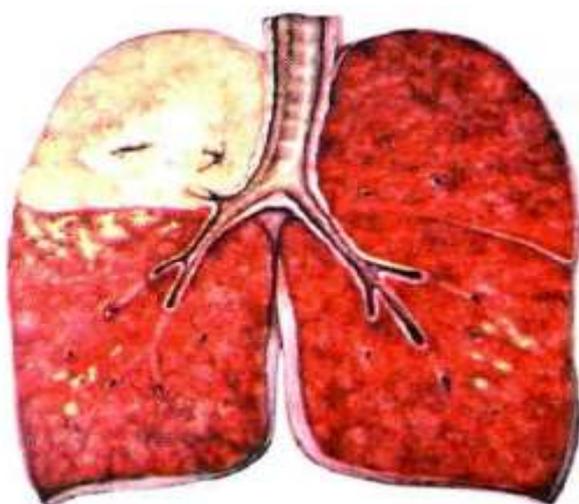


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**“APPROVED”**  
Vice rector for studies BSMI  
PhD, associate professor  
**G.J. JARILKASINOVA** \_\_\_\_\_  
« \_\_\_\_ » \_\_\_\_\_ 2019 year

## **Educational-methodical workbook on subject phthisiology**

**Recommended for students of 4<sup>th</sup> course of treatment and medico-pedagogical  
faculty**



**MINISTRY OF HEALTH OF UZBEKISTAN  
BUKHARA MEDICAL INSTITUTE NAMED AFTER ABU ALI IBN SINO  
DEPARTMENT OF PHTHISIOLOGY, PULMONOLOGY AND DERMATOVENEROLOGY**

**Sphere of knowledge:** 700000 - Public health and social servis  
**Educational sphere:** 720000 - Healthcare  
**Educational direction:** 5720100 – medical business  
5140900 – professional education

**SUBJECT: PHTHISIOLOGY**

**Writers:** PhD., associate prof.: Muazzamov B.R.  
PhD, assistant: Usmonov I.Kh.  
assistant: Jumayev M.F.  
assistant: Rustamova S.A.

**Reviewers:** Oblokulov A.R. – DSc.prof,  
Mansurova M. Kh. – PhD

## 1. Annotation

The purpose of training is to train highly TB specialists-general practitioners holding in the proper volume of knowledge, skills and practical skills required in the practice of TB: diagnosis and differential diagnosis, early detection, prevention and treatment of tuberculosis, management Reporting and accounting documents, analysis of key epidemiological indicators tuberculosis.

In this educational program widely reports the etiology and pathogenesis, the main clinical symptoms of tuberculosis, as well as the main treatment and prevention of this disease.

The combination of educational and scientific-vocational training and forming of scientific outlook, fundamental knowledge form the basis of the 4 th course training.

### 1.1. Goals and objectives of the subject

Subject physiology part of the general professional disciplines, and is taught in semester VII-VIII.

The purpose - training of students the basics of the organization of tuberculosis revealing, methods of diagnostics and differential diagnostics for tuberculosis of the respiratory organs and its extra pulmonary forms, basics of preventive maintenance of tuberculosis and the control of an epidemiological situation, rendering the emergency help at urgent states bound to tuberculosis.

Tasks:

- Forming of knowledge on an etiology, path morphology, and pathogenesis of tuberculosis.
- Forming of knowledge on clinical course and radiological signs of pulmonary and serous tuberculosis.
- Forming of knowledge on principles of treatment and methods of preventive maintenance of pulmonary tuberculosis.
- Training to tactics of diagnostics of pulmonary and serous tuberculosis, as well as the pulmonary tuberculosis complications.
- Development of skills of the fluorograms, X-Ray pictures description.
- Development of tuberculin testing skills and examination of patients with tuberculosis.

1.2. The requirements for knowledge, skills and abilities of students.

The student should know:

- History of the doctrine of tuberculosis
- Etiology, pathogenesis and path morphology tuberculosis
- Epidemiology of tuberculosis
- Modern methods of clinical, laboratory, radio, instrumental diagnosis of tuberculosis of various localization
- Native contemporary clinical classification of tuberculosis
- Characterization of the clinical forms of pulmonary tuberculosis
- Complications and emergency conditions associated with TB, their diagnosis and treatment

- Algorithm for the examination of patients with suspected pulmonary tuberculosis

Plan of lectures, practical and clinical training for students of IV-year medical and medico-pedagogical faculties of TB.

Training aimed at personality. Propose comprehensively development of each member of the educational process. In turn, in the planning of the training process should take into account not only the identity of the individual student, but also the specifics of his future profession.

Systems approach. Educational technology should contain all the features of the system: the logic of the process, the relationship of all its parts, integrity.

Active approach. Means the learning process aimed at the formation of personality, activation and activity intensification learner in the learning process to take into account all the skills and abilities of the student, opening his initiative.

Dialogues approach. This approach is the need of creation of educational relations. Consequently, intensify capacity of the individual self-activation and self-realization.

Organization of the educational process on basis of co-operation. Means the need for democracy, equality, the formation of the content of the training process and the student, draw attention to the need to implement cooperation in the evaluation of the results.

Basic research. The method of presenting the content of education due to problems helps to activate the activity of the learner. This results in the independent activity of students.

The use of modern methods and techniques of information transfer-the introduction of new information and computer technologies in the educational process.

Methods and techniques of teaching: Lectures, problem-based learning, case studies, pinboard paradox and design method, practical work.

Forms of organization of the educational process: dialogue, cooperation and mutual learning front, the team and the group.

Learning tools: along with traditional forms of learning (textbook, texts of lectures) computer and information technology.

Methods of communication: direct mutual communication based on operational feedback to learners.

Methods and means of feedback: observation, quiz, diagnosis of learning from the data analysis of the current, intermediate and final control.

Methods and tools for management: planning training sessions based on the history card, joint actions of the teacher and the student to achieve the goals supply, control not only the classroom but also outside the classroom work.

Monitoring and evaluation: the planned control of learning outcomes with in each class and all. At the end of the cycle to assess the level of knowledge of students.

In the process of studying the subject "Phthiology" will be applied training and checking computer programs, handouts on topics classes.

Distribution of studies on themes and hours on subject "Phthiology"

**Plan of lectures, practical and clinical training for students of IV-year medical and medico-pedagogical faculties of TB.**

<b>days</b>	<b>Topics of lectures</b>	<b>Topics of practical classes</b>	<b>Topics of clinical studies</b>	<b>Total hours</b>
<b>1</b>	The history of science TB. The etiology of tuberculosis.	San epidemiological treatment and infection control in TB clinic. (2 hours)	Protective equipment used in the clinic and to introduce students to use them. (2 hours)	4
<b>2</b>	Epidemiology, pathogenesis, immunity teberkuleza.	Diagnosis of tuberculosis. Clinical and laboratory methods for studying tuberculosis. (2 hours)	To acquaint students with the structure of the clinic. Methods of sputum for examination. (2 hours)	4
<b>3</b>	The clinical classification of tuberculosis. Primary tuberculosis.	The procedure for filling medical history. Diagnosis of primary teberkuleza.(2 hours)	To acquaint students with the methodology of collecting history. Familiarization with the work of X-ray and bacteriological offices. Demonstration movie posveschenny Tuberculin diagnosis. (2 hours)	4
<b>4</b>	Disseminirovany tuberculosis, pathogenesis, course, clinical picture, diagnosis.	Clinical forms of disseminated pulmonary processes and their differential diagnosis. (2 hours)	Joint discussion disseminirovannymi patients with pulmonary tuberculosis. (2 hours)	4
<b>5</b>	Focal, infiltrative pulmonary tuberculosis. Tuberculoma lungs. Clinic, diagnostics.	Differential diagnosis and complications of focal, infiltrative tuberculosis and lung tuberculoma. (2 hours)	Joint discussion patients with focal, infiltrative pulmonary tuberculosis and lung Tuberculomas. (2 hours)	4
<b>6</b>	Cavernous, fibrous-cavernous and cirrhotic pulmonary tuberculosis. The clinical course, diagnosis	The clinical course of the cavernous, fibrous-cavernous and cirrhotic pulmonary tuberculosis and its differential diagnosis. (2 hours)	Joint discussion of patients with cavernous, cavernous fibrosis and cirrhotic pulmonary tuberculosis. (2 hours)	4
<b>7</b>	Pathogenesis and clinical forms of extrapulmonary tuberculosis.	Diagnosis and clinical features of extrapulmonary tuberculosis. (1h)	Clinical analysis and discussion of patients with osteo articular and urogenital tuberculosis. (3 hours)	4
<b>8</b>	Tuberculous pleurisy. Tuberculous meningitis. Clinic and over.	Differential diagnosis of tuberculous pleurisy and tuberculous meningitis. (1h)	Familiarization and demonstration of techniques pleural Crimson tuberkelezny in patients with pleurisy. Showing a video of the movie. (3 hours)	4
<b>9</b>	—	Features of cough in patients with pulmonary tuberculosis and patients with non-specific respiratory pathologies. (2:00)	Talk with students and the differential diagnosis of patients with pulmonary tuberculosis with COPD. (3 hours)	5

10	—	Features of fever in patients with pulmonary tuberculosis and patients with non-specific respiratory pathologies. (2:00)	Talk with students and patients defferentsialnaya diagnostia pulmonary COPD. (3 hours)	5
11	—	Clinico-radiological and morphological The specifications infiltrates in the lungs of various origins. (2 hours)	Discussion Patients with ifiltrativnymi changes in the lungs and their differential diagnosis. (3 hours)	5
12	—	Lymphadenopathy. Tuberculosis of peripheral lymph nodes and their differential diagnosis. (2 hours)	Discussion Tuberculosis of peripheral lymph nodes. (3 hours)	5
13	—	Shortness of breath in various forms tuberkulezalegkih and their differential diagnosis. (2 hours)	Discussion of the patients are in the hospital with symptoms of shortness of breath. Ossobennosti rehabilitation of patients in the TB clinic. (3 hours)	5
14	—	Emergency medical assistance in the TB clinic. (2 hours)	Talk with students patients spontaneous pneumothorax, hemoptysis, hemoptysis and dyspnea. (2 casa)	5
15	—	Tuberculosis and related diseases: TB and COPD, TB and lung cancer, TB and alcoholism. (2 hours)	Discussion with students of the patients TB and COPD, TB and lung cancer, TB and alcoholism. (3 hours)	5
16	—	Tuberculosis and related diseases: TB and diabetes, TB and pregnancy, TB and mental illness. (2 hours)	Discussion with students of the patients TB and diabetes, TB and pregnancy, TB and mental illness. (3 hours)	5
17	—	Tuberculosis and HIV / AIDS, the clinical course and diagnostics. (2 hours)	ftiziatora problem for observation and treatment of patients with HIV / AIDS. (3h)	5
18	Organization of tuberculosis in the Republic of Uzbekistan.	Principles of treatment of TB patients. Monitoring and evaluation of the effectiveness of treatment according to WHO standards. (1 hour)	Features of treatment of patients with tuberculosis rezestentnymi. Familiarization with the activity of MDR department. (3 hours)	4
19	—	Prevention of Tuberculosis. Specific methods of prevention and health. The methods for early diagnosis of tuberculosis. (2 hours)	Practical observation with students for vaccination and revaccination, tuberculin tests in the dispensary department. (3 hours)	5
		The tasks of primary care physicians in the fight against tuberculosis.	To acquaint students with activities and sturkuroy	

20	—	(1h)	dispensary department. (3 hours). <b>Concluding session.</b> <b>Filing for OSKE exam.</b> <b>test-taking.</b>	4
	<b>Total:</b>	<b>36</b>	<b>54</b>	<b>90</b>

# Lecture number 1

## **Topic: History and the etiology of tuberculosis.**

### **History of development of the doctrine of tuberculosis.**

Tuberculosis - one of the most ancient and widespread diseases. Changes in the nature of tuberculosis were discovered during excavations in the bone remains of Stone Age people and mummies of Egypt. Doctors ancient times certain isolated symptom of this disease. It was characterized by the presence of a strong cough wet separation of you frequent hemoptysis and fever. Rapid progress irovanie process led to depletion of the patient, and hence came the name "consumption" of the word "waste away" and "Phtisio," which means in Greek (phthisis) "used toschenie", "destruction." In those days, the idea arose of infectiousness of tuberculosis and the genetic predisposition to it. To prevent the spread of the disease in Persia Anenii isolation of tuberculosis patients was conducted along with the patients with leprosy in India, banned marriages with tuberculosis or originating from families in which there was such patients.

The development of the doctrine of tuberculosis can be divided into three periods:

1. empirichesky - when the basic knowledge about TB were based on clinical observations, the longest, from antiquity to the early 18th century.
2. klinikoanatomicheskikh period observations of the 18th century until the early 19th century
3. between functional areas - due to advances in physics and microbiology, the discovery of Koch causative agent of tuberculosis. This period is divided into: a. - Doantibakterialny (from the end of 19veka to 40s of the 20th century), b-antibacterial period started with the 50s 20th century.

The first description of the disease we call tuberculosis Thus, one can find in the writings of Hippocrates (460-377. BC). He pointed out that this disease get sick more often young people, and the point is the predisposing tsya unfavorable meteorological factors.

The writings of Abu Ali Ibn Sina (Avicenna) (980-1037) has a description of clinical signs of tuberculosis, emphasizes the importance of clinical signs of

tuberculosis, the state of the organism to the disease and points to the possibility of cure Xia. Postmortem study of materials and accumulation of clinical sections of Mr. and observations greatly deepened the knowledge about tuberculosis. The study of morphological changes in various organs in this b olezni allowed Leiden anatomist Sylvius de la Boe (1614-1672) suggest a connection bumps that are found in various organs, with tuberculosis, but Silvius identified tubercles in the lungs and altered lymph nodes did not consider their morphological Skim the substrate of the disease. Similar views are held and Richard Morton, who wrote in 1689, first monograph on tuberculosis called "Ftiziologiya, or a treatise on the cha hotkeys." Beyle (1774-1816) described in 1810, the nature of tubercles in miliary tuberculosis, and form the basis of their recognized disease. A more detailed description of the pathology and clinical changes in tuberculosis was made by the French scientist Laennec's (1781-1826), he himself first introduced the term "tuberculosis." In his classic work "On auscultation and the diagnosis of lung diseases and heart" (1819), he noted that the presence of tubercles in the lung is the reason for and the prospect of pulmonary tuberculosis and of its anatomical basis. MF Laennec's Italian, that there are two anatomical forms of tuberculosis iron: isolated hillocks and infiltrates. A great contribution to science made by TB homeland n nye scientists. G. Sokolsky in his work "Study of breast disease" (1838) gave a description of disseminated, infiltrating a commutative and cavernous forms of tuberculosis. In the treatment of L bol GOVERNMENTAL he attached great importance to diet and favorable climatic conditions. Patomorfologich eskie research Pirogov greatly expanded knowledge about the nature of tuberculosis and the affirmative whether the clinical and anatomical area of medicine. In 1852 he described the giant cells in tuberculous tubercle. Pirogov reflected in his writings, clinical manifestations of acute miliary tube p kuleza its typhoid form. He studied and described tuberculosis of bones and joints. He considered TB as a common disease, and from these positions and functions proposed method of treatment. Published in 1865 by Wilma experiments have shown that TB is an infectious disease. Pitchfork mena experiments were as follows: he injected animals denote by airway mucus and blood of people with TB. In 1882, Koch (1843-1910) isolated bacilli of tuberculosis. Soviet scientists (AI Abr icosahedron, VG Shtefko, A. Struk, AN Chistovich), as well as most foreign researchers and foreign researchers have viewed most tuberculous inflammation as a single process, including the phase alteration, exudation and proliferation.

GA Zakhar'in (1829-1897) considered it possible to be an endogenous and exogenous reinfection with the appearance, but development illness, he put in relation with poor sanitary conditions in which the patient lived, migrated with severe illnesses, the incorrect way of life. SP Botkin (1832-1899) placed great value chenie social factors in the spread, course and outcome of tuberculosis. AI Apricots

(1875-1955) believed that TB germs can find L Xia in the air and dust to enter the respiratory system, the importance he attached to droplet infection. A lot of work in the development of the doctrine of the tube rkuleze in the organization and establishment of the state of tuberculosis put AA Kisel, and VA Vorob'ev. A. Kissel believed TB disease in children relatively long time confined to the lymphatic apparatus. Based on this presentation, he described a chronic T U berkuleznuyu intoxication as an independent form of tuberculosis in children. VA Vorob'ev (1864-1951) began his pa bot TB in the early twentieth century. In 1903, he was a member of the Commission for the Study of Tuberculosis in the P and Rogue community, and from 1907 he headed the commission. One of the main tasks of the commission was the development of the Charter and the Organization of the League All-TB. All-Russian League against Tuberculosis is a battle of the social organization involved in providing TB care and health education activities. League opened ambulat on theory and small institutions sanatorium for tuberculosis patients. To preventive measures is widespread among the population of physical education, recreational activities Ave ovedenie among younger children and students, establish sound working conditions for adults and recreation.

In the second half of the 80-ies of XX century the impression that the profession phthisiatrician from day to day *sink into oblivion* and the army of fighters against *tuberculosis* will have to find a new profession. It was then that many have changed the sign, "Department of Tuberculosis" by "Phthisiopulmonology." However, since the early 90s in Russia, and in many parts of the world, tuberculosis has again become a problem. Tuberculosis is transformed and drove us to the last century by many of its manifestations. Extensive and transient processes in the lungs, as well as bone disease, urogenital and nervous system, eyes, lymph nodes, nerves began to meet more often. Doctor of any type should be remembered that tuberculosis affects not only the hair and nails. The current turn of events and encouraged us to turn to colleagues for conversations about tuberculosis.

The disease is known since ancient times. Classic descriptions of pulmonary tuberculosis were made by ancient authors such as *Aretey Cappadocia*, *Hippocrates* and others *Abu Ali Ibn Sina* listed the main clinical manifestations of tuberculosis - cough, sputum, hemoptysis, exhaustion - but thought it a hereditary disease. First pointed directly to the contagious nature of TB *Girolamo Fracastoro*, and *Silvius* said communication pulmonary tubercles with pulmonary *tuberculosis*. A variety of clinical manifestations of tuberculosis has caused a lot of misconceptions, *R. Laennek* attributed to pulmonary tubercles malignant neoplasms, and the great *Rudolf von Virchow* did not associate with cheesy necrosis of tuberculosis. Urban growth, overcrowding and poor sanitary population culture led to the fact that in the XVIII -

XIX centuries tuberculosis collected abundant harvest among various segments of the population: it is enough to recall *Dostoevsky, Chopin, Belinsky, AP Chekhov, AM Gorky*, and others, and moreover, even *consumptive form* came into vogue, and the ladies in the extreme corset, drinking vinegar for *a languid pallor* and buried extract of belladonna in the eyes for *the hectic finish*. Domestic surgeon *NI Pirogov* belongs issued in 1852 a description of the giant cells contained in the tuberculosis tubercle. Infectious nature of the disease was first proved *Vilmenom* (1865). The next important stage of the study of tuberculosis and improving measures to combat it - the report "Etiology of Tuberculosis", by the German bacteriologist *Robert Koch* at the meeting of the Berlin Physiological Society March 24, 1882 and allowed the world to learn about the causative agent of this disease. In 1982 (100 year anniversary of the discovery), WHO and the International Union Against Tuberculosis and Lung Disease (IUATLD) sponsored the first World TB Day (World TV Day) to raise public awareness to this disease. In 1998, the day celebrated as an official event already in the UN.

In 1890. *Robert Koch* announced to the world that has created a "water-glycerin extract of tubercle cultures," by which he proposed to treat tuberculosis. It was the tuberculin, the introduction of which led to the progression of the disease and even death of many patients, and now this drug is used for diagnostic purposes. Opening *VK Roentgen* in 1895 X-rays made it possible to objectively diagnose tuberculosis of internal organs and bones. The first standing committee on the study of tuberculosis in Russia was established in 1900 at the VII Congress of the *Pirogov* physicians in Kazan.

In 1907, a pediatrician *Clemens von Pirquet Cesenatico* suggested the use of tuberculin *Koch* (ATC) for epicutaneous test to detect human infection with *Mycobacterium tuberculosis*. It was only in 1911, the discovery by *Koch M.* tuberculosis received international recognition and been awarded Nobel prizes. In 1919, *Albert Calmette* and French *Camille Guerin*, making the passages 230 bacilli of bovine type, brought an attenuated strain, later called BCG (from BCQ - bacillus Calmette-Guerin). The first shot fired in the neonatal BCG 1921

Tuberculosis as a social evil, good organization demanded control and public participation. The first TB dispensary, which opened in 1887 in Scotland (Edinburgh), became the place of supply of both medical and social care to patients. In Moscow, the first free outpatient clinic for patients with tuberculosis was discovered in 1909 In 1911 in Russia at the suggestion of *A. Vladimirov* was held the first day of tuberculosis, or *Day of the White Daisies*. Then only in Moscow for the needs of patients with tuberculosis were collected over 150 000 py Bley. Since then, the white daisy became the symbol of Russian TB doctors. And now the system

dispensaries - the basis of TB services in the Russian Federation, Kazan *Foundation White Daisies* revived in 1998

International symbol Phthisiology - the cross depicted on the covers of leading magazines in pulmonary pathology. Tuberculosis is treated in the monasteries, the poor are able to provide patient care. Lechenie.tuberkuleza started with good nutrition, rest, "the waters" and to a mountain sanatorium. More radical methods were used later, in 1882 the Italian *Forlanini* proposed to introduce air into the pleural cavity of patients with tuberculosis - to impose a pneumothorax. In Russia these pneumothorax was introduced *AN Rubel* in 1910. The turning point in the fight against tuberculosis was the discovery of streptomycin in 1944 by the American bacteriologist *Selmani Waxman*, for which in 1952 in 1944 he was awarded the Nobel Prize. But not all drugs are so soon be applied in practice. Isoniazid - a leading anti-TB drug - was synthesized in 1912, but it took 40 years to establish its efficacy in the treatment of tuberculosis, with the advent of antibiotics and anti-chemotherapy there is a real opportunity to control the disease.

### **So, what is TB?**

**Tuberculosis** (*Tuberculosis*) - an infectious disease caused by *Mycobacterium tuberculosis* (*Mycobaclerium tuberculosis*) and is characterized by the formation of specific granulomas in various organs and tissues (lungs, kidneys, lymph nodes, bones, joints, etc.), as well as a polymorphic clinical picture. The name of the disease comes from the Latin tuberculum - bump. The old names of this disease - *tuberculosis* and *consumption*. The term *consumption* occurred and the name of the science of tuberculosis - Phthisiology, sometimes referred to as ftiziologiyey (if *consumption* is formed from the Russian verb *wither*, then, from the Greek phthisiatry *phthisis* - depletion). In addition to the infectious nature, tuberculosis is the socio-economic conditions to spread. Outbreaks of tuberculosis are characteristic of wars and periods of change. It is known that during the First World War in Europe, mortality rates were higher death rates from injuries. In developed countries, tuberculosis affects mainly immigrants and lower social strata.

"White Daisy" - a symbol of the fight against tuberculosis Thus. In April 1911, in Russia for the first time in pozher tvovaniya of \$ 150 thousand, the struggle against tuberculosis.

In the development of Phthisiology release stages: Stage 1 - development of Phthisiology before the opening of the causative agent of tuberculosis, that is, until 1882. Stage 2 - after the discovery of *Mycobacterium tuberculosis* by Robert Koch.

Arguments R. Koch (Koch's triad):

1. If any form of TB is detected the same pathogen - *Bacillus* of Koch.

2. The causative agent, injected into the body of laboratory animal, duration yvaet tuberculosis.

3. For any other disease such agent is selected is Busy.

Life-physician of the Emperor Napoleon Laennec's one of the first drew attention to the morphological similarity of the structure of a tuberculous focus - the so-called tubercular protuberance.

Since the beginning of the XIX century and is now one of the methods for diagnosis of tuberculosis is auscultation, the definition of fields Kreniga, the height of the tops of standing light.

X-ray allowed to see the pathological process of the eyes.

In our time, one of the most accurate methods of diagnosis is a CT scan. Edward A. Nechaev, our health minister, has promised to allocate funds for the n okupku computed tomography and magnetic - resonance imager for our institution (in the words of a lecturer), but, unfortunately, the money from the mayor, and he of our institute will not .. .

Another method of diagnosis - Pirquet test - tuberculin skin test.

In Russia, TB control was carried out before (in the XVI - II - XIX centuries) on the donations of patrons.

At the beginning of this century died of tuberculosis 80 people per day.

After the Great October Socialist Revolution in Russia Statistical began to create anti-dispensaries. The fighters with tons of Tuberculosis: Vorobiev, Krasnobaev Ryabukhin. Today - academician of Russian Khomenko.

St. - Petersburg, there are 4 Department of Tuberculosis and the Institute of Phthisiology.

Department of pulmonary tuberculosis Sigma them. Acad. Pavlov was organized in 1941, in September. It was headed by Abram Tsyg Elin.

From 1975 to 1992 the department was headed by Zoya Ivanovna Kostina.

From 1992 to the present day, her head - Nikolai Andreyevich Brazhenko.

At the department there are 3 associate professors.

SSA is headed by Assoc. Ivanovo.

Direction of the department:

1.Sarcoidosis.

2. Immunodiagnosis of tuberculosis.

3.Prevention of tuberculosis.

The famous Russian surgeon Pirogov last century said: "Separate educational research from the impossible"

In 1882 Robert Koch discovered the causative agent of tuberculosis. The shell is made up of Mycobacterium tuberculosis lipids by 25%. 0 infectiousness of tuberculosis uleza knew long ago.

Previously, tuberculosis was called consumption. The most sensitive animals to tuberculosis - the guinea pigs. Naval surgeon Wilma processed litter of guinea pigs with tuberculosis sputum and zmozhdennyh sailors, and thus studied the disease in animals.

Kongeym injected into the anterior chamber of rabbit eyes sputum TB patient and after 3 weeks of getting TB bumps in the eye.

## **The etiology of tuberculosis**

**The causative agent of tuberculosis** - mycobacterium tuberculosis. The causative agent of tuberculosis refers to a broad group of mycobacteria. There are different names for the pathogen tuberculosis bacillus Koch's bacillus Koch's mycobacterium tuberculosis. There are tons of Mycobacterium tuberculosis and human pa (typus humanus), bovine (typus bovinus), avian (typus avium). Is susceptible mainly to the first two types of mycobacteria. Hallmark free ystvom Mycobacterium tuberculosis is their acid resistance: they steadfastly maintain color when exposed to acids, alkali lochey, alcohol. The causative agent of tuberculosis has the form of rods ranging in length from 1.5 to 6 microns and a thickness of 0.2-0.5 microns. Mycobacterium tuberculosis are curved along the length, arc sometimes used different, thicker on one or both ends. As a pathologist, and teaching materials, they are sometimes parallel, sometimes at an angle or in groups and clusters of different shapes. Multiplication of Mycobacterium tuberculosis is a transverse division, branching, bud and eat. Emerging grains form the core of the new cells. In their structure there are three surface layers: the first is well defined, the conservation form of the bacterial cell, the second and third narrow Sliz true.

The chemical composition of Mycobacterium tuberculosis:

1. Lipids - 20 - 40%. Lipids provide the acid and the mycobacteria spirtoustoych ivost.

2. Polysaccharides - 1 - 2%. Polysaccharides are involved in the reaction of phagocytosis in lesions.

3. Tuberkuloproteiny - up to 50% - are responsible for antigen activation vnost.

PCHZT - hypersensitivity of delayed type. For PCHZT meet lipids and policy aharidy Mycobacterium tuberculosis.

In lung tissue, it is located inside and extracellularly. New elastic fibers in the lung tissue determines its degradation. As we remember from the course of microbiology, to identify Mycobacterium tuberculosis can stain Ziehl - Nilsson, is also very productive tny luminescence method.

L - forms are less virulent mycobacteria, but are very important in reducing the reactivity of the organism.

In 60% of sarcoidosis, according to the academician Khomenko, determined by L - forms of Mycobacterium tuberculosis.

**Virulence** is the degree of pathogenicity. Vir ulentnost driven by both physical and chemical properties of mycobacteria by you and the host's status at the time of exposure to mycobacteria. For Mycobacterium tuberculosis is characterized by high resistance to the effects of various physical and chemical agents. In the liquid wet on those tubercle bacilli remain viable and virulent in 5-6 months. Even in a dried state on various subjects, linens, books, etc. myco bacteria for several months can keep their properties, and then getting favorable conditions of existence, are able to show pathogenic activity. Mick obakterii tuberculosis respond to changes in living conditions and, accordingly, "rebuild Xia", vary in their qualities and properties. The variability of micro obaktery can manifest itself in the following ways:

a) The morphological variability (kolboobraznye, diphtheroid, branched);

b) tinktorialnaya variability - changes with respect to the coloring matter;

c) cultural variability - changes in morphology and color crops when grown on artificial media;

g) biological variability - changes in the degree of turbulence in the virus, either upwards or, conversely, decrease it, until the complete loss of virulence. Various phormy variability, transformation, pursuing a goal - survival of mycobacteria under adverse conditions, s, maintaining vitality, or, as they say, "persistence." Especially, researchers paid much attention to such displays of variability of Mycobacterium tuberculosis as a form of se rnistye, filterable forms, but in recent years - and drug-resistant L-forms.

**Types of Mycobacterium tuberculosis** (the most dangerous 1, 2, and 3 types):

1. human

2. Bull.

3. Avian.

4. Mice.

5. Cold-blooded.

There are **3 level complex epidemiological chain:**

1. Source (a sick man, sick fivotnye)

2. Modes of transmission:

3. Susceptible group.

According to statistics, every one hundredth egg is infected with tuberculosis, which infects humans.

Modes of transmission:

1. Aerosol, ie the air - drop path, the air - n ylevoy.

2. Contact.

3. Alimentary.

4. In utero.

Mycobacterium tuberculosis is highly sensitive to chlorine-containing drugs to drying in direct sunlight.

### **Statistical indicators of tuberculosis:**

1. Infection (tuberkulinodiagnoz).

2. The percentage of X-ray - tatov positive results.

3. Morbidity.

**Infection** - this is the frequency of individuals positive tuberculin except postvaktional allergy. The percentage of St. - Petersburg 9.5%.

Percentage of rentgenopolozhitelnyh considered on the basis of radiographic examinations. Incidence - the number of persons infected with tuberculosis per 100 thousand population. Boleznennost - This is the number of people registered on the books, now or previously infected with 100 thousand of the population. Infestation - the value to be considered for a complete enumeration. T NOSTA death - the number

of deaths. Lethality - the number of deaths from the total number of bacterial tuberculosis.

Ways of identifying TB: 40.9% - using fluorography. 50.6% - an appeal to the doctor.

Very often newly diagnosed tuberculosis in medical departments.

Risk groups: tuberculosis had undergone in the past, contact; radiologically person.

***Pathomorphosis TB*** 1. true

- a) natural (exogenous and endogenous factors);
- b) induced (therapeutic and preventive measures);

2. False.

- a) a new interpretation;
- b) lack of diagnosis.

***Aspects pathomorphism***

- Epidemiology;
- Clinical;
- Morphology.

With good treatment can occur recovery of lung tissue. The main task - to oversee treatment.

### **Methods and general principles of diagnosis of tuberculosis**

Clinical symptoms of pulmonary TB are diverse, but the disease has no specific symptoms. This is particularly important in today's conditions, which are characterized by environmental changes, multiple scattering effects on the human body of various vaccines, serums and antibiotics, as well as changes in the properties of the causative agent of tuberculosis.

It should be borne in mind three things:

- 1) TB patients with symptoms of the disease treated by general practitioners rather than specialist, TB specialist;
- 2) tuberculosis - an infectious disease, and patients may present to others a serious epidemic threat;
- 3) treatment of tuberculosis requires the use of specific anti-TB drugs and must be supervised by a specialist phthisiatrician, which owns the necessary knowledge and skills.

Questioning and physical methods of investigation can only be suspected tuberculosis. For early and timely detection of tuberculosis, as well as verified diagnosis - Rosa

require special methods of investigation. These are the E in Phthisiology are immunological, microbiological, ray, endoscopic and morphological IU ods. They are crucial in the diagnosis and a differential diagnosis of tuberculosis, evaluation of the disease and treatment outcomes.

### **The main symptoms**

Typical symptoms of pulmonary tuberculosis: weakness, fatigue, poor appetite, weight loss, fever, sweating, dry cough or sputum, shortness of breath, chest pain, blood Harkány. These symptoms may be expressed differently and appear in various combinations.

Weakness, fatigue, poor appetite, weight loss, irritability, decreased performance may be early manifestations of TB intoxication. TB patients often do not associate these symptoms with the disease, suggesting that their appearance is due through - dimensional physical or mental stress. Symptom intoxication require more attention, especially especially in individuals at risk for TB disease. In-depth examination of such patients can be identified by Comrade primary form of tuberculosis.

Increased body temperature (fever) is a typical clinical symptom of infection, and many non-communicable diseases.

In tuberculosis body temperature may be normal, subfebrile and febrile. It is often different pain Scheu lability and increased after physical or psychical load. TB patients usually suffer fever rather easily, and often almost do not feel.

When tuberculous intoxication in children in the afternoon, the temperature increases for a short time to 37,3-37,5 ° C. These upgrades occur periodically, sometimes no more than 2-3 times a week and alternate with long intervals of normal temperature. Temperatures rarely pa body remains within 37 ° C, with differences between ut renney and evening temperature is about one degree. Unlike the cases of fever, caused GOVERNMENTAL autonomic disorders, low-grade fever usually declines in tuberculosis in the appointment dopirina s (amidopirinovaya test). Lowering the temperature also occurs against the backdrop of preparations of isonicotinic acid hydrazine.

Steady monotone subfebrile low temperature fluctuations during the day is not typical for tuberculosis iron and is more common in chronic nonspecific inflammation in the nasopharynx, paranasal sinuses, biliary tract or genital organs. Body temperature subfebrile can also be caused by endocrine disorders, rheumatic fever, sarcoidosis, lymphogranuloma tozom, kidney cancer.

High fever hectic type is highly characteristic of acute progressive tuberculosis and severe lesions (miliary tuberculosis, caseous pneumonia, pleural em Pius). Intermittent hectic fever is one of the diagnostic features that distinguish the form of miliary tuberculosis typhoid from typhus. Unlike tuberculosis, of typhoid fever's body temperature has steadily increased and then maintained consistently high for a long time.

In rare cases, patients with pulmonary tuberculosis note perverted type of fever, when the morning temperature is above you night. Such evidence of severe fever Intimate intoxication, which may have a non-tubercular origin.

Increased sweating is a very common sign of intoxication. TB patients at the beginning of the disease is often noted increased sweating of the head and chest at night or early morning hours. Pronounced sweating (a symptom of a "wet pads") in the form of

profuse perspiration happens in caseous pneumonia, miliary tuberculosis and other severe and its complicated forms, as well as nespetsifi České acute infectious diseases and acute exacerbation of chronic inflammatory processes.

**Cough** is often accompanied by inflammation, cancer and other lung diseases, respiratory tract, pleura, mediastinum.

In the early stages of TB can cough Jet absent. Sometimes the patient noted a small, ne - periodically occurring cough. With the progression of tuberculosis cough increased. It is a dry (not - productive) or sputum (productive). Dry paroxysmal cough occurs when compression of a bronchus or enlarged lymph nodes removed - GOVERNMENTAL bodies mediastinum. Such a shift is possible if large quantities of fluid in the pleural cavity in patients - Nogo exudative pleurisy. Particularly common in dry - stupoobrazny cough occurs in tuberculosis bronchus. A productive cough appears in patients with pulmonary tuberculosis in cases of destruction of lung tissue, education nodulobronhialnogo fistula, rupture into the bronchial tree of fluid or pus from the pleural cavity. TB cough leze also may be due to nonspecific chronic bronchitis or bronchiectasis.

Sputum of patients with an initial stage of tuberculosis is often non-cross linked allocation associated with chronic bronchitis ical. After the collapse of a lung - Noah fabric of sputum increases. When neoslozh nennom pulmonary tuberculosis sputum is usually colorless, homo gene and has no smell. Accession of non-specific inflammation leads to increased cough and a significant increase - crease in sputum. In these cases, purulent sputum may become the character.

Dyspnea is a clinical symptom of respiratory or cardiovascular failure. When the disease is more likely s lungs caused by a decrease in the respiratory surface, a violation of bronchial permeability, limited excursions of the chest wall and diaphragm, a violation Niemi transport of gases through the wall of the alveoli. Certain important effects on the respiratory center GOVERNMENTAL toxic products generated during the life of pathogens and the decay of tissues.

Severe apnea is usually observed during acute pulmonary tuberculosis, as well as chronic disseminated, fibrocavernous, cirrhotic pulmonary tuberculosis.

Progression of tuberculosis and other lung diseases can lead to chronic pulmonary CERD sample and cardiopulmonary diseases. In these cases, dyspnea markedly increased. Shortness of breath is often the first and main symptom of pulmonary complications such as spontaneous pneu motoraks, atelectasis, or the proportion of lung embolism in the pulmonary artery. With a significant and rapid accumulation of fluid in the pleural cavity in shortness of breath can occur suddenly and be pronounced.

Chest pain is a symptom of the trachea, lung, pleura, heart, aorta, pericardium, chest wall, spine, esophagus and sometimes the abdominal cavity.

Pulmonary tuberculosis chest pain usually caused by spread of inflammation in paretalnuyu pleura and the development of perifocal adhesive pleurisy. The pain occurs and increases in breathing, coughing, abrupt movements. Localization of pain usually corresponds to the projection of the affected part of the lung to the chest wall. However one in inflammation diaphragmatic and mediastinal pleura pain radiating to the epigastrium, neck, shoulder, heart area.

In the dry tuberculous pleurisy pain occurs ispod wills and stored for a long time. It increases with coughing and deep breathing, with pressure on the chest wall, and depending on the location of inflammation may radiate to the epigastric or lumbar region, which leads to diagnostic difficulties. In patients with exudative pleurisy tuberculosis chest pain occurs acutely, but with the accumulation of pleural fluid decreased and remained dull until it resorption.

Tuberculosis and other inflammatory lung diseases characterized by weakening and disappearance of pain, even without recourse of the underlying disease.

In cases of acute pericarditis, which occurs in tuberculosis, often a dull pain, unstable. It reduces - Xia patient in a sitting position with tilt forward. When a pericardial effusion in the pain subsides, but its disappearance may occur again.

Sudden sharp chest pain occurs when the complication of spontaneous pneumothorax tuberculosis. In contrast to the degree Knockard and myocardial infarction pain in pneumothorax increases during the talk and cough, not radiating to left arm.

If intercostal neuralgia pain is limited by the localization tion course intercostal nerve and increases with the pressure on the intercostal area of the gap. In contrast to the pain of pleural tuberculosis patients, it also amplified Vaeth at an inclination of the body in the affected side.

Lung cancer and other tumors of the chest pain continued and may gradually increase.

**Hemoptysis** or pulmonary hemorrhage is more common in the infiltrative, fibrous-cavernous pulmonary tuberculosis and cirrhotic. Usually it is phased out - etsya, and after the separation of fresh blood for several days continued expectoration of dark clots. In the case of postgraduate radio and blood of aspiration pneumonia after hemoptysis may increase body temperature.

Hemoptysis is also observed in chronic bronze hit, and many nonspecific inflammatory, neoplastic and other diseases of the chest. Unlike tuberculosis, in patients with pneumonia usually occurs first chills, increased body temperature, and then there hemoptysis and stabbing pain in the chest. At Institute - farkte lung initially appears more chest pain, then fever, hemoptysis occurs. The duration of Noah hemoptysis seen in patients with lung cancer.

Massive pulmonary hemorrhage more often in patients with fibro-cavernous, cirrhotic tuberculosis and gangrene of the lungs.

In general, one should bear in mind that pulmonary tuberculosis often starts as a common infectious disease with symptoms of intoxication and often takes place under the weight of Koi influenza or pneumonia. The treatment of broad-spectrum antibiotics, the patient's condition may improve - sewing. Further course of tuberculosis in these patients usually wavy: periods of exacerbation displacement - nyayutsya remission and periods of relative prosperity. When extrapulmonary forms of tuberculosis, along with general symmetry ptomami resulting from tuberculous intoxication in patients with marked and local manifestations of the disease: in tuberculous meningitis - headache, laryngeal tuberculosis - a sore throat and hoarseness, with osteo-articular tuberculosis - back pain or joint, and changes in stiffness of gait, with tuberculosis of female genital organs - pelvic pain, menstrual function, with tuberculosis of kidneys, ureters and bladder pain in the lumbar region, dizuricheskie disorders, tuberculosis mesenteric lymph nodes and intestinal

abdominal pain and disorders function as ludochno tract. Often, however, patients with extrapulmonary tuberculosis, especially in the initial stage, not predyav lyayut no complaints, and disease detected only by special methods of investigation.

### **Questions, methods fizikalnys**

A history to determine when and how you have been revealed by the disease: when you contact a doctor about any complaints or follow-up examination. The patient was questioned about the time of onset of symptoms and their dynamics - namics, previously an illness, injury, operations. Pay attention to possible manifestations of tuberculosis such - kuleza as pleurisy, lymphadenitis. Detect the disease at which the risk of tuberculosis is particularly high: diabetes mellitus, silicosis, stomach ulcer and duodenal ulcer, alcoholism, drug addiction, HIV infection.

Important information about staying in areas with particularly high rates of tuberculosis, the participation in hostilities, the patient stays in the city or rural areas NOSTA. Are important data about the profession and the nature of the paper, the material conditions of life, lifestyle, alcohol consumption, smoking, as well as stay in the facility s prison system. Assess the level of culture the patient. Parents of affected children and adolescents rasspra shiva on anti-vaccination and the results that berkulinovyh samples. It is also necessary to obtain information tion on the health of family members, possible contact with TB patients at home, attending college, at work and its duration, the presence of TB animals.

**Examination.** Not only medical but also in the literature describes the appearance of patients with advanced pulmonary tuberculosis schim, which is known as habitus phftsicus. This is underweight, blush on his pale face, bright eyes and wide eyes, dystrophic skin changes, long and narrow thorax, dilated intercostal spaces, acute epigastric angle, lagging (krylovid - nye) blade. These external signs are usually seen at far come of tuberculosis. On examination, patients with incipient tuberculosis of any pathological changes sometimes do not show. However, inspection is always required. He often reveals a variety of important symptoms and should be held to the floor constant volume.

Pay attention to the physical development of the patient, the color of the skin and mucous membranes. Compare the severity of the subclavian and pits, symmetrical right and left halves of the chest, assess their mobility during deep breathing, breath support participation in the muscles. Note the narrowing of the intercostal or extension of the interval, post-surgical scars, fistulas, or scars on their healing follows. On the fingers and toes paying attention to the deformation of the terminal phalanges in the form of drum sticks and changing the shape of the nails (in the form of convex time degree - count). In children, adolescents and young adults visiting the Ute on the shoulder of scars after BCG vaccination.

**Palpation** to determine the degree of humidity or dryness of the skin its turgor, the severity of the subcutaneous fat layer. Carefully palpates lymph nodes in the neck, armpits and groin areas. In the inflammatory processes in the lung involving the pleura are often lagging behind the affected part of the chest during breathing research institutes, breast soreness. Patients with chronic tuberculosis and after major operations may be atrophy of

muscles of the shoulder girdle and chest. No significant mediastinal shift can be determined by palpation on the Status of the trachea.

Voice tremor in patients with pulmonary tuberculosis is common, reinforced or weakened. It is better conductivity - converges on the areas packed with infiltrative lung and cirrhotic tuberculosis of the large cavity with a wide draining bronchus. Weakening voice shaking until his disappearance in the presence observed in the pleural cavity of air or fluid, atelectasis, pneumonia with massive bronchial obturation.

Percussion reveals relatively coarse changes in the lungs and chest with infiltrative lesions of cirrhotic or equity nature fibrosis membrane ry. The important role played percussion in the diagnosis of non-negative - spurious states, as a spontaneous pneumothorax, severe pleural effusion, atelectasis of the lung. The presence of Nogo koroboch or shortened pulmonary sound allows you to quickly assess the clinical situation and conduct the necessary studies.

**Auscultation.** Some respiratory diseases, especially tuberculosis, may not be accompanied by a change in the nature of respiration and the appearance of additional noise in the lungs. One reason for this is obturation bronze Hove, draining the affected area, dense caseous necrotic masses.

The weakening of breathing characteristic of pleurisy pleural GOVERNMENTAL adhesions, pneumothorax. Rigid or bronchial breathing can listen over infiltrated le gochnoy cloth amforicheskoe - the giant cavern with a wide draining bronchus.

Rales in the lungs and pleural friction rub is often help you diagnose this pathology, which is not always detected by X-ray and endoscopic studies research institute. Finely rales on a limited teaching are a sign of dominance stke effusion of the component in the area of inflammation, and medium and large bubbling rale - a sign of decay or cavities of the cavity. For vyslu Shivani rales should ask the patient to cough after deep breaths, a short pause, and then again a deep breath. At the same time at the height of a deep breath or wheezing occur increases their number. Dry rales are bronchitis, whistling in the bronchi - those with bronchospasm. In dry pleurisy auscultated pleural friction rub, and pericarditis - pericardial friction noise.

### **Microbiological studies**

Microbiological and, in particular, bacteriological studies are needed to:

- identify the most dangerous in terms of an epidemic of tuberculosis patients;
- verification of the diagnosis of tuberculosis;
- determine the treatment strategy (organizational form, treatment plan);
- assess the effectiveness of treatment and prognosis;
- for epidemic control of tuberculosis. The objects of bacteriological examination are various fluids and tissues obtained during the examination of respiratory organs. The most frequently examined sputum. Other materials are mi respiratory secretions after aerosol inhalation, bronchoalveolar washings, pleural fluid, gastric washings (mainly in children who do not expectorate sputum and zaglaty vayut). During and after surgery are taken material for the study of rezektaty lungs, pleura, lymph nodes.

In patients with extrapulmonary TB or suspected such explore the various fluid - cerebrospinal, pericardial, synovial, ascitic, and menstrual blood, pus, bone marrow punctate, granulation, scrapes synovial membranes, lymph nodes and punctate, rezektaty bodies.

Classical methods of bacteriological examination are smear microscopy diagnostic material and culture (culture) with the identification of species of microorganisms.

In identifying the IMT should determine their sensitivity to chemotherapeutic drugs.

Smear microscopy diagnostic material - a mandatory method of research in medical uch rezhdeniyah obshey health care services. The purpose of the study - showed - tion of acid-fast bacilli. The method we conclude etsya in direct light microscopy of smears stained with Ziehl-Nelsenu, or fluorescent microscopy with approx Rusk flyuorohromnymi dyes. With tuberculosis went FIR is primary, tentative study identifies those patients who are most dangerous in regard to epidemic.

If you find questionable or acid-fast bacilli by microscopic examination of the primary patient sent to the institution for verification of TB diagnosis.

In the bacteriological laboratories of TB services in sputum negative results of the study, not once, but for 3 consecutive days or more. For the study of collecting morning portion of sputum.

Previously the patient should brush your teeth and rinse your mouth. In the sealed vial to collect 3-5 ml of sputum, but the number is valid and less - Excellency. In the absence of wet you may use aerosol irritant inhalation of 5-15% solution of sodium chloride dissolved in 1% solution of sodium bicarbonate. Mate rials for research in such cases may be

Sputum collection for the prevention of airborne infection is produced in a dedicated room.

When stained by Ziehl-acid-fast bacilli Nelsenu painted in red, and the surrounding background and acid-fast bacteria in blue. The resolution of the microscopic method revealed acid-fast bacilli leniya increases significantly with fluorescent microscopy with fluorochrome stain pre Parata - auramine or auramine with rhodamine. When illuminated with ultraviolet light mycobacteria tyatsya bright yellow on dark green background.

However, the microscopic method has its limits. Straight (Easy) microscopy with stain Ziehl-Nielsen well can detect mycobacteria in their content of more than 5000-10000 microbes in I ml of the material. Such a number of bacilli found in sputum of patients with advanced tuberculosis - Thus. With fluorescent microscopy can reveal the MBT in their content of about 1,000 per 1 ml.

In the early stage of Mycobacterium below detection capabilities Skim microscopic study. In addition, microscopy enables us to differentiate not Mycobacterium tuberculosis with other mycobacteria (mycobacteriosis agents) and, therefore, is insufficient to reliably determine the etiology of the disease.

Disadvantages of the method fills the microscopic Skogen culture methods, or method of planting material for culture media. To obtain a culture of this method is sufficiently MW from 20 to 100 bacterial cells in 1 ml of the ILO, the liquid material.

There are also semi-liquid and liquid nutrient media. Some of the methods with the use of highly selective media can cultivate a culture of mycobacteria in a shorter time, but to identify the organism need more time.

Obtaining a pure culture of mycobacteria by biochemical methods can distinguish *M. tuberculosis* from other non-tuberculosis mycobacteria, to determine their viability, virulence and drug susceptibility nym drugs. It is also possible to quantify bacterial surround: lean-to 10 colonies on the medium, mild Noah - from 10 to 50, and abundant - more than 50 colonies.

The disadvantage is its culture-length - about 2 months. However, this method should be used in all patients with suspected tuberculosis, especially particularly with repeated negative results of microscopic examination.

In order to expedite the study were aware of the culture apparatus for the radiometric determination of the growth of *E. coli* bacterium. In devices of this type of liquid nutrient medium but contains <sup>14</sup>C-labeled palmitic acid. Of a special sensor detects a sign of growth of mycobacteria in the allocation of <sup>14</sup>C within 10-12 days or sooner.

Another principle is based on the absorption of oxygen in the growth process of the microbial population. Reducing the concentration of oxygen in a closed chamber activates a fluorescent indicator which glows under ultraviolet light.

By using such devices as possible identification of mycobacteria and the determination of their sensitivity to medicinal preparations venny. Developed and committed correspond to other automatic devices.

Cultural studies to determine the sensitivity of the Office to the drugs and to identify resistant strains of them.

Considered sensitive mycobacteria, which ceased to grow and multiply when you add in the nutritional environment of the drug in relatively low, ie, the critical concentration. At the high stability of mycobacteria in the drug concentration that does not work.

A quick way to identify resistance to drugs MW can be considered the use of biological microchips. They are used to estimate the kinetic re DNA polymorphism.

Small size, high sensitivity and specificity of biological microchips allow you to apply them simultaneously to identify the causative agent and determine its resistance to several drugs nym drugs. The result of such investigations have generally followed the traditional culture-control method.

Laboratory determination of the spectrum and the degree of resistance to *Mycobacterium tuberculosis* drugs is of great importance for the choice of chemotherapy, monitoring the effectiveness of treatment and epidemiological monitoring.

Bacteriological examination in low information content can be supplemented by biological methods home. It is the infection of an animal obtained from the pain Nogo biological material, which presumably contains but the ILO. Usually used in guinea pigs. These animals are highly sensitive to the Office.

About a month after infection in pigs, generalized ny tuberculosis. The biological method is vysokochuvst - Indeed, as tuberculosis in the guinea pig occurs with the introduction of a material containing at least 5 of bacteria in 1 ml. However, it is complex in terms of organization and requires a fairly high cost.

In difficult diagnostic cases, resorted to molecular methods give biological study. They are insulated amplification function, the system is insulated amplification of sequences of the target, ligase chain reaction, polymerase chain reaction (PCR).

The most widely used PCR with primers specific for *M. tuberculosis*. The reaction is based on amplification of specific DNA. PCR - a highly sensitive and rapid method for laboratory diagnosis of tuberculosis. Identification of the Office of the diagnostic material in the presence of 10.1 cells in a sample can be carried out for 5 - 6 pm. For PCR requires special test systems and laboratory topics.

### **The study of blood and urine**

In patients with pulmonary tuberculosis changes in the overall analysis of blood are not pathognomonic. In the acute stage of the disease observed low leukocytosis, lymphopenia, monocytosis, left shift leukocyte (a significant increase in percentage of stab neutrophils), increased ESR. In patients with advanced tuberculous lesions and severe intoxication, sometimes a hypochromic anemia. The involution of tuberculous inflammation celebrate the normalization of white blood cells, lymphocyte count reaches the norm and even increased.

Biochemical blood analysis produced estimates for the phase and the characteristics of a tubercular inflammation of the liver functional definition and exclusion of associated diabetes mellitus.

In acute tuberculous inflammation diminishes the albumin-globulin coefficients, increases in plasma fibrinogen and sialic acid, there is C-reactive protein. In patients with a large number of sputum, copious purulent exudate. General of membrane, renal amyloidosis can be observed hypoproteinemia.

Determination of blood content of alanine and aspartic aminotransferase, alkaline phosphatase, bilirubin, residual nitrogen, urea, creatinine, and coagulation tests (thymol, sullemovaya) give evidence of liver function and tolerability of drug therapy. In order to prevent tuberculosis is often associated with diabetes self Harney to determine blood glucose and glycated hemoglobin.

Immunological blood test sometimes used to confirm the tuberculous etiology of the disease, its activity of Definition and evaluation of the effectiveness of treatment. Used for this ELISA, which oc - Nova antigen-antibody reaction. Antibodies to the IMT found - layout with a special preparation of tuberculin - a diagnosticum erythrocyte antigenic dry. Sequence sensitive ELISA in tuberculosis is 60-70% and specificity - 90%.

With active tuberculosis often exhibit positive reactions blast transformation of lymphocytes and inhibition of leukocyte migration in terms of their stimulation of the Kulin tuberculosis, as well as reducing the number of immune cells. The results of these immunological studies of - depend on the phase of tuberculosis. In patients with progressive - siruyuschim course of TB is most pronounced inhibition test migration of leukocytes. An exacerbation of inflammation spec REFLECTION reduced number of T- and increases the number of rosette-forming lymphocytes B with a simultaneous decrease in the content of G - and A-immunoglobulins. For involution of tuberculosis characterized by severe blast transformation reaction of lymphocytes in the presence of tuberculin PPD.

Immunological tests used for differential diagnosis of tuberculosis. For example, in cancer and sarcoidosis, in contrast to tuberculosis noted suppression of T-lymphocyte blast transformation in response to fitogemagtyu-tininom.

The overall clinical analysis of urine from patients with tuberculosis occasionally reveals a serious complication of major diseases. Thus, in severe tuberculous intoxication in the model - Th may appear white and hyaline cylinders. Complications - tion of pulmonary tuberculosis with amyloidosis leads to persistent proteinuria and microhematuria. Of tuberculosis in kidney can detect human protein, white blood cells, red blood cells are often, but some patients also MW.

### **Tuberculin**

Reaction to the introduction of tuberculin used as a diagnostic test to detect specific sensitization of the human body to the IMT. It is called tuberculin, and is widely used in mass screening for tuberculosis and for individual diagnosis in clinical practice.

Mass tuberculin survey called the large groups of people, usually children and adolescents, through tuberculin tests for epidemiological, clinical and diagnostic data.

Individual tuberculin used for individuals in specific clinical indications.

Tuberculins. Tuberculin was obtained by Koch in Berlin in 1890. It was a special water-GRAIN tannuyu glycerin extract of the culture of the IMT and later was named the old, or alttuberkulinom (German - Alttuberculinum Koch). Old tuberculin Koch included a lot of ballast substances from the culture medium on which the cultured mycobacteria. With the presence of these substances, mainly proteins, bind the frequent occurrence of nonspecific reactions GOVERNMENTAL time with the introduction of old tuberculin.

In 1934F, Seibert, and S. Glenn of Philadelphia created a pure drug-Purified protein derivative (PPD-S). In our country dry purified tuberculin was manufactured in 1939 at the Leningrad Institute of Vaccines and Sera, under the guidance of MA Linnikovoy and became known as PPD-A.

On the biochemical composition of tuberculin is a complex mix of tuberkuloproteinov, polysaccharide, lipid fractions, nucleic acids. It contains the remains of bacteria and waste products of the causative agent of tuberculosis.

With immunological products tuberculin is specific allergen and incomplete antigen containing individual antigenic components of the IMT.

The drug is dosed in conventional tuberculin units - TE. In accordance with the international standard for a TE accept such amount of tuberculin to which the positive-reacting 80-90% of infected people. In a TE 0.00006 mg dry preparation PPD-L or 0.00002 mg PPD-S.

In Uzbekistan, produced two types of tuberculin PPD-L:

- Purified tuberculin in standard breeding - a vial with 3-5 ml in 0.1 ml of which contains the PPD-A with 2m;
- Dry purified tuberculin (ALT) in ampoules of 10 000 TE, which is to be breeding in the attached carbonated isotonic sodium chloride solution.

Purified tuberculin in standard dilution of PPD-A with 2m of 0.1 ml is used for mass and individual tuberculin skin test in the test.

Dry purified tuberculin used only in specialized TB facilities for different tuberculin tests.

Methods of tuberculin tests. There are three methods of administration of tuberculin - skin, intradermal and podkozhny. They are used for subcutaneous samples Koch (1890) dermal test Pirquet (1907), intracutaneous test Mantoux (1909).

A sample of Koch with subcutaneous administration of tuberculin used in TB hospitals in the differential diagnosis of tuberculosis and determine the degree of activity that berkuleznogo process. For the selection of pre-determined dose of tuberculin sensitivity threshold to him by titration with sequential increase in dose. Tu - berkulin injected subcutaneously in the upper third of the shoulder, sometimes in the angle of the scapula. The dose of tuberculin in children is usually 10-20 TE, TE in adults -20-50. The sample Koch should be made with caution, since it can provoke the progression of tuberculosis.

Sample Pirquet currently has very limited application of Noah. Usually used as a modification of its cutaneous tuberculin test graded.

Used a sample of hospitals in TB patients with tuberculosis of children and adolescents to determine the individual tuberculin sensitivity. To perform epicutaneous graded sample solutions are used for TB - Culina at different concentrations: 100, 25, 5 and 1%. The sample was produced on the skin of the forearm. Tuberculin applied to the skin drops, and then through the skin Katsila scarifying.

The most common is the intradermal Mantoux test. It is made by a physician specially trained health - Skye nurse or paramedic with document-tolerance for the tuberkulinodnapyustiki. Mantoux test usually performed on an outpatient basis.

For the Mantoux test using special tuberculin syringes high disposable 1 ml and fine short needle with a sharp oblique cut. In gaining a syringe 0.2 ml of tuberculin and released from a 0.1 ml, so that the volume of drug injected was 0.1 ml (2m). The inner surface of the middle third of the forearm skin area treated with 70 ° ethanol and dried. The needle is introduced into a cut up the surface layer of stretched skin (intradermally) in parallel to its surface. After the dive holes tip into the skin from a syringe injected 0.1 ml of TB lin. With proper technique in the skin a papule is formed in the form of lemon peel de whitish with a diameter of at least 7 - 9 mm.

In the mass screening for tuberculosis intradermal tuberculin used only the Mantoux test with 2 tuberculin units of purified (PPD-A with 2 TE) in the standard dilution.

The reaction to the introduction of tuberculin. Office Infected persons with tuberculosis or have had it before, as well as in BCG-vaccinated, in response to the tuberculin allergic reactions caused by PCHZT. This reaction is highly specific and occurs only in response to the introduction of the antigen, which was September sibilizirovan the human body. PCHZT reaction starts to form after 6-9 h and reaches its maximum expression zhennosti 72 hours after injection of tuberculin.

The severity of local, focal and general reactions to the tuberculin dose-dependent and the method of administration, degree of sensitization of the organism, its general reactivity.

Local reaction to the introduction of tuberculin in sensitized Office organism occurs when skin, intra-dermal and subcutaneous injection of tuberculin. It usually shows up at the site of tuberculin erythema and form - valuations of infiltration - papules. Take me sometimes formed molecule, ulceration, there are signs of local limfan Gita and regional lymphadenitis. Focal reaction in the form of acute inflammation of peripheral focal observed

in patients - TB patients with subcutaneous administration of tuberculin. On schaya or systemic reaction manifested deterioration, fever, changes in hemogram and other recognition kami amplification of tuberculosis intoxication. The overall reaction occurs in patients with tuberculosis in the subcutaneous tuberculin and in some cases its intradermal administration.

Evaluation of the results. The sample Koch estimated 48-72 hours and is considered positive if there are signs of focal and general response of an organism. The general reaction ha - acterized by malaise, fever, changes in hemogram parameters and protein composition of blood. Focal reaction in pulmonary tuberculosis expressed in the appearance or exacerbation of wheeze, increased infiltration around lesions possible discovery by the Office in the sputum. Kidney observed in tuberculosis Pyuria and the Office of the urine, tuberculosis eye - an increase in area of inflammation. The local reaction in the test Koch's tuberculosis patients usually shows infiltration with 10 - 20 mm. Compared in comparison with the general and focal reactions it has less diagnostic value.

The sample Pirquet evaluated after 48 h and considered positive with a diameter of 3 mm and infiltrate more than 100% for TB Kulin. A positive response to all concentrations of TB usually ling evidence of active primary tuberculosis.

The result of the Mantoux test evaluated after 72 hours of a doctor, nurse or timeshare Feld, who carried out the sample. For this purpose a transparent ruler with millimeter divisions are measured and recorded transverse to the axis of the forearm the size of the infiltration - tus. In the absence of infiltration is measured and recorded congestion. Reaction to the tuberculin skin test when the sample is evaluated by the following criteria:

- Negative - infiltrate and hyperemia absent;
- Questionable - infiltrate 2-4 mm in diameter, or hyperemia of any size;
- positive - infiltrate a diameter of 5 mm or more. If you infiltrate a diameter of 5 - 9 mm reaction considered weakly positive, 10-14 mm - medium intensity, 15-16 mm - marked.

In children and adolescents in a reaction called hyperergic infiltrate a diameter of 17 mm or more, and in adults - 21 mm or more. Other signs hyperergic reactions may be the appearance of vesicles, ulceration, or regional lymphadenitis lymphangites - regardless of the amount of filtrate Institute.

Under mandatory for children and teenagers in the skin, vaccination and revaccination with BCG a positive Mantoux test with PPD-A 2m can testify as an infectious and postvaccinal of allergies.

To distinguish between them account for the intensity of tuberculin reaction time from the last BCG vaccination, the presence and size of post-vaccination scar, as well as the possibility ny contact with TB patients and the presence of clinical symptoms. For postvaccinal allergies ha characteristically suspicious and expressed mild reaction with a diameter of 2.11 mm infiltrate. More pronounced reaction to the tuberculin skin infiltrate with a diameter of 12 - 16 mm are in re-vaccinated children and adolescents, in the presence of large post-vaccination scars (6-9 mm or more). Post vaccination allergy when re-sample at 3 months tended to weaken.

Children with frequent clinical manifestations of allergy nespetsifi Ceska Mantoux test is recommended after the desensitizing treatment. Saving tuberculin sensitivity at the same level or increased during treatment confirm the infectious nature of the allergy.

A negative Mantoux test indicates anergy, which can be positive or negative.

Positive anergy observed in uninfected Office of healthy subjects and negative in patients with progressive course of tuberculosis, infected at the Office of HIV infection and with different comorbid conditions.

Dynamic assessment of tuberculin sensitivity by the Mantoux test result makes it relatively quickly identify the time of primary infection with the IMT. To this end, Russia tuberculin sensitivity in children and young shoots examined a once a year. The results of the corresponding record in the individual section maps of ambulatory monitoring.

The appearance of the year the first positive reaction to the tuberculin skin test in the test ATD-A with 2 TE in unvaccinated child or young person is called super-elevation tuberculin sensitivity.

In the context of widespread vaccination of infants and tuberculosis revaccination of children and adolescents in terms decreed a sign of a bend sensitivity to tuberculin is considered to be strengthening the response to tuberculin reaction at regular Mantoux test. This gain manifests increasing diameter of infiltrate at the site of the Introduction to the PPD-A 2m by 6 mm or more compared to its size a year ago, as well as signs of giperergii to tuberculin.

Virage tuberculin sensitivity confirms the initial infection took place MBT and is the basis for the complex medical and preventive České events. They are aimed at preventing the progression of primary infection with the development of symptomatic tuberculosis and the detection of sources of infection.

According to the results of the Mantoux test positive IMT include children and adolescents with the following features:

- an annual observation was first noted by a positive reaction (papule diameter of 5 mm or more), not associated with BCG vaccination;
- Within 4-5 years, steadfastly maintained a positive reaction with infiltration of 12 mm or more;
- In the year since the tuberculin sensitivity increased dramatically - the diameter of the infiltrate increased by 6 mm or more;
- Within a few years there has been increased tuberculin sensitivity with increasing diameter of the infiltrate to 12 mm or more.

Virage reaction to tuberculin, long-term preservation of a positive reaction in the presence of infiltrate a diameter of 12 mm or more, hyperergic reaction and increasing the reaction is the basis for the inclusion of healthy children, adolescents and adults in a group of individuals at increased risk of tuberculosis.

In assessing the Mantoux test results should take into account the presence of concomitant infectious diseases (measles, chickenpox, whooping cough) or somatic pathology (capkoidoz, asthma, rheumatism, malignant but voobrazovaniya). The response to tuberculin reaction function is also dependent on the allergic disposition of the body, the phases of the ovarian cycle in women., The individual sensitivity of the skin. We can not exclude the role of exposure to environmental hazards in the form of high background radiation, emissions of chemical plants, etc. At the end, the result of tuberculin skin test may be affected by irregularities in her conduct, as well as incorrect storage of tuberculin.

**Indications and contraindications.** Mass tuberculin used for early detection of the primary infection - fitsirovaniya MW and TB, the definition of indications for revaccination, epidemiological surveillance of tuberculosis. To all of the BCG-vaccinated children (from 12 months of age) and teenagers hold annual Mantoux test with 2 TE - regardless of its previous - of the result. Infants who are not vaccinated with BCG vaccine in the neonatal period for medical contraindications, the Mantoux test done 6 months of age, 2 times a year (before instilling - ki BCG-M). Conduct tuberculin skin test beam - above in one season, mostly in the fall. When suspicious reaction in the primary infection of children with super-elevation reaction to tuberculin, with hyperergic or increasing sensitivity to tuberculin should be sent to the TB specialist.

Indications for BCG revaccination identify children at age 7 (grade 1) and adolescents in the 14 loop (7-8th grade). In healthy subjects with a negative reaction to the tuberculin (Mantoux test with 2 TE) consider re shown the vaccine. On the epidemiological significance of mass tuberculin position is to determine the percent of infected people in large groups of the population and estimates of the annual risk of infection with the IMT. This figure reflects the percentage of newly infected individuals for use streamed year. This includes children and adolescents with super-elevation tuberculin sensitivity and persistent high or increasing reaction to tuberculin.

Mantoux test with PPD-A 2m harmless to healthy children, adolescents and persons with various somatic diseases niyami. However, some previous diseases and immunizations may strengthen or weaken the skin sensitivity to tuberculin children. In this regard, skin diseases, infectious onnye, an infectious-allergic and somatic diseases B exacerbation, allergic conditions are about tivopokazaniyami to the Mantoux test in mass tuberculin. The sample was not done in 1 month after any preventive vaccine or biological diagnostic tests skoy, as well as quarantine for childhood infections.

Mass tuberculin conduct medical vention about general health care facilities. Methodological guide skoe mass tuberculin impl stvlyayut TB dispensaries. If done right at an annual tuberculin diagnosis should be changed in 90-95% of child and adolescent population.

In children's groups organized a mass tuberculin diagnosis by trained medical performs sky staff, other children and young preschoolers Mantoux test carried out in a children's clinic. In rural areas, carry out tuberculin district and district health centers, and in some cases - midwife posts.

Individual tuberculin diagnosis by means of the Mantoux test with 2 TE is used for the differential diagnosis of infectious diseases and allergy to tuberculin postvaccinal to monitor the status of persons at increased risk of tuberculosis. Other indications explosion lyayutsya diagnostic problems in cases of many diseases, which should be differentiated from tuberculosis,

In the tuberculin tuberculosis institutions use to determine the activity of tuberculous process, assess the effectiveness of treatment and diagnosis of tuberculosis locally. Indications for such probes is determined on the basis of clinical data, regardless of the previous limitations of the sample. Mantoux test is conducted not only with 2 TE, but also with other doses of tuberculin. Also use a graded test Pirquet test and Koch, sometimes defined - lyayut tuberculin titer produce eosinophil-tuberculin or tuberculin skin test-

gemobelkovo. When these tests assess the body's response to tuberculin of the corresponding changes in blood tests.

Contraindications for tuberculin, but are hypersensitive to tuberculin, no.

### **Assessment of circulatory and respiratory functions**

Pulmonary tuberculosis, particularly chronic and widespread, usually accompanied by impaired respiratory function and changes in respect to the cardiovascular system. They may be due to intoxication, damage to eat lungs, pleura, bronchi.

Investigation of circulatory and respiratory functions are usually not important to establish the nosological diagnosis, but it is undeniable role in assessing the overall state of the patient, the definitions of treatment strategy, especially in matters of surgical interventions and evaluating their results. The objective is to identify WHO can be respiratory, cardiovascular failure and compensatory reserves of these systems.

The functions of respiration and circulation can be evaluated on the basis of complaints, history, fizikalnoto study of blood pressure measurements, electrocardiography and x-ray data. A deeper investigation is carried out using special equipment and laboratory by the method of diagnosis in a measured physical load.

For qualitative and quantitative characteristics of the violation, there are many solutions of breathing techniques. The most important are spirometry, total plethysmography, the definition of the gases and acid-base status of blood.

Spirometry is graphic recording of respiratory movements, which reflect changes in the volume went to the FIR in time. In spirometry can be impl - Implemented and test-Votchall Tiffno for evaluating tracheobronchial obstruction. It consists in determining the volume of air exhaled by patients in the first second forcing - vannogo exhale after maximum inhalation (normally at least 70%). Currently, the assessment spirometry many indicators of respiratory function (ERF) to make computerized devices that can make research easier, faster, not burdensome for the patient, with immediate reception of digital indicators.

Total plethysmography is based on the barometric principle. It is carried out in the body plethysmograph - a large sealed chamber with a constant volume. The patient is placed in a plethysmograph, and record changes - volume of the chest during breathing. Pletizmograhy to evaluate lung compliance, airway resistance to air flow in a quiet breath, to calculate the work of breathing.

Integral indices of respiratory function are the gas composition and acid-base status KRO integer. When respiratory failure normal blood gas is not provided or increased work of breathing is achieved. Consequently, the determination of gas amounted va blood and work of breathing at rest and during loading dosage is usually sufficient to answer the question of the absence or presence of respiratory failure.

In identifying respiratory failure distinguishes its restrictive and obstructive type. Restrictive type is caused by lack of ventilation and pulmonary gas exchange by reducing the volume of functional lung tissue niruyushey, limiting the mobility of the ribs, respiratory muscle weakness, scarring of the pleura, and obstructive - a violation of airway Pu Tei. In many cases, both types are combined, and therefore the prevalence of voryat of any type of respiratory failure.

Disorders of the cardiovascular system in pulmonary tuberculosis are mainly due to tuberculous intoxication and hypertension in the pulmonary KRO vobrascheniya. In the study, electrocardiographic intoxication manifested sinus tachycardia, decreased amplitude of the T wave, excitability and conduction disturbances. Of changes in the heart caused by an overload of the right ventricle and hypertrophy, the ECG often reveals during exercise in the form of higher P wave in leads II and III, with a simultaneous decrease in T-wave interval and a decrease in S-T. However, the ECG is not always possible to identify pulmonary hypertension and right ventricular hypertrophy. Much more information is provided by echocardiography - it can help to quantify the state of the heart chambers and thickness of their walls.

### **Methods of radiation diagnosis**

In Phthisiology used X-ray and ultra sound techniques, radionuclide scanning, magnetic resonance imaging. In the differential diagnosis may be of value and positron emission tomography (PET).

**X-ray methods.** For population screening and diagnosis of primary pulmonary and mediastinal chest x-rays are widely used. Other names of this method - fluorography. As an image with X-ray pictures of the screen on film (plenochny Nye CT). Format standard modern pack 100 x 100 mm.

Compared with conventional X-ray fluorography can significantly increase the capacity of X-ray machine, cut spending on film and processing, to facilitate storage of the archive. Resolution method NOSTA fluorogram light quality is almost the same as the x-ray, so in some cases the fluorogram with an aspect ratio 100 x 100 mm on Zorn replaces x-ray of the lungs. Among the negative aspects of film fluorography home is the high radiation exposure to patients and staff.

Sienna on a film now comes to digital (digital) rentgenoflyuorografiya, which has many significant advantages. Chief among them - a high quality, and in formative possibility of computer processing iso map. Radiation exposure to the test in digital fluorography is 10-15 times lower than that of film (in the direct - My projection respectively 0.05 and 0.7 mSv). It is also necessary to note the great speed of image acquisition, the combined view and print the paper a few images, transfer them to the distance, convenience store and then retrieve all the data, the low cost of the study.

Currently, digital rentgenoflyuorografiya gaining for follow-up surveys of large populations in order to timely diagnosed of tuberculosis, cancer and other diseases of the chest. She also successfully replaces X-ray survey went - FIR as a diagnostic method. Russian industry produces laziness different models of digital scanning and pulse devices.

X-rays of light begin to review the image on the front line of the projection (with film magazine in front of piles of Noah wall). Pathological changes in the rear separated - crystals of light to produce useful overview shot in the back of the line of projection (with cassette tape at the back of the chest wall). Then make a survey in the lateral projection images - tion - the right and left. At the right side image to the box office - those with adherent film of the right side of the chest at the left - the left. Radiographs in lateral projection tsiyah needed to determine the localization of the pathological process in the lung lobes and segments, identifying change equations in the interlobular clefts in the lungs and the shadows of the

heart and diaphragm. When bilateral pulmonary disease better de lat in oblique projection images, which are obtained separate images of the right and left lung.

X-ray images are usually made at the height of inspiration. In the expiratory images make for better detection of edges and light kollabirovannogo pleural adhesions in the presence of pneumothorax, as well as to determine the displacement of mediastinal pathology of the lungs and pleura.

Increase the information content of X-ray exposure can change Niemi or rigidity of X-rays. Such images are called supereksponirovanpymi and rigid. They make patients with exudative pleurisy and pleural mi massive overlays, after surgery on the lungs, to better identify the walls of the trachea and bronze Hove. On supereksponirovannyh and hard shots can you - manifest in areas of intense darkening of the various structures that were not visible on a conventional photograph. However, the intensity of the shadow of a low intensity in these images are not displayed.

Survey radiographs and lateral projections, if necessary, supplement the sighting shots a narrow beam of light. To do this, under the supervision of the patient rentgenotelevideniya give a position which enables it to bodit investigational lung field from interfering bone and other structures.

It should be noted that the radiological signs of some diseases are often so relief that the diagnosis only one experienced view of the radiograph.

X-rays produced, usually by using an image-enhancing X-ray images and zheniya rentgenotelevideniya. Used this method after X-rays for certain indications. Such explosion lyayutsya control during sighting shots and diagnostic České punctures, rentgenobronhologicheskikh, angiographic and fistulograficheskikh research. Fluoroscopy is needed to detect free fluid, moving in the pleural cavity, the determination of the mobility diameter and the fragmentation of the state of pleural sinuses. In many cases, fluoroscopic X-ray control better staring - first days after intrathoracic surgery. However - Finally, use fluoroscopy to evaluate the mobility of the diaphragm and of the samples with higher and lower pressure inside the thoracic (Valsalva maneuver, and Mueller, a symptom Golyzhnehta-Jacobson). Documentation of the results of these tests can be made and video footage rentgenokinosemkoy.

Computed tomography (CT) - Method rentgenologiče Skogen study, which has been universally recognized and applied in all fields of clinical medicine. CT provides images of cross sections brow - vecheskogo body (axial view). X-ray tube rotates around the longitudinal axis of the patient's body. Thin ny - sheaf of rays from different angles passes through the investigated layer and captured many scintillation detectors, which move together with the tube. Different density tissues they pass through X-rays - Chi, causes various changes in the intensity of the beam. It accurately recorded by detectors, processed by a computer and transformed on the image of the investigated cross-layer on a television eq wound. Thus, CT is no picture in the usual sense of the word, figure, made by com puter-based mathematical analysis of the degree of X-ray absorption tissues of different densities (computer tomography).

Conventional computed tomography scanning technology suggests a step by step movement of the table with the patient and how to stop x-ray tube after each cycle of rotation. They allow us to investigate cross-layer thickness schinoy from 2 to 10

mm. Scanning a single layer continues - X-ray a few seconds. Significant increase in contrast can be obtained with intravenous contrast solution. Axial (transverse) images can be reconstructed using a computer to direct, lateral and oblique tomograms investigated area. Ravine - bone and contrast can be changed within wide limits. CT Respiratory perform 6.12 standard slices. All results are parallel to the image on a television screen Niemi stored in computer memory and can be reproduced as an image on photographic paper or a Polaroid x-ray film.

A significant opportunity is the quantitative CT density of the tissue. An estimate and media in the conventional unit in units of the scale Hounsfield. The density of water on this scale is 0, air (-) 1000 units., Lightweight (+) 600 units.; Bone (+) 1000ed ..

In recent years the accepted methods to improve imaging in the study of light began to spiral CT and multiplanar. Helical CT technology is in constant rotation while the X-ray of the tube with a longitudinal movement of the patient. In this connection, instead of images of individual sections of the data collected from the total study area. During the full rotation of X-ray tube depending on the pitch can be done by a different number of slices.

The advantages of the above methods of scanning - a significant reduction in time (from 10 to 20) and opportunity to study at a breath-hold. On - exceeds the resolving power improves the quality of images of moving organs, creating favorable conditions for the study of children and seriously ill patients. Spiral - Nye opened the way CT reconstruction and the creation of three-dimensional images of high quality. You can get a picture similar to bronchoscopic (computer bronhosko - anisotropy), bronhograficheski (CT bronchography), while intravenous contrast - and angiographic (CT angiography). Reduced radiation exposure, since at least there is a need to clarify the repeated sections of diagnostic questions. With multiplanar imaging by increasing the number of detectors permit further improved by reducing the time of scanning, reducing artifacts and empowerment of processing the image. In general, the improved ray imaging techniques at different intrathoracic disease allow us to obtain three-dimensional image and more accurately assess the situation analysis tomicheskuyu, including availability, location and extent of pathological changes in the dynamics. CT can also provide high accuracy transtora Kalnoy biopsy and pleural puncture difficult.

Through the CT with a special image processing can be a virtual bronchoscopic view (Fig. 6.8).

Magnetic resonance imaging (MRI), many advantages of MRI are the basis for its use in the study of brain and spinal cord, bones and joints, large vessels thoracic cavity Noah, heart and other internal organs. One of the important advantages of the method is the lack of radiation exposure to patients and staff copper Qing.

The patient is placed on a desk scanner. Study area of the body is placed in a strong magnetic field.

It expands the protons in their direction and creates a magnetic moment in the tissues, oriented parallel to the external magnetic on any. When exposed to pulses that are sent first to the magnetic field perpendicular from the radio transmitting ka carcass, the total magnetic vector changes direction and begins to revolve around a new axis. The result is the induction of electric current in a receiving coil - the appearance of - tion of magnetic resonance

signal. He transforms of a special analyzer and transferred to the screen in black and white monitor.

Character images with MRI is mainly determined by the so-called relaxation time, proton density and tasks of the researcher. Here, by the relaxation of the T-1 takes the time during which recovers the first initial orientation of the protons, respectively, the external magnetic field. Relaxation of the T-2 - this time of weakening of the field created by radio-frequency pulse. Change of time between the rf pulses allows us to obtain images of different contrast and well-differentiated variety of tissues. There are also semi-chronic images in different planes and the implementation of three-dimensional reconstruction.

Interpretation of the images in MRI is more difficult than usual for an absolute majority of physicians whose X-ray pictures. For example, air, bone, fibrous tissue has long time T-1, short T-2 and submitted to darken the image.

MRI is contraindicated if the patient has cardiostomy or other metallic implant. These studies can be quite long, so hard to implement and critically ill children.

Angiopulmonography is staining and X-ray study of pulmonary artery and its vessels. There are two main methods angiopulmonography - the general and selective.

With a total angiopulmonography contrast solution is introduced through the catheter into a vein hand, the superior vena cava or right heart chamber. X-rays of the product - lead to serially special angiographic unit. This method requires a significant amount of contrast medium (50-60 ml), and usually does not provide a clear map of pulmonary blood vessels, especially in pathological changes of the lungs. Amputation of vessels do not always reflect their true state.

Selective angiopulmonography technically more complicated, but is used more often. It is carried out after the category - corresponding branch pulmonary artery. Serial pictures were taken after the administration of 10-12 ml of solution contrast medium. Typically, selective angiopulmonography combined with registration of pressure in the pulmonary blood circulation and blood gas study.

Indications angiopulmonography limited. Applied for the diagnosis of thrombosis and pulmonary embolism, as well as to determine the ability to continuously unfolding of lung - as judged on the degree of vascular fibrosis.

Technical capabilities allow you to perform common angiopulmonography in digital form with the introduction of a small amount into a vein contrast solution. At the same time computer processing allows high-quality video images.

Bronchial arteriography is catheterization, contrast radiography and bronchial arteries and their branches. The study was conducted under local anesthesia and control radiography. A special needle to puncture mandates femoral artery below the inguinal crease. Mandre replace metallic conductor in which an artery in the injected radiopaque catheter with isolated - curved tip. Then the conductor removed, and the conduction catheter - fixed out at the aorta. The tip of the catheter consistently seek out the mouth of the bronchial arteries and injected them into the catheter, and then dye (hypaque, Urografin, urotrast or their equivalents) at 35 ml / s in the amount of 5-12 ml. Productivity drive serial radiographs.

The main indication for bronchial arteriography is pulmonary hemorrhage of unknown etiology and localization. In such cases, the arteriogram may be identified and

the expansion of abnormal tortuosity of the bronchial artery, out of contrast medium beyond them (ekstravazaiiya), focal or diffuse gipervaskulyarizatsiya, aneurysms bronchial arteries and their thrombosis, retrograde filling of peripheral branches of the pulmonary artery via arterio-arterial anastomoses.

Contraindications to the study: marked atherosclerosis, obesity patient, pulmonary heart disease.

Complication of bronchial arteriography may be re mat in the femoral artery puncture. A rare but chazhelym complication is vascular lesion with spinal cord dysfunction of the lower limbs and organs tazo O. Prevention of complications is provided strictly subject to SHM methodological and technical principles and details of the study.

Bronchography. Contrast X-ray studies of bronchial tion carried out under local anesthesia in the form of positional (non-directional) or selective (directed Noah) bronchography. In positional bronchography catheter is introduced into the trachea through the nose, during the administration of contrast material the patient's body give the optimum position. Selective catheterization based on bronchography investigated ICDO bronchus. To use a variety of designs for catheters and techniques.

Previously, bronchography was used very widely. At the present time due to the widespread use of CT, this method has lost its former significance.

Plevrografiya allows contrast and clarify the verge of particle purulent cavities in patients with pleural empyema. Initially produce a pleural puncture and aspirate the pleural contents. Then, under the control of rentgenotelevideniya injected into the pleural cavity of 30-40 ml of warm X-ray solution (propyliodone, Urografin). Rentgenogram - we are doing in different projections, changing the position of the patient. After completing studies with contrast material balances - kami pleural contents aspirated. Information, which is reached at plevrografii, in most instances s can be obtained using CT.

Fistulografiyu used for examination of patients with various thoracic and torakobronhialnymi fistula. Before you install the appropriate sensing fistulografiye - Niemi direction of the fistulous. Contrast agent injected into the fistulous course syringe through the catheter under the control of rentgenotelevideniya. Apply oil or vodorastvo - rimye radiopaque agents. Then produce X-rays in different projections, changing the position of Nogo pain, or a CT scan, in-process research and after analyzing the images reveal the anatomical features of the fistula, determine its message with the pleural cavity and bronchi Alno tree. In the case of penetration of contrast agent into the bronchial tree is obtained retrograde ISF tulobroiografiya. After completing the study pre Paraty through a catheter to suction capabilities, and offer the patient a good cough.

Ultrasound techniques, particularly ultrasound, different security, the possibility of multiple studies, high resolution.

TB in the practice of ultrasonic methods are useful for accurate determination and control over the size of peripheral lymph nodes (cervical, podmyshech GOVERNMENTAL, groin). With the help of ultrasound can determine the difference in fluid in the pleural cavity, since its presence ence between the parietal pleura and slight hypo-echogenic marked area. Ultrasonic testing is to select a point for the puncture of the pleural cavity. After pneumonectomy dynamic detection of fluid in the pleural cavity often can replace X-ray studies tion.

An important and often crucial ultrasound is the examination of men and women with suspicious rhenum on tuberculosis of the urogenital tract. It is not required as to monitor the dynamics of the process for the treatment and ftziouroloptcheskih ftzioginekologicheskikh patients.

Radionuclide (radioisotope) methods have a leading role for regional assessment of ventilation and blood flow in the lungs. They are based on inhalation or bowl inside a Venn introduction radiopharmaceuticals labeled GOVERNMENTAL gamma-emitting radionuclides. This xenon-excited sultry blend of ( $^{133}\text{Xe}$ ), macroaggregates of albumin ( $^{131}\text{I}$  or  $^{99\text{m}}\text{Tc}$ ), indium citrate ( $^{133\text{m}}\text{In}$ ), albumin microspheres ( $^{99\text{m}}\text{Tc}$  or  $^{133\text{m}}\text{In}$ ), etc. Registration of the drug distribution is carried out with the help of a scintillation gamma camera with a computer. At the same time can be both static and dynamic scintigraphy in the front, rear and side - O projections. All parameters are usually determined as a percentage - max, respectively, dividing the lung fields on the upper, middle and lower zones. However, mathematical modeling tion allows to evaluate the ventilation and blood flow in the lungs and in absolute terms.

The study of regional lung function radionuclide methods should be conducted prior to X-ray studies Nij. The information obtained can be judged not only on ventilation and blood flow, but also on the localization and propagation of gravity changes in the lungs. New perspectives in the studies of pulmonary ventilation and circulation, open MRI. Currently, this method is beginning to be used to assess ventilation various parts of the lungs after inhalation of hyperpolarized helium prior.

Pozitropnaya emission tomography (PET) is spreading in the differential diagnosis of intrapulmonary structures, based on the assessment of cellular PET ME tabolizma. Intravenous drug radiofarmakologicheskyy FDG ( $^{18}\text{F}$ -flyuorodeoksiglyukoza), which is sensitive to increased metabolism of glucose in cancer cells in semiconductors and scans forms a bright spot. Cancer cells can be detected in a lymph node diameter of less than 1 cm rum. Informativeness of PET increases with its combination with CT and creating a composite image.

### Lecture # 3 **Clinical classification of tuberculosis**

**Classification of tuberculosis in the ICD-10** is as follows.

#### **TUBERCULOSIS (A15-A19) The changes**

Including infections caused by *M. tuberculosis* and *M. bovis*

Excluded:

- Congenital tuberculosis (R37.0);
- Pneumoconiosis associated with tuberculosis (J65);
- Consequences of tuberculosis (V90.);
- Tuberculosilicosis (J65).

## ICD-10

A15 Respiratory tuberculosis, bacteriologically and histologically confirmed

A15.0 Pulmonary tuberculosis, smear confirmed the presence or absence of culture growth

A15.1 Pulmonary tuberculosis, confirmed only the growth of culture

A15.2 Pulmonary tuberculosis, confirmed histologically

A15.3 Tuberculosis of lungs, unspecified methods confirmed

A15.4 Tuberculosis of intrathoracic lymph nodes, confirmed bacteriologically and histologically

Excluded if specified as primary (A15.7)

A15.5 Tuberculosis of larynx, trachea and bronchus, confirmed bacteriologically and histologically

A15.6 Tuberculous pleurisy, confirmed bacteriologically and histologically

Deleted tuberculous pleurisy in primary pulmonary tuberculosis, confirmed bacteriologically and histologically (A15.7)

A15.7 Primary respiratory tuberculosis, confirmed bacteriologically and histologically

A15.8 Tuberculosis of other respiratory organs, confirmed bacteriologically and histologically

A15.9 Tuberculosis of the respiratory unspecified location, confirmed bacteriologically and histologically

A16 Respiratory tuberculosis, not confirmed bacteriologically or histologically

A16.0 Pulmonary tuberculosis with negative results of bacteriological and histological study

A16.1 Pulmonary tuberculosis without bacteriological and histological studies

A16.2 Pulmonary tuberculosis without mention of bacteriological or histological confirmation

A16.3 Tuberculosis of intrathoracic lymph nodes without mention of bacteriological or histological confirmation of tuberculosis is excluded intrathoracic lymph nodes, specified as primary (A16.7)

A16.4 Tuberculosis of larynx, trachea and bronchus, without mention of bacteriological or histological confirmation

A16.5 Tuberculous pleurisy, without mention of bacteriological or histological confirmation

Deleted tuberculous pleurisy in primary pulmonary tuberculosis (A16.7)

A16.7 Primary respiratory tuberculosis without mention of bacteriological or histological confirmation

A16.8 Tuberculosis of other respiratory organs without mention of bacteriological or histological confirmation

A16.9 Tuberculosis of the respiratory unspecified location without mention of bacteriological or histological confirmation

+ A17 Tuberculosis of nervous system

+ A17.0 Tuberculous meningitis (G01 \*)

A17.1 + Meningeal tuberculoma (G07 \*)

A17.8 + Tuberculosis of nervous system other sites

A17.9 + Tuberculosis of nervous system, unspecified (G99.8 \*)

A18 Tuberculosis of other organs

A18.0 + Tuberculosis of bones and joints

A18.1 + Tuberculosis urogenital

A18.2 Tuberculous peripheral lymphadenopathy

Excluded:

tuberculosis of lymph nodes:

mesenteric and retroperitoneal (A 18.3);

intrathoracic (A15.4, A16.3);

tuberculous tracheobronchial adenopathy (A 15.4 A 16.3)

A18.3 Tuberculosis of the intestine, peritoneum and mesenteric lymph nodes

A18.4 Tuberculosis of skin and subcutaneous tissue Excludes:

lupus erythematosus (L93. -)

systemic lupus erythematosus (M32. -)

A18.5 + Tuberculosis eyes

Deleted lupus century pine (A 18.4)

A18.6 + Tuberculosis ear

Deleted tuberculous mastoiditis (A18.0 +)

A18.7 + Tuberculosis of adrenal glands (E35.1 \*)

A18.8 + Tuberculosis of other organs of refined

A19 Miliary tuberculosis

**Included:**

generalized tuberculosis;

Disseminated tuberculosis polyserositis

A19.0 Acute miliary tuberculosis, a refined localization

A19.1 Acute miliary tuberculosis of multiple localization

A19.2 Acute miliary tuberculosis, unspecified location

A19.8 Other forms of miliary tuberculosis

A19.9 Miliary tuberculosis, unspecified location

**Classification of Tuberculosis in the Russian Federation, points out the following form of the disease.**

Tuberculous intoxication in children and adolescents

Primary tuberculous complex

Tuberculosis of intrathoracic lymph nodes

Disseminated tuberculosis

Miliary tuberculosis

Focal pulmonary tuberculosis

Infiltrative pulmonary tuberculosis

Cheesy pneumonia

Lung tuberculoma

Cavitary disease

Fibro-cavernous pulmonary tuberculosis

Cirrhotic pulmonary tuberculosis

Tuberculous pleurisy (*including* empyema)

Tuberculosis of bronchi, trachea, upper respiratory tract, etc. (nose, mouth, pharynx)

Pulmonary tuberculosis, combined with the dust occupational lung diseases (koniotuberkulez)

Tuberculosis of meninges and central nervous system

Tuberculosis of the intestine, peritoneum and mesenteric lymph nodes

Tuberculosis of bones and joints

Tuberculosis Urinary and genital

Tuberculosis of skin and subcutaneous tissue

Tuberculosis of peripheral lymph nodes

Tuberculosis eyes

Tuberculosis of other organs

## PRIMARY FORMS OF TUBERCULOSIS

### I. PATHOGENESIS

Distinguished between **primary and once again revealed tuberculosis**. Primary tuberculosis ill previously infected *M. tuberculosis* people, but not all in contact with *bacillus delteilii*, but only 7-10% of them. Recall that in tuberculosis often enough valid point: *Infected - not to get sick*. The term **primary** indicates in its pathogenesis, ie the occurrence of the disease during primary infection and, therefore, in the absence of specific immunity. The term **newly revealed** only shows that the earlier a person was diagnosed with tuberculosis, he is not registered in a tuberculosis institution. The newly detected tuberculosis can be both primary and secondary. Among newly diagnosed patients with primary disease is about 1% of cases.

**Penetration of Mycobacterium tuberculosis in the human body** gives rise to a chain of events that are defined over time. • **The primary** causative agent of tuberculosis **from entering** the lungs or other organ of the body previously uninfected **causes an acute nonspecific inflammatory reaction** rarely recognizable clinically as symptoms are scarce or clinical signs did not exist. Macrophages absorb mycobacteria and transfer them to regional lymph nodes. At the local primary infection during the first week 50% of macrophages contain Mycobacterium tuberculosis infection during the second (with immunity) is quickly destroyed most bacteria, Mycobacterium tuberculosis contains only 3% of macrophages. As a facultative intracellular parasite, the majority of *M. tuberculosis* phagosomes in macrophages. Phagocytosis is incomplete, because the mycobacterium capable of producing an enzyme that inhibits fusion of phagosomes with lysosomes. If the spread of the pathogen does not stop at the level of lymph nodes, mycobacteria through the thoracic duct into the bloodstream and spread throughout the body. In most cases, contamination sites *M. tuberculosis*, as well as lung damage at the site of the primary lesion, independently organized, but they remain a potential source of reactivation of tuberculosis late during the entire life of the patient. Dissemination may lead to miliary tuberculosis or tuberculous meningitis with a high risk of severe course and fatal outcome, especially in infants and young children.

Within 2-8 weeks. after primary infection, while bacilli continue to multiply inside macrophages, the human body **develops T-cell mediated DTH**. Immunocompetent lymphocytes enter the zone of penetration of the pathogen, where they secrete chemotactic factors such as interleukins and lymphokines. In response, monocytes migrate to the same here and transform into macrophages, and then - in the histiocytic cells (macrophages *in situ*), later organized in the granuloma. Mycobacteria can persist in macrophages for many years, in spite of the intensive synthesis of lysozyme by these cells, but further reproduction and distribution of primary infection was limited to phagocytosis.

**The subsequent healing of primary affect** is often accompanied by calcination, visualized on plain film of the chest. The combination of calcification in the lung lymph node with soda in the lung root is called a complex *Gon (Ghon)*.

In the U.S., 90-95% of the population with good immunity observed complete healing of primary tuberculous passion without any further manifestations of tuberculosis. In countries where infection with a massive, inadequate nutrition, or there are other adverse factors, 5-10% positive note incomplete healing of primary affect. Malnutrition and related diseases adversely affect healing and pose a threat to the reactivation of changes, remaining at the site of a primary tuberculous lesion.

Formation of the primary forms of tuberculosis, like *the swell of stormy sea*. Outwardly, all was well, the child is happy and looks healthy, but *turn* tuberculin skin test has already sounded *the starting shot* for the development of disease.

If, within 4-8 weeks. in the body formed by a little man trained clone of T lymphocytes, a terrible disease will not develop, and *die* in a dynamic equilibrium, referred to as non-sterile cellular immunity. Formed mechanism stop, and then cure the lesion, which arose at the site of pathogen penetration and lymph nodes. Now - if they happen reactivation process - the disease will develop in the presence of immunity, ie, on pathogenesis will be secondary. It was during the infection of **the appointment of chemoprophylaxis** may be decisive in such a happy end. Isoniazid reduces the amount of the population of mycobacteria in the body, but left after the development of complete phagocytosis of the information matrix will serve to teach T-cells.

If it happens that the population of *M. tuberculosis* in the body is large (massive infection and was repeated many times), it is still imperfect mechanisms immunogenesis child can not cope with the creation of a specific security. Mycobacteria produce humoral factors that inhibit fusion of lysosomes with phagosomes in macrophages, ie, the completion of phagocytosis, which is essential representation of the genetic information of the exciter immunocompetent cells. Mycobacteria produce toxins that violate the metabolic processes in children's body and lead to a vegetative shifts. Then the disease progresses, the primary affect the lymph nodes may be increased by engaging in the process of new areas of tissue or adjacent organs. Progressive primary tuberculosis is most typical for newborns and persons infected with HIV-1. Affected lymph nodes may cause further infection, bacteremia, dissemination, and even the generalization process.

Thus, the *primary disease occurs when infection of M. tuberculosis previously uninfected individuals and is characterized by axillary lymph nodes, limfogematogennoy dissimination agent and high reactivity of the organism to the pathogen of the disease.*

**Suspicion of TB in children should occur in the following cases** described by F. Miller (1984):

Cessation weight gain, weight loss gradual, lethargy for 2-3 months. And sometimes intermittent fever.

The sudden rise in body temperature (temperature of formation), sometimes in conjunction with erythema nodosum and tuberculous-allergic (phlyctenular) conjunctivitis. The temperature of formation can last up to 3 weeks.

Cessation weight gain in children combined with poor hoarse breathing, persistent cough, sometimes.

Abrupt onset of fever and pain with pleural effusion.

Abdominal distention and ascites.

Dense and painful education in the abdominal cavity.

Lameness and painful swelling in large joints.

Difficulties when tilted, stiff and sore back, it is possible deformation and *girdle* pain.

Painless swelling of peripheral lymph nodes, surrounded by smaller lymph nodes.

Any abscesses, which is localized in the peripheral lymph node, especially developed gradually.

Subcutaneous abscesses or ulcers on the skin without apparent reason.

The sudden and unexplained changes in mood and behavior of the child (such as excessive irritability), accompanied by a rise in body temperature, nausea and sometimes headaches.

Weight loss and lethargy in older children and adolescents, combined with a productive cough.

Long-term recovery after undergoing prolonged measles, whooping cough, streptococcal tonsillitis or other intercurrent infections.

Signs of intracranial volume process or diffuse encephalitis in children.

Painless hematuria or sterile pyuria in a child.

The structure of the clinical forms of tuberculosis in children and adolescents **in many countries** fall short of.

In Russia, children's primary tuberculosis - the main form in adolescents and young adults it is 10-20% of cases, and in adults is much rarer.

The structure of childhood TB **in India** on the example of children's ward at the Medical College Rotake in 1996 was as follows: tuberculous meningitis - 52.04%, pulmonary tuberculosis - 26.53%, disseminated tuberculosis - 7.04%, tuberculosis, gastro-intestinal tract (GI) - 3.06%, tuberculous lymphadenitis - 2.04%.

This distribution of diagnoses clearly reflects the effect of mass vaccination with BCG, significantly reduces the proportion of tuberculous meningitis and leads to a change in the structure of primary tuberculosis.

There are the **following clinical forms of** primary tuberculosis:

tuberculous intoxication in children and adolescents;

Tuberculosis of intrathoracic lymph nodes;

Primary tuberculous complex;

chronically current primary tuberculosis.

## II. CLINICAL FORMS

Primary TB infection usually is asymptomatic. Nonspecific pneumonitis is commonly found in middle or lower portions of the lungs. Swollen lymph nodes in the roots of the lungs characteristic of primary tuberculosis in childhood can cause bronchial obstructions and be its first clinical manifestation.

### **Tuberculosis intoxication**

**Tuberculous intoxication in children and adolescents** with fresh infection occurs as early intoxication, and chronic course is called chronic intoxication. This is a clinical syndrome of primary TB infection, caused by functional disorders without local manifestations of tuberculosis, detected radiological or other methods.

**Early tuberculous intoxication.** In the early tuberculous intoxication in children can be *depleted excitability*. It is easily excited, laughing, but this joy can quickly go into mourning, or apathy. This lability of the nervous system requires differential diagnosis with thyroid cancer, especially in endemic goiter areas. Often the child is examined by the ENT doctor, ophthalmologist, Neve ropatologa before he reveals tuberculous intoxication. This is associated with the development of so-called paraspetsificheskikh reactions in tuberculosis. **Specific reaction** - occurrence of caseous granulomas in the place of introduction of mycobacteria in tissue. **Paraspetsificheskaya response** - to change the organs and tissues in response to the presence tuberkulotoksinov in the body. Lymphoid nodules and limfogistiotsitarnye and infiltrates, macrophage infiltration, without a specific cellular response and kazeoza can develop in the tissues of the lung, liver, heart, spleen, and in mucous and serous membranes and other organs and tissues. All this leads to a variety of *masks* primary TB infection, such as frequent upper respiratory tract catarrh,

keratoconjunctivitis phlyctenular, erythema nodosum, etc. Characterized by an increase in cervical lymph nodes, submandibular, and axillary groups of up to II-III-sized units have soft-elastic consistency. In the peripheral blood often reveal eosinophilia. The most important differential diagnostic feature of early tuberculous intoxication - the coincidence of these functional disorders and morphological changes in *superelevation* tuberculin **reactions**.

**Chronic tuberculous intoxication.** In chronic tuberculous intoxication hallmarks are lagging behind in child development, pallor, mikropoliadeniya (6-9 groups of lymph nodes from elastic consistency to the "pebbles"). What is important is the fact that after *a bend* tuberculin tests was 1 year or more, and maintain a positive tuberculin test or increase.

This form of primary TB requires complex chemotherapy at least 6 months. and can be cured with little or no residual changes. Mycobacteria are present in the body, are transformed into slabovirulentnye or persistent L-forms, but the child remains infected for years to come.

Progression and proliferation of primary TB infection occurs predominantly via the lymphatic system. BCG vaccination has not previously infected person contributes to localization of infection at the level of generalization without lymph node or local organ damage and tissue. First and foremost is the defeat of the intrathoracic lymph nodes.

### **Tuberculosis of intrathoracic lymph nodes**

Tuberculosis of intrathoracic lymph nodes are usually morphologically **subdivided into infiltrative form**, similar to the basal pneumonia, which is characterized mainly perifocal reaction around the affected sites, **and tumoroznuyu shape similar** to that of neoplastic diseases and is characterized mainly by hyperplasia of the lymph nodes and kazeozom. Intrathoracic lymph nodes taken to subdivide the paratracheal, tracheobronchial, bifurcation, and bronchopulmonary that determines the topographical location of tuberculosis in this clinical form. With a well-functioning pediatric tuberculosis of intrathoracic lymph nodes often detect when examining a child or adolescent on *a bend* tuberculin tests, but younger children may be acute forms with high body temperature and toxicity. Ftiziopediatry secrete **a number of characteristic symptoms**.

When viewed from the front chest wall can be seen the expansion of peripheral venous network in the I-II intercostal space with one or two sides. It is a **symptom Vidergoffera indicative** of compression of azygos vein.

Extension of small surface vessels in the upper third of the interscapular space - a **symptom of Frank**.

Pain when pressing on the spinous processes of upper thoracic vertebrae (III-VII) - **Parsley positive symptom**, reflecting the recent inflammatory changes in the posterior mediastinum.

Dullness of percussion sound in children below 2 years I thoracic vertebrae, up to 10 years - lower II, over 10 years - lower thoracic vertebra III (better with percussion quietest on the spine) - a **symptom of the Koran**, occurring in inflammatory processes of the posterior mediastinum, bifurcation lymph nodes and infiltration of surrounding tissue.

With the defeat of paratracheal lymph nodes and mediastinal pleura, that is, the anterior mediastinum, reveal dullness of percussion sound in the grip of the sternum and the first two intercostal space with the boundary, tapering downwards - a **symptom of the cup Filosofova**.

Auscultation may detect a symptom **d'Espina when** Bronhofoniya (pektorilokviya) auscultated on the spinal cord below the thoracic vertebrae to the I bifurcation of the trachea in the pronunciation of sick hissing sounds.

Listening over the spine tracheal breathing in normal young children spent at least VII of the cervical or thoracic vertebrae I, characteristic for bronhoadenita. **Hebner** is a **symptom**.

There are also symptoms of **Filatov**, **Geno de Musset** and others

Most often the process of identify radiographically. Expansion of the shadow of the root and the violation of its structure are more often unilateral, it is easier to detect these changes in right bronhoadenite. Meet the unilateral expansion of the upper mediastinum. Infiltrative type of tuberculosis of intrathoracic lymph nodes is characterized by vague outlines of an extended root of the lung, the result perinodulyarnogo inflammation. When a tumor in the form of a leading feature of X-ray picture is a significant increase in the lymph nodes - expansion, extension and change the structure of the root of the lung. Outdoor shadow boundaries are convex, wavy, sometimes hilly contours and combined with the inability to differentiate individual lymph nodes within the package.

Reliable picture can be obtained using CT scans of the chest.

Clinical manifestations of tuberculosis of intrathoracic lymph nodes are due to complications of the clinical forms: the breakthrough molten caseous node in the lumen of the bronchus, followed by its obturation and bronchogenic colonization, lung distal to the site pererazdutiem space compression or obstruction, the development of distelektaza and atelectasis. Perhaps the development of pericarditis in breaking and draining lymph node in the pericardium.

Meet more than 30 diseases detected by X-ray examination of the mediastinum and lung roots. Some of them have a favorite location in the chest (see Table. 5.1).

**Table 5.1 Favourite localization of pathological processes in the chest**

Anterior mediastinum	Average mediastinum	Postmediastinum
Thyroid tumors	Tuberculosis of intrathoracic lymph nodes	
Thymal hyperplasia	Lymphogranulomatosis	
Teratomas and dermoid cysts	Lymphosarcoma	Neurogenic Education
Coelomic pericardial cysts	Lymphocytic leukemia	Wandering abscess
Fatty tumors of the mediastinum	Nonspecific adenopathy with measles, whooping cough, viral infections, sarcoidosis	Aortic aneurysm
Aneurysm ascending aorta	Aneurysm of the aortic arch	Tumors of the esophagus
	Aortarctia	Broncho-and duplication cyst
	Hemodynamic instability with heart defects	
	Mediastinal cancer	

By *EN Yanchenko, MS Greymmer, 1987*

### **Differential diagnosis**

The differential diagnosis of tuberculosis of intrathoracic lymph nodes performed with hilar form of sarcoidosis of the lungs. In favor of sarcoid lesions are symmetric and negative tuberculin test.

When chlamydia swollen lymph nodes is more pronounced in the degree and extent. Predominant lesion sites anterior mediastinum, but not the roots of light, shadow nodes krupnobufgristye.

In the anterior mediastinum in children is the thymus gland, it can also simulate an increase bronhoadenit.

Unlike retrosternal goiter without hyperthyroidism phenomena detected by X-ray: in breathing and swallowing crop shifts. Even more significantly radioisotope study of thyroid cancer.

The mainstay of treatment of tuberculosis of intrathoracic lymph nodes - long-term chemotherapy, it is best done in a sanatorium. Large lymph nodes causing compression or pressure sore formation of the mediastinum, subject to surgical removal.

### **PRIMARY TB COMPLEX**

Nosological diagnosis 'primary tuberculous complex' was proposed by *Ranke meant* by his primary focus in the lung (pulmonary component), a group of diseased intrathoracic lymph nodes (glandular component) and specific lymphangitis lymphatic vessels extending from the pulmonary component of glandular hairs. Previously, this form of primary tuberculosis was most prevalent. With the widespread use of BCG, it has become less frequent, giving the prevalence of tuberculosis of intrathoracic lymph nodes. In its current primary tuberculous complex goes through **four stages**:

Initial - pneumatic;

stage of the organization, when resorption begins infiltration zone and appears bipolarity (symptom *Redeker*);

stage of calcification;

stage of the primary tuberculous complex petrified.

This clinical form may have a fairly acute onset of intoxication, similar to the start of pneumonia. At the same time are often blurred during the encounter of the disease when diagnosed with TB do not, and when the next X-ray examination in the light and find its root dense foci of calcification or. Adolescents and young adults the primary tuberculous complex may be clinically recognized already at the stage of complications, these include tuberculosis, bronchial atelectasis, bronchopulmonary lesions (equity and segmental processes), and hematogenous dissemination lymphogenic, pleurisy, a primary cavity and caseous pneumonia.

### **CURRENT CHRONIC PRIMARY TUBERCULOSIS**

Chronically current primary tuberculosis - a consequence of untimely detection of tuberculosis of intrathoracic lymph nodes arising in childhood or adolescence. The process takes place in waves, exacerbation may appear different. In the event of fistulous forms may bronhoadenita bronchogenic, lymphatic or hematogenous spread. Characterized by long-continued intoxication, tuberculin sensitivity is often increased.

In regions with low prevalence of tuberculosis primary infection often occurs in adults. They have less than children, are formed of large packages cheesy lymph nodes, particularly at the bifurcation, so the trachea, large bronchi, nerve trunks and their endings are rarely involved in the process. More likely to occur bronchopulmonary lesion group.

If reactivation of tuberculosis in the intrathoracic lymph nodes may develop TB adenogenno bronchial

## CONCLUSION

Finally, we note that among the many factors determining the age should be considered for the flow of primary tuberculosis. Newborn Infection Mycobacterium often leads to rapid development of the disease at high risk for the formation of miliary tuberculosis and tuberculous meningitis. Children from 1-2 years before puberty and primary affect is almost always heal, but can be reactivated at puberty or later. Adults in the case of primary infection have the greatest risk of developing the disease within 3 years. Among young patients are women, whereas men are more likely to become ill later in life.

## III. Pleural tuberculosis

As **pleurisy** in Russia is most often affects young people and accompany primary disease, we dwell on pleural tuberculosis. According to Vladimir Sokolov (1998), the incidence of tuberculosis in the presence of pleural syndrome of 49.6%, while the percentage of pneumonia as a cause of pleurisy is only 17.9%. There are **three options** for **pleural** tuberculosis:

**Allergic pleurisy occurring** as paraspetsificheskaya reaction. In this case, the pleural fluid mycobacteria not be detected.

**Perifocal pleurisy** - damage to the pleura, directly adjacent to the site of lung tissue that is affected by tuberculosis.

Actually **tuberculous pleurisy** - hematogenous seeding of pleural tuberculosis bacteria to form on her sheets tubercle tubercles, in this case perhaps bacteriological

detection of *M. tuberculosis*, and at thoracoscopy - visualization of the process and taking biopsies.

Clinic and diagnostics. For general practitioners it is crucial to identify the fluid in the pleural cavity. Pleural effusion, often massive, with pain in his side on the affected side. Symptoms can progress quite rapidly. Most often is unilateral effusion, but there are bilateral. Classically exudative tuberculous pleurisy occurs in young people, who have not bolevshih tuberculosis.

Radiography. To direct plain film in the vertical position of the patient level can be reliably seen only in the presence of 500 ml or more, because effusion is evenly distributed around the perimeter of the dome diaphragm. In the absence of air in the pleural cavity (before the first puncture) precise horizontal level is not visible. Note the intense shading in the lower divisions, gradually shifting the mediastinum organs in the opposite direction of the defeat. If you suspect the presence of effusion in the pleural cavity is necessary to make X-ray photograph of the patient on the patient side (*laterogrammu*): image must be a direct projection. Then along the costal surface of the rib marks (in the picture - the bottom) will be visible to the liquid. In an interview for advanced treatments, we specifically focus on technology pleural puncture, which serves a key event in the diagnosis and treatment of pleural effusions. GP should not have illusions about the spontaneous resorption of fluid. Frequently pleural effusion without effusion evacuation ends precipitation of fibrin adhesive process and in the worst case - severe chronic purulent processes in the pleural cavity, or empyema.

Pleural puncture. The tubercular pleurisy effusion is in the nature of fluid, protein content of less than 3 g%, in the fluid is usually dominated by lymphocytes, cells of the mesothelium are rarely encountered. When biopsy of the parietal pleura can be found granulomas, which confirms the diagnosis of tuberculous pleurisy. Tuberculin skin test is negative one third of patients, as pleural effusion often occurs before developing hypersensitivity to tuberculin.

Serious **complication** of untreated tuberculosis - bronchopleural fistula and empyema due to tuberculosis breakthrough content of pulmonary focus into the pleural cavity. In this case, the diagnosis is easier to deliver, as in a liquid are often present mycobacteria.

Treatment Tuberculous pleurisy responds well to specific treatment. Carrying pleural puncture is necessary both for diagnostic and therapeutic purposes. If the liquid is quickly evacuated, and falls are formed fibrin adhesions. Pumping liquid "dry" unjustified, since high risk of injury of the lung. The need for surgical decortication is rare. Treatment consists of draining the pleural cavity, and chemotherapy.

According to researchers the U.S., two thirds of patients after tuberculous pleurisy, within 5 years of developing active tuberculosis.

## Lecture #4 Types of dissemination

### Hematogenous tuberculosis

Hematogenous tuberculosis combines a number of manifestations of the disease emerged and developed in humans after a considerable period after undergoing a primary infection. It still is referred to as *poslepervichny* tuberculosis. In these cases we are talking about people who clinically recovered from primary TB, but retained sensitivity to tuberculin and developed significant immunity to the tubercle bacilli. Hematogenous tuberculosis occurs in those patients whose primary infection has left pockets of change in the form of screenings in various organs or not fully healed foci in the lymph nodes. These lesions may remain for a long time latent, their aggravation occurs under the influence of any adverse factors in the presence of increased reactivity. Therefore, when hematogenous tuberculosis prevails productive tissue reaction (tubercular protuberance), expressed an inclination to hematogenous generalization, which leads to the defeat of various organs and tissues.

There are three types of hematogenous tuberculosis

- *Generalized hematogenous tuberculosis;*
- *Hematogenous tuberculosis, mainly affecting the lungs;*
- *Hematogenous extrapulmonary tuberculosis with primary lesions.*

### **Generalized hematogenous tuberculosis**

Rare, is the most severe form of disease with uniform precipitation in many organs of tubercle tubercles. In some cases, all organs are formed necrotic foci without proliferative or exudative reaction with mild (so-called necrotizing form of generalized tuberculosis). They are: 1) acute tuberculous sepsis. In other cases, in all the organs appear miliary tubercles productive. This form is denoted as 2) acute disseminated miliary tuberculosis. It often ends with meningitis. Finally, in some cases, a 3) acute disseminated macrofocal tuberculosis, which usually occurs in debilitated patients and is characterized by the formation in different organs of large (diameter up to 1 cm) foci of tuberculosis. In each case, the generalized hematogenous tuberculosis need to find a seat, the source of contamination, usually it is not completely healed focus of the period of primary infection in the lymph node, sex organs, skeletal system, etc.

## **Hematogenous tuberculosis with primary pulmonary**

In other organs tuberculous tubercles may be absent or sporadic. In the presence of pulmonary miliary tubercles numerous small talk about miliary tuberculosis of lungs, which may be downstream of both acute and chronic.

In acute miliary tuberculosis of the lungs are swollen, puffy, they, like grains of sand, small lumps palpated, which are especially numerous in their upper segments. Often this form of tuberculosis ends [meningitis](#). In chronic miliary TB may develop scarring of the bumps and persistent pulmonary emphysema, and therefore increases the load on the heart and there is right ventricular hypertrophy (cor pulmonale). In addition, isolated chronic macrofocal, or hematogenous-disseminated pulmonary tuberculosis, which occurs in adults. It is characterized mainly cortico-pleural localization lesions in both lungs and productive tissue reaction, the development of net pneumosclerosis, emphysema, pulmonary heart disease and the presence of extrapulmonary tuberculous focus.

## **Hematogenous tuberculosis with extrapulmonary lesions advantageous**

Develops from the pockets of the screenings listed in an organ hematogenous route during the period of primary infection. Mainly affected the bones of the skeleton (bone and joint tuberculosis) and urogenital system (renal tuberculosis, genital), skin and other organs (endocrine glands, central nervous system, liver, serous membranes).

## **Disseminated tuberculosis**

Disseminated tuberculosis - clinical form of tuberculosis characterized by the formation of multiple foci of tuberculosis, to 1 cm in diameter in all organs and systems.

Disseminated tuberculosis usually develops in adults and is a clinical form of secondary tuberculosis. However, during massive bacteremia primary tuberculosis infection and complicated course, local forms of primary tuberculosis

limfogematogennoy spread tuberculosis bacteria may lead to disseminated tuberculosis in children and adolescents.

Disseminated tuberculosis among newly diagnosed patients was 7.8% in 1998godu. In these times of worsening epidemiological situation of tuberculosis in Uzbekistan disseminated tuberculosis among new cases in 2001 was 12.5% -15%. Typical is a more severe course and increased mortality from disseminated tuberculosis, which is associated with late diagnosis. A variety of clinical manifestations associated with the feature of the pathogenesis and pathologic picture of difficult diagnosis, this form of TB GPs. In practice, GPs disseminated tuberculosis can occur under the guise of non-specific respiratory diseases, various disseminated processes in the lungs.

### **Pathogenesis and pathological anatomy of disseminated tuberculosis.**

Disseminated tuberculosis - is the result of the spread of Mycobacterium tuberculosis (MBT) in the lung hematogenous, limfogematogennym, lymphogenous and rarely bronchogenic ways. The source of bacteremia may be caseous intrathoracic lymph-modified with an active primary tuberculosis, small foci of active tuberculosis in the lymph nodes after suffering a badly healed and often tumaroznogo bronhoadenita. With the reactivation of the residual changes of primary tuberculosis mycobacteria from lymph node, enter the blood in the propagation of tuberculous inflammation directly on the wall of a pulmonary vessel or break in the thoracic lymphatic duct, the subclavian vein and pulmonary heart pulmonary vein and into the lungs. The source of bacteremia may also be hotbeds of progressive extrathoracic tuberculosis: bone, the genitourinary system. Studies VG Shtefko (1937) showed that the exacerbation of lesions in the interstitial tissue surrounding them initially formed lymphangitis, lymphoid infiltration lymphostasis. At the same time amazed adventitia located near a blood vessel, usually branches of the pulmonary vein or artery. As the progression of the process or formed endoflebit endoartrit. The resulting bacteremia in this way is usually temporary and lasts several days or even hours. In this regard, the development of disseminated tuberculosis is of great importance gipersensibilizatsiya the body, caused massive bacteremia due to endo - or exogenous superinfection. Essential in the development of disseminated tuberculosis has reduced the immuno-biological organism resistance, sensitization of blood vessels and lung tissue to the Office. In this regard, disseminated tuberculosis often develops in individuals of the hotbeds of TB infection, with the weakening of reactivity due to past infectious diseases, pregnancy, senile withering body, disorders of the vitamin,

protein metabolism, and endocrine pathologies, in patients receiving long-term immunosuppressive drugs and glucocorticosteroids.

When hematogenous dispersion of TB are affected capillaries and small veins of the lungs, where the stasis of TB infection develops disorganization of collagen and fibrinoid necrosis walls of blood vessels leading to a breach of the permeability of the vascular wall and release into the interstitial tissue of the lung and partly in alveoli of the lungs, where the formation of exudative-caseous tubercles. In typical cases, the diameter of the hillocks 1 - 2 mm, that is the size of millet, which gave the name of the current form of disseminated tuberculosis - miliary.

In miliary tuberculosis due to hematogenous dissemination centers are symmetrical, affecting both lungs from the apex to the diaphragm. Sometimes the process is localized only in the tops and subclavian areas. At a massive infection and a sharp decrease in the body immunobiological reactivity under conditions of hypersensitization to tuberculosis infection may result in all the parenchymal organs, as well as involvement in the process of meningeal shells. Violation of the microcirculation in the lungs, causing a violation of gas exchange function, a prerequisite for the development of emphysema and suffragan of respiratory failure, the latter exacerbated by intoxication-related bacteremia. Hematogenous dissemination leads to an acute course of tuberculosis.

When lymphogematogenous and predominantly distributing lymphogenic TB may arise defeat interlobular veins, rarely pulmonary artery branches. In these cases there is a morphologic alterations of vascular walls and interstitial tissue imbibition of blood, less lung parenchyma. At penetration here TB develop more large pockets with a combination of varying degrees of exudative and productive phase of inflammation. Typically, the centers are located symmetrically mainly in the posterior and cortical regions of upper lobes of the lungs. Have the same type with the size of lesions up to 5 - 6 mm in diameter with a tendency to merge them with the formation of focal changes. Cortical focal location causes the frequent involvement of the pleura in the process of infiltration of interalveolar septa cellular elements, swelling their lead to loss of elasticity of lung tissue and the development of diffuse emphysema. This morphological pattern characteristic of subacute disseminated tuberculosis. In the event of failure detection may improperly treating the progression of the process, accompanied by the prevalence of caseous exudative reaction leading to the collapse and formation of cavities. Recent results from caseation and complete melting of necrotic masses. These cavities are called "cookie", are thin-walled single, sometimes multiple arranged symmetrically. In the origin of these cavities play a role damage to blood vessels, they thrombosis, obliteration. With the formation of cavities appears basis for the dissemination of the ILO and the emergence of foci of bronchogenic dissemination.

Chronic forms of disseminated tuberculosis are the result of lymphogematosy dissemination or untimely identification, improper treatment of the previous forms of disseminated tuberculosis. These forms are usually limited to the lung tissue, although it is possible and hematogenous screenings in other organs in the skeletal and urogenital systems. Homes, are generally productive, localized mainly in the apical segments of lung with a significant reduction in the dissemination of his lower spine. Foci of dissemination is usually polymorphic, some of them well-encapsulated, while others are rich in elements of the cellular elements of the capsule, do not have a capsule. Localized pockets of connective tissue stroma campaign thickened pulmonary perivascular and peribronchial tissue, some are located in the wall of blood vessels. In the later phases of developing interstitial reticular sclerosis, especially pronounced in the upper lung, which produce a massive fibrotic scars on former tuberculous lesions around the lower portions of the lungs and develops emphysema. Fibrosis and focal changes in the lung combined with vascular reconstruction indicating the presence of hypertension in the pulmonary circulation. A chronic, fluctuating course of disseminated tuberculosis, accompanied by the formation of cavities pressed causing bronchial involvement in the process. Affected specific process bronchial bronchogenic dissemination process causes no symmetry of the lesions of chronic disseminated tuberculosis. Bronchi may be affected in the initial phase of disseminated tuberculosis in lymphogenic distribution process with the formation of foci along the lymphatic vessels in the peribronchial tissue. In these cases, the development of fibrosis and sclerosis of healing observed bronchial wall, obliteration of the lymph, blood vessels and the restructuring of education bronchiectasis. In the long-term chronic course of disseminated tuberculosis waviness may be caused by repeated periodically emerging waves of bacteremia. Rough changes in all vessels of the lungs in these patients due to vasculitis and subsequent narrowing of the vascular bed, obliteration of the vessels, promote the development of pulmonary heart disease due to prolonged and severe hypertension in the pulmonary circulation.

### **Clinic disseminated pulmonary tuberculosis.**

Features of the pathogenesis and pathological manifestations of a variety of disseminated tuberculosis causes a variety of clinical manifestations of disease. On the clinical course are distinguished: acute (miliary), subacute, chronic disseminated tuberculosis.

**Acute (miliary), disseminated tuberculosis**, depending on the predominant clinical symptom and the prevalence of morphological changes may be: septic tank -

tifobatsillez Landuzi, typhoid, pulmonary, meningialnye form. **Tifobatsillez Landuzi** is the most severe form of miliary tuberculosis, also known as the acute tuberculous sepsis differs extremely, malignant current septsitimiey and often ends in death within 2 - weeks. Clinically: severe intoxication, obliterated general cerebral symptoms, growing up until he lost consciousness.

On chest radiograph can detect only increased pulmonary drawing, in CSF cytosis cells in 1ml of 5.9, the protein level increased. Usually, the diagnosis most often specified posthumously. Morphologically in many organs revealed no evidence of specific foci of inflammation, and only the presence of the patient in the foci of necrosis Office confirms the diagnosis of tuberculosis. Naturally this is due to disseminated tuberculosis within a very massive infection and a sharp decrease in immunity against the organism to high gipersensibilizatsii tuberculosis infection. Unfortunately, the deterioration of the epidemiological situation of tuberculosis in Uzbekistan, a prerequisite for the development of such forms of miliary tuberculosis. Since the autopsy have not mandatory, such forms of supernumerary miliary tuberculosis may not be accurate.

When **typhoid** form 90% of patients within 3-5 months prior to the development of miliary

Tuberculosis may occur short-term temperature rises to high

figures, intoxication, which leads to the erroneous diagnosis of typhoid and other infectious diseases. The clinical picture of typhoid form of miliary tuberculosis is characterized by the features of epidemiological history, the lack of prodromal period, irregular temperature curve, accompanied by chills and sweating with a decrease in proffuznym, severe weakness, adynamia, tachycardia, poliadenitom, an increase of symptoms of respiratory insufficiency in the dynamics, confusion and to distinguish the form of typhoid Tuberculosis of typhoid fever during the first week of illness. Auscultation in 70% of patients can detect pleural friction rub in the interscapular and axillary regions and on the back edge of the lung, which is also a differential diagnostic criterion. In the differential diagnosis of typhoid form millianogo tuberculosis typhoid important to timely sowing of blood on blood culture and Widal reaction, which will help solve the problem of diagnosis to the end of the first week of illness.

**The pulmonary** form of miliary tuberculosis is characterized by a predominance on the background of severe intoxication symptoms of respiratory failure: dyspnea, cyanosis, rising against the background of general intoxication. The absence of typical acute inflammatory processes in the lung auscultatory symptoms may warrant a diagnosis of miliary tuberculosis.

The clinic forms **meningialnoy** miliary tuberculosis is prevalent symptoms were scattered meningoencephalitis, with bright vegetal-vascular disorders and propensity to spasm of cerebral vessels. Detected early "stupor", confusion and even loss of consciousness, mental disorders caused by spilled vasculitis. Shell symptoms are mild, delayed for meningitis, necrosis of the vascular wall thrombosis and hemorrhage causes the development of paralysis. Changes in the vessels of the brain stem and diencephalic manifests itself vegetative-vascular crises.

Such a variety of clinical manifestations of miliary tuberculosis causes great difficulties in its diagnosis. In a severe condition of patients and severe intoxication tuberculin more negative - a negative state of anergy due to a sharp depletion of the immune system. In the treatment of 1.5-2 months negative tuberculin skin test becomes positive. The Office can be detected in multiple studies of sputum or bronchial washings more often by planting only 10% of patients, which reduces the diagnostic value of this study, because it can not be used for early diagnosis and timely miliary tuberculosis.

One of the main methods of diagnosis miliary tuberculosis is timely X-ray examination of the chest. In the early stages of the disease can be detected only decrease the transparency of the lungs and increased pulmonary figure that does not solve the problem of diagnosis. Informative X-ray examination is carried out on 10 - day 14 of illness. X-rays determined symmetrically arranged, the same type of lesions, measuring 1 - 3 mm of low intensity, with no clear outline, more densely located in the upper part and on the periphery of the lungs. Confirms the diagnosis of the presence of retinal cellularity, as reflected interstitial lung response, bilateral and symmetrical lesions in both lungs, as in nature, and extent of lesions. Much less often in acute miliary tuberculosis are determined by the type of large pockets of caseous pneumonia on X-ray-like "snow storm".

**Subacute disseminated tuberculosis** develops gradually and is also characterized by severe intoxication resembles pneumonia. However, the extent and nature of the clinical picture of this form of disseminated tuberculosis depends largely on the extent and nature as well as the period of the process. With slow development of morphological changes in the lungs of the limited few symptoms of intoxication are expressed, giving the impression of an asymptomatic course of the process and such cases may be "X-ray finding." Especially these often occur when subacute disseminated tuberculosis is accompanied by changes ekstratorokalnymi: orchitis, epididymitis, mezoadenit. Painting ekstrotorakalnogo process prevails in the picture of the disease, and pulmonary changes detected in the process of further examination.

Rapid progression of subacute disseminated tuberculosis is often associated with what is a push from the outside and accompanied by common morphological and behaves quite severe intoxication and pulmonary symptoms. Patients complain of fatigue, decreased appetite, weight loss, cough, sputum production. The collapse of the lung lesions can manifest hemoptysis, with involvement of the pleura appears chest pain is not always clearly localized. Percussion is possible to determine the shortening of pulmonary sound in the upper lung auscultatory breath, listen to a weakened and sometimes finely rales over the collapse of sections of the lungs.

In the diagnosis of subacute disseminated tuberculosis is very important X-ray examination. On X-ray revealed pockets of various sizes of low intensity, without clear contours. Due to the existing infiltration around lesions in close proximity, they fuse to form areas of infiltration. Merging cheesy centers and centers of the progression of the process leads to the disintegration and the formation of cavities, which are located symmetrically, often under the collarbone. Cavity, usually thin-walled round, without the expressed zhennoy infiltration around. The true dimensions of these cavities is always less radiologically defined as they are inflated because of vicarious emphysema characteristic of disseminated tuberculosis. Radiologically determined changes in subacute disseminated tuberculosis bilateral, often symmetrical, but may be unilateral. In such cases, the lesions, usually localized in the basal parts of lungs. Mostly lymphogenic dissemination associated with an active tuberculous process of intrathoracic lymph nodes, can manifest itself expanding and blur the roots of the lungs, blurred their faces.

Usually, the diagnosis confirms a positive tuberculin Mantoux test, prone to giperergii, the presence of the ILO in the sputum. Sputum can be confirmed by microscopy. In diagnostically difficult cases, bronchoscopy may identify the various manifestations of tuberculosis bronchial until bronhonodulyarnyh fistulas. Concomitant clinical symptoms of the bones and joints, genitourinary system, eye, and require confirmation of tuberculous origin of these pathologies.

**Chronic disseminated tuberculosis**, characterized by a more varied clinical picture than previous forms of disseminated tuberculosis. In the early stages of chronic course, with the appearance of numerous foci in the tips of lung disease may be clinically manifest. As the progression and spread of lesions on larger and larger sections of the lungs, manifested subacute disseminated tuberculosis clinic. Error diagnosis and adequate treatment is not leading to chronicity of the process, the disease takes on an undulating course, with the change of periods of exacerbation and remission. During periods of exacerbation may be fever, fatigue, weakness, autonomic reaction. Periods of intoxication may be relatively short, 2-3 weeks or less.

In this regard, a small cough, wheezing scarce in the interscapular area detected on auscultation of the doctors regarded as manifestations of nonspecific inflammation in the bronchopulmonary system and the disease progresses. Gradually, the symptoms of intoxication and bronchopulmonary disease, acquiring hard and more pronounced signs of respiratory failure joined: shortness of breath, slowly but steadily growing, increasing cough, increasing the number of sputum, hemoptysis may be. Involvement of the esophagus causes the appearance of pain. At the clinic of pulmonary diseases are gradually piling extrathoracic symptoms of tuberculosis, and often a specific lesion of larynx: pain when swallowing, hoarseness, amplified, and becomes a permanent cough. In some cases, the clinic extrathoracic tuberculosis is prevalent in the picture of the disease: pain in the joints, especially under load and walking fast, hematuria. An objective examination of the patients expressed acrocyanosis or cyanosis, lack of weight gain, dry skin, a characteristic deformity of the chest with a decrease of upper and lower limit of the extension of light, the lag in the breath of the chest. Percussion shortening of percussion sound in the upper chest auscultatory: ibid auscultated breath weakened due to specific changes in the lung and bronchus, and emphysema, variegated, dry and moist rales. The diagnosis confirms the discovery by the Office in the sputum and X-ray examination. On a radiograph is determined: the deformation of the chest, constriction of the upper intercostal spaces, the expansion in the lower divisions, pleural thickening, the presence of asymmetric centers in the different character of both lungs, from small low-intensity lesions with areas of hematogenous bleaching caused by decay, to petrifikatov. Local bleaching caused by emphysema, pneumosclerosis, peribronchial and perivascular sclerosis is not always possible to detect cavities. To confirm its necessary to resort to imaging. The development of sclerotic changes in the lungs causes bronchial drainage violation lung volume reduction, deformation, and raising the intensity of the smartness of the shadows of the roots of the lungs.

In the absence of bacteriological confirmation of diagnosis and uncharacteristic radiographic pattern, with predominance of sclerotic and focal changes, to confirm the diagnosis has to resort to bronchoscopy. In the study of bronchi is determined by the available deformation, signs of active tuberculosis bronchial cicatrices. Tuberculin test in the diagnosis of this form of TB do not have much value.

**Complications of disseminated tuberculosis** are common and depend on the peculiarities of the process. Milliarnogo for tuberculosis is characterized by involvement in the pleura, respiratory failure due to intoxication and violation of the microcirculation in the lungs, increasing respiratory distress threatens death of the patient.

Subacute disseminated tuberculosis may be complicated by pulmonary blood

Harkány or bleeding as a result of the collapse of cheesy masses, and pleurisy.

Complications of a certain effect on the disease and the weight to the clinic the patient's condition.

In the chronic course of disseminated tuberculosis developed in the lung morphological changes, as well as disorders of other organs and metabolic processes throughout the body, create the preconditions for the development of various complications, most of which are heavier course of tuberculosis. The natural and the most frequent complication is increasing respiratory distress, growing into cardiopulmonary, followed by pulmonary heart leading to death. Threatening complication is krovokarhaniya and pulmonary hemorrhage, often accompanied by recurrent anemia. Frequent complication is amyloidosis of internal organs, yet less spontaneous pneumothorax with pleural empyema and pleurisy.

**Outcomes** disseminated tuberculosis due to the peculiarities of clinical course, the nature and extent of specific changes in the lungs, the adequacy and duration of therapy. Miliary tuberculosis in early diagnosis and appropriate treatment, despite the severity and prevalence of the process ends, as a rule, full recovery. Miliary foci of resorption can be achieved in 2-5 months, but this does not mean cure, as in this period in the lymphatic system has saved The Office may be centers of active tuberculosis and extrathoracic not fully restored the respiratory function of the lungs. Resorption lesions are not always complete, and as a result of an adverse outcome milliarnogo tuberculosis remain encapsulated foci. Late diagnosis, late treatment inadequate and complicated course of tuberculosis milliarnogo can cause patient's death.

Outcomes of subacute disseminated tuberculosis, as a rule, favorable absorption centers can be full of interstitial sclerosis with limited lung tissue are unfavorable outcome with preservation of part or all of the encapsulated lesions, the formation of TB, and formed cavities, the transition to chronic disseminated pulmonary tuberculosis. Thus, subacute disseminated tuberculosis can be a source of focal, tuberculoma, and fibro-cavernous pulmonary tuberculosis tricky.

Outcomes of chronic disseminated pulmonary tuberculosis, as a rule, few are good. If you can not reach a stable stabilizing gradually develops clinic fibro-cavernous tuberculosis or cirrhotic. With inadequate treatment of chronic progressive disseminated tuberculosis, complicated and ends with the death of the patient.

The foregoing demonstrates the need for early detection of disseminated tuberculosis GPs, which is quite a challenge in addition to a variety of clinical manifestations of disseminated tuberculosis in common with a variety of infectious diseases, and nonspecific lung pathology, it refers to a broad group of disseminated processes in the lung, represented by more than 150 diseases are very similar not only in clinical manifestations, but also by X-ray film. Therefore, the diagnosis of diseased importance history (diseases, epidemiology, occupational, family), the status of other agencies, as well as results of special investigations: bronchoscopy, biopsy of bronchial mucosa, and transbronchial intrapulmonary biopsy biopsy of intrathoracic lymph nodes.

In cases where the GPs are not able to make a diagnosis of disseminated lesions in the lungs requires the correct orientation for stationary inspection: tuberculosis, cancer, Pulmonology.

### **Lecture # 5 Focal pulmonary tuberculosis.**

Focal tuberculosis is an early, limited form of secondary tuberculosis. It is important for GPs as delayed diagnosis of this form leads to the progression and development on the basis of its untimely detected destructive tuberculosis and chronic forms of defining epidemiological situation of tuberculosis.

Hence the lack of alertness phthisiological GPs, lack of knowledge of the foundations of diagnosis, differential diagnosis, to some extent the epidemiological situation of tuberculosis in Uzbekistan.

Focal tuberculosis secondary tuberculosis form a small, limited mainly characterized by the development of productive lesions in the lungs of asymptomatic and oligosymptomatic clinical course.

In a period of stabilization of tuberculosis infection and the use of continuous fluorographic surveys focal tuberculosis reached 50-60% and some areas 70% of patients in the first, the proportion of focal tuberculosis in tuberculosis patients contingent reached 60-70%. The deterioration of the epidemiological situation of tuberculosis, is characterized by a decrease in new cases among the proportion of focal tuberculosis, and 16 -18% (2002), due to growth in the proportion of patients with infiltrative, destructive, chronic forms of tuberculosis.

### **Pathogenesis and pathology of focal tuberculosis.**

In the formation of ideas about the pathogenesis and morphology of focal tuberculosis played an important role research Abrikosov, A. Pubel,

BM Khmelnytsky M.T Ivanov. In the development of focal tuberculosis has a value as an endogenous reinfection and exogenous superinfection, the latter is of particular importance in a worsening epidemiological situation of tuberculosis.

The main terms in the development of focal tuberculosis is a virulent, but not a massive TB infection with a relatively preserved immune-biological resistance of the organism, whereby the inflammation is limited to fully developed tuberculosis.

Mechanisms of focal tuberculosis are different:

1. When exogenous superinfection occurs, settling in the terminal ramifications of the bronchi, leading to the development of endobronchitis panbronhita with cheesy changes, the latter breaks into the alveolar tissue to form around the small bronchi caseous pneumonia with perifocal inflammation. Fully developed yet by the centers are located, usually in the tops of the lungs and below are called centers of Abrikosov, because they have been described for the first time, AI Abrikosov, exogenous substantiated theory of the development of secondary tuberculosis.

2. During the period of primary tuberculous infection in the lung apices hotspots dropouts, which are gradually delimited fibrous capsule and completely petrified - pockets of Zion, or partially petrified - Ashofa pockets - Pula, where the L-forms are preserved by the Office. Under certain conditions, L-form reverses the bacterial forms in the Office, which may exacerbate old lesions and development of focal tuberculosis.

3 If not detected or inadequately treated tuberculosis of intrathoracic lymph nodes, if in the intrathoracic lymph nodes remains an active tuberculous process, the Office or hematogenous lymphogenic way into their lungs. At the same time hematogenous dissemination leads to lesions in the tops of the lungs, and dissemination limfogematogennaya accompanied by lesions in the middle and lower portions of the lungs. Particularly often such centers developed in the presence of the large bronchi of tuberculosis complicated by chronic tuberculosis of intrathoracic lymph nodes.

4 is a more rare hematogenous drift Office in light of ekstatorokalnyh foci of tuberculosis, detected late, latent and progressive.

These mechanisms lead to the formation of focal forms of tuberculosis ivolyutivnyh.

5 focal tuberculosis may be the outcome of other forms of pulmonary tuberculosis. As a result of involution of infiltrative, disseminated, cavernous pulmonary tuberculosis encapsulated caseous form, in whole or in part compacted or calcified foci.

**Morphological** manifestations of focal tuberculosis and is characterized by melkoochagovymi fibronodular formations up to 1 cm, localized B1-2, less than 6 segments of the lungs. Mezhochagovyie processes appear cheesy centers without pronounced infiltration within one, at least 2 segments.

Fibronodular processes appear encapsulated foci of calcification cheesy or partial fibrosis. Capsule of connective tissue lesions is presented varying degrees of maturity in the surrounding tissue are found fibroatelektazy. In the course of the vessels and bronchi in the localization of foci of sclerotic changes observed may be formed and diffuse saccular bronchiectasis, obliteration of the microvasculature, vasculitis.

When activated, the old centers of developing mucoid and fibrinoid swelling of connective tissue capsule plazmoragiey and exudation, exudative infiltrative or proliferative tissue reaction, melting cheesy and dispersal of calcareous masses of the hearth, specific or nonspecific lymphangites outside the chamber, transition specific inflammation in the bronchi, blood vessels and parenchyma lung.

**The clinical picture** of pulmonary tuberculosis is caused by a focal length of the process, the nature and phase of tuberculous inflammation foci. Focal tuberculosis may be asymptomatic, with a gradual progression oligosymptomatic, in some cases, there is acute throughout the process.

Limited focal changes, mostly productive without decay can proceed unnoticed for a long time for the patient and detected incidentally during fluorographic X-ray examination, or, sometimes several years after onset. Ivol'yutivnye focal forms of tuberculosis, which are based on myagkoochagovyie changes manifest themselves symptoms of intoxication: the temperature increase within 10-12 days within subfebrile figures, the manifestations of vegetative dystonia, sweating, tachycardia, sometimes, loss of appetite, fatigue, reduced performance. Symptoms of bronchopulmonary pathology in these patients are not available or not sharply defined: cough, dry cough nenazoylivy. In some cases there may be a small amount of mucus, and occasionally - as a result of the collapse of hemoptysis lesions. When gradually developed focal tuberculosis progresses as a result of a push from the outside (hypothermia, giperinsolyatsiya, injuries, etc.), symptoms of intoxication may become more pronounced, the temperature within the febrile, more consistent. The impression acute course of the process. Decay, the usual for such cases, causes a

cough with scanty sputum, hemoptysis, and in some cases, the involvement of the pleura is manifested in the process of erratic aching pain.

For fibronodular tuberculosis is characterized by undulating course with the change of phases of exacerbation and remission, because of what the process is similar to recurrent respiratory infections, bronchitis. An objective examination of the appearance of the patient is not changed, the chest - a common form, is actively involved in the act of breathing. Percussion: determined lung sounds, auscultatory: vesicular breathing, and only in the projection areas collapse at the height of inspiration you can listen to the wet nezvuchnye finely wheezing, persistent for a few days.

The main method of diagnosis of focal pulmonary tuberculosis is an X-ray examination. Myagkoochagovy tuberculosis is characterized by patchy shadows of low intensity or polymorphic, with indistinct outlines. In some cases, the transparency of the surrounding tissue due to reduced infiltration, rare is the link with the root of the lung. In the presence of decay in the large and confluent foci determined enlightenment. Radiographically in these cases, the focal tuberculosis differentiate from focal pneumonia.

Sputum examination at the Office at least three times, the study of bronchial washings and bronchial swabs in rare cases, confirms the bacterial (3%). In the diagnosis of focal tuberculosis acquired tuberculin sensitivity. The results of the Mantoux test normergicheskie, giperergiya not very characteristic. At low tuberculin sensitivity test is applied Koch, if no other signs of active tuberculosis.

Analysis of peripheral blood of great importance for the diagnosis has usually been a slight acceleration of the ESR, at least a slight shift to the left leykoformuly. When fibro - focal changes in mild symptoms of intoxication, bronchopulmonary symptoms and other symptoms of active tuberculosis, usually does not happen.

Diagnosis is based on intensive small radiologically defined with clear contours irregularly shaped lesions in the upper lung fibrotic changes in the surrounding tissue and samples of Koch. Process in these cases is differentiated with focal pneumosclerosis, focal atelectasis, and the initial phase of central lung cancer.

In diagnostically difficult cases and differential diagnosis of incipient cancer of the central critical belongs to bronchoscopy, which may reveal a picture of tuberculous endobronchitis focal complications of tuberculosis are extremely rare. They are: hemoptysis, pleurisy. Treatment of focal tuberculosis complex-3-4 drugs (rifampicin, isoniazid, ethambutol or streptomycin) for 2 to 3 months in a hospital outpatient further up to 6 months depending on the regression process.

Outcomes of focal tuberculosis, as a rule, favorable: absorption centers to the formation of limited fibrosis, compaction and calcination chambers. However, untimely and inadequate identification of intermittent treatment, the disease progresses with the outcome of infiltrative tuberculosis, Tuberculosis, cavitary pulmonary tuberculosis. In some cases, a steady progression over the years leads to the formation of a limited fibro-cavernous tuberculosis

## **Infiltrative tuberculosis**

**Infiltrative tuberculosis** - clinical form of secondary tuberculosis, characterized by the development of cheesy foci in the lungs with marked perifocal infiltration and acute dynamic flow.

The doctrine of the infiltrates is connected with the introduction of TB in the practice of x-ray method. One of the founders of the doctrine of infiltrates is Assman (1924), who described the first round infiltration, which in his opinion is the result of exogenous superinfection. Somewhat later, Redeker, describing similar infiltrates, tied them up with an endogenous infection, found in the area of old tuberculous foci of infiltrates.

BM Hmelnitsky (1936), in the sputum of patients with type infiltrates Assmann discovered not only the ILO, and cholesterol crystals, limestone, calcified elastic fibers (Ehrlich tetrad), indicating that the decay of old homes.

Currently in the development of infiltrative tuberculosis recognize the role of exogenous and endogenous infection. The cause of infiltrative tuberculosis is a massive tuberculous infection with a high degree of virulence, reduced immunobiological resistance of the organism with hypersensibilization to tuberculosis infection of lung tissue, as well as the entire body. As a result, the lung inflammation develops pronounced hyperergic

Distinguish several mechanisms of development of infiltrative tuberculosis

1. progression of time is not revealed focal progression of tuberculosis and fusion centers;
2. activation of L-forms of MBT in old tuberculous foci with exacerbation of their appearance and a wide area around infiltration;

3. limfogematogennoy dispersal of intrathoracic lymph nodes Office or extrathoracic lesions in settling them in the intact lung inflammation and the development of giperegicheskogo.

**Pathological pattern** of infiltrative tuberculosis manifested cheesy focus with a large area of perifocal inflammation. With the progression of infiltrates caseous centers increases. With further progression of infiltrates in the heart of kazeoz diluted, melted and breaks in the bronchi, leading to the formation of a sharp cavity. With the rapid increase in multiple foci cheesy they occupy an entire share of the lung. Along with lots kazeoza surrounded by epithelioid, lymphoid, giant cells, it has some areas of nonspecific inflammation.

With the steady progression of the process of acinar, lobular foci may coalesce, forming a lobar or total caseous pneumonia. Caseous pneumonia is characterized by acute extensive fusion with the formation of multiple kazeoza cavities.

Depending on the nature and extent of caseous necrotic lesions in the lungs, distinguished clinical and radiographic types of infiltrative tuberculosis

- Round infiltrate Assmann
- Lobular (broncho-nodular) infiltration
- Oblakovidnyy infiltrat
- Peritsissurit
- Lobito
- Caseous pneumonia

The peculiarities of the nature and extent of the clinical course and process all types of infiltration can be grouped as:

Limited extent, infiltrates: round, lobular, cloud-like infiltrates

- Widespread infiltrates: Lobito, peritsessurit, caseous pneumonia.

Infiltrates limited length often asymptomatic or oligosymptomatic, but may have an acute course.

The main symptom of limited infiltration are of little or moderate symptoms of intoxication, against the background of a gradual or rapid increase is a cough, usually morning, not strong. Later there is a selection of mucous or muco-purulent sputum. More rare sign of limited infiltration - hemoptysis and chest pain, are not closely related to the distribution process to the pleura. An objective examination of the overall condition of the patient relatively satisfactory. General weakness, reduced

disability due to intoxication can be accompanied by paleness, a little underweight, adynamia, unstable temperature in the evening. Above the light in the affected areas - percussion sound is shortened (in the size of infiltrates more than 4 cm) can be determined auscultatory weakened breathing, in the presence of decay listened finely nezvuchnye rales, usually at an altitude of breath associated with the collapse of cheesy tricks.

**Clinical symptoms** of the disease in these cases may resemble SARS hospital, focal pneumonia, sometimes intoxication of unknown etiology, vegetonevroz, kardiotonzillyarny syndrome.

Limited infiltrates are characterized by high or tuberculin sensitivity normoergicheskoy not marked changes in peripheral blood. In sputum can be detected by the ILO, mainly by planting associated with the decay in the infiltrates.

Radiographically detected in the subclavian areas of low intensity round shade with homogeneous or central brightening

with clear contours, rounded infiltrate. Inhomogeneous with a central shadow brightening associated with the root of the lung, are a reflection of lobular infiltrates, they do not have clear contours. Larger, irregularly shaped, low-intensity shadows, without clear contours with the rapid emergence of multiple radiolucencies characteristic oblo kovidnyh infiltrates. By X-ray film oblo kovidnye and lobular infiltrates resemble pneumonia. Rounded infiltrates differentiated from the disease appears in a circular shadow of lung echinococcus, peripheral cancer aspergilema, benign tumors, cysts, and others filled with

For more widespread infiltrates the acute onset or gradual increasing symptoms. In addition to expressing simptomakompleksa intoxication, there is a cough with phlegm. Can be attached chest pain, recurrent hemoptysis and pulmonary hemorrhage, the temperature more constant and high.

An objective examination of the patients indicated moderate or severe symptoms of intoxication with fairly severe underweight, pallor. The chest on the affected side often lags behind in the act of breathing. Percussion sound over the zone of destruction shortened auscultation auscultated impaired vesicular, bronchial or breathing hard. More often than the limited infiltrates, listened wheezing, usually finely, nezvuchnye. Tuberculin sensitivity is usually normal and hyperergic in sputum are often found simply by MBT - bakteriskopiey. In the peripheral blood picture characteristic features of tuberculous inflammation, leukocytosis unspoken, not correlated with increased sedimentation rate, easy shift leykoformuly, often with severe leukopenia. On X-ray broad, medium intensity, shade, occupies a lot, not homogeneous, with areas of clearing or shaped cavity, sometimes with sharp bottom

contours in interlobar gap, characteristic of Lobito. The presence of extensive shadows with the presence of enlightenment, there is a clear path from one side is typical for peritsissurita.

Differentiate these forms of TB need to protracted pneumonia.

A peculiar pattern differs caseous pneumonia, characterized by acute within the temperature to 39-40C, expressed intoxication. Characteristic are the big difference between night and morning condition of patients, lower morning temperature do35S. Cough pronounced, sometimes paroxysmal, with up to 100.0 ml of sputum yellow, sometimes the number of sputum s more.Above the light variegated rales are heard, often sounding. Grow fast weight loss, shortness of breath, observed marked changes characteristic of acute inflammation in the peripheral blood.

The characteristic is negative anergy in setting the Mantoux test, the detection method of the Office of microscopy. The process is progressing rapidly, which manifests itself radiologically affected area expansion, the formation of multi-round destruction, involvement in the process of the opposite lung, which also formed the sharp degradation. Patients often caseous pneumonia die from profuse bleeding, pulmonary or steady progression to the development of cardiopulmonary failure.

**Complication** of infiltrative tuberculosis could be pleurisy, pulmonary hemorrhage or hemoptysis, spontaneous pneumothorax.Progressive course process and the complications lead to increasing respiratory distress.

**Outcomes** of infiltrative tuberculosis with early detection and disease-favorable.When the focal caseous infiltration resolves centers dehydrated and compacted calcined, causing the exodus fibronodular tuberculosis.Small caseous foci may resolve completely or formed a limited fibrosis.

Late diagnosis and inadequate treatment of infiltrative tuberculosis, especially in long-haul process, and the presence of cavities formed ends adverse outcome, or the formation of cavernous fibro-cavernous tuberculosis and cirrhotic.Adverse outcome is the formation of tuberculomas type Kase, partly as a consequence of encapsulation kazeoza compacted.

Because in today infiltrative tuberculosis is 42-50% of the new-onset pulmonary tuberculosis and proceeds subpattern of various diseases of broncho-pulmonary system, GPs will often be confronted with this form of tuberculosis.Unfortunately, often against the expressed and quite characteristic clinical manifestations of infiltrative tuberculosis put GPs misdiagnosed and therefore not applying the correct treatment strategy. This contributes to the progression of infiltrative tuberculosis of late diagnosis and frequent adverse outcomes. Diagnostic

errors are associated more often with incorrect identification of Interpretation and the lack of anamnestic data, insufficiently thorough study on sputum for the Office, untimely use of fluorographic study. Widely used in medical therapy of rifampicin, streptomycin, kanamycin, obladayushim broad antimicrobial action Spector, disguises the disease, which leads to late diagnosis and also reduce the effectiveness of the treatment of infiltrative tuberculosis.

## **Tuberculoma**

Under tuberculoma imply radiographically isolated, round, encapsulated TB education, more than 1 cm in diameter, with a distinctive clinical and anatomical picture, course and outcome, distinguishing them from other forms of tuberculosis.

The term "tuberculoma" was first proposed and Yakobeusom Keyem in 1921, when a patient with surgical intervention instead of Probable "neoplasm," the upper lobe of right lung were found a dense rounded education tubercular character they called tuberculoma.

Later Assman (1925), without resorting to the term describes a kind of clinical and radiological form of pulmonary tuberculosis, which he called an early round or round infiltrate infraclavicular infiltrate.

In 1954godk LK Bogush based on a study about rezitsirovannyh tuberculomas easy to see that Most of tuberculomas consists of "pure" kazeoza more or less encapsulated.Kazeoz can be homogeneous, layered or a conglomerate of fused cheesy foci, but either way it's entirely kazeinfitsirovannye foci of inflammation, which the author calls "kazeomami" (not referring to him filled cavity).

The term "kazeoma" fully justified, reflecting the morphological structure of many types of tuberculomas and used as otechestveenymi and foreign authors (VP Schadrin, AV Alexandrov, KV Pomeltsov, MA Vilderman, MM Auerbach, A. Dubrovsky, IV Vigdorchik, etc.).

**The pathogenesis of tuberculoma is different.**

Tuberculoma may be on the ground to form a primary, secondary and most forms of pulmonary tuberculosis, both during treatment or by other methods (antibiotic therapy, collapse therapy), and without any therapy.

Most often are the result of tuberculoma involution infiltrates, predominantly type Assmann,.Dynamic X-ray observation of these patients makes it possible to

trace how the resolution of inflammatory changes around the perifocal infiltrations. Shadow of the focus becomes more intense, the contours become clear outlines. Later heterogeneity is the shadow of the hearth at the expense of the ongoing transformation of its fibrous. "Track" to the root of the lung, which is often observed in the presence of infiltrates in the early phases of development and due to the peribronchial and perivascular inflammatory changes take the form of a linear tyazhistosti. Determined by not drawing shadows around focal infiltrates are outlined, assume the character of indurirovannyh lesions.

Often observed the formation of tuberculomas on the background of focal and disseminated pulmonary tuberculosis (GR Rubenstein, Fisher). In such cases, the formation of both single and multiple tuberculomas. Formation of tuberculomas on the basis of focal and disseminated pulmonary tuberculosis is through the development of perifocal inflammatory changes around the pockets and then merge them. Next is the restriction of infiltration, the contours of the defeat became clear. Less common form tuberculoma

of pulmonary tuberculous primary component of the complex. Dynamic X-ray observation registers a decrease of pulmonary focus that is becoming more intense and gets hard edges. Over time, the X-ray determined by a large fireplace rounded, often with inclusions of lime salts.

Tuberculoma may occur on-site cavity by gradually fill the cavity after the obliteration of the draining bronchus (psevdotuberkulomy TN Oleneva, KV Pomeltsov).

However, the principal in the development and course of tuberculomas is no center - the source of infection and not his character, and the immunological status of the surrounding tissue, the presence in it of a number of antibodies with high sensitivity and specific reactivity of the tissues of the body to the antigens and toxins of tubercle bacilli.

Tuberculoma in people with high sensitivity to tuberculin (allergic giperegricheskogo character) - expressed in tuberculin skin reaction to the high dilution of tuberculin reactivity and high lung tissue that is characterized by specific resistance and the body.

In.L. Eynis (1937) and GR Rubenstein (1954) note that allergizirovanny body often provides a good condition and suitable for the disease, which suggests the possible existence of such a body good immunity. Ohlig (1956) writes that only on the basis of immunity can be understood demarcation of such a mass kazeoza which is in tuberculoma.

## Classification tuberculomas.

Based on the anatomical study of 375 MM tuberculomas, Auerbach gives the following classification of the main types of tuberculomas of the lungs.

Tuberculoma:

1.Filled cavity

2.Infiltrative-pneumonic

3.Kazeomy:

A)Solitary hematogenous

kazeoma

B) Conglomerate tuberculoma

B)Layered kazeoma (True tuberculoma)

1.Infiltrative-pneumonic tuberculoma type of radiograph is relatively round, the focus of inflammation is not delimited capsule, but rather simply a clear zone of demarcation of the affected area and healthy tissue.

Microscopic examination determined deskvamatsionno - necrotizing pneumonia, sometimes with exudative component, with small

kazeoza sites. Constitute the bulk of the productive areas of tuberculous pneumonia, or portions of the field kornifikatsii resorption of necrotic masses and exudates with multiple sclerosis lung tissue.

2. In the framework of kazeomah cherko limited focus caseous pneumonia. Kazeoz always totally absorbs all the inflammatory changes of lung tissue all the way to the capsule chamber.

Microscopically in the centers of all sizes are stored in a greater or lesser extent, the remnants of connective tissue framework of entire lung lobes - elastic fibers and ogrirofilnaya veolyarnyh network boundary walls. Consequently, kazeomy - caseous foci of pneumonia with different limitations. Prescription process, phase it affects the character kazeoza, which can be more compact and dry, even omelotvorennym or

vice versa, the molten liquid. Genesis Development kazeomy may be different, which makes their anatomy is not the same as:

a) the type of solitary tuberculoma macroscopically homogeneous kazeomy has the form of a rounded or oval focus kazeoza often irregularly rounded, but usually with very conspicuous rough capsule.

In kazeoze can be included - calcification and caseous foci older, but no concentric layered structures. The capsule is usually the source-layer, with a wide outer fibrous layer, often gialinizirovannym, and its inner layer is composed of epithelioid tissue with the presence of giant cells Pirogov - Langhans.

Around this kazeomy often have productive land and shallow fibrous scarring, some small foci, areas of atelectasis or emphysema, lung lobes, giving the impression of demarcation, remitting and progressive caseous pneumonia encapsulate the focus outside the capsule while preserving traces of the former once more in terms of the focus of tuberculous inflammation.

b) the tuberculoma type konglomeratnoy kazeomy macroscopically in the lung tissue is given a whole round, oval or irregularly shaped focus kazeoza, often with scalloped shape, surrounded by a common capsule. Inside tuberculoma seen multiple foci kazeoza have merged into a cheesy conglomerate. Often conglomerate kazeoma develops against the background of focal dissemination.

c) the tuberculoma type layered kazeomy characterized by the fact that it kazeoz macroscopically, and sometimes on the radiograph has concentric layers on the similarity of the layers visible in a cross section of a tree. Layered kazeoma growing opposition, the waves, by adding more and more "cheesy Rings." In a layered kazeome may be a more centrally located old hearth, around which develops layered structure.

On microscopic examination, we can see that among caseous pneumonic-modified layered tissue caused by the presence of alternating circularly arranged kologenovyh fibers, between which is usually the particles of coal dust, and sometimes the lumps of lime.

A distinctive feature of layered Kase is usually very thin capsule, which delineates the border as it kazeoza and separates it from the unaffected lung tissue, unless, of course, around kazeomy no perifocal exacerbation of the process.

3. Tuberculoma type cavity is filled with the usual outcome of the cavernous pulmonary tuberculosis, as a result of blocking the outlet bronchus.

Macroscopically, the cut this round tuberculoma can be seen with well-defined cavity walls filled with a thick or pasty mass or residual kazeoza, slime, clotted

lymph. Microscopically contents of the cavity are the remains have never elastic or other fibrous stroma of the lobules of the lung, typical kazeomy.

Clinical - radiological syndrome and the outcome of the filled cavities is similar to those of caseous tuberculoma-pneumonic, which is the basis to assign them to a tuberculoma.

**Clinic.** Tuberculomas during cyclical in nature. They are a long time on me can remain stable, does not clinically manifested. However, various factors Pu: s abolevaniya. Injury, changes in immuno-biological condition of the body - leading to activation of tuberculomas. More often observed in the first progression of their existence. At the same time has a value of tubercles and their morphological structure. Subject to decay predominantly large tuberculoma containing mainly kazeoz. Tuberculoma small size, representing the plot thickened tissue, tend to further decrease. Perhaps in some cases complete disappearance of these tuberculomas or turn them into small fibroznoochagovye shadows. In some cases, the decaying tuberculoma prolonged antibiotic therapy leads to scarring and closure of a cavity and cure of tuberculosis.

The disease is often asymptomatic or malosimtomno. B Aulnay may mark the emergence of temporary weakness, fatigue, loss of appetite and slight loss in weight, small and non-constant temperature (up to 37,1-37,3).

The physical data may not be. Some of the patients complained of slight cough, mostly without phlegm and spitting on rarely, some patients have chest pain, especially when coughing. For percussion of the chest just under significant tuberculoma may be noted a limited, but a moderate blunting percussion sound muting. Auscultation is usually not possible to chat noted a sharp change in breath sounds and presence of wheezing. But the overwhelming majority of patients the marked and striking biological samples Mantoux tuberculin in the introduction (hyperergic character).

Progression of degradation and the formation of tuberculoma are accompanied by clinical illness. There is a cough with sputum production, hemoptysis may. Over the area defined by a shortening of tuberculomas of percussion sound, can listen rales.

Changes in the blood are usually limited to a slight decrease in Hb, stick-to moderate nuclear shift to the left, a small acceleration of the ESR.

If there is no decay and no large tuberculoma, BC found in the sputum is very rare. With the progression of the process and the phenomena of degradation of sputum contains BC.

Puncture and subsequent cytological studies clarify the nature of the wall located at tuberculoma.

**Of great importance in diagnosis has x-ray.**

X-ray picture tuberculomas, and varies neodnotipna. This occurs because patients, particularly those coming to hospital, almost as a rule, there are acute phase of the process, the morphological and radiological picture is very diverse. In addition, a different pathogenesis and the morphological structure of tuberculomas can also lead to their different tissue mapping. At the same time, however, in their X-ray image and a lot of common characteristics.

X-rays in the lung tissue determined by the limited processes. For them, typically the presence of isolated large pockets, large foci or areas of compression of lung tissue.

The value ranges from tuberculomas 1 to 6 cm are the most common medium size tuberculoma 0.2 to 4 cm. tuberculoma are single and multiple. Large and medium-sized tuberculoma are more often single.

In the overwhelming cases of tuberculoma mostly located peripherally, are they in cortical divisions I, II, YI segments of lungs, in the vicinity of interlobular fissures, or segmental boundaries. For a typical tuberculoma is not correct, non-uniform rounded shape of the shadows.

The decay of tuberculomas are the following features:

- 1) cavity in tuberculoma is determined eccentric, often near the draining bronchus.
- 2) The cavities are irregular in shape in the form of small or marginal crescent buhtobraznyh sites enlightenment.
- 3) They are surrounded by non-uniform wall thickness due to different masses of the decaying tuberculoma.
- 4) In buhtobraznyh ledges cavities can be observed old calcifications.
- 5) Sometimes cavities contain sekvstropodobnye inclusion able to mix with a change of the patient.
- 6) Often the decay can be melkofokusny and multiple character as a separate short light stripes or small rounded radiolucencies located within the expanded lumen of the bronchi tuberculomas affected panbronhitom cheesy.
- 7) Changes the shade of a mesh and a focal character.

**Differentsialnaya diagnosis** is often difficult tuberculomas due to their resemblance to various X-ray spherical formations in the chest and lungs.

They are rounded tuberculous infiltrates, peripheral lung cancer, sarcoma lung metastases in the lung, non-parasitic cysts, cysts of a parasitic origin, ehinokok.

**Treatment of tuberculomas.** Treatment begins with tuberculoma of the combined therapy the main TB drugs but the background of bracing and desensitizing means.

Patients in the absence of the tendency to regress tuberculomas within 4-6 months of starting treatment and the presence of decay in the tuberculoma shows the surgical treatment. If there are no signs of deterioration and tuberculoma is not accompanied by symptoms of intoxication, the issue of surgical treatment occurs only when the tuberculoma more than 2 cm in diameter.

Patients who are unable to continue their professional activities in connection with active tuberculosis (teachers, childcare workers, etc.) is also recommended surgery.

Prognosis of patients with pulmonary tuberculoma early detection and proper treatment in the majority of cases favorable. The effectiveness of surgical treatment reaches 98-99%.

## Lecture # **Cavitary tuberculosis**

Characterized by the presence of elastic cavity without perifocal inflammation and lesions without dropping out. This form occurs oligosymptomatic, often with no common symptoms and are diagnosed easily if the patient is tracked during the formation of cavities.

Cavity - is a pathological cavity bounded by a three-layer capsule, the inner layer of which consists of neotorgnuvshihnya cheesy masses, the middle layer - the layer of specific granulations, the outer layer - the fibrous layer.

Characterized oligosymptomatic course:

A slight cough with little phlegm. In bronchial lesions sluyaayah tuberculosis cough increased.

The scarcity of data percussion and auscultation

### **Differential Diagnosis**

Abscess - a cavity delimited pyogenic capsule

Cysts of the lung.

Encysted pnevmoplevrit

Narrow pneumothorax

Bullous emphysema

Bronchiectasis

Lung cancer and other

Complaints to:

weakness  
loss of appetite  
chest pain,  
night sweats  
fever

Have been reported in patients identified for the first time already in the formed cavernous tuberculosis

### **Treatment**

In the intensive phase for 2 months a combination of 4-TB drugs, then

In the maintenance phase for 4 months with two drugs

With the ineffectiveness of therapy for surgical treatment.

## **Fibro-cavitary tuberculosis**

Of great importance in the epidemiological situation of tuberculosis are chronic destructive forms of pulmonary tuberculosis, which are the final step in the progressive course of destructive tuberculosis. Patients with these forms of TB are the main sources of the spread of TB infection, as patients with fibro-tuberculous pulmonary tuberculosis may be a day to allocate 1 billion mycobacteria.

During the period of relatively good epidemiological situation of tuberculosis in the structure of newly diagnosed chronic destructive processes were likely, whereas in a worsening epidemiological situation, their share had risen to. The reasons for this lie in the late diagnosis of tuberculosis, a lack of effectiveness of TB control activities obschelechebnoy network. The absence of "TB suspicion" among physicians, leading to errors in diagnosis of early forms of tuberculosis in patients attending a polyclinic establishments in connection with which the process progresses and new cases are diagnosed fibro-cavitary tuberculosis.

Fibro-cavitary tuberculosis - clinical form avtorichnogo tuberculosis, characterized by the development of single or multiple cavities with fibrotic changes and focal grubymifibroznymi dissemination in the surrounding tissue with a chronic undulating course.

### **Pathogenesis and pathology of fibro-cavernous pulmonary tuberculosis**

The main reasons for the development of fibro-cavernous tuberculosis are late diagnosis of destructive tuberculosis, inadequate, unsystematic, prerivistaya therapy

of early forms of tuberculosis in the phase of destruction. Developing in cases of drug resistance etih Office, poor tolerance of chemotherapy, comorbidity tends to strengthen the destructive changes in the lungs. The starting point for fibro-cavernous tuberculosis forms are usually cavernous tuberculosis, widespread infiltrates with decay, disseminated tuberculosis in a phase of disintegration. However, in the absence of control and treatment of fibro-cavernous tuberkulezmozhet developed against the background of the source process from collapse.

Lung, the affected fibro-cavernous tuberculosis, reduced in volume, the fabric is compacted, utolschyaetsya pleura, sometimes reaching 1-1.5 cm

Pathological pattern of fibro-cavernous tuberculosis characterized by the presence of one or both lungs of one or multiple cavities, located on the background of fibrotic changes in lung tissue. Kafern wall has a characteristic three-layer structure with a distinct fibrous outer layer, middle layer of the specific granulation and irregularly marked caseous necrotic inner layer. The inner surface of the cavities can be "a beam", which are obliterated vessels traveling through the cavity. Around the cavity are marked acinar or lobular foci of bronchogenic dissemination, due to the spread of sputogennym Office, for the same reason develop specific endobronity in violation of the drainage finktsii bronchi.

With further progression of cavities around the area appears perifikalnogo inflammation in the form of polymorph of pneumonia, may occur acutely emerging from the collapse of the cavity formed by the wall and badly pronounced zone of bronchogenic seeding. Remission process characterized by an increase in pulmonary fibrosis, around large vessels, bronchi and pleura. In addition to the fibrosis areas appear emphysema.

Violation of the drainage function of bronchi creates for the development of bronchiectasis predposilki cavities. Fibrosis is accompanied by obliteration of the vessels of the lungs, their lomnokstyu. Reduced pulmonary vascular bed creates the preconditions for the development of hypertension in the pulmonary circulation.

A variety of morphological changes in fibro-cavernous tuberculosis causes and manifestations of this diversity klinichshskih TB. Fibro-cavitary tuberculosis - a common disease of the body, accompanied by profound metabolic disorders, vitamin deficiency. Impaired function of respiratory and circulatory obuslavlennye prevalent irreversible changes in the lung, tuberculous intoxication is accompanied by marked impairment of the adrenal cortex, motor and secretory finktsii stomach. Violations of the metabolic processes leading to morphological changes in other organs, provide for the development of amyloidosis predposilki internal organs.

### **Clinic fibro-cavernous pulmonary tuberculosis.**

Clinical features of fibro-cavernous tuberculosis determined by the length of protsessai character changes in the lungs, as well as the phase of the process.

There are three main types of clinical course of fibro-cavernous pulmonary tuberculosis:

- 1) limited otnositelno stable fibro-cavitary tuberculosis
- 2) progressive fibro-cavitary tuberculosis
- 3) complicated fibrous-cavernous tuberculosis

Narrow fibro-cavernous tuberculosis of the stability of flow is a reflection of the limited process with individual cavities and severe fibrotic changes in the lung. Such processes are often observed in patients under the supervision of health centers and subjected to prolonged chemotherapy. For this form of fibro-cavernous tuberculosis characterized by long, persistent remission and exacerbation of rare easily stopped.

In remission, these patients seem quite healthy, no complaints. An exacerbation of the process there and gradually increase the symptoms of intoxication, cough, sputum appears scanty, purulent gradually acquiring the character. Acute exacerbations may occur not expressed objective symptoms of intoxication: pallor, defetsit weight. The chest on the affected side is lagging behind in the act of breathing, severe deformation is not observed. Percussion over the zone of destruction of lung sound is shortened, weakened breathing on auscultation may hear nezvuchnye wet and dry rales unit. In sputum revealed the ILO, a positive tuberculin sensitivity. Marked changes in peripheral blood are not marked may be a small leukocytosis, accelerated erythrocyte sedimentation rate.

Progressive fibrous-cavernous tuberculosis observed in patients with poor tolerability himiopreperatov, with the presence of drug resistance in the Office, as well as short-term intermittent chemotherapy. In these patients, remission of short, acute, frequent, poorly treatable. During periods of remission in these patients remains a cough with scanty sputum, dry, deformity of the chest. An exacerbation of these forms of fibro-cavernous tuberculosis observed symptoms of intoxication growing with increasing temperature up to 38C and above, weakness, loss of appetite, weight loss and disability. Patients are disturbed by cough, chest pain. May appear hemoptysis and shortness of breath. An objective examination is determined by paleness, weakness, underweight, and tachycardia. The chest on the affected side uploshena, lags in the act of breathing from healthy. When percussion is found shortening of percussion sound, but about large cavities and rigid-box sound. Auscultation auscultated weakened or bronchial breathing, local wet and dry rales "squeak of the cavern," "creaking carts." Over large cavities and caverns Huge defined bronchial or breathing amforicheskoe. In these patients - a low A / D, tachycardia, accent II tone of the pulmonary artery. With the steady progression of tuberculous protsessa.v legkihpostepenno develops the characteristic appearance of patients.

For progressiruyushih forms of fibro-cavernous tuberculosis is characterized by constant and massive bacterial, the presence of drug-resistant MBT. Tuberculin chuvstvelnost reduced. in the peripheral blood does not occur, may be small leukocytosis, accelerated erythrocyte sedimentation rate. In the peripheral blood observed, leukocytosis with a marked left shift, a significant acceleration of the ESR, may be signs of anemia.

Fibro-cavernous tuberculosis complicated course characterized by a peculiar course of the clinical manifestations caused by the nature of complications. The most frequent complication is legочно́ недостатоchnist heart which is based on irreversible changes in lung and heart lrgkih. Depending on the compensatory mechanisms klinitseskie complications characterized by shortness of breath, gradually increasing tachycardia, followed by the appearance of arrhythmias, edema of the extremities. Objectively - acrocyanosis, over easy or shortening mozaichnistperkutornogo sound on Huge caverns - korobotsny sound. Auscultation listened Diverse wet and dry rales, amforicheskoe breath. Borders of the heart are shifted toward defeat, accent II tone of the pulmonary artery, the voiceless heart tones.

With the development of amyloidosis of internal organs with renal disease develop symptoms of renal nedostapochnosti, uremia. Especially renal amyloidosis often develops in recent years, due to the increase prodolzhitelnpsti life of patients with fibro-cavernous pulmonary tuberculosis. The appearance of such patients is characteristic of renal disease: pallor, puffiness face, swelling.

With the steady progression of the destructive process in the lungs leading complication may be pulmonary hemorrhage and hemoptysis. Often they are repeated heavier condition of patients. At the clinic progressive fibro-cavernous tuberculosis superimposed manifestations of anemia.

Diagnose fibro-cavernous tuberculosis is relatively easy: a chronic fluctuating course, increasing intoxication, increased pulmonary symptoms, the characteristic deformation of the chest, dry and moist rales nezvuchnye various sizes against a background of impaired breathing, and amforicheskoe breath sounds like "cheep cavity", "creaking carts "allow zapodozret fibro-cavernous tuberculosis, which is easily confirmed by the ILO in smears of sputum, characteristic X-ray picture. On radiographs in one or both lungs revealed nepravilnoz form ring-shadow-intensive broad outline, with clear periods of remission and fuzzy in exacerbations. In the surrounding lung tissue coarse fibrous strands, perivascular and peribronchial fibrosis, polymorphous lesions, mediastinal shift toward pathology and reduced lung field on the side of lesion, the deformation and smartness of the roots of the lungs to tighten and strain shadow of the diaphragm finally confirmed the diagnosis of fibro-cavernous pulmonary tuberculosis.

In the process of complication of spontaneous pneumothorax appears enlightenment, often in the lower-lateral parts of the chest. In the process of complication of pleural empyema is determined by the level of the liquid. The emergence of a broad zone of perifocal inflammation around the cavities appears inhomogeneous average intensity of the shadow, the outlines of the cavities clearly undetectable, but signs of a chronic process confirms the diagnosis of fibro-cavernous tuberculosis. In the absence of the ILO in the sputum diagnosis is confirmed by bronchoscopy, revealing signs of

specific endobronchitis. Differentiate between fibro-cavernous tuberculosis have a chronic abscess, bronhoektoticheskoy disease pnevmomikozami.

Outcomes of fibro-cavernous tuberculosis depend on the nature of treatment. In the best case - a scarring of the cavern, which is marked by persistent 12.9 months of drug therapy in 8-20% of patients. Favorable outcome are resistant state and remission after successful surgery such as brow-, pulmonektomii. Unfavorable outcome is considered in cirrhotic patients, and death.

# Cirrhotic pulmonary tuberculosis

**Cirrhotic tuberculosis** - clinical form of secondary tuberculosis, the development of marked fibrosis harakterizuyasya changes in the lung with preservation of slit-shaped and encapsulated foci of cheesy and chronic undulating course.

Cirrhotic tuberculosis - an unfavorable outcome of fibro-cavernous tuberculosis, spread of infiltrative tuberculosis with collapse and chronic disseminated tuberculosis. Sometimes cirrhotic tuberculosis develops on the basis atelectasis associated with tuberculous

process. Prolonged, inadequately treated exudative pleurisy, pnevnoplevrity with spontaneous pneumothorax and infectious bronchitis are the cause of pleurogenously cirrhotic tuberculosis.

Cause of excessive fibrosis in the lungs is unclear. It can be:

1. neratsionalnoe use of anti-TB drugs

(Streptomycin, kanamycin), leading to the development of sclerotic changes.

2. increased collagen production associated with increased activity of fibroblasts.

3. Organization of exudate in the alveoli.

4. spadenie alveoli.

5. violation of the drainage function of bronchi, blood and lymph circulation, the lung tissue hypoxia and its trophic disturbance.

6. violation of immunobiological ragulyatsii collagen.

Mechanisms of development of fibrotic changes in the background tuberkulrznogo inflammation are diverse. Most often it is:

1. fibrotic transformation TB granulation tissue.

2. organization of small pockets of cheesy.

3. kornefikatsiya lung in areas of inflammation.

4. the development of peribronchial sclerosis.

5. alteration of interstitial tissue in the course of lymph vessels and krovenostnyh.

6. sclerotic areas of atelectasis in the lungs.

7. violation of the surfactant in the system, which andiateroskleroticheskim factor.

Cirrhotic tuberculosis may be unilateral and bilateral, total, limited or diffuse.

Easy, struck cirrhotic tuberculosis, reduced in size, covered with thick, sometimes up to 1-1.5 cm, pleura, dense to the touch. Pathological pattern of cirrhotic tuberculosis characterized by the development of lung fibrosis rough, sealing the lung tissue against which determined bronhoektoticheskie cavities of various sizes, deformed and partially sclerosal bronchi, with evidence of active tuberculosis and nonspecific inflammation, arterio-venous apostolyudy, obliteration of the vessels of the lungs. Between areas of fibrosis sohraryayutsya slit cavity with no signs of progression, sites of bullous emphysema, tuberculosis encysted foci of varying degrees of activity.

Reduction of pulmonary vascular bed causes the development of pulmonary heart disease, which, together with the irreversible changes in the lungs, creates the basis for the development of cardiopulmonary failure.

The prevalence and nature of morphological changes in the lung determine the clinical course of cirrhotic version of TB. Allocate 5 clinical variants:

1. Narrow cirrhotic tuberculosis oligosymptomatic flow.
2. Delimited or common cirrhotic tuberculosis with frequent exacerbations.
3. Cirrhotic tuberculosis with bronchiectasis, hemoptysis and pulmonary reseediviruyuschimi bleeding.
4. Cirrhotic pulmonary tuberculosis and pulmonary heart failure.
5. "The destruction of light" with the progression of tuberculosis.

Morphological basis of a limited cirrhotic tuberculosis oligosymptomatic are over segmentanye and equity processes. They are characterized by long remitsstiyami hemoptysis and rare relapses. During the period of remission or disease chen not manifest itself. An exacerbation of cough observed with scanty sputum, low-grade fever may be hemoptysis. Percussion over the lesion is determined by the blunting of pulmonary sound, auscultatory, or bronchial breathing hard, wet melkopuyrchatye wheezing. In sputum can be detected by the Office. Positive tuberculin sensitivity. Changes in the hemogram neynachitelnye.

Cirrhotic tuberculosis with frequent exacerbations characterized by short remissions exacerbation difficult to treat. Aggravation caused by the activation of tuberculosis or nonspecific infection, the clinical features are: quite often there was aggravation associated with activation of both the Office and non-specific flora. Clinic of this form is characterized by increasing respiratory distress, fever up to 38C and more, sweating, weakness, cough, sputum production. The affected side of the chest or departments are lagging behind in the act of breathing, the sound of percussion over them shortened, auscultatory-by weakening or bronchial breathing, crackles are heard, a large number of dry and moist rales. The severity of the reaction temperature, amount and nature of wheezing, sputum quantity and nature determined by the nature of inflammation: a specific or nonspecific e. In sputum is not always defined by the ILO, as bronchopulmonary drainage impaired.

For diagnostic purposes, and the differential diagnosis often is passed to resort to bronchoscopy, which has significance for the renovation of the bronchial tree. The nature of changes in bronchial biopsies of the mucous, the study smears and washings from the bronchi to allow BC to clarify the diagnosis. Tuberculin sensitivity and changes in the peripheral blood of these patients have no diagnostic value.

Cirrhotic tuberculosis with bronchiectasis, recurrent hemoptysis and pulmonary hemorrhage, with the features of previous phases of cirrhotic tuberculosis, is characterized by several features:

1. Development of relapse due to non-specific infection and pneumonia-like.
2. Repeated hemoptysis, and bleeding with subsequent aspiration complications.

3. The manifestation of a process of progressive tuberculous inflammation clinic.

As hemorrhage and progression of tuberculosis, often pose a threat to the patient's life.

Cirrhotic tuberculosis to the development of pulmonary heart disease and pulmonary heart failure is a manifestation of total unilateral cirrhosis. The leading symptom of the disease is increasing shortness of breath. Objectively marked cyanosis, tachycardia, muffled heart sounds or voiceless, can be determined systolic murmur at the xiphoid process (more in the prone position). Appear periodic edema, increased liver, the late manifestation of the disease is the ascites, but most prevalent pulmonary insufficiency.

"The destruction of light" with the progression of tuberculosis is characterized by a total defeat of one lung dissemination in the opposite lung. Clinically observed a steady progression of the disease with constant ymi periodically growing, symptoms of intoxication and respiratory failure. Cough, sputum stored permanently, periodically amplified. There may be hemoptysis and pulmonary hemorrhage. Objectively characterized by: severe assimetriya chest, mediastinal mixing in the affected side. Bronchial breathing or oslablennovezikulyarnoe a lot of dry and moist rales, periodically increasing. Patients die as pr Awilo against the background of cardiopulmonary diseases, progressive amiloidiza internal organs.

X-ray picture cirrhotic tuberculosis is characterized by a decrease in volume of the affected lung, intense, inhomogeneous shadow corresponding to the length and location, blending into the shadows sredosreniya the affected side, and tighten the strain of the root of the lung, which often are not differentiated on the background of the shadow of the main process, the rise of the diaphragm, there is bronchogenic dissemination centers and sometimes focal shadows and cavities in the opposite main process easy. This form of cirrhotic tuberculosis is characterized by reduced tuberculin sensitivity, and constant masssivnym bacterial expressed leykoformuly shift to the left, high ESR and persistent acceleration pronounced leukocytosis.

Cirrhotic tuberculosis, as the outcome of other forms, in the course of treatment can result in persistent stabilization of the process, but leads to unusually patient's death, if time were not taken radical strain.

Thus, chronic destructive forms of pulmonary tuberculosis, characterized by widespread irreversible changes in the lungs, often pose a threat to the life of the patient and difficult to conservative therapy.

In this regard, the focus must be prevention of tuberculosis, which consists of early detection and adequate treatment of pulmonary tuberculosis.

## Lecture # 8 Tuberculous pleurisy

**Tuberculous pleurisy** - is characterized by acute, subacute and chronic tuberculous inflammation of the pleura, followed by exudation into the pleural cavity. It can develop in a period of both primary and secondary infection. This is often a complication of clinical forms of pulmonary tuberculosis primary tuberculosis complex, tuberculosis of intrathoracic lymph nodes, disseminated tuberculosis. Sometimes accompanied by pleurisy and focal infiltrative tuberculosis. Along with effusive pleurisy may be a separate disease with no visible damage to other organs, as the first clinical manifestation of tuberculosis infection in the body. Pleurisy can be a complication of spontaneous or artificial pneumothorax.

### **Pathogenesis and pathological anatomy**

#### **tuberculous pleurisy:**

Isolated by the pathogenesis of tuberculosis of the pleura, and perifocal allergic pleurisy.

With massive bacteremia in the period of primary or secondary tuberculosis infection, the tubercle bacilli lymphogenic or hematogenous route to reach the pleura. In the development of the inflammatory response of the pleura is also important to hypersensibilization pleural tuberculosis infection. In these cases developed tuberculosis of the pleura itself with specific morphological changes in the pleura in the form of:

- 1) Multiple dissemination with the formation of small, often milliary lesions.
- 2) Single large foci of caseous necrosis with the elements;
- 3) Extensive caseous-necrotic reaction.

The latter scenario is characterized by particularly severe, accompanied by the development of purulent exudate and formation of bronchial fistulas and bronchopleural fistulae. However, this variant of tuberculosis of the pleura may be the result of the breakthrough of the cavity into the pleural cavity and bronchopleural fistula formation.

Specific inflammation of the pleura accompanied by accumulation of fluid, the nature of which depends on the type and severity of morphological changes in the pleura: serous, sero-fibrinous, sero-hemorrhagic, hemorrhagic, serous, purulent, putrid, cholesterol. And fibrinous exudate seroplastic characterized by a large amount of fibrin that is deposited on the pleural sheets and arranged in the form of pleural overlays. In such cases, the accumulation of free exudate in the pleural cavity is not observed, this is called a dry pleurisy (adhesive) and the formation of extensive pleural layers - plastic.

With the accumulation of free pleural effusion pleural effusion talking about. The most common variant of tuberculous pleurisy pleural effusion is the accumulation of serous effusion. When pleural effusion basic pathophysiological process of appearance and accumulation of exudate is an increasing flow of proteins and blood cells in the pleural cavity of th. Study the mechanisms of formation of tuberculous pleurisy possible to understand the immunological processes in tuberculous pleurisy. After phagocytosis of mycobacteria by macrophages, they become cells carrying the antigen. This information is derived T - cells, activating pleural macrophages. Interaction with macrophage T - lymphocytes, an important element in the formation of granulomas. Activated macrophages produce IL-1, which has an effect on the activation of lymphocytes. Lymphocytes, in turn, under the influence of mycobacterial antigens produce a significant amount of gamma - interferon. This cytokine increases the killer function of macrophages. Under the action of interleukin-2 is a process of proliferation of lymphocytes that accumulate in the pleural exudate. Thus, the appearance of pleural fluid lymphocytes with cytotoxic properties is the result of delayed-type hypersensitivity pleural serous membranes to proteins in mycobacteria.

When empyema in the pleural cavity of a large number of migrating under the influence of interleukin neytrofillov-VIII, which is synthesized in the inflammatory process involved in mesothelial cells and villi. Last line the surface of the visceral and parietal pleura and produce a substance that resembles in its morphological characteristics alveolar surfactant and makes it easy to slip surfaces parietal and visceral pleural sheets.

**Allergic pleurisy**, occurs in the period of primary tuberculous intoxication as an independent process or a complication of local forms of primary tuberculosis. Pleural inflammatory reaction characterized by pronounced exudative changes, non-specific tuberculous changes and due to pleural gipersensibilizatsiey Office and their antigens. Exudate in this embodiment, pleurisy, usually serous and accumulates quickly. The process can be developed, as in fresh infection, and chronic course of primary tuberculosis infection.

**Perifocal pleurisy** - as a rule is a result of involvement in the inflammatory process in the presence of pleural sheets of pulmonary tuberculosis: a focal, infiltrative, or cavernous. Particularly favorable factor in the defeat of the pleura is a subpleural location of pulmonary tuberculosis. This variant is characterized by pleuritis and exudative inflammatory response predominantly of the pleura. Perifocal pleurisy occurs against a background of moderate sensitization to common

The Office but with the local giperergii pleura. The nature of fluid in these cases is predominantly fibrinous or sero-fibrinous, and therefore the accumulation of

significant amounts of free effusion is noted. Perifocal pleurisy often occur as dry, plastic. Along with this, perifocal pleurisy can occur with the accumulation of quite a lot of fluid in the absence of pleural adhesions. Duration of exudation can be up to 4-6 weeks, followed by the formation of persistent pleural adhesions and the formation of fibrothorax.

The clinical picture of tuberculous pleurisy depends on the mechanism of development, severity and nature of exudate, as well as the localization process.

**Dry (plastic) or fibrous pleurisy** - is characterized by poor clinical symptoms, manifested a small general weakness, chest pain. Localization of pain depends on the location of inflammation in the pleura. With the defeat of peripheral (costal) pleura pain observed in the outer-sides of the chest on the affected, and sometimes on the opposite side. By nature, they can remind intercostal neuralgia, and for left-sided localization of angina and even myocardial infarction. With a deep breath and pressure on the intercostal pain I usually get relief. With the defeat of interlobar pleura in the spine at the level III-IV ribs or sternum in front of IV-VI, respectively, the edges are defined by pressing pain points. With the defeat of diaphragmatic pleural pain have shingles in nature, subject to the trapezoidal area and the shoulder muscles on the affected side. In some cases, quite often, pain in abdomen in right-sided pleurisy, simulating an acute attack of cholecystitis, appendicitis, renal colic, perforated peptic ulcer. The pain intensified by coughing, loud talking, deep breathing and after meals. In these cases, pain can be defined by pressure between the legs of sternoclavicular-axillary muscles or muscles at the intersection near the pectoral fins and the continuation of X (a symptom of Genotomsky) with mediastinal pleurisy as a result of involvement in the phrenic nerve appears sharp, quick passing, colicky pain in the lower chest, radiating to the abdomen associated with a convulsive contraction of the diaphragm. Bilateral in these cases can be mounted in the irradiate the heart and the esophagus, can be a positive symptom Genotomsky. When the apical pleurisy as a result of involvement in the process of nerve fibers cervical-brachial plexus, there is a picture of the shoulder girdle plexitis peripleksita and may be determined by tension and soreness of the upper sections of trapezoidal, pectoralis major and deltoid muscles on the affected side (a symptom Pottenger - Vorobiev).

In the acute phase of the process may be a rapid, shallow breathing, dry cough, caused by the involvement of the affected nerve endings in the pleura. If the cause of pleurisy is a lung process cough may be more pronounced.

In the acute stage of dry pleurisy patients lie on the healthy side, the affected side of the chest behind the act of breathing. When dry pleurisy mediastinal there may be inspiratory retraction of the jugular fossa, tracheal deviation to the affected side,

pulsating blood vessels at the edge of the sternum and the uneven pupils due to irritation or compression of the sympathetic trunk branches.

In the initial stage of dry pleurisy can be found only limited mobility of the lungs, weakening voice shaking. Later, there is blunting of pulmonary sound, voice tremor in the affected areas increases, auscultatory auscultated gentle or harsh crackling pleural friction rub. If you have a process in good light you can listen to krepetiruyuschie or dry rales.

In the peripheral blood in severe cases, a leukocytosis (up to 11000-12000), a moderate shift to the left leukoformuly, eosinophilia, accelerated ESR (30-40 mm / hour).

Radiographically in the early stages of dry pleurisy is defined a little intense darkening, mainly in the lower lung fields, due to accumulation of fluid above the diaphragm. After deposition of fibrin marked diffuse reduction in transparency Lower external part of the pulmonary fields in the formation of pleural adhesions on the affected side marked disturbance of mobility (lag) dome of the diaphragm, it takes shape and becomes unsharp uneven. Pleural adhesions formation may be a thin single or multiple sharply outlined shadows in the projection of the linear interlobular slots, which are best determined on lateral radiographs. When pleurisy paramediasternalnyh shadow superimposed on the projection of large vessels and heart, getting kind of fringe that covers the lung root shadow and contours of the vascular bundle. Diagnostics simplifies picture prosetstsa active in the lungs.

Pleural puncture is usually diagnostic value have not, but in some cases may be aspirated a small amount of serous fluid. Mantoux tuberculin skin test often normepgicheskaya and can not always confirm the tubercular etiology of pleurisy, so the diagnosis of tuberculous pleurisy is often used dry sample Koch.

Tuberculous pleurisy during dry torpid and prolonged, may relapse process.

Clinical picture of **exudative pleurisy of tuberculous** characterized by a variety of age-related cases, the nature of morphological changes in the pleura and lungs, and the localization of effusion in the pleural cavity, the general state of the organism and the degree of sensitization to its tuberculosis infection.

During tuberculous exudative pleurisy can distinguish three periods:

- 1) corresponds to the initial phase of exudation and accumulation of fluid - is characterized by rapid growth of all clinical symptoms and physical changes;
- 2) reflects the stabilization of the inflammatory process;

3) corresponds to the resorption of exudate and is characterized by the fading of the main clinical manifestations of disease.

Top of exudative pleurisy can occur as prodromal symptoms subfebrile temperature, general malaise, weakness, chest pain, dry cough. In other cases, there is an acute onset with temperature 38-39°C with severe chest pain, dry cough, tachycardia. With the accumulation of exudate in the pleural cavity of the pain subsides, develops increasing shortness of breath, sweating.

In some patients, the process can begin in the guise of an acute infectious disease, manifesting itself by vomiting, delayed stool, decreasing urine output, tachycardia, respiratory arrhythmia, high blood pressure. In what appears characteristic of pleurisy shortness of breath.

An objective study of patients with exudative pleurisy in the initial stage of the disease may be determined by pleural friction rub, which decreases the accumulation of exudate. Since the exudate accumulates first in the sinuses, and then compresses the most resilient parts of the lungs, and percussion on the affected side indicated a dull sound of the oblique upper bound in the form of a parabolic curve - the line of Ellis Damuazo-Sokolov. Between the spine and the ascending line of stupidity, we define the space with a clear percussion sound - a triangle Garland. Auscultation of breath sound blunt projection not listening, the rest during the light it may be impaired.

Along with the usual Costa diaphragmatic localization of exudative pleurisy found encysted supradiaphragmatic, apical, interlobar pleurisy, characterized by a rather unusual symptoms. So at the apical films tell lies, there may be a triad Horner: ptosis, miosis, enophthalmos on the affected side, for over a diaphragmatic pleurisy characterized by the appearance of symptoms, tsimuliruyuschego picture of acute abdomen.

Happy, and characterized by X-ray picture of exudative pleurisy. In the presence of a small amount of fluid in the study in the lateral projection can detect free fluid in the pleural cavity. With the accumulation of significant amounts of liquid is determined by the triangular shadow of effusion in the inferolateral and posterior portions of the chest, sinus kostodiafragmalny dark.

In the rare localizations exudative pleurisy radiological picture is not always distinct. When a small number of localized interlobar effusion is defined only accentuated linear shadow, with the accumulation of fluid passing into unstructured and more intense darkening in the medial and inferior parts of the lung. When osumkovanii fluid in the lateral projection is determined by the shadow of lenticular shape.

Shadow of the fluid in the front space is paramediasternal wide, ribbon-like parallel to the spine and border sredtsa. Encysted exudate under the diaphragm forms a homogeneous semi-oval shade with confluent with the diaphragm. The side photo shows such exudates provide a triangular shadow.

Despite the presence of characteristic radiologic symptoms, the final confirms exudative pleurisy pleural puncture with aspiration of fluid. The study of fluid may finally resolve the question of etiology of exudative pleurisy as the rest of the clinic, X-ray picture of the disease quite common for pleurisy of various origins.

To date, the accumulation of fluid in one or both pleural cavities observed at 50 different medical conditions. Clinical analysis of pleural fluid to determine its transsudativny or exudative character. For the fluid is characterized by the proportion of 1015-1025, the protein content of 40 - 60 g / l, a positive test Rivalta.

Exudate in tuberculous pleurisy more transparent, light yellow

(Serosal) in the sediment in the initial acute phase of 50-60% neutrophils, 15-25% lymphocytes, mesothelial cells. In the process of stabilization and remission in sediments prevail 90-95% lymphocytes. The predominance of neutrophils in the sediment suggests festering exudate. When you create a negative pressure in the pleural cavity exudate becomes hemorrhagic. In the absence of pulmonary changes, the Office of exudates reveal rare, even in tuberculosis of the pleura. Confirm the etiology of TB pleurisy may increase the level of sugar in the exudate to 0.8 g / liter.

At the present time due to the difficulty of diagnosis and differential diagnosis of pleurisy widely used special methods of investigation: tuberculin skin test, a biopsy of the pleura, immunological studies, bronchoscopy. Tuberculous pleurisy usual for are positive and hyperergic reaction to tuberculin skin test in the test, especially in primary tuberculous infection.

Pleural biopsy using thoracoscopy allows to confirm the etiology of tuberculous pleurisy in detection of tuberculous granulomas biopsy elements or Office.

Immunological studies confirmed tuberculous etiology of pleurisy in the presence of pleural effusion large number of lymphocytes with cytotoxic properties, and elevated levels of  $\gamma$  - interferon, which can be regarded as a biomarker of tuberculous pleurisy.

Bronchoscopy can confirm pleurisy of tuberculous etiology in the presence of specific inflammation of bronchi, and you can also get a bronchial washing for research at the Office.

Unfortunately to date none of the methods used are not 100% verification of the etiology of pleurisy. According to the literature the frequency of pleurisy of unknown

etiology is 20%. This necessitates a certain sequence of diagnostic actions of GPs in pleurisy. The diagnostic search for the etiology of pleurisy in the refinement should be conducted to identify the four most common diseases: tuberculosis, cancer, pleural mesothelioma, pneumonia.

The initial task of GPs evidence of pleurisy is solved on the basis of: the patient's complaints, objective research data, radiological data and puncture the pleural cavity resulting from the analysis of effusion in the clinical and biochemical laboratories. Features history, results of tuberculin tests, changes in the lungs, determined by the X-ray and tomography, bronchoscopy are used to solve the second problem diagnosis - Clarification of the etiology of pleurisy.

Clarification of the etiology of pleurisy in an obscure diagnosis of appropriate conduct in a specialized institution, where possible biopsy of the pleura, and histological study bakterioskopicheskoe.

Tuberculous pleurisy treatment strategy involves causal and pathogenetic therapy in combination with pleural puncture, if possible with complete aspiration of fluid until the termination of exudation.

Tuberculous pleurisy during the option is determined by the development process. In allergic pleurisy clinical symptoms with fever persists up to 10-15 days, the exudate Suction races during the month, but the accumulation of large amounts of fluid, the disease may take a prolonged duration.

In periodic pleurisy clinical symptoms persists for 3-4 weeks or more, even with regular aspiration of the exudate tends to accumulate in the pleural cavity and may persist up to 4-6 weeks, followed by the formation of pleural adhesions.

Tuberculous pleurisy during due to the nature and severity of morphological changes in the pleura and obliteration of the space of the pleural cavity. With inadequate therapy, and pronounced changes in the pleura cheesy can develop empyema.

## **Tuberculosis of serous membranes.**

The deterioration of the epidemiological situation is characterized by an increase in disease patterns share tuberculosis resulting from hematogenous dissemination. These

forms include the defeat of serous membranes: the pleura, the pia mater, abdominal ins, the pericardium. Usually this is isolated tuberculous processes: pleural effusion, meningitis. However, the system may experience damage serous membranes - TB poliserozity when simultaneously involved in the process of the pleura, pia, peritoneum, pericardium. Diagnosis and differential diagnosis of tuberculous lesions of serous membranes, as isolated, and the total is very challenging.

## **Tuberculous meningitis**

**Tuberculous meningitis** - specific inflammation of the soft, arachnoid, and to a lesser extent solid meninges develops as a result of contact with *Mycobacterium tuberculosis* (MBT), which is secondary and the most serious complication of tuberculosis. The defeat of the dura mater is a severe complication of pulmonary extrapulmonary tuberculosis. Meningitis in children is often accompanied by the generalization of primary tuberculosis infection. In adults, meningitis, complicated by generalized and ostrotekuschie tuberculosis: disseminated, caseous pneumonia, chronic forms of tuberculosis in advance. At the site, in recent years, meningitis may develop without visible changes in tuberculosis of the lungs or respiratory organs, or against the sequelae of myocardial tuberculosis. For the development of tuberculous meningitis requires three conditions: reduced immunological resistance of the organism, sensitization mater to the Office and tuberculosis bacteremia. There are two theories of the pathogenesis of tuberculous meningitis: hematogenous and likvorogennaya. According to the theory of hematogenous disease development proceeds in two stages. In the foreground, with primary infection develop ILO general sensitization of the body of the child and the massive bacteremia, resulting in a breakthrough blood-brain barrier and infection of choroid plexus pia mater. In the second phase of the ILO choroid plexus enter the cerebrospinal fluid, are deposited on the base of the brain and cause a specific inflammation of pia mater - basilar meningitis.

The authors of the theory of American liquor phthisiatricians Rich and Mack Gordon believe that the reason for the development of tuberculous meningitis tuberculous caseous foci are located in the brain or pia mater, arising during the period of primary tuberculous infection. Office directly enter the cerebrospinal fluid, extending from the shock of the cerebrospinal fluid and settling on the base of the brain cause specific inflammation of pia mater. In the development of meningitis are significant precipitating factors: acute infection (influenza, measles, whooping cough, pneumonia, etc.), physical and psychological trauma, treatment with massive doses of corticosteroids and other Pathological changes in tuberculous meningitis are most pronounced at the base of the brain. The defeat extends from the optic chiasma to the frontal lobes and back to the medulla oblongata and cerebellum. Along with serous-fibrinous inflammation of the pia mater can detect tuberculosis tubercles of

various sizes, but most are small, in various amounts. Develop vasculitis, endoperivaskulity in the pia mater and brain substance, resulting in vascular thrombosis developed hemorrhage, which results in impaired circulation a certain area of the brain substance. Specific inflammation may extend to the shell and the matter of the spinal cord - spinal meningitis. Inflammation develops in the III and IV of the endyma of ventricles, horiidalnyh plexus. The defeat of the frontal lobe, the Sylvian fissure, the brain stem leads to the development of atypical clinical manifestations and difficult to diagnose tuberculous meningitis.

**The clinical picture** of tuberculous meningitis is very diverse, which is related to polymorphism of morphological changes. Depending on the prevalence of certain clinical manifestations are three main clinical forms: meningitis, basilar, meningoencephalitis, spinal meningitis.

During tuberculous meningitis can be divided into three periods: the prodrome, the period of stimulation (meningialny), the period of paresis and paralysis.

Basilar meningitis, most patients (70%) develops gradually. In the prodromal stage there is a general malaise, fever, fatigue, loss of appetite, irritability, drowsiness, decreased interest in surroundings, casual headache. In some cases, the temperature may not rise. There is "groundless" vomiting and a tendency to delay the chair. For the onset of the disease is characterized by bradycardia. Patients annoying glare and noise. Prodromal period can last from 1 to 4 weeks. During this period, most often put to wrong diagnoses.

Period of stimulation (meningialnyh expressions) characterized by an increase in temperature to 38-39°C, an increase of headache, which becomes a constant, unbearable, more often localized in the frontal and occipital areas. The use of the most powerful analgesics has no effect. Vomiting becomes "fontanovidnoy" is not connected with food and medicines. P azvivaetsya anorexia, oppressed consciousness increases drowsiness and general lethargy, bradycardia followed by tachycardia, increased blood pressure, there are constipation, stomach ladeobrazny, drawn, are characterized by hypersensitivity of the skin, in some cases very severe. Frequent evidence of vegetative-vascular disorders such as persistent red dermographism, spontaneously emerging and rapidly disappearing red spots (spots Trousseau) on the face and chest. By the end of the week appear meningialnye symptoms incremental: stiff neck, Kernig's signs, Brudinskogo (upper, middle, bottom). The intensity of the symptoms meningialnyh gradually increases and at the beginning or middle of the second week of the period of stimulation the patient receives a forced situation: the head thrown back, legs pulled up to his stomach. During this period, typical of tuberculous meningitis is the involvement in the process of the cranial nerves. The most frequently affected eye-motor (III), outlet (VI), the nerves. With the defeat of the pair observed III ptosis, narrowing or dilation of pupils, exotropia. Involvement of the pair VI shows one - or two-sided convergent squint. Assimitriya person sick, the smoothing of the nasolabial fold on the affected

side, drooping corner of the mouth, the expansion of the optic fissure indicate involvement of the VII pair. The defeat of the auditory nerve (VII pair) shows a sense of noise to reduce, and sometimes complete loss of hearing. Disorder of vestibular function manifested vertigo, a sensation of "falling", instability of gait. On examination, fundus at the beginning you can see nipples congestion of the optic nerves, neuritis later. Clinically, it manifests a sense of vagueness, as if the "fog" before my eyes when reading or examining items. With the progression of the process is reduced visual acuity up to complete blindness. With the progression of tuberculous meningitis and distribution process to the region of the cerebellum and medulla oblongata (end of period II, nachalo III) involved in the process bulbar nerves (IX, X, XII couples - glossopharyngeal, vagus, hypoglossal). In these cases, there are difficulty swallowing, choking while eating, aphonia, and dysarthria, hiccups, upset the rhythm of breathing and pulse. During this period the patient may die from respiratory or cardiac arrest, due to the transition process in the medulla oblongata. In severe cases the tendon reflexes disappear or conversely become elevated. The third period shows meningoencephalitis and lasts about a week. The spread of the inflammatory process with shells on the substance of the brain shows focal symptoms. Appear disorders of sensation, paresis or paralysis. Palsy have spastic character, developed by the central type. Paralysis may precede the appearance of hyperkinesis caused by the proliferation process in the middle region and diencephalon and breach of normal relations between the affected subcortical and cerebral cortex. By the end of the disease the patient is exhausted, there may be pressure sores, as a result of violations of the trophic function of the nervous system. Prognostically unfavorable combination of hyperkinesis is followed by paralysis of the respiratory rhythm tion violations by type of Cheyne-Stokes leading to death with symptoms of paralysis of the respiratory center.

**Spinal meningitis** - usually begins with mild symptoms of brain membranes. Later, in II or III period, pain, shingles character in the spine, chest, abdomen, associated with involvement in the process of root spinal nerves. Pain is very intense, sometimes badly cropped even narcotic analgesics. With the progression of the disease process appears disorders of pelvic organs, and motor disorders such as monoparezov, paraparesis or flaccid paralysis. Because the clinical manifestations of meningitis of different etiologies have much in common, for confirmation of tuberculous meningitis, as well as to facilitate the patient's condition requires a lumbar puncture, followed by the study of cerebrospinal fluid in clinical, biochemical and microbiological laboratories. CSF in tuberculous meningitis transparent, colorless, common consequence of the pressure drops or spray. CSF pressure reaches 300 500 mm.vod.st (norma 50 mm.vod.st-150). protein content increased to 0.8-1.5 g / l and above (normal 0.15-0.33 g / l), mainly due to the globulin, which can be sub-themes of Verdi's reactions Pandey (2-3 drops of liquor is

poured into fresh 1.5% solution of carbolic acid), and None-Apelta (CSF mixed in equal quantities with a saturated solution of ammonium sulfate) from the intensity of the appearance ivshegosya cloudy. In the sediment of the CSF increases the number of cells to 100-400 mm in a cubic or even higher. Pleocytosis in the beginning of the disease is mixed (neutrophil-lymphocytic), and prevail in the future lymphocytes. Typical of tuberculous meningitis is the formation of fibrinous film (coarse fallout of protein) in the form of small webs or upside down Christmas trees, which formed after 12-24 hours of standing CSF in vitro. Biochemical studies can confirm the reduction of sugar and chlorides in the cerebrospinal fluid. Office in the cerebrospinal fluid detected mainly by planting in 10-20% of patients. When meningoencephalitis has very high protein content (up to 4-5 g / l) with a small limfatsitornom pleotizme and more pronounced decrease of glucose and chlorides. In spinal meningitis ksantohromnaya liquid (yellow color of varying intensity of fluid) due to stagnation caused between mild and arachnoid spinal cord. CSF pressure is small. The blockade of cerebrospinal fluid causes the difference in how the nature of the CSF at various levels of the spinal cord. For a sufficiently high level of protein, the number of cells in the cerebrospinal fluid a small (protein-cell dissociation), reduced sugar and chloride is significant. Confirm tubercular etiology meningitza can X-ray light in the presence of active pulmonary tube rkuleza. Tuberculin usually has no diagnostic value in connection with the development of negative anergy. Research fundus reveals stagnant nipples of the optic nerves and papulose changes on the retina.

In the present conditions may be encountered atypical variants of tuberculous meningitis:

- 1) during the treatment of patients with generalized and complicated forms of pulmonary tuberculosis observed during abortive meningitis. The gradual development of symptoms with little meningialnoy and not very severe headaches more reminiscent of serous meningitis and in practice often is TB diagnosed as associated with symptoms of influenza meningizma due to intoxication.
- 2) in young people early in the disease, there may be falling, and therefore subsequent symptoms is regarded as a result of head - brain injury, that without appropriate assistance, leads naturally to the patient's death.
- 3) in the propagation process in the shell sagittal sulcus and frontal lobes in the onset of the disease develop mental disorders. With the development of such a variant of tuberculous meningitis in alcoholics misdiagnosed alcoholic delliry.
- 4) in patients with cardio - vascular disease and in elderly tuberculous meningitis can occur under the guise of cerebral blood flow. The rapid progression of a cerebral edema, usually leads to death of the patient.
- 5), a progressive course with the rapid expansion process causes for tuberculous meningitis purulent type.
- 6) is one of the rare forms TB meningitis occurs by the type

of lethargic encephalitis. Naturally, the atypical course of tuberculous meningitis itself makes it more difficult and timely diagnosis worsens the prognosis of the disease. During the descending of tuberculous meningitis in a timely specific treatment depends primarily on the date of commencement of treatment. Of great importance is the virulence of the bacilli, their sensitivity to the ABP, age-reactivity of patients, the degree of damage membranes and substance of the brain and the state of internal organs. Remediation of the CSF occurs at 5-6 months of treatment, symptoms can meningialnye hold up to 2-3 months or more, dysfunction of the cranial nerves can hold up to 1-6 months of treatment. Focal CNS lesions are often, but they may disappear. In the period of convalescence in children may experience endocrine disorders such as obesity and hypertrichosis, which subsequently disappear. With late diagnosis and inadequate treatment may develop a chronic process with a predilection for the development of complications and exacerbations of persistent residual changes or death. Relapses in tuberculous meningitis can occur at different times after clinical recovery, so reconvalescent tuberculous meningitis should be monitored by a phthisiologist. With repeated relapses prognosis is usually not favorable.

### **Tactics diagnosis of tuberculous meningitis.**

#### **For timely diagnosis of GP should consider:**

1) the epidemiological history, contact with TB 2) in children the nature of tuberculin tests, the timing of revaccination 3) the nature and the beginning of the disease, state of consciousness, severity of headache symptoms and meningialnyh 4) the nature of the CSF, the results of laboratory investigations (clinical, biochemical, microbiological ) 5) The results of X-ray of the chest 6) the results of studies fundus

**TB-disease polyserositis** which developed multiple lesions of serous membranes are distinguished: pleural, pleural, peritoneal, pericardial, peritoneal, pleuro-pericardial form. The defeat of the serous membranes, and the result of hematogenous dissemination lymphogenous process or distribution process in the serous membrane in contact with the subject of the affected organ. In these cases, the serosa develop specific tuberculous changes. Sometimes, polyserositis paraspetsificheskoy manifestation of allergic reaction period of primary tuberculous infection, allergic polyserositis. Pathologic changes distinguish exudative, fibrinous, exudative and slipchyvy polyserositis adhesive.

**Acute polyserositis** a torpid start with fever, chills, profuse sweats. The process is reminiscent usually starting with pleurisy of the corresponding clinical symptoms. Involvement of the peritoneum like a picture of an acute disease of the abdominal cavity. Rapid accumulation of fluid in serous cavities gives the

corresponding symptoms. In the peripheral blood neutrophilic leukocytosis with a shift to the left.

**Chronic tuberculous polyserositis** manifested symptoms of tuberculosis intoxication with the gradual development of inflammation of serous membranes and the accumulation of fluid in the cavities of the corresponding symptoms. In the peripheral blood in chronic polyserositis much change there.

**Adhesive polyserositis** has no characteristic symptoms, which leads to difficulty in diagnosis. Pachyperitonitis clinically manifested by abdominal pain of varying intensity, without clear localization, sometimes cramping, worse when eating, while driving through the adhesions. The abdomen is usually retracted, the muscle tone of the abdominal wall is lowered. Skin hardly taken into the fold, painful on palpation sometimes oschushuetsya friction noise of the peritoneum. There may be loss of appetite, vomiting, nausea, constipation alternating with diarrhea. Patients are exhausted, may be low-grade fever. with the progression of adhesions developing pattern of partial or complete obstruction. Rentgenkontrastnoe study finds strain bowel loops of bowel, creases, seams. Common symptoms of peritonitis adhesive is characterized by anemia, cachexia, edema. Adhesive pericarditis is characterized by weakness, shortness of breath, tachycardia, puffy face, swelling of the neck veins. Maybe I atrial fibrillation, friction noise perikardium auscultation. Compression of the heart and flow into the veins of his spikes (constrictive pericarditis) impedes the flow of blood to the heart, resulting in lower A / D and a decrease in pulse pressure (10-20 mmHg) with a high venous pressure (up to 200 or more).

## Lecture # 9 **Organization of tuberculosis control**

Organization of antituberculosis work begins from the time of Koch. In the late 19th century, there-governmental organizations to combat tuberculosis. The first organization appear in England, where tuberculosis among miners has been almost totally. Then to France. All these organizations have been directed their de I sequence on the poor (the organization of financial assets) of the material. In Russia in 1907-1908, the association is organized with tuberculosis. One of the body and congestion was AP Czechs. By 1914, the organization fell apart. After 1917, tuberculosis including the State (the struggle against tuberculosis was declared a state task). Organized under the leadership committee Semashko at Commissariat of epidemic diseases. Soon the bud section tuberculosis (sponsored by Solovyov). This section aims to find the organizational methods of tuberculosis control methods to determine effective treatments, prevention. In 1918, organized by the Institute for e tubercle. State the nature of combat means that the work is publicly funded. Then the

medicine has largely been paid, but tuberculosis were treated free of charge. Everywhere organized TB dispensary. In 1921, organized by the Central TB Research Institute, whose purpose is to p zation for TB control throughout the country. Subsequently, these research institutes were held in Leningrad, Kharkov, Kiev, Lviv, etc. In all the research institutes supported by the principle of state (state value). Specialized agency of the clinic was (from the French word - observation). Dee with pansery quickly were perceived as organizational structure, and by 1925 - 26, in each province were dispensaries. Gradually, by the end of the 30s there was a modern structure.

Distinguish district dispensaries (in our 12 districts of the city - 8 clinics). The lead is the City Dispensary TB dispensary. B and zhdoiy area has its own regional TB dispensary, which is also the lead agency. The area consists of several parts, each of which, depending on the size of the population is either in protivot berkulezny office, or TB hospital. Then the sky called the Republic TB dispensary. We in the Republic of the Republican Clinic performs the function of the Research Institute of tuberculosis and pulmonology them. Academician A. Alimov, Sh.

### **Timely identification of patients with pulmonary tuberculosis.**

The main methods of detection of tuberculosis in children remains a Mantoux test in adults, and microscopic examination flyurograficheskoe sputum at the Office.

In view of the impossibility of continuous enrollment tuberculin because of the high economic costs, divided into 3 groups of children subject to compulsory inspection:

**I-group** at risk of tuberculosis: the children with COPD, acute respiratory infections often ill, with recurrent pneumonia, bronchitis, chronic pnemoniey, diabetes mellitus. additionally receiving corticosteroids children under 7 years old and older than 7 years, with an intoxication of unknown etiology.

In this group of children screened with the Mantoux test 2me and 7 years of additional relatively flyurografiya done. Responsibility for the investigation of the group assigned to the n ediatra general medical network and the SES.

**II-group** children from contact with the smear, a contingent of Group IV dispensaries sulfur. In this group are mandatory Mantoux test with 2 TE and flyurograficheskoe survey. Responsibility for surveys OF CONTENTS of this group lies in Phtisio pediatrician.

**III-Group** - VI Group dispensary, children with allergic symptoms of infectious energy. This group is mandatory statement of the Mantoux test with 2 TE and X-ray examination. The responsibility for this group of bsledovanie assigned to Phtisio pediatrician.

To ensure the timely detection of active pulmonary TB in adolescents and adults, the basic method remains flyurograficheskoe survey in 4 groups of adolescents and adults.

People most at risk of tuberculosis: a person with an atypical course of respiratory disease, pneumonia, pleurisy had undergone suffering from COPD, diabetes, gastric ulcer disease, pneumoconiosis, a long time taking corticosteroids, radiation therapy, immunosuppressants, and cytotoxic agents, postpartum women, drug addicts, alcoholics, mentally ill, and persons younger excited to grow with the results of the Mantoux test hyperergic. In this group, for organizing and conducting a survey flyurograficheskogo near agaetsya responsibility to GPs.

This group consists of individuals located on the dispensary at clinics and medical institutions in general le chebnoy network with respiratory diseases. In the presence of cough, sputum from these individuals is investigated by the Office BACT erioskopicheskim method.

## **2 - Group** - binding force.

This is a large group of people working in professions where the work is contraindicated in patients with active tuberculosis, and large residual changes myocardial tuberculosis. For ensuring flyurografich eskogo examination in this group is responsible Medical Officer of SES. GPs control the regularity and completeness of coverage flyurograficheskim Survey of Persons in this group. Issues of access to the work of those that did not pass inspection, health officer decides.

**Group 3** patients with **smear-contacts** (IV group accounting protivotuberku useful to clinic) flyurograficheskimi examined twice a year (spring and fall). Flyurograficheskoe examination of this group, Kaka, and the last four group will ensure ivaet district TB doctor.

**Group 4-VII** group accounting tuberculosis dispensary, a person with great residual changes myocardial tuberculosis and a high risk of recurrence of tuberculosis. This group is examined as two zhdy a year (spring and fall).

## **TB dispensary.**

**The activity of TB (TB) service is defined by normative documents** (orders, guidelines, instructions, etc.) approved by the Ministry of Health. Orders and other documents are developed based on existing laws of the Russian Federation, thus are documents specifying the activities of TB services in the provision of TB care within existing laws.

TB service consists of a network of public, specialized, independent health facilities whose main task is to fight TB. The lead agency of this network is a **TB dispensary**.

**TB hospital in charge of all links curative and preventive measures to fight TB.** Clinics are organized on a territorial basis. In smaller towns there is a dispensary. In large cities, a clinic serving one or two areas with populations of 200,000 to 400,000 people. Clinic provides therapeutic and diagnostic but by

residents of the area, as well as all workers and employees of enterprises, institutions, educational institutions and individuals located within the district.

**The main purpose of clinic** - a systematic reduction in the incidence, morbidity, incidence of tuberculosis and mortality among the population served by the district.

To achieve this goal, the **staff clinic should become familiar with their area** of health, social and economic terms, have close contact with all the medical and sanitary institutions.

Each TB dispensary within its territory maintains a system of centralized control, which is based on **two principles**:

**1. standardization activities to identify, diagnose,** treatment of tuberculosis in accordance with the instructions on the organization of a surveillance and recording of contingent TB facilities;

**2. differentiation of these activities,** develop individual scheme allows observation of each patient in the urban and rural areas depending on geographic and economic characteristics, status of communications, the characteristics of life and other social conditions, the nature of tuberculosis in a patient, etc.

### **The main objectives of dispensary are:**

1. Organization and implementation of preventive measures.
- 1.1. Tuberculosis BCG vaccination and revaccination.
- 1.2. Improvement of tuberculous lesions by timely and prolonged hospitalization  
batsillovydeliteley.
- 1.3. Rehabilitation and improvement of living conditions of patients of epidemic risk  
for miologicheskuyu others.
- 1.4. Conducting chemoprevention in foci of tuberculosis infection.
- 1.5. The direction of the induced infected children in health institutions (TB sanatorium).
- 1.6. Health education outreach.
2. Identification of patients with early symptoms of TB disease.
3. Organization and conduct of qualified and successive treatment of tuberculosis patients in outpatient and inpatient settings to achieve clinical cure. Organization supervised treatment in ambulatory and home.
4. Dissemination of knowledge about tuberculosis among physicians and nurses of health care institutions district.

**The structure of the clinic.** Clinic should have the following departments and offices:

1. Therapy offices (outpatient and clinic) to serve adults with tuberculosis.

- 2.Children's Department, which served children from 3 to 15 years.
3. The Cabinet of osteoarticular tuberculosis.
- 4.Bronhologichesky office.
5. X-ray room.
- 6.Lab: clinical, microbiological.
- 7.Treatment room.
- 8.Dentist's office (in large clinics).
- 9.X-ray station.
- 10.Day tuberculosis hospital.

In large clinics is recommended to consult a urologist, gynecologist, dermatologist, ophthalmologist.

**Pulmonary surgical care** in Russia is provided in large TB hospitals, where are lung-surgical units, equipped with appropriate equipment.

At each clinic, where a hospital are encouraged to organize **labor workshops** in which patients in rehabilitation could be doing work dosed by an instructor or to acquire new skills appropriate to their physical condition.

**Health maintenance organization.** Open-admission clinics there. For suspected tuberculosis pain Noah enters the clinic from the local clinic in the direction of physician, surgeon, neurologist, pediatrician, school health center physician or nurse.

**Fluorography** is a way to mass, rapid and inexpensive examination of the chest among large populations. When changes are detected in the lungs of fluorite - rografichesky study guides for the diagnosis of patients in clinic. Early detection of disease is possible only when the preventive examination polls rovyh healthy people.

## **Methods of prevention of tuberculosis**

Tuberculosis prevention includes activities aimed at creating a healthy lifestyle.

Improvement of environmental conditions, increased material well-being of the population, strengthening its health improvement of nutrition and living conditions, development of mass physical culture and sports, a nationwide struggle with alcoholism and other addictions are treated as social prevention of various diseases, including tuberculosis.

Treating children and adolescents suffering from tuberculosis, carried out in a hospital to cure. Treatment of tuberculosis patients in hospitals, health centers and clinics is free. Patients with active tuberculosis with bacterioexcretion with testimony provided by isolating residential area. Modern prevention of tuberculosis care includes prevention, specific prevention and chemoprophylaxis.

**Specific prophylaxis.** The most effective method of prevention of tuberculosis is by vaccination and revaccination with BCG vaccine.

Currently, the use of specific prophylaxis of dry BCG vaccine as the most stable, capable enough to maintain the required number of long-living Office.

The duration and stability of post-vaccination immunity is determined by the nature of the changes and will soon immunomorphological vegetatsii BCG vaccine strain in the body of the graft. Experimental studies have established that the strain of BCG in the animal survives, vegetate in it, encouraging anti-TB immunity.

Found that in terms of up to 2 weeks. TB after BCG privivkishtamm begins to transform into the form. As such, the Office of the strain of BCG can persist in the body for a long time, maintaining an adequate immunological effect of vaccination.

The effectiveness of TB vaccines is shown that in vaccinated and re-vaccinated children, adolescents and adults, the incidence of tuberculosis in 4-fold and deaths due to 9 times lower than among the unvaccinated.

Clinical observations also shows that beneficial effect of active immunization for tuberculosis among vaccinated persons. With the introduction of a wide practice of BCG vaccination reduced the incidence of gratitude to severe forms of tuberculosis - miliary tuberculosis, tuberculous meningitis, caseous pneumonia, which almost disappeared in children with tuberculosis. In cases in vaccinated children, there is the development of small forms of tuberculosis of intrathoracic lymph nodes, and unvaccinated - the more common forms of tuberculosis.

Despite the improvement in the overall epidemiological situation of tuberculosis, the TB vaccination on - continues to lead among mestto prevention. Vaccination continues to influence the rate of decline in incidence, even in favorable epidemiological conditions.

The BCG vaccine is a live vaccine strain BCG MBT-1, freeze-dried in a 1.5% solution of sodium glutamate. It looks like a white powdery mass sealed under vacuum in the vial. One vial contains 1 mg of BCG vaccine, which is 20 doses each of 0.05 mg. The vaccine is stored in a refrigerator under lock and key at a temperature below 8 °C.

Before the use of BCG vaccine is diluted 2 ml of sterile 0.9% isotonic sodium chloride solution, which is attached to the vaccine in vials. Reconstituted vaccine is used directly or in exceptional cases, subject to sterility and protection from exposure to sunlight, it can be used in the vaccine is destroyed.

BCG vaccine is administered intradermally in a strictly dose of 0.05 mg contained in 0.1 ml of suspension.

Premixed with a syringe reconstituted BCG vaccine, type in a sterile 0.2 ml syringe odnogrammovy vaccine and produce half of the solution through the needle to displace air, leaving a 0.1 ml syringe.

The BCG vaccine is introduced into the outer surface at the border of the upper and middle tritium left shoulder after pretreatment of the skin 70 ° ethyl alcohol. In this section of the needle should be facing upward. After opening a needle hidden in the skin, injected intradermally strictly 0.1 ml of BCG vaccine. The introduction of

more is not allowed. With proper technique and site of vaccine administration is formed whitish papule diameter of 5 - 6 mm. Formed after administration of the vaccine papule usually disappears after 15-20 minutes. After vaccine treatment is prohibited at the injection site with disinfectant and dressing. For each vaccinated individual should be used needle and syringe. The introduction of the vaccine under the skin is unacceptable because it can develop a cold abscess.

On the site of intradermal injection of BCG vaccine developed a specific response in the form of infiltration of 5-10 mm in diameter or pustules with little knot in the center and the formation of a crust on the type of smallpox. Newborn normal vaccination reaction appears after 4-6 weeks. and subjected to regress within 2-4 months., at least - in the longer term. If done correctly, vaccination should be formed (90-95%), superficial scar diameter of 2-10m.

Observation of the vaccinated and re-vaccinated children, adolescents and adults spend the doctors and nurses are general hospitals, which at 1, 3, 12 months. after injection of the vaccine should check local vaccination reactions to the registration of its size and nature of the relevant documentation.

Complications of BCG vaccination are: subcutaneous cold abscesses, ulcers with a diameter of 10 mm or more, lymphadenitis regional lymph nodes (axillary, cervical, supraclavicular) with an increase of 1.5 cm or more, keloid scars diameter 10mm or more.

In all cases of complications after BCG vaccination of children, adolescents and adults for the survey sent to a tuberculosis clinic.

BCG vaccination and revaccination Specially trained medical staff general health care facilities. However, organizing and methodological role in this important phthisiatrician section of preventive work is very high.

TB hospital in conjunction with SES and clinic is an annual vaccination plan, which is calculated according to the fertility of children, number of adolescents and adults to be vaccinated, and vaccinations.

**Chemoprophylaxis.** Under chemoprophylaxis understand the use of anti-TB drugs to prevent TB among those at greatest risk of infection and disease.

Primary chemoprophylaxis involves the use of anti-TB drugs, uninfected individuals from the Office of negative reaction to the tuberculin. Primary chemoprophylaxis is used as a short-term emergency measure in the foci of tuberculosis infection in a particularly unfavorable situation. The main preventive interventions for HIV-negative individuals are vaccinated with BCG vaccine and revaccination.

Secondary chemoprophylaxis used in infected persons, ie react positively to tuberculin, in which clinical and radiographic manifestations of tuberculosis are absent.

Secondary prophylaxis is carried out to predeprizhdeniya tuberculosis among the following groups:

- Children, teenagers and adults who are in constant contact with TB patients, representing an epidemiological risk;
- Clinically healthy children, adolescents and young persons under 30 years newly infected with the Office;
- Persons with stable hyperergic reactions to tuberculin;
- Infants vaccinated at the maternity hospital with BCG vaccine born to mothers with TB, in which he was not timely identified and that breastfed children's milk;
- Persons with tuberculin reactions superelevation;
- Persons who have previously migrated traces of tuberculosis in the presence of adverse factors (acute illness, surgery, injury, pregnancy, etc.) that can cause exacerbation of tuberculosis, as well as those previously treated for tuberculosis, with large residual changes in the lungs, Endangered epidemiological environment;
- Persons with signs of previous myocardial tuberculosis when they have illnesses that are themselves or their treatment by various drugs, including corticosteroids, may cause exacerbation of tuberculosis (diabetes, collagen, silicosis, sarcoidosis, ulcers, gastrointestinal tract, operated the stomach, etc.).

In specific epidemiological conditions chemoprophylaxis may be appointed and other disadvantaged groups for tuberculosis.

Among those receiving chemoprophylaxis, the incidence of tuberculosis is 5-7 times smaller than the corresponding groups of individuals who did not receive it.

Chemoprophylaxis is recommended that one drug - isoniazid or ftivazid - within 3 months. And while maintaining the epidemiological risk of repeat 2 times a year for 2-3 months. The regularity of the drug is not applied to the condition of the effectiveness of chemoprophylaxis. For adults and adolescents daily dose of isoniazid at a daily intake of 0.3 g for children - 8-10 mg / kg. If there is intolerance to isoniazid chemoprophylaxis can be done ftivazid. Ftivazid designate an adult to 0.5 g 2 times a day for children - 20-30 mg / kg. Both adults and children should necessarily be getting vitamins B<sub>6</sub> and C.

The most justified in using seasonal chemoprophylaxis courses (in autumn and spring seasons) for 2-3 months. 2 times a year. Seasonality is not taken into account during the first course of chemoprophylaxis, since he was appointed in connection with the first identification of epidemiological risk.

In children and adolescents, adults, up to 30 years in establishing the initial infection prophylaxis is carried out once daily for 3-6 months.

**Sanitary prophylaxis** aims to prevent tuberculosis infection healthy people, organizing control activities.

The main objective of health prevention - to limit and possibly to make safe contact with tuberculosis patients, especially smear, with the surrounding healthy people at home, at work, in public places.

The most important part of health prevention is an anti-social and medical measures in the outbreak of tuberculosis infection is housing in a patient with tuberculosis - smear.

The criteria focus of epidemiological risk of TB infection are: solidity and permanence of the selection sick Office, family and living conditions of the patient, behavior, general culture and patient health literacy and its surroundings. Based on these criteria, foci of tuberculosis infection is divided into 3 groups.

The first group - the most negative foci. Patients with chronic destructive forms of tuberculosis are constantly allocates Office, lives in a communal apartment, or dorm. In the family of the patient with children, adolescents, pregnant. This group includes seats, where patients and their surroundings shall not perform hygienic rules of conduct.

Group 2 - a relatively disadvantaged homes. The patient has less than a massive bacterial, tuberculous process stable, living in a communal apartment with older persons. Thus, despite the satisfactory living conditions, hygiene rules in the family are not satisfied. If you have children in the apartment belongs to the center of the 1st group.

Third group - affluent homes. Sick - conventional smear, tuberculosis or retrogressive process is stable. Family patient has a separate apartment, and sick people around him do all the necessary hygienic preventive measures. In the presence of children in a flat hearth is dated the 2nd group.

A complex of preventive measures in the outbreak begins with his visit to the TB district jointly with the County and district nurse clinic in the first 3 days following the detection of tuberculosis in a patient or the Office of detection in a destructive lung tuberculosis. We study the epidemiological features of the infection and his recovery plan is planned. Results of the first visit to the source of TB infection sister puts in "Map of the district TB dispensary nurse." Later TB doctor visits to monitor center performance improvement measures in it. Epidemiologist and TB doctor visit centers of the 1st group 1 every 3 months, 2 - group - 1 every 6 months and third groups - 1 per year. Precinct sister attends a center of infection at least 1 time per month.

Among the family members carried out a systematic patient health education. The patient should be trained in personal hygiene - use personal spittoon, a separate bowl, its very clean and store separately. The patient must use a separate towel to keep their clothes separately and wipe it after a preliminary decontamination.

The patient must have two individual pocket plevatelnosti with tight fitting lids. Spittoon one he uses, and the second sputum disinfected by 5% solution of chlorine bleach. Spittoon disinfected by boiling in 2% solution of sodium bicarbonate or by immersion for 6 hours in a 5% solution of chlorine bleach or 2% solution of bleach. After that, the spittoon is treated with 2% sodium bicarbonate solution or with warm

water. Chloramine produces patient clinic. After disinfection of sputum discharged into the sewer.

Dishes are better patient boil in water or 2% sodium bicarbonate solution 20 minutes after boiling or pouring 2% solution of chlorine bleach to 4 hours. To disinfect the clothes are soaked in a patient washing powder and boil for 15-20 minutes. If you can not boil the clothes, disinfect it by 5% solution of bleach for at least 4 hours.

In the room the patient is carried out daily wet cleaning.

When leaving the patient at home for treatment at a hospital, a sanatorium or in the event of his death, the sanitary-epidemiological service conducted a final disinfection. Precinct sister clinic to monitor its implementation. After the final disinfection is advisable to make space renovation, whitewash and painting.

**Social prevention of tuberculosis.** Basic principles of TB control activities in the Republic of Uzbekistan, based on the nature of the state TB control as a social disease. In the organization of TB control are involved, along with the specialized agencies of all TB health facilities health authorities.

### **TB control activities in areas of TB patients:**

Office 1. predupredit infection of healthy people;  
2. limit and make secure contact with TB patients in the active form (especially smear), its surrounding healthy people at home and at work.

The most important part of health prevention is to implement social, anti-and therapeutic measures in the outbreak of tuberculosis infection, ie, in the family home and sick with tuberculosis - smear.

Preventive measures at the source of infection begins with his visit to the district TB specialists, epidemiologists, and the district nurse clinics. Visit organized immediately following the detection, the patient or bacterial detection in the lungs of destructive tuberculosis. By results of inspection of the infection (patient residence) produced a plan for its recovery.

### **Recovery plan focus:**

1. disinfection;
2. patient care;
3. isolation of children;
4. registration with the clinic;
5. frequency and volume of regular surveys of all family members, holding them chemoprevention, the supply of disinfectant.

\* The criteria for the epidemiological risk of the source of TB infection are:

1. solidity and permanence of patient discharge Office;

2. family-household living conditions the patient;
3. behavior, general culture and patient health literacy and its surrounding entities.

\* Based on these criteria, foci of tuberculosis infection in the degree of danger of an epidemic is divided into three groups. According to this group define the scope and content of preventive measures in the outbreak.

**The center of group I** - the worst:

1. patients with chronic destructive tuberculosis constantly allocates Office, live in poor housing conditions;
2. patient in the family has children, adolescents, pregnant;
3. patient and the surrounding people do not comply with hygiene rules of conduct.

**Hearth II group** - about a dysfunctional:

1. patient scant sputum, stable tuberculous process, lives in a satisfactory living conditions;
2. patient in the family only adult persons, the absence of aggravating factors;
3. patient and the surrounding people do not comply with hygiene rules of conduct.

**Fireplace Group III** - a potentially dangerous:

1. sick - conventional smear;
2. family sick adults only;
3. patient and its surrounding shall serve all necessary hygienic measures for prevention of tuberculosis.

\* Preventive measures at the source of infection.

\* Important section of the plan is to educate the patient and his family health and hygiene skills.

In the room the patient should be carried out daily wet cleaning (current disinfection).

When leaving the patient at home for treatment at a hospital, a sanatorium or in the event of his death, the sanitary-epidemiological service conducted a final disinfection.

## **Organization of detection of tuberculosis in the DOTS strategy.**

DOTS (Directly Observed Treatment Short) is a scientifically based strategy for TB control recommended by the World Health Organization for countries with high prevalence of this disease. The ultimate goal is to reduce the implementation of tuberculosis prevention among the population and caused them economic and social damage.

*The main elements of the DOTS strategy are:*

1. Detection of tuberculosis by microscopic examination of sputum in seeking medical advice for patients.
2. Standardized short-course chemotherapy with controlled drug administration.
3. Regular supply of TB drugs.
4. Monitoring of the treatment and control activities of all of the TB service.
5. Government support programs.

*Among the key priorities of the DOTS strategy are:*

- Identify at least 70% of available patients with positive sputum smear;
- Achieving treatment of newly diagnosed TB patients with smear-positive for at least 85% of cases.

The implementation of these priorities is the minimum required to prevent further spread of TB in the population and to ensure effective control of the infection.

Extending the identification of new cases should be undertaken only after reaching a high of izlechivaemosti already diagnosed patients.

Diagnosis of TB is to identify active cases, ie patients with symptomatic disease due to M.tuberculosis. In addition to the diagnosis of TB is also necessary to determine the type of the disease, ie, classify (standardized definition) the case of TB. **The diagnosis of TB and patient registration is carried out in a territorial (the patient's place of residence) and the establishment of a tuberculosis confirmed TSVKK solution.**

**Classification of TB cases is based on four criteria:**

Localization of the source-TB;

-Severity of the disease;

Results of sputum-smear microscopy;

-TB treatment had produced

### **The criteria for classification of TB cases**

#### **1. Localizing the source of TB: pulmonary or extrapulmonary**

Typically, the recommended treatment regimen of patients does not depend on the location of the lesion (although, for example, some experts recommend a longer course of treatment in patients with tuberculous meningitis). Refinement of the localization of the infection is important for proper registration of TB cases.

The term "**smear**" should be used to refer to cases in which the pathological process involved lung parenchyma, and therefore intrathoracic lymph nodes tuberculosis lesions (mediastinal and / or portal vein) or tuberculous pleurisy in the absence of radiographic changes in the lung should be regarded as a case of extrapulmonary TB.

For extra-pulmonary TB should be treated in all cases, except for tuberculosis of lung parenchyma (eg, pleura, lymph nodes, bones and joints, genitourinary system, the intestines and abdominal cavity, skin, pericardium, meninges).

The diagnosis of extrapulmonary TB should be based on either a positive result of culture (microbiology) and / or histological diagnosis of extrapulmonary origin of the material, or on solid clinical evidence of active extra-pulmonary tuberculosis, which requires, according to the decision phthisiatrician, use a full course of TB treatment.

- The case of the presence of pulmonary and extrapulmonary TB lesions should be treated as pulmonary TB.
- When combined with severe extrapulmonary lesions (eg, tuberculous meningitis), with limited forms of pulmonary tuberculosis with **smear-negative** case is recorded as extrapulmonary.
- Definition of extra-pulmonary TB cases with the presence of lesions in several organs or systems depends on the location of the heaviest of the lesion.

## **2. The severity of TB**

The number of pathogens, the prevalence of lesions and anatomical localization of lesions determine the severity of the disease and, therefore, the choice of appropriate treatment. From the anatomical localization of lesions associated classification of TB as a serious illness when the patient's life is threatened (eg, tuberculous pericarditis), or the risk of severe complications (eg spinal TB) or both of these hazards (eg, tuberculous meningitis).

The following are considered severe extrapulmonary forms of TB meningitis, miliary TB, pericarditis, and bilateral Severe unilateral TB pleurisy, TB, spinal, abdominal or genitourinary TB.

## **3. Bacteriological examination (sputum smear results)**

The importance of the result of tuberculosis microscopy of sputum is defined as follows:

- Identification of patients with the presence of the ILO in the sputum (as these patients are most contagious, and in addition, they have the highest fatality rates);
- Check-patients (patients with contagious forms of TB of the lungs - the only group of patients, the ratio of which can be used bacteriological monitoring of cure).

### ***Pulmonary tuberculosis with bacterioexcretion***

This is: a patient with no less than twice the detection of acid-fast bacilli in sputum smear;

or: a patient with at least a single detection of acid-fast bacilli in sputum smear and radiographic changes similar to those of pulmonary tuberculosis, with the attending physician (TB doctor) decides to hold a full course of TB patient chemotherapy;

or: a patient with at least a single detection of acid-fast bacilli in sputum smear and culture with the release of M. Tuberculosis.

Patients with pulmonary TB bacterioexcretion must be at least 65% of the total number of adult patients with TB and at least 50% of the total number of TB patients.

***Pulmonary tuberculosis without sputum***

This is: a patient who meets the following criteria:

- twice (in the study of not less than two-week intervals), the results of sputum smears to detect acid-fast bacilli yielded negative results;
- radiographic changes are similar to those of pulmonary TB, and there is no positive changes after treatment with antibiotics of broad-spectrum;
- TB doctor decides to hold a full course of TB patient chemotherapy;

or: a patient who meets the following criteria:

- presence of severe disease;
- at least twofold negative sputum for acid-fast bacilli;
- radiographic changes are similar to common forms of pulmonary TB (interstitial or miliary);
- TB doctor decides to hold a full course of TB patient chemotherapy;

or: a patient with negative results on sputum smears, which continue to have positive culture results of the initial sample of sputum.

The above classification of TB cases shows that in the absence of culture the pathogen standard x-ray of the chest is necessary for documentation of pulmonary TB bacteria. **Results of fluorographic studies can not be used as evidence of the patient's pulmonary TB.**

The definition of "smear-positive patient" refers only to cases of pulmonary tuberculosis with positive **sputum smear tuberculosis microscopy**. It does not include patients with a positive tuberculosis microscopy studies fistula discharge, urine, pleural fluid, cerebrospinal fluid. In the "Map of Medicine TB patients" (TB 01) and "the Register of TB in the region" (TB 03) recorded only the results of tuberculosis microscopy of sputum.

In lab book record the 04 TB tuberculosis microscopy studies on the MT of any pathological material supplied to the laboratory. If you do not study the sputum, and other material in the "notes" should specify which one.

The cases of pulmonary tuberculosis with smear-positive cases did not include patients who have isolated MT from sputum culture-only method.

**4. Earlier treatment: treatment after interruption, treatment failure, relapse**

In the classification of TB cases is necessary to establish whether the patient received previous TB treatment; it is necessary for the following tasks:

- identification of patients at risk of drug resistance and the appointment of proper treatment regimen;
- epidemiological monitoring.

## **Classification of cases of tuberculosis (patient type definition)**

Once the diagnosis of tuberculosis for each patient is put Medical Card (TB 01), and it is registered in the Register of TB in the region (TB 03) in accordance with the following schedule:

### **1.New cases (new cases)**

These cases include:

- Patients who had previously never considered as suffering from tuberculosis.
- Patients who received anti-TB drugs for less than a month, but were not registered as TB patients.

If a history of tuberculosis brought on in childhood, this case can not be attributed to the newly diagnosed.

### **2.Relapse**

Patients treated for tuberculosis before any location in which the outcome of the disease was reported as "cured" or "treatment completed", but microscopic examination of sputum at the moment has yielded positive results. This may be the patients previously treated via DOTS, as well as re sick of numbers taken from the records or observed in II, III, VIIa groups of follow-up.

Go to relapses should not include patients previously unsuccessfully treated for tuberculosis, cases of recurrence with pulmonary tuberculosis with smear-negative (even if the results are positive blood culture), and cases of extra-pulmonary tuberculosis relapse.

### **3.Unfavorable outcome**

- New cases of pulmonary tuberculosis with smear-positive at the beginning of fifth month of treatment and later.
- Patients with sputum smear-negative before treatment, in which he was positive to the end of the second month of chemotherapy (at the end of intensive phase of treatment).

### **4.Treatment after the violation mode (after the break).**

Patients who resume treatment after a break for 2 months (60 days) in a row or more, and having the time of resumption of treatment a positive or negative sputum smear.

Patients registered in 2 and a month ago as the "first identified", "relapse" or "other", but not having the treatment and subsequent calls to the establishment of TB positive and negative sputum smear.

### **5. Translated**

Patients transferred to the area from another (ie from one log to another TB 03) and having on hand the following documents:

- a copy of the medical records of TB 01;
- extract from the disease.

### **6. Others**

- Seriously ill patients whose clinical picture can not exclude TB, but to direct microscopic examination of sputum or X-ray examination is not possible.
- Retreatment pulmonary TB with negative results of microscopic examination of sputum.
- Cases of recurrence of extrapulmonary tuberculosis among persons previously ill with tuberculosis of any localization.
- Individuals treated for an irregular, chaotic arrivals (including prison) and have at the moment is positive or negative sputum smear and need (in this case - on the conclusion of TB doctors and radiologists) in carrying out of treatment for TB.
- Patients receiving treatment in mode 1 or 3 categories, and finished the intensive phase with clinical and radiological signs of progression of tuberculosis (the appearance of pleural effusion, peripheral lymphadenitis, etc.) **with the negative results of sputum smears.**
- Patients who received the treatment immediately after surgery for pulmonary or extrapulmonary tuberculosis. Such patients assigned to treatment category II, beginning with an intensive phase.

When you register a type of "Other" in parentheses should be given the transcript.

For example:

Other (another case of TV light, Neg. Swab)

Other (extrapulmonary TV, second case)

Other (irregular treatment in the past)

Other (clinical and radiographic signs of deterioration in the flow tube due,

otr.mazok)

Other (treatment after surgery).

## **Therapeutic category of patients**

The allocation of patients to therapeutic categories included:

1. Results of tuberculosis microscopy (not culture!) sputum.
2. Availability of information on tuberculosis migrated in the past.
3. Information about breaks in treatment.

4. The prevalence and severity of the disease process.

### ***Category I***

For the first time identified previously untreated patients (treated or not more than 1 month):

a) pulmonary TB smear-positive;

b) pulmonary TB smear-negative, but extensive parenchymal lesions.

- Miliary tuberculosis;

- Infiltrative tuberculosis with an area of parenchymal destruction of more than 10 cm

<sup>2</sup> according to X-ray of the lungs;

- Tumorous and infiltrative forms of tuberculosis of intrathoracic lymph nodes.

c) extra-pulmonary tuberculosis with extensive and severe lesions in the process - tubercular meningitis, pericarditis, peritonitis, intestinal tuberculosis, mesenteric lymph node, genitourinary system, bones and joints, multiple lesions of peripheral lymph nodes, bilateral tuberculous pleurisy, regardless of the amount of fluid in the pleural cavity Unilateral tuberculous pleurisy with severe clinical manifestations.

### **Category II (retreatment)**

\* Patients with recurrent TB

\* Patients with adverse outcomes of treatment,

\* All patients in the combined type of "Other"

\* Some of the patients, resume treatment after disturbance regime (see the treatment regimen of patients who discontinued treatment).

### ***Category III***

\* For the first time identified previously untreated patients (treated or not more than 1 month) with limited forms of pulmonary tuberculosis with smear-negative, including children and adolescents with so-called "small forms" of intrathoracic lymph node tuberculosis with negative results of sputum smears

\* Newly diagnosed with mild forms of limited extra-pulmonary tuberculosis (other than those listed in paragraph "a" category I).

### ***Category IV***

\* Cases of treatment failure on the treatment of category II (positive sputum smear at the end of the 9th month of therapy) - chronic cases.

## **Treatment of tuberculosis.**

The aim of the treatment of adult patients with tuberculosis is the elimination of clinical manifestations of tuberculosis and resistant tubercle healing changes with

rehabilitation and social status.

The goal of treatment of children with TB is cured without residual changes, or with minimal changes.

Some patients achieve these goals is impossible because There are objective limits treatment options. In these cases, you should seek an extension of the patient's life, improvement, possible termination or reduction of sputum, maintaining a partial disability.

The criteria for the effectiveness of TB treatment are:

1. disappearance of clinical and laboratory signs of tuberculous inflammation;
2. sustained cessation of bacterial isolation, confirmed by microscopic and cultural studies;
3. radiographic manifestations of tuberculosis regression (focal, infiltrative, destructive);
4. restore functionality, and disability.

Features define the complexity of tuberculosis treatment. This disease must be rationally combine various therapeutic measures:

1. Chemotherapy;.
2. health-hygienic regimen and nutritional care;
3. hormones;
4. tuberculin therapy;
5. collapse therapy and surgery;
6. Treatment of opportunistic diseases.

### **Chemotherapy of tuberculosis.**

Theoretical study of chemotherapy of tuberculosis.

In accordance with the theoretical model of tuberculosis infection, there are four different populations of the Office of localized tuberculous foci of the human body.

1. Office actively breeding population, under conditions of high oxygen content and neutral pH in liquid curd material that covers the walls of the cavern. This population is the source of the ILO presence in sputum and in the environment. MBT are particularly susceptible to isoniazid, and to a lesser extent, rifampicin, streptomycin and ethambutol.

2. Population Office, contained in an acidic pH environment, mainly intracellularly. It is believed that the Office in such conditions grow very slowly. Pyrazinamide is active in the acidic pH environment, and particularly effective in the destruction of the Office, located inside the cells.

3. Population Office, contained in the solid curd content. The Office of such a population are inactive or reproduce slowly or intermittently. They are most effectively eliminated rifampicin.

4. Suggest that there is a population of ILO activities, which do not.

### **Aims of chemotherapy include:**

1. prevention of drug-resistant mutant selection;
2. achieve as soon as possible abatsilirovaniya sputum;
3. achieving a complete cure.

All these goals can be achieved by simultaneous appointment of several drugs to which the ILO is sensitive.

Destruction of the ILO does not happen immediately after the start of antituberculosis chemotherapy. Because the risk of selection of resistant mutants is preserved, chemotherapy should continue for as long as the population will be significantly reduced. This situation justifies the use of combinations of several microbicides, in an initial, intensive phase of TB treatment.

Slow / intermittent reproduction of the ILO, with a relatively small number of bacteria resistant mutants rarely has. However, because of their slow reproduction, or unstable, the majority of anti-TB drugs for such Office are less efficient compared with the rapidly multiplying Office. These organisms tend to survive in the tuberculous foci, in spite of chemotherapy and are often the cause of activation of tuberculosis. To destroy these pockets of the Office and sterilized antibiotic therapy should be done in a long time. This is achieved during the continuation phase of TB treatment. This ensures a complete cure without p eaktivatsy.

Chemotherapy course consists of two phases with different objectives:

1. phase of intensive therapy;
2. continuation phase of therapy (see Table.5.4.1).
  1. Phase of intensive therapy directed: but to eliminate the clinical manifestations of disease;
    - 1.1. maximum impact on the population of M. tuberculosis in order to eliminate bacterial and prevent the development of drug resistance;
    - 1.2. reduction in infiltrative and destructive changes in organs.
  - Phase of intensive therapy may be an integral part of preparation for surgery.
2. The continuation phase of therapy aims:
  - 2.1. the suppression of persistent mycobacterial population;
  - 2.2. providing further reduction of inflammatory changes and involution of tuberculosis;
  - 2.3. restore the functionality of the patient.

### **Chemotherapy regimen includes:**

1. chosen combination of anti-TB drugs;
2. duration of their admission;
3. the timing and content of follow-up surveys;
4. organizational forms of chemotherapy vary according to the group to which the TB patient.

**The first (I)** chemotherapy regimen administered to patients with newly diagnosed bacterioexcretion and / or widespread, or complicated lesions of various organs.

**The second (II)** chemotherapy regimen administered during the second course of chemotherapy after interruption of treatment for recurrent or at a low risk of drug resistance in Mycobacterium tuberculosis, before the results of microbiological investigations. These include:

1. Patients that do not have the effect of chemotherapy, or there is a worsening or progression of the process during the treatment;
2. patients not previously received anti-TB drugs, but there are serious reasons for assumptions about the resistance of anamnestic and / or clinical findings.

**The third (III)** chemotherapy regimen administered diagnosed patients without sputum, with small (limited) and complicated forms of tuberculosis.

**The fourth (IV)** chemotherapy regimen prescribed to patients with the release of bacilli resistant to isoniazid and rifampicin.

Explanation chemotherapy regimens for example, describe the mode III (see Table.5.4.1.)

In the phase of intensive therapy administered 4 major drugs: isoniazid, rifampin, pyrazinamide, ethambutol (2 HRZE).

Intensive phase continued for 2 months. During this period the patient should take 60 doses of a combination of four basic drugs.

In the case of pass receiving full-dose, the duration of the phase of intensive care admission increased to 60 doses.

After 2 months from the start of the intensive phase of therapy, the question of transition to the second stage of treatment addresses the commission, on the basis of clinical, radiological and microbiological investigations.

Table 1.

**Standard chemotherapy regimens.**

Mode	Phase of chemotherapy.	
	Intensive	Continuing
I	2 HRZE / S	4 **** HR * / 4 H 3 R 3 * 6 HR ** / 6 H 3 R 3 ** 6 HE 6 HZE *** / 6 H 3 Z 3 E 3 ***
IIa	2 HRZES + 1 HRZE	5 HRE / 5 H 3 R 3 E 3 6 HRE *** / 6 H 3 R 3 E 3 ***
III	3 HRZES ***	4 HR / 4 H 3 R 3 6 HE
IV	At least 5 drugs to which sensitivity is retained	At least 3 drugs to which sensitivity is retained

	Duration of phase at least 6 months	Duration of the phase of at least 12 months.
Notes.		
* If pulmonary tuberculosis		
** For extra-pulmonary tuberculosis, tuberculosis of any localization in children and adolescents.		
*** If any locations tuberculosis in children and adolescents.		
**** The duration of chemotherapy in months.		
Abbreviations: Isoniazid (H) Pyrazinamide (Z), Rifampicin (R), Streptomycin (S), Ethambutol (E)		
The options and modes of inclusion of individual drugs are listed after the "/".		
In square brackets and modes of drugs whose purpose is based on data on drug susceptibility testing of mycobacteria.		

When the sputum (on results of sputum microscopy Tatham) and / or in the event of a negative clinical - radiological dynamics of the process after two months of treatment needed drug susceptibility of Mycobacterium tuberculosis and the corresponding correction of chemotherapy.

Pending the outcome, the treatment does not change within 1 month. If it is impossible study of drug sensitivity, the patient is directed to a specialized TB facilities. Mode further treatment is determined based agent drug susceptibility.

With a positive clinical and radiographic and Dynamics absence of tubercle bacilli by microscopy of sputum go to the second stage of treatment - the continuation phase.

In the continuation phase of therapy administered 2 main drugs - isoniazid and rifampin for 4 months on a daily basis (4HR), or intermittently 3 times a week (4H3R 3). Another regime in the continuation phase may be isoniazid and ethambutol for 6 months (6 HE).

Organization of chemotherapy of tuberculosis patients.

Treatment of TB patients should be conducted under the control of TB doctors, which ensures the correctness and effectiveness of treatment.

In the course of chemotherapy is important direct supervision of medical staff for taking anti-TB drugs. Need the continued cooperation of the patient and medical

personnel, the formation of a responsible attitude to the treatment of the adult patients and parents of the child.

The entire course of treatment or its individual stages can be performed in the hospital with non-stop or just day stay in motels, in an outpatient setting.

The organizational form of treatment is determined according to the severity of the disease, epidemiological risk patient, the material - the living conditions of his life, and psychological characteristics of the patient, the degree of social adaptation to local conditions.

Regardless of the organizational form of treatment should be followed standard of care and control over its execution, as well as continuity between medical institutions during the transition from one patient's treatment of organizational form to another.

The result of treatment assessed using all performance criteria and design documentation. Monitoring the effectiveness of treatment for tuberculosis carries a higher institution.

Standard definitions of treatment outcome.

To evaluate the effectiveness of each course of chemotherapy is used at least once in three months following analysis using standard definitions of treatment outcome:

1. Effective chemotherapy, confirmed clinically, microbiologically and radiologically.

Patient, which distinguishes M. tuberculosis before treatment, all received treatment and had at the positive clinical - radiological dynamics is confirmed by the absence of sputum microscopy at sowing and at least 2 - fold (for 5 months and at the end of chemotherapy).

2. Effective chemotherapy, confirmed clinically and radiographically.

Patients with initially absent bacterioexcretion fully completed a course of chemotherapy and had achieved positive clinical - radiological dynamics.

3. Ineffective chemotherapy.

The patient remains bacterial or appearing on the fifth month of chemotherapy and later. Patients with initially absent bacterioexcretion holds negative clinical - radiological dynamics.

4. Premature termination of chemotherapy.

The patient interrupted treatment for 2 months or more.

5. Death.

The patient died during chemotherapy from any cause.

6. The patient was out under supervision.

The patient dropped out from under observation chemotherapy institutions (in other administrative area or office) and the result of chemotherapy is unknown.

Multidrug resistance / resistance (MDR).

If the results of the treatment, forced to assume that resistance to isoniazid and rifampicin, the treatment of such patients is extremely difficult. Reserve drugs are weaker and cause many side effects. Such a patient should receive treatment in a specialized hospital.

In a specialized center may be given at the same time 4 or 5 drugs, and use products that have not been prescribed to the patient and the patient to whom the Office may sensitive. When in the sputum of the Office will not be detected, usually cancel 1 or 2 of the weakest or toxic drugs and continue treatment for at least 18 months.

Such treatment can be successful, but it requires a very skilled observation and support patients tolerate side effects of drugs.

In a well-organized TB facilities sick working in the workshops, gardening, garden, participate in the greening of hospital grounds. Such exercises tone up and cheer up patients. For children, adolescents and university students organized by individual training programs in the amount of those schools where the patient interrupted his studies because of illness.

### **Balanced diet for tuberculosis**

Good nutrition is one of the mandatory components of modern treatment of tuberculosis. It plays the role of pharmacodynamic agents to normalize disturbed physiological functions, so diet must be strictly individual for each patient. In the food should be presented proteins, fats and carbohydrates in the optimal quantity and in certain proportions.

In tuberculosis is recommended an increased amount of protein, mostly of animals, and a moderate amount of carbohydrates. The relationship between these ingredients should be as follows: 15 - 20% protein, 25 - 35% fat, the rest - carbohydrates. TB patients, underweight, should be given a diet that exceeds the norm by 15 - 20%. It is very important for patients with tuberculosis have a multivitamin. Part of them is served to the table in the form of drinks and fruit, while others - in the form of medication intramuscularly or per os. The quality of cooking is very important. A variety of tasty and cooked food should be fed 4-5 times a day.

### **Sanatorium and spa treatment**

Sanatorium and health resort treatment of tuberculosis patients in the country was organized form of modern methods of complex therapy. The most important step in treating patients, especially with early detection of fresh processes. The purpose of sanatorium treatment of such patients is a complete clinical cure. In patients with exacerbation of the process is achieved by the elimination of sanatorium treatment of exacerbation and relapse prevention.

Refer patients to the climatic health resorts should be only after the elimination of an acute outbreak of the process.

Given that TB - a social disease, its stages should be as standardized and consistent with the provisions and guidance of health authorities, regardless of whether there is in the country specialized phthisiological service or not.

### **Subject №1. The history of science TB. The etiology of tuberculosis. San epidemiological treatment and infection control in TB clinic.**

TB as a disease that affects humans, has been known since ancient times. Clear signs of bone tuberculosis, in particular tuberculous spondylitis were found in the skeleton of a man who lived in the Stone Age. Similar changes were found in the mummified corpses of Egyptians who have died for the 2000-3000 years BC. e. "Ftiziologiy" (from the Greek "phthisis" - Attrition) called the science of tuberculosis Morton (R. Morton) - author of the first monograph about the disease "Ftiziologiya, or a treatise on phthisis" (1689).

In the XVI century French anatomist Sylvius (F. Sylvius de Vos) for describing the lung lesions in patients who had died of consumption, I used the word "hump» (tuberculum). However, only at the beginning of the XIX century French pathologists and therapists Bayle (G. Bayle), and then Laennec (R. Laennes) showed that the tubercle and caseous necrosis make universal morphological manifestations of tuberculosis. Laennec and German therapist Shenlyayn (J. Schonlein) introduced the term "tuberculosis". Major clinical manifestations of disease, which was later called TB - cough, sputum, hemoptysis, attrition - described Hippocrates, Galen, Abu Ali Ibn Sina (Avicenna). They, like many subsequent generations of doctors attributed to tuberculosis and most other chronic lung diseases.

In 1882, there was a major scientific event: the German bacteriologist Robert Koch (R. Koch) opened the causative agent of tuberculosis, which was named bacillus of Koch (BK). The causative agent of tuberculosis Koch discovered the microscopic sputum TB patient after a preliminary study of the drug vezuvinom color and methylene blue. Koch identified the tuberculosis agent in the form of a pure culture, and with it has caused tuberculosis disease in experimental animals. At the meeting Physiological Society in Berlin, March 24, 1882 Koch made a report "The etiology of tuberculosis", which presented strong evidence about his discovery of Mycobacterium tuberculosis. For this discovery Koch in 1911 was awarded the Nobel Prize. Among the reasons that contribute to the emergence and development of tuberculosis, Koch emphasized the role of social factors. "Ready for the disease, - he wrote, - is particularly high in the weakened, are in poor conditions organisms. While there are slums in the world, which does not penetrate a ray of sunshine, consumption will continue to exist. "

In 1904 it was published the original work of A. Abrikosov, which provides a detailed description of the focal morphological changes in the lungs during the initial manifestations of pulmonary tuberculosis (Abrikosov center). A. Abrikosov - the creator of the national school of pathologists, who studied tuberculosis. In the development of tuberculosis diagnostics historical milestones was a proposal in 1819 Laennec Auscultation of the lungs and the discovery in 1895 by Roentgen (W. C. Rontgen) X-rays.

In 1907, a pediatrician from Vienna Pirke (S. Pirquet) suggested that tuberculin skin tests to detect infected people. He introduced the concept of an allergy and was the founder of tuberculin. In 1919, French scientists Calmette and Guerin (A. Calmette, J. Guerin) created the vaccine strain of Mycobacterium tuberculosis (MBT) for TB vaccination of people. This strain they got a result of repeated (230) serial passages Office bovine species (Mycobacterium bovis). The vaccine strain was named "bacillus Calmette - Guerin» (BCG, Bacilles Calmette - Guerin). The BCG vaccine was first vaccinated newborn child in 1921

**Mycobacterium tuberculosis pathogens are-** acid-fast bacteria of the genus Mycobacterium. Total known 74 species of mycobacteria. They are widely distributed in soil, water, in humans and animals. However, tuberculosis in humans is conventionally isolated complex M. tuberculosis, comprising Mycobacterium tuberculosis (human species), Mycobacterium bovis (bovine type), Mycobacterium africanum, Mycobacterium bovis BCG (strain BCG), Mycobacterium microti, Mycobacterium canetti. Recently allocated thereto Mycobacterium pinnipedii, Mycobacterium caprae, phylogenetically related to Mycobacterium microti and Mycobacterium bovis. The main feature of the species Mycobacterium tuberculosis (MBT) - pathogenicity, which manifests itself in virulence.

Tuberculosis in humans most often occurs when infected by human and bovine forms of the parasite. Isolation of M. bovis is celebrated mainly in the rural areas, where transmission is primarily alimentary. There is also the avian tuberculosis, which occurs mainly in immunodeficient carriers.

MBT are prokaryotes (in their cytoplasm is not highly organelles Golgi apparatus, lysosomes). There are also no specific parts for prokaryotic plasmids for microorganisms provide dynamic genome.

Form - slightly curved or straight rods 1-10  $\mu\text{m} \times 0.2-0.6$  microns. The ends are slightly rounded. Usually, they are long and thin, but the agents of the bovine species are thicker and shorter.

Office still do not form a capsule and microspores.

The bacterial cell is differentiated:

- microcapsule - a wall thickness of 3-4 layers 200-250 nm, is firmly bound to the cell wall consists of polysaccharides, protects mycobacteria from the environment, has no antigenic properties but exhibits serological activity;

- the cell wall - Mycobacterium outside limits, provides dimensional stability and cell shape, mechanical, osmotic and chemical protection includes virulence factors - lipids, phosphatidic acid fraction which binds the virulence of mycobacteria;

- a homogenous bacterial cytoplasm;

- cytoplasmic membrane - comprises lipoprotein complexes, enzyme systems, forms intracytoplasmic membrane system (mesosomes);

- nuclear substance - comprises the chromosome and plasmid.

Proteins (tuberkuloproteidy) are the main carriers MBT antigenic properties and exhibit specificity in reactions of the delayed type hypersensitivity. These proteins include tuberculin. With polysaccharides linked detection of antibodies in serum of patients with tuberculosis. Lipid fractions contribute mycobacteria resistance to acids and alkalis.

Mycobacterium tuberculosis - aerobic, Mycobacterium bovis and Mycobacterium africanum - aerofily.

In tuberculosis infected organs (lungs, lymph nodes, skin, bone, kidney, intestines and others.) Developing specific "cold" tuberculous inflammation, bearing predominantly granulomatous nature and leads to the formation of multiple cusps with a tendency to decay.

**TB Infection Control** - a system of measures aimed at preventing the spread of TB infection in health care organizations in health care workers and patients in these organizations.

Administrative measures of infection control

#### **Administrative measures of infection control for PHC organizations:**

- conduct a screening survey of all visitors to the determination of persons who have a cough for more than three weeks, as soon as possible after their treatment in medical institutions;
- possible to direct persons with suspected TB in a separate waiting area with good ventilation, open a window for ventilation;
- provide quick survey among TB suspects officials in TB institutions that will reduce time spent in medical institution dangerous visitor primary care and will quickly establish the correct diagnosis;
- coughing patients to explain the need to cover the mouth with a tissue when coughing;
- in the case of the patient's acid-fast bacilli in the sputum by simple smear it is necessary to provide a gauze (disposable surgical) mask and pledged not to take it off until it is in a medical organization (masks help to reduce the spread of the ILO from the patient to other people because they hold large wet particles near the nose and mouth).

#### **Engineering infection control measures for the environment**

Engineering infection control measures aimed at reducing the MBT concentration in the air or by their destruction or removal from the air in the room.

Measures to control the environment (engineering measures) provide a second line of defense for preventing the spread of TB. If administrative controls are inadequate, apply measures to control the state of the environment does not eliminate the risk of the spread of TB.

Controls on the environment include ventilation and ultraviolet irradiation.

Controlled natural ventilation helps reduce TB transmission. Ventilation - is movement of air in the building or replacement of air in the building, coming from the outside. When fresh air enters the room, he dilutes the concentration of particles containing Mycobacterium tuberculosis contained in the air in the room.

To reduce the risk of TB infection is necessary to open the doors and windows for air supply into the room. Controlled ventilation means using up to the doors and windows were in a position to provide increased ventilation. The clinics need to allocate special moves and offices for the inspection of suspected TB patients to maximize natural ventilation, which helps reduce the risk of TB transmission.

In addition, to ensure ventilation and air distribution fan can be used, which provide the direction of air flow in the direction from the patient.

Fence sputum for TB should always be made either in the open air or in a special room, with no access to other people, but not in small rooms such as toilets, etc.

Ultraviolet germicidal irradiation can complement measures for ventilation of the room where it is possible. Operation bactericidal irradiators must be carried out in strict accordance with the requirements specified in the data sheet and operating instructions. By the operation of bactericidal installations should be excluded from the staff, not passed the necessary instructions.

It is necessary to periodically perform cleaning of reflective surfaces irradiators and bulb from dust. Dust removal should be performed at least 1 time per month wiping lamps 70% solution of ethyl alcohol (3 grams per lamp per month.), With the necessary disconnection from the network bactericidal installation. The use of water for cleaning germicidal lamps, solutions of soap or other detergents unacceptable lamp remains on the surface of microscopic film capable of reducing power germicidal UV radiation.

### **Personal protection enforcement personnel breathing**

One of the factors that reduce the risk of infection in health care workers and other visitors to the medical organization is regularly controlled reception PTLS patients. When properly controlled treatment of the patient in the absence of infectious resistance is sharply reduced after 2 weeks of treatment. Performing a full course of treatment controlled to avoid the development of tuberculosis and multidrug prevent the spread of infection.

For medical personnel organizations TB in direct contact with patient-MbT necessary to use special respirator (not surgical masks) protected at least 95% (i.e., efficiency of respirator filter delay particle size of 0.3 microns is 95%). The use of individual respiratory protective equipment (respirators) is effective for the full implementation of administrative controls, as well as the presence in the organization of effective ventilation and ultraviolet emitters. Respirators are relatively expensive and require special equipment for regular testing of their right to wear. Their use should be limited to high-risk areas - in indoor unit of the TB hospital,

Surgical masks made of cloth or paper does not protect the wearer from inhaling M. tuberculosis. In fact, the wearing of masks paramedic may contribute to a false sense of security. Surgical masks are used for patients with bacterial, if necessary, out of the chamber or compartment.

### **Literature 1,2,3,4,5.**

**Subject №2.** Epidemiology, pathogenesis, immunity of tuberculosis. Diagnosis of tuberculosis. Clinical and laboratory methods for studying tuberculosis.

Tuberculosis (TB) is one of the 10 leading causes of death in the world.

In 2016, sick with tuberculosis 10.4 million people, and 1.7 million people (including 0.4 million people with HIV) died from the disease.

64% of all cases occur in seven countries, among which the first place belongs to India, and it is followed by China, Indonesia, Nigeria, Pakistan, the Philippines and South Africa.

It is estimated that in 2016 one million children become ill with tuberculosis, and 250 000 children died of it (including children with HIV-associated tuberculosis).

It is estimated that in 2016 one million children become ill with tuberculosis, and 250 000 children died of it (including children with HIV-associated tuberculosis).

Multi-drug-resistant tuberculosis (MDR-TB) continues to be a crisis in public health. The WHO estimates that there 600 000 new cases of tuberculosis resistant to rifampicin - the most effective first-line drugs - of which 490 000 cases had MDR-TB.

It is estimated that between 2000 and 2016 due to TB diagnosis and treatment of 53 million human lives have been saved.

One of the health problems in the framework of the recently adopted Millennium sustainable development lies in the fact that in 2030 put an end to the epidemic of tuberculosis.

Tuberculosis affects mainly adults in their most productive years. However, at risk of all age groups. More than 95% of cases and deaths occur in developing countries.

In people with HIV, the chance of developing active TB increases by 20-30 times (see. Section on tuberculosis and HIV). Higher risk of developing active tuberculosis are also at people suffering from other health disorders that weaken the immune system.

In 2016, 1 million children (0-14 years) became ill with tuberculosis and 250 000 children (including children with HIV-associated tuberculosis) died from the disease.

Tobacco use greatly increases the risk of tuberculosis and dying from it. More than 20% of TB cases worldwide are related to smoking.

Tuberculosis is present everywhere in the world. In 2016, the largest number of new TB cases occurred in Asia - 45% of new cases. Followed by Africa, where there has been a 25% of new cases.

In 2016, 87% of new TB cases occurred in 30 countries with a high burden of tuberculosis. The share of the seven countries - India, China, Indonesia, Nigeria, Pakistan, the Philippines and South Africa - accounted for 64% of new TB cases. Improve the global situation depends on progress in the prevention and treatment of diseases in these countries.

Incidence of tuberculosis in Uzbekistan in 2015 decreased by more than 20% compared with 2012, said on Friday the chief TB specialist of the Ministry of Health, Professor Nargiza Parpiev.

In 2012, the TB incidence rate was 61.1 person in the country to 100 thousand people, but today it does not exceed 47,8 person.

In the country, taking into account the recommendations of the WHO established a bacteriological laboratory network to reach 100 per cent coverage of the treatment of all forms of tuberculosis, including drug-resistant forms, said Chief phthisiatrician Uzbekistan. According to her, in 2020 is planned to construct a new plant for the production of tuberculin in the country.

According to the Ministry of Health of Uzbekistan, the death rate from tuberculosis in the country has decreased by almost three and a half times (from 12 to 3.5 per 100 thousand population) in the last 12 years.

**Literature 1,2,3,4,5.**

**Subject №3 clinical classification of tuberculosis. Primary tuberculosis. The procedure for filling medical history. Diagnosis of primary teberkuleza.**

*Classification consists of four main sections:*

- Clinical forms of tuberculosis.
- Characteristics of tuberculosis.
- Complications of tuberculosis.
- Residual changes after the treatment of tuberculosis.

**The clinical forms of tuberculosis differ in localization, clinical and radiological features, taking into account the pathogenetic and pathological characteristics of tuberculous process:**

- *Tuberculous intoxication of children and adolescents.*
- *Tuberculosis of the respiratory system:*
  - Primary tuberculosis complex.
  - Tuberculosis of intrathoracic lymph nodes.
  - Disseminated tuberculosis.
  - Miliary tuberculosis.
  - Focal pulmonary tuberculosis.
  - Infiltrative pulmonary tuberculosis.
  - Caseous pneumonia.
  - Lung tuberculoma.
  - Cavernous pulmonary tuberculosis.
  - Fibro-cavernous pulmonary tuberculosis.
  - Cirrhotic pulmonary tuberculosis.
  - Tuberculous pleurisy (including empyema).
  - Tuberculosis of the bronchi, trachea, upper respiratory tract.
  - Tuberculosis of the respiratory system, combined with occupational lung diseases (koniotuberkulez).
- *Tuberculosis of other organs and systems:*
  - Tuberculosis of meninges, central nervous system.
  - Tuberculosis of intestines, peritoneum and mesenteric lymph nodes. Tuberculosis of bones and joints.
  - Tuberculosis, urinary, genital organs.

- Tuberculosis of skin and subcutaneous tissue.
- Tuberculosis of peripheral lymph nodes.
- Tuberculosis of the eye.
- Tuberculosis of other organs.
- *Characteristics of tuberculosis process is given by the localization process, clinical and radiological signs of the presence or absence of tuberculosis mycobacteria (MBT) in the diagnostic material obtained from the patient.*
  - Location and extent are specified:
    - in lung lobes and segments;
    - localization lesions in other organs.
  - Phase:
    - infiltration, disintegration of contamination; resorption seal scarring calcifications.
  - Bakteriovschelenie:
    - with separation of Mycobacterium tuberculosis (MBT +);
    - without isolation of Mycobacterium tuberculosis (MBT-).
- *Complications of tuberculosis:* hemoptysis and pulmonary hemorrhage, spontaneous pneumothorax, pulmonary heart disease, atelectasis, amyloidosis, fistulas, and others.
- *Residual changes after the treatment of tuberculosis:*
  - a) respiratory system: fibrotic, fibro-focal, dystrophic bullous, calcifications in the lung and lymph nodes, plevropnevmoskleroz, cirrhosis, post-surgery, etc .;
  - b) other bodies: the scar changes in various organs and their consequences, calcification, the condition after surgery.

**Primary tuberculous complex (PTC, complex Gon)** It arises when primary TB infection. Usually occurs in childhood, it is much less common in adults. After infection, the causative agent Mycobacterium tuberculosis in the alveoli formed single or multiple foci pathogen multiplication with the development of granulomatous inflammation (so-called primary hearth, the hearth Gon).

Soon, the process involves the lymph vessels and regional lymph nodes of lung root. With their involvement Ghon's complex formed, wherein the flow caseous changes.

For acute and subacute. Characteristic clinical symptoms are not available, which can provoke a wrong diagnosis staging influenza, pneumonia, etc. Above the affected lung tissue -.. Common to pneumonia changes. Increased ESR. The temperature can be low grade and low febrile. In sputum or lavage are determined by Mycobacterium tuberculosis is rare.

Subsequently Gon complex in most cases, it is surrounded by a connective tissue capsule, fibrosing and calcify to form so-called "residual primary complex."

## PRIMARY TUBERCULOSIS

Primary disease develops after the first penetration of the IMT in the human body (infection) in the insolvency of his immune system.

In the tense epidemic situation infinitesimal differentiation MW occurs more often in children and adolescents, less frequently in older age. Infection usually causes no clinical symptoms, but can be found tuberculin.

In elderly and senile patients with tuberculosis clinical and radiologic picture of primary tuberculosis is observed very rarely. In such cases, there is usually a re-infection after suffering Office in childhood or youth, the primary tuberculous process, which culminated in a clinical cure.

The outcome of primary infection is determined by quantitative PTO, and the virulence of the Office will do their duration of and largely - immunobiological with standing of the body.

In 90-95% of infected TB Office is not developing etsya . Infection takes place in them is hidden in a small specific changes to the formation of sustainable TB immunity. This is due to a high level of natural resistance to human tuberculosis infection Noah and the development of immunity after vaccination. In people with a common immunodeficiency, or not vaccinated with BCG vaccinated in violation of the rules, the primary infection the Office may lead to infection.

Risk of primary tuberculosis was first infected duced persons necessitates more attention to their state of health.

Different clinical forms of primary tuberculosis detected in 10-20% of children and adolescents, and less than 1% of adult TB cases. In general, the primary that Tuberculosis diagnosed in 0.8-1% of newly diagnosed TB patients.

Pathogenesis and pathological anatomy. In the primary lesion that Tuberculosis is usually localized in the lymph nodes, lungs, pleura, and sometimes in other organs: kidneys, joints, bones, peritoneum. Zone-specific inflammation

may be very small, at inspection to be hidden. With a higher volume of lesion is commonly observed in clinical alive and ray research patient. There are three main forms of primary tuberculosis:

- Tuberculous intoxication;
- Tuberculosis of intrathoracic lymph nodes;
- The primary tuberculous complex.

Tuberculous intoxication - the earliest clinical form of primary tuberculosis with the minimum specific Skim defeat. It develops in people with relatively small disturbances in the immune system.

Elements of specific inflammation, which occurs in the interaction with the host's IMT, usually localized in form a hilar lymph nodes as a unit GOVERNMENTAL TB granulomas with necrosis in the center of cheesy. Identify them in clinical conditions can not be due to insufficient precise resolution diagnostic methods.

Penetration into the human body causes a cascade of complex MW immunological reactions to the formula valuations of cellular immunity. When imbalanced immune nuclear reactions in the cells - the immune response participants - pro come excessive synthesis and accumulation of biologically ac tive substances that can damage membranes and cause serious violations of cellular metabolism.

As a result of toxic products, which penetrate into the bloodstream and then to various organs and systems, causing the development of many functional disorders. So there is intoxication syndrome - a characteristic feature of the initial form of primary tuberculosis. Transient (periodic excitation - nickname) bacteremia and toxemia reinforce the specific sensitization of tissues to the IMT and the products of their life activities and enhance the tendency to pronounced, not hyperergic rarely, toxic-allergic reactions.

Some signs of tuberculous intoxication may occur as early as the prodromal period, but a complete picture of the disease develops later - in the period of formation of PCHZT and tuberculosis granulomas.

MW in tuberculous intoxication mainly localizes in the lymphatic system, gradually settling into the lymph nodes. Their presence causes hyperplasia of lymphoid tissue. As a result, many of the peripheral lymph nodes increase, while maintaining the soft-elastic consistency.

Over time, the enlarged lymph nodes develop sclerotic processes. The lymph nodes reduced in size and become dense. The changes occurring in the peripheral lymph nodes, called mikropoliadenopathy. Her first signs can be found in the initial stage of tuberculous intoxication. Various manifestations of mikropoliadenopathy common to all forms of primary tuberculosis.

Tuberculous intoxication - Early clinical form of primary tuberculosis with no clear localization of specific changes. It shows the various functional disorders, high sensitivity to tuberculin and mikropoliadenopathy.

Duration of tuberculosis intoxication as a form of primary tuberculosis is not more than 8 months. It occurs more often favorably. Specific inflammatory reaction gradually subsides, the single TB granulomas are the connective tissue transformation. In the area of necrosis of tuberculous calcium salts are deposited and form microcalcifications.

Sometimes chronic tuberculous intoxication becomes favorable or progressing with the formation of local forms of primary tuberculosis. Regression of tuberculosis toxicity is accelerated by treatment with antituberculous drugs.

### Pathogenesis of primary tuberculosis

Tuberculosis of intrathoracic lymph nodes - the most common clinical form of primary tuberculosis. It is developing at deepening immune disorders, an increase in the modulation of IMT and progression of specific inflammation in the intrathoracic lymph nodes.

In the pathological process may involve various groups of the intrathoracic lymph nodes. However, the condition vsledst lymph drainage patterns of pulmonary inflammation usually develops in the bronchopulmonary lymph nodes and tracheobronchial groups. Tuberculous lesions tion of bronchopulmonary lymph nodes are often called bronhoadenitom.

Have long believed that inflammation of the intrathoracic Lim phatic nodes occurs after specific lesions Niemi lung tissue. Believed that without education the primary focus of tuberculosis Nogo in the lung of tuberculosis of intrathoracic lymph nodes in the impossible. However, later it was found that MBT have expressed lymphotropic soon after infection and may in hoditsya in intrathoracic lymph nodes without local GOVERNMENTAL changes in lung tissue. In lymph nodes, is being developed again hyperplastic response, and then formed that berkuleznye granulomas and necrosis occurs cheesy.

Progression of specific inflammation leads to a post pennomu replacement of lymphoid tissue tuberculosis gras nulyatsiyami (Figure 8.1). Caseous necrosis zone over time may significantly increase and extend almost the entire node (Figure 8.2). In areas adjacent to the lymph node tissue, bronchi, blood vessels, nerve trunks, mediastinal pleura arise paraspetsificheskie and nonspecific inflammatory changes. Pathologists cesses pro gressiruet and grabs Vaeth others who have not changed lymph nodes cal sredoste of. The total volume of lo lesion is locally very significant tive. Tuberculosis of intrathoracic lymph nodes - lo Skye locally clinical form of primary Nogo tuberculosis, which usually occurs without the formation of specific inflammatory changes in tissues or lung .

Depending on the size of intrathoracic lymph nodes affected and the nature of the inflammatory process conditional release, and infiltrative tumoroznuyu ( a prominent tumor) form of the disease. Under the infiltrative hyperplastic response mainly to understand tissue or lymph node a little cheesy necro Tuberculosis and perifocal infiltration. Tumoroznuyu form ac sotsiiruyut with a strong cheesy necrosis in limfatiche-relativistic node infiltration, and a very weak reaction in those around him his environ tissues.

During uncomplicated tuberculosis of intrathoracic Lim phatic nodes often beneficial, especially when it is diagnosed early and promptly begun treatment. Perifocal infiltration resolves, in place of cheesy masses formed by calcification, capsule lymph node maticgialinyuiruetsya, develop fibrosis nye changes. These processes slow. Clinical cure with the formation of the characteristic changes of the residual crust Paet, on average 2-3 years of onset, lymph node.

Complicated or progressive course of tuberculosis of intrathoracic lymph nodes can lead to a specific shock lung tissue. Limfogematogennaya and bronchogenic

generalization process is observed in patients with progressive disorders of the immune dimensional **X-ray picture**

In the initial period of enlarged lymph nodes can not be determined, and in lung tissue revealed rounded dimming low intensity. Subsequently dimming the intensity increases, its shape becomes a pear-shaped or triangular with a clear "track" (lymphangitis), leading to the top of the lung. The second shadow is located in the root zone in lymphadenopathy. Root of the lung increased nestrukturen, and the border has its round shape. After regression active pathological process in projection foci tubercular pulmonary lesions and tissue lymph nodes identified previously existing intense focal calcification shadow (residual tubercular complex).

**Literature 1,2,3,4,5.**

#### **Subject №4 Disseminirovany tuberculosis, pathogenesis, course, clinical picture, diagnosis. Clinical forms of disseminated pulmonary processes and their differential diagnosis.**

**Disseminated tuberculosis**- specific bacterial infection, which flows to the development of multiple tuberculous lesions in lung tissue due to scattering by the ILO body. Disseminated tuberculosis can proceed in a generalized form, with the predominant lesion of lung or other organs. In most cases (about 90% of patients) diagnosed disseminated pulmonary tuberculosis. In disseminated TB in the lungs of tuberculosis falls 8-15% of cases of pulmonary tuberculosis. In children and adolescents, this form of TB is rare, is more susceptible to disease and the elderly suffering from immunodeficiency. Disseminated pulmonary tuberculosis causes 3% of all deaths caused by tuberculosis.

Depending on the pathways through the body distinguish mycobacteria hematogenous, lymphogenous limfobronhogenny and disseminated tuberculosis. All three versions can be acute, subacute or chronic course, limited or widespread in nature.

*Acute disseminated tuberculosis*light often has hematogenous spread. Fit tuberculosis foci it is divided into melkoochagovyj (miliary, with 1-2 mm centers) and macrofocal (foci diameter of 10 mm). When miliary tuberculosis on radiographs revealed dense "millet" dissemination, usually located symmetrically in both lungs. Can occur on typhoid (fever and sharp intoxication), pulmonary (with severe respiratory failure) or meningeal embodiment (s phenomena meningitis, meningoencephalitis). Macrofocal Acute pulmonary tuberculosis occurs in the form of equity caseous pneumonia; Large foci symmetrical with subpleural preferential localization in the upper lobes. Progression macrofocal changes can lead to destruction of lung tissue with the formation of cavities.

*Subacute disseminated tuberculosis*light can be hematogenous and lymphogenous genesis. In the first case foci of dissemination often located in the upper regions of the lungs; in the second - in the lower and basal sections, combined with severe lymphangitis. Foci are medium or large size; characterized by a combination of a thin-walled "stamped" cavities, pulmonary fibrosis.

**Chronic disseminated pulmonary tuberculosis**It occurs against a background of repeated episodes mikobakteriemii. Foci in the lung dissemination polymorphic, have varying degrees of limitation and the value (from minor to major); the number and size increases in periods of exacerbation. The light generated diffuse pulmonary fibrosis, emphysema, fibrotic and cirrhotic changes in the upper lobes.

**Various clinical forms of disseminated pulmonary tuberculosis**They have their own specific features of the course. Approximately one third of patients lung damage is accidental discovery and found the passage of the mass fluorography. The remaining patients purposefully go to the doctor because of the deteriorating state of health.

*Acute disseminated pulmonary tuberculosis*in the initial period often resembles SARS or community-acquired pneumonia. It manifests a sudden, sharp with malaise, fever up to 38 ° C, dyspeptic disturbances, headaches. Against the background of nonspecific symptoms appear dry cough, shortness of breath, cyanosis. Symptomatology progressively increases during 1-2 weeks, the temperature may reach 40 ° C; the cough becomes productive with the release of muco-purulent sputum; may occur hemoptysis; pronounced weakness, tachycardia, night sweats.

*In typhoid form*dominates the intoxication syndrome, may have been a violation of consciousness and delirium. In patients with pulmonary besides toxicity, severity of the condition is

exacerbated by a pronounced respiratory insufficiency. In case a tuberculous inflammation to the meninges develops meningeal form with corresponding symptoms (rigidity of the neck muscles, and symptoms Brudzinskogo Kernig).

Rarely observed the acute course of disseminated pulmonary tuberculosis - tuberculous sepsis. He susceptible persons with reduced immunity (severe diabetes, leukemia, and so on. D.). He runs extremely hard with high fever, confusion, hepatosplenomegaly, cardiopulmonary failure.

*The clinical picture of subacute disseminated pulmonary tuberculosis masquerades lingering bronchitis; characterized by moderately severe manifestations: irritability, decreased efficiency, general weakness, loss of appetite and weight loss, periodic hyperthermia gentle wet cough, flank pain. Often precedes the development of symptoms of tuberculous pleurisy.*

Chronic disseminated pulmonary tuberculosis is worsening symptoms. During the activation of specific inflammation appear moderate symptoms of intoxication; with prolonged duration of tuberculosis process is dominated by signs of respiratory distress. Due to the reduction of the vascular bed and increasing the pressure in the pulmonary vessels, pulmonary heart.

Disseminated pulmonary tuberculosis may be associated with laryngeal tuberculosis of bones and joints, kidneys, genitals. In this case, signs of lung damage may be preceded by other organ symptoms (hoarseness, sore throat, joints and spine, hematuria, infertility and so on. D.).

*Exodus* acute disseminated pulmonary tuberculosis can be beneficial provided the timely detection of a full rate and causal therapy. Complication in the form of tuberculous meningitis can lead to death of the patient. Subacute can undergo reverse development or become chronic. Chronic disseminated tuberculosis has a long, long-term flow, can be complicated by the appearance and progression of extrapulmonary foci in fibrocavernous tuberculosis.

**Literature 1,2,3,4,5.**

### **Subject №5 focal, infiltrative pulmonary tuberculosis. Tuberculoma lungs. Clinic, diagnostics. Differential diagnosis and complications of focal, infiltrative tuberculosis and lung tuberculoma.**

**Focal pulmonary tuberculosis**- specific tuberculous lesion characterized by the presence in the lung few small (within 1-2 segments) productive inflammation foci. Focal tuberculosis refers to secondary tuberculosis infection, ie. E. Usually occurs many years after the initial cure of tuberculosis. That is why the vast majority of cases the patients were adults. Among other clinical and morphological forms of pulmonary tuberculosis at a fraction of focal form has 15-20%. Distinctive features of the lung focal tuberculosis is the limited area covered by one or two segments, non-destructive nature of the inflammation and latent infection within.

As flow limitation focal pulmonary tuberculosis can be fresh (myagkoochagovym) and chronic (fibronodular). Fresh TB is the initial stage of the secondary process which has developed in a patient infected with Mycobacterium previously been ill and primary infection. Morphologically characterized endobronchitis and peribronchitis in the segmental bronchi, with the involvement of the alveoli - lobular bronchopneumonia.

Chronic focal tuberculosis may develop as a result of the dispersal of fresh focal tuberculosis and the outcome of other pulmonary forms - infiltrative, disseminated, cavernous. In this case, inflammatory lesions are encapsulated, replaced by connective tissue or calcify. In fact, they represent a residual fibrotic foci, but under certain conditions can be reactivated, causing worsening of tuberculosis process and increase lesion borders. In turn, with the progression of chronic focal process can also be transformed into infiltrative, cavernous or disseminated pulmonary tuberculosis.

In his development of focal tuberculosis extends infiltration phase, disintegration and compacting. Depending on the size distinguish small (up to 3 mm in diameter), medium (up to 6 mm) and large (10 mm) foci.

Clinical features of focal tuberculosis light is effacement or absence of symptoms, so most of the cases revealed by fluorography prophylactic. Approximately one third of patients defined by weakly pronounced intoxication syndrome and signs of a lesion of the respiratory system.

Clinic.

Signs of toxicity include low-grade temperature in the evening, feeling of heat, alternating with brief chilling, sweating, malaise, loss of appetite, sleep disturbance. Sometimes in focal pulmonary tuberculosis, as a manifestation of specific intoxication, there are signs of hyperthyroidism: an increase in thyroid size, tachycardia, eye glitter, weight fluctuations, irritability. Women may experience menstrual irregularities by type opsomenorrhea or proymenorei.

There are complaints of pain in his side, between the shoulder blades in the shoulders. The cough usually is intermittent, may be dry or be accompanied by scanty sputum. Occasionally there is hemoptysis.

### **Diagnosis of lung focal tuberculosis**

The physical data revealed by objective examination of the patient with suspected focal pulmonary tuberculosis, nonspecific. Palpation reveals a little pain and stiffness in muscles of the shoulder girdle; lymph nodes are not enlarged. Percussion sound above the fireplace defeat muted auscultation tapped hard breathing during coughing patient determined individual finely wheezing.

Tuberculin tests in focal pulmonary tuberculosis usually normergicheskie, so do not play a significant role in the diagnosis. In rare cases, patients may respond to subcutaneous tuberculin fever, increased sputum, accelerated erythrocyte sedimentation rate, and so on. N. For determination of activity on TB sputum investigated KUB performed bronchoscopy with bronchoalveolar lavage fence. Endoscopic picture at a fresh focal pulmonary tuberculosis is characterized by signs endobronchitis.

Basic information about the shape of tuberculosis gives radiography, radiographic picture but may be different depending on the phase and duration of the process. When fresh focal tuberculosis is usually determined by 1-2 large hearth and several medium or small; slabokonturiruyuschie shade, low-intensity, rounded shape. Chronic focal tuberculosis radiologically manifested by the presence of dense foci to foci calcification and fibrous strands; shadow medium and high intensity, typically small and medium size. Differential diagnosis with nonspecific focal pneumonia, pnevmomikozami, peripheral lung cancer.

When questionable data have resorted to conducting the test therapy: the patient for 2-3 months prescribed anti-TB drugs and monitor the clinical and radiological and laboratory dynamics. When reducing or partial resorption of foci diagnosed with focal tuberculosis is beyond doubt.

**Infiltrative pulmonary tuberculosis**- clinical and morphological forms of pulmonary tuberculosis, proceeds with the formation of exudative-pneumonic lesions in the lungs with caseous disintegration of the center. Among all forms of pulmonary tuberculosis, infiltrative form occurs most often - in 60-70% of cases. In this regard, the identification of organized earlier tuberculosis is a priority of Pulmonology and Tuberculosis. Infiltrative tuberculosis refers to the number of socially dangerous diseases. Sick mainly adults (more often - young persons), with adverse living conditions and low hygiene practices, suffering addictions. In the structure of mortality from TB infection infiltrative form is about 1%.

Classification of infiltrative pulmonary tuberculosis

*In modern TB decided to allocate five clinical and radiological options infiltrative pulmonary tuberculosis:*

- Cloud-infiltration - radiographically defined as a low-intensity homogeneous shade having blurred contours. It is prone to rapid decay and formation of fresh cavities.
- Round infiltrate - at radiographs has the form of a homogeneous circular focus (sometimes with the decay portion in the form of bleaching) with clearly defined boundaries; often localized in the subclavian area.
- Lobular (lobular) infiltrate - when X-ray examination revealed inhomogeneity dimming irregular shape formed by merging multiple foci, often collapse in the center.
- Boundary infiltration (peristsissurit) - a vast cloud-infiltration, lower bounded interlobar fissure. It has a triangular shape with the angle facing towards the root of the lung, and the reason - outwards. Often there is a defeat interlobar pleura, sometimes with the development of tuberculous pleurisy.
- Lobito - extensive infiltration in the lung, which occupies an entire share. Radiographically characterized inhomogeneous focus to the presence of collapse of cavities.

According to distinguish small size (1-2 cm), medium (2-4 cm), large (4-6 cm) and distributed (more than 6 cm) infiltrates. Separately isolated caseating pneumonia characterized by infiltrative reaction with a predominance of necrotic processes. Caseous-pneumonic lesions affect the share or the entire lung. Caseous pneumonia more likely to develop diabetes mellitus, pregnancy, pulmonary hemorrhage, accompanied by blood aspiration, seeding of mycobacteria.

### **Clinic**

Variant clinical course infiltrative pulmonary tuberculosis depend on the type of infiltration. Acute onset characteristic of Lobito, peristsissurita, some cases of cloud-infiltrate. Asymptomatic and oligosymptomatic over there in the presence of a round, and cloud-lobular infiltrates. In general, an acute manifestation is marked 15-20% of patients, gradual - at 52-60%, asymptomatic - in 25% of cases.

In the majority of cases the first symptom nonspecific infiltrative pulmonary tuberculosis is the body temperature rise to 38-38,5 ° C which is kept for 2-3 weeks. Hyperthermia is accompanied by sweating, muscle pain, weakness, cough with sputum. In general clinic resembles influenza, bronchitis or acute pneumonia. Sometimes the disease manifests with hemoptysis or pulmonary hemorrhage. Among the most common complaints should be noted chest pain on the affected side, decreased appetite, insomnia, general weakness, palpitations. Asymptomatic and low-symptom forms of infiltrative pulmonary tuberculosis is usually detected during a medical examination or a preventive check-up on the results of x-rays.

Among the complications of infiltrative pulmonary tuberculosis can be found caseous pneumonia, pulmonary atelectasis, pneumothorax, pleural effusion, pulmonary hemorrhage, tuberculous meningitis, reactive infarction, heart failure. Start caseous pneumonia is always keen fever reaches 40-41 ° C, typical differences between day and night temperatures, pronounced tuberculous intoxication. Patients concerned about shortness of breath, cough with purulent sputum, chest pain, progressive weight loss.

### **Diagnosis of infiltrative pulmonary tuberculosis**

As clinical signs of infiltrative pulmonary tuberculosis is not specific or completely absent, the main role in the diagnosis have objective, instrumental and laboratory data. Auscultatory pattern is characterized by loud wheezing; percussion dullness detects sound over an area of infiltration. Especially when these changes are expressed lobite infiltration and the presence of collapse with formation of cavities. Inflammatory blood changes (shifts in leykoformule acceleration ESR) negligible.

Tuberculin skin test in patients with pulmonary infiltrative tuberculosis often positive. X-ray of the lungs can not only detect infiltrative changes, but also to assess the character of the shadows, to trace the dynamics of treatment. MBT can identify both by microscopic examination and by bacteriological seeding sputum or bronchial flushing water obtained during bronchoscopy.

Differentiated infiltrative pulmonary tuberculosis accounts with focal tuberculosis, SARS, nonspecific pneumonia, lung cancer, actinomycosis, echinococcosis and cystic lung, Hodgkin's disease.

**lung tuberculoma**- encysted caseous lesion in pulmonary tissue more than 1 cm in diameter, resulting in the outcome of different forms of tuberculosis. lung tuberculoma often asymptomatic, so in most cases found by chance. With the progression is accompanied by signs of toxicity, low-grade fever, cough, hemoptysis. The main way to detect lung tuberculoma - x-ray. The positive tuberculin reaction; MBT in sputum not always present. With regard to pulmonary tubercles applied conservative tactics (specific chemotherapy), in some cases - surgical approach (segmentectomy, lobectomy).

*The clinical course of lung tuberculoma can be:*

- stable - in the absence of progression of clinical and radiological signs tuberculoma;
- progressive - when loosening capsules melting caseation, its allocation through bronchi draining to form the cavity and bronchogenic lung colonization surrounding tissue;
- regressing - in case of calcification caseation and hyalinization fibrous capsule.

*Tuberkulomah light peculiar to asymptomaticoligosymptomatic or nature of the flow. In the first case, patients no complaints. In the second case it is an exacerbation can be marked fatigue, sweating, loss of appetite, cough rare (dry or with scanty sputum) periodic subfebrilitet.*

Subpleurally location tuberculoma easy pulling causes the appearance of pain or aching in the affected side associated with respiration.

The collapse of the tuberculoma intoxication becomes more pronounced, there is a persistent fever, cough, in some patients there is hemoptysis. The progressive course tuberculoma lung may contribute caseous pneumonia fibrocavernous or disseminated pulmonary tuberculosis. Under favorable conditions possible outbreak regression.

**Literature 1,2,3,4,5.**

**Subject №6 Cavernous, fibro-cavernous and cirrhotic pulmonary tuberculosis. The clinical course, diagnosis. The clinical course of the cavernous, fibrous-cavernous and cirrhotic pulmonary tuberculosis and its differential diagnosis.**

**Cavernous tuberculosis of lung-** tuberculosis of the lungs, in which are found the cavern. It develops in cases where other forms of progression (primary complex, focal, infiltrative, hematogenous disseminated tuberculosis) leads to the formation of the cavity, i.e. reception cavity collapse of lung tissue. Proceeds without dropouts foci and without the development of perifocal inflammation.

In this disease is a pathologic cavity cavity bounded by a three-layered capsule, the inner layer of which consists of neottorgnuvshihsy caseosa, middle layer - specific layer granulation, the outer layer - the fibrous layer.

*Pathogenesis*

In most cases, this form of the disease - a consequence of infiltrative tuberculosis. Initially infiltrate includes inflammation focus, the center of which there caseous mass (pulmonary necrotic tissue), and in perifocal infiltrate - a large number of lymphocytes, leukocytes and macrophages. As a result of the death of these cells released a large number of proteases which are easily melted caseation. Caseation liquid begins to flow through the drainage bronchus, and a cavity collapse. In this case, the diagnosis is exposed infiltrative tuberculosis in a phase of disintegration. During treatment, perifocal infiltration around the collapse of the band begins to dissolve and a cavity remains, about which there are always elements of productive inflammation, which is constantly transformed into caseating tissue.

For cavernous tuberculosis typical symptom is "decay phase syndrome":

- cough with sputum,
- wheezing in the lungs,
- hemoptysis,
- bacterial excretion.

*Diagnostics.*

The basic method of revealing the cavernous cavities radiography is particularly linear tomography. Cavitory pulmonary tuberculosis can be characterized by the presence of:

- elastic cavities,
- rigid cavity,
- fibrotic cavity.

Most often, there are elastic and rigid cavity. Fibrotic cavity may be only in certain groups of patients systematically undergoing chemotherapy, when the cavity is maintained, but do not have the attributes that are typical of fibro-cavernous tuberculosis. In modern conditions cavernous tuberculosis is characterized by a relatively oligosymptomatic over.

Bacterial excretion in patients with cavernous tuberculosis depends on the effectiveness of chemotherapy. Permanent bacterial excretion even when clinical well-being, in the absence of symptomatic outbreaks should be regarded as an indication of active tuberculosis. Continued bacterial excretion - most often the result of inadequate chemotherapy or the result of drug resistance of mycobacteria.

Of great importance when examining a patient with tuberculosis has a cavernous study in leukogram dynamics. Such features as the increase in erythrocyte sedimentation rate, left shift, lymphopenia, even if clinical symptoms are well-being active tuberculosis disease exacerbation, therefore repeated testing of blood is of great importance.

All patients with cavernous process need bronchoscopy due to the fact that this process is often accompanied endobronchitis and Related endobronchitis may impede the healing of the cavity even with elastic cavity. In addition, when endobronchitis treatment strategy is somewhat different.

**Fibro-cavernous pulmonary tuberculosis**- a chronic disease, occurring long and undulating, with intervals of remission of inflammatory phenomena. It is characterized by the presence of one or more cavities with high prescription pronounced sclerosis of the surrounding tissue, fibrous rebirth lungs and pleura.

Pathogenetically this form does not occur alone, but is a consequence of infiltrative tuberculosis. Hematogenous-disseminated form also serves as a source of fibro-cavernous processes in the lungs.

*Clinical manifestations* fibro-cavernous tuberculosis are diverse, they are caused by the tuberculous process, and develop complications.

There are two clinical variants of fibrous-cavernous pulmonary tuberculosis:

- 1) limited and relatively stable when due to chemotherapy comes certain stabilization process and the aggravation may be absent for several years;
- 2) progressive, characterized by a change of exacerbations and remissions, with different periods therebetween.

During periods of exacerbations marked rise in temperature due to the specific process flashes development infiltration around the cavity. The temperature may be high in those cases where the disease is attached to a secondary infection.

The defeat of the bronchi accompanied by a prolonged "hoarse" cough, during which the viscous mucous-purulent sputum is separated with difficulty.

are frequent complications:

- 1) coughing up blood;
- 2) pulmonary bleeding caused by perforation of the large vessels due caseous-necrotic process.

The appearance of a patient with a long flowing fibrous-cavernous tuberculosis is very characteristic and is named habitus phthisicus. Patient distinguishes dramatic weight loss, flabby skin is dry, easy going into wrinkles, muscle atrophy, mainly upper body, back and intercostal groups.

Patients suffer from constant intoxication. With frequent outbreaks of TB process develops respiratory insufficiency II and III degree. Marked stagnation, akrozianoz. Subsequently the liver is increased. There may be swelling. With the progression of the process there is a specific lesion of the larynx and intestine, which leads to a sharp decrease in the body's resistance. With the development of cachexia, amyloid nephrosis and cardiopulmonary failure becomes severe prognosis.

X-ray picture of fibrosis and shrinkage of the lung is most often found in the upper lobes, mainly affecting one of them. Mediastinum and trachea shifted toward greater destruction. Upper lobe reduced in volume, the transparency of their dramatically reduced due to hypoventilation. Figure lung tissue drastically deformed as a result of rough fibrosis. In the lower regions of the lungs often increased transparency, which indicates emphysema. Roots usually biased upward.

Large vessels are defined as straight, smooth shadows - the so-called symptom of "stretched string". Typically seen in both lungs group foci of varying size and intensity.

When fibrocavernous process cavity is among the rough fibrosis of the lungs, the walls of her twisted, dense, often thickened. Often at the bottom of the cavity is defined by a small fluid level. During exacerbation and progression is visible around the cavity portions infiltration. In the treatment of slow resorption of these changes, partial reduction and shrinkage cavity. Sometimes fibrous cavity is detected only during imaging, since the conventional X-ray shadow of the cavity can be closed laminating shadows lesions of fibrosis and pleural layers.

In a laboratory study, sputum detected constant bacilli sometimes massive and coralloid elastic fibers.

Blood. State of the blood in patients with fibro-cavernous tuberculosis depends on the phase of the disease. At the outbreak of it is same as when the active tuberculosis, but with a change in the direction of formula lymphopenia, left shift and accelerated ESR of 30-40 mm / h. In severe

bleeding revealed anemia, sometimes very pronounced. If secondary infection occurs leukocytosis higher - up to 19 000-20 000 and an increase in neutrophils.

In the urine of renal amyloidosis, which quite often develops in patients fibrocavernous pulmonary tuberculosis, the protein content is usually high.

### **Cirrhotic pulmonary tuberculosis**

This form of tuberculosis is characterized by extensive proliferation of fibrous connective tissue in the lung and pleura with a predominance of fibrotic changes of the specific.

Cirrhotic tuberculosis (CTL) is the outcome of infiltrative, disseminated, fibrocavernous tuberculosis, tuberculous pleurisy, as well as long-term maintenance of therapeutic pneumothorax and can be unilateral and bilateral that determines the deformation of the chest and the severity of percussion and auscultatory data.

According to the clinical and morphological features usually distinguished cirrhotic tuberculosis post-tuberculosis and cirrhosis.

Cirrhotic tuberculosis assumes active pulmonary tuberculosis, post-tuberculosis cirrhosis - without signs of specific activity of the process.

The clinical picture of CTL is dependent on the prevalence of morphological changes, compensatory capacity of the organism and development phase of tuberculosis. Maybe a long time to proceed with Just noticeable symptoms. Gradually increasing shortness of breath, fatigue, cough, chest pain. Itoksikatsii appear symptoms of bacterial excretion, indicating the exacerbation of a specific process.

When CTL are five main clinical variants:

- 1) limited CTLs oligosymptomatic passage;
- 2) common CTL with frequent exacerbations, at which pronounced intoxication syndrome;
- 3) CTL with bronchiectasis, hemoptysis and bleeding;
- 4) repeat pneumonic outbreaks caused nonspecific infection;
- 5) "destroyed" light with the progression of tuberculosis process and various manifestations metatuberkuleznogo syndrome.

There are three types: cavernous, cirrhotic, polikavernozno-cirrhotic and apnevmatozno-cirrhotic. This is the most severe variant of cirrhotic tuberculosis with severe intoxication, bleeding and hemoptysis and lung failure DC bacterioexcretion.

Course and outcome of CTL depend on how quickly progressing dysfunction of the respiratory and circulatory and pulmonary heart development.

Diagnosis of pulmonary tuberculosis cirrhotic is placed on the basis of medical history, X-ray data, bacteriological researches on MBT.

### **Literature 1,2,3,4,5.**

### **Subject №7 Pathogenesis and Clinic of extrapulmonary tuberculosis. Diagnosis and clinical features of extrapulmonary tuberculosis.**

Tuberculosis affects almost every organ. Localization distinguished: osteo-articular (occurs in 47% of patients with extrapulmonary tuberculosis); urogenital organs (37%); eyes (5.5%); meninges (meningitis - 4%); lymph nodes (2.5%); peritoneum (1.5%); the skin (1.5%). Very rare tuberculosis of other organs: the pericardium, the adrenal glands, intestines, etc. Extrapulmonary tuberculosis is more common in adults (79%) and least - children and young people (16% and 5%).

Regardless of the place of lesion inflammation cycle is the same everywhere: hearth (granuloma) - melting it (caseation) - formation of degradation of the cavity (cavity) - occurrence when redevelopment fibrosis (hardening). The initial manifestations of the disease with minimal lesions produce a picture of intoxication. With the spread of its symptoms process depends on disturbances inherent in the affected organ.

Recognition of extrapulmonary tuberculosis is impossible without X-ray examination and tuberkulinovoyh samples. Diagnosis is carried out based on the three stages of the disease.

The first step - the appearance of the primary lesion tuberculous inflammation within the smallest unit anatomical gradually spreading by contact.

Second step - involvement in pathological (painful) process surrounding tissues and organs that are functionally closely related to the affected organ (e.g., the spread of tuberculosis in the urinary tract during renal tuberculosis, etc.).

The third stage - the complete defeat of the body TB system and surrounding tissue with the occurrence of complications.

Extrapulmonary tuberculosis is characterized by the fact that it is detected quite late, about 3 months to 10 years after onset.

**eye tuberculosis.** It affects all parts of the organ of vision - cornea, conjunctiva, choroid, fundus, the optic nerve and adjacent vessels, vitreous, etc. Tuberculosis can simulate any eye disease. This gives rise to pain in the eye, with its spread to the entire half of the head, eyelid edema and conjunctival redness. With the defeat of the cornea, vitreous body, as well as other parts of the eyeball may be bleeding, ulceration of the cornea, blurred vision. The disease is usually long, recurrent. The forecast can be very different: from cure to complete blindness.

**intestinal tuberculosis.** Infiltrative ulcerative intestinal lesion *Mycobacterium tuberculosis*, preferably a blind and ileum from which the process extends to the peritoneal lymph nodes. It may occur as a primary disease or secondary to pulmonary tuberculosis or genitals. Violation of bowel function, often diarrhea, loss of appetite, pain, sometimes sharp, usually in the right iliac region and around the navel, against fever and progressive emaciation. Bloating can find compacted cecum. Along with the clinical picture of the presence of *Mycobacterium tuberculosis* in the feces and characteristic radiographic signs, positive tuberculin test.

**tuberculous meningitis.** Usually arises as a complication of disseminated tuberculosis. They suffer mostly children. The child becomes drowsy, lethargic, pale, irritable, appears low-grade fever. Later sharply intensified headaches that cause a patient stops, shouts, photophobia, the temperature rises to 39 ° C. Drowsiness sometimes comes to express the state of the stun. Less frequently agitation, delusions or jerking. Characterized by tension neck and abdominal muscles drawn in the abdomen, legs flexed position, positive meningeal symptoms, protrusion of the large fontanelle in children. The defeat of the cranial nerves causes strabismus, ptosis century, asymmetry persons, the uneven pupils. The pressure of cerebrospinal fluid increased sharply, it is determined an increased number of lymphocytes and protein content is reduced sugar, Recognition. Based on the presence of tuberculosis and the exclusion of other diseases - mumps, otitis media, sinusitis, primary lymphocytic meningitis. From purulent meningitis is characterized by gradual onset, symptoms and a characteristic change in the cerebrospinal fluid. Timely properly begun treatment can cure 95% of patients.

**Musculoskeletal (Osteoarticular) tuberculosis.** It is the result of introduction of infection in the bone hematogenous route from the primary tumor (lung, lymph nodes). There is an inflammation of the bones - osteitis, from process spreads to a nearby joint. In addition, it may be arthritis toksikoallergicheskije character.

*Osteoarticular tuberculosis* It occurs mainly in childhood and adolescence and occurs in most cases as a monoarthritis (loss of one joint) or as an isolated lesion of the spine. Most often it begins in the bones of a densely-developed vascular system: the vertebrae, wrist bones, feet, and other bones in their limbs periarticular part. The frequency of joint damage has the following sequence: knee, hip, ankle, elbow, shoulder, due to their varying degrees of load. As a rule, there is a small multiple lesions of joints and single - major.

Early diagnosis of tuberculosis of bones and joints is difficult because the patient goes to a doctor only when a sharp violation of the affected organ functions. Symptoms and flow characteristic for tuberculosis intoxication: fatigue, weakness, sweating, loss of appetite, weight loss gradual periodically slight increase in body temperature in the evening to subfebrile (37-37,5 ° C). Early signs of osteoarticular tuberculosis - is a pain, limitation of motion, atrophy and muscle tension around the affected area. By later symptoms include fistula formation, from which the liquid is released with pus caseation admixture having a cheesy appearance. In the study of these emissions are *Mycobacterium tuberculosis*, blood picture changes accordingly, as characterized by X-ray data.

**Kidney and urinary tract tuberculosis.** Proceeds as other inflammatory diseases of the system. Diagnosis is based on the presence of primary tuberculous mycobacteria obnaruzhivaniya hearth and in urine. There weakness, headache and back pain, fever, gross hematuria may occur, which is sometimes the first symptom of the disease, and proteinuria (protein in urine). Typical pallor and puffiness of the face and eyelids, which give the face a characteristic appearance. Swelling may be on the lower extremities, lower back, at least - on the upper extremities. Sometimes the fluid appears in the abdominal cavity and in the pleura. Consistency edema often dense. Increased blood pressure to moderate numbers. Headaches are not permanent, but sometimes very intense, accompanied by dizziness and nausea. Slowed heart rate. It happens, tuberculosis that is affected kidney and the heart muscle due to insufficient blood circulation may be so-called congestive liver. Urine output is reduced in accordance with the degree of edema. In the future, the volume of urine begins to grow and becomes more than the norm.

Sometimes a complication of acute glomerulonephritis, which occurs when the kidney tuberculosis, is a disorder of the cerebral circulation with an increase in brain vascular permeability and a sharp rise in pressure in the cerebrospinal fluid, the so-called renal eclampsia. Forerunners - severe headache with nausea,

dizziness, general weakness. Attacks begin suddenly, the patient immediately loses consciousness, sometimes screams, bites his tongue, there is rattling breathing, frothing at the mouth. Cramps cover the major muscle groups of the body. Pupils are more extended in the light did not react. The pulse slowed down to 50-60 beats per minute. Expressed arterial hypertension. Cramps extend from several minutes to an hour. Number of seizures may be 3-4, between the patient is unconscious (coma). Duration of eclampsia is not more than two days, the consciousness comes back gradually. Its outcome is usually favorable, but sometimes during the attack the patient dies because of the injury to vital centers. Since tuberculosis usually affects one kidney, eclampsia is rare. Tuberculous kidney process may spread to all the urinary tract (ureter, bladder, urethra), causing symptoms characteristic of their destruction, as with any inflammatory process.

**Literature 1,2,3,4,5.**

### **Subject №8 tuberculous pleurisy. Tuberculous meningitis. Clinic and over. Differential diagnosis of tuberculous pleurisy and tuberculous meningitis.**

Tuberculous meningitis as a separate nosology has existed since 1893, when the first mycobacterium tuberculosis were detected in the cerebrospinal fluid of patients with meningitis. At the end of the twentieth century, tuberculous meningitis was considered a disease mainly of children and adolescents. However, lately the difference between the incidence of children and adults declined significantly. Most susceptible to meningitis tubercular etiology patients were immunocompromised due to HIV, malnutrition, alcoholism, drug abuse, elderly. In 90% of cases of tuberculous meningitis is secondary in nature, ie. F. Develops against the background of active tubprotsessa other bodies or signs of suffering before tuberculosis. In 80% of primary tuberculous hearth is localized in the lung. If the primary site can not be identified,

Tuberkulezny meningitis develops the penetration of Mycobacterium tuberculosis in the meninges. The source of tuberculosis infection can act disseminated pulmonary tuberculosis, genital tuberculosis, tuberculosis of bone, tuberculosis mammary tuberculosis renal tuberculosis larynx, etc. In rare cases, infection occurs by contact: misses the cerebral membranes in the presence of tuberculosis skull pathogen in spinal tuberculosis - in the spinal cord. According to some estimates about 17% of cases of tuberculous meningitis is caused by infection with lymphogenous.

#### **Symptoms of tuberculous meningitis**

##### *periods course*

Prodrome takes an average of 1-2 weeks. Its presence is distinguished from other tuberculous meningitis meningitis. Characterized by the appearance cephalgia (headache) in the evening, the subjective state of health deterioration, irritability or apathy. Then amplified cephalgia, nausea and vomiting may occur. Often noted low-grade fever. To see a doctor in this period of suspected tuberculous meningitis can not be specified in mind nonspecific symptoms.

stimulation period manifests with symptoms of abrupt increase of body temperature rise to 39 ° C. Headache is intense, accompanied by increased sensitivity to light (photophobia), sound (hyperacusis), touch (cutaneous hypersensitivity). Compounded by lethargy and drowsiness. It noted the appearance and disappearance of the red spots in different parts of the skin, which is associated with a disorder of the autonomic innervation of the vasculature. There are meningeal symptoms: rigidity (strength) of muscle nape symptoms Brudzinskogo Kernig. Initially, they are vague in nature, then gradually increase. By the end of the second period (after 8-14 days) the patient lethargic, confused consciousness, characterized by typical meningeal posture "setter".

Period paresis and paralysis (terminal) is accompanied by a complete loss of consciousness, paralysis and the appearance of the central sensory disorders. Disturbed breathing and heart rate, possible convulsions, hyperthermia to 41 ° C or low body temperature. If untreated, this period tuberculous meningitis during the week leads to death, which is caused by vascular paralysis and respiratory centers of the brain stem.

#### **clinical forms**

Basilar tuberculous meningitis in 70% of cases, has a gradual development with the presence of prodromal period, the duration of which varies within 1-4 weeks. In the period of irritation grows cephalgia, there anorexia, vomiting typical "fountain", may increase drowsiness and lethargy. Progressive addition of meningeal syndrome disorders accompanied by cranial nerves (FSK): squint anisocoria, visual impairment, ptosis of the upper eyelid, deafness. In 40% of cases with ophthalmoscopy determined stagnation of the optic nerve. Perhaps the defeat of the facial nerve (facial asymmetry). Progression meningitis leads to bulbar symptoms (dysarthria and dysphonia, choke), indicating the lesion IX, X and XII pairs FSK.

Tuberculous meningoencephalitis generally corresponds to the third flow period meningitis. Typically the prevalence of symptoms of encephalitis: paresis or paralysis of the spastic type, sensitivity fallout, or double-sided hyperkinesia. Consciousness is lost. Marked tachycardia, arrhythmia, respiratory disorders up to Cheyne-Stokes respiration, pressure sores are formed. Further progression ends with fatal meningoencephalitis.

Spinal tuberculous meningitis is rare. Usually manifests with symptoms of cerebral lesions shells. Then in 2-3 periods join pain of herpes type, caused by the spread of tuberculosis in the spinal roots. When the blockade of cerebrospinal fluid pathways radicular pain are so intense, that can not be removed even with narcotic analgesics. Further progression is accompanied by pelvic disorders: first delayed and then urinary and fecal incontinence. There are peripheral flaccid paralysis, mono- and paraparesis.

#### ***Diagnosis of tuberculous meningitis***

Tuberculous meningitis is diagnosed phthisiologist together with specialists in the field of neurology. Of paramount importance in the diagnosis of a study of cerebrospinal fluid taken by lumbar puncture. Changes can be detected as early as prodrome. Colorless transparent cerebrospinal fluid flows from the high pressure of 300-500 mm of water. Art., sometimes jet. There cytosis - improving cellular elements in 1 to 600 mm<sup>3</sup> (at a rate of - 5.3 to 1 mm<sup>3</sup>). At the beginning of the disease it is neutrophil-lymphocyte character then becomes lymphocytic. Reduced concentration of chloride and glucose. Particular attention is given to the indicator of glucose levels: the lower it is, the more serious prognosis.

A typical feature is the loss cobweb fibrinous film formed on standing CSF in vitro within 12-24 hours. Positive reaction Pandey and Nonne-Apelta. The presence of protein-cell dissociation (cytosis relatively small at high protein concentration) is characteristic for the block in the circulation of cerebrospinal fluid. Detection of Mycobacterium tuberculosis in cerebrospinal fluid is now only occurs in 5-10% of cases, although previously it is from 40% to 60%. To increase the detection of mycobacteria allows centrifugation of cerebrospinal fluid.

Meningoencephalitis Tuberculous meningitis basilar differs from a more pronounced rise in protein levels (4-5 g / l in comparison with 1.5-2 g / l at basilar form) is not very large cell count (100 cells in 1 mm<sup>3</sup>), a large decrease in the concentration glucose. Spinal tuberculous meningitis usually accompanied by yellow coloring cerebrospinal fluid (xanthosis), a slight increase its pressure, cells to 80 cells per 1 mm<sup>3</sup> pronounced decrease of glucose concentration.

During diagnostic search differentiate from tuberculous meningitis and purulent meningitis serous, tick-borne encephalitis meningism accompanying some acute infections (influenza, dysentery, pneumonia, and so on. P.). In order differential diagnosis with other cerebral lesions may be conducted CT or MRI of the brain.

**tuberculous pleurisy**- specific reaction pleura caused by exposure to Mycobacterium tuberculosis. Tuberculous pleurisy may develop as an independent form of tuberculosis infection or to accompany other clinical options for pulmonary tuberculosis. Sometimes pleural defeat a manifestation poliserozita - inflammation of the serous membranes of tuberculous etiology. In the structure of the respiratory tuberculosis tuberculous pleurisy is 8-14%.

It is distributed mainly among young adults (under 40 years), more often than men suffer. The share of tuberculous pleurisy genesis account for nearly half of all exudative pleurisy, which can not but arouse suspicion of specialists in the field of tuberculosis and pulmonology.

In most cases, tuberculous pleurisy develops against the background of active pulmonary tuberculosis: focal, infiltrative, disseminated tuberculosis VGLU, primary tuberculosis complex, etc. Occasionally there as an independent clinical form in the absence of signs of tubercular lesions of other organs. In patients with tuberculous pleurisy may be complicated by spontaneous or artificial pneumothorax (collapse therapy).

#### **Classification of tuberculous pleurisy**

Depending on the presence / absence and the nature of effusion TB are fibrinous pleuritis (dry) and exudative (exudative). In the latter case can occur serous, bloody, cholesterol, purulent exudate.

Fibrinous (dry) pleurisy occurs with a minimal amount of fluid, wherein increased content of fibrin. The liquid portion of the exudate is absorbed rapidly, and fibrin is deposited in the pleural sheets. Over time between pleural sheets formed fibrous strands, pleural cavity partly or completely obliterating - dry pleurisy passes into the adhesive (adhesive) pleurisy.

The most common variant of tuberculous pleurisy - pleural. The amount of effusion is usually significant, exudate quickly comes back after aspiration during thoracentesis. The predominant cellular composition of the following types of fluid: lymphocyte, eosinophil and neutrophil. With the dramatic increase in capillary permeability pleura and output a large number of character exudate erythrocyte becomes a hemorrhagic or serous-hemorrhagic. Cholesterol exudate has a thick consistency, yellow color, it is

determined by the large amount of cholesterol. Seropurulent and purulent exudate typically formed when a large caseous-necrotic pleural reaction.

Localization distinguish apical, interlobar, costal, epiphrenic, paramediastinalny tuberculous pleurisy. Usually one-sided defeat, bilateral pleurisy of tuberculous etiology is rare (1.5%). In clinical terms the most significant release of the following types of tuberculous pleurisy: allergic, perifocal, and purulent pleural tuberculosis pleurisy. During tuberculous pleurisy allocate 3 periods: 1) the accumulation of fluid and increase clinical symptoms, 2) stabilization 3) sucking exudate and clinical signs subsided.

### **Symptoms of tuberculous pleurisy**

Allergic form of tuberculous pleurisy occurs in people with primary tuberculosis, have increased sensitivity to tuberculin and are prone to severe hyperergic reaction. The clinic takes place badly: dramatically increased body temperature, febrile persists for 10-14 days. Since at this time there is a rapid accumulation of serous effusion, there is shortness of breath, pain in the side, and tachycardia. Resorption of fluid takes place within a month, but when a large amount of effusion, this process may take a prolonged duration. Simultaneously with pleurisy (sometimes before or after) appear phlyctenas, erythema nodosum, polyarthritis.

Perifocal tuberculous pleurisy begins subacute or gradually. Often patients onset of symptoms associated with the previous supercooling or SARS. Patients worried about a dry cough, tingling in the chest, a non-permanent low-grade fever. Increased pain in his side provoked by deep breathing, lying on the sick side, pressure on the intercostal space. Pain syndrome is often mistaken for myositis, Plex intercostal neuralgia, angina, and with irradiation in the stomach - for an attack of acute cholecystitis.

If perifocal pleurisy occurs with the accumulation of serous fluid, the clinical picture becomes more pronounced: increased body temperature is determined by the time, there is tachycardia, shortness of breath, sweating. Perifocal tuberculous pleurisy during prolonged (4-6 weeks), often relapsing.

Pleural tuberculosis may take the form of disseminated, the source process, caseous-necrotic response. It can be accompanied by accumulation of serous, serous-purulent or purulent exudate. for pleural tuberculosis resistant and long lasting. Subacute onset or oligosymptomatic. Dominated by symptoms of intoxication and fever.

A special kind of exudative tuberculous pleurisy is empyema. The clinical picture is characterized by intoxication severe: body temperature above 39 ° C, chills, night sweats, severe weakness. Gradually increasing dyspnea and tachycardia, there are nagging pain in his side, reduced body weight. Perhaps the formation of bronchopleural fistula, as evidenced by the expectoration of purulent exudate. Long existing purulent pleuritis complicated by the phlegmon may chest wall plevrotorakalnogo fistula formation, visceral amyloidosis.

### **Diagnosis of tuberculous pleurisy**

Various forms of tuberculous pleurisy The physical have their own characteristic, auscultation, radiological, and laboratory data. Therefore, at the slightest suspicion of tuberculous etiology of the disease the patient should be counseled phtisiologist.

On the allergic nature of tuberculous pleurisy points expressed in the blood eosinophilia and pleural exudate. During diagnostic pleural puncture are serous fluid, but MBT in it, as a rule, are not detected. During the VATS can be determined by flushing the pleural layers.

When fibrinous pleuritis affected side of the chest behind during breathing, pleural friction auscultated determined shortening percussion sound. pleural layers (mooring line) detected when carrying out X-ray of the lungs. According to US pleural exudate is not detected or determined scanty.

A completely different picture is typical of exudative tuberculous pleurisy. Physical examination reveals smoothness (when a large amount of fluid - bulging) intercostal spaces, dullness over the area accumulation of fluid, mediastinal shift patterns in a healthy way. In the acute phase characterized by significant changes in the hemogram leukocytosis and accelerated ESR, lymph and Eosinopenia. When X-ray and ultrasound determined free fluid in the pleural cavity. A detailed assessment of the state of the lung tissue is possible only after the evacuation of the exudate. The diagnosis of purulent pleurisy is confirmed upon receipt of purulent exudate in the pleural puncture.

Pleurisy of tuberculous etiology requires differentiation with pleurisy accompanying pneumonia, pleural mesothelioma, lung cancer, pulmonary embolism, congestive heart failure, collagen. In doubtful cases, verification of a diagnosis contributes CT lung plevroskopiya (thoracoscopy) Mantoux test, fine-needle biopsy of the pleura.

### **Technique of pleurocentesis**

To perform the study, a needle length of 9-10 cm and a diameter of 2.0 mm with a steeply sloped (60 °) tip. The adapter - a rubber tube connected to the needle 20 gram syringe. Adapter as the filling of the syringe remote from the pleural cavity contents are periodically clamped tool. This trick is needed to prevent the ingress of air. Quite convenient as an adapter is to use specially made two-way cock.

Puktiruyut pleural cavity of the patient in a sitting position retracted away and placed on the support arm. In this position the rear edge-phrenic sinus occupies the lower parts of the pleural cavity.

Puncture the chest wall is performed in the VII-VIII intercostal space on the posterior axillary or shoulder lines. In case osumkovaniya exudate place inserting a needle into the pleural cavity is determined, following the results of X-ray or ultrasound.

*So, step by step technique of pleural puncture:*

1) in a syringe procaine 0.5%. It is best to take the first syringe 2 grams. And dial it novocaine completely.

Note: the smaller the area of the piston of the syringe, the less painful is pleural puncture. This is especially true in cases where you do pleural puncture in children.

2) pierces the skin and immediately begin to slowly premise procaine, slowly pushing on the plunger of the syringe, and slowly pushing the needle further - into the muscles and soft tissues of the chest wall.

Note: a puncture needle is introduced into the intended intercostal space, focusing on the upper edge of the ribs. If you insert the needle at the bottom edge, it is possible to damage the intercostal arteries, and it is very dangerous due to uncontrolled bleeding from it (Fig. 2)

3) Feel elastic resistance of tissues located in intrathoracic fascia. And at the time of penetration of the needle into the pleural cavity of a sense of "free space".

4) return movement of the piston in the syringe is removed the contents of the pleural cavity, blood, pus, chylous or other type of exudate. This first - a visual estimation of the result of pleural puncture is important diagnostically.

5) Change the thin needle of a disposable syringe, which makes anesthesia, a thicker, reusable, is connected to it via an adapter hose from the electric pumps and re-pierce the chest wall on the place already anesthetized. And suction exudate from the pleural cavity by suction.

Typically, diagnostic puncture converted into medical procedure involving the complete removal of abnormal contents washing the pleural cavity antiseptic agents, antibiotics, drainage systems with connection to the workpiece in cases autologous blood hemothorax.

**Literature 1,2,3,4,5.**

### **Subject №9 Features of cough in patients with pulmonary tuberculosis and patients with non-specific respiratory pathologies.**

**Cough-** a complex physiological reflex aimed at cleansing the respiratory tract in natural or pathological conditions - one of the most frequent respiratory symptoms. Usually, it does not require specialized medical actions and samozavershaetsya. Cough in acute respiratory infections usually lasts 7-9 days. Recent studies have convincingly shown that even a healthy child in the absence of infection in the near history may cough a few times per day, but never - at night. At 5-8 episodes of respiratory infections per year, for attending kindergarten quite rare, the impression of "continuous cough"

Cough that lasts not more than 2 weeks. Regarded as acute, the continued for 3-4 weeks. - as subacute and more than 4 weeks. - as chronic. Cough that lasts more than 4 weeks. or repeated more than 4 times a year, it requires advanced diagnostic procedures. Coughing in newborns and infants is always treated as a pathological and requires decoding. Cough, especially recurrent or persistent, can be a symptom of a chronic pulmonary disease that requires optimal diagnostic tactics constructed taking into account the mechanism of its occurrence and the non-specific defense system of the respiratory tract.

Cough as a physiological response. Each push cough caused by mechanical, chemical or inflammatory irritation cough receptors by afferent nerves transmitting signal in the medulla oblongata, then - on efferent nerves to muscles.

Cough receptors are located in the larynx, trachea, bronchi (maximum receptor density - in the keel (spur) trachea (carina tracheae)), pleura, ear canal (afferent and efferent nerves - wandering); in the nasal mucosa and the paranasal sinuses (afferent nerve - trigeminal efferent - spinal); pharynx (afferent nerve - glossopharyngeal, efferent - phrenic); in the pericardium, diaphragm (afferent and efferent nerves - phrenic). Cough is implemented in several stages. You should first amplified breath, ending by closing the glottis. Immediately expiratory muscles is activated, the intrathoracic pressure rises to 60-300 mmHg Glottis opens abruptly, and the air flow directs the trachea at a speed 100-280 m / s, in the oral cavity corresponds to the volume rate of 10 l / s.

Cough in tuberculosis does not manifest itself all the time. If there is a focal form of the disease, there is no cough at all. In the case of miliary tuberculosis, he can wear very pronounced. Basically

TB patients cough is dry and when it appears there is a small amount of sputum. In tuberculosis, which has a destructive form, cough is deaf and it is characterized by high metal timbre. Such sounds occur due to the resonance cavity.

Cough in tuberculosis occurs mostly in the morning, when taking a vertical position after getting out of bed. During sleep, the sensitivity of the mucous membrane is greatly reduced, so the morning is collected a huge amount of sputum, which actually spewed out when climbing out of bed. It is necessary to take into account the fact that a small cough can cause the whole reaction and delayed for a long time, to an acceptable light purification. Besides contemplation and listening to the cough is quite contagious thing. For example, if one person in the room coughed, then other people present in the room be sure to support him.

*Cough in tuberculosis will help in the diagnosis of* By the nature of cough in tuberculosis can judge the processes occurring in the lungs. For example, children with tuberculous bronchadenitoma tumor shape the sound of coughing gives a metallic shade and has some convulsive. In medicine it is called bitonal.

It comes this sound because of the change of speed of incoming air into the lungs due to enlarged lymph nodes large bronchi. In tuberculosis of the larynx there is insufficient closure of the glottis. Cough in this case, silent, husky and has a particular specificity. According to patients with this disease, as if his throat is filled with down. For any long-term occurrence of cough, which has no specific external cause, you must contact your doctor and undergo chest X-rays and X-rays of the lungs. Symptoms of TB can be varied. Symptoms of TB depend largely on the type of development, localization, shape, infections, as well as on the individual patient. A variety of symptoms difficult to distinguish tuberculosis which is in turn the cause of late referral to a specialist with all the ensuing consequences. Cough with tuberculosis and the risk of hemoptysis - the theme of this article. Cough in tuberculosis - particularly the problem of tuberculosis cough is a constant symptom of lung disease. At the beginning of tuberculosis cough persistent and dry, which is exacerbated at night and in the morning. With further development of tuberculosis cough may eventually become wet with mucus. In tuberculosis chronic cough, so the presence of more than three weeks should alert the person coughs and become the primary cause of treatment to the doctor. With ARI, pneumonia bronchitis or cough can also be, however, in contrast to cough in tuberculosis. Cough when these diseases do not last so long, and has a very different character. Tuberculosis disease is called a variety of masks. Signs and symptoms of tuberculosis can actually be very different, and often present themselves for other diseases symptoms. The first sign of tuberculosis defined localization in the patient's infection. Clearly, pulmonary tuberculosis, and tuberculosis, for example, skin or pseudotuberculosis occur in different ways and are not common causes and effects. In such cases the symptoms of the disease depends generally on the activity and severity of the infection process. Cough tuberculosis: danger hemoptysis Haemoptysis -one of the major signs of tuberculosis. Typically, this symptom is observed at infiltrative tuberculosis. In most cases, this symptom itself lets you know right away with a bout of coughing. In addition to moments of coughing sputum comes out even small amounts of fresh blood. In such cases, it is possible the occurrence of pulmonary hemorrhage - a very dangerous condition may even become the cause of death.

In the case of its development urgently need to call an ambulance. But it is important to know and distinguish hemoptysis in this disease, heart failure, or when such a dangerous illness like lung cancer.

### **Cough in tuberculosis.**

At the beginning of the disease is marked compulsive cough, then dry or wet painful cough. May appear in the sputum of blood traces. Characteristically increased cough at night.

Cough - one of the main symptoms of the disease. Also, there are weight loss, prolonged fever (37.5 - 38 ° C), chills, and night sweating. In the history of the patient can come into contact with TB patients.

In most cases, untreated tuberculosis leads to death of the patient. Access to a doctor phthisiatrician strictly necessary. To confirm the diagnosis is performed radiography lung, tuberculin skin test, and so on.

**Literature 1,2,3,4,5.**

### **Subject №10 features of fever in patients with pulmonary tuberculosis and patients with non-specific respiratory pathologies.**

temperature rise in tuberculosis may experience a long period of time without the localization process in any organ. Fever in most intermittent nature, are clinically classic talking about the common symptoms of tuberculosis: a hectic kind of sick, drop weight, night sweats, etc. Of course, these phenomena are not conclusive for tuberculosis... blood picture is not typical. White blood cell count is usually not increased, toxic neutrophils are not changed, has not happened yet any bacterial layers (as seen, for example, sepsis and cavernous especially when ulcerations intestines). Thus, changes in neutrophil toxicity if tuberculosis of guts and caverns are excluded with a high degree of probability say against tuberculosis. Mantoux test is sharply positive, but by itself it positive diagnosis does not solve. The spleen is often enlarged and palpable: it is dense, but not from the capsule voltage, and as a result of hematogenous due process in itself spleen, so the consistency of it for a long time does not change, as opposed to typhoid spleen, which in the course of the disease becomes noticeably softer by reducing the capsule voltage (Naegeli ). It should be emphasized, however, that the swelling of the spleen with a feverish condition caused by tuberculosis, not necessarily. which in the disease process becomes noticeably softer by reducing the capsule voltage (Naegeli). It should be emphasized, however, that the swelling of the spleen with a feverish condition caused by tuberculosis, not necessarily. which in the disease process becomes noticeably softer by reducing the capsule voltage (Naegeli). It should be emphasized, however, that the swelling of the spleen with a feverish condition caused by tuberculosis, not necessarily.

After these weeks lasting febrile seizures with uncharacteristic described phenomena appear, often only after several months, tuberculosis manifestations from organs (pleurisy, peritonitis, t. D.). This picture of the disease, ie. E. Due to temperature increase tuberculous process without perceptible manifestations of specific side bodies included in the outlined Landouzy (Landouzy) group, the term "tifobatsillez" (acute tuberculous sepsis). In this sense, it is Landouzy and described their cases, the prognosis that in general is not bad. But now under the name of "tuberculous sepsis Landouzy" refers particularly massive hematogenous dissemination of tuberculosis infection in the body usually with a sharply reduced resistance. Also in this group of clinicians in most cases not possible to reveal organ localization, as patients die earlier than they can form specific changes in organs, but pathologists in the decaying tissue found in a large number of tubercle bacilli, arranged in groups. Normal erythrocyte sedimentation rate, and only a slight shift to the left do not exclude disseminated tuberculosis (own observation of 80-year-old male). It goes without saying that the obscure, suspicious TB fever should be aggressively seek local manifestations, which may be in the form of primary lesions in the lungs, hilar and mesenteric lymph nodes, and the tonsils. Normal erythrocyte sedimentation rate, and only a slight shift to the left do not exclude disseminated tuberculosis (own observation of 80-year-old male). It goes without saying that the obscure, suspicious TB fever should be aggressively seek local manifestations, which may be in the form of primary lesions in the lungs, hilar and mesenteric lymph nodes, and the tonsils. Normal erythrocyte sedimentation rate, and only a slight shift to the left do not exclude disseminated tuberculosis (own observation of 80-year-old male). It goes without saying that the obscure, suspicious TB fever should be aggressively seek local manifestations, which may be in the form of primary lesions in the lungs, hilar and mesenteric lymph nodes, and the tonsils.

In the secondary run similar increase in temperature is often preceded by the appearance of erythema nodosum (differential diagnosis of erythema nodosum. The tertiary period can often be discussed onatechnyh abscesses or bone tuberculosis outbreaks as a source of increased temperature. In such cases, the ESR, as opposed to the primary or secondary period TB is always sharply accelerated. We have to also think about the kidney tuberculosis, although the differential diagnosis in cases of fever of unknown about it hardly ever can get GP I grew up.

**Literature 1,2,3,4,5.**

### **Subject №11 Clinical and radiographic and morphological The specifications infiltrates in the lungs of various origins.**

Sometimes a seal may appear in the area of tissue, in some cases it can occur in any organ, such as in the lung. Seal appears due to accumulation of blood or cells on a separate site. The disease and will be called infiltration. There are several types of the disease.

When the cluster can be seen an increase in the size of the tissue, and the color tone can be changed. Appear soreness, increased tissue density. When surgical lung infiltration seal occurs due to saturation of the artificial nature, that is due to medications or alcohol.

Pulmonary infiltrates may occur for a variety of reasons. One-third of patients the cause was a mechanical action, the other third of the infiltration of the lungs occurred as a result of penetration of odontogenic infection. In other patients, the reason for all served as any other infection. With age, the risk of infiltration syndrome in no way increase or decrease.

Pathogens infiltration syndrome is considered to be agents in the microflora of the mouth. Another cause of the disease is the resistance of microorganisms, it is expressed in the protective functions of the human organism. Infiltration can manifest itself during infection of the contact type, as well as its nature lymphogenic dissemination.

### Типы инфильтратов (схема)



- 1- бронхолюбулярный; 2-округлый; 3-облаковидный; 4-облаковидный в фазе распада; 5- лобит; 6- перикапсулит (боковая проекция);

The cause of the syndrome of pulmonary infiltrates may be acute appendicitis. How many know that appendicitis, or rather, his aggravation is an inflammatory nature tumor. Cause infiltration syndrome can also be a low-quality medical treatment or violation of sanitary norms. Focal changes in the lung may occur as a result of intramuscular injection. Ie soaking drugs cause accumulation of the drug.

Infiltration of lung tissue occurs over several days. The following symptoms may occur at this time.

- Slightly elevated temperature of the body, which does not decrease the long term.
- In the affected area, in some cases, a small tumor.
- The occurrence of pain.
- Compared with focal pneumonia, eosinophilic infiltration occurs less noticeable and more smoothly.
- Cough eosinophils expressed implicitly, the most striking symptom is coughing up blood. It has already signaled that eosinophilic infiltrates in the lungs began to disintegrate.
- In most cases, eosinophilic infiltration occurs six segment or in other areas of the upper lobes.
- Pale complexion shade may also indicate tuberculosis, infiltrative type. The patient can become accustomed to the increased temperature and does not notice that it is somewhat higher position. After cough may be heard wheezing.

The first medical specialist to be sure that the patient is indeed present pulmonary infiltration. This is done according to X-ray. Depending on which character has the disease, productive or exudative, will appear noticeably different changes in the lung or lungs.

olshe all the changes seen in pulmonary infiltration of inflammatory type, especially when ordinary pneumonia. In this case, there will be a tremor in her voice, muffled sound as possible, and crepitus.

When the disease is in the nature productive, particularly when tumor occurs, the above symptoms occur. In such a situation, to detect the disease is almost impossible.

In the case of shared infiltration will occur a sufficiently large light shading area. The contours of the spots depend on the substrate process, as well as from the place of its origin.

In this case it is necessary to determine what the nature of the infiltration of the patient. Inflammation shared type in most cases occur either in tuberculosis, or pneumonia. When the tumor nature of the disease the proportion of the whole is not captured.

Inflammatory infiltrates share type is also characterized in malignant lung tumors.

In the case where the occurrence of non-equity patient type seal should differentiate them, primarily with peripheral lung cancer. In this case, the initial stage of the disease will pass quickly. It will not be showing any symptoms.

However, radiographic infiltrate will be different from a malignant tumor. This is due to the fact that a picture such seals are of irregular shape. Cancers, in this case, will almost always have a standard form. This is one of the most important distinguishing characteristics of these two diseases.

Lobar pneumonia is very much like tuberculosis finished off, characterized by the following symptoms for her.

- Acute illness during the initial stage.
- Increased organism and body temperature.
- Cough dry type.
- In some cases of hemoptysis.
- Pain in the chest area.

On X-ray diffraction study of tuberculosis will have finished off seal darker compared with lobar pneumonia. This is particularly shows the tomography. There have been cases of detection of Mycobacterium tuberculosis in a patient when the time frame for the treatment of pneumonia have already passed, and the desired result was not achieved.

In general, the occurrence of infiltrates in the lung characteristic of many diseases:

- Pneumonia. This disease is an inflammation of the lung tissue, in this case necessarily in the process will involve different lobe of the lung. Of the symptoms it is worth noting the constant fatigue, pain in the chest area, as well as the various symptoms of respiratory distress.
- Tuberculosis with infiltrative character. This disease is characterized by a smooth passage, cough presence and location of education in the upper lobes of the lungs.
- Pulmonary infiltrate with eosinophilic character. In other words, eosinophilic pneumonia, a very good effect is achieved with corticosteroids.
- Concomitant with cancerous tumors. Indicators for such a situation would be the occurrence of pneumonia in the same place, as well as cough without productivity. In the case of metastasis to the X-ray there is a large number of shadow round shape.
- RELATED may be character-malignant and tumors. Expressed in this case as infiltration of the tumor in the form of a ball, which has a clear boundary.
- Infiltration may occur and cyst.
- When gangrene of the lungs.
- When post-tuberculosis pnevmoskleroze and other diseases.

**Literature 1,2,3,4,5.**

**Subject №12 lymphadenopathy. Tuberculosis of peripheral lymph nodes and their differential diagnosis.**

**lymphadenopathy**(. Novolat lymphadenopathia;. + Lymph ancient Greek ὀδῆν - iron -patiya +) - a condition manifested by an increase in the lymph nodes of the lymphatic system. This term is either working preliminary diagnosis requiring clarification with further clinical evaluation, or leading symptom of the disease.

The main symptom is lymphadenopathy lymphadenopathy, which may be localized or generalized. Additional symptoms may include:

- night sweats;
- weight loss;
- concomitant prolonged fever;
- Frequent recurrent upper respiratory tract infections (pharyngitis, tonsillitis, sore throat, etc...);
- Pathological changes in the lung radiograph;
- hepatomegaly;
- splenomegaly.

**Tuberculosis of the lymph nodes**

Most often diagnosed in children and adolescents, at least - in adults and the elderly. Are affected more often cervical and submandibular lymph nodes, sometimes - axillary, rarely - groin and elbow. The affected lymph nodes increased in size to 1.5 cm in diameter and more, or a soft solid consistency.

The disease may begin acutely with high temperature and severe intoxication, and inflammation thus spread from lymph nodes on the subcutaneous tissue and skin. With involvement of surrounding tissues are formed thick, large, slow-moving nodes packages. No treatment results in a suppuration: skin above the lymph nodes giperemiruetsya appears floating, pus breaks out and formed long-term healing fistulas. Chronic tuberculosis lymph nodes outer dense formations nodes shown), sometimes chain of small nodules.

There are three forms of the TB lymphadenitis:

- infiltrative
- caseating
- induratum.

Infiltrative form is characterized by a slight increase in the lymph nodes and dense texture. Most affected one group of lymph nodes. Proceeds favorably, we can only hyperplasia of the lymphoid tissue. When caseous form several groups of lymph nodes are affected. Lymph nodes undergo caseation, with suppuration, formation of fistulas and ulcers. During heavy.

Induratum (fibrous) form is prolonged, when it defines dense lymph nodes petrification, scars on the skin after the healed fistulas. This form is often the outcome of caseous forms less infiltrative. From the blood stream and in acute exacerbation during limfoadenitov marked increased ESR, leucocytosis moderately expressed with stab shift and monocytosis.

Diagnosis of tuberculosis peripheral units consists of history (contact with patients with tuberculosis, tuberculosis of the lungs and other organs, scarring on the neck, eye disease), objective data tuberculin (sample sharply positive), detection of Mycobacterium tuberculosis in pus, in punctate lymph nodes cytology punctates and histological analysis of biopsy material.

Outcome is dependent on the timeliness of diagnosis, forms limfoadenita and treatment efficacy. In a favorable current decreases and seal lymph nodes (sometimes followed by the formation therein petrifikatov), fistulas closed. Fistulous form sclerotic end disfigure or keloids.

Examination of the patient with suspected TB should be based on compulsory diagnostic minimum which must be carried out in the primary treatment. Additional diagnostic minimum and optional Diagnostic least performed in a specialized medical institution.

## **Literature 1,2,3,4,5.**

### **Subject №13 Shortness of breath in various forms tuberkulezalegkih and their differential diagnosis.**

In some patients with pulmonary tuberculosis shortness of breath, a mechanism that is dependent on various factors affecting the respiratory center.

Shortness of breath (dyspnea) occurs mainly in patients with advanced metastatic, infiltrative massive, fibrous-cavernous and cirrhotic pulmonary tuberculosis, with pleurisy, pronounced intoxication, significant dysfunction of the nervous and cardiovascular systems. In this case there may be objective or subjective dyspnea.

In the first case it manifests sensation inability to breathe deeply and the need periodically to produce a deep breath. This type of dyspnea is usually not accompanied by hyperventilation and is more common in diseases of the cardiovascular system, neurosis, hysteria, thoracic radiculitis, at least - with pulmonary tuberculosis.

Objectively determined dyspnea characterized by impaired not only the respiratory rhythm, but also pulmonary ventilation, ie in cases where respiration reserves sharply reduced. However, it can sometimes be accompanied by a pronounced subjective sensations, although there is a slight exertion, change of position, and even if the patient conversation. But more often shortness of breath is mixed, that is, subjective and objective.

With various forms of pulmonary tuberculosis observed her the same species as other diseases: deep or shallow rapid breathing, expiratory or inspiratory dyspnea. Most often there is rapid shallow

breathing (tachypnea, polypnoea). It is particularly pronounced in miliary tuberculosis and caseous pneumonia, but it also happens in the initial phase of dry or exudative pleural effusion, pneumothorax with a significant shift of mediastinal organs, in the last balloting after surgical interventions on the lungs.

Shortness of breath develops in different forms of tuberculosis, shortness of breath associated with impaired pulmonary ventilation. Dyspnea at rest occurs in acute miliary pulmonary tuberculosis together with high fever and signs of intoxication.

Pallor of skin, shortening percussion sound with a touch of tympanic, hard breathing. Shortness of breath is a common symptom of chronic fibro-cavernous pulmonary tuberculosis.

Subjectively, patients with dyspnea feel chest tightness, inability to sufficiently spread the rib cage during inhalation or to release it from air during exhalation. Objective evidence of it is the change in respiratory rate (acceleration), participation in the act of breathing support muscles and cyanosis. There are three types of shortness of breath: inspiratory (inhalation difficult), expiratory (exhalation difficult) and mixed when difficult inhaling and exhaling.

Inspiratory dyspnea is edema of the vocal cords, while squeezing the trachea or larynx tumor, when hit by a foreign body, paralysis of respiratory muscles.

Expiratory dyspnea observed in patients with bronchial asthma. Most often, there is shortness of mixed type. Shortness of breath is observed in diseases of various organs. In the first place are the diseases of the respiratory system and blood circulation.

Of Respiratory diseases for which there is shortness of breath, may be mentioned pleurisy, lobar pneumonia, lung cancer, pulmonary fibrosis, emphysema, tuberculosis Lobito, caseating pneumonia, pulmonary embolism (PE) and its branches.

#### **Literature 1,2,3,4,5.**

#### **Subject №14 Emergency medical assistance in the TB clinic.**

Hemoptysis and pulmonary hemorrhage

Hemoptysis and pulmonary hemorrhage observed mainly in destructive forms of tuberculosis, bronchiectasis, basal foci of sclerosis. Very often it is a complication seen in patients with cirrhosis of the lungs.

All hemoptysis and bleeding are divided into true and false (pseudokrovoharkanya). If true blood is allocated directly from the lungs, and when false - from the nose, gums, esophagus, stomach. False hemoptysis occur not during coughing.

Source hemoptysis (bleeding) may be lung and bronchial vessels. Approximately 95% of the blood in the lungs enters the pulmonary artery, and 5% - bronchial arteries. Pulmonary hemorrhage usually occurs because of bronchial vessels.

According to the intensity of the blood separation distinguished:

- hemoptysis,
- bleeding,
- profuse bleeding (haemorrhage).

Hemoptysis - coughing up blood is the spitting individual, clots or blood streaks with phlegm. Per day it is released about 50 ml of blood. During bleeding the patient to cough up simultaneously 50-100 ml of blood. Pulmonary profuse bleeding occurs due to rupture of major blood vessels and very often results in death by asphyxiation (suffocation) due to the filling of the bronchi and trachea by blood clots.

The number of simultaneously selected blood pulmonary hemorrhage divided into small (100 ml), medium (from 100 to 300 ml), large (300 ml).

The main features hemoptysis, pulmonary hemorrhage are:

- Blood from the lungs is released during coughing;
- The blood is bright red;
- Frothy blood.

It should be remembered that the blood before to stand out from the lungs, should go all the way through the bronchi, trachea, larynx and into the oral cavity. This way the blood can be overcome only in the presence of cough shock. That's why there is no pulmonary hemoptysis and bleeding without coughing.

Localization of the source of bleeding or hemoptysis set based on anamnestic data, auscultation, percussion and radiological investigation. Usually, there is bleeding from the lung, which detect destructive changes. Patients themselves often determine the source of the bleeding. Palpation of the chest skin-side bleeding warmer can be felt moving blood clots. Critical to determine the source of bleeding, besides X-ray

examination, it has bronchoscopy. Source hemoptysis and pulmonary hemorrhage is a decay of the cavity, the cavity, lesions of fibrosis, cirrhotic changes.

Differentiate between hemoptysis and pulmonary hemorrhage need of hemoptysis and bleeding from the esophagus, stomach, nasopharynx. Nosebleed characterized allocation dark without coughing blood, which flows along the rear surface of the pharynx. Bleeding from esophageal varices begins suddenly, is profuse in nature. Cough is absent. Thus in patients with liver cirrhosis is diagnosed. Blood is released from the stomach by vomiting, dark color, it is of the form "coffee ground" (due to the stomach contents of impurities). Sometimes, blood coagulation in the stomach, vomit have dark clots. When bleeding from a stomach ulcer there is a lot of bleeding from the unmodified release of blood with vomit. In addition, pulmonary hemorrhage typically smaller compared with gastric.

Treatment. Haemostatic treatment should be directed primarily to the disease, which caused hemoptysis and pulmonary hemorrhage, ie, pulmonary tuberculosis and the main factors of pulmonary hemoptysis, or bleeding.

Patient create conditions of maximum physical and mental rest. In bed, the patient should be in a half-sitting position, which improves the expectoration of sputum and blood clots accumulated in the respiratory tract. Slight active and passive movement during medical examination (auscultation, radiography using a mobile device). If mild hemoptysis, the complete physical rest is not necessary.

In patients with tuberculosis has a significant role antihypertensive therapy, which may contribute to even greater haemostatic effect than the therapeutic effect of drugs that regulate the blood coagulation system. Antihypertensives drugs can be divided into fast and slow motion. Prescriptions for reducing pressure in the pulmonary vessels depends on the volume of blood loss. So, when hemoptysis and low pulmonary hemorrhage is advisable to use drugs in slow motion, and with a large pulmonary hemorrhage - Fast Track to the cessation of blood discharge.

1. For accelerated reducing the pressure in the vessels is assigned:

- ganglioplegic - pyrylium (0.01 g, 3 times a day), temehin (0.001 g 2-3 times every day) benzogeksony (0.1 g, 3-4 times a day), peptamip (1-2 ml of a 5% solution ) subcutaneously or intravenously. Introduction ganglioblokatorov control of blood pressure measurement. Brachial artery it must not be lower than 80 mmHg It is also used for the hypotensive effect:
- antispasmodics - aminophylline administered intramuscularly (1 ml of a 24% solution) or intravenously (10 ml of 2.4% solution). In the case of untreated aminophylline administered papaverine hydrochloride (1.2 ml of a 2% solution) intravenously or subcutaneously (causes prolonged vasodilation of the systemic circulation) or hydrogenated papaverine - Nospanum (2-4 ml of 2% solution) intravenously or subcutaneously. With slight hemoptysis prescribed inside aminophylline (0.1-0.2 g) and hydrogenated papaverine - Nospanum (0.02-0.06 g), 2-3 times a day;
- antitussives - cough can provoke coughing up blood due to increased pressure in the pulmonary artery. To stop or reduce coughing prescribed bromhexine, Atrovent and t. D. To the same end, and designate atropine sulfate (0.1 ml of 1% solution) subcutaneously because it suppresses cough reflex eliminates bronchospasm and dilates the blood vessels of the abdominal cavity.

2. To increase the blood clotting drugs used depending on the performance thromboelastogram and coagulation. In the absence of these studies, the drugs of choice are Dicynonum, gemofobin, fibrinogen or thrombin. destination gemofobin often combine with fibrinogen or tromboplazminom.

- Dicynonum (sodium etamzilat) - administered 2-4 ml of 12.5% solution intramuscularly or intravenously. The drug is involved in the formation of thromboplastin. The action starts after 5-15 minutes after intravenous administration, and after 1-2 hours - intramuscular;
- fibrinogen - 250-500 ml is administered intravenously. Accelerates the transition of fibrinogen to fibrin; It takes effect within 30 minutes. In conventional vials contained 2 g dry fibrinogen. This was dissolved in 500 ml of isotonic sodium chloride solution or 1 g in 250 ml.
- gemofobin - designate the interior of 1 tbsp. spoon 3% solution 3-4 times a day. Also accelerates the transition of fibrinogen to fibrin; It takes effect within 3-6 hours.
- thrombin - 1-2 mg in 2 ml of distilled water by inhalation. Vikasol useful for a violation protrombinoobrazovatelnoy liver function. To stop hemoptysis and pulmonary hemorrhage sulfokamfokain administered intramuscularly (2 ml of 10% solution), which improves the function of respiration and circulation.

3. Reducing blood fibrinolytic activity. For this purpose, conduct correction, elevated fibrinolytic activity, protease enzymes blood, sputum and areas of inflammation in the lung.

For this purpose:

- e-aminocaproic acid (fibrinolysis inhibitor) - administered 5% 100 ml of intravenously (action starts after 15-30 min.), 5% -3-5 ml spray (effective after 5-10 min.);

- contrycal (trasilol) ingitril (gordoks) (an inhibitor of proteolysis) - 10 000 - 20 000 IU intravenously (start di- 30-45 min.);
- ambenom, hydrocortisone (hyaluronidase inhibitors) - 1% - 5 ml Ambene, 12,5-25 we hydrocortisone is administered intravenously (drugs act through 10- 15 minutes).

4. Reduction of pulmonary vascular wall permeability reach their destination attack means:

- Calcium gluconate - 10ml of 10% solution intravenously or intramuscularly or inside. Calcium chloride is administered only intravenously (10 ml of a 10% solution);
- Ascorbic acid - 1.0 g 3-5 times per day.

Preparations for substitution therapy: erythrocytic mass of 150-200 ml 2-3 times in course, albumin 20% - 50 ml, 10% - 100 ml polyglukin (reopoligljukin, rondeks) - 400 to 1200 ml, sodium bicarbonate - 500 1500 ml.

In recurrent pulmonary hemorrhage in patients with destructive lung tuberculosis hemostatic effect is achieved by intravenous (infusion) administration of therapeutic saline mixture (300-500 mL), calcium chloride (10% -5 ml) and hydrocortisone 12.5-25 mg 1-2 times per day.

Modern methods of hemostatic treatment are effective and can achieve stop hemoptysis or pulmonary hemorrhage in 95% of patients. If hemostatic treatment is ineffective, surgical treatment. It decreases the risk of surgery by 10-15 times, when conducted in the period of temporary interruption of pulmonary hemorrhage.

Particular attention is paid to prevention and treatment of complications arising during pulmonary hemorrhage. It becomes the primary prevention of asphyxia caused by blockage of airway blood. The patient should be half-sitting, which helps to improve blood circulation and blood expectorate. In severe cases, blood suctioned from the trachea through the catheter. It is effective to conduct therapeutic and diagnostic bronchoscopy or intubation, drainage of bronchial tubes and suctioning of blood clots. In cases of atelectasis administered proteolytic enzymes in combination with anti-TB drugs.

spontaneous pneumothorax

Spontaneous pneumothorax (Gk + air carapace chest.) - a pathological condition characterized by air entering the pleural cavity without destruction of the thorax.

Spontaneous pneumothorax in pulmonary tuberculosis often occurs:

- a) as a result of rupture bullous emphysema lung (with focal fibrosis, chronic disseminated pulmonary tuberculosis, pnevoskleroze) or lung cysts;
- b) rare - as a result of a breakthrough in the pleural cavity slot.

The following types of spontaneous pneumothorax:

Outdoor - air enters the pleural cavity of the inspiratory and expiratory goes through a hole in the visceral pleura;

Closed - the air gets into the pleural cavity during inspiration, but the back does not work, because the hole in the visceral pleura is closed;

Valve for inhalation air enters into the pleural constantly void and exhalation defect in the visceral pleura locked, forming a valve. Clinic spontaneous pneumothorax in most cases depends on the free pleural cavity size, type of pneumothorax and air intake rate. If the pleural cavity is not obliterirovanna, it fills the air (commonly pneumothorax), dramatically compresses the lung and mediastinal organs. If the pleural cavity is limited (restricted pneumothorax), clinical signs of minor complications.

Patients complain of severe pain in the affected side of the chest, shortness of breath, cough.

Objectively - tachycardia, tambourines and reduced air on the side of a spontaneous pneumothorax. In cases of limited clinical manifestations of spontaneous pneumothorax minor, and in severe cases they are so characteristic that the diagnosis can be made without X-ray examination. The general condition of spontaneous pneumothorax with a serious, sometimes even loss of consciousness. The patient takes a forced situation - half-sitting, becomes restless. There are acute respiratory failure symptoms, breathing quickens, becomes superficial, there is cyanosis, sweating, tachycardia, and in the future - bradycardia. patient death can occur from a painful shock or collapse.

Treatment. A patient give Half-upright. Administered omnopon hydrochloride or morphine for pain relief and suppression of the cough center. Assign also 2 ml of a 10% solution sulfokamfokain subcutaneously, oxygen therapy. If the patient is heavy, is carried puncture of the pleural cavity, followed by aspiration of gas installation to negative pressure. Aspiration patient's general condition is improving rapidly, but then again can worsen if the valve becomes spontaneous pneumothorax or open.

If after repeated aspiration of gas from the pleural cavity of the patient's general condition deteriorates, it is recommended to puncture the chest needle thick and sticky adhesive to fix it to the skin. Thus air which enters the pleural cavity through the damaged light will go out. The pressure in the pleural cavity compared with the ambient, whereby easy and mediastinal organs are not subjected to compression.

The needle should be attached rubber tube, its end dipped in a disinfectant solution. This measure is urgent in the cases of spontaneous pneumothorax in patients with critical condition.

Method is adequate drainage of the pleural cavity (superposition of drainage Byulau) and constant air suction. In spontaneous pneumothorax, the general condition of the patient can improve the conservative measures. With the ineffectiveness of conservative treatment raised the question of thoracotomy and suturing the damaged lung or lung resection.

**Literature 1,2,3,4,5.**

## **Subject №15 tuberculosis and related diseases: TB and COPD, TB and lung cancer, TB and alcoholism.**

### **Tuberculosis and alcoholism**

The problem of alcoholism and concomitant tuberculosis is very urgent.

Individuals with comorbidity (alcoholism and tuberculosis) are of great epidemiological danger not only because of the high prevalence of tuberculosis among alcoholics, but also due to the frequent have severe destructive forms of tuberculosis with massive bakteriovydelenii. This situation is due to the following reasons:

- 1) degradation of the individual;
- 2) Low health literacy;
- 3) failure to comply with the elementary rules of hygiene;
- 4) delays in seeking medical care;
- 5) neglecting medical recommendations;
- 6) refusal to radical therapy.

Thus, they are especially dangerous to others, spreading *Mycobacterium tuberculosis*, often multiresistant to antituberculosis drugs.

Among patients with tuberculosis and alcoholism drug resistance of *Mycobacterium tuberculosis* observed in 2 and polyresistance - 6 times more often than in patients not suffering from alcoholism. This is indirect evidence that the treatment of such patients has made repeated and the same time they have shied away from it.

Among the patients, long the dispensary account, alcohol abuse is 3-5 times more than the initially infected with pulmonary tuberculosis. The reason for this is the "settling" in the dispensary alcohol abusers, due to the low efficiency of treatment. Especially high prevalence of alcoholism among patients with chronic destructive pulmonary tuberculosis.

Pulmonary tuberculosis in the majority of patients developed on the background of alcoholism, sometimes precedes it. It characterizes the majority of patients with comorbidity like alcoholics with concomitant TB.

The clinical manifestations and course of pulmonary tuberculosis in alcoholism may be different. The process in the lungs of patients with alcoholism sometimes becomes rough during and fatal. Frequent complications of pulmonary tuberculosis by combining it with alcoholism are pulmonary hemorrhage and hemoptysis that bind with pulmonary fibrosis and increased permeability of blood vessels under the influence of alcohol.

After treatment of tuberculosis in patients with alcoholism, there are marked residual changes in the lungs, which creates conditions for the occurrence of relapses. The main reason is the lack of relapse treatment of patients during the main course of chemotherapy in the hospital because of early discharge for violation of the regime. Patients with alcoholism tubercular process relapses when it is more severe than the original disease.

In the event of tuberculosis worsens for alcoholism, quickly formed its severe stage with marked psihopatizatsii, degradation of personality and social neglect. Binges take stubborn, becoming more severe hangover. TB infection is an additional aggravating factor contributing to the occurrence of alcoholic psychosis. A major role in their development play an exacerbation of tuberculosis.

*treatment Guidelines.* One of the main reasons for an unfavorable course of pulmonary tuberculosis with alcoholism - inadequate treatment due to lack of discipline patients. Without an active anti-alcohol therapy treatment of patients with alcoholism and tuberculosis can not be successful.

The use of high-performance, appropriately selected combinations of anti-TB drugs at the same time makes it possible to implement a proactive anti-alcohol therapy without major complications.

The latter allows you to extend the length of stay of patients in hospital due to remission of alcoholism and thus increase the effectiveness of chemotherapy for tuberculosis.

*tuberculosis chemotherapy* the lungs of patients with alcoholism should be carried out in hospitals in accordance with generally accepted principles. Patients often evade receiving medications must therefore be closely monitored over the regularity chemotherapy: drugs useful to administer parenterally, but if the inside, once daily doses.

Care should be taken when assigning providing hepatotoxic effects of rifampicin (especially in conjunction with isoniazid), pyrazinamide, ethionamide, protionamide and thioacetazone patients with alcoholism, cirrhosis with alcoholic liver disease Botkina suffered and continue to abuse alcohol.

Multiple somatic diseases alcoholism limit the choice of the optimal combinations of antituberculosis drugs because of contraindications to the use thereof, so when combined disease individualization of chemotherapy is required given the nature of concurrent somatic pathology.

### ***Tuberculosis and lung cancer***

It was found that lung cancer in patients with tuberculosis and those with residual changes after the treatment of tuberculosis is more common than in the general population.

In the implementation of follow-up of patients with respiratory TB and those with residual changes after the treatment of tuberculosis should be a certain oncological alertness.

Increased lung cancer risk can be at:

- 1) the duration of smokers;
- 2) men over 40 years;
- 3) persons identified metatuberkuleznym syndrome, against which often develop pulmonary inflammatory diseases;
- 4) populations over time exposed to occupational or environmental carcinogens.

Clinically, a combination of cancer and tuberculosis can be divided into three periods:

- 1) asymptomatic;
- 2) with severe symptoms of cancer;
- 3) metastatic.

According to the histological picture in most cases are detected tumors, adenocarcinomas, and then in last place - poorly differentiated tumors.

Tumors were located primarily in III, VIII and X segments of the right lung.

Signs of malignant lung disease are shortness of breath, hacking cough, sometimes with phlegm, coughing up blood, chest pain, weakness, fatigue, weight loss, fever, pain in the long bones.

When running processes appear cyanosis of mucous and akrozianoz, change the terminal phalanges as "drumsticks."

Diagnosis of lung cancer in patients with tuberculosis and those with residual changes after the treatment of tuberculosis - a difficult task. Extremely valuable diagnostic method is an X-ray examination using tomography. Nevertheless crucial cytology biopsy of lung and lymph nodes.

Invasive methods of investigation (endobronchial study, transthoracic puncture) should be used for accurate readings when clinical symptoms and X-ray picture can be suspected lung cancer.

It must be remembered that the well-known clinical symptoms of lung cancer: weight loss, chest pain, cough, hemoptysis may be caused by tuberculosis. So sometimes even their appearance is not disturbing the patient and does not serve for the doctor the reason for a targeted diagnosis of lung cancer.

Careful analysis of radiographic changes in the dynamics of the appearance of symptoms that do not fit the clinical picture of tuberculosis requires clarification of the etiology of these changes.

### ***Tuberculosis and pulmonary chronic nonspecific diseases***

Because of chronic nonspecific pulmonary diseases (COPD) found in tuberculosis: chronic bronchitis, chronic pneumonia, bronchial asthma, bronchiectasis, lung abscess, lung emphysema.

In terms of communication COPD and pulmonary tuberculosis distinguish two situations:

- 1) Patients who have COPD occurred prior tuberculosis, thereby tuberculosis evolved on a background of nonspecific changes in the lung;
- 2) patients who have COPD are secondary and developed on the background of tuberculosis.

Patients who have COPD have evolved to tuberculosis

Frequent exacerbations of COPD may be signs of early phases of reactivation of tuberculosis or superinfection.

Among patients with newly diagnosed tuberculosis and secondary combined with COPD frequently as background diseases detected chronic bronchitis and chronic pneumonia.

Chronic nonspecific lung process, combined with other diseases tuberculosis, tuberculous primary complicates the process and worsens its prognosis.

In these patients, tuberculosis exacerbation of COPD usually occurs several times a year, causing and aggravating the tuberculosis process.

Patients who have COPD are secondary and evolved against a background of tuberculosis process

Tuberculosis of lung, creates conditions for the occurrence of COPD, which may be accompanied by an active process or develop on the background of tuberculous changes.

The development of COPD in the background contribute to tuberculosis bronchi damage and widespread tuberculosis in his lungs, the acute inflammatory diseases of the lungs and bronchi becomes chronic nonspecific respiratory diseases. Cicatricial changes in the bronchial tree, the transformation of the bronchial mucosa, connective tissue formation in the lungs, pleura, due tuberculous process contribute to occurrence of chronic inflammatory diseases.

To some extent fibroplastic processes may be exacerbated by the influence of antibacterial drugs. Therefore, in the treatment of pulmonary tuberculosis develops post-tuberculosis syndrome with local or diffuse pulmonary fibrosis, the deformation of the bronchial tree, bronchiectasis, pleural splice encysted foci and foci. Morphological manifestations of post-tuberculosis pulmonary syndrome is closely related to the clinical form of tuberculosis.

Among patients with clinical cure tuberculosis is most common chronic bronchitis. A major role in its occurrence is played by factors irritating bronchial mucosa, which are combined with non-specific, banal or allergic inflammation as a result of the general sensitization or adverse drug action.

Nonspecific endobronchitis in some patients with tuberculosis persists for a long time, most can be cured, but even the latter reduces the protective function of the bronchial tubes, making them very susceptible to the effects of secondary adverse factors: smoke, tobacco, industrial dust, common infections.

Tuberculosis and tuberculoma lesions predominantly osumkovyvyayutsya and are accompanied by the development of a limited fibrosis.

Disseminated tuberculosis tend to the development of advanced fibrosis, diffuse bronchitis and emphysema.

Healing fibro-cavernous tuberculosis is accompanied by cirrhosis with a rough strain of bronchopulmonary structures and the development of bronchiectasis.

Chronic pneumonia is observed every 10th patient with cured tuberculosis.

Emphysema as an independent disease is relatively rare. Most often it is combined with occupational respiratory diseases in patients of elderly and senile tuberculosis.

Bronchial asthma in patients with tuberculosis is relatively rare.

TB patients are cured and are in need of constant monitoring and receiving preventive treatment.

People with post-tuberculosis changes and chronic respiratory diseases, have suffered in the past active respiratory TB, are a heavy contingent of patients.

This circumstance is due to:

- 1) a variety of pulmonary symptoms, complicating the differential diagnosis of tuberculosis and nonspecific acute exacerbation;
- 2) the nature of tuberculosis in the lungs and the development of common forms of tuberculosis, and the collapse of bacteria.

Patients with chronic respiratory diseases with recurrent tuberculosis often have other comorbidities. Among them, the most frequently identified alcoholism, nervous system diseases, as well as cardiovascular, gastro-intestinal disease, diabetes and others.

A characteristic feature of the clinical course of COPD in patients with post-tuberculosis changes is an undulating course of the disease with exacerbations in the spring and autumn seasons. Often these exacerbations masquerading as acute respiratory disease or relapse of tuberculosis.

Prevention of tuberculosis and COPD patients with post-tuberculosis changes in the lungs:

1. It is necessary to pay attention to COPD patients in terms of both differential diagnosis and treatment of specific forms of these diseases.

Particular caution should cause the patient's complaints of cough that does not stop for 3 months, and repeated in

for 2 years or more, especially if it is accompanied by the appearance of dry or moist whistling wheezing in the absence of reactivation of tuberculosis.

2. It is important to determine the nature of post-tuberculosis changes in the lungs. In the study of X-ray pictures should capture the attention of post-tuberculosis changes in the localization (lung tissue, roots), size (large, small), morphological substrate (calcifications, lesions, tuberculoma, cirrhosis, fibrosis, pleural overlay).

3. More sophisticated methods of examination of patients with post-tuberculosis changes and chronic respiratory diseases should be used for special indications. These include bronchoscopy, is assigned as a diagnostic purpose to clarify the bronchi diseases and therapeutic, especially when copious purulent sputum.

4. During the period of exacerbation of COPD should be investigated in the sputum of patients with specific flora.

**Literature 1,2,3,4,5.**

## **Subject №16 Tuberculosis and related diseases: TB and diabetes, TB and pregnancy, TB and mental illness.**

### ***Tuberculosis and Pregnancy***

Manifestations of tuberculosis in pregnant varied. Tuberculosis can be detected by picking up a history. Sometimes tuberculosis may be diagnosed when a pregnant appearance of specific features characteristic for the disease, or accidentally as a result of routine studies.

Atypical manifestations of tuberculosis in pregnant women makes it difficult to confirm the diagnosis. The problem of tuberculosis and pregnancy is important for both mother and child.

Effect of pregnancy on tuberculosis. Currently, it is generally accepted that pregnancy is not conducive to the development of tuberculosis and has no effect on disease progression. However, clinical studies highlight the possibility of a small but definite risk of relapses and worsening of tuberculosis in the postpartum period.

The impact of tuberculosis on pregnancy. Clinical observations do not suggest an adverse effect of tuberculosis on the course of pregnancy or childbirth.

MBT penetration through the placenta. Infection of patients with congenital tuberculosis can occur through Office penetration endometry. Transmission of tuberculosis infection through the placenta definitively proven. There are cases when the newborn found in the lymph nodes of the Office of the umbilical cord, indicating that umbilical vein as a way of transmission. MBT may also be detected in placental tissue samples from stillborn and infants.

Congenital tuberculosis may be the result of hematogenous dissemination of infected placenta through the umbilical vein, or aspiration fruit amniotic fluid. Liver - the main target of hematogenous dissemination through the fetal circulation.

Identification of pregnant women, patients with tuberculosis, an important task. This can help prevent neonatal infection and those who are pregnant closely.

Plain radiography. X-ray examination indicated during pregnancy to detect active or inactive tuberculosis. Doubts about the exposure does not justify the refusal to conduct a review X-ray of lungs during pregnancy. If the X-ray examination was decided to hold, it must be carried out with anti-radiation abdomen, preferably after the first trimester of pregnancy. Therefore, radiography, performed during pregnancy in compliance with the precautions, presents no hazard to the fetus.

The tuberculin test is an important method was screened during pregnancy. It identifies people infected with the ILO, but does not define the activity or the prevalence of the disease. Patients with active tuberculosis may not have a positive response as a result of the state of anergy.

Microbiological methods. Revealing MBT in sputum, body fluids or other material by microscopy or sown on fertile ground confirms the diagnosis of tuberculosis.

Treatment of active TB during pregnancy. Pregnant women should be treated immediately after the establishment of the diagnosis of tuberculosis. No treatment of tuberculosis is of great danger for the pregnant woman and her fetus than the actual specific treatment. Appointment chemotherapy remains the primary treatment for active TB during pregnancy.

Analysis of the data combined relative risk of teratogenicity TB line drugs (isoniazid, rifampicin, streptomycin and ethambutol) showed that despite the fact that these drugs cross the placenta, none of them have teratogenic or toxic to the fetus, except streptomycin having ototoxic effect.

Resolve the issue of maintaining the pregnancy should be a woman and her doctor. The attending physician must insist on termination pregnancy if there is: fibrocavernous, chronic disseminated or distributed cirrhotic tuberculosis complicated by pulmonary heart disease; Newly identified progressive tuberculosis; tuberculosis combination with diabetes or other chronic diseases.

Indicative activities to be carried out in respect of a child from his mother, sick with tuberculosis:

1. The child shall not be separated from the mother, if she is not terminally ill.
2. If the mother has no MBT in sputum, the baby should be immediately vaccinated with BCG.
3. If the mother had MBT in sputum during pregnancy or remain at its end:
  - 3.1. If the baby is ill at birth and he is suspected congenital TB, it is necessary to conduct a full-scale chemotherapy;
  - 3.2. If the baby is healthy, should designate isoniazid 5 mg / kg once every 1 day for 2 months.

***Pulmonary tuberculosis in mentally ill.*** Morbidity and mortality from tuberculosis in psychiatric hospitals is higher than among the mentally healthy population. Greater susceptibility tuberculosis mentally ill should explain the totality of reasons, of which the most important is a disorder of higher nervous activity.

In psychiatric patients with weakened brain death tuberculosis occurs especially hard. This is due to significant changes in the entire life of the organism and, as a consequence, a decrease in resistance to infection. Such patients, losing interest in the environment, are in a state of apathy, weakness. Basically it is a person with schizophrenia, the different types of dementia, as well as being in a prolonged catatonic. The patients eventually die from severe tuberculosis process: caseous pneumonia fibroznokavernoznogo and generalized tuberculosis.

In the case where psychiatric patients in a state of excitement, physical activity, tuberculosis proceeds more favorably. Patients who have not lost an adequate attitude to the world, retain the initiative and, most importantly, the interest in useful labor, coping with tuberculosis is much easier.

Pathogenesis and tuberculosis in psychiatric patients do not differ from those of mentally healthy people. However, the timely detection of tuberculosis in mentally ill hampered by the absence of complaints, anamnesis difficulties erased clinical symptoms due to the lower reactivity of the organism. In addition, symptoms of mental illness may mask some of the symptoms of TB.

Detection of tuberculosis in mentally ill is achieved by not only the complaints themselves sick as systematically directed clinical and radiographic examination in hospitals.

Pulmonary tuberculosis with bacilli in psychiatric patients is very dangerous, because these patients do not comply with the rules of hygiene.

TB treatment in psychiatric patients is not fundamentally different from the treatment of tuberculosis in mentally healthy individuals, but it is conducted simultaneously with treatment of the underlying disease. The usual antibiotics in standard dosages on the background of hygiene-dietary regime. If the patient has no contraindications, in the period of remission of mental illness it can be treated in conventional TB facilities (hospitals, health centers).

### ***Pulmonary tuberculosis and diabetes***

With the combination of diabetes and pulmonary tuberculosis in the majority of cases (90%) diabetes is preceded by a disease against which at various times developed tuberculosis. If both conditions are detected at the same time, it is obvious that latent diabetes worsened under the influence of acceding tuberculosis.

There is no consensus about the cause of the frequent incidence of tuberculosis in patients with diabetes do not have diabetes. Authentically that tuberculosis develops in conditions of reduced resistance to infection, which is determined by the depletion of patients with some forms of diabetes, the change of immunological properties, in particular, a decrease in the ability of the body of the patient with diabetes mellitus produce antibodies and antitoxins. The development of tuberculosis in such cases contributes to the uncompensated or untreated diabetes.

Clinic of tuberculosis in patients with diabetes mellitus. If TB is diagnosed in the early period, it is possible to achieve a more favorable development of the disease even in combination with diabetes. Malignant, severe course of tuberculosis with tendency to rapid progression and disintegration occurs predominantly at the wrong treatment of diabetes or late detection of tuberculosis.

The first clinical signs of tuberculosis in diabetes include: increasing weakness, loss of appetite, drop in body weight, increase in symptoms of diabetes. The disease can occur at first hidden, so pulmonary tuberculosis is often diagnosed by x-ray screenings preventive or control X-ray examination.

Tuberculin test is usually strongly positive. However, with the development of chronic forms of tuberculosis - fibro-cavernous, hematogenous-disseminated - comes exhaustion the body's defenses, and tuberculin sensitivity is reduced.

Tuberculosis during diabetes is characterized by a slow normalization of impaired metabolism, longer duration of tuberculosis phenomena of intoxication, slow decay wound cavities.

The reasons for the progression of even a relatively small forms of tuberculosis (focal and small tuberculoma) is underestimation of the activity of newly diagnosed tuberculosis, therefore, out of time started TB treatment, violations in the diet and diabetes, which leads to a lack of compensation of diabetes.

For diabetes on the background of acceding tuberculosis characterized by the fact that TB aggravates the underlying disease. Patients with increases in blood sugar levels, increased diuresis and glycosuria, acidosis may occur. Metabolic Deterioration seen in large fluctuations in blood sugar throughout the day, there is a feeling of dry mouth, thirst, frequent urination. Progressing drop in body weight. These data are of great practical importance: any sudden worsening of diabetes trends should call a doctor suspected tuberculosis disease.

Especially tuberculosis course in patients with diabetes mellitus and tuberculosis adverse effect on diabetes require a doctor's skillful combination of all therapeutic measures. In the last half of the patients camber la tuberculosis, acceding to diabetes. With the introduction of the practice of physiological diet therapy, insulin and anti-bacterial drugs made possible clinical cure patients with tuberculosis and diabetes.

Increased incidence of tuberculosis among patients with diabetes requires special attention to the prevention of tuberculosis issues. Persons younger who have diabetes occurs usually difficult and often complicated by the addition of tuberculosis, need careful observation and systematic checks on tuberculosis.

Antidiabetic therapy patients must be integrated and individually depending on the state of the body, the shape and phase of tuberculosis process, severity of diabetes.

Antibiotic therapy for tuberculosis in patients with diabetes should be performed is long, continuously, in combination with various drugs, individually tailored to the patient.

Every person with diabetes, who first identified tuberculosis, had to be hospitalized.

## **Literature 1,2,3,4,5.**

### **Subject №17 Tuberculosis and HIV / AIDS, the clinical course and diagnostics.**

#### ***Tuberculosis, HIV infection and AIDS.***

Rapid increase in the prevalence of HIV infection in many countries around the world is becoming a problem in the detection and treatment of tuberculosis. This process also complicates the fight against tuberculosis.

HIV (human immunodeficiency virus)

HIV can spread in different ways:

1. heterosexual.

2. Homosexuality.

3. Through the blood when:

3.1. Transfusion of blood containing HIV (in countries where many people are infected with HIV, even blood tested for HIV content, can be dangerous, since it is likely that the blood may contain HIV before antibodies are detected);

3.2. Needles are not sterilized properly. This is usually common among addicts.

Apparently healthy health care workers, but HIV-positive should not serve TB patients, as they have a much greater risk of developing tuberculosis if infected Office.

Between the time of HIV infection and the development of AIDS is relatively long period - often several years. This period is shorter in children under the age of 5 years and in patients older than 40 years. During this incubation period, the patient may feel almost healthy (although still positive). The development of TB - often the first sign of HIV infection.

About 50% of TB patients, both HIV-positive, have no obvious signs of HIV infection. The only way to diagnosis is to test for the presence of HIV.

Diagnostics and testing. Testing for VICHantitel - the only reliable method of diagnosis.

The impact of HIV on the effectiveness of the fight against tuberculosis

The prevalence of tuberculosis. Among people already infected with the ILO (which have a positive reaction to the tuberculin) and HIV, the risk of developing clinical manifestations of TB during their lifetime is about 50% - compared with the 5-10% risk if infected with the ILO HIV-negative. As a result, there is a significant increase in the incidence of TB cases in populations in which HIV becomes widespread.

Reactions to drugs. Among HIV-infected patients with tuberculosis and adverse reactions to anti-TB drugs are more common. This may increase the frequency of treatment failure.

Needles. Particular care must be taken when using multiple injection needles because of the risk of HIV infection. For this reason, streptomycin is no longer used to treat tuberculosis in many high-prevalence countries.

Clinical manifestations of tuberculosis combined with HIV infection

There are the following differences in clinical manifestations of tuberculosis among HIV-infected patients compared to HIV-uninfected patients.

1. The presence of extrapulmonary tuberculosis, especially often in the form of enlarged lymph nodes that are rarely seen in other forms of tuberculosis.
2. Increased frequency of miliary tuberculosis. MBT can be isolated from the blood, which never happens in normal tuberculosis.
3. These X-ray examination. In the early stages of HIV infection of pulmonary tuberculosis clinic is not very different from the usual. In the later stages of HIV infection are more common enlarged mediastinal lymph nodes. The collapse is less common. More often than usual, revealed pleural and pericardial effusions. Shadows in the light can change quickly.
4. TB lesions can be formed in unusual areas of the body, e.g., in the brain in the form of tubercles abscesses in the chest wall or elsewhere.
5. The sputum MBT often not detected, despite the significant radiographic changes in the lungs.
6. The tuberculin test is usually negative (anergy).
7. Fever and weight loss are more common in HIV-positive TB patients than in HIV-negative.

TB patients should be suspected HIV infection in the following cases:

1. Generalized lymphadenopathy. In the later stages of HIV infection lymph nodes can be dense and painful as during acute infection.
2. Candidiasis: the presence of fungal disease of white spots in the mouth.
3. Chronic diarrhea for more than 1 month.
4. Herpes zoster.
5. KS: the presence of small red vascular spots on the skin, especially in the sky.
6. Generalized pruritic dermatitis.
7. A burning sensation in the feet (manifestations of neuropathy).
8. Persistent painful ulcers in the genitals.

The treatment of tuberculosis in HIV-infected

Standardized chemotherapy of tuberculosis. Modern standardized regimens of HIV-infected TB patients is as effective as the HIV-uninfected. MBT in sputum disappear just as quickly. Recurrences do not occur often. Weight gain is slower than that of HIV-uninfected patients. When a standardized treatment without rifampicin effect is lower, and relapses often. Part of relapse may be due to superinfection due to reduced immunity HIV-infected.

TB mortality is higher among HIV-infected patients. Most often it is associated with other complications of HIV infection. But some deaths directly related to tuberculosis.

The long-term prognosis is poor, as well as for all HIV-infected people. However, the treatment of tuberculosis in such patients usually increases the period of practical health. In addition, it prevents the spread of tuberculosis.

Side effects from the effects of drugs are more common among HIV-infected patients.

Thioacetazone can cause severe skin reactions which are fatal in 25% of cases. If the patient response to thioacetazone continues to evolve, it can no longer be administered. In some countries with high HIV prevalence thioacetazone not use.

Isoniazid preventive treatment can be administered without the presence VICHbolnym their clinical manifestation of tuberculosis.

TB accelerates the progression of HIV infection. Therefore, HIV-infected TB patients may develop other complications associated with HIV infection.

Protection of medical personnel from HIV infection.

1. Taking blood must be handled with gloves. Used disposable needle and syringe placed in a special container. Gloves and pads to put in a sealed plastic bag.
2. Perform manipulations, in which can be contacted with blood (e.g., surgery or taking birth), carried out in the gloves and apron. The eyes should be protected sunglasses.
3. If the blood or other body fluid spills, they should be removed immediately, and the place where there was blood, treat the phenol and / or chloramine.
4. If you can not manipulate resuscitation CPR mouth to mouth, should be used for this bag and mask.

**Literature 1,2,3,4,5.**

## **Subject №18 Organization TB control in Uzbekistan. Principles of treatment of TB patients. Monitoring and evaluation of the effectiveness of the treatment according to WHO standards.**

As part of the program to improve tuberculosis control requires the involvement of general practitioners, who must perform the following tasks:

1. Timely and early detection of TB patients.
2. Identification of people at risk for TB, conducting prevention and early detection of tuberculosis in them.
3. Ensuring full enrollment in specific prevention.
4. Timely diagnosis of tuberculosis in people seeking medical help and with clinical manifestations of tuberculosis.
5. Analysis of main epidemiological indicators of tuberculosis, TB planning activities based on the analysis of epidemiological indicators and their full implementation.
6. Conducting population health education on TB.
7. Close collaboration with TB dispensaries, full awareness of TB cases and outbreaks of tuberculosis infection.
8. Participation in analyses of late detection of cases of tuberculosis.

What guidance materials should be used in the conduct of anti-TB events?

Prior to 1993, the basic document of TB control was the order №591 of 23 / XI-1993, compiled on the basis of the order of Ministry of Health of the USSR №527 from 5 / VI-1998

However, under the new economic conditions, the execution of this order to ensure it was not possible, and therefore the Research Institute of Tuberculosis and Pulmonology of Ministry of Health of Uzbekistan was developed by the order №552 from 24 / XI-1995 for the 14 pilot districts.

Staff of the decision of the Ministry of Health of the Republic of Uzbekistan dated March 15, 1999 on the basis of the work carried out in the pilot areas, the order was extended to the whole territory of Uzbekistan.

In accordance with this order, the main purpose of tuberculosis in Uzbekistan transmission is booked. To achieve this, the order of the following measures:

1. Timely detection of cases of pulmonary tuberculosis, especially bacterial excretion.
2. Improvement of immune layer among the population to TB infection by vaccination and re-vaccination with BCG.
3. Prevention of infection and incidence of tuberculosis among persons in contact with Mtb using chemoprophylaxis.
4. Use of intensive chemotherapy regimens in patients with pulmonary tuberculosis, resulting in the short term to permanent cessation of bacteria.

Implementation in practice of TB services №552 order does not mean the cancellation of the order # 591, but only complements it and makes a correction to the sections below.

Timely detection of patients with pulmonary tuberculosis.

The main methods of detection of tuberculosis in children is Mantoux test, in adults - flyurograficheskoe examination and microscopic examination of sputum for Mtb.

Due to the impossibility of enrollment of children to tuberculin due to large economic costs, divided into 3 groups of children subject to compulsory inspection:

I- group of high risk of tuberculosis: children with COPD, often ill ARI, with recurrent pneumonia, bronchitis, chronic pneumonia, diabetes, .. additionally receiving corticosteroids children under 7 years of age and older than 7 years, with an intoxication of unknown etiology.

In this group of children examined with 2me Mantoux test and 7 years additionally held Flyurografiya. Responsible for inspection of the group assigned to the pediatrician of general medical network, and SES.

II-group children from contact with Mtb contingent IV group clinic. In this group are mandatory Mantoux test with 2 TE and flyurograficheskoe examination. Responsible for inspection of the group assigned to the Pediatrician.

III-group - VI Group dispensary, children with signs of infectious allergy. In this group it is mandatory setting Mantoux test with 2 TE and X-ray examination. Responsible for inspection of the group assigned to the Pediatrician.

For early detection of active pulmonary TB in adolescents and adults, the main method is flyurograficheskoe examination in 4 groups of teenagers and adults.

Increased risk of tuberculosis: a person with an atypical course of respiratory disease, pneumonia, undergone pleurisy, suffering from COPD, diabetes, gastric ulcer disease, pneumoconiosis, long taking corticosteroids, radiation therapy, immunosuppressive and cytotoxic agents, postpartum women, drug addicts, alcoholics, the mentally ill, as well as those of young age with hyperergic results of Mantoux test. In this group, for organizing and conducting the survey flyurograficheskogo responsibility lies with the GPs.

This group consists of people are on the dispensary in polyclinics and health care in general health institutions with respiratory diseases. In the presence of cough in these individuals sputum smear microscopy is studied on the ILO method.

2- group - contingent required.

This is a great group of people working in professions where the work is contraindicated in patients with active tuberculosis and large residual changes suffering tuberculosis. For ensuring flyurograficheskogo examination in this group meets sanitary doctor of SES. GP controls the regularity and completeness of coverage flyurograficheskim examination of this group of persons. Questions of access to the persons who have not passed inspection, decides sanitary doctor.

3 group of contacts of patients with bacterial excretion (IV group accounting TB Dispensary) flyurograficheskimi examined twice a year (spring and autumn). Flyurograficheskoe examination of this group, cocoa and the last 4 groups provides the district TB specialist.

4 Group- Group VII accounting TB dispansera- face with large residual changes suffering tuberculosis and a high risk of TB recurrence. This group also examined twice a year (spring and autumn).

2. Enhance immune layer among the population to TB infection by vaccination and re-vaccination with BCG.

According to plans of immunization of the population of the Republic of Uzbekistan, adopted in November 1997, BCG vaccination is carried out in a maternity hospital in 3-5 days of life. Responsibility for the usefulness of vaccination coverage rests with the head. doctor of maternity hospital.

Vaccination is heat stable dry vaccine, which is introduced into / by cutaneous and diluted immediately before use. If there are contraindications to vaccination is carried out delayed vaccination at the age of 1 year. In this case, up to 6 months of vaccination is carried out after removal contraindications at a later date, along with the removal of contraindications make sure you have a negative reaction to tuberculin. Delayed vaccination is the vaccine BCG-M.

Revaccination is carried out 2-fold between the ages of 6-7 and 14-15 years, in the absence of contraindications and negative tuberculin sensitivity, confirmed by Mantoux test with 2 TE. for revaccination responsibility lies with the pediatricians general health.

It was found that children with no signs of infection of skin grafting in 3 times, and the detection of tuberculosis is 6 times higher than similar rates in patients with skin graft signs.

In patients with tuberculosis in children 35 to 40%, in patients with tuberculous meningitis in children -80-85% postvaktsinnyh noted the absence of scars. Quality vaccination and revaccination reduces the incidence of TB in children is 23 times, and prevents the development of severe forms of tuberculosis. To avoid introducing into the body of living bacteria of tuberculosis, scientists around the world are working to develop chemical vaccine.

3. Preduprezhdenie infection and incidence of tuberculosis among persons in contact with MbT using chemoprophylaxis.

By the Order №552 provided for conducting prevention of tuberculosis using the chemotherapy drugs in 3 groups of people:

1. Contacts with massive MbT - are controlled chemoprophylaxis two chemotherapy drugs (isoniazid + ethambutol).

2. Contact with patients with pulmonary tuberculosis with decay and poor smear bakteriovydeleniya-obtained without controlled chemoprophylaxis one drug (isoniazid). For providing chemoprophylaxis in these two groups is responsible SES and TB Dispensary.

3. Contacts of patients with pulmonary tuberculosis without decaying with scant bacterioexcretion - receive one chemotherapy drug intermittent method. For providing chemoprophylaxis in this group is also responsible TB Dispensary and SES.

In addition to these groups of persons subject to chemoprophylaxis after a full clinical and radiological examination and exclusion of active tuberculosis children "superelevation" tuberculin test. If there hyperergic chemoprophylaxis reactions carried out by two drugs, in other cases, one TB drug.

GPs should have the information on the persons subject to chemoprophylaxis and chemoprophylaxis full coverage of contact at their site.

Along with the active participation in the early detection of tuberculosis GPs should know the basic epidemiological indicators of tuberculosis, to be able to analyze them and based on their analysis of the planned TB control activities in the service area.

The volume of the reservoir of TB infection is characterized by indicators: infection, the risk of infection and disease.

Infection is determined by the number of people react positively to tuberculin in a percentage of patients. Tuberculosis infection rates in Uzbekistan.

In countries where the vaccination of newborns and revaccination, the definition infection rates is very difficult due to the emergence of positive tuberculin sensitivity caused postvaccinal allergies.

The risk of infection is established by means of repeated tuberculin tests, according to the number of persons with superelevation tuberculin reactions - direct method of determining the risk of infection. The risk of infection can be determined according to the number of cases with tubercular meningitis at the age of 0-4 years.

The incidence of tuberculosis is calculated by the number of newly registered patients in the course of the year for every 100,000 of the population. Incidence gives a more detailed picture of the structure of TB patients, when studied in isolation: the incidence of pulmonary or extrapulmonary tuberculosis, the incidence of destructive forms or with bacterial. The high incidence of fibrous-cavernous tuberculosis indicates a large reservoir of infection in the population, badly set work for the early detection of tuberculosis.

The incidence rate in children under 1 year of life characterizes the risk of primary infection.

Soreness tuberkulezom- number of contingents of patients with active pulmonary tuberculosis by the end of the year to 100 thousand. Population.

The mortality rate - the number of deaths from tuberculosis in the course of the year to 100 thousand people..

The totality of the incidence, morbidity and mortality provides a picture of the prevalence of tuberculosis, the TB status of the various sections of the work and evaluate the laws that determine the epidemic process in the whole Republic and its individual regions.

Sanitary prevention of tuberculosis, aimed at ozdorovleie foci of tuberculosis infection, is the task of institutions of TB services.

GPs should know category foci according to their degree of epidemiological risk, as well as to have information about the structure and the number of TB lesions in the service area.

The main objective of GPs in health prevention is health education, covering the issues of prevention, early detection of tuberculosis and its diagnosis.

The alternative, adopted in the Republic of Uzbekistan methods of TB control is DOTS, which is being tested in Uzbekistan in the pilot areas: Kungrad districts of the republic and Muinak RSC, Fergana region, the Syr Darya region. It planned to implement the DOTS methodology in Urgut district of Samarkand region. DOTS-Directly Observed Treatment translated to English means "short-course chemotherapy under direct supervision of a medical worker," the strategy of treatment and diagnosis of tuberculosis, WHO introduced in more than 70 countries around the world.

Basic five elements of DOTS

-Napravte (Direct) Your efforts to identify infectious forms of pulmonary TB by sputum smear microscopy.

#### ***Basic principles of chemotherapy***

Selection of the most rational combination chemotherapy. In the application of several drugs it is manifested not only the overall effect, but sometimes potentiating their action with a joint appointment, as well as reduced risk of DR. In the beginning, the amount of ABP is assigned at least 3-4, or even 5-6 drugs. Subsequently, treatment is continued for at least 2 preparations. The use of a single drug is invalid because not only not very effective, but quickly produces drug resistance to it.

Determination of optimum therapeutic daily doses of the drug (of the dose depends on the level of the bacteriostatic activity of the drug, and timing of dosage, stability and tolerability).

Determination of the most appropriate routes of administration (oral, w / o, w / w, rectally, in aerosols, etc). From the route of administration depends on the clinical effect and the period of its occurrence. By varying the route of administration of drugs, also overcome intolerant drugs in the presence of concomitant diseases.

Determination methods supplementation - multiplicity of reception during the day and the rhythm of reception during the week (1.2 or 3 times a day, daily or discontinuous (intermittent) method - in a day, 4 days with a break for receiving 3 consecutive days, or 2 times in Week). From the multiplicity and rhythm receiving ABP treatment efficiency depends on the frequency of adverse reactions, the flow quantities of the preparations.

The correct definition of the duration of chemotherapy.

Chemotherapy considering portability ALD and related diseases.

Chemotherapy given the sensitivity of the ILO to ABP.

Providing strictly controlled admission antituberculosis drugs, especially at the outpatient phase.

"Chemotherapy regime" - the choice of a particular combination of chemotherapy drugs, their doses, multiplicities, and the route of administration, duration of chemotherapy.

**Literature 1,2,3,4,5.**

## **Topic Prevention of Tuberculosis №19. Specific methods of prevention and health. Methods of early diagnosis of tuberculosis.**

Tuberculosis Prevention - measures to prevent tuberculosis infection. It should be remembered that the main source of TB patients are people with active tuberculosis, Mycobacterium emit.

Preventive work in the field of tuberculosis is conducted in the following areas:

- Specific prophylaxis includes vaccination and revaccination. The main purpose of the specific prevention of tuberculosis - to develop specific immunity. This is achieved using BCG.

Biological Activity of BCG linked to the ability to take root in the body graft, proliferate at the site of inoculation and give response specific reaction, accompanied by allergic rearrangement of the organism, which allows its use for the prevention of tuberculosis.

Vaccinate newborn to 3-7-day life. A few years later, in order to prevent tuberculosis, revaccination is performed. In Russia, in accordance with the "National Immunization Schedule" she held the children with a negative Mantoux test in 7 years.

- In adulthood TB prophylaxis is based primarily on the early detection of tuberculosis and its correct treatment. Diagnosis is done by X-ray examination of the chest. Every healthy person should be held once in 2 years. Annual Survey helps timely identification of people suffering from tuberculosis. Chest X-ray in TB prevention system allows you to begin treatment in the early stages of the disease, which is an important condition for its success.

- A special role for the prevention of tuberculosis plays chemoprophylaxis. Chemoprophylaxis - an effective method of preventing tuberculosis in people with an increased risk of infection. Prevention of Tuberculosis by chemoprophylaxis may be primary, when conducted in healthy individuals not infected with the ILO, but in contact with TB patients, and secondary - in people infected with the ILO and had been ill in the past.

- Sanitary prophylaxis, including disinfection of the environment using various disinfectants, among which the lead It takes chemical disinfection aimed at destroying pathogens on environmental objects that are important in transmission. As is known, the success of the chemical disinfection depends on compliance with the recommendations of instructions on the use of disinfectants, proper selection of an effective regime (concentration, exposure, processing method).

- Social prevention - a complex of measures aimed at strengthening the health of the population. These activities include: improvement of living conditions of the population; improving nutrition; struggle with alcoholism, drug addiction, substance abuse, smoking; instilling public personal hygiene habits at home; development of physical culture and sports.

The purpose of these activities - the creation of conditions unfavorable to the spread of tuberculosis infection, non-specific increase in natural resistance to Mycobacterium tuberculosis.

But most importantly, we must remember that as a prophylactic measure to each person should live a healthy, cultural way of life, pay attention to the sanitary condition of the municipal as well as residential and industrial premises, keep them clean and to observe personal hygiene.

### **Specific prevention of tuberculosis**

At 5-7 days of life to all healthy newborns being vaccinated against tuberculosis. Vaccination is the average physician or medical staff specially trained method of vaccine administration. BCG is introduced into / to a dose of 0.05 mg in 0.1 mL solution izotonicheskitsy NaCl (0,9%) to the upper third of the outer left shoulder.

Contraindications to BCG vaccination are skin lesion (pustular skin diseases (pyoderma, pemphigus, cutaneous abscesses, cellulitis), clinical symptoms birth trauma, Rh conflict, increased body temperature (above 37,5oS), dyspepsia, diseases affecting the the overall condition of the child (nazafaringit, otitis, influenza, pneumonia, pronounced jaundice). Prematurity is not a contraindication if the body weight of the child is not less than 2000 gm at birth, and general good condition.

Date vaccination record in the history of the child's development, immunity is developed for 1.5 months. after vaccination.

Tuberculin - a diagnostic test to determine the specific sensitization to Mycobacterium tuberculosis (MBT).

As a specific test used for mass screening for tuberculosis (tuberculin mass) and individual examination (individual tuberculin).

Mantoux test produced by a physician specially trained nurse. The results of tuberculin test evaluates a doctor or specially trained nurse, who conducted the test.

## **Literature 1,2,3,4,5.**

## **Subject №20 tasks of primary care physicians in the fight against tuberculosis.**

The role of primary health care in the fight against tuberculosis.

Although the role of GTMSP in TB control may be different in different countries, there are common elements of the interaction of primary health care workers and the specialized TB services. Basically PHC and TB services interact at the district level. In each country, this interaction may have its own characteristics; the relationship between doctors, paramedics and nurses PHC and TB services can also vary. However, during operation with a patient revealed total duty distribution pattern PHC and TB service (an algorithm is shown in Fig. 2). Depending on the system existing in the country PHC may be responsible for the activities that are outside the scope of the algorithm working with TB patients (eg, prophylaxis or vaccination).

Constructive interaction PHC and TB services workers can be very useful in the detection and treatment of TB patients. Since PHC providers are the first stage of patient contact with the health system, in most cases, the first suspicion of TB occurs at the PHC level. PHC, which turned the patient with typical symptoms of TB, should conduct a physical examination of the patient, to find out the complaints and collect anamnesis, assign sputum microscopy and x-ray (or refer the patient to a specialist who can conduct these studies). At this stage, PHC is useful to discuss the patient with suspected TB to TB specialist service (by phone or in a meeting). If the suspicion of TB after receiving the results of research is maintained,

All studies should be carried out quickly (2-3 days) to reduce the risk of infection. If the patient's diagnosis was unclear, and the establishment of primary health care to the right patient in the TB service does not receive information about the final diagnosis of TB should request the service and get that information.

In most cases, the intensive phase of treatment, patients undergo TB service institutions. During the intensive phase, as a rule, the patient stops bacterial excretion in the continuation phase of treatment it poses a great danger to others. In some cases, direct observation of treatment in the continuation phase is carried out at the level of primary health care under the supervision of a specialized TB services. In such situations, specialized service to agree this issue with the appropriate primary care workers about 2-3 weeks before the patient's discharge from the hospital, to the preparatory work has been done.

If PHC involved in the continuation phase of treatment, they have to maintain constant contact with the TB service (regional, district TB specialist), reporting on the progress of treatment, and discuss any issues. Responsible PHC should also refer patients for sputum examination and follow-up visits to a TB specialist. After completion of treatment the primary health care worker should report the results in the TB service and return the completed card TB 01 (medical treatment of a patient card), which was wound up TB service at the beginning of chemotherapy. This interaction leads to an increase in the quality of treatment of TB patients.

The functions of primary health-care workers

Doctors, paramedics and nurses of primary health care - is, as a rule, those health care workers, to which a patient with typical symptoms seeks medical help to the primary diagnosis. By participating in the possible early detection of patients, primary health care workers have the opportunity to contribute to reducing the burden of TB, as unidentified and untreated patients with active TB per year can infect 10 to 15 people.

Although the share of primary health care workers in TB control measures, according to the normative documents but TB in each sgrane may be different, they must in any case in due time suspected TB patient and conduct the initial examination and primary diagnosis (sputum examination and x-ray) to exclude the possibility of the disease.

The duties of primary health care worker may include the following tasks:

- suspected TB in a patient with typical complaints and to take timely and necessary measures;
- provide collecting diagnostic quality material as sputum for microscopic examination, which is the basic method for diagnosing and monitoring the treatment of TB;
- ensure to every patient who has been coughing up sputum more than 2-3 weeks, passed 3 sputum specimens for microscopy, the presence of acid-fast bacilli (AFB);
- transfer to collected diagnostic material for research in clinical diagnostic laboratories;
- appoint or refer the patient to X-ray examination of the chest;
- to direct patients with suspected TB in the specialized TB services institution to confirm the diagnosis and treatment;
- explain patients that TB is curable with regular admission of all the preparations and observance of the necessary duration of treatment;
- support connection with the specialized TB service to know the diagnosis of patients referred for primary care diagnosis and treatment;

- emphasize the importance of screening family and other close contacts of patients with positive sputum smear: to make sure that all contacts with the characteristic symptoms were examined, including tuberculin in children;
- spend sanitary and educational work among the population: telling about the signs and symptoms of TB, the reasons for which it is necessary to seek medical help immediately after the appearance of symptoms;
- realize controlled treatment of ambulatory patients in the continuation phase of treatment under the supervision of a specialized TB services;
- immediately report to specialized services of any cases of early termination of the treatment or the occurrence of difficulties in carrying out direct observation of treatment;
- introduce data on the observed patients in all major forms of reporting, as they will not be returned to a specialized service;
- watch for persons from groups at high risk of developing TB in accordance with the regulations of their country;
- spend BCG vaccination and revaccination and tuberkulino- diagnosis in children (in accordance with the regulations of their country).

**Literature 1,2,3,4,5.**

**MINISTRY OF HEALTH OF  
UZBEKISTAN  
BUKHARA STATE MEDICAL  
INSTITUTE**

**FACULTY:**

**DEPARTMENT OF PHTHISIOLOGY, PULMONOLOGY AND  
DERMATOVENEROLOGY**

**SUBJECT: PHTHISIOLOGY**

**MEDICAL HISTORY**

Teacher: \_\_\_\_\_

Curator: \_\_\_\_\_

Group: \_\_\_\_\_

Bukhara

**I. The General data (a passport part):**

1. *A* *surname,* *a* *name,* *a*  
*patronymic* \_\_\_\_\_
2. *Age* \_\_\_\_\_
3. *A nationality* \_\_\_\_\_
4. *A trade* \_\_\_\_\_
5. *Formation* \_\_\_\_\_
6. *The home address* \_\_\_\_\_
7. *The diagnosis of the patient at a direction in branch* \_\_\_\_\_
- \_\_\_\_\_
8. *The diagnosis at receipt* \_\_\_\_\_
9. *Date of receipt* \_\_\_\_\_ 20 \_\_\_\_\_ *date of issue* \_\_\_\_\_ 20 \_\_\_\_\_.

**II. Complaints at receipt**

*The basic complaints:*

\_\_\_\_\_

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*The secondary:*

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**III. Anamnesis morbid:**

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**IV. Anamnesis vitae:**

1. *As dews also developed:*

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\_\_\_\_\_

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2. *The family-sexual anamnesis:*

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3. Marital status:

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4. Living conditions:

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5. A food:

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6. The labour anamnesis:

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7. Bad habits:

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8. The heredity:

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9. The transferred diseases:

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10. The allergic anamnesis:

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11. The Epidemiological anamnesis:

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**V. Status praesens:**

➤ The general condition of the patient:

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➤ Consciousness:

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➤ Position of the patient:

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➤ Face:

\_\_\_\_\_

➤ Constitution: \_\_\_\_\_ growth \_\_\_\_\_ cm, weight of a body \_\_\_\_\_ kg.

➤ Body temperature: \_\_\_\_\_ C<sup>0</sup> at receipt, at curatio \_\_\_\_\_ C<sup>0</sup>.

➤ Integuments, nails and the visible mucous:

\_\_\_\_\_

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➤ Hypodermically-fatty cellulose:

\_\_\_\_\_

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➤ Muscles:

\_\_\_\_\_

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➤ Bones:

\_\_\_\_\_

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➤ Joints:

\_\_\_\_\_

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➤ Lymph nodes:

\_\_\_\_\_

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## VI. Breath system

*Complaints:*

\_\_\_\_\_

\_\_\_\_\_

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*Thorax survey:*

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*Thorax palpation:*

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- Determination of painful sites, their localization:

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- Determination thorax elasticity:

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- Determination vocal tremor on the symmetric region:

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*Percussion:*

1. Comparative percussion:

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2. Topographic percussion:

The top border of lungs:

The top border of lungs:	On the right	On the left
Height of standing of tops in front		
Height of standing of tops behind		

The bottom borders of lungs:

Lines	The right lung	The left lung
Parasternal		
Middle clavicular		
The before axillary		
The average axillary		
The back axillary		

Scapular		
Paravertebral		

Mobility of bottom edges of lungs:

Topographical line	Mobility of bottom edge of a lung, cm					
	The right			The left		
	On a breath	On an exit	The total	On a breath	On an exit	The total
Middle clavicular						
The average axillary						
Scapular						

*Auscultation:*

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**VII. Blood circulation System**

*Complaints:*

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*Survey of area of heart:*

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*Palpation:*

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*Percussion:*

Percussion hearts: borders of relative warm dullness

Border	Site
The right	
The top	
The left	

Percussion borders of absolute warm dullness

The right	
The top	
The left	

*Auscultation heart:*

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Width of a vascular bunch: \_\_\_\_\_

The sizes of heart on Kurlov:

- Longitudinal axis: \_\_\_\_\_
- Diameter: \_\_\_\_\_

Frequency of warm reductions standing: \_\_\_\_\_ lying: \_\_\_\_\_ blows in a minute.

Arterial pressure upon the right hand:

- AD standing - \_\_\_\_\_ mm hg
- AD lying - \_\_\_\_\_ mm hg

Arterial pressure upon the left hand:

- AD standing - \_\_\_\_\_ mm hg
- AD lying - \_\_\_\_\_ mm hg

### **VIII. Digestion System.**

*Complaints:*

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*Oral cavity survey:* language \_\_\_\_\_ a dental health \_\_\_\_\_  
 \_\_\_\_\_ lips

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*Stomach survey:*

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*Stomach palpation:*

1. The Superficial palpation: \_\_\_\_\_

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2. The Deep palpation:

➤ Sigmoid colon:

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➤ Blind gut:

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➤ Cross-section colon a gut:

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➤ Stomach palpation:

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*Percussion a stomach:*

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*Auscultation a stomach:*

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*Liver palpation:*

The sizes of a liver on Kurlov:

On right Middle clavicular lines \_\_\_\_\_ cm,

On a forward median line \_\_\_\_\_ cm,

On the left costal arch \_\_\_\_\_ cm

The liver bottom edge is \_\_\_\_\_, on lin. medioclavicularis dextra.

## IX. System of bodies urine passage

*Complaints:*

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*Lumbar area:*

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*Suprapubic area:*

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*Percussion:*

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\_\_\_\_\_ symptom Pasternatysky

*Palpation:*

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*Bladder research:*

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**X. Endocrine system**

*Complaints:*

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*At survey:*

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*Thyroid gland palpation:*

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**XI. The Psychological condition**

*Complaints:*

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*At survey:*

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**XII. The Preliminary diagnosis and its substantiation**

On the basis of complaints:



#### XIV. The data of laboratory-tool inspection:

➤ The general analysis of blood:

№	Tests		In norm	In research	At treatment
1	Erythrocytes	w	3,8-4,5*10 <sup>12</sup> /l		
		m	4,5-5,0*10 <sup>12</sup> /l		
2	Haemoglobin	w	120-140g/l		
		m	120-160g/l		
3	Colour indicator		0,9-1,0		
4	Blood disk		180,0-320,0*10 <sup>9</sup> /l		
5	Leukocytes		4,0-9,0*10 <sup>9</sup> /l		
6	Neutrophil	stab	1-6 %		
		c/n	47-72 %		
7	Eosinophil		0,5-5 %		
8	Monocyte		3-11 %		
9	Lymphocyte		19-37		
10	ESR	w	2-15 mm/c		
		m	1-10 mm/c		

➤ The general analysis of urine:

Tests	In norm	In research	At treatment
Colour	Yellow, transparent		
Relative density	1018-1025		
Reaction	Acid		
Brightness	The bright		
Protein	-		
Sugar	-		
Bilious acids	-		
Flat epithelium	2-4 in sight		
Erythrocytes	0-1 in sight		
Leukocytes	1-3 in sight		

➤ Inspections sputum

Tests	In norm	In research	At treatment
Quantity	-		
Colour	-		
Smell	-		
Property	-		
MBT	-		
Microscopy	-		
Epithelium	-		

Leukocytes	-		
Eosinophil	-		

➤ Blood biochemistry

№	Tests	In norm	In research	At treatment
1	bilirubin: The general straight indirect	8,5-20,3 mkmol/l 1,7-16,5 mkmol/l 0-5,1 mkmol/l		
2	Creatinine: The general w m	50-115 mkmol/l 53-97 mkmol/l 62-115 mkmol/l		
3	Blood urea.	4,2-8,3 mkmol/l		
4	Protein : The general albumin globulin $\alpha_1$ - globulin $\alpha_2$ - globulin $\beta$ - globulin $\gamma$ - globulin	100 % 56-66,5 % 2,5-5,0 % 5,1-9,2 % 8,1-12,2 % 12,8-19,0 %		
	Glucose	3,0-6,1 mkmol/l		
	ALT	0,1-0,68 mkmol/l		
	AST	0,1-0,45 mkmol/l		

➤ Коагулограмма

№	In norm	In research	At treatment
Hematocrit	49-58% m 38-42% w		
Trombotest PTI	In сг 37		
Fibrinogen Trombin index Ethanol test	300-400 mg/% 70-100 % Negatively		

ECG: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_The conclusion:

\_\_\_\_\_

Radiography thorax bodies:

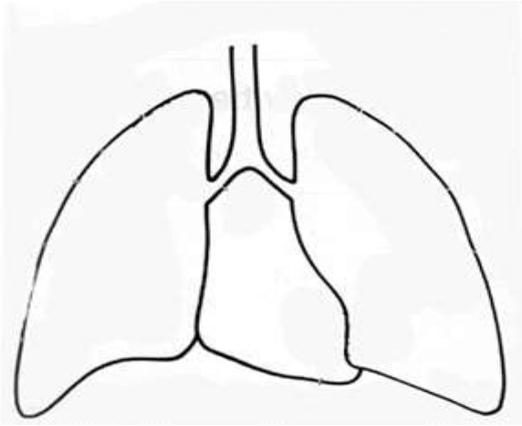
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The conclusion:

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**XV. A substantiation of the clinical diagnosis**

On the basis of complaints:

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On the basis of the anamnesis:

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On the basis physical the data:

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On the basis of laboratory-tool methods of research:

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# **CHAIR Phthisiology**

**The list of test questions  
by Phthisiology for 4th year students**

## **Phthisiology.**

1. Causative agent of tuberculosis features that make it resistant to external influences include:

- A. high content of lipids in the cell membrane
- B. ability to develop resistance to chemotherapeutic drugs
- C. low content of lipids in the cell membrane
- D. large carbohydrate content in the cell membrane
- E. high content of proteins in the cell membrane

2. Possible pathways for the spread of tubercle bacilli in the body of the child:

- A. bronchogenic
- B. lymphogenous
- C. hematogenous
- D. neurogenic
- E. likvorogenny
- F. perivascular

3. Tumor like variant of tuberculosis of intrathoracic lymph nodes is characterized by:

- A. A large size of lymph nodes
- B. pronounced cheesy necrosis
- C. penchant for complicated course

- D. tendency to flow without complications
- E. small caseous lesions in lymph nodes
- F. calcification in a short period of time

4. Tuberculosis of intrathoracic lymph nodes may be complicated by:

- A. Tuberculosis of bronchi and bronchopulmonary lesions
- B. atelectasis
- C. dissemination
- D. spontaneous pneumothorax
- E. pulmonary hemorrhage
- F. J. Heart Failure

5. Therapeutic tactics in tuberculosis is determined by:

- A. the presence of concomitant diseases, and their character
- B. Clinical form of tuberculosis and the presence of destructive changes
- C. the presence of a massive bacterial
- D. gender of patients
- E. Social security patient
- F. vaccinated against tuberculosis patient

6. The constituent elements of a comprehensive treatment is to:

- A. Chemotherapy
- B. pathogenetic therapy
- C. surgery
- D. vaccinotherapy
- E. chemoprophylaxis
- F. Koch samples carrying

7. In what ways is reproduction of mycobacteria:

- A. simple division
- B. budding
- C. sporulation
- D. budding and sporulation

19. Mycobacteria of bovine type can be pathogenic for:

- A. person
- B. Cattle
- C. poultry
- D. mice

9. Secondary tuberculosis is caused by:

- A. secondary infection of the MBT of exogenous
- B. endogenous reactivation of tuberculosis
- C. Primary exogenous infection with the MBT
- D. Mr. genetic predisposition

10. Specific elements of tuberculous inflammation are:

- A. cheesy necrosis
- B. BS cells Pirogov - Langhans
- C. lymphoid, epithelioid cells
- D. neutrophils
- E. reticulocytes
- F. eritrotsitlar

11. What are the three symptoms is not the initial manifestation of tuberculosis?:

- A. Jaundice
- B. Dry mouth
- C. hyperpigmentation
- D. cough for more than two weeks
- E. weakness
- F. IE low-grade fever
- G. J. night sweats

12. List 3 symptoms typical of tuberculosis:

- A. temperature
- B. weight loss
- C. V. cough
- D. insomnia
- E. asphyxiation
- F. hypersalivation

13. In consequence there is no reason two temperature reaction in tuberculosis:

- A. intoxication
- B. violation of metabolic processes
- C. violation of neurohumoral regulation
- D. L-forms of the emergence of the MBT

14. Depending on the phase of the process what kind of temperatures are most common in tuberculosis:

- A. subfebrilitet
- B. vysokaya fever
- C. intermittent febrile-
- D. normalnaya temperature
- E. febrilno-remittent
- F. constant

15. What are two symptoms of weight loss combined with tuberculosis:

- A. fever
- B. hyperhidrosis
- C. strangle
- D. dermal rash

16. Enter 3 causes leading to shortness of TB patients:

- A. intoksikatsiya

- B. razdrazhenie respiratory center toxins
- C. umenshenie respiratory surface
- D. spazm bronchial smooth muscle
- E. narusheniya function of endocrine glands
- F. Hyperlipidemia

17. In what forms of tuberculosis observed temperature hectic type:

- A. tuberculous meningitis
- B. caseous pneumonia
- C. miliary tuberculosis
- D. Early tuberculous intoxication
- E. focal tuberculosis
- F. lupus

18. Enter the three characteristic signs of the decay phase of pulmonary tuberculosis:

- A. hemoptysis
- B. cough with phlegm presence
- C. rales in the lungs
- D. attenuated vesicular breathing
- E. dryness of the skin
- F. precordial pain

19. With the defeat of rebernoy (costal) pain must differentiate:

- A. myocardial infarction
- B. mezhrebernoy neuralgia
- C. ehinokokkosis lung
- D. abstsyes lung

20. Name 3 causes of coughing in tuberculosis:

- A. inflammation of the lung parenchyma
- B. vospalitelny process in the bronchial tree
- C. poyavlenie cough reflex constriction of the bronchial lymph nodes
- D. emfizema
- E. zastoy in the pulmonary circulation
- F. congestion in the systemic circulation

21. List of the disease except tuberculosis accompanied by hemoptysis:

- A. bronhoektasis disease
- B. cancer lung
- C. infarkt lung
- D. sarkoidosis
- E. plevritis
- F. emphysema

22. List the specific changes observed in the blood of patients with tuberculosis:

- A. mild leukocytosis
- B. umerennoe increase in ESR

- C. lymphopenia
- D. rezko increased erythrocyte sedimentation rate
- E. limfotsitoz
- F. thrombocytopenia

23 What are the elements defined in suspected immunodeficiency:

- A. immunoglobuliny
- B. T-lymphocytes
- C. VV-lymphocytes
- D. antitela
- E. komplement
- F. total protein

24. Specify the biochemical changes observed in the blood during acute tuberculous process:

- A. povyshenie plasma fibrinogen in
- B. poyavlenie C-reactive protein
- C. snizhenie clotting
- D. an increase in creatinine

25. List 3 items found in the urine of renal tuberculosis:

- A. belok
- B. leykotsity
- C. The MBT
- G. columnar epithelium
- D. oksalaty
- E. mucus

26. List what material is used primarily for research in the laboratory diagnosis of pulmonary tuberculosis:

- A. issledovanie sputum
- B. issledovanie bronchoalveolar content
- C. issledovanie CSF
- D. punktsionnaya lung biopsy

27. Name the 3 methods used to detect the pathological material in the MBT:

- A. smear
- B. bakteriologichesky
- C. biologichesky
- D. serologichesky
- E. reaktsiya agglutination
- F. immunoblotnaya reaction

28. Enter the stock solutions used for staining by the method of Ziehl-Nielsen:

- A. karbolovy solution of fuchsin
- B. 3% solution of sodium chloride
- C. 0, 25% solution of methylene blue
- D. 0, 5% sodium hydroxide
- E. 5% solution of acid nitrate

F. distillirovannaya water with 0.5 ml of xylene

29. Name the two organic dye used in fluorescence microscopy:

- A. auramine OO
- B. With B.rodamin
- C. soluble Nigrosine
- D. pikrinovaya acid

30. List the nutrient medium for bacteriological methods of detecting the MBT:

- A. tverdaya egg medium Lowenstein-Jensen:
- B. Wednesday Petroliani
- C. tverdaya Wednesday Endo
- D. sreda Ploskireva

31. Name 3 properties determined by the MBT in obtaining pure cultures:

- A. tip Mycobacterium tuberculosis
- B. virulentnost
- C. chuvstvitelnost drug
- G. toxigenicity
- D. kisloutoustoychivost
- E. antigenicity

32. Enter the 3 main routes of administration of the treated sputum in the body of the guinea pig:

- A. V testicle
- B. podkozhno in the groin
- C. intraperitoneal
- F. in the spinal canal
- D. intradermally
- E. endolymphatic

33. Enter the three main methods of tuberculosis detection:

- A. smear
- B. Tuberculin
- C. X-ray
- D. fluorescent bacterioscopy
- E. bronchoscopy
- F. MRI

34. Which 3 to use the Montoux test:

- A. for differential diagnosis
- B. for determine the sensitivity of the organism to tuberculosis infection
- C. for determine TB infection
- D. opredelenie process activity
- E. provedenie treatment
- F. for the prevention of

35. What are 4 groups of children and adolescents produce the results of the Montoux test PPD-A with 2 TE:

- A. A group with a negative reaction to tuberculin
- B. 2, the group with newly diagnosed positive reaction to tuberculin
- C. Group 3 with hyperergic reaction
- D. Group 4 with an increase in sensitivity to tuberculin
- E. A group with chronic pulmonary tuberculosis
- F. Group 2 with the fading of tuberculin sensitivity
- G. Group 3 patients with severe forms of tuberculosis
- H. Group 4 healthy children

36. List the three routes of administration of tuberculin in tuberculin:

- A. intradermally
- B. on skin
- C. under skin
- D. perost
- E. intramuscular
- F. intravenously

37. What are the 3 types of responses to tuberculin are observed:

- A. gipoergic
- B. normergic
- C. giperergic
- D. toxic
- E. toxic and allergic
- F. allergic

38. Name the two main diagnostic tuberculin

- A. intradermal Montoux test with 2m
- B. Koch's subcutaneous test
- C. Mikhailov eosinophilic sample
- D. Pirquet coetaneous test

39. Name the two major types of commonly used tuberculin:

- A. ATK 100% in 1890
- B. B.PPD-A with 2m
- C. vaksina BCG
- D. toksiny mycobacteria

40. What to use ATK 100%:

- A. clinical diagnosis for
- B. for the treatment of
- C. to determine the activity of the process
- D. for health prevention
- E. chemoprophylaxis
- F. to build immunity

41. The severity of reaction to tuberculin depends on:

- A. chuvstvitelnosti body
- B. dozy tuberculin
- C. pola patient
- D. localization process

42. Which two factors should be considered in the differential diagnosis of infectious and postvaccinal allergy:

- A. intensivnost papules
- B. razmer response to the dynamics of
- C. poyavlenie rales in the lungs
- D. poyavlenie MBT in sputum

43 In which age groups put the Mantoux test with PPD-A with TE2 for the selection of children for BCG boosters:

- A. 6-7 years
- B. 14 years
- C. 17 years
- D. 20-25

44. Enter the three contraindications for tuberculin skin test performances:

- A. infektsionnye disease
- B. allergicheskie state
- C. Skin Diseases
- D. nalichie HBS antigen
- E. zabolevaniya in remission
- F. vrozhdennyye heart defects

45 In what used to test three of Koch:

- A. opredelenie process activity
- B. for differential diagnosis of tuberculosis
- C. for determine the localization of the source
- D. for determine the virulence of the MBT
- E. prophylactic tuberculosis
- F. for the treatment of tuberculosis

46. What are the three reactions are observed in a sample of Koch:

- A. local
- B. common
- C. ochagovaya
- D. porogovaya
- E. allergic
- F. paradoxical

47. What three changes characterize the overall reaction in the test of Koch:

- A. subfebrilnaya temperature
- B. nedomoganie
- C. izmenenie hemogram indicators
- D. poyavlenie skin rashes
- E. otsutstvie changes in hemogram
- F. occurrence of chest pain

48. What are the main methods are X-rays of TB patients

- A. rentgenografiya
- B. kompyuternaya tomography
- C. fluorography
- G. angiopulmonografiya
- D. bronhialnaya arteriography
- E. bronhografiya

49. List the advantages of x-ray method:

- A. study of the spatial object
- B. the possibility of studying the object in motion
- C. economy
- D. The best detection of small parts
- E. lower radiation exposure
- F. Archive for the presence of E. monitor the dynamics of

50. List the disadvantages of x-ray method:

- A. poor detection of small parts
- B. a large radial load
- C. lack of records for monitoring the dynamics of
- G. spatial research facility
- D. the possibility of studying the object in motion
- E. profitability

51. List the advantages of X-ray diffraction method:

- A. better detection of small parts
- B. lower radiation exposure
- C. can be observed in the dynamics of
- F. spatial research facility
- D. cost
- E. possibility of studying the object in motion

52. Topographic study allows you to:

- A. determine the nature and exact location of the pathological process
- B. Examine the state of the tracheobronchial tree down to the segmental bronchi
- C. assess the state of the interstitial tissue
- D. evaluate the intensity of the shadows
- E. evaluate the homogeneity of the shadows
- F. evaluate the histological structure of the abnormal shadow

53. What are the main two methods angiopulmonografii:

- A. common
- B. selektivnaya
- C. local
- D. fistulografiya

54. List the main three routes of administration of a contrast solution with a total angiopulmonografii:

- A. cherez catheter into a vein hands
- B. V superior vena cava
- C. V cavity of the right heart
- D. cherez catheter into the bronchi
- E. V lymphatics
- F. in the lymph node

55. Specify indications for angiopulmonografii:

- A. tromboz pulmonary artery
- B. pulmonary embolism
- C. A long-term lung kollabirovannoe
- D. pnevmoniya
- E. Echinococcus
- F. focal tuberculosis

56. When pulmonary hemorrhage what changes occur in the bronchial arteriogram:

- A. patologicheskaya tortuosity of bronchial arteries
- B. rasshirenie bronchial arteries
- C. ekstrovazatsiya out of contrast material outside the arterial
- D. suzhenie bronchial arteries
- E. gipovaskulyatsiya
- F. sohranenie normal pattern of pulmonary

57. What are the contraindications to the study of bronchial arteriogram:

- A. vyrazhenny arteriosclerosis
- B. legochno heart disease
- C. vysokoe sensitivity to contrast agent allergy
- D. nalichiem intoxication
- E. nalichie cough with phlegm
- F. presence of pulmonary hemorrhage

58. What are the main factors affect the course of primary infection:

- A. reaktivnost body
- B. virulentnost agent
- C. epidemiologicheskie conditions
- D. usloviya life

59. What are the 3 forms of primary tuberculosis are distinguished:

- A. tuberculous intoxication
- B. tuberkulez intrathoracic lymph nodes
- C. pervichny tuberculosis complex
- D. subacute
- E. latent
- F. acute

60. Enter the three brightest objective symptoms in primary tuberculosis:

- A. pale

- B. bright eyes
- C. giperplaziya lymph nodes
- D. suhost skin
- E. gipoplaziya lymph nodes
- F. dermatomelasma

61. Specify the characteristic radiographic changes in tuberculous intoxication:

- A. microcalcifications lymph nodes
- B. increased pulmonary drawing in the root zone
- C. Simon foci
- D. Diffuse enhancement pattern of pulmonary
- A. Pockets Gon

62. What are four symptoms of primary disease manifests itself:

- A. slabost
- B. povyshenie temperature to subfebrile figures
- C. uvelichenie lymph nodes
- D. paraspetsificheskikh presence of reaction
- E. dispepsicheskie phenomenon
- F. aritmii
- G. meningialnye symptoms

63. Enter the four characteristic properties of the flow of primary tuberculosis

- A. spontaneous recovery
- B. lymph node involvement in the process
- C. propensity to dissemination limfogematogennoy
- D. tendency to destruction
- E. during the intermittent
- F. involvement in the process of nerve plexus
- G. propensity for dissemination likvorogennoy
- H. sick more often people older than 50 years

64. Enter the four characteristic features of primary tuberculous complex

- A. primary affect
- B. lymphangitis
- C. lymphadenitis
- D. Mr. specific endobronhit
- E. nospetsifik endobronhit
- F. psevdotuberkuloma
- I. focus Abrikosov
- G. focus Ashofa-bullet

65. What elements is not a primary tuberculous complex:

- A. fibroz lung tissue
- B. bronchiectasis
- C. ochag Simon
- D. ochag in the lung
- E. limfangit
- F. limfadenit

66. What are the two auscultatory changes observed in primary tuberculous complex:

- A. usilenie vesicular breathing
- B. vlazhnye finely wheezing
- C. sclerotic wheezing
- D. pericardial friction noise

67. What are Physical data of progression of primary tuberculous complex:

- A. prituplenie percussion
- B. rales
- C. pleural friction rub
- D. clear percussion sound
- E. suhoy cough
- F. sclerotic dry rales

68 What are the symptoms of clinical and radiographic progression of primary tuberculous complex:

- A. vyrazhennaya intoxication
- B. vysokaya temperature
- C. boli chest
- D. kashel with pyoptysis
- E. rassasyvanie infiltrate on the radiograph
- F. umenshenie cough
- G. Gong education focus
- H. Simon Z. education focus

69. What are the main 3 methods of modern diagnosis of primary tuberculous complex:

- A. smear on the MBT
- B. X-ray
- C. Mantoux
- D. Pirquet reaction
- E. Fluoroscopy
- F. ultrasound

70. Name 3 changes in the hemogram with an active primary tuberculous complex:

- A. umerenny leukocytosis
- B. lymphopenia
- C. uskorennoe ESR
- D. leykopeniya
- E. limfotsitoz
- F. thrombocytopenia

71. Specify the characteristic radiographic features of primary tuberculous complex:

- A. triangular-shaped shadow
- B. inhomogeneous with indistinct outline
- C. zatemnenie associated with the root
- D. ochagovye shadow
- E. fibrosis of lung tissue
- F. diffuse increased pulmonary drawing

72. Name the 3 stages of radiographic changes favorably of the current primary tuberculous complex:
- pnevmonicheskaya stage
  - Stage of bipolarity
  - stadiya seal
  - kavernizatsiya
  - disseminatsiya
  - stadiya malignancy
73. List the two primary radiographic changes of tuberculosis complicated by the complex:
- massive, confluent infiltrative-pneumonic shadows
  - poyavlenie decay plots
  - inkapsulyatsiya infiltrative shadows
  - Pulmonary fibrosis
74. Name the disease that need to differentiate between primary tuberculous complex:
- viral pneumonia
  - lung abscess
  - Echinococcus lung
  - lymphosarcoma
  - aktinomikoz
  - Rich disease Hammana
75. What are the four diseases on the clinical picture of primary tuberculosis complex differentiated:
- pneumonia
  - ARI
  - pleurisy
  - measles
  - pertussis
  - asthma
  - sarcoidosis
  - bronchitis
76. What specific changes are distinguished in the congenial primary tuberculous complex:
- rassasyvanie
  - uplotnenie
  - petrifikatsiya
  - infiltratsiya
  - kavernizatsiya
  - dissemination
77. What are the main complications of primary tuberculous three complexes:
- progression of pneumonic focus
  - atelektaz
  - plevrity
  - amiloidoz
  - pulmonary heart disease
  - education infiltrate Asmann

78. Name the three main types of dissemination of the ILO in the body:

- A. lymphogenous
- B. hematogenous
- C. bronchogenic
- D. nevrogeny
- E. cardiogenic
- F. aerogen

79. For the occurrence of hematogenous dissemination of TB to 3 factors:

- A. popadanie MBT in the bloodstream
- B. sensibilizatsiya vascular
- C. sensibilizatsiya whole body
- D. nalichie cavity
- E. porazhenie lymph nodes
- F. the MBT hit in lymphatic channel

80. What are the abnormal shadow found in pulmonary tuberculosis by X-ray examination:

- A. a focal
- B. focus
- C. annular
- D. coin
- E. naperstkovidnye
- F. shitovidnye

81. What types of disseminated tuberculosis are distinguished:

- A. miliarny (acute)
- B. subacute
- C. hronichesky
- D. myagko-focal
- E. pnevmonichesky
- F. fibrozno-focal

82. Transmission of tuberculosis:

- A. aerogenic
- B. alimentary
- C. Contact
- D. hematogenous
- E. lymphogenous
- F. exogenous

83. What are the symptoms characteristic of miliary tuberculosis in the clinic:

- A. progressiruyuschaya weakness
- B. vysokaya temperature
- C. bred, hallucination
- D. kashel with sputum

- E. subfebrilnaya temperature
- F. Vorobeva symptom-Pottenger

84. What form of acute disseminated tuberculosis are distinguished:

- A. tifoidny
- B. meningeal
- C. legochnoy
- D. zhelezisty
- E. kavernozny
- F. Mixed

85. When miliary TB dissemination centers are located mainly in the lungs:

- A. subcortical
- B. on both sides
- C. in the upper
- G. in the root zone
- D. on the one hand
- E. retrokardialno

86. Indicate the nature of lesions in miliary tuberculosis of the lungs:

- A. are located symmetrically
- B. small
- C. low Intensity
- D. nature of the discharge
- E. solid
- F. large

87. Radiographically with some four diseases do not differentiate disseminated pulmonary tuberculosis:

- A. lobar pneumonia
- B. abscess
- C. echinococcosis
- D. aspergiloma
- E. pneumoconiosis
- F. sarcoidosis
- G. carcinomatosis
- H. silicosis

88. Call auscultatory data miliary tuberculosis:

- A. oslablenie vesicular breathing
- B. suhie wheezing
- C. krepitiruyuschie wheezing
- D. sclerotic wheezing

89. Percussion data miliary tuberculosis:

- A. rasshirenie boundaries lung edges
- B. ogranichennaya mobility
- C. timpanichesky sound
- D. ukorochenie percussion

- E. gain a voice trembling
- F. amforicheskoe breath

90. Name any three haematological signs typical of miliary tuberculosis:

- A. leykotsitoz
- B. lymphopenia
- C. uskorennoe ESR
- D. leykopeniya
- E. limfotsitoz
- F. eosinophilia

91. Specify what 3 radiological signs characteristic of miliary tuberculosis:

- A. ponizhenie transparency
- B. melkie millet shade throughout
- C. teni placed symmetrically
- D. polimorfnye patchy shadows
- E. usilenie pulmonary drawing
- F. symptom of "weeping willow"

92. What are the main clinical features of subacute disseminated pulmonary tuberculosis:

- A. poyavlenie chest pain, cough
- B. zatrudnennoe swallowing
- C. povyshenie temperature to 38
- D. mokrota with offensive odor
- E. bred, hallucination
- F. dry mouth

93. Subacute disseminated tuberculosis is characterized by three radiographic features:

- A. high intensity lesions
- B. lesions of various sizes drain character
- C. the presence of thin-walled "stamped" cavities
- G. symmetric arrangement of small, similar lesions
- D. lesions with sharp contours
- E. fibrosis of lung tissue

94. Forged cavity with disseminated tuberculosis differ from other caverns:

- A. a lack of fibrous capsule
- B. thinness
- C. prone to scarring
- F. the presence of extensive inflammation around
- D. presence of fibro-necrotic changes
- E. filling cheesy masses

95. Hemogram with subacute disseminated tuberculosis is characterized by:

- A. stab to the left shift
- B. moderate leukocytosis

- C. with lymphopenia
- D. leukopenia with lymphocytosis G.
- E. sharp increase in ESR
- F. ye high leukocytosis

96. Call extrapulmonary lesions with subacute disseminated tuberculosis:

- A. porazhenie larynx
- B. vypotnoy pleurisy
- C. porazhenie genital
- G. neuritis
- D. endocarditis
- E. nodular erythema

97. What are accompanied by periods of chronic disseminated tuberculosis:

- A. worsening
- B. remission
- C. meningialny
- F. pneumonic

98. Specify the characteristic changes on radiographs for chronic disseminated process:

- A. preobladanie productive type of tissue reactions
- B. obrazovanie diffuse sclerosis
- C. ochagi polymorphic nature
- D. simmetrichno located small foci
- E. ochagovye shade of the same nature
- F. predominance of exudative type of tissue reactions

99. What are the main species of origin of focal tuberculosis

- A. endogennaya reactivation
- B. ekzogennaya superinfection
- C. autoimmunny process
- D. narushenie local hemodynamics

100. Specify in what way the MBT penetrate into the parenchyma of the lungs:

- A. bronchial
- B. lymphogenous
- C. haematogenously
- D. alimentarno
- E. kontaktno
- F. transplantsentarno

101. With the active focal pulmonary tuberculosis patients complain of:

- A. weakness
- B. low-grade fever
- C. cough
- D. shortness of breath
- E. pains in the chest encircling nature
- F. polyuria

102. With focal pulmonary tuberculosis in a phase of disintegration in the sputum revealed:

- A. pieces of elastic fibers and amorphous lime
- B. Mycobacterium tuberculosis
- C. cholesterol crystals
- D. charcot-Leyden crystals
- E. spiral Kurshmana
- F. atypical cells

103. With focal pulmonary tuberculosis often localized radiographic shadows:

- A. light at the top
- B. in the areas of the subclavian
- C. 6 segment
- D. in the root zone
- E. symmetrically on both sides
- F. in segments of lower lobe

104. In the differential diagnosis of focal pulmonary tuberculosis is used:

- A. trial treatment
- B. CBC
- C. X-ray
- D. urinalysis
- E. hormone
- F. a data of physical examination

105. Name 3 symptoms typical of the clinic focal tuberculosis

- A. nedomoganie
- B. dystonia
- C. kashel
- D. vysokaya fever
- E. rezkoe depletion
- F. deformity of the chest

106. Name any two morphological types of focal tuberculosis are distinguished:

- A. myagkoochagovy
- B. fibroznoochagovy
- C. krupnoochagovy
- D. sredneochagovy

107. Name any three haematological signs typical of focal tuberculosis

- A. mild leukocytosis
- B. lymphopenia
- C. uskorennoe ESR
- D. neutropenia
- E. lymphocytosis
- F. eosinopenia

108. What types of pathologic lesions are distinguished by focal tuberculosis:

- A. pleural
- B. productive
- C. lobulyarnopnevmonicheskie
- D. pneumonic

109. As a result, some key factors appears infiltrative pulmonary tuberculosis:

- A. result of reactivation of old lesions
- B. B.pri progression of mild-focal pulmonary tuberculosis
- C. lymph node
- D. AD progression of destructive tuberculosis

110. What types are distinguished by limited infiltration infiltrative pulmonary tuberculosis:

- A. bronholobulyarny
- B. rounded
- C. oblokovidny
- D. miliary
- E. inkasulirovanny
- F. lobito

111. Name the radiographic signs of infiltrative pulmonary tuberculosis:

- A. blackout with indistinct outlines
- B. consists of separate foci
- C. can be of various shapes and lengths
- D. explicitly limited
- E. homogeneous nature of the blackout
- F. annular shadows

112. Name the types of residual symptoms after resorption of infiltrative tuberculosis

- A. calcified foci
- B. cirrhosis of the segment, lobe or entire lung
- C. tuberculoma
- D. homogenous nature of the shadow
- E. gong centers
- F. pockets of the Abrikosov

113. What changes are distinguished in the pathogenesis of infiltrative pulmonary tuberculosis:

- A. infiltratsiya
- B. ochagovye changes
- C. kaverny
- D. fibroz
- E. plevralnye overlay
- F. cysts

114. What are the clinical signs characteristic of infiltrative pulmonary tuberculosis:

- A. povyshenie temperature
- B. kashel with the release of viscous mucus

- C. snizhenie Health
- D. mokrota with offensive odor
- E. temperatura within normal limits
- F. deformity of the chest

115. What are the important three events are held in a healthy population to identify infiltrative tuberculosis

- A. flyuorografiya chest
- B. X-ray
- C. sputum microscopy at the MBT
- D. tuberculin
- E. obschy blood test
- F. koch's test

116. Name two important diagnostic minimum for the diagnosis of infiltrative pulmonary tuberculosis:

- A. radiographic study
- B. microscopic examination of sputum at the MBT
- C. CT scan
- D. Koch's subcutaneous test

117. What are the main three factors affecting the manifestation of infiltrative tuberculosis:

- A. particular tissue reaction
- B. state reactivity
- C. biological properties of the MBT
- D. age
- E. occupation
- F. half sick

118. Name the types of infiltrations with infiltrative pulmonary tuberculosis:

- A. peristsissurit
- B. cloud-
- C. lobito
- D. focal
- E. miliary
- F. konglomerativny

119. What are physical signs associated with infiltrative pulmonary tuberculosis:

- A. percussion dullness
- B. increased vesicular breathing
- C. suhie and single finely rales limited nature
- D. oslablenie voice tremor
- E. massa catarrhal phenomena
- F. amforicheskoe breath

120. Enter any 4 features are characteristic of caseous pneumonia

- A. purulent bloody sputum
- B. heat
- C. leukocytosis
- D. increased ESR

- E. weakened breathing, crepitation
- F. sclerotic dry rales
- G. hypersalivation
- H. dermatomelasma

121. X-ray with infiltrative pulmonary tuberculosis shadows are often localized:

- A. 1 segment
- B. 6 segment
- C. 2 segment
- D. 8 segment
- E. 4 segment
- F. 5 segment

122. What are the four diseases do not differentiate tuberculoma lungs:

- A. cavernous tuberculosis
- B. interstitial pneumonia
- C. ARI
- D. pleurisy
- E. lung abscess
- F. pulmonary infarction
- G. echinococcus
- H. chondroma

123. What are the four diseases differentiate tuberculoma lungs:

- A. lung abscess
- B. pulmonary infarction
- C. echinococcus
- D. chondroma
- E. cavernous tuberculosis
- F. infiltrative tuberculosis
- G. SARS
- H. pleurisy

124. What are the main clinical signs observed in the decay of tuberculomas:

- A. krovoharkane
- B. vydelenie sputum containing the MBT
- C. boli abdominal
- D. oteki

125. At the cavern cavernous pulmonary tuberculosis predominantly localized:

- A. 1 segment
- B. 6 segment
- C. 2 segment
- D. 8 segment
- E. 4 segment
- F. 5 segment

126. Radiographically cavernous tuberculosis of the lungs characterized by:

- A. lack of marked inflammatory infiltration
- B. absence of extensive fibrosis in the lung tissue
- C. a stable ring-shaped shadow of the isolated
- D. extensive inflammation around the cavity
- E. pronounced fibrotic changes
- F. presence of extensive lesions contamination

127. Not characteristic radiographic feature three cavitary disease:

- A. vast cavern of inflammation around
- B. mixing mediastinal in the affected side
- C. symptom of "weeping willow"
- D. lack of pronounced inflammatory infiltration
- E. absence of extensive fibrosis in the lung tissue
- F. a stable thin-walled annular shadows

128. In what forms of pulmonary tuberculosis on chest radiograph is determined by the symptom of "weeping willow":

- A. with fibro-cavernous tuberculosis
- B. in cirrhotic tuberculosis
- C. chronic disseminated tuberculosis
- D. focal tuberculosis
- E. tuberculosis of intrathoracic lymph nodes
- F. infiltrative tuberculosis

129. Cavitary disease is formed from:

- A. infiltrative pulmonary tuberculosis
- B. tuberculoma
- C. focal tuberculosis
- D. nonspecific inflammatory process
- E. lung abscess
- F. caseous pneumonia

130. In the cavernous pulmonary tuberculosis auscultatory determined by:

- A. bronchial breathing
- B. dry rales
- C. cavernous and wheezing parakavernoznye
- D. krepitiruyuschie wheezing
- E. pleural friction rub
- F. box sound

131. Name the 3 types of origin of cavities in pulmonary tuberculosis:

- A. pnevmogenny
- B. bronchogenic
- C. ateramatozny
- D. gematogenny
- E. lymphogenous
- F. intrakanalikulyarny

132. Enter the three characteristic radiographic signs of cavernous pulmonary tuberculosis:

- A. izolirovannaya cavity
- B. neznachitelnye fibrosis
- C. edinichnye patchy shadows
- D. mnozhestvennyye cavity
- E. ochagovaya dissemination
- F. focal shadow in indistinct outlines

133. What are three layers of the cavity wall is in the cavernous pulmonary tuberculosis:

- A. inner layer of caseous necrotic mass
- B. medium thin layer of granulation specific
- C. naruzhny connective tissue layer
- D. pyogenic membrane
- E. vnutrenny layer, lined with granulation tissue
- F. the middle layer of non-specific granulation

134. What are two ways the infection spreads from the cavity:

- A. lymphogenous
- B. bronchogenic
- C. pnevmogenny
- D. hematogenous

135. What are two types of flows cavernous tuberculosis clinic:

- A. bessimptomno
- B. slabo severe symptoms of intoxication
- C. rezko severe symptoms of intoxication
- D. ostroe onset
- E. undulating course

136. Specify the characteristic symptoms of intoxication in three cavernous tuberculosis:

- A. povyshennaya fatigue
- B. snizhenie appetite
- C. neustoychivost body temperature
- D. nochnoy pouring sweat
- E. pertussoid cough
- F. ye morning joint pain

137. What are the 3 main symptom is clinical fibro-cavernous pulmonary tuberculosis:

- A. snizhenie appetite, weight loss
- B. kashel with phlegm
- C. krovocharkane
- D. poliuriya
- E. normal levels of body temperature
- F. symptom Korányi

138. Auscultatory data fibro-cavernous tuberculosis are in three forms:

- A. bronhialnoe breath

- B. kavernozye, wheezing parakavernozye
- C. amforicheskoe breath
- D. vezikulyarnoe breath
- E. vlazhnye finely wheezing
- F. Kussmaul breathing E.

139. X-ray picture of fibro-cavernous tuberculosis is in 3 forms:

- A. nalichie one or more thick-walled ring-shaped shadow
- B. fibroznoe shrinkage affected the lungs
- C. ochagi bronchogenic seeding
- D. melkie same type of patchy shade
- E. peribronhialnye and perivascular changes in a minor nature
- F. presence of isolated thin-walled cavities

140. Name three specific changes in the blood of fibro-cavernous tuberculosis of lungs:

- A. leykotsitoz
- B. lymphopenia
- C. uskorenie ESR
- D. leykopeniya
- E. eozinofiliya
- F. thrombocytosis

141. What are the three main groups of drugs prescribed to patients for the treatment of cavernous and fibrous-cavernous pulmonary tuberculosis:

- A. isoniazid
- B. rifampicin
- C. streptomitsin
- D. cycloserine
- E. pasco
- F. penicillin

142. Radiologically fibro-cavernous tuberculosis characterized by the following three features:

- A. symptom of the "weeping willow"
- B. seal the pleura
- C. reduction of lung volume with the deformation pattern bronhososudistogo
- D. no lesions of bronchogenic seeding
- E. the same type of multiple small patchy shadows
- F. focal shadow in indistinct outlines

143. The characteristic clinical features three fibro-cavernous pulmonary tuberculosis:

- A. fever is the wrong type
- B. cough
- C. asymmetry of the chest
- D. asymptomatic
- E. no change in the external examination
- F. papulamatoznye rash on the face

144. Radiographic progression of fibro-cavernous tuberculosis are:

- A. emergence of foci of bronchogenic seeding
- B. increase the size of the cavity
- C. appearance of small foci of destruction
- D. resorption lesions
- E. scarring of the cavity
- F. formation of intense focus

145. Radiographic sign of two cirrhotic pulmonary tuberculosis:

- A. decrease in the volume of the lung fields
- B. displacement of the trachea and cardiovascular beam in the affected side
- C. scattered soft shadows focal
- D. increase transparency lung fields
- E. displacement of the trachea and cardiovascular beam in a healthy direction

146. Name the three uncharacteristic clinical symptoms of cirrhotic tuberculosis without exacerbation:

- A. cough with copious purulent sputum
- B. severe intoxication
- C. heat
- D. cough with phlegm trudnootdelyaemoy
- E. exertional dyspnea
- F. fatigue

147. Name the 3 types of mechanism of developing cirrhosis and lung in tuberculosis:

- A. bronchogenic
- B. pnevmogenny
- C. pleurogenously
- D. lymphogenous
- E. hematogenous
- F. likvorogenny

148. What are the two major pathological changes cause the development of pulmonary heart disease in cirrhotic tuberculosis:

- A. znachitelnaya loss of lung parenchyma
- B. rekonstruktivnye changes in bronchial
- C. infiltrativnye changes
- D. kazeozno-necrotic changes of lymph nodes
- E. intoksikatsiya

149. Enter the 3 types of cirrhotic tuberculosis prevalence distinguished:

- A. odnostoronny
- B. dvuhstoronny
- C. segmentarny
- D. diafragmalny
- E. bronholobulyarny
- F. mediastenalny

150. 4 haematological signs typical of cirrhotic tuberculosis

- A. kompensatornoe increase in erythrocyte

- B. umerenny leukocytosis
- C. umerennoe ESR acceleration
- D. lymphocytopenia
- E. vysokiy leukocytosis
- F. rezko accelerated ESR
- G. jean increase of albumin
- H. lymphocytosis

151. On the basis of what are 3 basic methods of cirrhotic tuberculosis is diagnosed:

- A. klinicheskikh
- B. rentgenologicheskikh
- C. funktsionalnykh
- D. ultrasound study
- E. immunologicheskikh
- F. tuberculin tests

152. Clinical manifestations of cirrhotic pulmonary tuberculosis caused by three species:

- A. hronicheskaya respiratory failure
- B. nespetsificheskoe inflammation
- C. aktivnost tuberculosis
- D. narushenie function of the gastrointestinal tract
- E. renal insufficiency
- F. uvelichenie capillary bed

153. What are the three most typical complaints are observed in patients with cirrhotic pulmonary tuberculosis:

- A. odyshka
- B. kashel
- C. vydelenie sputum
- D. vysokaya temperature
- E. vydelenie profuse foul sputum
- F. dyspepsia

154. Which two species share the cirrhotic tuberculosis radiologically determined by the nature of the changes:

- A. ogranichenny
- B. diffuzny
- C. rasprostranenny
- D. prikornevoy
- E. diaphragmatic

155. X-ray picture cirrhotic tuberculosis is five attributes:

- A. porazhennaya share decreased in volume
- B. darkening of the affected lobe of high intensity
- C. in some parts of the affected shares are determined by the oval shape of enlightenment and ploskovidnoy expanded and compressed bronchi
- D. smeschenie root lung and mediastinum toward the cirrhotic share
- E. emphysematous enhanced basal parts of the lungs
- F. porazhennaya share enlarged in volume

- G. darkening of the affected lobe little intense character
- H. homogenous nature of the blackout
- I. basal parts of the lungs unchanged
- J. along the entire length of light small low-intensity patchy shadows

156. X-ray picture of a diffuse character cirrhotic tuberculosis is three attributes:

- A. Multiple well-defined linear and ploskovidnye shadows in both lungs
- B. mnozhestvennye dense foci predominantly in the upper
- C. podtyanutaya up mediastinal shadow
- D. infiltrativnye low intensity dimming
- E. krupnye foci discharge character
- F. peribronchial and perivascular infiltration

157. Which 2 changes characteristic bronchoscopic cirrhotic tuberculosis

- A. rubtsovye and inflammatory bronchial stenosis
- B. nespetsifichesky endobronhit
- C. giperemiya mucosal
- D. bronchiolitis
- E. ulceration

158. Name the three main causes of death in patients cirrhotic tuberculosis:

- A. pulmonary heart disease
- B. krvotecheniya
- C. amiloidoz internal organs
- D. narushenie function of the gastrointestinal tract
- E. narushenie the central nervous Istemi
- F. dizbakterioz

159. What are typical fibrinous pleurisy three symptoms:

- A. pain in the chest
- B. shortness of breath
- C. pleural friction rub
- D. itching
- E. sputum with the smell
- F. hectic temperature

160. Name three specific clinical symptoms for exudative pleurisy:

- A. febrile fever
- B. cyanosis
- C. shallow breathing
- D. retraction of the chest over the exudate
- E. breath Kusmaulya
- F. hemoptysis

161. What are the main three symptoms observed in the prodromal stage of tuberculous meningitis:

- A. lethargy

- B. irritability
- C. low-grade fever
- D. disorders of urinary system
- E. pyatnistopapulleznaya rash
- F. symptom Brudzinskogo

162. What are 3 clinical periods noted in tuberculous meningitis:

- A. prodromal
- B. exacerbation
- C. period of paralysis and paresis
- D. acute phase with severe cerebral syndromes
- E. short incubation period (14 days)
- F. subacute period with the defeat of 12 pairs of cranial nerves

163. 3 symptoms in acute tuberculous meningitis:

- A. persistent fever
- B. increasing the intensity of headache
- C. stiff neck
- D. spastic paraplegia
- E. hearing disorder
- F. girdle pain

164. What are the three changes in the propagation characteristic of tuberculous inflammation in the spinal cord membranes and spinal nerve roots:

- A. girdle pain around the chest
- B. girdle pain around the belly
- C. peripheral paresis and paralysis
- D. shooting pain in lower back
- E. of referred pain in the chest at shoulder
- F. akrotsionoz

165. What are the 4 hematologic trait characteristic of tuberculous meningitis:

- A. leukocytosis
- B. lymphopenia
- C. ESR acceleration
- D. lymphopenia
- E. neutrophilia with a shift to the right
- F. lymphocytosis
- G. thrombocytopenia
- H. eozinfilija

166. What are the three characteristic changes in the cerebrospinal fluid in tuberculous meningitis are identified:

- A. increase the number of cells
- B. increase the protein content
- C. lowering blood sugar
- D. increase in erythrocyte
- E. reduction in CSF pressure in the spinal cord
- F. increase of chloride content

167. List the main three ways to identify TB in the population:

- A. for mass preventive examinations
- B. when handling patients in hospitals
- C. in persons under surveillance clinics
- D. for vaccination and revaccination
- E. inattention to the patient for their health
- F. employees of ambulance

168. What are the main three reasons for late detection of tuberculosis:

- A. features of the disease
- B. inattention to the patient for their health
- C. medical diagnostic errors
- D. regular preventive examinations
- E. correct interpretation of survey data, patient
- F. Timely treatment of patients in hospitals

169. Name the types of TB facilities:

- A. dispensary
- B. hospital
- C. sanatorium
- D. polyclinic
- E. neurological department
- F. private clinics

170. Name the types of TB dispensary facilities:

- A. regional
- B. city
- C. district
- D. medical assistant item
- E. Tuberculosis study in hospitals
- F. tuberculosis unit at hospitals

171. Enter the 3 major diagnostic departments included in the tuberculosis hospital:

- A. Laboratory
- B. X-ray
- C. bacteriological
- D. immunological
- E. Epidemiological
- F. MBTs of medical physical culture

172. What are 4 groups of patients with tuberculosis dispensary you know:

- A. 1gruppa - Patients with active tuberculosis of respiratory organs
- B. 2gruppa - persons with clinically healed tuberculosis
- C. 3gruppa - patients with extrapulmonary tuberculosis
- D. 4gruppa - persons in contact with TB patients, the tanker. infected
- E. 1gruppa - Persons Persons with genetic susceptibility to tuberculosis

- F. 2gruppa - persons in contact with TB patients
- G. 3gruppa - persons with residual changes posttuberkuleznymi
- H. 4gruppa - patients with extrapulmonary tuberculosis

173. What are 2 types of regular studies are recommended in the monitoring of patients of group 1:

- A. monthly sputum examination at the MBT
- B. X-ray
- C. immunological
- D. study the protein fraction of blood
- E. Ultrasound

174. What two factors do not address the continuing period of observation the patient care record:

- A. method of treatment
- B. comorbidities
- C. living conditions
- D. habits
- E. the nature of the residual change

175. Inactive TB requires:

- A. medical check-up
- B. of seasonal chemoprophylaxis
- C. survey of contact persons
- D. for hospital treatment

176. What are the two charges are not included in the content of the therapist's clinic for TB:

- A. visit to a tuberculous focus in conjunction with the County
- B. visit the patient in the hospital with the local TB specialists
- C. a plan flyuroobsledovaniya population
- D. drafting outpatient risk of tuberculosis

177. What are the 3 groups are not at risk for tuberculosis?

- A. woman's postpartum
- B. patients with coronary heart disease
- C. elderly people
- D. patients with chronic lung diseases
- E. AD patients with diabetes
- F. alcoholism, drug addiction
- G. patients with gastric ulcer

178. What are the medical people involved in the primary focus of epidemiological study of tuberculosis infection:

- A. tuberculotherapist
- B. epidemiologist
- C. health visitor nurse tuberculosis hospital
- D. radiologist
- E. therapist
- F. obituary

176. When you visit the source of TB infection do not participate the following three specialist:

- A. district physician
- B. cardiologist
- C. ophthalmologist
- D. tuberculothapist
- E. epidemiologist
- F. health visitor nurse tuberculosis hospital

177. Specify the event that no recovery is carried out at the source of TB infection

- A. removal of family members from work
- B. TB treatment of family members
- C. overhaul apartments
- D. accounting and monitoring contact
- E. current disinfection
- F. chemoprophylaxis of contacts

178. Enter 3 is not specific criteria for determining the source categories of TB infection

- A. condition of
- B. the patient's age
- C. prevalence of tuberculosis in the lungs
- D. having children in the family
- E. living conditions in the family
- F. alcoholism, drug addiction

179. Enter the three specific criteria for determining the source categories of TB infection

- A. the presence of children in the family
- B. the MBT release patients
- C. conditions of life in the family
- D. operating conditions
- E. the patient's age
- F. prevalence of tuberculosis in the lungs

180. What are the three main methods include a modern prevention of tuberculosis:

- A. sanitary
- B. chemoprophylaxis
- C. specific
- D. epidemiological
- E. nonspecific
- F. surgical

181. Enter bacterioscopic methods to identify Mycobacterium tuberculosis:

- A. painting by Ziehl-Neelsen
- B. method of flotation
- C. luminescent method
- D. Gram stain
- E. coloring method for Ramond
- F. stain Levenstein

182. What are the 3 groups of isolated foci of tuberculosis infection:

- A. group of the most unfavorable center
- B. Group 2 with respect to an unfortunate focus
- C. Group 3 happy hearth
- D. group of well-off centers
- E. Group 2, worst seats
- F. Group 3 with respect to a dysfunctional focus

183. What time period is an epidemiologist and TB doctor visits foci of 3 groups:

- A. a focus group of one every 3 months
- B. Group 1 seat 2 times in 6 months
- C. focus groups of three times a year
- D. focus 1gruppy 1 time in 5 months
- E. focus 2gruppy 1 time in 2 months
- F. focus 3gruppy 1 time per month

184. What are three indicators of the effectiveness of TB vaccination is determined by:

- A. reduce morbidity
- B. reduction in mortality
- C. decrease in severe forms of tuberculosis
- D. increase in infection
- E. the relative stability of the disease
- F. increase in mortality

185. What are the complications occurring after BCG vaccination:

- A. subcutaneous abscess cold
- B. ulcers, lymphadenitis
- C. keloid scars
- D. perivaskulit
- E. weeping eczema
- F. paresis and paralysis

186. List the contraindications for neonatal BCG vaccination:

- A. purulent-septic diseases
- B. hemolytic disease of newborn
- C. severe birth injuries
- D. post-term
- E. pedicterus
- F. weight 2500 grams and above

187. In what two dates held BCG revaccination:

- A. 1st in 6-7 years
- B. 2nd in 14-15 years
- C. 1st in 5 years
- D. 2nd in 16-17 years
- E. 3rd in 20-25 years

188. List three contraindications to revaccination of children and adolescents:

- A. complicated reactions to previous BCG vaccination
- B. acute and allergic diseases
- C. purulent-septic skin lesions
- D. uninfected TB
- E. age
- F. transferred to the history of appendectomy

189. Enter 3 uncharacteristic signs of local immunogenesis after BCG vaccination

- A. skrofuloderma
- B. Punctulata rash
- C. Lentigo
- D. papule
- E. pustule
- F. crust

190. What two drugs can be carried chemoprophylaxis:

- A. isoniazid
- B. ftivazid
- C. streptomycin
- D. Pasco
- E. ethionamide

191. Name the 2 types of chemoprophylaxis:

- A. primary
- B. secondary
- C. Early
- D. Late
- E. re-

192. Name the five basic principles of chemotherapy of tuberculosis:

- A. treatment should be started at an early stage and immediately after its detection
- B. effective treatment of patients with tuberculosis depends on its duration
- C. treatment should use the most efficient mode of chemotherapy
- D. continuity in the long term and consistent treatment
- E. Treatment should be comprehensive
- F. after the disappearance of clinical symptoms treatment stops
- G. treatment may be as a single agent
- H. maximum therapeutic dose, regardless of clinical forms of tuberculosis
- I. in advanced cases of inappropriate use of chemotherapy

193. Name 3 conditions that affect the choice of therapeutic regimen:

- A. the presence and absence of degradation
- B. the presence of underlying medical conditions
- C. the degree of activity and the incidence of tuberculosis
- D. profession and social status of the patient
- E. age of the patient
- F. patient education

194. Which two groups are usually divided chemotherapy for the treatment of tuberculosis:

- A. I - the main group
- B. II - an additional group
- C. and - most active
- D. B - the least active
- E. B - average activity

195. What are the 2 drugs are included in Group I:

- A. Isoniazid
- B. rifampicin
- C. protionamid
- D. Pasco
- E. cycloserine

196. What are the 2 drugs are included in Group I:

- A. ethambutol
- B. pyrazinamide
- C. kanamycin
- D. Pasco
- E. protionamid

197. What drugs are group II:

- A. Pasco
- B. kanamycin
- C. protionamid
- D. rifampicin
- E. isoniazid
- F. penicillin

198. What drugs are group II:

- A. cycloserine
- B. ofloxacin
- C. protionamid
- D. streptomycin
- E. isoniazid
- F. ampicillin

199. Name the three main groups of the complex drugs used in chemotherapy for newly diagnosed patients in the initial intensive phase:

- A. isoniazid, rifampicin, streptomycin-
- B. isoniazid, rifampicin, ethambutol,
- C. ethambutol, isoniazid-streptomycin-
- D. isoniazid, ofloxacin, cycloserine
- E. isoniazid-PAS-kanamycin

F. isoniazid-biseptol-dexamethazone

200. On what forms of mycobacteria isoniazid acts:

- A. fast-breeding
- B. intracellular
- C. L-forms
- D. slow-breeding
- E. filterable

201. Name the three circumstances under which ethambutol is contraindicated:

- A. optic neuritis
- B. cataract
- C. first 3 months of pregnancy
- D. liver disease
- E. hypertonic disease
- F. chronic cholecystitis

202. Under what circumstances is rifampicin contraindicated in two:

- A. first 3 months of pregnancy
- B. liver disease
- C. 2nd half of pregnancy
- D. epilepsy
- E. hypertonic disease

203. Name 3 contraindications which should not be given streptomycin and kanamycin:

- A. disturbance of renal excretory function
- B. severe hypertension
- C. vestibular disorders and hearing aid
- D. bronchial asthma
- E. diabetes mellitus
- F. chronic cholecystitis

204. What three changes do not apply to small residual changes:

- A. diffuse small foci of dense
- B. conglomerate swollen lymph nodes in the roots
- C. focal darkening than 2 cm
- D. isolated pockets of dense
- E. Ghon's focus is not more than 2 cm
- F. fibrosis within the same segment

205. What three changes apply to small residual changes:

- A. single dense foci
- B. Ghon's focus is not more than 2 cm
- C. fibrosis within the same segment

- D. diffuse small foci of dense
- E. pulmonary fibrosis more than one segment
- F. diffuse pneumosclerosis

206. Specify the clinical and radiographic criteria for cure of tuberculosis:

- A. lack of clinical signs of intoxication
- B. sustained cessation of bacterial
- C. existence of seats with clear contours
- D. the presence of radiographically perifocal inflammation around lesions
- E. cough, sometimes with the identification of the MBT
- F. hemoptysis, hectic fever

207. Specify a non-specific sign of clinical cure of tuberculosis

- A. negative Mantoux test
- B. X-ray negative dynamics
- C. ongoing bacterial
- D. disappearance of clinical symptoms
- E. normalization of laboratory parameters
- F. X-ray positive dynamics

208. Enter the residual changes after the treatment of pulmonary tuberculosis:

- A. sanitized cavity
- B. petrifikaty
- C. induratsionnye field
- D. existence of cavities with perifocal infiltration
- E. focal infiltrative nature of the shadow
- F. patchy soft shadows

209. What are the 3 methods of therapy is not used in the treatment of tuberculosis:

- A. heliotherapy
- B. radiation therapy
- C. treatment antideprisantami
- D. chemotherapy
- E. collapsotherapy
- F. surgical treatment

210. Name the two types of collapse therapy used in the treatment of pulmonary tuberculosis:

- A. pneumoperitoneum
- B. artificial pneumothorax
- C. pleurorrhea
- D. Gidroperitoneum

211. The main indications for artificial pneumothorax:

- A. pneumorrhagia

- B. cavitory tuberculosis
- C. Infiltrative tuberculosis in a phase of disintegration
- D. Tuberculosis of intrathoracic lymph nodes
- E. focal tuberculosis
- F. cirrhotic tuberculosis

212. Enter the 2 possible complications of artificial pneumothorax:

- A. aerodermection
- B. pneumothemia
- C. reflex apnea
- D. a sharp drop in blood pressure
- E. tachycardia

213. Under what clinical forms of pulmonary tuberculosis using pneumoperitoneum:

- A. destructive tuberculosis
- B. Infiltrative tuberculosis in a phase of disintegration
- C. disseminated tuberculosis in a phase of disintegration
- D. tuberculoma
- E. focal tuberculosis
- F. Infiltrative tuberculosis in a phase of resorption

214. Name the two main mechanisms of therapeutic effect pneumoperitoneum:

- A. restricts the mobility of the diaphragm
- B. immobilizes lung
- C. increases the mobility of the diaphragm
- D. increases platelet aggregation
- E. increase the respiratory surface of the lungs

215. What are the clinical forms of pulmonary tuberculosis is an indication for surgical treatment:

- A. tuberculoma
- B. single cavity
- C. polikavernoznye defeat one lung
- D. Infiltrative tuberculosis
- E. disseminated tuberculosis
- F. tuberculous intoxication in children and adolescents

216. List the main three types of surgical interventions for tuberculosis:

- A. sparing resection of a lung
- B. pleurectomy, lung decortication
- C. kavernektomiya
- D. ekstraklevalny pnevmoliz
- E. torakoakustika
- F. endovascular surgery

217. Name two contra-surgical treatment of pulmonary tuberculosis:

- A. high prevalence of the process
- B. severe functional disturbances of the respiratory, circulatory, liver and kidney

- C. limiting the spread of the process
- D. chronic prostatitis
- E. esogastritis

218. Please specify in 2 cases bacterioscopy DOTS is not informative:

- A. determination of infection rates
- B. appointment doses of drugs
- C. determination of the treatment regimen
- D. monitoring treatment
- E. determining the outcome of treatment

219. Name the three main elements of DOTS:

- A. state support and control activities of all of the service
- B. identification of patients by sputum tuberculosis microscopy
- C. short-term chemotherapy and regular supply of antibacterial drugs
- D. identification of patients by X-ray
- E. creation hozrastchetnyh hospitals
- F. identify patients by bacteriological examination of sputum

220. Specify who is appointed by the MBT of sputum on DOTS:

- A. patient coughs for more than 2 weeks
- B. patient radiographic changes in the lungs
- C. patients with chronic nonspecific lung diseases
- D. patients with essential hypertension
- E. AD patients with disease of the gastrointestinal tract
- F. financially secure patients

221. What are the main tasks of GPs and district therapist in detection of tuberculosis patients under DOTS:

- A. Identification of patients with pathology of the respiratory system
- B. providing a controlled therapy on an outpatient basis
- C. Medical Records of patients on maintenance treatment phase
- D. Identification of a healthy contingent
- E. Identification of an organized contingent of children
- F. control patients in the intensive phase of treatment

222. How is the collection of sputum in suspected TB DOTS:

- A. specially equipped room in sputum
- B. under the supervision of trained nurses
- C. sputum collection point
- D. under the supervision of junior medical staff
- E. at home your doctor
- F. outdoors under the open sun

223. With the purpose to diagnose tuberculosis, which sputum specimens examined by the DOTS strategy:

- A. sample - in a medical institution under the control of
- B. 2 probe - independently in the morning
- C. 3 sample - delivery of morning sputum portions of the medical establishment

- D. 4 sample - after 2 days in a medical institution
- E. 5 samples the next day - after lunch
- F. 1 probe - independently in the morning

224. Specify which 3 types of patients on DOTS:

- A. new case
- B. relapse
- C. was transferred
- D. a second case
- E. fuzzy case
- F. amazing event

225. Name the categories of TB patients on DOTS:

- A. Category I - for the first time identified with large parenchymal changes
- B. Category II - patients with recurrent tuberculosis
- C. Category III - for the first time identified a limited processes
- D. Category IV - patients with multidrug resistant TB
- E. Category V -, patients with treatment failure
- F. Category I - patients with recurrent tuberculosis

226. Enter the two schemes in the intensive phase of treatment for DOTS patients belonging to Category I:

- A. Isoniazid, rifampicin, pyrazinamide, streptomycin-
- B. isoniazid-rifampin-ethambutol-pyrazinamide
- C. isoniazid-streptomycin-ethambutol - kanamycin
- D. isoniazid-cycloserine, ofloxacin
- E. isoniazid-PAS-kanamycin

227. Enter the two schemes in a supportive phase of treatment for DOTS patients belonging to Category I:

- A. isoniazid-rifampicin
- B. isoniazid-ethambutol
- C. isoniazid-kanamycin
- D. isoniazid-cycloserine
- E. isoniazid-PAS

228. Name 2 forms of abdominal tuberculosis:

- A. Tuberculosis of the intestine
- B. tuberculosis of mesenteric lymph nodes
- C. tuberculous sacroiliitis
- D. Tuberculous pericarditis

229. Enter 3 paraspetsificheskikh reactions in children and adolescents with tuberculosis intoxication:

- A. nodular erythema
- B. phlyctenular keratoconjunctivitis
- C. serositis
- D. conduction disorders of myocardial
- E. kataral gastritis
- F. stomatitis

230. Specify the typical 4 changes in urine renal tuberculosis:

- A. A protein
- B. leykotsity
- C. eritrotsity
- D. M. tuberculosis
- E. oxalates
- F. epiteliialnye cells
- G. platelets
- H. Staphylococcus

231. The appearance of a patient with fibro-cavernous tuberculosis:

- A. assimetriyasi chest
- B. atrofiya muscles
- C. narrowing of intercostal spaces
- D. highest weight
- E. Trousseau spot
- F. Hypertrophy of muscles

232. For the early tuberculous intoxication is characterized by:

- A. soft-elastic lymph nodes
- B. virage when setting the Mantoux test
- C. tightly-elastic lymph nodes
- D. symptom duration longer than one year

233. Specify the types of pathogenic mycobacteria:

- A. human type
- B. bovine type
- C. bird type
- D. ant-type
- E. fish type
- F. streptococcal type

234. The cause of dyspnea in miliary tuberculosis is:

- A. severe intoxication
- B. violation of elasticity of lung tissue
- C. gipersensibilizatsiya to the MBT
- D. hypertension in the pulmonary circulation
- E. violation of bronchial patency

235. Complication of infiltrative tuberculosis in a phase of decay is:

- A. hemoptysis
- B. spontaneous pneumothorax
- C. amyloidosis of the internal organs

D. bronchiectasis formation of cavities

236. What are three forms of tuberculosis is not formed tuberculoma:

- A. chronic tuberculous intoxication
- B. early tuberculous intoxication
- C. tuberculosis of intrathoracic lymph nodes
- D. infiltrative tuberculosis
- E. cavernous tuberculosis
- F. focal tuberculosis

237. Enter the 4 forms of pleurisy localization:

- A. costa diaphragmatic
- B. costal
- C. mediastinal
- D. apical
- E. cardial
- F. by diaphragmatic
- G. paratracheal
- H. bifurcation

238. Enter the four characteristic signs of the decay phase of pulmonary tuberculosis:

- A. cough with phlegm presence
- B. rales in the lungs
- C. in hemoptysis
- D. Mr. bacterial
- E. appearance of erythema nodosum
- F. attenuated vesicular breathing
- G. epigastric pain
- H. dry cough

239. Exacerbation of chronic haematogenously-disseminated pulmonary tuberculosis is characterized by:

- A. recent appearance of lesions
- B. development of perifocal inflammatory changes
- C. appearance cavities
- D. advent of intense foci
- E. limited appearance of cirrhosis
- F. dispersal of focal shadows

240. Outcome of chronic haematogenously-disseminated pulmonary tuberculosis with favorable dynamics often is:

- A. seal pockets
- B. the development of fibro-sclerotic
- C. complete resorption of the lesions
- D. calcination foci

241. The prevalence of focal lesions in pulmonary tuberculosis usually covers

- A. segment of a lung
- B. one or two segments of lung

- C. three segments of both lungs
- D. whole lung

242. With effective treatment, cloud-like infiltrate may be formed:

- A. plot pneumosclerosis
- B. pneumosclerosis site with areas of
- C. forged cavity
- D. fresh foci

243. When lobite often observed following 3 clinical symptoms:

- A. high fever
- B. dull percussion sound
- C. pains in the chest on the affected side
- D. moderate clinical symptoms
- E. expiratory stridor
- F. a large number of rales

244. Tuberculous Lobito characterized by the following radiological signs:

- A. plot blackout gripping the entire share
- B. non-uniform shade, which has a patchy education
- C. often collapse
- D. often foci of bronchial dropout
- E. area blackout exciting part of the share
- F. homogeneous shadow
- G. proportion increased in volume
- H. rare decay

245. In the caseous pneumonia observed following 4 clinical features:

- A. acute onset
- B. a high fever
- C. cough
- D. many moist rales
- E. low-grade fever
- F. dry cough
- G. dry rales in the lungs
- H. moderate clinical symptoms listed

246. By kazeomam include three of these options tuberculoma:

- A. homogeneous
- B. layered
- C. conglomerate
- D. Infiltrative-pneumonic
- E. psevdotuberkulema
- F. Gon's Hearth

247. Tuberculoma may be the next version of the clinical course:

- A. stationary
- B. Progressive

- C. retrogressive
- D. spontaneous
- E. typhoidal
- F. meningialny

248. Cavities with fibro-cavernous pulmonary tuberculosis often are found:

- A. segment of the lung in the 2
- B. 1-2 segments of lung
- C. 1-2-6 in lung segments
- D. 1-3-6-10 segments in lung
- E. in 2-3-6-4-5 lung segments

249. The main reason for failure of chemotherapy fibrocavernous pulmonary tuberculosis is the following two factors:

- A. the presence of coarse fibrous capsule in the wall cavity
- B. Mycobacterium tuberculosis resistant to drugs and intolerance of their patients
- C. the presence of a thin-walled cavity with cheesy necrosis
- D. absence coarse fibrous capsule in the wall cavity
- E. presence of infiltration with cheesy necrosis

250. The main contraindications to surgery in patients with fibro-cavernous pulmonary tuberculosis is 3 factors:

- A. older age and comorbidities
- B. a high prevalence of tuberculosis
- C. concomitant respiratory and cardiovascular failure
- D. bounded one-way process
- E. lack of co-morbidities
- F. Anemia of I degree

251. Status of the microcirculatory vascular bed in pnevmotsirroze suggests:

- A. angiopulmonografiya (APG)
- B. radiopulmonography (RPGs)
- C. flyuroografiya
- D. fistulografiya

252. TB infection spreads to the pleura all the above ways, but

- A. bronchogenic
- B. neurogenic
- C. alimentary
- D. lymphogenous
- E. hematogenous
- F. violating the integrity of lung

253. For the swampy characterized by a combination of pleurisy following 4 physical symptoms:

- A. shortening or dull percussion sound
- B. weakened breathing
- C. pleural friction rub above dull percussion note

- D. weakening voice tremor
- E. bronchial breathing
- F. amplification Bronhofoniya
- G. pleural rub in the dull percussion sound
- H. gain a voice trembling

254. In the complex treatment of patients with tuberculous exudative pleurisy should include:

- A. etiotropic chemotherapy
- B. Anti-Inflammatory Drugs
- C. pleural puncture with evacuation of the exudate
- D. artificial pneumothorax
- E. pneumoperitoneum
- F. expectorant drugs

255. Favorable outcomes in pulmonary tuberculosis are:

- A. calcination
- B. encapsulation caseous necrosis
- C. resorption and fibrosis
- D. bronchogenic spread
- E. hematogenous spread
- F. transition in cirrhotic tuberculosis

256. According to X-ray examination can distinguish the following phases of favorable course of tuberculosis of intrathoracic lymph nodes:

- A. phase of resorption
- B. phase seal
- C. phase calcification
- D. softening phase
- E. phase collapse
- F. colonization phase

257. Distinguish the following phases (periods) of flow effusion pleurisy:

- A. prodromal
- B. exudation
- C. stabilization
- D. resorption of effusion
- E. incubation
- F. seal
- G. calcification
- H. latent

258. In the free effusion into the pleural cavity revealed Physical signs:

- A. dulling of the exudate percussion sound to the upper bound in the form of a parabola
- B. tympanitis over an area of effusion
- C. blunting the healthy side due to the shift of the mediastinum

- D. tympanitis the healthy side due to the shift of the mediastinum
- E. effusion of voice tremor enhanced
- F. increased vesicular breathing over an area of effusion

259. Dullness of percussion sound is most pronounced in the following forms of infiltrative tuberculosis

- A. at lobite
- B. in peristsissurite
- C. in caseous pneumonia
- D. at bronholobulyarnom infiltrate
- E. when rounded infiltrate
- F. in cloud-like infiltrate

260. Decay and batsillovydelenie frequently observed in the following forms of infiltrative tuberculosis

- A. lobite at
- B. in caseous pneumonia
- C. at bronholobulyarnom infiltrate
- D. rounded infiltrate in

261. For caseous pneumonia is characterized by:

- A. syndrome of severe intoxication
- B. cardiovascular impairment
- C. expression of catarrhal changes in the lungs
- D. moderately severe intoxication
- E. a strong dry cough
- F. physical scant data

262. Increase the risk of TB disease are listed, except:

- A. hypertension
- B. psoriasis
- C. catarrhal gastritis
- D. gastroduodenal ulcer
- E. diabetes
- F. alcohol

263. What is the sign confirms the efficacy of BCG vaccination and revaccination:

- A. scar formation postprivovochnogo
- B. presence of positive skin test reaction
- C. low-grade fever
- D. seal lymph nodes

264. What are the foci of you know the name of the TB-scientists:

- A. Ghon's focus
- B. the center of the Simon
- C. the center of the Abrikosov
- D. outbreak Ashofa - Puglia
- E. dr. Fireplace Rubinstein
- F. hearth Vorobeva

- G. the center of Pavlov
- H. the center Serzhan

265. How different biological properties of Mycobacterium tuberculosis from other microbes:

- A. resistant to acids
- B. resistant to alcohols
- C. resistant shelocham
- D. resistant to a diamond blue
- E. resistance to methylene blue
- F. water resistant to strong iodine solution

266. The intensity of the abnormal shadow compared to:

- A. shadow edges
- B. shadow of the cross-sectional vessel
- C. longitudinal section of the shadow of vessels
- D. shadow of soft tissue
- E. shadow root easily
- F. shadow of lymphatic vessels

267. What size are patchy teni:

- A. 1-3 mm
- B. 3-6 mm
- C. 6-10 mm
- D. 1-2 cm
- E. 2-3 cm
- F. 1-10 cm

268. On the structure of abnormal shadows in the lungs are two kinds:

- A. homogeneous
- B. inhomogeneous
- C. heterogeneous
- D. intensive

269. Specify the types of tuberculins:

- A. CCA
- B. PPD-A
- C. dry erythrocyte diagnosticum
- D. platelet-dry diagnosticum
- E. BCG
- F. BCG-M

270. For what purposes is used tuberculin Mantoux test:

- A. to determine the postvaccinal allergy and to determine the infection organism MBT
- B. to determine the rate of infection among the population

- C. for the selection of individuals for vaccination and revaccination
- D. to vaccination
- E. to prevent TB
- F. the MBT for the detection of

271. In what form below tuberculosis occurs when setting a negative energy skin test reaction:

- A. tuberculous meningitis
- B. caseous pneumonia
- C. miliary tuberculosis
- D. focal tuberculosis
- E. pulmonary tuberculoma
- F. early tuberculous intoxication

272. With the continued activity of pulmonary tuberculosis focal reaction to test Koch's reflected by the following:

- A. pain in the chest
- B. cough, auscultation moist rales
- C. increase the size of abnormal shadows on chest radiograph
- D. weakness, headaches
- E. increase in body temperature
- F. at the site of tuberculin appears infiltrate

273. When setting the sample Koch observed the following responses:

- A. local
- B. lobular
- C. total
- D. limited
- E. common
- F. diffuse

274. For postvaccinal allergy is characterized by:

- A. the annual extinction of the response to the Mantoux test
- B. the average size of 7-9mm of induration
- C. absence of signs of tuberculous intoxication
- D. the annual increase in response to the Mantoux test
- E. the average size of 15-17mm of induration
- F. papules on the spot for a long time left area of hyperpigmentation

275. To infection allergy is characterized by:

- A. the annual increase in response to the Mantoux test
- B. signs of tuberculous intoxication
- C. papules on the spot for a long time remain part of hyperpigmentation
- D. annual fading reaction to the Mantoux test
- E. the average size of 7-9mm of induration
- F. no signs of tuberculous intoxication

276. Absolute contraindications to vaccination with BCG newborns:

- A. congenital fermentopathy
- B. immunodeficiency
- C. generalized infection with BCG, found in other children in the family
- D. congenital hemolytic disease of I degree
- E. prematurity - birth weight in 2000
- F. pyo-septic diseases

277. Relative contraindications to vaccination with BCG newborns:

- A. congenital hemolytic disease of the II degree
- B. prematurity - birth weight in 2000
- C. pyo-septic diseases
- D. congenital fermentopathy
- E. immunodeficiency
- F. generalized infection with BCG, found in other children in the family

278. Absolute contraindications for BCG revaccination:

- A. history of tuberculosis brought in
- B. hyperergic reaction to the Mantoux test
- C. complicated reaction to a previous BCG
- D. acute infectious diseases
- E. allergic diseases in the acute stage
- F. skin diseases in the acute stage

279. Primary affect more often located in the following segments:

- A. 3 segment
- B. 4 segment
- C. 5 segment
- D. 8 segment
- E. in a segment
- F. 2 segment
- G. at 6 segment
- H. in 11 segment

280. Tuberculous granuloma morphology consists of the following:

- A. cheesy necrosis
- B. epithelioid cells
- C. Vladimir Pirogov-Langhans cells
- D. Mr. Berezovsky cells - Steinberg
- E. Botkin cells
- F. cell sarcoma

281. By Sukennikovu intrathoracic lymph nodes are divided into:

- A. paratracheal
- B. bronchopulmonary
- C. paraezofagalnye
- D. retrosternal

282. By Sukennikovu intrathoracic lymph nodes are divided into?

- A. bifurcation

- B. tracheobronchial
- C. para-aortic
- D. parakardialnye

283. Indicate the symptoms of compression at bronhoadenitah:

- A. koklyushopodobny cough
- B. bitonal cough
- C. Smith symptom
- D. symptom Korányi
- E. Vorobeve symptom-Pottenger
- F. Rubinstein symptom

284. Indicate the symptoms of compression at bronhoadenitah:

- A. symptom of Frank
- B. symptom Vidergofer
- C. expiratory stridor
- D. Parsley symptom
- E. cases symptom Camp
- F. symptom Brudzinskogo

285. Specify the symptoms of percussion bronhoadenitah:

- A. Filatov symptom
- B. symptom Filosofova
- C. symptom Korányi
- D. Smith symptom
- E. Vorobeve symptom-Pottenger
- F. De Espina symptom

286. Chemoprophylaxis of tuberculosis is shown to persons:

- A. contact with smear
- B. superelevation with tuberculin sensitivity
- C. have an increased risk of developing tuberculosis
- D. when a positive anergy on Mantoux test
- E. patients with active pulmonary tuberculosis
- F. individuals vaccinated with BCG

287. Additional methods of examination in the diagnosis bronhoadenitah:

- A. computed tomography
- B. bronchoscopy
- C. urinalysis
- D. fluorography

288. Under what circumstances described below developed caseous pneumonia:

- A. large number of high virulence and the MBT
- B. High sensitivity of lung tissue
- C. decrease the reactivity of the organism
- D. low virulence of the MBT
- E. normal reactivity
- F. infection in the form of L-forms

289. Specify the unfavorable outcome of infiltrative tuberculosis

- A. cavernous tuberculosis
- B. fibro-cavernous tuberculosis
- C. fibronodular TB
- D. tuberculosis of intrathoracic lymph nodes

290. Types of tuberculoma by Averbakh:

- A. kazeomy Infiltrative-pneumonic
- B. tuberculoma
- C. psevdotuberkulomy
- D. psevdoinfiltraty
- E. infiltrative-skleraticheskie tuberculoma
- F. Simon foci

291. Specify the reasons for the formation of cavernous tuberculosis

- A. late diagnosis and incorrect treatment
- B. the MBT resistance to TB drugs
- C. the MBT sensitivity to anti-TB drugs
- D. early diagnosis and comprehensive treatment

292. By Aseyev AD cavities are of the following sizes:

- A. small 1-2 cm
- B. average of 2-4 cm
- C. large 4-6cm
- D. small 5-10mm
- E. average 10-15mm
- F. larger 1.5-2 cm

293. Adverse outcome of the cavernous tuberculosis

- A. fibrous-cavernous tuberculosis
- B. cirrhotic tuberculosis
- C. focal tuberculosis forces
- D. primary tuberculous complex

294. Meningialnye symptoms of tuberculous meningitis:

- A. Kernig's sign
- B. symptom Brudzinskogo
- C. symptom Korányi
- D. De La Campa symptom

295. On the pathogenesis of pleurisy are separated:

- A. allergic
- B. perifocal

- C. tuberculosis of the pleura
- D. toxic
- E. the paradoxical
- F. apical

296. Specify the methods of disinfecting sputum of a patient with tuberculosis:

- A. 2% solution of soda, and boil for 15-20 minutes
- B. 5% solution of chlorine bleach 12.06 per hour
- C. 3% solution of acid sulphate 1:00
- D. 5% solution of acid chloride 5:00

297. TB vaccine developed by the following scholars:

- A. Calmette
- B. Guerin
- C. W. Baumgarten
- D. Koch and Kongeymom
- E. Vilmenom

298. Sputum culture tests for the MBT does not provide information about:

- A. morfologicheskoy variability
- B. tinktorialnoy variability
- C. genetic information
- D. culture variability
- E. drug resistance
- F. the MBT of virulence

299. By rentgenkontrastnym methods do not include:

- A. kymography
- B. zonografiya
- C. plevrografiya
- D. fistulografiya
- E. bronchography

300. What are the variants of the course you know miliary tuberculosis:

- A. typhoid form
- B. pulmonary forms
- C. meningeal form
- D. kidney shape
- E. mucous form
- F. gastroduadenalnaya form

301. For subacute disseminated tuberculosis is characterized by hemoptysis

- A. shortening of the pulmonary sound
- B. finely rales
- C. expression of the deformation of the chest
- D. Rubinstein symptom

E. X-ray symptom of "weeping willow"

302. From what TB is not formed tuberculoma:

- A. chronic tuberculous intoxication
- B. cirrhotic tuberculosis
- C. in infiltrative tuberculosis
- D. cavernous tuberculosis

303. Complication not encountered in the fibro-cavernous tuberculosis:

- A. bronhonodulyarny fistula
- B. ezafagonodulyarny fistula
- C. pleurisy
- D. hemoptysis
- E. spontaneous pneumothorax

304. For some forms of tuberculosis is not typical symptom Rubinstein:

- A. infiltrative
- B. focal
- C. tuberculoma
- D. fibro-cavernous
- E. cirrhotic
- F. chronic disseminated

305. Specify the method of disinfection facilities for tuberculosis:

- A. 3% solution of chlorine bleach
- B. 2% activated solution of chlorine bleach
- C. 20% solution of acid chloride
- D. 1% solution of acid sulphate

306. Specify the basics pathways of HIV transmission:

- A. sexual (homosexual, heterosexual)
- B. the parenteral
- C. alimentary
- D. after insect bites

307. The biological fluids with low concentrations of HIV infection include:

- A. sweat, saliva, lacrimal fluid
- B. urine, feces
- C. blood, menstrual blood
- D. sperma, vaginal secretions
- E. spinnomozgovaya liquid

308. The first authors of modern clinical classification of tuberculosis:

- A. Gerhardt
- B. Abrikosov and B. Aschoff
- C. Rubinstein

D. Laennec's

309. Clinical forms of primary tuberculosis does not include:

- A. Abrikosov focus
- B. Asman infiltrate
- C. chronic tuberculous intoxication
- D. early tuberculous intoxication
- E. tuberculosis of intrathoracic lymph nodes

310. What are the responses to the tuberculin skin test for the primary characteristic of tuberculosis:

- A. "turn"
- B. hyperergic reaction
- C. extinction of response to tuberculin
- D. backlash
- E. gipoergicheskaya reaction

311. Non-specific sign of early tuberculous intoxication:

- A. asymmetry of the chest
- B. hypertrichosis
- C. lag in physical development of children
- D. loss of appetite, pallor
- E. liktenilezny conjunctivitis

312. Complications not resulting in respiratory failure in tuberculous bronhoadenite include:

- A. bronhonodulyarnaya fistula
- B. hemoptysis
- C. atelectasis
- D. aspiration pneumonia
- E. bronchostenosis

313. At least diagnostic studies for tuberculosis does not include:

- A. scan of the chest
- B. Koch's test
- C. medical history
- D. clinical symptomatology
- E. X-ray

314. The MBT is sensitive to the listed below:

- A. chloramine
- B. direct sunlight
- C. alkali
- D. alcohol
- E. isolated

315. Complication associated with a deep BCG:

- A. cold abscess

- B. keloid scar
- C. bubonadenitis
- D. formation of surface ulceration

316. For tuberculous bronhoadenita not typical complication

- A. amyloidosis of the internal organs
- B. renal failure
- C. mediastinal pleurisy
- D. lung atelectasis
- E. interlobar pleurisy

317. The nature of the blood released by pulmonary hemorrhage

- A. scarlet, foaming
- B. alkaline reaction
- C. type of "coffee ground" with the acidic
- D. with a neutral reaction

318. For a survey of TB in TB dispensary should be addressed to children:

- A. superelevation tuberculin tests
- B. etey hyperergic with tuberculin
- C. etey with extinction tuberculin sensitivity
- D. otritsatelynymi children with the results of the Mantoux test

319. What methods are used to clarify the activity of tuberculosis:

- A. sample of Koch
- B. presumptive treatment
- C. bronchography
- D. fluorography

320. Tumorozy variant of tuberculosis of intrathoracic lymph nodes is characterized by

- A. large size of lymph nodes
- B. penchant for complicated course
- C. expression of cheesy necrosis
- D. gipoergicheskimi tuberculin

321. By the nature of pleural effusion allocate all of the following types of exudative pleurisy, except

- A. iloformnogo
- B. exudative
- C. serous and purulent
- D. gemorogochiskogo
- E. hileznogo

322. The imposition of a pneumoperitoneum is contraindicated:

- A. and pregnancy

- B. in adhesive process in the abdominal cavity
- C. at esogastritis
- D. Mr. and absence of respiratory and cardiovascular failure

323. Imposition of artificial pneumothorax is contraindicated:

- A. in the respiratory and cardiovascular failure
- B. in adhesive process in the pleural cavity
- C. at esogastritis
- D. at gemorogichiskie

324. Specify the reasons leading to shortness of TB patients:

- A. intoksikatsiya
- B. razdrazhenie respiratory center toxins
- C. umenshenie respiratory surface
- D. spazm bronchial smooth muscle
- E. narusheniya function of endocrine glands
- F. Hyperlipidemia

325. In what forms of tuberculosis observed temperature rise to high numbers:

- A. caseous pneumonia
- B. miliarny TB
- C. rannyaya tuberculous intoxication
- D. ochagovy TB

326. Specify the characteristics of the decay phase of pulmonary tuberculosis:

- A. hemoptysis
- B. cough with phlegm presence
- C. rales in the lungs
- D. attenuated vesicular breathing
- E. suhost skin
- F. bol in the heart

327. What are the causes of coughing in tuberculosis:

- A. inflammation in the bronchial tree
- B. appearance of the cough reflex constriction of bronchial lymph nodes
- C. EMA
- D. stasis in the pulmonary circulation
- E. zastoy in the systemic circulation

328. Describe the main methods for detection of tuberculosis:

- A. A smear
- B. Tuberculin
- C. X-ray
- D. fluorescent bacterioscopy
- E. bronchoscopy

329. Indicate contraindications for tuberculin skin test performances:

- A. allergicheskie state
- B. Skin Diseases
- C. nalichie HBS antigen
- D. zbolevaniya in remission
- E. vrozhdennyye heart defects

330. List three advantages of x-ray method:

- A. study of the spatial object
- B. the possibility of studying the object in motion
- C. economy, The best detection of small parts
- D. lower radiation exposure
- E. Archive for the presence of
- F. monitor the dynamics of

331. Enter the three readings to angiopulmonografii:

- A. tromboz pulmonary artery
- B. pulmonary embolism
- C. A long-term lung kollabirovannoe
- D. pnevmoniya
- E. Echinococcus
- F. focal tuberculosis

332. Specify the characteristic morphological features of primary tuberculous complex

- A. primary affect
- B. lymphangitis
- C. lymphadenitis
- D. Mr. specific endobronhit
- E. nospetsifik endobronhit
- F. psevdotuberkuloma
- G. focus Abrikosov
- H. focus Ashofa-bullet

333. Symptom of "weeping willow" was found in the following form x pulmonary tuberculosis:

- A. cirrhotic tuberculosis
- B. fibro-cavernous tuberculosis
- C. Chronic disseminated tuberculosis
- D. milliarny TB
- E. focal tuberculosis
- F. kaernozy TB

334. Specify the forms of pleurisy localization:

- A. diaphragmatic
- B. interlobar
- C. mediastinal
- D. apical
- E. Cardial

- F. by diaphragmatic
- G. abdominal
- H. bifurcation

335. Under what clinical forms of pulmonary tuberculosis is not shown pneumoperitoneum:

- A. tuberculoma
- B. fibronodular TB
- C. disseminated tuberculosis in a phase of calcification
- D. infiltrativny tuberculosis in a phase of disintegration
- E. disseminated tuberculosis in a phase of disintegration
- F. cavernous tuberculosis

336. In what forms of pulmonary tuberculosis artificial pneumothorax is not shown:

- A. Early tuberculous intoxication
- B. Lung tuberculoma
- C. cirrhotic tuberculosis
- D. Mr. pulmonary hemorrhage
- E. cavernous tuberculosis
- F. infiltrative tuberculosis in a phase of disintegration

337. On the mechanism of cavitation distinguish the following types:

- A. ateramatoznaya
- B. pnevmoniogennaya
- C. Pressed
- D. dumb
- E. fibronodular
- F. areactivity

338. In the tetrad Ehrlich includes the following elements:

- A. calcified elastic fibers
- B. cholesterol crystals
- C. Mycobacterium tuberculosis
- D. helix Kurshmana
- E. gemosideroblasty
- F. alveolarnye macrophages

339. The main epidemiological indicators used by the TB in their work are:

- A. measure of population infection with Mycobacterium tuberculosis
- B. morbidity and incidence of tuberculosis
- C. Mortality from tuberculosis
- D. fertility of patients with tuberculosis
- E. rate of disability
- F. Migration of tuberculosis

340. Indications for the sample of Koch:

- A. determination of the activity of tuberculous process
- B. differentialno for diagnostic purposes
- C. to determine the localization of tuberculosis
- D. for the treatment of tuberculosis
- E. to prevent TB
- F. for the selection of individuals to BCG vaccination and revaccination

341. Specify the types of tuberculin tests:

- A. Mantoux test
- B. Pirquet test
- C. Koch's test
- D. Calmette test
- E. Filatov DA probe
- F. Rubinstein sample

342. List the main focus of the criteria for epidemiological risk of tuberculosis infection:

- A. solidity and permanence of separation MBT
- B. family and living conditions
- C. Sanitary no literacy patient
- D. age
- E. profession
- F. the presence of a rabid dog in the apartment

343. Which forms of pulmonary tuberculosis is not formed fibronodular tuberculosis?

- A. cirrhotic tuberculosis
- B. fibro-cavernous tuberculosis
- C. Tuberculosis of intrathoracic lymph nodes
  - a. cavernous tuberculosis
- D. infiltrative tuberculosis
- E. Lung tuberculoma

344. The most difficult flowing forms of pulmonary tuberculosis are:

- A. caseous pneumonia
- B. tifobatsilez Landuzi
- C. lung tuberculoma
- D. peritsissurit
- E. subacute disseminated tuberculosis

345. For dry pleurisy mediastinal characterized by the following claims:

- A. pain in the stomach, nausea, vomiting
- B. retrosternal pain, palpitations
- C. pain in the shoulder region, hand in irradiyuschie
- D. zoster pain character, hemoptysis

346. Mantoux test is hyperergic at:

- A. Papule any size vesicles
- B. Papule size of 17 mm or more
- C. Expression of local congestion

- D. Papule size 10-15 mm
- E. Papule 10 mm with erythema

347. By dolokalnym forms of primary tuberculosis include:

- A. early tuberculous intoxication
- B. chronic tuberculous intoxication
- C. TB intrathoracic lymph node
- D. Primary tuberculous complex
- E. focal pulmonary tuberculosis

348. When complications of spontaneous pneumothorax in a patient with active TB show signs of:

- A. dagger-like chest pain, shortness of the growing
- B. a cold sweat, tachycardia
- C. dry paroxysmal cough, bradycardia
- D. dryness of the mouth, narrowing of intercostal spaces

349. When Costa diaphragmatic pleurisy at the location of fluid in the posterior sinus pleural puncture is made:

- A. right of L. axillaris posterior intercostal space in 6
- B. left in L. axillaris posterior intercostal space in 7
- C. the right of L. parasternalis six intercostal
- D. left in L. axillaris posterior intercostal space in 10
- E. the right and left of L. paravertebralis six intercostal
- F. Ye left and right by L. medioclavicularis six intercostal

350. What are the main 3 types of flow are distinguished in the clinic of fibro-cavernous tuberculosis

- A. limited relatively stable fibro-cavernous tuberculosis
- B. progressive fibro-cavernous tuberculosis
- C. complicated fibro-cavernous tuberculosis
- D. retrogressive fibro-cavernous tuberculosis
- E. molniyanostnoe for the type of sepsis
- F. IE totally asymptomatic

351. By atypical variants of the course of tuberculous meningitis include:

- A. kind of lethargic encephalitis
- B. AB variant of acute purulent meningitis
- C. acute abortive meningitis
- D. variant kardalgii
- E. typhoid variant
- F. epileptic variant

352. In size distinguish the following types of tuberculomas:

- A. small 1-2 cm
- B. average of 2-4 cm
- C. large 4-6 cm
- D. small 2-3 cm
- E. average 3-6cm

F. large 6-10cm

353. A group of follow-up consists of the following patients:

- A. newly diagnosed with active pulmonary tuberculosis, recurrent disease with
- B. patients with chronic respiratory tuberculosis
- C. a patients with respiratory tuberculosis evolving multiresistant MBT
- D. patients with extra pulmonary tuberculosis
- E. large residual changes in the lung and pleura
- F. with small residual changes in the lung and pleura

354. 2 group of follow-up consists of the following patients:

- A. large residual changes in the lung and pleura, as well as low in the presence of aggravating factors
- B. BA with small residual changes in the lung and pleura in the absence of aggravating factors
- C. patients with extra pulmonary tuberculosis
- D. patients with chronic respiratory tuberculosis

355. 3-group of follow-up consists of the following patients:

- A. patients with active extra pulmonary tuberculosis
- B. patients with inactive form of extra pulmonary tuberculosis
- C. patients with large residual changes after suffering a clinically cured and extra pulmonary tuberculosis
- D. patients with chronic respiratory tuberculosis
- E. AD patients with respiratory tuberculosis evolving multiresistant MBT
- F. with large residual changes in the lung and pleura

356. 4 of follow-up group includes the following patients:

- A. adults, children and adolescents who are in contact with a smear or TB farm animals
- B. children and adolescents who are in contact with patients with active tuberculosis without sputum
- C. children with a "turn" ohm hyperergic reaction to tuberculin in BCG complications
- D. patients with inactive form of extrapulmonary tuberculosis
- E. AD patients with high residual changes after suffering a clinically cured and extrapulmonary tuberculosis
- F. patients with chronic respiratory tuberculosis

357. The following types of disinfection for tuberculosis:

- A. A current
- B. periodic
- C. Final
- D. Quarterly
- E. Annual
- F. Monthly

358. Specify the types of treatment of pulmonary tuberculosis:

- A. antibacterial therapy
- B. collapsotherapy
- C. Treatment of surgical methods
- D. vaccinotherapy

- E. heliotherapy
- F. acupuncture

359. Enter bacterioscopic Methods pathological material:

- A. A painting by Ziehl-Neelsen
- B. Method of flotation
- C. luminescent method
- D. Gram stain
- E. coloring method for Ramond
- F. stain Levenstein

360. Indicate contraindications to artificial pneumothorax:

- A. lung heart disease
- B. epilepsy
- C. V. pulmonary hemorrhage
- D. cavernous tuberculosis
- E. infiltrative tuberculosis in a phase of disintegration