

"Approved"
**at a meeting of the Department of General
Surgery, Radiation Medicine and Phthisiology**

Protocol № _____

« _____ » _____ 20 _____ p.

Head of Department
d.med.n, Professor _____ I.D.Duzhiy

**METHODOLOGICAL RECOMMENDATIONS FOR TEACHERS
FOR THE PRACTICAL STUDIES OF PREPARATION FOR
PHTHISIOLOGY GENERAL PRACTITIONERS**

| | |
|--------------------------------|--|
| <i>Academic discipline</i> | Phthisiology |
| <i>Subject lesson number 4</i> | Focal pulmonary tuberculosis. Pathogenesis, pathomorphism, clinic, diagnostics. Peculiarities of diagnostics and treatment in HIV-infected persons. Current treatment regimens according to the spectrum resistance MBT. |
| <i>Course</i> | 4 |

Topic № 4: Focal pulmonary tuberculosis. Pathogenesis, pathomorphism, clinic, diagnostics. Peculiarities of diagnostics and treatment in HIV-infected persons. Current treatment regimens according to the spectrum resistance MBT.

Currency of the topic

Nowadays tuberculosis is one of the most actual problem of the humanity because the increasing of the morbidity is marked all over the world. Everyday approximately 10 millions new cases of tuberculosis are found that's why WHO declared tuberculosis as a global danger in 1993. Tuberculosis is the most wide-spread infectious disease and takes the first place in the structure of mortality from the infectious pathology .The morbidity increases mainly due to secondary destructive forms of tuberculosis, including the cases with bacilli excretion. The frequency of drug- resistant tuberculosis also increases. It' s well known that secondary forms of tuberculosis develop in previously infected body as a result of endogenous reactivation of old calcified tuberculous lesions. Reactivation of post-tuberculous changes is caused by the reversion of Mycobacterium tuberculosis (MBT) as a result of malnutrition, stress situations, hyper-solaration, debilitating diseases, HIVinfection and other medical and social provoked factors leading to the immunity decreasing.

Timely detection of secondary tuberculosis, adequate intensive treatment and the prevention of the disease allow decreasing the morbidity of tuberculosis.

General goal to create the conditions for students ensuring the successful getting of the knowledge and skills allowing to diagnose focal tuberculosis and analyze obtained results.

The concrete aims:

1. To generalize results of the interrogatory of a patient, data of physical examination and investigations with focal tuberculosis.
2. To identify the main syndromes of different clinical forms of focal tuberculosis.
3. To establish the diagnosis of focal tuberculosis on the ground of obtained results of the examination.
4. To formulate clinical diagnosis of focal tuberculosis according to classification.
5. To prescribe complex treatment in different clinical forms focal tuberculosis.
6. To diagnose the complications of focal tuberculosis and to perform a first aid in urgent states of a patient.

4. Basic knowledge and skills are necessary for topic studying

To achieve the concrete aims the student has to muster following knowledge and skills:

1. To be able to perform the interrogatory of TB- patient.
2. To be able to carry out the inspection of the chest;
3. To define the chest's form;

4. To detect the chest's deformation, the lagging of one side during the breathing.
5. To be able to carry out the palpation, percussion and auscultation of the chest.
6. To give clinical estimation of the obtained data and to define the pathogenesis of revealed symptoms.
7. To be able to generalize obtained results.
8. To know the genesis of every clinical form of focal TB.
9. To be able to define the concrete syndromes of the involvement of the lungs in secondary tuberculosis.
10. To identify the causative organism of tuberculosis, their types. To describe the main properties of Mycobacterium tuberculosis (MBT), to apply methods of the detection of MBT.
11. To describe the peculiarities of path morphological changes in internal organs in tuberculosis.
12. To classify antituberculous drugs and to use them in the treatment of focal tuberculosis.

The tasks for student's independent work during the preparation for the class.

The list of the main terms, parameters, characteristics which a student has to muster during the preparation for the class.

1. Secondary tuberculosis Secondary tuberculosis is a disease developing in previously TB-infected body.

2. Focal pulmonary tuberculosis Focal pulmonary tuberculosis is a clinical form of tuberculosis characterized by the formation of Tblesions (less than 1 cm in the diameter) mainly of productive type localized in borders of 1-2 segments of the lung. Clinical picture usually asymptomatic or with a few symptoms.

Practical tasks, which are doing withing the class.

1. To work out the plan of the talk with the patient suffering from pulmonary tuberculosis; to reflect in it the cause of the disease, the peculiarity of the disease duration, the necessity of prolonged treatment, treatment response.

2. To put the questions for the examination of the patient: to analyze general and respiratory complains, the peculiarities of the start and further development of the disease in concrete patient.

3. To perform physical examination of the patient suffering from pulmonary tuberculosis and to work out the plan of patient's examination.

4. To make the diagnosis on the ground of the data of examination and investigations indicating the type of tuberculous process, localization, clinical form, presence of the cavern, bacilli excretion, drug sensitivity of MBT, results of histological confirmation of the diagnosis, category, cohort and complications.

Contents of the topic

Secondary tuberculosis develops in body previously infected by MBT, clinical manifestations of secondary tuberculosis mostly depend on it's clinical

form, phase of tuberculosis. Sometimes general and respiratory complaints can be absent. When destructive and exudative changes are present manifestations of intoxication and respiratory complaints take place.

Focal pulmonary tuberculosis is a clinical form of tuberculosis characterized by the presence of specific lesions up to 1 cm in diameter, proliferative inflammatory reaction and limited involvement of lung parenchyma with no more than 2 segments of the lungs manifesting as asymptomatic disease or a disease with scanty symptoms. There are two variants of the disease: soft-nodular and fibrous-nodular ones. Cavitation occurs seldom.

Materials for self - control

1 Chest X-ray of 25-year-old asymptomatic male detected several 5-7 mm foci of moderate density with hazy borders in the left lung S1-2. CBC: WBC – 11.9×10^9 /L, eosinophil -3%, band neutrophil -4%, segmented neutrophil -70%, lymphocyte-15%, monocyte -8%, ESR - 22 mm/hour What's the most likely diagnosis?

- A. Focal pulmonary tuberculosis, infiltration phase.
- B. Disseminated tuberculosis, infiltration phase.
- C. Infiltrative pulmonary tuberculosis.
- D. Focal pulmonary tuberculosis, consolidation phase.
- E. Disseminated tuberculosis, consolidation phase.

2 42-year-old patient known as Schönlein-Henoch purpura case and receiving high-dose corticosteroid therapy complains of chills, severe weakness, shortness of breathing. On examination: P 102/m, RR 26/m. Lung percussion and auscultation detected no abnormality. Ankles are swelled. Mantoux skin test is negative. Chest X-ray shows diffuse multiple 1-2 mm foci. What's the most likely diagnosis?

- A. Miliary tuberculosis.
- B. Community acquired pneumonia.
- C. Focal tuberculosis.
- D. Schönlein-Henoch purpura progressing.
- E. Subacute disseminative tuberculosis.

3 At 38-year-old symptom-free man solitary 5 cm opacity of moderate density with the crescent lucency and defined borders in the left lung S2 the has been revealed. Which clinical type of TB is the most probable?

- A. Fibrous-cavernous.
- B. Infiltrative.
- C. Focal.
- D. Residual.
- E. Tuberculoma.

4 22-year-old smoker complains of malaise, weakness, tiredness, sweating. On physical examination no abnormality detected. Chest X-ray showed an opacity

in the left lung apex of moderate density with hazy borders and several satellite foci of low density around. What's the most likely diagnosis?

- A. Focal pulmonary tuberculosis.
- B. Infiltrative tuberculosis.
- C. Community acquired pneumonia.
- D. Primary tubercle complex.
- E. Tuberculoma.

5 18-year-old male presented with focal shadows of high density with distinct borders on the right lung apex. Last Mantoux skin test has been performed two year ago; papule size 17 mm. At the moment tuberculin test showed 5 mm result. Clinical and lab examination detected no abnormality. What's the most likely diagnosis?

- A. Focal tuberculosis in the infiltration phase.
- B. Focal tuberculosis in the consolidation phase.
- C. Community acquired pneumonia.
- D. Focal tuberculosis in the calcination phase.
- E. Conglomerative tuberculoma.

6 Screening X-ray examination of 37-year-old coal miner detected two high density foci in right lung S1-2 on the fibrotic area background. On clinical and laboratory examination no abnormality detected. What's the most likely diagnosis?

- A. Focal tuberculosis.
- B. Pneumosclerosis.
- C. Coniotuberculosis
- D. Tuberculosis residuals.
- E. Pneumoconiosis.

7 Screening X-ray examination of 22-year-old male detected several focal shadows of different size with hazy borders on both apices. The diagnosis of pulmonary tuberculosis established. What's the most likely clinical type of the disease?

- A. Focal.
- B. Infiltrative.
- C. Disseminated.
- D. Miliary.
- E. Residual.

8 44-year-old homeless patient presented with chills, dry cough, dyspnea. Has been ill for three weeks. The illness started suddenly. On examination: T 40°C, condition is grave, diffuse cyanosis is present. Painful ulcer is found on the tongue surface. All over lung fields tympanic percussion sound is noted. Auscultation revealed scattered dry and moisture rales. CBC: Hb - 100 g/L, WBC - $9.2 \cdot 10^9$ /L, eosinophil-0%, band neutrophil-9%, segmented neutrophil-65%, lymphocyte-14%, monocyte -12%, ESR - 15 mm/hour. Sputum ZN-staining is positive. Mantoux skin test with 5 TU 15mm. Chest X-ray shows large bilateral

foci mostly affecting apical zones and fusing to each other. What's the most likely clinical type of tuberculosis?

- A. Subacute disseminated.
- B. Focal.
- C. Miliary.
- D. Chronic disseminated.
- E. Infiltrative.

9 34-year-old homeless patient presented with headache, chills, dry cough, dyspnea. The illness started suddenly. On examination: T 39-40°C, condition is grave, diffuse cyanosis is present. All over lung fields tympanic percussion sound is detected. Auscultation revealed no rales. CBC: Hb - 100 g/L, WBC – 11.2·10⁹ /L, eosinophil-0%, band neutrophil-9%, segmented neutrophil-65%, lymphocyte-14%, monocyte -12%, ESR - 35 mm/hour. Mantoux skin test with 5 TU is negative. Chest X-ray shows diffuse multiple tiny foci with hazy borders throughout lung tissue. What's the most likely clinical type of tuberculosis?

- A. Focal.
- B. Miliary.
- C. Disseminated.
- D. Meningitis.
- E. Infiltrative.

10 28-year-old symptom-free male presented with several large nodules of moderate density with hazy borders in right lung S1-2. Physical examination, blood test and sputum ZN-staining detected no abnormalities. Mantoux skin test with 5 TU - 15 mm. Pulmonary tuberculosis is suspected. Which clinical form of the disease is the most likely?

- A. Tuberculoma.
- B. Infiltrative tuberculosis.
- C. Focal tuberculosis.
- D. Disseminated tuberculosis.
- E. Tuberculosis residuals.

11 70-year-old patient presented in grave condition complaining of dyspnea, dry cough, severe weakness. On examination: patient is exhausted, auscultation detected mixed breathing. Chest X-ray shows diffuse multiple 1-2 mm foci throughout lung tissue, several calcification in lung root. Hb - 90 g/L, WBC – 13.2·10⁹ /L, eosinophil-0%, band neutrophil-10%, segmented neutrophil -65%, lymphocyte-14%, monocyte -12%, ESR - 30 mm/hour. Tuberculosis is suspected. Define the clinical form of the disease.

- A. Subacute disseminated.
- B. Chronic disseminated.
- C. Focal tuberculosis.
- D. Infiltrative tuberculosis.
- E. Miliary tuberculosis.

The patterns of answers:

1 A 2A 3E 4B 5 D 6D 7 A 8 A 9 B 10 C 11 E