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Department of Infectious diseases

METHODOLOGICAL GUIDE

**DIFFERENTIAL DIAGNOSTICS OF SOME
INFECTIOUS DISEASES COMING WITH
ELEMENTS OF RASH**

for students studying in the specialty
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Differential diagnosis of some infectious diseases occurring with elements of a rash

The clinical manifestations of infectious diseases are very diverse. Establishing an accurate clinical diagnosis of the disease determines not only the subsequent correct diagnostic and therapeutic tactics, but also the possibility of implementing a complex of anti-epidemic measures. Diagnosis of infectious diseases is based on the results of a comprehensive clinical and laboratory examination of patients. However, in the complex of objective data there are always the main, leading symptoms, on which the recognition of the disease is mainly based. These symptoms include skin manifestations of infection - various rashes or exanthema.

Rashes in infectious diseases are very diverse. Knowledge of their characteristics is of great importance for the correct diagnosis.

The purpose of the lesson: to teach students to correctly characterize a rash, to carry out a differential diagnosis and, in combination with other manifestations of the disease, to be able to correctly diagnose.

The student should know:

1. Rules for the placement of patients with infectious exanthema in hospitals in order to prevent nosocomial infection.
2. Rules for anti-epidemic measures in the outbreak.
3. The etiological structure of diseases accompanied by exanthema.
4. Leading symptoms of diseases accompanied by exanthema.
5. The main stages of the pathogenesis of the rash.
6. Patient examination and treatment plan.
7. Criteria for the diagnosis of exanthema at the initial and final stages of the disease.
8. Features of prevention.

The student should be able to:

- to collect the correct anamnesis of an infectious patient and an epidemiological anamnesis;
- to identify diagnostic signs of an infectious patient;

- conduct a thorough objective examination, paying particular attention to the examination of the skin to detect a rash;
- if there is a rash, describe it in detail (indicate the background of the skin, the number of elements, dimensions in millimeters, localization, stages of the rash)
- describe the visible mucous membranes according to the following parameters: color, granularity, rashes (enanthemea), plaque, aphthae, necrosis, swelling, etc.
- to differentiate with similar infectious and non-infectious diseases;
- substantiate the diagnosis, draw up a plan of examination and treatment;
- observe the basic principles of working at the bedside of an infectious patient;

General characteristics of exanthema in infectious diseases

Rashes on the skin (efflorescence) occur in infectious diseases as a result of a focal reaction of the skin to the effect of the pathogen itself or its toxic products, as well as due to neuro-reflex influences. As a rule, the changes are inflammatory in nature. The severity and characteristics of the process depend on the nature of the infection and the phase (period) of the disease. In some cases, the matter is limited only to the expansion of blood vessels and an increase in their permeability, in others - a deep violation of trophism, the formation of inflammatory infiltrates, granulomas, destruction of certain sections of the skin. Often the process has features of an allergic reaction.

All rashes occurring in infectious patients are usually divided into primary and secondary. Primary are those elements that arise on unchanged skin. Secondary elements are formed from primary ones during their further development.

The primary elements include: roseola, spot, Eri theme, hemorrhages, papule, tubercle, node, blister, vesicle, bladder, secondary - scales, pigmentation, crust, ulcer, scar.

However, this division is very arbitrary. A number of examples can be cited when “primary” elements act as “secondary” ones and vice versa. So erythema often develops from spots as a result of their peripheral growth and fusion, petechiae are

formed on roseola, pigmentation and peeling are observed on previously unchanged skin, etc. Secondary elements should be considered rather as the consequences or outcomes of the rash.

Primary elements of the rash

Roseola (rozeola)- a speck of pale pink, red or purple in size from a point up to 5 mm. Round or irregular shape; the edges are clear or blurry; above the skin level; does not perform. It is formed as a result of vasodilation, mainly of the papillary layer of the skin. When stretched, the skin disappears; when released, it reappears.

Roseolous rash is observed with typhus and typhoid fever, paratyphoid fever A and B and other diseases.

Multiple 1 to 2 mm roseola is usually described as a pinpoint rash such as scarlet fever.

Spot (macula) has the same color as roseola, size from 5 to 20 mm, does not protrude above the skin level. The shape of the spot is most often incorrect. The spot, like roseola, arises from the expansion of the vessels of the papillary layer of the skin and disappears with pressure on the skin; after the cessation of pressure arises in the same form again.

Multiple patches ranging in size from 5 to 10 mm are described as a small-spotted rash (eg, rubella). Spots 10 - 20 mm in size form a large-spotted rash (eg, measles, Rosenberg infectious erythema)

Erythema eritema -large areas of hyperemic skin of red, purple-red or purple color, formed when large spots merge (on the face with measles, in the area of large joints - with Rosenberg infectious erythema). It arises as a result of vasodilatation of the skin papillae and papillary vascular plexus. Spots larger than 20 mm in diameter, which tend to fade, should be considered erythema.

Hemorrhage (haemorrhagiae) -hemorrhage into the skin as a result of diapedesis or destruction of skin vessels. Depending on the time of appearance, their color can be red, bluish-red, purple, green, yellow. The color change is clearly visible with larger hemorrhages. It is due to the number of erythrocytes that have gone

beyond the limits, the formation of hemosiderin during their breakdown, the conversion of oxyhemoglobin to methemoglobin and then to hematin, biverdin and bilirubin.

Pinpoint hemorrhages are called petechiae.

Multiple round hemorrhages with a diameter of 2 - 5 mm are described as purpura.

Hemorrhages of irregular shape larger than 5 mm are called ecchymosis.

Petechiae are observed in typhus, and larger hemorrhages such as purpura, ecchymosis - in hemorrhagic fevers, meningococemia, leptospirosis, and other diseases

Hemorrhages can overlap with other elements of the rash. In such cases, they talk about petechial transformation of roseola, spots, papules, etc. As a rule, this is observed in severe forms of the disease.

Papula (papula, nodule) - an element resulting from vasodilation and the formation of a cellular infiltrate in the upper layers of the dermis or due to the growth of the epidermis. Slightly rises above the level of the skin, often well defined by touch. Has a flat or domed surface. When pressed on the papule, it turns pale, but its color does not completely disappear. Size from 1 to 20 mm. The shape and color are the same as roseol and spots. A papule without scarring is allowed, but sometimes leaves behind unstable pigmentation and peeling of the skin. Often, the papule is combined with roseola - a roseola-papular rash (typhoid-paratyphoid diseases) or with a spot - a maculopapular rash (measles).

Tubercle (tuberculum) - a noncavity element arising from the formation of an inflammatory granuloma in the deep layers of the dermis. The tubercle differs from the papule by the presence of a dense formation in the skin, often ulcerates, leaving a scar.

Node (tuber) - limited, deeply penetrating into the skin compaction resulting from the development of cellular infiltrate in the subcutaneous tissue and the dermis itself. Often protrudes above the level of the skin, has a diameter of 6-10 cm or more.

Vesicle (vesicular, vesicle) - a cavity element that develops in the thickness of the epidermis, contains liquid, slightly rises above the level of the skin, the diameter is from 1 to 5 mm. The bubble can be single-chamber or multi-chamber. The content of the vesicle is transparent, serous, less often bloody, often becomes cloudy, becomes purulent when the vesicle passes into an abscess. The contents of the bubble usually shrink into a transparent or brown crust, erosion is formed upon opening. The bubble disappears without a trace or leaves behind a temporary pigmentation.

Bubble (bulla) - formation similar to a bubble, but with sizes from 5 mm to 10 - 15 cm.

Pustule (pustule, abscess) - an exudative cavity element containing pus has an infiltrative base. With the reverse development, a purulent crust may form, followed by the formation of a scar.

Blister (urtica) - exudative cavity element resulting from acute inflammatory edema of the papillary layer of the skin. It is a dense, round or oval shaped elevation ranging in size from a few millimeters to 10 - 20 cm. It is accompanied by severe itching. The color is pale pink or light red, with a sharp compression of the edematous fluid, the blisters can be white. A urticarial rash is characteristic of allergic skin reactions (serum sickness). The blister lasts from several tens of minutes to several hours and disappears without a trace.

Secondary efflorescences or rash outcomes

Scale (squama) is formed at the site of the disappeared rash as a result of rejection of the stratum corneum of the epidermis or desquamation, which normally occurs imperceptibly. Depending on the size of the scales, there are:

1) pityriasis peeling, when the skin becomes covered with the smallest scales and becomes, as it were, powdered flour;

2) lamellar peeling, if the size of the scales is from 1 to 5 mm;

3) leafy peeling, when the size of the scales is more than 5 mm.

The color of the scales is pale gray or pale yellow.

Pityriasis peeling is typical for measles, and lamellar and leafy for scarlet fever (on the palms and soles of scarlet fever patients - leaf-like peeling, in other places - lamellar).

Pigmentation (pigmentatio) occurs at the site of disappeared primary efflorescences - papules, pustules, tubercles, etc., due to increased formation of skin pigment or as a result of the breakdown of hemoglobin of erythrocytes that have entered the skin through the porous wall of blood vessels. Pigmented spots are usually brown in color.

Crust (crusta) - shrunken exudate of bubbles; pustules, discharge of ulcers. Depending on the composition of the exudate, the crusts can be serous (translucent or gray) and bloody (dark red, brown). Crusts are formed with herpes, exudative polymorphic erythema, in place of pustules with chickenpox.

Ulcer (ulcus) - a defect in skin tissue, which can spread deeper to the underlying organs. Always heals with scar formation.

Tripe (cicatrices) - overgrowth of coarse-fibrous connective tissue at the site of skin defects. Small scars form after smallpox pustules heal.

Rash description rules

When describing exanthema in the history of the disease, it is necessary to accurately indicate the time of appearance, localization, number, size, shape and color of the elements of the rash, as well as note other features - standing above the skin level, a tendency to merge, the formation of hemorrhages, etc.

Localization of the rash. The parts of the body where the rash is present, such as the head, neck, trunk, arms, legs, or specific skin areas, are indicated. For example, the abdomen, the epigastric region - with typhoid fever. With an abundant rash, places where the rash predominates are necessarily noted. For example, the lateral surfaces of the trunk and flexion surfaces of the arms - with typhus; the area of the armpits, elbow folds, the lower body and groin areas - with scarlet fever.

The amount of rash. In practical terms, there are three degrees of rash:

1) single elements - their number is precisely indicated in the description;

- 2) the rash is not abundant - quickly counted on examination;
- 3) the rash is profuse, multiple, not countable.

The size of the rash elements. It is indicated in linear units according to the most developed and predominant elements in their number, or, exactly the size of the smallest and largest elements of the rash is noted. It is inadmissible to describe the size of the rash by comparing it with various coins, fruits, vegetables, grains and other items.

The shape and edges of the elements of the rash. The shape can be round, oval, star-shaped, irregular, the edges are clear, indistinct (blurred).

The color of the rash. The color is determined visually with subdivision into red (bright, medium intensity, pale), pink (medium intensity, pale), purple with a bluish tint, etc.

Rash procedure can be simultaneous, i.e. within one day - a day, milestone - over several days, with the spread of the rash, usually from top to bottom. Against the background of an existing rash, fresh rashes may appear.

The disappearance of the rash can be without a trace, with subsequent pigmentation, the formation of crusts, scars.

An example of a description of a rash in the history of a patient with typhus.

“On the skin of the trunk and upper extremities there is a profuse roseolous rash, single primary and secondary petechiae. The elements are located mainly on the lateral surfaces of the trunk and flexor surfaces of the arms. Roseola have a size of 2 to 3 - 5 mm. The color of some is pale pink, others are red, the shape is irregular, the edges are indistinct. Four secondary and two primary petechiae are visible on the left chest.

CHARACTERISTICS OF RASH IN VARIOUS DISEASES

Typhoid fever, paratyphoid fever A and B

Elements of the rash can be detected from the 8th - 10th day of illness, later they appear for several days and then disappear throughout the entire illness. The rash is localized on the skin of the abdomen and lower back, less often in other places - on the chest, back, flexor surface of the arms and hips. Most often, single elements of the rash are observed. A profuse rash is rare.

In essence, the rash is roseolous. Roseola pink or pale pink in color with clear edges, have a rounded shape, a diameter of 2 to 5 mm, disappear when the skin is stretched, and then reappear in the same form. Roseola reach its maximum development by the 3rd - 5th day, after which they turn pale, leaving in place a barely noticeable peeling and a short light pigmentation. In modern forms of typhoid fever, roseola often persist for only 1 - 2 days. During the febrile period, there is a "pouring" of new roseola. In severe forms of the disease, hemorrhagic impregnation of the elements of the rash is possible.

The appearance of a roseolous rash in typhoid fever is due to hematogenous drift of typhoid bacilli into the skin and a responsive inflammatory-allergic reaction of the skin to the decay products of these bacteria (AF Bilibin, 1962). Histological examination of roseol shows changes, mainly in the papillary layer of the dermis, in the form of vasodilation, often pronounced edema and small perivascular infiltration from histiocytes, lymphoid, plasma and mast cells.

A rash with paratyphoid fever A and B, in terms of its mechanism of formation, as well as external signs, usually does not differ from a rash with typhoid fever. The rash appears already on the 4th - 7th day and, along with roseolous, can be spotty, maculopapular, confluent and petechial.

With paratyphoid B, it appears on the 4th - 6th day of illness, roseolous, but more abundant than with typhoid fever, in some cases spreads to the face.

Diagnosis of typhoid fever and paratyphoid fever A and B confirmed by isolation of the pathogen from blood, feces, urine, roseola or serologically.

Epidemic typhus

Exanthema with typhus occurs in the vast majority of patients. The rash appears simultaneously on the 4th - 6th day of illness. Repeated rashes are extremely rare. The rash is profuse, localized on the lateral surfaces of the trunk, on the chest, flexor surface of the arms. Less commonly on the back, palms, thighs, legs, feet. It almost never appears on the face and soles.

The main elements of the rash are roseola. From the very beginning, they differ from each other in their size, color and shape. The size of roseola is from 1 to 3 - 5 mm, the color of some is pale pink, others are red, and still others are purple-red or purple. The edges are uneven, scalloped, indistinct. Roseola fade when stretched or pressed on the skin.

Along with these, primary and secondary petechiae are often formed. Primary petechiae appear on previously unchanged skin in the form of dots of violet or violet-purple color. Secondary petechiae usually develop in the center of roseola on the 2nd - 3rd day after the appearance of the latter, have the same appearance as the primary petechiae. Unlike roseola, petechiae do not disappear when the skin is stretched.

Roseola persist for 4 - 5 days, then turn pale, acquire a yellowish tint and after 1 - 2 days disappear without a trace. Petechiae persist for 8 - 9 days, sometimes less, gradually changing color from dark purple, violet-purple to yellow-green and then light yellow.

The simultaneous presence of roseola and petechiae, a large variegation of color, a difference in the size and shape of the elements of the rash are extremely characteristic of exanthema with typhus.

In some cases, the rash takes on a roseolous-papular or maculopapular nature, and large hemorrhages in the skin such as purpura may form.

On the 3rd day of illness, on the transitional fold of the conjunctiva or in the area of the cartilage of the lower eyelid, as well as on the conjunctiva of the sclera, dotted or vague red spots about 1.5 mm in size may appear (Chiari-Avtsyn symptom). For their better detection on hyperemic conjunctiva, it is recommended to instill 1 - 2 drops of 0.1% adrenaline solution into the conjunctival sac. On the mucous

membrane of the uvula and soft palate, single petechiae in the form of purple-violet dots can be seen (Rosenberg symptom).

The formation of a rash in typhus is caused by the development of focal destructive-proliferative thrombovasculitis, mainly in the precapillaries, as well as in the capillaries of the papillary plexus and the reticular layer of the dermis. The vascular endothelium swells, degenerates and is rejected, a parietal or obliterating thrombus is formed. Changes in the vessels are accompanied by the formation of a kind of muffs around them due to the proliferation of adventitial and periadventitial histiocytes, the accumulation of a small number of segmented leukocytes and lymphoid elements. The process can be limited to one expansion of the capillaries, which leads to the appearance of roseola, or it can reach the destruction of blood vessels with the formation of petechiae.

The diagnosis of typhus is confirmed by an indirect immunofluorescence reaction by detecting specific Ig M or a 4-fold or more increase in the Ig G titer in paired sera. With a single study, the diagnostic titer is 1: 128 or more. CSCs with antigen from Provascek's rickettsia are less sensitive, a positive assessment is given only taking into account the increase in antibody titer.

Brill-Zinsser disease is established on the basis of clinical and epidemiological data. With this disease, antibodies of the Ig G class rise already on the 4-1 day of the disease, reaching their maximum on the 8-10 day of the disease.

Chicken pox

A rash with chickenpox appears with the onset of the disease. It is located throughout the body, including the scalp. The amount of rash - from single elements to profuse rash. Repeated waves of dripping at intervals of 1 - 2 days are characteristic.

The elements of the rash at first have the character of either pink or red roseolo-papules with clear rounded contours. After a few hours, they form transparent, shiny bubbles, located against the background of unaltered skin or surrounded by a narrow pink-red rim. The bubbles are soft to the touch, the skin under them is not infiltrated.

The size of the bubbles is from 1 to 5 - 6 mm, rarely more. When punctured, the bubbles collapse, since they have only one chamber. After 2 - 3 days, the vesicles dry up and turn into flat yellow surface or light brown crusts, which disappear after 6 - 8 days. Sometimes the contents of the vesicles become cloudy, a pustule is formed, which then dries up with the formation of a crust, usually leaving no scar. With the formation of crusts, patients are worried about itching of the skin. Injury to vesicles and pustules premature peeling off the crusts during scratching can lead to the formation of long-term non-healing suppurating superficial ulcers, which leave behind scars. The elements of the rash do not always go through the entire path of development, their reverse development can begin at any stage. During the week, new ones appear between the existing elements of the rash every day, which undergo the same changes. Due to the fact that the rash with chickenpox does not appear at the same time, when examining a patient, you can observe different stages of development of elements - roseola, papules, vesicles, pustules, crusts, superficial ulcers. This polymorphism of the rash is very characteristic of this disease. their reverse development can begin at any stage. During the week, new ones appear between the existing elements of the rash every day, which undergo the same changes. Due to the fact that the rash with chickenpox does not appear at the same time, when examining the patient, you can observe different stages of development of elements - roseola, papules, vesicles, pustules, crusts, superficial sores. This polymorphism of the rash is very characteristic of this disease. their reverse development can begin at any stage. During the week, new ones appear between the existing elements of the rash every day, which undergo the same changes. Due to the fact that the rash with chickenpox does not appear at the same time, when examining a patient, you can observe different stages of development of elements - roseola, papules, vesicles, pustules, crusts, superficial ulcers. This polymorphism of the rash is very characteristic of this disease.

In a third of patients, at the same time, along with exanthema, enanthema appears in the form of erosions in the oral cavity and genital organs of girls.

The diagnosis is made on the basis of a characteristic clinical picture and epidemiological data. Confirmed by the detection of a 4-fold increase in the titer of antibodies to the varicella-zoster virus and the isolation of the virus in cell culture.

Scarlet fever

A rash with scarlet fever is one of the main diagnostic signs and is observed in almost all cases of the disease. It is sometimes absent in adults and very rarely in children.

The rash appears by the end of the first day of illness or on the second day, rarely later. It first occurs on the neck and upper body, then quickly spreads throughout the body.

For scarlet fever, small-spot roseola is extremely typical. The size of the specks is 1 - 2 mm. The color is pink or red, in severe cases, purplish-red or purple-purple. The center of the specks usually stands slightly above the surface of the skin and is colored more intensely than on the periphery. The distance of the points above the level of the skin is clearly visible under lateral illumination or is determined by touch. Due to the very dense arrangement of roseola, their peripheral zones merge, and therefore the rash is often presented in the form of small brightly colored dots on the hyperemic background of the skin. Such a peculiar erythema is observed with particular constancy on the cheeks, in the armpits, on the lower abdomen, in the groin areas and on the flexor surface of the limbs, but it can also be on other parts of the body. Often, at the first glance at a scarlet fever patient, one gets the impression that that all his skin is uniformly red. However, a closer examination reveals a characteristic small-point rash.

A scarlet rash, especially common, is often accompanied by itchy skin.

The patient's face has a very characteristic appearance: the forehead and temples are covered with a small-point rash of pink color, on the cheeks there is a continuous bright red blush, while the nose, upper lip and chin are pale due to skin vessels. Against the pale background of the nasolabial triangle, sharply limited from the sides

by nasolabial folds, the unusually red ("cherry" or "crimson") coloration of the lips is striking.

In the natural folds of the skin on the neck, in the armpits, on the lower abdomen, in the elbow folds, as well as in the popliteal hollows, the rash is more vivid in color. The folds have a brownish or purple hue, which is due to the formation of small petechiae due to increased fragility and mechanical injury to the vessels of the skin (Pastia symptom). Symptom Pastia is of great importance for the diagnosis of light, erased forms of scarlet fever, when the rash is poorly expressed or has already disappeared by the time the patient is examined. In such cases, there is often an underlined pattern of skin folds and brown pigmentation in their place when the skin is stretched.

For a scarlet rash, white dermographism is extremely characteristic - the formation of a white stripe as a result of vasospasm, if you hold a blunt object or finger over the patient's skin, without making strong pressure. White dermographism appears quickly and persists for a long time, especially from the 3rd - 4th day of illness.

In addition, for a rash with scarlet fever, it is characteristic that if you press on the patient's skin with your palm, and then quickly take it away, then the palm print that forms for a short time has a yellow color. The rapid disappearance of the palm print at the same time indicates a good reaction of the skin vessels. In severe, toxic forms of scarlet fever, as a result of paresis of the skin vessels, the palm print does not form at all or, if it does, it disappears slowly.

Of the type of rash with scarlet fever, there are:

- 1) miliary rash, - the formation of multiple very small, up to 1 mm in size, vesicles filled with transparent, cutaneous contents;
- 2) scarlatina variegata - the presence, along with the usual small-point rash, of larger roseola or roseola-papules up to 3-5 mm in size, most often on the extensor surface of the limbs;
- 3) hemorrhagic rash - the development of numerous petechiae or purpura, which occurs in severe forms of the disease.

A rash with scarlet fever lasts an average of 2 to 4 days. In milder forms of the disease, it can be only a few hours, in severe forms it lasts up to 6 - 8 days. The rash fades gradually.

From the 5th - 6th day of illness, peeling of the skin may occur at the site of the former rash, which lasts 2 - 3 weeks, sometimes up to 5 - 6 weeks. Usually, the brighter the rash, the more the flaking is. Especially profuse desquamation is observed after miliary rash. As a rule, pityriasis peeling occurs on the face and neck, and lamellar on the trunk and limbs.

Very typical of scarlet fever is leaf-shaped or large-lamellar peeling of the skin on the palms and soles. With light, erased forms of the disease, it is of great importance for retrospective diagnosis. This flaking starts from the free edge of the nails, then spreads to the tips of the toes and further to the palms and soles. The epidermis falls off in wide layers, sometimes it is removed on the hands like a glove, but in recent years this kind of peeling is rare.

The diagnosis is confirmed by abundant growth of beta-hemolytic streptococci when inoculating material from the focus of infection on blood agar.

Measles

Measles rash appears on the 13th day from the moment of infection. This period is quite constant, while the initial or catarrhal period of measles, preceding the appearance of the rash, varies quite a lot in its duration (from 1 to 5 - 6 days).

Exanthema in measles is characterized by an extremely typical staged rash. The first elements of the rash are found behind the ears and on the bridge of the nose. Then, within 24 hours, the rash covers the entire face, neck and upper chest. On the second day, it spreads to the trunk and upper limbs, on the third day - to the lower limbs.

The elements of the rash, when they appear, have the character of roseola or roseolo-papules of pink or red color, after a few hours they increase in size, turn into large maculo-papules of purple color, have uneven, jagged edges, merge.

The rash is usually profuse. There is especially a lot of it on the face, somewhat less on the body, and even less on the legs. The rash on the face, neck, trunk, and upper extremities is often so profuse that it occupies a large area compared to unchanged areas of skin, which appear as white islands against a background of hyperemic and infiltrative skin. As a result of the fusion of the rash on the face, as well as often on the trunk and arms, continuous fields of erythema can form. The patient's face in such cases becomes puffy, the eyelids, especially the upper ones, thicken. As a result, the appearance of the face changes dramatically.

The rash persists for 3 to 4 days, then begins to fade and acquire a brown or yellowish tint in the same order in which it appeared: first on the face, then on the trunk and finally on the legs. Often on the 3rd day of the rash, when the rash on the legs just appears, it already loses its brightness on the face, becomes pale purple, light brown or light yellow, stops disappearing when the skin is stretched, i.e. turns into pigmentation. The same happens later on the trunk and lower limbs. Pigmentation lasts for 3 - 10 days, sometimes longer, after which it disappears without a trace.

The fading of the rash can be accompanied by pityriasis peeling of the skin, which is more often expressed on the face and trunk and lasts about 5 to 7 days.

Sometimes a measles rash undergoes a hemorrhagic transformation. In such cases, the elements of the rash become purple-purple in color, do not completely disappear when the skin is stretched, and with the reverse development they acquire a green and later yellow color.

Histological changes in the skin with measles are reduced to the phenomena of a focal nonspecific inflammatory process in the upper layers of the dermis, expressed in hyperemia, edema and moderate lymphoid infiltration around the vessels. In the epidermis, an accumulation of liquid and cellular exudate and focal necrosis of the epithelium are formed. After a decrease in inflammation within the affected areas,

there is an accelerated and incorrect keratinization of epithelial cells, their massive rejection, due to which a pityriasis skin peeling occurs.

The diagnosis can be confirmed by immunofluorescence examination of nasal, oropharyngeal, or sputum smears with fluorescein-labeled measles virus antibodies. Serologically, the diagnosis is confirmed by the detection of specific Ig M by the enzyme immunoassay in the acute period of the disease or by an increase in the Ig G titer in paired sera, determined by the enzyme immunoassay. Antibodies of the Ig M class are determined after 1 - 2 days from the onset of the rash and persist for a month with a subsequent decrease in their number.

Rubella

A rash with rubella appears at the very beginning or a few hours after the onset of the disease, rarely later - at the end of the first or second day of the disease.

The rash by its nature is profuse, roseolous or small-spotted, pale pink, round or oval in shape, not prone to fusion. The rash, as with measles, most often begins in the head. The first elements are found behind the ears, on the scalp, on the face. After a few hours, the rash spreads all over the body. The rash is more profuse on the extensor surfaces of the limbs, on the back, lower back, buttocks. On the face, the rash is less pronounced than on the trunk, on the palms and soles it is completely absent. Elevated body temperature and a rash on the body persist for 1 - 3 days, a few days longer - an increase in lymph nodes. The rash disappears without a trace. Rubella is often manifested only by a slight increase in body temperature and an increase in lymph nodes without the appearance of a rash.

The diagnosis is confirmed by serological tests: RTGA, RSK, ELISA, RIA. Paired sera are examined with an interval of at least 10 days. It is desirable to determine the concentration of antiviral Ig M and Ig G.

Leptospirosis

In some patients, 3 - 5 days after the onset of the disease, a rash appears on the skin of the chest, back, abdomen, lateral surfaces of the trunk, arms and legs: bright

pink dotted, maculopapular, prone to fusion. With the development of hemorrhagic syndrome, petechial elements and purpura predominate. Rashes usually disappear after 1 - 2 days, in some cases they persist longer (10 - 11 days), accompanied by a burning sensation or slight itching. After the rash disappears, pityrioid peeling of the skin is possible. There may be hemorrhages at the injection sites, hemorrhages in the sclera. Often, a herpetic rash appears on the lips and wings of the nose.

The diagnosis is confirmed by the detection of the pathogen in the blood, urine, cerebrospinal fluid. Preference is given not to bacterioscopic, but to bacteriological research - inoculation of blood, urine, cerebrospinal fluid. Serological methods are used, in particular RSC, microagglutination reaction.

Infectious mononucleosis

In some patients, in the second week of the disease, a small-spotted-papular rash appears on the skin of the limbs and trunk. On the limbs, where the rash is larger, it may coalesce. The exanthema is not itchy, disappears without a trace after 1 - 2 days. The use of ampicillin or amoxicillin in patients with infectious mononucleosis in most cases causes the appearance of a merging maculopapular rash. Some elements of the rash may be more intensely colored in the center. This is a temporary drug reaction and does not indicate an allergy to penicillin. The rash disappears without special treatment.

The diagnosis is made on the basis of a characteristic clinical picture of the blood. In this case, atypical mononuclear cells should be at least 10% and be detected in two blood tests taken with an interval of 5-7 days. The diagnosis can also be confirmed by detecting specific antibodies by ELISA and NRIF.

HIV infection

At the stage of primary manifestations, the clinical manifestation of the disease is determined by a syndrome of general intoxication, weakness, fever, pain in muscles and joints, decreased appetite, nausea, vomiting, catarrhal symptoms of the upper

respiratory tract, tonsillitis, polylymphadenitis, hepatosplenomegaly, weight loss, diarrhea. Often these phenomena are accompanied by a rash on the skin (more often spotty or maculopapular no more than 5-7 mm in diameter, mainly on the face and trunk, and sometimes on the limbs, including palms and feet), as well as ulceration on the mucous membranes of the oral cavity and genitals.

Laboratory diagnostics are carried out in two stages. At the first stage, using ELISA, the total spectrum of antibodies is detected. Individuals with a positive ELISA result undergo the second stage of diagnosis - the determination of antibodies to certain viral proteins (gp 41, gp 120, gp 160, gp24, gp 55, gp 17) by immune blotting. A highly effective method for diagnosing HIV infection is PCR, which allows detecting viral RNA fragments.

Meningococcal infection

Meningococcus has a predominant tropism to the meninges and skin. Skin lesions appear simultaneously or several hours after the development of intoxication and usually outpaces the symptoms of meningitis by 12 or more hours. In the skin at the site of the exanthema, expansion of capillaries and arterioles, swollen endothelium, inflammatory infiltration and hemorrhages in the surrounding tissues are revealed.

In the first hours of the disease, an abundant pink spotted and maculopapular rash of 2 to 15 mm in diameter appears on the skin of the trunk and extremities, the identification of which requires a careful examination of the patient. After a few hours, petechiae appear in the center of the elements of the rash and the exanthema turns into a hemorrhagic in the form of petechiae, purpura and ecchymosis of irregular shape, protruding above the level of the skin, dense to the touch. Hemorrhages in the sclera, conjunctiva, mucous membranes of the nasopharynx are often noted, and they may appear earlier than the rash on the skin.

The diagnosis is confirmed by the isolation of meningococcus from the blood, cerebrospinal fluid, scrapings from the hemorrhagic elements of the rash.

anthrax

At the site of the introduction of the pathogen, a reddish speck appears, similar to an insect bite. After a few hours, it transforms into a copper-red papule, then (within 24 hours) into a vial filled with serous-hemorrhagic contents. When combing or spontaneously, the bubble opens, against this background a sore is formed, covered with a dark brown scab - an anthrax carbuncle is formed. The daughter vesicles formed around it also open, therefore the size of the scab increases in diameter to 0.5 - 3 cm and more. Due to the effect of the toxin on the nerve endings, pain sensitivity in the carbuncle and edema is sharply reduced or completely absent.

Laboratory diagnostics includes bacterioscopic and bacteriological methods. From the 5th day of illness, an allergic skin test with anthraxin becomes positive.

Allergic rash

It is observed with serum sickness, food and drug allergies. With serum sickness against the background of the underlying disease (diphtheria, botulism, tetanus, etc.), a week after the administration of heterologous serum, the patient develops a rash. The nature of the allergic rash is varied - spotty, maculopapular, medium and large, urticarial rash is characteristic. The rash is necessarily accompanied by itching, is located everywhere - on the face, trunk, limbs, but most of all - around the joints and at the site of serum injection. Food and drug allergies are observed in individuals who have a history of food and drug intolerance (most often these are sulfa drugs, ampicillin, vitamins, etc.). The rash is also polymorphic, of various sizes, itchy. It is characteristic to add elements, provided that the exposure to the allergen continues. When the drug or food product is canceled, as well as after the administration of antihistamines, glucocorticoids, the rash quickly disappears without leaving a trace, sometimes a fast-passing pigmentation can be observed.

The absence of changes in the oral mucosa, the staging of the rash, the polymorphism of the rash and its urticarial nature distinguish an allergic rash from measles and other exanthema.

Pseudotuberculosis and yersiniosis

Zooanthroponoses, characterized by symptoms of intoxication, damage to the abdominal organs, the musculoskeletal system and the appearance of a rash on the skin in the vast majority of patients. A rash with pseudotuberculosis appears simultaneously on the 2nd - 5th, more often on the 3rd - 4th day of illness. It can spread throughout the entire skin, but in most cases it is localized on symmetrical areas of the body - the lateral surfaces of the trunk, lower abdomen, in the inguinal zones, in the area of large joints of the limbs (on the hands - more on the flexor surface). The nature of the rash: small-point roseolous-papular, maculopapular. The rash is bright red, against the background of hyperemic skin. Petechiae may be present on flexion surfaces in natural folds of the skin. During the period of rash, patients experience itchy skin, hyperemia and edema of the skin of the face, neck, hands, arms, legs often appear - in the form of a "hood", "gloves", "socks". Unlike scarlet fever, the rash is localized in the nasolabial triangle. The rash lasts from several hours to 8 days. After its disappearance, there may be pigmentation for several days. After 1-2 weeks, patients develop peeling of the skin, pityriasis on the trunk, lamellar - on the palms and soles.

The diagnosis is confirmed bacteriologically. From serological studies, RA and RNGA are used with their repeated setting after 5 - 7 days.

Test tasks for self-control:

1. Herpes infection is characterized by a rash:

- 1) hemorrhagic
- 2) vesicular

2. For meningococemia, stellate hemorrhagic rash

- 1) characteristic
- 2) not typical

3. The appearance of a stellate rash with meningococemia is due to

- 1) the formation of immune complexes
- 2) bacterial blood clots
- 3) increased vascular permeability

4. Chickenpox rash

- 1) small-point
- 2) vesicular
- 3) maculopapular

5. Typical for enterovirus exanthema are

- 1) small-dot rash on a hyperemic background of the skin
- 2) small-dot rash on an unchanged skin background
- 3) fever
- 4) sclerit
- 5) catarrhal phenomena
- 6) maculopapular rash

6. Rubella rash

- 1) spotted, sometimes papular, pink in color, on an unchanged skin background
- 2) urticarial, irregular, sometimes merges
- 3) papular vesicular
- 4) hemorrhagic

7. Disease Nature of the rash

- 1) typhoid fever a) profuse, roseolous-petesimal
- 2) intestinal yersiniosis
- 3) maculopapular or scarlet-like
- 4) not abundant, such as roseola.

8. A chickenpox rash appears

- 1) within a few days, "jerky"
- 2) in stages: on the 1st day of illness - on the face, on the 2nd day of illness - on the trunk, on the 3rd day of illness - on the limbs.

9. A rash in a patient with pseudotuberculosis appears more often

- 1) for 1-3 days of illness
- 2) on the 5-7th day of illness
- 3) on the 7-10th day of illness
- 4) on the 10-14th day of illness

Sample answers:

1. 2 8.1
2. 1 9.1-d; 2-in; 3-d; 4-b
3. 2 10. 3-4-2-1
4. 2 11.2
5. 2,3,4,6 12.2, 4, 5
6. 1 13.1-c; 2-a; 3 - d
7. 1-in; 2-b 14. 1

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