

Ministry of Health of Ukraine
Poltava State Medical University
Department of internal medicine No 3 with phthisiology

Approved
at the meeting of the Department of Internal
Medicine No. 3 with Phthisiology
Protocol № _____
"__" _____ 20____ p.
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Methodical instructions
for the independent work of students
during the preparation for a practical lesson and in class

Academic discipline	Phthisiology
<i>Modul №</i>	1
Theme of the lesson 8	Clinical classification of tuberculosis. Tuberculosis unknown location, tuberculosis of intrathoracic lymphatic nodes, primary tuberculosis complex: pathogenesis, clinic, diagnostics, differential diagnosis. Curation of patients.
Course	4
Faculty	International
Specialty	Medicine

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1. Topicality of the theme: The infestation MBT may be primary and secondary. The first time penetration of MBT in organism is primary infestation and developed clinical forms of tuberculosis are named primary and includes such clinical forms as tuberculosis intoxication, primary tuberculosis complex, tuberculosis in thorax nodes.

2. Specific objectives:

To analyse: epidemiology situation from primary TB in Ukraine, a value of different methods of inspection is in diagnostics of different forms of TB of lungs.

To explain: features of motion of primary TB, value of different methods of inspection, are in a diagnostician primary TB, features of motion of different forms of TB of lungs.

To offer: ways of diminishing of infected and morbidity among children and teenagers.

To classify: clinical classification of primary and secondary pulmonary TB.

To interpret: information x-ray inspections of patients on TB of lungs.

To draw: chart of the basic stages of pathogenesis of primary and secondary TB.

To analyze: information of laboratory inspection of sick child.

To make: planning of inspection and treatment of different forms of TB of lungs; planning of test of Mantoux among children and teenagers.

3. Base knowledge, abilities, skills, are necessary for study themes (interdisciplinary integration)

Names of previous disciplines	Skills are got
Anatomy	To know the structure of lights, partial and segmental for children and teenagers. Groups of in thorax lymphatic knots on Sukennikov and peripheral lymphatic knots.
Physiology	To know the function of lungs. Able to interpret a spirogram
Pathanatomy	To know character of TB of inflammation (morphological cyбcтpаt). Structure of TB of granulom
Physiopathology	To know the allergic reactions of fast (anaphylactic shock) and retarded-action, mechanism of their development
X-ray diagnostic	To know the projection of stakes, segments of lungs on x-ray photography tape. X-ray signs of primary forms of TB of lungs.
Microbiology	To know the pathogenic cultures of MBT for a man, feature of structure of MBT, property. Sequence of painting of stroke on Tsil-Nilsen
	To know the types of immunity (humeral, cellular), mechanisms of their development
Propedevtics of child's illnesses	Able to collect complaints, anamnesis of disease, lives, epidemiology anamnesis; to conduct the objective inspection of sick child (review, palpation, percussion, auscultation)
Pharmacology	To know a pharmacokinetics, pharmacodynamics of ATP. Testimony, contra-indication.
Hygiene	To know the rules of the hygiene mode, which a patient on TB and doctor, persons which are in touch with this patient, must adhere to.

4. Task for independent work during preparation to employment

4.1. List of basic terms, parameters, descriptions which a student must master at preparation to employment:

Term	Determination
Primary TV	it is a disease which arises up in an organism before germ-free MBT.
«Latent microbismes»	it is a presence of MBT in any organs on the initial stages in default of any morphological changes in them.
Paraspecific reactions	it is reactions which are predefined TB a specific infection, but histological structure them differs from TB of granulem.
Tuberculosis of the unstated localization	it is a clinical form of primary TB, which characteristic complex symptoms of functional disorders without the local displays of disease.
Tuberculosis of in thorax lymphatic knots	it is a clinical form of primary TB, which the lymphatic knots of root of lungs and mediastinum are struck
Primary tubercular complex	it is a clinical form of primary TB, which is characterized forming of primary affect (pulmonary component), lymphangitis (vascular component) and regional lymphadenitis

4.2. Theoretical questions are to employment:

1. Name and describe the types of TB process.
2. What are the methods of etiological confirmation of TB?
3. Name and describe category of the patients with tuberculosis?
4. What is a cohort?
5. What are the methods for early detection of TB in children and adults, you know?
6. Give definition of the primary TV?

4.3. Practical works (task) which execute on employment:

1. How does inflammation develop at infiltration bronchial adenitis?

- A. Under the capsule of lymphatic knot, stretching it.
- B. Both inwardly and out of capsule of lymphatic knot.
- B. Round a lymphatic knot, squeezing him.
- Г. Into a lymphatic knot as including.
- Д. For the step of pulmonary vessels.

2. What faithful determination of concept of TB of the unstated localization?

- A. It is the state, when a patient has suspicion on TB, but he is not yet inspected.
- B. It is the state, when a man is infected TB, but there are not clinical displays of illness.
- B. It is a clinical form of primary TB, at which complex symptoms of functional disorders is without the local displays of disease.
- Г. It is the state which arises up right after an infection and bacteriemia is accompanied till MBT of fixed is in parenchyma organs.
- Д. It is the state, when a hiperergic reaction is diagnosed for a sample Mantua.

3. What lymphatic knots are more frequent than all struck at TB inwardly pectoral lymphatic knots?

- A. Paratracheal.
- B. Bifurcation.
- B. Diaphragmatic.

- Г. Tracheobronchial.
- Д. Bronchopulmonale

4. A defeat of in thorax lymphatic knots at TB is more frequent than all:

- A. One-sided left-side.
- Б. One-sided, independently or right, whether left.
- В. Bilateral symmetric.
- Г. One-sided right-side.
- Д. Bilateral asymmetric.

5. As correct to prolong suggestion: Local changes at TB of the unstated localization?

- A. Absence.
- Б. Can not be discovered at a careful clinical inspection.
- В. Can be discovered at a careful clinical inspection.
- Г. Considerably shown in all of organs and fabrics.
- Д. Can appear or be absent.

6. What clinical displays do prevail at TB of the unstated localization?

- A. Defeat of different organs and systems.
- Б. Intoxication.
- В. Clinical displays absent.
- Г. The symptoms of defeat of lights appear at a careful inspection.

7. How characteristically for TB of the unstated localization of increase of peripheral lymphatic knots?

- A. Yes, the considerable increase of peripheral lymphatic knots is characteristic.
- Б. Yes, characteristically moderate increase no less than 2 groups, in particular under jaw and neck lymphatic knots.
- В. Yes, characteristically moderate increase no less than 5 groups of lymphatic knots.
- Г. No, not characteristically.
- Д. It is on occasion.

8. How do lymphonodus change after a form and consistency at TB of the unstated localization?

- A. Dense, uneven, soldered with a skin.
- Б. Softly elastic, mobile.
- В. Softened, with a necrotizing center, can appear fistula
- Г. To dense consistency, soldered with a skin, sickly.
- Д. Have the appearance of dense mobile conglomerates.

9. What displays in the clinic of TB of the unstated localization do attribute to the paraspecific changes?

- A. Pleurisy, peritonitis, pericarditis.
- Б. Rinitis, sinusitis, tonsillitis.
- В. Keratoconjunctivitis, knotted erythema.
- Г. Pneumonia, chronic obstructive bronchitis, bronchial asthma.
- Д. Phenomena of exudates, allergic diathesis

- 10. Does the symptom of bipolarity appear in what period of primary tubercular complex x-ray picture?**
- A. On the initial stages.
 - Б. In sharply phase of illness.
 - В. On to beginning of reverse development.
 - Г. On to beginning of calcinations.
 - Д. Across a few years after convalescence.
- 11. What medical tactic does establishment of diagnosis need "TB of the unstated localization"?**
- A. Dynamic supervision.
 - Б. Subsequent inspection.
 - В. Treatment as clinical form of tuberculosis.
 - Г. Chemoprophylaxis.
- 12. How does inflammation develop at tumor similar bronchi adenitis?**
- A. Under capsule of lymphatic knot, stretching it.
 - Б. As inwardly, so out of capsule of lymphatic knot.
 - В. Around lymphatic knot, squeezing him.
 - Г. In lymphatic knot as including.
 - Д. On step of pulmonary vessels.
- 13. Is there what research more expedient than all at suspicion on the "small" form of bronchi adenitis?**
- A. Sciagraphy.
 - Б. Tomography.
 - В. Computer tomography.
 - Г. Fluorography.
 - Д. Fibrobronchoscopy.
- 14. What component parts of primary tubercular complex?**
- A. Primary granulom, hearths of sifting out.
 - Б. Primary affect, regional lymphangitis and lymphadenitis.
 - В. Primary tuberculom, system lymphangitis, system vascularit.
 - Г. Primary cavity, TB of bronchial tubes.
 - Д. Primary granulom, bacteriemia, Para specific changes.
- 15. Are the processes of calcinations of primary tubercular complex completed in what term?**
- A. 7-10 days.
 - Б. 2-3 weeks.
 - В. 1-2 months.
 - Г. 10-12 months.
 - Д. 1,5-2.

Theme contents:

CLINICAL CLASSIFICATION OF TUBERCULOSIS

In accordance with classification of ISCD-X (International statistical classification of illnesses and family problems of health protection X revision) tuberculosis is attributed to the class of infectious and parasitogenic diseases and select 5 headings:

- A. 15. Tuberculosis of breathing organs, confirmed bacteriological (MBT +) or histological (GIST +)
- A. 16. Tuberculosis of breathing organs, not confirmed bacteriological (MBT-) or histological (GIST -)
- A. 17. Tuberculosis of the nervous system
- A. 18. Tuberculosis of other organs
- A. 19. Miliary tuberculosis

In Western countries often use the classification of TB prevalence of lung damage: minimal, moderate and severe.

I. TYPE TUBERCULAR PROCESS:

1. New cases of tuberculosis - *Tuberculosis is first diagnosed – FDTB* (date of diagnostic). After the name as a tubercular process the date of his establishment which enables to distribute patients after cohorts and conduct a cohort analysis is written down in handles. TBFD for a patient determine then, when he never treated oneself from TV, or accepted ant tuberculosis preparations less than one month.

2. Repeated cases of treatment - *Relapse of tuberculosis – RTB* (date of diagnostic) is activation of motion of tuberculosis for persons, which were before ill tuberculosis, completed the basic course of ant tuberculosis therapy and considered pulled round, or which treatment was successful in, that effective treatment was or treatment is completed. A relapse of TB can be from MBT +, from MBT–, from GIST +, from GIST–, and also diagnosed on clinic radiological principles.

Classification based pharmacoresistance

Monoresistant TB: resistance to only one of the anti-TB drugs of the grup I.

Polyresistant TB: resistance to more than one of the anti-TB drugs (but not to isoniazid and rifampicin simultaneously).

MDR tuberculosis (MRTB): resistance to at least isoniazid and rifampicin simultaneously.

Tuberculosis with enhanced resistance (RRTB): resistance to fluoroquinolones and at least one of three injectable second-line drugs (capreomycin, kanamycin or amikacin), in addition to MDR.

Rifampicin resistant tuberculosis (RyfTB): resistance is determined using phenotypically or henotypnyh methods, in the presence or absence of resistance to other anti-TB drugs.

Chronic tuberculosis (HTB) as a special case of TB do not distinguish/

3. Chronic tuberculosis – *CHTB* (date of diagnostic) diagnose for patients in which the clinic radiological stabilizing is not arrived at or there is the clinic radiological worsening: cavities (regardless of presence or absence of бактеріовиділення) are saved during not less than 2 – annual supervision and treatment.

II. CLINICAL FORMS OF TUBERCULOSIS:

Codes of MSKD of X revision

A15 – A16 **LUNGS TB** (with the optional pointing of form of defeat)

A15 – A16 Primary tubercular complex

A15 – A16 Dissemination TB

A15 – A16 Focal TB

A15 – A16 Infiltration lungs TB

A15 – A16 Cazeouz pneumonia

A15 – A16 Tuberkulema

A15 – A16 fibrous-cavern TB

A15 – A16 Cirrhotic lungs TB

A15 – A16 lungs TB, combined with the dustborne professional diseases of lungs (conioTB)

A15–A18 **OUT LUNGS TUBERCULOSIS** (with pointing of localization):

A15 – A16 Tuberculosis of bronchial tubes, trachea, larynx and other overhead respiratory tracts

A15 – A16 Tuberculosis of intrathoracic lymphatic knots
 A15 – A16 Tubercular pleurisy (including empyema)
 A17 Tuberculosis of the nervous system and brain-tunics
 A18.0 Tuberculosis of bones and joints
 A18.1 Tuberculosis of the urine-sexual system
 A18.2 Tuberculosis of peripheral lymphatic knots
 A18.3 Tuberculosis of bowels, peritoneum and mesenteries of lymphatic knots
 A18.4 Scrofuloderma and hypoderm
 A18.5 Tuberculosis of eye
 A18.6 Tuberculosis of ear
 A18.7 Tuberculosis of glands
 A18.8 Tuberculosis of other specified organs and systems (not marked higher)
 A19 Miliary tuberculosis
 A18 Tuberculosis without the set localization

Note. To tuberculosis of organs of breathing or tuberculosis of the respiratory or respirator system, take tuberculosis: nose, nose bosoms, larynx, trachea, bronchial tubes, lights, pectoral cavity (pleura, intrathoracic lymphatic knots).

III. DESCRIPTION OF TUBERCULAR PROCESS:

- 1. LOCALIZATION OF DEFEAT:** localization of defeat in lights is pointed with the numbers (by the name) of segments, by the name of particles lungs, and in other organs and systems – after the anatomic name of place of defeat.
- 2. PRESENCE OF DESTRUCTION:** destruction is disintegration of tissue under act of MBT, diagnosed roentgenologic.

Destr + with destruction

Destr – without destruction

Optionally mark the phase of tubercular process:

- infiltration, disintegration (Destr answers +), dissemination – testifies to activity of TB of process;
- resolve, compression, scarring, calcinations – represent fading of active TB of process from disposition to stabilizing.

3. ETIOLOGIC CONFIRMATION OF TUBERCULOSIS:

Presently are only 2 reliable methods of confirmation of TB – bacteriological, histological.

–It is not confirmed MBT – bacteriological (code of A16), clarification:

M 0 did not swob;

M– swob is negative (bacterioscopic);

MΓ 0 molecular-genetic test was not performed;

MΓ – molecular-genetic test negative.

M+ a swob is positive (bacterioscopic)

MΓ + molecular-genetic test positive

Rif + resistance to rifampicin, is obtained molecular-genetic test

MBT + it are confirmed bacteriological (code of A15), clarification:

C 0 cultural research is not conducted

C– is a negative result of cultural research

C+ positive result of cultural research

Rezist 0 resistant to preparations 1 row was not probed;

Rezist – of resistant to preparations and row is not set;

Rezist + (abbreviations of ant tuberculosis preparations 1 row) – resistant to preparations 1 row is set (the list of all of tuberculosis preparations 1 row is given in handles, which resistant is set to).

Resist – of II – resistant is not to preparations of II row;

Resist II + (abbreviations of tuberculosis preparations of II row) specifies on resistant of preparations of II row.

Resist II 0 – resistant to preparations of II row was not probed

Note. At TB of the unstated localization and MBT + it follows to write biological material which was probed, for example, sputum of MBT +, urine of Mbt+.

GIST + – it are confirmed histological (code of A15);

– It is not confirmed GIST – histological (code of A16);

GIST 0 – histological research was not conducted.

To **secreting MBT** take patients, in what MBT discovered as a result of any method of research (stroke, culture), even non-permanent, but in the case of presence of clinic-radiological signs of disease which testifies to activity of process. In default of obvious source of secreted MBT the 2-valid for one occasion exposure of MBT is needed by any method.

IV. COMPLICATION:

(to name of complication and the date of their diagnostic):

- to the white plague (TBL): pulmonary bleeding, spontaneous pneumothorax, pulmonary insufficiency, chronic pulmonary heart, atelectasis, amyloidosis and others like that.

- out lungs of tuberculosis: stenosis of bronchial tube, empyema of pleura, fistula (bronchial, thorax), kidney (надпиркова) insufficiency, fruitlessness, joints, amyloidosis and others like that.

V. CLINICAL AND DISPANSERY CATEGORIES OF ACCOUNT SICK

After complications, if they are, it follows to write down the category of treatment sick, which coincides with the group of him clinical account. Therefore in place of term "Group of clinical account" it follows to write the "Clinical category" and to put its number. This information is needed for the lead through of cogort analysis of efficiency treatments consumptive. At forming of diagnosis of 3, 4 on to mark in bracket a year which a cohort belongs to.

Category 1 Includes patients with the first diagnosed white plague from MBT+, and also patients with the first diagnosed tuberculosis (1st type of tubercular process) with the widespread and heavy forms of pulmonary or out lung tuberculosis from MBT+ or without MBT-. To the *widespread forms of tuberculosis* take such tubercular processes which occupy 2 and anymore segments lights. To the *heavy forms of tuberculosis* (in default of secreting MBT) take processes with the expressed tubercular intoxication, febrile temperature of body, destructions in lights, and also patients with tubercular meningitis, dissemination (miliary) forms of tuberculosis, tubercular pericarditis, peritonitis, pleurisy (with heavy motion), tuberculosis of spine with neurological complications, tuberculosis of organs of digestion, urinary and sexual organs.

Category 2 Includes any cases of pulmonary and out lung tuberculosis of, which register for the repeated treatment (patients were treated before more than 1 month), in particular relapse (from MBT+ and without MBT), treatment after an interruption, treatment after a failure, treatment is effective, completed; returning of illness through 1, 2, 5, 10, 20 years and others like that

Category 3. Includes patients with the first diagnosed limited (less than 2 segments) white plague without MBT and patients with the first diagnosed out lungs tuberculosis, which was not plugged in 1 category. To this category take children with tubercular intoxication, tuberculosis of in thorax lymphatic knots or primary tubercular complex and in the phase of calcinations in the case of the stored activity of process.

Category 4. Includes patients with **resistance** tuberculosis.

The category 5.1 (for adults) - are persons with residual changes after cure TB different localization.

The category 5.2 (adults) - are the contact person with TB patient who secret the MBT, as well as with animals sick of TB.

For children

Category 5.1. Residual changes after cure TB

The **category 5.2** (adults) - are the contact person with activ TB patient and animals sick of TB.

Category 5.3 Children and teenagers who need to clarify the etiology of sensitivity to tuberculin (postvaccinal infectious or allergic), the character changes in the lungs and other organs (for differential diagnosis):

Children with tuberculosis changes indeterminate activity.

Category 5.4 children at risk of TB, complications of BCG vaccination, HIV-infected and contact with perinatal HIV infection on

VI. EFFICIENCY OF TREATMENT:

1. Effective treatment
 - 1.1 Curing
 - 1.2 Stopping of secreting MBT
2. Treatment is completed
3. Ineffective (failure) treatment
4. Treatment is interrupted
5. Continues treatment
6. Left / Translated
7. Died

Note. "Effective treatment "and Completed treatment "name "Successful treatment yet."

VII. CONSEQUENCES OF TUBERCULOSIS (V90)

Remaining changes are after brought through tuberculosis:

- *LIGHTS*: fibrous, fibrous-focal, dystrophic, calcinations in lights and lymphatic knots, pneumosclerosis, cirrhosis, consequences of surgical interference (with pointing of kind and to give operations) and others like that;
- *OUT LUNGS LOCALIZATION*: cicatrical changes in different organs and their consequences, calcinated, consequences of surgical interference (with pointing of kind and to give operations).

Primary is called tuberculosis that develops in firstly infected persons. Clinical forms of primary tuberculosis are comprises not more then 1% among all patients of firstly diagnosed tuberculosis. Primary tuberculosis predominantly observed in infantine and juvenile age, but it may be very rarely in adults.

The period from the moment of the intensity (change) tuberculin sensitivity during one year without sings of intoxication is called the period early tuberculosis infection.

In early period of primary infection is divided latent microbism. Latent microbism is the condition of an organism under which MBT found in tissues, predominantly in lymphatic nodes, but they do not contain morphological specific for tuberculosis changes and under absence clinical manifestation. It's may be in organism are which good resistant and MBT are which weak virulent and pathogen.

Sings of primary tuberculosis:

1. changes of tuberculin sensitivity (may be hypersensitivity)
2. injury of lymphatic system with the susceptibility to caseous necrosis of lymphatic nodes
3. lymphogenously and haematogenously dissemination
4. availability of paraspecific reactions
5. often spontaneous recovery

Tree clinical forms of primary tuberculosis are discriminated:

- tuberculosis without established localization (tuberculosis intoxication in children),
- primary tuberculosis complex,

- tuberculosis of in thoracic lymphatic nodes.

TUBERCULOSIS WITHOUT ESTABLISHED LOCALIZATION (TUBERCULOSIS INTOXICATION IN CHILDREN)

Tuberculosis intoxication (TI) – it is a clinical form of primary tuberculosis, which is characterized by a symptom complex of functional failures, but without established local manifestation of a disease.

Pathomorphological bases at tuberculosis intoxication are the minimum specific and paraspecific changes in different organs, first of all in enlarged lymphatic nodes, in spleen, liver, interstitial lung tissue and other organs are observed.

Clinical manifestation of tuberculosis intoxication in children is general weakness, indisposition, lowering of working capacity, disposition of perspire, appetite loss, weight loss, broken-sleep, rising to subfebrile of body temperature. A child's behavior often changes; it becomes irritable, labile, and gets tired quickly, the ability to concentrate attention decreases, the memory weakness.

At objective examination are observed pallor, decrease of skin tension, increase of peripheral lymphatic nodes, sometimes paraspecific reactions (nodal fever- узловатая эритема, masks of flu, rino-faringitis, allergic dermatitis, keratoconjunctivites, injury liver, kidney and different vessels).

Diagnostics of tuberculosis intoxication is based on the fact of availability of the intensity of tuberculin sensitivity, intoxication symptoms, under absence of changes on roentgenogram and tomogram, under the condition of exclusion of intoxication of another etiology. In doubtful cases it is recommended by apply test treatment with antituberculous drugs during up to 3 months.

Differential diagnostics is applied to the following illnesses: chronic tonsillitis, helminthes infestation, hepatocholecystitis, pyelonephritis.

Treatment of patients with tuberculosis intoxication performs to clinical category 3, using 4 anti tuberculosis drugs (ATD) during 2 month and then 2 ATP during 4 month.

PRIMARY TUBERCULOSIS COMPLEX

The clinical form of primary tuberculosis, which characterized by specific inflammation in lung (it is primary affect), lesion of intra thorax lymphatic nodes (lymphadenopathy – it is 2-nd component of primary TB) and lymphangitis (3-th component of primary TB).

In 90% cases of primary TB complex occurs in lung localization and in 10% - abdominal.

Pathogenesis. After the penetration of MBT into the lungs, primary lesion (primary affect) is predominantly localized subpleurally in the 2, 3, 8, 9 segments. From the primary affect the infection spreads along lymphatic vessels (lymphangitis) to intrathoracic lymphatic nodes with formed a lymphadenopathy. Specific inflammation spread to pleura and causes pleurisy (4-th component of primary TB complex).

Clinic of primary tuberculosis may be asymptomatic, little symptomatic, pneumonia-similar, influenza-similar. However, more often primary TB complex develops and proceeds like tuberculosis intoxication.

Radiographic four stages of primary TB complex are discerned: pneumonic (infiltrative), suction (bipolarities), scarring and calcification (petrification).

At preantibacterial period calcification processes started in a year and lasted for 2-3 year; under present times antimycobacterial therapy they set in considerably earlier and rather rarely, because suction and scarring processes prevail.

Complication: pleurisy, lymphohematogenic dissemination, decay (primary cavern on the site of lung component), bronchi tuberculosis, atelectasis of a segment or a particle,

caseous pneumonia, primary tuberculosis with a chronic course, that develops as a result of considerable complication or inferior treatment.

The diagnosis is based on the anamnesis (present contact with TB illness), tuberculin test intensity, hyperergic reaction to Mantoux test, availability of intoxication symptoms and Para specific reactions, x-ray picture (primary lungs affect, lymphangitis, lymphadenitis), changes of haemogram (leucocytosis, lymphopenia, monocytosis, speeded up RSE), MBT are rarely revealed.

Radiographic picture of a primary tubercular complex.

The classical primary complex consists of three basic components: pulmonic, lymphadenitis and lymphangitis connecting them. However a phase of infiltration passes before bipolarity becomes distinct on antero-posterior radiograph. An infiltration represents rather intensive opacity connected to a lung root, sometimes it is deposited on the lung root. As a rule, infiltration is not homogeneous. Its borders are dim. The vessels and bronchi appear through infiltration. The sizes of infiltrations are various and depend on a degree of lung's damage; they can be lobar, segmental and bronchopulmonary. The primary complex is located in the top and middle lung segments more often. At dissolving the sub-pleural localization of infiltration more distinctly is visible.

The primary complex has four stages of development:

I a stage - pneumonic. On X-ray general view three components of a complex are visible: **1) the focus** in lung tissue by the size 2-4 cm. in diameter or more, of oval or irregular form, various intensity (more often - average and even high), with an indistinct, obscure contour; **2) the flow out to a root - lymphangitis**, which is defined as linear tension bars from focus to the root; **3) in a root - enlarged infiltrated lymphatic nodes.** The root is represented to be extended, its structure is blurry, the intensity is increased. The contours outlining lymphatic nodes, or are dim, or more precisely depict the increased nodes.

II stage - resorption. The size of the focus in lung tissue decreases, its intensity raises, the contours become precise. The flow out to a root and infiltration of lymphatic nodes decreases.

III a stage - condensation. On a place of focus area remains with the size up to 1 cm, inside of it inclusions of calcinations appear as fine spots of sharp intensity. Same spots of calcinations are noticeable and in lymphatic nodes of the lung root. Thin tension bars are determined between the focus and the root.

IV a stage - calcination. The focus in lung tissue becomes even smaller, more densely, of high intensity, with distinct contour, frequently rugged and rough. Calcinations are intensified also in root lymphatic nodes. Calcinations in certain cases are represented by solid, dense formations, in others - they have less intensive shadows of inclusions, which testify about incomplete calcifications of the focus and preservation of caseous regions in it.

At favorable course of primary tuberculosis complex with time calcification increases up to ossification at the place of former caseosis located in peripheral parts of lungs. **This is Gohn's focus.**

When primary complex is revealed in time and the patient receives valuable treatment, frequently could be achieved complete dissolution of pathological changes in lung tissue and root, with complete restoration of their initial structure.

The greatest difficulties arise at diagnosing tubercular intoxication and small forms of lymphatic nodes tuberculosis. At absence on chest x-ray obvious pathological signs of lymphatic nodes high profile is given computer tomography, allowing visualizing insignificantly increased lymphatic nodes and deposits of calcium salts.

At the minor forms of lymphatic nodes tuberculosis rontgenologic diagnosis is based on revealing of deformation and enrichment of central lung structure as reflections of stagnant lymphangitis, infringement of structure of the root and obscure contours.

Tuberculosis of in thorax lymphatic knots

It is a clinical form of primary tuberculosis, which the lymphatic knots of root of lungs and mediastinum are struck at (brochopulmonic, bifurcationel, tracheobronchial, paratracheal).

First place among the clinical forms of primary tuberculosis, in the present tense of growth of tubercular infection, tuberculosis of in thorax lymphatic knots occupies exactly.

After infecting of organism of MBT some time circulate in blood (bacteriemia), here shows up lymphatic selective of exciter, settling of him in the different departments of the lymphatic system, where active specific changes can develop.

For localizations in obedience to classification of V.A.Sukennikov distinguish, the paratracheal, tracheobronchial, bifurcation, bronchiopulmonal lymphatic knots. On the basis of pathologianatomical picture select in infiltration, tumor similar and small form tuberculosis of in thorax lymphatic knots.

Perinodular inflammations prevail at an infiltration form, a tubercular injured in a lymphonodus is small. At tumor similar tubercular bronchoadenit a process will keep indoors outside a capsule lymphonodus, megascopic to the considerable sizes.

For the persons of ripe years and persons adenogenic tuberculosis can develop in declining years, as a result reactivation of old remaining changes in lymphatic knots, where MBT are viable, at weakening of immunity they reverse in pathogenic and can cause a disease.

For hyperplastics are selected clinical-morphological signs, caseous and indurative form of bronchial adenitis.

At the hyperplastic form of change yet reverse so as there are yet hyperplasia lymphatic tissue and epitheyoid tubercles, and at caseous – a lymphatic knot shows by itself caseomy. For induration form characteristically growth of fibrous is among the caseouse cells of lymphonodus.

At tubercular bronchial adenitis pathological changes appear in all of organs of mediastinum. A pathological process is strike large bronchial tubes, vessels, cellulose, nerves, pleura, more frequent mediastinum and interpartial. In lymphonoduss a specific process flows long, keeping the activity. The hyalinosis of capsule, deposit of salts of calcium comes then.

Diagnostics of tuberculosis of in thorax lymphonoduss is difficult, because they are at back of thorax which complicates their exposure at an objective and x-ray inspection.

Clinical displays of tuberculosis of in thorax lymphonoduss are various.

For the children of junior age the sharp beginning is more frequent marked from the high temperature of body 38 - 39°C, by pathological changes in blood: RSE is 20 -30 mm/hour., moderate leucositis, lymphopenia, monositis.

A high tuberculin sensitiveness is a reaction of Mantou from 2 TU - 17-25 mm. The symptoms of TB intoxication, paraspecific allergic displays, are expressed. For the children of senior age beginning of disease is slow, unnoticeable. The subfebrill temperature of body sticks to long, prespire is enhanceable at night, bad appetite, weight loss, appears at night, bitonality cough, can be expiration stridor - the noisy long expiration at normal inspiration. These symptoms are conditioned not only the prelum of bronchial tubes, but largely by inflammation in bronchial tubes, nerves. The study of anamnesis often finds out a contact with a patient with tuberculosis. At the review of sick child the pallor of skin comes into a notice, bruises under eyes, cattle. Polimicroadenia is marked 5 and more groups of lymphatic noduss. They are elastic consistencies, do not hurt, not soldered with surrounding tissues.

Percussion is given oligosymptomatic. Changes of percussion sound can be not. When inflammation is expressed round lymphonoduss, the juxtaspinal will be dullness. Auscultation changes does not appear, at the impression of bronchial tubes – can be hearkened to the dry moist wheezes.

To the tuberculin of test more frequent hyperergic (17 mm and anymore), or "turn".

Paraspecific reactions are rarely as a conjunctivitis or nodus erithema.

A basic role in diagnostics of tubercular bronchial adenitis belongs to the x-ray method. For this purpose X-ray investigation is conducted in front-back and lateral projections, so as lymphonoduss can be covered a heart and mediastinum. At first do the survey sciagram of thorax, and then middle tomograms. For tubercular bronchial adenitis characteristically the one-sided impression and rarely there is bilateral (see a picture).

Roentgenologic select such phases:

- infiltration;
- resolution ;
- compression ;
- petrification.

There is expansion of root of lungs at the infiltrative and tumoral forms of bronchial adenitis. Shade of root becomes protuberant, area of the impression of homogeneous.

For small forms characteristic change of lungs a picture, strengthening of him, deformation of root lights, and decline of structure of roots of lights as a result of increase of lymphatic knots, phenomena of periadenitis, interstitial edema and reaction of mediastinum pleura. Hyperplastic of in thorax lymphonoduss appears at a tomografical inspection.

Ran across bronchial adenitis can be smooth - without sharpening and complications. In these cases under act of treatment normalization of temperature of body comes quickly (through 1-2 months), the symptoms of TB intoxication disappear. Resolved of inflammatory changes comes in 3-4 months, and in a year is a calcinations.

Sometimes there are complications at bronchial adenitis, when a specific process passes to the bronchial tubes, pleura, bronchogenic or lymphogenic disseminated of specific process, atelectasis, ran across complicated bronchial adenitis more long.

Treatment of tubercular bronchial adenitis must be timely, complex, nosotropic. ABP is appointed during 6-12 month of stationary treatment, and then to put conclude treatment in sanatorium terms.

Tubercular bronchial adenitis is closed rarely resolve, and petrification appear more frequent. Sometimes considerable sizes (0,5-1-3 cm in a diameter). They are named kaseoma.

It follows to differentiate tuberculosis of in thoracic lymphatic knots with the diseases of mediastinum: megakaryoblastoma, sarcoidoz, lymphosarcoma, heterospecific adenopathy (whooping-cough, viral infections).

The differential diagnostics is performed with pneumonia, eosinophilic infiltration, cancer.

Treatment is done to category 1 or 3, prescribing 3 or 4 anti tuberculosis drugs (isoniazidum, rifampicinum, streptomycinum, pirazinamidum). In 2 months streptomycin is cancelled. After disappearance of intoxication signs the treatment proceeds with 2 drugs (H, Rf) for 4-6 months.

Materials are for self-control:

A. Task for self-control (tables, charts, pictures, graphic arts):

B. Task for self-control

1. For the child of 6 years from TB of contact in the first time found out the positive test of Mantua from 2 TU is infiltration of diameter 20 mm Grumbles about the increase of temperature to 37,2°-37,4°C, worsening of appetite, head pain, rapid fatigueability, and nightly потливость. Objectively: shallow, elastic, painless peripheral lymphatic knots palpated. Roentgenologic in lungs not found out pathologies. Blood test within the limits of norm.

What diagnosis is it necessary to set a child?

2. Child of 6 years. From TB of contact. A test of Mantoua from 2 TU PPD is infiltration of diameter 18 mm Grumbles about the increase of temperature to

37,2°-37,3°C, worsening of appetite, head pain, rapid fatigueability, nightly потливость. Objectively: shallow, elastic, painless peripheral lymphatic knots palpated. Roentgenologic in lungs not found out pathologies. Blood test within the limits of norm. **What diagnosis does a child have most credible?**

3. At patient of 12 years 1,5 years ago found out the "turn" of tuberculin test. A child was not under surveillance of ant tuberculosis dispensary, did not treat oneself, because parents drove out in other city. Now appealed to the doctor because for a child periodically a temperature rises to 38°C, nightly потливость disturbs, a child worse began to study, loses mass of body, falls behind from yearlings in development. Palpation is determined megascopic, painless, dense peripheral lymphonoduss. On shins the knotted erythema is marked. Roentgenologic in lungs not found out pathologies. A test of Mantoua from 2 TU PPD- of infiltration of diameter 16 mm **What diagnosis does a child have most credible?**
4. Child 11 years. A diagnosis is set: TB of the unstated localization. **What category is it necessary to take a child to?**
5. The child of 5 years grumbles about a dry cough. Temperature of body of 37,4°C. Above an overhead particle right lights percussion is determined dullness and hearkened to the sharply hyposthenic breathing. Wheezes are not present. Blood test: L-10,4x10⁹/l, to RSE-27 mm/hour. Roentgenologic: overhead particle right lungs homogeneous black-out, a right root is extended, anhistic, by a bulge appeal outside. Test of Mantou from 2 TU PPD is infiltration of diameter 17 mm In 4 years a test of Mantoua was negative. **What diagnosis does a child have most reliable?**

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