

MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN  
CENTER OF DEVELOPMENT OF MEDICAL EDUCATION  
ANDIZHAN MEDICAL INSTITUTE  
DEPARTMENT OF TUBERCULOSIS.

"I CONFIRM"

Vice-Rector for

D.m.n.  B.R. Abdullajanov

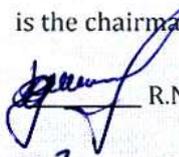
«  2021 y

№ \_\_\_\_\_ protocol « \_\_\_\_\_ » \_\_\_\_\_ 2021 y

"I CONFIRM"

Academic Affairs in Therapeutic Sciences

is the chairman of the problem board

 R.N. Yuldashev

№ 3 protocol « 19 » XI 2021 y

## Step-by-step implementation of practical skills in phthisiology

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This training manual is intended for students of 4,5,6 courses medical, medical-pedagogical and pediatric faculties, as well as for masters and clinical residents in the direction of phthisiology

The training manual was discussed at the Central Educational Commission of the ASMI and recommended for submission to the council of the institute.

" \_\_\_\_ " \_\_\_\_\_ 2021 Minutes No. \_\_\_\_\_

The training manual was approved by the council of the ASMI.

" 24 " XI 2021 Minutes No. 5

Council Secretary, Associate Professor:  N.A. Nasirdinova



**PRACTICAL TRAINING OF TUBERCULOSIS**  
**Organization of sputum in patients with suspected tuberculosis**

**Objective: Development of methods for collecting sputum from patients with suspected tuberculosis Location: a room or item sputum SVP leadscrew**

**Facilities:**

**1. protective equipment (second gown, oilcloth apron, special mask or respirator hood, disposable rubber gloves;**

**2. TB 05;**

**3. Spittoon**

**Stepping:**

| № | Activity   | No performed (0 points) | (full fat 100) points |
|---|--|-------------------------|-----------------------|
| 1 | In the primary-treated patients, a PIA or ball screws with complaints prolonged cough (more than 2-3 weeks), your GP suspects he had tuberculosis of the lungs and fills the area for sputum examination for BK (TB 05).   | 0                       | 10                    |
| 2 | Work is performed in a specially organized a PIA or ballscrew room or paragraph sputum   | 0                       | 10                    |
| 3 | sputum collection was carried out in a specially designated for this purpose a separate room (paragraph sputum), equipped with bactericidal lamps, disinfectants and ventilation. In extreme cases, sputum collection can be performed in the open air. (Ideally, the patient coughs up phlegm in a special booth set in place for the collection of sputum) | 0                       | 10                    |
| 4 | Explain to the patient the reasons for the study and the need to cough up not saliva or nasopharyngeal mucus, and the contents of the deep respiratory tract, which is achieved as a result of a productive cough that occurs after several (2 - 3), deep breaths.   | 0                       | 10                    |
| 5 | Before collecting sputum includes ventilation or opens   | 0                       | 10                    |
| 6 | medical professional in addition robe and cap should be wearing a mask, respirator, rubber gloves and rubber apron   | 0                       | 10                    |
| 7 | He should be behind the patient, choosing his position in such a way that the direction of air flow was from him - to the patient.   | 0                       | 10                    |
| 8 | The health worker should open the container for collecting sputum, take off his cap and give the patient a   | 0                       | 10                    |

|    |  |   |     |
|----|--|---|-----|
|    | bottom of the container.   |   |     |
| 9  | Upon completion of the sputum medical professional should close the container lid (or see how tightly closed it the patient) and to assess the quantity and quality of the collected sputum  | 0 | 10  |
| 10 | Container with a sufficient portion of the sputum (not than 3.5 ml), carefully close screw cap, then a container labeled and placed in special dressing box for transport to the laboratory. | 0 | 10  |
|    | Only   | 0 | 100 |

### 1-stage

In the primary-treated patients, a PIA or ball screws with complaints prolonged cough (more than 2-3 weeks, shortness of breath, coughing up blood, loss of appetite, weakness, fever, etc.) GP suspects he had tuberculosis of the lungs and fills the area to investigate Sputum BC (TB 05).

From each patient with symptoms suspicious of tuberculosis infection, microscopic examination for diagnostic purposes are sent three sputum specimens collected for 2 or 3 days (including at least two samples must be collected in a medical facility under the supervision of health care providers).



Платиковый ☺☺ transparent container sputum



Sputum collection in paragraph sputum



Sputum collection in a special booth

(TB 05)

Referral for sputum examination for BK

Name of medical учреждения \_\_\_\_\_ date \_\_\_\_\_

Name, surname больного \_\_\_\_\_

Year of Birth \_\_\_\_\_ Gender M F

Home Address (in full) \_\_\_\_\_

classification disease: pulmonary  
extrapulmonary \_\_\_\_\_

Objective: Diagnostics control chemotherapy

Identification number of samples \_\_\_\_\_

District number sick \_\_\_\_\_

Date of collection spit \_\_\_\_\_

Signature of Medical работника \_\_\_\_\_

RESULTS (for laboratory use)

Serial number of the laboratory \_\_\_\_\_

A. Type of sputum:

Mucopurulent

With blood

Saliva

B. The results of microscopy:

| Date | Sample | result | Degree of positive result<br>(Graduation) |                          |                          |                          |
|------|--------|--------|---|--------------------------|--------------------------|--------------------------|
|      | 1      |        | +++                                       | ++                       | +                        | unit KYБ                 |
|      |        |        | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|      | 2      |        | +++                                       | ++                       | +                        | unit KYБ                 |
|      |        |        | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|      | 3      |        | +++                                       | ++                       | +                        | unit KYБ                 |
|      |        |        | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

### Smear method for detecting the Office on Ziehl-Neelsen

**Objective:** The development of the method of research material (sputum, urine, pleural fluid, cerebrospinal fluid) for the presence of Mycobacterium tuberculosis.

**Location:** the lab.

**Equipment:**

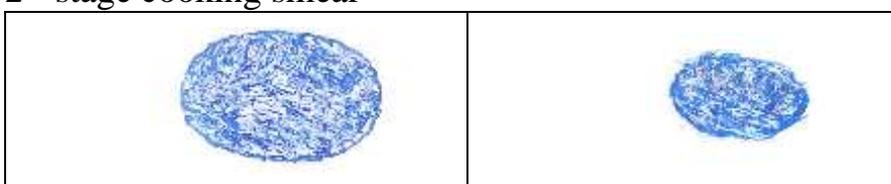
1. protective equipment (second gown, oilcloth apron, special mask or respirator hood, disposable rubber gloves;
2. TB 05;
3. Spittoon
4. slides,
5. biological loop
6. dry box
7. reagents: carbolic fuchsin 1%, 3% hydrochloric acid to alcohol (3% hydrochloric acid alcohol), 1% methylene blue, Spirit, microscope immersion oil.
8. binokularny microscope

**stepping:**

| No | Activity  | No performed (0 points) | (full fat 100) points |
|----|---|-------------------------|-----------------------|
| 1  | Work is performed in a special hood.<br>A drop of the test material (cerebrospinal, pleural fluid, urine, feces, sputum, etc.) is applied to a glass slide and spread on it a thin layer of metal mesh or wooden stick. | 0                       | 10                    |
| 2  | Smear is dried at room temperature until dry.   | 0                       | 10                    |
| 3  | Fix the smear 2-3 times over the burner flame.  | 0                       | 10                    |
| 4  | A fixed smear put a piece of filter paper no bigger than the size of the slide, poured onto paper 1% carbolic fuchsin and gently heat it on the burner until the first vapors.  | 0                       | 10                    |
| 5  | Allow to stand 5 minutes preparation.   | 0                       | 10                    |
| 6  | Remove the paper from the fuchsin, rinsed with water preparation.   | 0                       | 10                    |
| 7  | Decolorized smear 3% hydrochloric acid alcohol 3 minutes.   | 0                       | 10                    |
| 8  | Thoroughly washed with water preparation.   | 0                       | 10                    |
| 9  | Stained smear in 3-5 minutes with an aqueous solution of 1% methylene blue, 1 min.  | 0                       | 10                    |
| 10 | Painted Ziehl-Neelsen smears microcomputer immersion oil. Office represented by red sticks on a blue background. 100 fields of view can be seen and counted Office.   | 0                       | 10                    |
|    | Only  | 0                       | 100                   |



Biological safety cabinet  
2 - stage cooking smear



Good quality

Good quality

3 fixing smear



4.-5 stage staining smear carbol fuchsin



Method of heating products with 6 stage Flushing paint residues from drugs ready torch burner low water flow which can be used instead alcohol burner for heating products carbol fuchsin staining).

7-8-stage bleaching stage washing with water



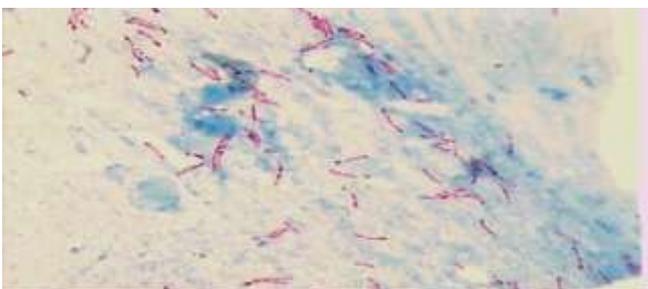
9-step application of methylene blue rinse water



Drying smear 10-step smear microscopy



on a blue background visible red MBT



***Graduation from microscopic studies.***

| <b><i>The number of sticks</i></b> | <b><i>Field</i></b>   | <b><i>Result</i></b>   |
|------------------------------------|-----------------------|--|
| <i>No</i>                          | <i>For 300 fields</i> | <i>Negative AFB were detected in 300 fields of view</i>                            |
| <i>1 – 2</i>                       | <i>For 300 fields</i> | <i>The result is not evaluated (must explore another portion of sputum)</i>        |
| <i>1 - 9</i>                       | <i>For 100 fields</i> | <i>Yes, state the exact number of AFB detected in 100 fields</i>                   |
| <i>10 – 99</i>                     | <i>For 100 fields</i> | <i>Positive, 1 +, (10 to 99 AFB per 100 fields of view)</i>                        |
| <i>1 – 10</i>                      | <i>In Sight</i>       | <i>Positive, 2 +, (1-10 AFB in one field of view in 50 fields of view)</i>         |
| <i>more 10</i>                     | <i>In Sight</i>       | <i>Positive, 3 +, (more than 10 AFB in one field of view in 20 fields of view)</i> |

**Palpation of lymph nodes**

**Objective: Development of palpation of peripheral lymph nodes**

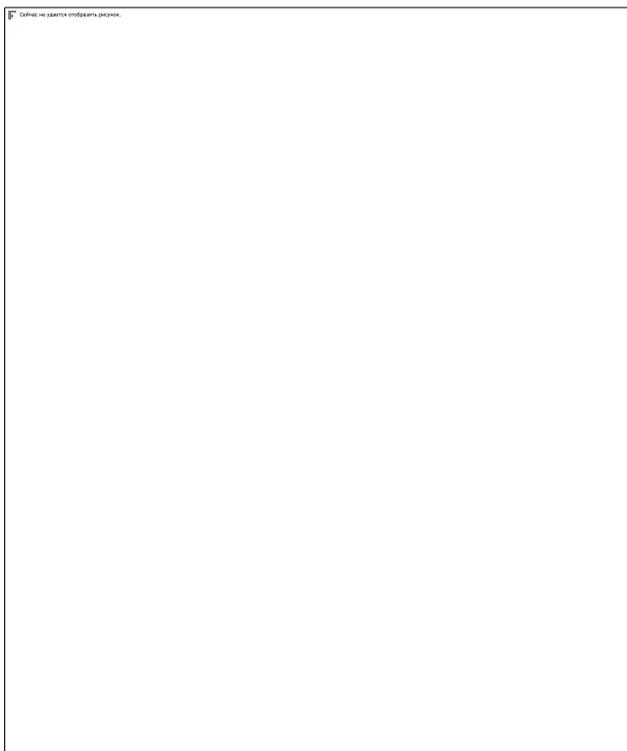
**Venue: Department of Child and Adolescent**

**Equipment: study patients**

**stepping:**

| <b>No</b> | <b>Activity</b>  | <b>No performed (0 points)</b> | <b>(full fat 100) points</b> |
|-----------|--|--------------------------------|------------------------------|
| 1         | Inspection: You can catch the sharp increase in the lymph node, skin and subcutaneous fat  | 0                              | 10                           |
| 2         | Conducting lymph node palpation  | 0                              | 10                           |
| 3         | Sizing the lymph nodes   | 0                              | 10                           |
| 4         | Millet (I measure), corn (II size), pea (III size), beans (IV size), walnut (V size), pigeon egg (VI size)<br>Lymphadenopathy symmetric widespread or isolated | 0                              | 10                           |

|    |  |   |     |
|----|--|---|-----|
| 5  | Determination of the number: no more than three of palpable lymph nodes in the group - single, more than three-to-set  | 0 | 10  |
| 6  | Determination consistence; soft, supple, dense, sometimes as "stone." Acute within lymph nodes, soft, dense chronic  | 0 | 10  |
| 7  | Definition of mobility   | 0 | 10  |
| 8  | Relation to the skin, subcutaneous fat, and each   | 0 | 10  |
| 9  | Determine the sensitivity and pain   | 0 | 10  |
| 10 | Palpation of symmetric groups of lymph nodes produced simultaneously with both hands. In healthy children can be palpated to three groups of lymph nodes (scheyne, axillary, inguinal). Normally not palpable chin, cash-and submandibular, thoracic, kubitalnye and popliteal nodes. Lymph node status is normal, if smaller than a pea, single, soft-elastic consistency, mobile, not soldered to the skin and to each other, painless | 0 | 10  |
|    | Only   | 0 | 100 |



### **Cervical lymph nodes**

**1.zatylochnye located on the hills of the occipital bone, collect lymph from the skin of the scalp and back of the neck**

**2. sostsevidnye** located behind the ears in the mastoid and parotid localized front ear parotid gland, lymph collects in the middle ear, with the skin surrounding the ear, ears and ear canal

**3. submandibular**, located under the branches of the lower jaw; collect lymph from the skin and mucous membranes lia gums.

**4. chin**, collect lymph from the skin of the lower lip, gums and mucous membranes of the lower incisors

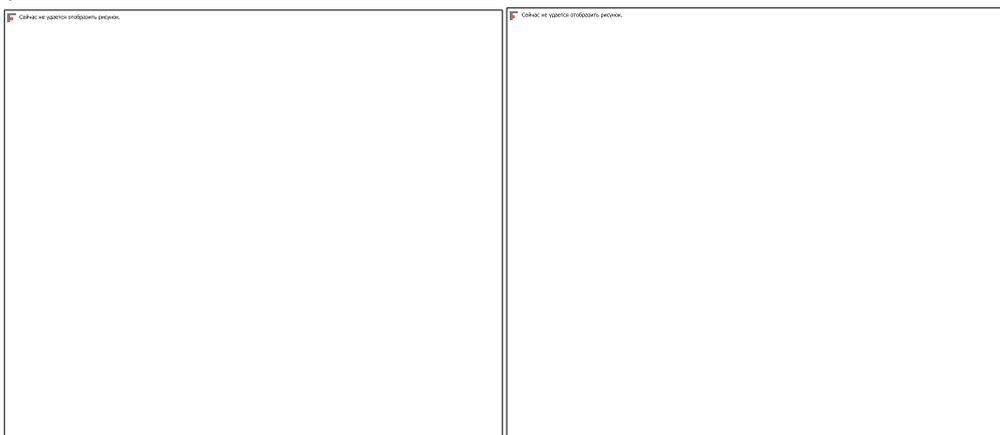
**5. front neck** located anterior to the m sternocleidomastoideus, front neck in the upper cervical triangle; collect lymph from the skin of the person from the parotid gland, the mucous membranes of the nose, throat and mouth.

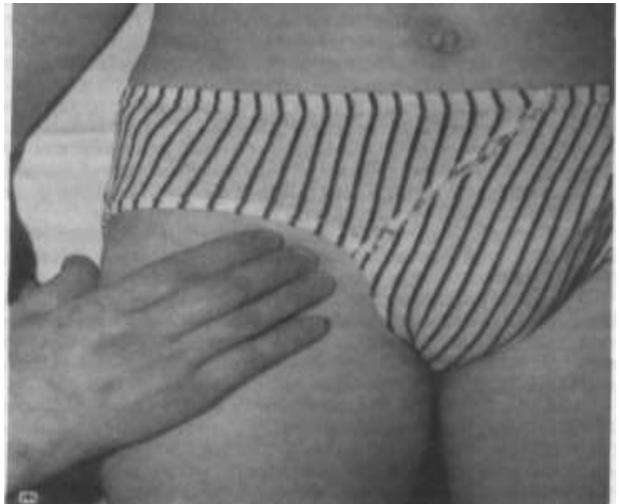
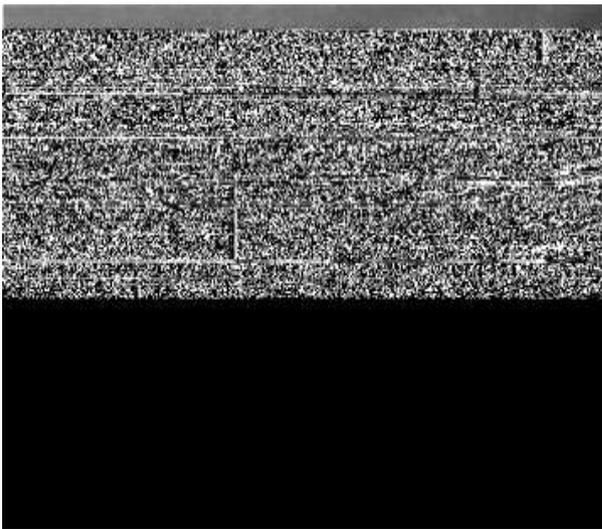
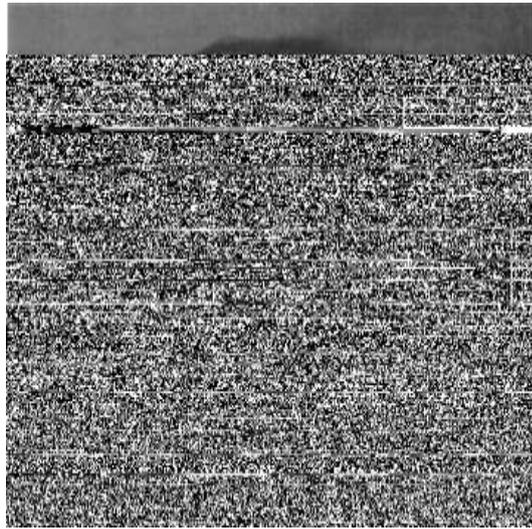
**6. rear neck** located on the rear edge of the front and m sternocleidomastoideus trapezoid muscle, mainly in the lower cervical triangle.

**7. supraclavicular**, located in the supraclavicular fossae

**8. subclavian**, located in the infraclavicular region, collects lymph from the skin of the chest and pleural

**9. axillary**, located in the armpits





**Palpation of peripheral lymph nodes.**  
**a- submaxillary b-anterior cervical c - posterior cervical, supraclavicular Mr.**  
**and e-subclavian, cubital, g-inguinal**

## **Tuberculosis of peripheral lymph nodes**



**Complication of tuberculosis of peripheral lymph nodes, fistula formation**

### **Tuberculin.**

**Statement of the Mantoux test (R Mantoux 2 TE)**

**Objective: The development of the method for determining infection, immune status and for diagnosis and differential diagnosis.**

**Location: manipulation. Status: patient sitting.**

**Equipment: tuberculin syringe, standard solution of PPD-L 2 TE, alcohol, cotton, transparent ruler.**

**Performed by the steps of:**

| №  | Activity   | No performed (0 points) | (full fat 100) points |
|----|--|-------------------------|-----------------------|
| 1  | Patient sit in a chair.  | 0                       | 10                    |
| 2  | In tuberculin syringe type 0.2 ml of standard solution of PPD-L.   | 0                       | 10                    |
| 3  | Through the needle with air bubbles to release 0.1 ml.   | 0                       | 10                    |
| 4  | On the skin of the forearm must select a site, the least rich in blood vessels, which corresponds to the inner surface of the middle third of the forearm. | 0                       | 10                    |
| 5  | Process 70% alcohol this site.   | 0                       | 10                    |
| 6  | With his left hand to pull the skin on the forearm slightly, and the right to take the syringe.  | 0                       | 10                    |
| 7  | Needle into the skin type of cut up, holding the syringe as parallel to the arm, and type in / to 0.1 ml tuberculin.                                       | 0                       | 10                    |
| 8  | Tuberculin should enter slowly to avoid separation of layers of the epidermis. With the right introduction formed lemon crust.                             | 0                       | 10                    |
| 9  | Injection site re not handle alcohol.  | 0                       | 10                    |
| 10 | The sample was evaluated after 72 hours.   | 0                       | 10                    |
|    | Only   | 0                       | 100                   |



## Machinery production Mantoux test

In tuberculin syringe type 0.2 ml of standard solution of PPD-L.

Through the needle with air bubbles to release 0.1 ml.

On the skin of the forearm select a site, the least abundant vessels, which corresponds to the inner surface of the middle third of the forearm.

Process 70% alcohol this site.

With his left hand to pull the skin on the forearm slightly, and the right to take the syringe.

Needle into the skin type of cut up, holding the syringe as parallel to the arm, and type in / to 0.1 ml tuberculin.

Tuberculin should enter slowly to avoid separation of layers of the epidermis. With the right introduction formed lemon crust.

The sample was evaluated after 72 hours.

Test lies in the emergence of cellular infiltrate - papules, which measures the transverse dimension transparent ruler.

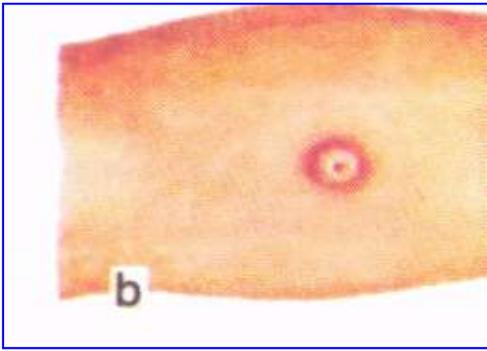
Negative reaction - papule 0-2 mm;



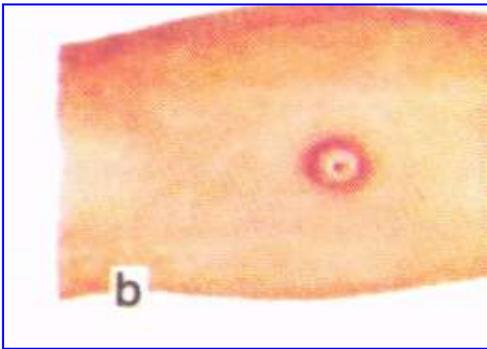
Doubtful reaction - papule 2-4 mm or redness of any size;



Positive reaction - a papule 5 mm or more



- Hyperergic more than 17 mm in children and more than 21 mm in adults.



TB patient counseling  
Purpose: To teach the students ability to make contact with a tuberculosis patient, methods of ethics.

Poshpgovoe☺☺ execution stages

| № | Activity   | No performed (0 points) | (full fat 100) points |
|---|--|-------------------------|-----------------------|
| 1 | Say hello to the patient respectfully and kindly, ask the location was convenient. Take a look at the patient when talking to him.   | 0                       | 5                     |
| 2 | Introduce patient  | 0                       | 5                     |
| 3 | Find out the reason for treatment<br>- Availability of complaints<br>- Contact with TB<br>- Routine inspection   | 0                       | 10                    |
| 4 | Gather history. Help patients to talk about their needs and doubts, concerning health.<br>• name;<br>• age;<br>• marital status;<br>• the complaint;<br>• hereditary diseases;<br>• illness in the family;<br>• disease;<br>• Availability of bad habits;<br>• for women - the last pregnancy and childbirth;<br>• the duration of the disease and its course;<br>• contacts with TB patients. | 0                       | 20                    |
| 5 | Explain that the information you need to help you choose the method of research, while ensuring confidentiality.   | 0                       | 10                    |
| 6 | Clinical examination of the patient:<br>physical examination;<br>palpation;<br>percussion;<br>auscultation.  | 0                       | 20                    |
| 7 | Select additional methods indicated:<br>• direct microscopic study of pathological material;<br>• флюорографическое;<br>• реакция Mantoux;<br>• full blood and urine.  | 0                       | 10                    |

|    |   |   |     |
|----|---|---|-----|
| 8  | Let the patient existing methods of investigation of the disease briefly, explaining his choice.  | 0 | 5   |
| 9  | Spend instructing the patient on a particular method of research, which ball is selected for a particular patient.<br>Tell:<br><ul style="list-style-type: none"> <li>• where and how the information will be collected sputum;</li> <li>• the quantity of sputum samples must pass;</li> <li>• sputum collection should be monitored by health professionals.</li> </ul> | 0 | 10  |
| 10 | Ask the patient to repeat the instructions to ensure proper processing of information. Politely say goodbye to the patient and assign the next visit  |   | 5   |
|    | Only  | 0 | 100 |

### **Vaccination and revaccination**

**Purpose: To capture the special method of prevention in order to create artificial immunity**

**Location: manipulation.**

**The patient: a sitting.**

**Equipment: syringes, cotton, alcohol, 1 mg. dried BCG vaccine in capsules, phys. solution (0,9% Na Cl) in 2 ml ampoules.**

#### **Stepping through the stages:**

| № | Activity  | No performed (0 points) | (full fat 100) points |
|---|---|-------------------------|-----------------------|
| 1 | Vials with BCG and saline. solution to process wool moistened with ethyl alcohol 70 °   | 0                       | 10                    |
| 2 | In 1x gram syringe type 2 ml of normal saline and diluted BCG to homogenous   | 0                       | 10                    |
| 3 | In tuberculin syringe type of vials of reconstituted vaccine 0.1 ml. BCG at a dose of 0.05 mg to release one drop of a needle | 0                       | 20                    |
| 4 | Treat alcohol outside surface area on the border of the upper and middle thirds of the left shoulder                          | 0                       | 10                    |
| 5 | Intradermally at 45 degrees to introduce 0.1 ml of BCG to form papules  | 0                       | 20                    |

|   |  |   |     |
|---|--|---|-----|
| 6 | With the right technique at the injection site papule formed whitish, with a diameter of 5-6 mm disappears after 15-20 minutes | 0 | 20  |
| 7 | After the introduction of the vaccine injection site with alcohol does not handle  | 0 | 10  |
|   | Only   | 0 | 100 |



In 1x gram syringe type 2 ml of normal saline and diluted BCG to homogenous In tuberculin syringe type of vials of reconstituted vaccine 0.1 ml. BCG at a dose of 0.05 mg 0.1 ml of release through the needle. Treat alcohol area on the outer surface of upper and middle third of the left shoulder. Intradermally at 45 degrees to introduce 0.1 ml of BCG to form papules. With the right technique at the injection site papule formed whitish, with a diameter of 5-6 mm disappears after 15-20 minutes

Observation of local reactions after vaccination



After 2-3 weeks of vaccination Paulsen emerge papule 4-6 mm



By the end of six weeks there vesicle

Sore



Rib

## Complications of BCG



**Nonhealing ulcers**



**Keloid scar**



**Regional lymphadenitis**

**Methods of differentiated description of radiological changes in the lungs.**

**Purpose: To describe the development of the X-ray method for the purpose of posting differential diagnosis.**

**Equipment: X-ray view box, fluoroscopy, x-ray, tomography, fluorogram.**

**Stepping through the stages**

| No  | Activity   | No performed (0 points) | (full fat 100) points |
|-----|--|-------------------------|-----------------------|
| I   | <b>Passport part: name, age, date (day, month, year), X-ray image which body</b>   | 0                       | 5                     |
| II  | <b>Specifications:</b><br>- The quality of the picture<br>- Installation of a patient<br>- Stiffness picture   | 0                       | 5                     |
| III | <b>Review of the chest:</b><br>- Form (normal, deformed, intercostal spaces;<br>- Normal rib cartilage ossification<br>- The presence of callus  | 0                       | 5                     |
| IV  | 1 <b>Lungs</b><br>- Pulmonary drawing: force depleted, deformed<br>- Lung fields: increasing transparency, reducing the transparency<br>-Localization of lesions:<br>• the shares and segments • respectively ribs<br>• the fields and areas of light  | 0                       | 10                    |
|     | 2 - The nature of the defeat:<br>• focal shadow (melkie1-3 mm, average 3-6 mm, 6-12 mm large)<br>• limited focal blackout (1 to 5 cm)<br>• widespread blackout (polisegmentary, equity, total lung)<br>• disseminated disease (focal shadows on long sections, unilateral, bilateral, symmetrical, asymmetrical) | 0                       | 10                    |
|     | 3 - The number of shadows:<br>• unit<br>• Group<br>• Multiple<br>- The form of shadows:<br>round, oval, triangular, linear, irregular, polygonal<br>- The size of the shadow:  | 0                       | 10                    |

|    |  |   |    |
|----|--|---|----|
|    | <ul style="list-style-type: none"> <li>• patchy shade (small, medium, large)</li> <li>• For round and rings - the diameter in cm, the largest and smallest</li> </ul>  |   |    |
| 4  | <p>- The intensity of the shadows:</p> <ul style="list-style-type: none"> <li>• Low - matches the shade of a longitudinal cross section of vessels;</li> <li>• Average - the cross-section corresponds to the shadow vessels;</li> <li>• Intensity - compared with cortical edge.</li> </ul>   | 0 | 10 |
| 5  | <p>- The structure of the shadows:</p> <ul style="list-style-type: none"> <li>• homogeneous</li> <li>• inhomogeneous</li> </ul>  | 0 | 10 |
| 6  | <p><b>-Contours of the shadows:</b></p> <ul style="list-style-type: none"> <li>• clear</li> <li>• fuzzy</li> <li>• straight</li> <li>• uneven</li> </ul>   | 0 | 10 |
| 7  | <p><b>Path to the root:</b></p> <ul style="list-style-type: none"> <li>• in the form of strengthening lung pattern</li> <li>• «sculpted" track</li> <li>• the zone of infiltration</li> </ul> <p><b>The roots of the lungs:</b></p> <ul style="list-style-type: none"> <li>• Localization between II - IV ribs</li> <li>• the form in the form of a half moon</li> <li>• clear outlines, blurred</li> <li>• Structure: deformed structure, compacted</li> <li>• Size: expanded, restricted, removed, compacted</li> <li>• width of the root: children 0.5 - 1 cm in women 1.0 - 1.5 cm, males 1.5 -2.5 cm</li> </ul> | 0 | 10 |
| V  | <p><b>Mediastinal organs:</b></p> <ul style="list-style-type: none"> <li>• median shadow looks like an oval</li> <li>• formed shadows of the heart and great vessels</li> <li>• right: the right half of the atrium, the ascending aortic arch</li> <li>• Left: the descending part of the aortic arch, cone pulmonary artery, left atrium and left ventricle</li> <li>• median shadow: normal configuration, "sitting ducks", "sock", "chimney"</li> <li>• displaced, not displaced, expanded</li> </ul>  | 0 | 5  |
| VI | <p><b>Changes in the pleura:</b></p> <ul style="list-style-type: none"> <li>• shading (diffuse, planar, linear)</li> <li>• strain localization, seals</li> </ul>   | 0 | 5  |

|         |  |   |   |     |
|---------|--|---|---|-----|
|         |  | <ul style="list-style-type: none"> <li>• Expansion of the restriction of lung fields</li> <li>• pleural sinuses: costophrenic sinus - right corner of the 90 and 60 - 70 - on the left</li> </ul>   |   |     |
| VI<br>I |  | <b>Changing the aperture:</b> <ul style="list-style-type: none"> <li>• Form</li> <li>• height (normally on the right front edge of the VI, VII left edge)</li> <li>• flattening of the diaphragm</li> <li>• contours</li> <li>• offset (elevated, omitted)</li> </ul> | 0 | 5   |
|         |  | Only  | 0 | 100 |

### Pleural puncture

**Objective: Development of a method puncture in the diagnostic and therapeutic purposes. As defined by the presence of punctate Office, the liquid composition (protein, cell count, blood sugar, chlorides, etc.)**

**Location: manipulative study**

**The patient: on the puncture the patient sits in a chair, facing the back, with his arms folded, leaning on a few healthy side.**

**Doctor position: sitting on a chair behind the patient.**

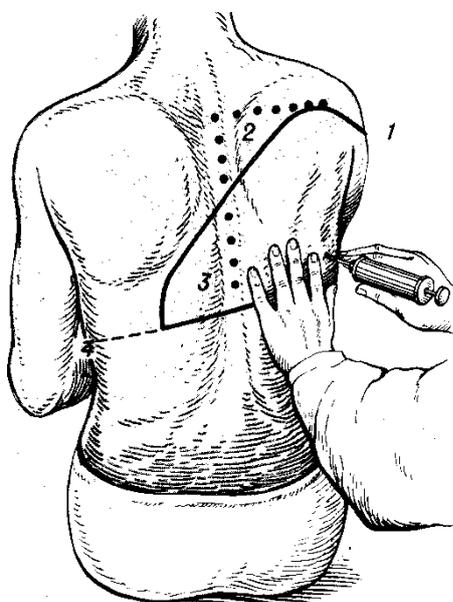
**Equipment: fine needle block anesthesia and aspiration of different size syringes, 20ml., Tee, iodine, alcohol, bandages, novocaine solution 0.5%, sterile tubes Potena apparatus (electric pumps).**

**Execution stages:**

| № | Activity  | No performed (0 points) | (full fat 100) points |
|---|---|-------------------------|-----------------------|
| 1 | Determine the puncture on the results of percussion, palpation, auscultation, radiographic. Pleural puncture is done in a most deadened sound and largest blackout on radiographic data. auscultation: respiratory depression | 0                       | 10                    |
| 2 | Puncture produced by posterior axillary line, usually in VII or VIII intercostal space at the top of the underlying ribs, as on the bottom are the intercostal vessels.   | 0                       | 10                    |
| 3 | Puncture site and the surgeon's hand is treated with an alcoholic solution of iodine and then alcohol.  | 0                       | 10                    |
| 4 | Anesthesia: local explorer 0.5% novocaine solution, 10 ml. For its implementation should be taken with a syringe needle, dial procaine 0.5% 10  | 0                       | 10                    |

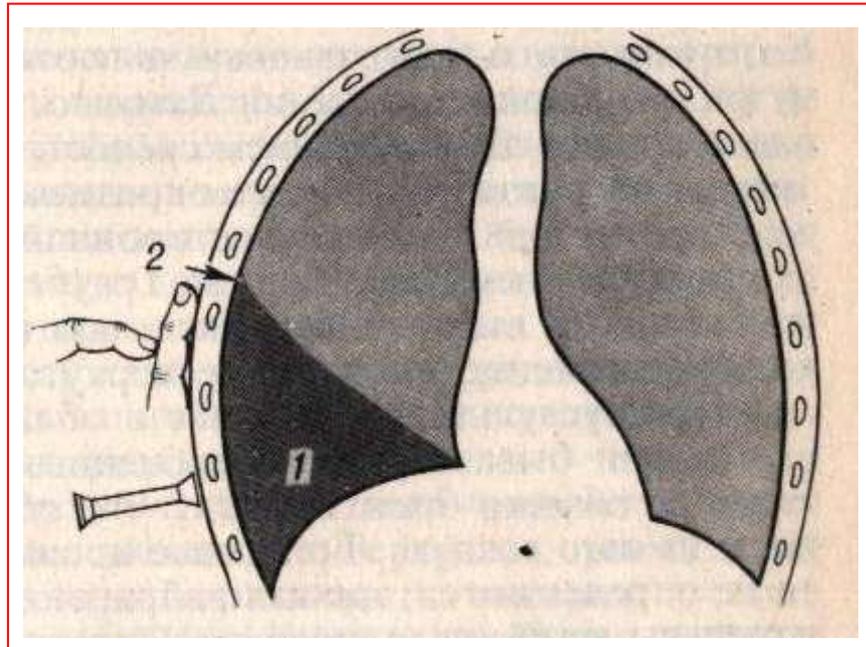
|    |   |   |     |
|----|---|---|-----|
|    | ml and make a puncture.   |   |     |
| 5  | At the time we reach the pleural puncture the leaf and along the needle enter the Novocain, layers infiltrating the skin, subcutaneous tissue, muscles, pleura  | 0 | 10  |
| 6  | Then take out the syringe, change the needle on a larger diameter tee attach to the syringe, open the tee and re-enter at the same place the needle into the pleural space to the feeling of failure. Always a syringe cannula tee must be sterile drape. | 0 | 10  |
| 7  | Pulling the piston itself, check for needle into the pleural cavity.  | 0 | 10  |
| 8  | 1st portion of the pleural fluid is taken in a sterile tube and sent to the laboratory for investigation.   | 0 | 10  |
| 9  | The liquid is then pumped with a syringe or electric pumps. At one time is not recommended suctioning 1000-1500ml of liquid. At the first sign of dizziness, increased heart rate, pumping fluid to be terminated.  | 0 | 10  |
| 10 | After pumping the liquid to remove the syringe, locking the door with the tee. At the puncture impose aseptic bandage   | 0 | 10  |
|    | Only  | 0 | 100 |

### Pleurocentesis



1 - line Damuazo 2 - Triangle Gorlyandai 3 - Triangle Rauhfuß Grokka i;

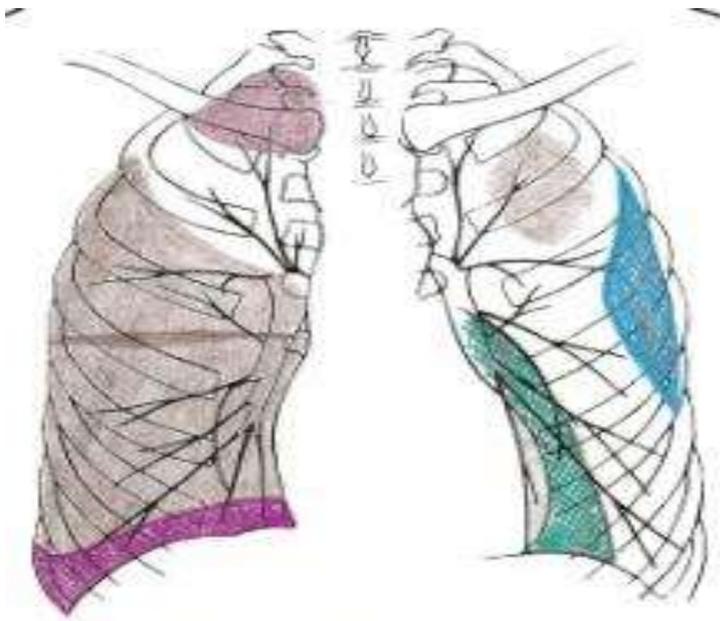
## Scheme of percussion and auscultation signs of exudative pleurisy



1 - exudate, 2 - line Damuazo.

above the fluid percussion sound is muted, auscultation weakening or absence of breath sounds

arrangement of the liquid



1 apical, 2-Costa phrenic 3 - interlobar 4 - basal;

5 - encysted 6 - paramedistalny

## Overlay technique pneumoperitoneum

Objective: Development of methods for creating artificial collapse of lung tissue for therapeutic purposes, as well as for differential diagnosis.

Location: The treatment room is equipped with a daybed.

The patient's position: lying on his back.

Position of the doctor: the right of the patient.

Equipment: Kachkacheva machine, needle stylet, alcohol, cotton wool.

### Execution phases:

| № | Activity  | No performed (0 points) | (full fat 100) points |
|---|---|-------------------------|-----------------------|
| 1 | Preparation of the patient: podduvanie to do after 3-4 hours after breakfast. The patient must have previously empty the bladder.   | 0                       | 10                    |
| 2 | pneumotaxis system unit should be alerted to the introduction of gas under moderate positive pressure.  | 0                       | 10                    |
| 3 | Place the needle: the outer edge of the left rectus abdominis muscle by 2-3 cross fingers downward and to the left of the navel   | 0                       | 10                    |
| 4 | The puncture treated with alcohol.  | 0                       | 10                    |
| 5 | Maintain needle stylet.   | 0                       | 10                    |
| 6 | Making sure that the needle is properly attached at the tip of the tube and start the machine Kachkacheva inject gas (air or oxygen).   | 0                       | 10                    |
| 7 | Technically correct air found percussion tambourines and disappearance of liver dullness.   | 0                       | 10                    |
| 8 | The patient rises slowly, turning to the right and slowly rises to contain air under the diaphragm. Can be a pain in the shoulder girdle, a little shortness of breath, which quickly disappear (irritation of the phrenic nerve).<br>After the end of injection of the needle is removed. The puncture smeared with alcohol.<br>First start of 300-500 ml of air, and then every 7 days 600-1000 ml, the procedure is combined with chemotherapy. The duration of the meeting is the clinical form and depends on the indications for pneumoperitoneum | 0                       | 10                    |
| 9 | The patient rises slowly, turning to the right and slowly rises to contain air under the diaphragm. Can be  | 0                       | 10                    |

|    |  |   |     |
|----|--|---|-----|
|    | <p>a pain in the shoulder girdle, a little shortness of breath, which quickly disappear (irritation of the phrenic nerve).</p> <p>After the end of injection of the needle is removed. The puncture smeared with alcohol.</p> <p>First start of 300-500 ml of air, and then every 7 days 600-1000 ml, the procedure is combined with chemotherapy. The duration of the meeting is the clinical form and depends on the indications for pneumoperitoneum</p>  |   |     |
| 10 | <p>The patient rises slowly, turning to the right and slowly rises to contain air under the diaphragm. Can be a pain in the shoulder girdle, a little shortness of breath, which quickly disappear (irritation of the phrenic nerve).</p> <p>After the end of injection of the needle is removed. The puncture smeared with alcohol.</p> <p>First start of 300-500 ml of air, and then every 7 days 600-1000 ml, the procedure is combined with chemotherapy. The duration of the meeting is the clinical form and depends on the indications for pneumoperitoneum</p> | 0 | 10  |
|    | Only   | 0 | 100 |

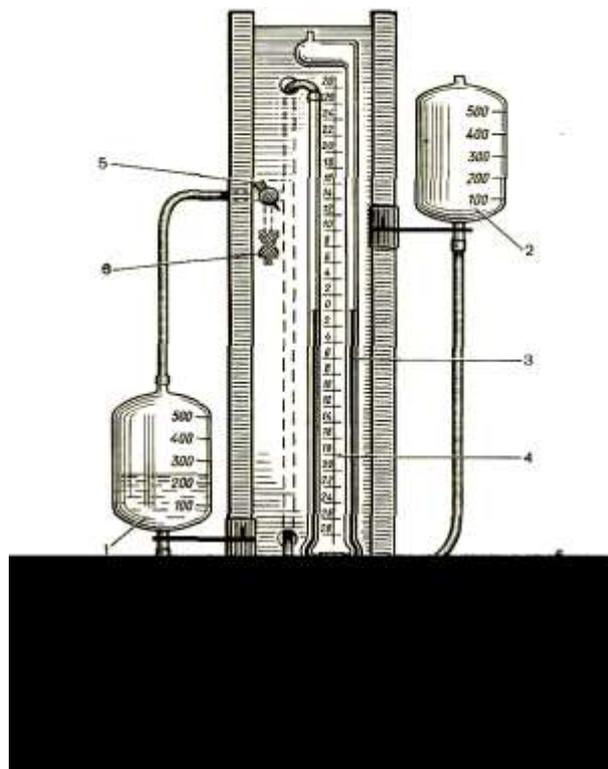
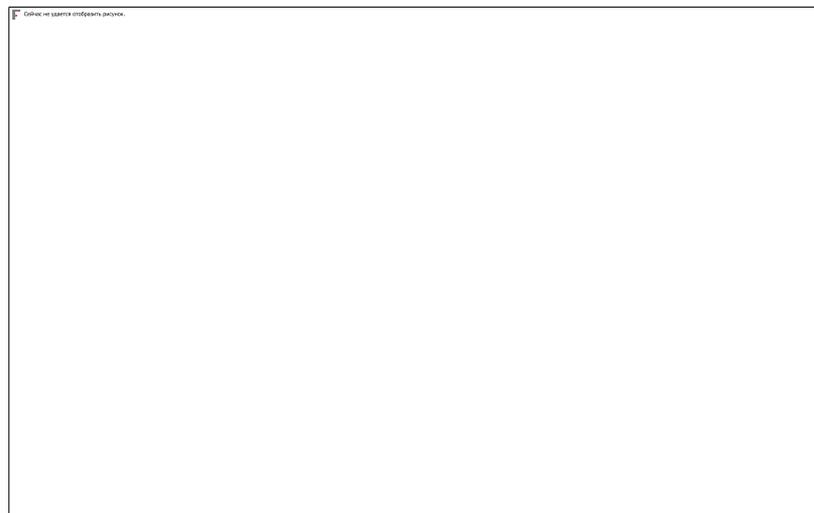


Diagram of apparatus for artificial pneumothorax and pnevmoperetoneuma  
1,2-gasometers, 3-gauge, 4 - Scale indicators gauge;  
5 - Transition cock 6 - filter to purify the air, and 7 - (needle injection  
vozzhuha

Testimony to the imposition pnevmoperetoneuma:

- the location of the cavity in the lower regions of the lungs (in disseminated, infiltrativnom, cavernous tuberculosis and disintegrated tuberculoma);
  - pulmonary hemorrhage;
  - low efficiency of treatment, due to the presence of drug resistance
- pneumothorax system unit should be alerted to the introduction of gas under moderate positive pressure. Place the needle: the outer edge of the left rectus abdominis muscle by 2-3 cross fingers downward and to the left of the navel. The puncture treated with alcohol. Insert the needle with stylet. Making sure that the needle is properly attached at the tip of the tube and start the machine Kachkacheva inject gas (air or oxygen). Technically correct air found percussion tambourines and disappearance of liver dullness. After the end of injection of the needle is removed. Puncture site with alcohol lubricated.



### **Overlay technique of artificial pneumothorax**

**Objective: Development of a method of creating an artificial collapse of lung tissue for therapeutic purposes, as well as to stop the bleeding**

**Location: The treatment room is equipped with a daybed.**

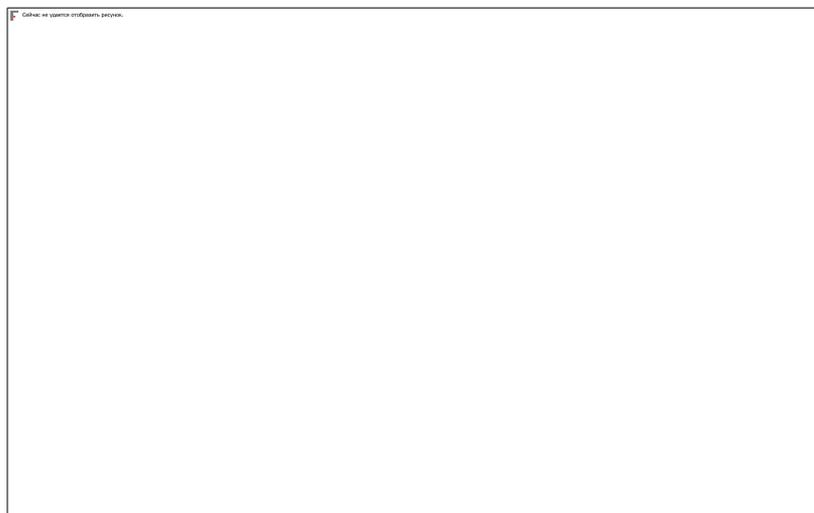
**The patient's position: lying on the healthy side.**

**Position of the doctor: the right of the patient.**

**Equipment: Kachkacheva machine, needle stylet, alcohol, cotton wool.**

**Execution phases:**

| №  | Activity  | No performed (0 points) | (full fat 100) points |
|----|---|-------------------------|-----------------------|
| 1  | Preparation of the patient: the patient lies on the healthy side, the arm is bent at the elbow, and is on the head  | 0                       | 10                    |
| 2  | pneumothorax system unit should be alerted to the introduction of gas under negative performance gauge.   | 0                       | 10                    |
| 3  | Place the needle: the axillary line in the IV-VI merebere   | 0                       | 10                    |
| 4  | The puncture treated with alcohol.  | 0                       | 10                    |
| 5  | Maintain the needle cannula mounted on a machine.   | 0                       | 10                    |
| 6  | Making sure that the needle is properly gauge performance -8 - 12 starts inject gas (air or oxygen).  | 0                       | 10                    |
| 7  | Technically correct air found percussion tympanitis   | 0                       | 10                    |
| 8  | After the end of injection of the needle is removed. The puncture smeared with alcohol.   | 0                       | 10                    |
| 9  | The patient rises slowly  | 0                       | 10                    |
| 10 | First start 200 - 300 ml of air, and every 7 days for 300-400 ml, the volume of light to be biased at 1/3 of the procedure is combined with chemotherapy. The duration of the meeting is the clinical form and depends on the indications for pneumothorax. | 0                       | 10                    |
|    | Only  | 0                       | 100                   |



The patient on the healthy side, the arm is bent at the elbow and in the head. Puncture of the chest performed on axillary line in the IV-VI merebere. After popadpniya into the pleural cavity is normal negative pressure (- 8, -12 during breathing vibration gauge change), with the primary application of artificial pneumothorax introduced 200 - 300 ml of air through the day, air is introduced, and then 5-7 days after Chaz control the amount of gas ( degree podzhptiya lung) produced repeated insufflation time. The volume of the lungs must be podzhpto to third.

#### Lumbar puncture technique

Objective: Development of a method for spinal punctio diagnosis and differential diagnosis

Location: The treatment room is equipped with a daybed.

The patient's position: lying on its side.

Position of the doctor: behind the patient.

Equipment: a needle with stylet, alcohol, cotton wool, tampons stirilnye, plaster.

Stepping through the stages:

| № | Activity   | No performed (0 points) | (full fat 100) points |
|---|--|-------------------------|-----------------------|
| 1 | Preparation of the patient: the patient lies on his side, his legs pulled up to his stomach, chin as close to the chest. | 0                       | 10                    |
| 2 | puncture should be performed in 3 - 4 5 silt that the intervertebral space of the lumbar vertebrae.                      | 0                       | 10                    |

|    |  |   |     |
|----|--|---|-----|
| 3  | Puncture point is determined by the intersection of a line connecting the iliac crest and lumbar vertebrae. Anatomically, this point corresponds to the edge of IV lumbar vertebra.  | 0 | 10  |
| 4  | Fine needle puncture is 9cm long with well-fitted stylet (needle Bier).  | 0 | 10  |
| 5  | The puncture treated with iodine alcohol. feel for the intervertebral space between the spinous processes  | 0 | 10  |
| 6  | The needle is inserted under the spinous processes, after skin puncture needle is piercing the interspinous ligament gradually to a depth of 5 - 10 cm, after piercing the dura mater, the arm feels a sense of "failure". | 0 | 10  |
| 7  | Then removed mandrin and cerebrospinal fluid flows from the needle   | 0 | 10  |
| 8  | For research into the tube gaining 5.10 cm <sup>3</sup> cerebrospinal fluid.   | 0 | 10  |
| 9  | After completing the spinal puncture is applied to the puncture pad and sealed with tape.  | 0 | 10  |
| 10 | Within a few hours, the patient is in a position with reduced head   | 0 | 10  |
|    | Only   | 0 | 100 |



Position of the patient on his side, his legs tucked up to her stomach as the chin is to the chest, a puncture should be performed in 3 - 4 5 silt that the

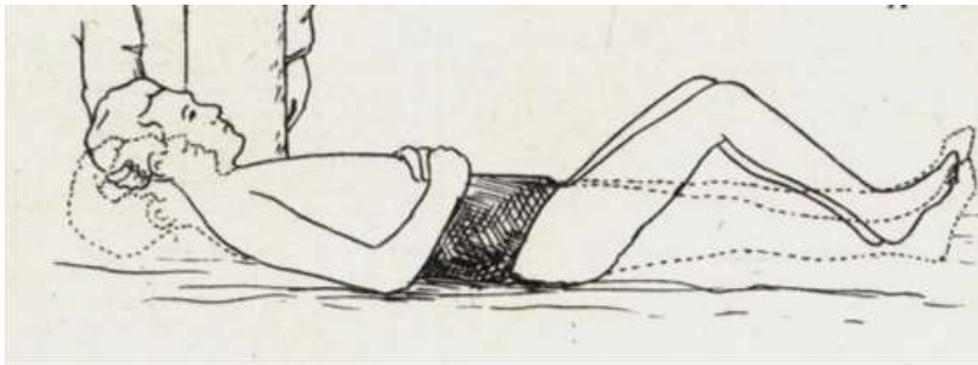
intervertebral space of the lumbar vertebrae. On this segment possibility of spinal cord injury is minimal, since there is nervous pony tail. Puncture point is determined by the intersection of a line connecting the iliac crest and lumbar vertebrae. Anatomically, this point corresponds to the edge of IV lumbar vertebra.



Tools necessary for lumbar puncture

Fine needle puncture is 9cm long with well-fitted stylet (needle Bier). The puncture treated with iodine alcohol. feel for the intervertebral space between the spinous processes. The needle is inserted under the spinous processes, after skin puncture needle is piercing the interspinous ligament gradually to a depth of 5 - 10 cm, after piercing the dura mater, the arm feels a sense of "failure". Then removed mandrin and cerebrospinal fluid flows from the needle. For research into the tube gaining 5.10 cm<sup>3</sup> cerebrospinal fluid. After completing the spinal puncture is applied to the puncture pad and sealed with tape. Within a few hours, the patient is in a position with a reduced head end of the bed.

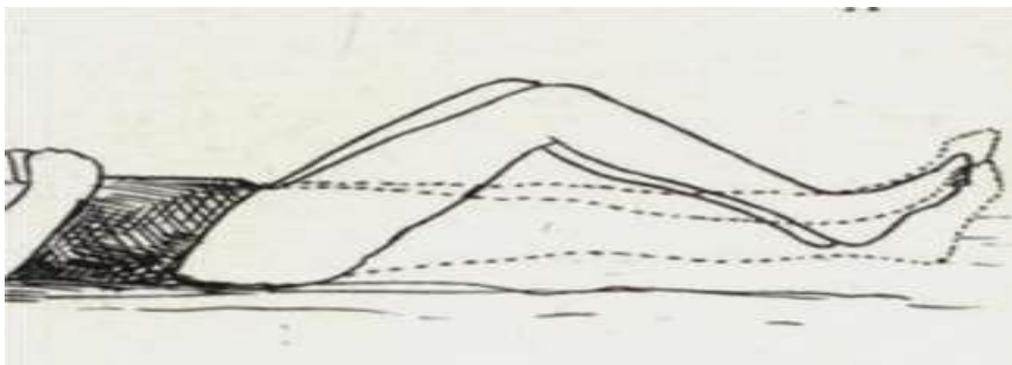




Determination rigidity neck

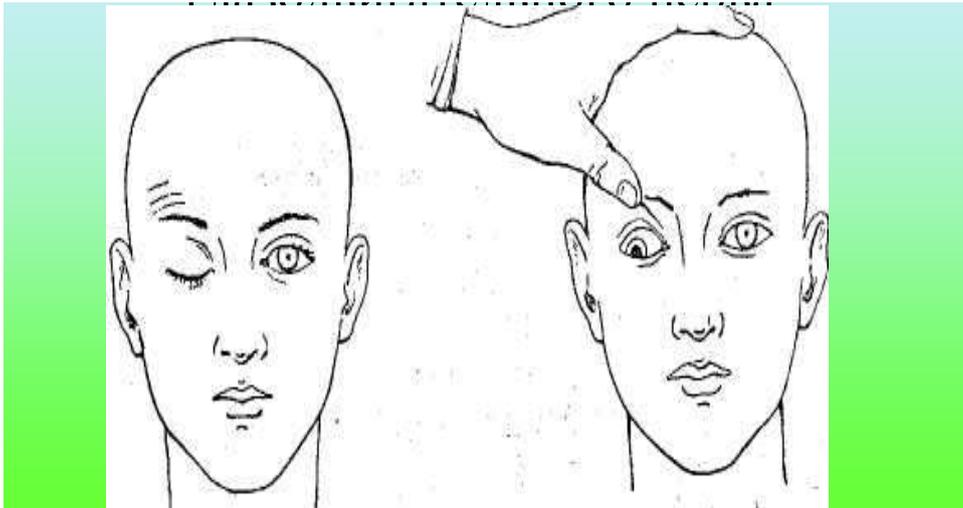


Certain symptoms Kernig

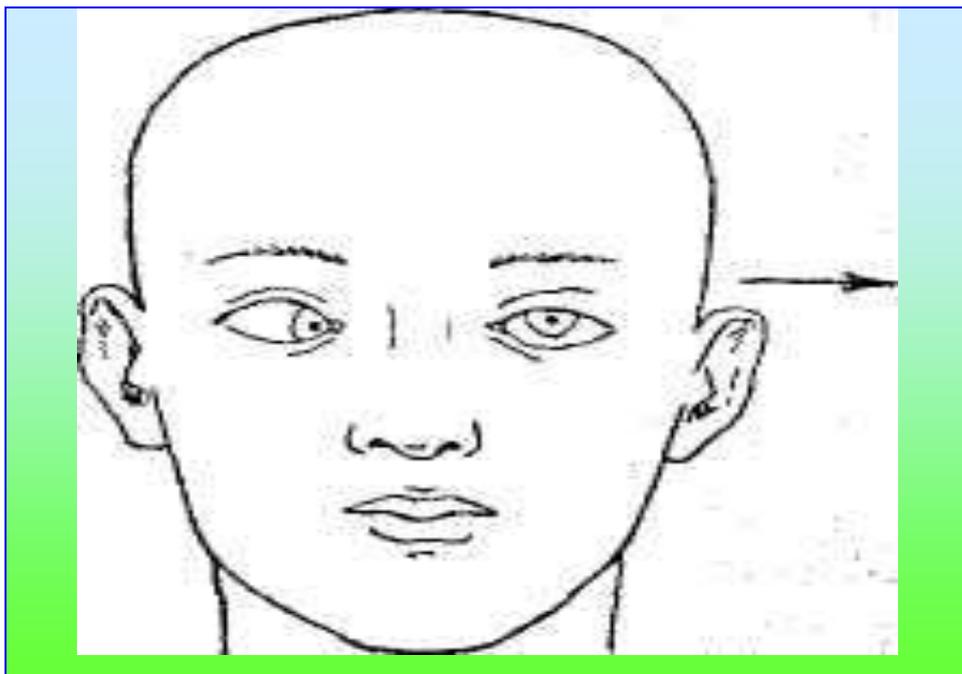


Certain symptoms Brudzinskogo

III couple - n. oculomotorius, upper eyelid ptosis, exotropia



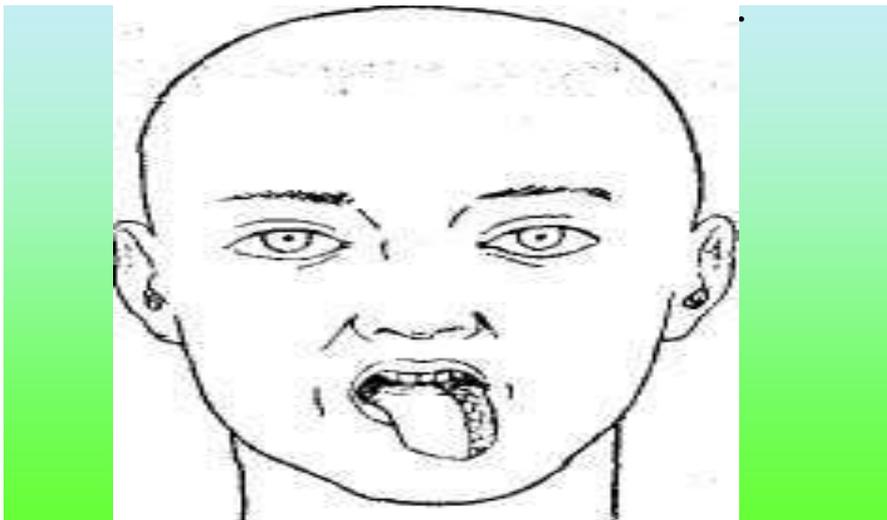
**VI pair (n. abducens) observed esotropia**



**VII couple - n. fasialis, facial asymmetry**



**XII pair (n. hypoglossus) - deviation of the tongue, impaired swallowing**



**Assist in the organization of pulmonary hemorrhage**  
**Objective: Development of a method for emergency assistance in**  
**pulmonary hemorrhage**

**Facilities;**

**1. harnesses;**

**2. hemostatic preparations**

**3. administer artificial pneumothorax**

**4. wool, alcohol**

**stepping:**

| № | Activity  | No performed<br>(0 points) | (full fat<br>100) points |
|---|---|----------------------------|--------------------------|
| 1 | Establish the presence of pulmonary hemorrhage.   | 0                          | 10                       |
| 2 | Give the patient The patient should be sitting or semi-sitting. in this position easier sputum and blood.   | 0                          | 10                       |
| 3 | Provide an output of blood from the respiratory tract, to prevent the development of asphyxia   | 0                          | 10                       |
| 4 | Patients were prohibited sudden movements and loud conversation. Excluded are the foods that can cause bloating and constipation, the food the patient should not be too hot                        |                            |                          |
| 5 | Superimposed on a limb venous tourniquets on limbs impose cross (right hand, left laziness and vice versa) bundles  | 0                          | 10                       |
| 6 | Should be treated in reducing blood pressure, increased blood clotting system bronchial artery or pulmonary artery.   | 0                          | 10                       |
| 7 | The maximum blood pressure should be less than 90 mm Hg. Art., to reduce the pressure in the pulmonary artery and intravenous aminophylline   | 0                          | 10                       |
| 8 | Cold preparations codeine series  | 0                          | 10                       |
| 9 | And to increase the clotting introduced for 10% calcium chloride or calcium gluconate 1% solution of protamine sulfate, and as an inhibitor of 5% solution fibrinolizina epsilon aminocaproic acid. | 0                          | 10                       |

|        |  |   |     |
|--------|--|---|-----|
| 1<br>0 | Imposition of pneumothorax, pneumoperitoneum is one of the ways to stop the bleeding | 0 | 10  |
|        | Only   | 0 | 100 |

**Assist in the organization of spontaneous pneumothorax**

**Objective: Development of a method for emergency assistance for spontaneous pneumothorax**

**Osnashenie:**

**1. igly various sizes;**

**2. troakar;**

**4. drenazhnye tube;**

**5. obezbolivayuschie drugs**

**6. products to support the cardiovascular system**

**stepping:**

| № | Activity   |
|---|--|
| 1 | Confirmation of spontaneous pnenvmotoraksa (objectively percussion, auscultation and radiological)           |
| 2 | Local anesthesia for the puncture of pleural cavity.   |
| 3 | Puncture mainly performed under local anesthesia on an average clavicular line in the 2nd intercostal space. |
| 4 | The end of the drain tube is lowered into the vessel with disinfectant furatsillina                          |
| 5 | anaesthetize preparation   |
| 6 | When the pressure, signs of pulmonary heart disease with cardiac glycosides.                                 |