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*Department of Faculty Surgery*

DIFFERENTIAL DIAGNOSTICS OF IMPORTANT

SURGICAL DISEASES. PART 2.

Manual for 4th year students of foreign faculty

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"Differential diagnosis of important surgical diseases."

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*Annotation:*

In the educational manual for students is presented differential diagnosis of major surgical diseases.

It is the division of differential diagnosis that causes students difficulties in preparing for practical classes on faculty surgery.

The educationall manual contains the basic clinical data, necessary for students of 4 courses of medical universities to prepare for practical training in faculty surgery and especially during work with supervised patients. In each topic under discussion, it is clear are: a) objectives; b) the amount of knowledge required to assimilate the material (the student must know, understand and be able to); c) theoretical background, briefly characterizing this pathology and allowing differential diagnostics with similar diseases in the clinic; d) control questions; e) tests for self-monitoring of quality of out-of-audit independent work. Such methodical construction of the manual will allow students to more clearly present the algorithm of thinking, necessary for the diagnosis. We believe that the information given will be useful for senior students of medical universities.

The list of literature contains the necessary sources, the study of which will fully prepare for classes.

*Reviewers:*

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Content:

1. Diseases of the rectum………………………………………………………...4

2. Diseases of the thyroid gland ...........................................................................7

3. Mastitis ............................................................................................................12.

4. Breast cancer ...................................................................................................17

5. Nonspecific suppurative lung diseases ...........................................................22.

6. Acute and chronic pleural empyema ..............................................................31

7. Echinococcosis of the lung…………………………………………………..35

8. Lung cancer………………………………………………………………….39

9. Varicose veins ................................................................................................43

10. Acute superficial thrombophlebitis ................................................................48

11. Acute phlebothrombosis of deep veins of lower extremities .........................51

12. Obliterating arterial diseases of the extremities .............................................54

13. Thrombosis and embolism of the peripheral arteries of the extremities…….58

 Literature ............................................................................................................62

**The theme of lessons: "DISEASES OF THE RECTUM"**

 **The purpose of the lesson:** to learn at the level of reproduction in memory etiology, pathogenesis, classification, clinical manifestations, methods of examination and differential diagnostics of diseases of the rectum.

**By the lesson the student should:**

1. Know etiology and pathogenesis of acute and chronic paraproctitis, hemorrhoids, rectal neoplasms, classification and clinical symptoms, methods of laboratory and instrumental diagnostics, the nature of complications.

2. Understand the principle of oncological alertness in the examination and treatment of proctologic patients, deontological peculiarities of this group of patients.

3. Be able to correctly collect anamnesis of the proctologic patient, to make rectal research, to formulate the diagnosis.

4. Know the differential diagnosis of acute and chronic paraproctitis, hemorrhoids, benign and malignant diseases of the rectum, abscess bartolinitis, furuncles and carbuncles of the perineum, abscesses of the pelvis and prostate gland, anal fissure.

**Theoretical reference.**

 **Classification** of diseases of the rectum:

1. Acute abscess:

a) subcutaneous,

b) the submucosa;

c) ileorectal;

d) pelviorectal;

e) retroreсtal.

2. Chronic paraproctitis (rectum fistula):

a) intersphincteric;

b) transsphincteric;

с) extrasphincter.

 And also on an anatomical basis-full, incomplete, external, internal.

3. Hemorrhoidal disease (hemorrhoids):

a) internal;

b) external;

с) mixed.

4. Anal fissure.

5. Tumors of the rectum:

a) benign;

b) malignant.

**Clinical picture.** Acute abscess – an acute purulent inflammatory process in pararectal tissue. A frequent cause is acute cryptic with the breakthrough of abscess in one of cellular pararectal spaces. Allocate localization: subcutaneous, submucosal, ileorectal, pelviorectal and retroreсtalparaproctitis. The main symptoms of acute abscess are: pain, increase of general and local temperature, " fear of stool". In the stage of infiltration, patients rarely turn to the surgeon. You should consider a high propensity for abscess formation due to the constant infection from the lumen of the rectum. Inadequate treatment or self-treatment often lead to the development of subsequent chronic fistula paraproctitis.

 Chronic paraproctitis is clinically manifested by the formation of complex fistulas between the rectum and the perianal area. The factors of its development are: inadequate treatment of acute paraproctitis, most often its opening from a small incision and insufficient drainage of the cryptogenic abscess; complex multilevel character of purulent cavity, significantly complicating its adequate revision; severe concomitant diseases (diabetes mellitus, immunodeficiency of primary and secondary character, cancer). There are: complete and incomplete, intersphincteric, extrasphincter and transsphincteric fistulas.

In the diagnosis of anal fistula and anorectal abscess it is necessary to apply the finger examination of the rectum, anoscopy, sigmoidoscopy, fistulography.

**Differential diagnosis.**

Differential diagnosis should be carried out between the existing classification of diseases and abscessed boils and carbuncles of perianal region, acute bartholinitis, abscess of the small pelvis, prostate gland, epithelial coccygeal course.

Abscident furuncles and carbuncles of the perianal region are similar in clinical manifestations to the subcutaneous form of acute paraproctitis by the presence of fever, sudden pulsating pain in the perineum, the presence of perianal inflammatory infiltrate. These diseases are distinguished by the appearance of inflammatory infiltrates that have a strictly superficial localization with a single or multiple necrotic cores. Rectal examination demonstrates that infiltration for boils and carbuncles is not connected with the lumen of the rectum. To clarify the diagnosis they use abscessography or introduction of a coloring mixture into the cavity of the abscess (4% indigokarmine solution), which certify the presence or absence of a connection with the lumen of the rectum.

Acute bartholinitis in the stage of abscessation also may resemble an acute paraproctitis. History of bartholinitis abscess formation occurs in 7-10 days from the onset of the disease, and in acute abscess after 2-3 days. Bartholinitis is not characterized by a violation of the act of defecation, and for acute paraproctitis such a phenomenon is typical. On closer inspection with bartholinitis one almost always sees the hole of the duct of Bartholin gland on the eve of the opening of vagina, which (the duct) when pressed produces pus, there is no connection with the crypts of the anal canal. In doubtful cases, diagnostic tests are used with the introduction of methylene blue into the cavity of the abscess and the tampon into the rectum – staining the tampon with blue will indicate the connection of the abscess cavity with the lumen of the rectum.

 Abscesses of the pelvis (Douglas space) occur mainly in the postoperative period in patients who underwent common peritonitis 7-14 days after surgery. In this case, the purulent focus is located in front of the rectum wall, is not associated with crypts, the mucosa above it is not changed, it is mobile. In the diagnosis helps rectal examination, ultrasound of the pelvis.

Prostate abscess is a complication of acute prostatitis, develops with inadequate treatment for 7-16 days of the disease. It differs from acute paraproctitis by sharp phenomena of pollakiuria up to infrarenal anuria due to compression of the prostatic part of the urethra, pyuria in urine tests, which does not happen with acute paraproctitis. Rectal finger examination allows the palpation of an enlarged, sharply painful, prostate gland with a focus of softening. With ultrasound with the rectal probe abscess cavity is visualized, its relationship with the surrounding structures is established.

Hemorrhoidal disease (hemorrhoids) – primary varicose transformation of cavernous bodies from the outside and inside of the anal sphincter, can be complicated by the development of: phlebitis of the hemorrhoidal node, its infringement, anal fissure, cryptitis and acute paraproctitis, chronic anemia due to frequent blood loss. Secondary varicose veins of the venous cavernous plexus of the anal region is a sign of portal hypertension. This is characterized by the presence of tension in the area of other portocaval anastomoses – the anterior abdominal wall ("Cruveilhier's sign / Medusa head"), esophageal-cardiac zone, the presence of jaundice, ascites.

Pilonidal sinus - an anomaly in the development of the skin of the sacral-coccygeal region, due to the skin dimpling as a result of incomplete reduction of the former muscles of the tail. Pustules are formed in the surrounding tissue, not associated with the sacrum and coccyx. The transition of the acute stage of inflammation after the opening of the ulcer is characterized by the formation of an external fistula, which is not associated with the anal region. In a complicated, questionable cases they use fistulography.

Benign rectal polyps have a similar appearance with hemorrhoids, but they are arranged randomly, and with hemorrhoids in typical places at 3,7,11 hours. At palpation they do not collapse and do not increase. At the slightest doubts in favor of benign tumors, rectoscopy with biopsy is used.

Anal cracks are more common in women, in 90% of cases localized on the posterior wall of the anal canal. Clinically they are characterized by severe excruciating pain, fear of stool. Finger examination is impossible due to pain. At anoscopy a strip-defect of the wall of the anal channel and "watchdog" hillocks at its bottom edge are defined.

Cancer of the rectum arises in the mucosa, growing deep into the wall of the intestine and on its circumference, clinically characterized by a long symptomless (painless) period. The pain develops when the tumor sprouts in an area rich in nerve endings or in connection with the development of acute intestinal obstruction. An earlier symptom is the presence of pathological secretions. The onset of anemia of patients develop gradually. Keeping in mind the cancer alertness the diagnosis should be based on screening: finger rectal examination, rectoscopy with biopsy of a dubious focus. With the decay of the tumor accession of purulent-septic complications is possible, formation of cancrous and paracancrous abscesses and fistulas.

 **Control questions:**

1. Name the classification of diseases of the rectum.

2. List the instrumental methods of diagnostics used in proctologic patients.

3. What are the clinical signs of acute paraproctitis.

4. Speak about the differential diagnosis of chronic paraproctitis from rectal cancer.

**Tests for self-control: Answers:**

The most frequent cause of external intestinal bleeding is: 4

1.intussusception

2. dysentery

3. polyps

4. hemorrhoids

5. cancer

Early diagnostic technique for suspected rectal disease is: 3

1. radiography

2. sigmoidoscopy

3. finger rectal examination

4. ultrasound

5. collection of anamnesis

For hemorrhoids is not typical: 5

1. bleeding

2. loss of nodes

3. itching

4. phlebitis of the node

5. melena

With suspected rectal cancer in the first place you need to perform: 3

1. EGDS

2. Ultrasound examination of abdominal cavity

3. rectoromanoscopy with biopsy

4. finger rectal examination

5. laparoscopy

**Theme of the lessons**: **"DISEASES OF THE THYROID GLAND"**

**The purpose of the lesson:** to acquire at the level of reproduction from memory the etiology, pathogenesis, clinic and diagnosis of endemic, sporadic and diffuse toxic goiter, thyroiditis, thyroid cancer, learn to conduct differential diagnosis of these diseases.

**The student must:**

1. Know the classification of thyroid diseases: clinical a picture of endemic, sporadic, diffuse-toxic goiter, acute and chronic thyroiditis, thyroid cancer; methods of instrumental and laboratory diagnostics of diseases of thyroid gland.

2. Understand the features of the etiology and pathogenesis of diseases of thyroid gland.

3. Be able to collect anamnesis, to reveal the objective symptoms of the disease of thyroid gland, evaluate the data of instrumental and laboratory research methods required for differential diagnosis of thyroid diseases.

**Theoretical information.**

ENDEMIC AND SPORADIC GOITER.

The goiter is a limited or diffuse enlargement of the thyroid. Endemic goiter occurs in people living in geographical areas, the biosphere of which is poor in iodine, while the incidence of an adult the population of goiter is more than 10%.

Classification of diseases of the thyroid gland includes:

1. Congenital malformations of the thyroid gland

2. Endemic goiter (and endemic cretinism)

3. The sporadic goiter

4. Diffuse toxic goiter

5. Inflammatory diseases of the thyroid gland (acute and chronic thyroiditis)

6. Damage

7. Malignant tumors

There are five degrees of increase in the thyroid gland. 0 degree - the thyroid gland is almost not palpable; I degree – the gland is palpable, but not noticeable when swallowing; II degree – the gland easily palpable and visible when swallowing; III degree - there is a diffuse an increase in the soft tissues of the anterior surface of the neck - a "thick neck"; IV degree - clearly pronounced goiter, the contours of the gland are visible; V degree - a huge, overflowing or hanging on the chest, goiter. According to the form the enlargements are divided into: diffuse, nodal and mixed goiter. In functional terms - euthyroid (with normal function of the thyroid gland), hypothyroid (with a diminished function) and hypothyroidism with signs of cretinism.

In terms of severity, they are: light, medium and heavy thyrotoxicosis. According to the stages of the disease (according to Sh. Milk): neurotic, neurohormonal, visceral and dystrophic.

Sporadic goiter develops in areas with sufficient intake of iodine into the body and occurs as a result of insufficient absorption of iodine in the intestines, hormonal disorders, etc. As an endemic goiter, sporadic is classified by size, shape and functional manifestations. The clinical picture of it does not differ from the clinical picture of endemic goiter.

Partly retrograde, retro-tracheal, epiglottis, laryngeal, lingual additional thyroid glands.

**The clinical picture** of euthyroid goiter is very poor: complaints about feeling uncomfortable in the neck, difficulty in breathing, less often - changes in the voice. Respiratory failure is the most common symptom of retrosternal goiter. Upon inspection of these patients it is possible to note expansion of veins of the neck. Violation of breathing causes the development of changes characterized as "goiter heart". Compression of the sympathetic trunk causes the appearance of Gorner's syndrome (ptosis, myosis, enophthalmos), a change in the sweating of the half of the body on the side of compression. With palpation, the thyroid gland is soft, more often unevenly enlarged, mobile. Ultrasound and radioisotope scanning determine the nature of the increase in thyroid cancer. X-ray examination allows you to set the delay of barium at the level of aberrant goiter, esophageal displacement in the anterior or lateral direction.

 Diffuse toxic goiter. The disease develops acutely, often the cause is a mental trauma.

The main symptoms of the disease are diffuse thyroid enlargement, tachycardia, exophthalmos. Patients complain of general weakness, irritability, weeping, fatigue. Objectively noted the tension, fine tremor of the fingers. The thyroid gland is moderate in density, mobile, painless. It determines the positive eye symptoms of: Grefe, Kocher, Dalrymple, Mebius, Stellwag. Absorption of radioactive iodine is increased at 4, 6 and 24 hours. At ultrasound the gland is diffusely enlarged. The concentration of total T4, free T3 and TSH are elevated in almost all patients.

THYROID CANCER

Thyroid cancer can occur in children's and youthful age, but more often after 40 years. Women are sick 4 times more often than men. The most common forms are differentiated forms of thyroid cancer, which include papillary (62%) and follicular (18%) cancer. The undifferentiated form (giant cell, solid, small cell and large cell carcinoma) are observed less frequently.

Papillary thyroid cancer has the most benign course. It manifests itself usually in the form of a single dense node in the thyroid gland, multiple nodes are rarely seen; it metastasizes to the cervical lymph nodes, metastases are rarely observed in the second fraction of the thyroid gland, rarely in bones and lungs. Tumor growth is very slow. It grows late into the surrounding tissue, in the presence of metastases in the lymph nodes of the neck, the latter also remain mobile for a long time. Usually euthyroid state is kept.

 Follicular cancer – the solid, rounded forms, the node metastasizes to bone, lung, rarely to brain. Cancer of the additional (aberrant) thyroid glands located along the sternum-clavicle-mastoid muscles is usually observed in young adults, develops slowly. It has papillary or papillary-follicular structure.

 Classification. There are four clinical stages of malignant tumors of the thyroid gland: stage 1 – a small tumor in one of the lobes of the gland without metastases; stage 2 – a tumor of the same size, but there are operable metastases in the cervical lymph nodes; stage 3 – a small tumor with inoperable regional metastases or a large, stationary tumor with or without metastases; stage 4 - a fixed or floating tumor with distant metastases.

A method of diagnosing thyroid cancer is its radioisotope study. Radioactive iodine does not accumulate or poorly accumulates in tumor tissues. Ultrasonography has a diagnostic value in the study of formation in thyroid gland which exceeds the value of 0.5 cm. Puncture of the node for сytological screening increases the diagnostic accuracy. In undifferentiated forms of cancer by radioimmunological method a change in the level of calcitonin is revealed. The final diagnosis is based on histological examination.

THYROIDITISES

Thyroiditis autoimmune (Hashimoto thyroiditis). The disease is based on the formation of autoimmune antibodies to thyroglobulin and thyroid tissues.

There is a slow growth, more or less dense goiter, weakness, gradually developing hypothyroidism, there are symptoms associated with compression of surrounding tissues. Goiter is not soldered with surrounding tissues, its surface is smooth, but sometimes hilly. The neck lymph nodes are not enlarged. Often there are atypical clinical forms of the disease: there is a slight thyrotoxicosis, in the future, a one-sided process, proceeding by the type of nodular nontoxic goiter.

In the diagnosis of autoimmune goiter detecting the increase in the level of gamma-globulins, mosaic pattern of the scanning image, a positive reaction to the prednisolone test-reducing the size of the goiter play a big role.

Thyroiditis chronic fibrous (Riedel's goiter). In the thyroid gland a chronic productive process with the proliferation of connective tissue, lymphoid cell infiltrates, often with an admixture of eosinophilic leukocytes develops.

Clinically, gradual enlargement and consolidation of the thyroid gland are revealed. At least – one of its shares. The surface of the gland is uneven, the goiter is very dense - "iron", in far-gone cases, it is soldered with the surrounding tissues, the skin above the goiter is movable, the neck lymph nodes are not enlarged. Palpation is painless, but sometimes there is pain, irradiating in the ear, hoarseness of the voice, violation of swallowing and dry cough, which is associated with the involvement in the process of laryngeal nerves, esophagus and trachea.

 Acute suppurative thyroiditis develops if you get an infection in the thyroid gland by hematogenous.

The disease begins acutely. The patients is worried by spontaneous, sharp pain in the neck, increasing in movement, conversation and swallowing. Chills, high fever, painful, initially dense, then fluctuating swelling in the neck. General weakness, sweating, tachycardia. Leukocytosis, elevated erythrocyte sedimentation rate. The accumulation of iodine-131 is normal or reduced.

Thyroditissubacute. Refers to viral diseases. The disease is often preceded by influenza, measles, sore throat. In the area of the anterior surface of the neck, pain occurs, irradiating the lower jaw, ears, the posterior surface of the neck. Noted: general weakness, sweating, fever and chills. The gland is dense, tense and sharply painful. In the blood the increase in ESR is determined.

**Differential diagnosis.**

Thyroiditis of different types must be differentiated from diffuse toxic goiter. A common symptom is diffuse enlargement of the thyroid gland. Unlike thyroiditis in diffuse toxic goiter thyroid gland in palpation is painless. The signs of hyperthyroidism, positive symptoms Dalrymple, Grefe, Stellwag, Mebius are defined. There are no signs of an inflammatory reaction in the blood test. Uptake of radioactive iodine is increased, and the level of T4 and T3 is increased in almost all patients.

 Nodular forms of endemic and sporadic goiter should be differentiated from thyroid cancer. With thyroid cancer a dense hilly formation is determined, growing relatively fast. In later stages it is a little mobile, soldered with the surrounding tissues. There is pain, irradiating in the shoulder, ear or neck, difficulty in swallowing, voice changes, dilatation of the subcutaneous veins of the neck, face, chest, Gorner's syndrome. There are metastases in the lymph nodes of the neck, lungs, mediastinum and bone. During scanning cold nodes are determined. Ultrasound reveals signs of malignancy of the node if its size is more than 5 mm. Fine-needle biopsy allows to perform a cytological examination.

 Unlike thyroid cancer, endemic and sporadic goiter is not accompanied by the damage of regional lymph nodes. At scanning nodular forms of these diseases accumulate radioactive iodine – "hot" foci.

**Control questions:**

1. Causes leading to the development of endemic goiter.

2. Causes leading to the development of chronic thyroiditis.

3. Clinical picture of diffuse toxic goiter.

4. Clinical picture of thyroid cancer.

5. Instrumental and laboratory diagnostic methods used in diseases of the thyroid gland.

6. Methods of instrumental diagnostics used in thyroid cancer.

**Tests for self-control: Answers:**

In a patient with diffuse endemic goiter an 3

enlarged right lobe of the thyroid gland is seen.

Indicate the degree of thyroid enlargement, which

corresponds to such a clinical picture:

1. degree 1

2. degree 2

3. degree 3

4. degree 4

5. degree 5

For endemic goiter during scanning it is characteristic to 2

detect foci of increased accumulation of iodine isotope 131:

1. Yes

2. No

Positive ocular symptoms of Dalrymple, Stellwag, Grefe, 3

Mobius are characteristic for:

1. hypothyroidism

2. goiter of II degree

3. hyperthyroidism

4. thyroid cancer

Main laboratory signs of diffuse toxic goiter are: 3

1. the decrease in the level of calcium in the blood

2. the increase in TSH and T3

3. the increase in T4 and T3 of

4. decrease in T4 and T3

The appearance of the symptom of "hoarseness of voice" 4

in the goiter Riedel explains:

1. involvement of the facial nerve

2. involvement of the trachea and esophagus

3. the presence of metastases

4. involvement of laryngeal nerves

Name the clinical symptoms of chronic fibrous thyroiditis: 1,2,4

1. at palpation the gland is dense

2. the skin above the goiter is movable

3. neck lymph nodes are enlarged, sedentary

4. the hoarseness of voice is noted

**The theme of lessons «MASTITIS»**

**The purpose of the lesson**: learn at the level of reproduction from memory classification, clinical manifestations, methods of laboratory and instrumental diagnosis of acute mastitis, a technique for examining patients suffering from mastitis, differential diagnostic.

**To the lesson student should:**

1. Know classification and clinical signs of acute mastitis, etiological factors of its occurrence, methods of laboratory and instrumental diagnostics, prevention of the occurrence of mastitis.

2. Be able to fully collect complaints from a patient with mastitis, perform a physical examination of the mammary glands, evaluate the data of laboratory and instrumental research.

3. Know the clinic necessary for differential diagnosis of mastitis with cancer, lactostasis, fibroadenomatosis of the mammary gland, galactocele, parasitic lesion of the mammary gland, specific infection of the mammary gland (tuberculosis, syphilis).

**Theoretical information**

Mastitis is an acute inflammation of the breast tissue.

**Classification:** according to the nature of the inflammatory process are distinguished:

non-suppurative(serous and infiltrative) and suppurative inflammation (abscessed, infiltrative-abscessing, phlegmonous and gangrenous) forms of acute lactational mastitis. Depending on the localization of the focus of inflammation mastitis can be: subcutaneous, subareolar, intramammary, retromammary and total, when all parts of the breast are affected.

**Clinical picture:** The acute beginning, usually at 2-4 weeks of the postpartum period is characteristic of typical clinical manifestation of serous mastitis. Temperature rises rapidly to 38-39 degrees and it’s often accompanied by chills. General weakness, fatigue, headache are developing.

There is pain in the breast but may be such variants of clinical course of mastitis in which general phenomenon precede the local ones. With inadequate therapy the beginning mastitis develops into infiltrative form within 2-3 days. At palpation there is a dense, painful infiltration in the breast. The skin over infiltrate is edematous. The transition of mastitis to a purulent form occurs within 2-4 days. Temperature rises to 39 degrees, chills occurs. There are signs of intoxication: lethargy, weakness, poor appetite, headache. The local signs of the inflammatory process grow: swelling and soreness in the lesion, softening areas in the infiltration area with infiltrative-purulent form of mastitis.

20 percent of patients with purulent mastitis is manifested in the form of abscess form. With the prevailing options are furunculosis and abscess areola, less frequent intramammary and retromammary abscesses, which are strips, bounded by a connective tissue capsule.

In 10-15 percent of patients purulent mastitis proceeds as a phlegmonous form. The process captures most of the gland with the melting of its tissue and the transition to surrounding fiber and skin. The general condition of the woman in such cases is severe. The temperature reaches 40 degrees, tremendous chills, pronounced intoxication are observed. The mammary gland sharply increases in volume, the skin is edematous, hyperemic with a cyanotic shade, palpation of the gland is sharply painful. Phlegmonous mastitis can be accompanied by a septic shock.

A rare gangrenous form of mastitis has an extremely severe course with pronounced intoxication and necrosis of the mammary gland. The outcome of gangrenous mastitis is unfavorable. With any form of mastitis breastfeeding should be discontinued in the interests of the child. The indications for suppressing lactation in mastitis are:

* a rapidly progressing process, despite intensive therapy
* multifocal infiltrative-purulent and abscessed mastitis.
* phlegmonous and gangrenous form of mastitis
* any form of mastitis in recurrent period
* sluggish mastitis, which is not amenable to complex therapy, including surgical opening of the outbreak

**Differential diagnostic**

Acute purulent mastitis is necessary to differentiate with breast cancer, lactostasis, fibroadenomatosis of mammary gland, galactocele, parasitic lesions of the breast and specific infections of the mammary gland (tuberculosis, syphilis).

Breast cancer has some common features with acute purulent mastitis in the following situations: the adherence of purulent complications during the decay of the tumor in the late stages of the course of the process and in the so-called mastitis-like form of breast cancer. Common with the admission of purulent complications during the decay of the tumor is the presence of severe pain, hyperemia and infiltration of the affected breast, and in some cases, when abscessed-fluctuation occurs. The following factors allow to distinguish these conditions: a long-term course of the disease in breast cancer, the presence for several months of volume formation in the gland, sometimes with the formation of ulceration, the presence of enlarged regional lymph nodes, signs of distant metastasis in the flat and spongy bones of the skeleton. As a rule, previously these patients were on treatment for this disease, received radiation therapy and chemotherapy. Often, these patients of pre-menopausal and menopausal age who have abortions in the anamnesis, in the postpartum period, were limitedly breast-feeding their baby. However, with the late treatment of cancer patients, it is sometimes difficult to differentiate between vulgar non-lactational climacteric mastitis and septic complications of the tumor process in the mammary gland. Histological examination of tissues suspected of a tumor, as well as instrumental studies (ultrasound, radiography of the spine, pelvis and thorax, CT), can help to diagnose the indirect signs of tumor growth.

A mastitis-like form of breast cancer is typical for high-grade, poorly differentiated cancers that occur, as a rule at a young age, most often in the period of hormonal adjustment, in the pubertal period. The disease with this form of cancer develops extremely rapidly, both cancerous intoxication and local changes in the mammary gland grow, early signs of distant metastasis appear. Common with purulent mastitis is some external similarity of local symptoms: the presence of diffuse puffiness, mild hyperemia of the breast, signs of impaired lymph flow from the body (type of skin like a lemon peel), but against the background of changes resembling a phlegmonous form of mastitis, there are no signs of purulent intoxication, process (several weeks in the absence of local dynamics from the mammary gland), signs of cancer intoxication, mild pain syndrome, young age of the patient (11-15 years) and the appearance of this clinic outside of pregnancy and lactation.

Fibroadenomatosis of the mammary glands is an extremely common pathology as a climacteric, pre-clomacteric, and also of childbearing age. Some doubts in differential diagnosis in fibroadenomatosis can occur with its diffuse small-capped form "pellet breast" with a pronounced pain syndrome, especially growing in the ovulation phase of the menstrual cycle. The absence of hyperemia, infiltration and fluctuations on the background of pain syndrome, the regular occurrence of such complaints and their aggravation in the middle of the menstrual cycle, the absence of signs of purulent intoxication, as a rule, the age of patients over 45 years old, the absence of pregnancy and lactation are distinctive. In doubtful cases are useful ultrasound of the breast and thermography. With mastitis on thermograms of the mammary gland, a region of very high heating in the projection of the focus of inflammation is visible. The temperature gradient can reach 3 degrees. Usually, according to the nature of the disease, we see a hyperemia in the projection of the axillary lymph nodes, which is a reflection of the lymphatic system reaction to inflammation, and consequently is absent in fibroadenomatosis.

Galactocele (retention cyst of the lobule of the breast) is relatively rare and develops several months after the cessation of lactation. The patient notes the presence of a rounded, with clear contours, elastic, mobile formation in the mammary gland. Unlike mastitis, skin over it is not hyperemic, there is no perifocal infiltration and swelling, regional lymph nodes are not enlarged, mobile and painless. Sometimes there is a Kenig’s symptom. With the development of a secondary infected galactocele, the clinic is transformed into typical manifestations of a mammary abscess and is virtually indistinguishable from that of purulent mastitis. Only anamnestic data on the previously available palpable education can decline towards the diagnosis of suppurative galactocele.

Parasitic lesions of the mammary gland (echinococcal cysts) are quite rare: they are manifested by the presence of a rounded, mobile, elastic formation in the mammary gland. They also differ from purulent mastitis in the absence of signs of local and general purulent infection. Ultrasound can help in diagnosis, as well as CT, data of epidemiology, the presence in the anamnesis of echinococcosis of other organs, the positive reaction of latex agglutination with the antigen of echinococcus. It is rare for a giant parasitic cyst size to be clearly defined by the symptom of "hydatid tremor" in undulating palpation of the gland.

In the last decade, in connection with the worsening of socio-economic conditions, the question of the possibility of a specific infection (tuberculosis, syphilis), the damage of various organs, in particular, the breast is of great interest again.

Tuberculosis lesion of the breast can be observed in the newly disseminated forms of the disease. It is manifested by the presence of dense "cold" infiltrates, an increase in regional lymph nodes, the formation of multiple latticed fistulas with a scant caseous discharge, the absence of an acute onset of the disease. Distinctive features from nonspecific mastitis is the absence of local hyperemia, pain and fluctuations, general signs of purulent-septic process, the presence of signs of pulmonary tuberculosis, the corresponding data of epidemics, positive data of serological reactions.

Syphilis of the breast can be a manifestation of the tertiary, humonose period of the disease, when there is a tight bounded infiltrate-gumma in the gland. In contrast to purulent mastitis, there is no hyperemia, swelling and tenderness in palpation, and there are positive serological responses to the antigens of pale treponema, a long pre-existing period of the disease. Also, the mammary gland can also be affected in primary syphilis with the formation of primary syphiloma (solid chancre) at the site of the primary affect of the pathogen (usually in the areola region). With a classic picture of a small sore with dense edges and a pink rounded bottom, painless on palpation. Serological reactions, while still negative, characteristic kind of ulcer make it possible to distinguish it from the nonspecific suppuration (opened abscess) of the paraareolar region.

**Control questions:**

1. Name classification of mastitis

2. Measures for the prevention of lactation mastitis

3. Instrumental methods of diagnosing lactation mastitis

4. Name diseases with which it is necessary to differentiate mastitis

**Tests for self-control:**

Enumerate suppurative forms of mastitis **Answers:**

1) abscessed 1,2,3,4

2) infiltrative-abscessing

3) phlegmonous

4) gangrenous

5) serous

Enumerate forms of non-suppurative mastitis 1,2

1) serous

2) infiltrative

3) abscessed

4) phlegmonous

5) gangrenous

Depending on the localization of the inflammation 1,2,3,4

mastitis can be, choose the right answers

1) subcutaneous

2) subaureolar

3) intramammary

4) retromammary

5) intermuscular

6) total

The transition of serous mastitis to infiltrative and 1

then to purulent occurs within

1) 2-3 days

2) 4-5 days

3) 5-6 days

4) 7-8 days

5) 10-12 days

Phase of development of acute mastitis 1,3,4

1) serous

2) fibrinous

3) infiltrative

4) abscessing

**The theme of lessons «BREAST CANCER»**

**The purpose of the lesson:** learn at the level of reproduction from memory classification, clinical manifestations of breast cancer, methods of laboratory and instrumental diagnosis, differential diagnostic of serious disease.

**To the lesson student should:**

1. Know etiology, pathogenesis, classification and clinical signs of breast cancer.

2. Understand the necessity of oncological alertness when examining women of middle and old age

3. Be able to collect anamnesis, conduct a clinical examination and evaluate methods of instrumental diagnosis of breast cancer

4. Know differential diagnostics with fibroadenoma, galactocele, mastopathy, tuberculosis, breast sarcoma

**Theoretical information**

Breast cancer is a malignant tumor, the primary focus of which occurs in the parenchyma or excretory ducts of the gland. Breast cancer is one of the most frequent malignant diseases. Among women with cancer it is in 2-3rd place.

The disease is mainly observed in middle-aged women and in the pre-climacteric period (36-40%), at a young age only at 1.5-2%. Most often the tumor is located in the upper-outer quadrant of the gland, less often in the upper-inner and lower quadrants. At present, the opinion about the leading role of dyshormonal disorders, and primarily increased estrogenic activity as one of the causes of cancer of this localization, has been confirmed.

**Classification:** nodal and diffuse forms of breast cancer are distinguished. The diffuse form includes edematous-infiltrative, mastitis-like, erysipelas-like, and testaceous forms. There are 4 stages of breast cancer: stage 1 - a tumor less than 3 cm in diameter, does not transfer to the surrounding fiber and skin, without affecting regional lymph nodes; stage 2: A - the tumor does not exceed 5 cm in diameter, goes to the cellulose and has symptoms of adhesion to the skin, the lymph nodes are not affected. B - a tumor of the same size and smaller, but with lesion of single axillary nodes of the first order; stage 3: A - a tumor more than 5 cm in diameter with the germination or ulceration of the skin or penetration into the underlying fascial-muscular layers, but without metastases to the regional lymph nodes, B - tumor of any size with multiple metastases to the axillary, subclavian or parasternal lymph nodes. Stage 4: - a widespread lesion of the breast with dissemination in the skin, extensive ulceration. Tumor of any size, densely fixed to the chest, with or without metastases to the regional lymph nodes. Any breast tumors have distant metastases (into the lungs, pleura, bones, liver, etc.)

**Clinical picture**: the first clinical signs of breast cancer appear when the tumor passes to the fiber and skin. At a palpation in a mammary gland the dense knot is found out. The tumor, proliferating, infiltrates the gland, spreads through the milk ducts, interstitial cracks, lymphatic and blood vessels. Rapid growth of the tumor is observed at a young age (especially if the tumor has occurred during pregnancy, after childbirth, abortion). When not large tumors in the glandular body is characterized by a symptom of "wrinkled skin", resulting from the shortening of Cooper ligaments. This symptom makes it possible to distinguish cancer from mastopathy. For the central localization of the tumor node under the same circumstances, a halo narrows, the nipple becomes entangled, and its deflection toward the node. The positive symptom of Kenig is marked: the knot does not disappear when pressing it in the prone position to the chest wall. At the expressed tumor infiltration at the primary inspection the signs, testifying to disturbance of lymph circulation in a podoreolar plexus - symptoms of umbiliculation, a site, at central localization - a symptom of Pribram (deformation of a nipple, itsindrawing ), Krause (edema of areola) are revealed. The symptom of the "lemon peel" indicates a far-gone process, as it occurs as a result of a cancerous embolism of deep lymphatic vessels with skin swelling. With scirrhous forms of cancer, the gland is tightened as the tumor node grows. When the tumor spreads to the edge of the glandular disk, the nipple is displaced toward it.

Diffuse forms of breast cancer are more malignant. According to clinical manifestations, there are: mastitis-like, edematous-infiltrative, erysipelas, testaceous forms. The first two are characteristics for a young age, especially often in the period of pregnancy and lactation, are rapidly progressing. The testaceous form is more typical for older women, despite the fact that the tumor grows more slowly, this form is prognostically unfavorable.

Paget's cancer is diagnosed in patients aged 45-70 years and is characterized by a lesion of the nipple that occurs with the formation of scales and plaques or with ulceration, wetting, eczematoid changes, combined with itching, tingling sensations, and undefined pain from the nipple area.

**Diagnostics.** The great importance in the diagnostic of early forms of breast cancer are special methods of research - X-ray mammography, various kinds of biopsies and cytological studies. Also, traditional methods of clinical diagnosis of tumors in relatively early stages have not lost their significance.

**Differential diagnostic**

Differential diagnosis of breast cancer should be carried out with fibroadenoma, cystic, fibrotic, nodal mastopathy, galactocele, tuberculosis and breast sarcoma.

Fibroadenoma of the mammary gland is manifested by a tumor-like formation determined by palpation. In cancer, the tumor is dense, bumpy, with limited mobility, with pronounced retraction of the skin above the tumor as a symptom of "umbiliculation" or "lemon peel." In fibroadenoma, the tumor is confined to surrounding tissues, smooth, sometimes hemispherical, dense, with good displacement. In contrast to cancer, fibroadenoma can be multiple and located in both mammary glands. Axillary and supraclavicular lymph nodes are not changed. Fibroadenoma unlike cancer develops more often at a young age, being associated with dyshormonal hyperplasia of the gland tissue. It develops slowly for several years, practically without disturbing the patients.

Mastopathy fibrous or fibrocystic, in contrast to breast cancer, occurs a few days before the onset of menstruation. Pain can be intense and radiate into the arm and shoulder blade. When palpating the gland, there is a moderate soreness and diffuse compaction of the mammary gland with fuzzy contours. After menses, soreness disappears, the intensity of pain decreases. When palpation in the gland, the compaction areas are determined, without clear boundaries in the form of strands, fine granularity. From the nipple, there are discharges of a different nature.

Nodular mastopathy occurs at the age of over 30 years and is manifested by clear formations in the mammary gland. From the nipple, there are discharges of a different nature. Contrastless mammography - shadow is determined by an uneven shape with the less intensive shadows of the ducts leaving it. The resolving power of the method - with tumors of 0.5 cm in diameter on the doublet - defect filling, its narrowing, obturation. Thermography - the body temperature above the cancer node is 1.5-2 degrees higher than over benign formations. It is important to increase the temperature of the skin over the lymph nodes (axillary, subclavian, supraclavicular, parasternal) in the presence of metastases in them.

Retional cyst of the breast (galactocele) is formed as a result of blockage of one or several milk ducts after lactation or after the transferred mastitis. Galactocele develops gradually and is a retention cyst with polypous growths of the epithelium. At palpation in a thickness of a mammary gland the elastic, painless, motionless formation is defined. From the nipple secret stands out of gray-green or hemorrhagic color. In a cytological study, epithelial cells, erythrocytes, leukocytes are determined. With a control mammogram, you can see a cystic formation in the main dairy passages. Galactocele can be malignant and therefore observation is necessary in dynamics.

Breast cancer should be differentiated from tuberculosis of mammary gland, which is most often manifested by tuberculosis granuloma. In this case, a single knot is defined in the mammary gland, gradually increasing, moderately painful. Later, after the formation of the node, the tissues of the gland are melted and fistulous passages with a purulent, discrete discharge are formed. When analyzing pus from fistula, bacilli of Koch can be found. With tuberculosis of the breast, enlarged axillary lymph nodes are painful on palpation, in the form of conglomerates, unlike cancer, when metastases are dense, do not form in packets. It is necessary to take into account an anamnesis (contact with tuberculosis patients).

Sarcoma of the breast, in contrast to cancer, is characterized by rapid and malignant growth, more often observed at a young age. Formation is the areas of uneven density, with areas of softening, a large-hulled tumor without clear boundaries, large sizes. The skin above the sarcoma is stretched, slightly hyperemic, unlike cancer, when the skin changes in the form of a "lemon peel" (lymphostasis). The aspiration biopsy with the subsequent histological, cytological examination of puncture or aspiration material of puncture helps in differential diagnosis

**Control questions**

1. Indicate predisposing factors contributing to the development of breast cancer

2. Instrumental methods used in the diagnosis of breast cancer

3. What are the early and late clinical signs of breast cancer?

4. List the diseases with which it is necessary to differentiate breast cancer

**Tests for self-control:**

The symptoms of breast cancer: **Answers:**

1. symptom of Koenig 1,2,3,4,6

2. symptom of Pribram

3. symptom of "umbilicating" the skin

4. misalignment of the nipple

5. skin over a tumor in the form of a "lemon peel"

6. skin over a tumor in the form of an "orange peel"

The patient turned to you with complaints about the presence 5

in the left breast of a tumor-like formation. She noticed it

a year ago, but because of the fear of surgery, did not apply.

When viewed in the left mammary gland, a dense tumor measuring

6 by 6 cm, fused to the skin (the skin above it in the form of a lemon

peel) is palpable in the outer-upper quadrant, the nipple is retracted and changes its shape when the tumor moves, in the left axillary region, painless moving lymph nodes. Your diagnosis?

1. fibroadenoma of the mammary gland

2. breast cancer, stage T2N0M0

3. breast cancer, stage T2N1M0

4. breast cancer, stage T1N1

5. breast cancer, stage T3N1M0

The most effective research method for a breast tumor less than 0.5 cm is 1

1. mammography

2. ultrasound

3. termography

4. palpation

5. radioisotope diagnostics

The tumor of a breast in diameter of 1,5 sm with the increased axillary 3 lymphonoduses carry to a stage:

1. I

2. 2A

3. 2B

4. 3A

5.3B

Breast cancer most often metastasizes to the:

1. mediastinum 2

2. bones

3. skin

4. liver

5. adrenal glands

The main ways of outflow of lymph from the breast are 2,3,4,6

1. cross

2. subclavian

3. axillary

4. parasternal

5. intercostal.

6. supraclavicular.

To diffuse forms of breast cancer are related all except 5

1. edematous-infiltrative

2. mastitis-like

3. erysipelas

4. testaceous type

5. Paget's cancer

In the supine position, the breast tumor disappears with the symptom of

1. umbiliculation

2. Kenig 2

3. Payr

4. Pribram

5. the "orange peel"

In the second stage of breast cancer, the tumor reaches a size of

1. up to 2 cm

2. 2-5 cm

3. 1 cm 2

4. 5-7 cm

5. more than 8 cm

For breast cancer are not typical metastases in 2,3,4

1. the lungs

2. the liver

3. the brain

4. the navel 5. the bone

**The theme of lessons “NONSPECIFIC SUPPURATIVE LUNG DESEASES”**

**The purpose of the lesson:** learn at the level of reproduction from memory the etiopathogenesis, classification, clinical signs, complications of acute purulent-destructive lung diseases methods of examination, diagnosis, differential diagnosis of suppurative lung diseases.

To the lesson student should:

1. Know the classification, clinical signs, methods of instrumental and laboratory diagnosis, the nature of complications, suppurative diseases of the lungs.

2. Understand the etiopathogenesis of acute purulent-destructive lung diseases, the relationship between clinical manifestations and the phase of the process.

3. Be able to perform physical examination, to evaluate the data of laboratory and instrumental examination of patients with purulent-destructive lung diseases, which is necessary for differential diagnosis with lung cancer, echinococcosis, bronchoectatic disease.

**Theoretical information**

ABSESSES AND GAGRENA LUNG

The abscess and gangrene of the lungs as separate nosological forms were singled out by Laennec in 1819. He also made the first description of lung gangrene as the most severe form of pulmonary pathology. Sauerbruch proposed to combine these diseases under the general name "pulmonary suppuration." The first information on the pathogenesis of lung gangrene was published in 1871 by L. Traube.

Lung abscess is a purulent or putrefactive disintegration of the lung tissue, more often within the segment with the presence of one or more destruction cavities filled with thick or liquid pus and surrounded by perifocal infiltration of the lung tissue. Gangrene of the lung is a purulent-putrefactive necrosis of a significant area of ​​lung tissue, more often a lobe, 2 lobes or the entire lung, without clear signs of demarcation, which tends to spread further and manifests itself as an extremely difficult general condition of the patient. In contrast to the abscess, the cavity with gangrene of the lung contains the sequestration of the lung tissue.

**Classification.** Distinguish:

1. On the etiology:

a) primary and secondary abscesses

b) aerobic and anaerobic abscesses.

2. By pathogenesis:

a) aerogenic-aspirating

b) hematogenous-embolic

c) traumatic

d) septic

3. By the flow:

a) acute

b) chronic

4. Localization:

a) near-wall

b) median

c) deep solitary, multiple

5. By the nature of the course: a) uncomplicated b) complicated (pleural empyema, pulmonary hemorrhage, sepsis, etc.).

Predisposing factors of pulmonary suppuration are well known: unconsciousness, alcoholism, drug addiction, epilepsy, craniocerebral trauma, cerebrovascular disorders, coma, overdose of sedatives, general anesthesia. In addition, stenosing diseases of the esophagus, immunodeficiency conditions.

The incidence of lung abscesses is quite high for pneumonia (2 to 5%), closed chest injuries (1.5-2%), gunshot wounds (1.5%).

Acute infectious lung destruction is usually nonspecific but sometimes there are mixed forms when nonspecific and specific infectious processes develop simultaneously. At present, gram-negative and anaerobic microorganisms, as well as staphylococcus, are the most frequently detected in infectious lung destruction. However, for the emergence of infectious lung destruction, it is not enough simply to get pathogenic microorganisms into the pulmonary parenchyma, since with the well-preserved purifying function of the tracheo-bronchial tree under normal functioning of local and general defense mechanisms, microbial invasion has no clinical manifestations. For the development of abscess and gangrene of the lung, the impact of pathogenic factors that violate these mechanisms is necessary. These include: high virulence pathogenic microflora; violation of patency and drainage function of the bronchi; disorders of microcirculation in the zone of infectious or post-traumatic inflammation of the lung tissue.

**The clinical picture** of infectious lung destruction is very diverse and depends on the individual (including immunological) features of the body, the stage of the process, the presence of predisposing and accompanying diseases.

There are two periods in the clinical picture: the period of the purulent cavity formation before its breakthrough in the bronchus (closed or blocked stage) and the period after the breakthrough of the abscess into the bronchial tree (open or deblocked stage). During the formation of the infiltrate, the clinic of intoxication dominates in patients - weakness, headache, dry cough, high fever with a hectic range, chills, tachypnea (CDP is up to 40 per min.). Locally there is dull pain in the chest on the side of the lesion, dullness of the percussion sound, weakened bronchial breathing above the infiltration zone. In the debloked stage suddenly appears a large number of three-layered with putrefactive smell of phlegm full mouth. Most often, the deblocking of the abscess is not sudden, and within 2-3 days the patient notes a gradual increase in the amount of sputum, at the same time a decrease of the degree of intoxication, improvement in well-being, and a decrease in temperature. X-ray in the infiltration area begins to determine the cavity with the level of fluid, which, with a favorable course of the process for 5-7 days gradually decreases. In the peripheral blood, leukocytosis and the stab-shear shift of the formula disappear.

In a number of cases with acute abscess the process does not end safely with the collapse of the cavity, and the abscess passes into a chronic form. The reasons for this are as follows: 1. impaired permeability of the draining bronchus and, as a result, an insufficient outflow of pus from the cavity; 2. presence in the cavity of the abscess of dense, necrotic fragments of the pulmonary parenchyma, necrotic sequesters; 3. increased pressure in the cavity with cough and a wide lumen of the draining bronchus; 4. the formation of pleural clefts, which hamper the collapse of the cavity; 5. when it is inadequately drained.

 With gangrene (gangrenous abscess) of the lung, the clinical picture of the disease is characterized, in contrast to the described, by a severe condition of the patient, in which pronounced intoxication occurs until the development of septic shock, respiratory failure, and often signs of multiple organ failure. As a rule, it occurs in subjects weakened by somatic diseases, or with mental disorders (alcoholism, drug addicts, toxic addicts), aspiration mechanism of microorganisms penetration into the pulmonary parenchyma. The condition of patients resembles a septic shock with centralization of blood circulation, acrocyanosis, tachycardia and lowering of arterial pressure, confused consciousness, which practically does not occur in an abscess. Characteristic is the allocation of a small amount of serous sputum and a sharp putrefactive odor from the mouth. The affected side of the chest lags behind when breathing. The physical data depend on the volume of necrosis of the lung tissue and the severity of the decay - dullness of the percussion sound, its boxed shade above the destruction cavity located subcortically; at auscultation - significant attenuation (absence) of respiratory noises, an amphoric shade over the cavity draining through the bronchus, various moist wheezing. Radiographically determined total infiltrative darkening of the lung without cavities. Abscess and gangrene, in fact, are different types of destructive inflammatory process in the pulmonary parenchyma, but abscess is dominated by purulent melting, and with gangrene - necrosis of lung tissue.

Diagnosis of infectious destruction of the lung is established on the basis of anamnesis, assessment of clinical manifestations, data of laboratory and rentgenological studies. The main source of verification of diagnosis is the data of X-ray studies - fluoroscopy, radiography, tomography. Last decades are characterized by active introduction of methods of the digital medical image in diagnostics of pulmonary suppuration. The leading role in this, no doubt, is computed tomography (CT). On the one hand, it provides invaluable help in the differential diagnosis of cavities of the lungs. On the other hand, under the control of CT, it is possible to conduct a biopsy of solid lung formations, drainage of purulent cavities with an internal pulmonary disposition and a "difficult" trajectory of access to formation. Without systematic repeated radiographic examination (after 1-2 days), it is difficult to evaluate the effectiveness of the treatment and to correct the treatment.

In the list of obligatory instrumental studies, it is necessary to note bronchoscopy, which allows to exclude the tumor nature of the process, to take a material intake for bacteriological and cytological research. Fibrobronchoscopy in combination with peribronchial biopsy from the wall of cavity formation should be preferred to such an invasive study as transthoracic transpulmonary biopsy of the abscess wall. Much later, an ultrasonographic study took place in the diagnostic arsenal of pulmonary surgery. A valuable diagnostic method is bronchial arteriography. Catheterization of the bronchial artery and other branches of the aorta is carried out by means of wadded access according to the method of Seldinger. In acute lung abscess, hypervascularization of the lung tissue develops with a significant increase in peripheral branches and an intensive parenchymal phase of contrast. Expansion, tortuosity of bronchial-pulmonary messages are characteristic for a chronic abscess. For gangrene of the lung, a hypovascular variant of the blood supply of the pathological zone is characteristic.

Among the laboratory methods of research it is necessary to isolate bacteriological ones, since they influence the choice of the optimal volume of etiotropic therapy.

**Differential diagnostic**

Differential diagnosis of infectious lung destruction is very difficult due to the variety of clinical manifestations of the disease in different periods.

Quite often an abscess needs to be differentiated from lung cancer. In contrast to abscess, lung cancer is characterized by a prolonged course, a multi-month period of subfebrile condition, an increase in the "small symptoms syndrome," with a meager amount of mucocutaneous sputum, the connection of hemoptysis, the absence of three-layered sputum, as in abscess. During lung cancer there is no abscess-specific phase flow. When a bronchial tumor becomes obstructed and the atelectasis of the lobe develops, the chest wall becomes less horizontal, lagging behind in the act of breathing, and retraction and contraction of the intercostal spaces. In sputum and in bronchial washes, 83% of cases show abnormal cells. The blood is characterized by an increase in ESR up to 60-70 mm / h, leukopenia, hypochromic anemia. In the X-ray study, the tumor is dense, with uneven contours, does not contain the level of fluid, there are signs of cancer lymphangitis (a symptom of the mustache).

In some cases, it is necessary to differentiate the lung abscess from echinococcosis. Specific epidemic data - living in an endemic echinococcus terrain. The first, preclinical period is characterized by complaints of episodic manifestations of urticaria, non-localized pain in the chest, a rare dry cough. When a blood test, as a rule, there is eosinophilia (20-25%), there is a positive reaction latex agglutination on antibodies to echinococcus. Radiographic examination determines cavity fluid formation with thin walls, sometimes a sickle-shaped shadow is seen with an exfoliated chitinous membrane.

It is necessary to differentiate the lung abscess from bronchoectatic disease. The latter often flows for a long time, from a child's age. With bronchoectatic disease, there are occasional exacerbations with febrile fever, a cough with a small amount of purulent sputum. Patients have signs of chronic purulent intoxication - puffiness of the face, thinning, nail plates in the form of hourglasses. Often, the course of the disease is complicated by amyloid disease, in which kidney damage is most often seen with the transition to a chronic form of kidney failure. The westernization of the healthy side of the chest, the dullness of the percussion sound, multiple small and medium bubbling rales are physically noted. Radiographically determined diffuse enhancement of the pulmonary pattern, increased structure of the lung root. More precisely, the diagnosis is possible with tomo- or bronchography, which allows to identify the location and type of bronchiectasis.

Differential diagnostics of acute lung abscesses with various kinds of pleural effusion limited to the pleura and so-called pleuropulmonary cavities, in which one of the walls of the cavity is disintegrating lung tissue, the other is a parietal pleura (empyema of the pleura with destruction of the lung), sub-diaphragmatic abscesses. The most informative in such cases is ultrasound and computed tomography.

BRONCHOECTATIC DISEASE

Bronchiectasis (from the Greek ectaz - stretching) is a morphological concept, denoting persistent pathological enlargement and deformation of the bronchi.

Congenital bronchiectasis is a consequence of abnormal development of not only the tree, but also the respiratory parts of the lung. They are often combined with the developmental defects of other systems and organs. Therefore, they should be considered as an integral part of the characteristic complex of pathological changes that develop as a consequence of embryogenesis disorders: cystic lung hypoplasia, Zivert-Kartagener syndrome (bronchiectasis, pansinuitis, "mirror lung"), Turpin syndrome (bronchiectasis, esophagus, vertebral and vertebral development defects). Sometimes there is a combination of congenital bronchiectasis with polycystic pancreas, cleft upper lip, deaf-mute, congenital heart disease.

Persistent extensions of small peripheral bronchi can develop due to pathological processes in surrounding tissues (chronic abscess, fibrous-cavernous tuberculosis, chronic pneumonia). Such bronchiectasis is usually called secondary, emphasizing that this pathological process is a consequence and an integral part of the underlying disease.

Bronchoectatic disease is an acquired disease characterized by chronic purulent inflammation that affects the entire thickness of the bronchial wall with an irreversible change in its structure and function, which usually occurs in the lower parts of the lungs. It is a pathology of mainly childhood.

The leading role in the development of bronchiectasis has a violation of the patency of the bronchi (medium and small), leading to the formation of obturation atelectasis. Some of the patients have a congenital predisposition to collapse the walls of the bronchus (hypoplasia of cartilaginous rings and smooth muscle fibers), increased viscosity of sputum (with mucoviscedosis), with the formation of dense mucous plugs, obturating the lumen of the bronchi. In children, the flexible wall of the bronchus is often squeezed by enlarged lymph nodes with bronchoadenitis, more often tuberculosis, pneumonia, especially measles, and other respiratory infections that cause hyperplasia of the lymphoid tissue. Below the place of obturation, a bronchial secret begins to accumulate.

**Classification of bronchiectasises**

I. By origin:

1. Congenital (including combined with other developmental anomalies - Zivert-Kartagener syndrome)

2. Acquired (with bronchoectatic disease)

II. By primary lesion of lung structures:

1. With primary lesion of pulmonary parenchyma

2. With primary lesion of bronchi

III. According to the form of bronchiectasises:

1. Cylindrical

2. Sacred

3. Spindle-shaped

 4. Mixed

IV. According to the clinical course:

1. Remission

2. Exacerbation

3. Continuously recurring course

V. By the presence of complications:

1. Uncomplicated course

2. Complicated: - pulmonary hemorrhage - hemoptysis - pyopneumothorax – abscess

VI. By the state of the function of external respiration:

 1. Without respiratory failure

2. Respiratory failure I, II and III st.

3. Pulmonary heart failure.

The detailed diagnosis of bronchoectatic disease should be based on all the characteristics listed in the classification, the designation of localization and the prevalence of the pathological process.

**The clinical picture** of bronchiectasis is characterized by the duration and phase of the flow, periodic exacerbations with febrile, abundant separation of purulent sputum, persistent and chronic purulent intoxication (symptom of "drumsticks" and "watch glass"), and a specific complication of bronchiectasis, which is amyloidosis of the kidneys.

In the first stage of the development of the disease there is a moderate expansion of the lumen of the small bronchi by accumulating mucous bronchial discharge without alteration of the epithelium of the walls of the bronchus. The transition of the pathological process into the second stage means the occurrence of purulent inflammation in the occluded part of the bronchial tree. This is due to a decrease in the effectiveness of the protective mechanisms that mucosa of the respiratory part of the lung (alveolar macrophages, immunoglobulin A) under the influence of viral infection, beriberi and malnutrition. Another cause of development of purulent process is bronchial obstruction, which prevents its full emptying. Purulent inflammation spreads to the walls of the bronchi, in which squamous metaplasia of the cylindrical epithelium and ulceration of the mucosa are noted. In the future, inflammatory changes spread to the deeper layers of the bronchial wall, there is a cicatrical degeneration of the smooth muscles and submucosal layer. It is at this stage of the disease that the pathological process becomes irreversible in connection with the loss of muscle function of the bronchial wall of the contractile function, and hence the "purifying" function of the bronchi. There is a closure of the pathological vicious circle - violation of patency of the bronchi - purulent-inflammatory process - a violation of the function - progression of purulent inflammation - deepening of the violation of drainage function, etc.

In the third stage of the development of bronchiectasis, pathological changes are expressed in all layers of the bronchial wall and spread beyond the bronchial tree. Bronchi become sharply enlarged, containing in the lumen a purulent or purulent and ichorous exudate with an unpleasant acute putrefactive odor. The cartilaginous skeleton of the bronchi undergoes connective tissue degeneration, and in the places of ulceration of the mucosa whole "fields" of granulation tissue are formed. Such a violation of the structure of the bronchi leads to a decrease in their resistance and to the action of the so-called "bronchodilation" forces - an increase in intrabronchial pressure when coughing, stretching with accumulating sputum, which ultimately causes the appearance of sack-shaped expansions of the areas of the bronchial tree. In the pathological process, peribronchial tissues (sclerosis of peribronchial tissue, hypertrophy of bronchial arteries, bronchoadenitis) and pulmonary parenchyma (foci of pneumonia, pneumofibrosis) are inevitably involved. With angiography, there is an increase in the lumen of the bronchial arteries 4-5 times, the number of arterio-arterial anastomoses and the width of their lumen increases. This leads to a significant discharge of arterial blood from a large circle of blood circulation into the pulmonary artery system, pulmonary hypertension occurs, and subsequently a "pulmonary" heart is formed. The prolonged existence of a purulent process in the lung leads to the emergence and progression of systemic lesions: the formation of chronic pulmonary heart failure, diffuse chronic purulent bronchitis, emphysema, dystrophy of the parenchymal organs and anemia.

In the diagnosis of bronchiectasis, the leading place is occupied by X-ray examination, and in particular, total and selective bronchography and tomography. A frequent radiologic sign of bronchiectasis is a decrease in the volume of the affected lobe or the entire lung, compensatory emphysema of the "intact" lobe, displacement of the mediastinum and interlobar cracks due to a change in the architectonics of the bronchial tree. Angiopulmonography, perfusion scanning, is used to fully determine the function of the affected lung (pulmonary blood flow) section. Bronchoscopy is a very important diagnostic value. Bronchoscopic manifestations of endobronchitis make it possible to judge in more detail the quality of the spent lesion sanation and to suspect the congenital character of bronchial pathology (deformation of bronchial rings, tracheobronchomegaly, etc.).

**Differential diagnostic**

The differential diagnosis of bronchiectasis should be carried out with chronic empyema of the pleura. Similar to bronchoectatic disease is a long, chronic nature of the course of the disease, the presence of periodic exacerbations, the phenomena of chronic purulent intoxication. During the exacerbation, there are also complaints about subfebrile condition, cough with separation of purulent sputum, coming from the cavity of chronic empyema through the draining bronchus (with chronic empyema, as a rule, there is bronchopleural fistula). In the blood there is leukocytosis, a shift in the formula of white blood, an increase in ESR. The appearance of the patient differs: as a rule, chronic pleural empyema occurs in middle and old age, there is a narrowing of the intercostal spaces, their entrainment over the cavity of the empyema, there is also a blunting of percussion sound and weakened bronchial or amphoric respiration. To precisely verify the diagnosis, lung radiography helps to visualize the cavity of the chronic empyema, which has a paracostal arrangement and dense walls. In case of doubt, polycystonic X-ray of the lungs, superexposed images, bronchography and pleurography are used, even more rarely, with suspicion of pleural mesethelioma - thoracoscopy (pleuroscopy) with biopsy, computer tomography. In recent years, there have been data on the diagnostic value of ultrasound scanning.

Chronic lung abscess also has similarities with bronchoectatic disease in the form of long flow, the presence of phases of exacerbation and remission, the presence of chronic purulent intoxication. In contrast to bronchiectasis, an X-ray examination reveals a cavity formation with a liquid level located in the thickness of a light, rounded form. With chronic lung abscess in the bronchi draining it, in the lower parts of the lung due to chronic purulent panbronchitis, secondary bronchialectasies can occur, which, however, are of a purely regional, secondary nature. In doubtful cases, bronchography helps in the differential diagnosis, revealing the generalized nature of the lesion and the absence of an abscess cavity in bronchitis. Lung cancer can be similar to suppurative non-specific lung diseases if the endotracheally growing tumor overlaps the bronchus lumen, causes atelectasis of a group of segments or lobes with the development of abscess formation in it, or the disintegration of the tumor with the formation of perifocal abscesses. However, in cancer, this occurs as a subacute state, which is preceded by a long period of the disease with hemoptysis, increasing intoxication. Typically, these are elderly patients, heavy smokers, while patients with bronchiectasias are usually young. In doubtful cases, fibrobronchoscopy is used to visualize the tumor. Also, with the X-ray study, you can identify the shadow of the tumor with polycyclic contours and areas of decay in the thickness of it, "a whisker symptom." In doubtful cases, a study of wash water on atypical cells, selective bronchography is used.

Differential diagnosis should be performed intrasyndrome (bronchoectatic disease, bronchiectasis as a manifestation of other pathological processes - chronic bronchitis, tuberculosis, bronchiectasis in congenital pathology - cystic hypoplasia, tracheobronchomegaly, Zivert-Kartagener syndrome, etc.).

**Control questions:**

1. Specify the mechanisms of penetration of microorganisms into the pulmonary parenchyma in the occurrence of abscesses.

2. Name the factors contributing to the chronic acute abscess.

3. List the methods of X-ray studies used in the examination of patients with lung pathology.

4. Give a classification of bronchiectasis.

5. The goals and objectives of the method of bronchography.

**Tests for self-control: Answers:**

 In the development of pyopneumothorax with lung abscess, 2

first of all it is shown:

1. endobronchial administration of proteolytic enzymes

 2. drainage of the pleural cavity

3. antibiotics

4. X-ray therapy

5. introduction of cytotoxic agents

Complications of acute lung abscess can not be: 5

1. breakthrough abscess in the pleural cavity

2. bleeding

3. aspiration of pus in the healthy lung

 4. sepsis

5. formation of the dry cavity in the lung

For gangrene of the lung is characterized by: 5

1. development of the disease with a decrease in body immunity

2. no granulation shaft at the boundary of the lesion

3. the widespread necrosis of the lung tissue

4. the pronounced intoxication

5. all listed correctly

List the main periods in the clinical picture of acute lung abscess: 2,5

1. period of imaginary well-being

2. the period before opening in the bronchus

3. the period of subcompensation

4. decompensation period

5. the period after opening in the bronchus

List additional methods of examination of a patient with 2,4

a lung abscess:

1. EGDS

2. X-ray of the lungs

3. sigmoidoscopy

4. radiography

**The theme of lessons “ACUTE AND CHRONIC PLEURAL EMPYEMA”**

**The purpose of the lesson**: learn at the level of reproduction from memory etiology, pathogenesis, clinical manifestations, classification, methods of diagnostic of acute and chronic pleural empyema

To the lesson student should:

1. Know the etiology and pathogenesis, the classification of pleural empyema, the ways of the formation of acute pleural empyema, the methods of diagnosis of acute and chronic empyema of the pleura.

2. Understand the sequence of application of various medical and diagnostic measures for acute pleural empyema, the causes of the transition of acute pleural empyema to chronic.

3. Be able to conduct a physical examination, to evaluate the data of laboratory and instrumental research methods for acute and chronic pleural empyema.

4. Know differential diagnostics with: hydrothorax, specific pleural lesion, echinococcosis, chronic lung abscess.

**Theoretical information**

Empyema pleura is a purulent or putrefactive inflammation, developing in the pleural cavity with the involvement of the pathological process of the parietal and visceral pleura. The term "empyema" (translated from Greek as an abscess) was used in the days of Hippocrates to refer to accumulated pus in an anatomically prepared cavity (empyema of the gallbladder). The term "pleural empyema" does not differ in meaning from the term "purulent pleurisy", but is more often used in surgical practice.

Empyema of the pleura is often not an independent disease, but is a pathological process that complicates lung diseases, abdominal organs (pancreatitis, subdiaphragmatic abscesses) and systemic diseases of the blood, connective tissue. Most often pleural empyema complicates the course of acute pneumonia (5-8%), lung abscesses (9-11%), lung gangrene (80-95%). With closed chest injuries, pleural empyema occurs in 3-5% of cases, and with penetrating wounds - in 10-15%.

**Classification**. The most important classification criterion determining treatment tactics and prognosis is the absence of pleural cavity communication with the external environment (closed pleural empyema) or its presence (open pleural empyema). In terms of the volume of pathological contents of the pleural cavity, there are: total pleural empyema, subtotal and delimited. By localization, the delimited empyema of the pleura is divided into: apical, parietal, basal, interlobar, paramediastinal. Separate parapneumonic pleural empyema (a combination of pneumonia and pleural empyema) and pleural empyema with destruction of lung tissue (abscess of the lung, gangrene of the lung). The so-called metapneumonic pleural empyema is the suppuration of abacterialparapneumonic pleurisy or hydrothorax, which is not recognized in time. They isolate a special type of open empyema of the pleura with the destruction of the lung tissue - pyopneumotorax. The nature of changes in the walls of the pleural cavity and the clinical course of empyema up to 8 weeks is regarded as acute, and 8 weeks after the occurrence - as chronic.

**The clinical picture** of acute empyema consists of a syndrome of purulent-resorptive fever with a hectic range of the temperature curve, weakness, chills, headache, and in the absence of adequate treatment - the development of the syndrome of sequential multi-organ failure, with decompensation of the functions of vital organs.

When examining the chest - lagging the affected side with respiratory movements, swelling of the intercostal space. Voice tremor in the zone of maximum accumulation of exudate is not carried out. During percussion, a blunt sound is detected above the accumulation of fluid, its boundary is located in an oblique direction (the Demoiso line), in the presence of air in the pleural cavity, the horizontal border of blunting is determined, and above it - tympanite with a metallic shade. At auscultation - absence of respiratory noises on the side of damage.

The reason for the transition of acute empyema to chronic is often inadequate or untimely used therapeutic measures, which is why, as a result of purulent destruction of the pulmonary parenchyma, a bronchopleural fistula is formed, which subsequently supports the existence of chronic pleural empyema. Purulent-destructive process in the pleura causes the occurrence in the body of a number of severe changes in the heart, liver, kidneys, characteristic of prolonged purulent intoxication.

When the pyogenic shell is destroyed by bacterial enzymes, the pus can go beyond the pleural cavity, forming abscesses between the muscles of the chest, under the skin or open outwards. Spontaneous breakthrough of purulent accumulation can also occur in the pericardial cavity, esophagus, through the diaphragm into the abdominal cavity.

From the instrumental diagnosis, a radiographic study is the leading one. The most simple and informative method of X-ray examination is polypositional fluoroscopy. It allows you to accurately localize the pathological process, determine the degree of delimitation of exudate, and also to determine its volume sufficiently accurately. Polypozitional pleuroraphy is performed to accurately determine the dimensions of the empyema cavity, its configuration, the condition of the walls, the verification and localization of the bronchial pleural communication. Endoscopic methods (bronchoscopy, thoracoscopy), as well as ultrasound scanning, provide a more detailed picture of the character of morphological changes in the pleural sheets and the pleural cavity. The final method of verifying the diagnosis is a pleural puncture: getting purulent contents from the pleural cavity allows to consider the diagnosis of pleural empyema as absolutely reliable.

**Differential diagnostic**

The empyema of the pleura must be differentiated from the specific (mycotic, tubercular) lesion of the pleura, when the primary process precedes the development of pleural empyema. To establish the correct diagnosis, a targeted study of exudate (on mycobacterium tuberculosis, fungi), puncture biopsy of the pleura, serological tests, and thoracoscopy with biopsy is necessary. In addition, pleural empyema should be differentiated with the following pathological conditions: hydrothorax, hemorrhagic pleurisy, subpleuralechinococcal cysts, chronic lung abscess.

Hydrothorax (presence of fluid in the pleural cavity) - occurs with left ventricular heart failure and quite often serves as a differential diagnosis with acute pleural empyema, as it has the property of becoming infected and passing into the acute empyema of the pleura. A number of studies have shown a fairly significant decrease in immunity indices in patients with heart failure, which makes them sensitive to microbial factors. A distinctive feature with some generality of the x-ray picture is the absence of purulent-resorptive fever and purulent intoxication during hydrothorax. However, with a dubious clinical and radiologic picture, pleural puncture helps with the study of the resulting contents. For the transudate, the relative density of 1001-1015 is typical, for the exudate 1016-1025, the protein content in the exudate is 30-50 g / l, in the transudate is 1-2 g / L, the Livutta test for the serosomucin content in the exudate is always positive, according to the cellular composition in the exudate leukocytes predominate, in the transudate they are only 10-20 in the field of vision, lymphocytes predominate.

Festering hemothorax is also a stage of acute pleural empyema, since without adequate emptying of its punctures, it can with great probability turn into acute empyema. Radiographically, their picture is very similar. In the study of blood sampling, Petrov and Efendiev (Petrov - test for lysis of erythrocytes - "lacquer blood" - when diluting punctate with saline 1: 5) are poured into the tube, some blood is poured from the pleural cavity and diluted with a 5-fold amount of distilled water. uninfected blood after 5 minutes there is a complete hemolysis and the liquid becomes transparent, lacquer.If there is pus in the blood, the liquid becomes cloudy with the flocculent precipitate of fibrin, Efendieva - change in the ratio plasma, and shaped elements. Punctate in a test tube is defended or centrifuged. With this, two layers are formed - the upper (plasma), the lower layer - the uniform elements. If the blood is not infected, the correspondence between the plasma and the shaped elements will be 1: 1. In infected blood, this ratio changes in the direction of increasing fluid and reducing the sediment - turbidity (fibrin).

Hemorrhagic pleurisy is a classic example of lung cancer. With the development of processes of decay of the lung tumor, the clinical signs of purulent intoxication, according to the X-ray picture, are very similar to acute empyema (which can also complicate the course of lung cancer, but the actual hemorrhagic pleurisy does not require puncture or drainage, they can even cause infection of the pleural cavity and vice versa the development of empyema), from which the importance for determining the therapeutic tactics of delineation of these conditions follows. The most reliable way is a diagnostic puncture. With hemorrhagic pleurisy, the effusion corresponds to the transudate by physical parameters. By the cellular composition, erythrocytes predominate, and neutrophils are only rare, and atypical tumor cells can also be detected. At bacteriological research the transudate is sterile.

Subpleuralechinococcal cysts - especially when suppuration is very similar to the chronic empyema of the pleura. However, they are characterized by a departure from the sputum scraps of the chitinous membrane and daughter scolexes, a positive latex agglutination reaction to echinococcus antigens corresponding to epidemics. Festering echinococcal cyst, even with a full-fledged conservative treatment, unlike the nonspecific chronic empyema, does not go into the remission phase, because it can not get rid of scraps of the chitin capsule of the parasite supporting the suppuration. In the peripheral blood there is pronounced eosinophilia (20-25%), which is not typical for chronic pleural empyema.

Chronic lung abscess is similar to chronic empyema of the pleura clinic of chronic purulent infection, duration, phase flow with periodic exacerbations and remissions. Differentiate these states only with the help of X-ray studies, and with paracostal localization of the abscess the picture can be quite identical. What distinguishes them is that in a chronic empyema the cavity is stretched in a vertical direction, with an abscess tends to a rounded contour, with chronic empyema, the walls of the cavity become thinner with an increase in the period of the disease, and become thicker with an abscess. X-ray and tomography help in differential diagnosis of polycystonic.

**Control questions:**

1. Name the reasons for the transition of acute empyema to chronic.

2. List the complications of lung cancer.

3. Give a classification of acute and chronic empyema of the pleura.

4. List the main clinical signs of acute pleural empyema.

**Tests for self-control: Answers:**

The reason for the transition of acute empyema to chronic can not be: 4

1. a failed attempt to obliteration of the cavity in an acute period

2. premature drainage removal

3. a large primary cavity

4. tuberculosis and other specific flora

5. bronchopleural fistula

Chronic pleural empyema is considered: 4

1. from the second week

 2. from the fourth week

 3. from six weeks

4. from eight weeks

5. from three months

The outcome of the treatment of pleural empyema without bronchopleural fistula is determined by the nature of: 1

1. changes in the visceral pleura

2. the amount of pus in the pleural cavity

3. changes in the parietal pleura

4. changes in the lung tissue

5. microflora

To avoid hemorrhage it is not recommended to remove at once more than this amount of pleurocentesis 3

1. 1000 ml of liquid

2. 500 ml of fluid

3. 1500 ml of liquid

**The theme of lessons: “ECHINOCOCCOSIS OF THE LUNG”**

**The purpose of the lesson**: learn at the level of reproduction from memory the clinical signs, classification, methods of laboratory and instrumental diagnosis, differential diagnostic of echinococcosis of the lung.

**To the lesson student should:**

1. Know the stages of development of lung echinococcosis, the clinical picture, the methods of laboratory and instrumental diagnostics, the nature of the complications of the disease.

 2. Understand the etiology and pathogenesis of lung echinococcosis, the dependence of its clinic on the form and stage of the disease.

3. Be able to collect complaints and anamnesis, to reveal the objective symptoms of the disease, to evaluate the data of laboratory and instrumental research.

4. Know the differential diagnosis of this disease with lung abscess, lung cancer, tuberculous lesion of the lung.

**Theoretical information**

Echinococcosis of the lung is a disease characterized by development in the lung tissue of the echinococcal cyst and a specific clinical picture of the pathological process.

**Classification**. The clinical classification of lung echinococcosis includes three stages:

1. Hidden (asymptomatic)

2. Clinical manifestations

3. Complications

**Clinical picture**. In the first stage patients do not have complaints. At this time, examination of patients according to the systems, there are no signs of lung echinococcus. The stage of clinical manifestations includes two periods: the period of development of a closed bladder without complications and the period of opening of the echinococcal cyst in the bronchus is an open period. In the first period, complaints are meager. The patient's condition is satisfactory, there is a slight pain in the chest, without a clear localization, a rare dry cough, normal body temperature, no shortness of breath, no signs of intoxication. At physical research only at the large sizes of a cyst shortening of a percussion sound and weakened breath are revealed. A moderate eosinophilia is observed in the blood test, the latex agglutination reaction is positive.

The radiograph of the lungs defines rounded, homogenous, clearly delineated shadow that does not have a horizontal level of fluid and a tight capsule around. Sometimes you can find a sickle-shaped shadow of an exfoliated and asleep chitinous shell. When a cyst breaks through the bronchus, there appears a cough with the passage of a clear, odorless liquid, with scraps of chitinous membrane, hemoptysis, weakness, fever, shortness of breath and urticaria, asphyxia may occur. With suppuration cyst sputum is purulent, odorless and does not break down. The temperature rises, but there are no signs of intoxication. There is no shortness of breath and cyanosis, there is no evidence of chronic intoxication (changes in fingertips and nail plates). In the lungs, humid finely bubbling rales are heard. On the X-ray of the lungs, a cavity is defined with a liquid level that does not have a dense capsule. Sometimes you can find a sickle-shaped shadow of an exfoliated and asleep chitinous shell. The rupture of the echinococcal cyst may be accompanied by severe bleeding.

**Differential diagnostic**

Differential diagnosis should be carried out with lung cancer, lung abscess, bronchoectatic disease, pulmonary tuberculosis.

Lung cancer. In the early stage of the disease, peripheral lung cancer, as well as lung echinococcosis, is characterized by the presence of a rounded shadow on the chest radiograph. In contrast to cancer with echinococcosis, you can establish an epidemiological anamnesis (contact with domestic animals, large and small cattle) and for a long time there is no clinic. In lung cancer, the manifestation of the process begins with a subfebrile condition, weakness and a dry cough that is of an overwhelming nature with a scant amount of mucus containing blood veins, which is not typical for echinococcus during the closed bladder. In the future, the patient's condition progressively worsens, hemoptysis increases up to pulmonary hemorrhage, cachexia, anemia, sprouting of the intercostal nerves or metastases in the vertebral bodies with their subsequent destruction and development of radicular compression develops, an unusual atherosclerotic pain syndrome develops. With endobronchial growth of the tumor, bronchial obstruction and development of shared atelectasis occur with time. At the same time, there is an abnormality of the thoracic wall, a lag in breathing, retraction and convergence of the intercostal spaces. Echinococcus lung is characterized by a slow expansive growth and development of atelectatic syndrome is extremely rare.

In the blood of a patient with lung cancer there is an acceleration of ESR up to 50-70 mm / hour, which can also be noted in patients with echinococcus lung. In the analysis of sputum in patients with lung cancer, atypical cells are microscopically determined in 83% of cases. With cancer radiographically, the shadow of the tumor is dense, with uneven, bumpy, "landscape-like" outlines, has short shadows - "antennae", reaching the root of the lung, so-called "cancer paths" - a sign of tumor germination along the lymphatic collectors and bronchi. When the tumor disintegrates in the center of the shadows, a cavity appears with polycyclic contours that does not contain a liquid level. For echinococcus, on the roentgenogram of the lungs, a distinct, round, homogeneous shadow with even edges is characteristic. Sometimes the symptom of "detachment" is determined, and signs of involvement of lymphatic reservoirs are never determined.

The abscess of the lung is characterized by the severity and phase of the flow of the process. It flows in the form of two clearly pronounced periods: the phase of infiltrate formation and the phase of breakthrough of the abscess in the bronchi. In the first phase, patients complain of persistent chest pain, weakness, chills, unproductive cough, high hectic temperature, dyspnea. There is a blunting of percussion sound, weakened bronchial breathing. In the blood, high leukocytosis, increased ESR. With suppuration of echinococcal cysts, there is also a high leukocytosis and an increase in ESR, however, in this case, the appearance of cough is not typical, the spontaneous breakthrough of a suppurated cyst in the bronchus or pleural cavity occurs much later than with abscess. Normally, dead parasites usually contract after a long period after infestation. With the breakthrough of the echinococcus cyst, in case of suppuration, sputum does not have a three-layered abscess characteristic of the abscess. In the expectorated sputum you can find scraps of chitinous membrane and scolexes. With a breakthrough in the bronchus of echinococcal cysts from the liver in sputum there is an admixture of bile.

Bronchoectatic disease manifests itself from childhood, is either congenital in nature, or occurs due to such diseases as whooping cough, flu, the primary tuberculosis complex. Patients constantly see mucous sputum discharge, dyspnea, subfebrile condition in the mornings, phase flow characterizes with increasing duration of the disease, signs of chronic purulent intoxication (deformation of nail phalanges, amyloidosis, chronic anemia and hypoproteinemia often joins). Unlike echinococcus, there is never eosinophilia, more typical leukocytosis with a shift of the formula to the left, an increase in ESR. The radiological picture is completely different: with a bronchoectatic disease, there is never a clear, round, homogeneous shadow, as in echinococcus, and bronchography always reveals sack-like or clearly-expanded bronchi that are absent in echinococcus.

With pulmonary tuberculosis, as in the complicated form of echinococcus lung, subfebrile temperature is determined, dyspnea with exercise, cough. In contrast to echinococcosis, pulmonary tuberculosis reveals its epidemic history, sputum meager and before the formation of the cavern there is no hemoptysis. Microscopic examination of sputum determines the presence of mycobacterium tuberculosis in it. Radiographically, tuberculosis reveals miliary and focal infiltrative "foci", and with the disintegration of the cavern with the so-called "path" to the lung root. With tuberculosis, other radiographic signs of tuberculosis are revealed - traces of dissimination. Positive serological reaction Mantoux.

**Control questions:**

1. Indicate the ways of invasion of echinococcus into the human body.

2. Classification of lung echinococcosis.

3. Clinical picture of lung echinococcosis.

4. Clinic of penetration of the echinococcal cyst in the bronchi.

 5. What are the methods of instrumental diagnosis of lung echinococcosis?

**Tests for self-control: Answers:**

What is the most common cause of spontaneous pneumothorax: 4

1. lung abscess

2. lung cancer

3. bronchiectasis of the lung

4. bullous lung cysts

5. lung echinococcosis

For the radiographic picture of lung echinococcosis it is characteristic: 2

1. rounded shadow without clear contours

2. Rounded shadow with smooth, well-defined contours

3. Rounded shadow with a path to the lung's root.

Hemoptysis is an early symptom for: 5

1. Lung abscess

2. Lung cancer

3. Empyema

4. Bullous lung cyst

5. All wrong

Select all the symptoms that characterize the Gorner triad: 2,3,5

1. exophthalmus

2. ptosis

3. miosis

4. edema of the face

5. enophthalmus.

When a circular shadow is detected on the chest radiograph: 5

1. Tomography

2. Dynamic observation

3. Pirke and Mantoux test

4. fibrobronchoscopy with biopsy

5. pneumomediastinography

**The theme of lessons: «LUNG CANCER»**

**The purpose of the lesson:** learn at the level of reproduction from memory etiology, pathogenesis, clinical manifestations, classification, methods of diagnostic of lung cancer.

**To the lesson student should:**

1. Know classification of lung cancer, clinical manifestation, methods of laboratory and instrumental diagnostic, nature of complications.

2. Understand etiology and pathogenesis of lung cancer, dependence of the clinic of this disease on the form and stage of the disease.

3. Be able to collect complaints and anamnesis, reveal the objective symptoms of the disease, evaluate the data of laboratory and instrumental research.

 4. Know the differential diagnosis of this disease with: abscess and lung echinococcus, pulmonary tuberculosis, mediastinal tumor.

**Theoretical information**

Lung cancer occupies one of the first places among oncological diseases. Men are sick four times more often than women.

**Classification**. There are central lung cancer - endobronchial and peribronchial. Peripheral cancer - intra-luteal, subpleural, "cavitary", Penkost’s cancer (apex of the lung).

International classification:

T - primary tumor

T 0- no signs of primary tumor

T is - noninvasive (intraepithelial) cancer

T 1- tumor up to 3 cm or less, without signs of bronchial wood injury proximal to the lobar bronchus

T 2- tumor more than 3 cm or tumor causing atelectasis, obstructive pneumonitis, or spreading to the root region

T 3 - tumor of any size with direct spread to adjacent organs or causing obstructive pneumonitis of the entire lung or there is pleural effusion

T x - tumor not radiographic or bronchoscopic methods

N - regional lymph nodes

N 0- no signs of lymph node involvement

N 1- signs of affection of peribronchial lymph nodes

N 2- signs of mediastinal lymph node mediation

M - distant metastases

M 0- no signs of distant metastases

M 1 - signs of distant metastases

**The clinical picture** of lung cancer in the initial stages is scant, in the future it is associated with developing complications. There are several typical clinical variants of its course. The central cancer clinic is diverse and characterized by pain in the chest on the side of the lesion. There is a dry cough, subfebrile condition. Gradually weakness, weight loss, anemia increase. Peribronchial growth is accompanied by erosive bleeding. Hemoptysis appears with the advanced course of lung cancer. For peripheral lung cancer, the earliest and persistent symptom is chest pain. More often the pain is constant, not associated with the act of breathing. Then there is shortness of breath. In the X-ray study, the shadow of the tumor is dense, with uneven, bumpy outlines, there are short shadows that go to the root of the lung, the so-called "cancer paths" - a sign of tumor germination along the lymphatic collectors and bronchi. When the tumor disintegrates in the center of the shade, a cavity with polycyclic contours is found that does not contain a liquid level. If a cancer is suspected, sputum examination for atypical cells, bronchoscopy with aspiration biopsy and cytological examination is indicated.

**Differential diagnostic**

Lung cancer should be differentiated: with inflammatory diseases, lung cysts, tuberculosis lesions, mediastinal tumors (teratomas, dermoid cysts, thymomas, lipomas).

Acute and chronic lung abscess. A common manifestation will be a clinic of intoxication, a cough with phlegm, a rounded shadow on the roentgenogram. In contrast to lung abscess with cancer, intoxication is less pronounced. Sputum does not have a three-layered characteristic. On the roentgenogram, a cavity with thicker walls than with an abscess, and the inner contour is eaten, it does not contain liquid.

Echinococcosis of the lung as lung cancer appears on the roentgenogram with a rounded shadow. In contrast to lung cancer with echinococcosis, you can establish an epidemic history (contact with domestic animals, large and small cattle) and for a long time there is no clinic. With lung cancer, the manifestation of the process begins with a subfebrile condition, weakness and a dry cough that is of an overwhelming nature with a scant amount of mucus containing blood veins, which is not typical for echinococcus during the closed bladder. In the future, the patient's condition progressively worsens, hemoptysis intensifies up to pulmonary hemorrhage, cachexia, anemia, sprouting of the intercostal nerves or metastases in the vertebral bodies, followed by destruction and development of radicular compression, develops a pain syndrome unusual for echinococcosis. With endobronchial growth of the tumor, bronchial obstruction and development of shared atelectasis occur with time. At the same time, there is an abnormality of the thoracic wall, a lag in breathing, retraction and convergence of the intercostal spaces. Echinococcus lung is characterized by a slow expansive growth and development of atelectatic syndrome is extremely rare. In the blood of a patient with lung cancer there is an acceleration of ESR up to 50-70 mm / h, which can also be observed in patients with echinococcus lung. In the analysis of sputum in patients with lung cancer, atypical cells are microscopically determined in 83% of cases. Radiographically, the shadow of the tumor is dense, with uneven, bumpy, "landscape-like" outlines, has short shadows - "tendrils" that extend to the root of the lung, so-called "cancer paths" - a sign of tumor growth of the lymphatic reservoirs and bronchi. When the tumor disintegrates in the center of the shadows, a cavity appears with polycyclic contours that does not contain a liquid level. For echinococcus, the radiograph of the lungs is characterized by a rounded shadow, distinct with even margins. Sometimes the symptom of "detachment" is determined, and signs of involvement of lymphatic reservoirs are never determined.

With pulmonary tuberculosis, as in cancer, subfebrile temperature is determined, dyspnea with exercise, cough. In contrast to cancer, pulmonary tuberculosis reveals an epidemic history. With tuberculosis for several days, the body temperature reaches 38.5. After its reduction, sweating is observed after low stresses and night sweats. Sputum is scant and there is no hemoptysis before the formation of the cavity. Microscopic examination of sputum determines the presence of mycobacteria tuberculosis. Radiographically, tuberculosis reveals miliary and focal infiltrative "foci", and with the disintegration of the cavern with the so-called "path" to the lung root.

When cancer is localized in the apex of the lung (Penkost cancer), in contrast to tuberculosis, a characteristic triad of symptoms (ptosis, miosis, enophthalmus) on the side of the lesion (Horner's village) is associated with compression of the sympathetic trunk. With tuberculosis, other radiographic signs of tuberculosis are revealed - traces of dissimination. Positive serological reaction Mantoux.

Tumors of the mediastinum (teratomas, dermoid cysts, thymomas, lipomas) are characterized by a slow course, absence of such symptoms as coughing, chest pain, hemoptysis, exhaustion. The first signs of a mediastinal tumor are compression of the hollow and nameless veins (upper vena cava syndrome), accompanied by the appearance of cyanosis and edema of the face, neck and hands. With tumor of the thymus gland (thymoma) signs of myasthenia progress. X-ray examination of the lungs in several projections does not reveal any changes in them. Indirect attribute is the displacement of the mediastinum. Pneumomediastinography and mediastinoscopy with biopsy make it possible to establish the exact nature of the lesion.

**Control questions:**

1. Etiology and pathogenesis of lung cancer.

 2. What are the three main symptoms of lung cancer?

 3. Name four forms of peripheral lung cancer.

4. Clinical classification of lung cancer.

 5. Clinical picture of central and peripheral lung cancer.

6. What are the methods of instrumental diagnostics of lung cancer?

**Tests for self-control:**

Symptoms of lung cancer are: **Answers:**

1. dry, barking, cough 4,5

2. dyspnea

3. soreness with tapped chest and spine

4. hemoptysis

5. recurrent pneumothorax

The main radiographic evidence of peripheral lung cancer is: 3

1. Rounded shadow in the lung

2. Rounded shadow with clear contours

3. Rounded shadow with a path to the lung root

4. Atelectasis

5. Mediastinal displacement.

With lung cancer, hemoptysis is an early symptom: 2

1. Yes

2. No

Horner's triad is typical for: 2

1. mediastinal tumors

2. cancer apex

3. lung abscess

Which is considered an early symptom for echinococcosismediastinal tumors: 3

1. Horner symptom

2. Grefe symptom

3. symptom superior vena cava

4. hemoptysis

**The theme of lessons: “VARICOSE VEINS”**

**The purpose of the lesson**: learn at the level of reproduction from memory etiology, pathogenesis of varicose veins, clinical manifestations, methods of diagnostic and differential diagnostic of varicose veins.

**To the lesson student should:**

1. Know the causes of development of varicose veins, classification, methods of clinical diagnosis and instrumental research.

 2. Understand the pathomorphological features of the venous wall, the pathogenesis of varicose veins, depending on the type of lesion and the degree of venous outflow disturbance, to evaluate the data of objective patient research.

3. Be able to correctly collect an anamnesis of the disease, to conduct a clinical examination using functional tests on the passage of deep veins and the consistency of the venous valve apparatus.

4. Know the differential diagnosis of varicose veins: with postthrombophlebitic disease, lymphatic insufficiency, congenital angiodysplasia, femoral hernia.

**Theoretical information**

Varicose disease refers to the pathological expansion of the peripheral veins of the limbs.

In Russia, a varicose disease affects about 30 million people, of whom 15% have trophic disorders. High prevalence of the disease, a significant number of relapses require timely diagnosis and adequate treatment of varicose veins.

Varicose disease of the lower limbs is a polyethiologic disease, in the genesis of which important are: heredity, obesity, violation of the neuro-hormonal status, lifestyle peculiarities, weakness of the venous wall, congenital angiodysplasia, underdevelopment of valvular valve apparatus and etc.

**Classification.** Venous disease takes into account: the form of the disease, the degree of chronic venous insufficiency and the complications caused by the disease. The following forms of varicose veins are distinguished:

1. intradermal and subcutaneous varicose veins without a pathological venous discharge;

2. segmental varicose with reflux on the surface or perforator veins;

3. widespread varicose veins on the surface and perforators;

4. varicose veins with reflux on the deep veins.

In terms of the degree of chronic venous insufficiency: 0 st. - there is no venous insufficiency; 1 st. - a syndrome of "heavy legs" - a transient edema; 2 st. - persistent edema, hyper or hypopigmentation, lipodermatosclerosis, eczema; 3 st. venous trophic ulcer.

Complications of varicose veins are bleeding, thrombophlebitis, trophic ulcer.

**Clinical picture**. In the early stages of varicose veins, as a rule, hemangiectasias or varicose veins are developed. Only after a few years and even decades, varicose extensions may appear in the pools of small or large subcutaneous veins.

When the varicose veins begin with the appearance of typical venous nodules, two variants of the development of the disease can be distinguished: 1. the appearance of varicose veins on the shin indicates the predominant lesion of the perforating veins; 2. The appearance of varicose veins initially on the thigh and antero-medial surface of the tibia, popliteal fossa points to the leading role in the development of the disease of high veno-venous discharge. Regardless of which discharge prevails, the joining of symptoms of chronic venous insufficiency occurs identically.

In most patients 3-5 years after the appearance of varicose veins, functional disorders (complaints of a feeling of heaviness in the legs, pain in the leg, foot and leg flutter) occur at the end of the day. As the disease progresses, the phenomena of venous insufficiency increase - the edema becomes more pronounced and permanent, the heaviness in the legs increases, and signs of trophic disturbance appear in the form of hyperpigmentation zones, trophic ulcers located mainly on the medial surface of the shin. Often, varicose disease is complicated, in later stages, thrombophlebitis, phlebothrombosis, bleeding from varicose veins.

Very important in clinical practice is the differential diagnosis of various diseases accompanied by the development of varicose syndrome.

Due to the common nature of many clinical manifestations of various pathological conditions, primarily varicose and postthrombophlebitic diseases, congenital venous dysplasia, and lymphatic outflow disorders, considerable diagnostic difficulties are possible.

In the diagnosis of varicose veins, the following tasks should be solved: 1. to confirm the presence of the pathology of the venous system of the limbs; 2. to reveal the reflux on subcutaneous and perforating veins; 3. assess the state of venous outflow through deep veins; 4. differentiate the nature of pathological changes in the veins (depending on the type of disease). To solve these problems, it is necessary to carefully collect an anamnesis of the disease and complaints of the patient. The most characteristic manifestation of lesions of the venous system of the lower limbs is fatigue in the legs after a prolonged stay in orthostasis. In a clinical examination, both lower extremities, as well as inguinal areas and the anterior wall of the abdomen, should be examined. Palpation allows to detect defects in the fascia corresponding to the exit of insufficient perforating veins. Percussion test allows to diagnose valvular insufficiency of the main subcutaneous veins. It is always necessary to determine pulsation on the arteries of the extremities.

When carrying out various physical tests (Troyanov-Trendelenburg, Delbe-Perthes, Pratt, Gachenbruch, etc.), the frequency of false positive or false-negative results reaches 60%. In this regard, modern diagnosis of varicose veins should be based on these special methods of instrumental research. Priority is given to ultrasound dopplerography, which makes it possible to reliably estimate the permeability of veins, as well as to reveal the majority of pathological veno-venous refluxes. The most informative method of examination is duplex angioscanning with color mapping of subcutaneous and perforating veins. The use of ultrasound methods for assessing the state of the venous system of the lower limbs allows you to abandon the conduct of radiopaque phlebography.

**Differential diagnostic**

In clinical practice, it is most often necessary to carry out differential diagnosis of varicose veins with postthrombophlebitic disease, congenital dysplasia, lymphatic outflow, femoral hernia.

Post-thrombophlebitic disease - a varicose form, occurs mainly at the age of 40-60 years, usually after a previous deep phlebothrombosis. Distinguish: occlusal, recanalization and mixed forms of the disease, depending on the violation of patency of deep veins of the extremity. Most often secondary varicose veins of the superficial veins appear in a few months from the onset of the acute period of deep phlebothrombosis and are localized on the lower leg, thigh, pubis and anterior abdominal wall, depending on the level of occlusive disturbance of venous outflow along the deep veins.

As the chronic venous insufficiency progresses, the edema develops in the clinical picture of the disease, followed by signs of tissue trophism (hyperpigmentation or hypopigmentation, lipodermatosclerosis, eczema, trophic ulcers). Allocate: edematous, ulcerative, painful, varicose and mixed forms of the disease. In contrast to varicose veins, the first sign of the disease is swelling, which after a night rest is significantly reduced. Feelings of heaviness in the legs, pains appear in the first weeks of the disease, and trophic disorders develop after 3-5 years, are often circular, progress rapidly. A significant role in clarifying the nature of venous outflow disturbance has an ultrasound examination of the venous outflow system.

Congenital venous dysplasia occurs as a result of a violation of embryonic development of blood vessels. Most often in clinical practice there are patients of infant and young age with arterio-venous jaws (shunts). Under the influence of arterial pressure, the walls of the veins become thinner, the veins increase considerably in diameter and, more often on the lateral surface of the thigh and lower leg, varicose veins of the subcutaneous and dermal veins appear. Varicose veins often occur on the anterior abdominal wall and in the pubic region. The skin over the dilated veins is hot to the touch. Edema is more often noted in the distal parts of the limb and is of a permanent nature. Patients are constantly worried about the severity of the affected limb. Trophic disorders appear at the age of 25-30 years and are localized on the lateral surface of the shin. The affected limb is longer than healthy by 3-5 cm, characterized by acromegaly, hypertrichosis.

In contrast to varicose veins, patients have vascular spots on the skin in the form of hemangiomas, a venous pulse is detected, and systolic-diastolic noise is often heard in places of arterio-venous anastomosis. The most informative methods of investigation are angiography and ultrasonic duplex angioscanning with color coding.

Disturbance of lymphatic outflow (elephantiasis, lymphadema) develops due to congenital underdevelopment of the lymphatic system of the limbs, or after repeated erysipelas of the skin of the limbs, accompanied by lymphangitis and lymphadenitis. Often, the violation of lymphatic drainage is associated with damage to the lymph vessels and nodes with injuries. Disturbance of lymph drainage leads to lymphatic dilatation of the vessels distal to occlusion, lymphatic stasis occurs.

The disease develops slowly, the swelling grows gradually, becomes dense and does not disappear after horizontal rest. The extremity is sharply increased in volume, the skin is tense, it is not going to fold. Sometimes there is sweat lymph on the skin.

In later cases, edema becomes dense due to the complete replacement of subcutaneous fat with connective tissue. The trophism of tissues is broken, there are eczematous areas, ulcers. In contrast to chronic venous insufficiency, swelling with elephantiasis is constant and dense. There is no mesh of varicose veins. Venous pressure is not increased. According to ultrasound, deep veins are intact. Surface veins are not dilated. Lymphography makes it possible to reveal the level of occlusion and the presence of enlarged lymphatic vessels.

Femoral hernia. The disease is characterized by the appearance of protrusion of a rounded shape, located below the puert ligament. For the femoral hernia an enlarged venous junction at the site of the large saphenous vein in the femoral may be taken. Direction of the hernial protrusion allows you to define the hernial gates. Femoral hernia is characterized by symptoms of coughing and increase in size when straining. Unlike a hernia, if you press a vein below the node with your finger or lift the lower limb, the varicose node collapses.

**Control questions:**

1. What are the causes of the development of the primary varicose veins of the extremities.

2. List the functional tests that allow you to determine the consistency of the valve apparatus of the veins of the limb and the patency of the deep veins.

3. Instrumental diagnostic methods used in the examination of patients with chronic venous insufficiency.

4. What are the ways to prevent varicose veins?

**Tests for self-control: Answers:**

By what research can the condition of the valvular 2,5,6

apparatus of communicating veins be determined

(choose the correct answers):

1. Trianov-Trendelenburg trial

2. Delbe-Perthes test

3. reophlebography

4. phlebography

5. Sheinis test

6. duplex scanning of veins

With the help of the following studies, it is possible to determine 3,5

the inconsistency of the valves of the superficial veins

(choose the correct answers):

1. Sheinis test

2. Delbe-Perthes probe

3. Trianel-Trendelenburg trial

4. Pratt-II trial

5. Gachenbruch test

To complications of varicose diseases belong: 3,4,6

1. lymphostasis

2. lymphorrhea

3. bleeding

4. thrombophlebitis

5. subcutaneous tissue inducing

6. trophic ulcers

For congenital venous dysplasia it is characteristic: 2,3,5

1. transient edema in the affected limb

2.an increase in the limb along the length

3. an increase in the temperature of the skin in the area of ​​veins

4. the presence of dense lymphatic edema

5. trophic ulcers

Elephant (lymphedema) is characterized by clinical symptoms: 4

1. varicose veins

2. subacute ulcers

3. transient edema of the limb

4. dense oyannye limb edema patient

**The theme of lessons: “ACUTE SUREPFICIAL THROMBOPHLEBITIS”**

**The purpose of the lesson:** learn at the level of reproduction from memory and learn to recognize acute thrombophlebitis of superficial veins of lower limbs, purposefully apply methods of conventional and modern diagnostics, identify complications and determine preventive measures to eliminate these complications.

**To the lesson student should:**

1. Know the course of normal and clinical anatomy - the structure of the venous system of the human limbs. From the course of normal and pathological physiology - features and mechanisms of blood flow in the veins of the limbs in the norm and pathology. From the course of pharmacology - the mechanisms of the blood coagulation system of man and his pharmacological correction.

2. Understand the etiology and pathogenesis of superficial thrombophlebitis of the lower extremities, stagnation in the venous system of the lower extremities and chronic venous insufficiency.

3. Be able to correctly collect anamnesis, identify the symptoms of the disease, prescribe examinations (laboratory and instrumental).

4. Know the differential diagnosis of superficial thrombophlebitis with inflammatory diseases (erysipelatous inflammation, lymphangitis), lymphostasis, varicose veins.

**Theoretical information**

Acute thrombophlebitis means inflammation of the vein wall, accompanied by the formation of a thrombus in its lumen.

Acute superficial thrombophlebitis of the lower extremities is a complication of varicose and postthrombophlebitic diseases. In connection with this, the term "acute varicothrombophlebitis" is now widely used. The disease has a persistent and often long-term recurrent course. The development of thrombophlebitis is promoted by significant changes in the walls of the veins, enlarged lumen, slowed blood flow, changes in adhesion and aggregation properties of blood elements.

**Classification.** Allocate: 1. Acute superficial thrombophlebitis in the basin of a large saphenous vein; 2. Acute superficial thrombophlebitis in the basin of a small saphenous vein; 3. Acute superficial thrombophlebitis in the basin of large and small subcutaneous veins. By the prevalence they distinguish: a) local; b) progressive ascending. Also they distinguish: uncomplicated and complicated (PE, transition to deep veins, periflebit and paravasalousphlegmon).

**Clinical picture**. Due to the superficial location of the subcutaneous veins, acute surface thrombophlebitis has a vivid clinical picture. In this case, local symptoms predominate: skin hyperemia, infiltration over the varicose veins, varicosity, pain, absence of a common edema of the limb. The main symptom is pain along the thrombosed vein, which increases with movement, physical activity. When examining a patient in a vertical and horizontal position, the palpable painful cord does not change the size and configuration.

Overall health in most patients remains satisfactory. Particular attention should be paid to the localization of thrombophlebitis. The presence of an inflammatory infiltrate in the projection of the main trunk of large or small subcutaneous veins extending proximally to the mouth is defined as an acute ascending thrombophlebitis. This condition is very dangerous due to the increasing risk of thromboembolic complications (PE). The presence or absence of an ascending character of thrombophlebitis determines the tactics of treatment for each patient. Laboratory diagnosis is assigned an auxiliary value: in blood tests there is leukocytosis, an increase in ESR, a system of hemostasis is investigated. The ultrasound duplex scanning of veins (or ultrasound of veins), which allows to determine with absolute accuracy the extent of thrombosis, its boundaries, establish a fixed thrombus or float (free floats) is crucial in confirming the diagnosis. Later, after determining the tactics of treatment, ultrasound of the abdominal cavity is prescribed (often the cause of thrombophlebitis can be oncological pathology), chest x-ray.

**Differential diagnostic**

Acute surface thrombophlebitis should be differentiated with erysipelas, lymphostasis, primary varicose veins of the surface veins, phlebothrombosis.

Erysipelas is an acute serous, progressive inflammation of the skin, less often of the mucous membranes, caused by streptococci. Allocate: erythmatous, bullous, bullous-necrotic forms of erysipelas. There are pronounced edema, skin hyperemia, a sharp increase in temperature of the local and general, the most severe pain at the slightest touch to the surface of the skin. In the future, "bubbles" (bullae) are formed with ulceration and necrosis of the skin. Unlike superficial thrombophlebitis, the erysipelas does not have any clear localization and connection with the venous system. If necessary, ultrasound of the veins is made, excluding acute thrombophlebitis.

Lymphangitis is an acute inflammation of the lymphatic vessels, which occurs as a reticular or stem lesion, is a complication of the primary purulent-inflammatory process of the limbs. There is hyperemia in the form of longitudinal bands, patients experience itching, burning. It is very important to identify the primary purulent-inflammatory focus, which can be localized on the fingers, feet or legs. Expansion of superficial veins is absent, in contrast to acute thrombophlebitis.

Lymphostasis is a chronic disease caused by a violation of lymph drainage in the skin, subcutaneous tissue, fascia. The disease develops slowly. During lymphostasis, two stages are distinguished: 1 stage of lymphadema, stage II of fibredema. Lymphostasis is characterized by a gradual thickening of the lower extremities, the nature of the edema is dense, the skin is dry, it does not gather into the folds, there is no network of varicose veins. Violations of trophic tissue lead to the development of maceration and eczematous areas.

Varicose veins of the superficial veins are a disease of the lower limbs, accompanied by the appearance of the tortuosity of the subcutaneous veins, their enlargement, saccular expansion, the gradual development of trophic skin disorders in the form of indurated skin tightening, a change in its color. Varicose veins of the superficial veins without inflammation proceed as a slowly progressing disease with the development of chronic venous insufficiency. On examination and palpation, softly elastic, receding in the horizontal position, enlarged veins, absent infiltration and hyperemia are revealed, which is typical for superficial thrombophlebitis - by the method of ultrasound of the veins, the insufficiency of the perforating and ostial valves is revealed, and the absence of thrombosis.

Phlebthrombosis is a thrombosis of deep vein, manifested by the swelling of the limb edema, pain. The skin acquires a pale cyanotic color. "Centimeter" determines the difference in circumference of the shin and hip compared with a healthy leg. There is no hyperemia and ripple in the projection of superficial veins. The diagnosis is verified by ultrasonic duplex scanning.

**Control questions:**

1. What are the causes leading to the development of acute surface thrombophlebitis.

2. Indicate the main clinical differences between acute varicothrombophlebitis and erysipelas of lower limbs.

3. Name the main clinical symptoms of thrombophlebitis and the methods of its diagnosis.

4. Conduct a differential diagnosis of acute thrombophlebitis with acute phlebothrombosis.

**Tests for self-control: Answers:**

Acute varicothrombophlebitis is: 1

1. inflammation and thrombosis of large or small saphenous veins

2. thrombosis of portal vein

3. phlebitis of humeral vein

4. Parkx-Weber-Rubashov disease

5. aneurysm of general femoral vein

In the diagnosis of acute varicothrombophlebitis, the most informative is: 3

1. palpation

2. phlebography

3. ultrasound veins

4. rheovasography

5. all methods

Acute varicothrombophlebitis is differentiated with all diseases except: 4

1. lymphostasis

2. erysipelas

3. lymphangitis

4. obliterating endarteritis

5. varicosity

For acute disease varicothrombophlebitis is characterized by all except: 1,2,5

1. the presence of syndrome "intermittent claudication"

2. expressed edema of the entire limb

3. The presence of varicose veins

 4. pain along the thrombosed veins

5. pain in lower abdomen

**The theme of lessons: “ACUTE PHLEBOTHROMBOSIS OF DEEP VEINS OF LOWER EXTREMITIES”**

**The purpose of the lesson**: learn at the level of reproduction from memory the classification, clinical picture, methods of diagnosis and differential diagnosis of acute deep phlebothrombosis of the extremities.

**To the lesson student should:**

1. Know the clinical picture, methods of laboratory and instrumental diagnosis of the disease.

 2. Understand the etiology, the pathogenesis of the disease, the dependence of the clinic on the form and level of the lesion.

3. Be able to collect complaints, anamnesis, to reveal objective symptoms of the disease, to evaluate the data of additional research methods.

**Theoretical information**

Acute phlebothrombosis is an intravital thrombus formation in the lumen of the veins in the absence of inflammation of the vessel wall.

Deep vein thrombosis of the lower extremities almost always leads to serious consequences. The significant diameter of large veins contributes to the formation of embolus thrombosis in them and often leads to pulmonary embolism. In the long term, patients develop posttrombophlebitic disease with varying degrees of chronic venous insufficiency, leading to disability of patients.

**Classification** is based on the topical location and extent of thrombus formation in deep veins: 1. deep vein thrombosis of the lower leg; 2. thrombosis of the superficial femoral vein; 3. thrombosis of the common femoral vein; 4. segmental thrombosis of the iliac veins; 5. widespread thrombosis of the ileum-femoral vein; 6. thrombosis of the internal iliac vein system; 7. Thrombosis of the inferior vena cava: a) infrarenal segment, b) renal segment, c) hepatic segment.

**The clinical picture** of deep vein thrombosis (DVT) consists of a complex of symptoms characterized by a sudden disturbance of venous outflow while maintaining an influx of arterial blood.

Edema, cyanosis of the affected limb, dilated nature of pain, local skin temperature increase, subcutaneous vein overflow, pain along the vascular bundle are characteristic in a varying degree for acute thrombosis of any localization. Movement in the joints is only slightly limited. General signs of aseptic phlebitis and periphlebitis - subfebrile condition, weakness, adynamia, leukocytosis differ in a large number of patients. The clinical diagnosis in general and the topical, in particular, is based on the analysis of symptoms caused by circulatory disorders and largely depends on the localization of the lesion - shin, femoral vein or pelvic vein.

In the physical examination of patients, positive symptoms of Homans, Moses, and Lovenberg are found. There is an increase in the size of the limb, a network of dilated subcutaneous veins is found on the skin as early as the first day of the disease. The symptomatology of deep vein thrombosis largely depends on the degree of narrowing of the lumen of the thrombus. The most vivid clinical manifestations are observed with complete occlusion of veins.

To determine the topical diagnosis and determine the degree and nature of thrombotic damage, the most informative method of investigation is ultrasonic duplex angioscanning.

The stage of pronounced clinical manifestations of acute venous thrombosis is characterized by edema, bursting character with pains and changes in the coloration of the cutaneous integument of the extremity. Since the swelling of the extremity is the main sign of deep phlebothrombosis, it is therefore more often necessary to differentiate the damage of deep veins from other pathological conditions accompanied by this symptom.

**Differential diagnostic**

Acute thrombosis of the deep veins of the extremities should be differentiated: with circulatory insufficiency, lymphostasis, anaerobic phlegmon, acute arterial insufficiency, long crush syndrome.

Insufficiency of blood circulation: swelling of the lower extremities develop with severe cardiac pathology, gradually on both legs, accompanied by tachycardia, dyspnea, enlargement of the liver, ascites, oliguria. Swelling of the extremities is loose, pasty. The pain syndrome is not expressed, there is no cyanosis, and the symptoms of Homans and Mozes are negative. The use of cardiac drugs, diuretics in heart failure gives a quick positive effect.

Lymphostasis of the limb develops slowly, beginning with the distal sections. As a rule, it is preceded by such diseases as erysipelas, recurrent lymphangitis, inguinal lymphadenitis, soft tissue tumors, surgical interventions and lesions in the lymphatic drainage zone. Skin covers with lymphostasis are pale, cool. Edema resistant, dense, reaches considerable dimensions. The permeability of the veins with lymphostasis is not broken, there is no pain syndrome, there are no enlarged subcutaneous veins.

Anaerobic phlegmon occurs when anaerobic microorganisms penetrate, due to penetrating soft tissue injuries. Anaerobic phlegmon is characterized by a significant and rapidly progressive swelling of the tissues, the skin becomes brownish-yellow, cyanotic. Assuming the presence of anaerobic phlegmon allows a rapid onset, a strong tearing pain in the limb. The general condition of the patient deteriorates sharply due to intoxication. Patients are nervous, restless, subsequently become apathetic, fall into oblivion. Quickly develops toxic hemolytic anemia. The diagnosis is made on the basis of the rapidly progressive deterioration of the state, severe intoxication, the presence of gas in the tissues, the rapidly increasing edema of the limb and the results of ultrasound and bacteriological studies.

Acute arterial obstruction. The edema of the limb with its ischemia is observed in the late stages. In contrast to DVT, edema with subfascial ischemia. Acute ischemia begins with severe pain, accompanied by loss of sensitivity, cold extremity. Subcutaneous veins are collapsed. Edema of the limb precedes the development of deep paresis. There is no pulsation on the arteries of the affected limb. Muscular contracture and gangrene of the limb are developing rapidly.

The syndrome of prolonged tissue crushing - is ischemic necrosis of the muscles with the subsequent development of acute renal and hepatic insufficiency. The appearance of edema is preceded by a prolonged compression of the soft tissues of the limb. The liberated limb is pale and cold at first. Only the toes are cyanotic. Sharply reduced sensitivity. Pulse on peripheral arteries is not determined. The next day the condition of patients progressively worsens due to autointoxication, lethargy, drowsiness alternating with excitation, vomiting, thirst, back pain, jaundice, nonsense occur. A characteristic symptom is oliguria, urine is red, it determines myoglobin. The tissues of the limb are edematic, dense, tense, active movements are absent, deep sensitivity is disturbed.

**Control questions:**

1. List the reasons leading to the development of acute deep phlebothrombosis.

2. Name the main clinical manifestations of acute deep phlebothrombosis.

3. Instrumental research methods used in the diagnosis of deep phlebothrombosis.

4. Indicate diseases with which differential diagnosis of acute deep phlebothrombosis should be carried out.

**Tests for self-control:Answers:**

In acute deep phlebothrombosis at the level of the shin, 2,4,5

symptoms are positive:

1. Samuels

2. Moses

3. Goldflam

4. Homans

5. Lovenberg

The most informative method of instrumental diagnosis of acute deep phlebothrombosis is: 3

1. rheovasography

2. phlebography

3. duplex angioscanning

4. radiography

Differential diagnosis of acute deep phlebothrombosis 2,3,4

 of the extremities should be carried out with:

1. erysipelas of the skin

2. lymphostasis

3. acute violation of the arterial limb rotation

4. syndrome of prolonged crushing of tissues

5. acute radiculitis

For ileofemoralphlebothrombosis is characteristic: 1

1. pronounced edema of the entire limb

2. violation of limb joints

3. increase in the temperature of the skin of the limb

4. coldness of the limb

For deep phlebothrombosis is characteristic: 3

1. decrease skin sensitivity

2. increased skin sensitivity

3. preservation of skin sensitivity

**The theme of lessons: “OBLITERATING ARTERIAL DISEASES OF THE EXTREMITIES”**

**The purpose of the lesson**: to learn at the level of reproduction from memory the etiology and pathogenesis of the disease, classification, clinical signs, methods for collecting anamnesis, examination and evaluation of paraclinical diagnostic methods, differential diagnosis.

**To the lesson student should:**

1. Know the classification and clinical manifestations of obliterating diseases of the extremities. Methods of instrumental diagnostics.

2. Understand the etiology, pathogenesis and clinical manifestations of obliterating diseases of the arteries of the extremities.

3. Be able to correctly collect an anamnesis of the disease. Identify the early signs of disease. Evaluate the data of instrumental research methods.

4. Know the differential diagnosis of obliterating diseases of the arteries of the extremities (obliterating endarteritis, obliterating atherosclerosis, Raynaud's disease, Buerger's disease, acute circulatory disturbance in the limbs).

**Theoretical information**

**Classification**.

Obliterative diseases of the arteries of the extremities include:

1. obliterating endarteritis, 2. obliterating atherosclerosis, 3. Raynaud's disease (angiotrophoneurosis), 4. Burger's disease (migrating thromboangiitis). The following stages of the disease are distinguished from the degree of circulatory disturbance in the limb (A.Pokrovsky): 1 - the stage of compensation of blood circulation; 2а stage - subcompensation of blood circulation; 2b stage - initial decompensation of blood circulation; III stage - decompensation of blood circulation; IY stage - destructive changes in the tissues of the limb.

**Clinical picture.** The clinical picture of diseases is determined by the nature of the damage of the vessels of the extremities and the degree of circulatory disturbance in the region, which is supplied by blood vessels. In the first stage of the disease - functional compensation (spastic form) - the patient can pass more than 1000 m before the appearance of intermittent claudication; 2a - the stage of subcompensation, the intensity of intermittent claudication increases and arises when passing 200 meters; 2b stage - the appearance of intermittent claudication occurs when passing from 50 to 200 meters; Stage 3 - the stage of decompensation. Pain in the limbs appear at rest, intermittent claudication occurs when passing 25-50 meters. 4 stage - the stage of destructive changes. The pains in the limbs become permanent, unbearable.

**Differential diagnostic**

Obliterating endarteritis is more common in men under the age of 40 years. Important etiological factors are chronic intoxication, frostbite of limbs, smoking, stress. Patients with obliterating endarteritis have a youthful appearance. The damage begins with small vessels of the extremities, usually after a nervous overexertion and overwork. At the beginning of the disease there is rapid fatigue, cold extremities, paresthesia. As the disease develops, the pain becomes permanent, trophic disorders appear. For obliterating endarteritis, the following symptoms and tests are characteristic: Oppel-Burger symptom, Krakowski's stiffness symptom, Burdenko's symptom, Samuels, Goldflam, Panchenko.

Instrumental diagnostic methods in the early stages of the disease determine changes in pulsation and volume of blood filling of blood vessels, a decrease in blood filling and a decrease in collateral blood flow are noted on the rheovasogram. Dopplerography determines a sharp decrease in the flotation of blood in the peripheral channel. Angiogram marked obliteration of the distal arteries. The walls of the arteries are smooth, and their lumen gradually narrows. Collateral blood flow is not expressed.

In the anamnesis, patients often suffer from infectious diseases. Characteristic for obliterating endarteritis is the appearance of necrosis with preserved pulsations on the femoral and popliteal arteries of the affected limb.

Obliterating atherosclerosis. It develops at the age of over 40 years. The patients look older than their age. The disease develops slowly because it is associated with a violation of carbohydrate and fat metabolism. The appearance of the disease contributes to injury, cooling the body. Often patients have violations of the coronary and cerebral circulation, they suffer from hypertension, diabetes. There is a constant pallor of the skin of the extremities. The circulation of the distal parts of the limbs remains compensated for a long time. Often Lerish's syndrome is identified, that is a blockage at the level of aortic bifurcation and common iliac arteries. As well as with obliterating endarteritis, ischemic symptoms of Samuels, Goldflem, Panchenko, Burdenko and others are expressed. Obliterating atherosclerosis is characterized by a symptom of "empty veins", expressed in the desolation of venous trunks after lifting the lower limbs. Hypercholesterolemia is noted in the blood of patients.

The rheovasogram shows a decrease in blood flow along the main arteries, while the collateral blood flow is preserved. According to the Dopplerography data, a decrease in the flotation index and a defeat of the vessels by a segmental type are noted. Angiograms reveal a dense deformed aorta, edentulous outlines of the main arteries, often there are areas of calcification of blood vessels. There is often no pulse on the femoral vessels. In the absence of a pulse on the femoral arteries, necrosis areas on the foot do not always occur.

Raynaud's disease (angiotrophoneurosis). As a rule, young women (aged 20 to 30 years) with psychosthenic constitution, or suffering from neurosis suffer from the desease. There is a spasm of arterioles of small caliber, especially in the area of ​​phalanges and fingers of the feet, the tip of the nose, ears. Pulse on the peripheral arteries is preserved, large trunks are not affected. Pain, blanching and coldness of the fingertips appear suddenly, are intense often in conditions of low ambient temperature. In later stages, blanching of the skin is replaced by cyanosis and then trophic disorders develop as zones of dry necrosis in the surface layers of the nail phalanges of the fingers. During the exacerbation the symptom with a cold load and a symptom of Krakowski are expressed.

Buerger's disease (migrating thromboangiitis). The disease occurs in young men after a superficial thrombophlebitis. In the course of superficial veins, compaction areas appear in the region of thrombosed inflamed veins with pronounced soreness in palpation. After the acute inflammation subsides, the same thrombophlebitis zones appear in other regions of the superficial venous limb network. After a while (2-6 months), patients noted coldness of the extremities, pallor of the skin, and then expressed signs of violation of the arterial blood supply are intermittent claudication, positive ischemic symptoms, trophic disorders. The cause of the development of the disease is an autoimmune process with epithelial involvement of peripheral vessels with subsequent thrombus formation in their lumen. The clinic and stages of the disease are similar to manifestations with obliterating endarteritis, however, with migrating thromboangiitis, periods of remission and exacerbation of the process are noted. The disease is progressive and often ends with the development of irreversible tissue trophism and gangrene of the extremities.

Acute disturbance of the circulation of the extremities. It develops suddenly. Preceding: atherosclerosis of vessels, myocardial infarction, heart valve flaws, active phase of rheumatism, slowing blood flow, hypercoagulable syndrome, trauma, inflammatory changes in blood vessels. The cause of acute circulatory disorders are thromboses and embolisms.

With embolisms of large arterial trunks, intense pain extends distally from the lesion. The pulse below the obstacle level is absent. The skin is pale, cold to the touch. The motor function of the limb is broken and all kinds of sensitivity, areflexia. The course is progressive, violent.

With a thrombus formation occurring in the lumen of the vessel in the clinic, a prodromal period is observed: convulsions, paresthesia, numbness in the extremities.

With instrumental research, there is a sharp decrease in blood circulation below the blockade level. On arteriograms, the blockade level is seen as a sharp break in the contrasted main vessel. The collateral arterial bed is not determined.

**Control questions:**

1. Causes leading to the development of obliterating endarteritis and obliterating atherosclerosis.

2. Features of vascular lesions characteristic of obliterating endarteritis, atherosclerosis, Raynaud's disease, Buerger's disease.

3. List the angiographic signs, characteristic for obliterating endarteritis and obliterating atherosclerosis.

4. Indicate the features of the clinical course, characteristic of obliterating endarteritis, obliterating atherosclerosis, Buerger's disease, Raynaud's disease.

**Tests for self-control: Answers:**

 A patient of 30 years complains of the appearance of strong 2

pains in her fingers, pallor of fingers, feeling of paresthesia.

On examination: the skin of the fingers is pale, cyanotic,

cyanosis of the nails. Pulsation on the radial artery is good.

Positive cold sample. Your diagnosis:

1. Obliterating endarteritis

2. Raynaud's disease

3. Obliterating atherosclerosis

4. Burger's disease

The patient is 41 years old. Has been sick for 3 years. 4

Complains of pain in the right foot. Does not sleep because

of pain. Intermittent claudication after 50 m, paresthesia,

freezing of the right foot. On the 1st finger of the right foot

there is a trophic ulcer. Pulsation on the arteries of the foot is not

determined. On the femoral and popliteal arteries, pulsation

is maintained. Your diagnosis:

1. Obliterating atherosclerosis

2. Post-thrombophlebitic disease

3. Burger's disease

4. Obliterating endarteritis

5. Raynaud's disease

The patient is 62 years old. He has been ill for 15 years old. Complaints 3

of pain in the calf muscles when walking. Intermittent claudication

after 100 meters. At night, there is no pain. Trophic disorders on

the limbs are moderately pronounced. The pulse on the femoral

arteries is well defined. Pulse on the popliteal and arteries of the

feet is not determined. Name the stage of obliterating atherosclerosis:

1. 1 stage

2. 2 stage

3. 2b stage

4. 3 stage

5. 4 stage

The patient is 36 years old. Has been sick for 5 years. Complaints of 4

pain in the left lower limb, intermittent claudication. The pain

is permanent. Periodically there is edema of the foot and lower

leg; notes flushing, soreness and tightness along the veins, an

increase in body temperature. On examination the foot and shin

are swollen, the skin is cyanotic-pink in color, along the course of

the subcutaneous veins there are dense strands. There is no pulsation of

the arteries of the foot. Indicate the diagnosis:

1. Obliterating atherosclerosis

2. Obliterating endarteritis

3. Raynaud's disease

4. Burger's disease

5. Acute superficial thrombophlebitis

**The theme of lessons: “THROMBOSIS AND EMBOLISM OF THE PERIPHERAL ARTERIES OF THE EXTREMITIES”**

**The purpose of the lesson**: to learn etiopathogenesis, clinic, diagnosis and differential diagnosis of thrombosis and embolism of the vessels of the extremities at the level of reproduction from memory.

**To the lesson student should:**

1. Know the clinical manifestations of acute circulatory disorders of the limbs, the classification of the degree of circulatory disorders, the methods of diagnosing acute circulatory disorders in the limbs.

2. Understand the etiology, the pathogenesis of thromboses and emboli, the mechanisms of coagulating and anti-convolving blood systems and their regulation.

3. Be able to correctly collect an anamnesis of the disease, to reveal early signs of acute circulatory disturbance, to evaluate the data of instrumental research methods.

**Theoretical information**

Thrombosis and embolism lead to the development of acute arterial obstruction and tissue ischemia in the circulatory region of the clogged vessel. Embolisms and thrombosescan cannot be considered independent diseases, they are always a consequence of embolo- and thrombogenic diseases.

Thrombosis of the arteries is characterized by the lifetime formation of thrombotic masses in the lumen of the vessel due to disruption of the integrity of the vascular wall, slowing of blood flow or changes in the hemostasis system. A high incidence of thrombosis is noted in people suffering from obliterating arterial diseases, diabetes mellitus, traumatic limb injuries, and vascular compression. Often thromboses develop after diagnostic and therapeutic manipulations and operations on vessels. Thrombosis can occur against the background of some infectious and hematological diseases.

Embolism is a blockage of the arteries by an embolus (more often organic nature) that is entered in the artery from other regions of the bloodstream. In the vast majority of the causes of embolism are heart diseases (myocardial infarction, aortic aneurysm, heart defects, etc.). The sources of emboli may be aneurysms of the abdominal aorta, aortic atheromatosis. Almost all patients with embolic diseases have a rhythm disturbance (ciliary arrhythmia). Factors affecting embolism are the meteorological tolerance of patients, magnetic disturbances in nature.

Most often embolism occurs in the lower limbs and aorta. More often than others, the femoral artery is clogged, then iliac, humeral, Combined embolisms occur in 10-12% of cases. Repeated embolisms develop in 7.5-8% of cases.

The place of fixation of emboli in the arteries of the extremities depends on numerous factors, among which are the following: the size of the arteries and the features of the circulation in the region of the lesion.

Thrombotic occlusion or embolization of the lumen of the arteries of the extremities can end in the final result either with severe acute ischemia and, respectively, gangrene limb, partial or complete reversibility of acute circulatory disturbance. Moreover, acute embolic arterial blockage is caused not only by fixing the embolus in the arterial trunk, but also by other factors: arterial spasm, secondary progressive thrombosis.

**Classification** of acute limb ischemia: 1. tension ischemia (IN) - the appearance of signs of ischemia with exercise; 2. I A - the appearance of a feeling of numbness, cold snap, parasthesia; 3. I B - permanent pain in the limb; 4. II A - appearance of the paresis; 5. II B - the appearance of plethysy; 6. III A - subfascial edema is noted; 7. III B - partial fractional contracture arises; 8. III B - total contracture.

**Clinical picture**. Clinical manifestations of acute circulatory disorders in thrombosis and embolism are pains in the affected limb, a violation of sensitivity in varying degrees of manifestation, motor disorders. When examining patients revealed: blanching and cooling of the cutaneous integument of the limb, the absence of pulsation of the vessels distal to the level of lesion, the westernization of superficial veins. With the progression of ischemia, the appearance of contracture and the development of subfascial edema are noted. The general condition of the patient also suffers - it progressively worsens.

The acute embolic arterial occlusion is characterized by a sharp onset of the process against embologenic disease. For thrombosis, which develops against a background of chronic disease, latent ischemia is characterized with possible progression or, with a favorable course, regression of ischemia.

Acute thrombotic occlusion is more common in people older than 50 years who suffer from chronic obliterating lesions of the arteries of the extremities. Among the modern diagnostic methods, the most informative are Doplerography, duplex scanning with color mapping of the degree and nature of the disturbed blood flow, and angiographic examination in the region of lesion. To diagnose embolic and thrombogenic diseases, ECG, phonocardiography, radiography, blood coagulation, biochemical blood testing, etc. are used.

The volume and methods of conservative and operative treatment of a particular patient are determined depending on the degree of circulatory disturbance and the nature of background and associated diseases.

**Differential diagnostics**

Often acute thrombosis and embolism of the arteries of the lower extremities must be differentiated with acute ileal-femoral venous thrombosis.

The onset of the disease is similar in sharpness to the pattern of acute arterial circulation, the sudden appearance of pain in the limb, followed by numbness of the limb, the skin becomes pale, cyanotic. A picture of flaccid paralysis may develop with loss of sensitivity and movement. The main differential diagnosis of this disease is swelling of the extremity, which reaches the inguinal fold, which is never observed with thrombosis and embolism. The consistency of the edema is softer. With embolism edema is always dense and subfascial.

With phlebothrombosis, hyperthermia of the skin of the limb is noted. Pulsation of the arteries is determined throughout the entire limb. The most informative method of differential diagnosis is the doplerogram of the vascular bed and angiography.

Along with vascular diseases, acute arterial obstruction should be differentiated from the pathology of the central and peripheral nervous system. In particular, transverse myelitis. The disease is characterized by the development within 1-2 hours of flaccid paralysis of the lower limbs, accompanied by a loss of sensitivity. The correct diagnosis allows you to establish an anamnesis and study of pulsations of the arteries.

**Control questions**

1. Name thrombogenic diseases which are the cause of acute thrombosis of peripheral arteries.

2. List the embologogenic diseases that cause the embolism of the peripheral arteries of the limbs.

3. Name the clinical signs of acute arterial circulatory disorders of the extremities.

4. The main methods of diagnosis of acute violations of the arterial blood circulation of the extremities.

**Tests for self-control: Answers:**

A patient of 35 years old suffers from rheumatism for 20 years, 2

and atrial fibrillation appears periodically. Among the relative

well-being, the patient suddenly had severe pain in the right hand,

a feeling of numbness in it, loss of sensation. The patient could

not raise her hand by herself. On examination, the hand is deadly

pale, there is no swelling. Pulsation of the cumulative and peripheral

arteries is not determined. The introduction of spasmolytic effect was

not given. Your diagnosis:

1. Acute thrombosis of the arteries of the right upper limb

2. Embolism of the arteries of the right upper limb

3. Acute right-sided plexitis

4. Rheumatoid polyarthritis, exacerbation.

The patient was 60 years old

when she was receiving treatment in the cardiology 2

department for hypertension, IHD. Suddenly, she had severe

pain in her left lower limb. Movement in the ankle and toes

became difficult. The pain grew. Skin pale with a cyanotic

shade. Pulsation on the popliteal artery and arteries of the tibia

was not determined. Your diagnosis:

1. acute deep phlebothrombosis

2. acute embolism of the arteries of the left lower limb

3. acute thrombosis of the arteries of the left lower limb

4. acute cerebrovascular accident - hemiparesis.

The patient, 58 years, never applied for medical help before. 2

After doing hard physical work in the garden, he felt a strong

pain in his right foot, numbness in it, loss of support function.

On examination, the skin is pale. Movement in the joints is limited.

Pulse on the arteries of the limb is not determined. Your diagnosis:

1. acute thrombosis of the arteries of the limb

2. acute embolism of the arteries of the limb

3. acute deep phlebothrombosis of the limb

4. acute right-sided radiculitis

Patient 49 years old. He suffers from obliterating atherosclerosis 1

of the arteries of the lower extremities for 7 years. Regularly receives treatment

 in the hospital. After drinking alcohol, there was an increasing pain

in the left leg, a cold extremity, paresthesia. On examination, the skin

 of the left leg is pale. Movement in the foot is limited, skin, pain

sensitivity to the lower third of the thigh is broken. The pulse on the

femoral artery is weakened, systolic murmur. The pulse on the peripheral

 arteries of the limb is not determined. Your diagnosis:

1. Acute thrombosis of the arteries of the extremities

2. Acute embolism of the arteries of the limb

3. Acute deep phlebothrombosis

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