albicans*
5. Genital herpes	*Herpes simplex virus*
6. Genital warts (condylomata acuminata)	*Papillomavirus hominis*
7. Genital contagiosum epitheliale	*Molluscovirus hominis*
8. Bacterial vaginosis	*Gardnerella vaginalis* and other pathogens
9. Urogenital shigellosis of homosexuals	*Shigella species*
10. Phthiriasis (pediculosis pubis)	*Phthyrus pubis*
11. Scabies	*Sarcoptes scabiei*
B. *With a predominant damage of other organs*	
1. Infection, caused by human immunodeficiency virus	*Human immunodeficiency virus*
2. Hepatitis B, C	*Hepatitis B,C virus*
3. Cytomegalovirus infection	*Cytomegalovirus hominis*
4. Amebiasis (predominantly of homosexuals)	*Entamoeba histolytica*
5. Lambliasis	*Giardia (lamblia) intestinalis*

Syphilis: general information and principles of diagnostics

24 TOPIC

Syphilis *(syphilis), synonym: lues* – is a chronic systemic infectious disease with a rhythmical undulating variable course, which is predominantly transmitted sexually and which affects all organs and systems of human body.

TRAINING AND EDUCATIONAL OBJECTS

- Understand classification of diseases, predominantly transmitted sexually
- Be oriented in history of origin and circulation of syphilitic infection in Europe and in the world
- Analyze the peculiarities of epidemiology of the indicated infection
- Compile information on the ways and the possible conditions of infection with syphilis
- Determine the incubation period and the factors influencing its course and features
- Understand the general course of syphilis and its classification

TO KNOW:

- current understanding of the etiology and pathogenesis of syphilis;
- morphological characteristics of the causative agent of syphilis – Treponema pallidum
- ways of transmission and conditions of infections, peculiarities of immunity, reinfection, superinfecting with syphilis;
- significance and clinical evaluation of serological reactions;
- general course of syphilis in the human body;
- main (most common) mistakes in the diagnosis of syphilis;
- legal and ethical aspects of venereal pathology.

TO BE ABLE TO:

- deontological properly collect general and sexual medical history of the patient suspected of having a sexually transmitted disease;
- classify the diseases, primarily transmitted sexually;
- analyze the features of the epidemiology of sexually transmitted diseases;
- during the treatment consider characteristics of the psychological and behavioral responses of people with sexually caused infectious pathology;
- analyze information on the ways and conditions of possible infection with sexually transmitted diseases.

Etiology. Syphilis is caused by Treponema pallidum (Treponema pallidum), belonging to the class of Spirochaetales, family of Treponemaceae, genus of Treponema. It received its name because of a very poor ability to paint. Treponema pallidum has the form of a thin spiral of width of 0.2 μm and a length of 5-15 μm. Its 8-12 curls are placed at the same distance from each other. They are very mobile and constantly carry out sliding (forward and backward), rotational, pendulum and contractile (wavy) movements. The small number of surface antigens (protein, polysaccharide, lipid) in Treponema pallidum determines its weak immunogenicity and helps to quite successfully counteract antibodies and lymphocytes of the human body. As facultative anaerobes Treponema pallidum finds the optimal conditions for its location and development in the lymphatic system. Treponema pallidum is unstable to drying and high temperature (at 55 °C it dies after 15-20 min.). The optimum temperature for its existence is +37 °C. **Epidemiology**. Syphilitic infection occurs only in humans. According to the WHO estimates (eng – WHO) about 15 million people in the world are infected with syphilis each year. Today, the disease is considered by experts as well as a co-factor contributing to HIV – infection.

Sources of infection. The source of infection is the sick person, especially with infectious (active) manifestations of primary and secondary syphilis.

Ways of infection. There are three main ways of infection with syphilis:

1. Contact:
   - sexual – in case of genital, anal and oral contacts;
   - professional – during surgery, instrumental examination;

2. Transfusion way – in the case of a direct penetration of Treponema pallidum in the blood, particularly during blood transfusions, medical manipulations (cutting, an injection during surgery).

3. *Transplacental* – from sick pregnant woman to the fetus through the placenta.

Immunity. True (sterile) or artificial immunity in case of syphilis in human does not exist, as there is no natural immunity. After infection only unsterile (infectious) immunity gradually develops, which is caused by an allergic changes in the body as a result of the disease-causing agent in it. When recovering infectious immunity disappears.

Reinfection – is recurrent disease of syphilis in human who had previously been sick with it, and did not fully recover from it, that manifested itself as the absence of any clinical symptoms, and persistent negative reaction of such person in all serological tests.

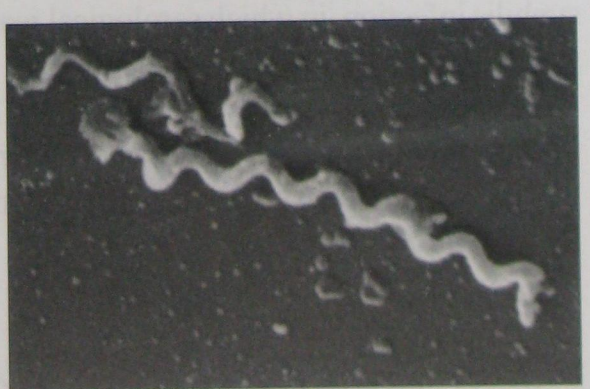


Fig. 24.1. Treponema pallidum (submicroscopy). Zooming x9000.

General course of syphilis and its classification. Syphilis infection is

characterized by the cyclical type of clinical course which is manifested by a certain sequence of occurrence of the external symptoms, the change of periods of active and latent clinical course.

In the clinical course of syphilis infection the following periods and forms are defined:

1. Incubation period – from the moment of infection to appearance of the hard chancre.

2. Primary period (*syphilis I primaria*) – stage of the disease from the moment of appearance of hard chancre to the development of secondary syphilides. It consists of:

- *seronegative (syphilis I seronegativa)* syphilis with persistently negative serological reactions in the presence of clinical symptoms;
- *seropositive (syphilis I seropositiva)* syphilis with positive serological reactions in the presence of clinical symptoms;
- *latent (suphilis I latens)* syphilis, which is characterized by the absence of specific clinical manifestations in patients.

3. Secondary period (syphilis II secundaria) – stage of the disease, which is characterized by polymorphic rash (papules, macules, pustules) on the skin and mucous membranes and their determined staging, namely:

- *secondary recent syphilis (syphilis II recens)* – period, characterized by numerous polymorphic eruptions on the skin and mucous membranes, polyadenitis, the presence of residual symptoms of the hard chancre and strongly positive serological reactions;
- *secondary recurrent syphilis (syphilis II recediva)* – period of secondary syphilis characterized by a small polymorphic grouped rash;
- *secondary latent syphilis (syphilis II latens)* – period of the disease, which is clinically latent and manifested only by positive serological reactions.

4. Third syphilis (syphilis III tertiaria) – stage, characterized by the damage of internal organs and nervous system.

5. Latent syphilis (syphilis latens). The latent syphilis includes such cases of syphilis infection, in which serological reactions are positive, but there are no clinical signs. The following variants are possible:

- premature latent syphilis (syphilis latens praecox), *when less than two years passed from the moment of infection;*
- tardive latent syphilis (syphilis latens tarba), *when two years and more passed from the moment of infection;*
- unspecified latent syphilis (syphilis ignorata), *when the period of infection can not be specified.*

6. Congenital syphilis (syphilis congenita) occurs when infection with Treponema pallidum is caused by ill mother in the period of intrauterine growth. It is customary to distinguish the following types:

- *premature congenital syphilis (syphilis congenita praecox)* – syphilis of fetus and of children up to two years;
- *tardive congenital syphilis (syphilis congenita tarda)* – in children older than two years;
- *latent congenital syphilis (syphilis congenita latens)*, in case of which the clinical manifestations are absent, and laboratory parameters of cerebrospinal fluid are normal.

7. *Syphilis of nervous system (neurosyphilis).*

General principles of diagnostics. Diagnostics of syphilis is based on:

a) the presence of specific clinical manifestations on the skin and mucous membranes;

b) the history data – sexual contacts;

c) the positive results of laboratory tests.

If the rash elements that are not accompanied by subjective sensations are present on the skin, genitals and mucous membranes, one should think that it may be manifestations of syphilitic lesions. It is desirable to establish a patient's sexual contacts over the past few months.

Spectrum of laboratory methods for diagnosis of syphilis is composed of the direct tests that detect causative agent of syphilis, or its DNA or of the large number of indirect mainly serological methods of studies.

1. What agent causes syphilis?

A. *Pediculus corporis*
B. *Sarcoptes scabiei varietas hominis*
C. *Demodex folliculorum*
D. *Treponema pallidum*
E. *Staphilococcus albus*

2. Which one of these diseases refers to classic veneral diseases?

A. Genital warts
B. Chancroid
C. Scabies
D. Pediculosis
E. All the above mentioned

3. Which of the following agents cause so called "classic veneral diseases":

A. *Chlamydia trachomatis*
B. *Neisseria gonorroeae*
C. *Treponema pallidum*
D. *Klebsiella granulomatis*
E. All the above mentioned

4. What types of movements can syphilis causative agent – Treponema pallidum cause:

A. Sliding (forward and backward)
B. Rotational
C. Pendulum
D. Contractile (wavy)
E. All the above mentioned

5. Which period is not defined in the clinical course of syphilis infection:

A. *Syphilis primaria*
B. *Syphilis congenita*
C. *Syphilis tertiaria*
D. *Syphilis secundaria*
E. *Syphilis nummularis*

6. Which are the ways of infection with syphilis:

A. Sexual
B. Transfusion
C. Transplacental
D. All the above mentioned

Task 1. Patient of the dermato-venereological department with a diagnosis of "primary seropositive syphilis" was treated with penicillin. 9 hours after the first injection a patient's body temperature rose to 38.2 ^{0}C, malaise, headache, and the maculopapular rash on skin appeared.

a) How can these symptoms be explained?

A. As allergic reaction
B. As toxic reaction
C. As idiosyncratic reaction
D. As infectious disease
E. As viral disease

b) Give therapeutic recommendations.

Task 2. The woman of 35 years received treatment of the secondary latent syphilis in the past.

a) How can be her complete medical treatment proved?

A. Absence of the disease manifestations
B. Birth of healthy children
C. Absence of disease relapses
D. Results of negative specific serologic reactions
E. All the above mentioned is true

b) Is the repeated infection with syphilis possible?

Answers to the questions of the first level of complexity
1 – D; 2 – B; 3 – C; 4 – E; 5 – E; 6 – D
Answers to the questions of the second and third levels of complexity
1a – B; 2a – E

25 TOPIC

Primary period of syphilis

Primary period of syphilis *(syphilis I primaria, lues primaria)* – stage of the disease from the appearance of primary sore (hard chancre) to the appearance of secondary syphilides.

TRAINING AND EDUCATIONAL OBJECTS

- Determine the overall course and clinical characteristics of the primary period of syphilis
- Get oriented in the typical and atypical manifestations of the primary period of the disease
- Determine the modern features of clinical manifestations of the primary period Study the features of filling in the medical records of patients with primary syphilis.

TO KNOW:

- factors affecting the duration and peculiarities of the incubation period of syphilis;
- clinical signs of classical hard chancre;
- atypical forms of chancres: chancre-felon, chancre-amygdala, indurative edema;
- peculiarities and clinical characteristics of lymph nodes;
- diagnostic algorithm of the primary period of syphilis;
- complications, caused by hard chancre (balanitis, balanoposthitis, phimosis, paraphimosis, mortifying, esthiomene, vulvitis, vulvovaginitis);
- personal preventive measures for this disease.

TO BE ABLE TO:

- deontologically and reasonably take a general and sexual history;
- conduct a comprehensive examination of the patient in the proper manner;
- analyze the results of laboratory tests of a patient with a primary period of syphilis;
- differentiate between the clinical manifestations of the primary period of syphilis;
- make a differential diagnosis of diseases that have similar clinical symptoms.

Incubation period – this is a period of development of a specific infection in the human body, which begins with the moment of infection and continues to manifestation of the first clinical signs of the disease. Its duration makes up an average of 3-4 weeks.

Clinical picture. Primary period of syphilis begins with a *primary syphiloma, or hard chancre*, and lasts for about 6-7 weeks before the onset of multiple lesions (secondary syphilides) on the skin and mucous membranes. 7-8 days after the formation of the had chancre, increase in the size of lymph nodes becomes noticeable (*regional scleradenitis or specific bubo*). This regional scleradenitis has fairly typical symptoms: tightly elastic consistency, non-inflammatory nature, focus location, absence of cohesion of nodes with skin, their considerable mobility.

Given Wasserman reaction primary period of syphilis is divided into primary sero-negative (*first three weeks*), and primary sero-positive (*following three-four weeks*).

In most cases, chancre is localized on the genitals. Chancre can appear on other areas of penetration of the agent (the area of the rectum, mammary gland, tunica mucosa of mouth).

Hard chancre –is a painless saucer-shaped ulcer or erosion, with smooth edges without visible inflammation manifestations, on the bottom of which the infiltration of the cartilaginous hardness, or tangible induration like a thin film and shine are formed. There are clinical varieties of hard chancre depending on the number of formations, the localization of process, anatomical peculiarities of lesions (single, multiple, erosive, ulceration, genital, estragenital, large and small in size).

Clinical signs of the classic hard chancre:

- morphological element in the form of erosion or ulceration;
- the bottom of the color of raw meat;
- the chancre is of regular round or oval form;
- edges are not saped, are clearly lined up, saucer-shaped and at the same level of the skin, if chancre is ulcer;
- size of 0.7-1.5 cm;
- lesion focus is painless and without inflammation swab around the periphery;
- chancre erosive surface is smooth and shiny;
- surface of the ulcer chancre has a small hemorrhage, and is sometimes covered with purulent layering;

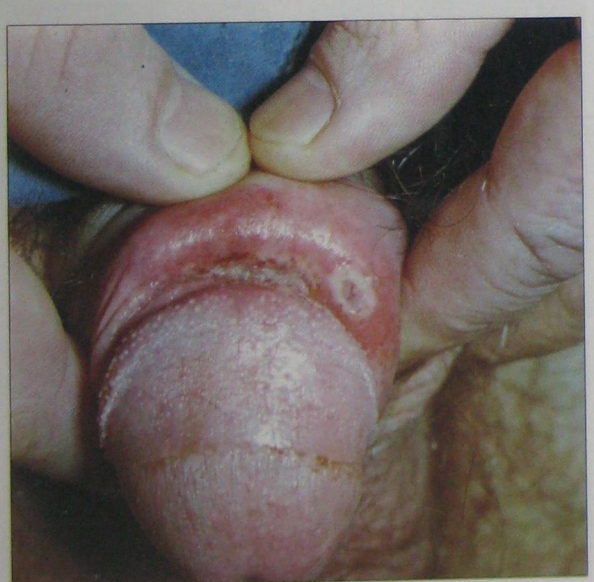


Fig. 25.1. Erosive hard chancre.

- significant density of edges and bottom during palpation;
- skin around the elements of the rash is not changed;
- presence of concomitant regional scleradenitis;
- infiltration under erosion after its epithelization persists for several weeks, and then fully and completely resolves;
- ulcerative chancre heals without treatment in 6-9 weeks, leaving a hypochromic scar.

There are also often atypical forms of hard chancres as indurative edema, chancre-felon and chancre- amygdalitis.

Indurative edema is localized mostly on the labia – in women, as well as in the foreskin and scrotum – in men. Due to lesions of Treponema pallidum of lymphatic vessels, edema area increases significantly, is compacted, acquires a kind of pale pink or bluish-red coloration.

Chancre-felon clinically resembles an ordinary felon, is localized on the nail phalanx in the area of periungual nail wall, usually of the index finger. Finger becomes

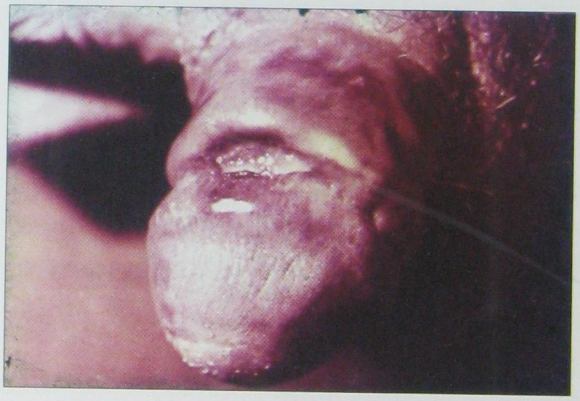


Fig. 25.2. Ulcer hard chancre.

Fig. 25.3. Multiple ulcer hard chancre.

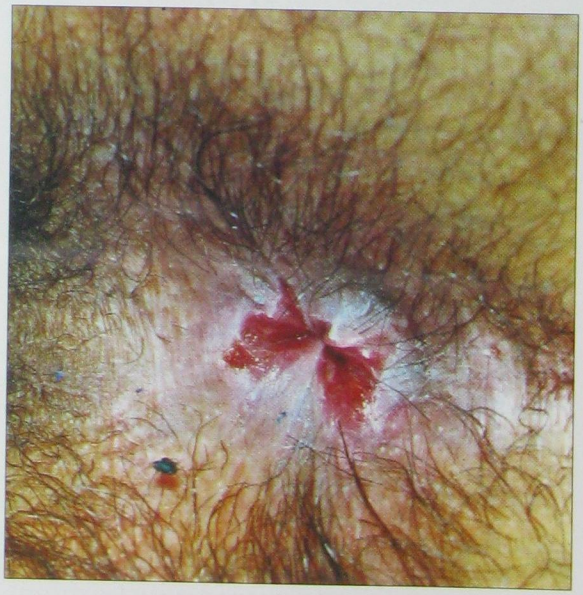


Fig. 25.4. Hard chancres in the area of anus.

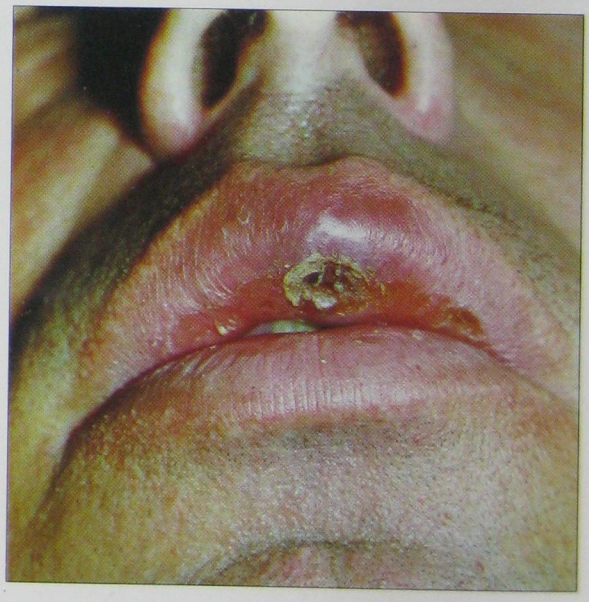


Fig. 25.5. Hard chancres in the area of upper lip.

swollen, it swells in the shape of clubbell and has a bluish-red color. Chancre-felon often takes the form of a deep ulcer in the shape of a crescent, with rough edges and the bottom covered with a dirty-gray fur. Patients feel a sharp throbbing, shooting pain. The elbow and axillary lymph nodes that are often painful during palpation are increased.

Chancre-amygdalitis is characterized by an increase, density and hyperemia of one tonsil with formation of neither erosion nor ulceration. The border of a redness is clear, pain is slight, overall temperature reaction is missing. Regional lymphadenitis of submandibular and cervical lymph nodes is developing. The process differs from angina by the unilateral lesion, the lack of significant pain and diffuse hyperemia of the mucous membranes of the mouth, and the general condition of the patient is normal.

The clinical course of chancre can be complicated. The *vulvitis, vulvovaginitis* develops in women, in men – *balanitis* (inflammation of the epithelium of the balanus), *balanoposthitis* (balanitis in combination with inflammation of the inner layer of the foreskin), *phimosis* (narrowing of the foreskin ring).

Severe complications of hard chancre include *mortifying*.

The second clinically manifested symptom of primary period of syphilis is ***regional lymphadenitis***. It becomes apparent at the end of the first week after appearance of the hard chancre. Its localization is directly related to the place of the chancre appearance. For example, chancre in the genital area causes an increase of the inguinal lymph nodes.

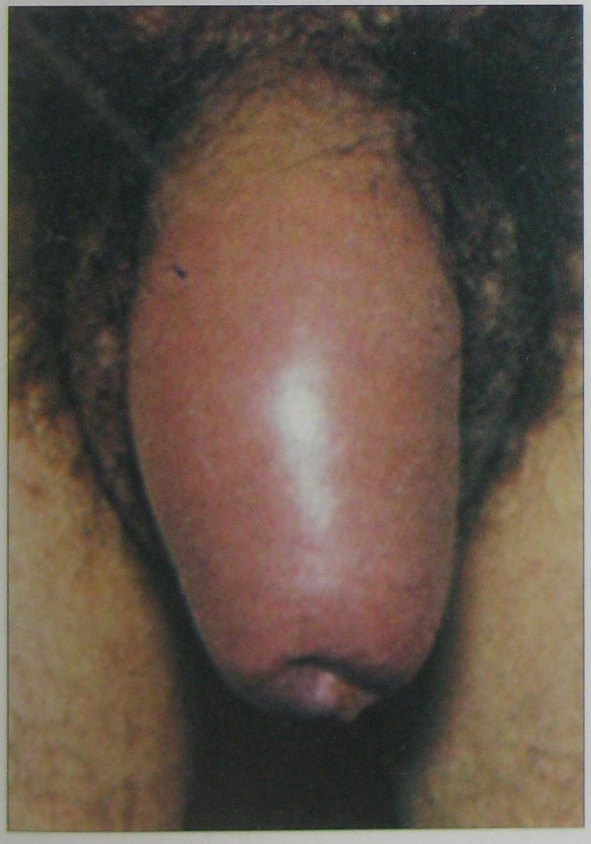


Fig. 25.6. Indurative edema.

Lymph nodes gradually increase in size, become dense, they are not painful, are not connected to each other or with the skin, are mobile; external signs of inflammation are not observed. Some (package) lymph nodes increase mainly in the area close to the lesion.

Fig. 25.7. Indurative edema regional lymphadenitis (specific bubo).

The main laboratory manifestations of primary syphilis are positive standard serological reactions. ***Wasserman reaction*** becomes predominantly positive in three weeks after the appearance of the hard chancre. Since that time, the primary seronegative syphilis enters the stage of primary seropositive syphilis.

4-6 weeks after the appearance of the hard chancre, symptoms indicating generalization of treponemal infection in the body appear. Almost all the lymph nodes increase, i.e., polyscleradenitis develops.

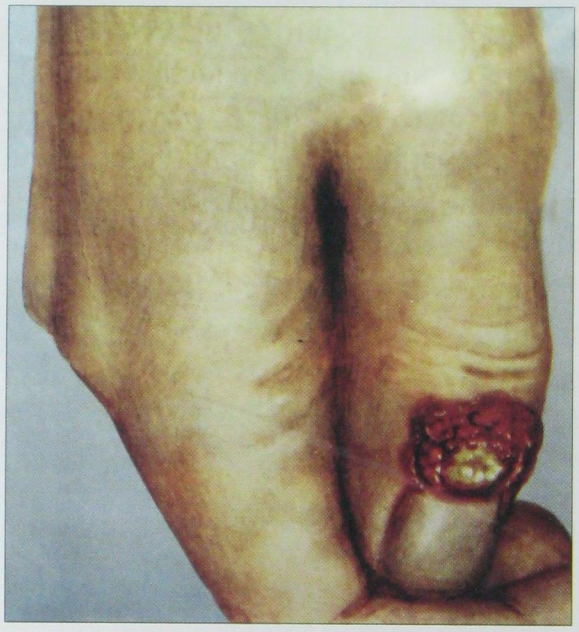


Fig. 25.8. Chancre-felon.

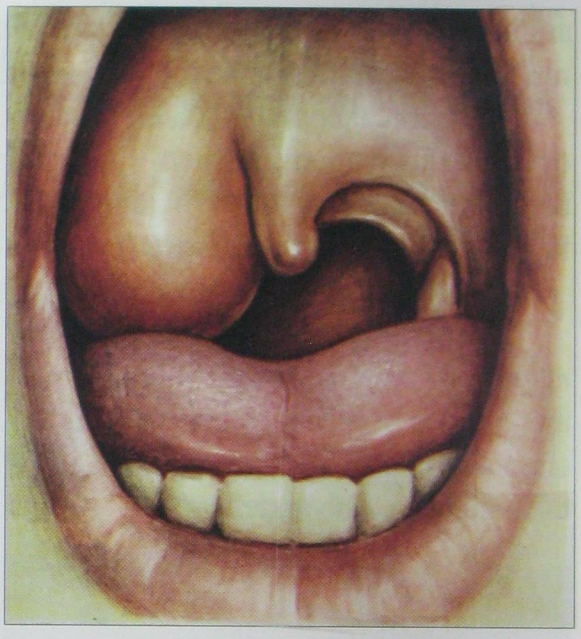


Fig. 25.9. Chancre-amygdalitis.

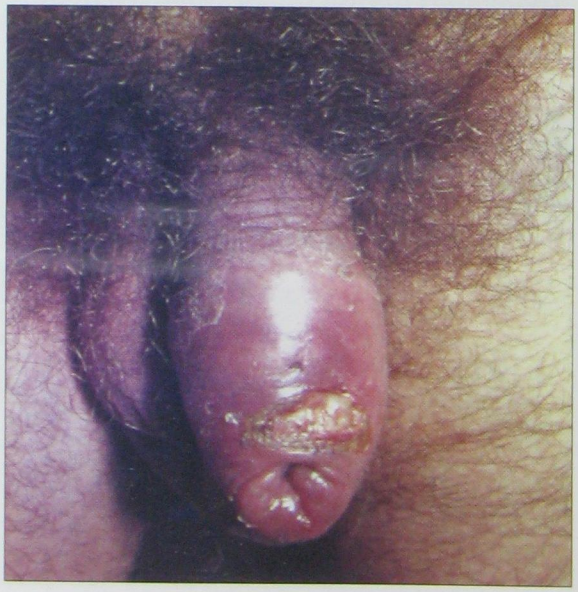


Fig. 25.10. Ulcerous chancre, complicated with balanoposthitis and phimosis.

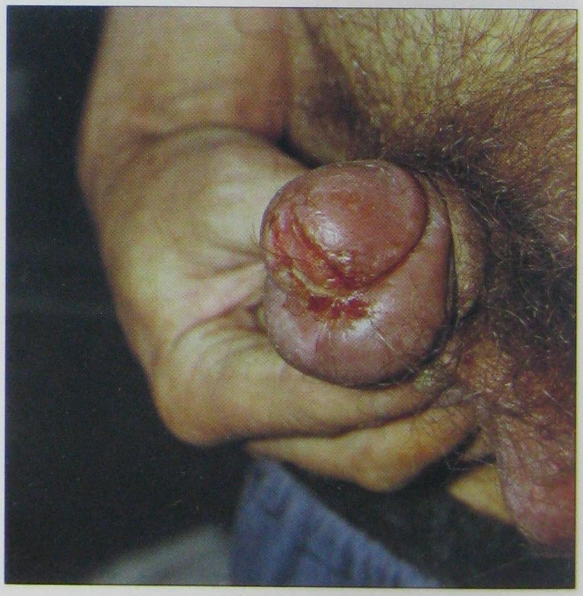


Fig. 25.11. Hard chancre, complicated with balanoposthitis and phimosis.

At the end of the primary period of the disease, 15-20% of patients have other symptoms: increased body temperature, headache and other symptoms of general uneasiness.

Primary period of syphilis ends not with healing of the hard chancre, but only with the appearance of secondary syphilides.

Diagnostics. Diagnosis of primary seronegative syphilis should always be confirmed by detection of Treponema Pallidum in secret from the surface of the hard chancre. In order to confirm the diagnosis of primary syphiloma, classic serological tests of blood, which become positive 3-4 weeks after formation of primary syphiloma, are also used. It is also important to identify the patient's sexual contacts.

Differential diagnostics. In case of differential diagnostics one shall distinguish hard chancre from erosions or ulcers that occur in other diseases, and are also located primarily in the area of external genital organs. These include traumatic erosions, herpes rash, tuberculous ulcers, skin lesions in case of chancroid, balanitis and balanoposthitis, pyoderma chancriformis, erythroplasia of Queyrat, carcinoma of the skin.

Pyoderma chancriformis is most similar to an ulcer in the primary syphiloma: it has a round or oval shape, dense infiltration, is painless, can be accompanied by concomitant scleradenitis. Treponema pallidum in the serum from the ulcer surface are not detectable. Serological tests for syphilis are negative.

The itching and burning sensation in the areas of future eruptions precede *herpes simplex* 1-2 days before the disease. Herpes is characterized by the typical small grouped vesicles with serous contents, as well as surface erosions with polycyclic contours.

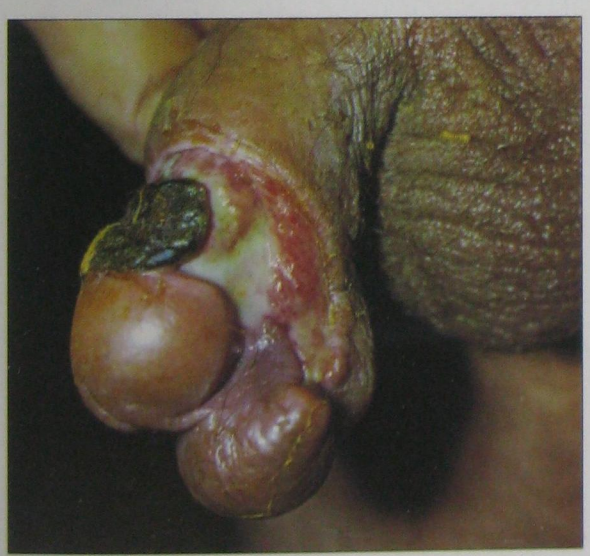


Fig. 25.12. Hard chancre, complicated with mortifying and esthiomene.

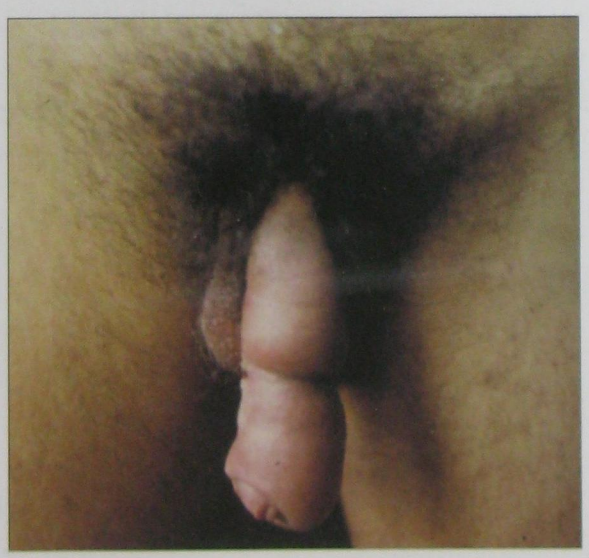


Fig. 25.13. Regional lymphadenitis (specific bubo; balanoposthitis).

Chancroid has a short two-three day incubation period, is characterized by the appearance of inflammatory maculo-papules, then pustules, which soon transforms into an ulcer. After the appearance of the first ulcer (parental) as a result of auto-infection, daughter ulcers appear. The edges of these very painful ulcers are swollen, bright red, saped, abundant pus is discharged. The scrapings from the ulcer or from its edges contain streptobacillus of Dyukrey-Unna-Peterson.

Erosive balanitis and balanoposthitis are manifested by the painful surface bright red erosions, without density with a thick discharge. There is no regional bubo.

Chancriform itchy ecthyma is usually multiple and accompanied by acute inflammatory signs, itching and presence of other symptoms of the scabies, the lack of a density and regional scleradenitis.

Traumatic erosion is mainly of linear form, accompanied by acute inflammatory signs, is painful and rapidly epithelialized, accompanying bubo is missing.

Carcinoma of skin mainly occurs after the age of 45-50 years; the ulcer edges are turned out, covered with small whitish nodules, the bottom is pitted, covered with necrotic decay foci, slightly bleeding, slowly progressing with no scarring.

Erythroplasia of Queyrat is manifested by the emergence of the small painless lesions on the balanus, which slowly develops, has clearly lined edges, bright red, velvety, shiny surface.

1. The incubation period of syphilis makes up:

A. 3–5 days
B. 2 weeks
C. 3–4 weeks
D. 2 months
E. 3 months

2. Hard chancre resembles:

A. Macule
B. Ulcer
C. Tuberculum
D. Papule
E. Pustule

3. The complications of hard chancre include:

A. Mortifying
B. Chancre-amygdalitis
C. Large chancre
D. Chancre-felon
E. Indurative edema

4. Name the atypical forms of primary syphiloma:

A. Balanitis, balanoposthitis
B. Phimosis,
C. Indurative edema
D. Mortifying
E. All the above mentioned is true

5. The typical hard chancre is not characterized by:

A. Regular round or oval shape
B. Smooth shiny bottom
C. Pain
D. Saucer shape with some raised edges
E. Unicity

6. Primary period of syphilis is characterized by the presence of:

A. Chancre
B. Regional lymphadenitis
C. Lymphangitis
D. Positive Wassermann reaction
E. All the above mentioned

7. Indurative edema is characterized by the following manifestations, except:

A. Develops as a result of lesion of lymph capillaries of the skin on the penis and scrotum, or small and large labia
B. Affected organs increase in size
C. The skin of the affected organs s dense, bluish in color
D. When pressing the pit does not remain, palpation is painless
E. When pressing the pit remains, palpation is painful

8. The main clinical symptoms of the regional lymphadenitis include:

A. The complete absence of signs of acute inflammation
B. Non-cohesion of lymph nodes between each other and with the skin
C. Nodes of round and oval form, the skin over the nodes is not changed
D. Tightly elastic consistency, painless n case of palpation
E. All the above mentioned

9. Chancre-amygdalitis (specific amygdalitis) is not characterized:

A. The increase and induration of the amygdala without the formation of erosion and ulcer
B. Absence of pain when swallowing
C. Unilateral affection, the absence of violations of the general state of the body
D. Unilateral affection of submandibular and cervical lymph nodes
E. Morbidity and bilateral ffections

10. Primary period of syphilis lasts for:

A. 7–8 weeks
B. 14 weeks
C. 3 weeks
D. 4 weeks
E. 6 months

Task 1. The prophylactic examination of the 37-year-old woman revealed a bilateral increase in the size of the inguinal lymph nodes, hyperemia with a bluish tint of right labia majora, which the patient has noticed about five weeks ago. *During examination*: other groups of lymph nodes are not enlarged, skin is free of rash.

a) Which is the most probable diagnosis:
- **A.** Bartholinitis
- **B.** Seropositive primary syphilis, chancre-amygdalitis
- **C.** Seronegative primary syphilis, typical hard chancre
- **D.** Seropositive primary syphilis, indurative edema
- **E.** Latent primary syphilis

b) What diagnostic researches shall be conducted?

Task 2. 35 years old patient turned to the dermatology and venereal clinic with the complaints for the increase and soreness of the penis. *Objectively*: the penis is increased in case of inflammatory edema of prepuce, outer leaflet of which has a bright red color. Balanus does not open, during palpation of prepuce from the right side, induration focus with diameter of 2 cm s detectable; purulent discharge under the prepuce is reinforced. Inguinal lymph nodes are enlarged to the size of a plum, other groups of lymph nodes are not enlarged. Serological tests are positive.

a) Which is the most probable diagnosis:
- **A.** Seropositive primary syphilis, paraphimosis
- **B.** Seropositive primary syphilis, esthiomene
- **C.** Seropositive primary syphilis, balanoposthitis
- **D.** Seropositive primary syphilis, indurative edema
- **E.** Seropositive primary syphilis, phimosis

b) What clinical consequences can develop?

Task 3. The laboratory worker of the dermatology and venereal clinic came to dermatologist for consultation in connection with finger cut with glass when doing the urinalysis of patient with secondary recurrent syphilis.

a) What clinical consequences this may have:
- **A.** The development of primary syphilis with a reduced incubation period
- **B.** Development of syphilis without a hard chancre (syphilis d'emblee)
- **C.** There will not be infection
- **D.** Development of septicemia status
- **E.** Formation of chancre-felon in the cut

b) Your therapeutic recommendations

Task 4. A 32 years old woman complaining of neck pathology turned to the otolaryngologist. *During examination*: unilateral increase of the left amygdala, which caused no pain when touching to it with a spatula. The patient can not connect this kind of pathology with anything.

a) Which is the most probable disease:
- **A.** Bartholinitis
- **B.** Seropositive primary syphilis, chancre-amygdalitis
- **C.** Seronegative primary syphilis, typical hard chancre
- **D.** Seropositive primary syphilis, indurative edema
- **E.** Catarrhal angina

b) What diagnostic researches shall be conducted?

Answers to the questions of the first level of complexity
1 – C; **2** – B; **3** – A; **4** – C; **5** – C; **6** – E; **7** – E; **8** – E; **9** – E; **10** – A
Answers to the questions of the second and third levels of complexity
1a – D; **2a** – E; **3a** – C; **4a** – B

26 TOPIC

Secondary period of syphilis

Secondary period of syphilis *(syphilis II secundaria)* – stage of the disease, which is caused by hematogenous spread of Treponema pallidum from the place of primary focus throughout the body, which is characterized by polymorphic rash (spots, papules, pustules) on the skin and mucous membranes, and determined staging of the clinical course and the possible affection of the internal organs and the nervous system.

TRAINING AND EDUCATIONAL OBJECTS

- Determine the features of the clinical course of secondary period of syphilitic infection
- Distinguish between ways and the possible conditions of infection through the persons with active manifestations of the secondary period of syphilis
- Determine the characteristic clinical features of the macular, papular and pustular syphilides of the secondary period of the disease
- Identify the features of pigmented syphilides, syphilitic alopecia and mucosal syphilides in patients with secondary period of syphilis
- Generalize clinical picture of the typical manifestations of the secondary period of syphilis

TO KNOW:

- general characteristics of the secondary period of syphilis;
- features of the clinical course of the secondary period of syphilis (recent, recurrent, latent);
- characteristics and variety of clinical manifestations of secondary syphilis on the skin – macular, papules, pustules, syphilitic alopecia, pigmented syphilides;
- clinic picture of affection of internal organs and mucous membranes in case of secondary syphilis;
- features of serological reactions in the secondary period of syphilis.

TO BE ABLE TO:

- Deontologically resonably take a general and sexual history in a patient with a secondary period of syphilis;
- analyze the results of laboratory tests of the patient and determine the right diagnosis;
- clinically examine the state of lymph nodes;
- differentiate between the clinical manifestations of the secondary period of syphilis;
- make a differential diagnostics of diseases that have similar clinical symptoms.

Clinical picture. Secondary period of syphilis begins when the hematogenous generalization of syphilitic infection is being realized. This usually occurs in 9-10 weeks after infection with Treponema pallidum or 6-7 weeks after the appearance of hard chancre. The appearance of skin rash indicates the beginning of the secondary period of syphilis. At this time roseolous rash appears on the skin and mucous membranes.

General features of clinical course of the secondary period:

- absence of subjective feelings and violation of the general condition of the patient;
- rash is highly contagious;
- the clinical manifestations are resolved independently without treatment;
- total duration of secondary syphilis – 2-4 years;
- all serological reactions are strongly positive;
- rash is presented by macular, papular, pustular and pigmented syphilides (true polymorphism), as well as syphilitic alopecia;
- rash does not occur simultaneously, but jerky, that is, within 2-3 weeks, and is at different stages of evolution (false polymorphism) in case of regression;
- rash is not acute inflammatory, its color is pale pink or brownish.

Most often at the beginning of second period (secondary recent syphilis) abundant roseolous rash appears, which is often polymorphic (roseola, papules), and is not prone to merge. The rash is symmetrical. Some have ulcerative hard chancre or the signs of primary syphiloma (pigmented secondary macule either fresh scar) and scleradenitis. After 1-2.5 months rash fades and only the positive serological reactions remain, secondary latent period begins. Later relapse of clinical manifestations of the disease with a very varied course occurs – secondary recurrent period.

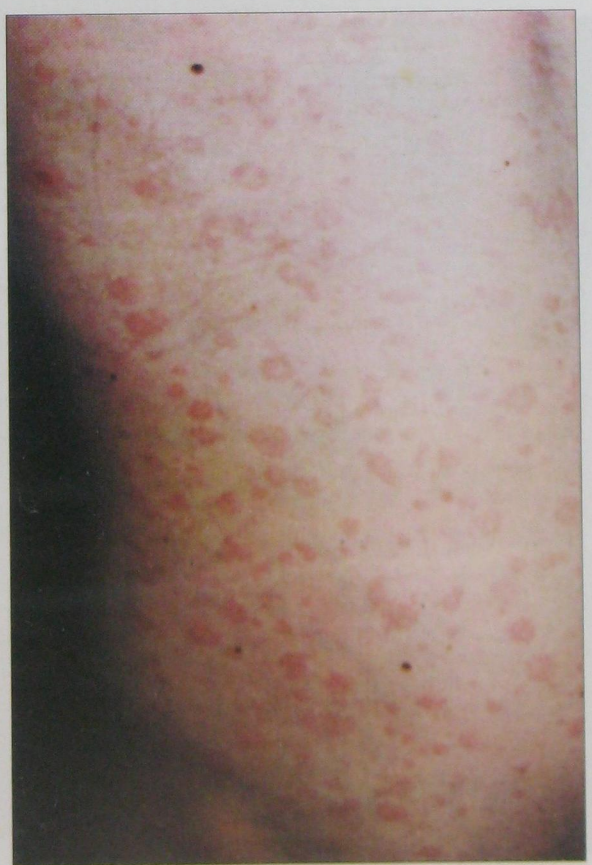


Fig. 26.1. Roseolous syphilide.

Unlike the secondary recent syphilis, there is less eruptions on the skin at this stage of disease, they are larger, tend to group, are paler, more often located in large folds of skin, in trauma places, in areas with increased sweating; polyadenitis does not almost happen. Serological tests of blood are positive in 98% of patients, although the titer of Wasserman reaction is lower than in secondary recent syphilis. There are

cases of lesions of the internal organs, the nervous and endocrine systems, sensory organs, bones, joints.

Roseolous syphilide – most typical rash in case of secondary recent syphilis. It is placed symmetrically on the side of the chest, abdomen, back, front surface of the upper extremities and hips. The rash is multiple and focused. The color of roseolas varies from pink to yellow-brown. Roseolas are round with a diameter of 8-12 mm, not shelled, they do not itch and disappear at diascopy. They become more visible after intramuscular injection of penicillin (Jarish-Herxhimer reaction). Without treatment they exist for about 3-4 weeks, and then disappear. They are rare on the palms and soles, as well as on the face. In case of secondary recurrent syphilis roseolas are larger, but not so bright, often spherical, tend to group, their quality is not large.

Differential diagnostics of roseolous syphilide. During the differential diagnostics one should exclude macular rash in some infectious diseases, which are accompanied by severe general condition, high body temperature, conjunctivitis, enantemy, laryngitis, tracheitis, bronchitis.

Papular syphilide may be also in the secondary recent syphilis, but the appearance of papules is more characteristic of secondary recurrent syphilis. In the case of secondary recurrent syphilis the number of papules is smaller, they tend to group together and are found on the palms and soles. Papules size varies from 2 mm (lenticular syphilide) to 12 mm (nummular syphilide). Hypertrophic papules – *wide condylomas* appear in the places of constant friction (in the folds, on the genitals).

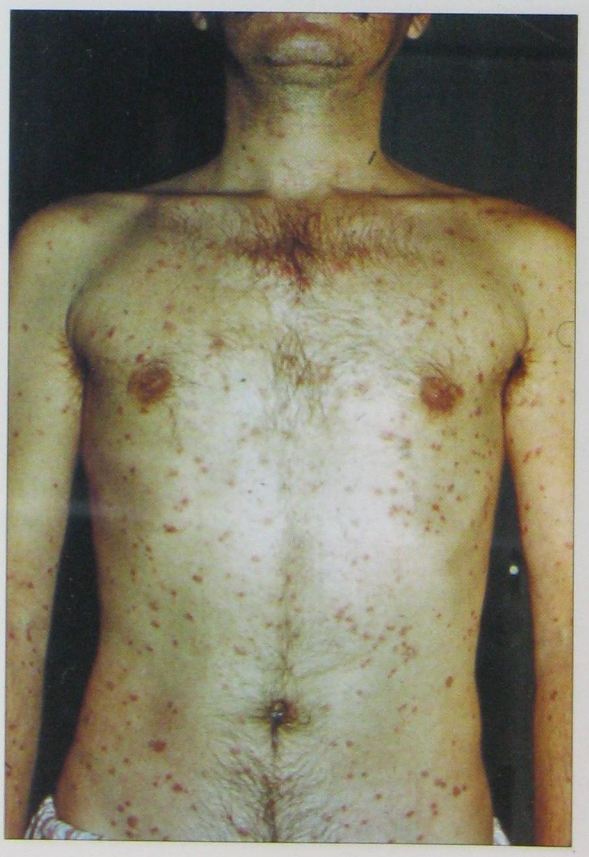


Fig. 26.2. Lenticular popular syphilide.

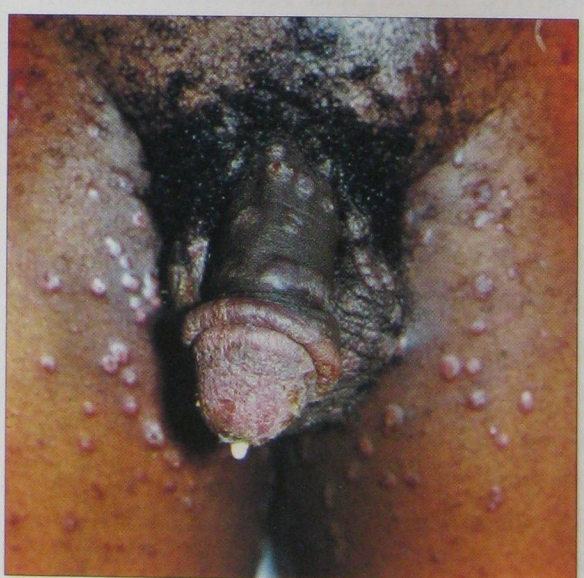


Fig. 26.3. Lenticular popular syphilide; ghonnerhea recent acute.

Typical signs of syphilitic papules:

- color is red or copper-red;
- dense, round;
- are mostly located isolated from each other;
- clearly localized from the surrounding skin, without inflammatory crown around the edge;
- cause no subjective feelings;
- in case of regression of papules, a kind of peeling, which starts from the center and extends to the periphery, leaving a Biett's horn-crown – collar is observed;
- sometimes the well-defined papules resembling corn are observed on the palms and soles;
- under the influence of maceration and friction, lenticular papules placed on the external genitals and skin folds grow and become moist and erosive. These papules are most contagious;
- due to irritation of the bottom of the erosive papules, vegetation – wide condylomas of pale pink color, resembling a cauliflower, gradually develop.

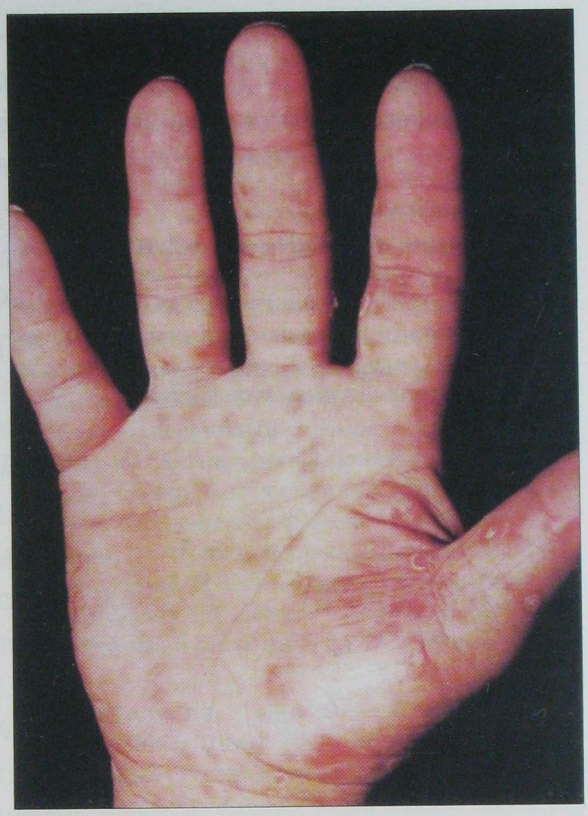


Fig. 26.4. Papular syphilide.

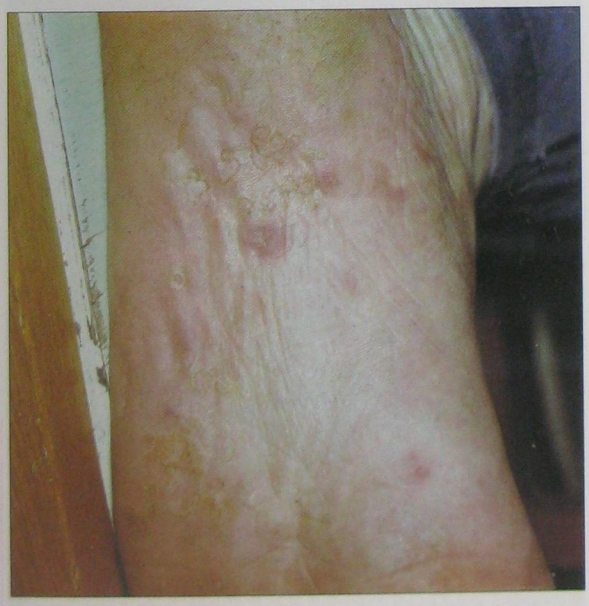


Fig. 26.5. Lenticular popular syphilide on sole.

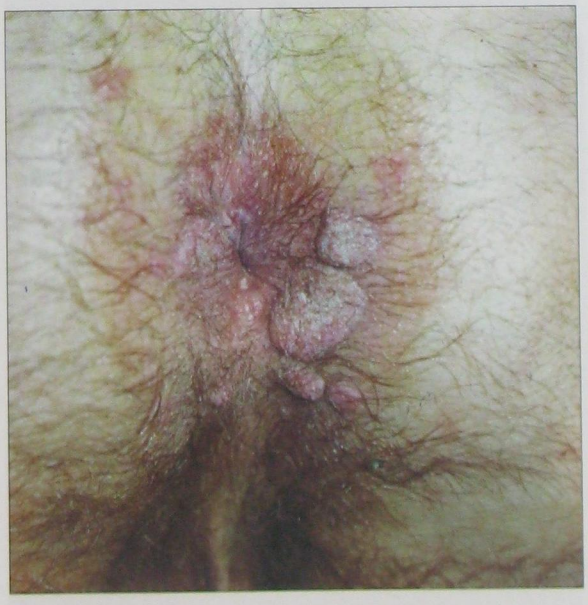


Fig. 26.6. Hypertrophic papules (wide condylomas) in the area of anus.

Differential diagnostics of papular syphilides. Syphilitic papules should be differentiated from papular rash at various dermatoses: psoriasis, lichen planus, parapsoriasis, molluscum contagiosum and other.

Wide syphilitic condylomas shall be distinguished from:

- *pointed condylomas,*
- *hemorrhoidal varicose veins,*
- eruptions in case of *vegetating acantholytic pemphigus*.

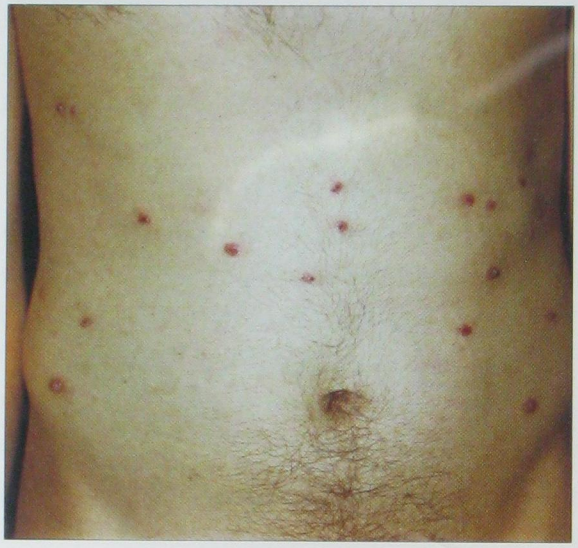


Fig. 26.7. Syphilitic impetigo.

Fig. 26.8. Syphilitic leukoderma.

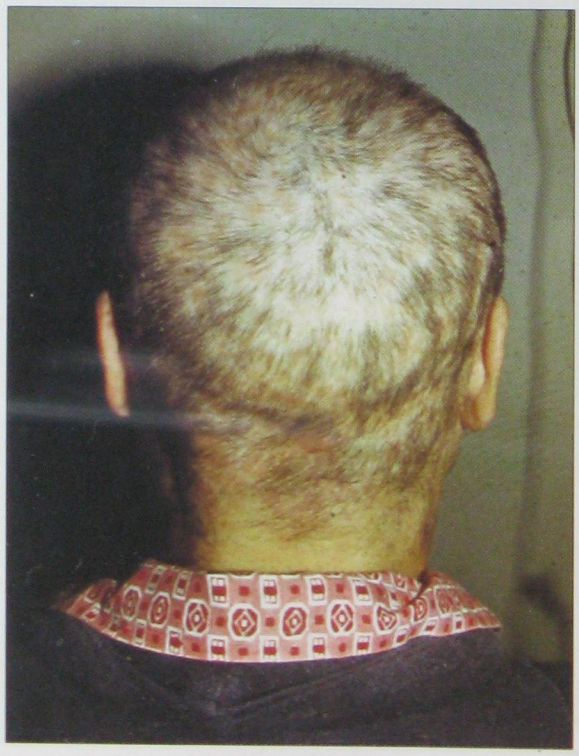


Fig. 26.9. Fine-focal syphilitic alopecia.

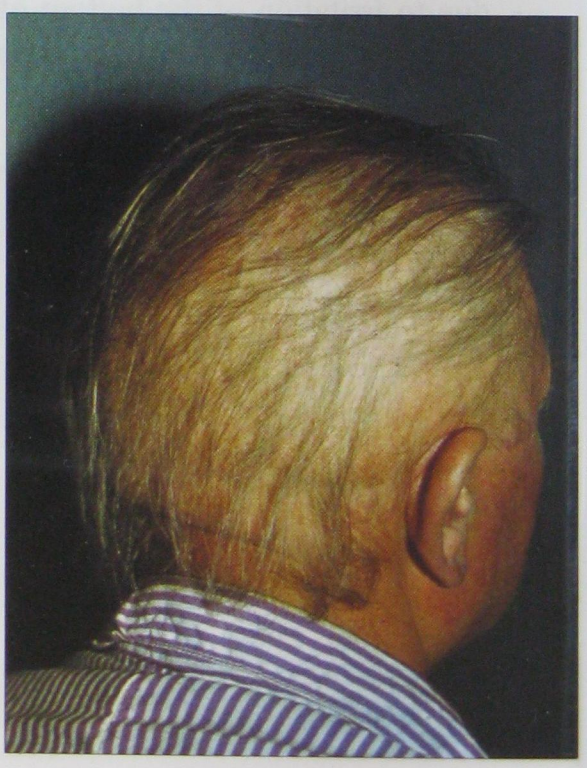


Fig. 26.10. Diffuse syphilitic alopecia.

Pustular syphilide is observed rarer. Unlike true pustules, a swab of the infiltrate, not acute inflammatory rim is placed at the periphery. Depending on the symptoms they distinguish syphilitic impetigo, acneiform syphilides (syphilitic blackheads), varioliform syphilide, syphilitic ecthyma, syphilitic rupias. Their form depends on the location of eruptions, elements size, the degree of their decomposition.

Differential diagnostics of pustular syphilide. During the differential diagnostics of syphilitic ecthyma with pyoderma one shall consider the lack of an inflammatory rim and normal pustulation, presence of the red-bluish dense infiltrative swab at the periphery, which did not break up, the presence of other symptoms of syphilis, as well as data of clinical history and confrontation.

Pigmented syphilide *(syphilitic leukoderma)* is observed in the secondary recurrent syphilis. It is vaguely demarcated, incompletely hypopigmented leukoderma. It occurs in patients who have darkly pigmented skin. Leucoderma firmly holds and disappears within 6-12 months, and sometimes even within 1.5-2 years even with the full treatment, it is often combined with syphilitic alopecia.

Differential diagnostics of pigmented syphilide. Differential diagnostics should be carried out with the secondary leucoderma after psoriasis, parapsoriasis, seborrhea, versicolor tinea. In case of all these pathologies first of all a rash appears on the skin, and change in pigmentation is a direct consequence of its evolution. In addition, serological tests for all of these pathologies are negative.

Syphilitic alopecia is observed in the secondary recurrent syphilis. Six months after infection, multiple patches of hair loss of 5mm to 20 mm in diameter appear and spread gradually on the entire scalp.

There are three types of alopecia – *fine-focal, diffuse and mixed.* It appears suddenly and progresses rapidly. It often affects the frontal-parietal and occipital areas. Hair recover and grow in 1-2 months after resolution of infiltrates.

Differential diagnostics of syphilitic alopecia. It should be differentiated from alopecia areata. ***Syphilides of mucous membranes*** are common in patients with secondary syphilis and are sometimes the only obvious symptom of this disease. Rash is macerated and eroded, and highly infectious. It affects the mucous of lips, cheeks, tongue, throat, vocal cords, straight intestine, female genitals.

Roseolous syphilides on the oral mucosa present circular red-bluish clearly delineated formations of small size – 0.5-0.7 cm. They gradually merge forming erythematous patches. They do

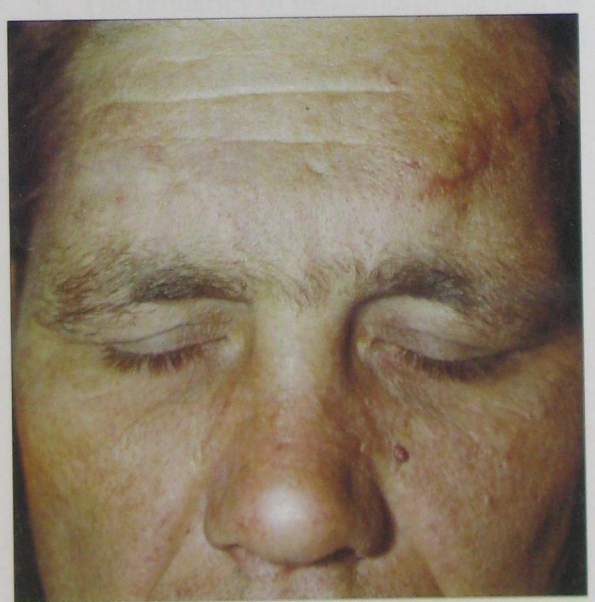


Fig. 26.11. Syphilitic alopecia of lateral brow areas.

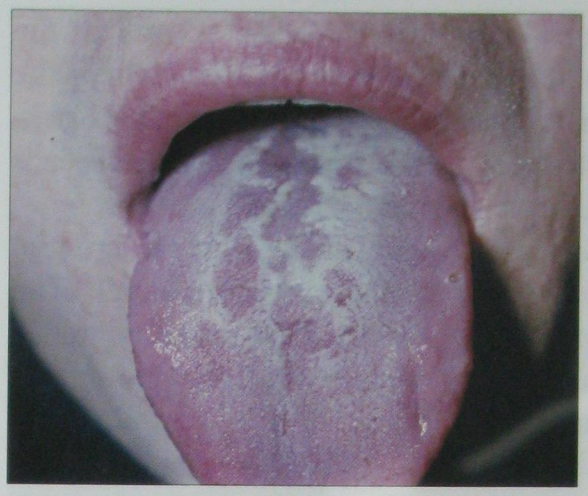


Fig. 26.12. Papular syphilide on the tongue.

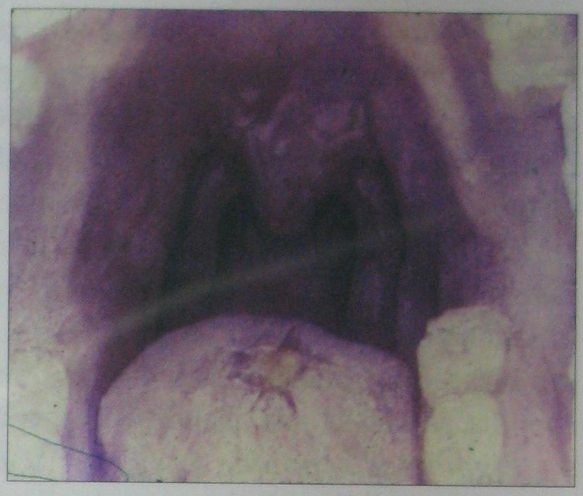


Fig. 26.13. Syphilitic erythematous angina.

not cause subjective feelings, disappear without a trace. They often affect the tonsils, the front and rear handles, the tongue and soft palate (syphilitic erythematous angina) or larynx (syphilitic erythematous laryngitis).

The most common manifestations of secondary syphilis on the mucous membranes include papular rash – flat, well-demarcated, with no peripheral inflammatory rim, of deep red color, it usually does not bother the patient.

Differential diagnostics of syphilides of mucous membranes. Ona shall differentiate papular syphilitic angina along with such diseases – angina, diphtheria, lichen ruber planus, ulcerative stomatitis, flat leukokeratosis. Standard angina is accompanied by increased body temperature, rapid swelling and hyperemia of the throat, tonsils, handles, soft palate, indeterminate limits of affection, great soreness

Ulcerative stomatitis also has acute inflammatory course.

1. Secondary period of syphilis lasts for:

A. Up to three weeks
B. From three weeks to two months
C. Up to one year
D. From two to four years
E. More than five years

2. What is characteristic for secondary recurrent syphilis:

A. white dermographism
B. Positive test of Auspices
C. Leucoderma
D. Positive symptom of Asbo-Hansen
E. Positive symptom of Nikolskii

3. From what diseases should be roseolous rash of secondary syphilis differentiated:

A. Sycosis
B. Tuberculosis lichenoid
C. Versicolor tinea
D. Scabies
E. Lichen ruber planus

4. Which period of syphilis is characterized by the remains of hard chancre:

A. Secondary recurrent
B. Primary latent
C. Secondary recent
D. Latent
E. Tertiary

5. Scaly crusts placed at the periphery of morphological elements in case of the secondary syphilis are called:

A. Biett's collar
B. "Necklace of Venus"
C. "Crown of Venus"
D. Voronov's fimbria
E. Robinson-Fournier scars

6. Aggravation after the injection of penicillin in case of the secondary recent syphilis is called:

A. Lukashevich-Jiarish-Herxheimer reaction
B. Wassermann reaction
C. Immunofluorescence reaction
D. Treponemal immobilization test
E. Polymerase chain reaction

7. What is characteristic for papular syphilides:

A. Not localized from the surrounding skin
B. Do not merge with each other
C. Tendency to peripheral growth
D. Itching
E. Smooth consistency

8. From what diseases should be papular rash of secondary syphilis differentiated:

A. Pemphigus
B. During's dermatosis
C. Lichen ruber planus
D. Versicolor tinea
E. Gibert's disease

9. What is not characteristic for secondary recurrent syphilis:

A. Asymmetrical localization of eruptions
B. The tendency of elements of the rash to group
C. The tendency of elements of the rash to merge
D. Symmetrical localization of eruptions
E. Lack of subjective feelings

10. Clinical varieties of secondary period of syphilis are:

A. Roseolous syphilide
B. Papular syphilide
C. Loss of hair
D. Syphilitic leukoderma
E. All the above mentioned

Task 1. The 27 years old patient, the driver, complains for rash on the skin of the corpus, which appeared last week. Rash was preceded by the weakness, pain in the muscles and joints, worsening at night. The skin of the corpus is covered with large rash of rose-red macules with a diameter of 1 cm with clear boundaries. Elements are isolated, subjectively do not bother. Peripheral lymph nodes are moderately enlarged, are painless, of tightly elastic consistency, mobile, unconsolidated.

a) Determine the provisional diagnosis:
- **A.** Toxicoderma
- **B.** Gibert's disease
- **C.** Secondary recent syphilis
- **D.** Secondary recurrent syphilis
- **E.** Versicolor tinea

b) Carry out differential diagnostics with versicolor tinea.

Task 2. The patient went to the doctor because of a rash on the corpus and extremities without subjective feelings. On the eve she had weakness, increased body temperature. *Objectively*: small brightly colored roseolas, polyadenitis. A sexual contact with an unfamiliar man 10 weeks ago is marked in the past medical history.

a) Determine diagnosis:
- **A.** Secondary recurrent syphilis
- **B.** Toxicoderma
- **C.** Gibert's disease
- **D.** Versicolor tinea
- **E.** Secondary recent syphilis

b) What methods of examination shall be applied to determine the clinical diagnosis?

Task 3. Patient of 42 years passed a full course of treatment for secondary recent syphilis, but she was treated with the violation of treatment regimen (used alcohol). Two years later, new papules and patches of pale pink color with a tendency to group appeared on the skin of corpus. Serological tests are positive.

a) Determine diagnosis:
- **A.** Secondary recent syphilis
- **B.** Secondary recurrent syphilis
- **C.** Secondary latent syphilis
- **D.** Toxicoderma
- **E.** Moniliformis scrophulosorum

b) Carry out differential diagnostics of secondary recent and recurrent syphilis.

Task 4. Patient of 29 years, married, involved as contact of man being in the hospital for the inpatient treatment of secondary recent syphilis. *Objectively*: the papular rash on the palms and soles, hypertrophic papules without subjective feelings on the anogenital areas. Serological tests are positive.

a) Indicate, what period of syphilis this woman has:
- **A.** Primary seropositive syphilis
- **B.** Primary latent syphilis
- **C.** Secondary recent syphilis
- **D.** Secondary recurrent syphilis
- **E.** Secondary latent syphilis

b) Who was the source of infection in this case, man or woman?

Task 5. On the back and side areas of the neck the patient has hypochromic circular patches without inflammation which are placed on the hyperpigmented background like lace. Test with 2% alcohol solution of iodine is negative.

a) What diagnosis can be proposed:
- **A.** Versicolor tinea
- **B.** Secondary latent syphilis
- **C.** Secondary recent syphilis
- **D.** Toxicoderma
- **E.** Secondary recurrent syphilis

b) What methods of examination shall be applied to determine the clinical diagnosis

Answers to the questions of the first level of complexity
1 – D; 2 – C; 3 – C; 4 – C; 5 – A; 6 – A; 7 – B; 8 – C; 9 – D; 10 – E
Answers to the questions of the second and third levels of complexity
1a – C; 2a – E; 3a – B; 4a – D; 5a – E

27 TOPIC

Tertiary period of syphilis

Tertiary period of syphilis (*syphilis tertiaria), or latent syphilis (syphilis tertiaria seu gummosa),* – this is a serious chronic systemic infectious disease, in which case the destructive pathological changes with a violation of their functions develop in the affected organs.

TRAINING AND EDUCATIONAL OBJECTS

- Distinguish features of the epidemiology of the development of tertiary period of syphilitic infection
- Understand the general characteristics of clinical manifestations of the tertiary period
- Identify clinical picture of typical manifestations of nodular syphilide
- Identify clinical picture of typical manifestations of gummatous syphilide
- Determine the characteristic clinical features of Fournier's roseola
- Analyze clinical picture of affection of the mucous membranes in the tertiary period of syphilis
- Determine the main clinical signs of visceral affections and lesions of the locomotor system in syphilis
- Orient in the differential diagnostics of clinical manifestations of the tertiary period of syphilis

TO KNOW:

- etiopathogenic features of tertiary syphilis;
- factors contributing to the development of the tertiary period of syphilis;
- methods of laboratory diagnostics of tertiary period of syphilis;
- methods of test treatment as a diagnostic phenomenon and its features;
- clinical picture of typical manifestations and variations of nodular syphilide;
- clinical picture of manifestations and variations of gummatous syphilide;
- clinical manifestations of tertiary syphilitic lesions of the mucous membranes;
- principles of differential diagnostics of manifestations of tertiary period of syphilis.

TO BE ABLE TO:

- properly take medical history, including sex;
- determine the features of a specific affection of skin, mucous membranes and internal organs, locomotor system during the tertiary period of syphilis;
- determine the morphological elements on the skin and mucous membranes, the dynamics of the pathological process;
- determine the appropriate amount of the survey and its sequence (the use of physical, laboratory, including serological methods);
- interpret the results of laboratory tests;
- carry out differential diagnostics of the diseases that have a similar clinical picture.

Tertiary syphilis develops in 5–15 years after infection.

General features of clinical manifestations of tertiary period of syphilis:

1. Manifestations of tertiary syphilis have undulating clinical character, and holding for several months, spontaneously regress, followed by a period of relative calm. In the presence of clinical symptoms *active tertiary syphilis* is diagnosed, in the absence thereof – *latent tertiary syphilis*.
2. Term of existence of tertiary syphilides – months and years.
3. Manifestations of tertiary syphilis bear infectious and allergic nature.
4. Intensity of specific immunity in the tertiary period is gradually reduced.
5. All the elements of the rash do not have Treponema Pallidum due to which tertiary syphilides are noncontagious.
6. Subjective acute inflammatory feelings are missing.
7. Changes in the skin, mucous membranes and internal organs, bones and joints, nervous, cardiovascular, endocrine systems, bear organic destructive nature.
8. A small number of tertiary syphilides on the skin and mucous membranes: *nodules* are numbered in tens; *gumma* – single, *tertiary roseola of Fournier* is very rare.
9. Rash has monomorphic nature.
10. Asymmetric arrangement of rash.
11. Inflammation of tertiary syphilides with the formation of infectious granulomas, which are situated in the vital organs, break their structure and function, bear productive nature.
12. Development and regression of tertiary syphilides takes place slowly with the formation of ulcers, scars and ulerythema.
13. Classical serological tests in a third of patients with tertiary syphilis are negative. The results of specific reactions (IFT, TPIT, TPHA, PCR), which are almost always positive in the tertiary period, have diagnostic value.
14. Manifestations of tertiary syphilis respond well to regress under the influence of treatment against syphilitic infection.

Clinical picture. Manifestations of tertiary syphilis are observed on the skin, mucous membranes, the internal organs, the locomotor system.

Tertiary affections of skin are manifested by two morphological elements of rash: dermal nodules (nodular syphilide) and hypodermal nodules (gumma) – gummatous syphilide that differ only in the size and depth of affection, because in both cases anatomopathologically this is an infectious granuloma. The so-called late, or tertiary, roseola of Fournier is vary rare.

Nodular syphilide (superficial gumma, tertiary papule, *syphilis tuberculosa*). Morphological element of the rash is a nodule in the form of sharply outlined dense infiltrate up to 0.5-0.8 cm in diameter, embedded in the dermis. The nodules are located in limited areas of skin scattered or grouped. Nodular syphilide has elevated hemispherical surface of brownish-red or bluish-red color. First, it is smooth, and eventually it is covered with scaly crusts. Evolution of syphilitic nodules is carried out

in two ways: the nodule may dissolve and disappear, leaving a pigmented scar atrophy; and in other cases, there is a decomposition of the tissues of the nodule and the formation of sharply demarcated round painless ulcer. Further due to the presence of healthy skin between the individual small scars, the so-called star-shaped scar is formed on the place of ulcer.

There are such clinical varieties of nodular syphilide: aggregated, serpiginous (creeping), dwarf, diffuse ("platform").

Aggregated nodular syphilide (syphilis tuberculosa aggregata) is characterized by the focused placement of nodules which do not merge with each other.

Serpiginous (creeping) nodular syphilide (syphilis tuberculosa serpiginosa) is characterized by the merge of the individual nodules with the formation of specific infiltrate. The ulceration and scarring of old elements is realized along with the appearance of new nodes.

Dwarf nodular syphilide (*syphilis tuberculosa nana*, tertiary papule) – small nodules with a size of a millet or hemp seed, which are located in separate groups in a small area.

Nodular syphilide in "platform" (diffuse nodular syphilide, *syphilis tuberculosa en nappe seu diffusa*) is formed by the close adjoining of the individual nodules to one another and looks like a bottle-shaped infiltrate of 5-10 cm.

Differential diagnostics of nodular syphilide. It should be carried out with *tuberculous lupus*, which differs by a soft consistency of nodules (positive symptom of "probe"), and a symptom of "apple jelly" during diascopy).

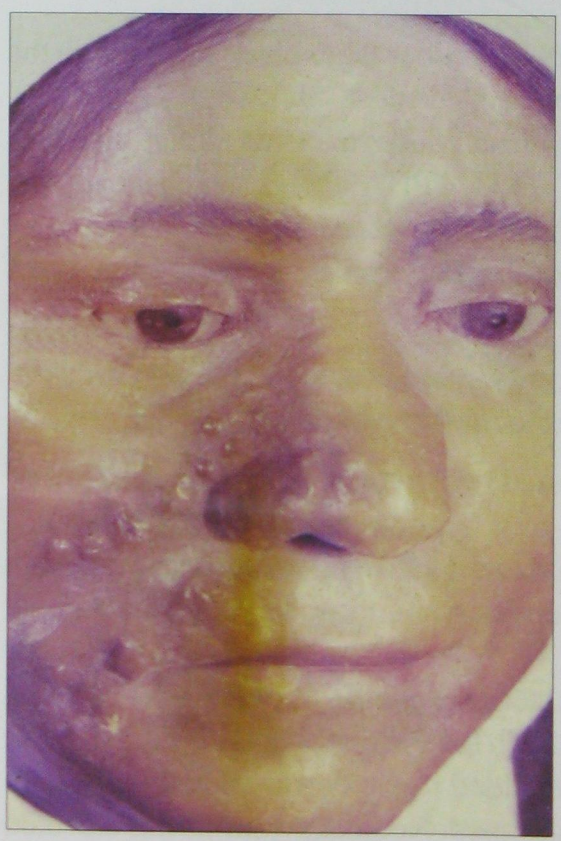


Fig. 27.1. Nodular syphilide.

In case of tuberculoid leprosy nodules are arranged in a ring.

Basalioma is usually single, often located on the face skin, has a clear edge. The ulcer, which is not tending to scarring, unlike syphilide, is formed in the core of the focus.

Gummatous syphilide (*syphilis gummosa, gumma subcutanea, syphilis nodosa profunda*, syphilitic gumma). Gummas are presented by the clearly separated dense painless nodules that in the process of evolution ulcerate to form star-shaped scar or in the rare cases are absorbed, leaving a scar atrophy.

Gummas appear gradually as a separate dense and painless nodule with intact skin over it. Then, the skin over it gradually becomes dark red. Gumma breaks the hole with the release of the small amount of adhesive tenacious ropiness

liquid of dirty yellow color, resembling acacia gum (hence the name – gumma). Further, a dense compact mass, called gummy stem, is formed. Then, gummy ulcer with vertical edges is formed. Some time later, star-shaped scar is formed.

Differential diagnostics of gummatous syphilide. One shall differentiate syphilitic gumma primarily with *tuberculous gumma (strumoderma)*, the nodule of which is from the beginning a more gentle than syphilitic, and breaks in several holes. Ulcers in this case have a soft undermining.

In case of *Bazin's disease* the nodes are usually multiple, localized symmetrically on the skin of the posterior-lateral surface of lower legs and hips.

Cancerous ulcer differ from gummy by solid iliac roll, often twisted edges, the bottom of the ulcer is nodulated, bleeds easily.

In case of *lipomas* nodules are multiple, subcutaneous, softer.

Fournier's tertiary erythema (syphilitic tertiary roseola, *erithema tertarium tardivum, roseola tardiva*), – very rare clinical manifestation of tertiary syphilis. It is characterized by asymmetric ring- and arch-shaped large macular elements of 5 to 15 cm in diameter with a wide red border.

Differential diagnostics of Fournier's tertiary erythema. It shall be differentiated from microsporia or ringworm of body.

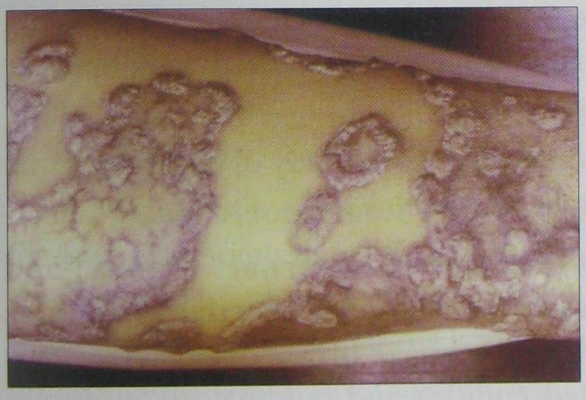


Fig. 27.2. Serpiginous nodular syphilide.

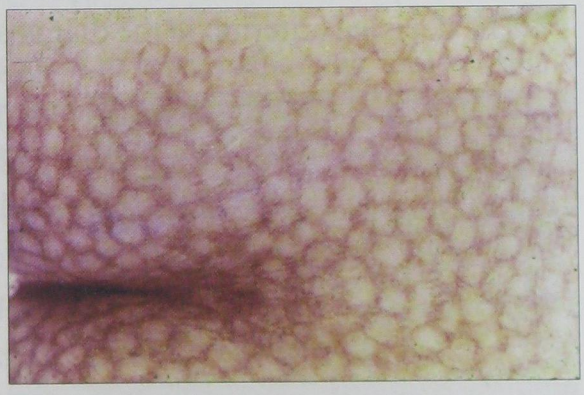


Fig. 27.3. "Mosaic" scars after evolution of nodular syphilide.

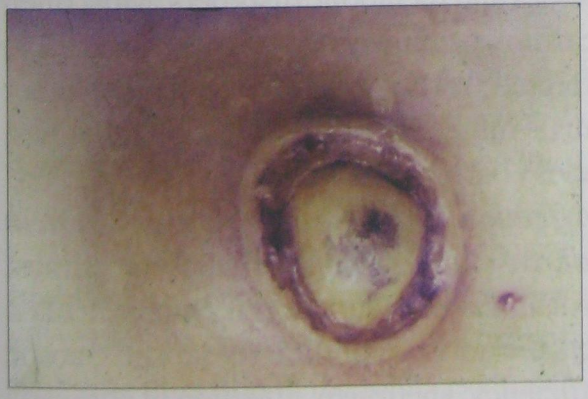


Fig. 27.4. Gummatous syphilide.

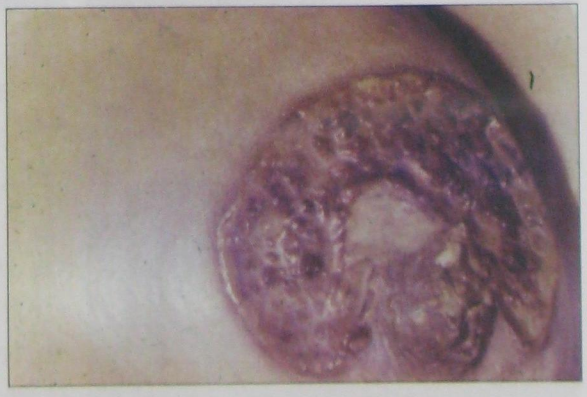


Fig. 25.5. Gummatous syphilide in the area of mammary gland.

Manifestations of tertiary syphilis in mucous membranes. They occur relatively frequently and have their own characteristics: most often found in the mucous membrane of the mouth, nose, throat, pharynx, tonsils, larynx; the predominant place of localization in the oral cavity are areas of hard and soft palate, palatine velum and kion; mucous membrane of the mouth may be the only place of clinical manifestations of tertiary syphilis, among the clinical forms of which – gummas, gummy infiltration and nodular syphilide.

Tertiary syphilides on mucous membranes have bright colors and puffiness. Formation of gummas on the oral mucosa does not differ from their formation on the skin. Gummatous process ends with ulceration with a deep and significant destruction of not only the soft tissues, but bones.

Nodular syphilide in the mucous membrane of a mouth is less common than gummatous. The nodules, as well as gummas, can be localized in any place, but more often in the mucosa of the lips, alveolar bones and palate. The nodules may be isolated or may be in the form of infiltrative focus with sharp jagged outlines. They are tightly elastic, red-brown in color, have a relatively fast flow, are treated with scar formation.

Differential diagnostics of tertiary syphilis of mucous membranes. One shall differentiate manifestations of tertiary syphilis of mucous membranes first of all from tuberculosis, cancerous ulcer and leprosy.

The decisive criterion in the diagnostics of tertiary syphilis is the result of the specific serological tests (IFT, TPIT, TPHA, PCR) in blood and cerebrospinal fluid, pathomorphological study of biopsy material and trial treatment.

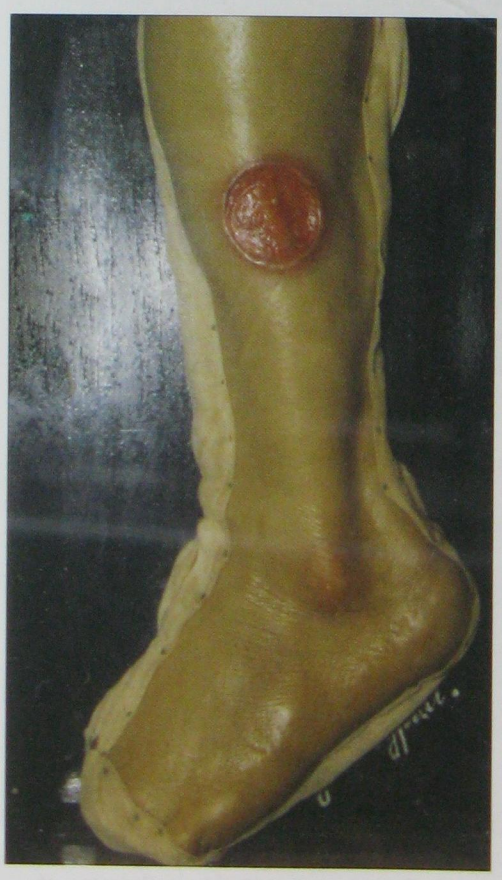


Fig. 27.6. Gummatous syphilide.

Affection of internal organs and systems in case of tertiary syphilis *(syphilis visceralis)*. In case of tertiary syphilis limited nodules and gummatous infiltrates may be observed in all internal organs, and there may be a variety of degenerative processes and metabolic disorders. Most often the cardiovascular system (90-94% of cases) is affected, rarely – liver (4.6%) and other organs – lungs, kidneys, stomach, intestines, testicles (1-2%).

Affection of cardiovascular system *(cardiovascular syphilis)* makes up almost 90% of all cases of late visceral syphilis. It often affects the aorta (syphilitic mesaortitis, aortic insufficiency, aneurysm, affection of coronaria entrances), rarely – myocardium (syphilitic myocarditis).

Affection of liver in case of tertiary syphilis may have the following clinical forms: chronic epithelial hepatitis, chronic interstitial hepatitis; focal gummatous hepatitis, miliary gummatous or diffuse infiltrative hepatitis.

Syphilitic affections of the stomach, lungs, kidneys and other internal organs is accompanied by symptoms of disorders of the above-mentioned organs.

Affection of the visual organ. Affection of the visual organ occurs against a background of both a secondary and tertiary syphilis; inflammation and pupillary disorders dominate in case of eyes affection; difficulties in diagnostics occur due to the lack of alertness of physicians regarding latent forms of syphilis and its association with other infections.

By the time of the development of tertiary syphilis, eye symptoms are mainly associated with the damage of the nervous system, but the development of tarsitis, chorioretinitis and gummatous affection of various parts of the visual organ are typical for this stage.

Parenchymatous syphilitic keratitis is characterized by unilateral nature of the process, a relatively benign and is easily subjected to antisyphilitic therapy. *Deep pustule-shaped syphilitic keratitis* is characterized by persistent prolonged course and resistance to the specific therapy. *Gummatous keratitis* develops in a form of the syphilitic gumma in the corneal stroma and is always complicated by its turbidity, iridocyclitis and decrease or loss of vision.

Syphilitic neuritis of optic nerve is observed in basal meningitis, and is usually bilateral. Functions of the eye violate very early. The thorough and comprehensive examination of the patient helps diagnostics to confirm the syphilitic nature of the disease.

Affection of locomotor system in case of tertiary syphilis. The affection of the bones and joints may be the only symptom of tertiary syphilis or combined with the affection of other organs. Limited gummatous nodules or diffuse gummatous infiltration usually affect those bones of the skeleton, which are covered with small muscles and are prone to injury. The bones of forearms, clavicle, beastbone, nose, skull are rarely affected.

Differential diagnostics shall be carried out with chronic purulent osteomyelitis of tuberculosis of the bones.

Joint diseases in case of tertiary syphilis are less common than bones affection. A characteristic feature of syphilitic affection of the joints is almost complete absence of pain and possible preservation of joints function.

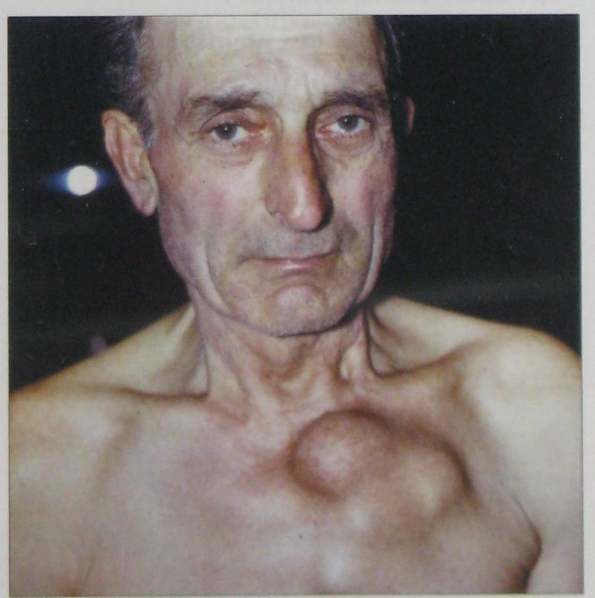


Fig. 27.7. Syphilitic aortitis. Aortic aneurysm.

1. What is not characteristic for the tertiary syphilis from the below mentioned:

A. Limited skin affection
B. Focus location of rash
C. Tendency of elements of the rash to breaking
D. Scarring at the eruption site
E. Bright color of elements of the rash

2. The main morphological elements on the skin and mucous membranes in case of tertiary syphilis are:

A. Knots
B. Nodules
C. Erosions
D. Macules
E. Vesicles

3. What is syphilitic gumma:

A. Vesicle
B. Tubercle
C. Papule
D. Nodules
E. Vegetation

4. What is the basis of tertiary syphilides:

A. Acantholysis, spongiosis
B. Spongiosis, acanthosis
C. Hyperkeratosis, papillomatosis
D. Infectious granuloma
E. Parakeratosis, keratosis

5. What from the below mentioned does not refer to the consequences of gummatous syphilides:

A. Traceless resorption
B. Scar atrophy
C. Purulent ulceration
D. Deep sclerotherapy
E. Atrophic scarring

6. What is the nature of the scars in case of evolution of syphilitic gumma:

A. Keloid
B. Hypertrophic
C. Mosaic
D. Aatrophic
E. Stellate

7. From which specific diseases one shall differentiate gummatous syphilides:

A. Tuberculous lupus, leprosy, leishmaniasis
B. Scleroderma, psoriasis, neurodermatitis
C. Scabies, lice infestation, demodicosis
D. Urticaria, leprosy, lupus erythematosus
E. Pemphigus, urticaria, eczema

8. What scars remain on the skin after regress of syphilitic nodes:

A. Mosaic
B. Keloid
C. Atrophic
D. Stellate
E. Hypertrophic

9. What from the below mentioned does not constitute variety of the nodular syphilis:

A. Grouped
B. Dwarf
C. Serpiginous
D. "Platform"
E. Striate

10. From which diseases from the below mentioned shall one differentiate nodular syphilide, except:

A. Tuberculosis lupus
B. Moist sore
C. Lepromatous form of leprosy
D. Deep mycosis
E. Microbial eczema

Task 1. After the injury of the right leg, the patient at the age of 27 years has on the outside surface of the leg the nodule, which broke with the release of a small amount of sticky yellowish liquid. There was a circular ulcer with dense smooth edges and necrotic masses at the bottom. Subjective feelings are absent.

a) Determine initial diagnosis:
- **A.** Phlegmon of lower leg
- **B.** Furunculosis of lower leg
- **C.** Tuberculosis of lower leg
- **D.** Tertiary syphilis
- **E.** Erythema induratum

b) Make up the plan of additional examination of the patient for diagnosis confirmation.

Task 2. More than five years ago, the patient of 35 years old was treated from the secondary recurrent syphilis, the treatment was not finished. *During examination*: there is a rash in the form of nodules on the skin of the forehead and the nose. Wasserman reaction, TPIT, IFT, positive.

a) What disease can be thought of:
- **A.** Secondary syphilis
- **B.** Lupus erythematosus
- **C.** Tuberculosis lupus
- **D.** Erythema induratum
- **E.** Tertiary syphilis

b) Make up the plan of the patient's treatment.

Task 3. The patient of 63 years old went to a doctor complaining for the presence of rash on the skin of right sole without subjective feelings during two months. Disease is not connected with anything. He had never received treatment. *During examination*: on the heel and back of the right foot there are bluish and brown nodes, some elements are smooth, shiny, and on some – ulceration. There are new elements at the periphery of the focus. The scar atrophy and mosaic scars are present in place of the former elements. Wassermann reaction is negative, TPIT is positive.

a) Determine diagnosis:
- **A.** Deep pyoderma
- **B.** Deep mycosis
- **C.** Tertiary syphilis
- **D.** Erythema induratum
- **E.** Indurative erythema

b) Which additional method of laboratory study shall be applied to determine diagnosis?

Task 4. Woman of 65 years old noticed nasal voice, discomfort when speaking. *During examination*: the tongue is increased in size, painless, dense, which impairs its movement. Submandibular lymph nodes are not enlarged. RV is negative, TPIT is positive.

a) Determine diagnosis:
- **A.** Candidal glossitis
- **B.** Tuberculosis glossitis
- **C.** Syphilitic glossitis
- **D.** Lupus glossitis
- **E.** Herpetic glossitis

b) Determine treatment regimen.

Answers to the questions of the first level of complexity
1 – E; 2 – B; 3 – B; 4 – D; 5 – A; 6 – E; 7 – A; 8 – A; 9 – E; 10 – E
Answers to the questions of the second and third levels of complexity
1a – D; 2a – E; 3a – C; 4a – C

28 TOPIC

Syphilis of nervous system

Neurosyphilis *(neurosyphilis)* – common name of affections of the nervous system of syphilitic nature that occur in the absence or in case of inadequacy of previous treatment of syphilis.

TRAINING AND EDUCATIONAL OBJECTS

- Identify ways of Treponema Pallidum penetrating into the central and peripheral nervous system
- Determine general course and clinical characteristics of neurosyphilis
- Orient in the early and late manifestations of neurosyphilis
- Identify the features of the diagnostics of syphilis of the nervous system

TO KNOW:

- pathogenetic features of neurosyphilis;
- classification of syphilitic affections of the nervous system;
- features and clinical characteristics of affection in the early and late neurosyphilis;
- diagnostic algorithm for early and late neurosyphilis;
- features of additional methods of examination in case of this disease.

TO BE ABLE TO:

- Deontologically reasonably take a general and sexual history;
- properly conduct a comprehensive examination of the patient;
- clinically examine the state of the central and peripheral nervous system;
- analyze the results of laboratory tests of neurosyphilis;
- differentiate clinical manifestations of early and late neurosyphilis;
- fill out medical documentation on patients;
- carry out differential diagnostics of diseases that have similar clinical symptoms.

Pathogenesis. Treponema pallidum penetrate into the central and peripheral nervous system by hematogenous, lymphatic and perineural ways.

The main factors contributing to the development of neurosyphilis are the lack or inadequacy of treatment for early forms of syphilis, tuberculosis, HIV infection, viral hepatitis advanced age.

Classification. The basis of classification of neurosyphilis consists of clinical and morphological changes in the nervous system, according to which neurosyphilis is divided into:

- *early (mesenchymal) syphilis of the nervous system (neurosyphilis praecox)*, occurring during the first five years after infection;
- *late (parenchymal) syphilis of the nervous system (neurosyphilis tarda)*, developing more than five years after infection.

Clinical and diagnostic features of the early neurosyphilis. It is characterized by affection of the brain membranes and vessels with a predominance of mesenchymal reaction in the form of exudative and inflammatory, and further proliferative and inflammatory processes. Late (parenchymal) neurosyphilis is associated with damage of the neurons, the nerve fibers and neuroglia. Changes in the nervous tissue bear parenchymal nature with a predominance of degenerative processes. This division reflects only the sequence of pathological changes in the nervous system. According to clinical symptoms they distinguish syphilis of the central nervous system, syphilis of the peripheral nervous system, mental disorders in case of neurosyphilis.

Clinical manifestations of mesenchymal neurosyphilis are very diverse and can range from asymptomatic forms to an acute generalized affection of the nervous system. There are following clinical forms of mesenchymal neurosyphilis: syphilitic meningitis and its complications; meningovascular neurosyphilis; gumma of the brain and spinal cord; specific affection of the peripheral nervous system.

Hidden (latent, asymptomatic) syphilitic meningitis occurs in 10-15% of patients with primary and in 50% of patients with secondary and latent syphilis. In case of development of asymptomatic meningitis after two years from the time of infection it is called late latent syphilitic meningitis. The diagnosis of latent syphilitic meningitis should always be confirmed by the results of the liquorologic study, namely the determination of content of the protein, cellular elements and serological parameters of cerebrospinal fluid. ***Meningoneurotic syphilitic meningitis (basal meningitis)*** – a type of mesenchymal neurosyphilis detected in 20% of cases of early neurosyphilis. It is manifested by meningeal symptoms and neuritis of optic, hearing, discharge and block eye-moving nerves.

Acute generalized syphilitic meningitis is rarely observed. The disease is characterized by rapid (within 1-2 weeks) development of clinical symptoms and is manifested by meningeal phenomena

Meningovascular neurosyphilis *(lues meningovascularis)* is characterized by involvement in the pathological process of vessels of cerebral or spinal brain. Clinical picture of the disease is determined primarily by vascular affection.

Cerebral meningovascular neurosyphilis *(lues meningovascularis cerebri)* – one of the most common clinical forms of neurosyphilis.

Gummas of the brain and spinal cord *(lues gumossa cerebrospinalis)* are rarely observed. The clinical picture resembles clinic of brain tumors and is manifested by cerebral symptoms and focal neurological symptoms, in accordance with the localization of gumma in those or other parts of the brain.

Specific affection of the peripheral nervous system can be observed at the early and the late stages of syphilis, it is often combined with central nervous system, but can occur in isolation.

Clinical and diagnostic features of the late neurosyphilis. Parenchymal (late) neurosyphilis is usually manifestrf by cerebrospinal tabes, progressive paralysis, taboparalysis.

Cerebrospinal tabes *(tabes dorsalis)*. Pathomorphologic basis of disease is a specific affection of the posterior roots and stems, and spinal membranes, which lies in an inflammatory proliferation and destruction of nerve tissue, followed by sclerotherapy. The first symptoms of cerebrospinal tabes appear in an average of 5-20 years of infection with syphilis. The disease can be relatively benign with long-term duration and unexpressed clinical symptoms. The classic clinical manifestations of cerebrospinal tabes are associated with the disruption of the sensitive sector, reflexes and coordination; pupillary disorders, muscular hypotonia, disruption of the sphincter and sexual function, trophic disorders, cranial nerves affection.

Pupillary disorders represent one of the most important and the most frequent clinical manifestations of cerebrospinal tabes. They are characterized by high severity, the bilateral nature of the disorders, stability and irreversibility.

Pathognomonic for parenchymal forms of neurosyphilis (cerebrospinal tabes, progressive paralysis) is a *complex of symptoms of Argyll-Robertson* – the lack of a direct and friendly reaction of pupils for light in case of preservance of response to convergence and accommodation, which is often combined with miosis (rarely with mydriasis), the significant deformation of the pupils and anisocoria.

Muscular hypotonia is caused by fall-out from the spinal reflex from the dorsal root on the motor neuron. During the cerebrospinal tabes hypotonia is clinically manifested by weakening until the complete lack of muscle resistance to changes of static postures (posture *genu recurvatum, valgum*). Disruption of the sphincter and sexual functions – a frequent manifestation of cerebrospinal tabes.

Trophic disorders in case of cerebrospinal tabes are caused by affections of the autonomic pathways and centers, clinically manifested by different disorders of the joints, bones, skin and its appendages.

Trophic skin changes may be manifested by ulcer, which is more often localized in the middle or on the edge of the sole. The process begins with the appearance of

infiltrate or bladder with a further ulceration and deeper penetration into the underlying tissues. ***Progressive paralysis*** *(paralisis progressiva)* is caused by syphilitic meningoencephalitis. The disease occurs in 10-20 years after infection occurs with increasing disintegration of the personality and mental activity, affect and delusional disorders, neurological symptoms of parenchymatous neurosyphilis, cachexia. Disorders of liquorologic indicators are characteristic for this disease.

Taboparalysis – a combination of symptoms of cerebrospinal tabes and progressive paralysis in the patient. Such a condition can be treated as cerebrospinal tabes with elements of progressive paralysis (if the symptoms of cerebrospinal tabes are predominant) or progressive paralysis with cerebrospinal tabes elements (with the prevalence of symptoms of progressive paralysis). Late forms of neurosyphilis are often associated with cardiovascular syphilis, which shall be considered when examining patients and assigning the appropriate treatment for them.

The additional study of cerebrospinal fluid with the definition of content of protein, the number of cellular elements, serologic indicators (CEB, IFT, ELISA, TPHT) is conducted except serological test of blood serum to confirm the diagnosis of neurosyphilis.

1. What pathomorphological changes in the nervous system are characteristic for meningovascular syphilis:

A. Degenerative
B. Sclerotic
C. Inflammatory
D. Necrotic
E. All the above mentioned

2. Affection of which nerves is observed in case of meningoneurotic form of neurosyphilis:

A. Intercostal
B. Cranial
C. Sciatic
D. Cubital
E. Knee

3. Which complex of symptoms is pathognomonic for cerebrospinal tabes:

A. Hutchinson's triad
B. Polyadenitis
C. Pseudoparalysis of Parrot
D. Argyll-Robertson syndrome
E. All the above mentioned

4. The progressive paralysis is not characterized by:

A. Loss of coordination
B. Attacks of pain in the extremities
C. Psychiatric disorders
D. Functional apoplexy
E. All the above mentioned

5. In case of progressive paralysis, change of cerebrospinal fluid:

A. Is missing
B. Is present
C. Is associated with the stage of pathological process
D. Is correlated with blood CSR
E. None from the above mentioned

6. Study of cerebrospinal fluid is carried out for:

A. The reaction of Wassermann with cardiolipin antigen
B. The reaction of Wassermann with treponema antigen
C. The reaction of immunofluorescence (IFT_{200})
D. The reaction of immunofluorescence (IFT_{abs})
E. All the above mentioned is true

7. Main factors, contributing to the development of neurosyphilis are:

A. Absence or inadequacy of therapy of early forms of syphilis
B. Traumatic brain injury and severe physical illness
C. Chronic infections, intoxications
D. Immune disorders and mental strain
E. All the above mentioned is true

8. What clinical form is missing in mesenchymal neurosyphilis:

A. Syphilitic meningitis and its complications
B. Meningovascular neurosyphilis
C. Taboparalysis
D. Gummas of the brain and spinal cord
E. Specific affection of the peripheral nervous system

9. Parenchymal neurosyphilis is often characterized by the following clinical forms:

A. Cerebrospinal tabes
B. Progressive paralysis
C. Taboparalysis
D. Complex of symptoms of Argyll-Robertson
E. All the above mentioned is true

10. The following reaction is conducted to confirm the diagnosis of neurosyphilis:

A. CSR
B. IFT
C. ELISA
D. TPHT
E. All the above mentioned is true

Task 1. The patient of 32 years old, who had been treated with repository penicillin preparations for secondary recurrent syphilis for four years has been sent to an eye doctor for consultation. He complains of intermittent headaches over the years, blurred vision and the appearance of dark spots before his eyes within the last month. *Objectively*: changes in the skin and mucous membranes are not detected, ophthalmoscopy defines concentric narrowing of the field of view, expansion of retinal vessels, hyperemia of the optic disc. CSR is weakly positive.

a) What provisional diagnosis can be determined:
- **A.** Late latent syphilis
- **B.** Basilar meningitis
- **C.** Acute syphilitic meningitis
- **D.** Latent syphilitic meningitis
- **E.** Meningovascular neurosyphilis

b) Make up the plan of additional examination of patient for diagnosis confirmation.

Task 2. A man of 36 years old with complaints of headaches, nausea, stuffy ears, numbness in the right hand and the difficulty of movements of its fingers was hospitalized to the neurological department. The disease began acutely – within a day. The reduction of tactile and pain sensitivity and paresis of the right hand were fixed during neurological examination, blood pressure – 180/100 mm. Hg. Art. *Anamnesis*: often administered antibiotics. CSR is positive at a titer 1:5.

a) What diagnosis can be thought of:
- **A.** Syphilitic neuritis
- **B.** Cerebrospinal tabes
- **C.** Basal meningitis
- **D.** Syphilitic meningomyelitis
- **E.** Meningovascular neurosyphilis

b) What additional examination shall be conducted to determine the final diagnosis?

Task 3. 42 years old woman was hospitalized with complaints of weakness, numbness in the feet, fast tiredness when walking. Not married, does not have a regular sexual partner, is abusing alcohol. During neurological examination: in the Romberg posture – unstable, slips during heel-shin test, pain hypersthesia in the breast area, tactile hyperesthesia of the soles, reduction of knee and absence of Achilles reflexes, lack of reaction of pupils to light. *Laboratory tests*: CLS with cardiolipin and treponemal antigens is weakly positive, MCI is positive at a titer of 1:2, TPHT – 4 +. In the liquor – cytosis, Nonne-Apelt reaction and Pande reaction 4 +, CLS with whole liquor in dilutions of 1:2 and 1:5 is positive, microreaction of IFT_{ts} is positive.

a) What provisional diagnosis can be determined:
- **A.** Cerebral meningovascular neurosyphilis
- **B.** Syphilitic polyneuritis
- **C.** Acute generalized syphilitic meningitis
- **D.** Cerebrospinal phthisis
- **E.** Syphilitic meningomyelitis

b) Carry out differential diagnostics of the detected disease.

Answers to the questions of the first level of complexity
1 – C; 2 – B; 3 – D; 4 – C; 5 – B; 6 – E; 7 – E; 8 – C; 9 – D; 10 – E
Answers to the questions of the second and third levels of complexity
1a – B; 2a – E; 3a – D

29 TOPIC

Congenital syphilis

Congenital syphilis *(syphilis congenita)* results from transplacental infection during intrauterine growth of a fetus with the spirochete Treponema subspecies pallidum from the ill mother.

TRAINING AND EDUCATIONAL OBJECTS

- To name routes of mother – to – child transmission of syphilis.
- To estimate the social meaning of congenital syphilis.
- To analyze the influence of syphilis infection of pregnancy and its outcome.
- To know the classification of congenital syphilis.
- To detect clinical symptoms of the early congenital syphilis
- To detect clinical symptoms of the early congenital syphilis
- To interpret the serologic test results
- To choose the concerning syphilis diagnostic methods and therapeutic approach.

TO KNOW:

- Etiopathogenesis of the congenital syphilis.
- The influence, which syphilis exerts on pregnancy and its outcome and consequences.
- Channels of infection with the congenital syphilis.
- Classification of the congenital syphilis.
- The signs of specific lesion in the placenta and umbilical cord.
- Clinical features of the syphilis infection in fetus.
- Manifestation of the early congenital syphilis – the lesion in skin, mucous membranes, bones, internal organs, nervous system, eyes.
- Diagnostic measures, concerning early congenital syphilis.
- Symptomatic of the late congenital syphilis – probable and significant signs.
- Diagnostic criteria of the congenital syphilis.

TO BE ABLE TO:

- To obtain the anamnesis correctly from mother of the ill child.
- To make physical examination of the ill child.
- To detect the signs of the specific lesions in skin, mucous membranes, bones, internal organs, nervous system, eyes in children with the congenital syphilis.
- To identify the probable and significant symptoms of the late congenital syphilis.
- To make differential diagnosis of the congenital syphilis.

Classification and clinical signs of congenital syphilis

According to the accepted actual classification of WHO, the following types of syphilis are distinguished:

- *Early congenital syphilis (syphilis congenital praecox)* in fetus and infants under the age of two years, the symptoms of which are following: pemphigus syphiliticus, diffuse papular skin eruption, lesions of mucous membranes, parenchymal organs, bone tissue, nervous system, eyes.
- *Late congenital syphilis (syphilis congenital tarda)* with symptoms, by which the symptoms appear in children, older, than two years.
- *Latent congenital syphilis (syphilis congenital latens)* – early and late – is characterized with the absence of clinical manifestation and of the changes in cerebrospinal fluid. This disease is usually discovered by serologic tests.

Syphilis and pregnancy

The probability of intrauterine infection of fetus with Treponema Pallidum is maximal by secondary and early latent syphilis in mother and makes up 80-85 % of syphilis cases. Unspecified or late latent syphilis in pregnant woman appears in 10 % of cases to be the cause of congenital syphilis in fetus. Least of all suffer from congenital syphilis the children, born to mothers, affected with primary syphilis – less than 1,5 % of cases of the congenital syphilis. According to the data, given by WHO experts, the pregnant women with untreated early syphilis will bear infected children in 70 – 100 % of cases, in 1/3 of cases – stillborns.

Pregnancy outcome in infected women may be different: early or late spontaneous abortion (at 12th – 16th week), premature delivery, perinatal death; birth of infant with the symptoms of early congenital syphilis or with positive serological tests without clinical manifestation. There remains a probability to bear healthy child.

Placental and umbilical cord lesions

Specific placental and umbilical cord lesions precede the congenital syphilis. When the infection of placenta takes place, the late becomes hypertrophied, with areas of grayish-yellow and rosy colors – ("variegated"), crumbling, with tendency to tear very easily. Syphilis infection is characterized with the lesions in form of sclerosis of placental villi, epithelial degeneration, cell infiltration of vascular walls with their obliteration. The described histological changes occur in fetal placenta. The maternal placenta, on the contrary, remains unaltered. Typical for this kind of infection is enlarged placental mass. In comparison with normal fetal/placental mass ratio, which makes up 1:6, by syphilis infection this correlation is 1:3.

Fetal syphilis

The only channel for the fetus infection is transplacental transmission. In consequence of specific septicemia, the 75-80% of fetal death, caused by syphilis

infection, is registered in the 4th-5th, but more often – in the 5th – 6th month of pregnancy. The most commonly observed clinical symptoms are following: low fetal weight, hypoplasia or total absence of subcutaneous fat, skin rugosity, by which the folds have earthy color ("senile skin"). Specific lesions in internal fetal organs (liver, spleen, lungs) are introduced with diffuse inflammatory process – globocellular infiltration and connective tissue growth.

Early congenital syphilis

In vast majority of infants the symptoms of the early congenital syphilis arise within first three months of life. Manifestations include: pale rugous "senile" skin, saddle nose, enlarged head because of exaggeration of the frontal eminence and venous distension; permanent rhinorrhea, which causes labored breathing and difficulties during sucking.

The clinical symptoms of the early congenital syphilis are following:

- Diffuse papular infiltration of the skin (Hochsinger infiltration)
- Pemphigus syphiliticus
- Lesions of the sense organs
- Lesions in the locomotive system
- Lesions in visceral organs
- Lesions in nervous system.

Diffuse papular infiltration of the skin (Hochsinger infiltration) appears within the first three months of life, with localization on the palms, buttocks, chin, superciliary arches, scalp. The skin surface is smooth, sparkling (varnish – like), red-purple tinted. Different skin injuries lead to the formation of rhagades, which are localized radially around the mouth and form, when healing, *radial Robinson – Fournier scars*. The skin infiltration on the palms is attended with maceration, rugosity, scaled desquamation.

Pemphigus syphiliticus is observed in 11-12 % of cases at birth or within first days or weeks of life, and is typically placed on the skin of palms and feet. The Treponema pallidum is usually revealed in the blister fluid. The tent blisters, with serous content, are localized on the infiltrated skin areas and have inflammatory border. Pemphigus syphiliticus must be differentially diagnosed from neonatal impetigo, which usually begins with omphalitis along with fever. The groups of blisters are placed separately, on the skin of back and chest, and very rarely – on the areas of palms and feet. The above mentioned rash tends to the peripheral growth and perifocal inflammation.

Other alterations of skin and mucous membranes. The skin alteration fully coincides with the lesion, caused by secondary syphilis infection. The nasal mucosa is affected by *syphilitic rhinorrhea*. Much rarelier the *laryngeal mucosa is involved with the development of diffuse inflammatory infiltration*, causing the symptoms of hoarseness, dysphonia.

The skin appendages in infants can also be affected by syphilitic infection. The hair lesion is characterized with the circular and/ or diffuse hair loss.

Syphilitic rhinitis observed in 25 – 30 % of cases of the disease at birth or within first weeks of infant's life in form of syphilitic rhinorrhoea.

On the initial stage occurs the edema of nasal mucosa, which results in noisy breathing. In the sequel appear purulent discharges. While sucking, the child is often distracted to inhale deeply.

After above mentioned pathological changes occur the destructive processes, leading to the damage of cartilaginous and bone tissue of the nasal septum, followed with formation of *saddle nose.* The voice becomes snuffling. Nasal discharge contains Treponema pallidum in quantity. The alterations of the nasal septum appear in form of osteochondritis, syphilitic gummas, diffuse globocellular infiltration of nasal septum mucosa.

Lesions of the sense organs are characterized with specific eye alteration in form of conjunctivitis, chorioretinitis, iritis, optic atrophy. The ophtalmoscopy by chorioretinitis reveals pigmented fundus lesions and little light spots, producing "salt and pepper fundus". The eye alterations occur in 37 – 47 % of cases of the congenital syphilis.

Lesions in the locomotive system are the most frequent manifestation of syphilis infection and have the character of:

1. Osteochondritis (Parrot disease);
2. Periostal changes, such as periostal thickening, ossification periostosis, hyperostosis, osteophyte, osteosclerosis;
3. Destructive changes (osteoporosis, defects of joint ends of the bones, gummas);
4. Fractions and infractions.

Characteristic features of the osteochondritis are lesions in the area between epiphyseal cartilage and diaphysis. Long tubular bones are preferentially affected (humeral, femoral, forearm and shin bones).

The development of osteochondritis occurs due to the ossification disturbance, physiological cartilage resorption arrest, increased deposition of calcium salts in the cartilage, the reduction and partial disappearance of the bone trabecules followed by the formation of necrotic areas. The bone trabecules are scanty and, therefore, the separation of epiphysis from the diaphysis occurs, known as epiphysiolysis (Parrot disease).

In the case of syphilitic epiphysiolysis, the clinical picture is observed similar to flaccid paralysis of the limbs, which has nothing in common with the paralysis of spinal origin, therefore, this disease was called Parrot pseudoparalysis. Clinically, in case of Parrot pseudoparalysis, the limb l limp lies slackly on the bed, any movement is painful. Regarding the sensorium no disorders are observed.

In the case of *syphilitic periostitis* the limb bones, ribs and rarely flat bones are affected. The affection of the periosteum (periostitis) occurs as an independent

phenomenon, as well as in the combination with osteochondritis. Gummas in the bones of infants are less likely than in older children. They are located in the metaphyses, less frequently in the diaphysis. *Chondrodysplasia* (chondrodystrophy) reminds osteochondritis: by the time of birth the straightening, widening, serration and increased intensity of the calcification zone are determined.

The affections of the internal organs. Most commonly *the liver and the spleen* are affected (75-80% of cases) in the form of hepatitis, hepatosplenomegaly, chronic pancreatitis. Oftentimes the lungs are affected (10-15% of cases) – the interstitial pneumonia occurs. Renal affection (10% of cases) manifests itself as glomerulonephritis, nephrosonephritis.

Nervous system involvement is manifested in the form of the specific meningitis and meningoencephalitis. The *Sisto symptom* is particularly characteristic: the "idiopathic" baby cry day and night. In the analysis of the spinal fluid of these children a high cell count, positive reaction to serological tests for syphilis are found.

Diagnostic criteria of early congenital syphilis. Confirming or denying the existence of the syphilitic infection in child, the doctor takes the great responsibility. To avoid possible diagnostic errors, it is necessary to use the full set of parameters. Among the parameters that may in one extent or another indicate the presence or absence of syphilis in a child are the following:

1. Anamnestic data of the child's parents, indicating that they had syphilis in the past.
2. Carefully collected obstetric history.
3. Syphilis (including the deep-seated syphilis) in mother.
4. The clinical and morphological description of the placenta.
5. The inspection of skin and mucosa of the child.
6. The results of the inspection of otolaryngologist, ophthalmologist, neuropathologist, pediatrician, radiologist.
7. The results of laboratory tests of mother and child (identification of the Treponema Pallidum or antigenic determinants in the amniotic fluid, placenta, rashes on the skin and mucous membranes, lymph nodes; positive serological reactions SRC (serological reactions complex), IF-test, Treponema Pallidum immobilization test, detection of the Ig M class antibodies in the serum of newborn.
8. Temperature reaction exacerbation in the child after the beginning of the specific antibiotic treatment.

The final diagnosis of early congenital syphilis is established based on the detection of Treponema pallidum and positive serological reactions.

Late congenital syphilis. Manifestations of the late congenital syphilis occur at the age of 2 – 17 years, but sometimes they can be observed through 30 and even 50 years after the birth. They correspond to the lesions of different organs and systems in the case of acquired tertiary syphilis. In 60% of cases of late congenital syphilis the infection is hidden and is diagnosed only based on the results of serological blood

tests. There can be defined the significant (absolute) and the probable signs of late congenital syphilis, as well as a variety of dystrophies, which are more common in the case of congenital syphilis, but may be present in other diseases.

Significant signs of the late congenital syphilis – Hutchinson's triad (parenchymatous, keratitis, labyrinthine deafness, Hutchinson's teeth). *Parenchymatous keratitis* occurs at the age of 5-15 years. Its clinical manifestations – uniform milky-white corneal opacity with pericorneal vascular injection, photophobia and blepharospasm, lacrimation. The process begins on the one eye and then becomes bilateral. The symptom is observed in 50% of patients with late congenital syphilis.

Labyrinthine deafness occurs at the age of 7-15 years. It develops as a result of periostitis in the osseous part of the labyrinth and affects the auditory nerve. The process is bilateral, the deafness occurs suddenly, it is preceded by the dizziness, buzzing and ringing of the ears. The labyrinth deafness is treatment-resistant, it occurs in 3 – 38% of cases. *Hutchinson's teeth* occur at the age of 6-7 years (the time of permanent teeth appearance; in children younger than six years old these teeth do not erupt, they can be identified radiographically). Its clinical manifestations – the dystrophy of permanent upper intermediate incisors of barrel-shaped or chisel-shaped form, hypoplasia of the chewing surface with a semilunar excavation on the free margin. It is observed in 15-20% of patients with late congenital syphilis.

To the ***probable signs of late congenital syphilis*** refer various dystrophies, which have a lower diagnostic value and require additional confirmation. The most common include:

- *saber shin*, characterized by the anterior bowing of tibia as a result of previous diffuse osteoperiostitis;
- *natiform skull* that occurs as a result of the simultaneous development of the local hydrocephalus and specific osteoperiostitis of the frontal and parietal bones;
- *eyeglass (saddle or goat) nose* as a result of previous syphilitic rhinitis or nasal septum gumma;
- *Robinson-Fournier scars* – radial, localized around the mouth after absorption of the Hochsinger infiltration;
- *Axiphoidia* – the absence of xiphoid process;
- thickening of the sternal end of the clavicle;
- wide – set upper incisors;
- high ("Olympic") forehead;
- shortened little finger;
- high "gothic" palate, microdontia, hypertrichosis.

Diagnostic criteria of the late congenital syphilis:

1. Anamnesis: the information about the syphilis in mother, mother obstetric history.

2. The presence of the active late manifestations of syphilis in combination with significant and / or probable signs of the late congenital syphilis.

3. Laboratory (serologic) confirmation of the diagnosis (SRC, EIA, IF-test, Treponema pallidum immobilization test, PHT).

4. Cerebrospinal fluid examination.

Prevention and prognosis of the congenital syphilis. The main method of prevention of the congenital syphilis is the obligatory serological screening of all pregnant women in the I, II and III trimesters. The ultrasound examination in the case of syphilis in pregnant women allows to predict the postnatal complications.

If the active or latent form of syphilis is diagnosed in a pregnant woman, the treatment with antibiotics is prescribed. One or two weeks before delivery the non-specific false positive serological reactions can be registered. In such case a pregnant woman does not undergo specific treatment and two weeks after delivery it is necessary to carry out a re-examination of the mother and a detailed examination of the child. If the diagnosis of syphilis is confirmed in mother and child, the specific treatment is prescribed to both. In such cases, the results of IgM serology have the great prognostic significance. The most informative is the IFR with IgM.

The children born to the mothers with syphilis or mothers who had syphilis in the past or have not completed a specific treatment, undergo careful examination. The umbilical cord blood is taken for the SRC, the placenta is weighed and examined histologically. The inspection of the skin and mucous membranes of the child, the examinations of the central nervous system, internal organs, ocular fundus, cerebrospinal fluid, X-ray of long bones are mandatory. If the placenta is large (the placenta/ fetal mass ratio makes up 1:3 or 1:4) and fragile, a thorough clinical and serological examination of the mother and the baby is carried out.

Newborns, whose mothers had not been treated properly and had not received preventive antisyphilitic treatment during the pregnancy, undergo preventive treatment. Children who have received preventive treatment should be under the observation for five years.