Tertiary, visceral syphilis, neurosyphilis

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General progress of tertiary syphilis. Classification of tertiary syphilis

- 1. It develops only in a very small number of patients:

- who has had bad treatment or has not been treated at all
- in childhood or in old age
- in people with physical, psychic, medicamental traumas
- with chronic diseases and intoxication (alcoholism, drug-addiction).

- 2. Clinical features of tertiary syphilis develop after 3-4 years and more.
- 3. Signs of tertiary syphilis:

- on the skin (tubercular syphilid)

- deep nodes or gummas.

- 4. Small number of T. pallidum in the tissue fluid.
- 5. Small number of foci of infection and asymmetrical localization.
- 6. Tendency of the tertiary infiltrate towards destruction with the development of ulcers and scars.
- 7. Possible infection of any tissue and organ. Characterized by serious destruction and sclerosis.

General progress of tertiary syphilis. Classification of tertiary syphilis

- 8. Localization in essential organs can lead to lethal outcome.
- 9. Without treatment healing is very slow.
- 10. treated with iodine preparations and salts of heavy metals.
- 11. In 25-30% of cases classic serologic reaction is negative.
- 12.The main reaction of imobilization of T. pallidum (100%).
- 13. Active tertiary syphilis should be differentiated from latent tertiary syphilis

Tubercular syphilid

- 1. grouped
- 2. serpiginous (creeping)
- 3. platform (field)
- 4.dwarf (small)

Diagnosis of tubercular and tubercular-ulcer syphilid is based on the following characteristic features

- a) dense infiltrate of the tubercle;
- b) copper-red colour with blue tint;
- c) hemispheric shape, equal size;
- d) even borders;
- e) cherry-stone in size,
- f)asymmetrically grouped or crawling;
- g) the tubercles develop "mosaic" cicatrix;
- h) subjective feelings are absent.

Signs	Tubercular syphilid	Lupus tuberculosus	Cutaneous leishmaniasis	Leprosy
Shape	Hemispheric or flat	Flat	Hemispheric	Hemispheric
Colour	Copper-red with blue font	Light red with yellow font ("symptom of apple gel)	Yellowish	Colour of the skin, brown
Consistency	Dense	Soft, "symptom of collapsing of the robe	Dough	Dense
Size	Cherry-stone, equal	Cherry-stone, equal	Various sizes	Various sizes
Localization	Focused on limited place	Often fused	Fused	Fused
Subjective feelings	Absent	Painful	Painful	Absent

Signs	Tubercular syphilid	Lupus tuberculosus	Cutaneous leishmaniasis	Leprosy
Character of ulcer	Crater-shaped, rounded, with even borders. Base with necrotic covering, borders and base are dense	Uneven contours, with rough borders. Soft, unequal borders with a granular base	Uneven forms, nodular lymphangiot on the periphery of foci	Various forms
Character of cicatrix	Multicoloured and uneven, "mosaic", new tubercles are not formed on them.	Continuos, not pigmented atrophic. In the thickness of the scar new lupomas can be formed	Slightly pulled in	Uneven, pulled in
Laboratory findings	RW: +75%; -25% reaction of immobilization of T. pallidum: +95%:-5%	Tuberculin test + mycobacteriu m tuberculosis +	Borovskys corpuscles in secretion	Hansens bacillus, mycobacte rium leprae

Gummatous syphilid

- gumma is a sharply separated dense spherical or flat node.
- lying deeply under the skin.
- The epicenter of the development:
- subcutaneous fatty tissue
- lymphatic nodes
- Periosteum

Gummatous syphilid

- Size:
- pea-sized,
- slowly increases to size of a nut;
- painless;
- movable: the skin on it is not changed.

the node softens in the central part, takes a reddish-blue colour.

Fluctuation develops and the node opens, secreting gum-like fluid.

The opening increases, an ulcer with dense and opening borders can be seen.

Gummatous syphilid

- On the base of the ulcer of dead tissue (gummatous shaft),
- the ulcer undergoes cicatrization in a form of deep star-shaped scars.
- situated on the anterior surface of the crus, forehead, and forearms.
- Single gumma (solitary), gummatous infiltrate,
- nodular gummas around the joints (fibrous gumma).

Latent syphilis (syphilis latens)

The following information may be of assistance in the diagnosis of this form of syphilis:

- the medical history which should be taken thoroughly with proper attention focused on a past history of erosive and ulcerous efflorescence on the genitals and in the mouth, various eruptions on the skin; on antibiotic therapy, on treatment of gonorrhea, etc.;
- the results of confrontation;
- revealing a scar or induration at the site of primary syphiloma and enlarged lymph nodes corresponding clinically to regional scleradenitis;
- high reagin titre in sharply positive results of all the serological tests;
- a temperature exacerbation reaction at the beginning of penicillin therapy;
- rapid drop in the reagin titre as early as during the first course of specific treatment; the serological reactions are reversed to negative by the end of the first to the second course of treatment;
- sharply positive immunofluorescence test in these patients, although the *T. pallidum* immobilization test may still be negative in some of them;
- the patient's age;
- the cerebrospinal fluid may be normal.

Sign	Gumma	Scrofulo-derma	Indurative erythema	Trophic ulcer	Ulcerative malignant tumor
Age	Mostly adults	Mostly in childhood	adults	Old age	Old age
Subjective feelings	Absent	Painful	Often painful	Sometimes painful	Painful
Consistency	Dense-elastic	Soft	Dense	Sometimes dense	Dense
Form of the ulcer	Rounded or oval	Uneven	Usually uneven	Rounded Or uneven	Unevena
Borders of the ulcer	Vertical	Rough, hanging	Rough	Rough	Pulled out
Base of the ulcer	Gummatous shaft in the beginning	Unequal, with fistular paths	Unequal	With soft granulation	Pulled out, necrotic
Character of cicatrix	Star-shaped	Smooth, bridge-shaped, "straggly"	Punched	Atrophic	Spider-shaped, disfigured

Latent syphilis (syphilis latens)

The following information facilitates the diagnosis of late latent syphilis:

- the medical history;
- low reagin titre in sharply positive results of the classical serological test (CST) or weakly positive results of CST;
- reversal of serological reactions to negative by the middle or end of specific treatment and the frequent absence of negative reversal of CST, IFT and TPI despite vigorous antisyphilitic treatment and the use of non-specific agents;
- absence of the exacerbation reaction at the beginning of penicillin therapy; it is preferable to begin treatment of such patients with preparatory agents such as iodine preparations and bioquinol;
- abnormalities in the cerebrospinal fluid which are encountered more often in these patients than in those with early latent syphilis and are corrected very slowly. Moreover, the sex partners may also have late latent syphilis or they may have no manifestations of the syphilitic infection.

Congenital syphilis

Transmission of congenital syphilis

The most common theory is that the only way of transmission of congenital syphilis is from the mother to the fetus, through syphilis of the placenta. The possible transmission of syphilis from the father is now rejected. The transmission of syphilis to the fetus may occur in three ways:

1. Carrying of *T. pallidum* through the vena umbilicalis in the organism of the baby.
2. Penetration of *T. pallidum* through lymphatic clefts of the umbilical vessels.
3. Entering of *T. pallidum* into the fetus in the maternal blood through damaged placenta.

Syphilis of the placenta

Pay attention to the size, weight, colour of the placenta. Explain the results of histologic examination in the infection of placenta. Relation of weight of the placenta to the weight of fetus is 1:3 (normally 1:5 – 1:6).

Syphilis of the fetus

The infection of the parenchymal organs and fetus has a character of interstitial process. Histologic examination of the infiltrate in the parenchymal organ shows, that they are made of lymphocytes, histiocytes, plasmatic cells, and sometimes miliary or solitary gumma. There are many *T. pallidum* in the internal organs. List the characteristic features of the changes in the liver and the lungs.

The infection of the locomotor system of the fetus: the development of osteochondritis. Pay attention to the character of infection of blood vessels, spread of infection, which is the main reason for intrauterine death of the fetus. In small vessels, different stages of endarteritis, up to obliteration may be observed.

Infection of endocrine glands, changes in the central nervous system: productive mytomeningitis, meningoencephalitis and sclerosis of vessels.

As the death of the fetus is not rare in toxoplasmosis, the diagnosis of syphilis of the fetus should be made on the basis of clinical, serologic, pathological examinations and roentgenologic diagnosis of long tubular bones. The diagnosis is confirmed by examining the infection of the organs for the pathogen, positive STS in the mother.

Syphilis of the infants

The development of congenital syphilis has a unique character. Syphilis in children born from untreated mothers with active elements of secondary syphilis, is a serious disease. Almost all visceral organs are affected, locomotor system and specific infection of the skin and mucous membrane are observed. One of the earliest pathologic infection of the skin in congenital syphilis of the infants is syphilitic pemphigus (Fig. 1, 2) (2-23% of newborn patients have this form). The most common sign of congenital syphilis of the infants is diffused papular infiltrate of the skin, first described by Gochzinger (Fig. 3). It is found in 60-65%, mostly during the 8-10th week of the life of the baby.

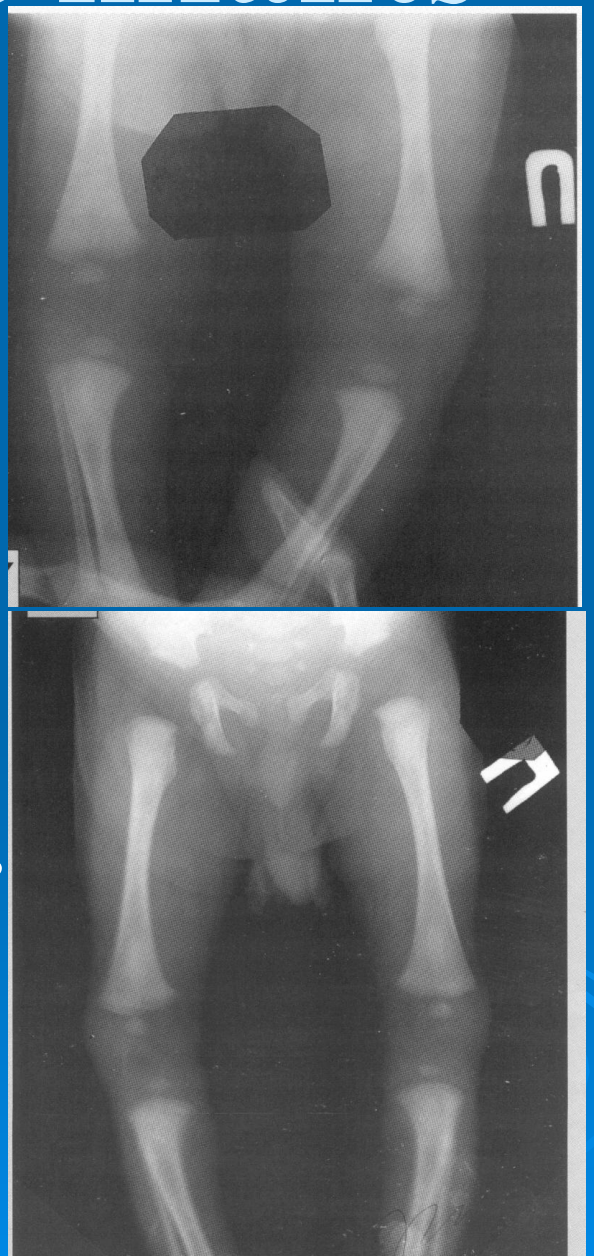
Syphilis of the infants

Fig. 1, 2. Syphilitic pemphigus

Fig. 3. Diffused papular infiltrate Goenzingers.

Syphilis of the infants

Syphilis of locomotor system is one of the basic and important signs of congenital syphilis. It may explained by the following: between the epiphysis and the diaphysis of long tubular bones there is a high blood circulation and hyperemia, which creates favorable conditions for the reproduction of T. pallidum. There are 3 stages of osteochondritis. In the third stage the epiphysis may detach from the diaphysis, there appears intraepiphysal fracture, and false paralytic condition develops. Periostitis is observed in 45-50% of cases at birth or during the first months after birth.



Syphilis of the early childhood

At the beginning of the second half of the first year after birth already, the syphilitic signs take the form characteristic for congenital syphilis of early childhood, i.e., children at the age of 1-4 years.

It should be noted that the papular elements on different places of the skin do not differ by their form, localization and evolution from papules in secondary relapsing stage of acquired syphilis.

Syphilis of the early childhood

Pay attention to the predomination of erosive, vegetating papule in the region of the anus and inguinal plicae. They also appear on the mucous membrane of the oral cavity, tonsils.

The changes in the bone, particularly, in the tibia, have a character of periostitis or osteoperiostitis.

Serologic examinations are of great importance in the diagnosis of congenital syphilis.

Late congenital syphilis

Signs of the late congenital syphilis are divided into ***unconditional*** and ***accessory signs***.

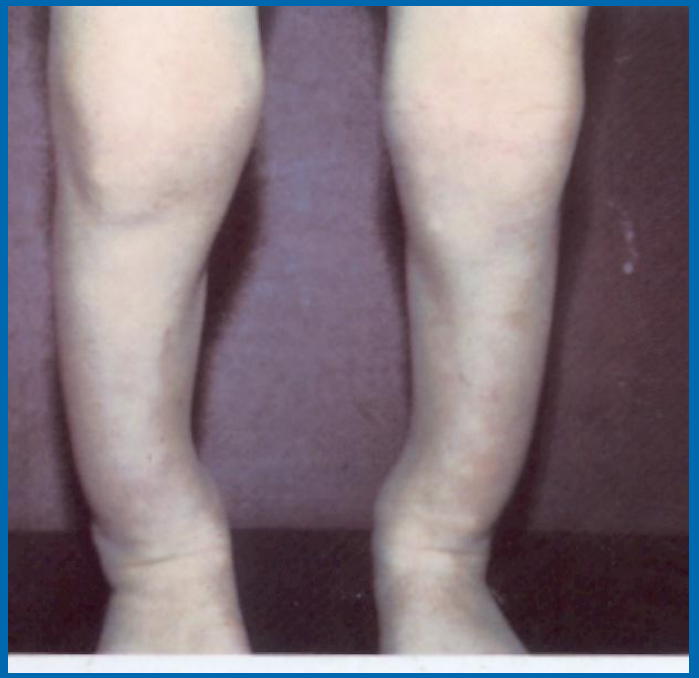
The unconditional signs include Hutchinson's triad:

- parenchymal keratitis,
- labyrinthine deafness,
- Hutchinson's teeth.

Late congenital syphilis

Accessory signs include:

- dystrophy of teeth;
- infection of locomotor system (saber shin crus), natiform skull, saddle nose, Avsitideisky's symptom (thickening of sternoclavicular joint, Gothic hard palate, axiphoidia, Dubois' infant little finger, racket shaped little finger.
- tubercle-ulcerative and gummatous infection of the skin and the mucous membrane does not differ from the infection in tertiary acquired syphilis in its manifestations and progress. Specific changes of the visceral organs in late congenital syphilis are rarer than those in syphilis of infants.
- pathologic changes in central nervous system: tabes dorsalis, jacksonian epilepsy, atrophy of optic nerve, psychic retardation.



Late congenital syphilis

The following stigmata of late congenital syphilis are the most significant:

1) Avsitidiisky's sign;

2) Gothic hard palate;

3) infantile little finger

4) axiphoidia, i.e. absence of the sternal xiphoid process;

5) Carabelli cusp, the presence of a fifth auxiliary cusp on the masticatory surface of the first upper molar;

6) diastema: gaps between the upper incisors;

7) hypertrichosis in children and growth of hair on the forehead almost to the eyebrows;

8) dystrophy of the skull bones, bossing of the frontal and parietal eminences but without a separating groove.

Prevention of Congenital Syphilis

The timely detection and proper treatment of syphilis in women is the basis of prevention of congenital syphilis. The role of examination of pregnant women is particularly important because they must be treated promptly. According to the valid authoritative instructions in our country, antenatal clinics are obliged to register all pregnant women and subject them to clinical and serological examination for syphilis. Serological examination is carried out twice, during the first and second periods of pregnancy. If the active or latent form of syphilis is found in the pregnant woman, specific treatment (only with antibiotics) is conducted. If the woman had been ill with syphilis earlier and had completed antisyphilitic treatment, specific treatment is nonetheless conducted, which in this event is called preventive, for the purpose of ensuring the birth of a healthy offspring.

One or two weeks prior to childbirth, non-specific, false positive serological reactions may appear. Therefore, if they are detected two weeks before childbirth, the expectant mother is not given specific treatment, but two weeks later she and her child are examined again. If the diagnosis of syphilis is confirmed, antisyphilitic treatment is prescribed for both mother and child. The newborns, whose mothers have been sick with syphilis and have received proper treatment prior to and during pregnancy, are subject to thorough and comprehensive