

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

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

Academic discipline	Phthisiology
<i>Modul №</i>	1
Theme of the lesson 2	Clinical diagnosis of tuberculosis: interrogation, inspection, palpation, percussion, auscultation. Curation of patients.
Course	4
Faculty	International
Specialty	Medicine

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**1. Topicality of the theme:** There are clinical forms TB which flow without symptoms. Such motion is observed sometimes at the infiltration and dissemination tuberculosis, but the cases of heavy, started forms of tuberculosis became more frequent: caseous pneumonia, dissemination tuberculosis with sharp, subsharp and chronic motion, which flow under the mask of pneumonia, chronic obstructive diseases of lungs. Clinical thought, knowledge of reasons of development of those or other symptoms of illness, comparisons of basic and second-rate displays of illness, is instrumental in correct establishment of previous diagnosis, aims a doctor at the choice of methods inspections which will allow to eliminate or confirm tuberculosis.

Clinical thought extremely needs a student-physician, future doctor, development of him possibly only in the process of self work of student with to the patients. Knowledges are accumulated on previous theoretical departments a student can realize and use for an inspection a patient and establishment of diagnosis. Only on conditions of high professional literacy of all of doctors, at early diagnostics of tuberculosis, it is possible to stop the epidemic of tuberculosis.

## **2. Specific objectives:**

To analyze: value of different methods of inspection in diagnostics of tuberculosis,  
value of different methods of laboratory inspection of sick

To explain: basis symptoms of tuberculosis, aims reveal MBT

To classify: shadow is characteristic for tuberculosis at x-ray inspection of lungs,  
resistant of MBT

To interpret: results of inspection of the tuberculosis patient, results of blood tests,  
inspection sputum on MBT

To analyze: pathological changes which can be found out at a review, palpation,  
percussion and auscultation at the different clinical forms of lungs TB

To make: plan of inspection of patient tuberculosis of breathing and other organs

To offer: to the way of diminishing of infected, morbidity and death rate from TB

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

<b>Names of previous disciplines</b>	<b>Skills are got</b>
Microbiology	Knowledge of exciter of tuberculosis, his properties Pathogenic cultures of MBT for a man, feature of structure of MBT, property. Sequence of painting of stroke on Ziehl-Neelsen
Patphiziology	Knowledge of pathogenic of tuberculosis
Propedevtika of internal illnesses	Ability to collect complaints, anamnesis of disease and life, conduct the objective inspection of patient (review, palpation, percussion, auscultation)
Hygiene	Knowledge of the hygienically mode of stationary separation.
Anatomy	Structure of lungs, parts and segments
Patanatomy	Character of tubercular inflammation (morphological). Structure of tubercular granulomes
Physiopathology	Allergic reactions of fast (anaphylactic shock) and retarded-action, mechanism of their development

## **4. Task for independent work during preparation to employment**

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

<b>Term</b>	<b>Determination</b>
Intoxication syndrome	it is symptomocomplex, which includes for itself a general weakness, decline of capacity, worsening of appetite, loss of mass of body, perspiration, parahypnosis, crabbiness, fervescence.
Bronchia-lungs-pleurisy syndrome	It is symptomocomplex, which includes for itself a cough, selection of sputum, bleeding, shortness of breath, pain in a thorax.

**4.2. Theoretical questions are to employment:**

1. Available bronchi, lungs, pleural cavity.
2. What symptoms require compulsory testing for tuberculosis?
3. What are the clinical forms of asymptomatic tuberculosis?
4. What factors provoke the development of tuberculosis?
5. The value of palpation during the examination a patient with pulmonary tuberculosis.
6. What changes can be detected percussion in various clinical forms of tuberculosis?
7. What pathological changes can be detected auscultation at different clinical forms of tuberculosis?

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

**Initial level**

1. What complaints are characteristic for patients with tuberculosis?
  - A. Weakness, perspire, loss of weight, enhanceable temperature of body.
  - B. Attacks of stuffiness at the change of weather.
  - C. Abnormalities to the sensitiveness, "crawl of ants" in extremities.
  - D. Transient violations of consciousness.
  - E. Headache, stomach-ache without clear localization.
2. What character does carry usually temperature curve at tuberculosis?
  - A. Permanent.
  - B. One-day.
  - C. Gectic.
  - D. Three-day.
  - E. Wrong.
3. What sputum is characteristic for TB lungs?
  - A. Mucous
  - B. Pale yellow.
  - C. Green
  - D. Green with a strong smell.
  - E. Ferruginous.
4. Is there what character of pain in a thorax at TB?
  - A. Attacks similar.
  - B. Permanent.
  - C. Senestopathic.
  - D. Migrant.
  - E. Phantom pains.

5. What is cause a stethalgia at tuberculosis?
  - A. Destructive pulmonary tissues.
  - B. Exudation in pulmonary tissues.
  - C. Lesions of bronchial tubes.
  - D. By the defeat of pleura.
  - E. Productive inflammatory reaction.
6. What is condition the loss of weight at tuberculosis?
  - A. Worsening of the appetite.
  - B. Abnormality to taste, disgusting to the separate types of meal.
  - C. Intoxication
  - D. Can not explain, because an appetite and rhythm of feed remained ordinary.
  - E. Desire reduce weight.
7. When does perspire show up at tuberculosis?
  - A. At physical tension.
  - B. At emotional tension.
  - C. At night.
  - D. At an overheat.
  - E. In the day-time.

### **Theme contents:**

Timely and early exposure of patients by tuberculosis is establishment of diagnosis of tuberculosis in such period of development of illness, when it is only engendered or has the limited form and flows without destructive changes in tissues and without secreting MBT. An exposure in this period of development of illness is warning of infecting and impression of people which live or contact with to the patients tuberculosis.

Patients with the initial signs of TB can let a pass on changes in an organism or to appeal above all things to the district internist, domestic doctor. Most doctors of medical network at the appeal of sick on the first stages of development TB are even unaware this frightful disease. Reasons to it foremost professional nescience of doctors in diagnostics of tuberculosis, secondly absence of specific complaints and pathological signs at an objective inspection, thirdly not account by the doctor of development of illness (to anamnesis) and epidemiology anamnesis.

However annoyingly, but the doctors of medical network forgot that from 1995 on Ukraine epidemic of tuberculosis, that is why lost vigilance and safety to this disease.

Patients a TB with secreting MBT it is been by the source of the impression of surrounding people tuberculosis, especially children. Therefore every doctor must know the clinical displays of these forms and methods of confirmation of tuberculosis with the purpose of isolation and treatment to stopping of secreting MBT .

### **1. CLINICAL METHODS OF DIAGNOSTICS**

An inspection is consumptive conduct after a general plan. At the same time for a phthisiology as well as for other medical industries, some specific features are characteristic. On before more attention is needed to spare the study of symptoms of peculiar tuberculosis, and also to the physical methods of inspection.

Multiform of displays of TB depends on the stage and distribution of process, and also from localization of specific changes in other organs.

At initial forms TB causes no subjective sickly feelings, pathological changes absent during a clinical inspection. Therefore often early diagnostics is possible only at application of the special methods of research. If a patient applies for medical help to the doctor of any specialty and not inspected photofluorographic more than year, a doctor is under an obligation to point a patient at fluorography.

The clinical displays of TB are more frequent than all predefined **intoxicated by a syndrome** and local displays, related to the defeat of certain organ. Tubintoksication is predefined endotoxins which are selected during destruction of microbial cages, and also products of disintegration of albumens, in the staggered organ. Signs of intoxication are a general weakness, mionectic capacity, worsening of appetite, loss of mass of body, perspire, parahypnosis, crabbiness, enhanceable temperature of body.

Perspire at the beginning of disease is expressed not considerably, mainly at night, during of sleep, the unpleasant smell of «rotten hay has sweat» (F.G. Yanovskiy). Abandent sweats, especially at night, are incident to the forms of disease with massive exsudate and caseous changes.

In majorities patients on TB of lungs the temperature of body is normal or subfebril. For it there is characteristic large labile (increase during labor, menstruation), absence of monotony. Patients often do not almost feel the temperature of body continue to work in the usual mode. In the case of sharpening of TB of process or his sharp beginning it rises to 38 – 39<sup>0</sup>C. Only in the cases of dissemination TB, caseous pneumonia, the temperature of body arrives at a sharp pleurisy sometimes 40<sup>0</sup>C. Gektic a temperature is observed at patients by miliary TB and in the cases of empyema of pleura. Consequently at patients on TB febrille temperature of body little characteristic. A temperature curve has wrong character – mostly rises in the evening, and normalized in the morning.

Local displays diseases, related to the defeat mainly of breathing (**broncho-puilmone-pleural syndrome**) organs, – it a cough, selection of sputum, bleeding, shortness of breath, pain in a thorax.

At the beginning of disease a **cough** is quiet (coughing), barely visible for most sick, disturbs him rarely and can contact with smoking, cold. With progress of illness a cough increases gradually, and in the cases of fibroues-cavern TB becomes exhausting and not rarely does not enable a patient to sleep. A loud cough is characteristic for patients broncho-adenitis, TB of bronchial tubes. A cough, that lasts 3 – 4 weeks, must be testimonies for x-ray inspection.

At the beginning of disease **sputum** can be not selected. With progress of TB of process and especially after formation of cavity of disintegration the amount of sputum is increased, can arrive at 200 ml on days and anymore. Sputum is mucus or mucous festering character, but never has such unpleasant smell, as at heterospecific festering processes, clears one's the throat easily. It is explained that the function of the glimmered epithelium of mucus shell of bronchial tubes long time is saved, sputum under moves up sleep to branching of trachea, and in a wound clears one's the throat easily. Endo- and peribronchitis develops gradually, the structure of bronchial tubes is violated, a cough becomes heavy, sputum clears one's the throat with large difficulties.

**Spitting blood and bleeding** usually are at the destructive forms of TB of process and especially often at the cirrhosis of lungs; blood of bright red, froths.

**The shortness of breath** at the beginning of disease is not expressed and appears only during the physical loading. In course of time it increases and does not abandon a patient even in a state of rest. As large scray possibilities have lungs at

violation of breathing, it is possible to assume that at the beginning of disease reason of shortness of breath there is TB intoxication which influences on the function of CNS and CVS. Afterwards the shortness of breath is determined prevalence of process and development of lungs and cardiac insufficiency. The shortness of breath can be sharply expressed at the beginning of disease only in the cases of miliary TB, pleurisy, caseous pneumonia.

**Pain** in a thorax often arises up at the beginning of disease, predefined distribution of process on a pleura, and farther cirrhosis of lungs and steno thorax. Pain can be also predefined atrophy of muscles of breast, that develops here, and also by neuralgia. Pleura pain has prickly character and related to the act of breathing, and pain as a result of cirrhosis of lungs – dull or aching.

At the out lungs forms of TB, except for the general symptoms of predefined by intoxication, there are local displays of disease. At TB of buds is pain in a lumbar area, at TB of urinary bladder are disuric disorders, at mesadenitis is pain at the bottom of stomach and violation of menstrual cycle, at meningitis is head pain, vomits. However at the initial stages of some out lungs forms of TB for patients can be no complaints.

In **anamnesis of disease** find out duration and features of his motion. TB can begin gradually, inappercept (unrealized, not notedly for patient) or sharply, under the mask of other infectious disease. It should be remembered that tuberculosis is an infectious, contagious disease, basic way of transmission of by aerogen-drople. Therefore **epidemiology anamnesis** is played by a substantial value in raising of diagnosis "tuberculosis". It is necessarily necessary to find out the contact of patient with by patients by tuberculosis by people and animals. No less meaningful is **anamnesis of life**, a presence is special for patient HIV-infected and AIDS, saccharine diabetes, alcoholism, drug addiction, diseases of the broncho-lungs system (chronic heterospecific diseases of lungs), gastroenteric highway (ulcerous illness of stomach and to 12 falling bowel, gastritises, duodenitises). Professional harmfulness (contamination of air, permanent super cooling, harmful matters), chronic stresses, violations of diet and rest, harmful habits, is also taken into account (smoking, abuse of alcohol, drug addiction). The starting mechanism of development of tuberculosis is immunodeficit to which factors bring the lives over transferred in anamnesis. For the persons of ripe years it is necessary to find out a date and results of previous x-ray investigation, because not old active post tubercular changes under certain circumstances can become the source of relapse TB. In relation to children, it is necessary to get information about the inoculations of BCG, results of tuberculin test.

At the initial forms of TB **the review** of patient does not find out visible deviations from a norm. On more late stages the pallor of skin is possible, sometimes cyanosis, loss wait, even cachexy. During the review of children it is needed to find out a presence after vaccine ribs on the external surface of shoulders and their amount. At times for children with primary TB find para specific displays (knotted erythema, keratoconjunctivitis and others). At a review pay a regard to megascopic lymphatic knots. Compare symmetry and participation of both halves of thorax in breathing, expressed of supra- and underclavicular fossulas. At patients by the chronic forms of TB as a result of fibrotic-cirrhotic changes a lung shrivels and the proper half of thorax narrows, supraclavicular fossulas fall back, that is why a side is staggered often falls behind during breathing and he already healthy.

By **palpation** determine a turgor, humidity of skin, tone of muscles, and thickness of fatty sub cutis. Necks, supraclavicular, underclavicular, arm-pits, elbow,

palpation peripheral lymphatic knots. For children with primary TB it is possible to find polyadenitis are insignificantly megascopic, softly elastic lymphatic knots, more than in 5 groups, more neck, arm-pits.

**Perkussion** conduct after the generally accepted method. Above a healthy lung a percussion sound clear lungs, that predefined by elasticity and aerial of lungs. Violation of elasticity is often accompanied the enhanceable saturation of lungs air, that is why during percussion a tympanic sound is determined. It is observed at patients with emphysema of lungs. Tympanic a sound arises up also above giant or large (more than 4 sm is in diameter cavities. The shortened and dull percussion sound is determined above an airless lung or in the area of its mionectic pneumatic at infiltrated, atelectasiss, fibrous-focal, fibrous-cirrhotic changes and also exudates pleurisy. Easier find out pathological hearths placed sub pleural and sizes of which no less than 4x4 see. Boxing a percussion sound is *more frequent* than all observed after spontaneous pneumothorax and above giant cavities.

**Auscultation.** TB is an infectious disease, that is why during of auscultation a doctor must stand from one side from patient. A patient must turn a chairman in opposite a doctor side, to breathe through part lip and at the instance of doctor quietly to cough at the end of exhalation. Above a healthy lung hearkened to *the vesicular breathing*. At the early forms of TB of auscultation changes above lungs does not discover, because they are wretched: «it is not enough to hear and much evidently on a sciagram». Above TB breathing infiltration usually hard *or hyposthenia*. *The bronchial type of breathing can* be listened at a massive cirrhosis. *It is sharply hyposthenia or breathing absents* – at an exudative pleurisy, at pneumothorax. *Hearkened to breathing* camphoric above large cavities which are drained a bronchial tube. Most local moist *wheezes* which sometimes listen after coughing have a diagnostic value. Dry *whistling wheezes* above the limited area of lungs can be listened at TB of bronchial tubes. At a dry pleurisy hearken to noise *of friction of pleura*.

### **Materials are for self-control:**

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

**B.** Task for self-control

1. A patient is 37 years. Appealed to the internist with complaints about a cough with the selection of sputum during 3-4 weeks, increase of temperature to 37, 2-37, 3°C. Objectively are without pathology.

What inspection is appointed for establishment of diagnosis of tuberculosis?

2. The patient of 45 years entered neurological separation with complaints about sharp pain in the lumbar department of spine, cough with the selection of sputum during 2th months.

What inspection does need to be appointed a patient for the exception of tuberculosis?

3. The patient of 30-ти years during 2th months marked the increase of temperature to 37,1°-37,3°C decline of appetite, enhanceable fatigueability, nightly пітливість. Practises upon an alcohol. Objectively: mionectic feed; above lungs hearkened to the hard breathing. Blood test: L-9,5kh109 of /л, SHOE-27 of мм/год. X-ray: in the overhead and middle departments of lungs plural focal shades are determined by a size from 3 to 8 mm, small and middle intensity. In a patient suspected dissemination TB.

What clinical syndromes found out for a patient?

4. Patient 48 years. During 2th months was on treatment in a therapeutic separation concerning bilateral pneumonia. Treatment was ineffective. In anamnesis diabetes and ulcerous illness of 12-falling bowel.

What laboratory research is need to sick?

### **Literature**

#### **Basis:**

1. Phthisiology : a teaching manual / B.F. Moskalenko, V.I. Petrenko, G.O. Timoshenko – Kiev: Medicina, 2012. – 216 p.
2. Phthisiology : textbook / V.I. Petrenko, O.K. Asmolov, M.G. Boyko [et al.] ; edited by V.I. Petrenko. – Kiev : AUS Medicine Publishing, 2015. – 416 p.

#### **Supplementary**

1. Tuberculosis : manuel for teacher, students and doctors / A.G. Yareshko, M.V. Kulish. – Poltava : Poltava Literator, 2011. – 156 p.

#### **Information resources**

1. Childhood TB for Healthcare Workers: an Online Course. – Access mode: <https://childhoodtb.theunion.org/courses/en>
2. WHO: tuberculosis. – Access mode: <http://www.who.int/tb/en/>