№ ЛД-21ИН

ИНFEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION HIGHER EDUCATION "NORTH OSSETIAN STATE MEDICAL ACADEMY" MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

DEPARTMENT OF PHTHISIOLOGY AND PULMONOLOGY

HEAD OF THE DEPARTMENT:

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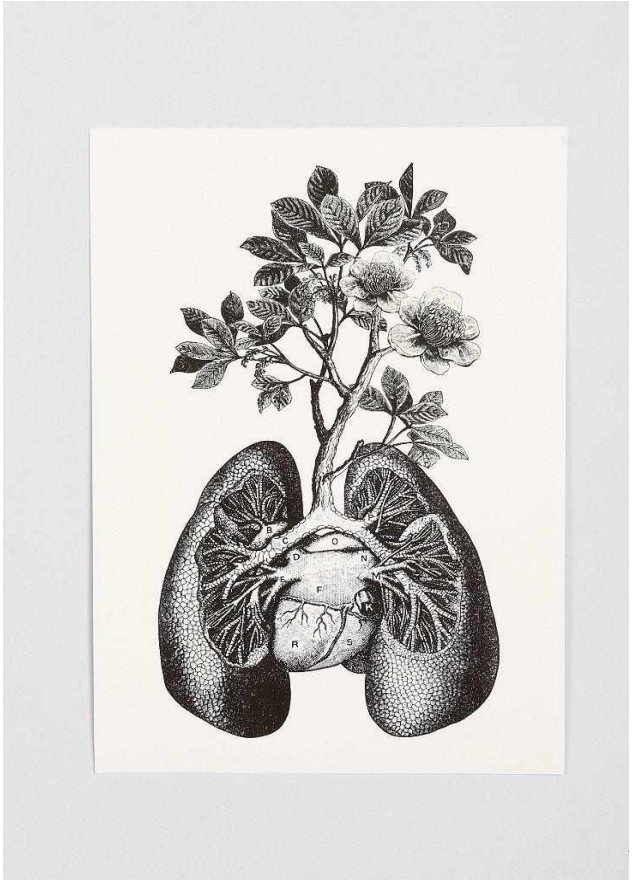


PHTHISIOLOGY

Workbook for individual auditorium training in the specialty 31.05.01 General medicine (educational program, partially implemented in English)

VI course of higher medical foundation faculty

Владикавказ - 2022

Student's name : _____

№ group _____

Student's biography:_____

This workbook is recommended for improvement of students' individual auditorium training. It presents training tasks for mastering of Phthisiology educational program's data. The workbook is created accordingly to module system of education.

Module 1. Introduce.General questions of phthisiology. Methods of examination of tuberculosis patient. The diagnosis of tuberculosis.

- ✓ *The definition of tuberculosis as a disease. Epidemiology of tuberculosis.*
- ✓ *The main epidemiological indexes of tuberculosis expansion.*
- ✓ *The causative organism of tuberculosis, its properties. The ways of TB infection.*
- ✓ *The peculiarities of clinical examination of tuberculosis patient.*
- ✓ *Microbiological diagnosis of tuberculosis. Fast methods of MTB finding.*
- ✓ *X-ray diagnosis of tuberculosis. Methods of x-ray investigations in phthisiology clinic. X-ray syndromes of tuberculosis. X-ray and morphological signs of tuberculosis.*
- ✓ *Tuberculin test. Case discussion.*
- ✓ *"Decried"contingents of the population who submit obligate fluorography examination.*

I LEVEL. Read the Chapter 1-3 a teaching manual in English "Phthisiology" V.A.Koshechkin, 2017; I.T. Pyatnochka, 2002 or the pages 15-41, 41-70, 75-81 A textbook for students "Phthisiology" V. I. Petrenko, 2008 and the pages 4-8, 12-14 "Phthisiology" Handbook for medical students with English medium for individual work O.S. Shevchenko with coauthors., 2011.
Answer to the question briefly in written form:

1.The definition of tuberculosis as a disease.
2. What are the main sources of tuberculosis infection?
3. What are the main modes of TB transmission and the ways of mycobacterium tuberculosis (MTB)spreading in the body?
4. What are the risk factors influence the incidence rate of tuberculosis?
5. Enumerate the epidemiological indices of tuberculosis prevalence
6. What are the social groups of high risk to develop tuberculosis?
7. What disease might promote the increase of tuberculosis incidence rate?

8. Enumerate the types of mycobacterium tuberculosis.
9. Enumerate the properties of mycobacterium tuberculosis (MTB).
10. Which phases of tuberculosis process reflect its activity?
11. Which phases of tuberculosis process correspond to his extinction?
12. What patients' complains is characteristic of tuberculous intoxication?
13. What patients' complains is characteristic of bronchi-pulmonary-pleural syndrome?
14. Enumerate compulsory and additional investigation methods in case of pulmonary tuberculosis suspicions.
15. What kind of bacterioscopy methods revealing of MTB do you know?
16. What advantages and deficiency of bacterioscopy method revealing of MTB?
17. What advantages and deficiency of bacteriological method revealing of MTB?
18. What other specimens other then sputum can be collected from a tuberculous patient?

19. What are the fast methods of MBT identification?
20. What kind of pathological shadows is characteristic for pulmonary tuberculosis?
21. What is tuberculin? 23. Enumerate the types of tuberculin.
22. Indicate the purposes of tuberculin skin test (TST) performance for teenagers and for children.
23. What is the conversion of tuberculin skin test?
24. What are the contraindications to tuberculin skin test?
25. What histological signs of tuberculosis do you know?

2 LEVEL. Solve the tests:

1. The first morphological reaction in the site of mycobacterium tuberculosis entering and multiplication will be:
   a. formation of caseous necrosis;
   b. formation of tuberculosis granulomas;
   c. formation of HeLa cells;
   d. formation of elastic fibers;
   e. formation of Boettcher's crystals

2. Tuberculosis of the respiratory organs is characterized by:
   a. the acute start of the disease;
   b. the gradual start of the disease;
   c. the asymptomatic beginning of disease.

3. The patient (40 years) complains on the cough with the sputum, weakness, fever. Physical findings: pathological changes of respiratory system are absent. Plane chest X-ray changes: cavity with peripheral inflammation is present in the right $S_{1,2}$ and there are lesions of dissemination inboth lungs. MTB are found in the sputum. The diagnosis was made: new case of PTB (15.01.2013) of right upper lobe (infiltrative one), Destr+, MTB+, M+,C+, Resist I 0, Resist II 0, Hist 0, Cat 1. Coh

1 (2013). Which method to find MTB corresponds with M+.
a.culture method;
b.biological test;
c.bacteriological method;
d.microscopy;
e.method of pure culture.

4. The patient (30 years) was admitted at antituberculous dispensary with first diagnosed changes inthe X-ray picture: the shadow with the diameter about of 1 cm, of slight intensity with unclear counters with the cavitation in the centre revealed by tomography. MTB are found in the sputum by culture method. The diagnosis of nodular tuberculosis was made. Which phases of tuberculosis X- ray changes corresponds with?
a. phase of infiltration and dissemination
b. phase of infiltration and cavitation
c. phase of resolution and scarring
d. phase of cavitation and dissemination
e. phase of induration and resolution

5. Which X-ray sign is permitted to suppose cavity in the lung?
a. translucency on darkening background;
b. ring shadow;
c. absents of bronchial -vesicular patterns in the limited areas of damaged lung;
d. a and b are correct;
e. all above enumerated are wrong.

6. Which method is used more often for revealing of cavitation in lung tissue?
a. plain X-ray;
b. tomography;
c. target X-ray;
d. radioscopy;
e. bronchography

7. The patient (33 years) complains on the cough with the sputum, weakness, fever up to 37,2ºC, poor appetite during 3 weeks. Physical examination did not reveal any pathological changes. What is necessary to clear during past history detailing?
a. smoking;
b. regimen of the work and rest;
c. contact with tuberculous patient;
d .going in for sport;
e. presence of emotional lability.

8. The patient (32 years) was admitted at antituberculous dispensary with the relapse oftuberculosis. The patient's examination revealed the signs of bronchial-pulmonary syndrome. Which symptoms are characteristic for bronchial-pulmonary syndrome?
a. fever, weakness, poor appetite, lost of weight, sweats;b
cough, weakness, insomnia, headache, hoarseness;
c. cough with sputum, hoarseness, dry rales, dullness during the percussion;
d. breathlessness, insomnia, malaise, moist rales, vocal phremitus;
e. dyspepsia, vomiting, rashes, sweats, cough, fever.

9. Which method of MTB revealing is more sensitive and specific?
a. direct microscopy;
b. cultural investigation;
c. biological probe;
d. polymerase chain reaction;
e. immune- enzyme analysis.

10. Which method allow to determine sensitivity MTB to antituberculous drugs?
a.bacterioscopical;b.bacteriological;

c. polymerase chain reaction;
d. immune- enzyme analysis;
e. biological.

11. Who and when submit Mantoux test with 2 TU PPD-L?
a. adults annually;
b. children and teenagers quarterly;
c. children since 12- month annually independently on results of previous probe.
d. children, who often suffer from acuterespiratory disease
e. to all contingents of children and teenagers

12. Who does not need reexamination at phthisiologist?
a. The person with firstly positive reaction, which unbound with BCG immunization;
b. The person with hyperergic reaction of Mantoux test with 2 TU PPD-L;
c. The person with increased tuberculin sensitivity (by 6 mm and more) during 1 year (at tuberculinpositive child and teenagers);
d. The person with positive Mantoux test result with 2 TU PPD-L during 1,5-2 years after;qualitative vaccination by BCG or BCG-M vaccine;
e. The person with durable preservation tuberculin reaction papule size 12 mm and more duringseveral years.

13. What period of time must be passed after Mantoux test with 2 TU of PPD-L till BCG vaccination is allowed to perform?
a. in 10 days
b. in 6 month;
c. in 2 weeks;
d. in 3 days;
e. in 1 month.

14. Negative tuberculin test in a child of early age:
a. allows to exclude primary infection;
b. is the proof of an inefficiency of BCG vaccination;
c. tuberculin testing is not the criteria for primary infection;
d. allows to testify presence of active tuberculosis;
e. allows to suspect presence of immunodeficiency.

15. The child (5 years) shows the result of Mantoux test with 2 TU of PPD-L as papule of 14 mm in the diameter. BCG scar of 7 mm is on the left arm. At the age of 4 years old Mantoux test was of 5 mm. Which definition of this Mantoux test is correct?
a. tuberculin test conversion;
b. hyperergic tuberculin reaction;
c. positive reaction;
d. increasing tuberculin sensitivity;
e. tuberculin conversion with hyperergic reaction.

16. The child (3 years) was BCG vaccinated at maternity home. There is BCG scar on his left shoulder with the diameter of 7mm. At the age of 1 year old Mantoux test with 2TU PPD-L was of 10 mm, 2 years – 8 mm, 3 years – 14 mm. Which conclusion made on the ground of tuberculin test is correct?
a. secondary pulmonary tuberculosis;
b. post-BCG immunity;
c. infectious immunity;
d. hyperergic tuberculin reaction;
e. tuberculin conversion with hyperergic reaction.

17. The child (4 years) was BCG vaccinated at maternity home. BCG scar is of 7 mm. At the age of 1 year Mantoux test was not done. At the age of 2 year Mantoux test result was of 8 mm, at the age of 3 year Mantoux test result was of 6 mm, at the age of 4 year Mantoux test result is 3mm.

Which conclusion must be done on the ground of Mantoux test results?

a. TB infection;
b. Positive tuberculin test;
c. Tuberculin conversion;
d. BCG-induced immunity;
e. Negative tuberculin test.

1. a b c d e	6. a b c d e	11. a b c d e	16. a b c d e
2. a b c d e	7. a b c d e	12. a b c d e	17. a b c d e
3. a b c d e	8. a b c d e	13. a b c d e	
4. a b c d e	9. a b c d e	14. a b c d e	
5. a b c d e	10. a b c d e	15. a b c d e	

2 LEVEL. Resolve the clinical situational tasks:

1. The patient D. of 28 years old has no complains. He was in the contact with the neighbor suffering from tuberculosis. He hadn't been examined for last 3 years by X-ray. When he becomesemployed focus shadowing 4 cm in diameter, middle intensity with vague contours and sickle-shaped eccentric translucency in right lung S_1 was revealed by X-ray. Blood analysis is normal. Objectively: on examination pathological changes was absent, percussively – clear vesicular resonance, on auscultation – vesicular breathing.

What signs tuberculosis suspected are present at the person?
Which investigation could confirm the diagnosis of tuberculosis?
Make an X-ray diagnosis (clinical form of tuberculosis, localization of pathology, phase of tuberculosis process)

2. The child at the age of 7 year is resides in a focus of tuberculous infection. He was vaccinated BCG in maternity house. At the age of 1 and 2 years papule of Mantoux test with 2 TU PPD-L was 10 mm and 8 mm in diameter. At the age of 3 year - 4 mm. At the age of 4, 5, 6 years – negative, atthe age of 7 years - papule 17 mm. Postvaccinal scar is marked.

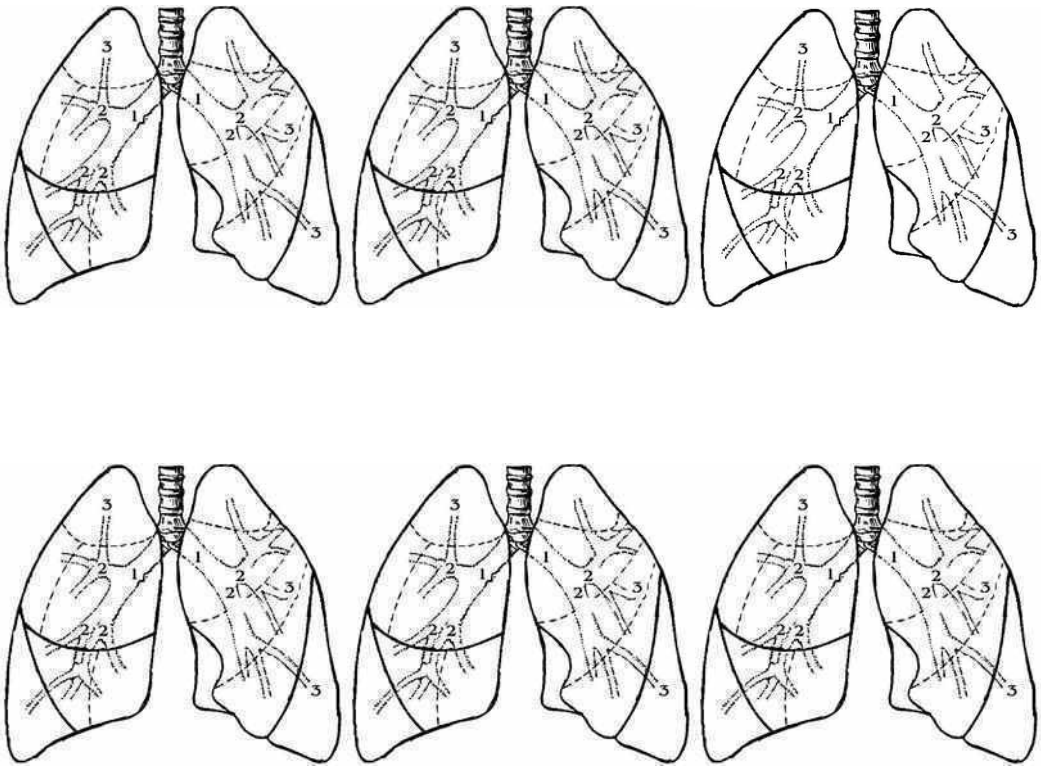
What is the nature of reaction on Mantoux test with 2 TU in 1 year?
What is the nature of reaction on Mantoux test with 2 TU in 7 year?
What is the tactics of a doctor concerning revaccination?
What is the further judgment and management of this case by doctor?

3 LEVEL.

1. Complete scheme of distinction between post-vaccination tuberculin allergy and post-infectious allergy.

Criteria	Post-vaccination tuberculin allergy	Post-infectious allergy
Time appearance of positive tuberculin reaction		
Evidence degree of tuberculin reaction		
Tuberculin reaction in dynamics		
Clinical signs of disease		
Contact with a person discharging mycobacteria		
Post-vaccination scar		
Pigmentation		

2. Draw up the X-ray view of tuberculosis changes according to radiological syndromes?



Student's subscription: _____

Module № 2. Treatment and prophylaxis of tuberculosis

- ✓ The main principles of tuberculosis patients' treatment.
- ✓ Antimycobacterial drugs. Drug resistance. Case discussion.
- ✓ Standardized regimens of tuberculosis patient treatment.
- ✓ Prophylaxis of tuberculosis. Case discussion.

1 LEVEL. Read the Read the Chapter 4-5 a teaching manual in English "Phthisiology" V.A.Koshechkin, 2017; pages 195-221, 224-236 A teaching manual in English "Phthisiology" I.T. Pyatnochka, 2002 or the pages 207-242, 263-271 A textbook for students "Phthisiology" V. I. Petrenko, 2008 and the pages 27-31, 36-40, 45-47 "Phthisiology" Handbook for medical students with English medium for individual work O.S. Shevchenko with coauthors., 2011.

Give an answer in written form to the next question:

1. Enumerate the basic principles of tuberculosis patients' treatment?
2. What are the phases of tuberculosis patients' treatment?
3.Write the classification of antimycobacterial drugs
4. What is primary and secondary drug resistance?
5. What kind of MTB resistance to the antituberculous drugs do you know?
6. Which conditions and environment factors promote TB drug resistance?
7. What are the standardized regimens of antimycobacterial chemotherapy at the initial phase according to category number? I II III IV
8. What are the criteria of TB patient recovery?

9. Give the definition of “tuberculosis prophylaxis”
10. What is the classification of tuberculosis prophylaxis?
11. What is related to sanitary prophylaxis of tuberculosis?
12. What is related to infectious control?
13. What is the BCG vaccine?
14. What is the goal for vaccination and revaccination?
15. What dose of BCG and BCG-M vaccine is used for vaccination?
16. Enumerate timely and absolute contraindications for BCG vaccination?
17. Enumerate contraindications to BCG revaccination?
18. What are the complications, which might appear after BCG vaccination or revaccination?
19. What are the aims and measures for chemoprophylaxis?
21. What population contingents should receive chemoprophylaxis?

2 LEVEL. Solve the tasks.

1. Formation of MTB resistance to antituberculosis drugs is caused by:
a. natural abilities of mycobacterium tuberculosis to genetic mutations;
b. inadequate treatment (including interruption) with antituberculosis drugs;
c. long treatment by single antituberculosis preparations.
d. all above mentioned are correct

2. The patient (36 years) was admitted at the antituberculous dispensary with the diagnosis: new case of PTB (4.11.2013) of lungs (disseminative one, phase of infiltration), Destr.+, MTB+, M+, C+, Resist. 0, Resist.11 0, Hist.0, Cat.1, Coh.4 (2013).According to Category 1 chemotherapy regimen was prescribed: isoniazid + rifampicin+ streptomycin+ pyrazinamide. The patient is alcohol abuser. Which drug as non-specific medication is the most rational one for the patient?

a. Ambrocsol;
b. Karsil;
c. Lidase;
d. Trental;
e. Almagel;

3. The patient (40 years) takes the course of chemotherapy at antituberculous department with the diagnosis: new case of PTB (15.02.2013) of the upper right lobe (infiltrative one, phase of cavitation and dissemination), Destr.+, MTB+, M-, C+, Resist. -, Resist.II 0, Hist.0, Cat.1, Coh.1 (2013). 3 months after the chemotherapy had been begun the patient leaved the ward by his own decision. He did not take anti- TB drugs during following 2,5 months. Now he was admitted at the hospital again because the disease progresses.

Which chemotherapy regimen is needed for the patient?

a. isoniazid + rifampicin + streptomycin + ethambutol;
b. isoniazid + rifampicin + ethambutol + pyrazinamide;
c. isoniazid + rifampicin + streptomycin + pyrazinamide;
d. isoniazid + rifampicin +streptomycin + ethambutol + pyrazinamide;
e. isoniazid + streptomycin + kanamycin.

4. The duration of hospital course of treatment of the tuberculous patient is determined by:
a. clinical form of tuberculosis;
b. presence destructive changes in lungs;
c. massive bacteria expectoration;
d. efficiency of spent medical measures;
e. presence of accompanying measures.

5. What ensure the development of antituberculous immunity at BCG vaccination?
a. alive MTB of vaccine strain;
b. destroyed MTB of vaccine strain;
c. L- shape form of vaccine strain;
d. vitality products of vaccine strain;
e. all above mentioned are correct.

6. To whom application of BCG-M vaccine is indicated?
a. prematurely born child with body weight at delivery 2000g and more;
b. prematurely born child with body weight after nourishment 2300g and before discharging from maternity hospital;
c. child, who not vaccinated at maternity hospital, by medical indication after recovery in 1-6 month;
d. all above mentioned are correct ;
e. all above mentioned are is wrong.

7. Which size of post-vaccination scar corresponded to the presence of vaccine immunity?
a. 1-2 мм;
b. 3-4 мм;
c. 5-7 мм;
d. all above listened are correct;
e. all above mentioned are wrong

8. What is the contraindication to BCG revaccination?

a. revaccination BCG 5 years ago;
b. positive anergia;
c. contamination by MTB;
d. presence of scar after previous vaccination;
e. all listened above are correct.

9. Which variant, among listened below, does not belong to a contraindication for BCG revaccination?

a. contamination by MTB or tuberculosis in the past;
b. positive anergy;
c. 1 month recovery after infectious diseases;
d. aggravation stage of allergy disease;
e. immunodeficiency conditions or treatment by immunosuppressant.

10. What reduces tuberculous infection spreading?

a. timely revealing of tuberculous patients ;
b. isolation and treatment of massive bacilli excretion persons;
c. abolishment of infected by tuberculosis animals;
d. antituberculosis immunization and chemoprophylaxis of contact person;
e. all mentioned are correct.

11. What is chemoprophylaxis of tuberculosis?

a. handling of patients' apartment by disinfection agents ;
b. prescription of antituberculous drugs to the patients;
c. prescription of antituberculous drugs to health person from groups of risk;
d. all above mentioned are correct;
e. all above mentioned are wrong.

12. Which antituberculous drugs are used at chemoprophylaxis for morbidity rate prevention?

a. streptomycin ;
b. isoniazid;
c. rifampicin;
d. ethambutol.
e. kanamycin

13. The patient (35 years) has the diagnosis: new case of PTB (7.02.2013) of the right lung (infiltrative one) Destr.+, MTB+,M-,C+, Resist.-, Resist. 11-, Hist.0, Cat. 1, Coh.1 (2013). Bacilli excretion is scanty. The patient resides with his wife and his mother.

Which type of TB nidus the patient's residence belongs to?

a. this residence is not TB nidus;
b.1 type;
c.3 type;
d.2 type;
e. conventional one.

14. The woman gave birth to the healthy child with 3 kg of body weight (8 balls according to Apgar's scale). Baby's father suffers from "open case" of tuberculosis (TB) and is at home now. What is the pediatrician's management concerning the child?

a. to vaccinate the child with BCG-1 and discharge him from the maternity home;
b. to vaccinate the child with BCG-1, discharge him from the maternity home and to carry out the course of chemoprophylaxis;
c. to vaccinate the child with BCG-1 and keep him at the maternity home for 1 month more;
d. to vaccinate the child with BCG-M and discharge him from the hospital;
e. to vaccinate the child with BCG-1, discharge him from the maternity home and to send his father to antituberculous hospital.

15. 5 kids were Mantoux tested with 2TU of PPD-L before BCG revaccination. Following results were obtained: 1st child – papule of 10 mm, 2nd child – papule of 4 mm with the vesicle in the centre, 3d child – papule of 3 mm, 4th child – hyperemia only, 5th child – injection reaction.

Which child submits to BCG revaccination? a.1st b.2nd c.3d d.4th e.5th

16. The child (6 months) was not BCG-1 vaccinated at maternity home because of acute viral infection. Now the child is well. BCG-vaccination is needed. Which investigation is needed to solve the question about BCG-vaccination?

a. Mantoux test with 2TU of PPD-L;
b. blood test;
c. biochemical blood test;
d. X- ray examination;
e. immunological blood test.

17. In specialized maternity home department the woman suffers from "open case" of TB has the prematurely born child with body weight of 2300 g and height of 50 cm. The child is well. What is the pediatrician's management concerning the child?

a. to BCG-1 vaccinate at maternity home;
b. to BCG-M vaccinate at maternity home;
c. to BCG-1 vaccinate during the first 2 months of life in the policlinic;
d. to BCG-M vaccinate during the first 2 months of life in the policlinic;
e. to perform chemoprophylaxis and then to BCG-1 vaccinate.

18. The child (3 months) was BCG-1 vaccinated at maternity home at birth. The child's general state now is satisfied but vaccination complication develops – lymphadenitis (enlarged armpit lymphatic node with the abscess). Which local treatment the child is needed?

a. local therapy only;
b. isoniazid + local therapy only;
c. isoniazid +rifampicin+ local therapy only;
d. isoniazid +rifampicin;
e. rifampicin+ local therapy.

19. The child (7 years) shows hyperergic Mantoux test result – papule of 22 mm in the diameter. This boy is in the contact with his grandmother suffers from "open case" of pulmonary TB. Course of chemoprophylaxis is needed for the boy. Which drug (or drug combination) is needed to be exploited for secondary chemoprophylaxis?

a.isoniazid;
b.isoniazid + ethambutol;
c.ethambutol + pyrazinamide;
d.rifampicin + pyrazinamide;
e.isoniazid + PAS.

1. a b c d e	6. a b c d e	11. a b c d e	16. a b c d e
2. a b c d e	7. a b c d e	12. a b c d e	17. a b c d e
3. a b c d e	8. a b c d e	13. a b c d e	18. a b c d e
4. a b c d e	9. a b c d e	14. a b c d e	19. a b c d e
5. a b c d e	10. a b c d e	15. a b c d e	

3 LEVEL. Solve the clinical situation tasks:

1. The patient (40 years) was in contact with patient suffering from tuberculosis at the childhood. When he becomes employed shadow of darkening 2 cm in diameter with middle intensity and distinct contours is revealed by X-ray examination in the S_1 of right lung. Solitary nodular of low intensity shadow is detected at the nearest lung tissue. Any complains are absent. No pathology was revealed by physical examination. Blood analysis is normal. MTB is not revealed. The diagnosis was established: tuberculoma in the right lung S_1, MTB-.

Which category the patient must be related to?

Which chemotherapy regimen is needed for the patient at the intensive phase?

2. The girl (7 years) was BCG-1 vaccinated at birth. Mantoux test with 2 TU of PPD-L result at the age of 1, 2 and 3 years old is negative. BCG-scar on the left shoulder is absent.

What is the pediatrician's management concerning the child?

4 LEVEL. Make a plan of preventive measures at the tuberculous nidus, where patient suffering from fibrous-cavernous tuberculosis, MBT (+) resides if there are two adults and two kids in the family and if one child has positive tuberculin reaction.

Student's subscription: _____

Module № 3. Clinical classification of tuberculosis. Primary tuberculosis. Complications of primary tuberculosis

- ✓ Clinical classification of tuberculosis. Case discussion.
- ✓ Tuberculosis of non-established localization, Tuberculosis of intrathoracic lymphatic nodes, Primary tuberculosis complex.
- ✓ Complications of primary tuberculosis. Case discussion

1 LEVEL. Read the the Chapter 4-5 a teaching manual in English "Phthisiology" V.A.Koshechkin, 2017; pages 69-79 A teaching manual in English "Phthisiology" I.T. Pyatnochka, 2002 or the pages 92-103 A textbook for students "Phthisiology" V. I. Petrenko, 2008 and the pages 52-57 "Phthisiology" Handbook for medical students with English medium for individual work O.S. Shevchenko with coauthors, 2011.

Give an answer in written form to the next question:

1.What types of tuberculosis process according to classification do you know?
2.Recite the clinical forms of primary tuberculosis
3.Recite the clinical forms of secondary tuberculosis
4.Enumerate the methods of etiology confirmation of tuberculosis
5.Enumerate the complications of pulmonary tuberculosis.
6.What is the structure of tuberculosis clinical diagnosis?
7.Enumerate characteristic signs of primary tuberculosis
8. Write the definition of tuberculosis of unknown primary localization.
9. Diagnosis of the tuberculosis of unknown primary localization is based on the data:
10. Write the definition of intrathoracic lymph node tuberculosis

11. What are the X-ray forms of intrathoracic lymph node tuberculosis?
12. What complications intrathoracic lymph node tuberculosis may follow by?
13 What diseases should one differentiate intrathoracic lymph node tuberculosis from?
14. What is the primary tuberculosis complex?
15. What is the Gohn's focus?
16. What are the complications of the primary tuberculosis complex?
17. How is uncomplicated primary tubercular complex treated?

2 LEVEL.

Solve the tests.

1. The patient (43 years) was examined by clinical and X-ray methods. The diagnosis: new case of PTB (21.01.2013) of upper right lobe (infiltrative one), Destr.+, MTB+, M-, C+, Resist. I -, Resist. II -, Cat.1, Coh.1(2013). Which phase of tuberculosis the meaning "Destr + " corresponds with?

a. phase of infiltration
b. phase of dissemination
c. phase of induration
d. phase of cavitation
e. phase of resolution

2. The patient (42) complains on the fever up to 37,2 °C, weakness, sweats, cough with the sputum. Plane chest X-ray picture: infiltrate with cavitation is present in the right upper lobe, MTB were found in the sputum. Which diagnosis formulation is correct?

a. new case of PTB (12.02.2013) of right upper lobe (infiltrative one), Destr+, MTB+, M+, C+, Hist. 0,Cat.1, Cog. 1(2013).
b. new case of PTB (12.02.2013) of right upper lobe (infiltrative one), Destr+, MTB+, M+, C+, Resist.0, Hist.0, Cat.1, Cog. 1(2013).
c. new case of PTB (12.02.2013) of right upper lobe (infiltrative one), Destr+, MTB+, M+, C-, Hist.0,

Cat.1, Cog.1 (2013).

d. new case of PTB(12.02.2013) of right upper lobe (infiltrative one), MTB+, M+, C+, Resist I 0, Resist. II +, Hist.0, Cat..1, Cog.1 (2013).

e. new case of PTB(12.02.2013) of right upper lobe (infiltrative one), Destr.+, Resist. I 0, Resist. II +, Hist.0.

3. The patient (23 years) complains on the weakness, subfebrile fever, mild cough with the sputum. After clinical, laboratory and X-ray investigations the diagnosis was made: new case of PTB(17.12.2013) of both lungs (disseminative one, phase of infiltration), Destr.+, MTB+, M-, C+, Resist. I-, Resist. II-, Hist.0, Cat…., Coh. 4 (2013). Which category the patients must be related to?

a.Category 5 b.Category 4 c.Category 1 d. Category 2 e. Category 3

4.Choose the correct formulation of primary tuberculosis:

a. first manifestation of tuberculous changes in lungs;
b. disease of patient infected by mycobacterium tuberculosis of human type;
c. disease of patient with positive reaction to Mantoux test;
d. disease of the patient due to contact with tuberculous patients;
e. new disease in adult, who had tuberculosis in the childhood.

5. A basic cause of transition of primary infection into tuberculosis is:

a. massive super infection;
b. adverse premorbid conditions and frequent intercurrent diseases;
c. weakening of the post vaccination immunity;
d. all above mentioned.

6. The tuberculosis of mediastinum lymphatic nodes is most frequently complicated by:

a. bronchial obstruction;
b. lymphogenic dissemination;
c. hematogenic dissemination;
d. all variants are correct

7. What is most typical for uncomplicated primary complex:

a. dry cough; b. productive cough; c. chest pain; d. syndrome of intoxication.

8. The primary tubercular complex is most often necessary to differentiate with:

a. lung cancer with metastasis in lymph nodes of lungs;
b. acute pneumonia;
c. malformation of the lungs;
d. eosinophylic infiltration.

9.The child (4 years) took the chemotherapy in pediatrician antituberculous hospital because of the diagnosis: New case ob TB (9.02.2011) of tracheo-bronchial lymph nodes (small form, phase of infiltration), Destr+, MTB-, M-,C-,Resist I (0), Resist II (0),Hist 0, Cat.3, Coh.1(2011).As a result of carried treatment 2 intensive shadows are present at the right lung hilum at the X-ray picture.
Which clinical variant of intrathoracic lymph nodes TB is actual?
a. "small" one; b. caseous one ;
d. tumor-like one; e. indurative one; c.infiltrative one.

10.The patient (10 years) was BCG-revaccinated at the age of 7 years old. At the age of 8 years old Mantoux test with 2 TU of PPD-L was 10 mm, 9 years – 8 mm, now (10 years) – 10 mm. Two months ago the child was in the contact with his grandfather suffers from "open case" of pulmonary tuberculosis. The child complains on the tiredness, malaise, weakness, his appetite is decreased. He becomes irritable. Physical findings: skin is pale and moist. Enlarged soft painless peripheral lymphatic nodes (3-5 mm) are palpable in the posterior cervical triangle region. Blood test: erythrocytes - 4,5 x 10^{12}/l, leucocytes - 9,2 x 10^{9}/l, stabs – 8%, ESR – 17 mm/hour. Chest X-ray picture: abnormality is absent. Which clinical form of TB the child suffers from?
a. pulmonary nodular tuberculosis;
b. TB of menings and nervous system
c. tuberculosis of non-established localization;

11. The child 12 years old. Mantoux test shows infiltrate with diameter 17 mm. At maternity house the child was BCG vaccinated, BCG sign is 3 mm. Blood test: leucocytes – 7,4· 10^{9} /l, ESR -15 mm/hour. In 3 sputum smears MTB were not found microscopically. X-ray picture: there is shadowing 4 cm*4 cm of slight intensity of the left lung and enlargement of the lung hilum due to enlargement of intrathoracic lymph nodes. The child is from the family contact with the patient suffers from pulmonary tuberculosis. Mantoux tests were negative all previous years.
Which clinical form of TB the child suffers from?
a. pulmonary nodular tuberculosis; b.primary tuberculosis complex;
c. tuberculosis of non-established localization;
d. TB bronchitis;
e. tuberculosis of intrathoracic lymph nodes (small form).
d.tuberculosis of intra thoracic lymph nodes(small form);

1. a b c d e	5. a b c d e	9. a b c d e
2. a b c d e	6. a b c d e	10. a b c d e
3. a b c d e	7. a b c d e	11. a b c d e
4. a b c d e	8. a b c d e	

3 LEVEL.

Solve the clinical situational tasks:

1.The child (5 years) complains on the weakness, malaise, subfebrile fever up to 37, 3-37,5ºC periodically, irritability. Enlarged peripheral lymphatic nodes are palpable in the posterior cervical triangle region. Percussion and auscultation did not reveal any abnormality in lungs. Mantoux test result is 13 mm, last year – 8 mm. X-ray chest picture and medium tomogram – abnormality is absent. Blood test: leucocytes – 7,7 x 10^{9}/l, eosinophils – 3%, sticks – 6%, segments – 60%, lymphocytes – 21%, monocytes – 10%, ESR - 18 mm/hour.

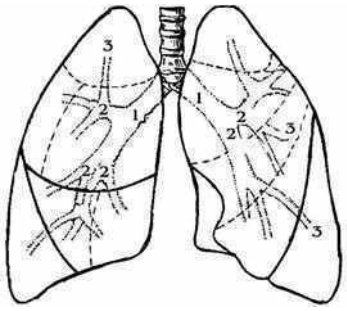
Make the clinical diagnosis formulation accordingly to clinical classification?
Which chemotherapy regimen is needed for the child?

2. The child (13 years) complains on the weakness, subfebrile fever up to 37,3ºC, decreased appetite, rapid fatigability, sweats loss of energy, mild cough. His father suffers from "open case" of tuberculosis. Mantoux test conversion is found with the papule of 14 mm in the diameter. Blood test: leucocytes – 10,9 x 10^9/l, ESR – 18 mm/hour. Physical findings failed to reveal pathology in lungs.

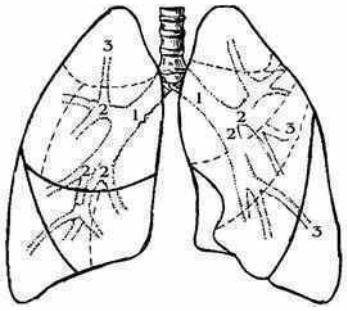
What diagnosis formulation is correct?
Which investigation is needed to confirm the diagnosis?

4 LEVEL.

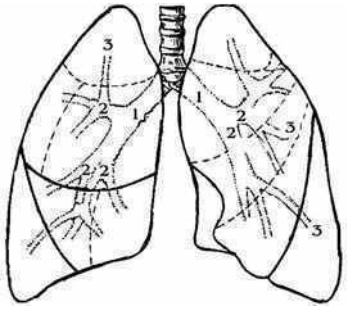
Make a diagrammatic drawing of the X-ray shadows due to:



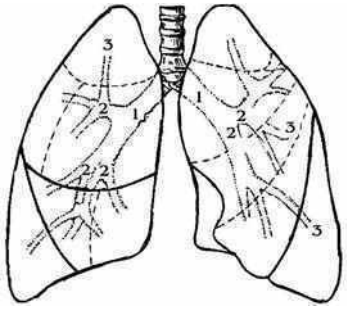
primary tuberculous complex



tuberculosis of intrathoracic lymphatic nodes



Infiltrative variant



Tumorous variant

Student's subscription: _____

Module № 4. Secondary tuberculosis (pulmonary and extrapulmonary ones). Complications of secondary clinical forms which demand urgent care.

- ✓ Disseminated pulmonary tuberculosis. Miliary tuberculosis.
- ✓ Tuberculosis of nervous system and meanings.
- ✓ Nodular and infiltrative pulmonary tuberculosis. Caseous pneumonia. Case discussion.
- ✓ Fibrous-cavernous and cirrhotic pulmonary tuberculosis. Tuberculous pleurisy (including empyema). Case discussion.
- ✓ Diagnosis and treatment of complications of tuberculosis which demand urgent care: lung hemorrhage, spontaneous pneumotorax. Case discussion.

1 LEVEL. Read the Chapter 6-7 a teaching manual in English "Phthisiology" V.A.Koshechkin, 2017; pages 80-84, 87-104, 106-120, 127-130, 137-155, 158-163 Read the A teaching manual in, 202-205, 196-200 A textbook for students "Phthisiology" V. I. Petrenko, 2008 and the pages 60-62, 65- 67, 72-74, 81-85 Handbook for medical students with English medium forindividual work O.S. Shevchenko with coauthors, 2011.

Give an answer in written form to the next question:

1. What is disseminated tuberculosis?
2. What are the forms of disseminated tuberculosis?
3. What is miliary tuberculosis?
4. What are the clinical types of miliary tuberculosis?
5. What are the characteristic symptoms of miliary tuberculosis?
6. What X-ray changes are characteristic for miliary tuberculosis?
7. What chemotherapy regimen is indicated for treatment of patients with miliary tuberculosis?
8. What are the X-ray features of subacute and chronic disseminated pulmonary tuberculosis?
9. What is tuberculosis meningitis?
10. What are the forms of tuberculosis meningitis by localization?
11. What are the clinical periods of tuberculosis meningitis?

12.What are the syndromes are characteristic for TB meningitis?
13. What cranial nerves are affected at meningeal tuberculosis?
14. Which changes of cerebrospinal fluid are characteristic for meningeal tuberculosis?
15. What is nodular tuberculosis?
16. What are the clinical and radiological types of nodular tuberculosis?
17. Give the definition of pulmonary infiltrative tuberculosis?
18. Enumerate the X-ray variants of tuberculous infiltrates.
19. What diseases pulmonary infiltrative tuberculosis must be differentiated from?
20. Give the definition of caseous pneumonia.
21. What are the typical X-ray and clinical signs of caseous pneumonia?
22. What is the treatment of caseous pneumonia?
23. Give the definition of pulmonary tuberculoma.
24. What are the clinical and x-ray signs of tuberculoma?
25. What diseases one should differentiate tuberculoma from?

26. Give the definition of fibro-cavernous pulmonary tuberculosis.
27. What forms of tuberculosis precede the fibro-cavernous one?
28. What radiological signs are characteristic for fibro-cavernous tuberculosis?
29. What is cirrhotic tuberculosis?
30. What are the X-ray signs of cirrhotic pulmonary tuberculosis?
31. What are the characteristic signs of cirrhotic tuberculosis on physical examination?
32. Give the definition to “pulmonary hemorrhage, hemoptysis”.
33. What is the pathogenesis and factors promoting hemoptysis and pulmonary hemorrhage?
34. What is the classification of hemorrhage according to their intensity?
19. What are the symptoms of hemoptysis and pulmonary hemorrhage?
20. What is haemostatic therapy aimed at?
21. What is spontaneous pneumothorax? What are the types of pneumothorax?

22. What are the clinical signs of spontaneous pneumothorax?
23. What are the causing factors of spontaneous pneumothorax at pulmonary tuberculosis?
24. What are the X-ray signs of spontaneous pneumothorax?
25. What is pleurisy classification depending on the character of exudate?
26. Enumerate the clinical and radiological signs of tuberculous pleurisy.

2 LEVEL.

Solve the tests.

1. Miliary tuberculosis is characterized by:
a. scanty mycobacterium expectoration;
b. poor mycobacterium expectoration;
c. absence of mycobacterium expectoration;
d. periodic mycobacterium expectoration.

2. First manifestations of acute hematogenic disseminated (miliary) tuberculosis are all listed, except for:
a. body temperature rising;
b. insignificant usual dry coughs;
c. strong coughs with poor sputum;
d. manifestations of dyspnea and tachycardia.

3. Which changes of cerebrospinal fluid more characteristic for meningeal tuberculosis?
a. increasing of protein, chloride, glucose amount;
b. higher cytosis (more than 1000 cells), neutrophilic character, moderate increasing amount of protein, liquid is cloudy;
c. insignificant increasing amount of protein, moderate lymphocytic cytosis, glucose and chlorides in norm;
d. higher rate of protein amount, moderate cytosis (200–400 cells and more), predominantly lymphocytic, decrease of glucose and chlorides)

4. Choose the correct formulation of disseminated tuberculosis of respiratory organs:
a. bilateral extensive opacity in the lungs;
b. total unilateral focal damage of the lungs;
c. bilateral limited or widespread damage of the lungs with prevalence of foci and interstitial changes;
d. unilateral focal damage of lobe of lung;
e. cavernous damage of the superior lobe of one lung with focal dissemination of inferior part of both lungs.

5. To manifestation signs of acute hematogenic-disseminated (military) tuberculosis of lungs belongs all of listened below, except for:
a. rising body temperature till hectic LEVEL;
b. insignificant, usually dry cough;
c. intensive cough with scanty sputum;
d. occurrence of dyspnea and tachycardia

6. In which segments of lungs focal tuberculosis is located:
a. 3, 4, 5, 6; b. 1, 2, 6; c. 1, 2; d. 6; e. 8, 9.

7. The basic method of nodular pulmonary tuberculosis finding in adults is:
a. prophylactic fluorography;
b. diagnostic fluorography;
c. tuberculin diagnosis;
d. the microbiological examination for mycobacterium expectoration;
e. radiography.

8. The most reliable method for diagnosis of destructive pulmonary tuberculosis is:
a. fluorography;
b. X-ray;
c. tomography;
d. ultrasonic sound;
e. radioisotope imaging.

9. The cloud-like infiltrate is characterized by:
a. clinical signs of pneumonia;
b. clinical symptoms of bronchitis;
c. absence of clinical symptoms;
d. pain on lesion side.

10. Which pathology one should differentiate tuberculous lobitis from?
a. lobar pneumonia
b. lung cancer;
c. eosiniphilic pneumonia;
d. all listened above

11. Which disease one should differentiate tuberculoma from?
a. peripheral cancer;
b. aspergillums;
c. with retention cyst;
d. all answers are correct.

12. Which form of pulmonary tuberculosis morphologically corresponds with thick wall cavity and nodular, infiltrative and fibrotic changes around it?
a. chronic disseminated tuberculosis;
b. fibrous-nodular tuberculosis;
c. infiltrative tuberculosis;
d. fibrous-cavernous tuberculosis;
e. cirrhotic tuberculosis.

13. What character of sputum occurs more often in patient with pulmonary fibrous-cavernous tuberculosis?
a. glassy;
b. mucous;
c. viscid;
d. purulent;
e. mucous-purulent.

14. Which morphological changes are not characteristic for patients with cirrhotic pulmonary tuberculosis?
a. rough deform sclerosis;
b. bronchiectatic decay;
c. emphysematous bulla;
d. cavitation with sign of progression.

15. Effective medicinal means of struggle with hemoptysis are:
a. intravenous introduction 10% of a solutions calcium chloride 5-10 ml;
b. the cooled alkaline solutions per os and means of struggle with cough;
c. intra muscular etamsylatum (dicinon), intra vein, vitamin C, vicasol;
d. impose right on extremities and subcutaneous introduction of oxygen
e. all above listened

16. Pulmonary hemorrhage is observed:
a. at fresh, sharply proceeding forms of lesions of lungs;
b. with acute and subacute disease, with disintegration of lung tissue;
c. with chronic disease, accompanying by the cirrhosis formation in the lung tissue.

17. A principal cause of death of patients with pulmonary hemorrhage is:

a. sharp pneumonia; b. hemorrhagic shock; c. asphyxia.

18. The basic clinical symptoms of spontaneous pneumothorax:
a. fever, cough with sputum;
b. chest pains and dyspnea;
c. fever, dry hoarse cough, chest pains;
d. chest pains hard breathing, cough with sputum.

19. With which form of pulmonary tuberculosis exudative pleurisy occurred rarely?
a. primary tuberculosis complex;
b. subacute disseminated tuberculosis;
c. chronic disseminated tuberculosis;
d. tuberculosis of intrathoracic lymphatic nodes;
e. nodular tuberculosis.

20. What is the cause of effusion in pleural cavity at elderly age more probable?
a. pneumonia;
b. pulmonary tuberculosis;
c. malignant lung tumor;
d. tuberculous of intrathoracic lymphatic nodes;
e. sarcoidosis.

1. a b c d e	6. a b c d e	11. a b c d e	16. a b c d e
2. a b c d e	7. a b c d e	12. a b c d e	17. a b c d e
3. a b c d e	8. a b c d e	13. a b c d e	18. a b c d e
4. a b c d e	9. a b c d e	14. a b c d e	19. a b c d e
5. a b c d e	10. a b c d e	15. a b c d e	20. a b c d e

3 LEVEL.

Solve the clinical situational tasks:

1. Patient of 19 years old was admitted at the infectious hospital with diagnosis typhoid fever. He is ill during 2 weeks. 2 days ago was emerged sharp worsening of general state – body temperature was rising till 39,8°C, strong headache, nausea, fountain-like vomiting, which does not improve general condition. Objectively: severe patient's state, lies on "trigger" posture, express occipital muscle rigidity, positive Kernig's and Brudzinski symptoms. Vesicular breathing in the lungs is heard. X-ray is without pathology. Analysis of blood: leukocytes $10,5*10^9$/l, ISR 40 mm/hour. Liquor analysis: transparent with opalescence, cytosis 300 cells/mm^3, glucose 1,8 mmol/l, in 12 hours thin fibrin film was deposit where MTB are found by bacterioscopy.

Formulate the diagnosis according to functional classification
Prescribe the treatment

2. The woman of 25 years old becomes ill acutely. The body temperature rising up to 39,0°-39,5°C, appeared sharp weakness, breathlessness, dry cough. Objectively is without pathology. Multiply small nodular shadows, small intensity with unclear contours, without tendency to fusion on background of washed lung pattern throughout the both lungs was revealed by X-ray.

Which clinical form of TB is detected at the woman?
Which category of the treatment this case is related to?

Prescribe the patient's treatment in intensive phase.

3. Solitary, low intensity nodular shadows with unclear contours, middle size at the apical segments of both lungs were found at the patient of 20 years old by fluorography. Complaints are absent. Objectively: without pathology. Blood analysis is normal. It was established diagnosis: pulmonary tuberculosis.

Which clinical form of pulmonary tuberculosis was found in the patient?
Prescribe the patient's treatment in the intensive phase

4. The patient of 34 years old fell ill acutely. Body temperature is rising up to 39° C, appear cough with mucous sputum up to 50 ml/day. Contact with TB patients isn't ascertaining.He has diabetes mellitus. Under whole upper lobe of right lung is revealing dullness of percussion sound, weakness of vesicular breathing with single moist rales. On X-ray: non- homogenous shadowing with partial translucency in upper lobe of right lung. MTB are found in thesputum.

Which type of TB infiltrate is found in the patient?
Formulate the diagnosis according to active classification.

5. The patient of 40 years old suffers from fibro-cavernous tuberculosis of right lung for 10 years with periodical bacilli excretion. He complains on dyspnea, weakness, sweating, subfebrile temperature, but exclude hospitalization. The pulmonary hemorrhage, blood loss 300 ml is started in the evening.

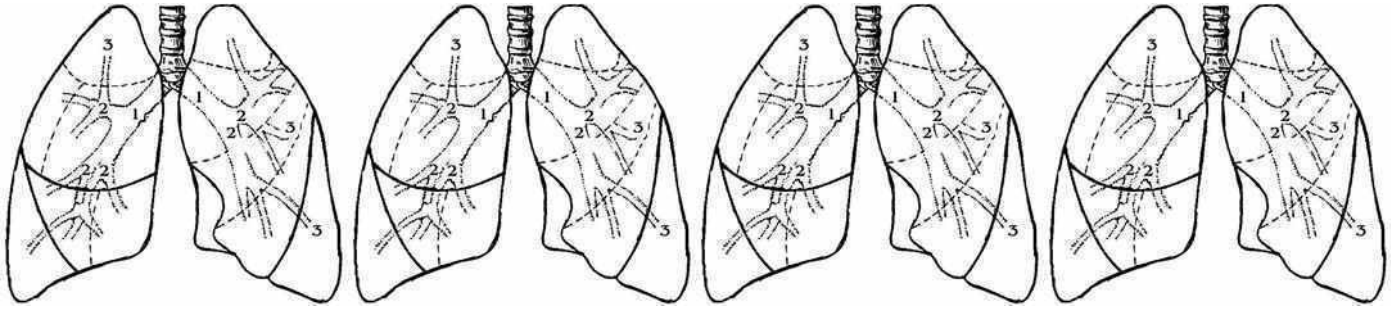
What is the management of this case?
What is the urgent aid?

6. The patient N., of 54 years old suffers from pulmonary disseminated tuberculosis in the phase of destruction, MTB+. In the morning after coughing acute pain in the thorax right side and dyspnea appear. The patient is admitted at the hospital. Objectively: skin is pale, pulse 110 bit/min. Tympanic sound is revealed over the thorax right side, breathing is not conducted. Right lung is collapsed on 1/3 of his own volume, organs of mediastinum are shifted to the left.

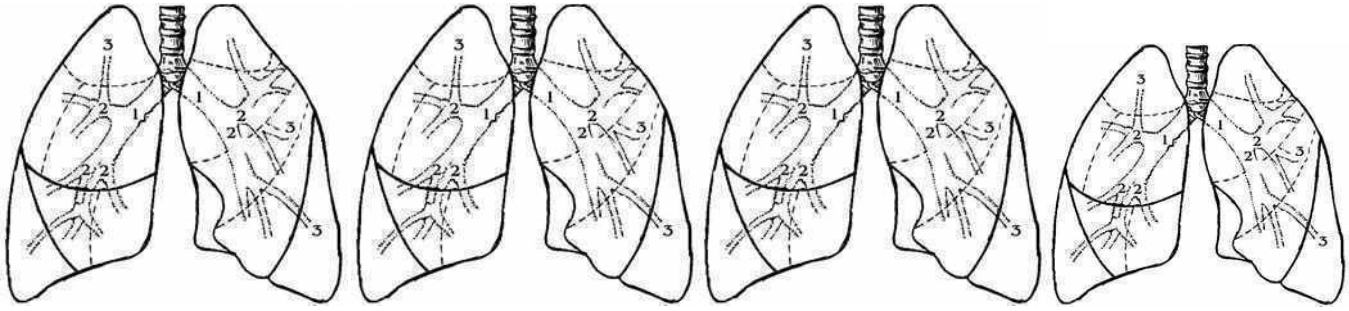
Define the diagnosis.
Which urgent care is necessary to provide for the patient?

Which urgent care is necessary to provide for the patient?

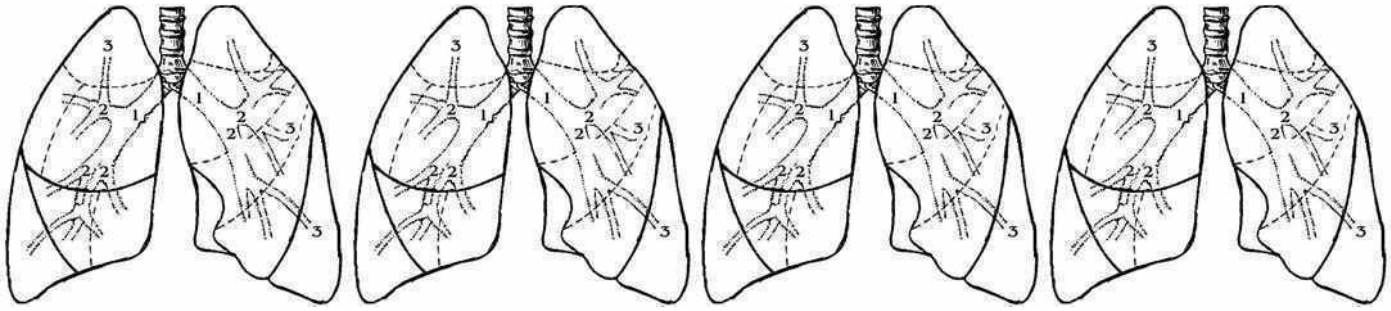
4 LEVEL. Make a diagrammatic drawing of the X-ray shadows due to:



Miliary TB | Acute disseminated | Subacute disseminated TB | Chronic disseminated



Nodular TB | Infiltrative TB | Tuberculoma | Caseous pneumonia



Fibro-cavernous TB | Cirrhotic TB | TB pleurisy | Spontaneous pneumothorax

Student's subscription: _____

Module №5. Pulmonary tuberculosis and concomitant diseases. Organization of medical care for tuberculosis patients

- ✓ Tuberculosis of mandible- face localization: clinical pictures, diagnosis, peculiarities of treatment patients suffering from tuberculosis of mucous of mouth cavity and mandible-face bones. Case discussion.
- ✓ Co-infection: TB and HIV. Organization of medical care for tuberculosis patients. Case discussion.

1 LEVEL. Pubmed sourses: 1) Monaldi Arch Tuberculosis of oral mucosa.Chest Dis. 2001 Aug; 56(4):315-7; 2) Garg RK, Singhal P. Primary tuberculosis of tongue : a case report. J Contemp Dent Pract. 2007 May 1; 8(4): 74-80. Read the pages 123-127; 179-195 A teaching manual in English "Phthisiology" I.T. Pyatnochka, 2002 or the pages 157-158; 182-183 A textbook for students "Phthisiology" V. I. Petrenko, 2008 and the pages 90-95 "Phthisiology" Handbook for medical students with English medium for individual work O.S. Shevchenko with coauthors.
Give an answer in written form to the next question:

1. Pathogenesis and pathomorphologycal changes in case of maxilofacial TB.
2. Give the description of lupoma.
3. Give the definition of lupus vulgaris,
4. Give the definition of miliary-ulcerative tuberculosis.
5. Give the definition scrophuloderma
6. Enumerate the diagnostic principles of maxilofacial tuberculosis.
7. What are the main principles of the maxilofacial tuberculosis treatment.
8. Give the definition of HIV-infection, enumerate its stages.
9. Give the definition of AIDS.

10. List the clinical features suspicious for HIV-infection in patients with tuberculosis.
11. What are the peculiarities of clinical course of early and late HIV/AIDS- associated tuberculosis?
12. What are the diagnostics criteria for HIV/AIDS- associated tuberculosis?
13. What are the X-ray signs of HIV/AIDS-associated tuberculosis?
14. Describe the treatment measures for patients with HIV-associated tuberculosis.

2 LEVEL. Solve the tests.

1. What is the frequency of oral tuberculosis appearance?

a. 0.5-1.0%;
b. 0.05-2.0%;
c. 0.05-5.0%;
d. 1.0-5.0%;
e. 3.0-5.0%.

2. Which manifestation of tuberculosis of mucous membrane is observed more often?

a. ulcer
b. nidi
c. tuberculoma
d. cavern
e. erosion

3. What is the conventional method of oral cavity tuberculosis diagnosis?

a. sampling on MBT
b. fluorography of the lungs
в. consultation by phthisiatrician
c. bronhoscopy
d. computer tomography

4. What is the way of tuberculosis infection development in alveolar localization of jowl bones lesions?

a. hematogenous;
b. lymphogenous;
c. traumatic;
d. alergic;
e. odontogenic.

5. What is the primary element of lupus vulgaris:

a. cavern up to 1 см;
b. tuberculoma up to 2 см;
c. ulcer from 0.5 to 1 см;
d. lupoma from 1 to 3 мм;
e. kelloidal scar.

6. A patient of 47 years old suffers from destructive pulmonary tuberculosis and AIDS. What isthe duration of the basic course of treatment in case of co-infection?
   a. 3 month;
   b. 6 month;
   c. 9 month;
   d. non less than 12 month.

7. What is the external appearance of ulcerative form of oral tuberculosis?

a. shallow ulcer irregular shape with undermined borders, the bottom tuberous, cavered with succulent granulation; it has purilent secretion. Surraunded surface on perifery and around sown by pink- pale and graish ulceration;
b. limited necrosis membranous character, crateriform ulcers, surraunded by limbus with sharp objectionable odor; salivation.
c. deep ulcers on the tongue and in the bony cage of oral cavity – covered this fat-similar fur, copper-coloured;
d. shallow bleeding ulcers, irregular, undermined, thick margin, painful infiltration of regional lymph nodes;
e. soft limited red color infiltration with malacia in the center.

8. What one among mentioned below is characteristic for TB at the late stage of HIV-infection?
a. Significant intoxication over long term with negative Mantoux test;
b. Diffused infiltration localized both in upper lobes and in middle and lower parts of lungs;
c. Prevalent extrapulmonary involvement, intrathoracic lymphatic nodes enlargement, generalizedlymphadenopathy;
d. MBT absence in half of patients;
e. All above mentioned ones is characteristic.

9. What are the laboratory criteria for HIV/AIDS-associated tuberculosis diagnostics?
a. Typical blood indices;
b. Quantitative indices of T-helpers;
c. Changes of relations CD_4/CD_8 coefficient;
d. Disturbance of natural immunity;
e. Atypical indices for this disease

1. a b c d e	4. a b c d e	7. a b c d e
2. a b c d e	5. a b c d e	8. a b c d e
3. a b c d e	6. a b c d e	9. a b c d e

3 LEVEL. Solve the clinical situational tasks.
1. A 43-year-old patient fell sharply ill: body temperature rising up to 39°C, cough with mucous smear up to 50 ml a day, he had lost weight. The contact with tuberculosis patient was not revealed. He had a history of smoking for the last 20 years. He suffers from diabetes. Under whole upper part of right lung is revealed dullnesses on percussion, weakens of vesicular breathing with solitary moist rales. On X-ray there is heterogenous darkening with partial translucency in upper part of right lung was revealed. On examination his

tongue had a nodular lesion (tuberculoma) on the dorsal surface near the base of the tongue. There was no cervical lymphadenopathy. A tongue biopsy revealed a tuberculous granulomatous lesion. Specimens from the lesion were also tested for mycobacterial DNA using polymerase chain reaction (PCR) that detected MBT. MBT in the sputum samples are found by culture and Ziehl-Neelsen staining.

Formulate the diagnosis according to active classification.

2. The patient A., of 30 years old suffers from HIV/AIDS during 5 years. In recent time he feels worse: rising body temperature, cough, sputum with blood admixtures, pain in the chest are appeared. The focus shadowing with unclear contours and area of translucency in S_6 of right lung is revealed. MTB are found in sputum by microscopy.

Formulate the diagnosis according to active classification.
Make up the plan of the patient's examination.
Make the plan of treatment.

4 LEVEL.

1. Make the plane of patient examination for estimation of combined pathology: pulmonarytuberculosis, complicated by TB of mandible- face localization in HIV infected persons.

Student's subscription: _____

FEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION HIGHER EDUCATION "NORTH OSSETIAN STATE MEDICAL ACADEMY" MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

DEPARTMENT OF PHTHISIOLOGY AND PULMONOLOGY

HEAD OF THE DEPARTMENT:
D.M., PROFESSOR BATARBEK M.MALIEV

TEACHER: Assoc. prof., Ph.D. OLGA Z.BASIEVA

Module №6. MEDICAL HISTORY/

CARD №____

Patient_____
(full name)

Clinical diagnosis:
(According to the modern classification of TB)

_____
_____
_____
_____

Comorbidities _____
_____
_____
_____
_____

*Student*_____
*Group*_____ *Course*_____
Faculty _____
*Date*_____
*Mark*_____
Signature of the teacher _____

Vladikavkaz-2022

I. Introduction

Full name_____
Date of birth ___/___/___ Age_____ Sex_____
Home address _____
Workplace _____
Occupation_____
Date of hospitalization_____
Medical insurance №_____

II. Patient's complaints at hospitalization

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III. Anamnesis morbi

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Conclusion (see application):_____
_____
_____
_____

IV. Epidemiological anamnesis[c]

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V. Anamnesis vitae[d]

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VI. Physical examination[e]

(underline or finish)

General examination of patient

General patient's condition: normal/ moderate severity / grave; Consciousness:normal/stuporous;Temperature_____; Position in the bed: active/ passive/ forced_____.

Physical findings***:*** constitutional type: normosthenic / asthenic / hypersthenic; Spinal curvature: lordosis / kyphosis / scoliosis; Anthropometry: height_____, weight_____.

Skin and visible mucous membranes: light pink / pale/ cyanotic / icteric; diffuse cyanosis / acrocyanosis. Skin: wet/dry, elasticity of the skin _____; skin turgor _____. Abnormal skin formations: erythema / roseola / papule / pustule / vesicle / blister / petechiae / scab / bruise / erosion / fissures/ ulcers / scratchings; scars/ spider veins, their localization_____. Paraspecific reactions of specific process: erythema nodosum / blepharitis / phlyctenular keratoconjunctivitis.

Subcutaneous fat: развита: few/ moderately/ excessively. Places of most fat deposition _____. Swelling _____, localisation_____, pastosity _____.

Peripheral lymph nodes (submandibular, cervical, supraclavicular, subclavian, elbow, axillary, inguinal): not palpable/ not changed/ enlarged_____, consistency: soft-

elastic / tight, painful on palpation _____, mobile_____, soldered to the surrounding tissue _____. Scar at the site of BCG vaccination on the left shoulder _____, size_____.

Musculoskeletal system: degree of muscle development: normal/excessive/ weak; Muscle atrophy: general/local/_____; Muscle hypertrophy: general/local/_____, tone: enhanced/ reduced/ normal. Myalgia on palpation and movement _____; shaking or tremor of certain muscles _____; pareses, paralysis of limbs _____. Bones of skull: shape _____, size_____, proportionality of structure of brain and facial parts of the skull _____, pelvis and limbs: deformations/ curvings _____. Changing of the terminal phalanges of fingers: shape_____, color of nail phalanxes _____," hour glass /"drumsticks"/_____, tremor of the fingers _____, pain on palpation _____. Configuration the joints: normal/ swelling / deformation/_____.

Head: type of head and facial hair distribution: male/ female, hair loss and graying of hair _____. Eyes: width of eye slit _____, conjunctiva _____; pupils _____, their shape_____, uniformity _____, reaction to light _____, shine of eyes _____, lacrimation _____, convergence _____. Lips: colour_____, dryness _____, smoothed portion of the lips /“ lacquered lips”/ cracks in the corners of the mouth _____. Neck: shape_____, symmetry _____.

Respiratory system

General examination of chest: shape: symmetry/asymmetry; deformations: emphysematous /_rachitic. Changes of chest bones: scoliosis/ kiphosis/ lordosis. Type of breathing: thoracic/ abdominal/mixed; nasal/ mouth breathing, respiratory rate_____. Supraclavicular and subclavian spaces: retraction /convexity / normal, which side of the chest _____, participation of both halves of the chest in breathing _____, intercostals spaces normal/ /retracted/narrowed, localization_____. " Thymus symptom "_____.

Palpation of chest: elastic / rigid, painfulness_____, voice trembling over the symmetrical parts of the lungs is symmetrical / enhanced / weakened _____, painful points on palpation of the chest _____.

Percussion of the chest: comparative: deadened sound / tympanic sound (box sound, metallic sound, noise of a cracked pot). Topographic percussion: heihjt of lung tops in front (Standard - 3-4 cm above the clavicle)_____ and posteriorly (Standard - at the level of neural processes of VII cervical vertebra)_____, Kronis fields (Standars – 4-7 cm, on the left this zone is 1-1.5 cm longer than the right)_____. The boundary of the lower edge of lungs (Standard – 6-8 cm on posterior axillary line)_____ its active mobility in three lines^

Line	**Standard**	**Left**	**Standard (cm)**	**Right**

	(cm)			
mammilar	-			2-3
midaxillary	3-4			3-4
scapular	2-3			2-3

When patient can not hold his breath because of severity of his condition, you should measure passive mobility of lungs edges.

Nβ: When you change the vertical position of the patient to the horizontal (on the back), front edge of the liver displaces posteriorly. As a result, the bone-diaphragmatic sinus creates a negative pressure and the lower edge of lung loweres by 1-2 cm.

Auscultation of lungs: breathing: vesicular / weakened vesicular / tough / bronchial / amphoric/_____puerile / no breathing _____.

Noises: wheezing (dry, small bubbling rale, medium bubbling rale and large bubbling rale / crepitus/_____pleural rub, localization_____. Bronchophony enchanced/ weakened, localization_____.

Cardiovascular system

Examination of precordium and surface vessels.

Heart (right ventricular) push _____. Pathological pulsation: bulging and pulsing of large vessels of neck _____, epigastric pulsation _____, retrosternal_____, pulsation of the abdominal aorta (at the bottom of the epigastric region)_____.

Palpation of the heart region.

Localization of apex beat (Standard – 1-2 cm medially from leftmid-clavicular line in V intercostal space)_____, its characteristics (width, height, strength, resistance)_____.

Cardiac auscultation.

Heart sounds: clear/sonorous / gain/muted / weakened; rhythm _____. Accent of II tone on pulmonary artery _____ and its splitting _____. Heart noises_____, According to phases of the cardiac cycle (systolic, diastolic, presystolic, protodiastolic, mesodiastolic), localization_____; duration:short, long, increscent,decreasing, increasingly-decreasing)_____;timbre (rude, tender, blowing, rasping etc.); irradiation_____ _____. Changing of heart noise with changing position of the body and physical exercises _____.

Width of vascular bundle (Standard - 5–6 см)_____.

Boundaries of relative cardiac dullness:

Boundaries		Conclusion
Right		

Upper		
Left		

BP_____Ps_____. Pulse characteristics on radial artery (rhythm, filling, tension)_____.

Digestive system:

Examination of abdomen.

Tongue_____. Abdomen: shape_____, size_____, symmetry _____, presence of hernial protrusions _____, visible peristalsis _____, subcutaneous venous network around the umbilicus _____,and in lower part of sternum _____.
Postoperative scars on the skin of abdomen, and their location and shape
_____

Palpation.

Tension of the abdominal wall _____,painfulness (character, localization)_____, participation of abdomen in breathing _____, hernia protrusions _____. Deep palpation of the abdominal cavity (position, size, shape, texture, surface condition, pain)_____ Palpation of liver: characteristic of lower edge _____, pain_____, localization according to right edge of costal arch _____. Size of the liver by Kurlov ___*____*____cm.

Free fluid in the abdominal cavity (percussion) _____.

Genito-urinary system:

Urination _____, pain_____.
Daily diuresis _____, frequency of urination _____, Pasternatsky symptom _____. Swelling of the lower limbs _____.

Endocrine system:

Thyroid gland:size_____, consistency _____ _____, surface _____.

Nervous system: is described in detail if tuberculous meningitis is suspected._____
_____

VII. Additional diagnostic methods

(indicate the multiplicity of research at the time of verification of diagnosis)

1.
2.
3.
4.
5.
6.
7.
8.
9.

Results

Clinical blood analysis (date_____)

Test	Result	Units
Erythrocytes		
Hb		
Leucocytes		
Stab neutrophils		
Segmented neutrophils		
Young		
Eosinophils		
Monocytes		
Lymphocytes		
ESR		

Conclusion:

Clinical urine analysis (date ____)

Test	Result	Units
Amount		
Colour		
Transparency		
Smell		
PH		
ρ		
Protein		
Glucose		
Ketones		
Bile pigments		
Erythrocytes		
Leucocytes		
Epithelial cells		
Cylinders		
Salts		
Fungi / parasites / bacteria		

Conclusion:

Analysis of sputum for MBT (date_____)

Analysis of sputum (washing waters of the bronchi) for MBT:	Total number of analyses	Number of positive analyses (dates)
Bacterioscopy		
Bacteriology		

Clinial analysis of sputum (date)

Test	Result
Amount	
Colour	
Smell	
Character	
Stratification	
Epithelium	
Alveolar macrophages	
Erythrocytes	
Lymphocytes	
Eosinophils	
Atypical cells	
Crystals	
MBT	
Fungi	
Other flora	
Fibers: elastic / coralloid / calcified	
Comclusion:	

Biochemical blood test (date__)

Test	Result	references
Total protein		65-85 g/l
Albumin		35-55 g/l
Urea		1,7-7,5mmol/l
Creatinine		55-115 mkmol/l • (according to age and sex)
Glucose		4,1-5,9 mmol/l
Total bilirubin		5,0-21,0 mmol/l
Conjugated bilirubin		≤ 3,4 mkmol/l
Free bilirubin		≤ 19,0 mkmol/l
Total cholesterol		≤ 5,2 mkmol/l•
ALT		0,01-0,68 mmol(h·l)
AST		0,1-0,45 mmol(h·l)
Thymol test		0,5- 5 un.
• – depends on age and sex		
Comclusion:		

X-ray

Draw the lung pathology schematically

Description of X-ray:_____
_____
_____
_____
_____
_____
_____
_____

Conclusion:_____
_____
_____
_____

Results of other medical tests:

VIII Differential diagnosis

(one competing form of TB and two diseases with other etiology)

_____
_____
_____
_____
_____

Rationale for clinical diagnosis of the patient with tuberculosis

Based on patient complaints _____
_____
_____
data of anamnesis morbi and anamnesis vitae _____
_____
_____
physical examination of patient_____
_____
_____
_____
_____
data of laboratory and instrumental methods of investigation _____
_____
_____
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_____
_____
_____
_____,
differential diagnosis between _____
_____
_____,
clinical diagnosis can be set according to the classification (see application):
_____
_____
_____

XVI. Treatment

1. Patient's mode_____
2. Diet №_____
3. Category of treatment №_____
4. Scheme and duration of patient's treatment in the intensive phase _____
5. Scheme and duration of patient's treatment in the continuation phase _____
6. Write down the recipes for anti-TB drugs for treatment of the patient in intensive phase (with an indication of daily dose and frequency of reception):

Rp:_____
D.t.d.__№_____in_____
S._____

Rp:_____
D.t.d.__№_____in_____
S._____

Rp:_____
D.t.d.__№_____in_____
S._____

Rp:_____
D.t.d.__№_____in_____
S._____

Rp:_____
D.t.d.__№_____in_____
S._____

7. Pathogenetic and symptomatic therapy:_____
_____

Prescribe recipes on hepatoprotector and vitamins B1 and B6.

Rp:_____
D.t.d.__№_____in_____
S._____

Rp:_____
D.t.d.__№_____in_____
S._____

Rp:_____
D.t.d.__№_____in_____
S._____

8. Indications to surgical treatment in this patient _____

XVII.Prognosis

For recovery_____
For ability to work_____
For life_____

Disability: temporary / permanent/_____.
Recommendations about working characteristics and conditions after recovery
_____
_____

XVIII.References

_____
_____
_____
_____

Student's signature

APPLICATION

[a]Patient's complaints at admission

Particular attention should be paid to the presence of symptoms of tuberculosis intoxication (low-grade fever, weakness, excessive sweating (tendency to excessive sweating after work; permanent hyperhidrosis, night sweats, profuse sweats), decreased appetite and weight loss, irritability, tearfulness, malaise, insomnia) and symptoms of affecting of bronchi, lungs and pleura (broncho-pulmonary-pleural syndrome) - the presence of cough (duration, frequency, intensity, character - dry or with sputum, time and situations when cough appears), sputum (daily amount, consistency, color, character, smell, position of the patient contributing to the better discharge of sputum.), dyspnea (situations when it appears (especially physical activity), is it expiratory or inspiratory, asthma attacks, duration, frequency, methods of relief), chest pain (localization, intensity, situations when it appears (breathing, coughing, physical activity, body position), irradiation), pain in the throat, hoarseness, hemoptysis or bleeding (quantity, color of blood, situations when it appears (coughing, vomit, spontaneously), frequency and periodicity).

[b]Anamnesis morbi

For patients who get sick first, you need to figure out how pulmonary tuberculosis was diagnosed (in prophylactic fluorography (X-ray) inspection; handling of the patient to the doctor due to the presence of complaints, with tuberculin-diagnostic, with analysis of sputum for MBT by Ziehl-Nielsen. Indicate from which time patient feels sick, the time of first signs of the disease, acute or gradual onset of the disease. Pay attention to date of previous fluorography (x-ray) examination (before the detection of the disease); how was Mantoux test performed: annually, irregularly (for teens). It is necessary to describe anamnesis morbi briefly, but in chronological order from the time of detection of the initial symptoms of disease to the time of supervision.

For patients who suffer from chronic forms of TB, indicate when was the first pulmonary tuberculosis diagnosed (indicate form), how long was it treated, what drugs were consumed. Identify periods of exacerbation and remission, the reasons that have contributed to aggravation, how many times patient was in the hospital or sanatorium, time of treatment and its results.

Conclusion: Was the diagnosis of tuberculosis in this patient identified in time or not; note criteria of a timely diagnosis. In case of untimely detection indicate possible reasons: minor symptoms, late visit to doctor, irregular fluorography and tuberculin diagnostic, lack of TB alertness in doctor of general health service, lack of his erudition, lack of awareness of patient's parentsabout tuberculosis, neglect of patient to his health etc.

Set indications for hospitalization of the patient to hospital at this time (antimicrobial therapy, determination of the activity of tuberculous process, etc.).

[c]Epidemiological anamnesis

Identify possible source of infection of tuberculosis, to evaluate the nature of preventive measures carried out to the patient in the past, to reveal the social and other factors contributing to the the weakening of resistance of the organism.

It should be clarified: having contact with TB patients, its duration, character (family, housing, consumer, random), and date of the last systematic fluorography examination of family members, especially the elderly and alcohol abusers. If the patient is from the countryside, find out if there is in the individual farm livestock and was its tuberculin diagnostic conducted; was any milk sold.

[d]Anamnesis vitae

Set out diseases that patient had previously suffered from in chronological order with indication of date (sexually transmitted diseases, with a description of the severity and duration of illness, complications, injury, injury, surgery). Write down concomitant diseases (infectious hepatitis, stomach ulcers, diabetes, hypertension, etc.), drug intolerance. Find out whether there was a history of erythema nodosum, polyserositis, which are signs of primary pulmonary tuberculosis. Allergic history: the presence of allergic reactions in the patient, his relatives and children. Living conditions in different periods of patient's life.

It is necessary to indicate the beginning of employment, profession, its changes, working conditions, occupational injuries and harms, disability (dgoup and duration) in the employment history. Whether there has been migration from rural to urban areas, and vice versa, stay in prison. Write about nutrition (mode, frequency, variety, calories); bad habits: smoking, alcohol, drugs.

Family history and heredity: parents, brothers, sisters, children (their state of health, causes of death), marriage, pregnancy, childbirth.

Reductions in the text of educational history, except for common abbreviations, are not allowed.

1. You must hand over medical history to check no later than practice lesson №8.
2. Protection of medical history will be held on predmodule lesson (№9).

Nβ: You must use "Uniform clinical protocol of primary, secondary (specialized) and tertiary (highly specialized) medical care" while making medical history ORDER №620 of 04/09/2021

Cases of tuberculosis:

1. **New cases** - first diagnosed tuberculosis (FDTB) in patients who had never had tuberculosis, or have been treated less than 1 month with ATD. Newly diagnosed patient may have both negative and positive results of sputum microscopy and culture studies. These patients can be diagnosed tuberculosis of different localization.

2. **Re-treatment cases** - in patients previously treated with one month or more with a positive or negative bacteriological results of any localization of tuberculosis. It includes the following cases of tuberculosis:

2.1 . **Relapse of tuberculosis (RTB)** - confirmed case of tuberculosis in patient who had previously successfully completed a full course of antimycobacterial therapy and considered cured or in patient who completed the main course of treatment with the result of "treatment completed", and he re-appears bacteria. Relapse of TB are recorded only when MBT are found in sputum by microscopy, culture or molecular genetic methods (MBT+). If patient with recurrent exacerbation of tuberculosis process do not define the MBT (MBT-), this case of tuberculosis must be recorded as "another" re-treatment case.

2.2. **Treatment after interruption (TAI) -** the case when a person with TB has interrupted treatment for more than 2 consecutive months before the completion of the basic course of chemotherapy and begun treatment again. It does not matter if analysis of sputum is positive or negative.

2.3. **Treatment failure (TF)** - case of tuberculosis in patient with bacterial excretion (smear, culture) and/or negative clinical and radiological dynamic (with no other etiology of the disease), after completion of a standard intensive phase, which if necessary can be extended by central medical advisory committee to a maximum of 90 doses. Intensive phase may be extended up to 120 doses by decision of the central medical advisory committee only in patients with sensitive TB (based on drug sensitivity test from the start of treatment) if there is an objective positive dynamics (decrease of massiveness of bacterial excretion).

2. 4. 《Another》 **(ATB)** – TB patient who does not qualify for other types of patients (patients for whom there is no evidence of earlier treatment and its outcome; previously treated patients with pulmonary tuberculosis with negative sputum smear, previously untreated patients with extrapulmonary tuberculosis with negative results of bacteriological study, patients with long-term (chronic) course of TB with multiple episodes of inefficient (interrupted) history of treatment (M+).

3. **Transferred (arrived)** - the patient, who transferred from another administrative territory or from another department and registered for further treatment.

4. **Chemoresistant tuberculosis (CRTB)** - a form of TB, in which patient has MBT resistant to one or more anti-TB drugs, which is confirmed by laboratory method (drug sensitivity test). There are following types of drug resistance of MBT:

4.1 **Monoresistance** - tuberculosis in patients excreting MBT with proven in vitro resistance to one anti-TB drug of I line.

4.2 **Polyresistance** - tuberculosis in patients excreting MBT with proven in vitro resistance to more than one anti-TB drug of I line, except for simultaneous resistance to isoniazid and rifampicin.

4.3 **Multiresistance** - tuberculosis in patients excreting MBT with proven in vitro resistance to at least isoniazid and rifampicin.

4.4. **Expanded drug resistance** – MBT resistance to both isoniazid, rifampicin, and one of the two groups of anti-TB drugs of II line - aminoglycosides and fluoroquinolones.

5. **Risk of multiresistant tuberculosis**:

High:

a) contact with patients of confirmed cases MRTB

b) "The failure of treatment of Category 2 smear / culture" (if there is no other plausible reason for failure, namely, not controled treatment, inadequate dose or scheme, unreported mono - or polyresistance index of adherence of less than 80%, etc.).

c) Patients in whom as a result of molecular genetic studies resistance to rifampicin was established;

Moderate:

other cases of re-treatment, failure or interruption of the first course of treatment;

Low:

other new cases of TB.

Categories of TB patients

1 st category includes patients with newly diagnosed TB of different localizations (FDTB MBT +) as well as patients with other (severe) forms of disease of different localization without excretion of MBT (FDTB MBT (-) with miliary, disseminated TB, destructive pulmonary TB (with single cavities greater than 3 cm, or if there are 3 smaller cavities); meningitis, caseous pneumonia, pericarditis, peritonitis, TB of bowel, TB of spine with neurological complications, urogenital TB. TB of thoracic lymphatic nodes which defeats more than 2 groups. If TB morbidity in children (FDTB with MBT (+) or MBT (-)) has confirmed contact with patient with diagnosis of MRTB (high risk of MRTB), such a case is registered as 1 cat., and is treated as 4 cat. before we get data of drug sensitivity test.

If MRTB is not supported (for contact with MBT+) patients stay in their category and are transferred to the treatment of 1 cat. of transfer in Cat. 4.3 (in case of resistance, which requires treatment for more than 12 months.). If MRTB is confirmed (for patients with MBT+) patients are re-registered at 4.1. Cat., and continue treatment according to drug sensitivity test. Such cases of TB are a priority from the standpoint of rapid determination of the presence of multiresistance, therefore, they should be primarily diagnosted by MBT drug sensitivity test (culture on liquid medium, molecular-genetic methods).

2nd category includes all previously treated cases of pulmonary and extra-pulmonary TB, which is registered for re-treatment: relapse of TB with different localization and MBT+ (RTB with MBT+); treatment failure (TFTB with MBT +) and treatment after interruption with MBT+ (TAI with MBT +) other (OTB) with MBT (+/-). If patient with previously treated tuberculosis (MBT+) has high risk of MRTB (current treatment failure of 2 Cat. smear / culture) and molecular-genetic methods to determine the resistance to rifampicin are not available, such case is registered as 2 cat. before we get drug sensitivity test (at liquid media) and is treated with the standard regimen of 4 Cat. (more than 1-1,5 months.). In the absence of MRTB he stays in 2 cat., and is transferred to the treatment regimen of 2 cat., or re-registered in 4.3 Cat. (in case of polyresistance that requires treatment with a combination of anti-TB of I and II lines of more than 12 months with individual schemes). In the case of confirmation of MRTB patient is re-registered at 4.1 Cat. and continues treatment in mode of 4 Cat. According to the results of drug sensitivity test. Such cases of TB are a priority in terms of the rapid determination of the presence or absence of multiresistance so must be diagnosed by a culture method in the liquid medium and molecular-genetic methods as soon as possible.

Note: According to the WHO recommendations, to the temporary standardized treatment regimen of 4 (MRTB) Cat. are transferred patients with a high risk of MRTB (MBT+), and personalized - with culture (molecular-genetically) MRTB confirmed by the results of drug sensitivity test. In the case of establishing clinic-radiological "treatment failure" 2 cat. (i.e., in previously treated patients with recent unconfirmed cases of tuberculosis), a standardized treatment regimen of 4 (MRTB) Cat. is not assigned. In this case, we are taking all possible measures to exclude another etiology of this disease, or exclude other possible causes of failure (inadequate daily doses, violation of treatment, failure of compliance with DOT, etc.). The exception to this algorithm can be individual cases confirmed by responsible decision of the central medical-consultive commission of CRTB.

The 3rd category includes patients with new cases of tuberculosis with MBT- which are not assigned to cat. 1. In the case of FDTB MBT- with confirmed contact with patient with diagnosis MRTB (high risk MRTB) - see. algorithm of actions for similar cases in 1 cat.

The 4th includes patients with MRTB, RRTB and patients with confirmed cases of chemoresistant TB who requires treatment for more than 12 months). Because of inclusion in 4 cat. different categories of patients who receive different individualized regimens (according to MBT drug sensitivity test), or only palliative treatment, in order to ensure the correctness of the calculations of needs of II line anti-TB drugs and epidemiologic indicators of these forms of TB, 4 cat. is divided into subcategories, incl.:

• **4.1 cat.** – MRTB confirmed with MBT drug sensitivity test, incl.:

4.1.A. - (General treatment) ;

4.1.B. - (Palliative treatment) - for patients in whom treatment is not recommended (severe side effects, severe comorbidity, poor compliance, etc.).

• **4.2 . cat.** – TB wits expanded resistance confirmed by MBT sensitivity test, incl.:

4.2.A. - (General treatment);

4.2.B. (Palliative treatment) - for patients in whom treatment is not recommended (severe side effects, severe comorbidity, poor compliance, etc.).

• **4.3 . cat.** – chemoresistant TB (chronic patients whom are re-registered from cat. 1-2), require treatment for more than 12 months, incl.:

4.3.A. - (General treatment);

4.3.Б. - (Palliative treatment) - for patients in whom treatment is not recommended (severe side effects, severe comorbidity, poor compliance, etc.).

Example 1 . Patient with FDTB (01.02.08) of upper lobe of left lung (infiltrative), Destr+ , MBT + M + C + , Resist 0 , Hist 0, Cat. 1 started treatment on 02.02.08. He has not been treated before. After IF patient continued excretion of MBT. On 01.05.2008 result of drug sensitivity test of sputum (from bedinning of treatment on 1 cat.) was received. Resistance of MBT to HRS was indicated. It was recommended to re-register patient to cat. 1. You should write down: "Treatment failure" Diagnosis in registration to cat. 4: MRTB (01.05.2008) of upper lobe of left lung (infiltrative), Destr+ , MBT + M + C + , Resist I (HRS), Resist II (0), Hist 0, Cat. 4.1A (FDTB) Coh. 2 (2008). If patient's resistance change in time with confirmation of MBT drug sensitivity test (ResistI(HRS) , ResistII (OfxKm), patient will be re-registered to subcat. 4.2.A by decision of central doctor-consulting commission with change of diagnosis. Patient continues treatment on individual scheme according to MBT drug resistance test. Diagnosis after changing subcat. 4: RRTB (05.09.2008) MRTB (01.05.2008) of upper lobe of left lung (infiltrative), Destr+, MBT+, M+, C+, ResistI(HRS), ResistII (OfxKm), Hist0 , Cat 4.2.A (05.12.2008), (TF - 1 , I line), Coh 3 (2008).

Example 2. Patient with FDTB (01.02.08) of upper lobe of left lung (infiltrative), Destr + , MBT+, M+, C+, Resist 0, Cat 1 started treatment on 02.02.08 . He has not been treated before. At the beginning of 5th month of treatment he continued excreting MBT (microscopically and culturally). Drug sensitivity test was not made. Patient was re-registered to cat. 2 as treatment after failure of 1st course of chemotherapy. On 02.07.08 he started treatment in cat. 2. On 05.09.2008 result of MBT drug sensitivity test of sputum from beginning 2 cat. treatment was received. Resistance of MBT to H, R, S, Ofx, Km was indicated. It was recommended to patient to be re-registered to cat. 4.2.A. Result of cat. 2 treatment: "Treatment failure".

Diagnosis while registration to cat. 4: MRTB/RRTБ (05.09.2008) of upper lobe pf left lung (infiltrative), Destr+ , MBT+, M+, C+, ResistI(HRS), ResistII (Ofx,Km), Hist0, Cat. 4.2.A (TF - 1, I line), Coh 3 (2008). If continuing of MBT excretion indicated in 8 months of treatment or patient shows poor compliance (repeated violation of hospital treatment, treatment interruption of up to 1 month), patient will be re-registered to subcat. 4.2.B with change of diagnosis by decision of central doctor-consultive commission of CHTB. Result of cat. 4 treatment: "Treatment failure", cancel cat. 4 chemotherapy, prescribe palliative therapy. Diagnosis: MRTB/RRTB (05.09.2008) of upper lobe pf left lung (infiltrative), Destr+, MBT+, M+, C+, ResistI(HRS), ResistII (OfxKm), Hist0, Cat. 4.2.B (05.05.2009), (TF -1 , I line), Coh 3 (2008).

SCHEME OF TREATMENT

Standard schemes of treatment of patients with TB

Case	Intensive phase (Daily / or intermittent[c])	Continuation phase (Daily / or intermittent[c])
New case	2HRZE	4HR or 4 H_3R_3
Treated before	2HRZE	4HR

Note:
a – before beginning of general course of chemotherapy in patients who have been treated before, it is necessary to make cultural test (on liquid medium) and MBT drug sensitive test.
b - except TB nervous system, bones and joints.
в - intermittent chemotherapy regimen is not used in HIV-infected patients

Main strategies of MRTB patients treatment:

- Standardized treatment with subsequent transition to individualized treatment depending on the results of drug sensitivity test;
- Individual treatment according to drug sensitivity test;
- Empirical treatment with regard to the possible resistance from a known source of infection, followed by the transition to individual treatment depending on the results of drug sensitivity test (for cases of confirmed contacts with MRTB).

All patients included in the standardized treatment (high risk of MRTB) are treated with the same scheme until the results of drug sensitivity test (for a maximum of 1-1.5 months before the results of drug sensitivity test), remaining in its category.

Standard scheme of chemotherapy:

8 ZKm(Am) LfxPt(Et)Cs (Tz, PAS) / 12ZLfxPt(Et)Cs(Tz, PAS)

This standard chemotherapy regimen of 4 (MRTB) category with II line anti-TB drugs is prescribed to patients with a high risk of MRTB of cat. 1-2 (See above.) for the period until the result of the drug sensitivity test is received (up to 1-1.5 months.) and final verification of the diagnosis MRTB (RRTB), after which the patient is transferred to the individual mode of 4 cat. according to the drug sensitivity test, or (if MRTB is not confirmed) - returned to the treatment regimen within its category or transferred to a cat. 4.3. In patients with long history of tuberculosis (over 2 years) and numerous ineffective (interrupted) courses of previous treatment with I and II lines anti-TB drugs prescription of standard cat. 4 (MRTB) regime is not justified. Decision about expediency (possibility) of treatment of such patients on an individual regime is accepted by regional central medical-consultive committee of CRTB according to the results of drug sensitivity test received in the last 3 months, the degree of patient's commitment to the treatment, the severity of comorbidities and clinical prognosis.

Empirical treatment
Each treatment scheme is adjusted individually based on the drug sensitivity test of known source of infection or previous experience in treatment of this patient.

Individual treatment
Each treatment regimen is based on the previous treatment of patient and individual results of drug sensitivity test.

The dosage of I line anti-TB drugs based weight, which is used to treat patients with 1-3 and 4.3. categories

Anti-TB drugs (abbreviation)	Recommended doses for anti-TB drugs Group 1	
	daily	every other day or

			three times per week	
	mg/kg	g	mg/kg	g
Isoniazid (H)	5 (4-6)	0,3-0,45	10 (8-12)	0,6
Rifampicin (R)	10 (8-12)	0,6	10 (8-12)	0,6
Pyrazinamide (Z)	25 (20-30)	1,5-2,0	35 (30-40)	2,5-3,0
Streptomycin (S)	15 (12-18)	1,0	15 (12-18)	1,0
Ethambutol (E)	15 (15-20)	1,2-1,6	30 (25-35)	1,6-2,0

Note: it is desirable to determine individual daily dose of anti-TB drugs, based on the rate of 1 kg, for patients weighing more than 75 kg, it is desirable to.

The dosage of anti-TB drugs (according to body weight), which are used to treat patients with drug-resistant tuberculosis (mono-, poly-, multi-, extended resistance)

Drug, dose	Weight, kg			
	<33	33-50	51-70	>70 (max dose)
Group1: I line anti-TB drugs				
Isoniazid (H)	4-6 mg/kg daily or 8-12 mg 3 times per week	200-300 mg daily, 450-600 mg 3 times per week.	300 mg daily., 600 mg 3 times per week.	300 mg daily., 600 mg 3 times per week.
Rifampicin (R)	10-20 mg/kg daily.	450-600 mg	600 mg	600 mg
Ethambutol (E)	25 mg/kg daily.	800-1200 mg	1200-1600 mg	1600-2000 mg
Pyrazinamide (Z)	30-40 mg/kg daily.	1000-1750mg	1750-2000mg	2000-2500mg
Group 2: injectable anti-TB drugs				
Streptomycin (S) 1 g	15-20 mg/kg daily.	500-750 mg	1000mg	1000mg
Kanamycin (Km) 1 g	15-20 mg/kg daily.	500-750mg	1000 mg	1000 mg
Amikacin (Am) 1g	15-20 mg/kg daily.	500-750mg	1000 mg	1000 mg
Capreomycin (Cm) 1 g	15-20 mg/kg daily.	500-750mg	1000 mg	1000 mg
Group 3: fluoroquinolones				
Ofloxacin (Ofx)	15-20 mg/kg daily.	800 mg	800 mg	800-1000 mg
Levofloxacin (Lfx)	7,5-10 mg/kg daily.	500 mg	750-1000 mg	750-1000 mg
Moxifloxacin (Mfx) 400 mg	7,5-10 mg/kg daily.	400 mg	400 mg	400 mg
Gatifloxacin (Gfx) 400 mg	7,5-10 mg/kg	400 mg	400 mg	400 mg

	daily.			
Ethionamide (Et) 250 mg	15-20 mg/kg daily.	500 mg	750 mg	750-1000 mg
Prothionamide (Pt) 250 mg	15-20 mg/kg daily.	500 mg	750 mg	750-1000 mg
Cycloserine (Cs) 250 mg	15-20 mg/kg daily.	500 mg	750 mg	750-1000 mg
Terizidone (Trz) 250mg, 300mg	15-20 mg/kg daily.	500-600 mg	600-750 mg	750-900 mg
PAS 4g	150 mg/kg	8g	8g	8-12g
Thioacetazone (Th)	150 mg for adults			
Group 5: drugs with uncertain efficacy (used if necessary for patients with RRTB when there are no other possibilities for forming scheme of four anti-TB drugs groups 1-4)				
Clofazimine (Cfz)	100-300 mg for adults. Some doctors start with 300 mg and decrease dose to 100 mg in 4-6 months of treatment			
Amoxiclav (Amx/Clv)	765/125 mg twice a day or 500/125 mg three times a day.			
Clarithromycin (Clr)	500 mg for adults twice a day			
Linezolid (Lzd)	600 mg for adults twice a day			
Isoniazid in high doses	16-20 mg/kg daily. It is used only as additional fifth drug if tolerance is satisfactory			

Formation of individualized chemotherapy regimen according to the drug sensitivity test

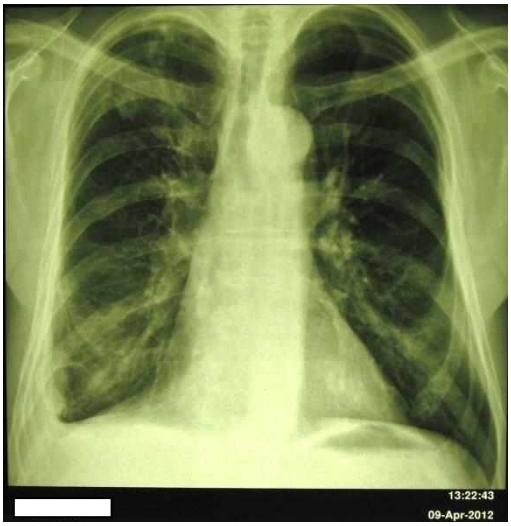
Variant of MBT drug resistance	Daily regime	Comments
HR HRS	EZ+ injectable drug + fluoroquinolone +group 1 drug 4: 8E+Z+Km(Am)+Lfx(Ofl) +Pt(or Et,Cs,Tz,Pas)+12E+Z+Lfx(Ofl)+Pt(Et,Cs,Pas)	Selection of the drug from group 4 according to individual tolerance etc.
HRSZ	EZ+injectable drug+ fluoroquinolone+1-2 drugs from group 4: 8E+Z+Km(Am)+Lfx(Ofl)+Pt(Et)+Cs(Trz,Pas)+12E+Lfx(Ofl) +Pt(Et)+Cs(Trz,Pas)	Z is used only in an intensive phase in determining resistance thereto at a liquid medium.
HRSE HRSEZ	Z+ injectable drug+ fluoroquinolone+2-3 drugs from group 4: 8Z+Km(Am)+Lfx(Ofl)+Pt(Et)+Cs(Trz)+Pas+12 Lfx(Ofl)+Pt(Et)+Cs(Trz)+Pas или Z(in case of sensitivity to Z)	Z is used only in an intensive phase in determining resistance thereto at a liquid medium.
HRSEKm HRSEZKm	Z+ injectable drug+ fluoroquinolone+2-3 drugs from group 4: 8Z+Cm+Lfx(Ofl)+Et(Pt)+Cs(Trz)+Pas+12Lfx(Ofl)+Et(Pt)+ Cs(Trz)+Pas or Z(in case of sensitivity to Z)	Z is used only in an intensive phase in determining resistance thereto at a liquid medium.
HRSEKmOfl HRSEZKmOfl	Z+ injectable drug+ fluoroquinolone+2-3 drugs from group 4+desirabely grug from group 5: 8Z+Cm+Mfx+Et(Pt)+Cs(Trz)+Pas+Cfz(Lzd)+12Mfx+Et(Pt)+ Cs(Trz)+Pas+desirabely Cfz(Lzd)	Z is used only in an intensive phase in determining resistance thereto

		at a liquid medium.

Treatment of tuberculosis in HIV-infected patients

HIV-infected patients with MRTB are treated with the same principles as GIV-negative patients, excluding use of Thioacetazone wich is CONTRINDICATED. In case when patient with co-infection TB/HIV takes II line ARV-treatment (protease inhibitors) Rifabutine must be prescribed instead of Rifampicin.

AN EXAMPLE OF A RADIOGRAPH DESCRIPTION:



A plain radiograph is presented in the direct projection of patient R., born in 1984. It is made with satisfactory technical characteristics (full coverage, optimal rigidity, clarity and contrast are observed). There are no pathologies from soft tissues and bone structures.

In C1-2 of the right lung, a rounded formation (focus) 24 mm in size of medium intensity, with a fuzzy even contour, a homogeneous structure, is determined. There is an enlightenment (window) in the focus center due to the “dry” decay cavity up to 12 mm. At the apex on the right, subpleurally and in the projection of the anterior segment, there are 3 ribs - groups of foci of different sizes and shapes, some of them (less intense) are prone to

merger.

WG Syndrome: Round Shadow

RG conclusion: The picture may correspond to C1-2 Tuberculoma of the right lung in the infiltration phase.